

# TOWN OF UXBRIDGE, MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS IRONSTONE ROAD BRIDGE PRESERVATION MAY 2022

BOARD OF SELECTMEN

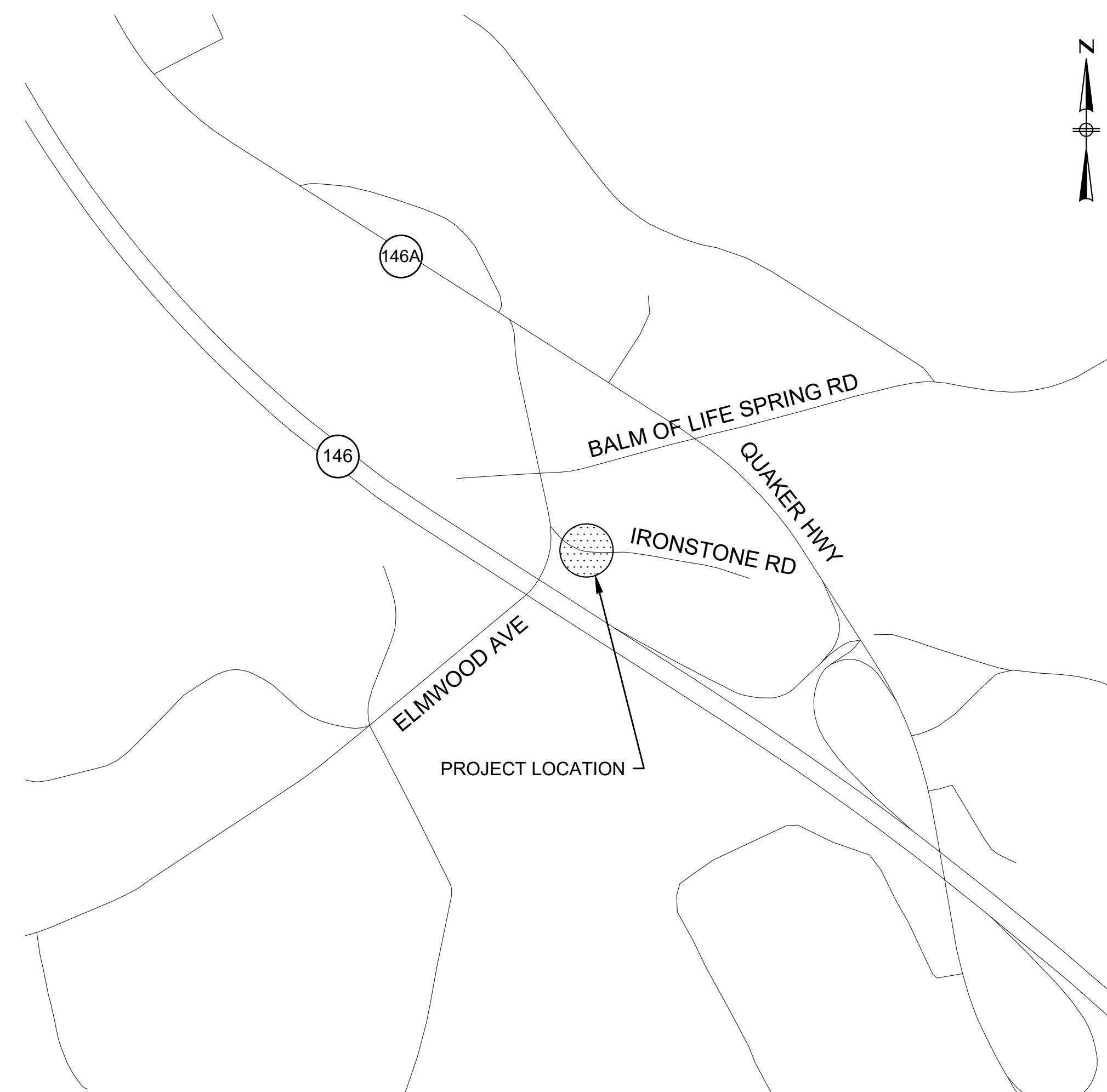
BRIAN BUTLER  
JEFF SHAW  
STEPHEN MANDILE  
SUSAN FRANZ  
BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, P.E., DIRECTOR  
PAUL HUTNUK, P.E., CIVIL ENGINEER



**LOCATION MAP**  
SCALE: 1" = 500'

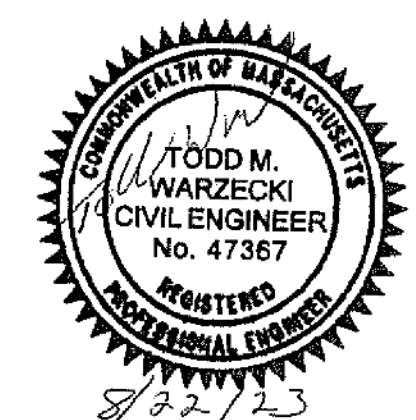
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PREPARED BY:



ISSUE DATE: APRIL 5, 2022



REGISTERED PROFESSIONAL \_\_\_\_\_ DATE \_\_\_\_\_

# LEGEND

## GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		SIGN
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND w/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

# ABBREVIATIONS

## GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
B	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

## TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-	STEADY RED RIGHT ARROW
Y-	STEADY AMBER RIGHT ARROW
G-	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

## UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

## TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

## PAVEMENT MARKINGS AND SIGNING SYMBOLS

### PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4" BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWG	SOLID WHITE GORE LINE 12" @ 33", (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLEX	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEX	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33", (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
SCHOOL	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

8/22/2023 2:11 PM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET\_IRONSTONE\7545\_SRI\LEGEND\_IRONSTONE.DWG (BETA STB BW) (STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	SD
DESIGNED BY:	BB
CHECKED BY:	TW



REGISTERED PROFESSIONAL
PREPARED BY
SUBCONSULTANT

SCALE	NONE
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TITLE	<b>Ironstone Road Bridge Improvements Uxbridge, Massachusetts</b> LEGEND AND ABBREVIATIONS
BRIDGE NO.	U-02-069

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	2

**HIGHWAY GUARD DETAILS**

TRANSITION TO NCHRP 350 GUARDRAIL STA 0+38.5 TO 0+72 LT  
 TRANSITION TO THRIE BEAM STA 0+72 TO 0+78 LT  
 BRIDGE THRIE BEAM GUARDRAIL 0+78 TO 1+17 LT  
 TRANSITION TO THRIE BEAM STA 1+17 TO 1+23 LT  
 GUARDRAIL - TL-2 (SINGLE FACED) 1+23 TO 1+42.5 LT  
 GUARDRAIL TANGENT END TREATMENT, TL-2 STA 1+42.5 TO 1+67.5 LT

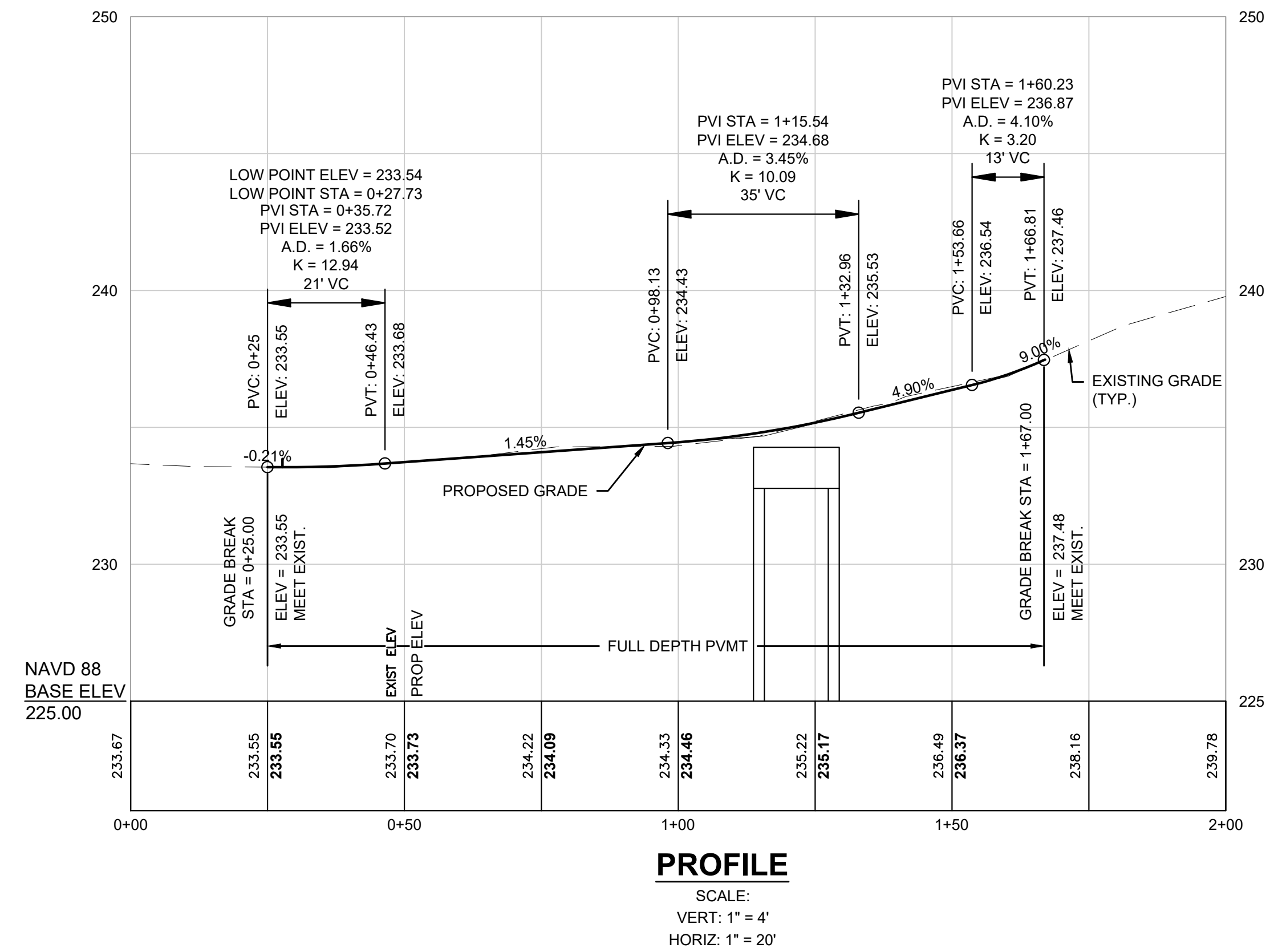
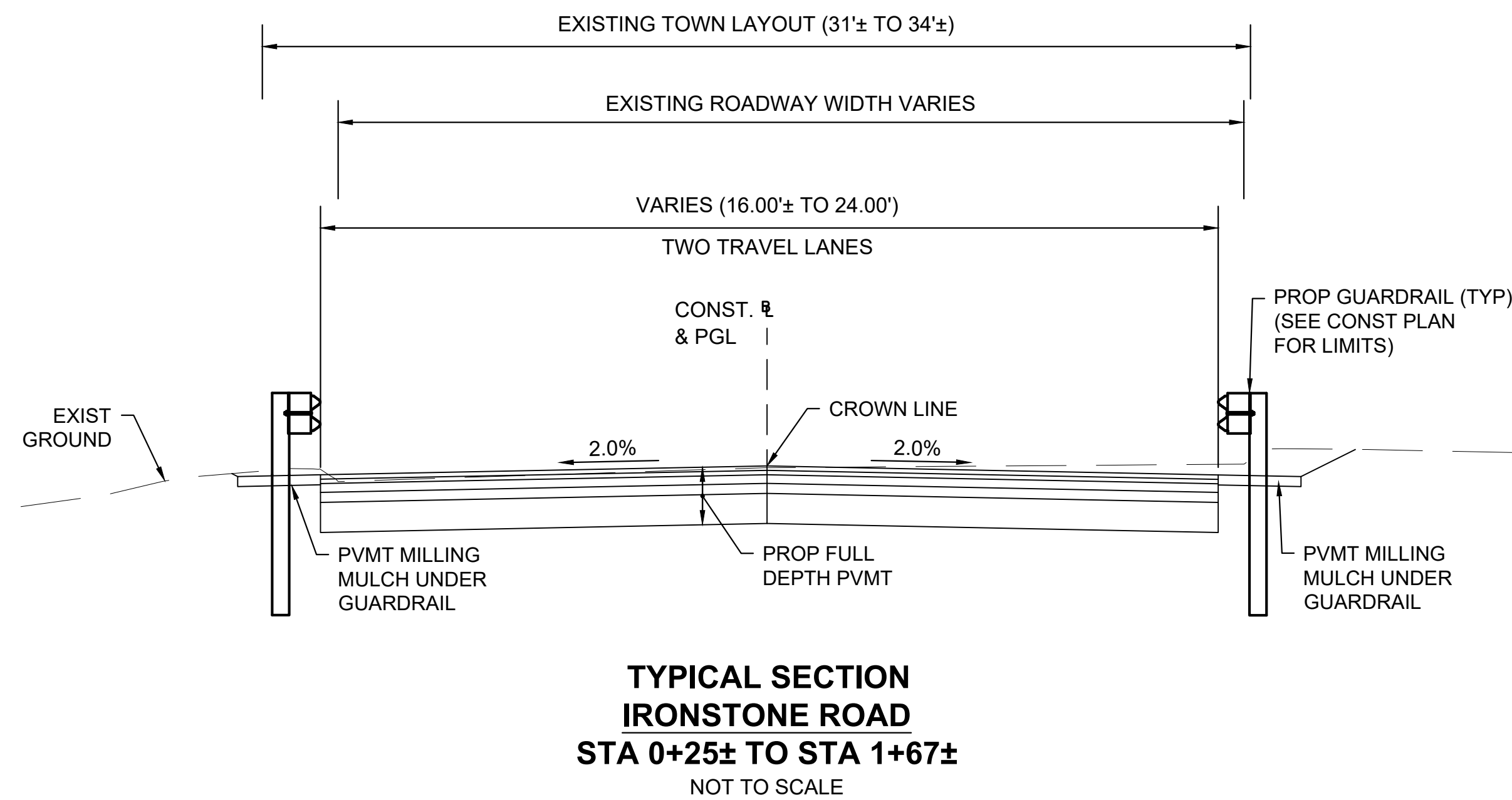
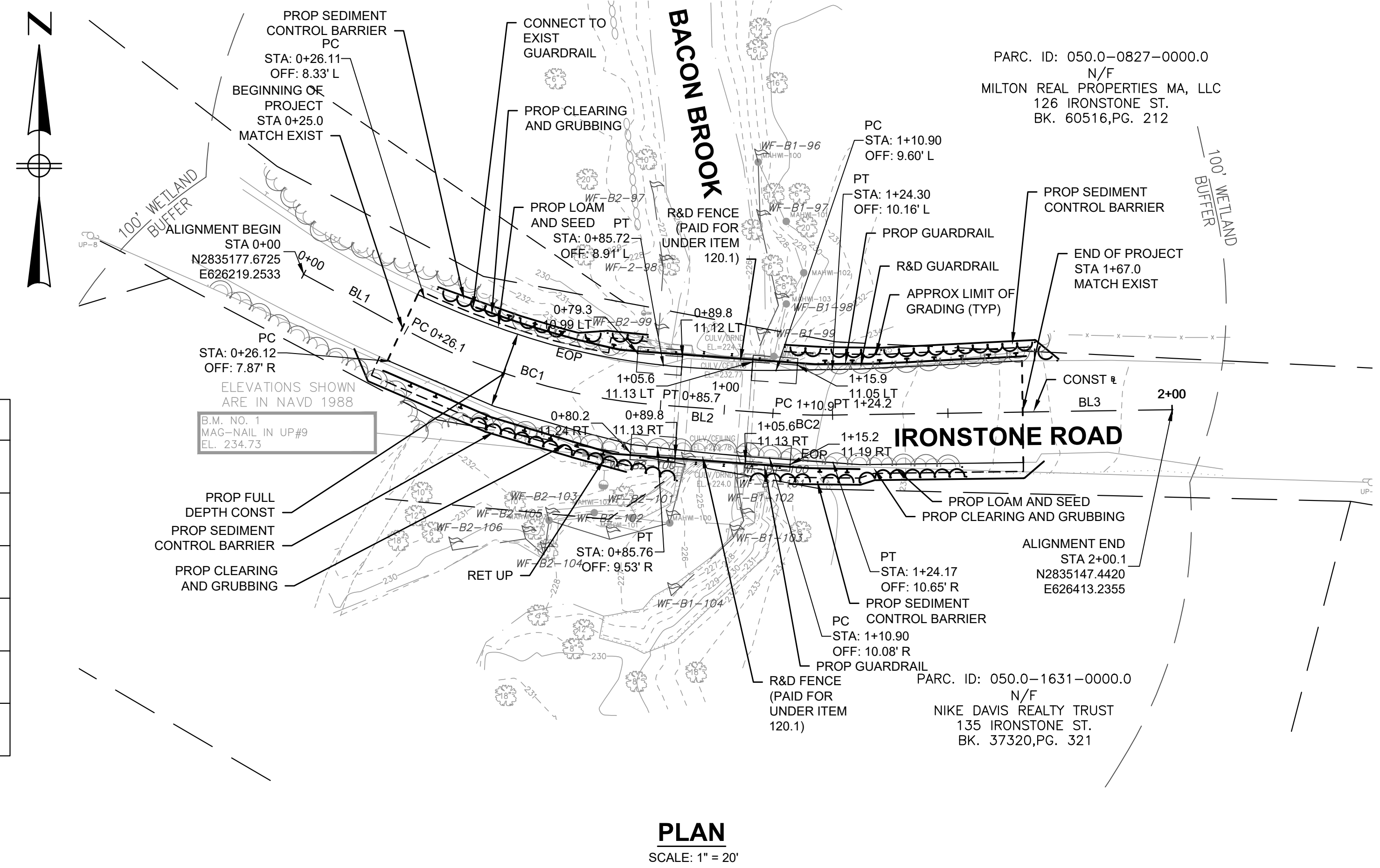
GUARDRAIL TANGENT END TREATMENT, TL-2 STA 0+25 TO 0+50 RT  
 GUARDRAIL - TL-2 (SINGLE FACED) 0+50 TO 0+73 RT  
 TRANSITION TO THRIE BEAM STA 0+73 TO 0+79 RT  
 BRIDGE THRIE BEAM GUARDRAIL STA 0+79 TO 1+16 RT  
 TRANSITION TO THRIE BEAM STA 1+16 TO 1+22 RT  
 TRAILING ANCHORAGE STA 1+22 TO 1+30 RT

**PAVEMENT NOTES**

**FULL DEPTH PAVEMENT**  
 SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 INTERMEDIATE COURSE: 1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 BASE COURSE: 3-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER  
 SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW TYPE b (M1.03.01)

**PROJECT TACK COAT NOTES**  
 TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1 SHALL BE PLACED AT A RATE OF:  
 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES  
 0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE BASE COURSE  
 0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT PAVEMENTS  
 PRIOR TO PAVING AN OVERLAY

IRONSTONE ROAD CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BL1	0+00.00	2835177.6725	626219.2533		S61°24'17"E 26.11'	0+26.11	2835165.1750	626242.1799
BC1	0+26.11	2835165.1750	626242.1799	R = 140.00' Δ = 24°24'07" L = 59.63' T = 30.27'		0+85.74	2835148.4728	626298.9494
BL3	0+85.74	2835148.4728	626298.9494		S85°48'24"E 25.16'	1+10.90	2835146.6327	626324.0456
BC2	1+10.90	2835146.6327	626324.0456	R = 150.00' Δ = 5°05'38" L = 13.34' T = 6.67'		1+24.24	2835146.2497	626337.3715
BL2	1+24.24	2835146.2497	626337.3715		N89°05'58"E 75.87'	2+00.11	2835147.4420	626413.2355



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 CHECKED BY: TW



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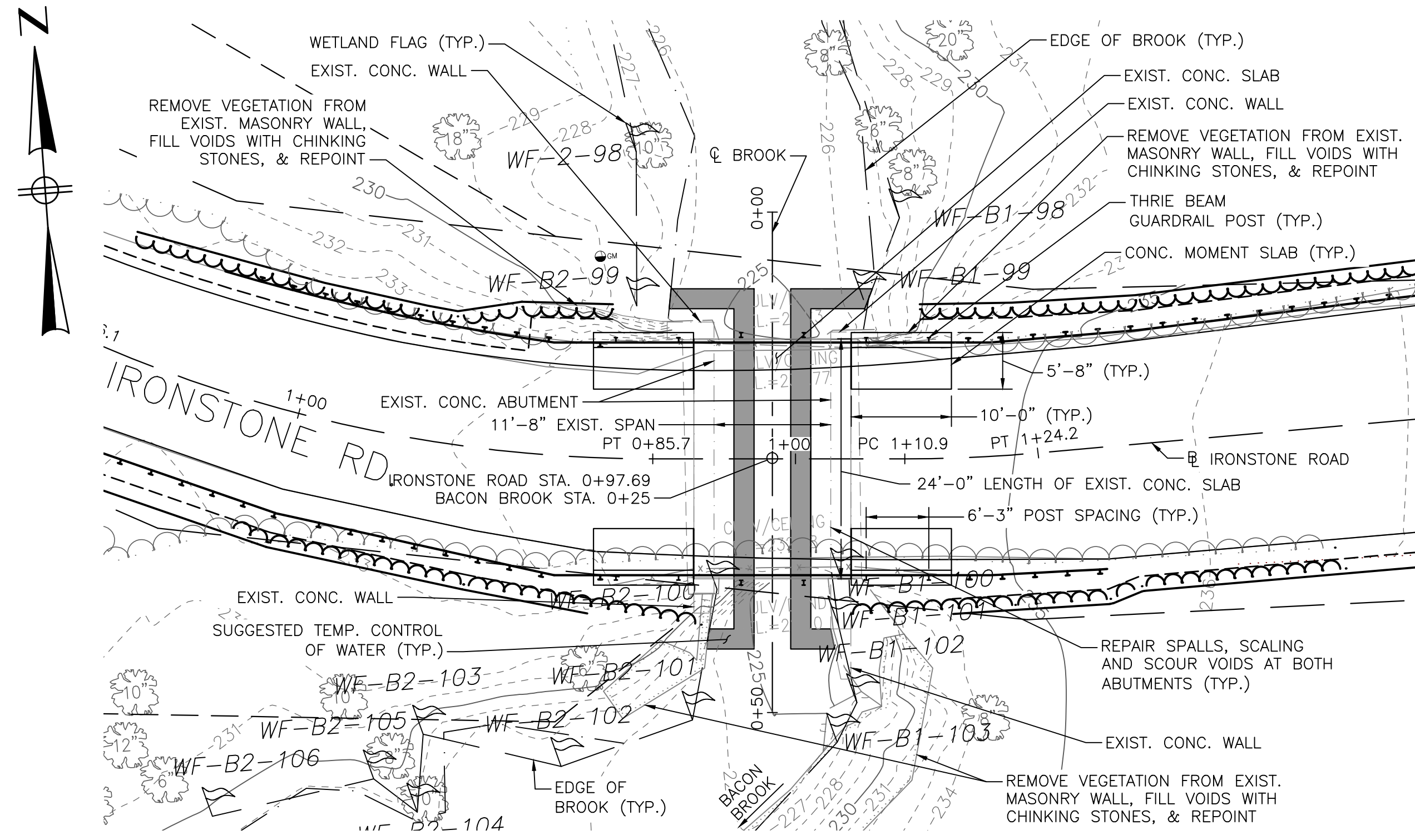
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**Ironstone Road Bridge Improvements Uxbridge, Massachusetts**  
**CONSTRUCTION PLAN AND PROFILE**  
 BRIDGE NO. U-02-069

BETA JOB NO. 7545  
 ISSUE DATE: \_\_\_\_\_  
 SHEET NO. 3

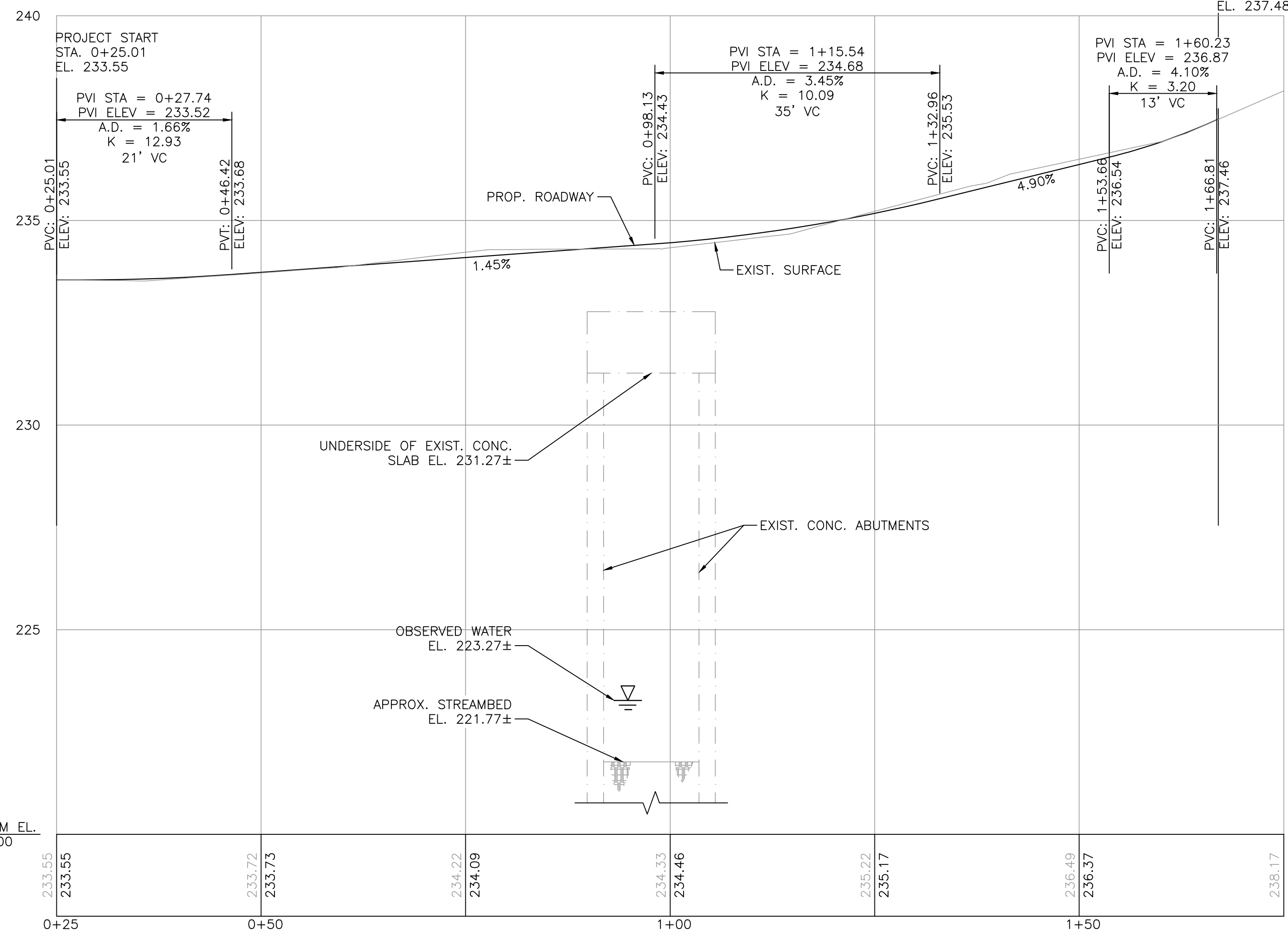


**IRONSTONE ROAD CURVE DATA**  
SEE SHEET 3 FOR HORIZONTAL CURVE DATA

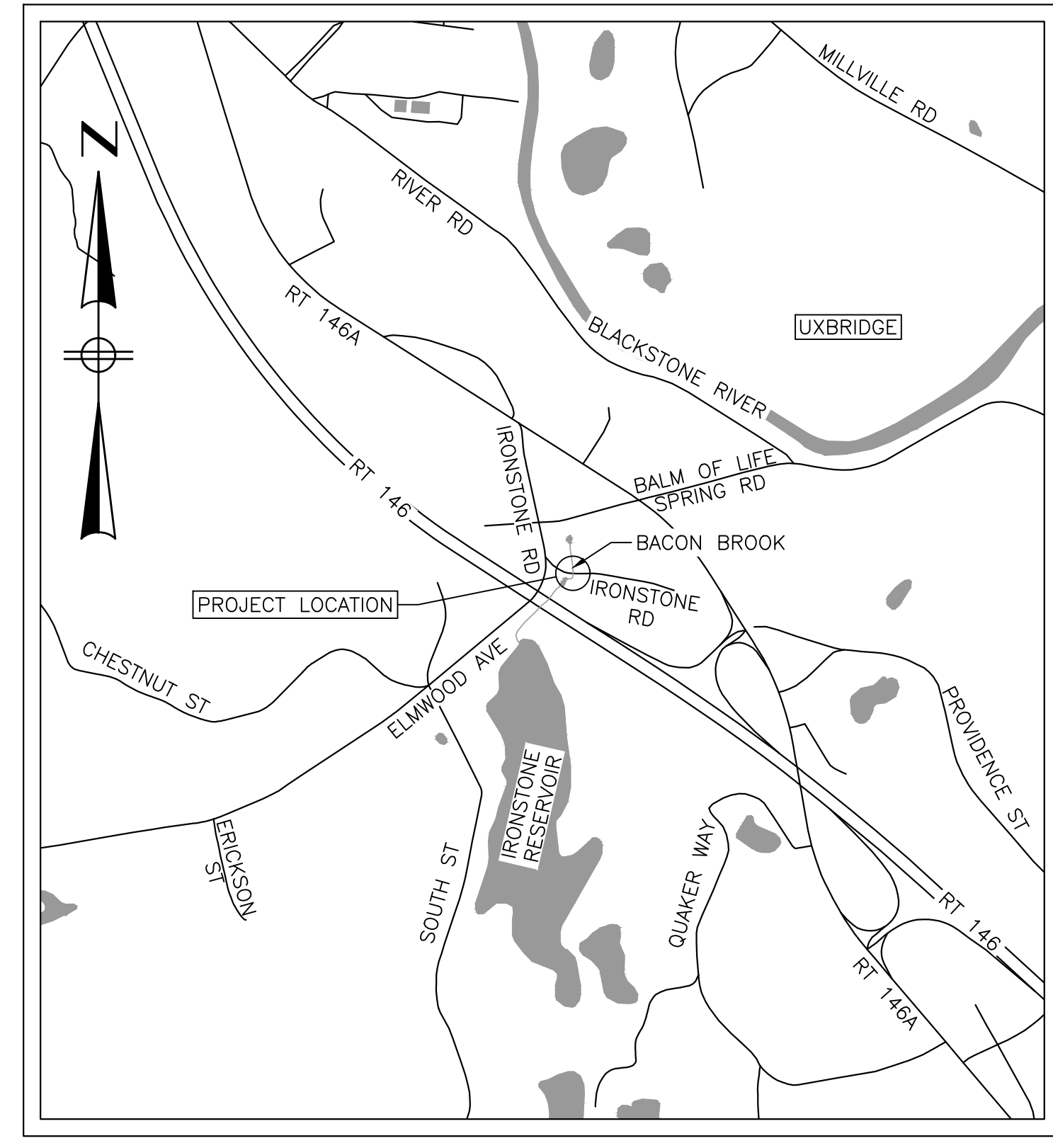


**KEY PLAN**  
SCALE: 1/8" = 1'-0"

PROJECT END  
STA. 1+67.00  
EL. 237.48

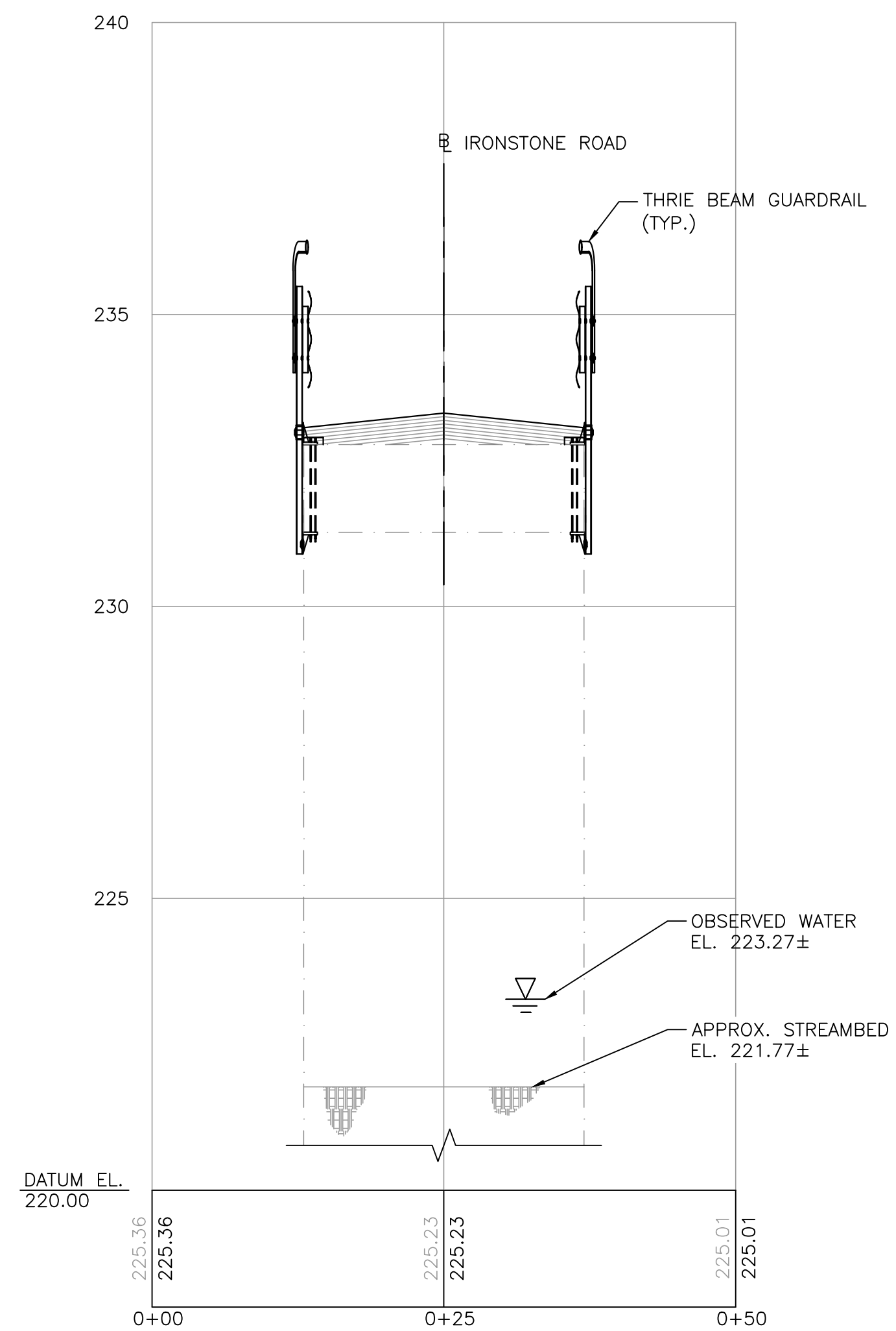


**IRONSTONE ROAD PROFILE**  
HORIZONTAL SCALE: 1/8" = 1'-0"  
VERTICAL SCALE: 1/8" = 1'-0"



**LOCUS**

SCALE: 1" = 1000'



**BACON BROOK PROFILE**  
HORIZONTAL SCALE: 1/8" = 1'-0"  
VERTICAL SCALE: 1/8" = 1'-0"

GENERAL NOTES	
PROJECT FILE NO.:	NA
PROJECT DESCRIPTION:	PROPOSED BRIDGE PRESERVATION
BRIDGE DESIGN LOADING:	N/A
SURVEY:	GOLDSMITH, PREST & RINGWALL, INC.
ELEVATION REFERENCE:	NAVD OF 1988

BENCHMARK: MAG-NAIL  
LOCATION: UP#9  
NORTHING: 34021644.55  
EASTING: 7515439.82  
ELEVATION: 234.73'

**HYDRAULIC DESIGN DATA**  
DRAINAGE AREA: 5.80 SQUARE MILES  
DESIGN FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND  
DESIGN FLOOD FREQUENCY: UNK YEARS  
DESIGN FLOOD VELOCITY: UNK FEET PER SECOND  
DESIGN FLOOD ELEVATION: UNK FEET, NAVD

**BASE (100-YEAR) FLOOD DATA**  
BASE FLOOD DISCHARGE: UNK CUBIC FEET PER SECOND  
BASE FLOOD ELEVATION: UNK FEET, NAVD

**DESIGN AND CHECK SCOUR DATA**  
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY: 25 YEARS  
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY: 50 YEARS  
FLOOD OF RECORD  
DISCHARGE: UNKNOWN CUBIC FEET PER SECOND  
FREQUENCY (IF KNOWN): UNKNOWN YEARS  
MAXIMUM ELEVATION: UNKNOWN FEET, NAVD  
DATE: UNKNOWN MONTH, YEAR

HISTORY OF ICE FLOES: UNKNOWN  
EVIDENCE OF SCOUR AND EROSION: UNKNOWN

**GENERAL:**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING, COORDINATING, AND VERIFYING ALL DIMENSIONS.

THE CONTRACTOR SHALL COORDINATE ALL EXISTING UTILITY LOCATIONS.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES-2022 EDITION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

FOR DIMENSIONS AND DETAILS NOT SHOWN, REFER TO HIGHWAY DRAWINGS.

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

**FOUNDATIONS:**  
FOOTING SHALL BE FOUNDED ON ONE FOOT OF COMPACTED GRAVEL BORROW. THE ELEVATION OF FOOTING SHALL BE SUCH THAT IT DOES NOT FALL WITHIN A ONE VERTICAL TO TWO HORIZONTAL SLOPE FROM THE BASE OF ANY ADJACENT FOOTING OR UTILITY.

NO BACKFILL SHALL BE PLACED AGAINST WALL OR MOMENT SLAB UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AND DEWATERING AS NECESSARY DURING EXCAVATION TO MAINTAIN THE INTEGRITY OF EXISTING STRUCTURES, ACTIVE UTILITIES, AND STREETS.

**REINFORCEMENT:**  
ALL REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

**CONCRETE:**  
UNLESS NOTED OTHERWISE, CONCRETE SHALL BE AS FOLLOWS:

MOMENT SLAB & COPING: 5000 PSI - 3/4" - 685 LB/CY HP  
REPAIR CONCRETE: 4000 PSI - 3/8" - 660 LB/CY CEMENT

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

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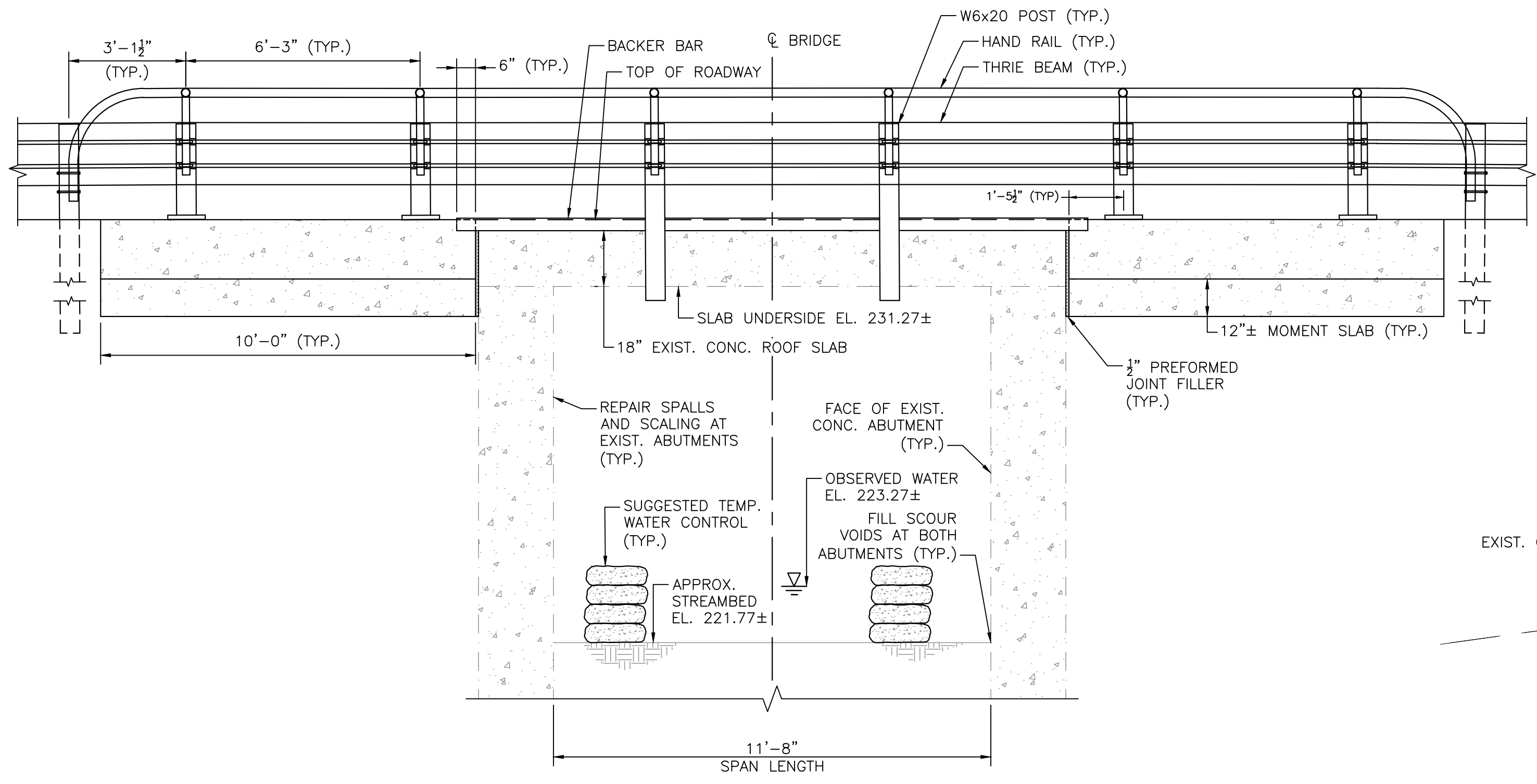
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TITLE  
**Ironstone Road Bridge Improvements**  
**Uxbridge, Massachusetts**  
**BRIDGE COVER SHEET**

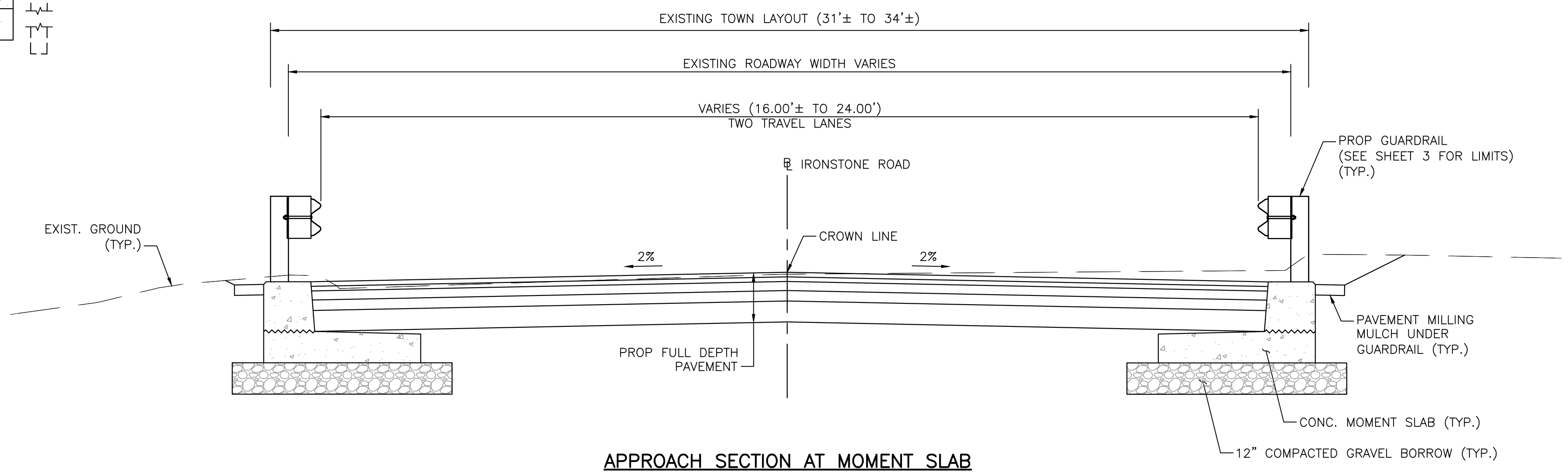
BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. 1  
Sheet 5 of 11 Bridge No. U-02-069 (C4C)

BRIDGE NO. U-02-069

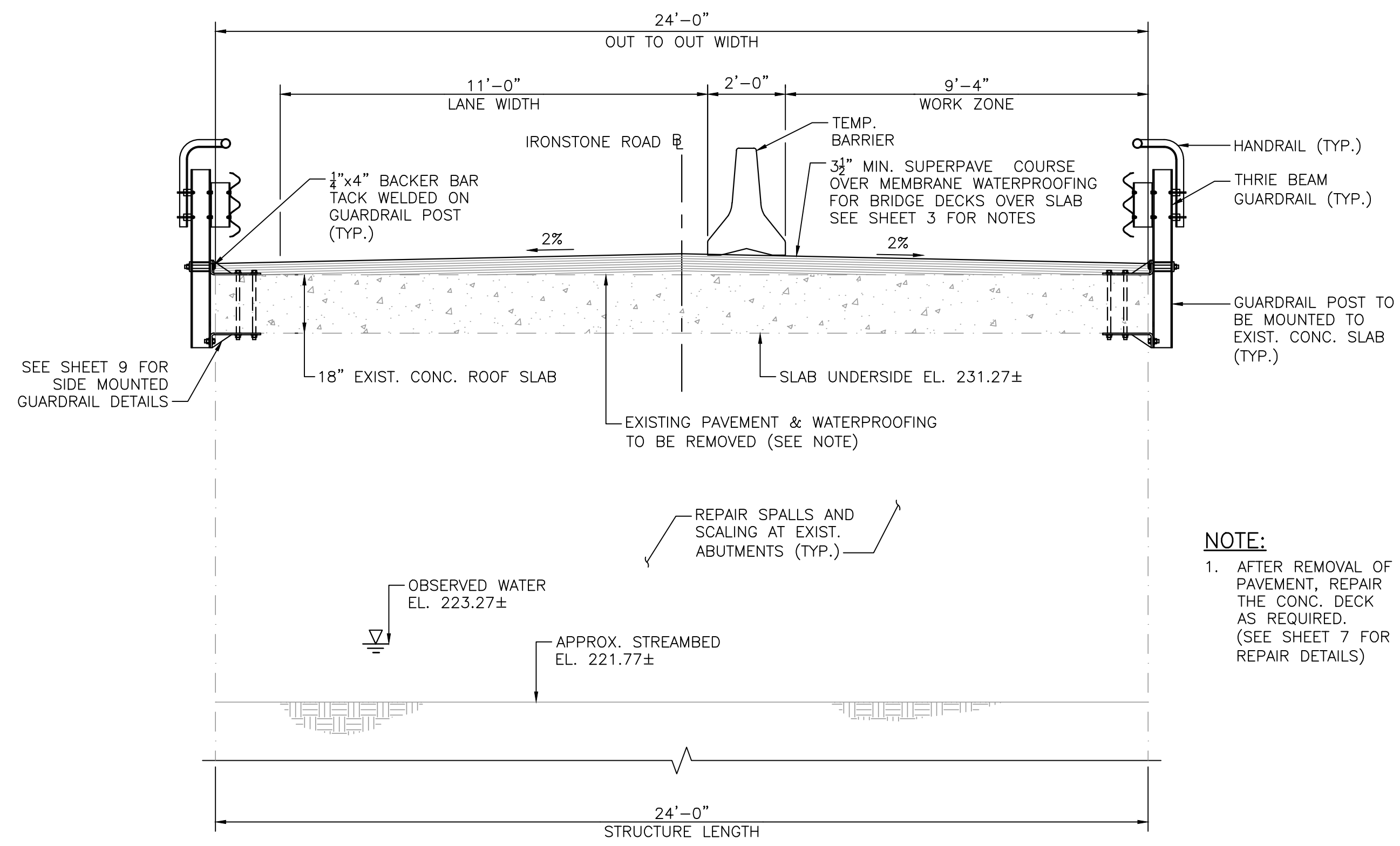
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION



**NORTH BRIDGE ELEVATION, LOOKING SOUTH**  
SCALE: 3/8" = 1'-0"

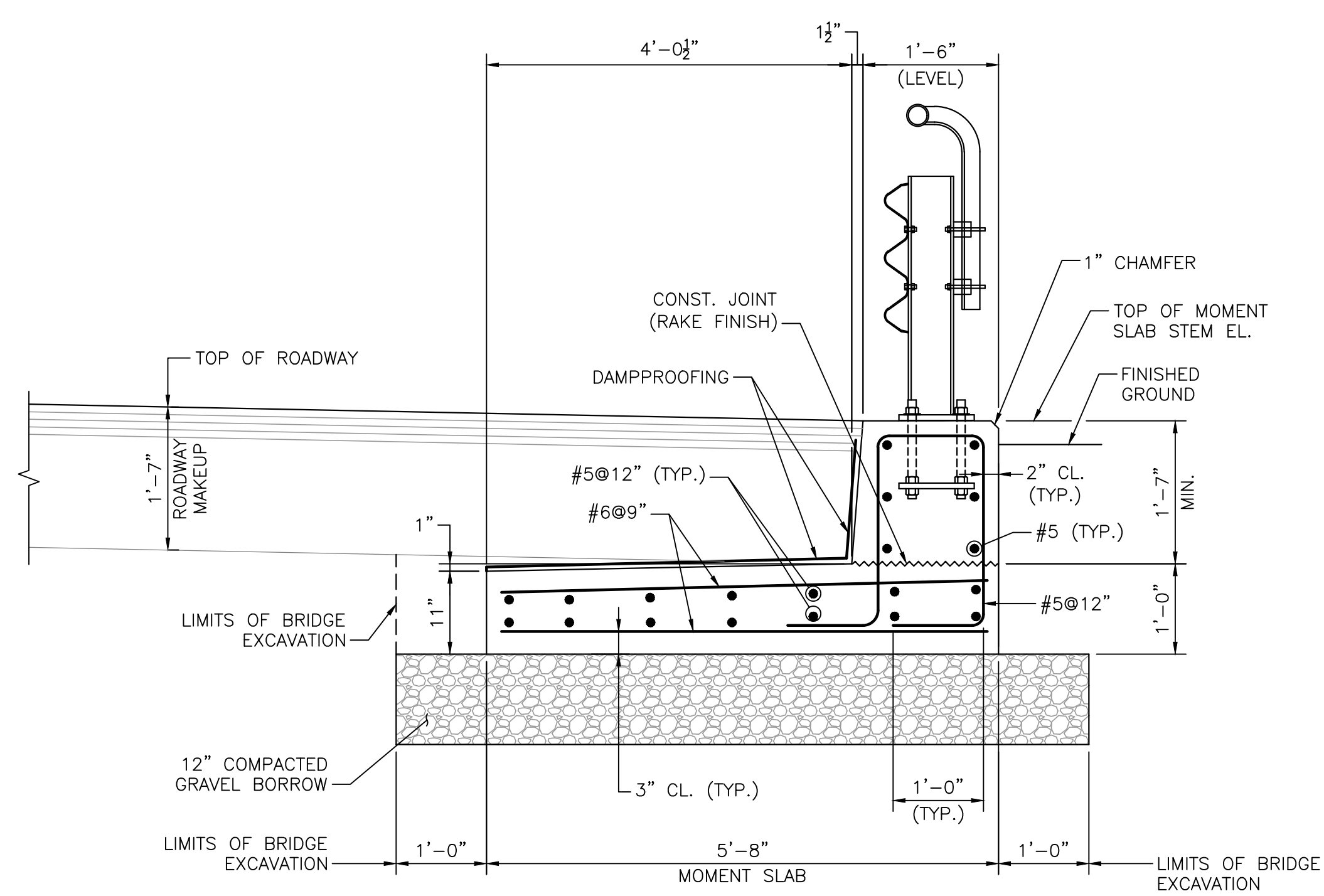


**APPROACH SECTION AT MOMENT SLAB**  
NOT TO SCALE



**TRANSVERSE BRIDGE SECTION**  
SCALE: 3/8" = 1'-0"

**NOTE:**  
1. AFTER REMOVAL OF PAVEMENT, REPAIR THE CONC. DECK AS REQUIRED. (SEE SHEET 7 FOR REPAIR DETAILS)



**NOTE:**  
ALL CONCRETE SHALL BE 5000 PSI, 3/4" IN, 685 HP CEMENT CONCRETE.

**MOMENT SLAB SECTION**  
SCALE: 3/4" = 1'-0"

TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	STATION	ELEVATION
NORTHWEST	0+79.3	233.94
	0+89.8	234.09
NORTHEAST	1+05.6	234.34
	1+15.9	234.62
SOUTHWEST	0+80.2	233.95
	0+89.8	234.09
SOUTHEAST	1+05.6	234.34
	1+15.2	234.60

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

8/23/2023 11:29 AM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT DRAWING FILES\PLANS\SET17546\_SRI\STRUCTURAL\DETAILS\DWG (BETA STB BW) (STB)

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SCALE  
AS SHOWN

TITLE  
**Ironstone Road Bridge Improvements**  
**Uxbridge, Massachusetts**  
**STRUCTURAL DETAILS**

BETA JOB NO. 7545

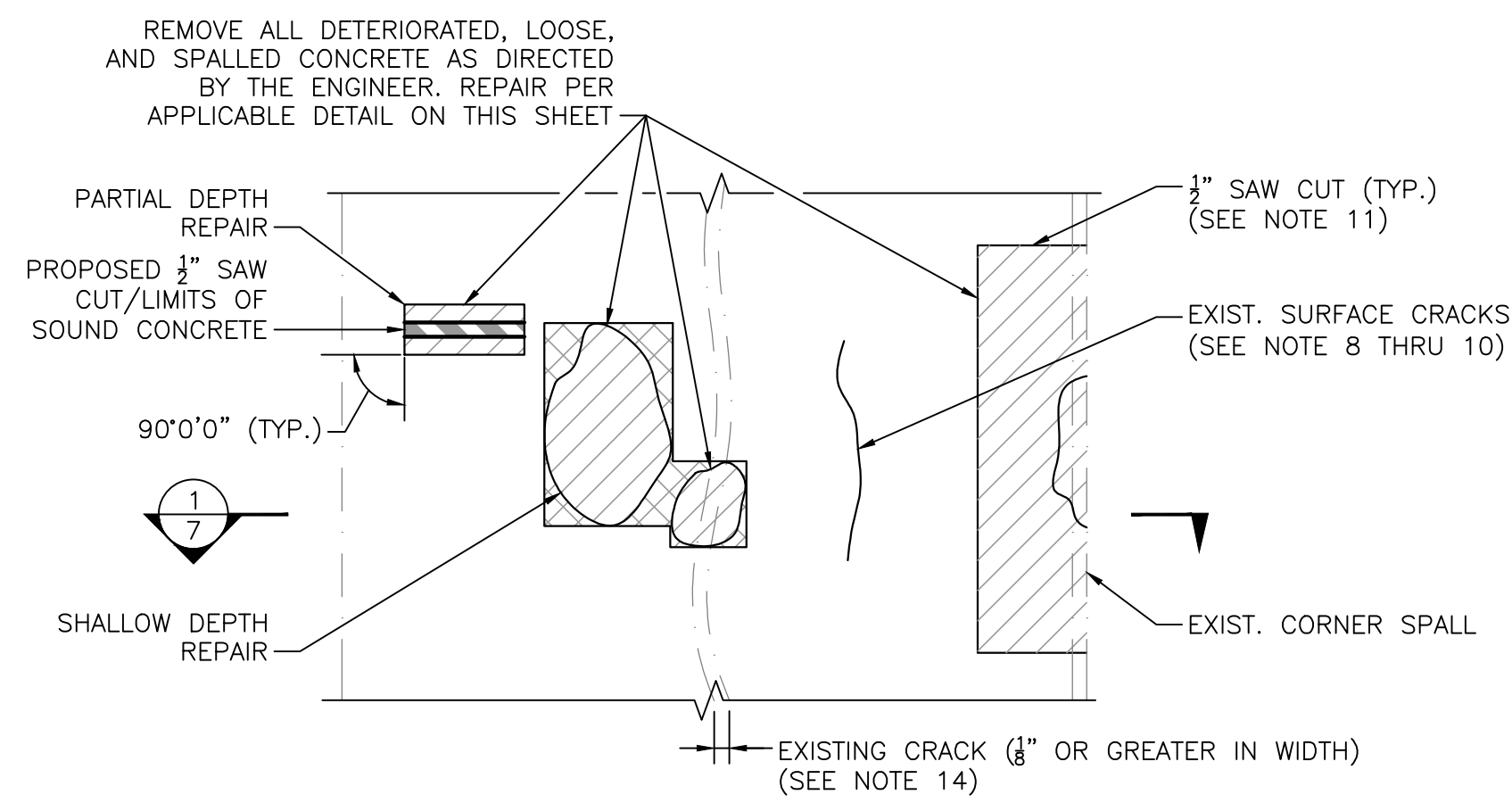
ISSUE DATE \_\_\_\_\_

SHEET NO. **2**

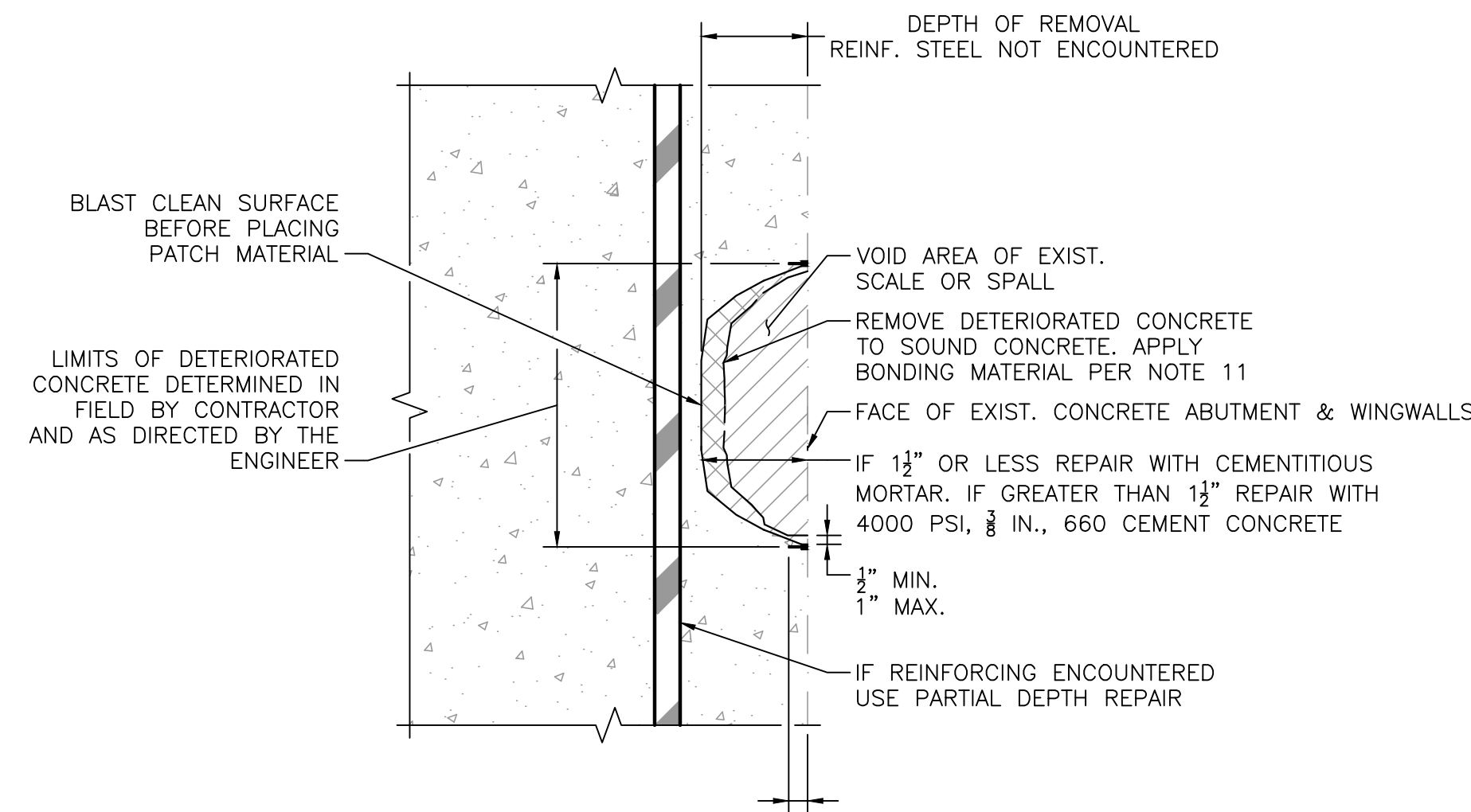
Sheet 6 of 11 Bridge No. U-02-069 (C4C)

