

CITY OF HAVERHILL, MA

ROSEMONT STREET BRIDGE OVER LITTLE RIVER BRIDGE NO. H-12-024 (CFF)

CONTRACT NO. IFB006.25

OCTOBER 2024



CITY COUNCIL

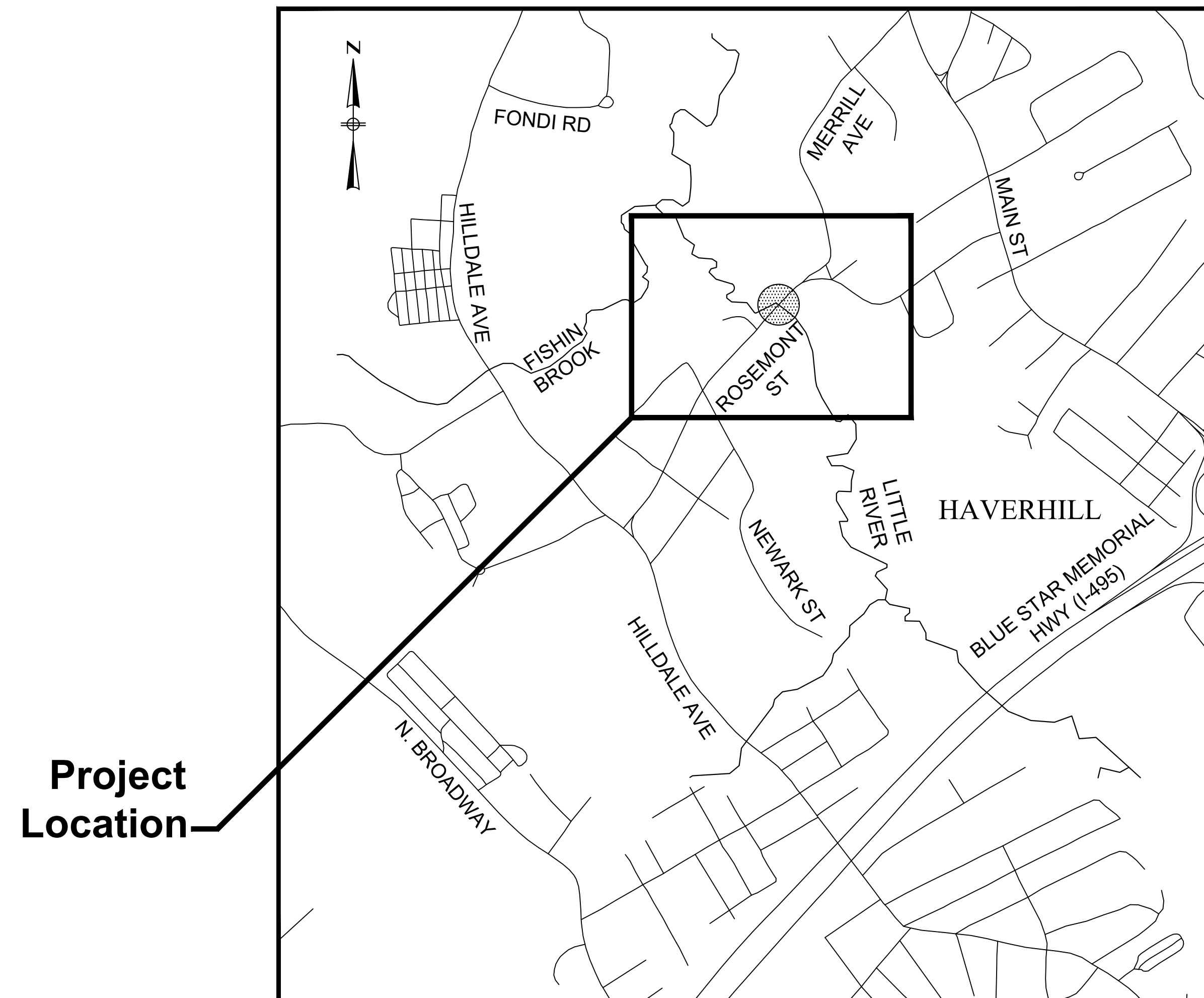
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DEPARTMENT OF PUBLIC WORKS

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Project Location

PROJECT LOCATION

LOCATION MAP
NOT TO SCALE

PLAN INDEX

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET & INDEX
2	LEGEND & ABBREVIATIONS
3-4	GENERAL NOTES & DETAILS
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6	TIE PLAN
7	UTILITY PLAN & PROFILE
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10-29	BRIDGE PLANS
30-33	CROSS SECTIONS

PREPARED BY:



ISSUE DATE: OCTOBER 16, 2024



Christopher W. Jones 10/15/2024
 REGISTERED PROFESSIONAL ENGINEER 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
		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
		PEDESTRIAN CURB 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
	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BOUND	BOUND
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
SDWK	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

ACCOMP	ASPHALT COATED CORRUGATED METAL PIPE
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DROP INLET
DIP	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
HDW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
OH	OVERHEAD
OHW	ELECTRIC OVERHEAD WIRE
PVC	POLY-VINYL-CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
TSV&B	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WIP	WROUGHT IRON 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"
DYCTCL	DOTTED YELLOW CYCLE TRACK CENTERLINE - 4" (3' LINE & 9' GAP)
SCHOOL	SCHOOL ZONE - WHITE
Handicap	HANDICAP SYMBOL - WHITE
PAVEMENT ARROW	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

BETA GROUP, INC. TEMPLATE (BETA_STANDARD_24X36_SHEET_TEMPLATE_1.0.2020) CIVIL_3D (2020) PLOTSTYLE (BETA_STB.BW.STB) USER(DWONG)
 10/15/2024 4:29 PM C:\BETA\2024\10-15-2024\ROSEMONT ST BRIDGE\DRAWING FILES\LEGEND.DWG (BETA_STB.BW.STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	KYL
DESIGNED BY:	KYL
CHECKED BY:	DJ

REGISTERED PROFESSIONAL

 Christopher W. Jones
 10/15/2024

PREPARED BY

 www.BETA-Inc.com

SUBCONSULTANT	
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SCALE	NONE
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TITLE	
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**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 LEGEND & ABBREVIATIONS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO.	6155
ISSUE DATE	10/16/2024
SHEET NO.	2

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GENERAL NOTES

1. THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 2023, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED SEPTEMBER 30, 2023, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.
2. THE LOCATION OF SUBSURFACE UTILITIES SHOWN IS APPROXIMATE AND NOT GUARANTEED TO BE COMPLETE OR ACCURATE. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITY LINES AND STRUCTURES PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR MUST NOTIFY DIG SAFE 72 HOURS PRIOR TO ANY EXCAVATION, DEMOLITION OR EXPLOSIVE WORK IN PUBLIC OR PRIVATE WAYS OR UTILITY COMPANY RIGHT-OF-WAY OR EASEMENT.
3. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED UTILITY DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER.
4. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR THE RESOLUTION OF THE CONFLICT.
5. ALL NEW CATCH BASINS SHALL HAVE A 4 FOOT DEEP SUMP WITH A HOOD THAT IS INCLUDED UNDER ITEM 120. WITHOUT ADDITIONAL COMPENSATION.
6. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJUTING PROPERTIES AT ALL TIMES AND NOTIFY ALL ADJUTERS IN ADVANCE OF ANY INTERRUPTIONS TO ACCESS.
7. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
8. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
9. JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.

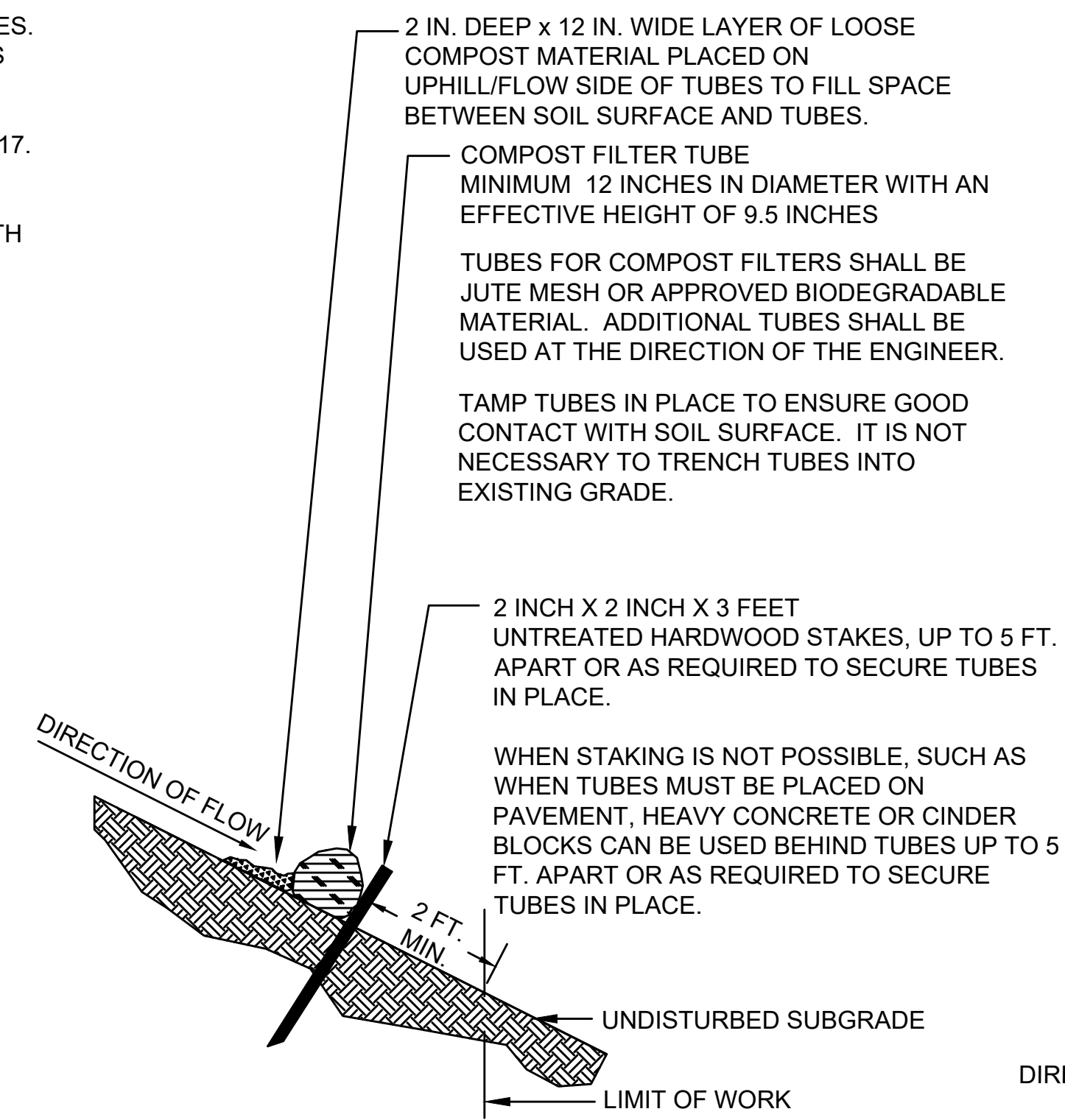
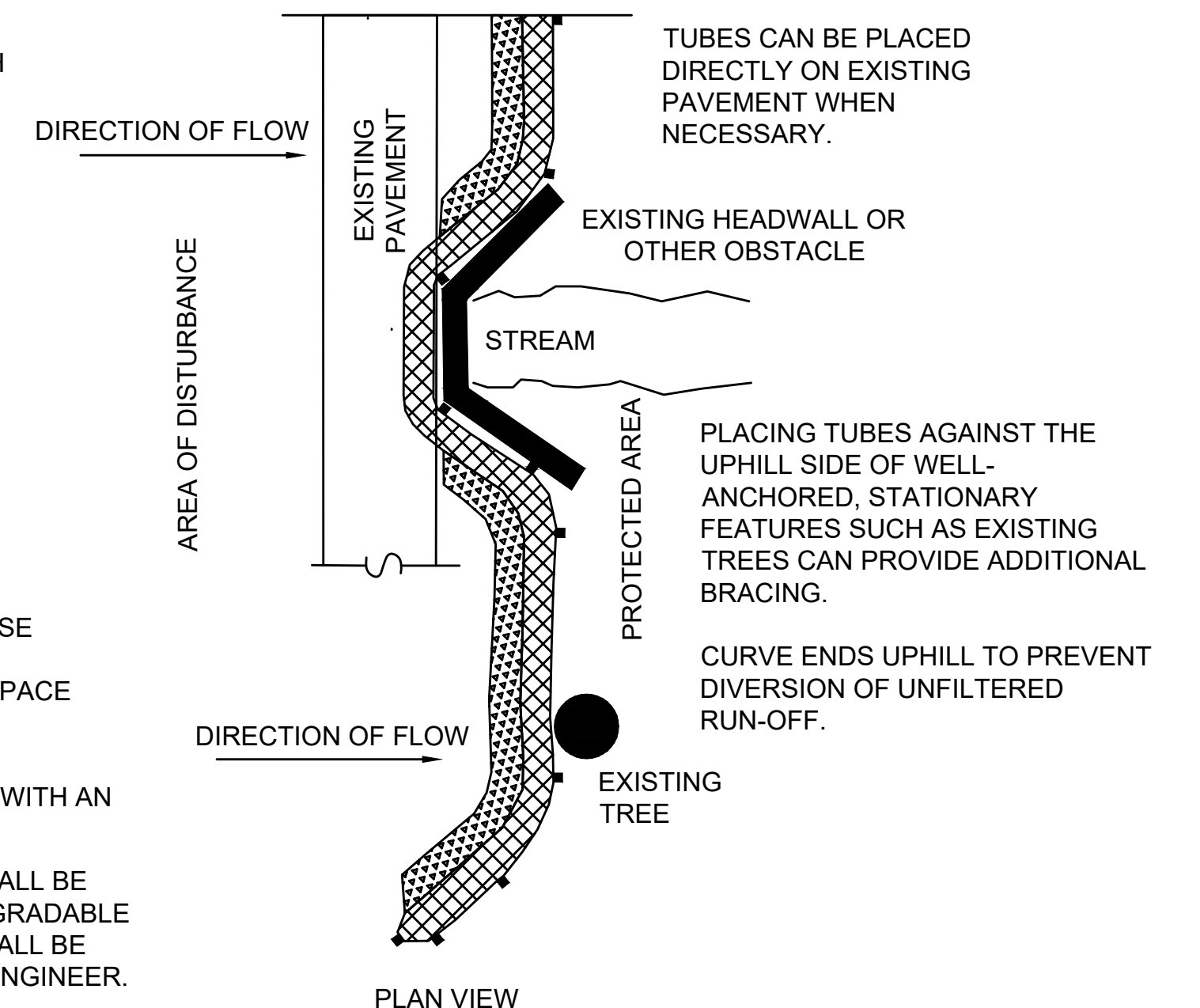
10. CONTRACTOR SHALL VERIFY EXISTING GRADES. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND SEEK THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.
11. SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH MASSDOT REQUIREMENTS AND THE LATEST VERSION OF THE MUTCD.
12. SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH MASSDOT REQUIREMENTS AND THE LATEST VERSION OF THE MUTCD.
13. TREES TO BE RETAINED WHICH RESTRICT SIGHT DISTANCE OR RESTRICT HORIZONTAL OR VERTICAL CLEARANCES SHALL BE TRIMMED AS REQUIRED BY THE ENGINEER.
14. NO TREE SHALL BE REMOVED PRIOR TO APPROVAL OF THE TOWN OF HAVERHILL.
15. WHEN WORKING NEXT TO EXISTING WALLS, FENCE, BERMS, AND OTHER STRUCTURES, CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO DISTURB THE EXISTING STRUCTURES. ANY DAMAGE TO THE EXISTING STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
16. SURVEY PERFORMED BY LIGHTHOUSE LAND SURVEYING LLC ON APRIL 5, 2017 AND APRIL 10, 2017.
17. THE COORDINATES, IN US FEET, ARE BASED UPON THE MASS. STATE PLANE COORD. SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83). ELEVATIONS, IN US FEET, ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). ALL ON-THE-GROUND OBSERVATIONS WERE PERFORMED USING LEICA TS12 (3")

SIGN & PAVEMENT MARKING NOTES

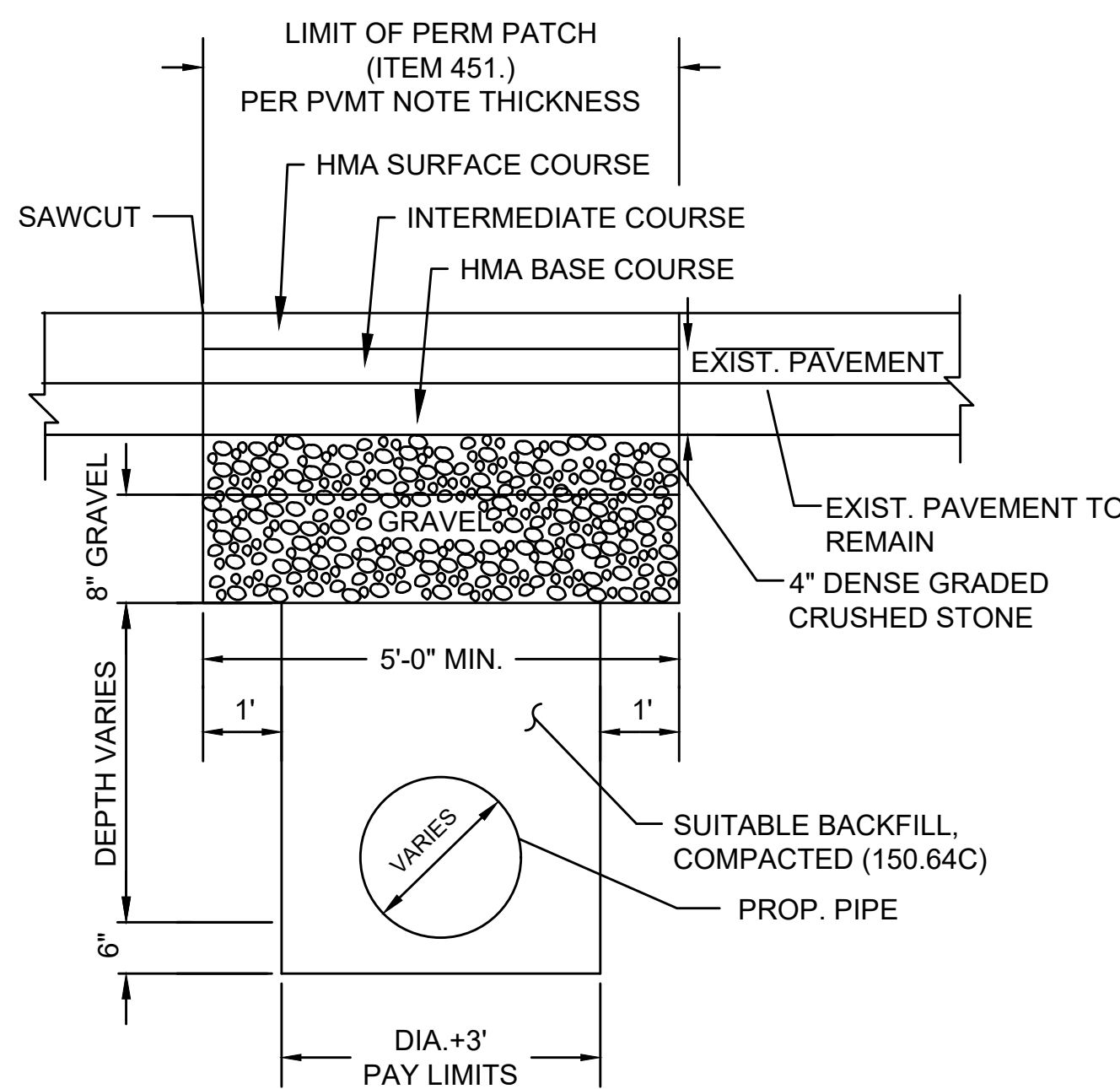
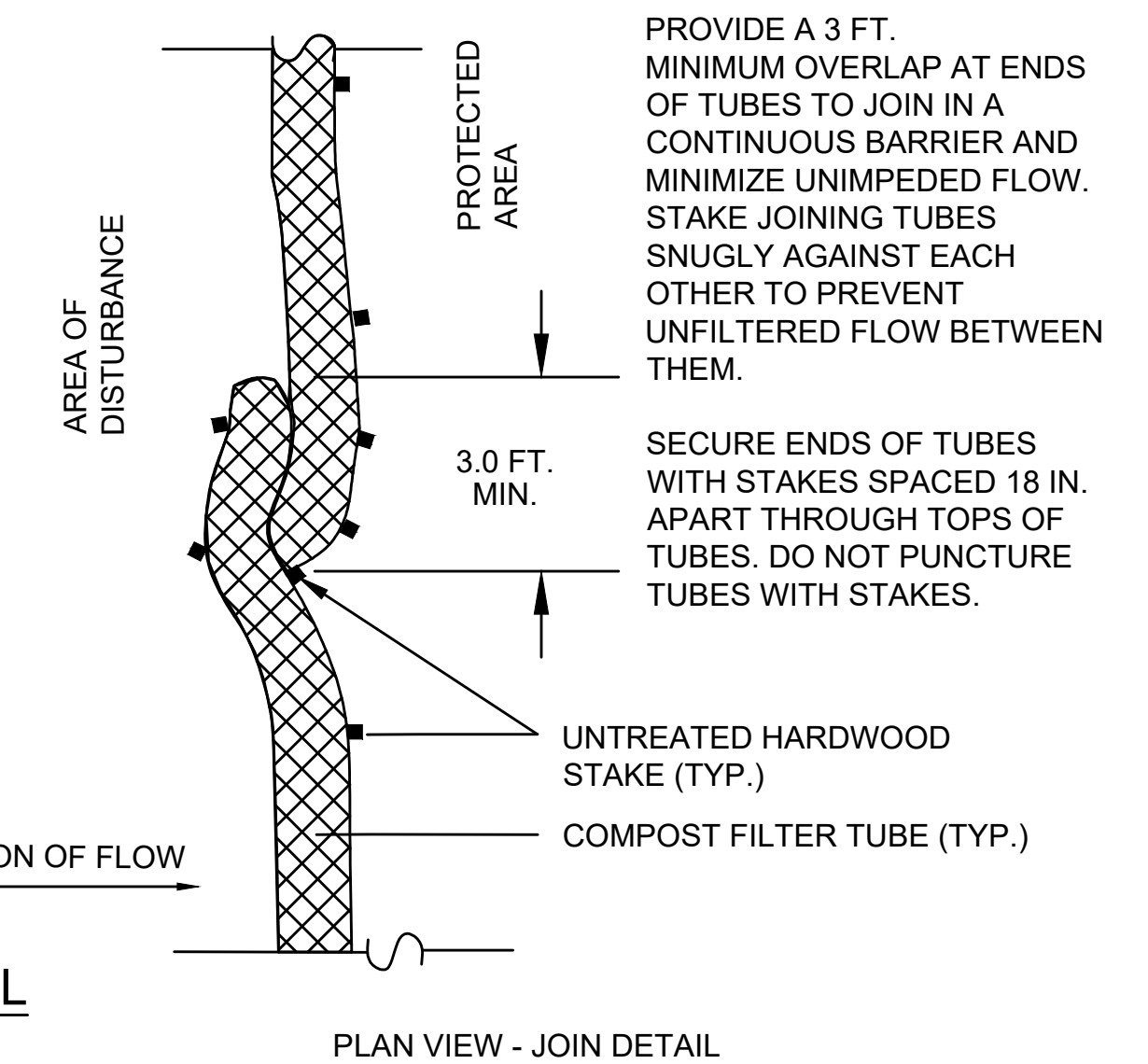
1. ALL PAVEMENT MARKINGS ARE THERMOPLASTIC.
2. ALL SIGN POSTS ARE P-5 TYPE (TELESCOPIC POST).
3. UNLESS OTHERWISE PROVIDED FOR IN THE MUTCD, ALL SIGNS ARE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC.
4. SIGNS MOUNTED NEAR THE CURB LINE ARE SET BACK 6" FROM THE EDGE OF THE SIGN PANEL TO THE CURB LINE. NO SIGN OVERHANGS THE CURB LINE.
5. ALL SIGNS ARE MOUNTED TO PROVIDE A 7" MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISHED GRADE.