BRIDGE NO. U-02-069

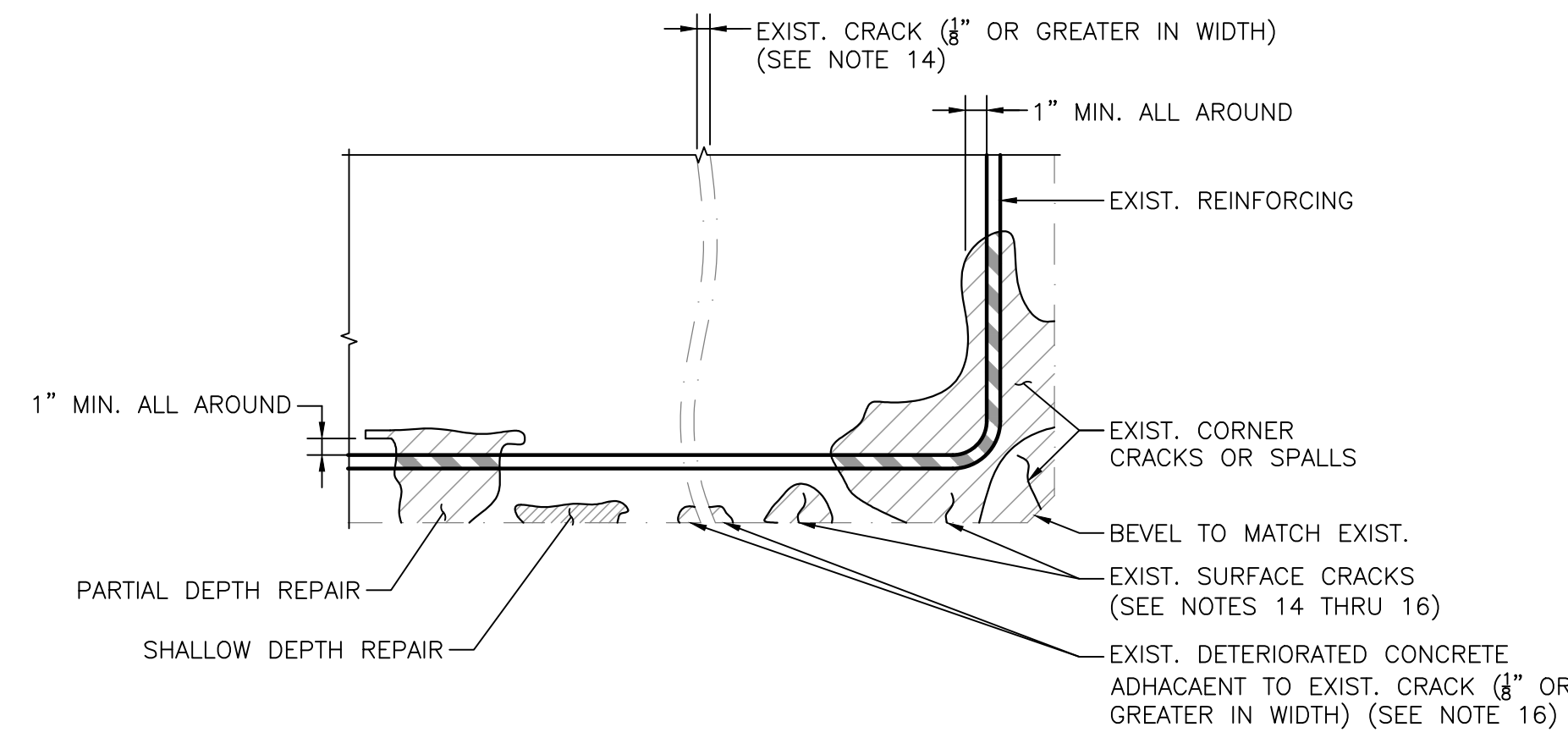
8/23/2023 11:29 AM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SRI(CONCRETPAIRDETAILS).DWG (BETA STB BIV STB)



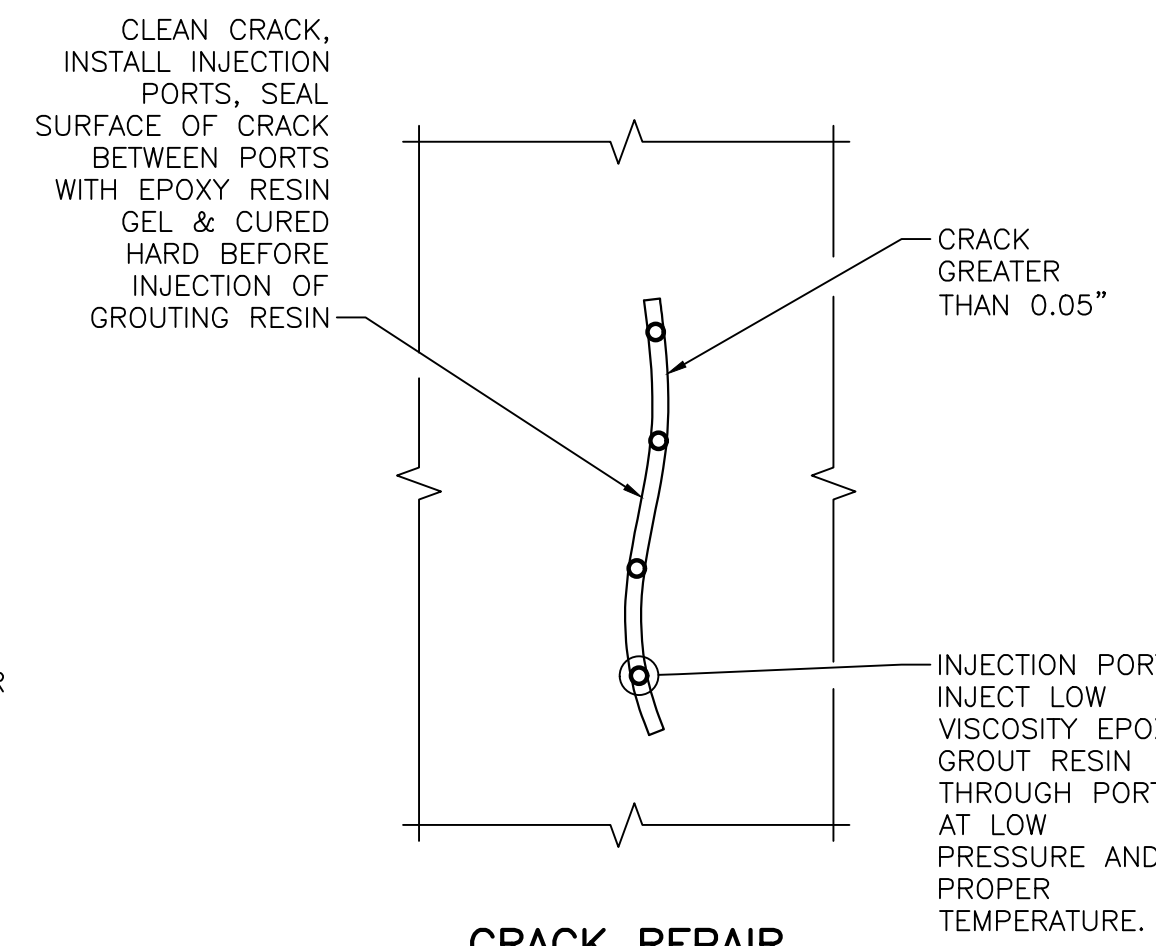
**GENERAL ELEVATION**  
NOT TO SCALE



**SHALLOW DEPTH REPAIR DETAIL**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



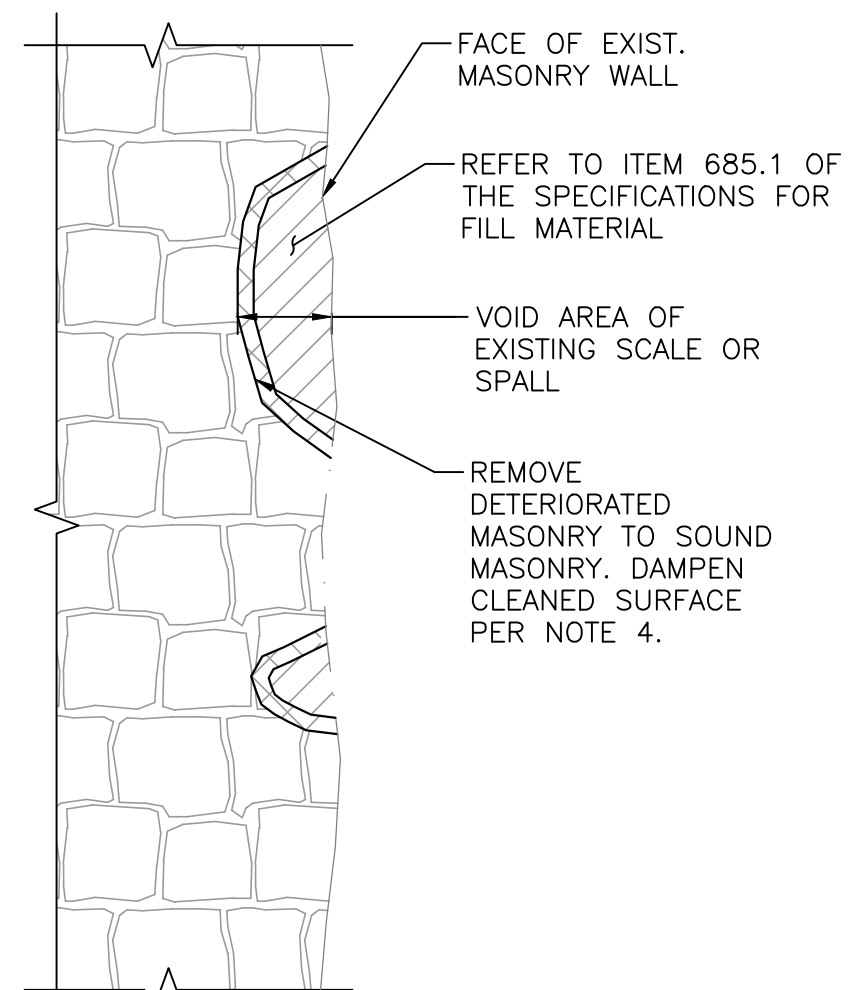
**CRACK REPAIR**  
NOT TO SCALE

**MASONRY REPAIR NOTES:**

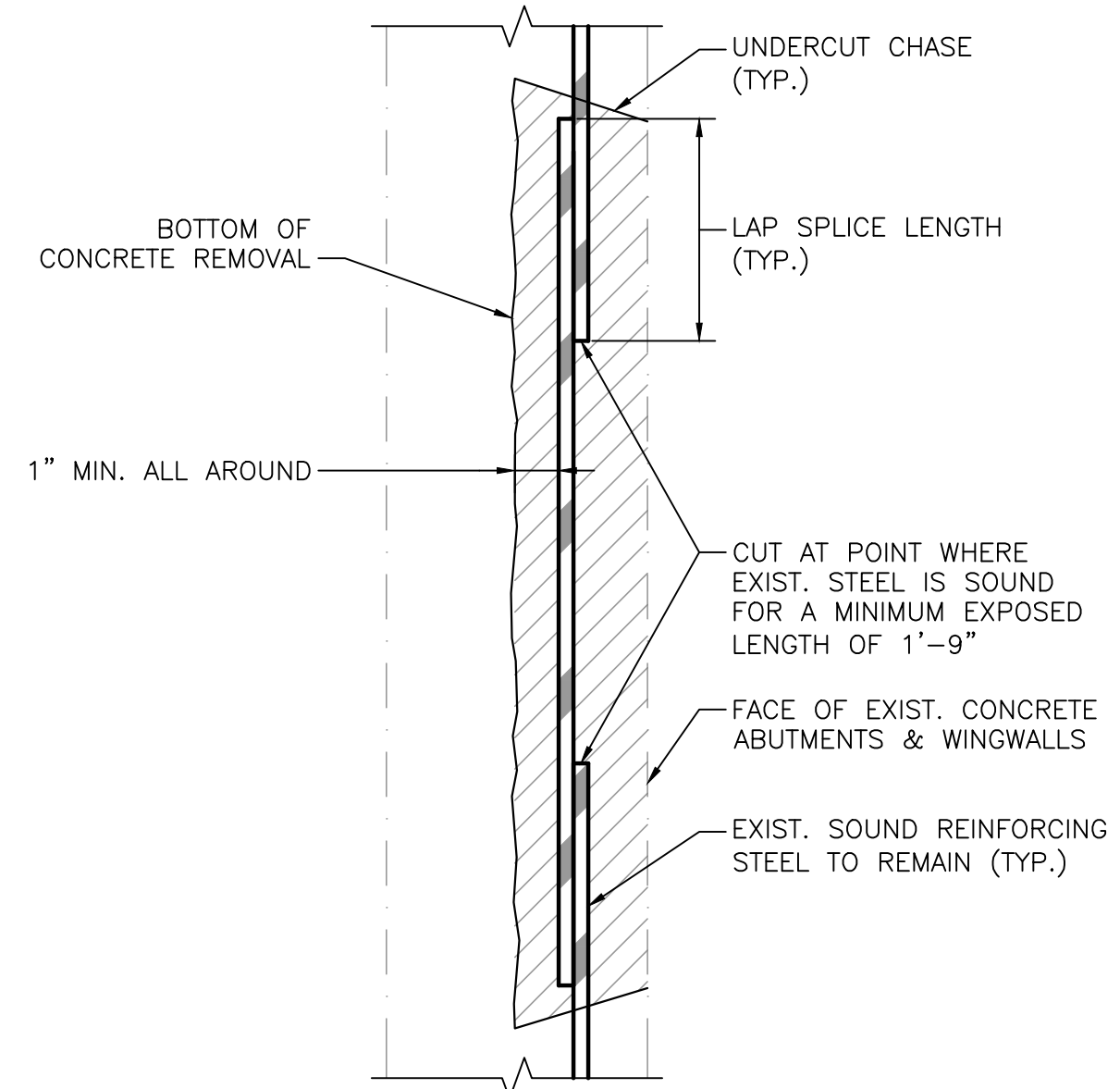
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

**CONCRETE REPAIR NOTES:**

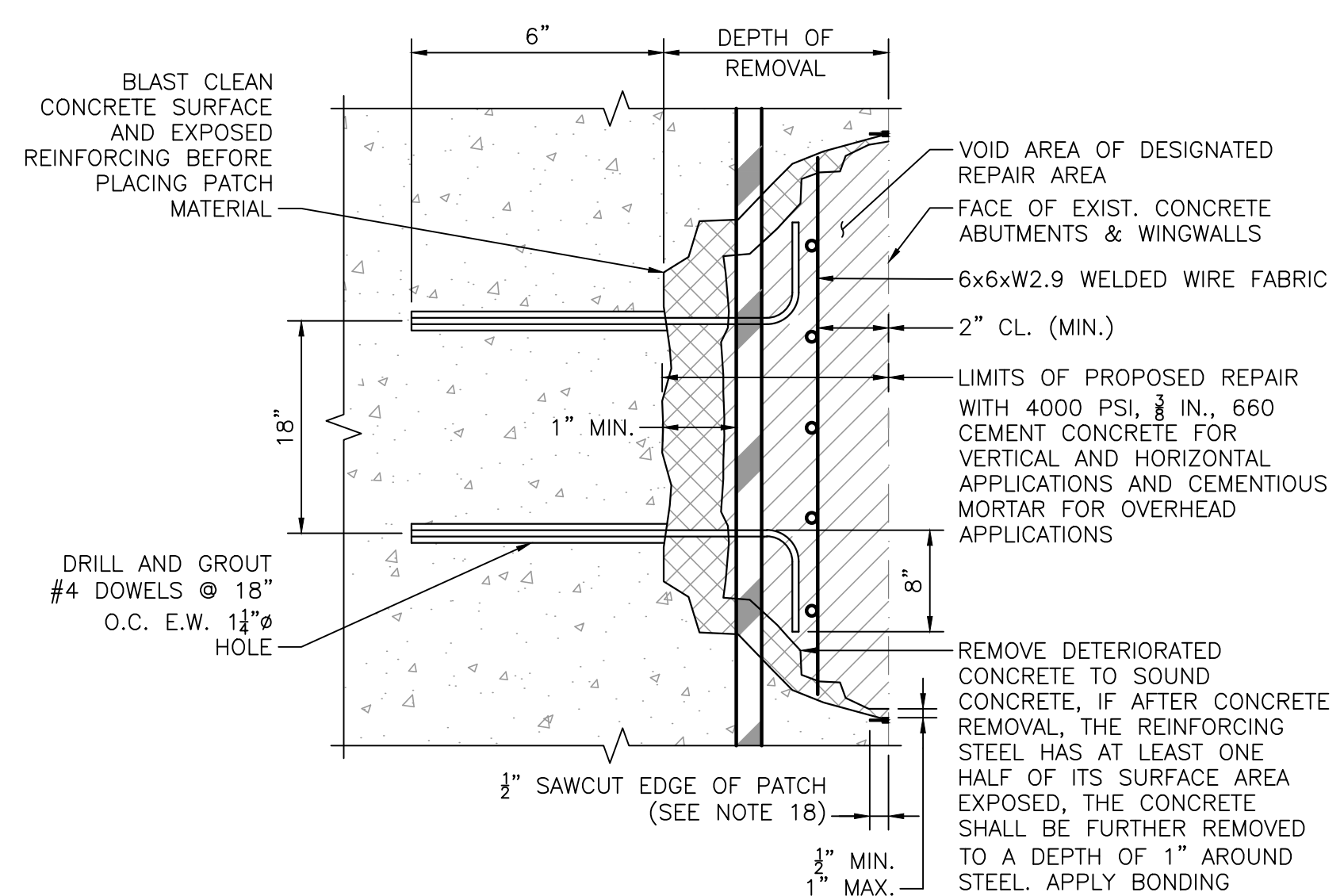
8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN 1 1/2" DEEP SHALL BE REPAIRED USING 4000 PSI, 3/8 IN., 660 CEMENT CONCRETE. AREAS LESS THAN 1 1/2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4 INCH.
13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNERED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A 1/2" SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.



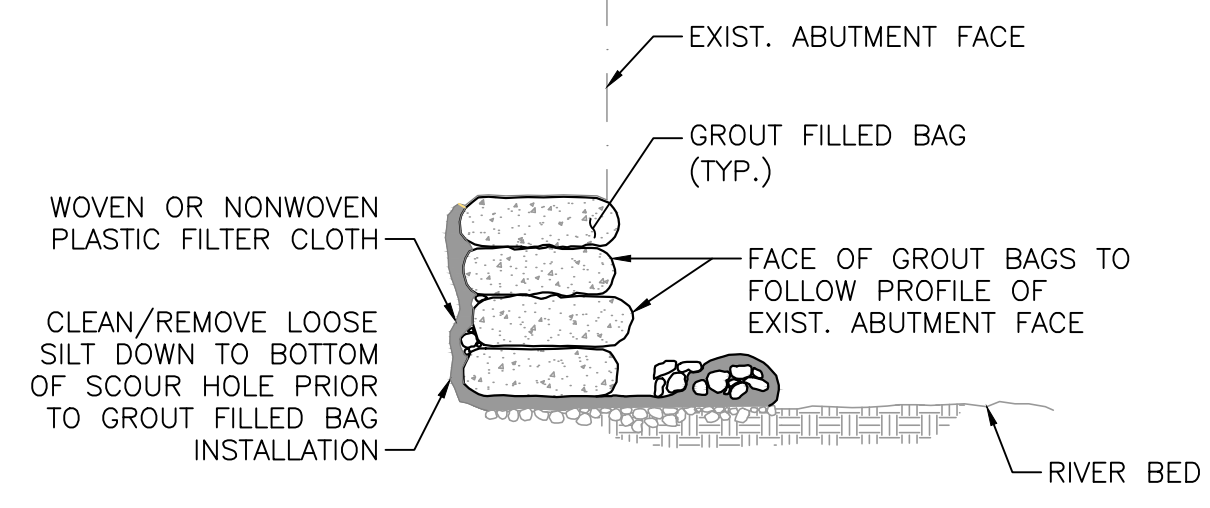
**TYPICAL MASONRY WALL REPAIR**  
NOT TO SCALE



**REINFORCING REPLACEMENT DETAIL**  
NOT TO SCALE



**PARTIAL DEPTH REPAIR DETAIL**  
NOT TO SCALE



**GROUT FILLED BAG REVETMENT DETAIL**  
NOT TO SCALE

**LEGEND:**

- DETERIORATED CONCRETE TO BE REMOVED.
- REINFORCING STEEL.
- ADDITIONAL CONCRETE TO BE REMOVED.

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
BN

DESIGNED BY:  
TW

CHECKED BY:  
TW



REGISTERED PROFESSIONAL  
PREPARED BY  
SUBCONSULTANT

SCALE  
AS SHOWN

TITLE  
**Ironstone Road Bridge Improvements**  
**Uxbridge, Massachusetts**  
**CONCRETE & MASONRY REPAIR DETAILS**

BETA JOB NO. 7545

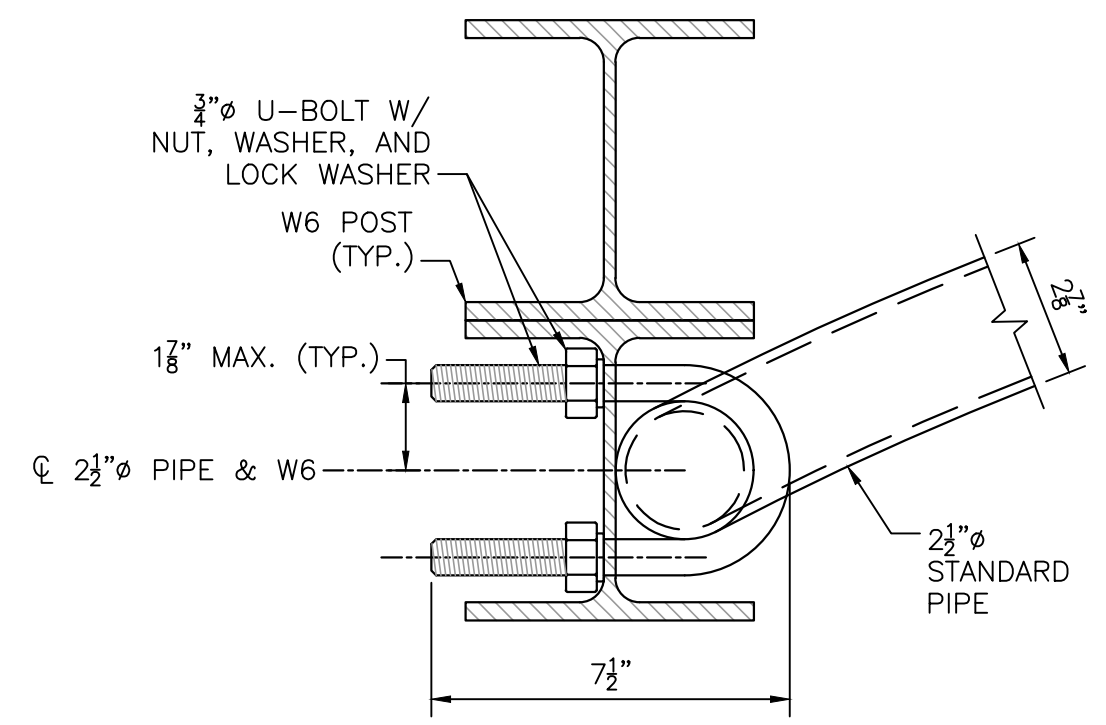
ISSUE DATE \_\_\_\_\_

SHEET NO. **3**

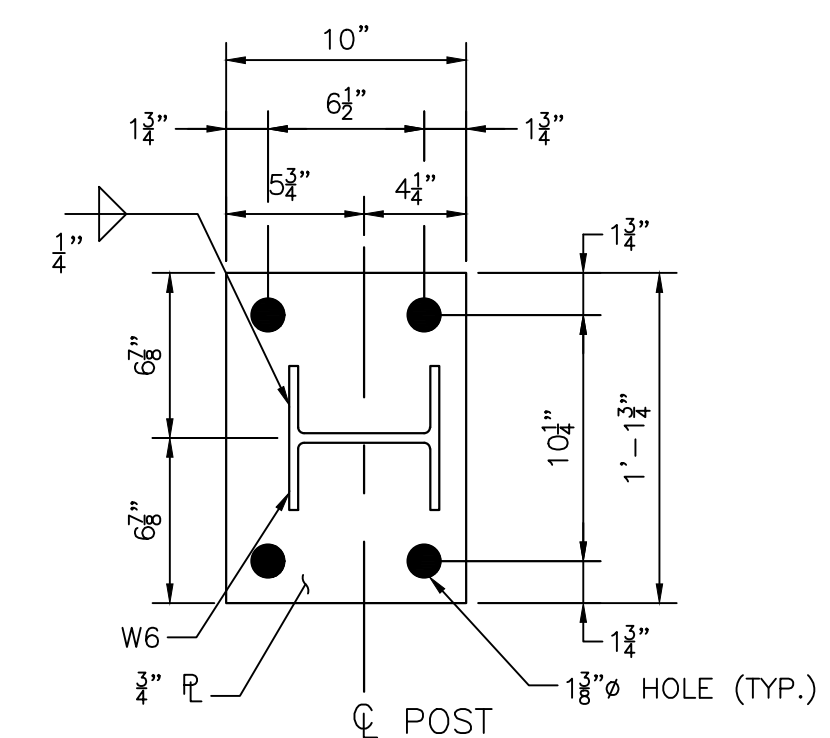
Sheet 7 of 11 Bridge No. U-02-069 (C4C)

**NOTES:**

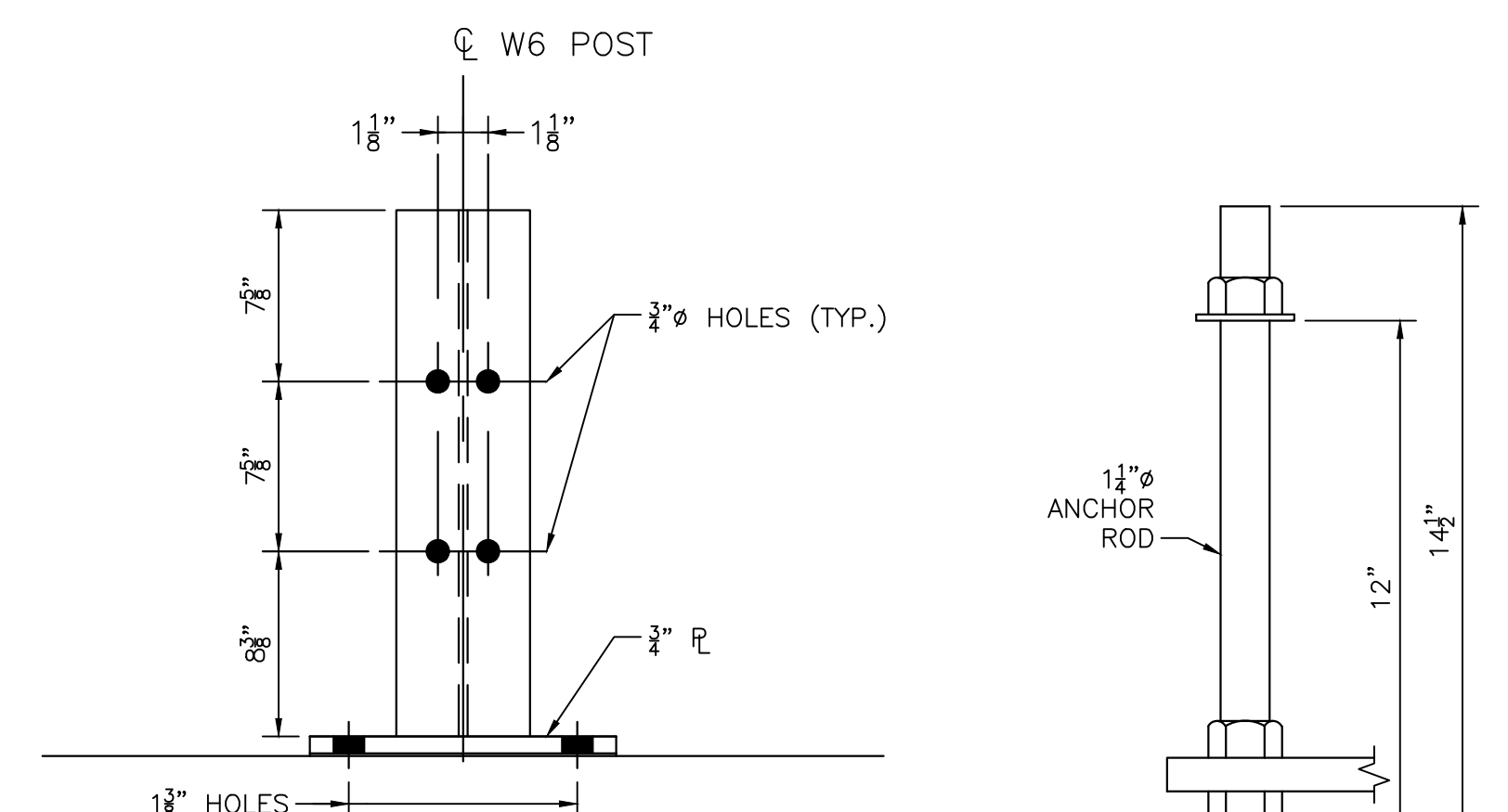
- ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232. ALL ANCHOR RODS SHALL CONFORM TO F1554 GRADE 105 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
- RAIL POSTS AND ANCHOR PLATES SHALL BE SEATED ON MOULDED FABRIC BEARING PADS MEETING M9.16.2 AND HAVING THE SAME DIMENSIONS AS THE PLATE. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3"x1 1/2" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.
- MINIMUM LENGTH OF THE THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.
- THRIE BEAM GUARD RAIL STEEL SHALL BE GALVANIZED AND CONFORM TO THE AASHTO M180, CLASS B, TYPE IV AND SHALL BE 10 GAGE THICK. USE OF 12 GAGE THICK THRIE BEAM IS EXPRESSLY FORBIDDEN.
- POSTS, ANCHOR PLATES, BASE PLATES SHALL BE FABRICATED FROM STEEL CONFORMING TO AASHTO M270M GR. 250 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)
- HAND RAIL STEEL SHALL CONFORM TO ASTM A53 GR. B OR A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF THRIE BEAM EVERY THIRD POST.
- HAND RAIL SHALL BE SPLICED OVER JOINTS IN COPING.



**END SADDLE DETAIL**  
 SCALE: 3" = 1'-0"

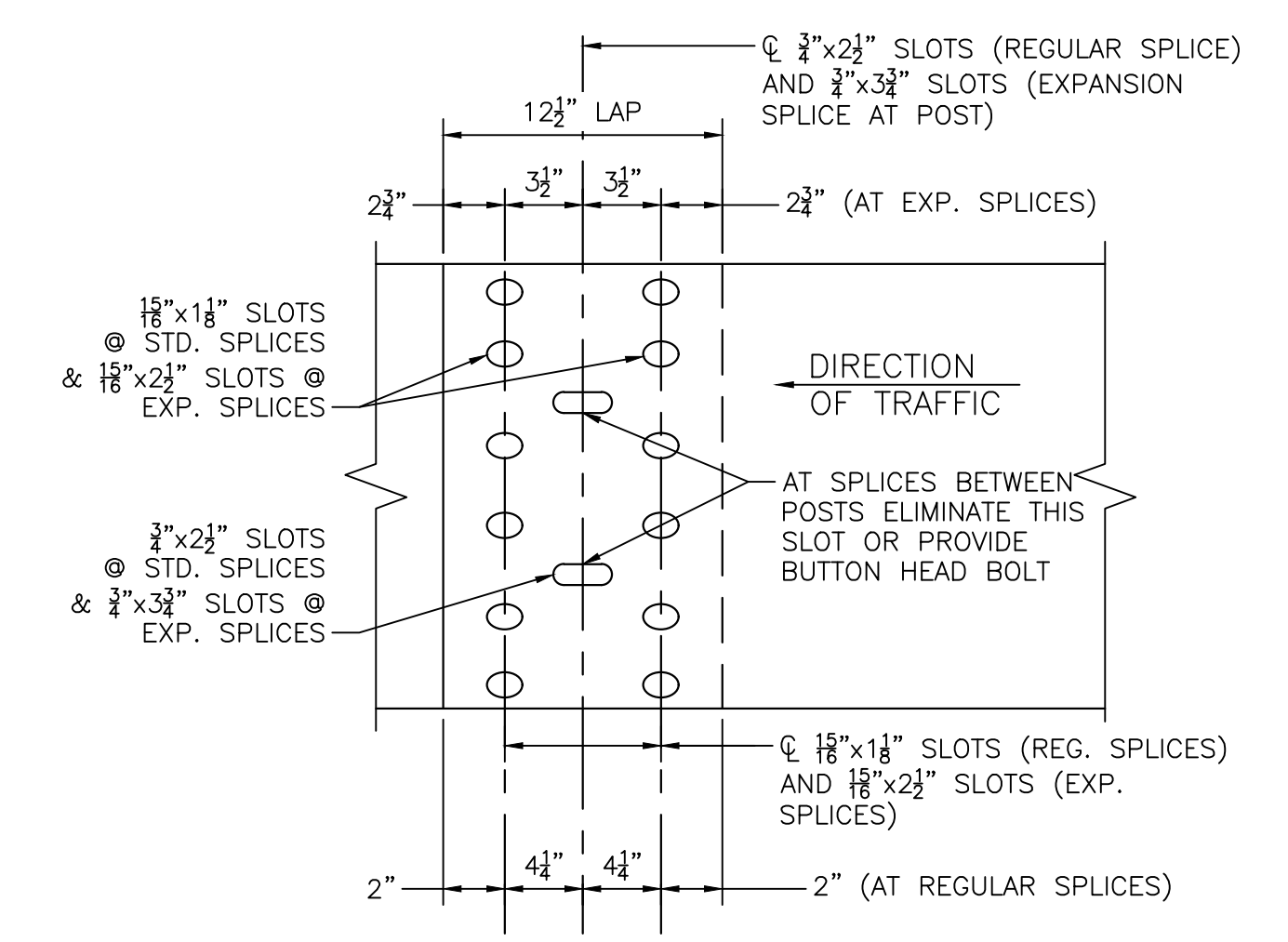


**BASE PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"

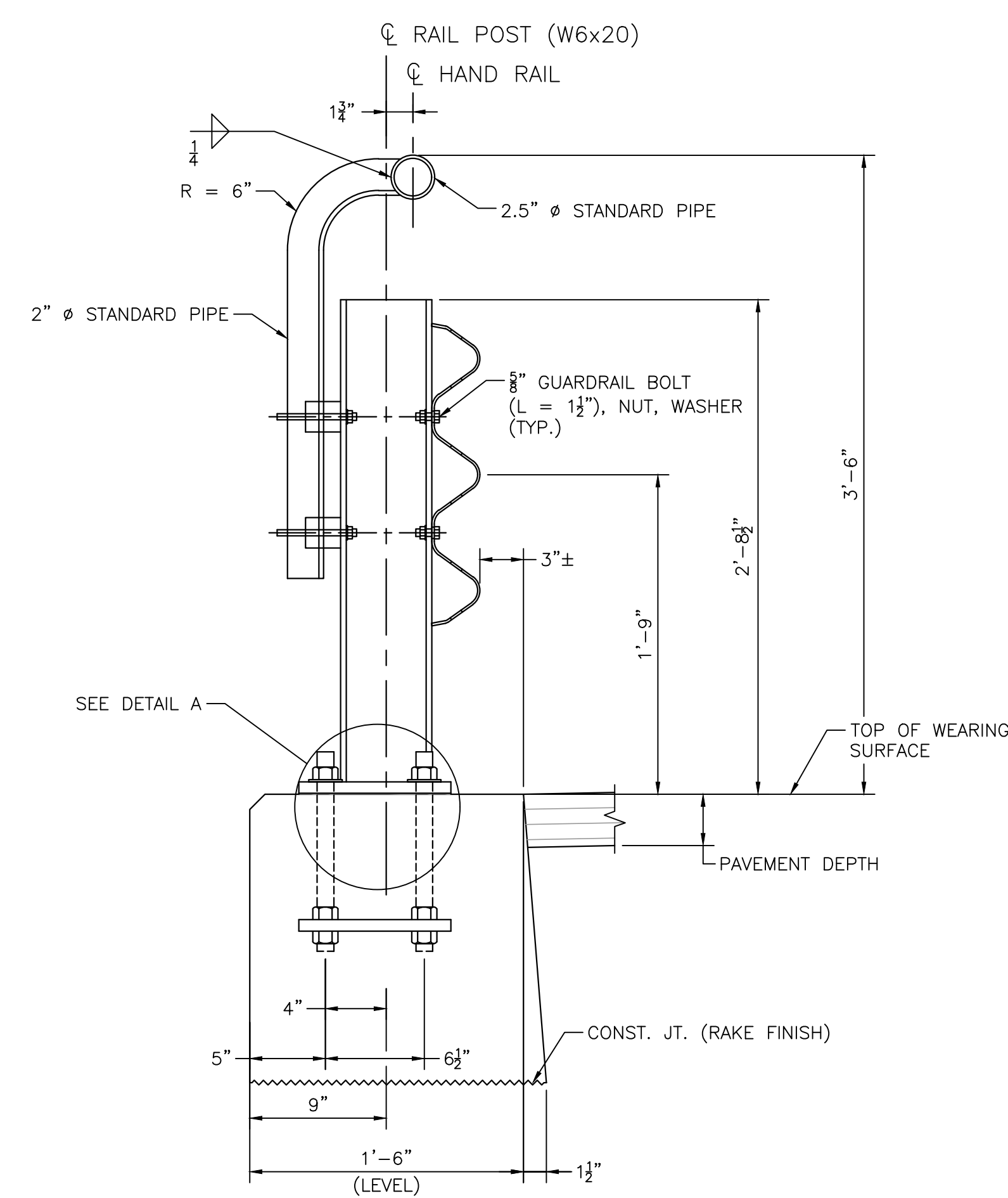


**RAIL POST DETAIL (FRONT VIEW)**  
 SCALE: 1 1/2" = 1'-0"

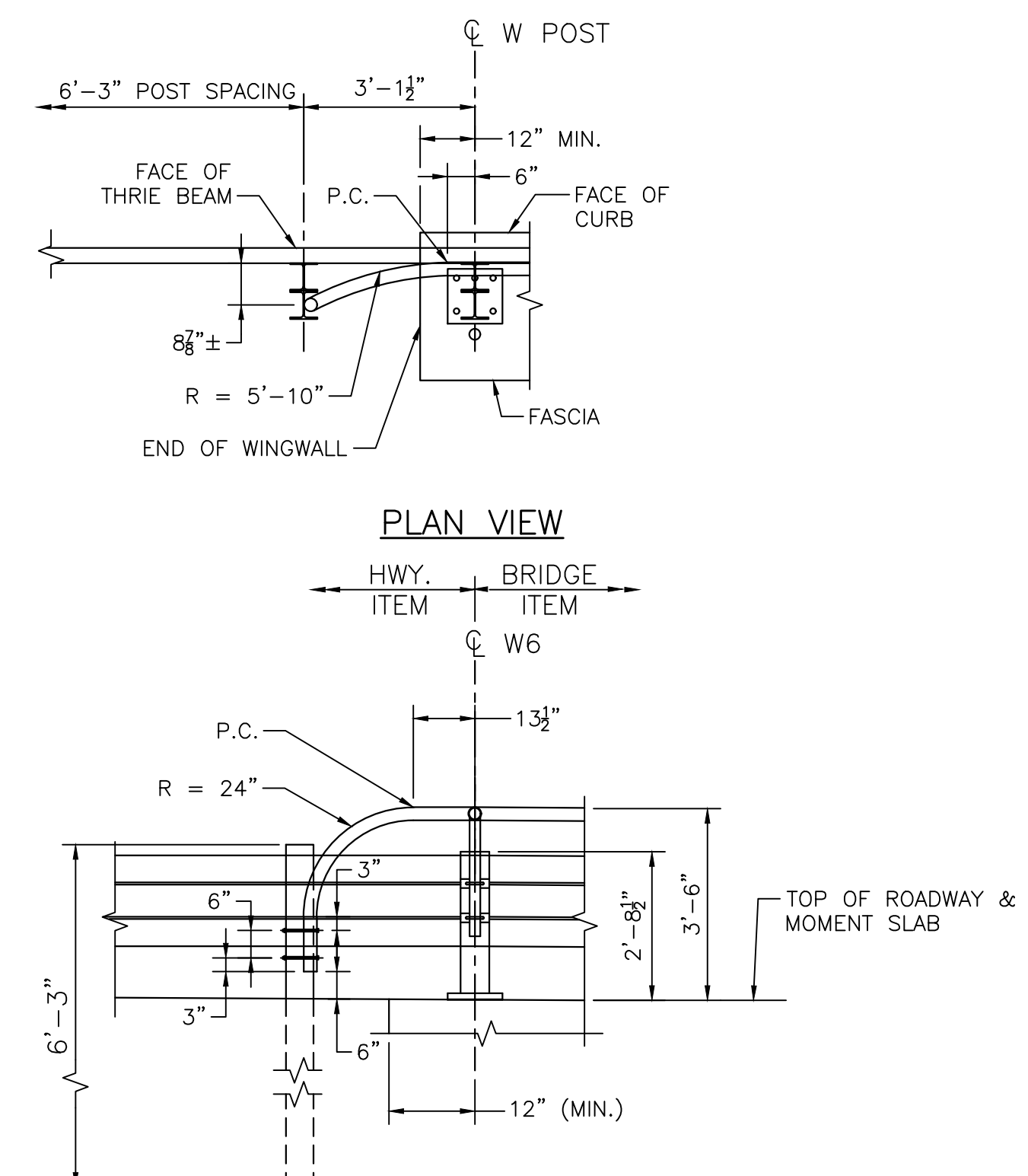
**ANCHOR ROD DETAIL**  
 NOT TO SCALE



**THRIE BEAM RAIL SPLICE**  
 SCALE: 1 1/2" = 1'-0"

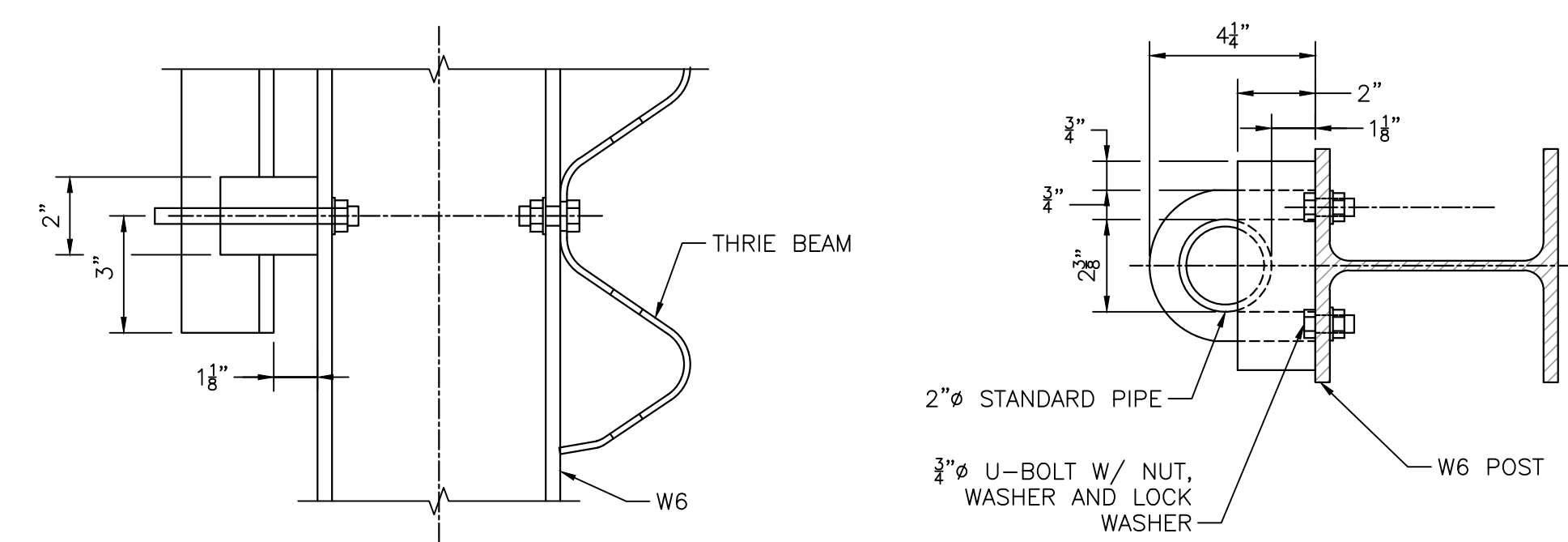


**THRIE BEAM SECTION**  
 SCALE: 1 1/2" = 1'-0"

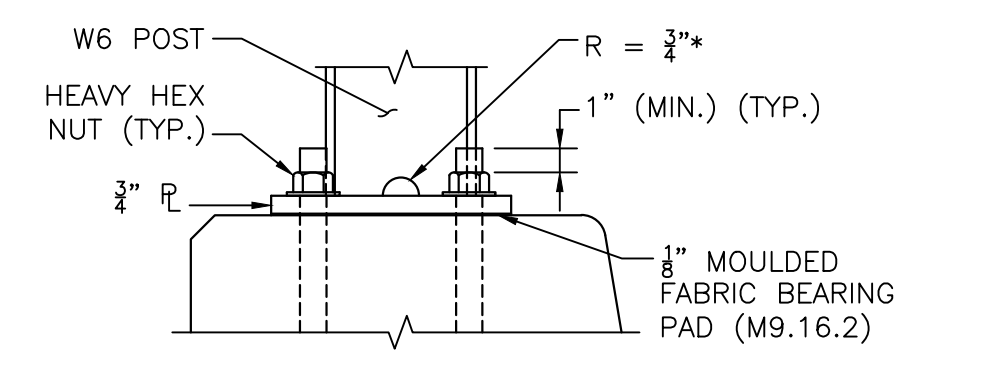


**HAND RAIL END DETAIL**  
 SCALE: 3/8" = 1'-0"

**ELEVATION**

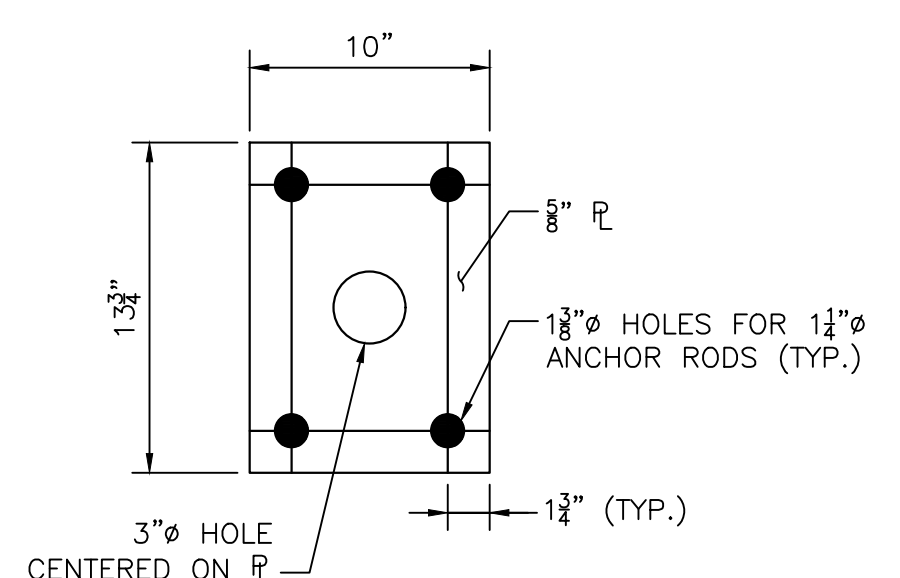


**SADDLE DETAILS**  
 SCALE: 3" = 1'-0"

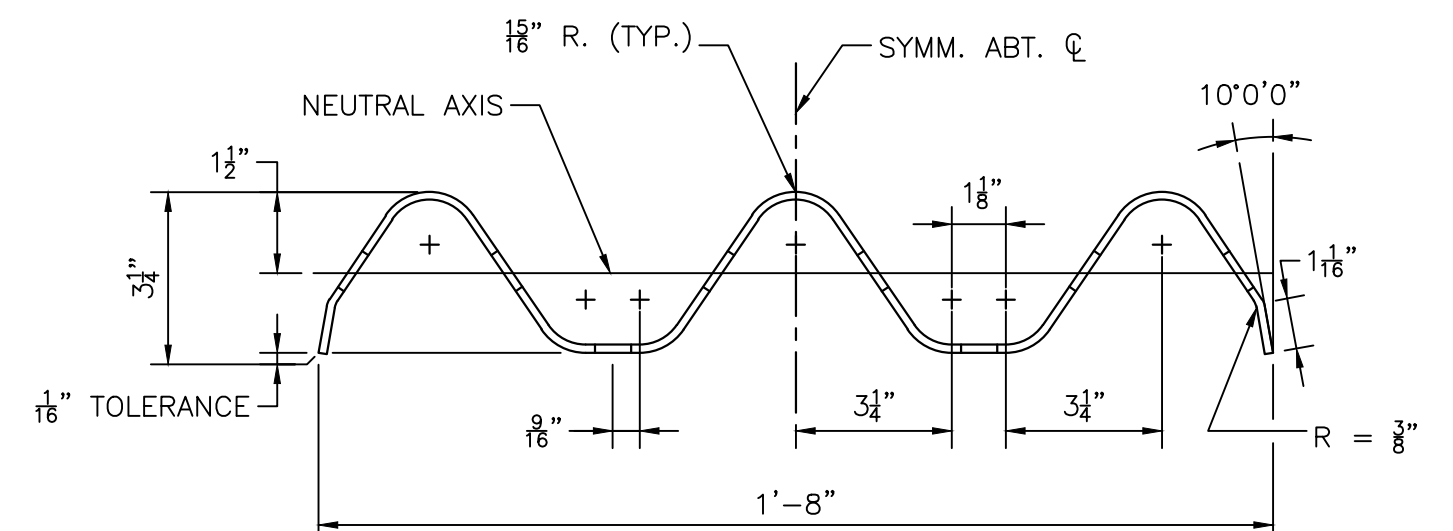


\* PERMISSIBLE SEMI-CIRCULAR NOTCHES IN ENDS OF WEB CENTERED ON AXIS OF POST TO FACILITATE GALVANIZING (TYPICAL TOP AND BOTTOM OF POST)

**DETAIL A**  
 SCALE: 1 1/2" = 1'-0"



**ANCHOR PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**SECTION THRU THRIE BEAM RAIL**  
 SCALE: 3" = 1'-0"

8/25/2023 11:30 AM N:\750517545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SRT\THRIEBEAMDETAILS10\F2 - IRONSTONE.DWG (BETA STB BW STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW



REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT

SCALE	TITLE
AS SHOWN	

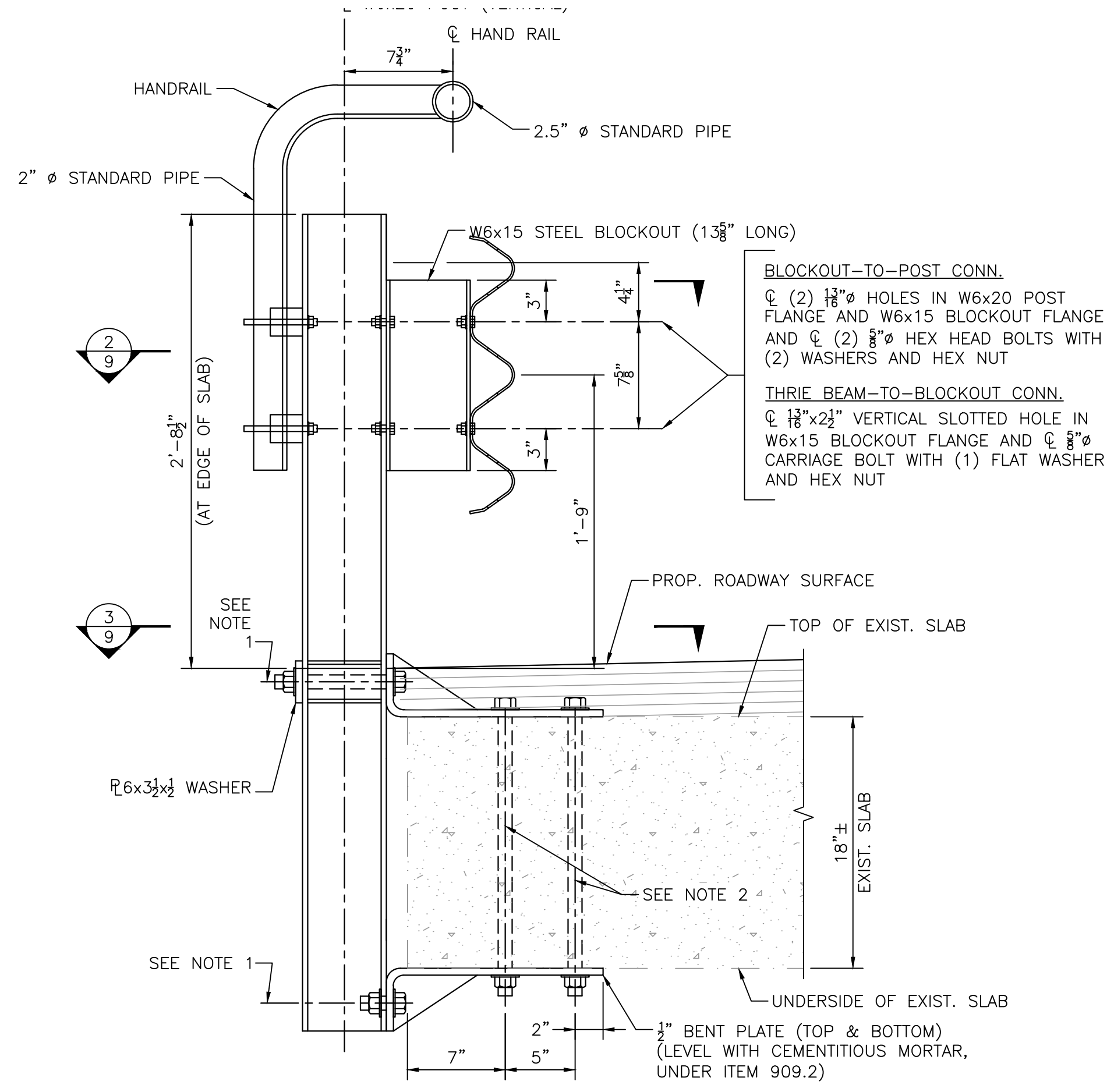
**Ironstone Road Bridge Improvements**  
 Uxbridge, Massachusetts  
 THRIE BEAM DETAILS (1 OF 2)

BRIDGE NO. U-02-069

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	4
Sheet 8 of 11 Bridge No. U-02-069 (C4C)	



8/25/2023 11:31 AM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SR\THRIEBEAMDETAILS20F2) - IRONSTONE.DWG (BETA STB.BW.STB)

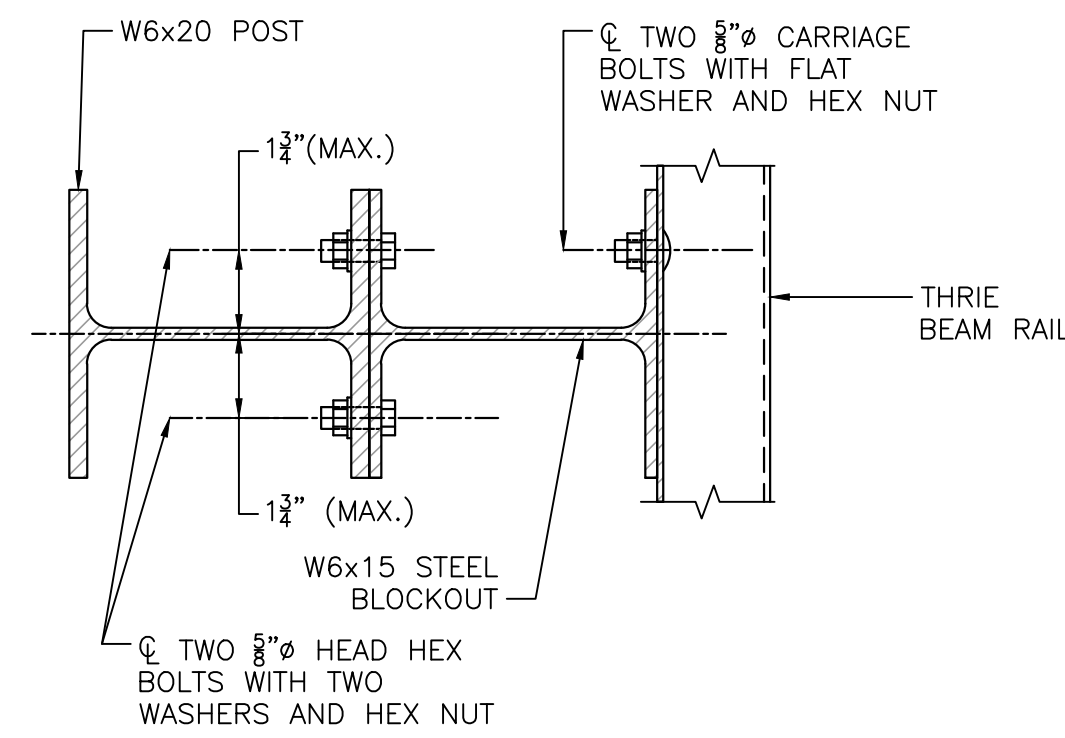


**NOTES:**

- POST-TO-BENT PLATE CONNECTION
  - (2) 1" ASTM F3125 GRADE A325 TYPE 1 BOLTS WITH HARDENED WASHERS AND HEX NUTS
  - (2) 1 1/8"x1 1/2" VERTICAL SLOTTED HOLES IN BOTH UPPER POST FLANGES
  - (2) 1 1/8" HOLES IN WASHER PLATE, INSIDE LOWER POST FLANGE AND BOTH BENT PLATES
- BENT PLATE-TO-DECK CONNECTION
  - (3) 1 1/4" DRILLED HOLES IN SLAB
  - (3) 1" ASTM 307 BOLTS WITH PLATE WASHER, HARDENED LOCKING WASHERS AND HEX NUTS
  - (3) 1 1/4" IN BOTH BENT PLATES

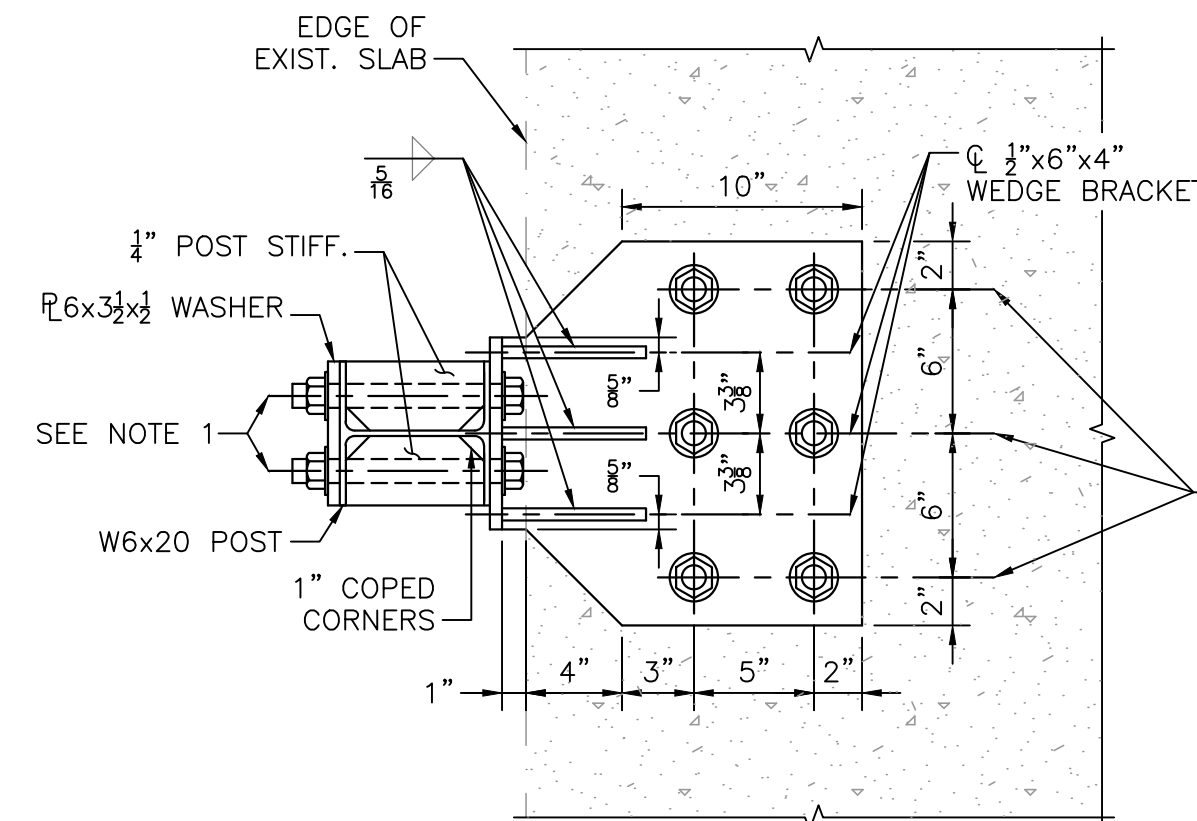
**SECTION AT RAIL POST**

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



**SECTION 2**

SCALE: 3" = 1'-0"



**NOTES:**

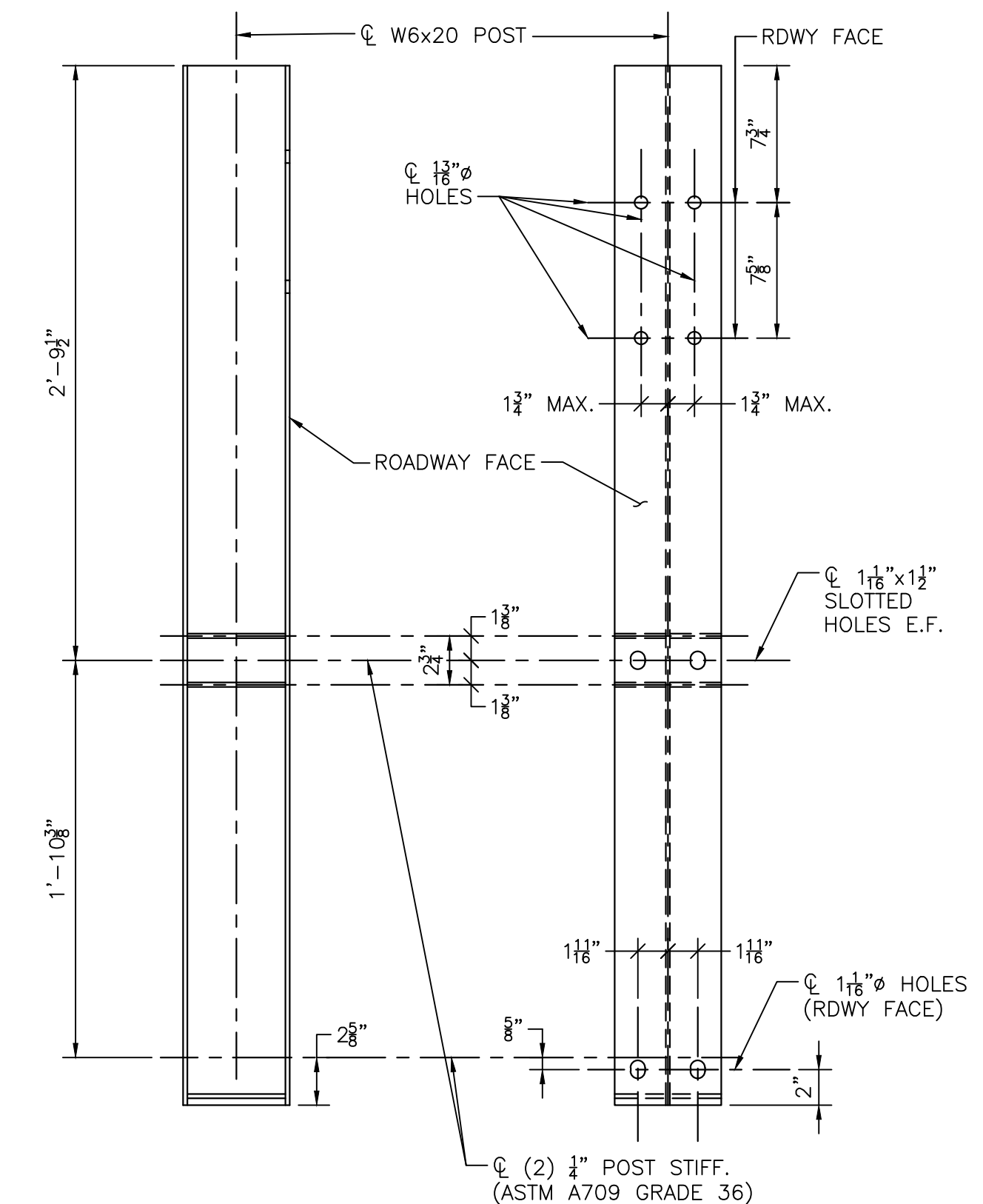
- POST-TO-BENT PLATE CONNECTION
  - (2) 1" ASTM F3125 GRADE A325 TYPE 1 BOLTS WITH HARDENED WASHERS AND HEX NUTS
  - (2) 1 1/8"x1 1/2" VERTICAL SLOTTED HOLE IN BOTH UPPER POST FLANGES
  - (2) 1 1/8" HOLE IN WASHER PLATE, INSIDE LOWER POST FLANGE, AND BOTH BENT PLATES

**SECTION 3**

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

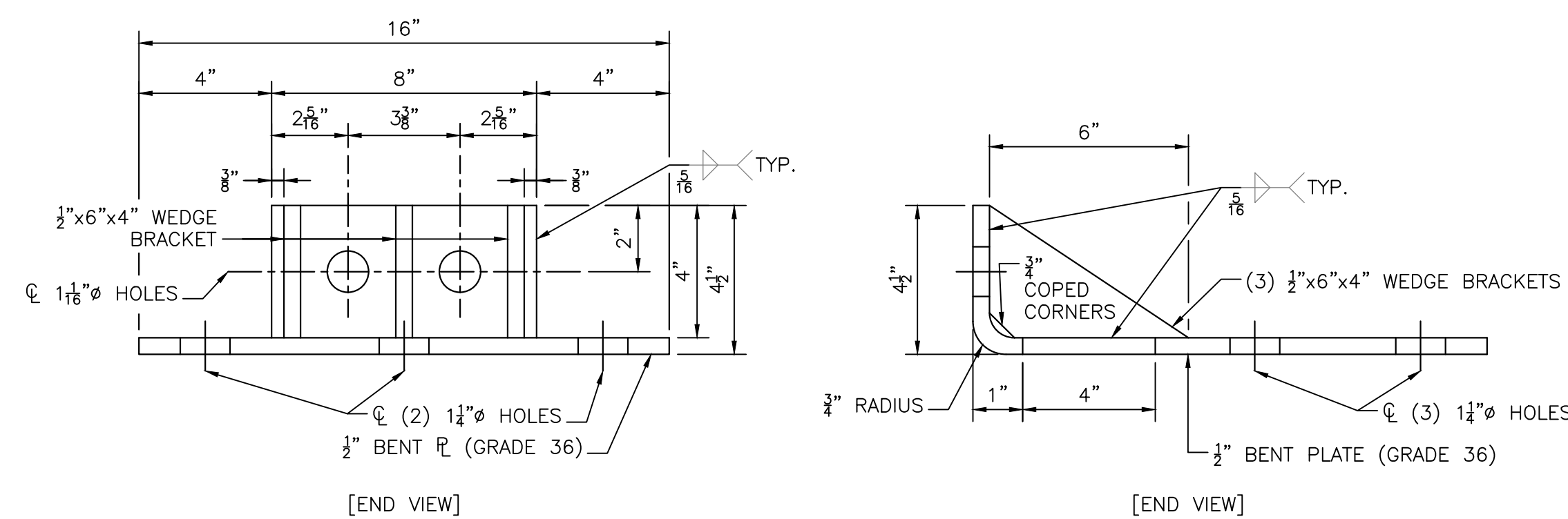
**GENERAL NOTE:**

- REFER TO SHEET 8 FOR HAND RAIL DETAILS NOT SHOWN HERE.
- RAILING SYSTEM IN ACCORDANCE WITH MISSOURI HIGHWAY & TRANSPORTATION COMMISSION (MoDOT) STATE SYSTEM 3 - SIDE MOUNTED STANDARD THRIE BEAM RAIL DETAILS, AND MEETS NCHRP 350 TL-3 BRIDGE RAILING REQUIREMENTS.



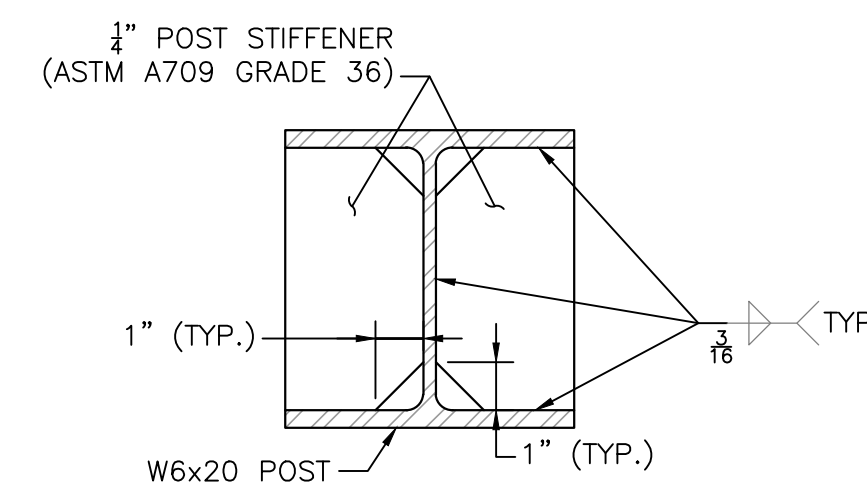
**DETAILS OF POST**

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



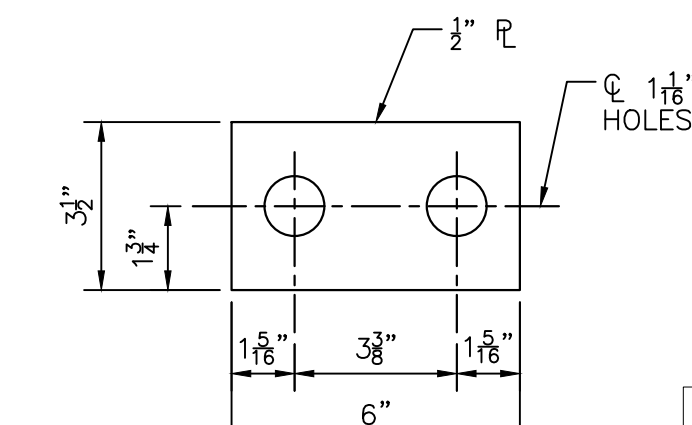
**BENT PLATE AND WEDGE BRACKET**

SCALE: 3" = 1'-0"



**POST STIFFENERS**

SCALE: 3" = 1'-0"



**WASHER PLATE**

SCALE: 3" = 1'-0"

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
 APPROVED UNDER PROVISIONS OF  
 MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW



REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT

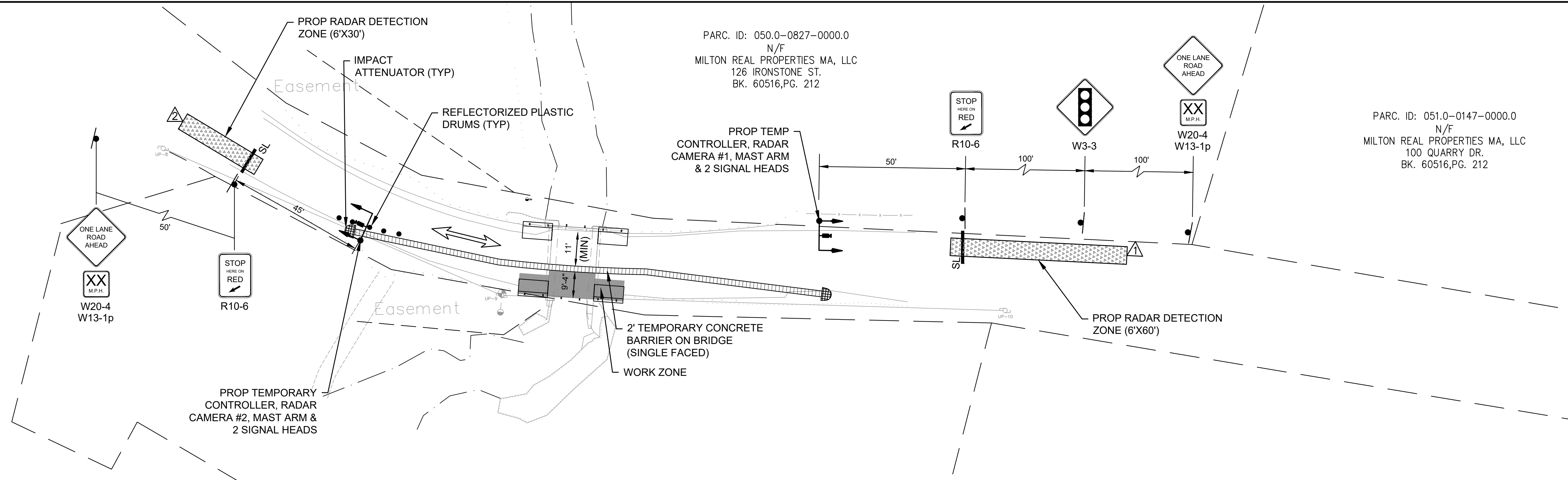
SCALE	TITLE
AS SHOWN	

**Ironstone Road Bridge Improvements**  
**Uxbridge, Massachusetts**  
 THRIE BEAM DETAILS (2 OF 2)

BRIDGE NO. U-02-069

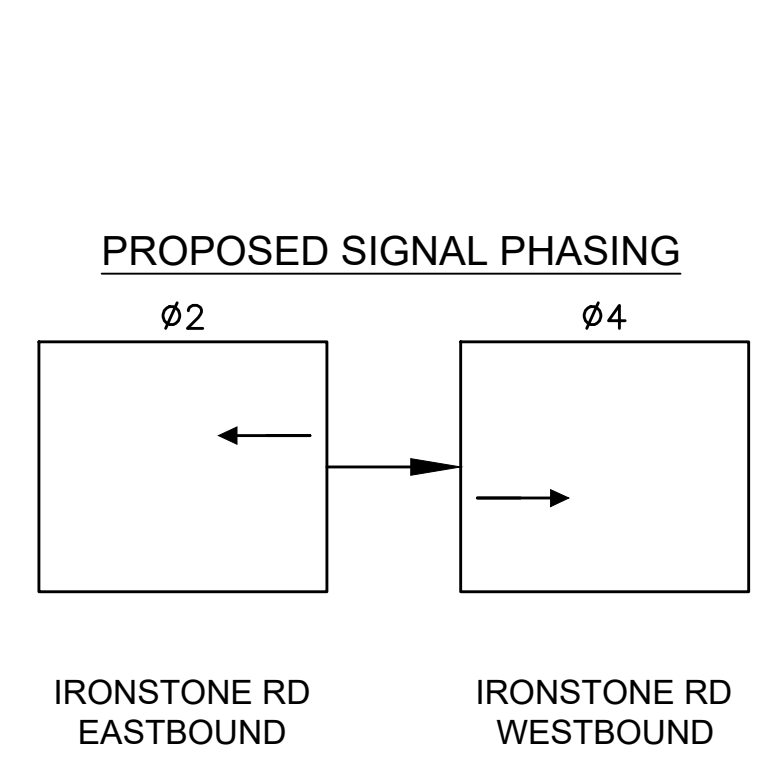
BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	5
Sheet 9 of 11 Bridge No. U-02-069 (C4C)	

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION



SEQUENCE & TIMING FOR FULLY-ACTUATED TRAFFIC SIGNAL CONTROL (TEMPORARY)

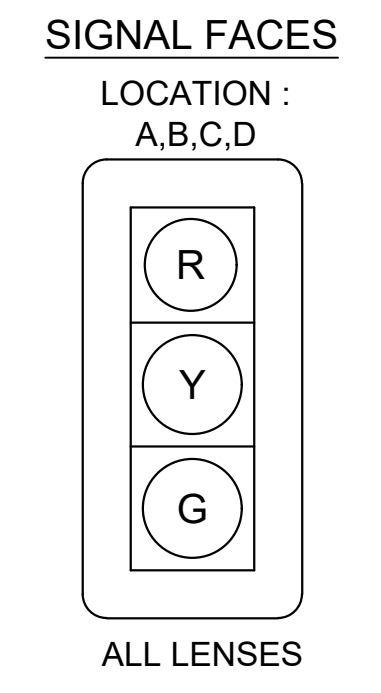
STREET	DIRECTION	HOUSINGS	Ø2			Ø4			FLASH OPER.
			1	2	3	4	5	6	
IRONSTONE RD	WB	A,B	R	R	R	G	Y	R	FR
IRONSTONE RD	EB	C,D	G	Y	R	R	R	R	FR
TIMING IN SECONDS									
MINIMUM GREEN			10			10			
VEHICLE EXTENSION			3			3			
MAXIMUM GREEN (ALL TIMES)			20			20			
EMERGENCY ONLY									
CLEARANCE INTERVAL				3	7		3	7	
RECALL			NONE			SOFT			
MEMORY			LOCK			LOCK			



STAGE 1  
SCALE 1" = 20'

DETECTOR DATA

DETECTOR GROUP NO.	CAMERA	OPERATION	ZONE SIZE	CALL PHASE
1	1	PRESENCE	6'X60'	1
2	2	PRESENCE	6'X30'	2

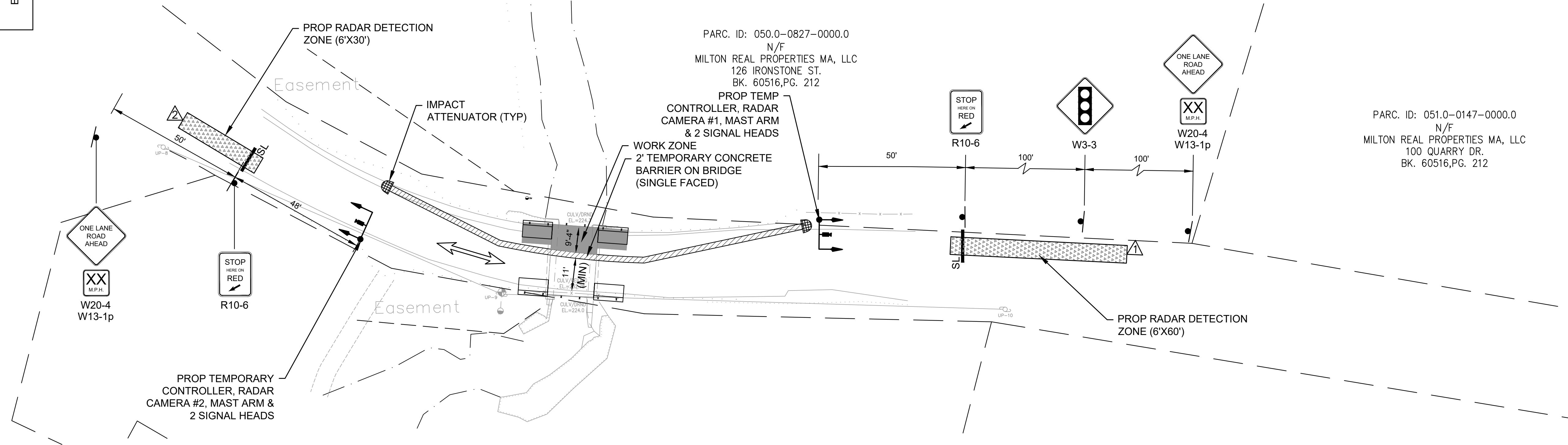


SAFETY SIGNING FOR CONSTRUCTION OPERATIONS

LEGEND	TYPE	SIZE	COLOR			UNIT AREA	NO. SIGNS	TOTAL AREA
			BACKGROUND	LEGEND	BORDER			
STOP HERE ON RED	R10-6	24" x 36"	WHITE	BLACK	BLACK	6 SF	2	12 SF
TRAFFIC SIGNAL	W3-3	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF
ADVISORY SPEED	W13-1	24" x 24"	ORANGE**	BLACK	BLACK	4 SF	2	8 SF
ONE LANE ROAD AHEAD	W20-4	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF
TOTAL AREA OF SIGNS:							56 SF	

\* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY  
\*\* ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND

TWO LANE ROAD  
ONE LANE ALTERNATING TRAFFIC WITH TEMPORARY SIGNAL

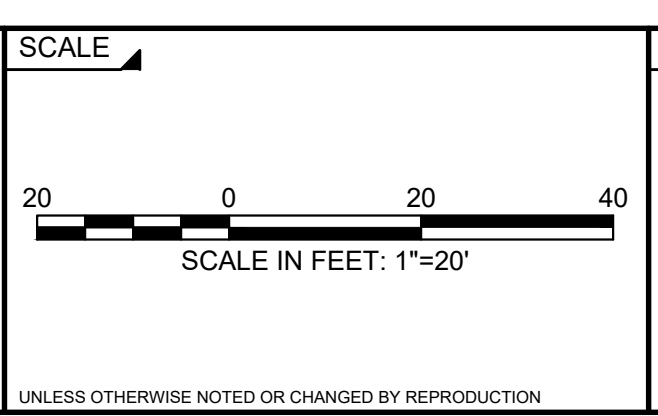


NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: SD  
DESIGNED BY: JC  
CHECKED BY: TW



REGISTERED PROFESSIONAL  
PREPARED BY  
SUBCONSULTANT



TITLE  
**Ironstone Road Bridge Improvements  
Uxbridge, Massachusetts**  
TEMPORARY TRAFFIC CONTROL PLAN

BRIDGE NO. U-02-069

BETA JOB NO. 7545  
ISSUE DATE  
SHEET NO. 10

8/22/2023 2:16 PM N:\750517545 - UXBRIDGE - SMALL BRIDGE CONTRACT/DRAWING FILES/PLANS/SET\_IRONSTONE\7545\_SRD(ETOUR)\_IRONSTONE.DWG (BETA STB BWI/STB)



# TOWN OF UXBRIDGE, MASSACHUSETTS

## DEPARTMENT OF PUBLIC WORKS

### CARNEY STREET

### BRIDGE PRESERVATION

### MAY 2022

BOARD OF SELECTMEN

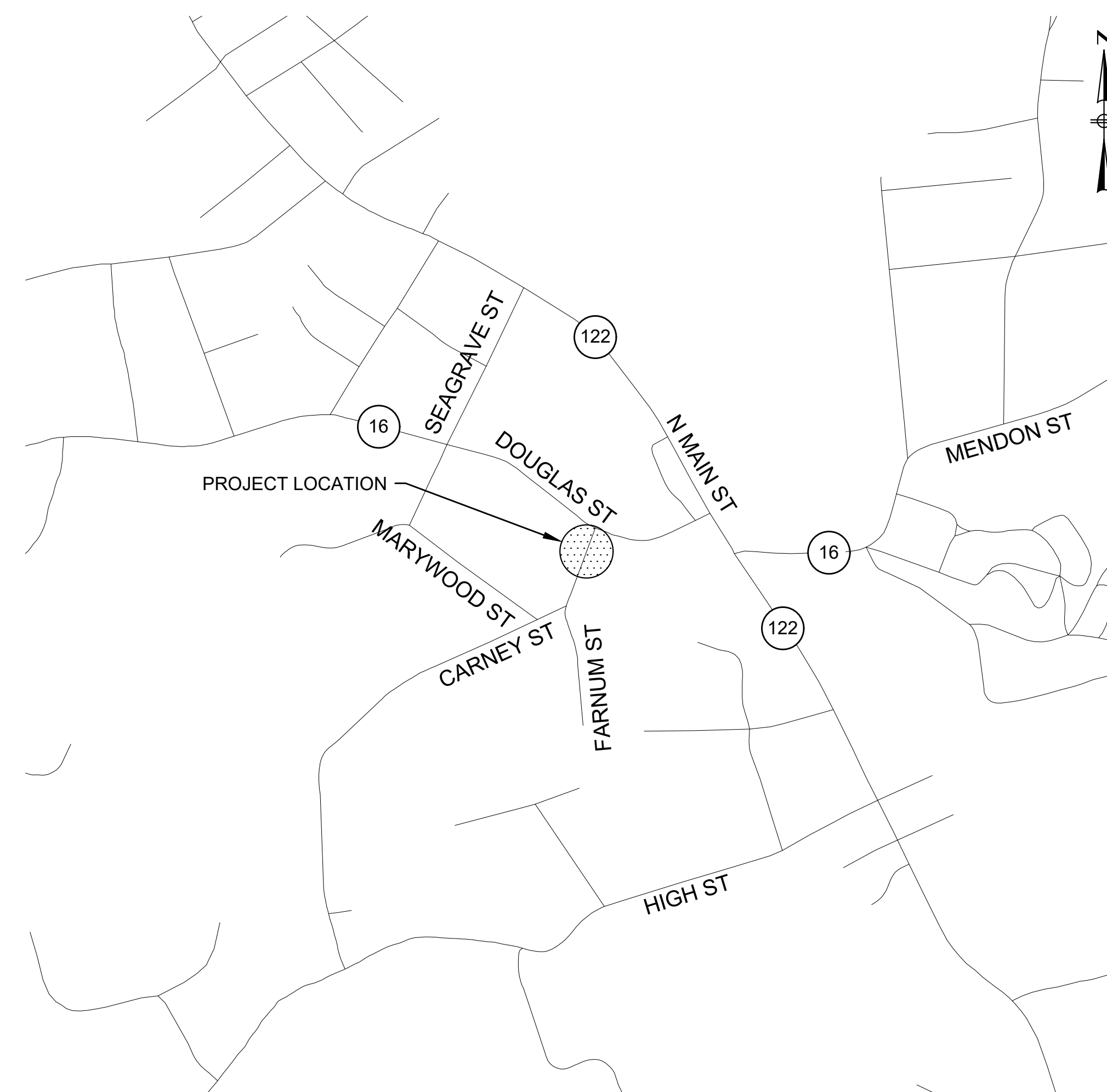
BRIAN BUTLER  
 JEFF SHAW  
 STEPHEN MANDILE  
 SUSAN FRANZ  
 BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, PE, DIRECTOR  
 PAUL HUTNUK, PE, CIVIL ENGINEER



**LOCATION MAP**  
 SCALE 1" = 500'

PLAN INDEX

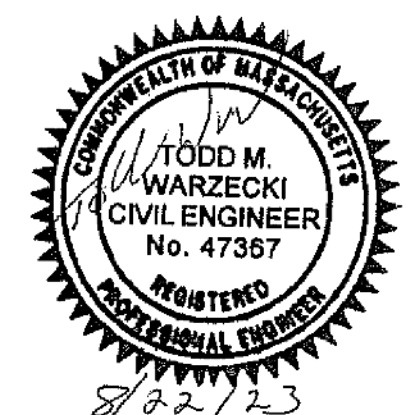
<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	CONSTRUCTION PLAN AND PROFILE
4	CONSTRUCTION DETAILS
5	BRIDGE COVER SHEET
6	STRUCTURAL DETAILS
7	CONCRETE REPAIR DETAILS
8	THRIE BEAM DETAILS (1 OF 2)
9	THRIE BEAM DETAILS (2 OF 2)
10-11	DETOUR PLAN
12	RESOURCE IMPACT PLAN

PREPARED BY:



www.BETA-Inc.com

ISSUE DATE: APRIL 5, 2022



REGISTERED PROFESSIONAL DATE

# LEGEND

## GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND w/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

# ABBREVIATIONS

## GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
B	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

## TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-	STEADY RED RIGHT ARROW
Y-	STEADY AMBER RIGHT ARROW
G-	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

## UTILITIES

CB	CATCH BASIN
GBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPM	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

## TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

## PAVEMENT MARKINGS AND SIGNING SYMBOLS

### PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33°, (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLEX	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEX	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33°, (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTEL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
SCHOOL	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

8/22/2023 2:16 PM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET\_CARNET\7545\_SR\LEGEND\_CARNET.DWG (BETA STB BW STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	SD
DESIGNED BY:	BB
CHECKED BY:	TW



REGISTERED PROFESSIONAL
PREPARED BY
SUBCONSULTANT

SCALE	NONE
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TITLE	Carney Street Bridge Improvements Uxbridge, Massachusetts LEGEND AND ABBREVIATIONS
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BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	2
BRIDGE NO.	U-02-070

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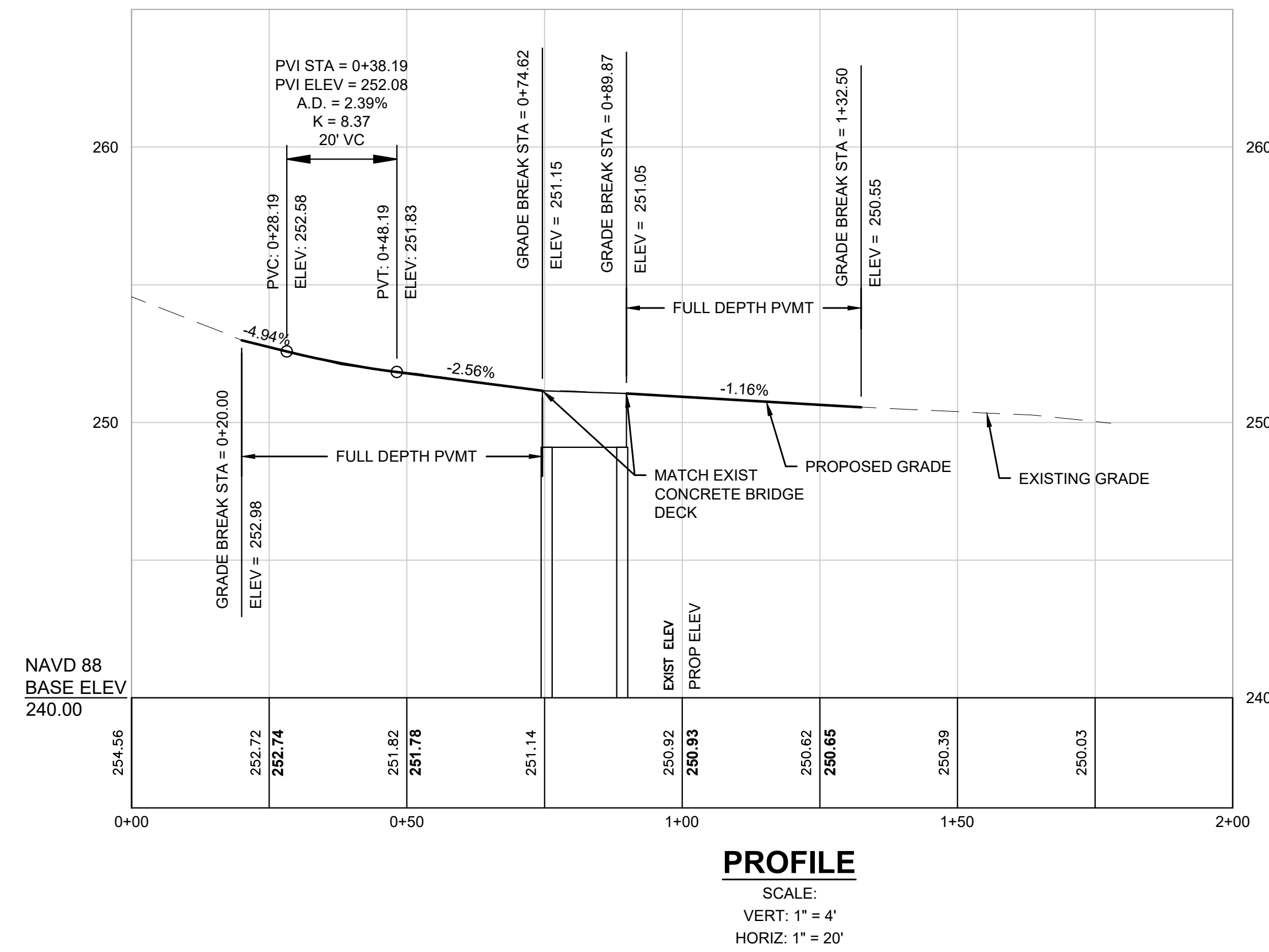
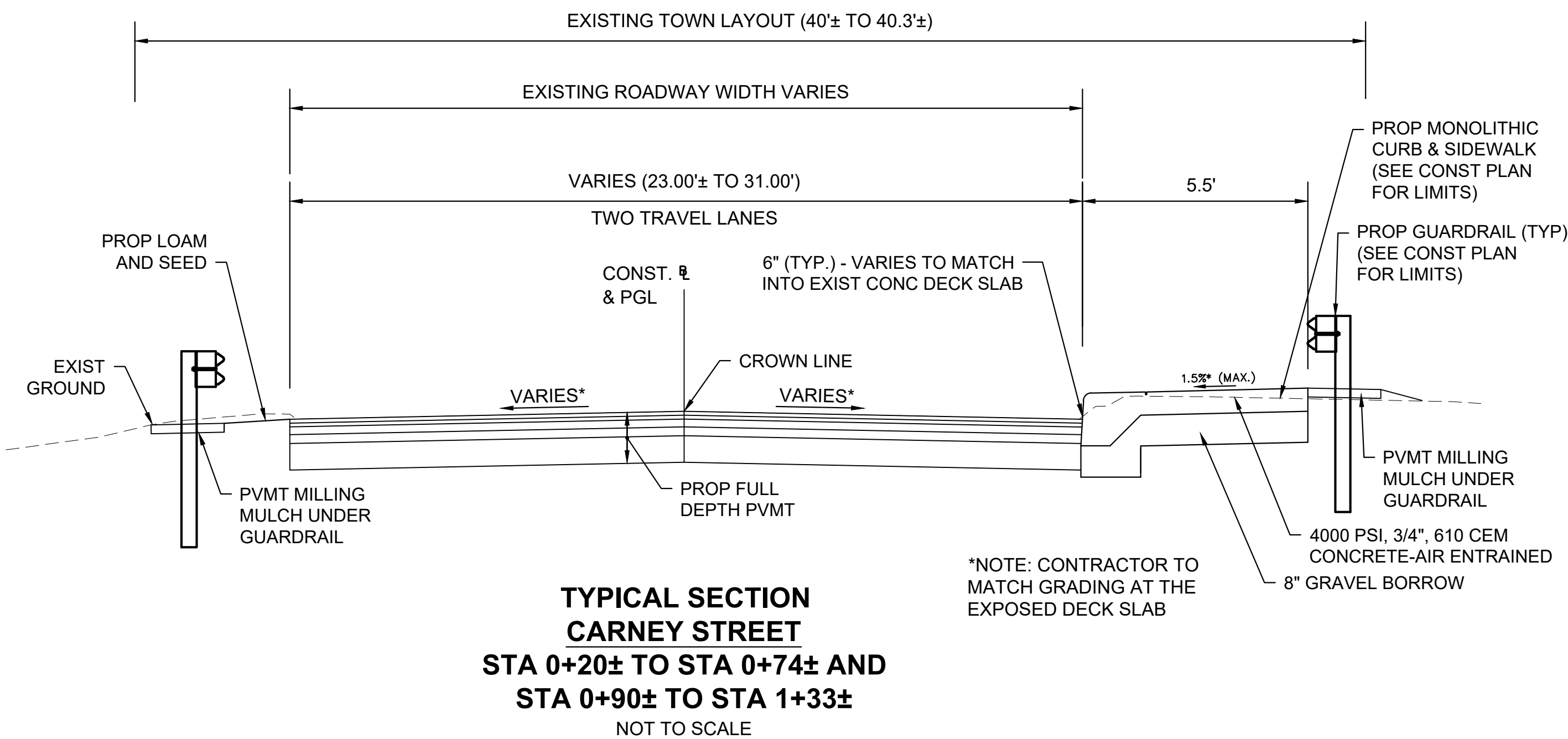
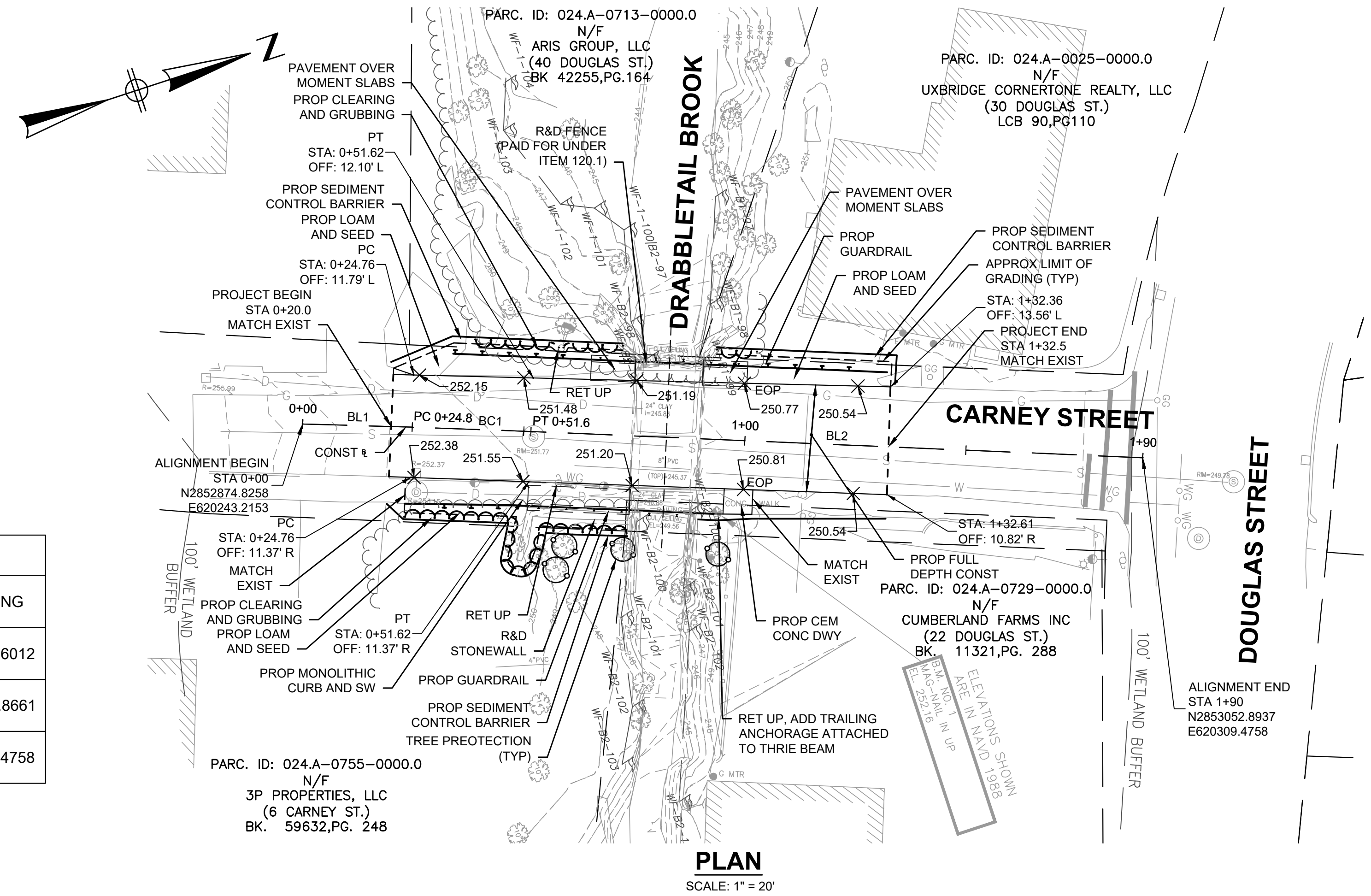
**HIGHWAY GUARD DETAILS**

TRAILING ANCHORAGE STA 0+33 TO 0+42.5 LT  
 GUARDRAIL - TL-2 (SINGLE FACED) 0+42.5 TO 0+57.5 LT  
 BRIDGE THRIE BEAM GUARDRAIL 0+57.5 TO 0+63.5 LT  
 BRIDGE THRIE BEAM GUARDRAIL 0+63.5 TO 1+01 LT  
 GUARDRAIL TANGENT END TREATMENT, TL-3 STA 1+07 TO 1+31 LT  
 GUARDRAIL TANGENT END TREATMENT, TL-2 STA 0+20.5 TO 0+44 RT  
 BRIDGE THRIE BEAM GUARDRAIL 0+44 TO 0+50 RT  
 BRIDGE THRIE BEAM GUARDRAIL 0+50 TO 0+88 RT  
 THRIE BEAM TRAILING ANCHORAGE STA 0+88 TO 0+93 RT

**PAVEMENT NOTES**

**FULL DEPTH PAVEMENT**  
 SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 INTERMEDIATE COURSE: 1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 BASE COURSE: 3-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER  
 SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW TYPE b (M1.03.01)  
**PROJECT TACK COAT NOTES**  
 TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1 SHALL BE PLACED AT A RATE OF:  
 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES  
 0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE BASE COURSE  
 0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT PAVEMENTS  
 PRIOR TO PAVING AN OVERLAY

CARNEY STREET CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BL1	0+00.00	2852874.8258	620243.2153		N19°47'45"E 24.76'	0+24.76	2852898.1238	620251.6012
BC1	0+24.76	2852898.1238	620251.6012	R = 2000.00' Δ = 0°46'10" L = 26.86' T = 13.43'		0+51.62	2852923.3313	620260.8661
BL2	0+51.62	2852923.3313	620260.8661		N20°33'55"E 138.38'	1+90.00	2853052.8937	620309.4758



8/22/2023 2:16 PM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT/DRAWING FILES/PLANS/SET\_C/ARNEY/7545\_S/CONSTRUCTION PLAN AND PROFILE/ARNEY.DWG (BETA STB.BW.STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: SD  
 DESIGNED BY: BB  
 CHECKED BY: TW

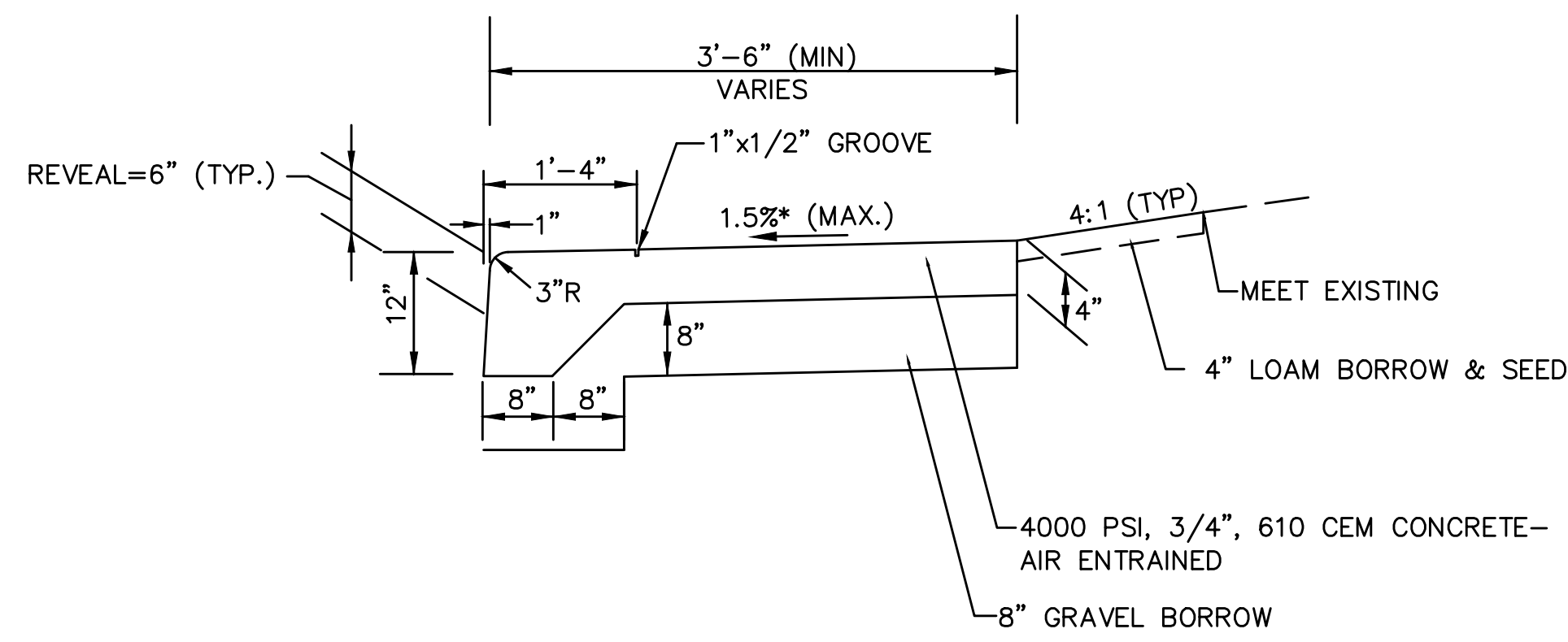


REGISTERED PROFESSIONAL PREPARED BY  
 SUBCONSULTANT

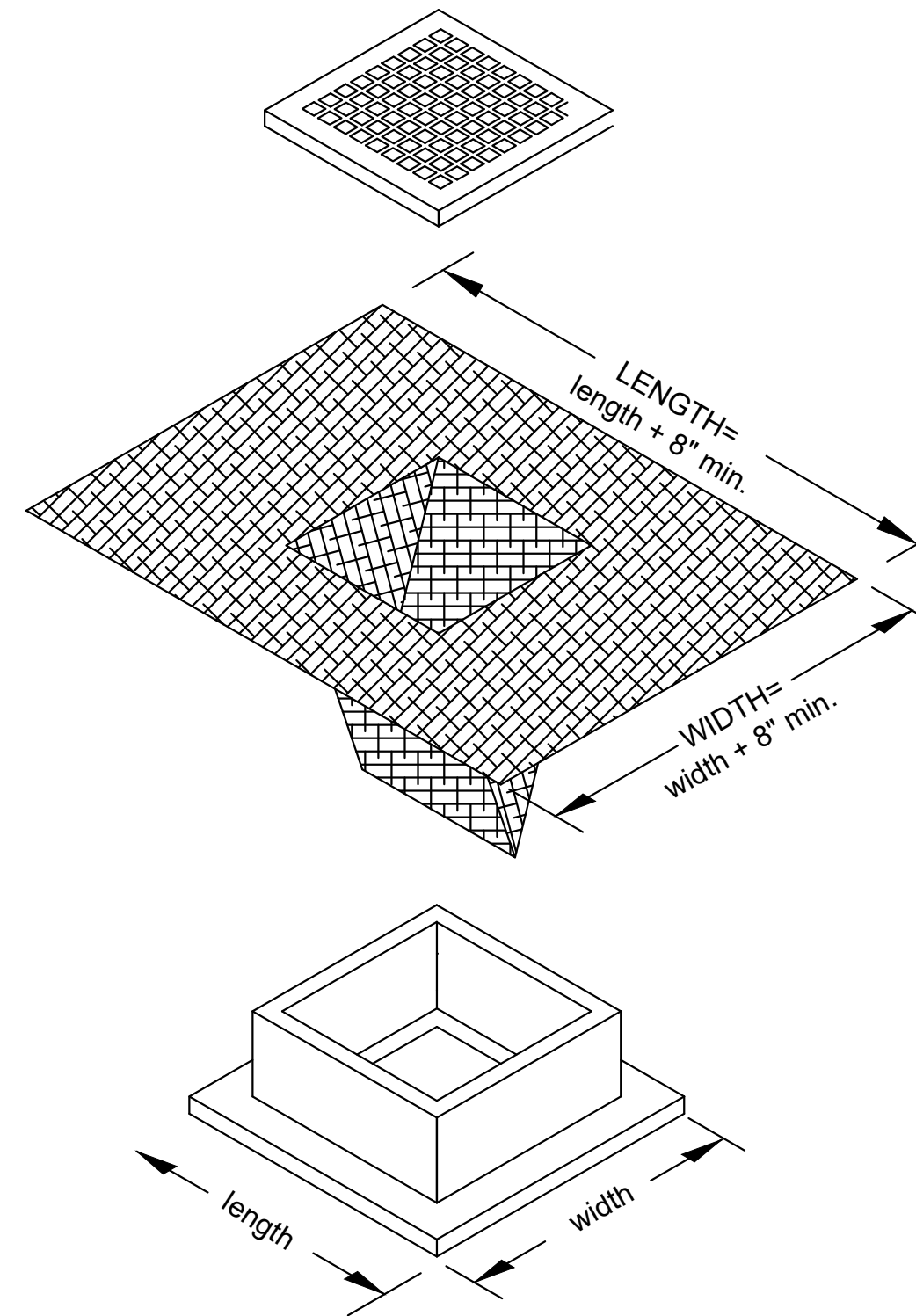
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 Uxbridge, Massachusetts  
**CONSTRUCTION PLAN AND PROFILE**  
 BRIDGE NO. U-02-070

BETA JOB NO. 7545  
 ISSUE DATE: \_\_\_\_\_  
 SHEET NO. 3



**MONOLITHIC CURB & SIDEWALK DETAIL**

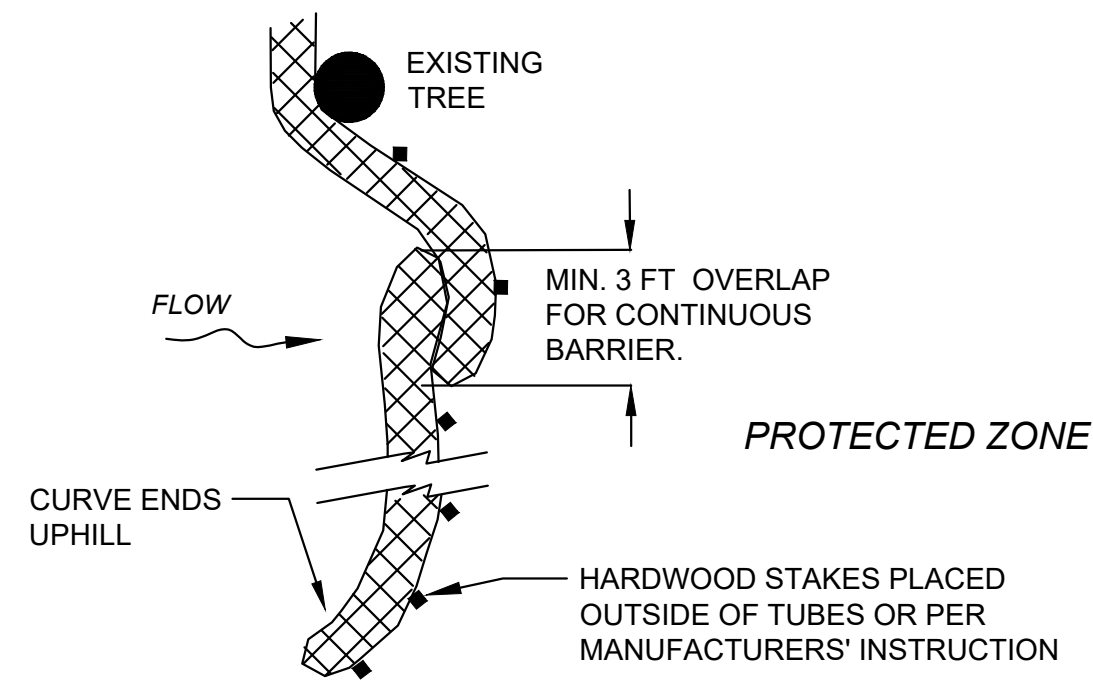


**NOTES**

1. LENGTH AND WIDTH OF POLYPROPYLENE FABRIC MUST EXCEED EXISTING CATCH BASIN FRAME DIMENSIONS BY A MINIMUM OF 8".
2. REMOVE CATCH BASIN GRATE AND INSTALL POLYPROPYLENE FABRIC OVER CATCH BASIN FRAME. REPLACE CATCH BASIN GRATE TO SECURE POLYPROPYLENE FABRIC IN PLACE.