GENERAL NOTES:

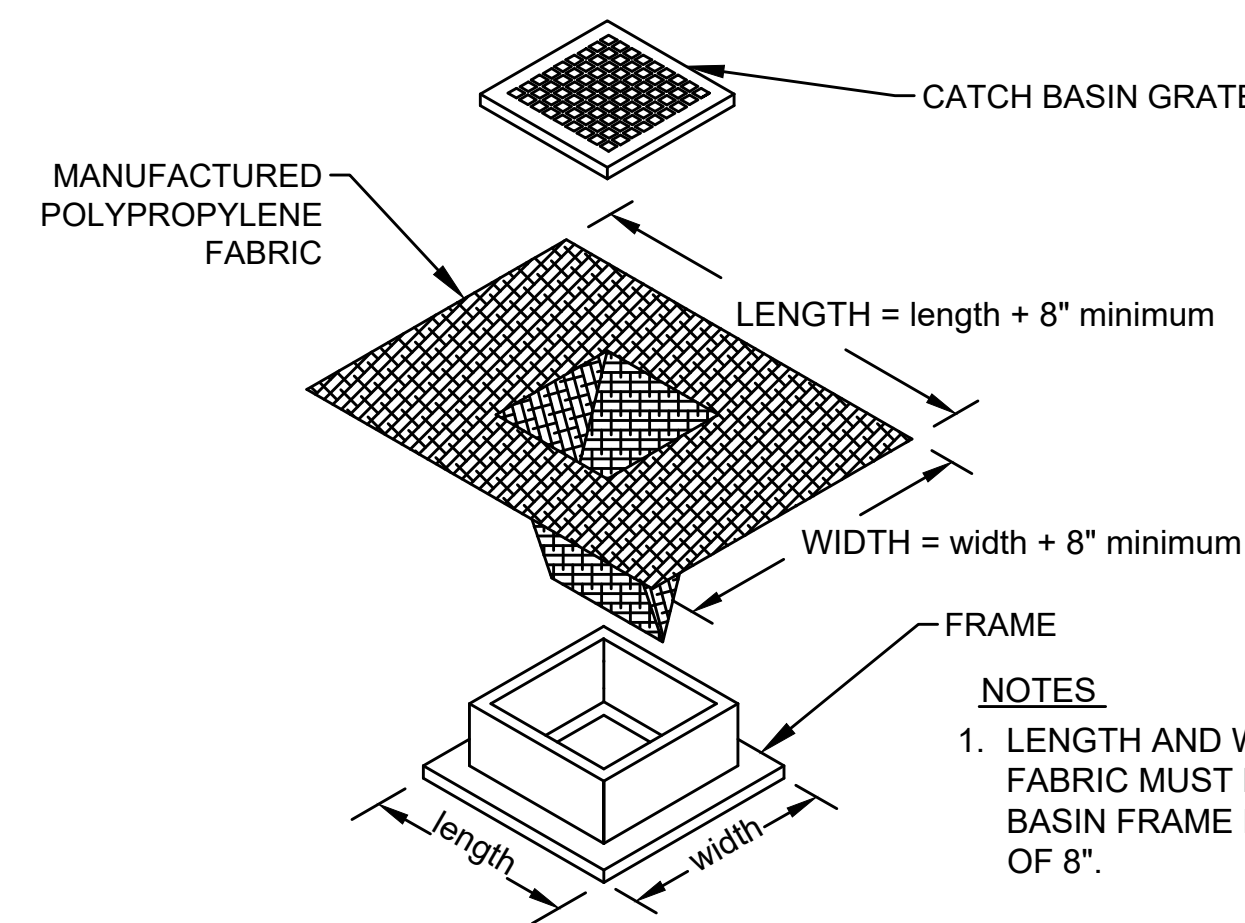
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.



SINGLE COMPOST FILTER TUBE DETAIL FOR EROSION CONTROL
NOT TO SCALE

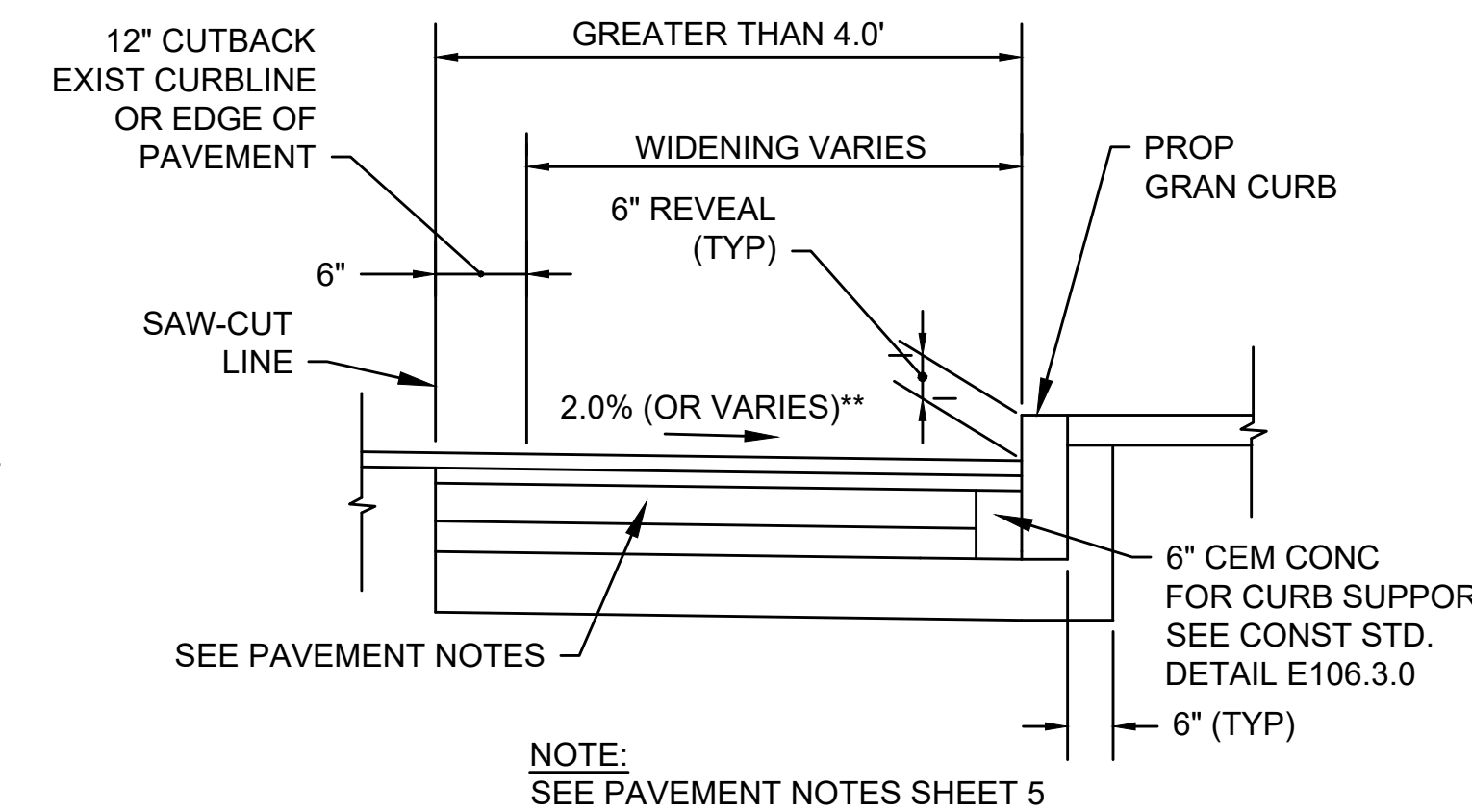


PERMANENT TRENCH PATCH DETAIL IN MILLED AREAS
NOT TO SCALE



CATCH BASIN EROSION CONTROL PROTECTION (TYP)
NOT TO SCALE

- 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.



DETAIL FOR BOX WIDENING GREATER THAN 4.0'
NOT TO SCALE

BETA GROUP INC. TEMPLATE (BETA_STANDARD_TEMPLATE_1.0.2020).CIVIL_3D (###) PLOTSTYLE (BETA.STB B/W/STB) USER(ONG) 10/15/2024 4:29 PM C:\PROGRAMS\BETA\DRAWING FILES\PLANS\1706\1706_0150_GEN NOTES-DETAILS.DWG (BETA STB B/W/STB)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: KYL/CM
DESIGNED BY: KYL
CHECKED BY: DJ

REGISTERED PROFESSIONAL

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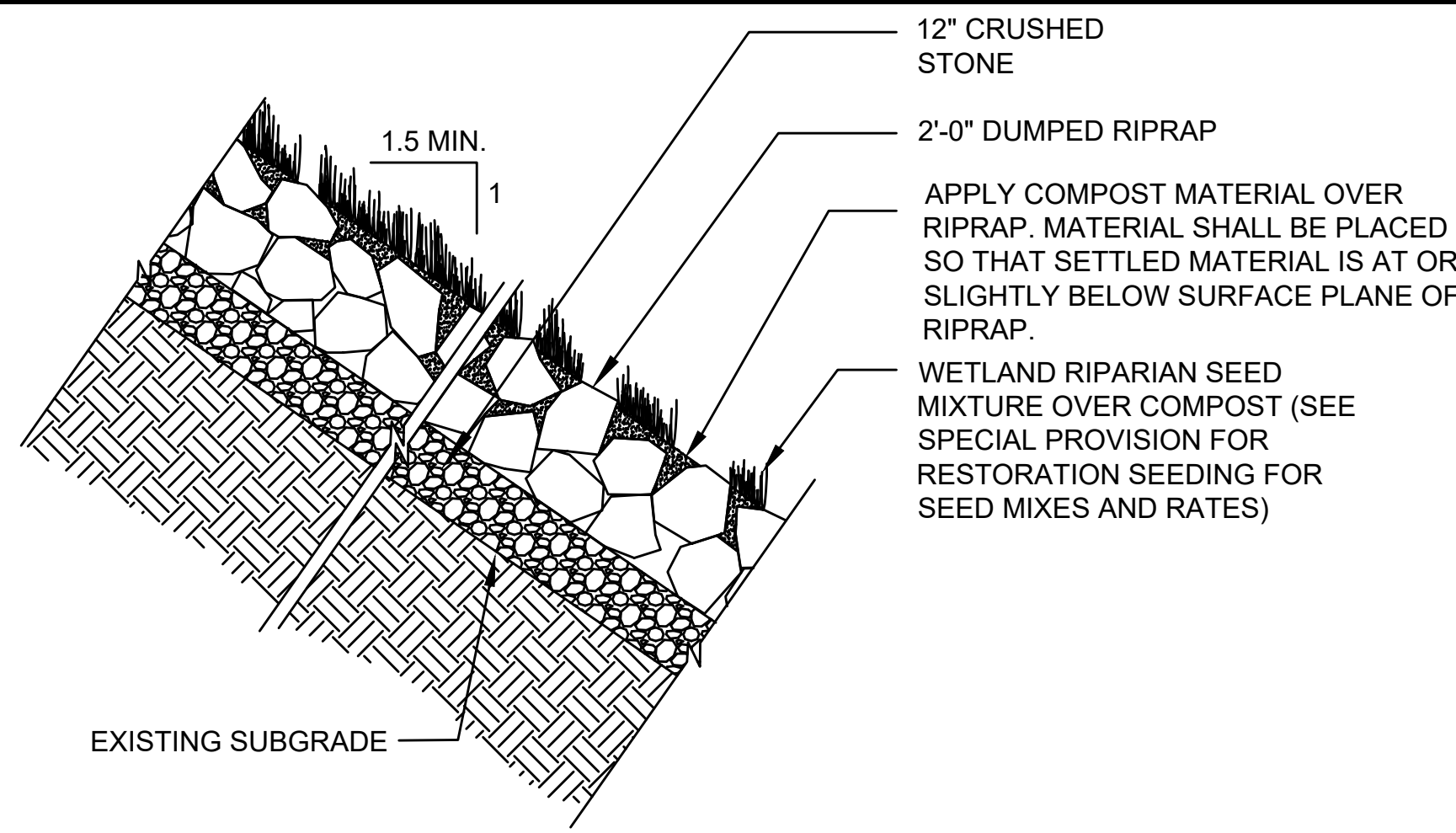
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SCALE AS SHOWN

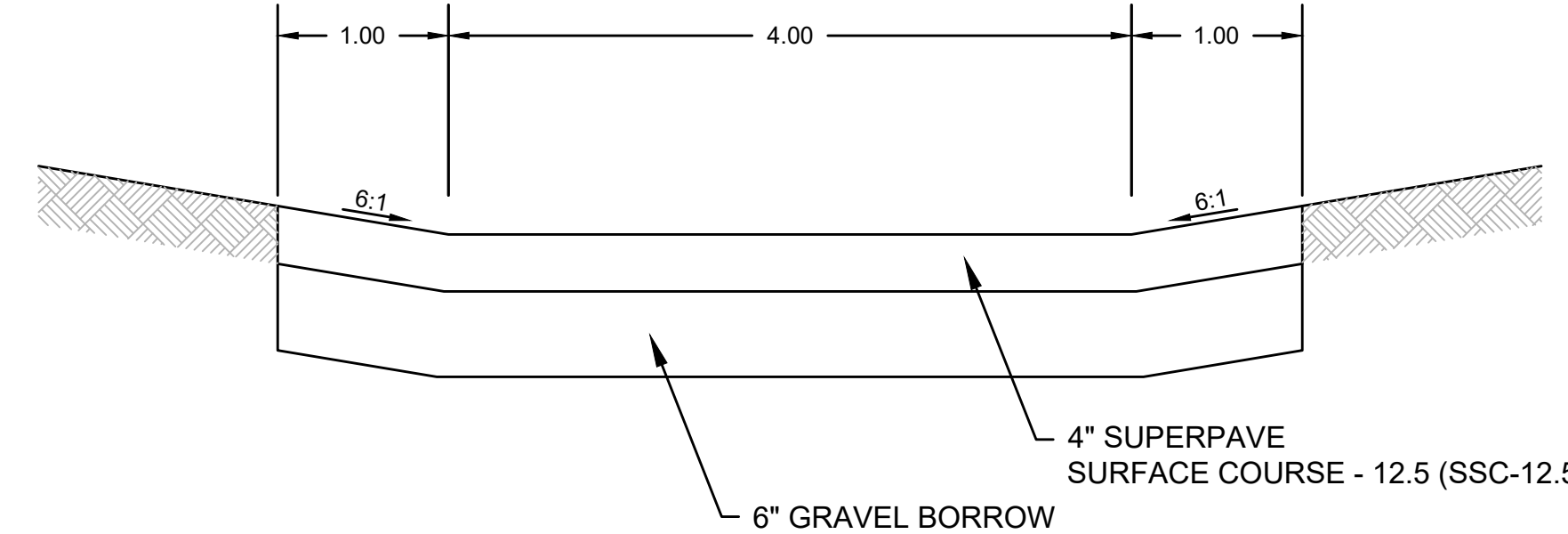
**ROSEMONT STREET OVER LITTLE RIVER
HAVERHILL, MASSACHUSETTS**
 GENERAL NOTES & DETAILS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 3

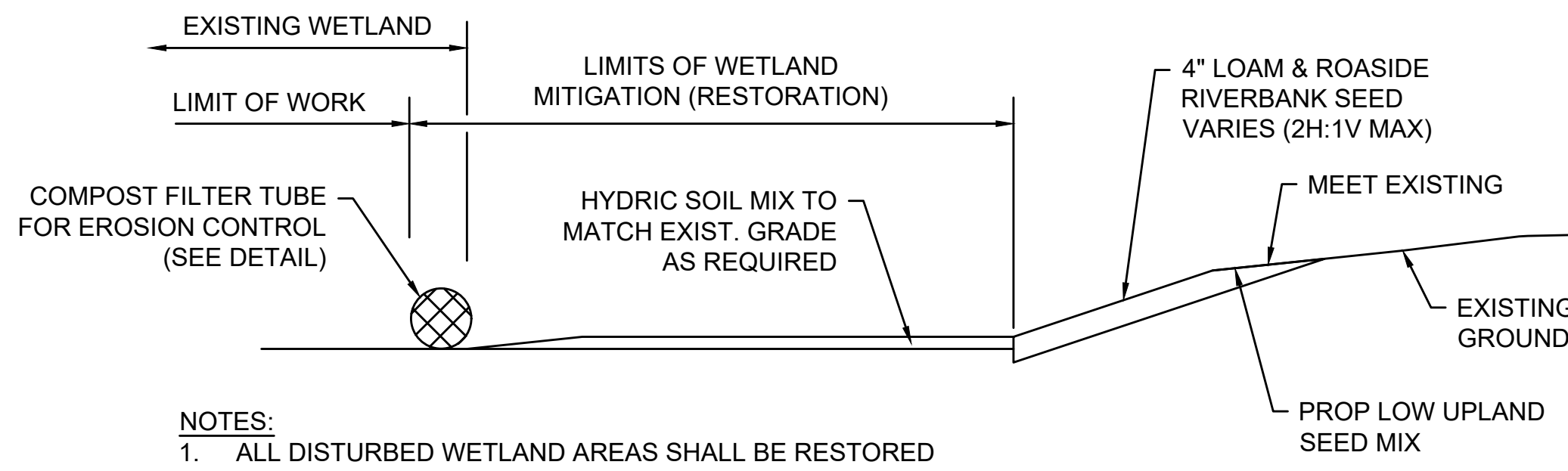
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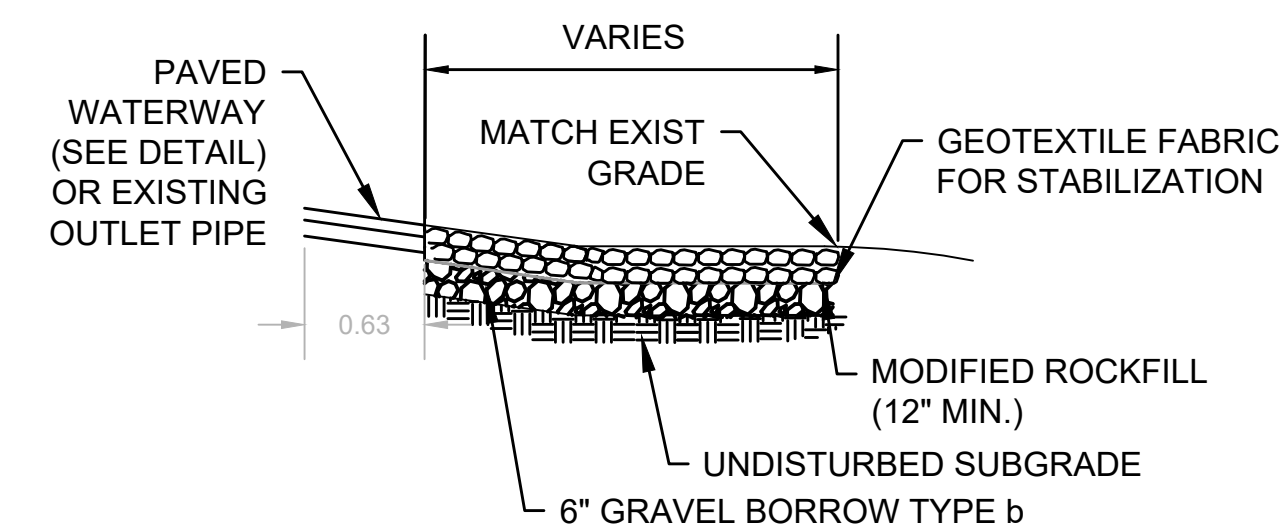
RIPRAP DETAIL FOR SLOPE STABILIZATION
NOT TO SCALE



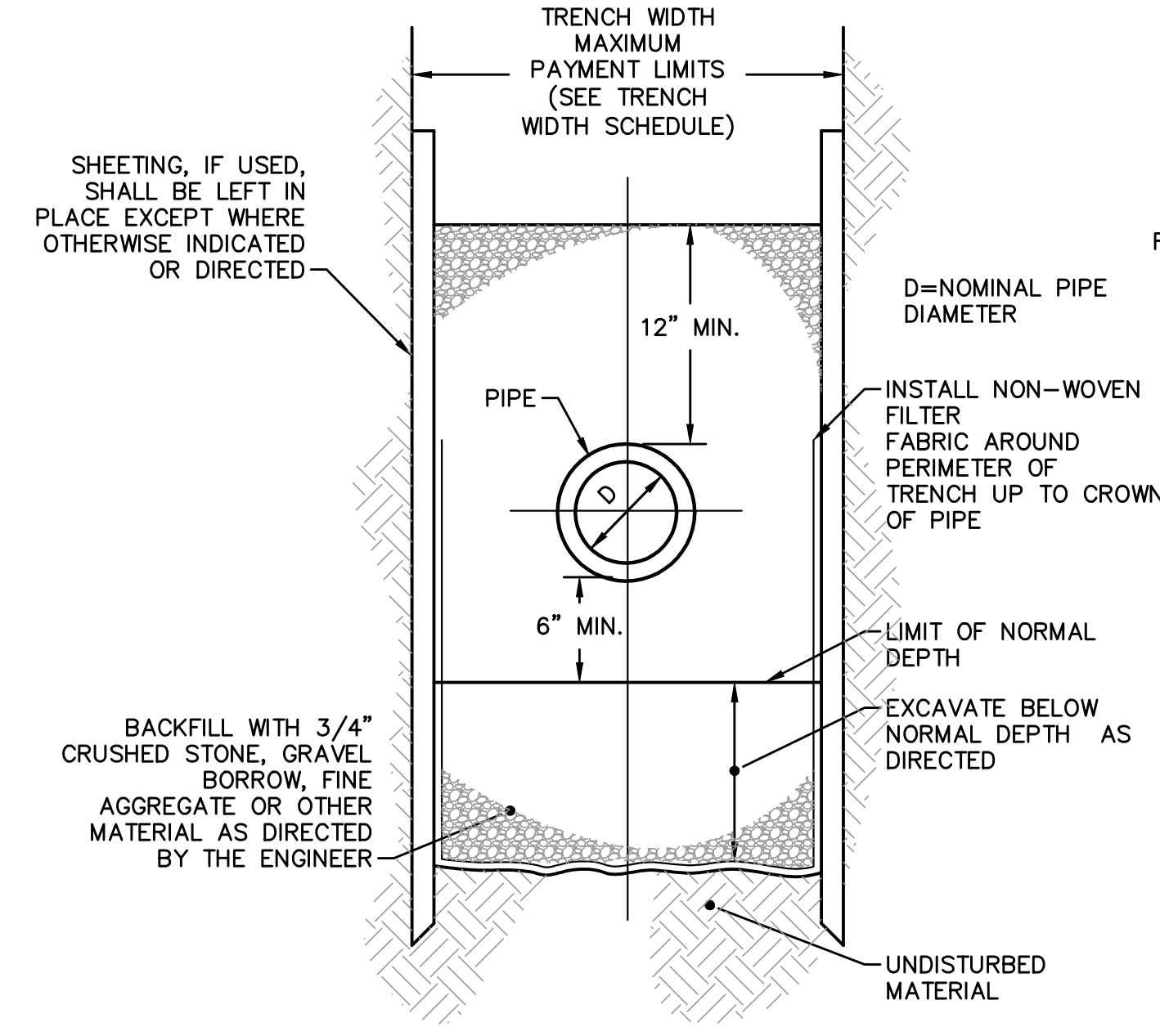
HMA PAVED WATERWAY
NOT TO SCALE



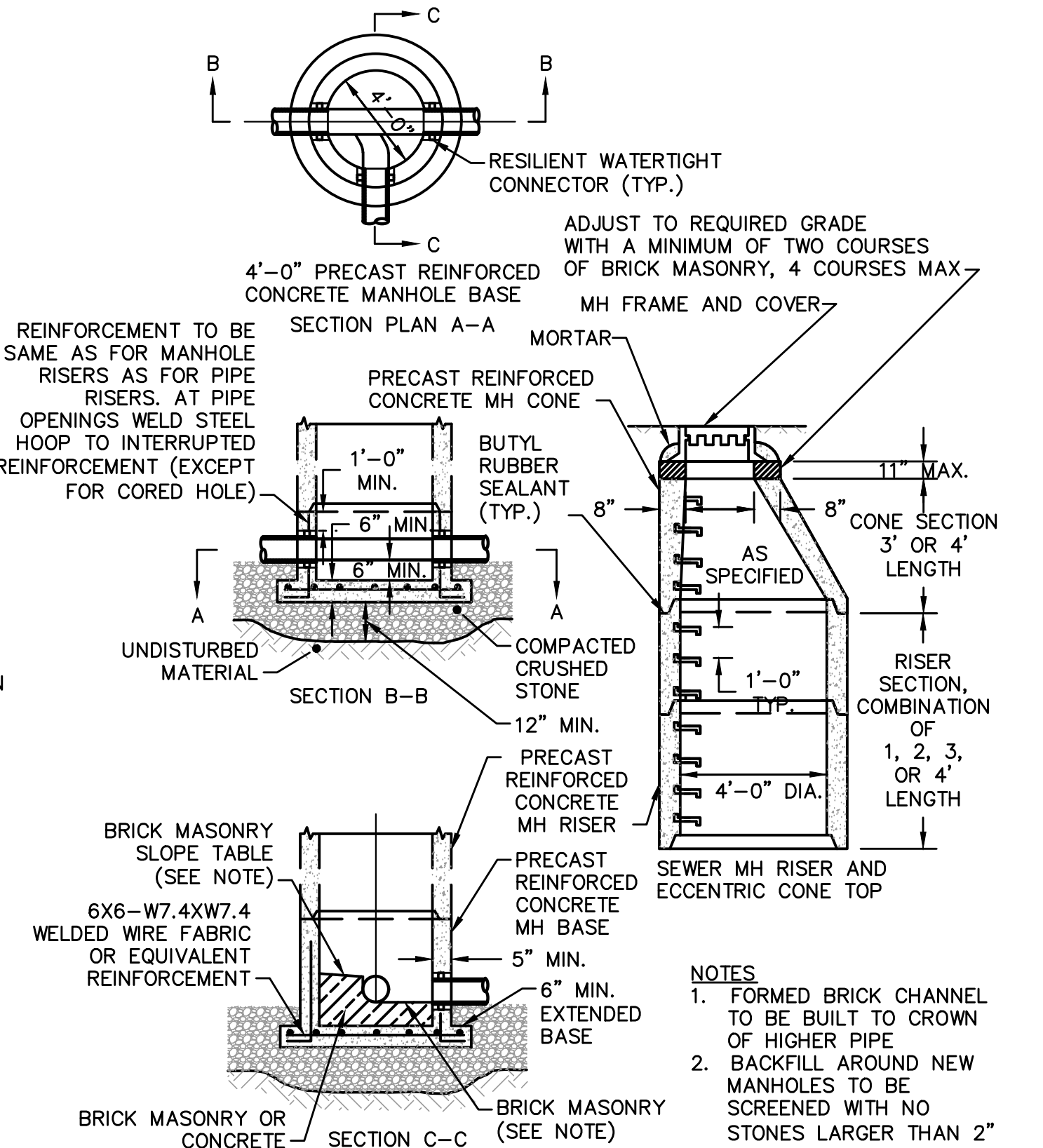
WETLAND RESTORATION AREA DETAIL
NOT TO SCALE