**SILT SACK**

NOT TO SCALE

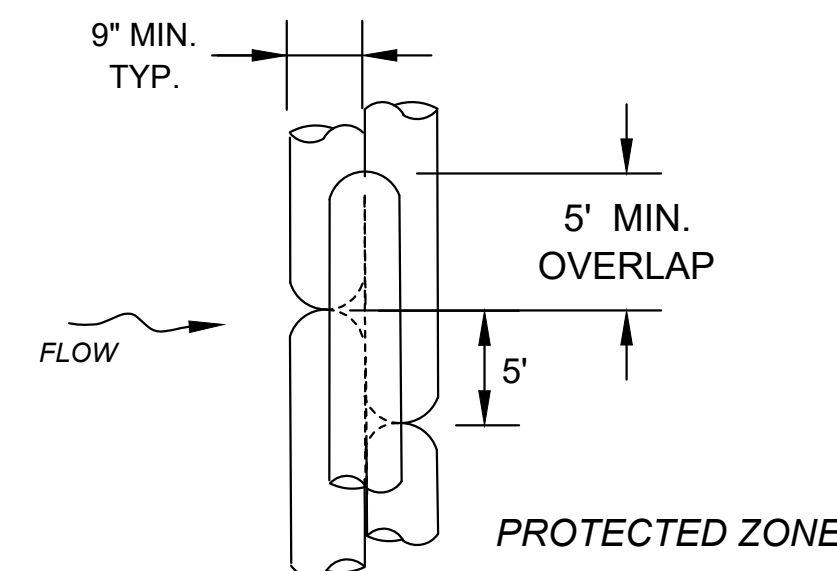


PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

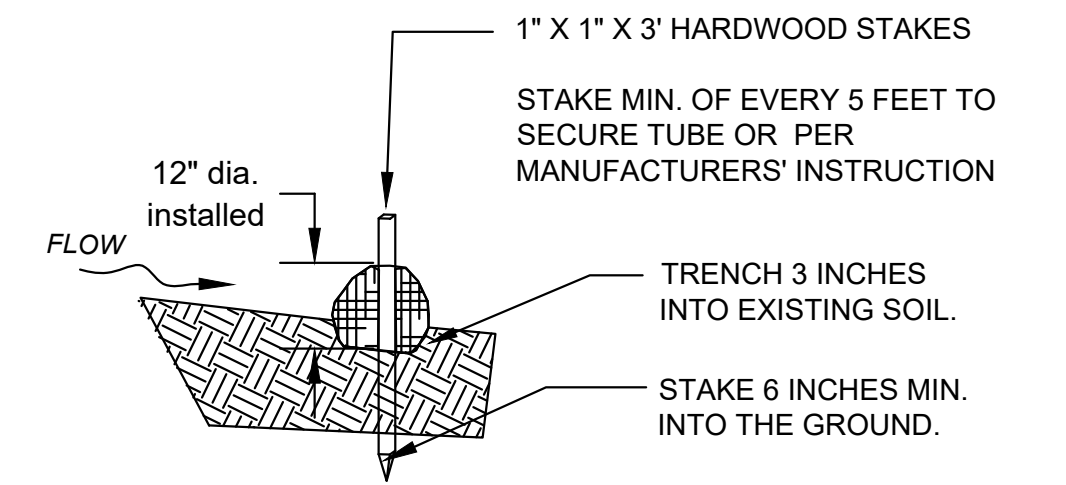
**PLAN VIEW**

WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED



**PLAN VIEW**

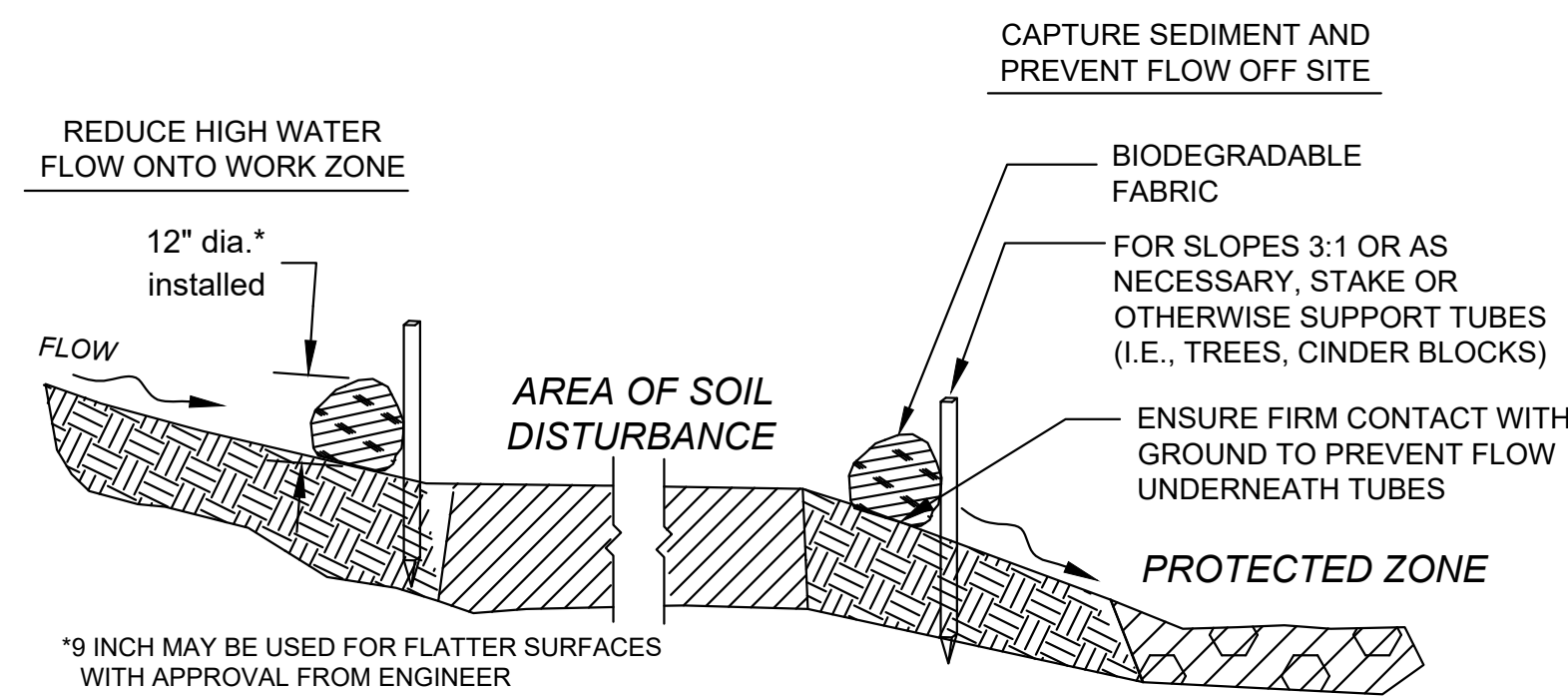
FOR USE ONLY ON SLOPES UP TO 5% AND WITH APPROVAL OF THE ENGINEER. NOT TO BE USED FOR WETLAND MITIGATION.



**SECTION**

**12 INCH STRAW WATTLE**

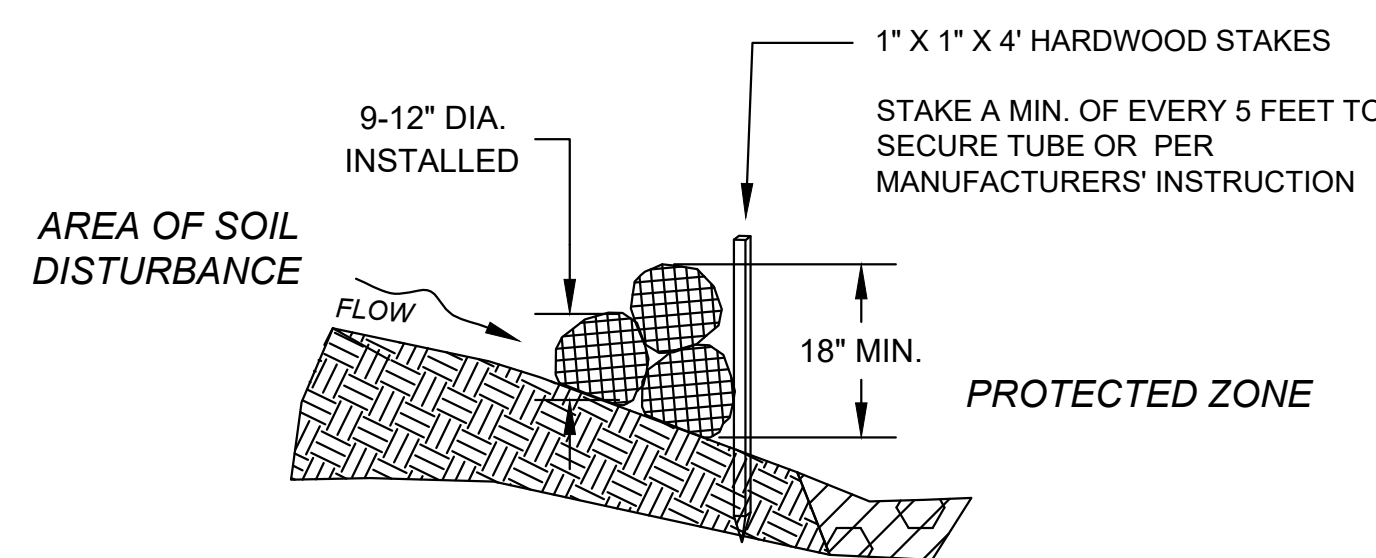
NOT TO SCALE



**SECTION**

**SEDIMENT BARRIER - COMPOST FILTER TUBE**

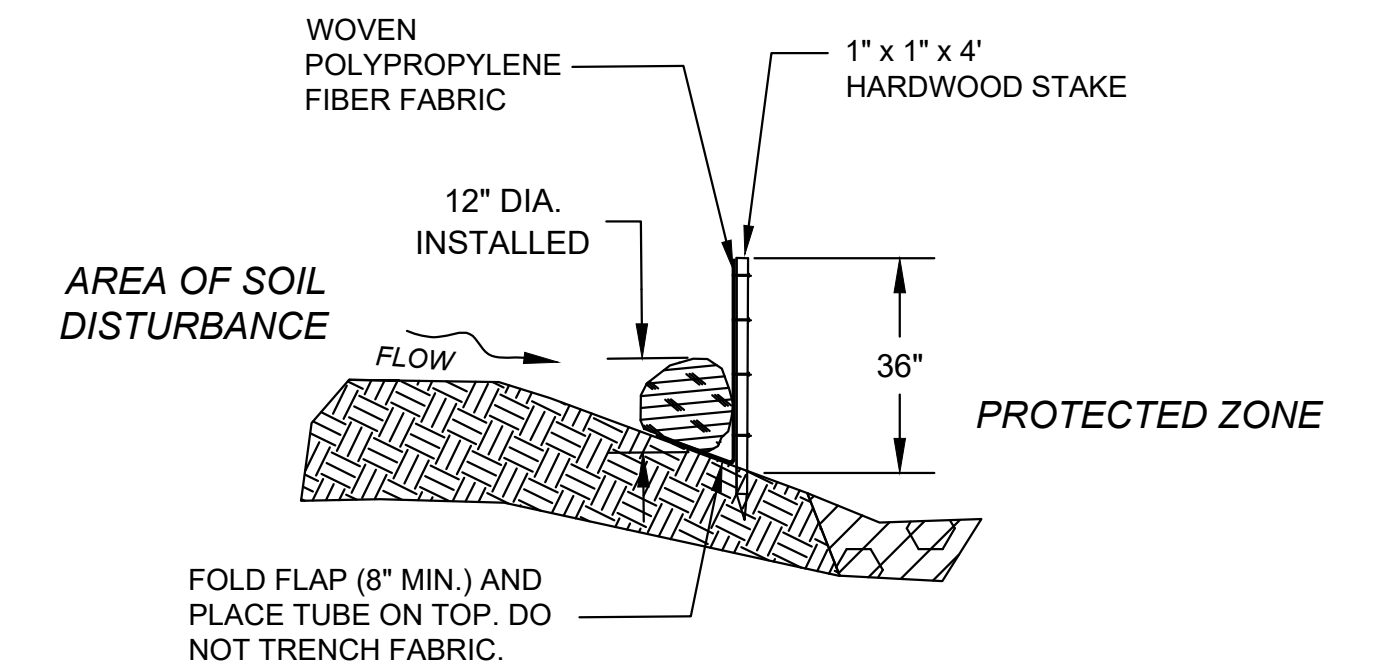
NOT TO SCALE



**SECTION**

**COMPOST FILTER TUBES STACKED**

NOT TO SCALE



**SECTION**

**COMPOST FILTER TUBE & SILT FENCE**

NOT TO SCALE

8/22/2023 2:17 PM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET\_CARNERY\7545\_SRDDETAILS\_S\_CARNERY.DWG (BETA STB BW/STB)

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DESIGNED BY: BB
CHECKED BY: TW



SUBCONSULTANT
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SCALE	NONE
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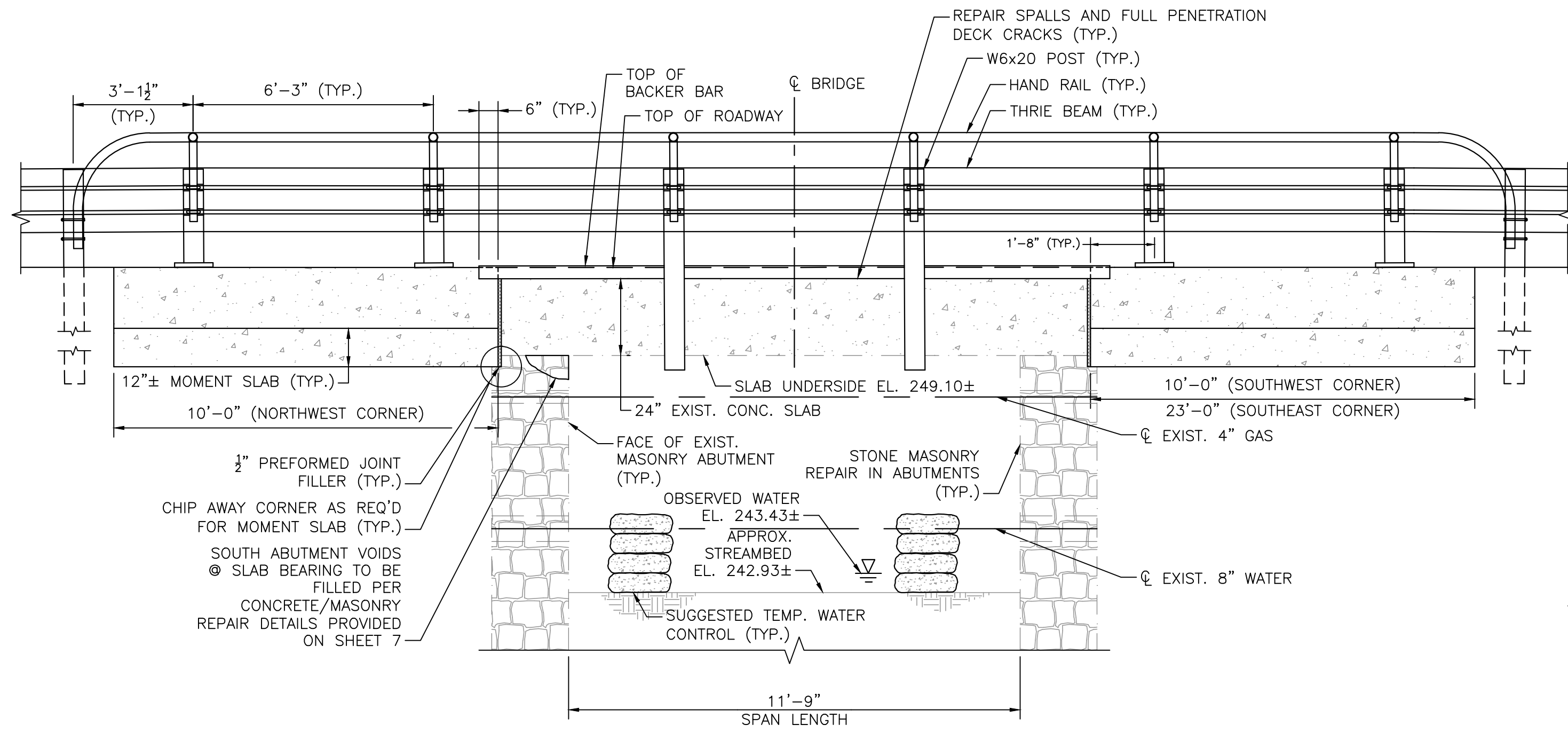
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BRIDGE NO.	U-02-070

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	4

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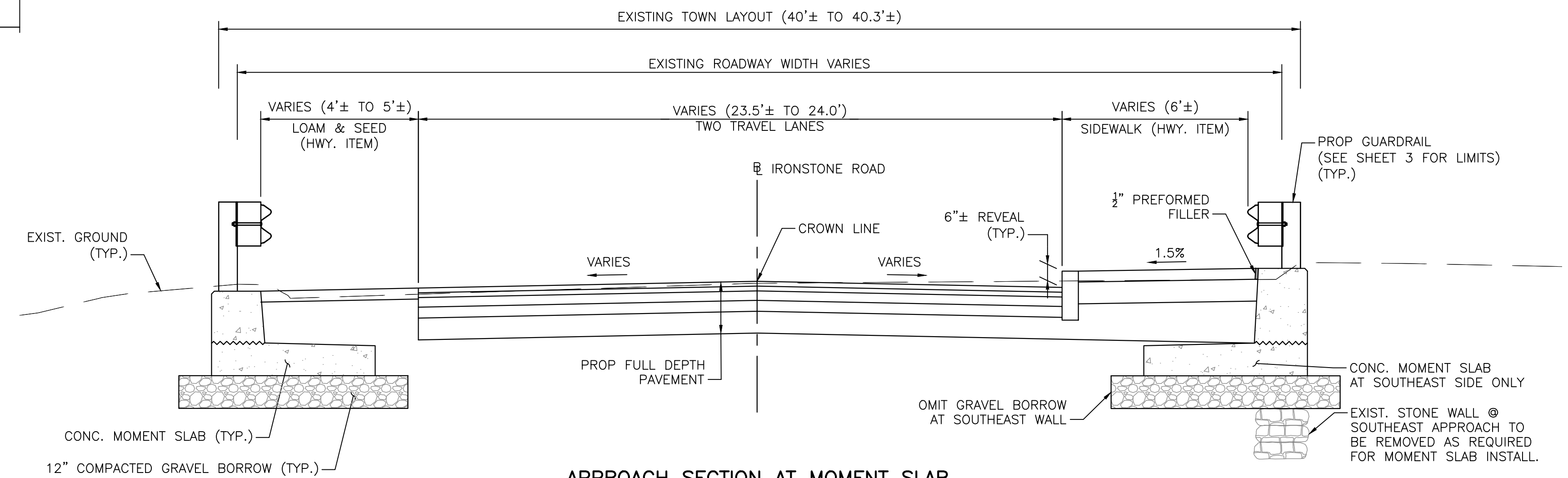






**WEST BRIDGE ELEVATION, LOOKING EAST**

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

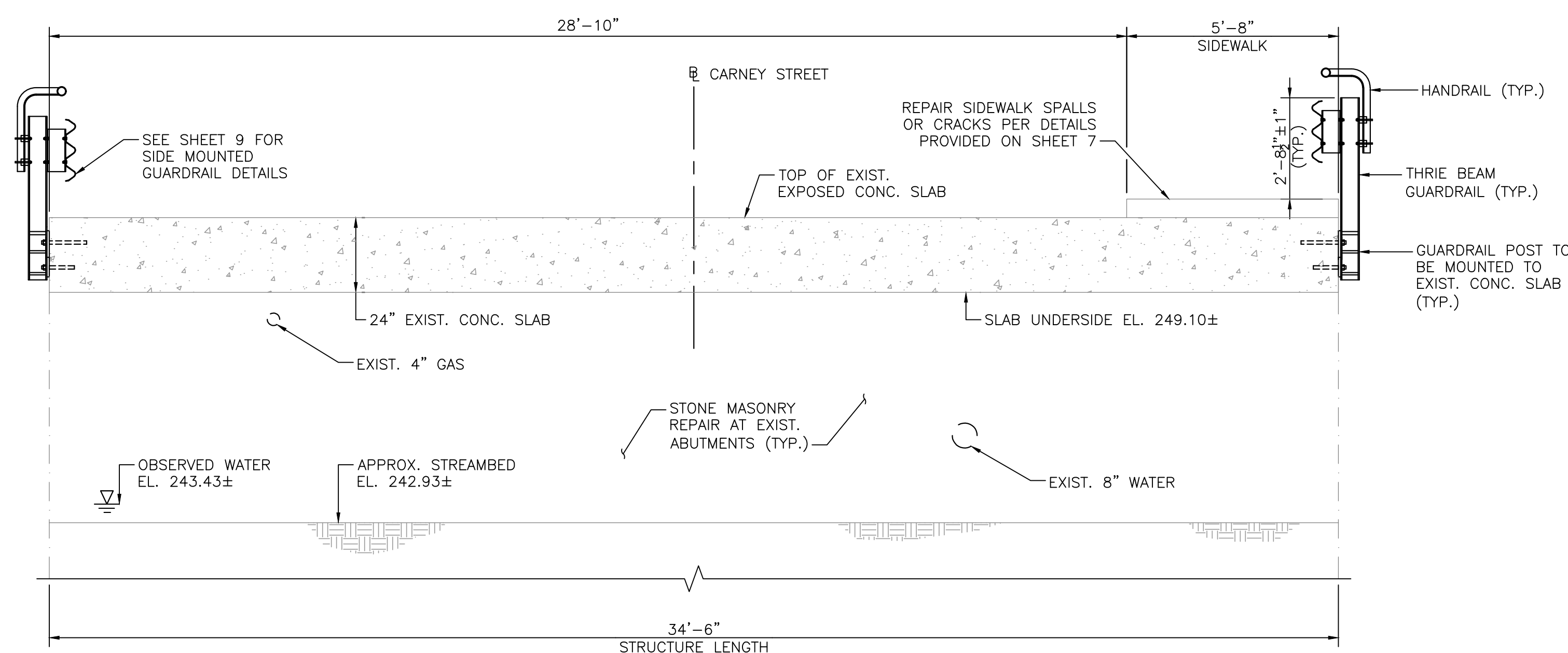


**APPROACH SECTION AT MOMENT SLAB**

NOT TO SCALE

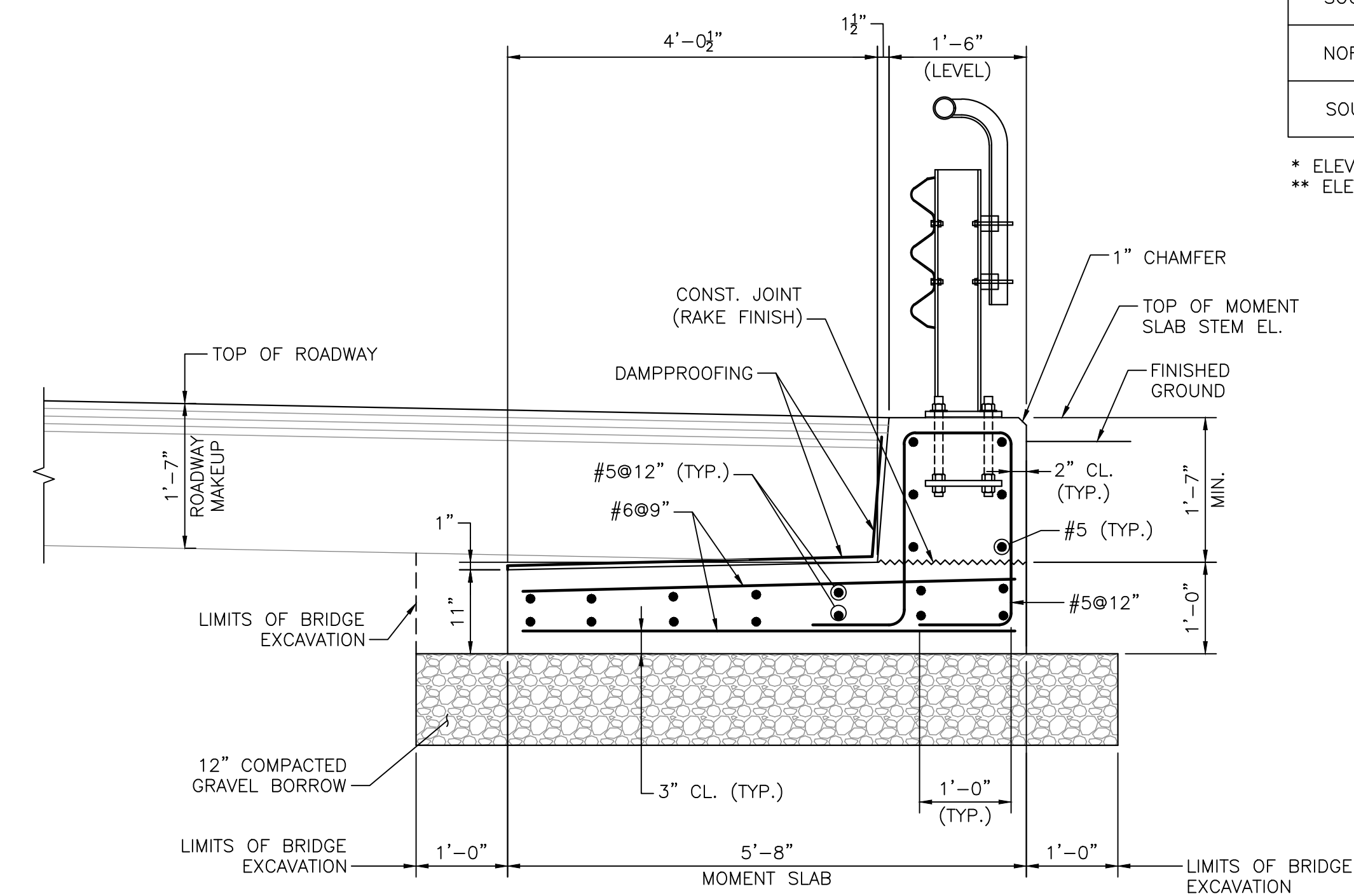
TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	STATION	ELEVATION
SOUTHWEST	0+64.6	251.41
	0+74.6	*
NORTHWEST	0+89.9	*
	0+99.9	250.94
SOUTHEAST	0+51.6	252.31
	0+74.6	**

\* ELEVATION TO MATCH TOP OF EXISTING CONCRETE BRIDGE DECK  
 \*\* ELEVATION TO MATCH TOP OF EXISTING BRIDGE SIDEWALK



**TRANSVERSE BRIDGE SECTION**

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



**NOTES:**

- ALL CONCRETE SHALL BE 4000 PSI, 1 1/2 IN, 565 CEMENT CONCRETE.
- MOMENT SLAB SECTION WITHOUT SIDEWALK SHOWN, SECTION WITH SIDEWALK SIMILAR.

**MOMENT SLAB SECTION**

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

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
 APPROVED UNDER PROVISIONS OF  
 MASS. GEN. LAWS CH 85 S 35

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

8/23/2023 11:35 AM N:\75605\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET1\7546\_S\STRUCTURAL\DETAILS\DWG (BETA-STB BW) (STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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BN

DESIGNED BY:  
TW

CHECKED BY:  
TW



REGISTERED PROFESSIONAL

PREPARED BY

SUBCONSULTANT

SCALE

AS SHOWN

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TITLE

**Carney Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**STRUCTURAL DETAILS**

BRIDGE NO. U-02-070

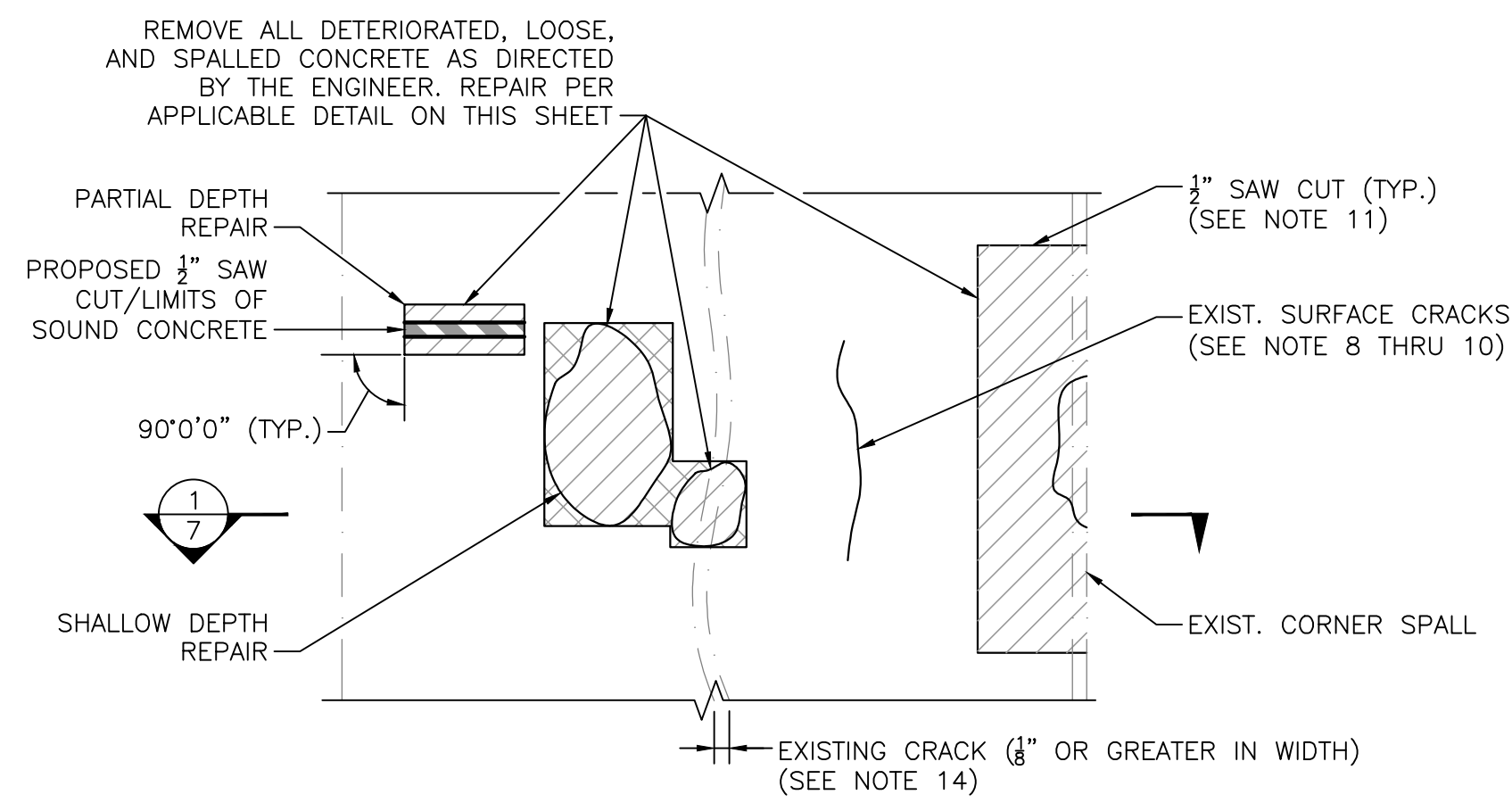
BETA JOB NO. 7545

ISSUE DATE \_\_\_\_\_

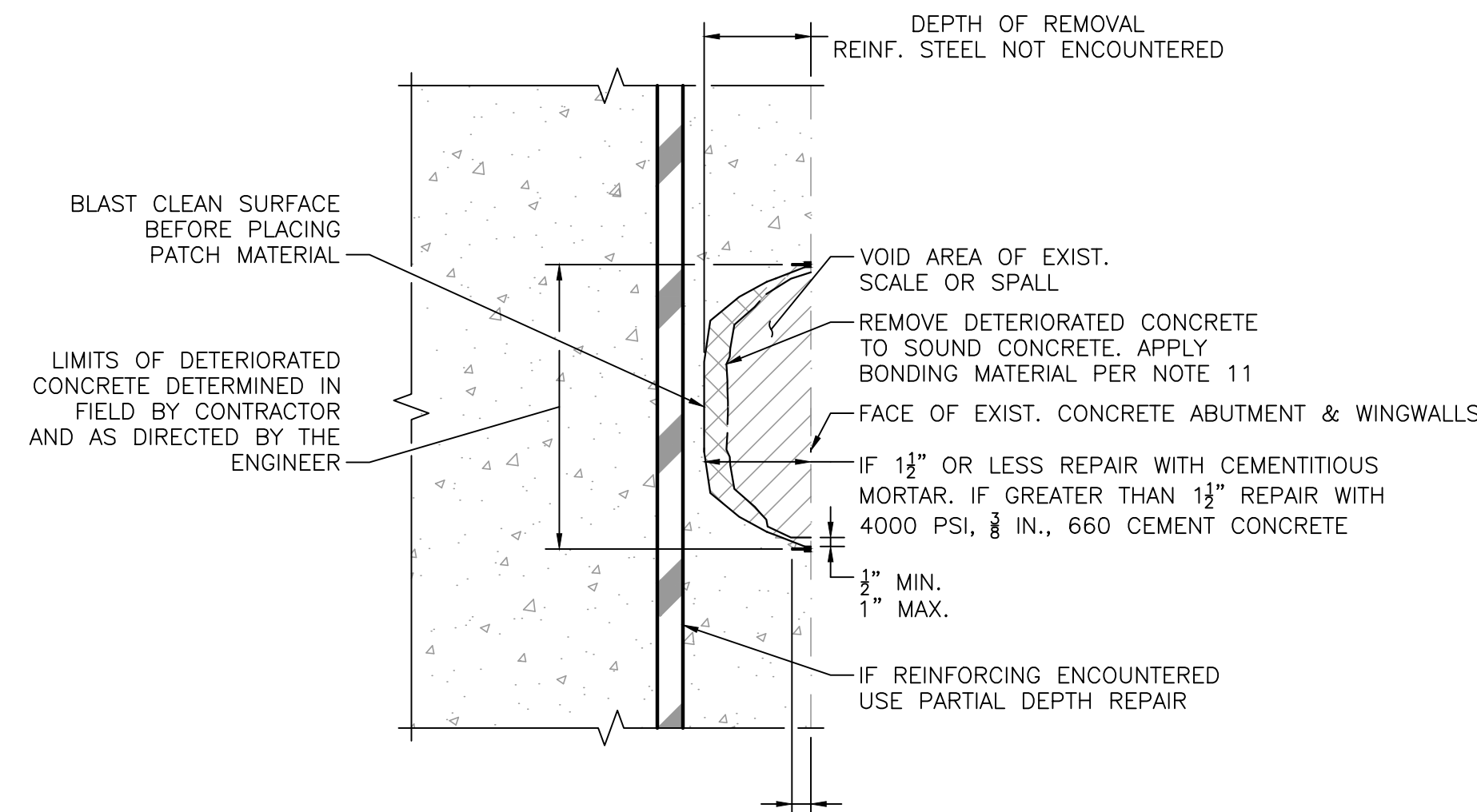
SHEET NO. 2

Sheet 6 of 12 Bridge No. U-02-070 (C4E)

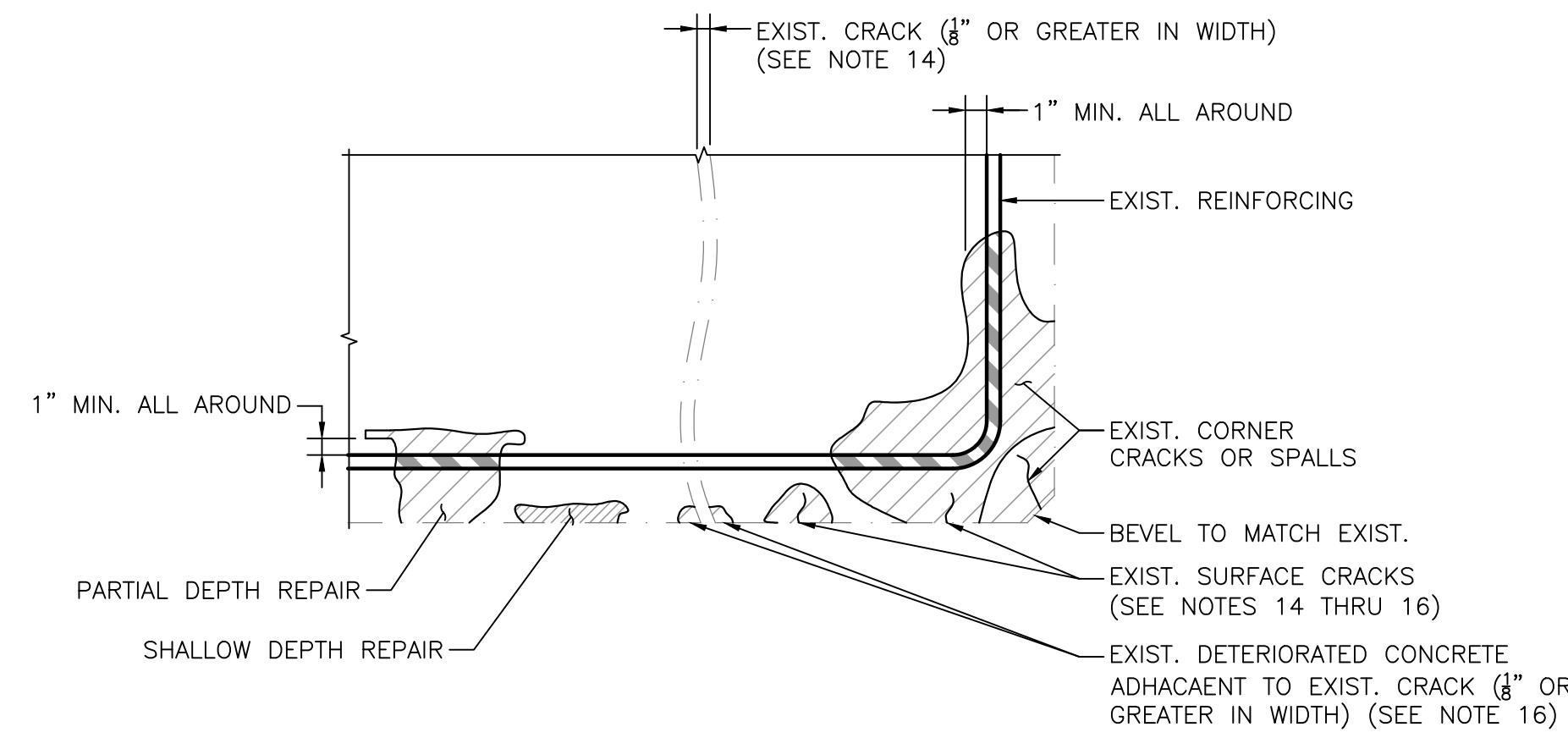
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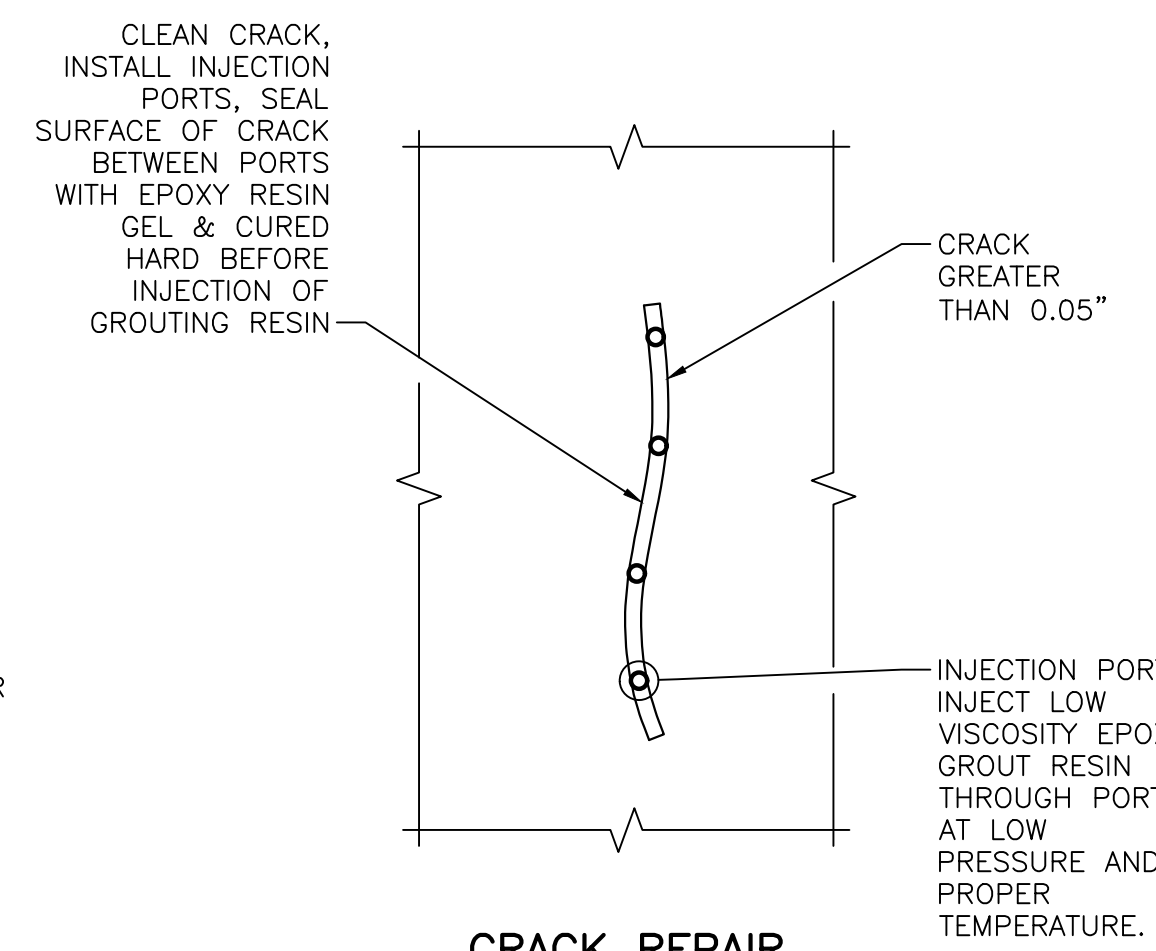
**GENERAL ELEVATION**  
NOT TO SCALE



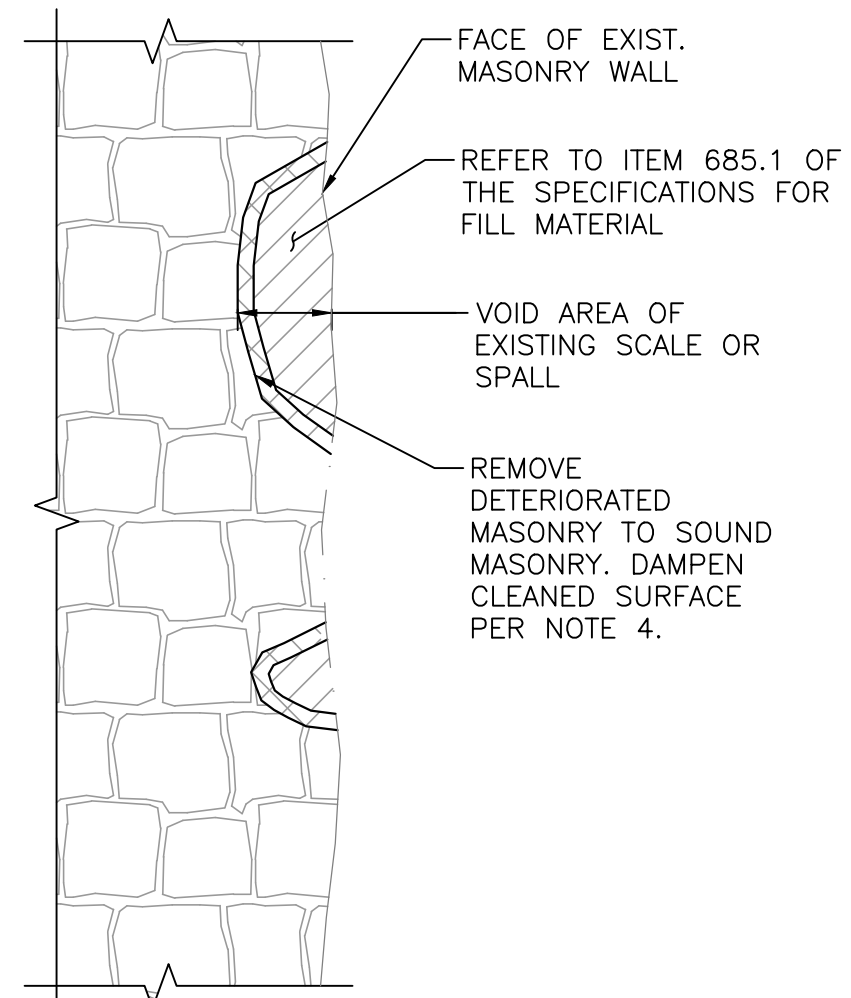
**SHALLOW DEPTH REPAIR DETAIL**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**CRACK REPAIR**  
NOT TO SCALE



**TYPICAL MASONRY WALL REPAIR**  
NOT TO SCALE

**MASONRY REPAIR NOTES:**

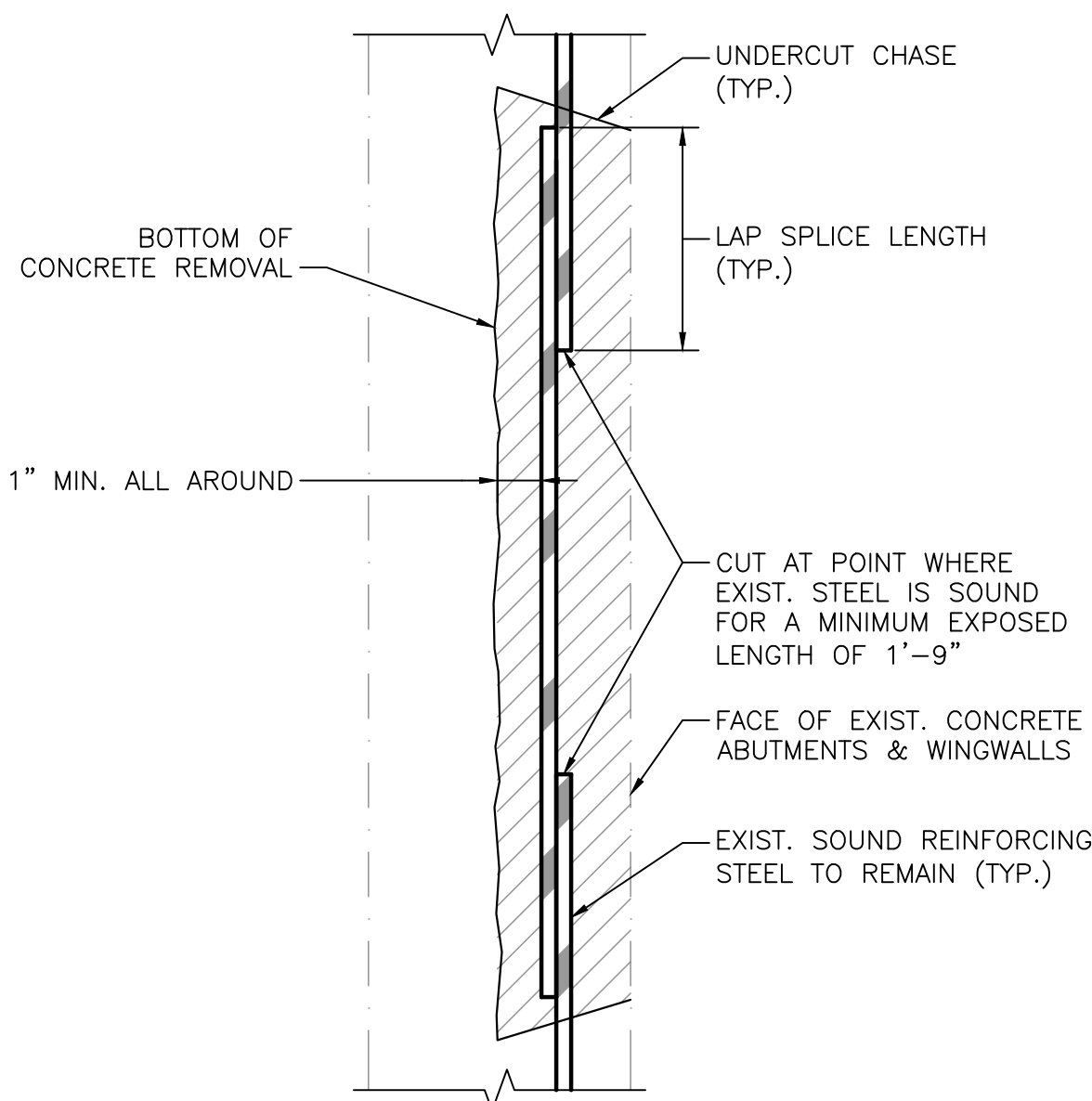
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

**CONCRETE REPAIR NOTES:**

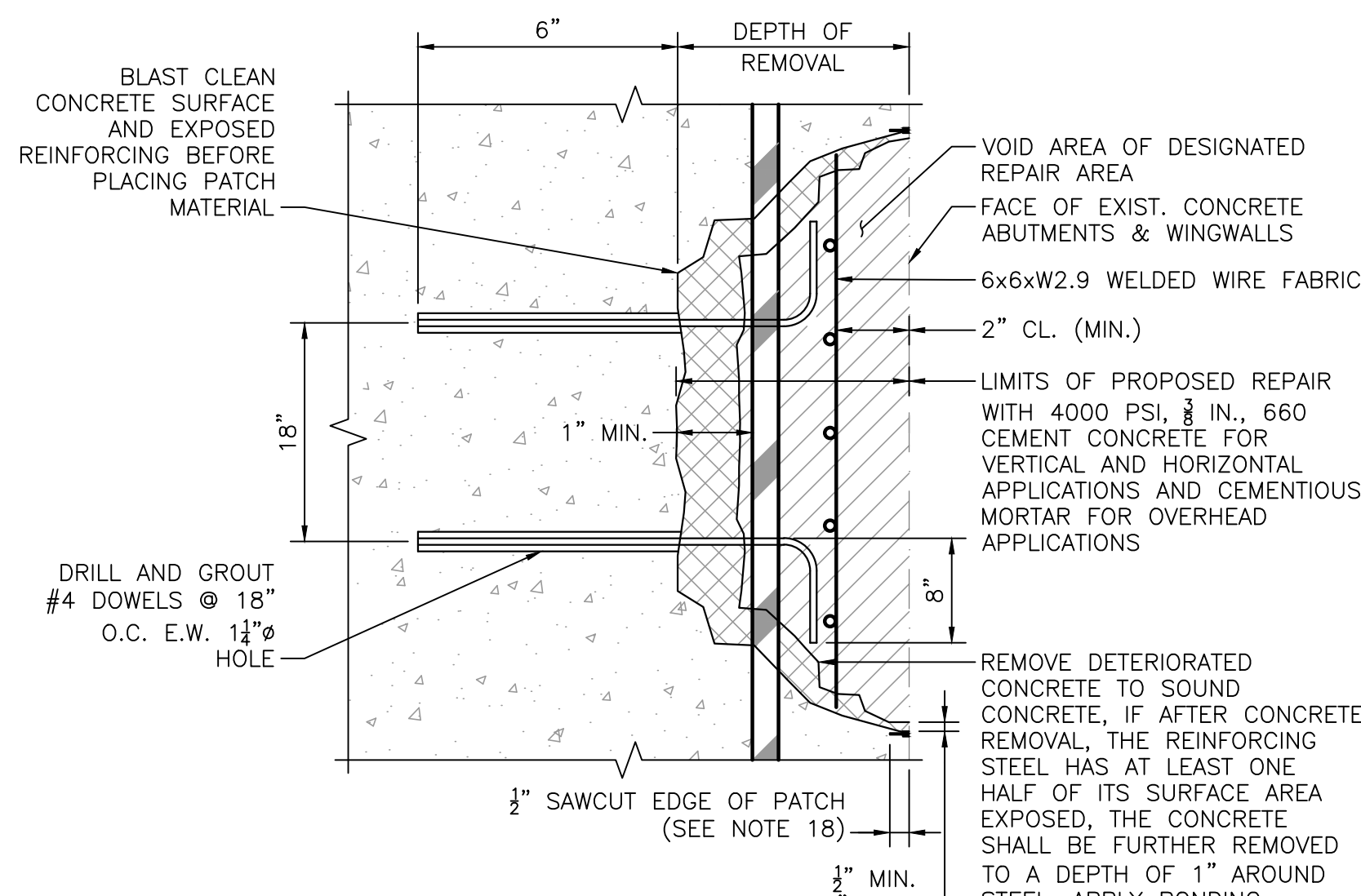
8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN 1 1/2" DEEP SHALL BE REPAIRED USING 4000 PSI, 3/8 IN., 660 CEMENT CONCRETE. AREAS LESS THAN 1 1/2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4 INCH.
13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNERED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A 1/2" SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.

**LEGEND:**

- DETERIORATED CONCRETE TO BE REMOVED.
- REINFORCING STEEL.
- ADDITIONAL CONCRETE TO BE REMOVED.



**REINFORCING REPLACEMENT DETAIL**  
NOT TO SCALE



**PARTIAL DEPTH REPAIR DETAIL**  
NOT TO SCALE

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
BN  
DESIGNED BY:  
TW  
CHECKED BY:  
TW



REGISTERED PROFESSIONAL  
PREPARED BY  
SUBCONSULTANT

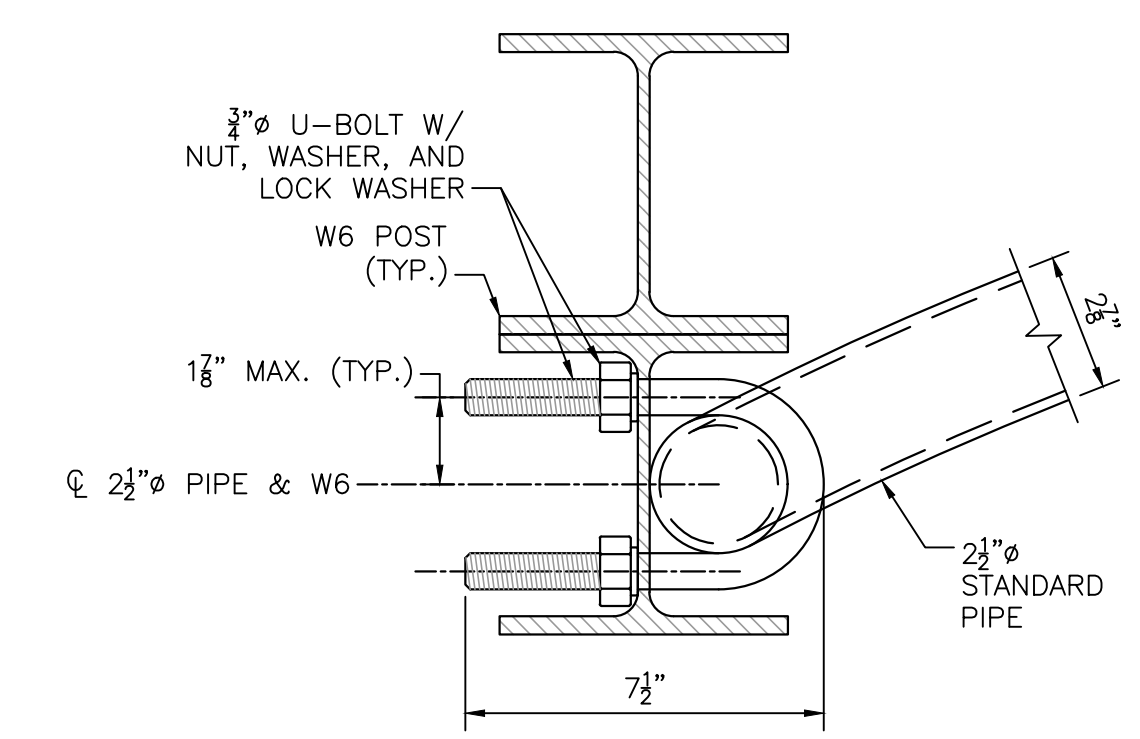
SCALE  
AS SHOWN

TITLE  
**Carney Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**CONCRETE & MASONRY REPAIR DETAILS**

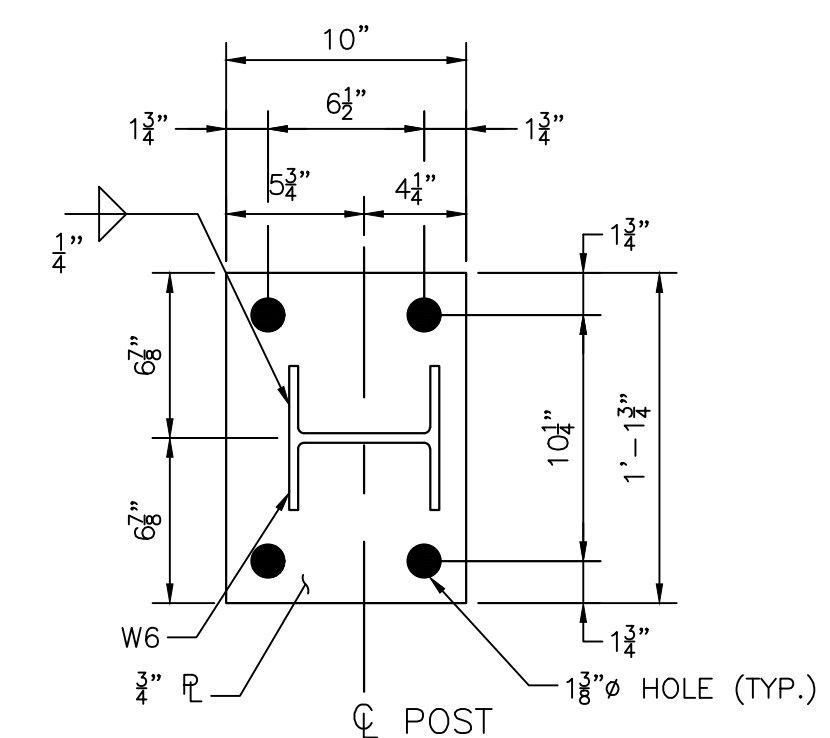
BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. **3**  
Sheet 7 of 12 Bridge No. U-02-070 (C4E)

**NOTES:**

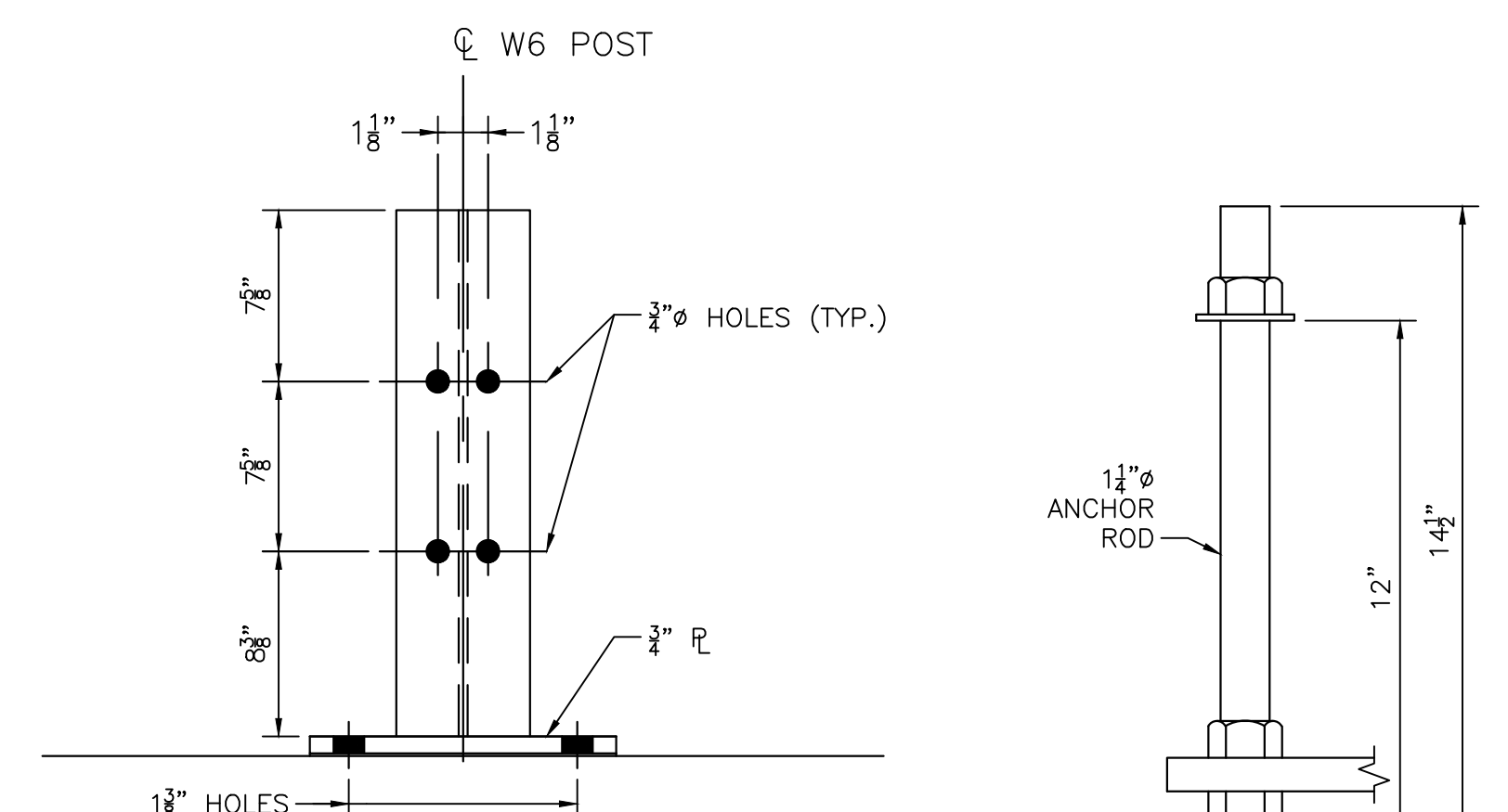
- ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232. ALL ANCHOR RODS SHALL CONFORM TO F1554 GRADE 105 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
- RAIL POSTS AND ANCHOR PLATES SHALL BE SEATED ON MOULDED FABRIC BEARING PADS MEETING M9.16.2 AND HAVING THE SAME DIMENSIONS AS THE PLATE. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.
- RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3"x1 1/2" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.
- MINIMUM LENGTH OF THE THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.
- THRIE BEAM GUARD RAIL STEEL SHALL BE GALVANIZED AND CONFORM TO THE AASHTO M180, CLASS B, TYPE IV AND SHALL BE 10 GAGE THICK. USE OF 12 GAGE THICK THRIE BEAM IS EXPRESSLY FORBIDDEN.
- POSTS, ANCHOR PLATES, BASE PLATES SHALL BE FABRICATED FROM STEEL CONFORMING TO AASHTO M270M GR. 250 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)
- HAND RAIL STEEL SHALL CONFORM TO ASTM A53 GR. B OR A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
- PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF THRIE BEAM EVERY THIRD POST.
- HAND RAIL SHALL BE SPLICED OVER JOINTS IN COPING.



**END SADDLE DETAIL**  
 SCALE: 3" = 1'-0"

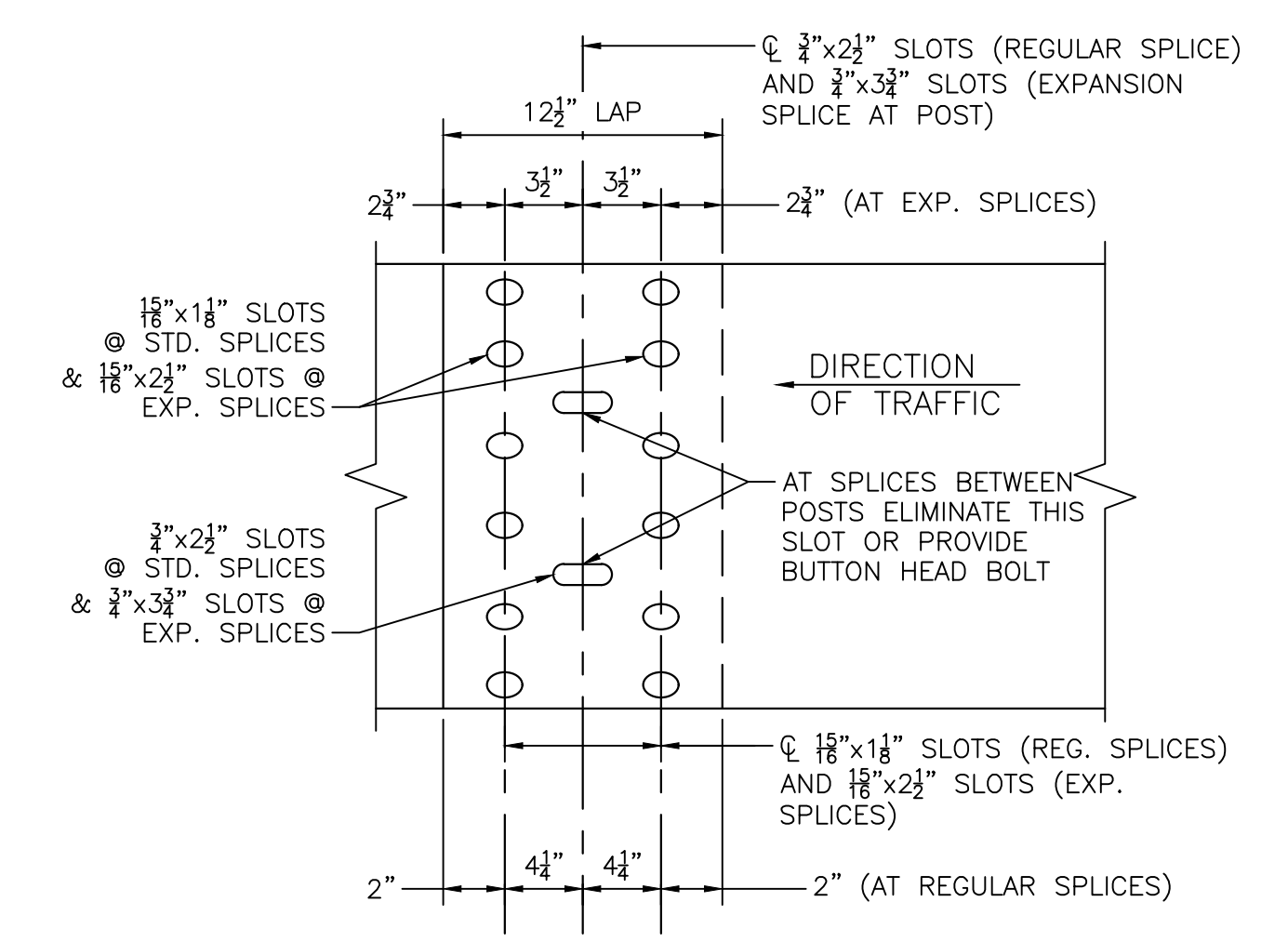


**BASE PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"

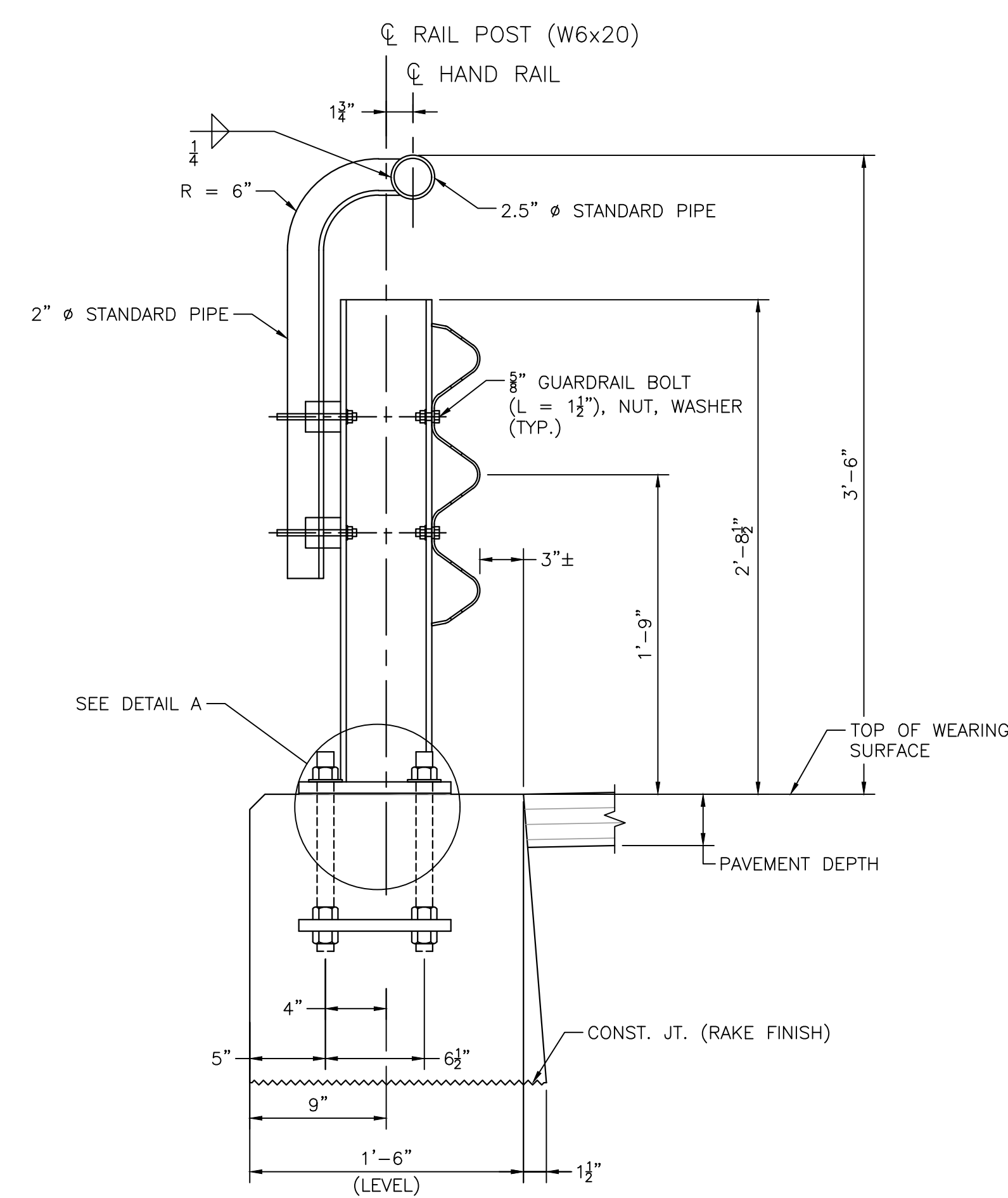


**RAIL POST DETAIL (FRONT VIEW)**  
 SCALE: 1 1/2" = 1'-0"

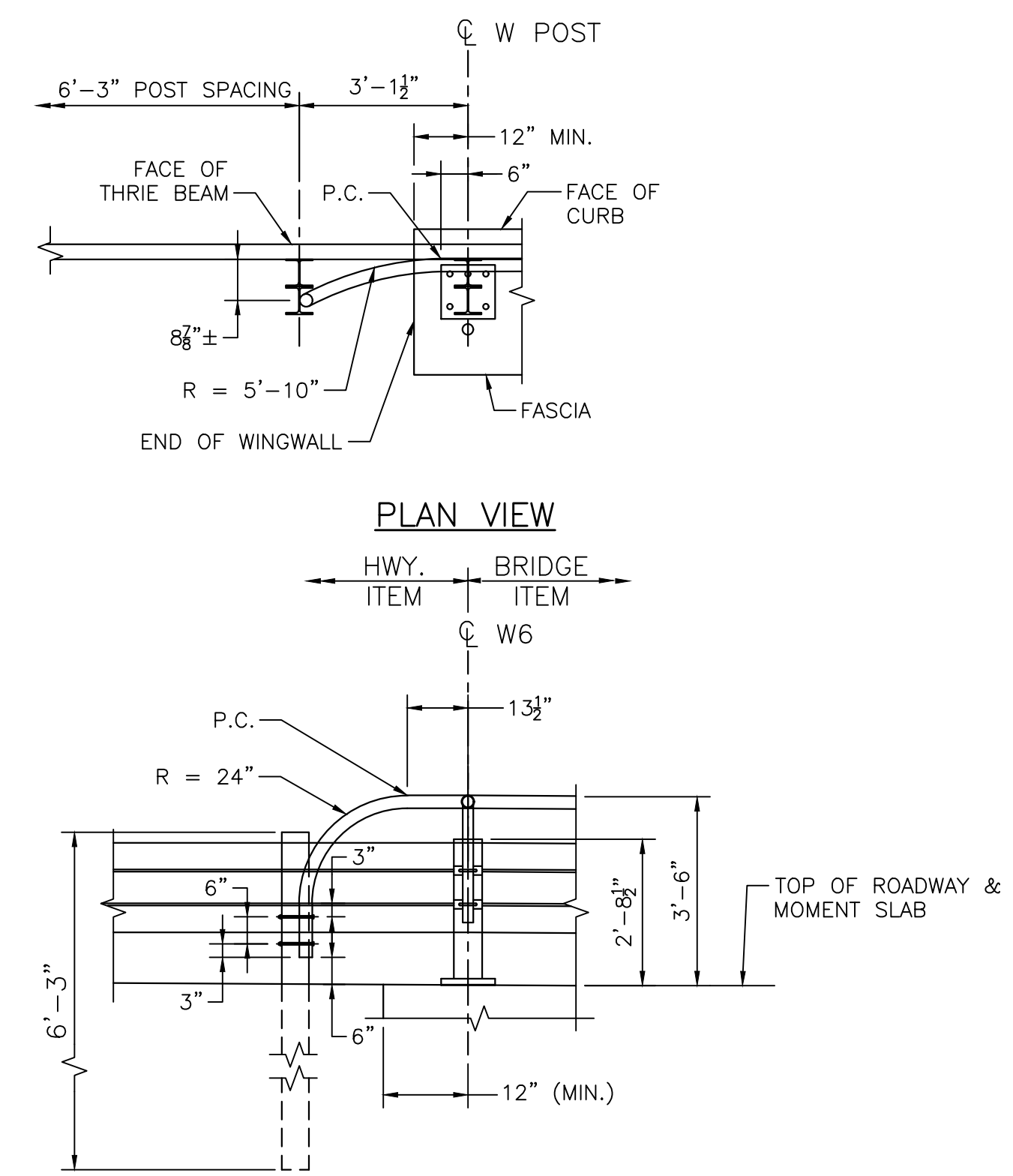
**ANCHOR ROD DETAIL**  
 NOT TO SCALE



**THRIE BEAM RAIL SPLICE**  
 SCALE: 1 1/2" = 1'-0"



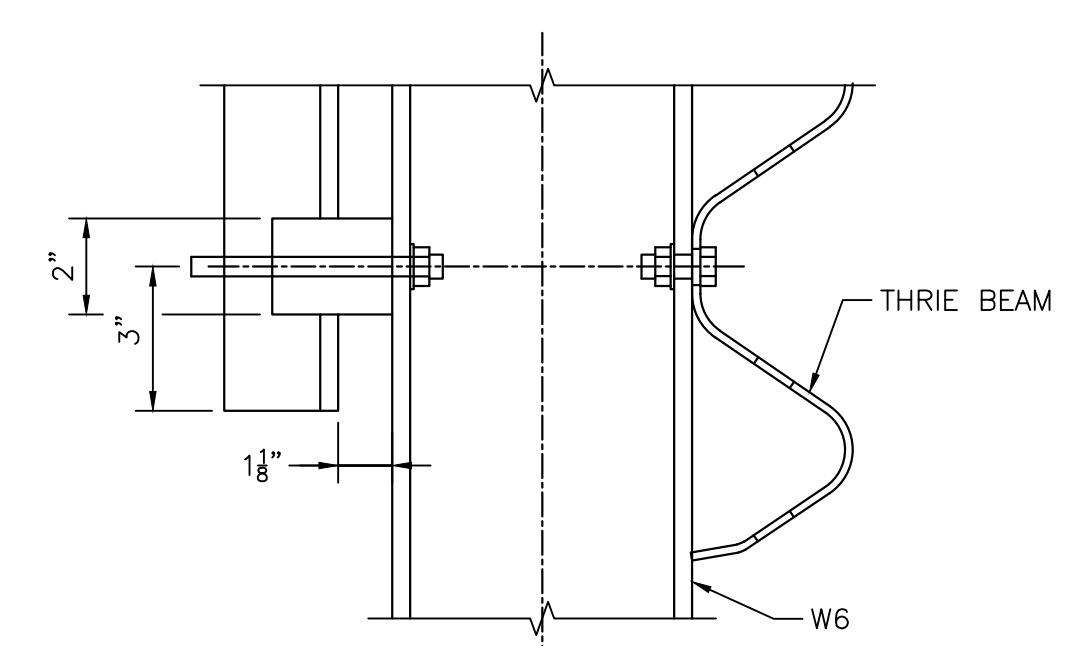
**THRIE BEAM SECTION**  
 SCALE: 1 1/2" = 1'-0"



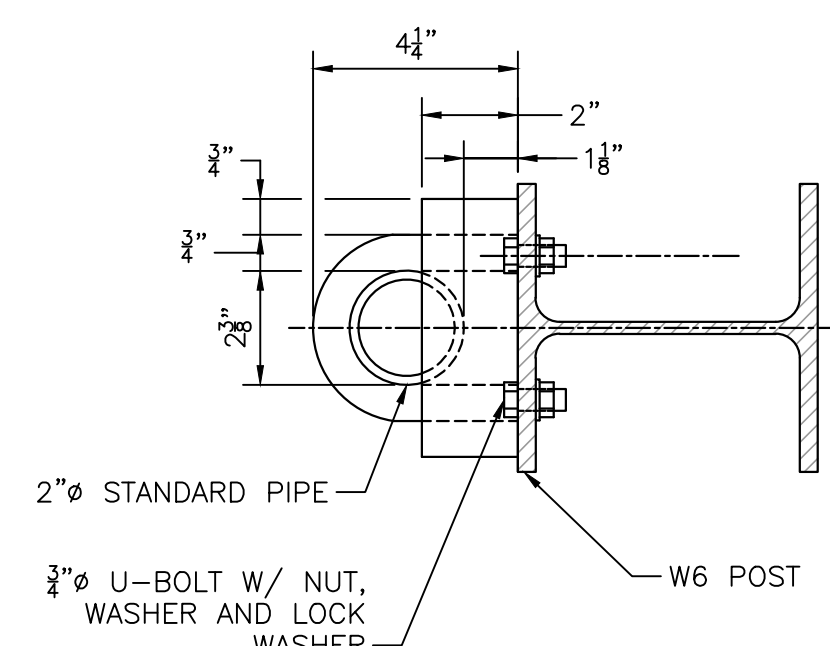
**HAND RAIL END DETAIL**  
 SCALE: 3/8" = 1'-0"

**PLAN VIEW**

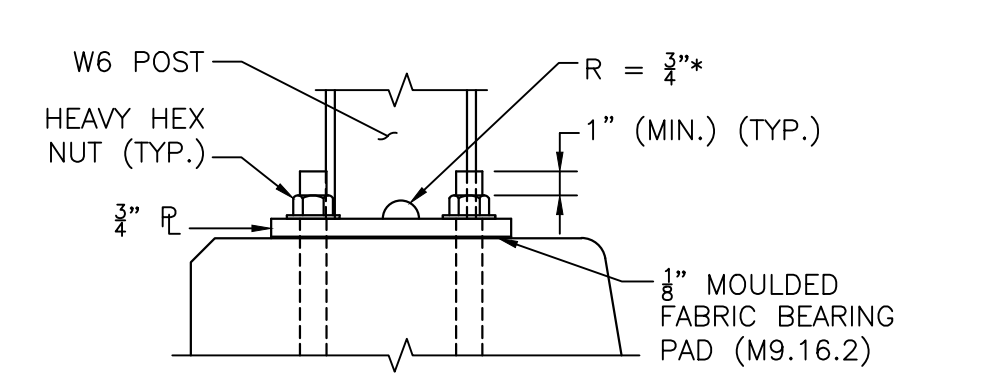
**ELEVATION**



**SADDLE DETAILS**  
 SCALE: 3" = 1'-0"

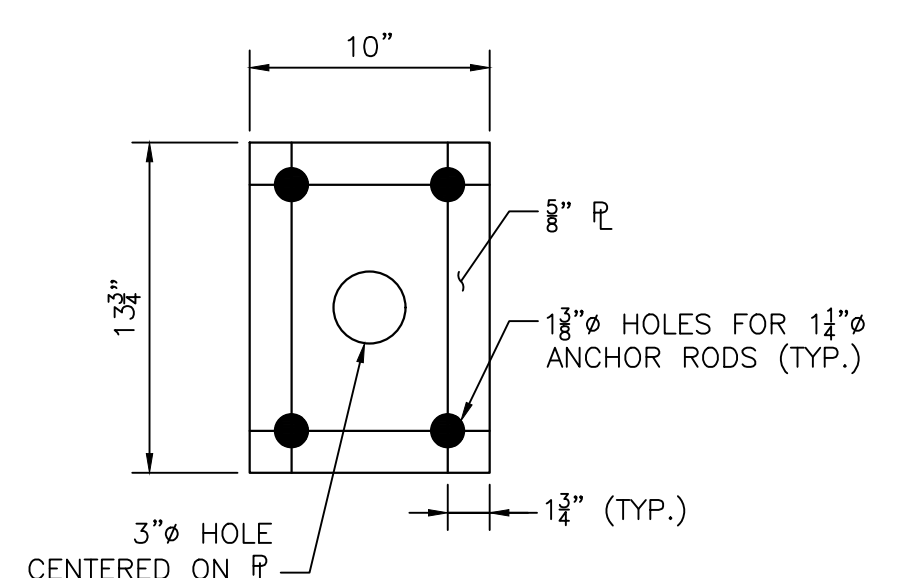


**PLAN**

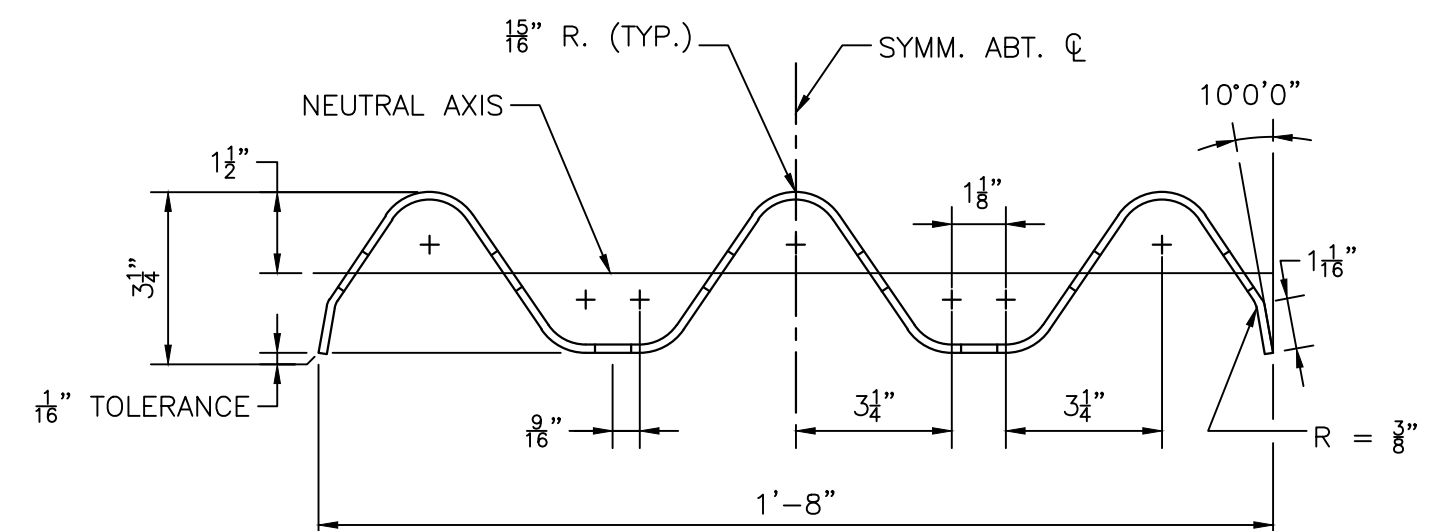


\* PERMISSIBLE SEMI-CIRCULAR NOTCHES IN ENDS OF WEB CENTERED ON AXIS OF POST TO FACILITATE GALVANIZING (TYPICAL TOP AND BOTTOM OF POST)

**DETAIL A**  
 SCALE: 1 1/2" = 1'-0"



**ANCHOR PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**SECTION THRU THRIE BEAM RAIL**  
 SCALE: 3" = 1'-0"

8/23/2023 11:36 AM N:\75605\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SR\THRIEBEAMDETAILS10\F2 - CARNEY.DWG (BETA STB.BW.STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

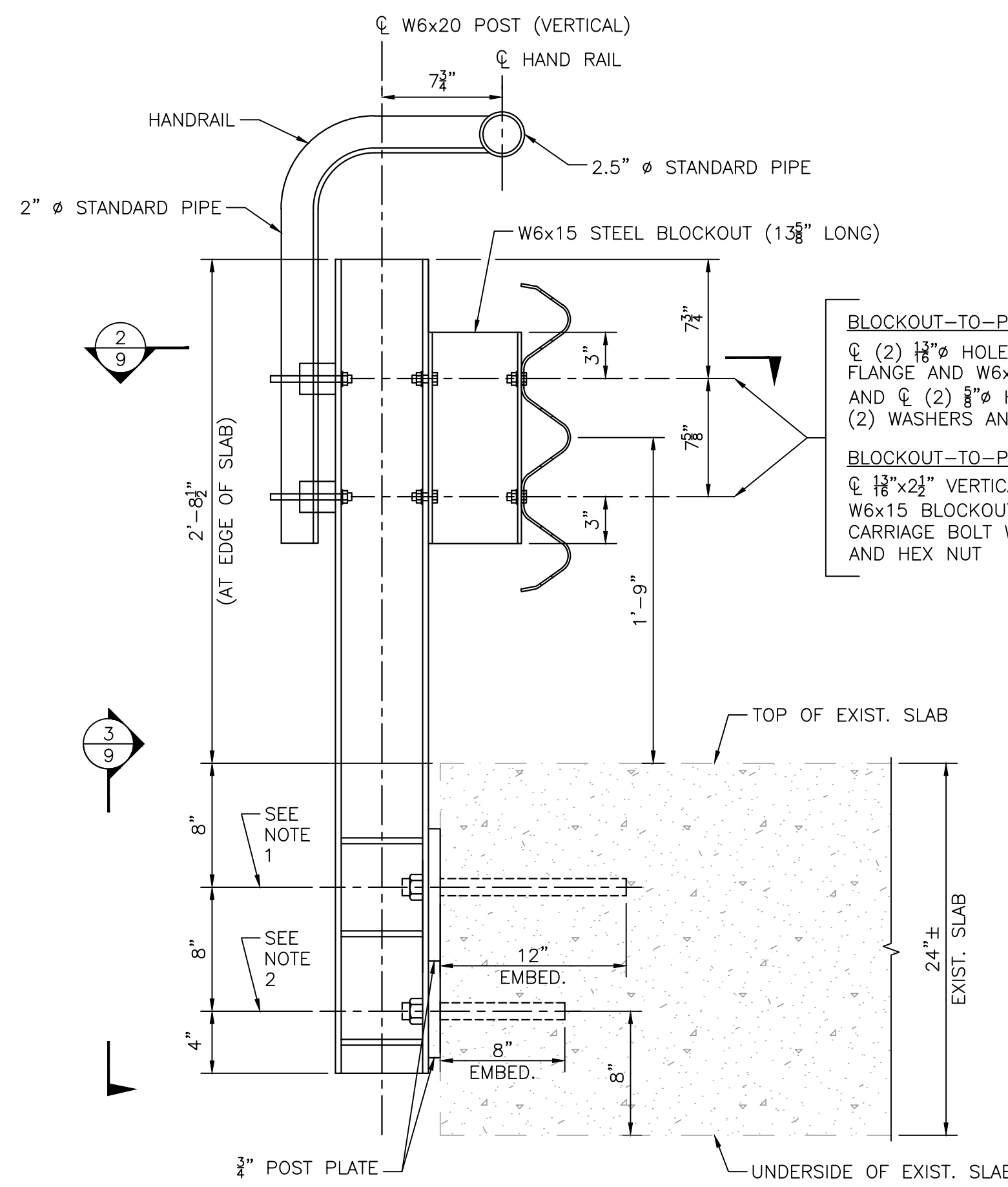
DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW



REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT

SCALE	TITLE
AS SHOWN	Carney Street Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS (1 OF 2)

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	4
BRIDGE NO.	U-02-070



**NOTES:**

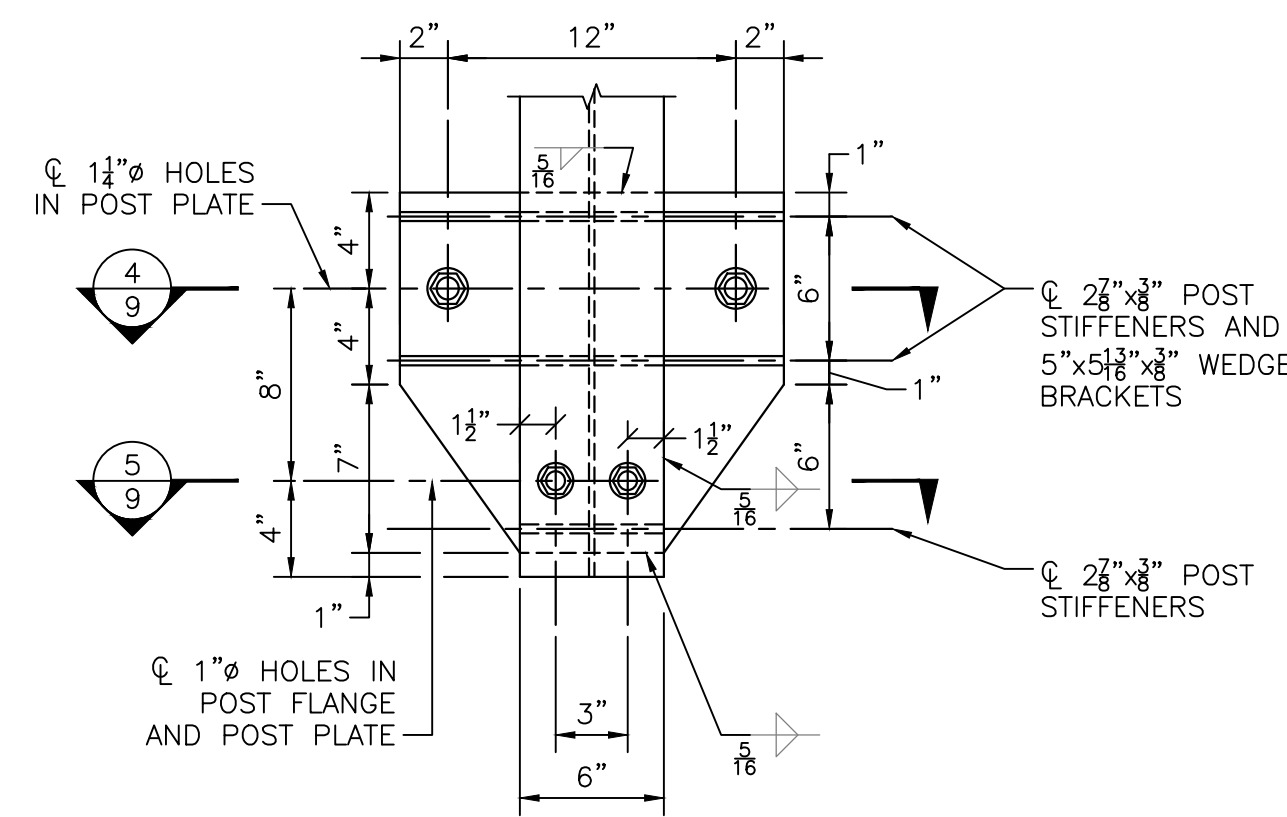
1.  $\varnothing$  TWO RESIN ANCHOR SYSTEM EACH WITH A MINIMUM ULTIMATE PULLOUT STRENGTH OF 72 KIP AND EACH TO INCLUDE:

  - $1\frac{1}{8}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
  - $1\frac{1}{4}$ " HOLE IN POST PLATE AND INSIDE POST FLANGE
  - $1"$  ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT AND EMBEDDED 12 INCHES IN SLAB
  - HEX NUT AND  $2\frac{1}{2}$ " HARDENED LOCKING WASHER
2.  $\varnothing$  TWO RESIN ANCHOR SYSTEM EACH WITH A MINIMUM ULTIMATE PULLOUT STRENGTH OF 20.4 KIP AND EACH TO INCLUDE:

  - $\frac{3}{8}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER
  - $1"$  HOLE IN POST PLATE AND INSIDE POST FLANGE
  - $\frac{3}{4}$ " ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT AND EMBEDDED 8 INCHES IN SLAB
  - HEX NUT AND HARDENED LOCKING WASHER

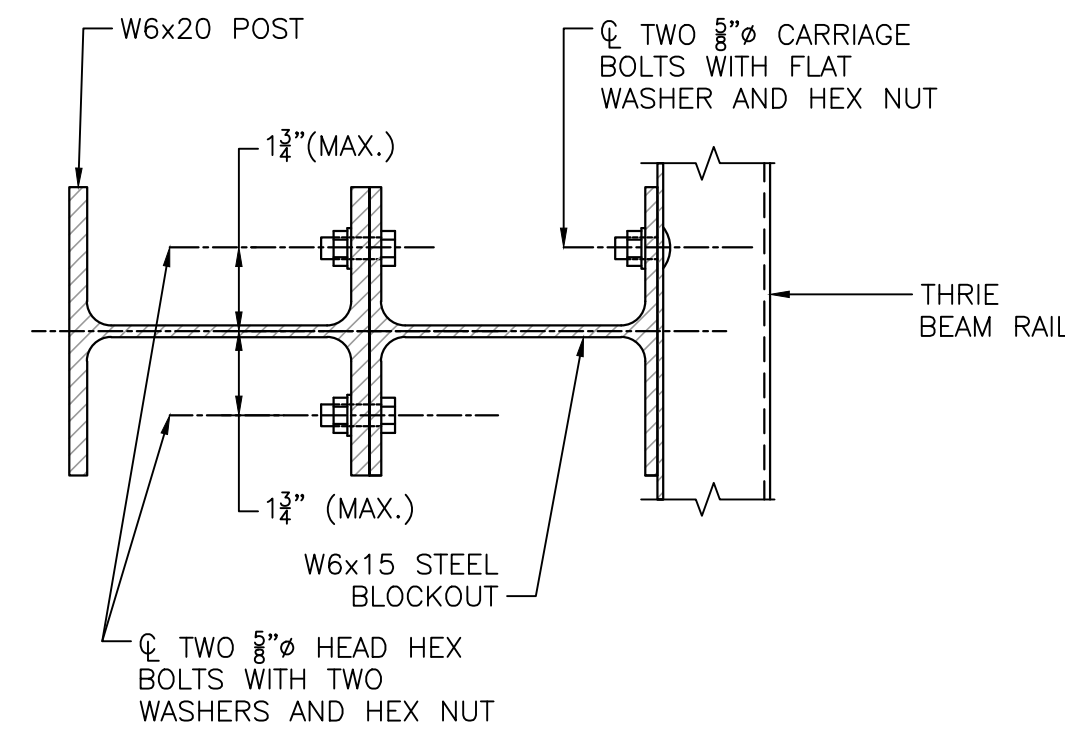
**SECTION AT RAIL POST**

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



**POST PLATE DETAIL**

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

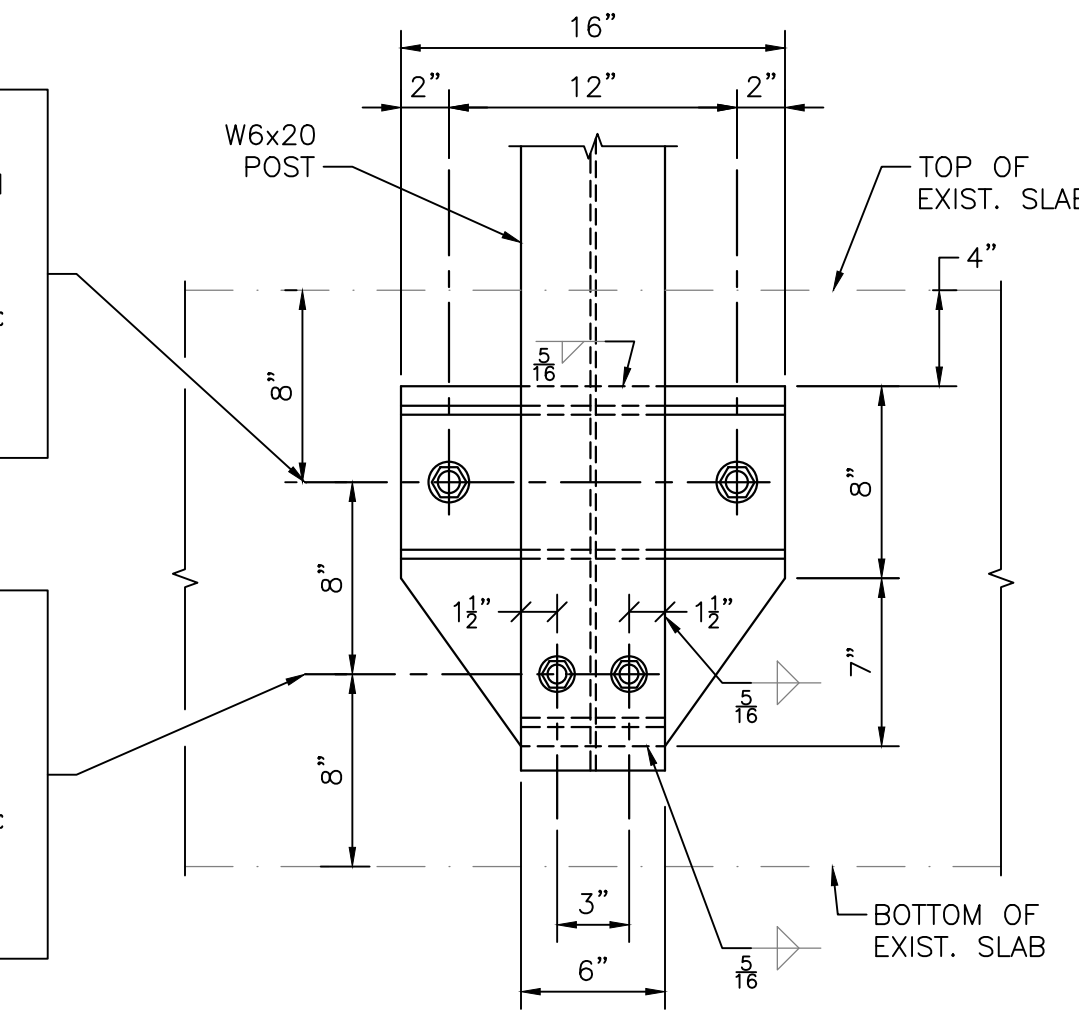


**SECTION 2**

SCALE:  $3" = 1'-0"$

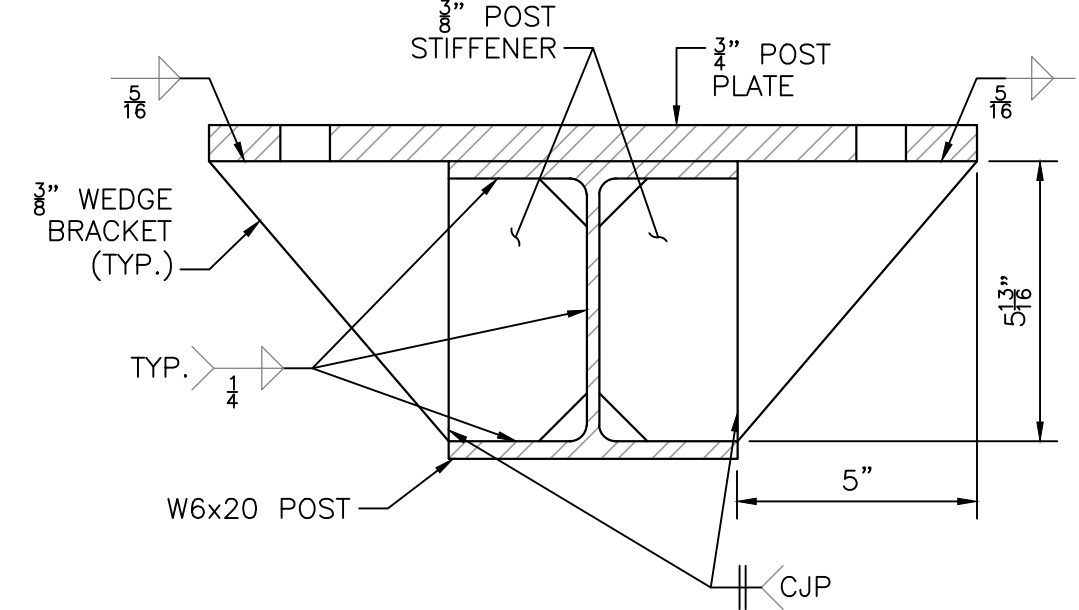
**RESIN ANCHOR SYSTEMS:**  
 -  $1\frac{1}{8}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER  
 -  $1"$  ASTM A449 TYPE 1 THREADED ROD SNUG TIGHT & EMBEDDED 12" IN SLAB  
 -  $2\frac{1}{2}$ " HARDENED LOCKING WASHER AND HEX NUT

**RESIN ANCHOR SYSTEMS:**  
 -  $\frac{3}{8}$ " (MIN.) DRILLED HOLE IN SLAB OR AS RECOMMENDED BY MANUFACTURER  
 -  $\frac{3}{4}$ " ASTM 449 TYPE 1 THREADED ROD SNUG TIGHT & EMBEDDED 8" IN SLAB  
 - HARDENED LOCKING WASHER AND HEX NUT



**SECTION 3**

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

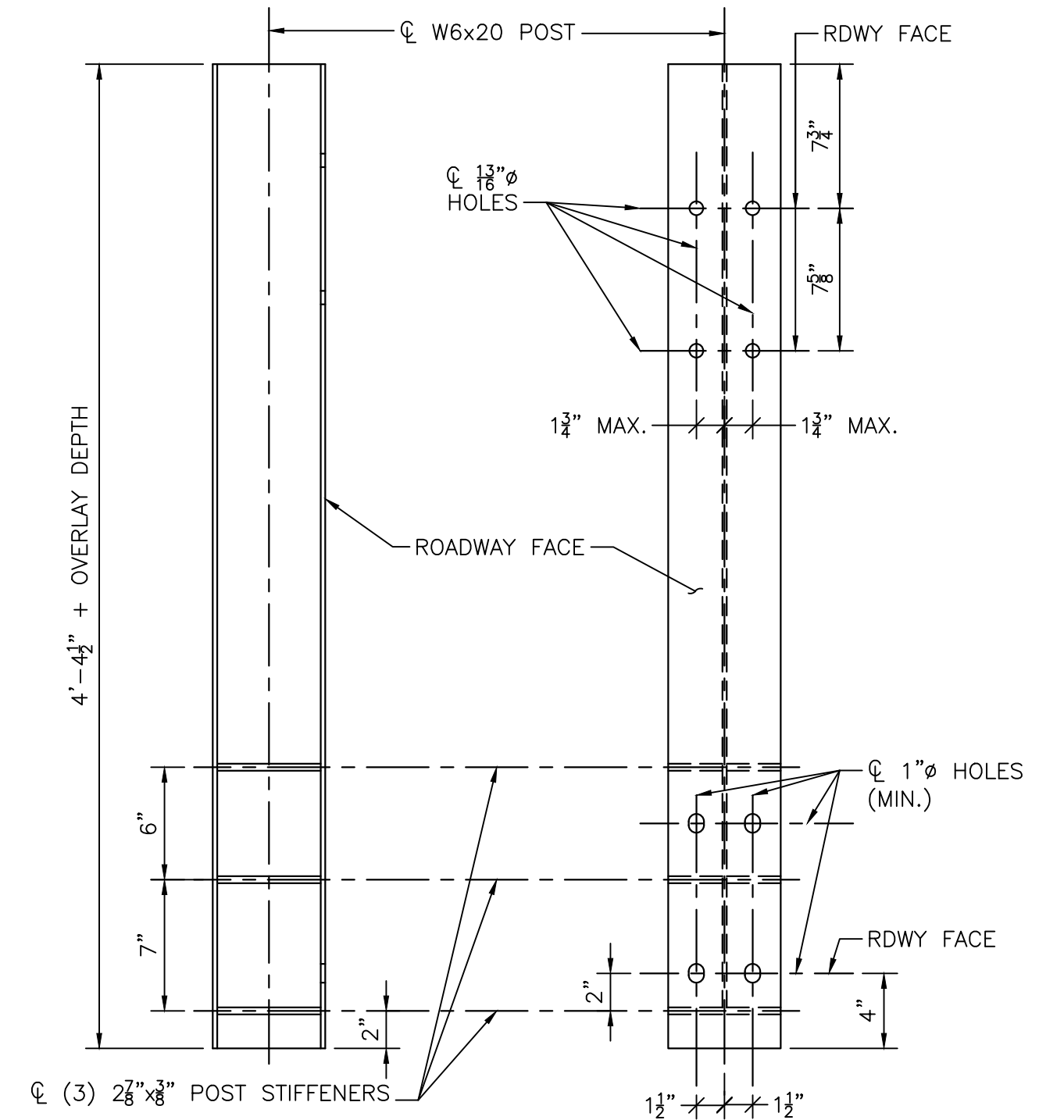


**SECTION 4**

SCALE:  $3" = 1'-0"$

**GENERAL NOTE:**

1. REFER TO SHEET 8 FOR HAND RAIL DETAILS NOT SHOWN HERE.
2. RAILING SYSTEM IN ACCORDANCE WITH MISSOURI HIGHWAY & TRANSPORTATION COMMISSION (MoDOT) STATE SYSTEM 3 - SIDE MOUNTED STANDARD THRIE BEAM RAIL DETAILS, AND MEETS NCHRP 350 TL-3 BRIDGE RAILING REQUIREMENTS.



**DETAILS OF POST**

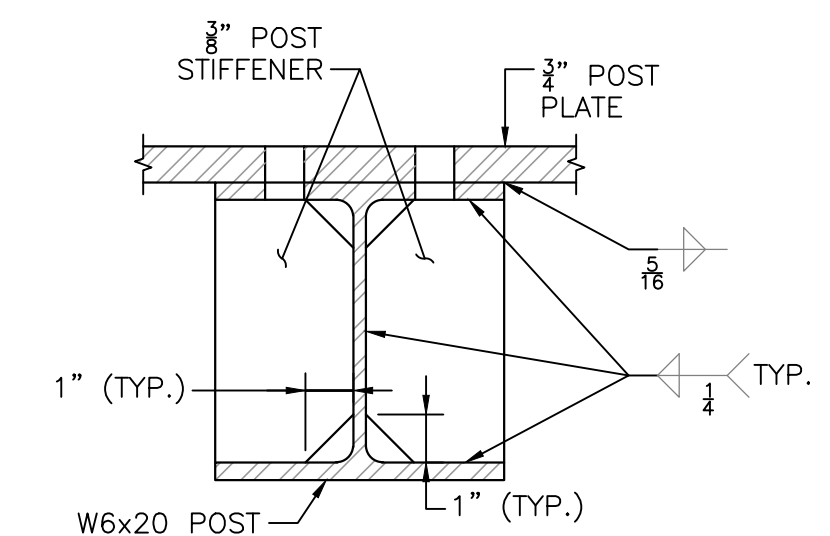
SCALE:  $1\frac{1}{2}" = 1'-0"$

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

**SECTION 5**

SCALE:  $3" = 1'-0"$



8/23/2023 11:37 AM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SR\THRIEBEAMDETAILS20F2) - CARNEY.DWG (BETA STB BW,STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	BN
DESIGNED BY:	TW
CHECKED BY:	TW



REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT

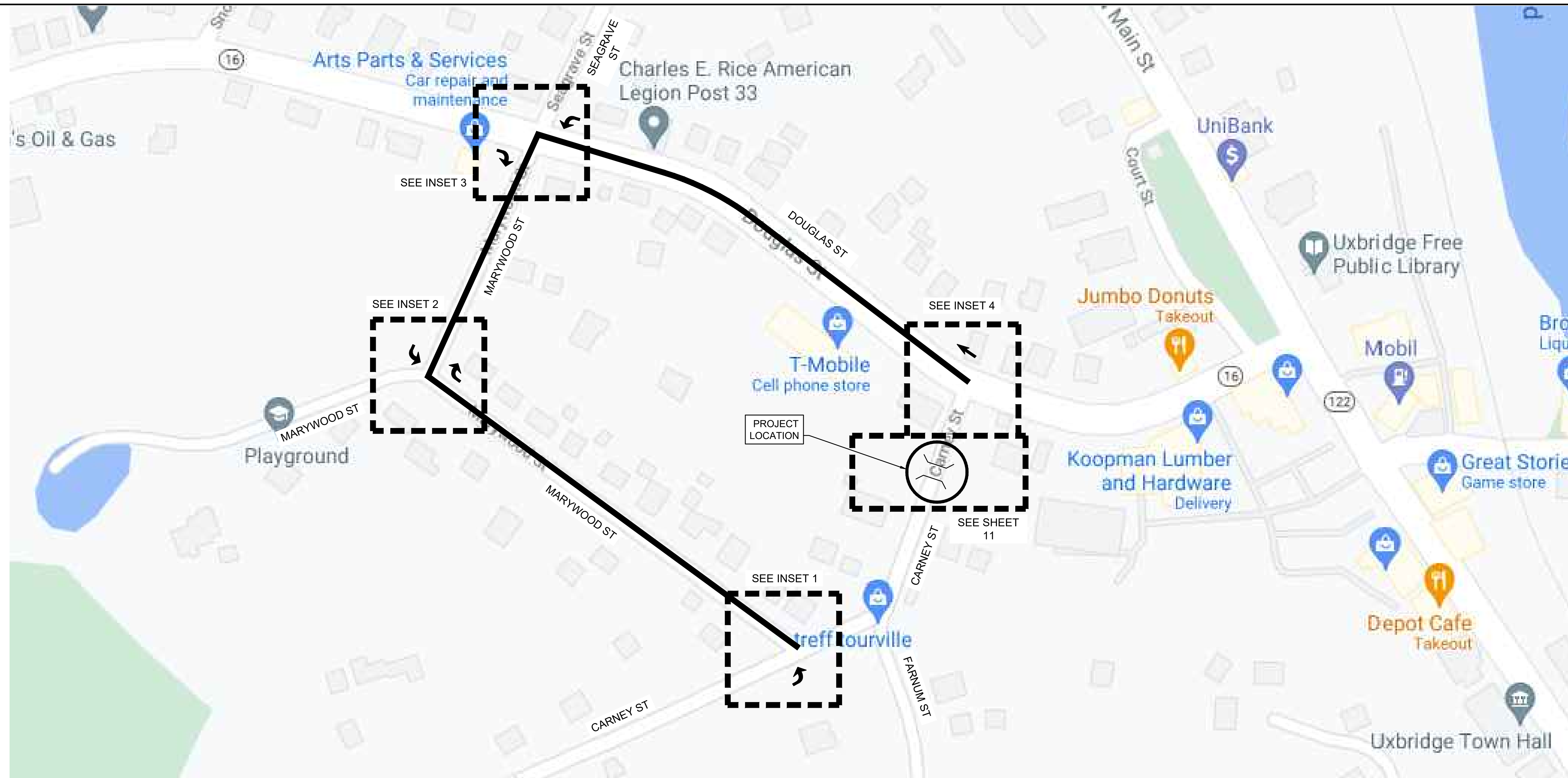
SCALE	TITLE
AS SHOWN	Carney Street Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS (2 OF 2)

DISTRICT 3 BRIDGE ENGINEER	DATE

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	5
Sheet 9 of 12 Bridge No. U-02-070 (C4E)	

BRIDGE NO. U-02-070

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION



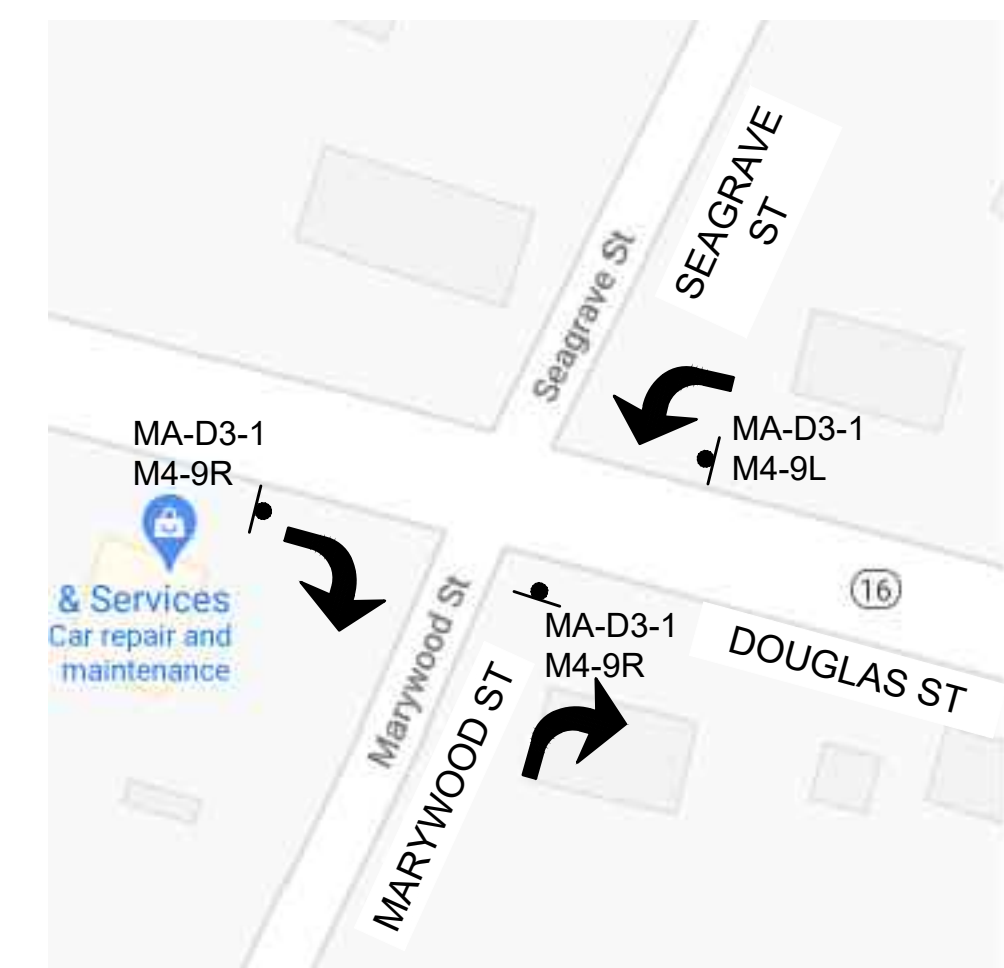
- NOTES:
1. EMERGENCY ACCESS MUST BE MAINTAINED TO ALL PROPERTIES AT ALL TIMES.
  2. DETOUR SIGNS SHALL BE COVERED WHEN DETOUR IS NOT IN ACTIVE USE.