MODIFIED ROCKFILL DETAIL
NOT TO SCALE

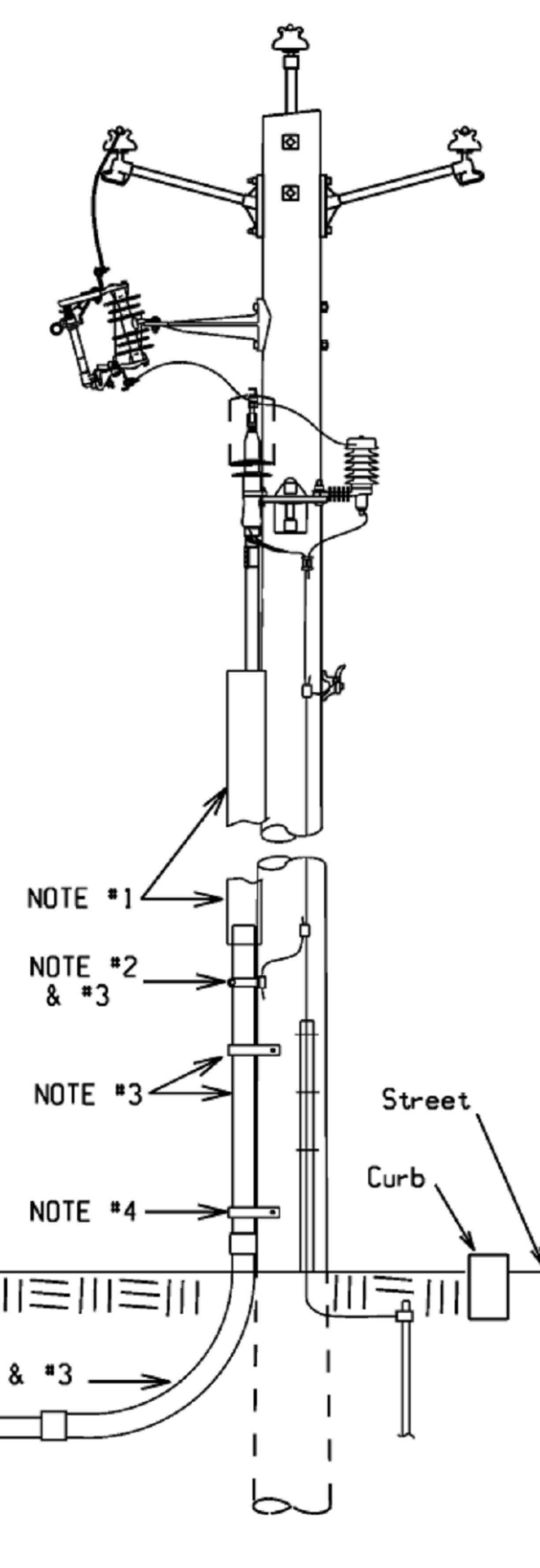


TRENCH SECTION (TO BE USED WHERE UNSUITABLE FOUNDATION MATERIAL EXISTS BELOW NORMAL DEPTH)
NOT TO SCALE

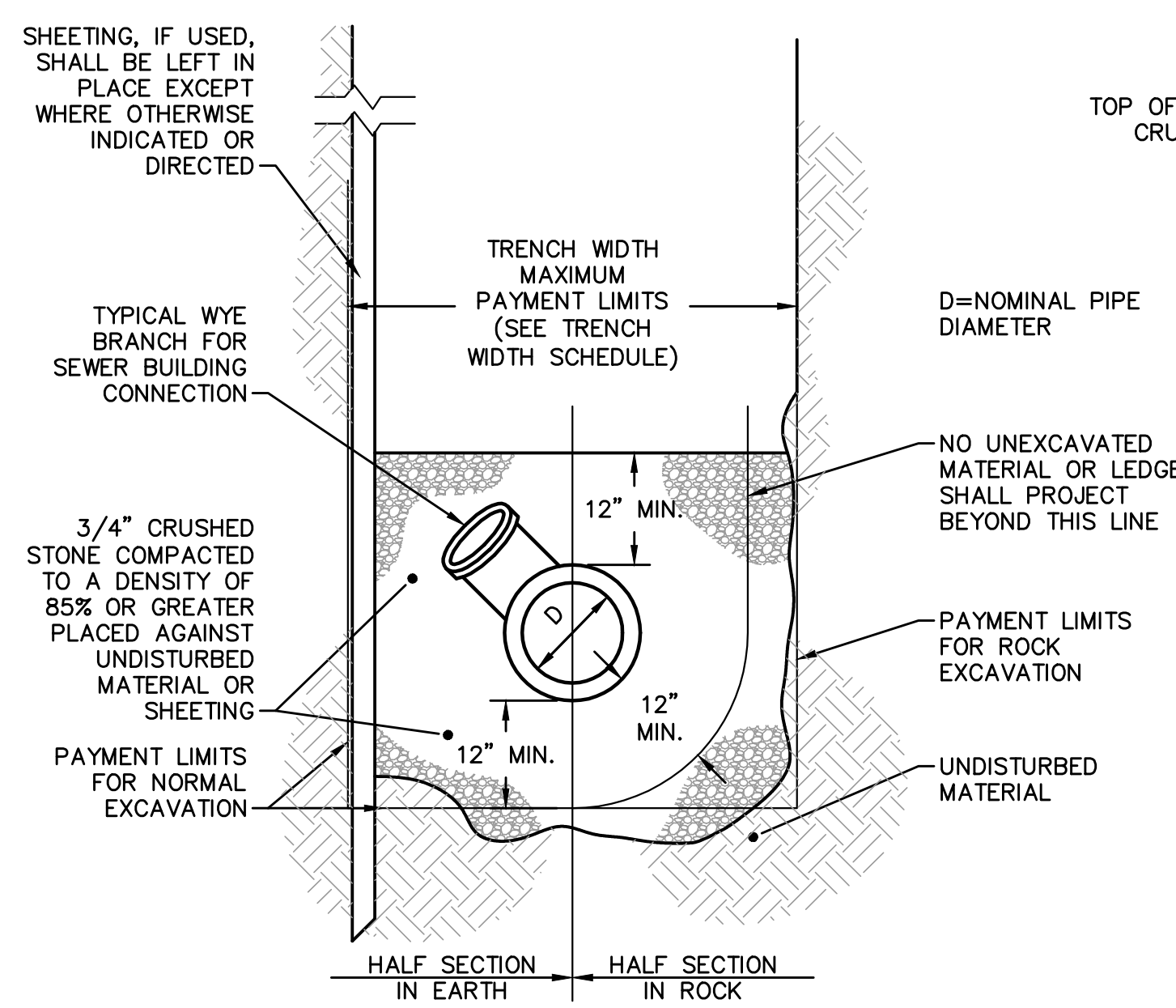


MANHOLE FOR PVC SEWERS 24\"/>

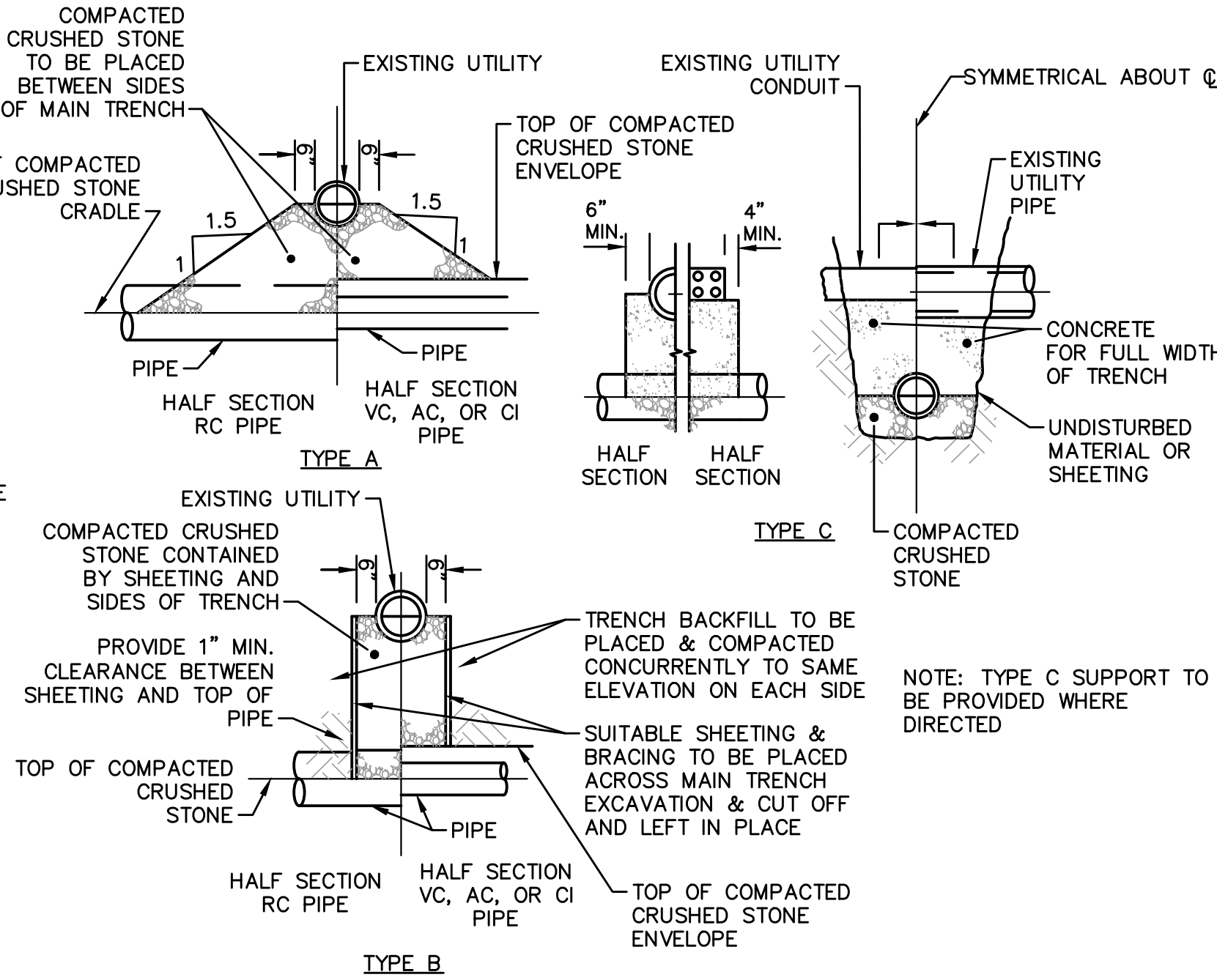
- NOTE #1 U-Guard
- NOTE #2 Galvanized steel conduit and bend are to be used, they shall be grounded by bonding to an approved U-bolt type ground clamp 6\"/>
- NOTE #3 Galvanized steel conduit, galvanized steel sweep, attachment clamps, grounding clamp and 24\"/>
- NOTE #4 Pipe straps, install at not more than 30\"/>
- NOTE #5 The conduit burial depth shall be 30\"/>



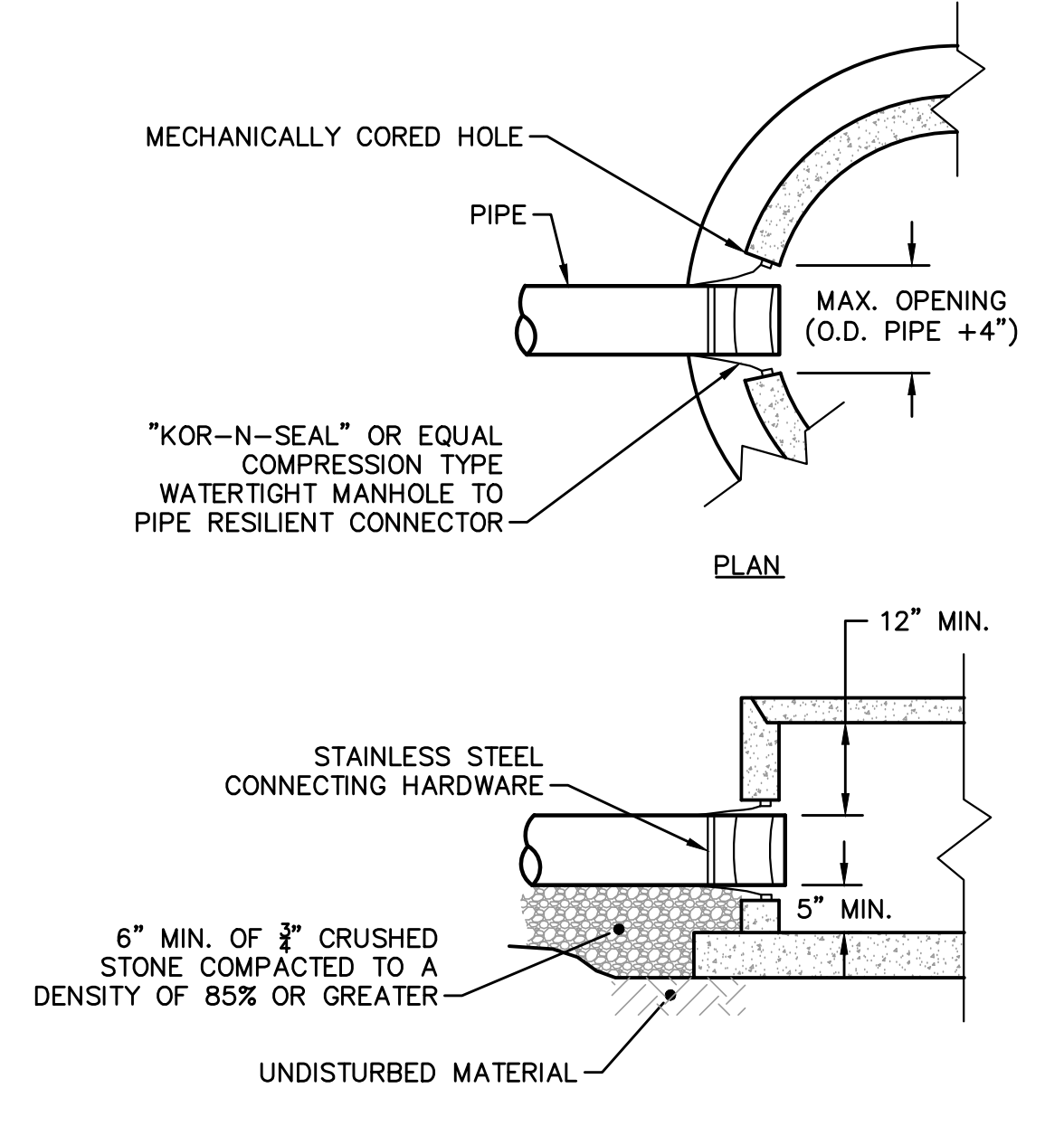
RISER POLE DETAIL - OVERHEAD
NOT TO SCALE



GRAVITY SEWER TRENCH SECTION FOR 4\"/>



TYPICAL SUPPORT FOR UTILITIES
NOT TO SCALE



PIPE TO MANHOLE CONNECTION
NOT TO SCALE

BETA GROUP, INC. TEMPLATE (BETA_STANDARD_TEMPLATE_1.0.2020).CIVIL_3D (###) PLOTSTYLE (BETA_STB.BW(STB)) USER(###) 10/15/2024 4:29 PM C:\BETA\B155-HAVERHILL-ROSEMONT-ST-BRIDGE\DRAWING FILES\PLANS\B155_GEN NOTES-DETAILS.DWG (BETA_STB.BW(STB))

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	KYL/CM
DESIGNED BY:	KYL
CHECKED BY:	DJ

REGISTERED PROFESSIONAL

 PREPARED BY

 10/15/2024

BETA
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SUBCONSULTANT

SCALE
AS SHOWN

TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 GENERAL NOTES & DETAILS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 4

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

GPS PT: 10001
 N: 3118583.755 (NAD83)
 E: 761037.529 (NAD83)
 ELEV: 35.360 (NAVD88)
 DESC: GPS PT 1 MAGS

1
 N: 3118583.753'
 E: 761037.528'
 EL: 35.414'
 MAG SPK(SET)

N/F
 PEQUOT ACQUISITIONS CO INC
 165 ROSEMONT ST - HAVERHILL, MA
 ASSESS. MAP 541 - PARCEL ID: 541-622-1
 DEED BK 7168 / PAGE 55
 EASEMENT (GAS) DB 3827 PG 7
 EASEMENT (UTILITY) DB 6785 PG 674

N/F
 LYNCH DEBRA M
 133 ROSEMONT STREET - HAVERHILL, MA
 ASSESS. MAP 637 - PARCEL ID: 637-3-5
 DEED BK 24531 / PAGE 560
 MASTER CONDO DB 8604 PG 576
 PB 217 PL 17

N/F
 PAGNE JO-DEE B
 121 ROSEMONT ST - HAVERHILL, MA
 ASSESS. MAP 637 - PARCEL ID:
 DEED BK 21078 / PAGE 374

N/F
 DIPIRRO THOMAS
 29 NORTH AV - PLAISTOWN, NH
 ASSESS. MAP 541 - PARCEL ID: 541-623-1
 DEED BK 14275 / PAGE 300

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

ROSEMONT STREET CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3118537.5041	761020.4655		N42°17'12"E 188.75'	11+88.75	3118677.1428	761147.4670
L2	11+88.75	3118677.1428	761147.4670		N42°52'57"E 186.20'	13+74.95	3118813.5810	761274.1756
C2	13+74.95	3118813.5810	761274.1756	R=1300.00' Δ=2°25'37" L=55.06' T=27.54'		14+30.02	3118853.1239	761312.4900
C3	14+30.02	3118853.1239	761312.4900	R=1300.00' Δ=2°25'37" L=55.06' T=27.54'		14+85.08	3118891.0089	761352.4444
C4	14+85.08	3118891.0089	761352.4444	R=280.00' Δ=33°44'47" L=164.92' T=84.93'		16+50.00	3118960.7049	761499.2868

BETA GROUP INC. TEMPLATE (BETA) STANDARD TEMPLATE - 1.0 (2020) CIVIL 3D (###) PLOT STYLE (BETA) STB (BETA) USER (KYUEN)
 10/15/2024 4:30 PM C:\BETA\6155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANS\TIE\TIE.DWG (BETA) STB (BETA)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
KYL/CM
 DESIGNED BY:
KYL
 CHECKED BY:
DJ

REGISTERED PROFESSIONAL

 CHRISTOPHER W. JONES
 STRUCTURAL
 No. 41025
 REGISTERED ENGINEER
 10/15/2024

PREPARED BY

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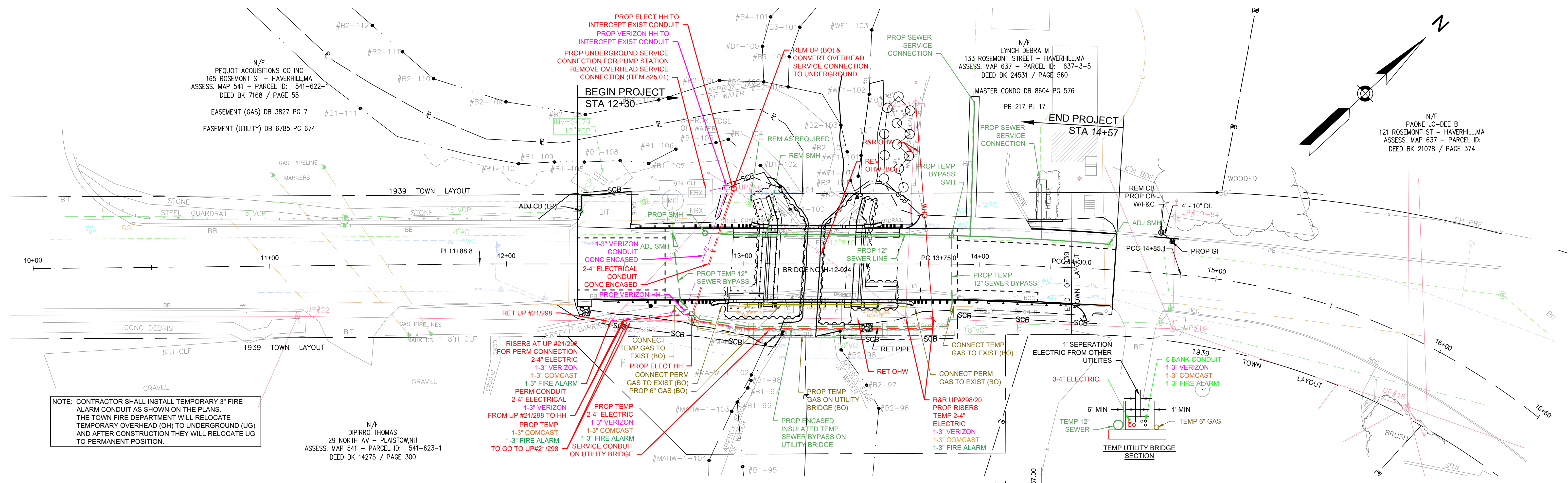
SUBCONSULTANT

SCALE
 AS SHOWN
 UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 TIE PLAN
 BRIDGE NO. H-12-024 (CFF)

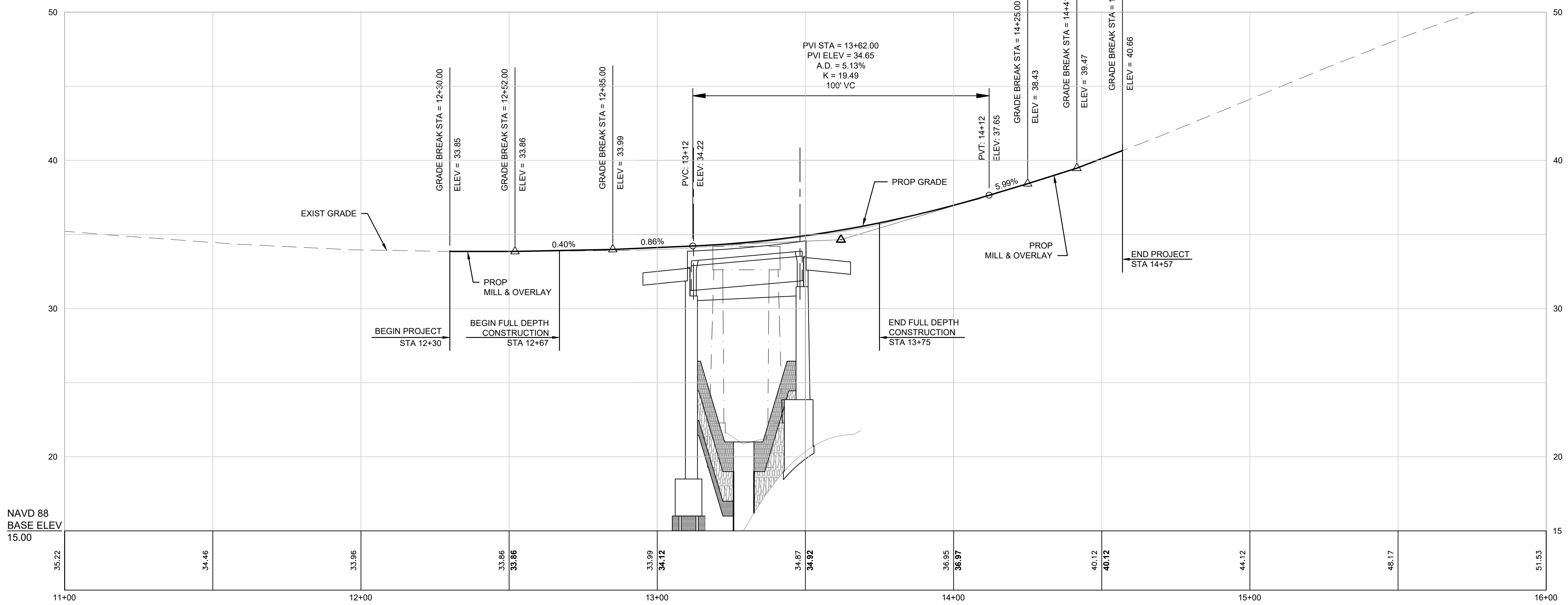
BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 6

BETA GROUP INC. TEMPLATE (BETA_STANDARD_TEMPLATE_1.0.2020).CIVIL.3D (###) PLOTSTYLE (BETA.STB) USER (DWG) 10/15/2024 4:31 PM C:\BETA\6155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANS\110(0152_UTIL_PROFILES).DWG (BETA STB) (BETA STB)



NOTE: CONTRACTOR SHALL INSTALL TEMPORARY 3" FIRE ALARM CONDUIT AS SHOWN ON THE PLANS. THE TOWN FIRE DEPARTMENT WILL RELOCATE TEMPORARY OVERHEAD (OH) TO UNDERGROUND (UG) AND AFTER CONSTRUCTION THEY WILL RELOCATE UG TO PERMANENT POSITION.