INSET 1  
NOT TO SCALE



INSET 2  
NOT TO SCALE



INSET 3  
NOT TO SCALE



INSET 4  
NOT TO SCALE

8/22/2023 2:41 PM N:\7605\7645 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLAN\INSET\_CARNEY\7645\_SR\DETOUR\_CARNEY.DWG (BETA STB B/W STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
SD

DESIGNED BY:  
JC

CHECKED BY:  
TW



SUBCONSULTANT

SCALE

NONE

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE

**Carney Street Bridge Improvements**  
**Uxbridge, Massachusetts**

DETOUR PLAN

BRIDGE NO. U-02-070

BETA JOB NO. 7545

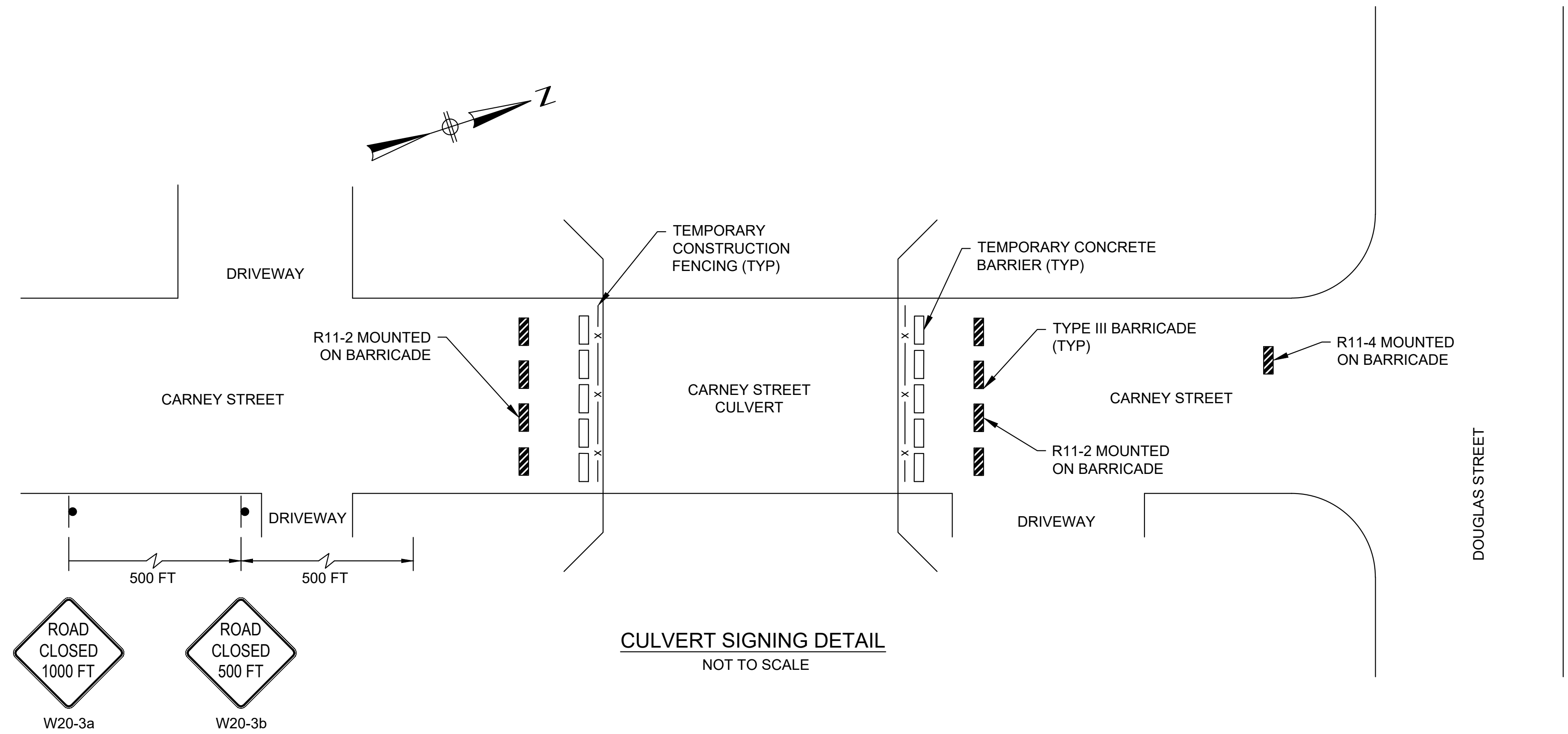
ISSUE DATE

SHEET NO. 10

### CONSTRUCTION SIGN SUMMARY

\* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY  
 \*\* ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND

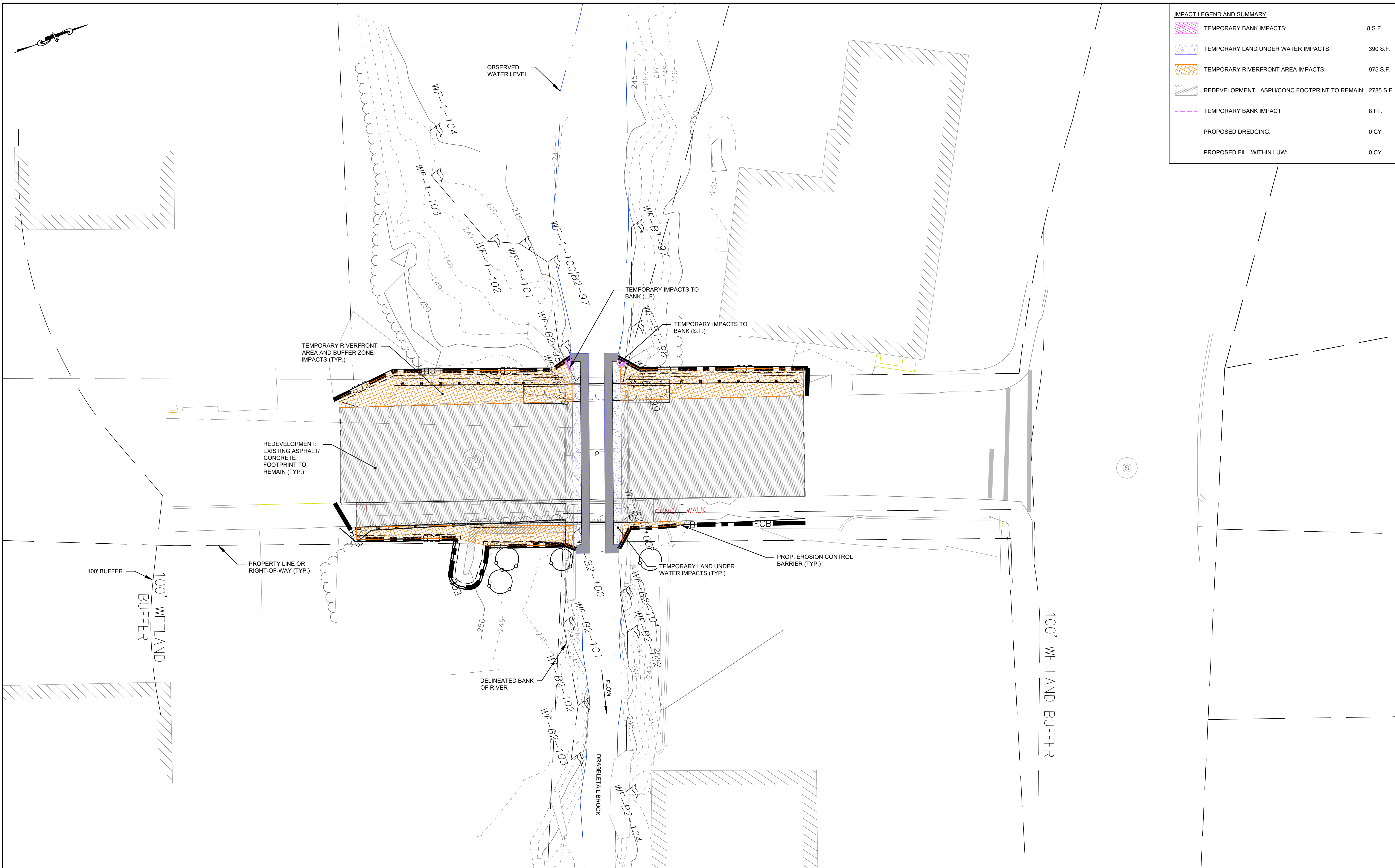
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER			
R11-2	48 in	30 in		SEE 2009 MUTCD STANDARDS			2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	10.0	20.0
R11-4	60 in	30 in					2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	12.5	25.0
W20-3a	36 in	36 in					1	**ORANGE	BLACK	BLACK	P-5 1	9.0	9.0
W20-3b	36 in	36 in					1	**ORANGE	BLACK	BLACK	P-5 1	9.0	9.0
M4-8a	24 in	18 in					2	**ORANGE	BLACK	BLACK	P-5 2	3.0	6.0
M4-9L	30 in	24 in					3	**ORANGE	BLACK	BLACK	MOUNT 1 W/ MA-D3-1 MOUNT 2 W/MA-D3-2	5.0	15.0
M4-9R	30 in	24 in					3	**ORANGE	BLACK	BLACK	MOUNT 1 W/ MA-D3-1 MOUNT 1 W/MA-D3-2	5.0	15.0
M4-9V	30 in	24 in					1	**ORANGE	BLACK	BLACK	MOUNT W/ MA-D3-2	5.0	5.0
MA-D3-1	42 in	12 in					6/4D	3.25 3.75		9	**ORANGE	BLACK	BLACK



8/22/2023 2:20 PM N:\7605\7645 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET\_CARNEY\7645\_SR\DETOUR\_CARNEY.DWG (BETA STB B/W STB)

	DRAWN BY: SD	REGISTERED PROFESSIONAL 	PREPARED BY 	SUBCONSULTANT	SCALE NONE	TITLE <b>Carney Street Bridge Improvements Uxbridge, Massachusetts DETOUR PLAN</b>	BETA JOB NO. 7545	
	DESIGNED BY: JC						ISSUE DATE	
	CHECKED BY: TW						SHEET NO. 11	
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS				BRIDGE NO. U-02-070

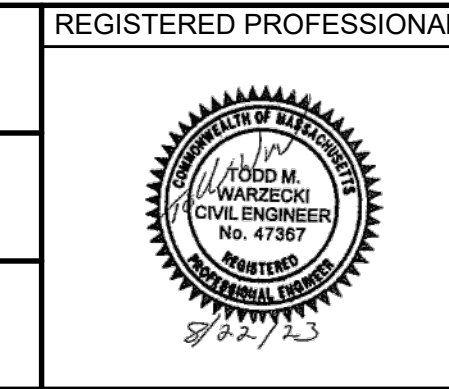
8/22/2023 2:21 PM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT/DRAWING FILES/PLANS/SET7546 IMPACT PLAN - CARNEY.DWG (BETA STB BW/STB)



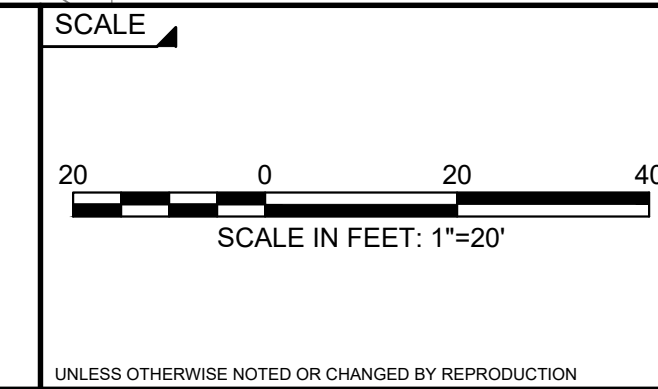
IMPACT LEGEND AND SUMMARY		
	TEMPORARY BANK IMPACTS:	8 S.F.
	TEMPORARY LAND UNDER WATER IMPACTS:	390 S.F.
	TEMPORARY RIVERFRONT AREA IMPACTS:	975 S.F.
	REDEVELOPMENT - ASPH/CONC FOOTPRINT TO REMAIN:	2785 S.F.
	TEMPORARY BANK IMPACT:	8 FT.
	PROPOSED DREDGING:	0 CY
	PROPOSED FILL WITHIN LUW:	0 CY

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
MC  
DESIGNED BY:  
MC  
CHECKED BY:  
LK



SUBCONSULTANT



TITLE

**Carney Street Bridge Improvements  
Uxbridge, Massachusetts  
RESOURCE IMPACTS PLAN**

BRIDGE NO. U-02-070

BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. 12

# TOWN OF UXBRIDGE, MASSACHUSETTS

## DEPARTMENT OF PUBLIC WORKS

### ALDRICH STREET

### BRIDGE PRESERVATION

### MAY 2022

BOARD OF SELECTMEN

BRIAN BUTLER  
 JEFF SHAW  
 STEPHEN MANDILE  
 SUSAN FRANZ  
 BRIAN PLASKO

TOWN MANAGER

STEVEN SETTE

DEPARTMENT OF PUBLIC WORKS

BENN S. SHERMAN, PE, DIRECTOR  
 PAUL HUTNUK, PE, CIVIL ENGINEER



**LOCATION MAP**  
 SCALE 1" = 1000'

PLAN INDEX

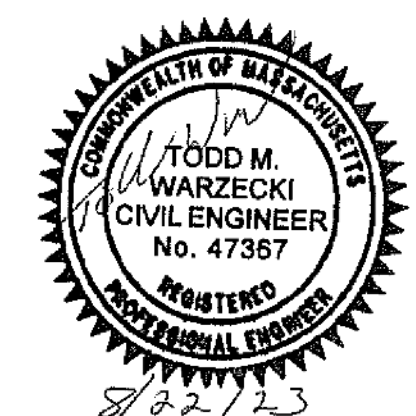
<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	COVER SHEET
2	GENERAL NOTES & LEGEND
3	CONSTRUCTION PLAN AND PROFILE
4	CONSTRUCTION DETAILS
5	BRIDGE COVER SHEET
6	STRUCTURAL DETAILS
7	CONCRETE REPAIR DETAILS
8	THRIE BEAM DETAILS
9-10	DETOUR PLAN
11	RESOURCE IMPACT PLAN

PREPARED BY:



www.BETA-Inc.com

ISSUE DATE: APRIL 5, 2022



REGISTERED PROFESSIONAL \_\_\_\_\_ DATE \_\_\_\_\_



# LEGEND

## GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
		CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		SEWER MANHOLE
		DRAINAGE MANHOLE
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		UTILITY POLE w/ LIGHT
		SIGN
		GUY POLE
		DRAIN PIPE (SIZE AS NOTED)
		SEWER MAIN (SIZE AS NOTED)
		ELECTRIC DUCT
		GAS MAIN (SIZE AS NOTED)
		WATER MAIN (SIZE AS NOTED)
		TELEPHONE DUCT (SIZE AS NOTED)
		OVERHEAD WIRE
		MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
		CONSTRUCTION BASELINE
		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		WHEELCHAIR RAMP
		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
		FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND w/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
		SPOT GRADE
		SAW CUT LINE
		TEST PIT
		BORING
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES

# ABBREVIATIONS

## GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
B	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CONCRETE CURB
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
WCR	WHEELCHAIR RAMP

## TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R-	STEADY RED RIGHT ARROW
Y-	STEADY AMBER RIGHT ARROW
G-	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

## UTILITIES

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

## TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

## PAVEMENT MARKINGS AND SIGNING SYMBOLS

### PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8" WIDTH)
SL	STOP LINE - 12" WHITE LINE 4" BEHIND CW (TYP.)
SWEL	SOLID WHITE EDGE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 33", (SPACING NOTED)
SWLL	SOLID WHITE LANE LINE - 4"
SWPL	SOLID WHITE PARKING LINE - 4"
BWLL	BROKEN WHITE LANE LINE - 4"
DWLEX	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEX	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYCL	BROKEN YELLOW CENTERLINE - 4"
DYCL	DOUBLE YELLOW CENTERLINE - 2 - 4" LINES
SYEL	SOLID YELLOW EDGE LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 33", (SPACING NOTED)
SYLL	SOLID YELLOW LANE LINE - 4"
SYCTEL	SOLID YELLOW CYCLE TRACK EDGE LINE - 4"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
SCHOOL	SCHOOL ZONE - WHITE
	HANDICAP SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

8/22/2023 2:21 PM N:\750517545 - UXBRIDGE - SMALL BRIDGE CONTRACT/DRAWING FILES/PLANS/SET\_ALDRICH\7545\_SR\LEGEND\_ALDRICH.DWG (BETA STB.BW.STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	SD
DESIGNED BY:	BB
CHECKED BY:	TW



REGISTERED PROFESSIONAL
PREPARED BY
SUBCONSULTANT

SCALE	NONE
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION	

TITLE
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**Aldrich Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**LEGEND AND ABBREVIATIONS**

**BRIDGE NO. U-02-038**

BETA JOB NO.	7545
ISSUE DATE	
SHEET NO.	2

**HIGHWAY GUARD DETAILS**

TRAILING ANCHORAGE STA -0+05 TO 0+04.5 LT  
 GUARDRAIL - TL-3 (SINGLE FACED) 0+04.5 TO 0+62 LT  
 TRANSITION TO THRIE BEAM STA 0+62 TO 0+68 LT  
 BRIDGE THRIE BEAM GUARDRAIL 0+68 TO 1+07 LT  
 TRANSITION TO THRIE BEAM STA 1+07 TO 1+13 LT  
 GUARDRAIL - TL-3 (SINGLE FACED) 1+13 TO 2+00.5 LT  
 TRAILING ANCHORAGE STA 2+00.5 TO 2+10 LT

TRAILING ANCHORAGE STA 0+01 TO 0+10.5 RT  
 GUARDRAIL - TL-3 (SINGLE FACED) 0+10.5 TO 0+73 RT  
 TRANSITION TO THRIE BEAM STA 0+73 TO 0+79 RT  
 BRIDGE THRIE BEAM GUARDRAIL STA 0+79 TO 0+96 RT  
 TRANSITION TO THRIE BEAM STA 0+96 TO 1+02 RT  
 GUARDRAIL - TL-3 (SINGLE FACED) 1+02 TO 1+60.5 RT  
 TRAILING ANCHORAGE STA 1+60.5 TO 1+70 RT

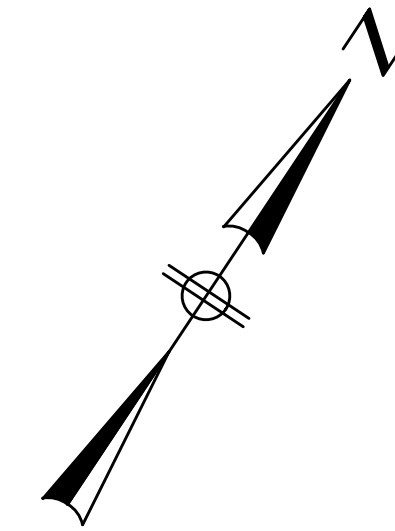
**PAVEMENT NOTES**

**FULL DEPTH PAVEMENT**

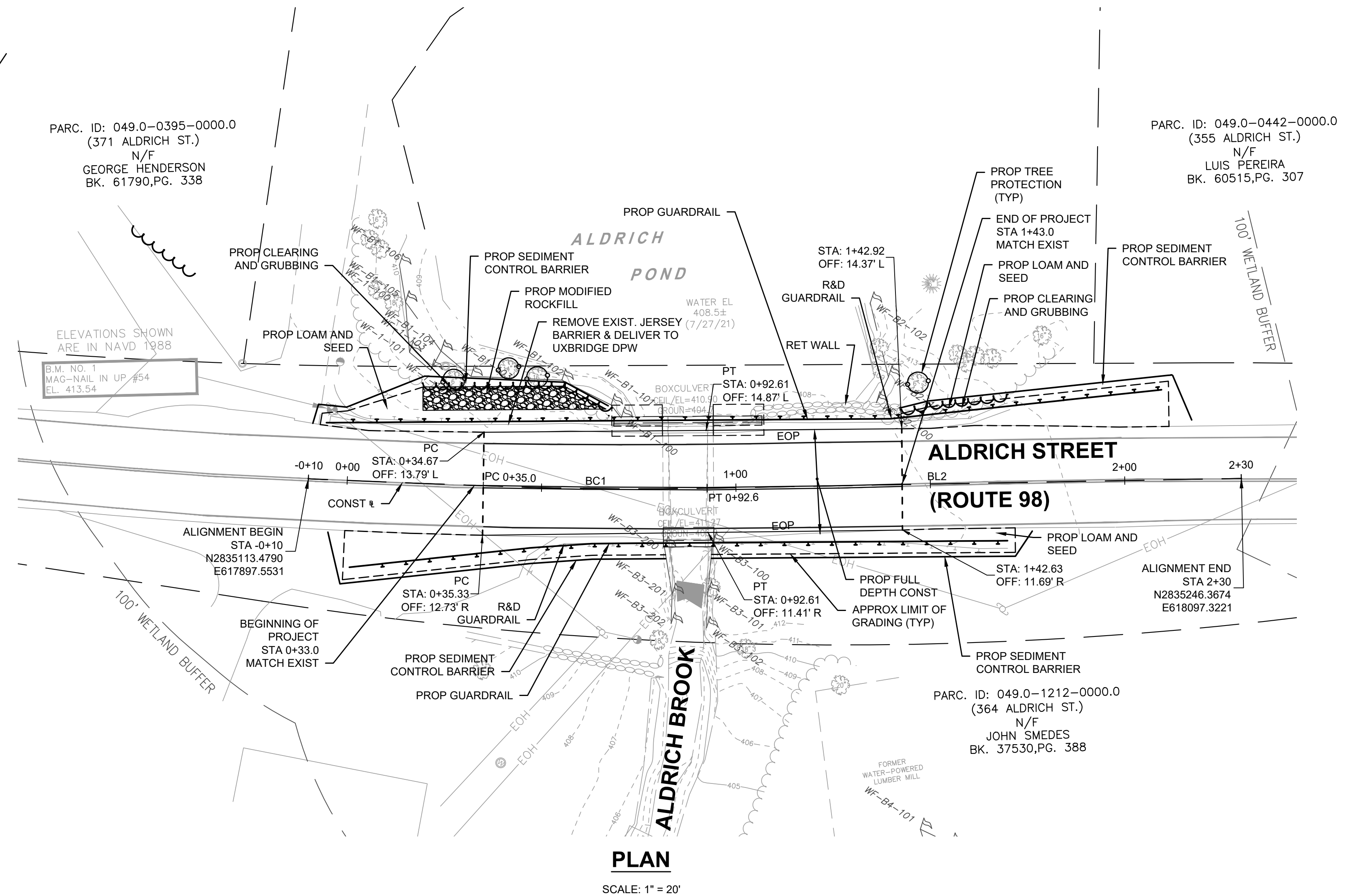
SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 INTERMEDIATE COURSE: 1-3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER  
 BASE COURSE: 3-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER  
 SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW TYPE b (M1.03.01)

**PROJECT TACK COAT NOTES**

TACK COAT: ASPHALT EMULSION FOR TACK COAT, GRADE RS-1 SHALL BE PLACED AT A RATE OF:  
 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES  
 0.07 GALLONS PER SQUARE YARD OVER CEMENT CONCRETE BASE COURSE  
 0.05 GALLONS PER SQUARE YARD OVER SMOOTH TIGHT PAVEMENTS  
 PRIOR TO PAVING AN OVERLAY

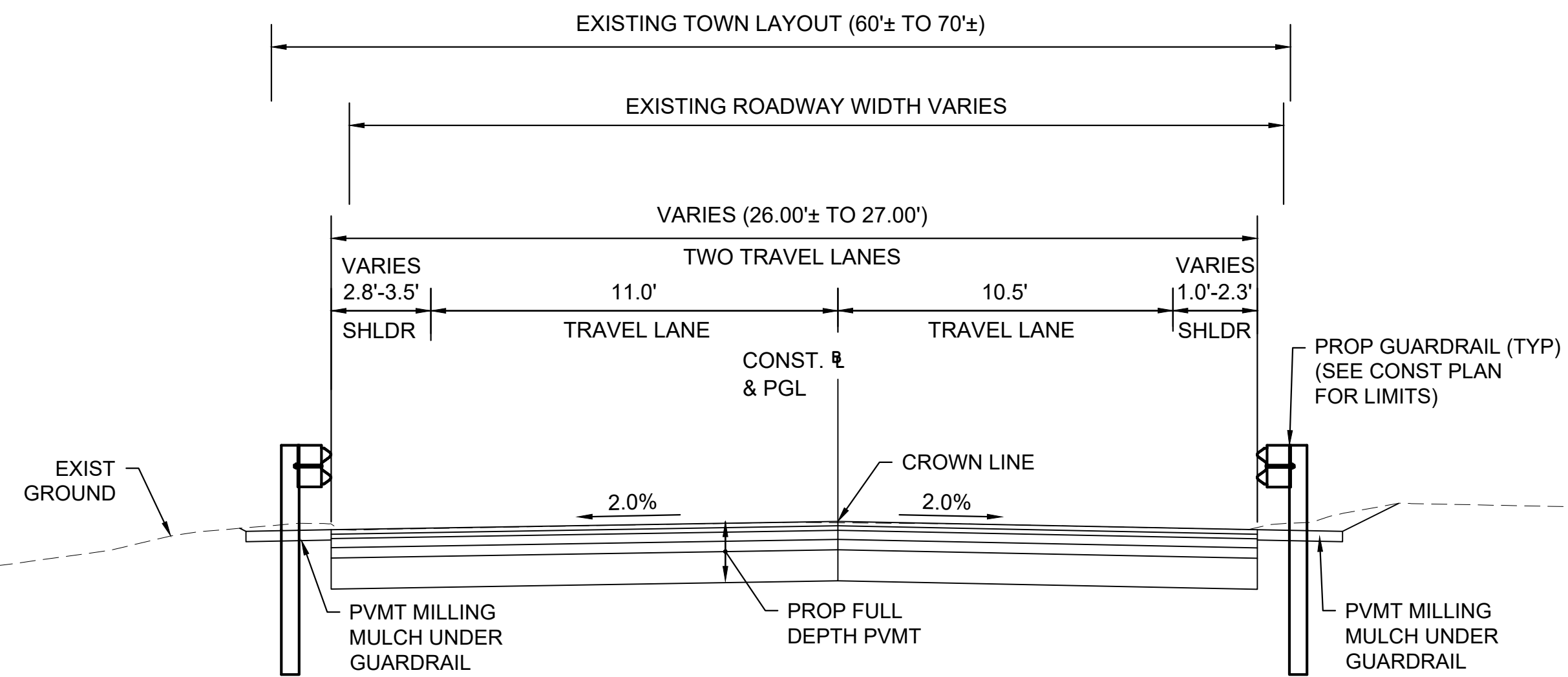


ALDRICH STREET CL CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
BC1	0+35.01	2835136.8950	617935.9948	R = 1000.00' Δ = 3°18'01" L = 57.60' T = 28.81'		0+92.61	2835168.2594	617984.2972
BL2	0+92.61	2835168.2594	617984.2972		N55°21'10"E 137.39'	2+30.00	2835246.3674	618097.3221

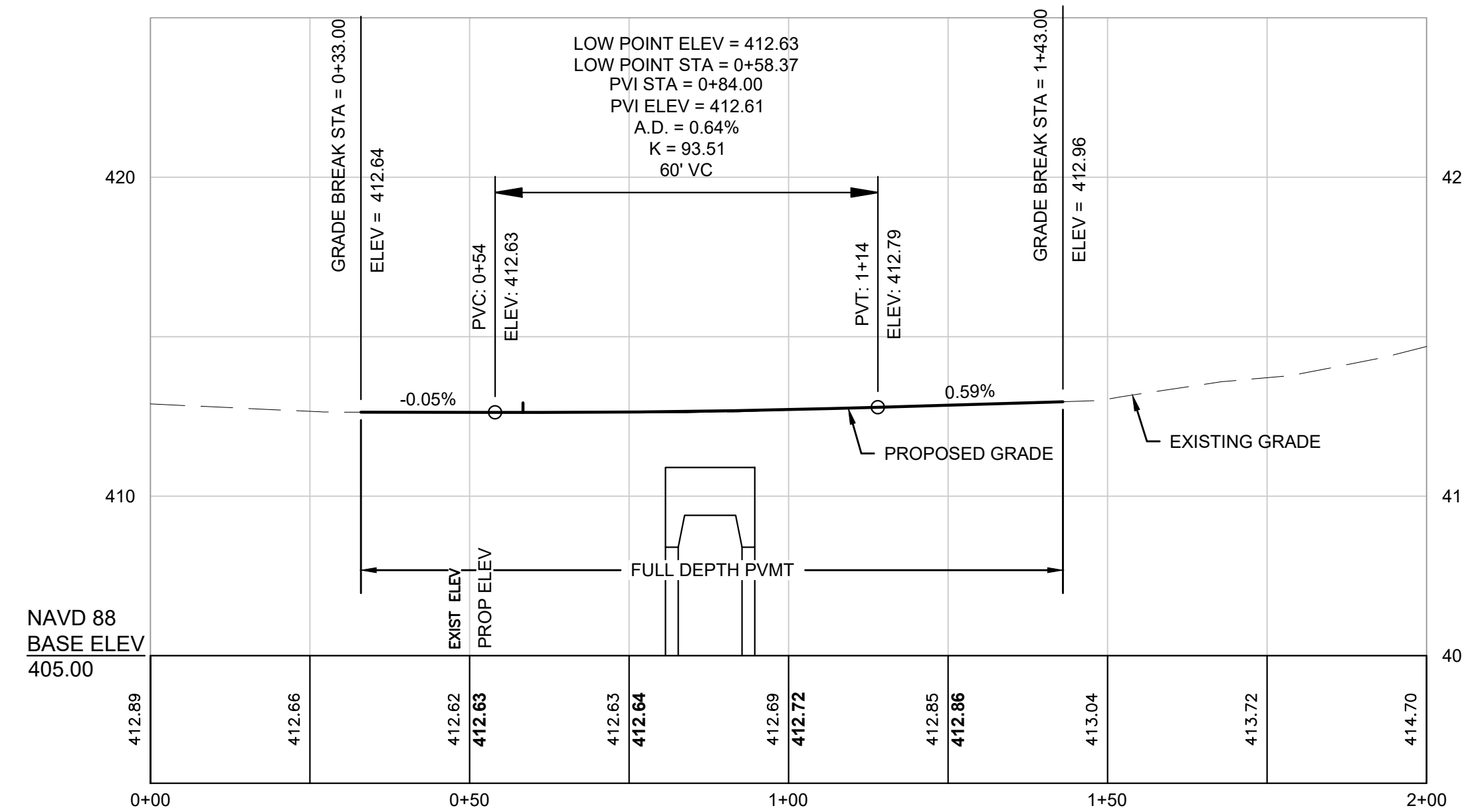


**PLAN**

SCALE: 1" = 20'



**TYPICAL SECTION  
 ALDRICH STREET  
 STA 0+33± TO STA 1+43±  
 NOT TO SCALE**



**PROFILE**

SCALE:  
 VERT: 1" = 4'  
 HORIZ: 1" = 20'

8/22/2023 2:21 PM N:\1750517545 - UXBRIDGE - SMALL BRIDGE CONTRACT/DRAWING FILES/PLANS/SET\_A/ALDRICH7545\_SRI/CONSTRUCTION PLAN AND PROFILE/ALDRICH.DWG (BETA STB BW.STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: SD
DESIGNED BY: BB
CHECKED BY: TW



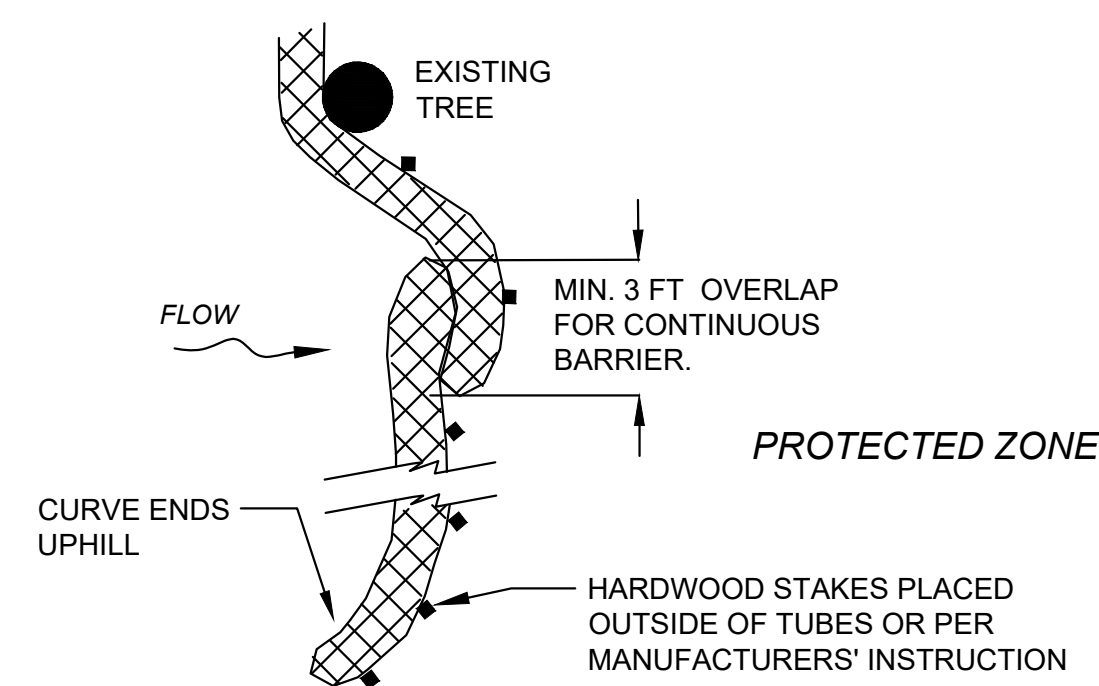
REGISTERED PROFESSIONAL  
 PREPARED BY  
 SUBCONSULTANT

SCALE  
 AS SHOWN

TITLE  
**Aldrich Street Bridge Improvements  
 Uxbridge, Massachusetts**  
 CONSTRUCTION PLAN AND PROFILE  
 BRIDGE NO. U-02-038

BETA JOB NO. 7545  
 ISSUE DATE  
 SHEET NO. 3

8/22/2023 2:21 PM N:\7505\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET1\_ALDRICH\7545\_SR\DETAILS\ALDRICH.DWG (BETA SITE BW SITE)

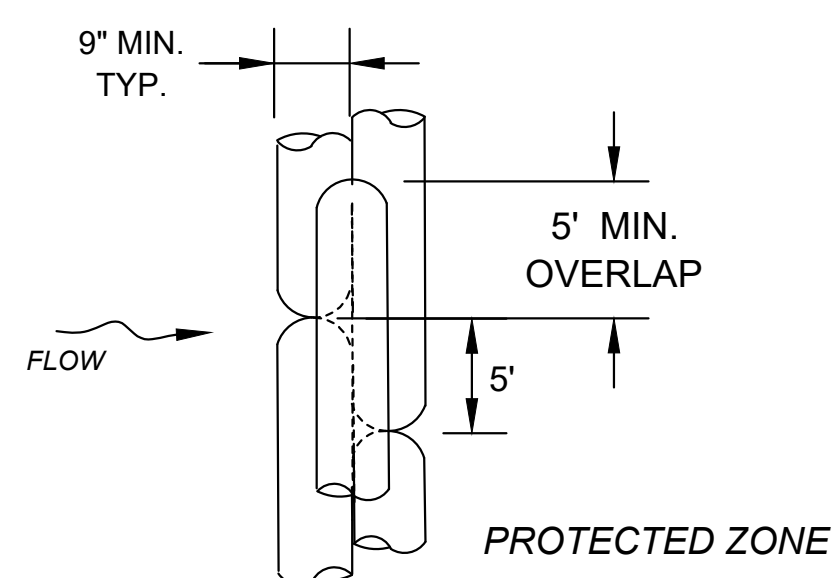


PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

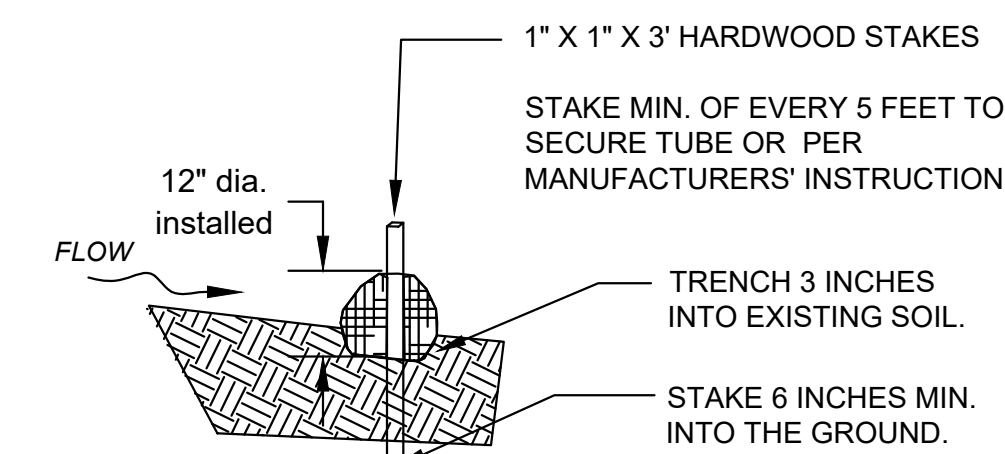
**PLAN VIEW**

WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED



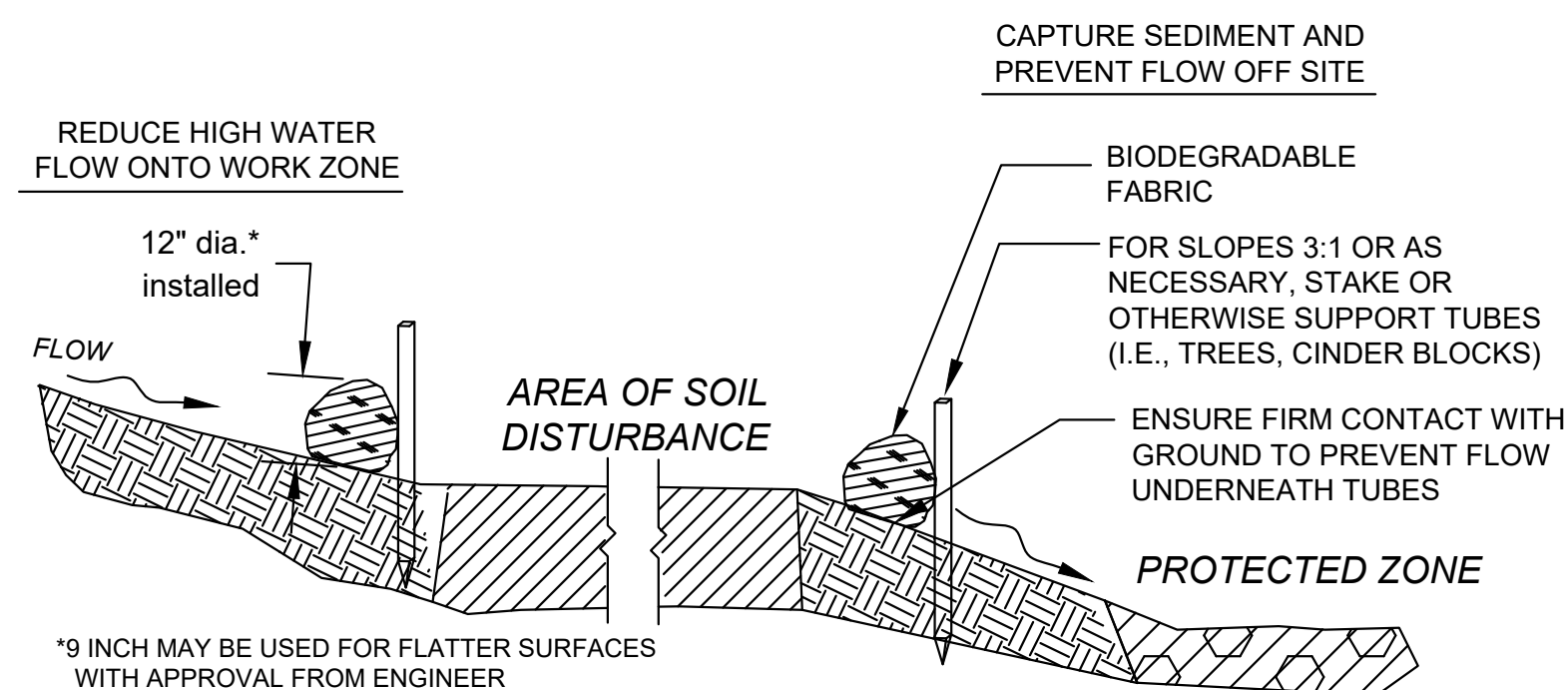
**PLAN VIEW**

FOR USE ONLY ON SLOPES UP TO 5% AND WITH APPROVAL OF THE ENGINEER. NOT TO BE USED FOR WETLAND MITIGATION.



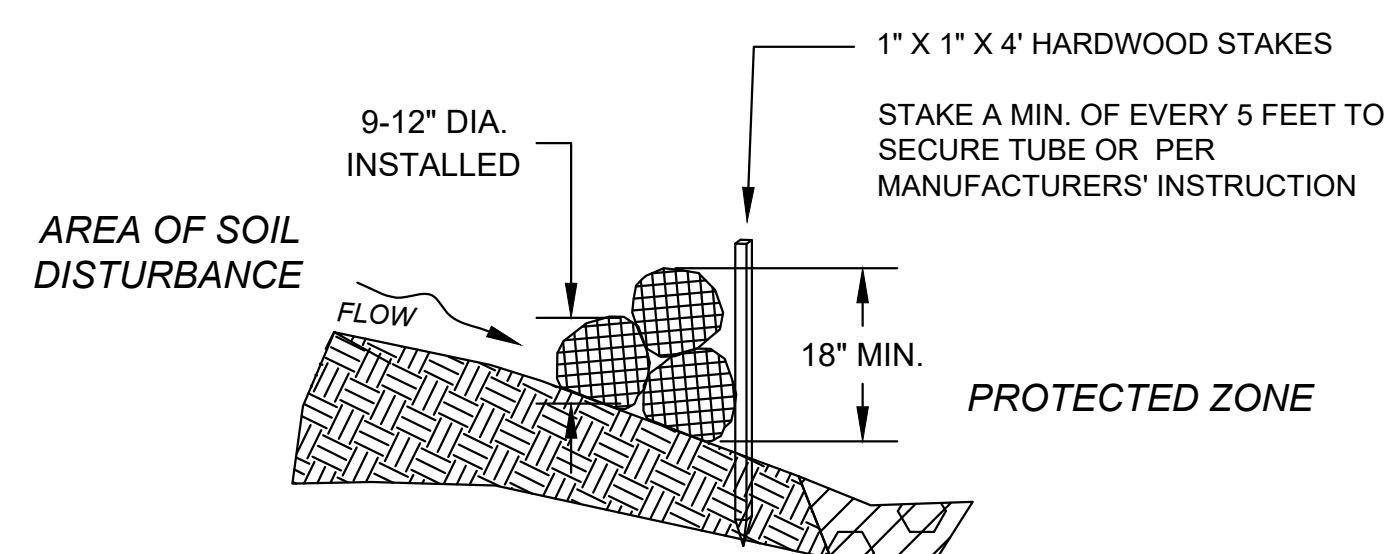
**SECTION**

**12 INCH STRAW WATTLE**  
NOT TO SCALE



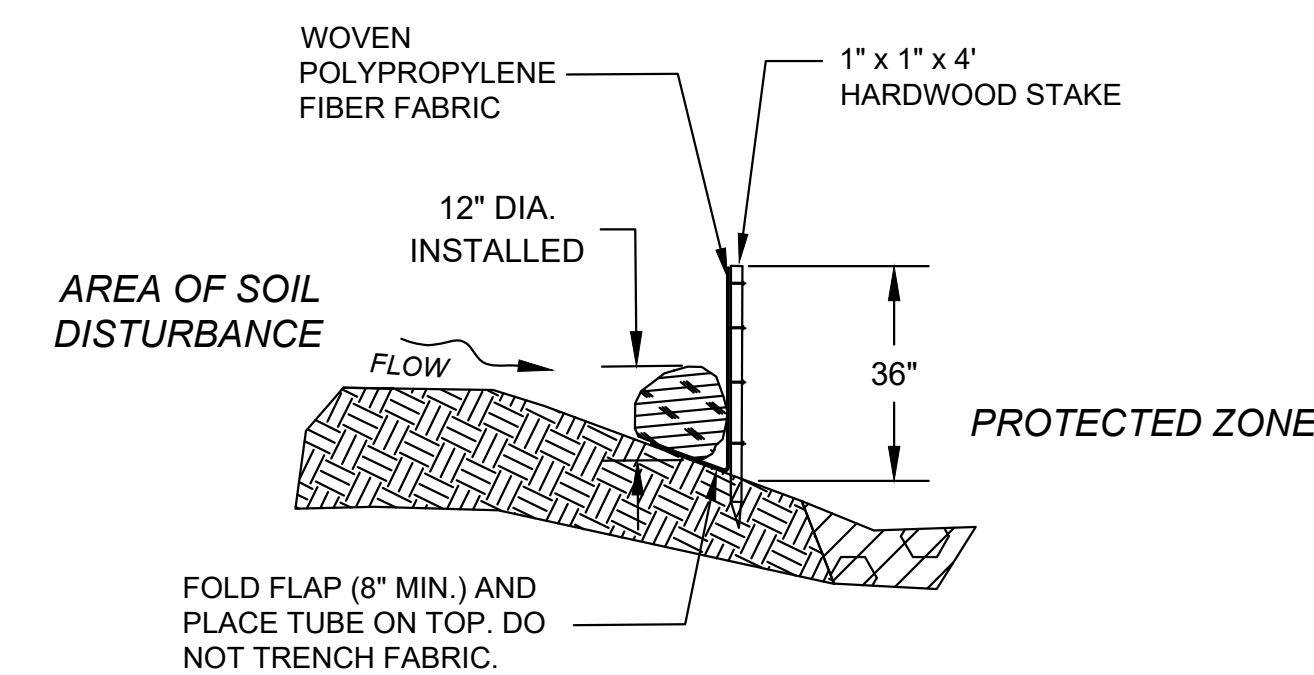
**SECTION**

**SEDIMENT BARRIER - COMPOST FILTER TUBE**  
NOT TO SCALE



**SECTION**

**COMPOST FILTER TUBES STACKED**  
NOT TO SCALE



**SECTION**

**COMPOST FILTER TUBE & SILT FENCE**  
NOT TO SCALE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: SD
DESIGNED BY: BB
CHECKED BY: TW



REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT

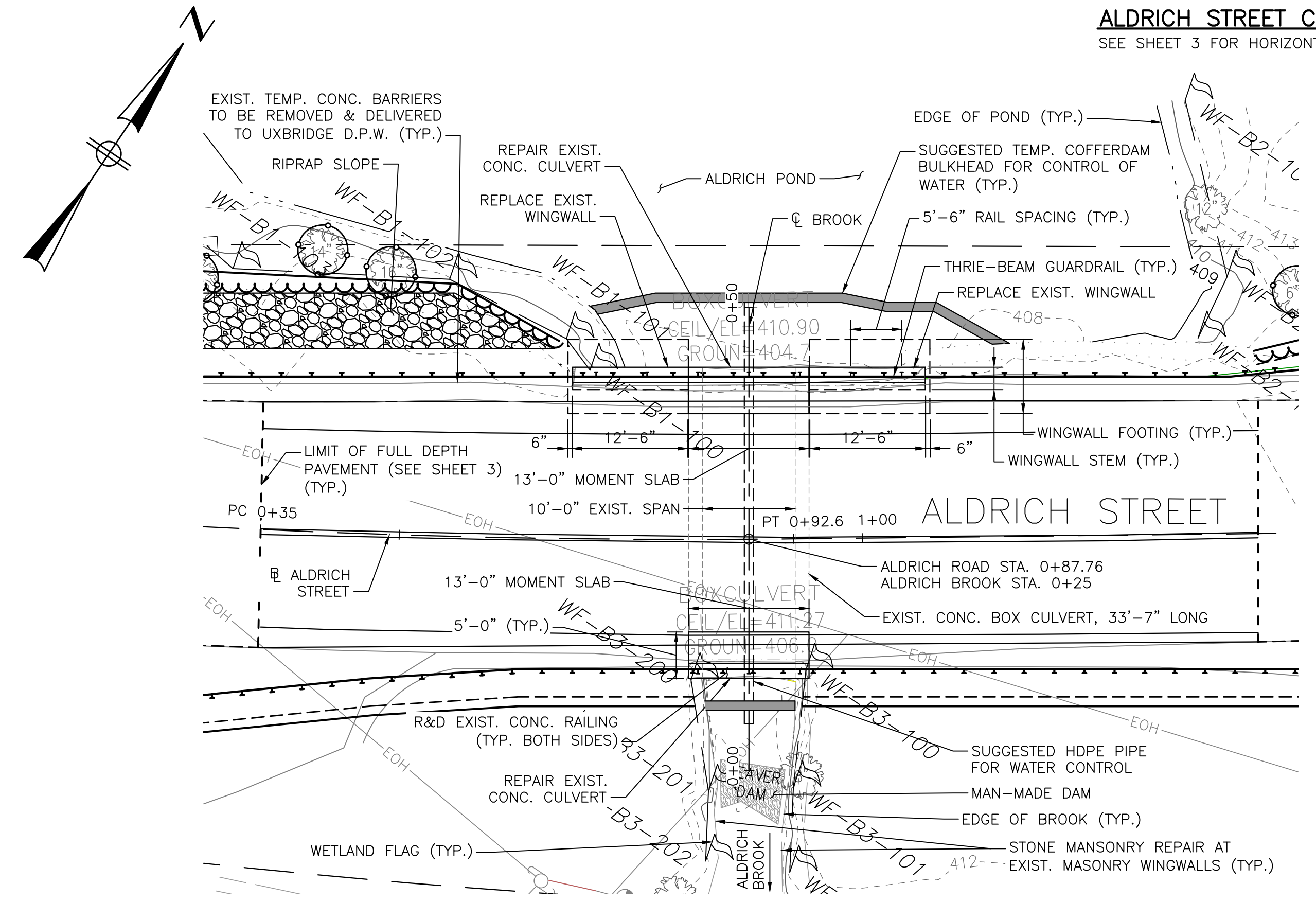
SCALE	TITLE
NONE	

<b>Aldrich Street Bridge Improvements</b> <b>Uxbridge, Massachusetts</b> <b>CONSTRUCTION DETAILS</b>	
<b>BRIDGE NO. U-02-038</b>	

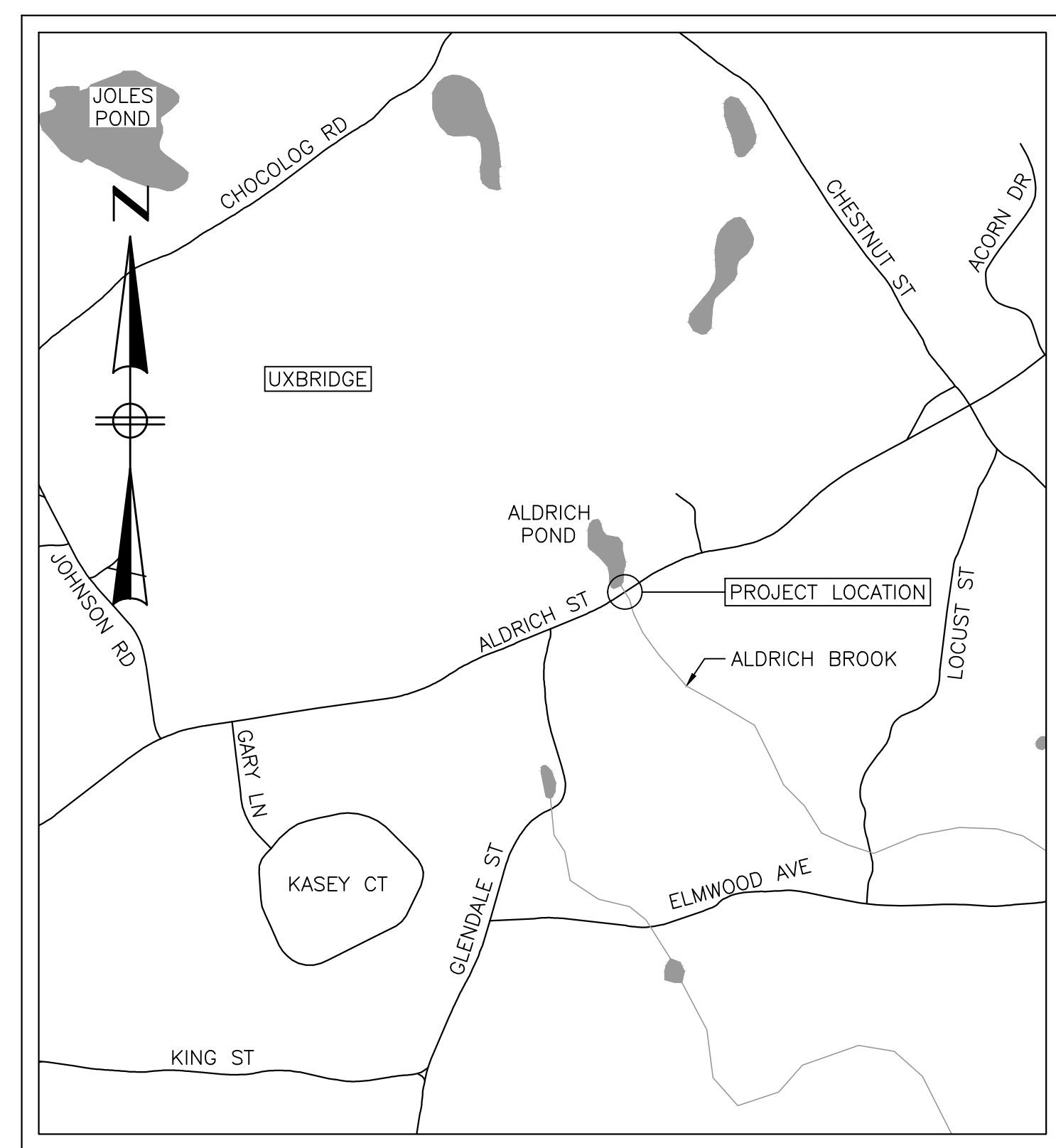
BETA JOB NO. 7545
ISSUE DATE
SHEET NO. 4

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

**ALDRICH STREET CURVE DATA**  
SEE SHEET 3 FOR HORIZONTAL CURVE DATA



**KEY PLAN**  
SCALE: 1/8" = 1'-0"



**LOCUS**  
SCALE: 1" = 1000'

GENERAL NOTES	
PROJECT FILE NO.:	NA
PROJECT DESCRIPTION:	PROPOSED BRIDGE PRESERVATION
BRIDGE DESIGN LOADING:	HL-93
SURVEY:	GOLDSMITH, PREST & RINGWALL, INC.
ELEVATION REFERENCE:	NAVD OF 1988

BENCHMARK:	MAG-NAIL
LOCATION:	UP #54
NORTHING:	2835131.87
EASTING:	617892.66
ELEVATION:	413.54'
HYDRAULIC DESIGN DATA	
DRAINAGE AREA:	0.67 SQUARE MILES
DESIGN FLOOD DISCHARGE:	UNK CUBIC FEET PER SECOND
DESIGN FLOOD FREQUENCY:	UNK YEARS
DESIGN FLOOD VELOCITY:	UNK FEET PER SECOND
DESIGN FLOOD ELEVATION:	UNK FEET, NAVD
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE:	UNK CUBIC FEET PER SECOND
BASE FLOOD ELEVATION:	UNK FEET, NAVD
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY:	25 YEARS
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY:	50 YEARS
FLOOD OF RECORD	
DISCHARGE:	UNKNOWN CUBIC FEET PER SECOND
FREQUENCY (IF KNOWN):	UNKNOWN YEARS
MAXIMUM ELEVATION:	UNKNOWN FEET, NAVD
DATE:	UNKNOWN MONTH, YEAR

HISTORY OF ICE FLOES: UNKNOWN  
EVIDENCE OF SCOUR AND EROSION: UNKNOWN

**GENERAL:**  
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING, COORDINATING, AND VERIFYING ALL DIMENSIONS.

THE CONTRACTOR SHALL COORDINATE ALL EXISTING UTILITY LOCATIONS.

ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES-2022 EDITION.

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER WHEN, IN THE COURSE OF CONSTRUCTION, CONDITIONS ARE UNCOVERED WHICH ARE UNANTICIPATED OR OTHERWISE APPEAR TO PRESENT A DANGEROUS CONDITION.

FOR DIMENSIONS AND DETAILS NOT SHOWN, REFER TO HIGHWAY DRAWINGS.

NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

**FOUNDATIONS:**  
FOOTING SHALL BE FOUNDED ON ONE FOOT OF COMPACTED GRAVEL BORROW. THE ELEVATION OF FOOTING SHALL BE SUCH THAT IT DOES NOT FALL WITHIN A ONE VERTICAL TO TWO HORIZONTAL SLOPE FROM THE BASE OF ANY ADJACENT FOOTING OR UTILITY.

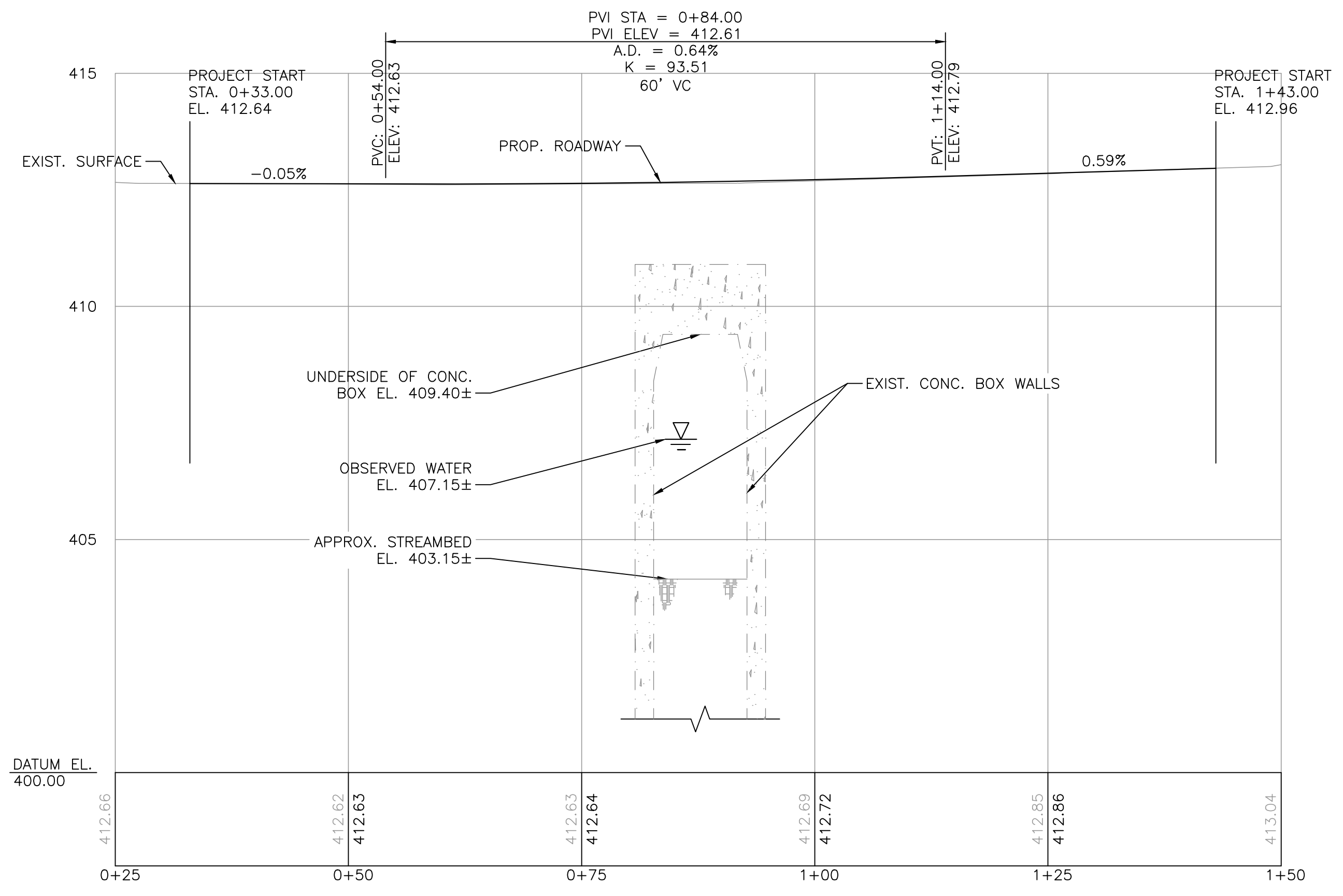
NO BACKFILL SHALL BE PLACED AGAINST WALL OR MOMENT SLAB UNTIL THE CONCRETE HAS ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TEMPORARY SUPPORT AND DEWATERING AS NECESSARY DURING EXCAVATION TO MAINTAIN THE INTEGRITY OF EXISTING STRUCTURES, ACTIVE UTILITIES, AND STREETS.

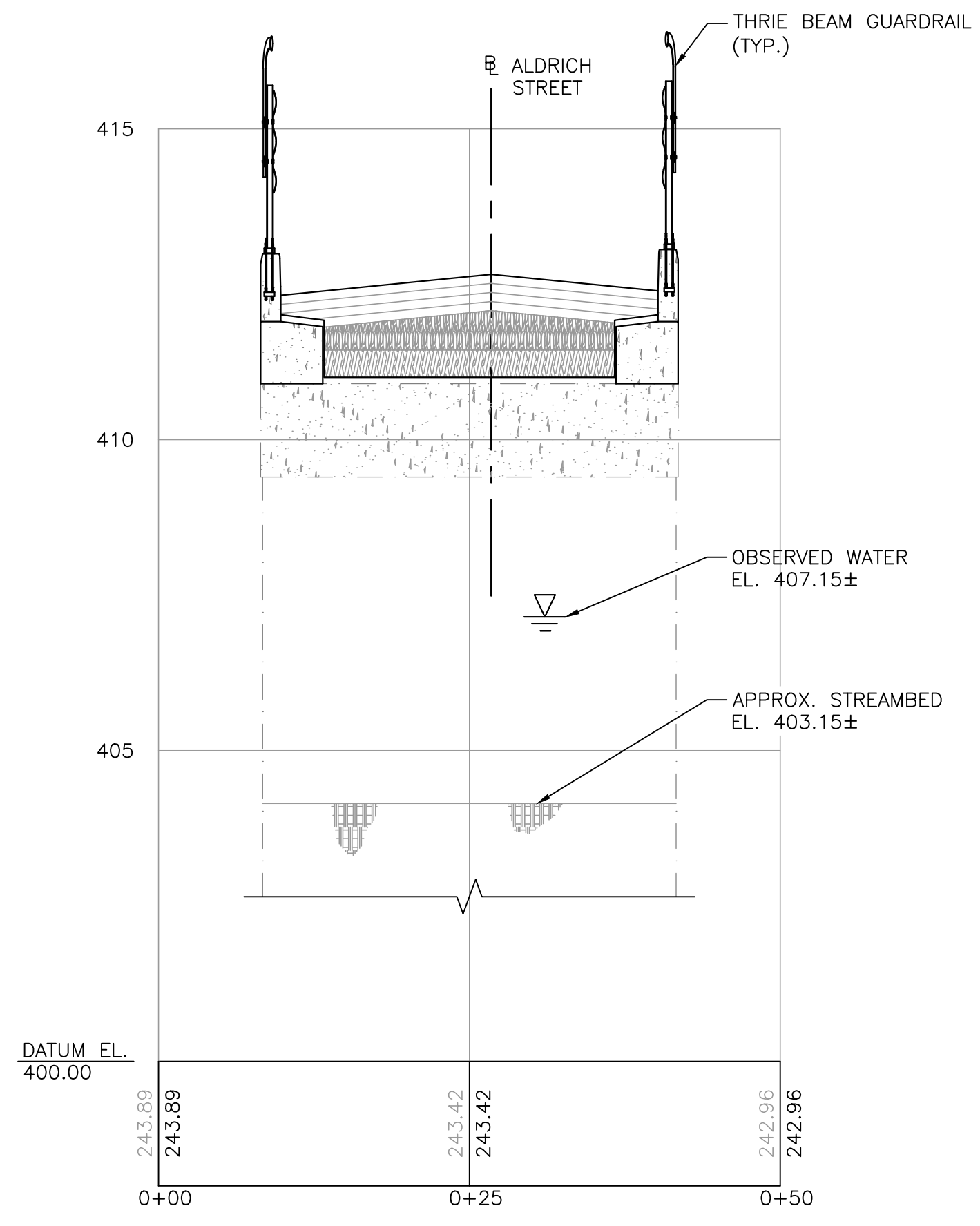
**REINFORCEMENT:**  
ALL REINFORCING STEEL SHALL BE EPOXY COATED AND SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

**CONCRETE:**  
UNLESS NOTED OTHERWISE, CONCRETE SHALL BE AS FOLLOWS:

MOMENT SLAB & COPING:	5000 PSI - 3/4" - 685 LB/CY HP
WALL STEM & FOOTING:	4000 PSI - 1 1/2" - 565 LB/CY HP
REPAIR CONCRETE:	4000 PSI - 3/8" - 660 LB/CY CEMENT



**ALDRICH STREET PROFILE**  
HORIZONTAL SCALE: 1/8" = 1'-0"  
VERTICAL SCALE: 1/8" = 1'-0"



**ALDRICH BROOK PROFILE**  
HORIZONTAL SCALE: 1/8" = 1'-0"  
VERTICAL SCALE: 1/8" = 1'-0"

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

8/23/2023 11:30 AM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT DRAWING FILES\PLANS\SET17546\_SRI\COVERSHEET - ALDRICH.DWG (BETA STB BW) (STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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DESIGNED BY:	TW
CHECKED BY:	TW



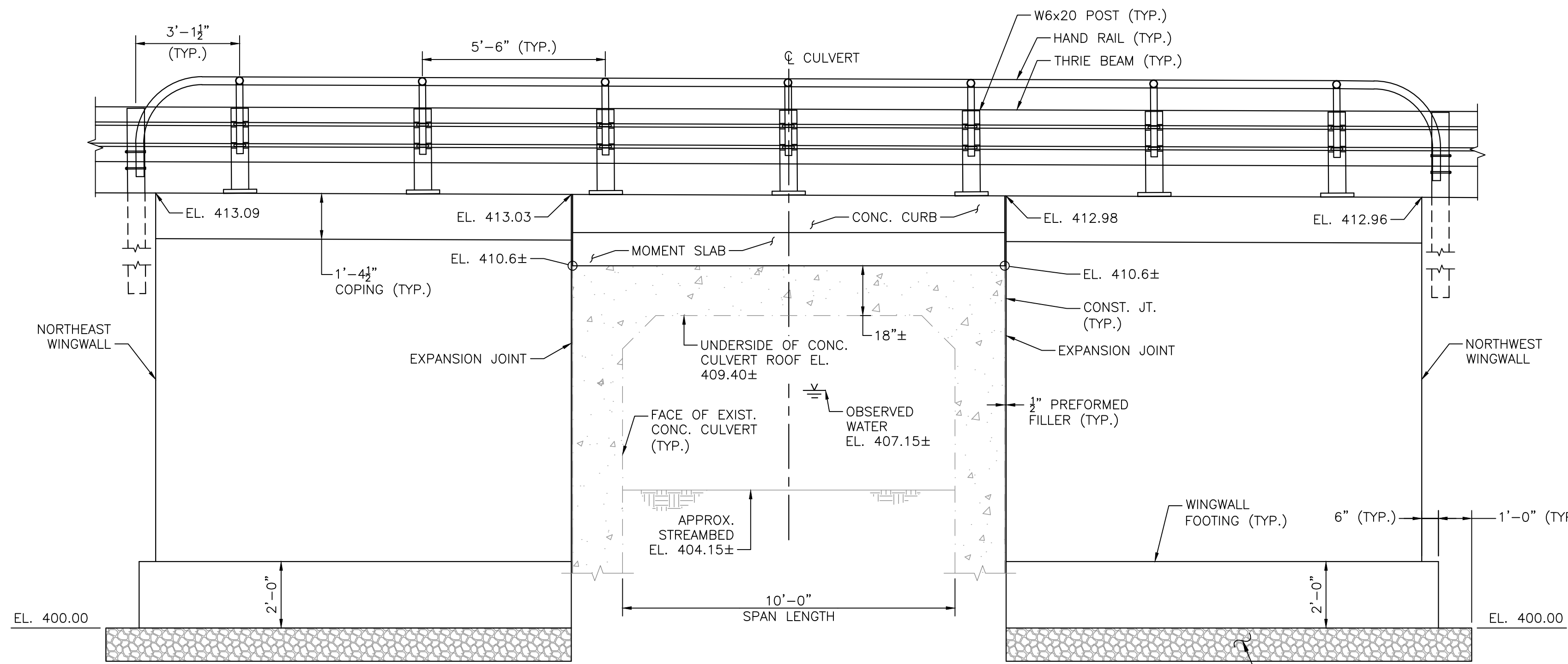
REGISTERED PROFESSIONAL  
PREPARED BY  
SUBCONSULTANT

SCALE  
AS SHOWN

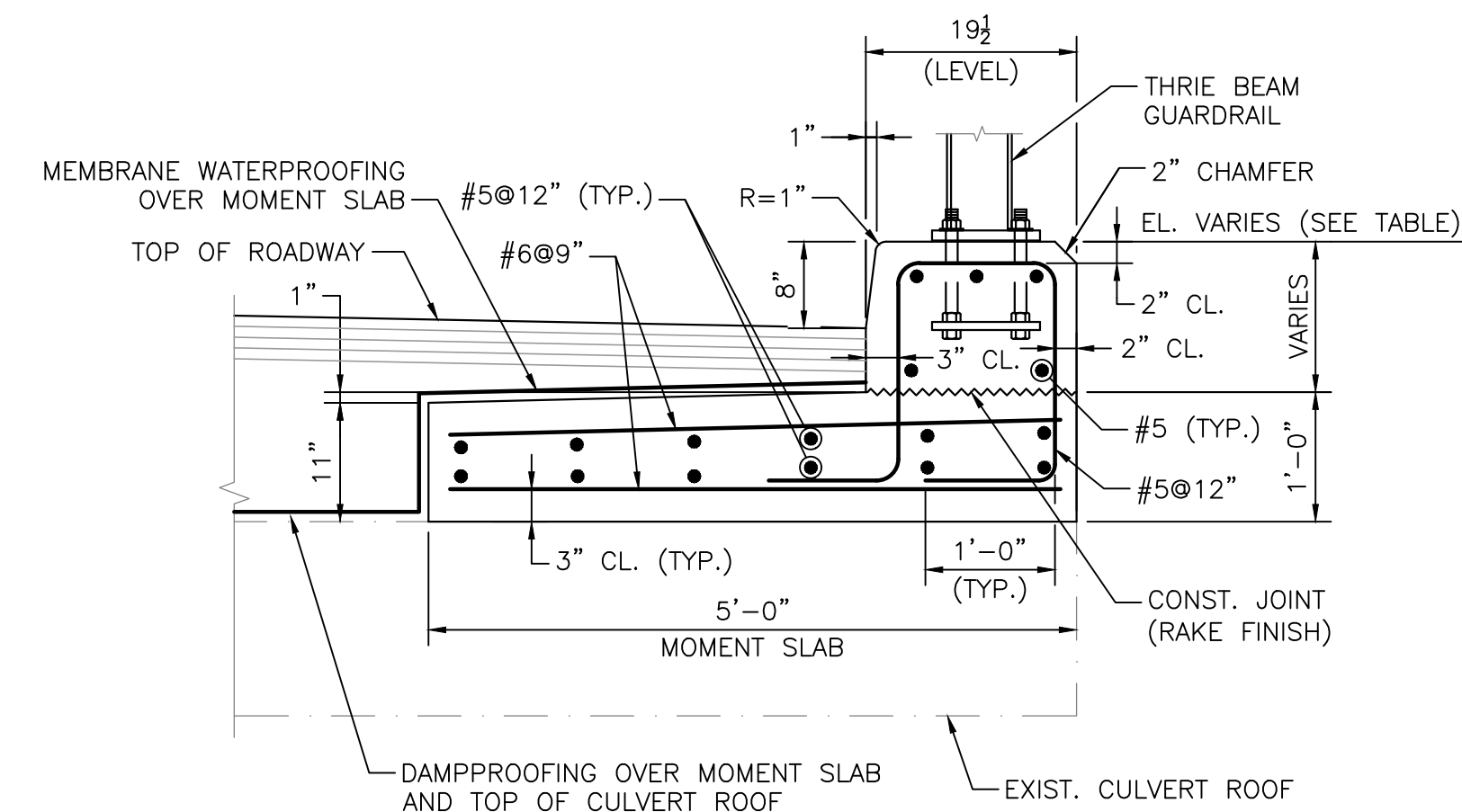
TITLE  
**Aldrich Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**BRIDGE COVER SHEET**

BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. 1  
BRIDGE NO. U-02-038  
Sheet 5 of 11 Bridge No. U-02-038 (6X9)

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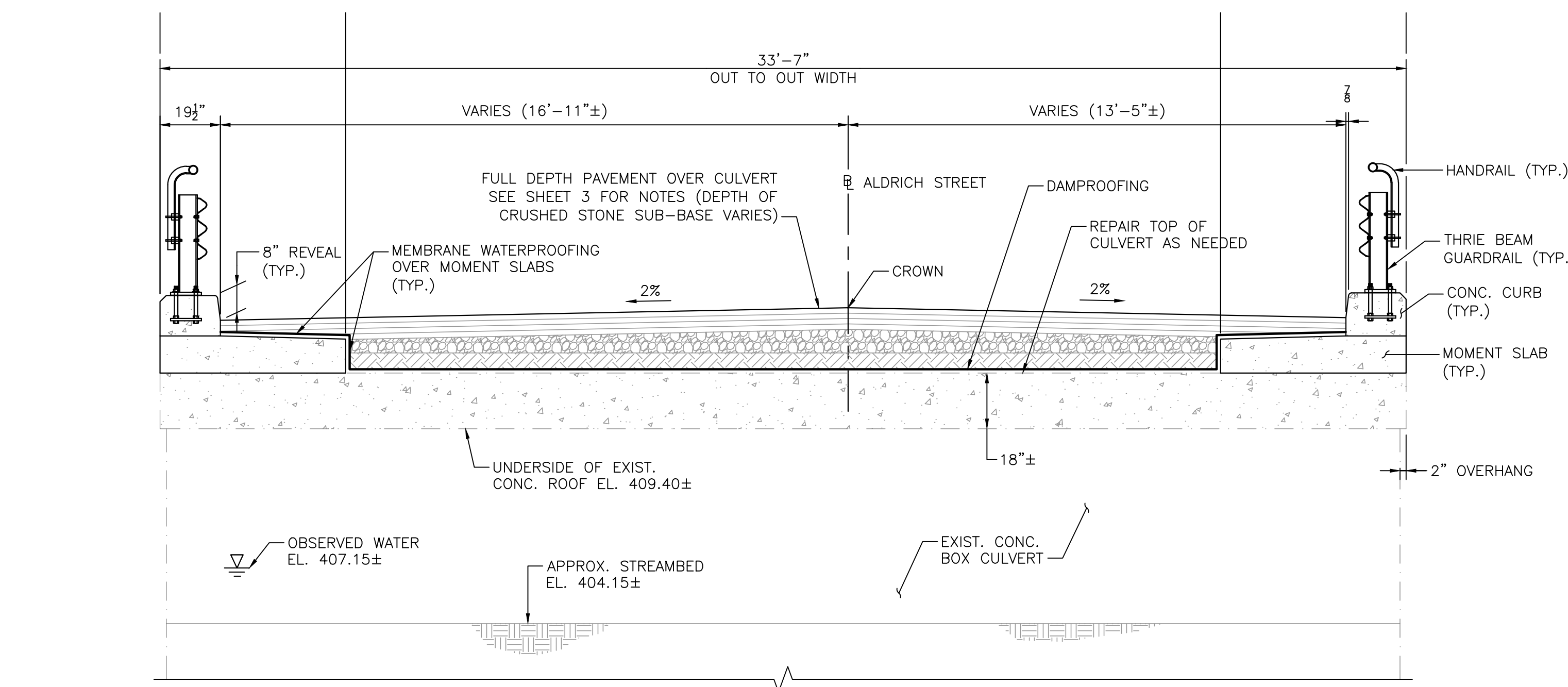
**NORTH BRIDGE ELEVATION (LOOKING SOUTH)**  
SCALE: 3/8" = 1'-0"



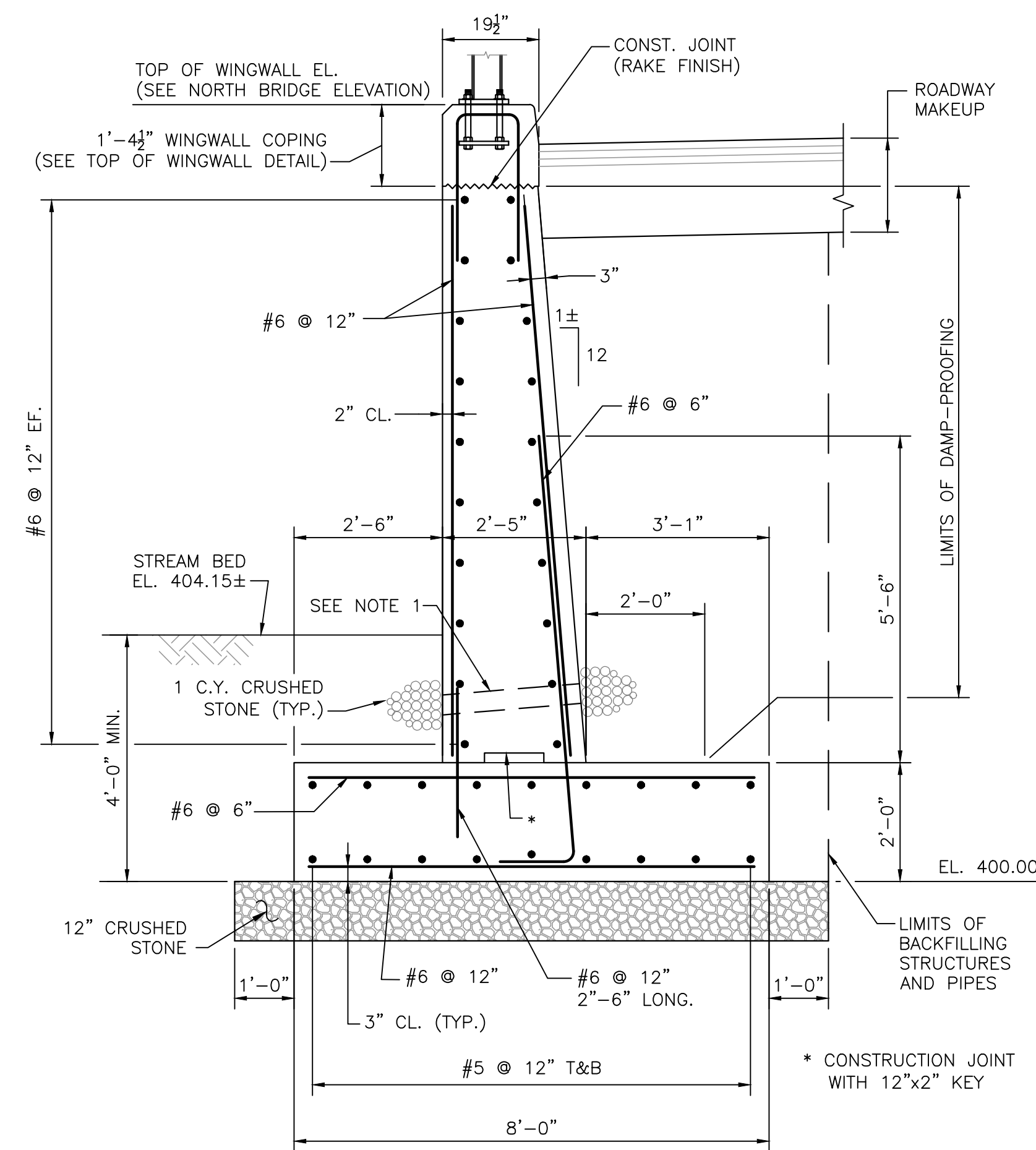
**MOMENT SLAB SECTION**  
SCALE: 3/4" = 1'-0"

- WINGWALL NOTES:**
- 4" Ø WEEP HOLES 10'-0" O.C. LOCATED 12" ABOVE THE HEEL OF THE FOOTING, SLOPING 1" PER FOOT TOWARDS THE FRONT FACE. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
  - MOMENT SLAB & WINGWALL COPING CONCRETE SHALL BE 5000 PSI, 3/4" IN, 685 HP CEMENT CONCRETE.  
  
WINGWALL STEM & FOOTING CONCRETE SHALL BE 4000 PSI, 1 1/2" IN, 565 CEMENT CONCRETE
  - THE FACTORED BEARING PRESSURE = 1.94 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.
  - THE FACTORED BEARING RESISTANCE = 3.53 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.

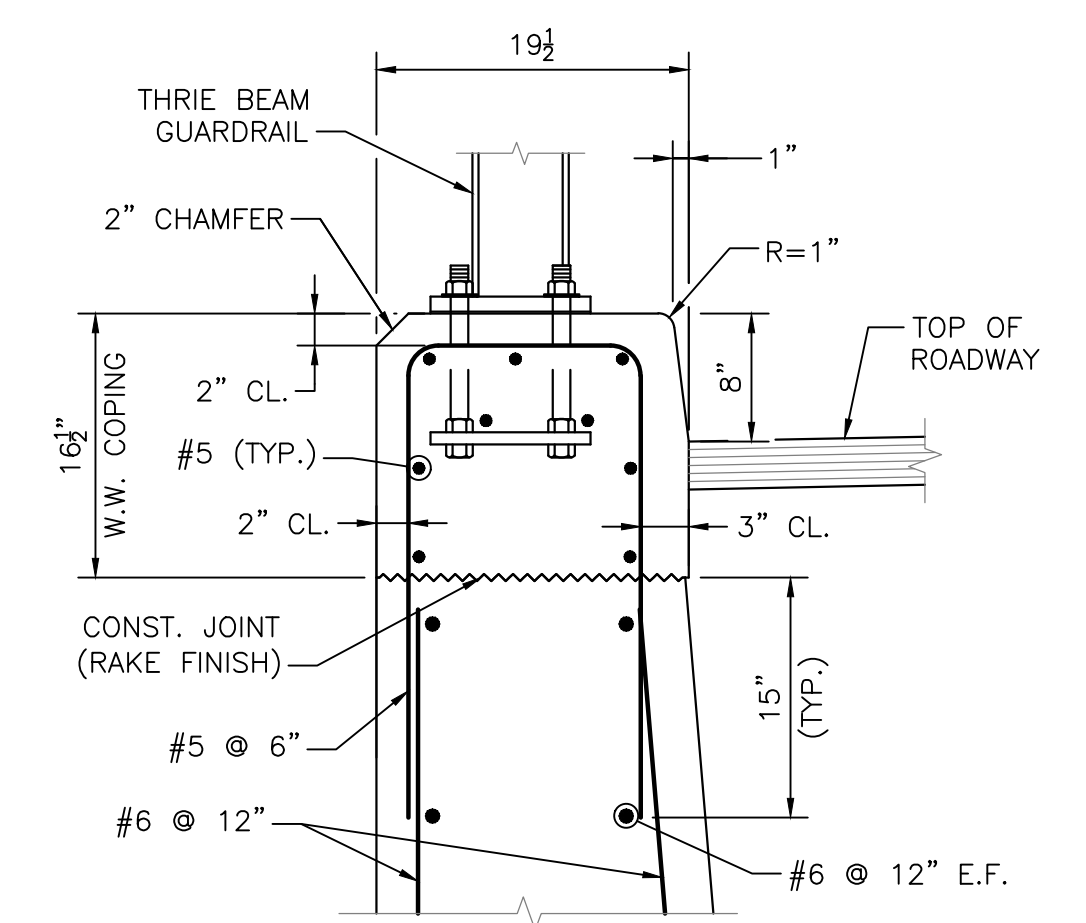
TOP OF MOMENT SLAB STEM ELEVATION		
LOCATION	APPROX. STATION	ELEVATION
NORTH	0+81.2	412.98
	0+94.5	413.03
SOUTH	0+81.3	413.06
	0+94.1	413.09



**TRANSVERSE BRIDGE SECTION**  
SCALE: 3/8" = 1'-0"



**TYPICAL WINGWALL SECTION**  
SCALE: 1/2" = 1'-0"



**TOP OF WINGWALL DETAIL**  
SCALE: 1" = 1'-0"

**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**  
DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

8/23/2023 11:41 AM N1750517545 - UXBRIDGE - SMALL BRIDGE CONTRACT DRAWING FILES\PLANS\SET17546\_S\STRUCTURAL\DETAILS\DWG (BETA STB BW) (STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: BN  
DESIGNED BY: TW  
CHECKED BY: TW

REGISTERED PROFESSIONAL  
PREPARED BY

www.BETA-inc.com

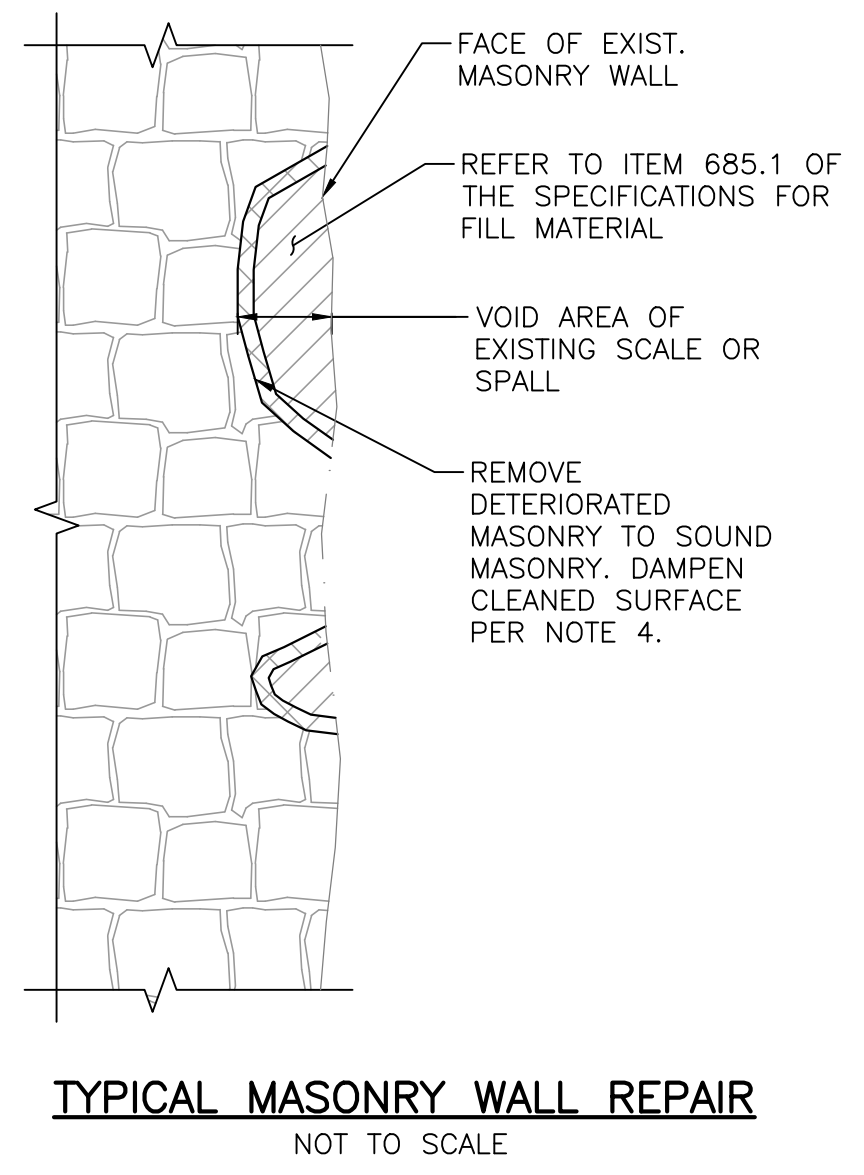
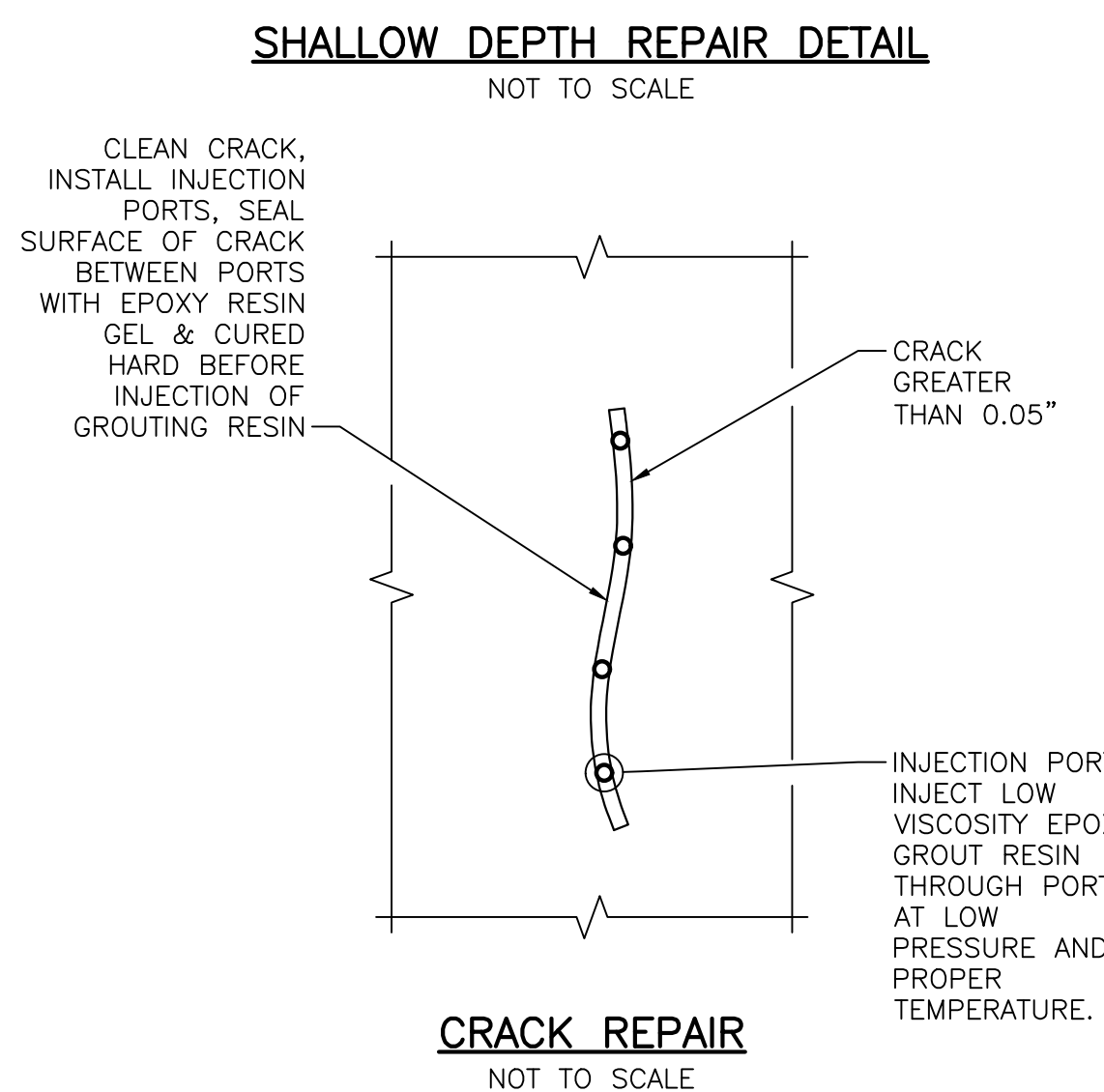
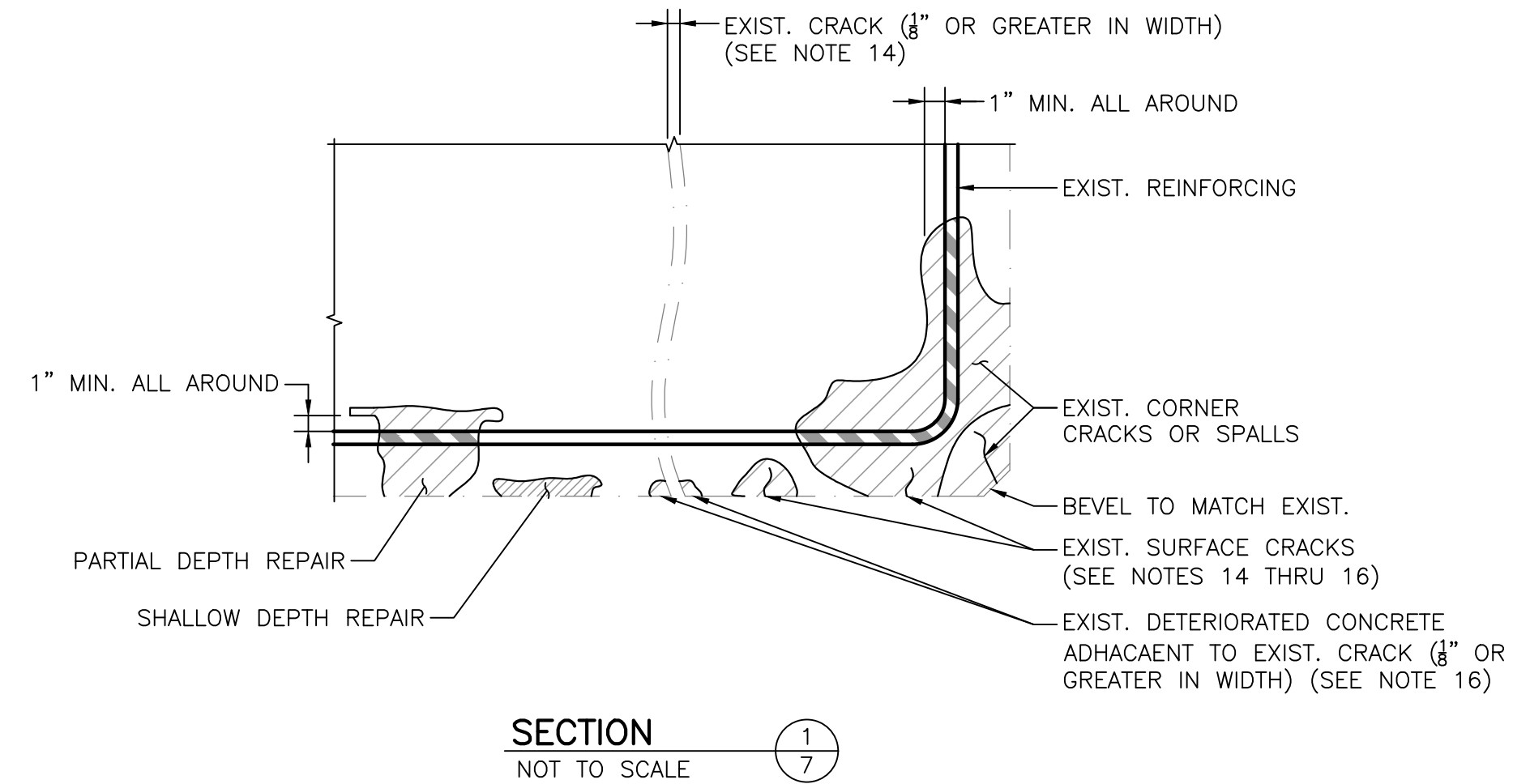
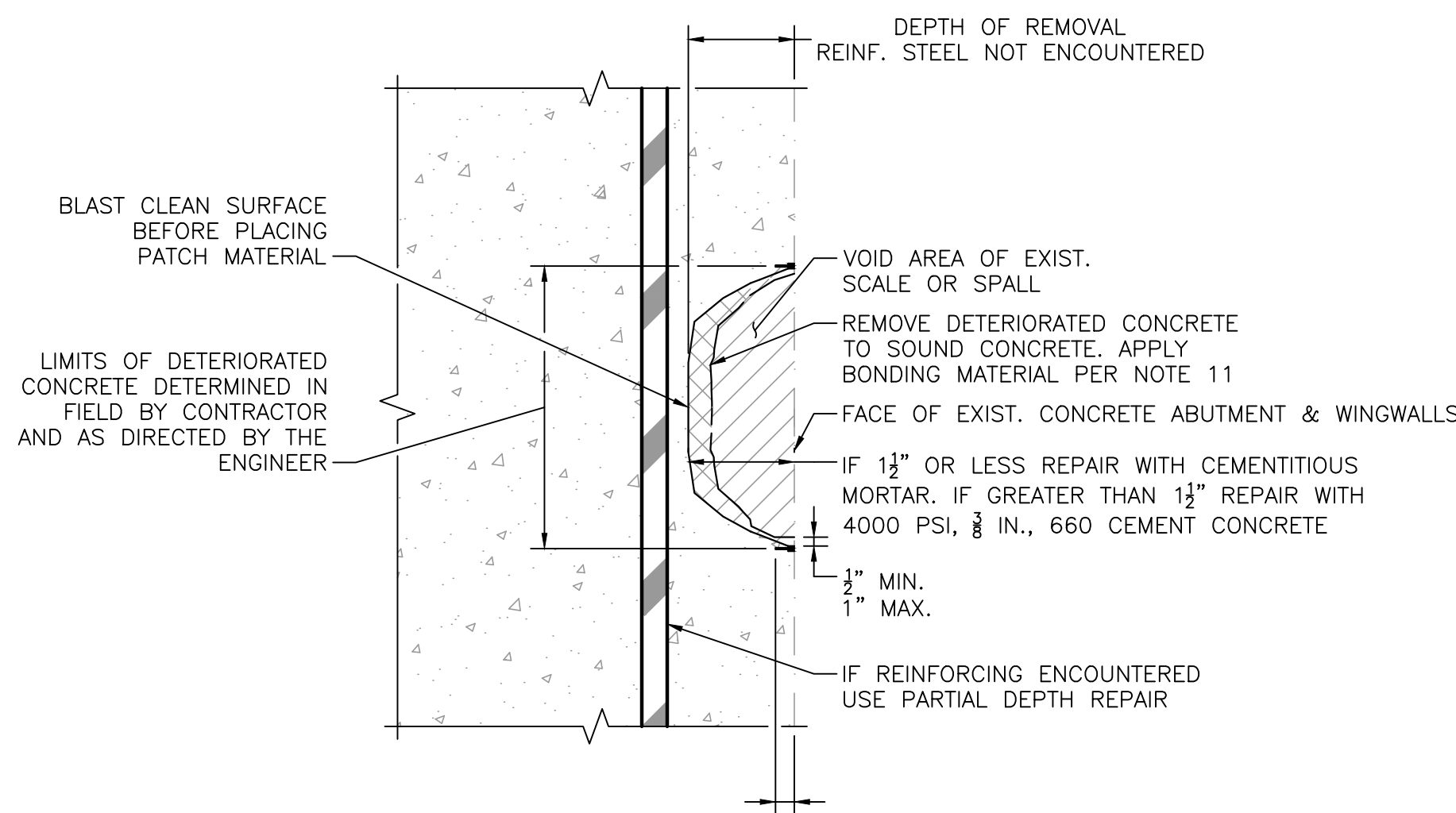
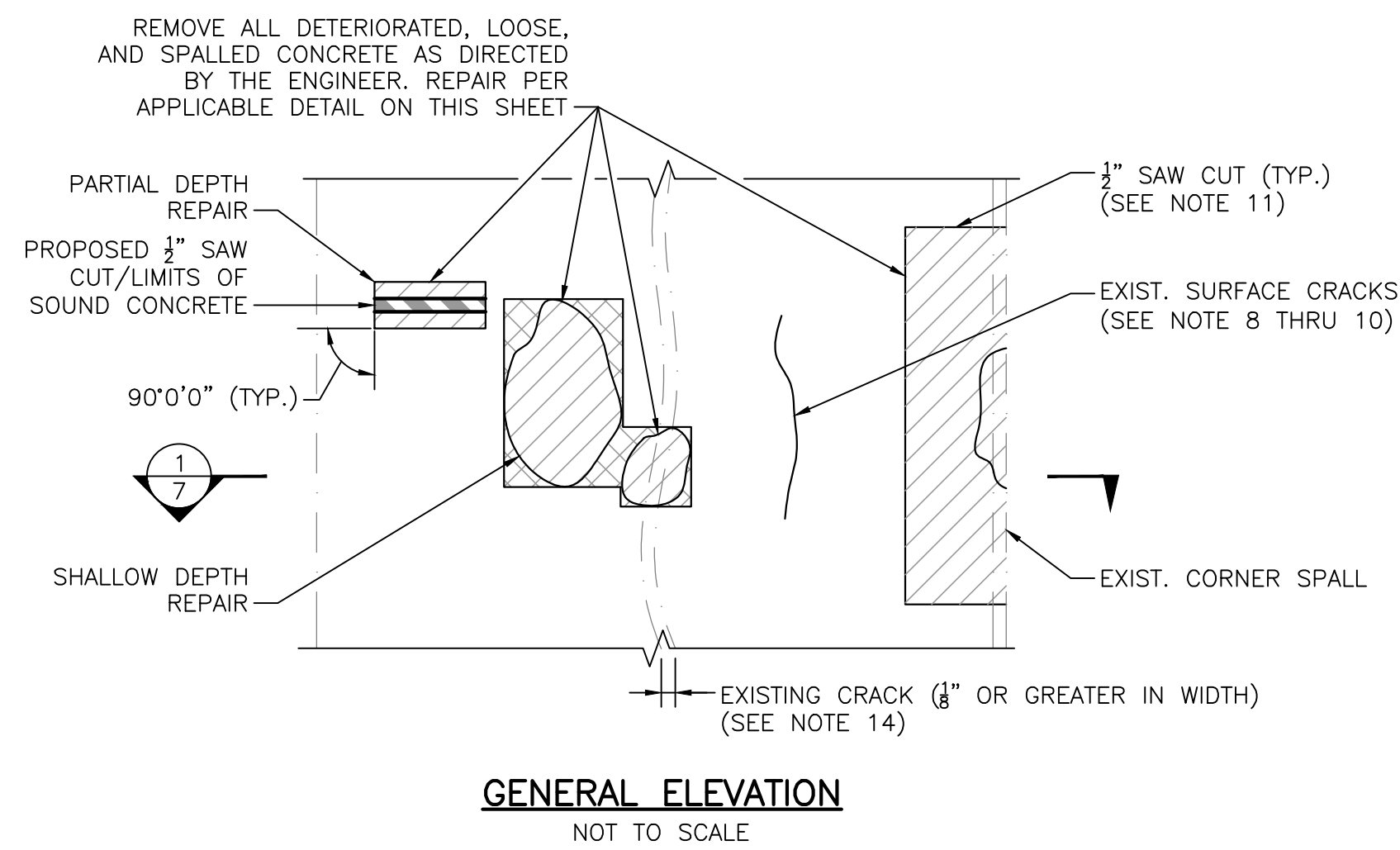
SUBCONSULTANT

SCALE: AS SHOWN

TITLE: **Aldrich Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**STRUCTURAL DETAILS**

BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. 2  
Sheet 6 of 11 Bridge No. U-02-038 (6X9)

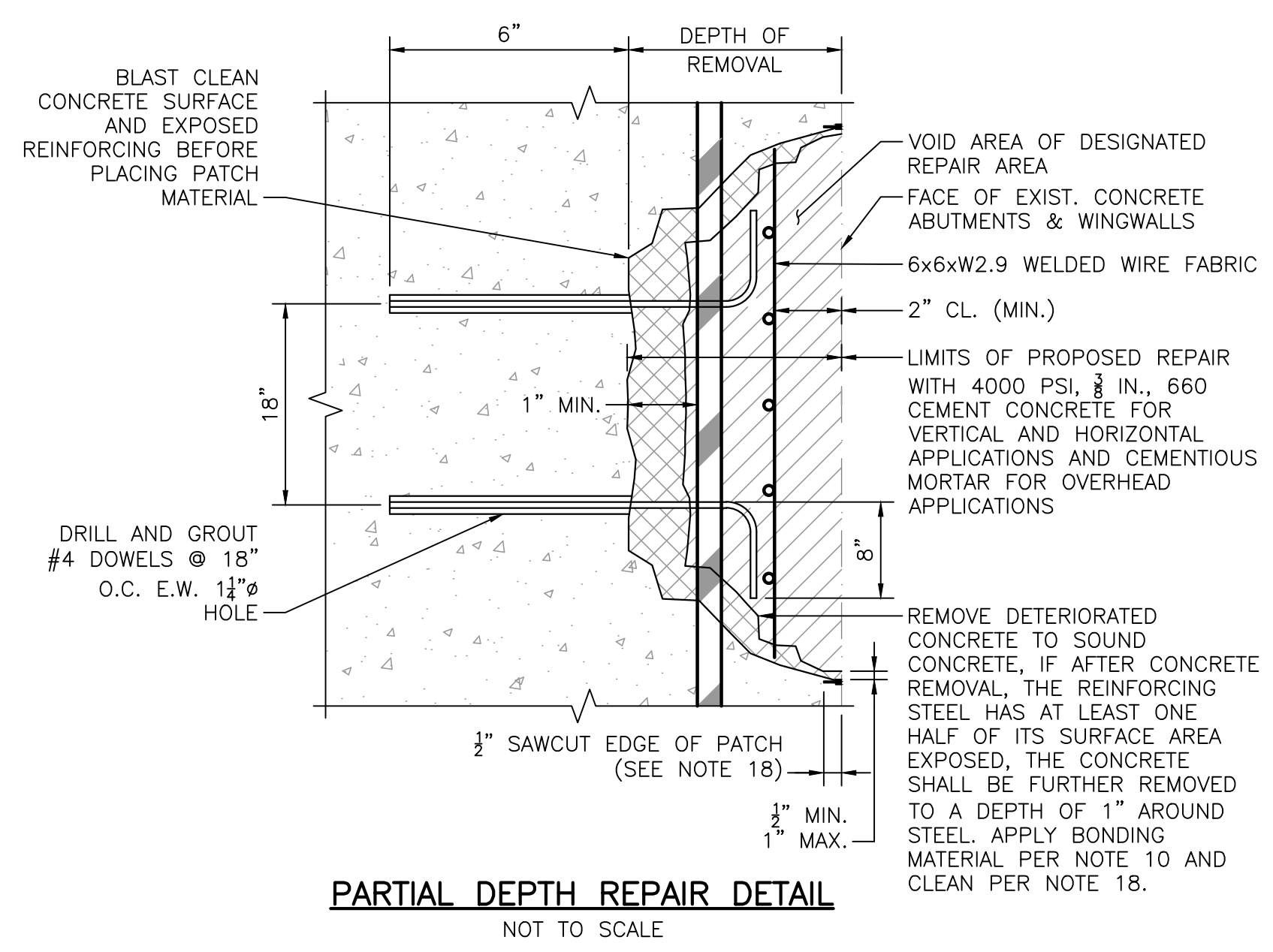
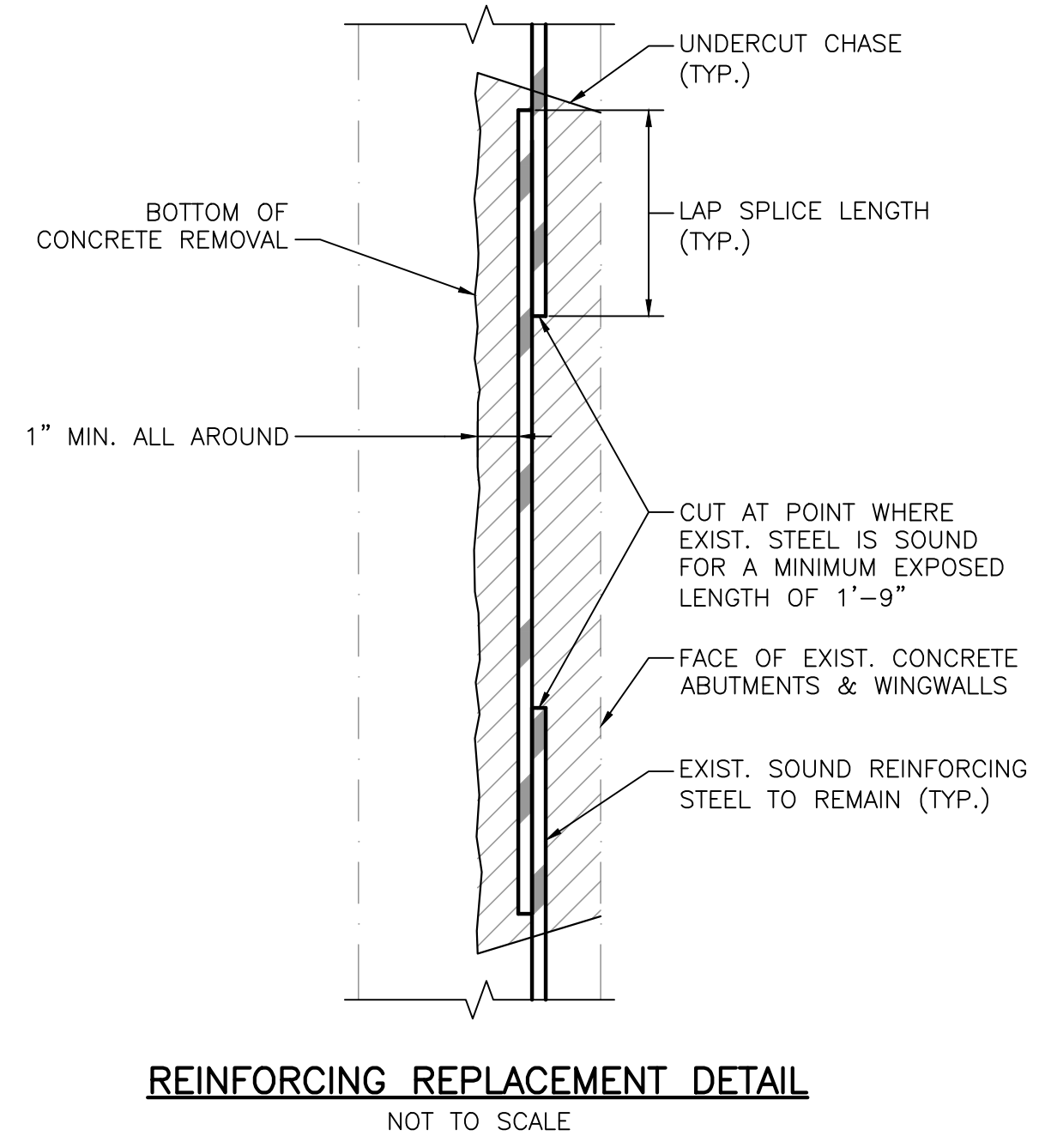
8/23/2023 11:41 AM N:\75605\7545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET1\7546\_SRI(CONCRETE REPAIR DETAILS).DWG (BETA STB B/W STB)



- MASONRY REPAIR NOTES:**
1. ANY OBJECTIONABLE CRACK SHOULD BE ANALYZED TO DETERMINE THE CAUSE AND ANY PREVIOUS CORRECTIVE MEASURES TAKEN TO PREVENT OR ACCOMMODATE THE MOVEMENT BEFORE ADDITIONAL REPAIRS ARE MADE.
  2. WHERE CRACKING IS CONFINED PRIMARILY TO MORTAR JOINTS IT CAN BE READILY REPAIRED BY CONVENTIONAL TUCKPOINTING METHODS.
  3. REMOVE ALL SPALLED AND UNSOUND MASONRY FROM AREA TO BE REPAIRED.
  4. CLEAN SURFACE TO BE FREE OF ALL MATERIALS INCLUDING DUST, OIL, DIRT AND GREASE. DAMPEN WITH CLEAN WATER BEFORE PATCHING AND REMOVE STANDING WATER. REPAIR MORTAR SHALL BE TROWEL APPLIED TO DAMPENED SURFACE. AFTER INITIAL SET, THE MATERIAL SHALL BE TRIMMED AND SHAPED TO MATCH THE CONTOURS OF EXISTING PATCH AREA.
  5. COST OF DRILLING AND GROUTING DOWELS SHALL BE CONSIDERED INCIDENTAL TO MASONRY REHABILITATION.
  6. EXISTING MASONRY NEAR REPAIR LOCATIONS SHALL BE CLEANED WITH A HYDROCARBON SOLVENT TO REMOVE OIL AND GREASE. THE SURFACE SHALL THEN BE CLEANED WITH A TRISODIUM PHOSPHATE SOLUTION PRIOR TO APPLYING PAINT.
  7. THE ACTUAL LOCATIONS AND EXTENT OF VARIOUS TYPES OF CONCRETE REPAIR WILL BE DETERMINED IN THE FIELD. THE CONTRACTOR SHALL REPAIR ALL AREAS DETERMINED NECESSARY AS DIRECTED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS.

- CONCRETE REPAIR NOTES:**
8. AREAS REQUIRING REPAIRS THAT ARE GREATER THAN 1 1/2" DEEP SHALL BE REPAIRED USING 4000 PSI, 3/8 IN., 660 CEMENT CONCRETE. AREAS LESS THAN 1 1/2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING.
  9. IF DURING REMOVAL OF DETERIORATED CONCRETE, THE CONTRACTOR DAMAGES EXISTING REINFORCEMENT TO THE EXTENT REQUIRING REPLACEMENT, ANY ADDITIONAL CONCRETE REMOVAL, PATCHING MATERIAL, CLEANING EXISTING REINFORCING STEEL, AND FURNISHING AND INSTALLING REPLACEMENT REINFORCING STEEL SHALL BE AT THE CONTRACTOR'S EXPENSE, AND INSTALLED ACCORDING TO REINFORCING REPLACEMENT DETAIL ON THIS SHEET.
  10. REINFORCEMENT, INCLUDING WELDED WIRE FABRIC, USED TO REPLACE EXISTING DETERIORATED REINFORCING STEEL (SECTION LOSS OF 15% OR MORE OF THE ORIGINAL CROSS SECTION, AS DETERMINED BY THE ENGINEER) SHALL BE EPOXY COATED. COST OF REPLACEMENT SHALL BE INCLUDED UNDER ITEM 910.1.
  11. IMMEDIATELY PRIOR TO PLACING NEW CONCRETE OR MORTAR AGAINST EXISTING CONCRETE, CLEAN EXISTING SURFACES BY ABRASIVE BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER CONTAINING NO DETERGENTS OR BOND INHIBITING CHEMICALS AND APPLY APPROVED BONDING COMPOUND IMMEDIATELY PRIOR TO PLACING CONCRETE.
  12. ALL EXISTING SURFACES THAT WILL HAVE NEW CONCRETE CAST AGAINST IT MUST BE ROUGHENED TO A MINIMUM AMPLITUDE OF 1/4 INCH.
  13. CONCRETE REPAIR WORK INCLUDES REMOVING ALL DETERIORATED, LOOSE, SPALLED, POPCORNERED AND MAP CRACKED CONCRETE. CONCRETE WHICH HAS SPALLED OR OTHERWISE DETERIORATED ADJACENT TO SURFACE CRACK SHALL BE REPAIRED.
  14. CRACKS THAT ARE .05" OR GREATER IN WIDTH SHALL BE REPAIRED BY EPOXY INJECTION CRACK REPAIR.
  15. CRACKS THAT ARE LESS THAN .05" IN WIDTH SHALL NOT BE REPAIRED UNLESS DIRECTED BY THE ENGINEER.
  16. WHERE PATCHING AND EPOXY INJECTION WORK ARE ADJACENT, EPOXY INJECTION SHALL BE PERFORMED BEFORE PATCHING.
  17. ALL DETERIORATED AREAS SHALL BE DELINEATED BY A 1/2" SAWCUT. THE COST OF SAWCUTTING SHALL BE INCLUDED UNDER ITEM 127.12.
  18. ALL EXPOSED STEEL SHALL BE THOROUGHLY BLAST CLEANED TO A WHITE METAL FINISH AND COATED WITH EPOXY IN ACCORDANCE WITH AASHTO M284 (ASTM D3963). BLAST CLEANING AND EPOXY SHALL BE INCLUDED IN THE RESPECTIVE CONCRETE REPAIR ITEM.
  19. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.

- LEGEND:**
- DETERIORATED CONCRETE TO BE REMOVED.
  - REINFORCING STEEL.
  - ADDITIONAL CONCRETE TO BE REMOVED.