N/F
DIPIRRO THOMAS
29 NORTH AV - PLAISTOWN, NH
ASSESS. MAP 541 - PARCEL ID: 541-623-1
DEED BK 14275 / PAGE 300



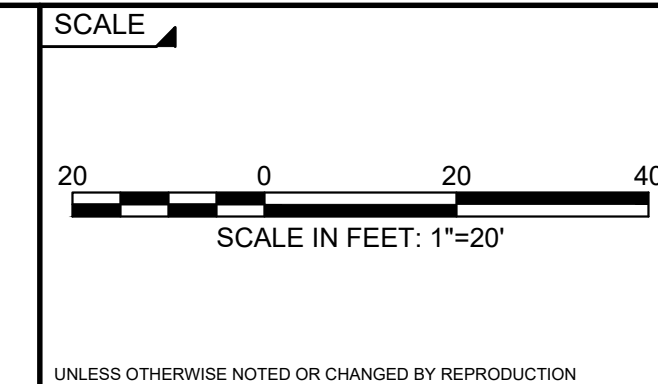
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
KYL
DESIGNED BY:
KYL
CHECKED BY:
DJ

REGISTERED PROFESSIONAL
CHRISTOPHER W. JONES
STRUCTURAL
No. 41025
PROFESSIONAL ENGINEER
10/15/2024



PREPARED BY
SUBCONSULTANT

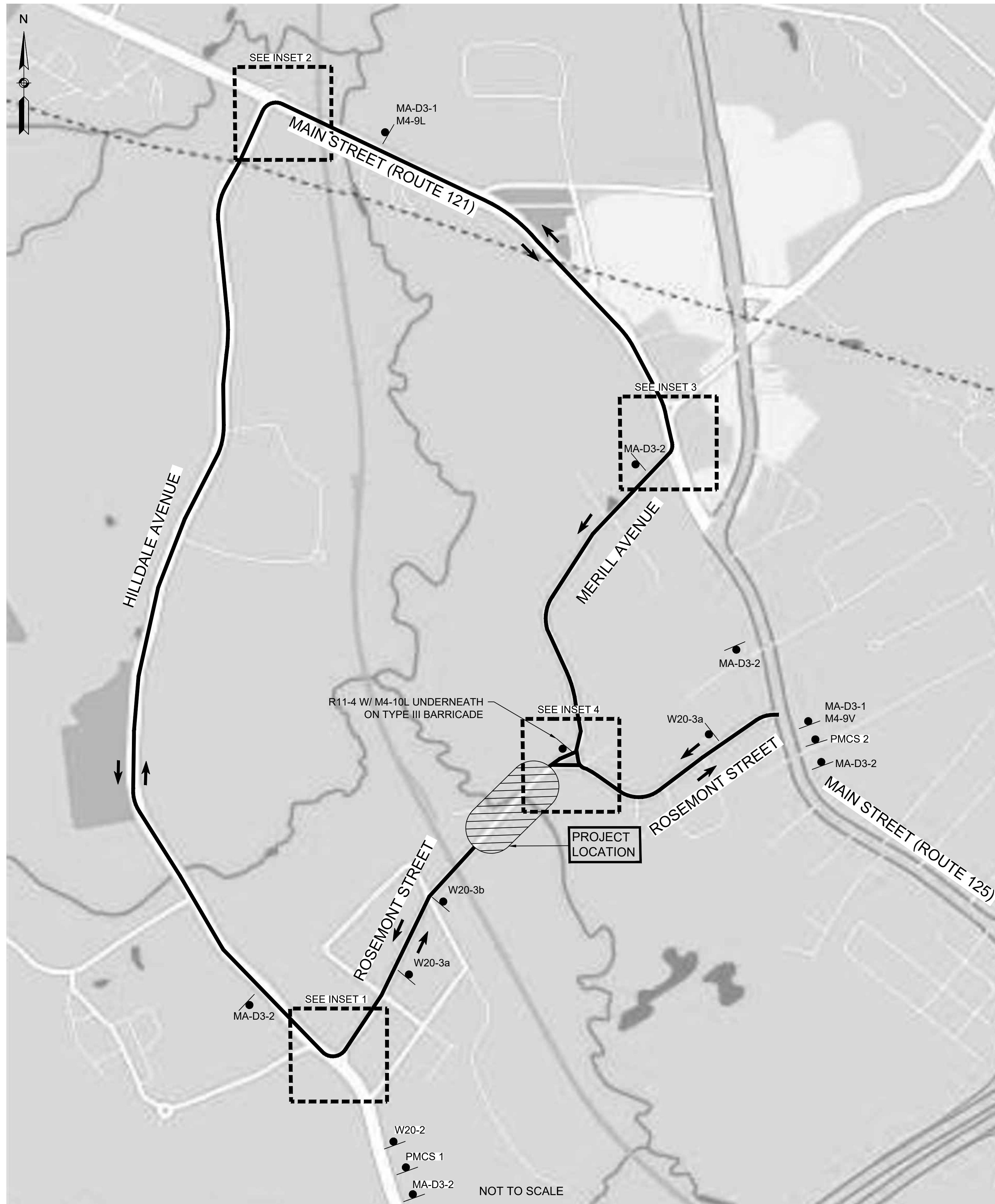


TITLE
**ROSEMONT STREET OVER LITTLE RIVER
HAVERHILL, MASSACHUSETTS**
UTILITY PLAN & PROFILE
BRIDGE NO. H-12-024 (CFF)

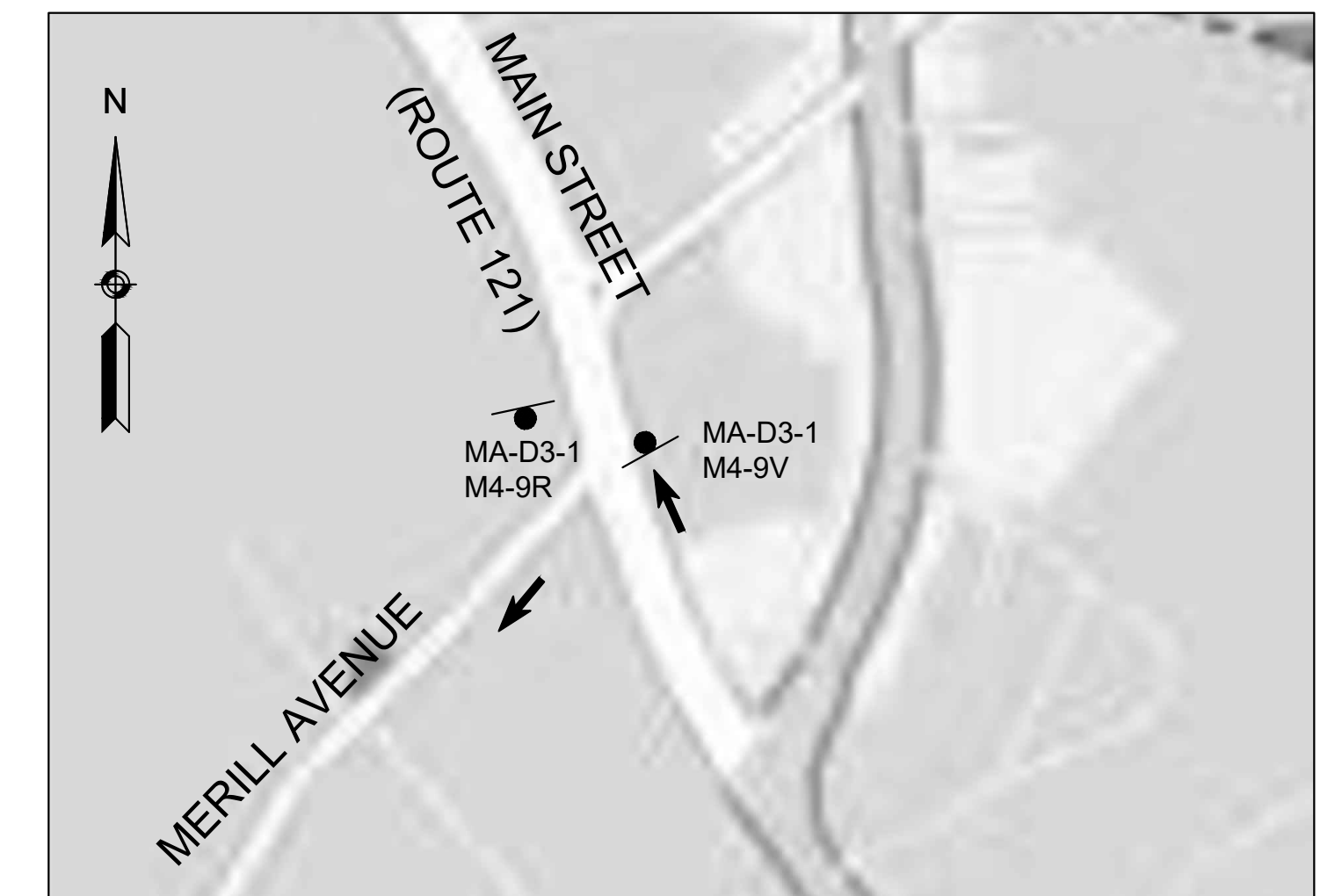
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ISSUE DATE 10/16/2024
SHEET NO. 7

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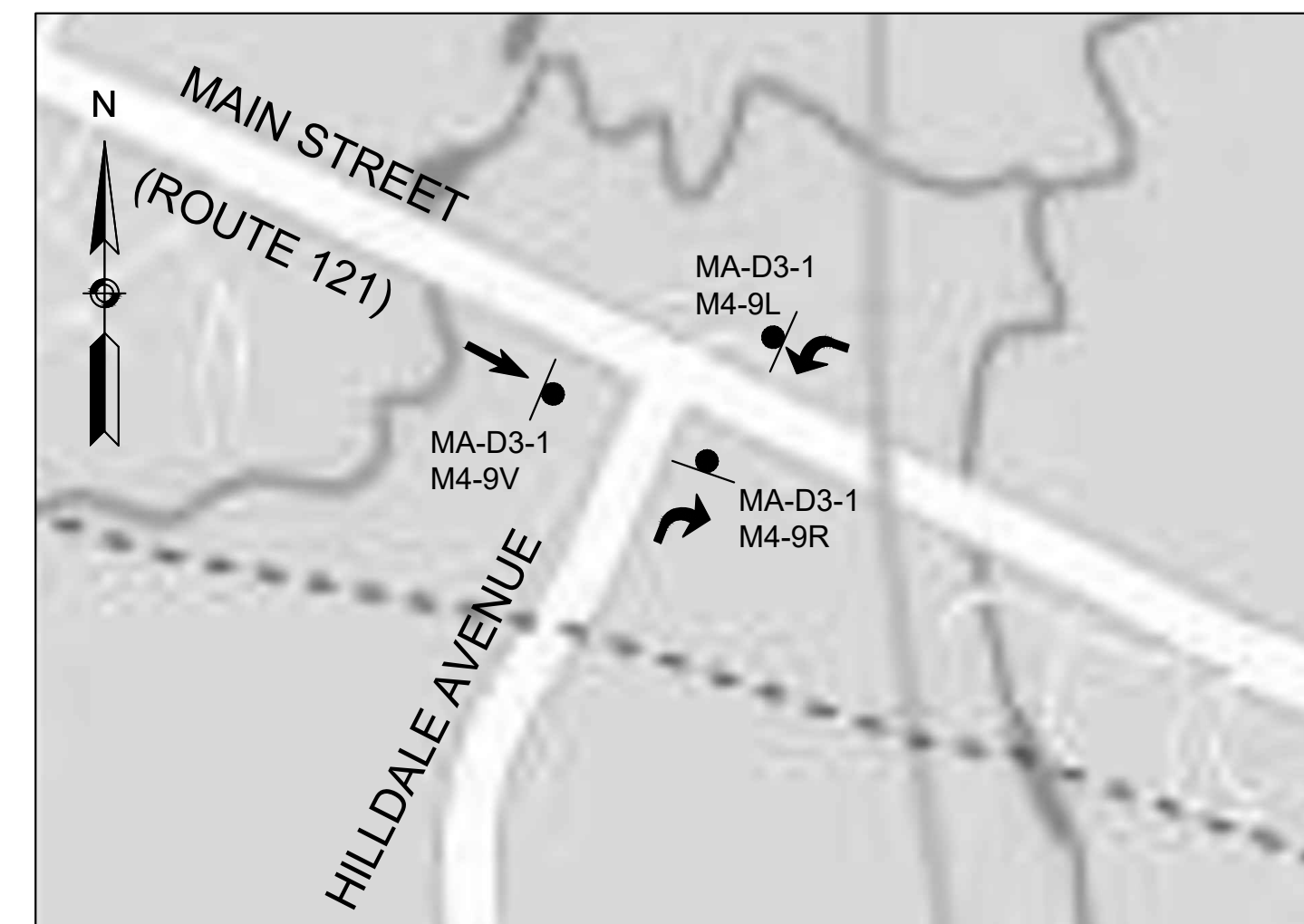
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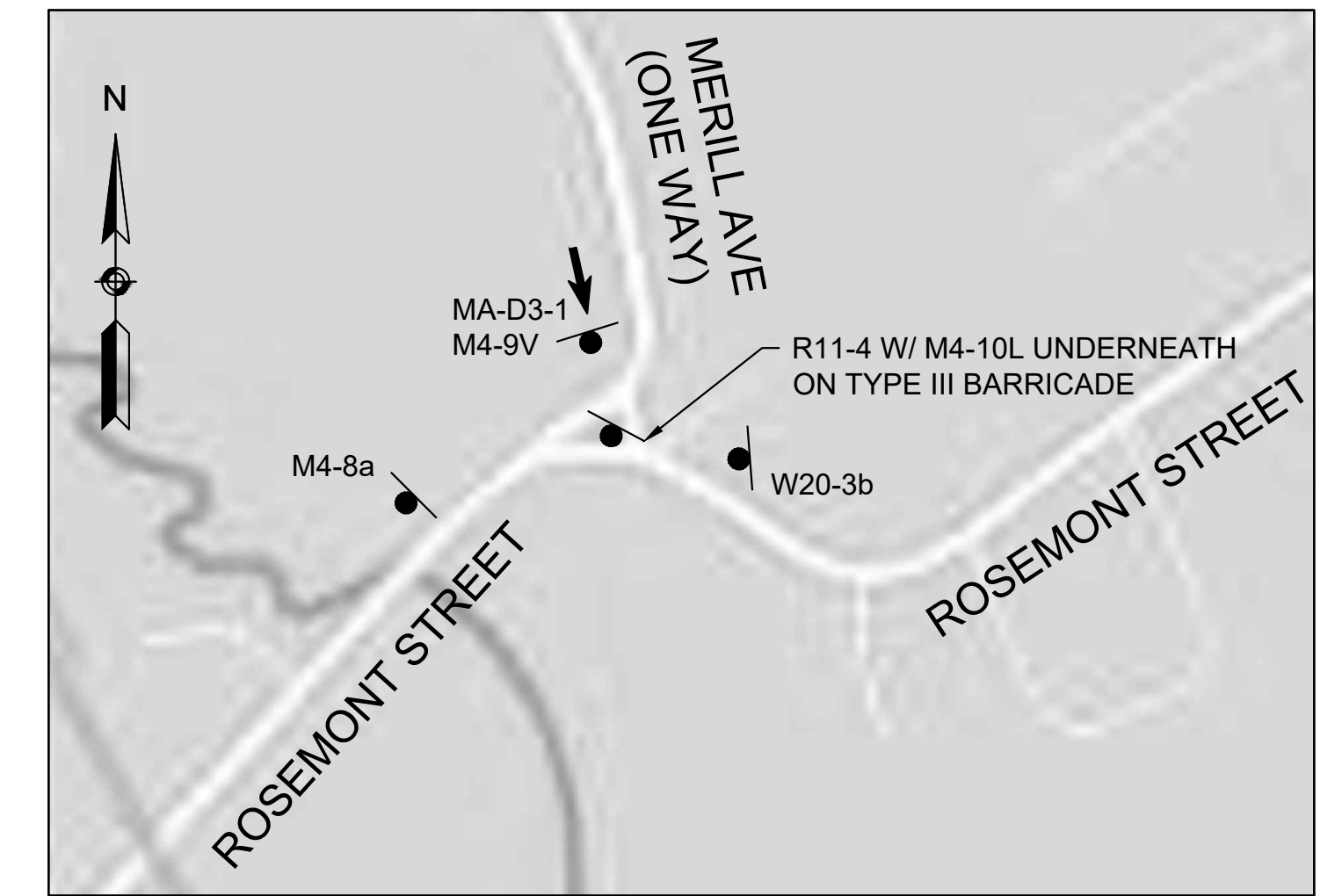
INSET 1
NOT TO SCALE



INSET 3



INSET 2
NOT TO SCALE




INSET 4
NOT TO SCALE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: KYL
 DESIGNED BY: KYL
 CHECKED BY: DJ

REGISTERED PROFESSIONAL
 PREPARED BY

 Christopher W. Jones
 10/15/2024

SUBCONSULTANT

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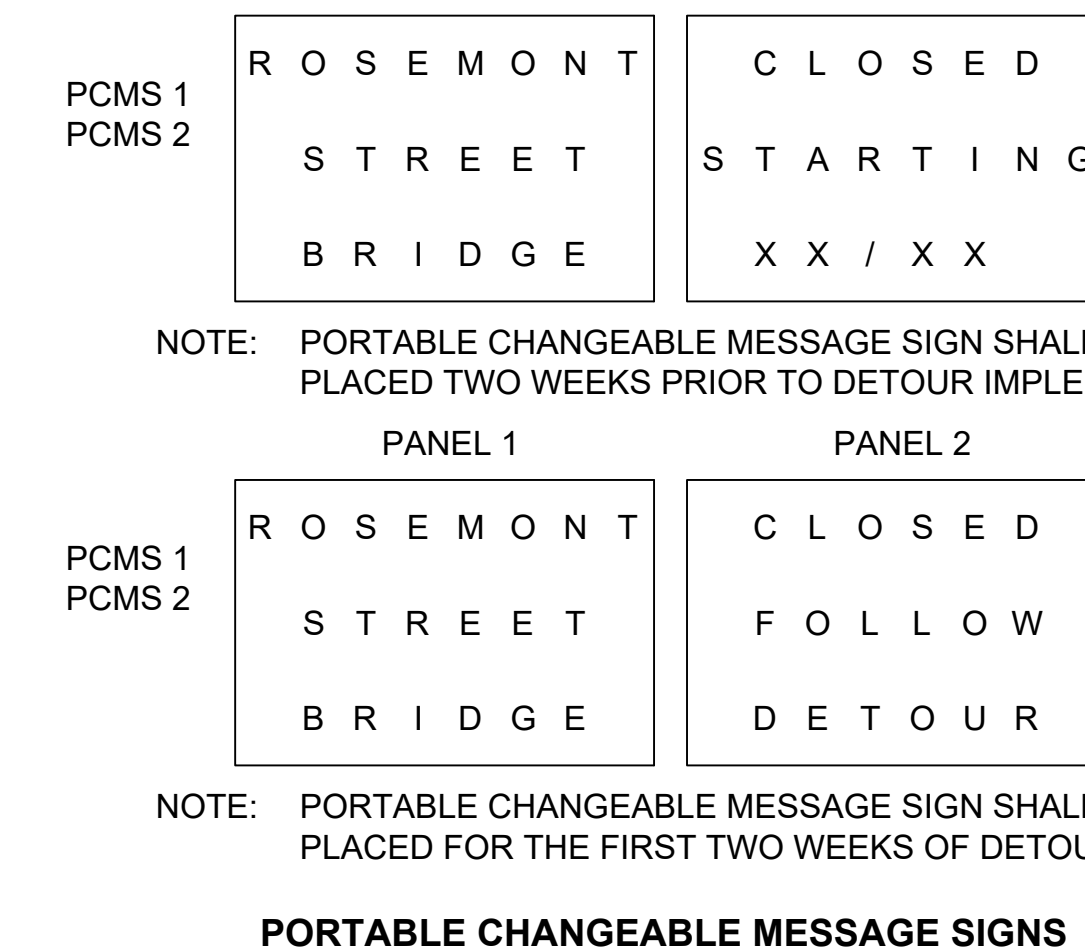
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TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 DETOUR PLAN
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 8

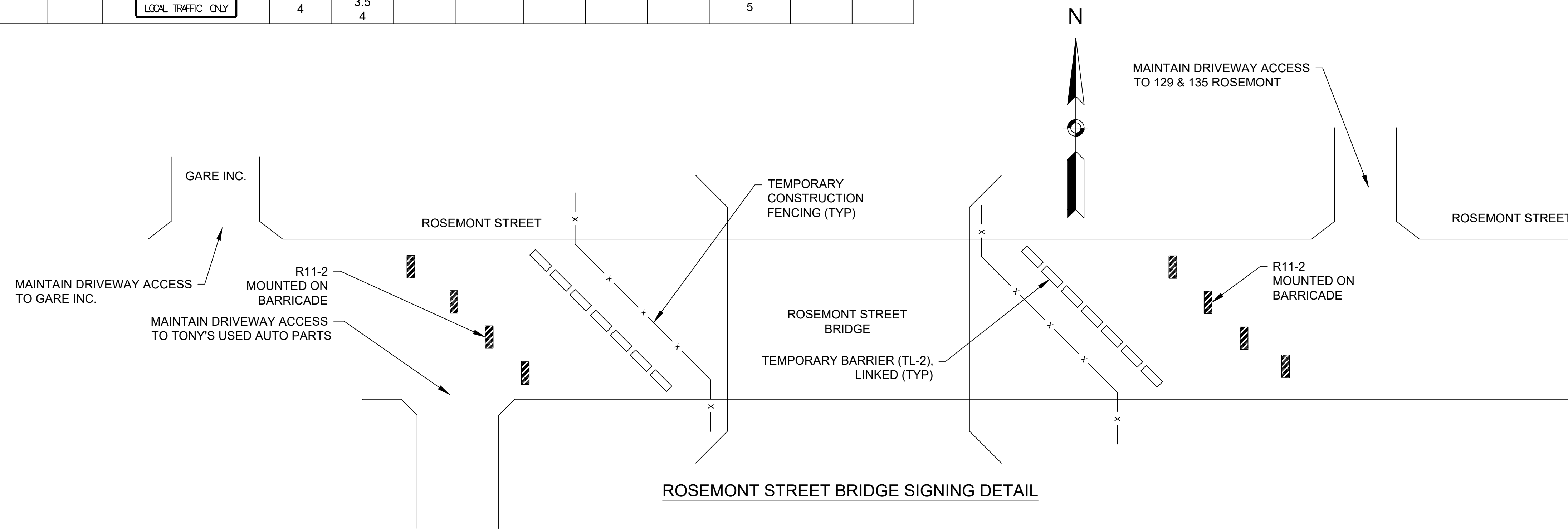
DETOUR SIGNING

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
R11-3a	48 in	30 in					1	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	10.0	10.0
R11-4	60 in	30 in					2	WHITE	BLACK	BLACK	MOUNT ON BARRICADE	12.5	25.0
W20-2	36 in	36 in					1	ORANGE	BLACK	BLACK	P-5 2	9.0	9.0
W20-3a	36 in	36 in					2	ORANGE	BLACK	BLACK	P-5 2	9.0	18.0
W20-3b	36 in	36 in					3	ORANGE	BLACK	BLACK	P-5 2	9.0	27.0
M4-8a	24 in	18 in					2	ORANGE	BLACK	BLACK	P-5 2	3.0	6.0
M4-9L	30 in	24 in					2	ORANGE	BLACK	BLACK	MOUNT W/ SP-2	5.0	10.0
M4-9R	30 in	24 in					2	ORANGE	BLACK	BLACK	MOUNT W/ SP-2	5.0	10.0
M4-9V	30 in	24 in					5	ORANGE	BLACK	BLACK	MOUNT W/ SP-2	5.0	25.0
M4-10L	48 in	18 in		2	ORANGE	BLACK	BLACK	MOUNT W/ R11-3a	6.0	6.0			
MA-D3-1	48 in	12 in	Rosemont st	6/4D	3.00 3.00		9	ORANGE	BLACK	BLACK	P-5 10	4.0	36
MA-D3-2	60 in	30 in	ROSEMONT ST BRIDGE CLOSED LOCAL TRAFFIC ONLY	6 5 4	4 3.5 3.5 4		5	WHITE	BLACK	BLACK	P-5 (2) 5	12.5	62.5



NOTES:

- SEE THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" FOR THE LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR. (ALSO SEE SECTION M9.30.0 TYPE III MHD STANDARD SPECIFICATION, THE "MASSACHUSETTS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES," AND "GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS" (LATEST EDITIONS) BY THE MASSACHUSETTS HIGHWAY DEPARTMENT).
- ALL P5 POSTS SHALL BE TELESCOPIC, RECTANGULAR TYPE POSTS, CONFORMING TO THE DIMENSIONS AND REQUIREMENTS OF THE MHD "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS" (LATEST EDITION).