**COMMONWEALTH OF MASSACHUSETTS**  
**MassDOT, Highway Division**  
**APPROVED UNDER PROVISIONS OF**  
**MASS. GEN. LAWS CH 85 S 35**

DISTRICT 3 BRIDGE ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
BN

DESIGNED BY:  
TW

CHECKED BY:  
TW



REGISTERED PROFESSIONAL  
PREPARED BY  
SUBCONSULTANT

SCALE  
AS SHOWN

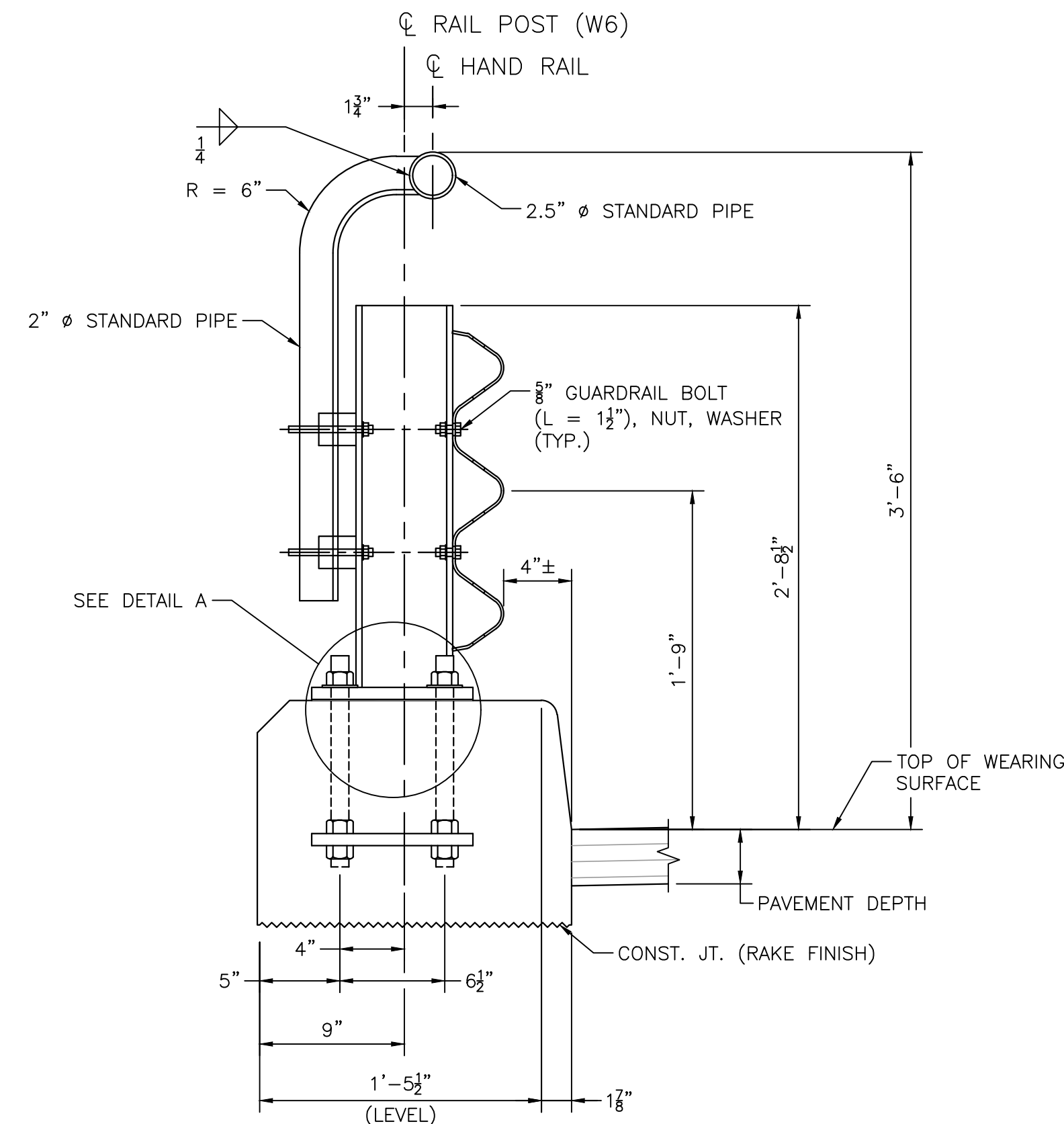
TITLE  
**Aldrich Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**CONCRETE & MASONRY REPAIR DETAILS**

BETA JOB NO. 7545

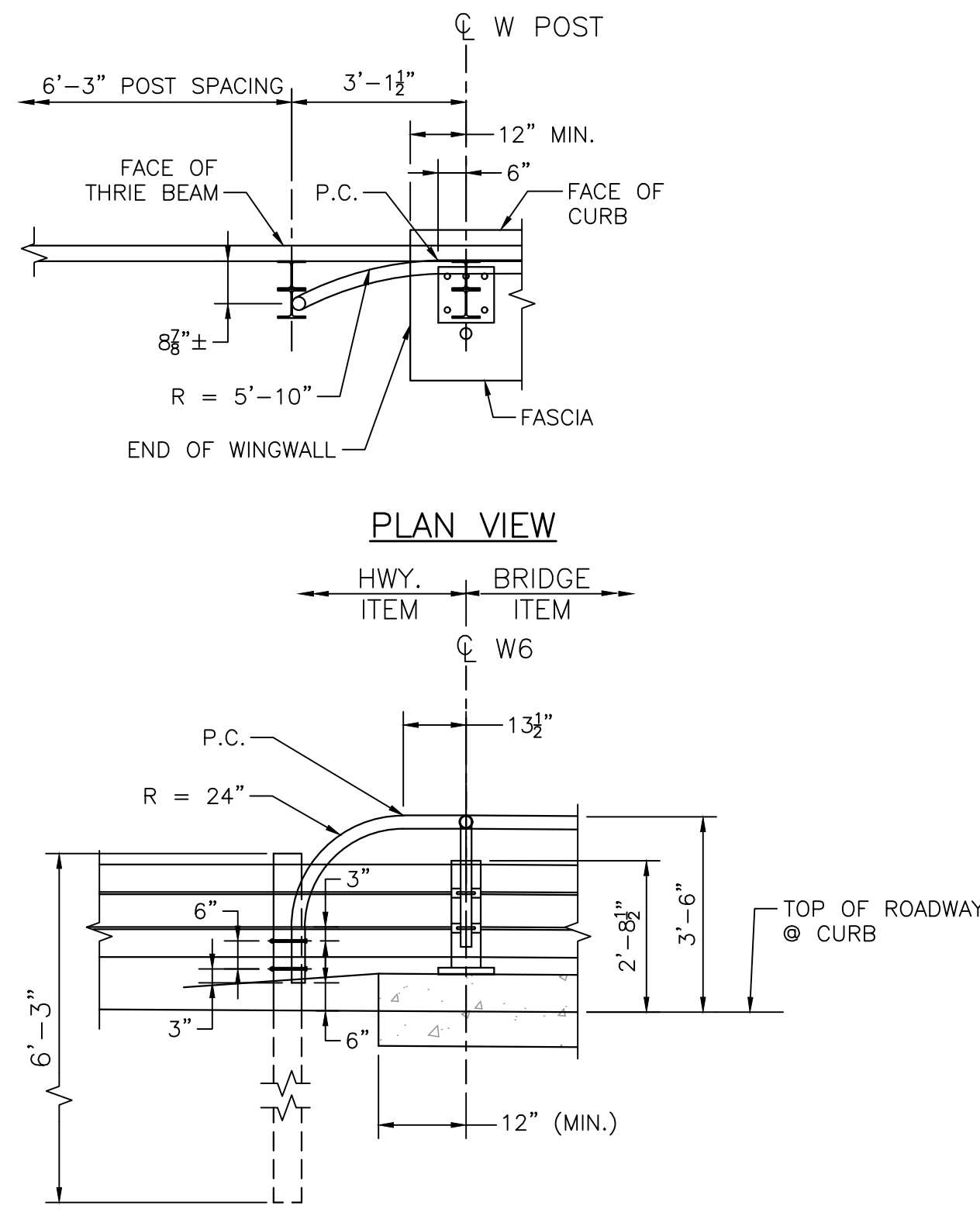
ISSUE DATE \_\_\_\_\_

SHEET NO. **3**

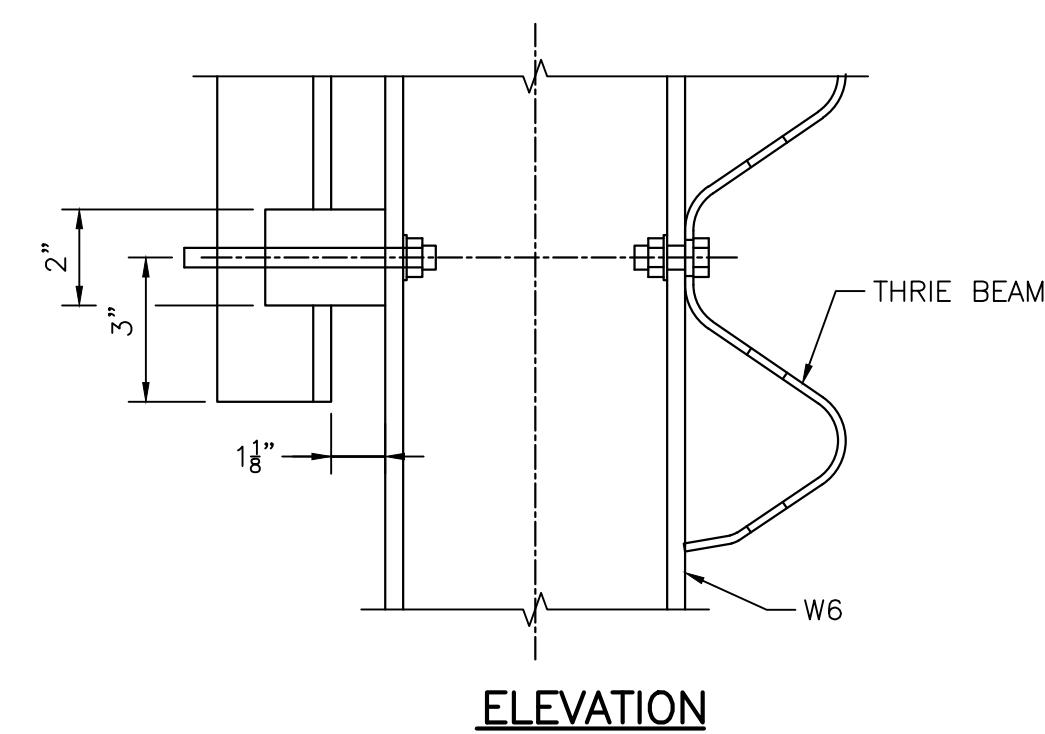
Sheet 7 of 11 Bridge No. U-02-038 (6X9)



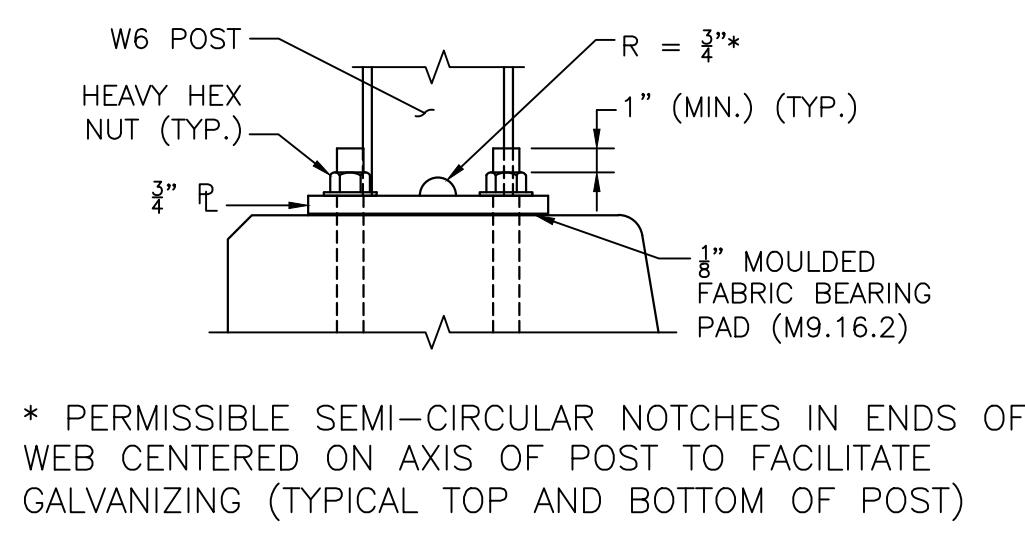
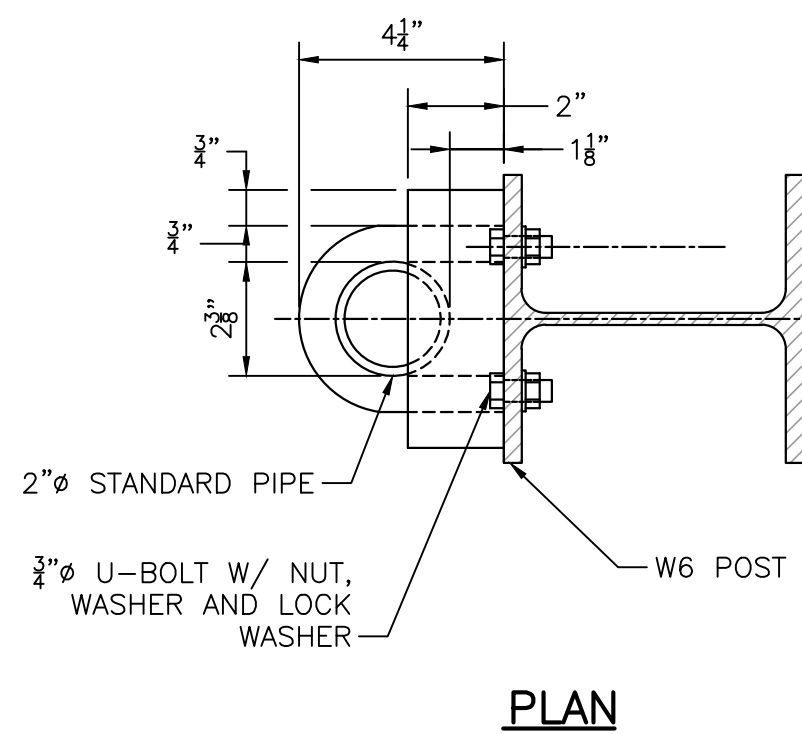
**THRIE BEAM SECTION**  
 SCALE: 1 1/2" = 1'-0"



**HAND RAIL END DETAIL**  
 SCALE: 3/8" = 1'-0"

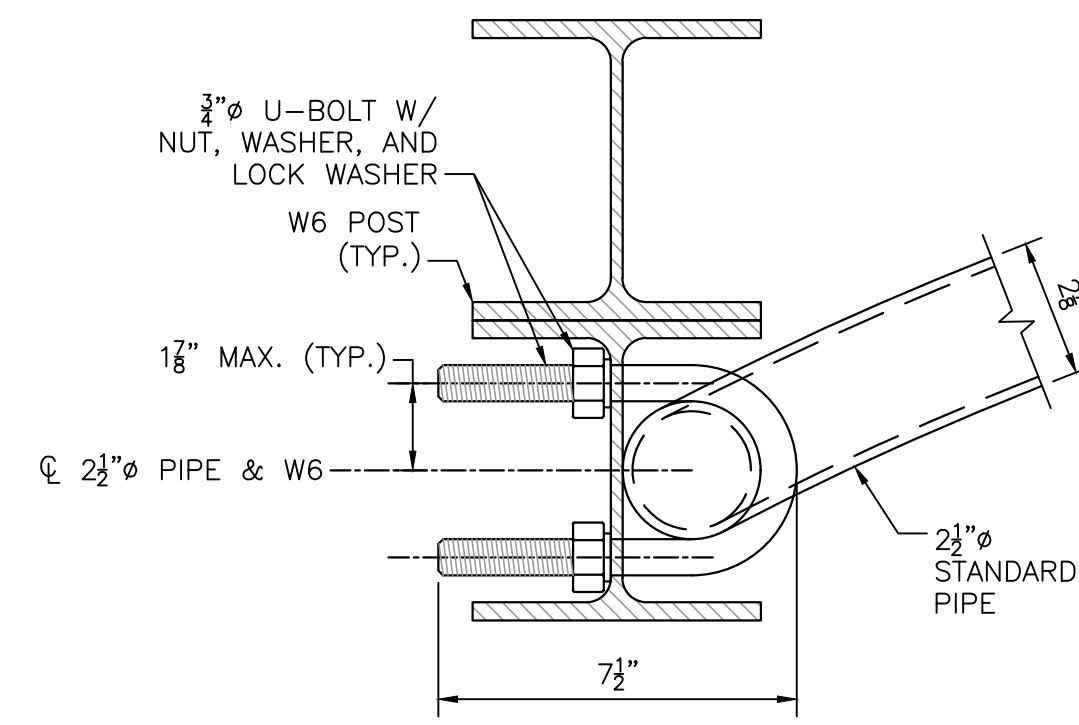


**SADDLE DETAILS**  
 SCALE: 3" = 1'-0"

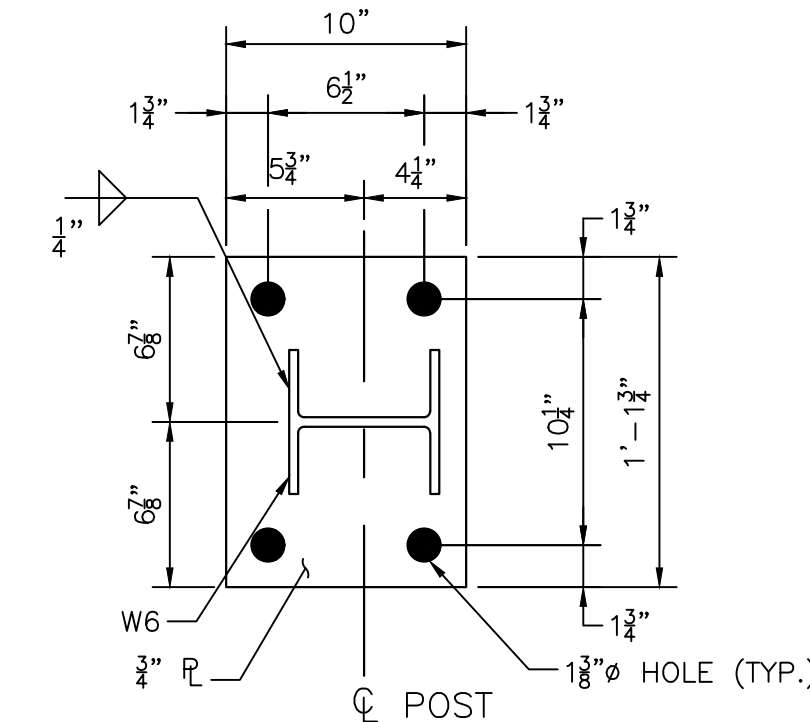


**DETAIL A**  
 SCALE: 1 1/2" = 1'-0"

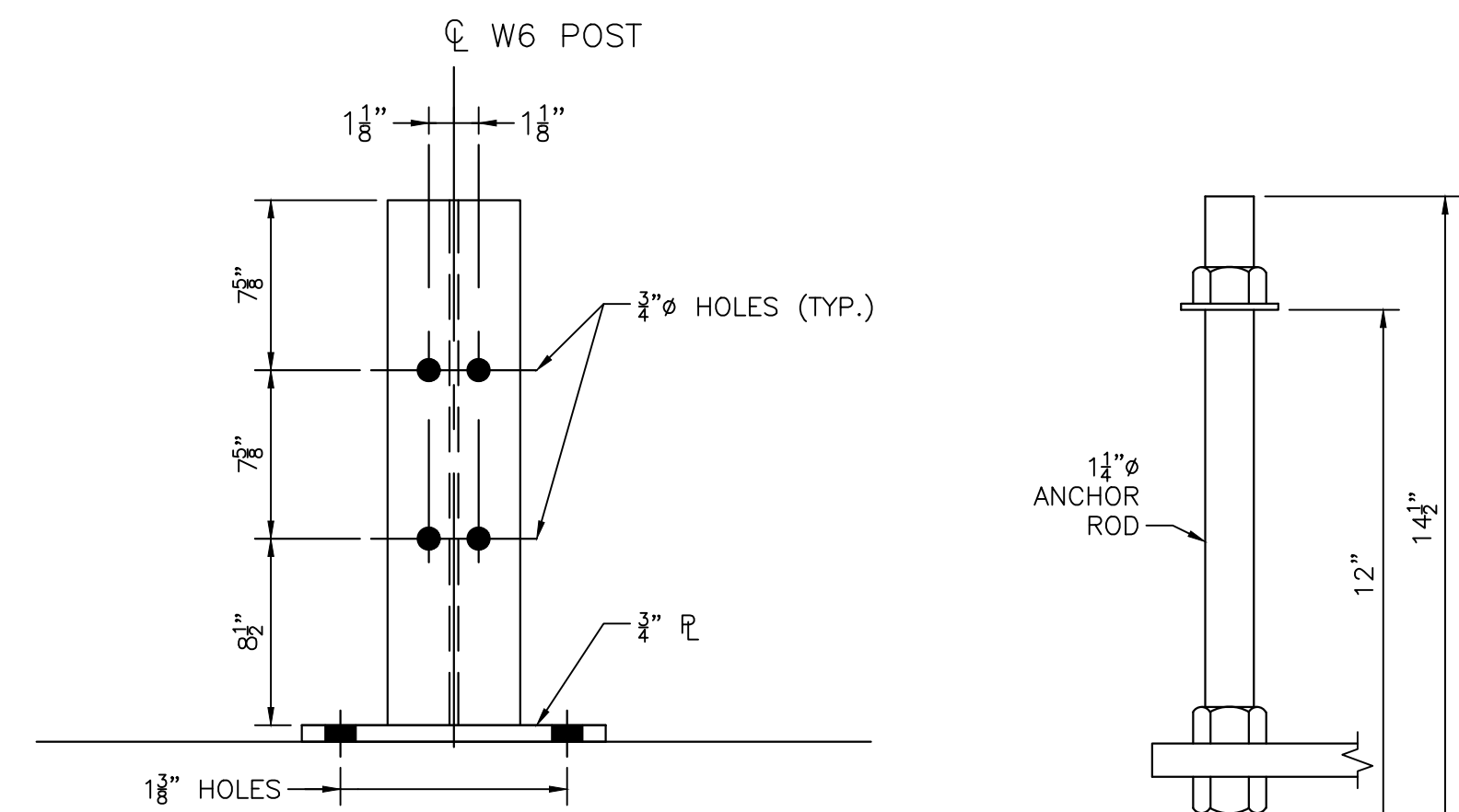
\* PERMISSIBLE SEMI-CIRCULAR NOTCHES IN ENDS OF WEB CENTERED ON AXIS OF POST TO FACILITATE GALVANIZING (TYPICAL TOP AND BOTTOM OF POST)



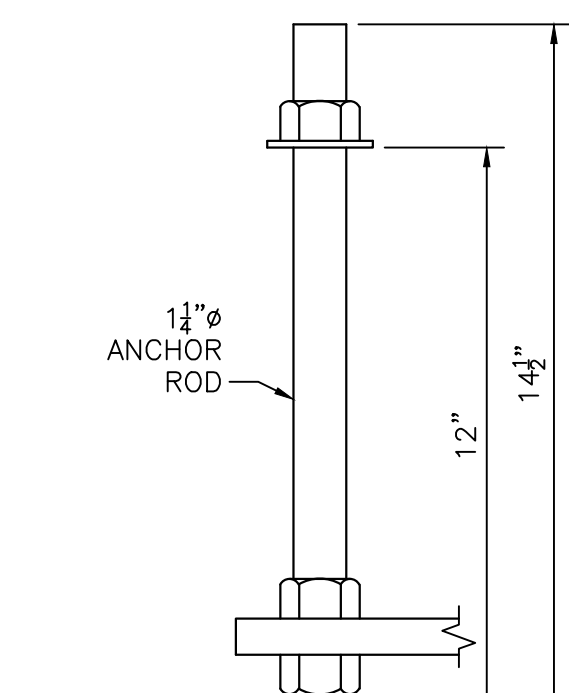
**END SADDLE DETAIL**  
 SCALE: 3" = 1'-0"



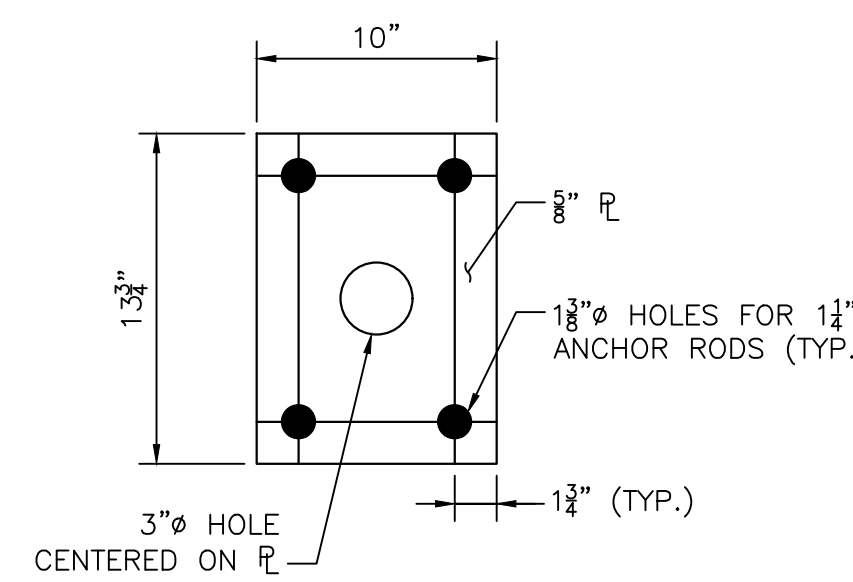
**BASE PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"



**RAIL POST DETAIL (FRONT VIEW)**  
 SCALE: 1 1/2" = 1'-0"

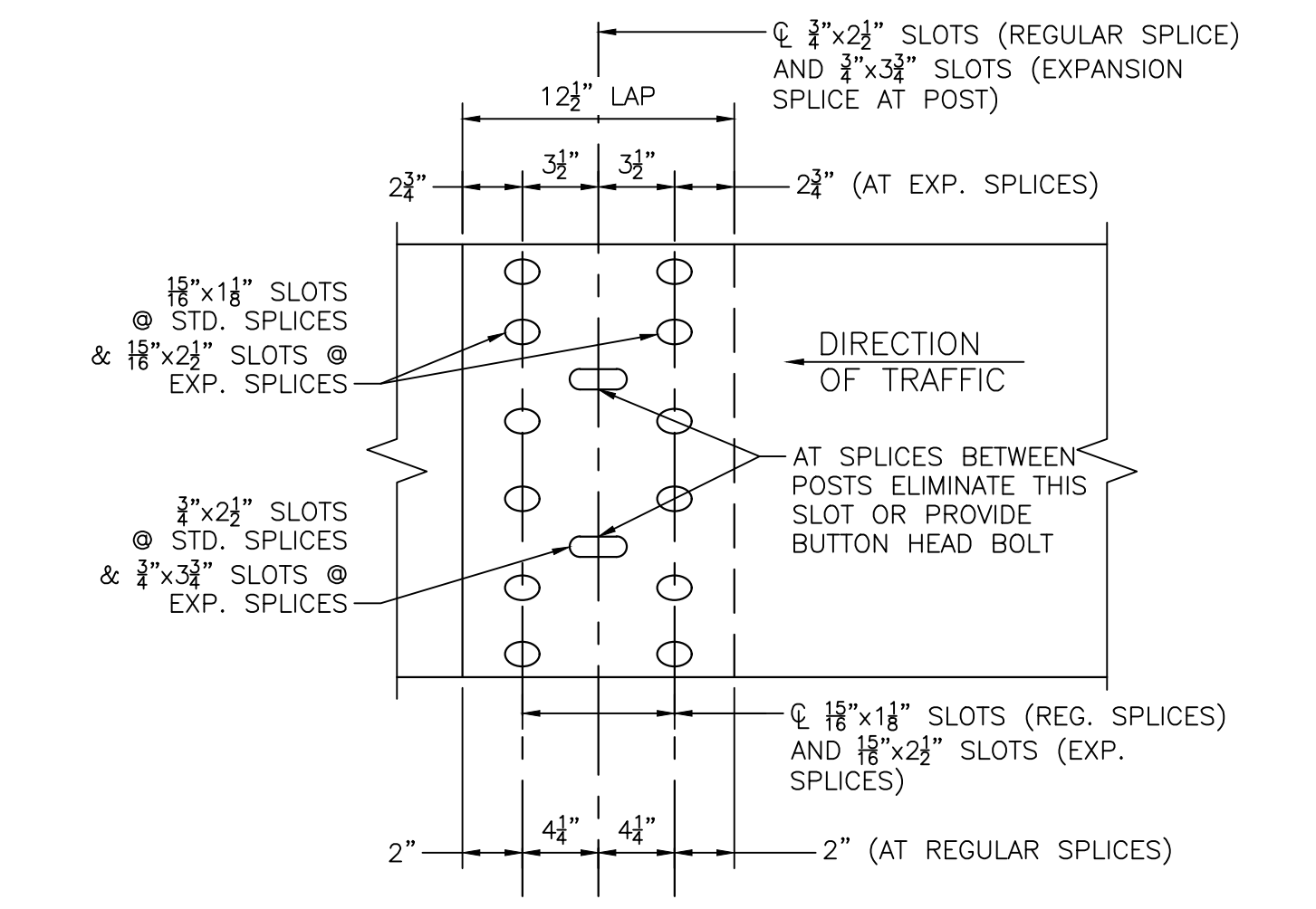


**ANCHOR ROD DETAIL**  
 NOT TO SCALE

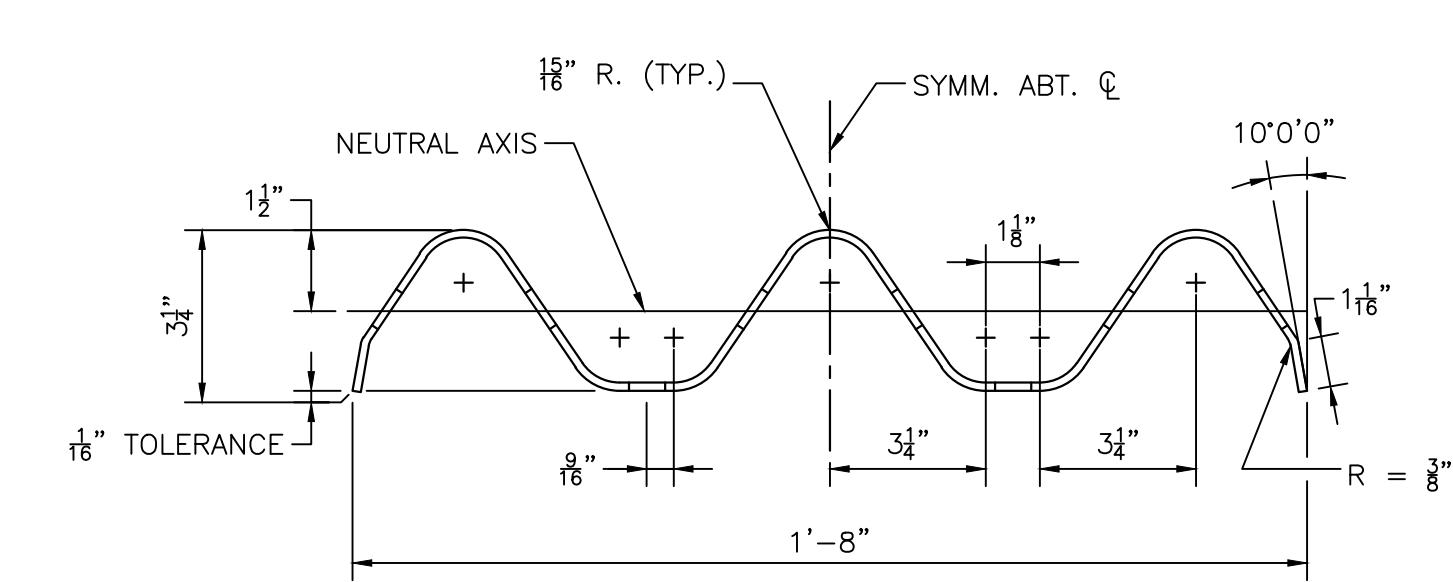


**ANCHOR PLATE DETAIL**  
 SCALE: 1 1/2" = 1'-0"

- NOTES:**
- ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232. ALL ANCHOR RODS SHALL CONFORM TO F1554 GRADE 105 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
  - RAIL POSTS AND ANCHOR PLATES SHALL BE SEATED ON MOULDED FABRIC BEARING PADS MEETING M9.16.2 AND HAVING THE SAME DIMENSIONS AS THE PLATE. ADDITIONAL PADS OR HALF PADS MAY BE USED IN SHIMMING FOR ALIGNMENT. POST HEIGHTS SHOWN WILL INCREASE BY THE THICKNESS OF THE PAD.
  - RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION, EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SO THAT IN THE FINAL ADJUSTMENT NO PART SHALL DEVIATE MORE THAN ONE INCH FROM TRUE HORIZONTAL ALIGNMENT. THE SHIMS SHALL BE 3"x1 1/2" AND PLACED BETWEEN THE POST AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.
  - MINIMUM LENGTH OF THE THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.
  - THRIE BEAM GUARD RAIL STEEL SHALL BE GALVANIZED AND CONFORM TO THE AASHTO M180, CLASS B, TYPE IV AND SHALL BE 10 GAGE THICK. USE OF 12 GAGE THICK THRIE BEAM IS EXPRESSLY FORBIDDEN.
  - POSTS, ANCHOR PLATES, BASE PLATES SHALL BE FABRICATED FROM STEEL CONFORMING TO AASHTO M270M GR. 250 STEEL AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
  - SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. (ALL DRILLING DETAILS ARE TO BE SHOWN ON THE SHOP DRAWINGS.)
  - HAND RAIL STEEL SHALL CONFORM TO ASTM A53 GR. B OR A501 AND SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
  - PLACE A REFLECTORIZED WASHER IN THE UPPER VALLEY OF THRIE BEAM EVERY THIRD POST.
  - HAND RAIL SHALL BE SPLICED OVER JOINTS IN COPING.

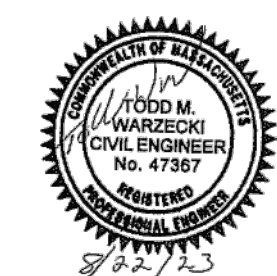



**THRIE BEAM RAIL SPLICE**  
 SCALE: 1 1/2" = 1'-0"

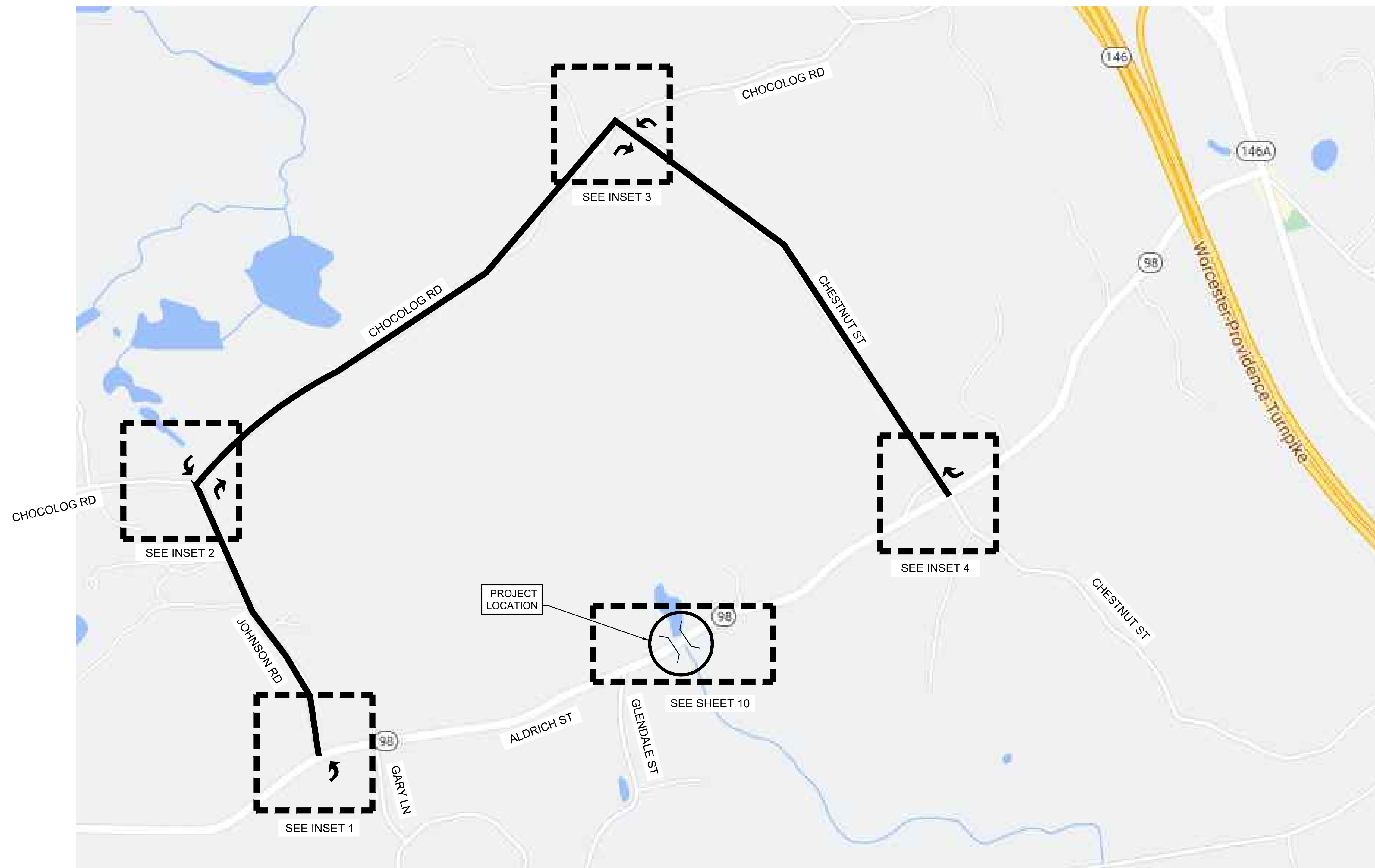


**SECTION THRU THRIE BEAM RAIL**  
 SCALE: 3" = 1'-0"

8/23/2023 11:42 AM N:\7560517545 - UXBRIDGE - SMALL BRIDGE CONTRACT\DRAWING FILES\PLANS\SET17546\_SRT\THRIEBEAMDETAILS - ALDRICH.DWG (BETA STB BW STB)

DRAWN BY: BN				REGISTERED PROFESSIONAL		PREPARED BY <b>BETA</b>		SUBCONSULTANT		SCALE AS SHOWN		TITLE <b>Aldrich Street Bridge Improvements Uxbridge, Massachusetts THRIE BEAM DETAILS</b>		BETA JOB NO. 7545			
DESIGNED BY: TW														ISSUE DATE _____			
CHECKED BY: TW														SHEET NO. <b>4</b>			
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS												BRIDGE NO. U-02-038	

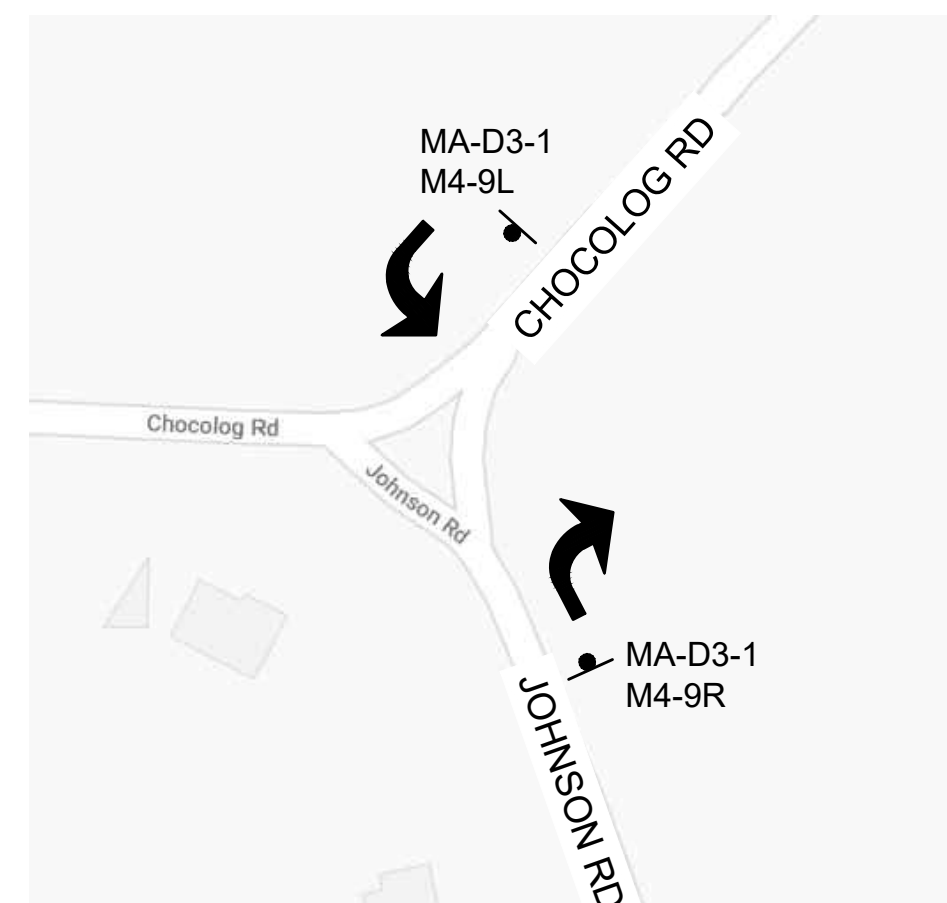
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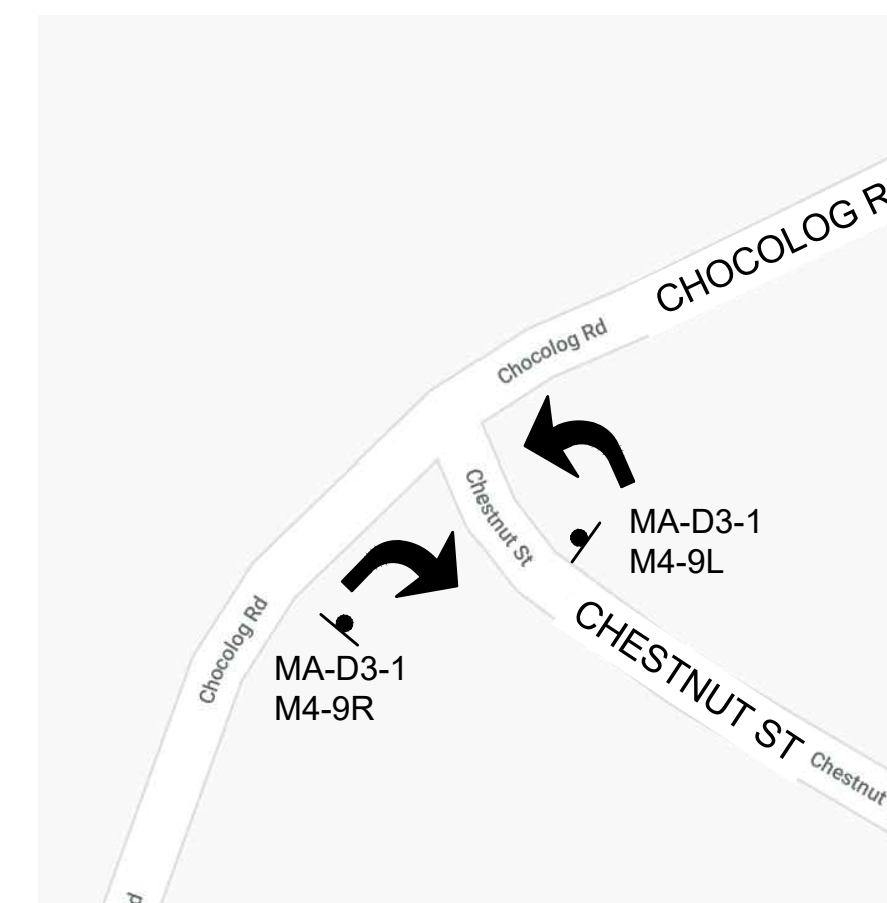
- NOTES:
1. EMERGENCY ACCESS MUST BE MAINTAINED TO ALL PROPERTIES AT ALL TIMES.
  2. DETOUR SIGNS SHALL BE COVERED WHEN DETOUR IS NOT IN ACTIVE USE.



**INSET 1**  
NOT TO SCALE



**INSET 2**  
NOT TO SCALE



**INSET 3**  
NOT TO SCALE



**INSET 4**  
NOT TO SCALE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

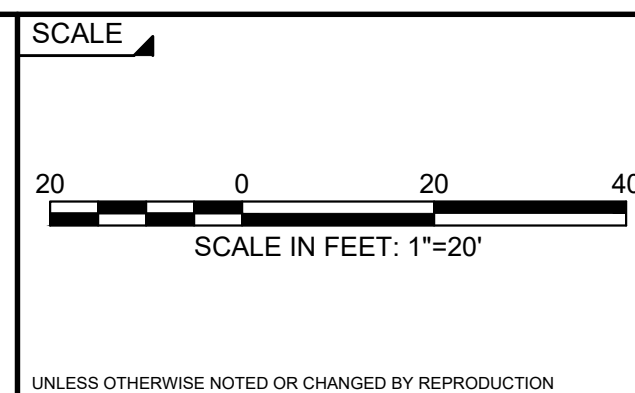
DRAWN BY:  
SD

DESIGNED BY:  
JC

CHECKED BY:  
TW



SUBCONSULTANT



TITLE

**Aldrich Street Bridge Improvements  
Uxbridge, Massachusetts**

DETOUR PLAN

BRIDGE NO. U-02-038

BETA JOB NO. 7545

ISSUE DATE

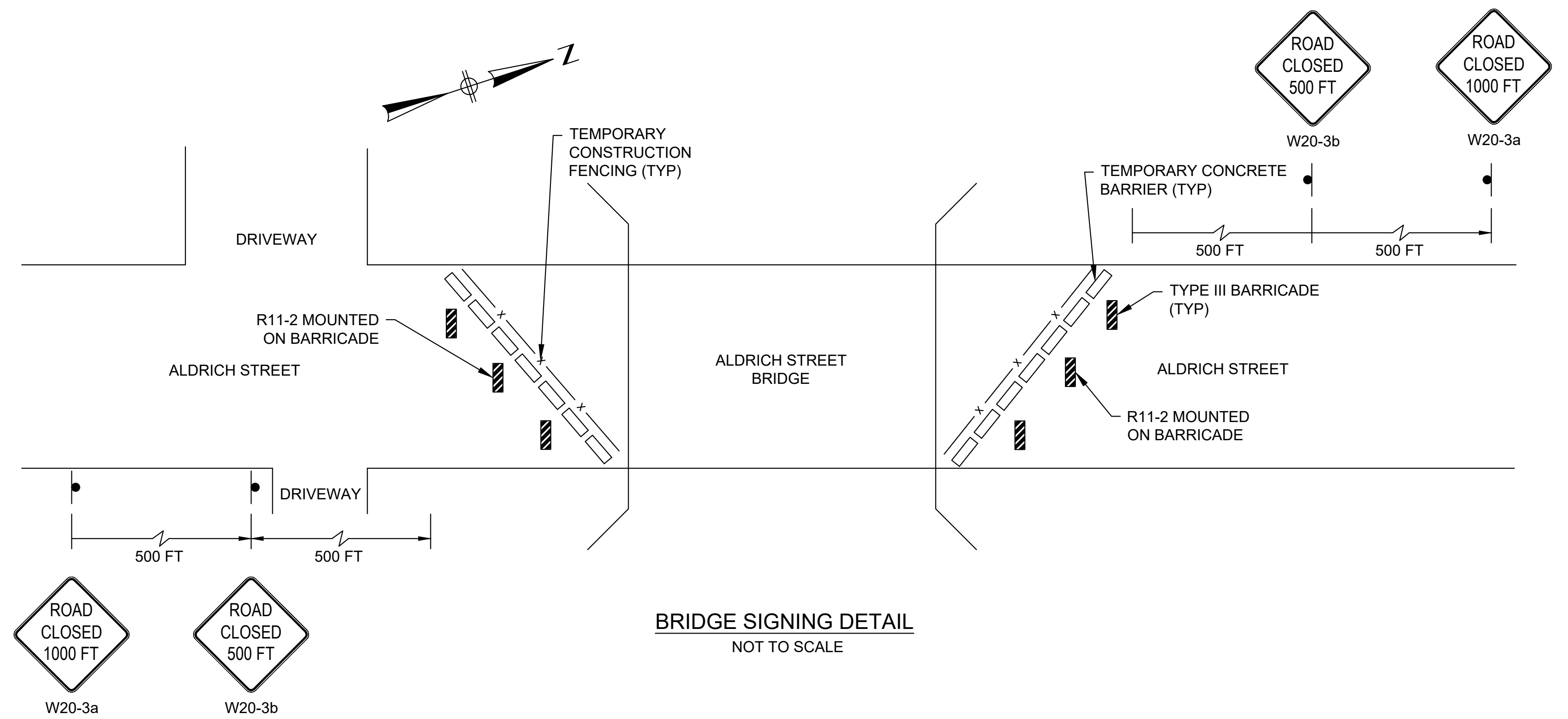
SHEET NO. 9



## CONSTRUCTION SIGN SUMMARY

\* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY  
 \*\* ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER			
R11-2	48 in	30 in	ROAD CLOSED	SEE 2009 MUTCD STANDARDS			2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	10.0	20.0
R11-4	60 in	30 in	ROAD CLOSED TO THRU TRAFFIC				2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	12.5	25.0
W20-3a	36 in	36 in	ROAD CLOSED 1000 FT				2	**ORANGE	BLACK	BLACK	P-5 2	9.0	18.0
W20-3b	36 in	36 in	ROAD CLOSED 500 FT				2	**ORANGE	BLACK	BLACK	P-5 2	9.0	18.0
M4-8a	24 in	18 in	END DETOUR				2	**ORANGE	BLACK	BLACK	P-5 2	3.0	6.0
M4-9L	30 in	24 in	DETOUR ←				3	**ORANGE	BLACK	BLACK	MOUNT W/ MA-D3-1	5.0	15.0
M4-9R	30 in	24 in	DETOUR →				3	**ORANGE	BLACK	BLACK	MOUNT W/MA-D3-1	5.0	15.0
M4-9V	30 in	24 in	DETOUR ↑				0	**ORANGE	BLACK	BLACK	MOUNT W/ MA-D3-2	5.0	0
MA-D3-1	x in	12 in	Aldrich st				6/4D	3 3		3	**ORANGE	BLACK	BLACK



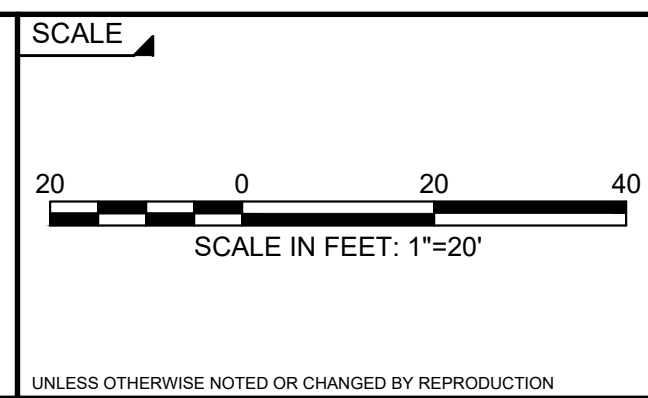
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NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
SD  
DESIGNED BY:  
JC  
CHECKED BY:  
TW



SUBCONSULTANT



TITLE

**Aldrich Street Bridge Improvements**  
**Uxbridge, Massachusetts**  
**DETOUR PLAN**

**BRIDGE NO. U-02-038**

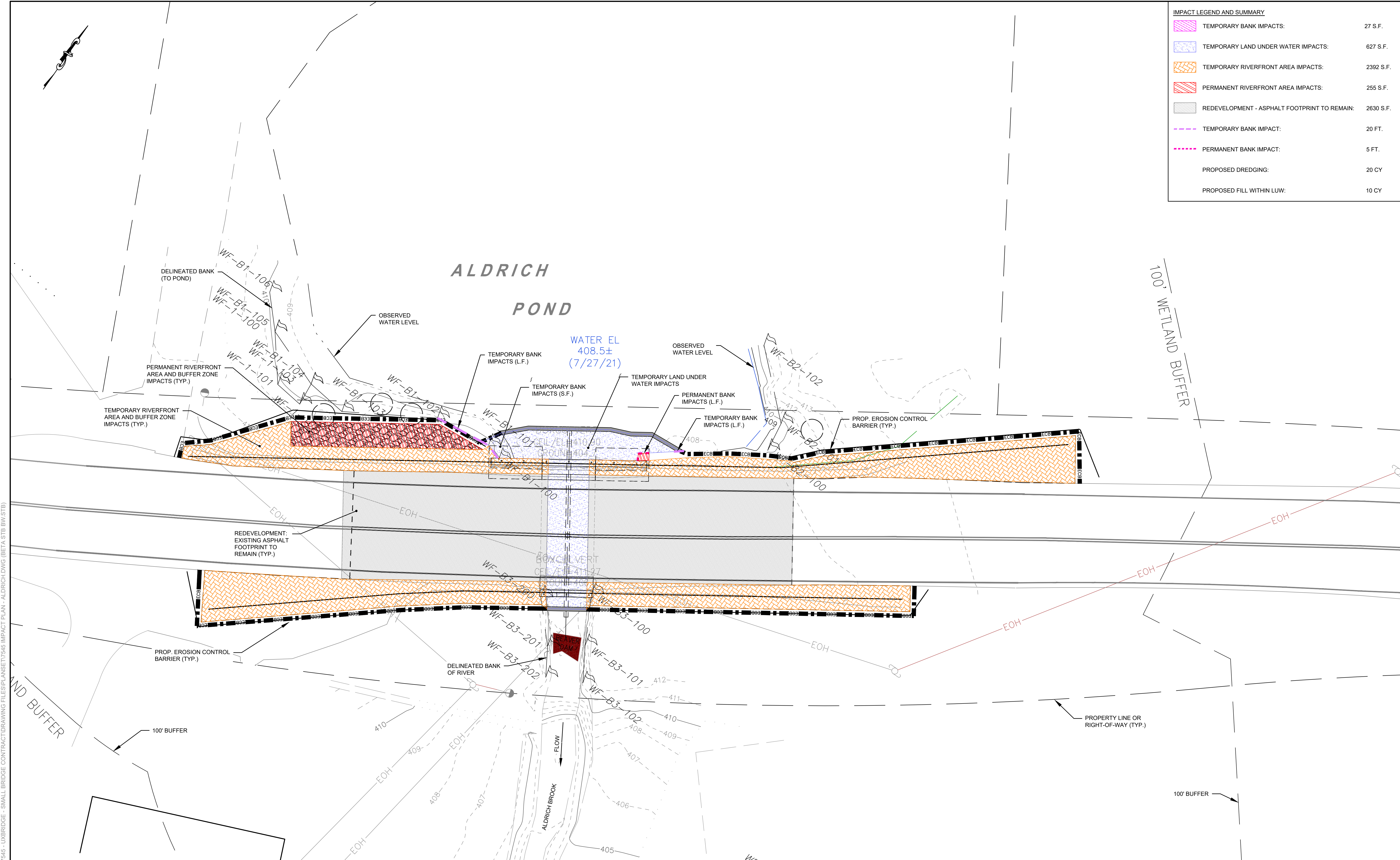
BETA JOB NO. 7545  
ISSUE DATE \_\_\_\_\_  
SHEET NO. 10

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

IMPACT LEGEND AND SUMMARY		
	TEMPORARY BANK IMPACTS:	27 S.F.
	TEMPORARY LAND UNDER WATER IMPACTS:	627 S.F.
	TEMPORARY RIVERFRONT AREA IMPACTS:	2392 S.F.
	PERMANENT RIVERFRONT AREA IMPACTS:	255 S.F.
	REDEVELOPMENT - ASPHALT FOOTPRINT TO REMAIN:	2630 S.F.
	TEMPORARY BANK IMPACT:	20 FT.
	PERMANENT BANK IMPACT:	5 FT.
	PROPOSED DREDGING:	20 CY
	PROPOSED FILL WITHIN LUW:	10 CY

# ALDRICH POND

WATER EL  
408.5±  
(7/27/21)



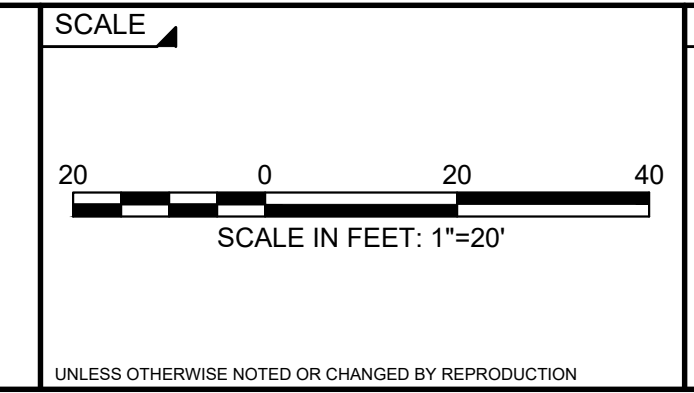
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NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:  
MC  
DESIGNED BY:  
MC  
CHECKED BY:  
LK



SUBCONSULTANT



TITLE

## Aldrich Street Bridge Improvements Uxbridge, Massachusetts

### RESOURCE IMPACTS PLAN

BRIDGE NO. U-02-038

BETA JOB NO. 7545  
ISSUE DATE  
SHEET NO. 11

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