10/16/2024 4:31 PM C:\B\10516155-HAVERRILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLAN\DETOUR.TIDWG (BETA STB.BW.STB) USER(DWONG)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
KYL

DESIGNED BY:
KYL

CHECKED BY:
DJ

REGISTERED PROFESSIONAL

CHRISTOPHER W. JONES
STRUCTURAL
No. 41025
REGISTERED PROFESSIONAL ENGINEER

10/15/2024

PREPARED BY

BETA

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SCALE

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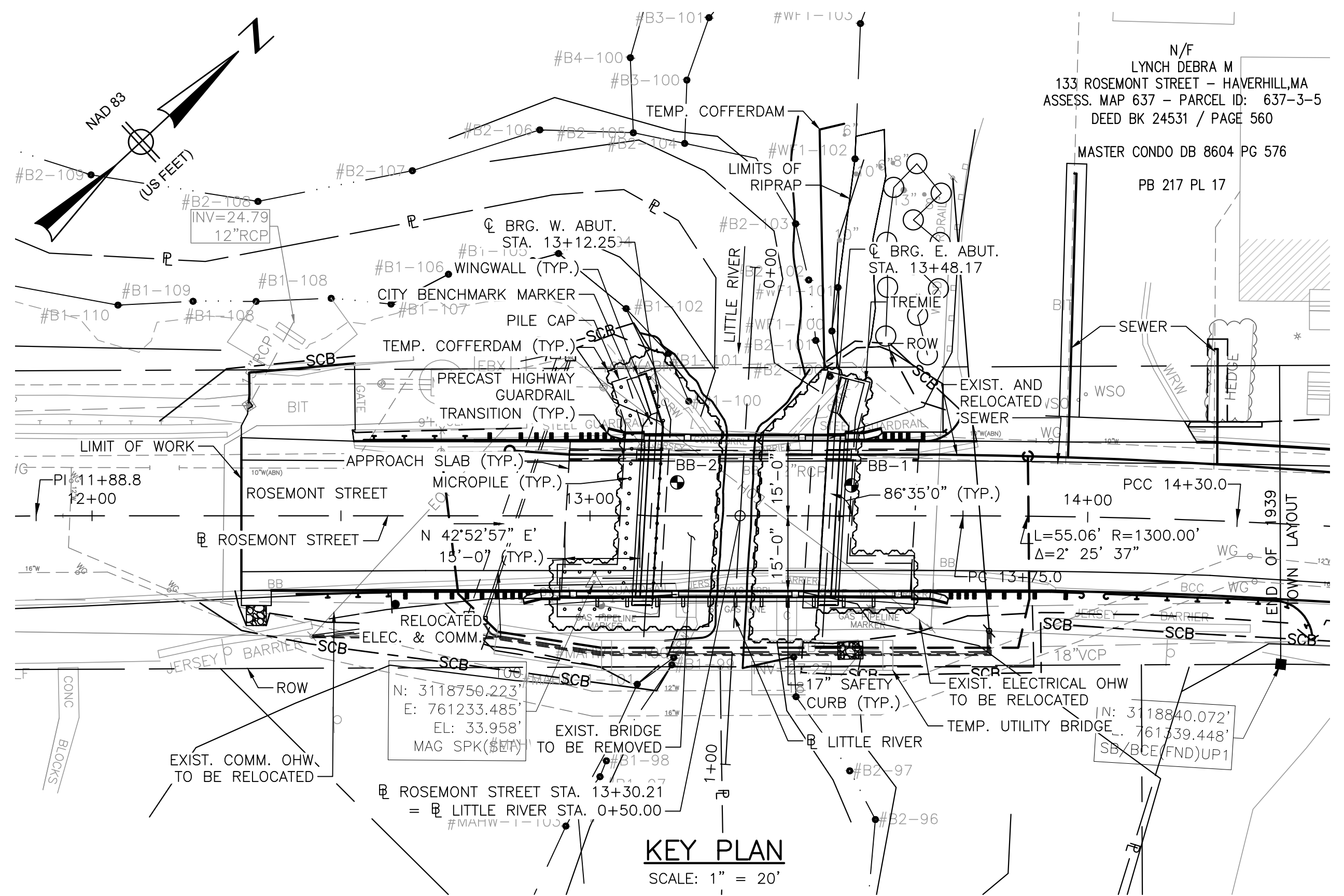
TITLE

**ROSEMONT STREET OVER LITTLE RIVER
HAVERHILL, MASSACHUSETTS
DETOUR PLAN
BRIDGE NO. H-12-024 (CFF)**

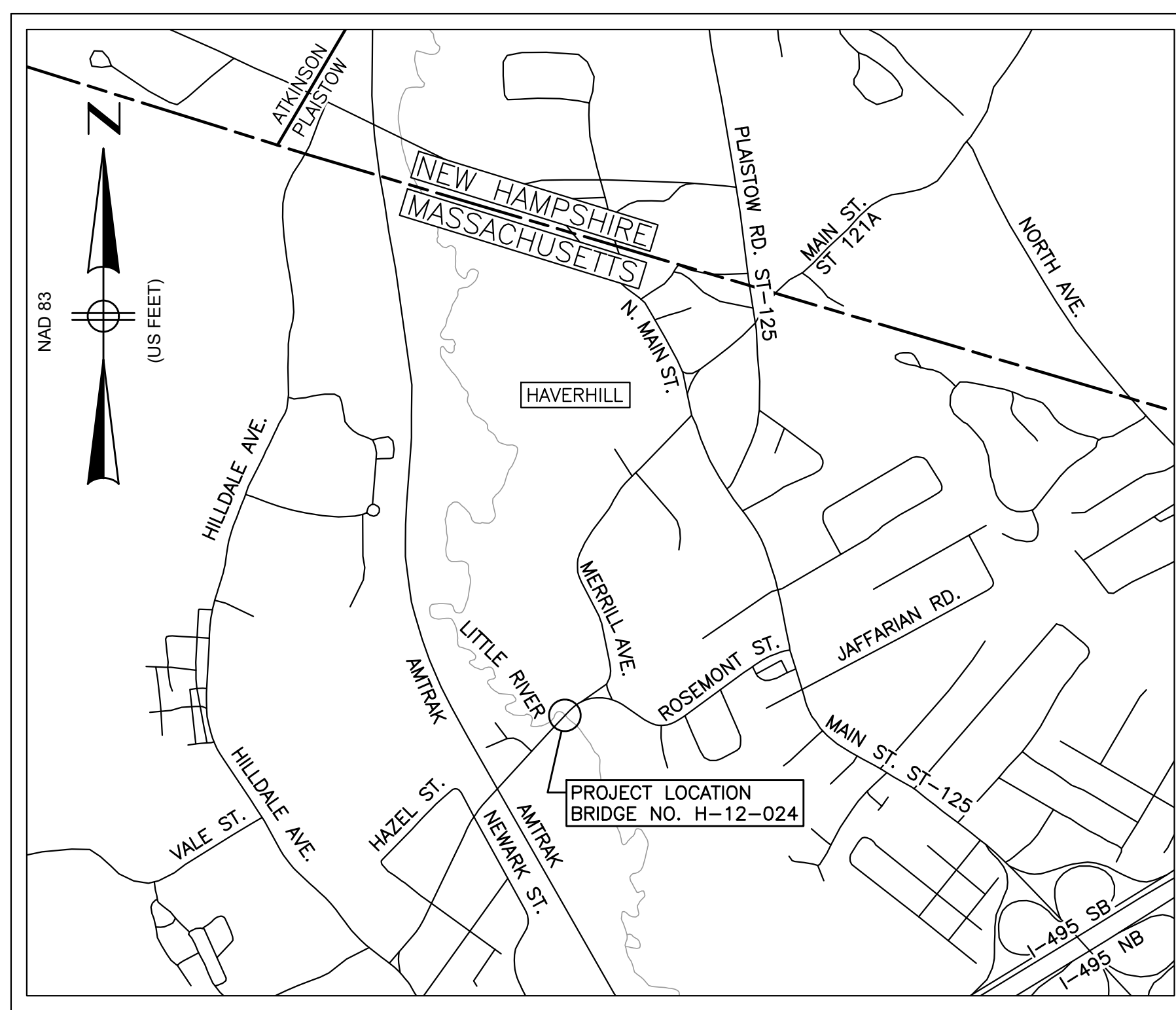
BETA JOB NO. 6155

ISSUE DATE 10/16/2024

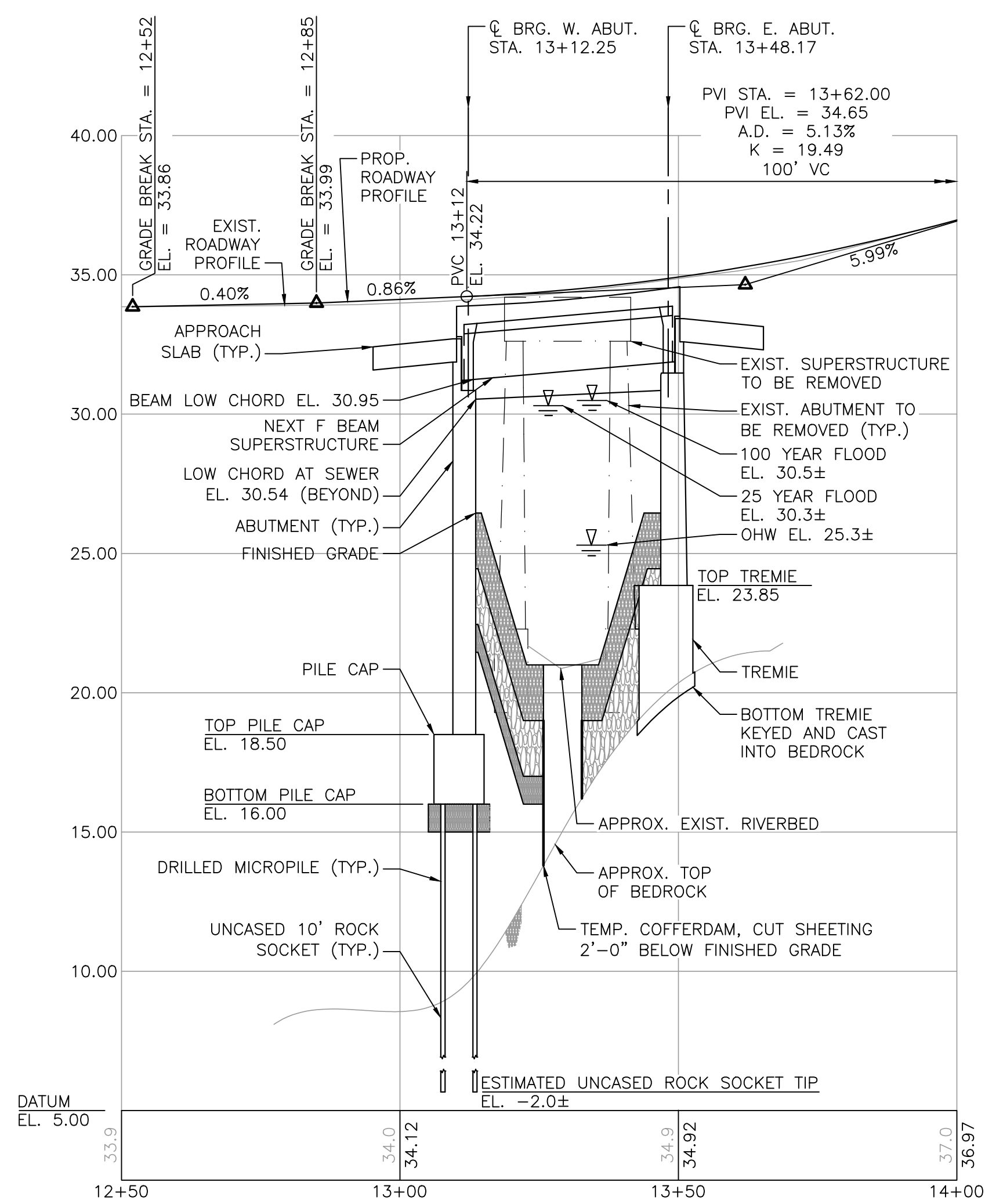
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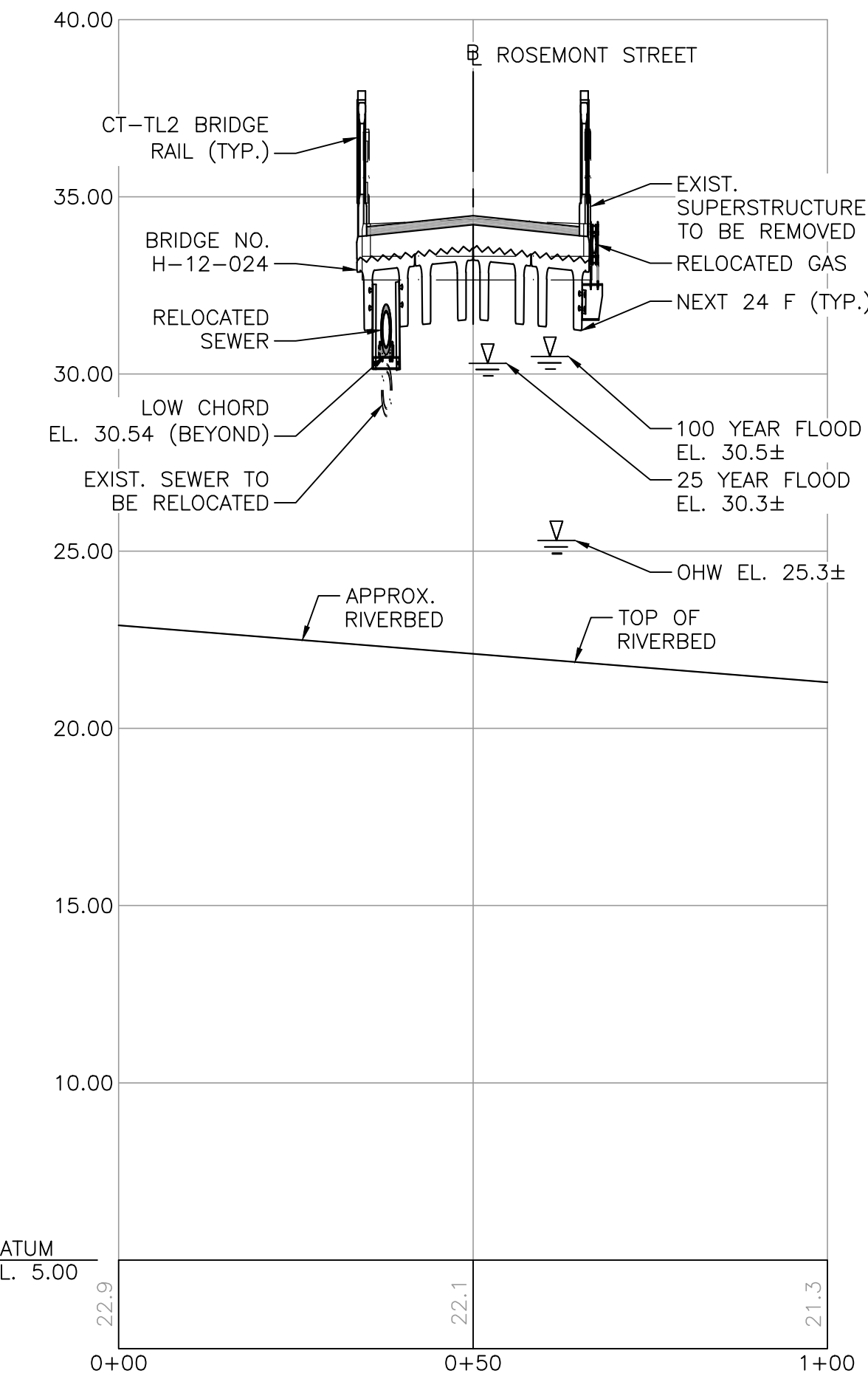
KEY PLAN
SCALE: 1" = 20'



LOCUS
1" = 1000'



ROSEMONT STREET PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1/4" = 1'-0"



LITTLE RIVER PROFILE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1/4" = 1'-0"

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BORING LOGS	12
GENERAL PLAN & ELEVATION	13
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10/15/2024 4:32 PM C:\101056155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\SPR(155_1).DWG PLOTSTYLE (BETA STB.BV1.STB) USER(DWONG)

DRAWN BY: MLN/DW DESIGNED BY: DW CHECKED BY: CWJ/PJK	REGISTERED PROFESSIONAL ENGINEER PREPARED BY: www.BETA-inc.com	SUBCONSULTANT SCALE: AS SHOWN TITLE: ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS BRIDGE KEY PLAN & PROFILE BRIDGE NO. H-12-024 (CFF)	BETA JOB NO. 6155 ISSUE DATE 10/16/2024 SHEET NO. 10
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GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-3S LOADING.

BENCH MARK:

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

#1, MAG SPK(SET)
N: 3118583.753' E: 761037.528' EL: 35.414'

#2, IR/CAP(SET)
N:3118907.443' E: 761400.208' EL: 46.456'

#100, MAG SPK(SET)
N: 3118750.223' E: 761233.485' EL: 33.958'

#101, IR/CAP(SET)
N: 3118491.822' E: 761497.795' EL: 26.074'

DATE:

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

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

FOUNDATIONS:

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

UNSUITABLE MATERIAL:

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

CONCRETE:

UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE 5000 HP CONCRETE, EXCEPT THAT THE CT-TL2 BARRIER SHALL BE 5000 HP 3/4 IN. HP CONCRETE AND TREMIE CONCRETE SHALL BE 4000 CONCRETE.

ALL CIP AND PRECAST CONCRETE POURS SHOWN ON THESE CONSTRUCTION DRAWINGS WHERE ALL VOLUMETRIC DIMENSIONS ARE 4 FEET OR GREATER SHALL BE CONSIDERED TO BE MASS CONCRETE PLACEMENTS AND SHALL REQUIRE A HEAT OF HYDRATION ANALYSIS AND THERMAL CONTROL PLAN, AS SPECIFIED IN THE MASSDOT STANDARD SPECIFICATIONS.

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION: #4 BARS #5 BARS #6 BARS

1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER <3db, OR CLEAR SPACING <6db	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	18"	23"	27"
6. CONDITION 2. AND 4.	26"	32"	39"
	24"	30"	36"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE MEMBRANE WATERPROOFING FOR BRIDGE DECKS.

EXISTING CONDITIONS:

ALL DIMENSIONS AND DETAILS SHOWN FOR THE EXISTING STRUCTURE ARE NOT GUARANTEED TO BE CORRECT. MASSDOT AND THE CITY OF HAVERHILL DO NOT HAVE ANY EXISTING PLANS OF THE STRUCTURE. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR THE COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY AND ADEQUACY THEREOF AND SHALL NOT COMMENCE ANY FABRICATION UNTIL THEY HAVE MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE SUBMITTED SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER OF RECORD. SHOP DRAWINGS SHALL STATE THAT THE EXISTING DIMENSIONS, ANGLES, ELEVATIONS AND FIELD CONDITIONS HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS REQUIRED FOR THE PROPER PERFORMANCE OF THE WORK. FIELD CONDITIONS MAY EXIST WHICH DEVIATE FROM THE TYPICAL WORK AND THEORETICAL DIMENSION SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FABRICATION AND FIT OF THEIR WORK.

TRAFFIC:

CONSTRUCTION SHALL TAKE PLACE IN ONE STAGE AND ROAD WILL BE CLOSED TO TRAFFIC FOR THE DURATION OF BRIDGE CONSTRUCTION. REFER TO THE TRAFFIC MANAGEMENT AND/OR DETOUR PLANS FOR TRAFFIC CONTROL DURING DEMOLITION AND CONSTRUCTION.

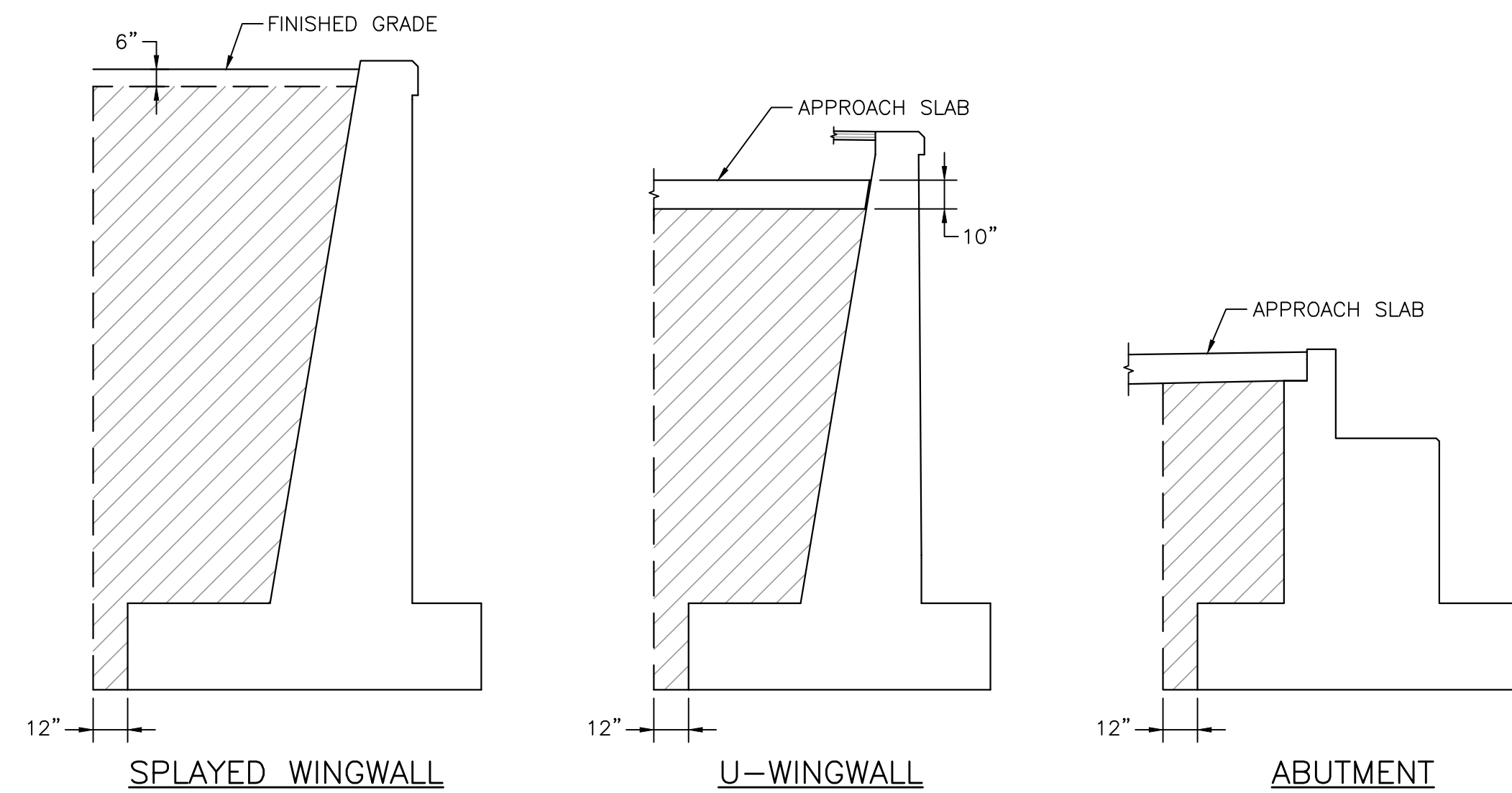
UTILITIES:

THE CONTRACTOR SHALL PROTECT FROM DAMAGE, AS NECESSARY, ANY EXISTING UTILITIES/POLES. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE RESPECTIVE UTILITY OWNERS FOR ALL UTILITIES THAT ARE TO BE TEMPORARILY OR PERMANENTLY RELOCATED FOR THE BRIDGE REPLACEMENT WORK.

GEOTECHNICAL REPORT AND HYDRAULIC REPORT:

SEE GEOTECHNICAL REPORT AND HYDRAULIC REPORT BOTH DATED AUGUST 2024.

ESTIMATED QUANTITIES (NOT GUARANTEED)		
ROSEMONT STREET		
ITEM DESCRIPTION	QUANTITY	UNITS
DEMOLITION OF BRIDGE NO. H-12-024	1	LS
BRIDGE EXCAVATION	30	CY
BRIDGE EXCAVATION WITHIN COFFERDAM	1250	CY
PERMANENT BENCH MARK	1	EA
CLASS B ROCK EXCAVATION	11	CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	190	CY
STREAMBED RESTORATION	1	LS
CRUSHED STONE	218	TON
CRUSHED STONE FOR BRIDGE FOUNDATIONS	42	TON
SUPERPAVE BRIDGE SURFACE COURSE 12.5 POLYMER (SSC-B-12.5-P)	11	TON
SUPERPAVE BRIDGE PROTECTIVE COURSE 12.5 POLYMER (SPC-B-12.5-P)	11	TON
GEOTEXTILE FABRIC FOR STABILIZATION	426	SY
4000 PSI, 1.5 IN., 565 CEMENT CONCRETE	78	CY
DRILLED MICROPILES	761	FT
MICROPILE VERIFICATION LOAD TEST	1	EA
MICROPILE PROOF LOAD TEST	2	EA
DUMPED RIPRAP	333	TON
COFFERDAM STRUCTURE NO. H-12-024	1	LS
CONTROL OF WATER - STRUCTURE NO. H-12-024	1	LS
TEMPORARY SUPPORTS FOR PIPING	1	LS
TEMPORARY PROTECTIVE SHIELDING, BRIDGE NO. H-12-024	1	LS
BRIDGE STRUCTURE, BRIDGE NO. H-12-024	1	LS



NOTE:
HATCHED AREA INDICATES LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES.

LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES
NOT TO SCALE

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2042	
AVERAGE DAILY TRAFFIC - PRESENT	4,015	
AVERAGE DAILY TRAFFIC - DESIGN YEAR	4,440	
DESIGN HOURLY VOLUME	488	
DIRECTIONAL DISTRIBUTION	78% SB	
TRUCK PERCENTAGE - AVERAGE DAY	7%	
TRUCK PERCENTAGE - PEAK HOUR	7%	
DESIGN SPEED	30 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	381	

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YRS
DESIGN SPECTRA	
As	0.108
SDs	0.216
SD1	0.070
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	22.7
DESIGN FLOOD DISCHARGE (C.F.S.)	1,150
DESIGN FLOOD FREQUENCY (YEARS)	25
DESIGN FLOOD VELOCITY (F.P.S.)	5.57
DESIGN FLOOD ELEVATION (FEET, NAVD)	30.3
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	1,630
BASE FLOOD ELEVATION (FEET, NAVD)	30.5
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	5.65
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	100
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	7.04
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	UNKNOWN
HISTORY OF ICE FLOES	NONE DOCUMENTED
EVIDENCE OF SCOUR AND EROSION	SCOUR DOCUMENTED AT ABUTMENT

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	419
DESIGN FLOOD FREQUENCY (YEARS)	2
DESIGN FLOOD VELOCITY (F.P.S.)	3.27
DESIGN FLOOD ELEVATION (FEET, NAVD)	28.17

BETA GROUP INC. TEMPLATE (BETA) STANDARD_TEMP (A) E - 1.0 (2024) CIVIL 3D (CIVIL_3D_2024) PLOTSTYLE (BETA) STB (B) (STB) USER (D) (W) (G)
10/15/2024 4:32 PM C:\1010586155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\155_20.DWG

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
DESIGNED BY: DW
CHECKED BY: CWJ/PJK

REGISTERED PROFESSIONAL

 PREPARED BY

 10/15/2024

SUBCONSULTANT

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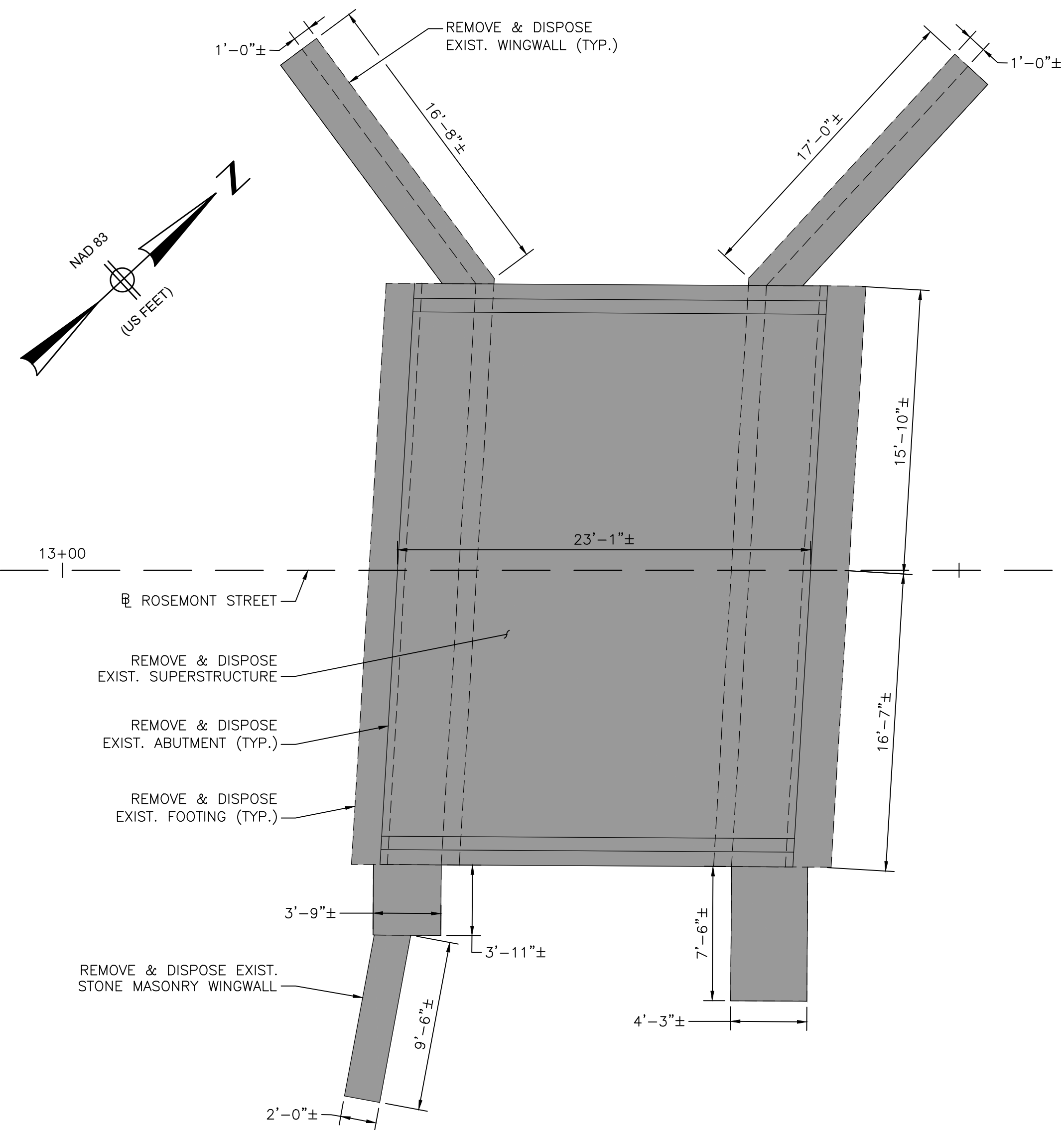
TITLE ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS GENERAL NOTES & ESTIMATED QUANTITIES BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 11

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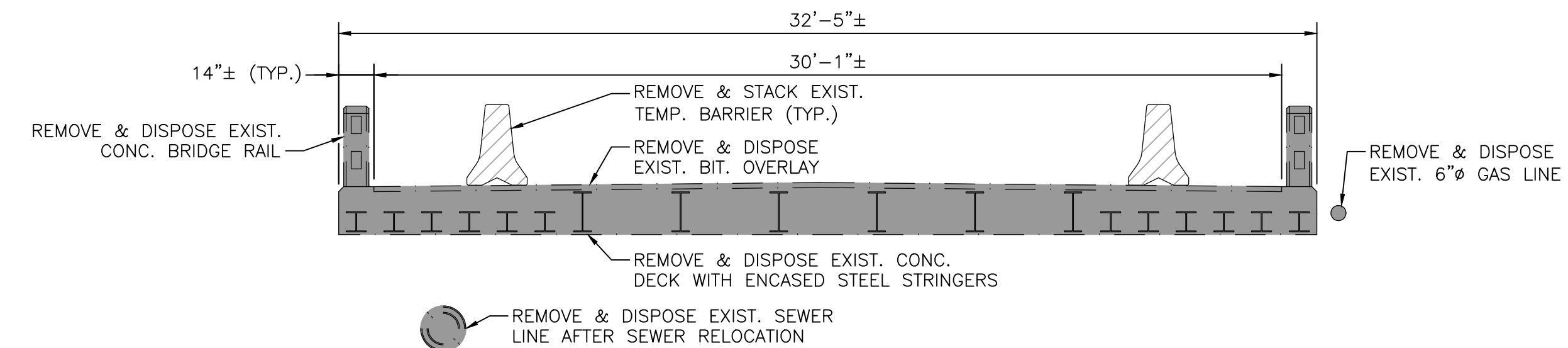
DEMOLITION NOTES:

1. ■ INDICATES AREA TO BE REMOVED AND DISPOSED.
2. THESE DRAWINGS ARE SCHEMATIC ONLY. THERE ARE NO PLANS OF THE EXISTING BRIDGE. THE ACTUAL DIMENSIONS AND CONFIGURATION OF THE EXISTING SUBSTRUCTURES ARE UNKNOWN.



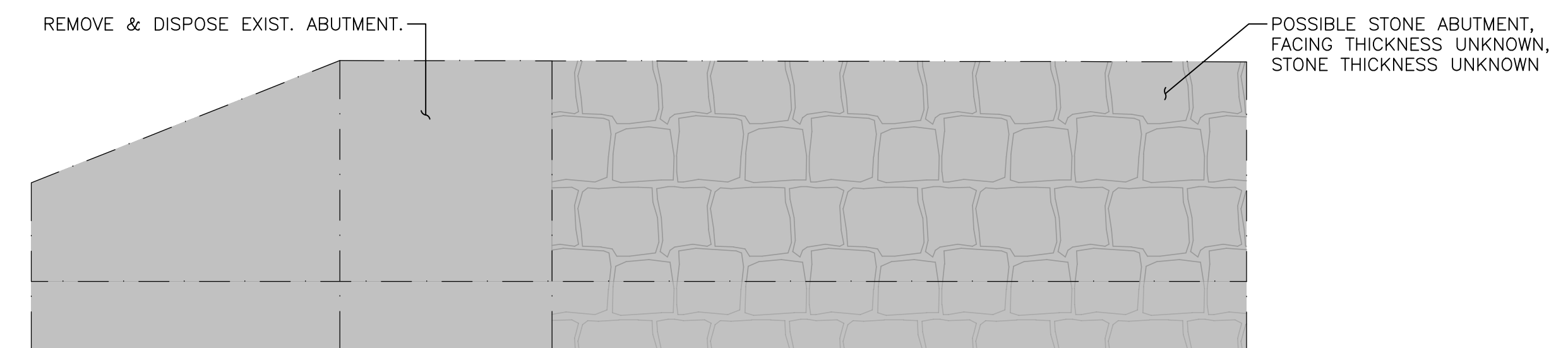
DEMOLITION PLAN

SCALE: $\frac{3}{8}'' = 1'-0''$



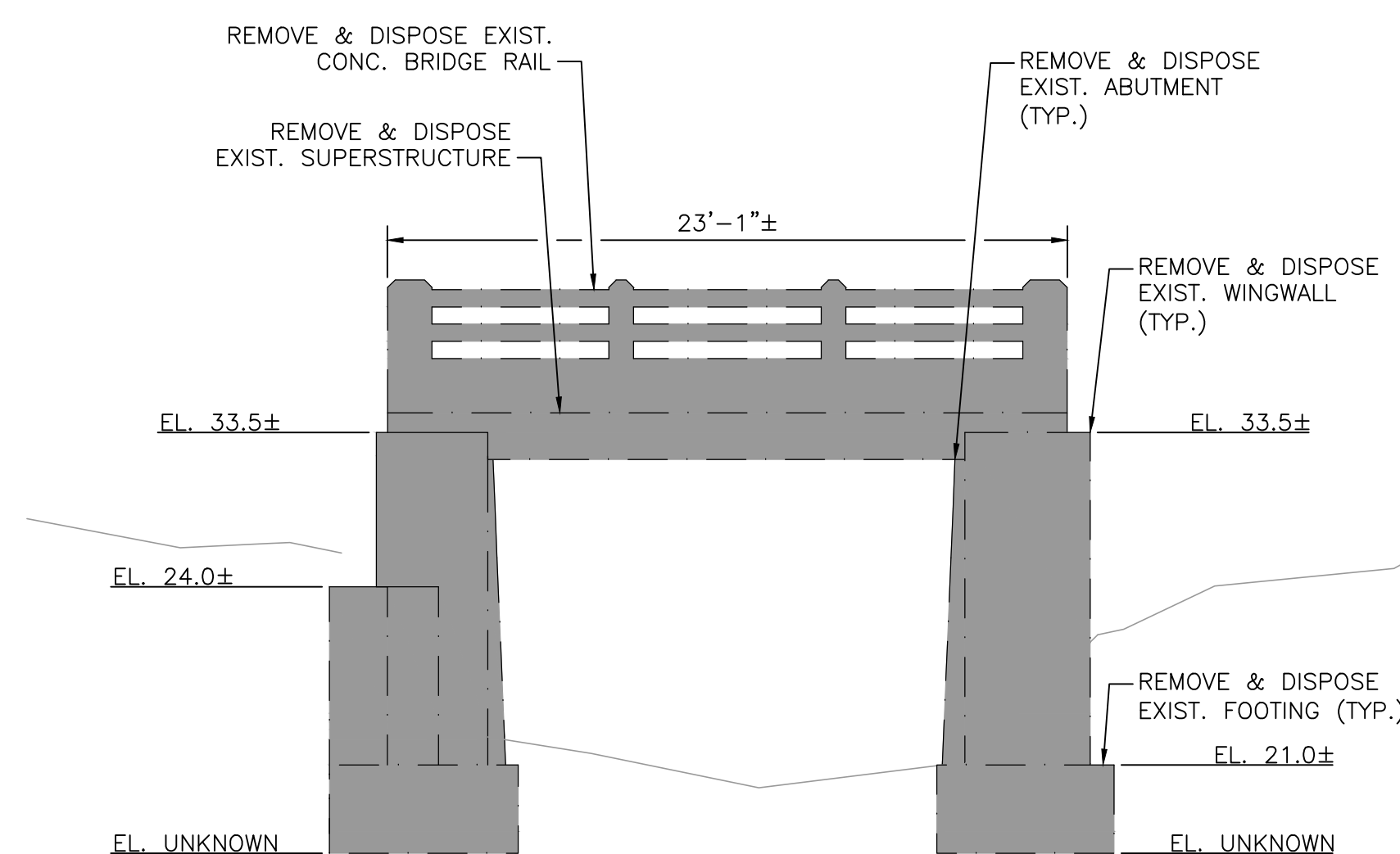
DEMOLITION SECTION

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



[EAST ABUTMENT SHOWN, WEST ABUTMENT SIMILAR]
DEMOLITION ABUTMENT ELEVATION

SCALE: $\frac{3}{8}'' = 1'-0''$



NOTE: ABUTMENT CROSS SECTION SHAPES ARE ESTIMATED. ACTUAL SHAPE AND EXTENTS OF ABUTMENTS IS UNKNOWN.

DEMOLITION ELEVATION

SCALE: $\frac{3}{8}'' = 1'-0''$

10/15/2024 4:35 PM C:\BETA\GROUP\INC\TEMPLATE\BETA_STANDARD_TEMP.PLT - 10/2024 CIVIL 3D (CIVIL 3D 2024) PLOTSTYLE (BETA STB BIV.STB) USER(DWONG) C:\BETA\GROUP\INC\DRAWING FILES\DRAWING FILES\PLANSET\BETA\155_01.DWG

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
MLN/DW
DESIGNED BY:
DW
CHECKED BY:
CWJ/PJK

REGISTERED PROFESSIONAL
CHRISTOPHER W. JONES
STRUCTURAL
No. 41025
PROFESSIONAL ENGINEER
10/15/2024

PREPARED BY
BETA
www.BETA-Inc.com

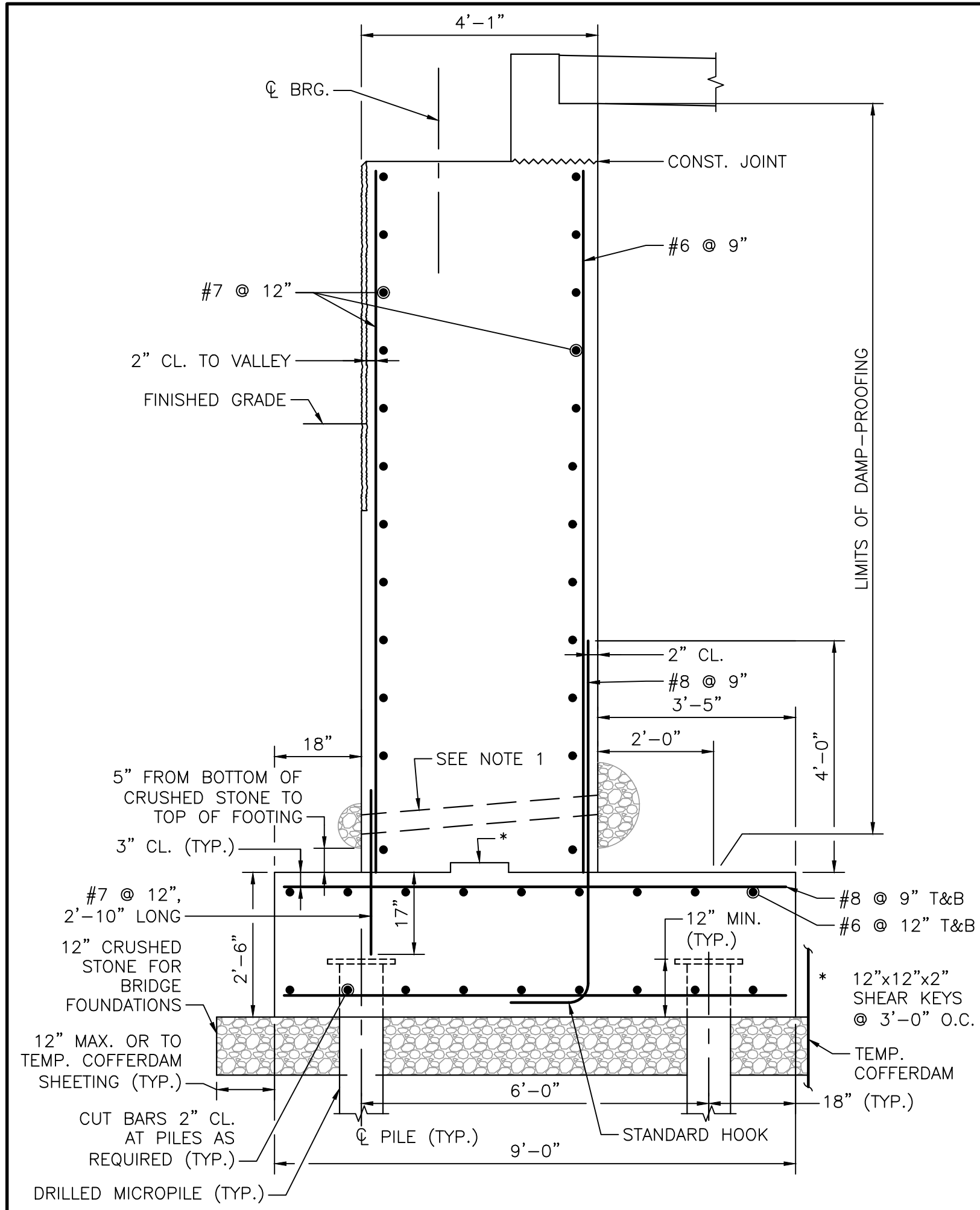
SUBCONSULTANT

SCALE
AS SHOWN
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

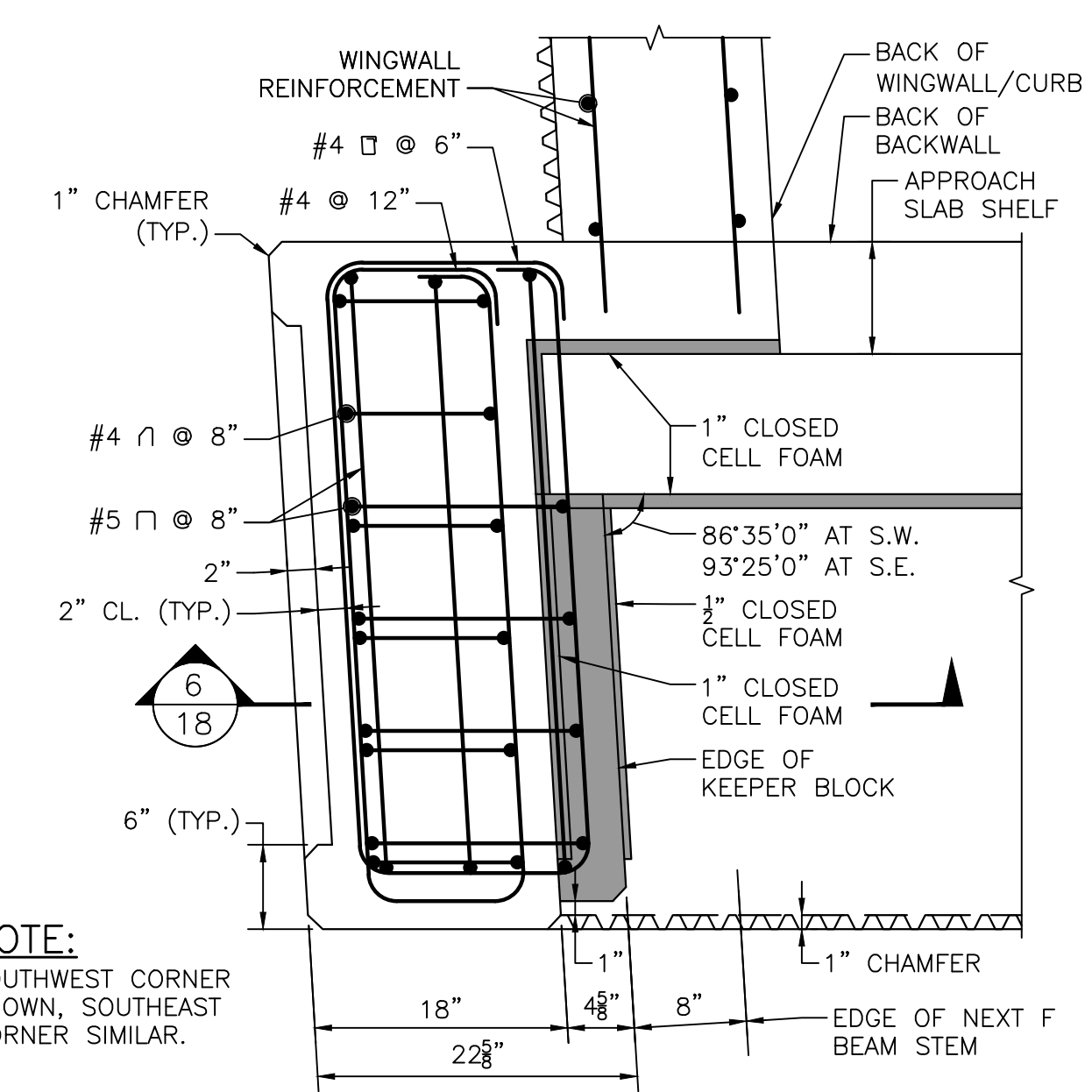
TITLE
**ROSEMONT STREET OVER LITTLE RIVER
HAVERHILL, MASSACHUSETTS
DEMOLITION
BRIDGE NO. H-12-024 (CFF)**

BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 15

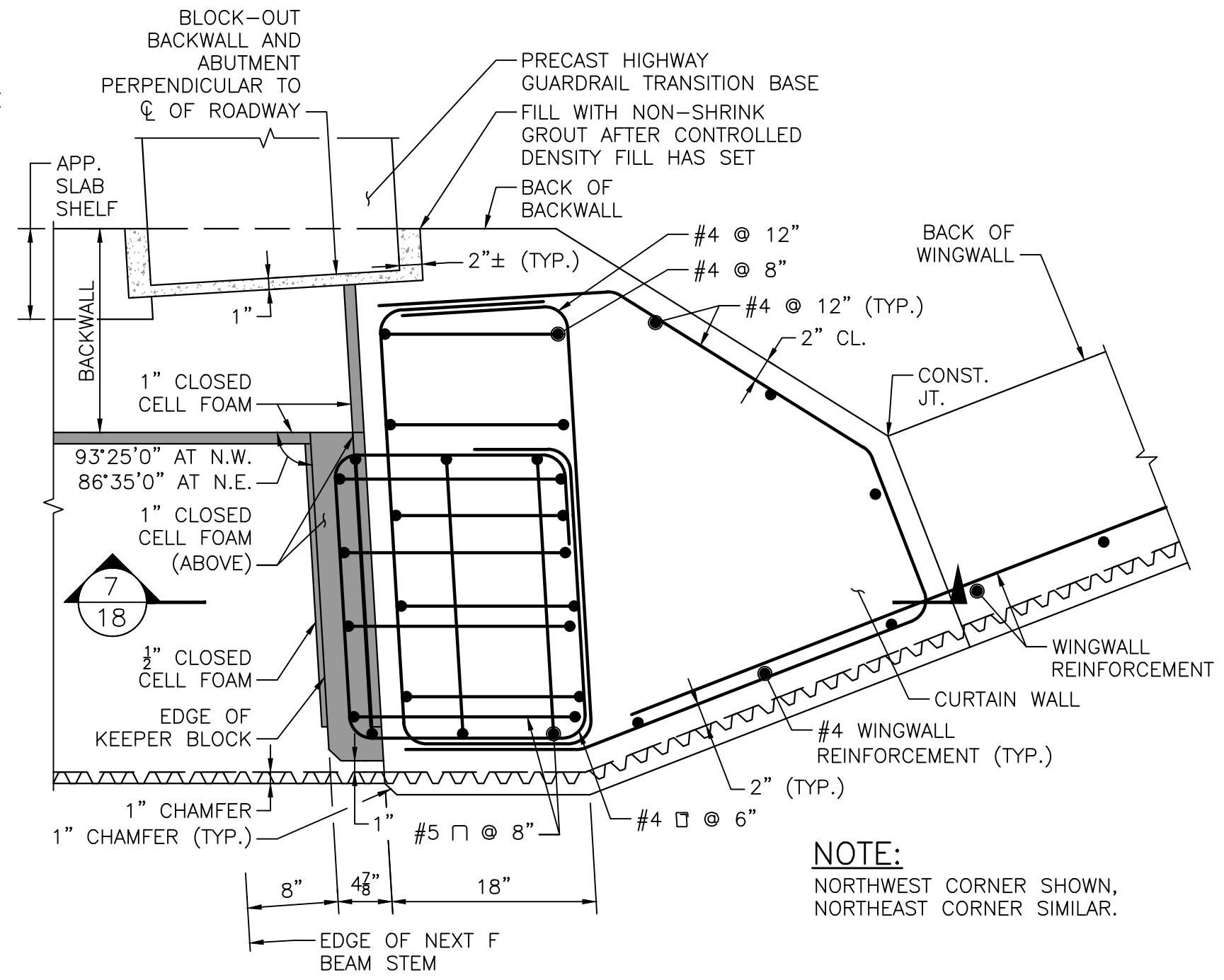
BETA GROUP INC. TEMPLATE (BETA) STANDARD_TEMP (DATE: 10/09/24) CIVIL_3D (CIVIL_3D 09/24) PLOTSTYLE (BETA) STB (BIV) (STB) USER (DWING)
 10/15/2024 4:36 PM C:\PROJECTS\155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANS\SET18(155_3)DWG



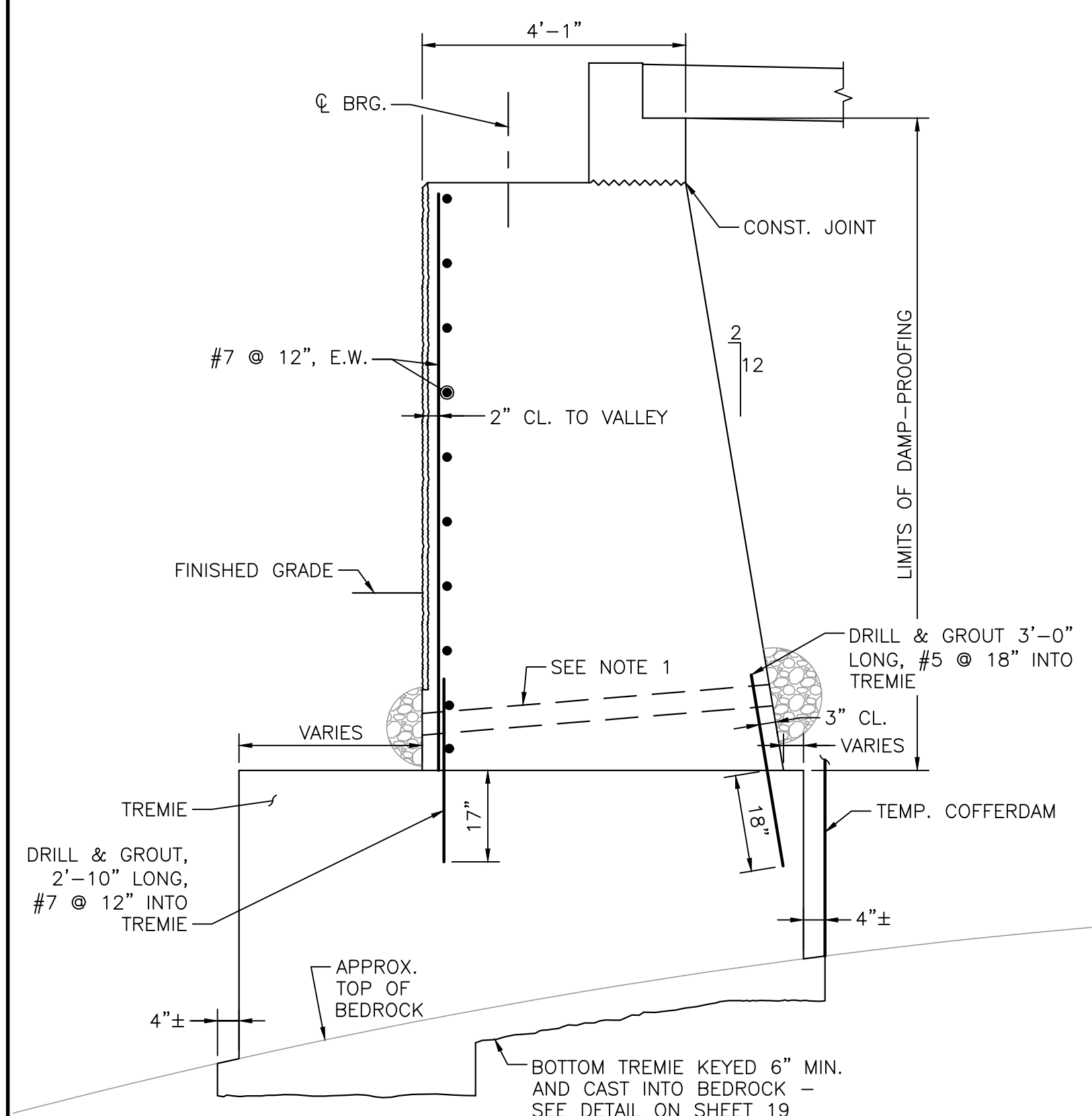
WEST ABUTMENT SECTION
 SCALE: 1/2" = 1'-0"



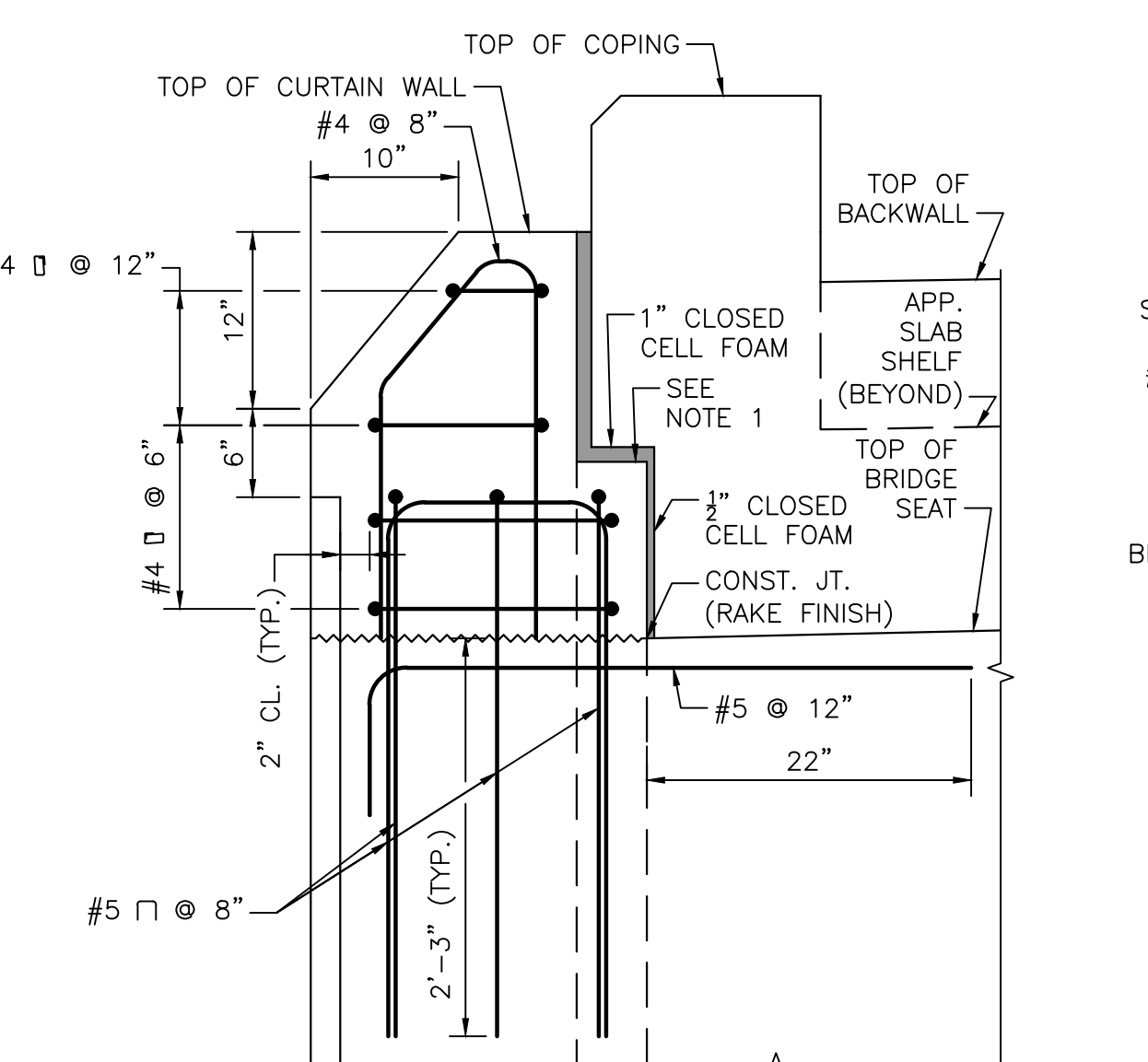
SECTION 4
 SCALE: 1" = 1'-0"



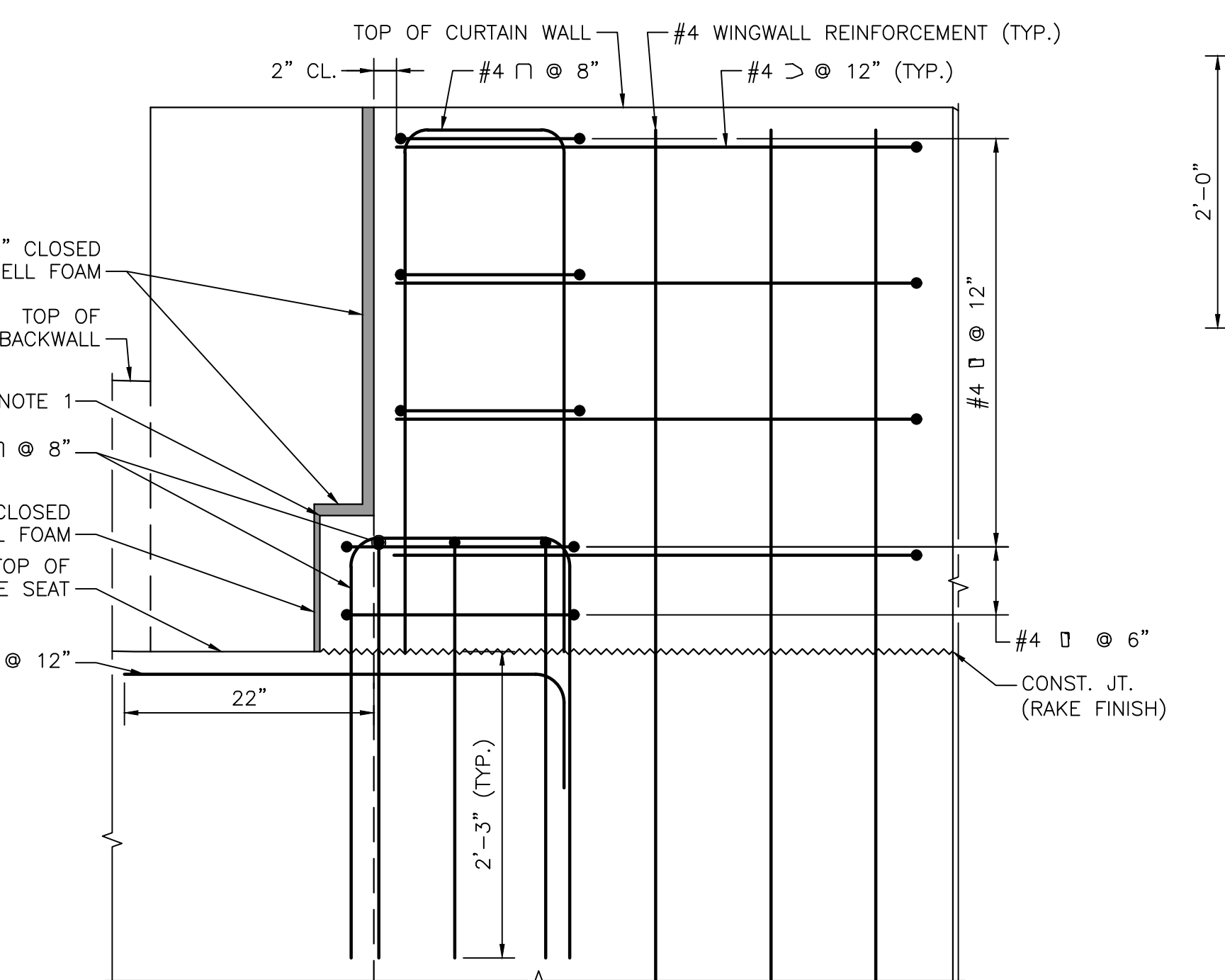
SECTION 5
 SCALE: 1" = 1'-0"



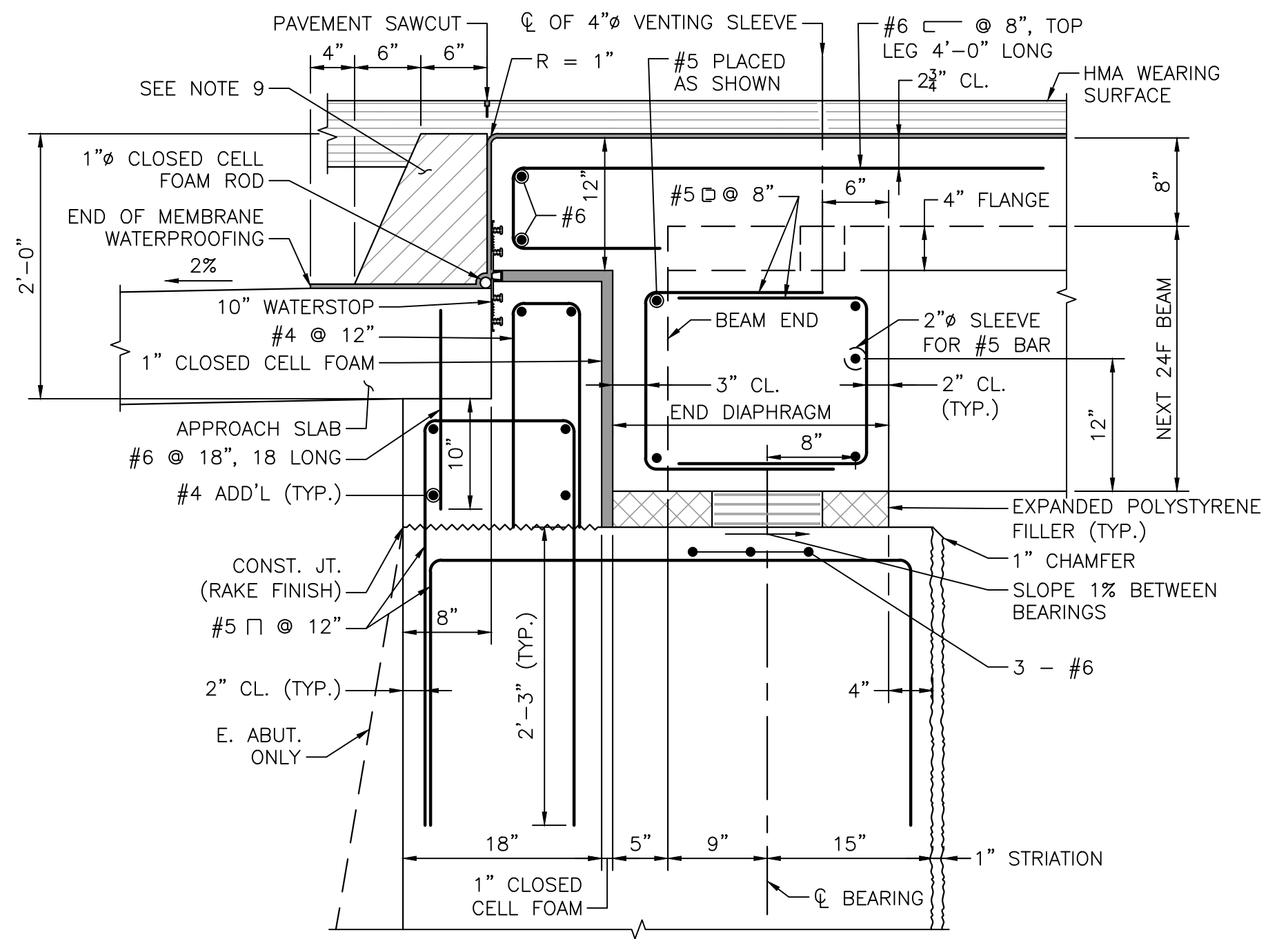
EAST ABUTMENT SECTION
 SCALE: 1/2" = 1'-0"



SECTION 6
 SCALE: 1" = 1'-0"



SECTION 7
 SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT - ROADWAY SECTION
 SCALE: 1" = 1'-0"

ABUTMENT 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.
- ALL REINFORCEMENT SHOWN IN THIS DETAIL SHALL BE COATED EXCEPT FOR THE APPROACH SLAB REINFORCEMENT.
- THE CONSTRUCTION JOINT SHALL BE GIVEN A RAKE FINISH WITH A 1/4" MINIMUM AMPLITUDE.
- TOP OF BACKWALL SHALL BE TROWELED SMOOTH PARALLEL TO THE PROFILE GRADE.
- THE BACKWALL, KEEPER BLOCK, AND CURTAIN WALL CONCRETE MUST BE PLACED AND SUFFICIENTLY CURED PRIOR TO PLACING THE END DIAPHRAGM CONCRETE.
- THE END DIAPHRAGM CONCRETE SHALL BE PLACED MONOLITHICALLY WITH THE DECK.
- PRIOR TO PLACING THE END DIAPHRAGM CONCRETE, CLOSED CELL FOAM OF THE SPECIFIED THICKNESS SHALL BE ATTACHED WITH ADHESIVE TO ALL SURFACES OF THE BACKWALL, KEEPER BLOCKS, AND CURTAIN WALLS AS SHOWN ON THE PLANS. EXPANDED POLYSTYRENE FILLER SHALL BE PLACED UNDER THE BEAM BOTTOM FLANGE AND THE BOTTOM OF THE END DIAPHRAGM SHALL BE FORMED AS SPECIFIED. THE CONTRACTOR SHALL ENSURE THAT ALL ABUTMENT CONCRETE IS PROPERLY LINED. END DIAPHRAGM CONCRETE MUST NOT COME IN DIRECT CONTACT WITH ABUTMENT CONCRETE.
- DRAPE MEMBRANE WATERPROOFING OVER CLOSED CELL FOAM BACKER ROD.
- PROTECTIVE COURSE TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC-8-12.5), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER.
- DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

ROADWAY SECTION NOTES:

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
MLN/DW
 DESIGNED BY:
DW
 CHECKED BY:
CWJ/PJK

REGISTERED PROFESSIONAL
 CHRISTOPHER W. JONES
 STRUCTURAL
 No. 41025
 10/15/2024

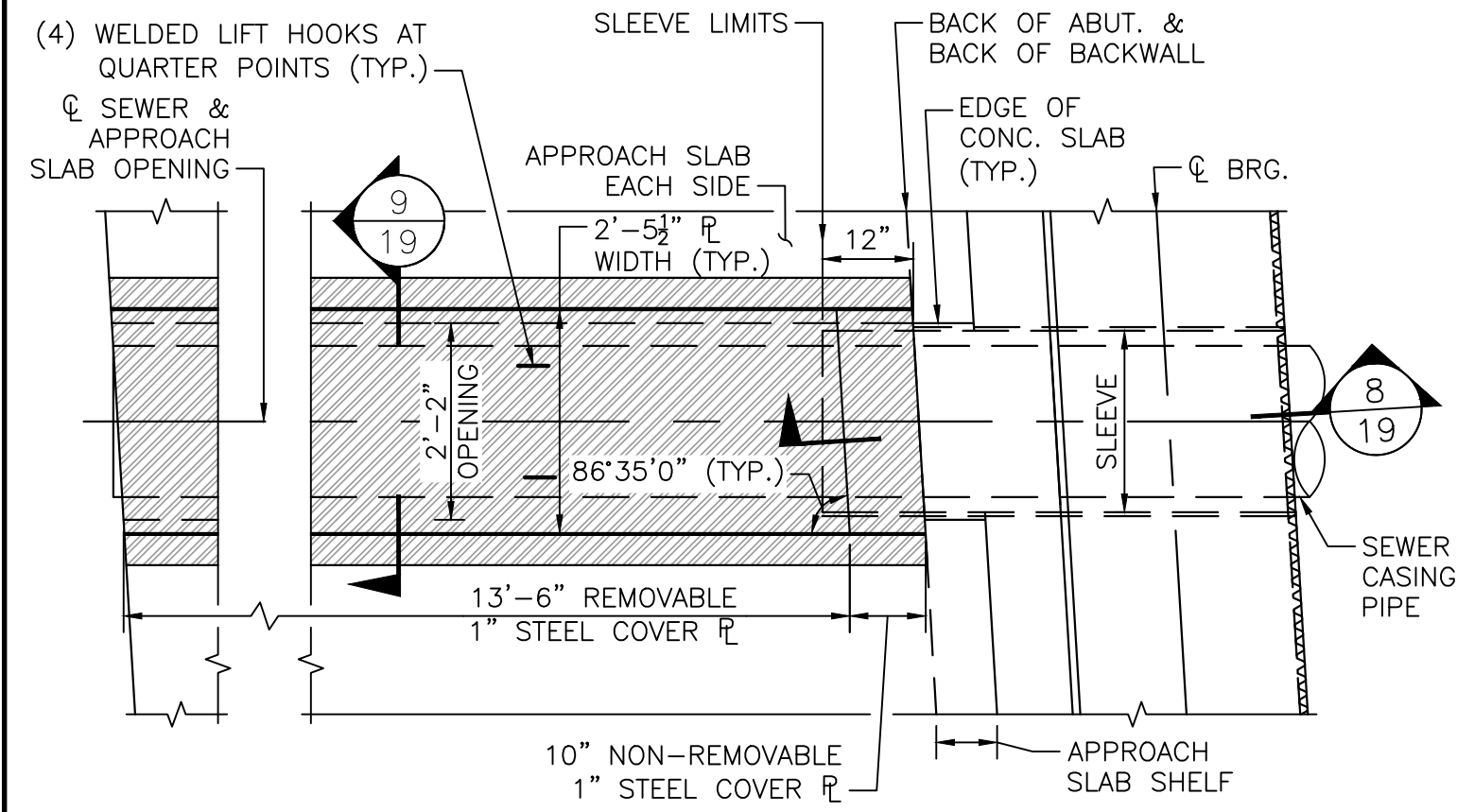


SUBCONSULTANT
 SCALE
AS SHOWN

TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 ABUTMENT DETAILS
 BRIDGE NO. H-12-024 (CFF)

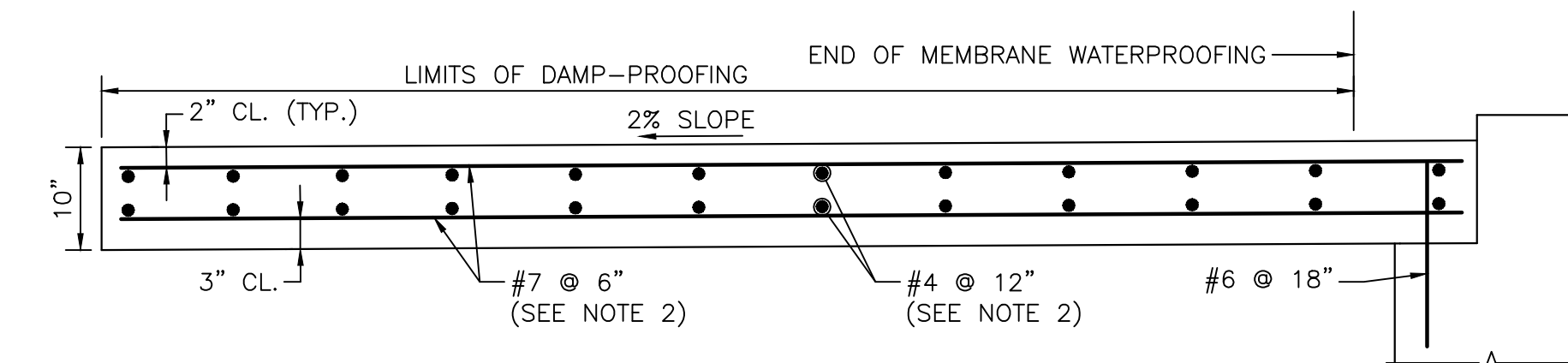
BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 18

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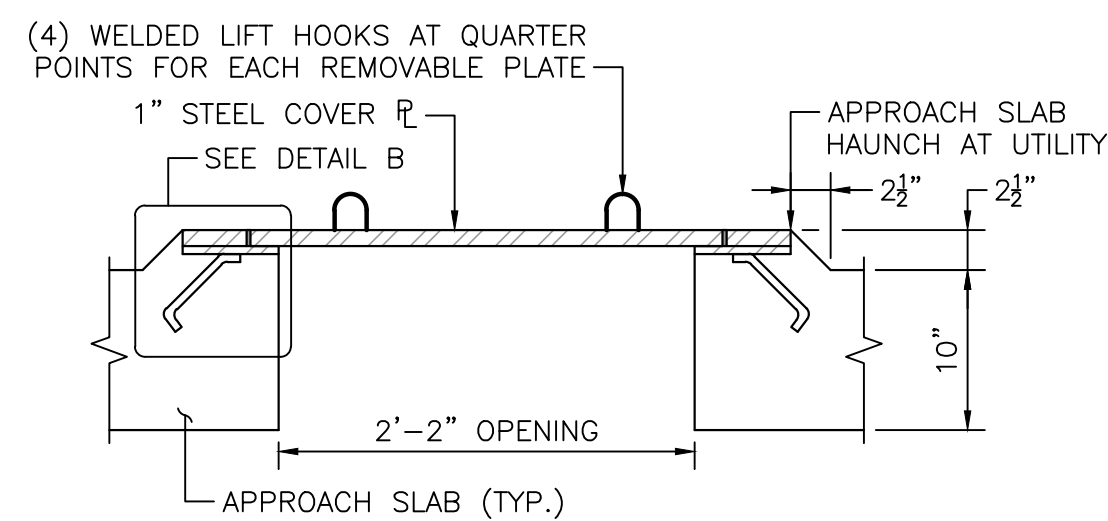
NOTES:
 1. STEEL PLATE AND SHAPES SHALL BE ASTM 36 HOT-DIPPED GALVANIZED.
 2. WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR

PLAN OF APPROACH SLAB OPENING
 SCALE: 1/2" = 1'-0"

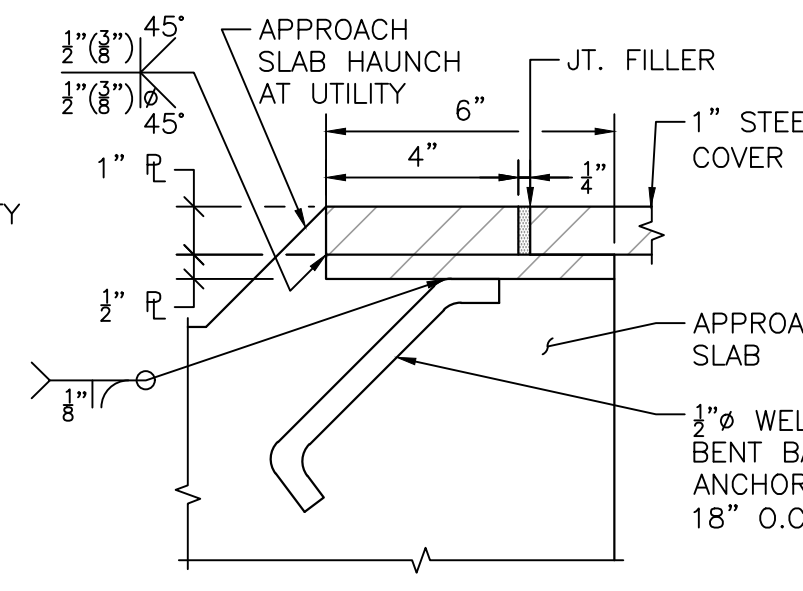


NOTES:
 1. APPROACH SLAB TO BE 5000 PSI HP CEMENT CONCRETE.
 2. PLACE LONGITUDINAL REINFORCEMENT CENTER LINE TO THE BASELINE OF CONSTRUCTION. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.

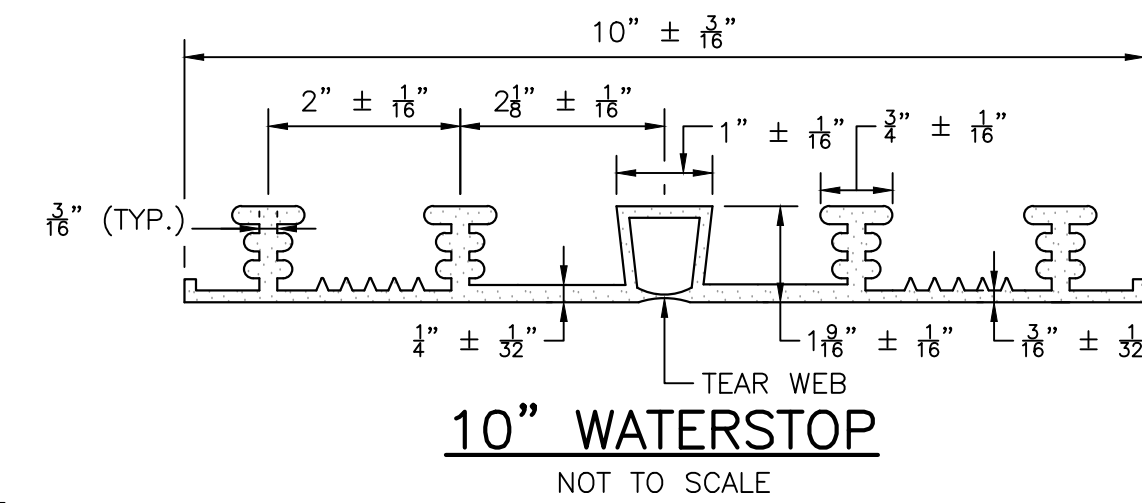
APPROACH SLAB DETAILS
 SCALE: 3/4" = 1'-0"



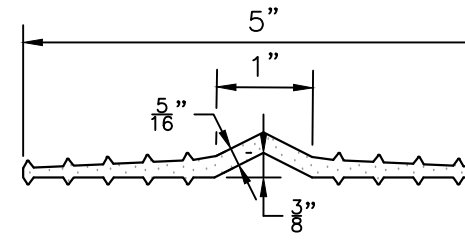
SECTION 9 - AT STEEL PLATE
 SCALE: 1" = 1'-0"



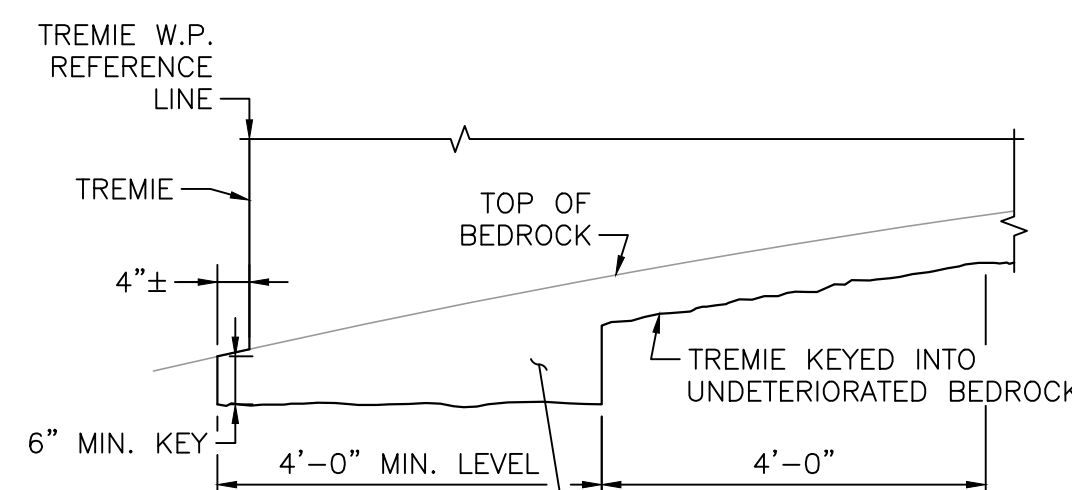
DETAIL B
 SCALE: 3" = 1'-0"



10" WATERSTOP
 NOT TO SCALE

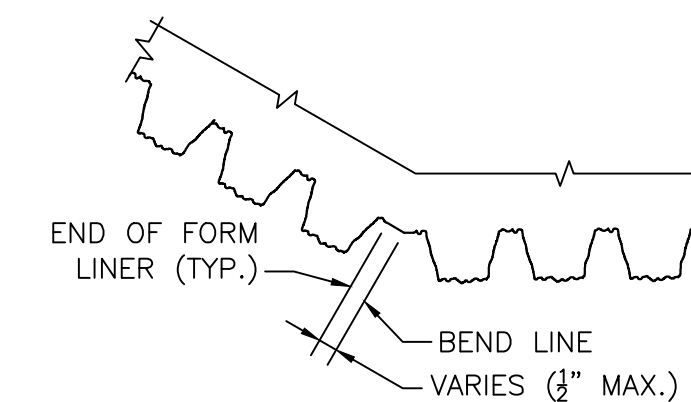


5" WATERSTOP
 NOT TO SCALE

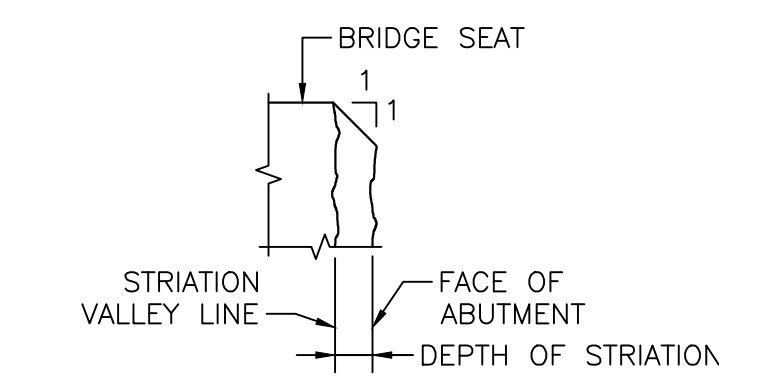


IF BEDROCK SLOPES MORE THAN 15' ALONG THE LENGTH OF THE TREMIE, EXCAVATE A MINIMUM 4'-0" LONG BY 4'-0" WIDE AREA INTO THE BEDROCK EVERY 8'-0"

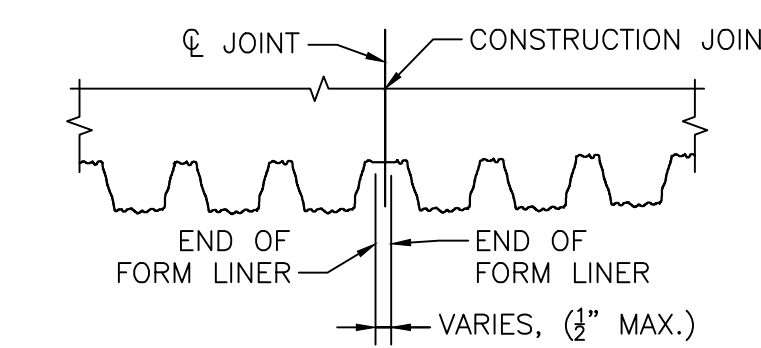
BEDROCK KEY DETAIL
 SCALE: 1/2" = 1'-0"



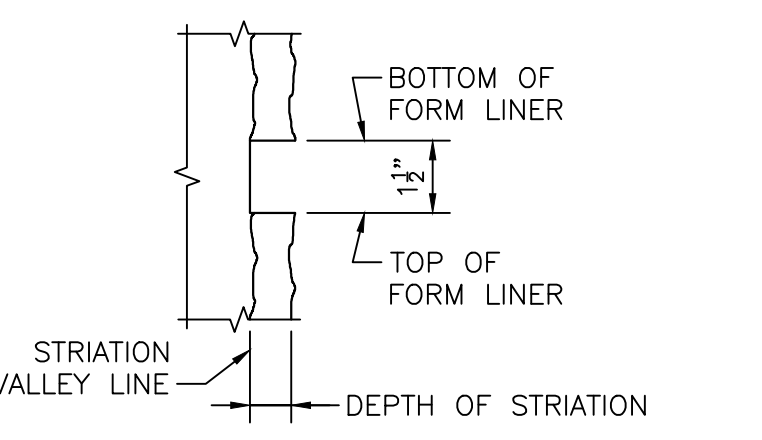
DETAIL AT WALL CORNER
 SCALE: 3" = 1'-0"



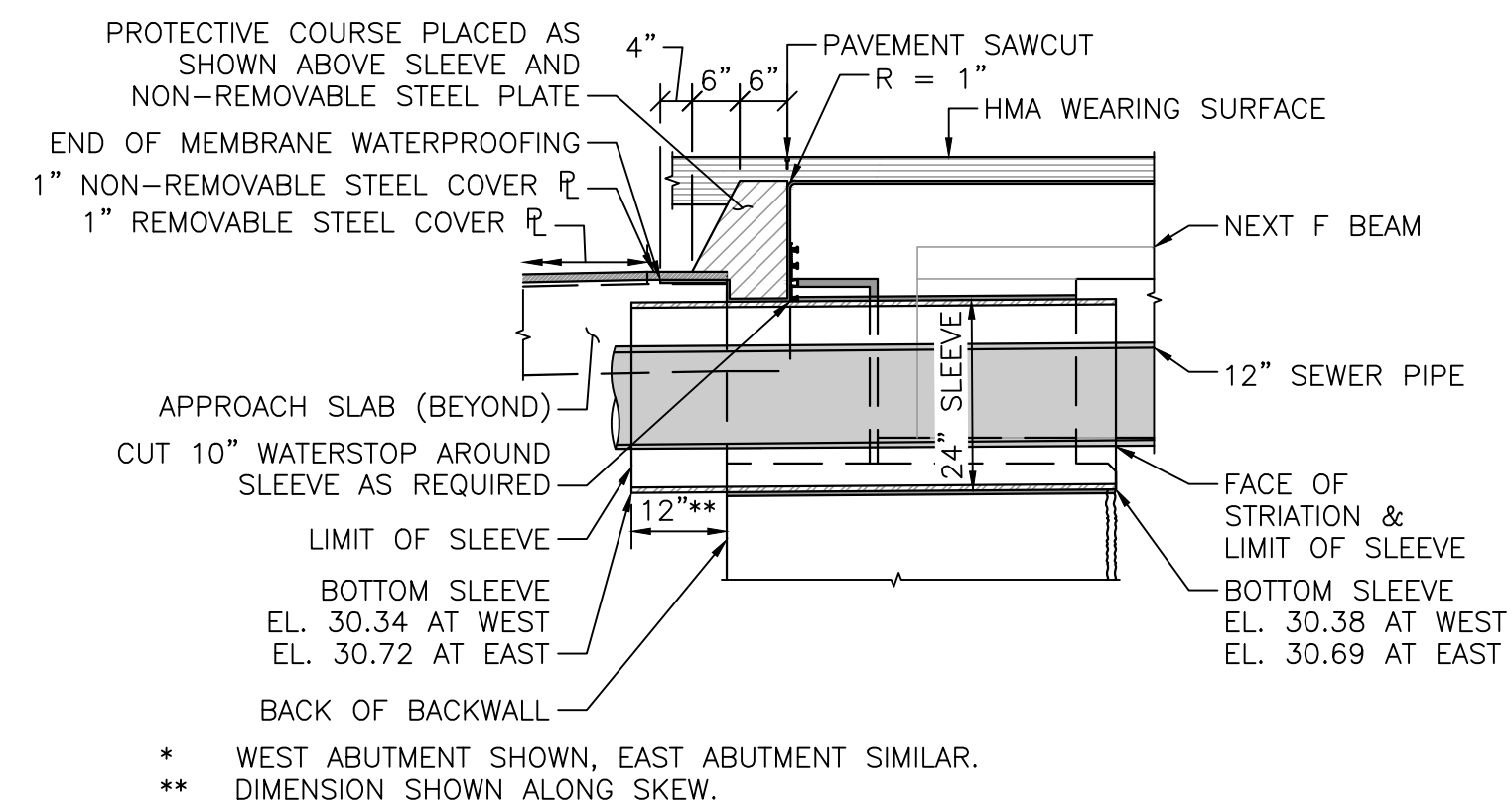
DETAIL AT BRIDGE SEAT
 SCALE: 3" = 1'-0"



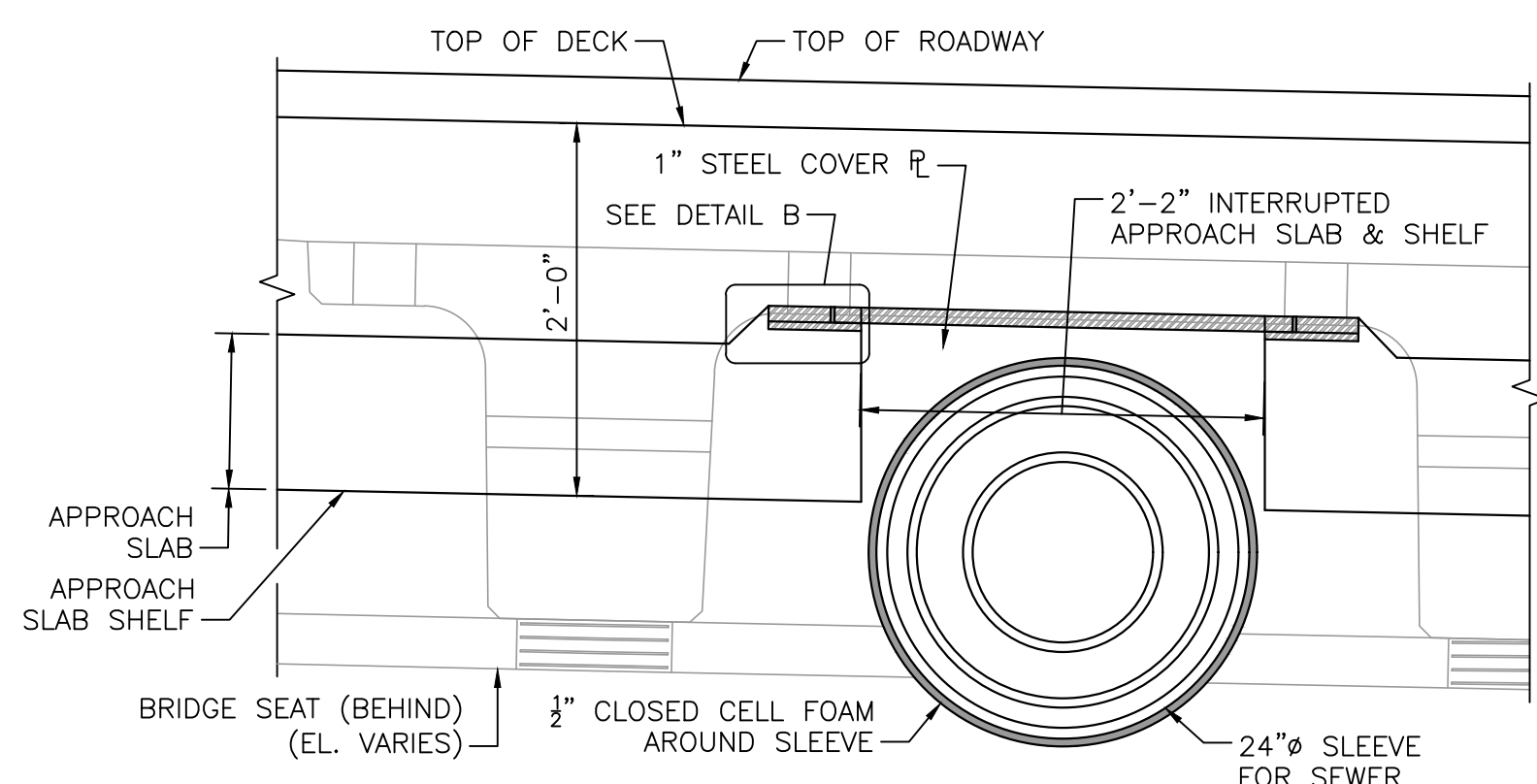
CONSTRUCTION JOINT
 SCALE: 3" = 1'-0"



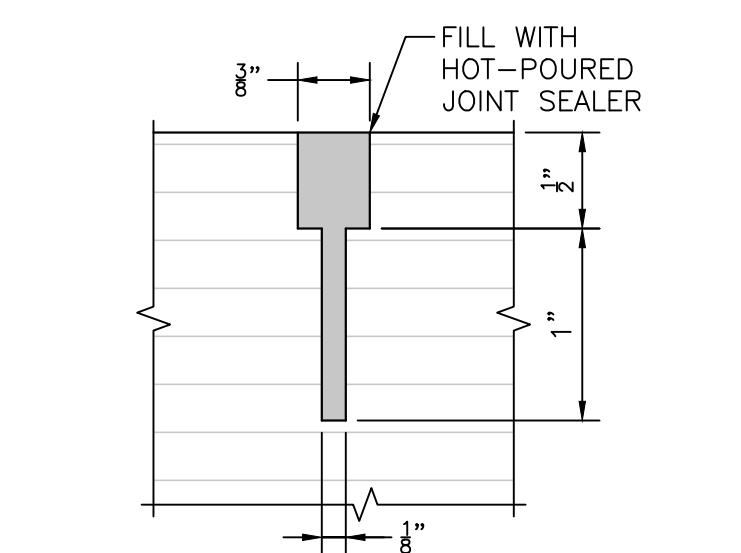
HORIZONTAL PANEL JOINT
 SCALE: 3" = 1'-0"



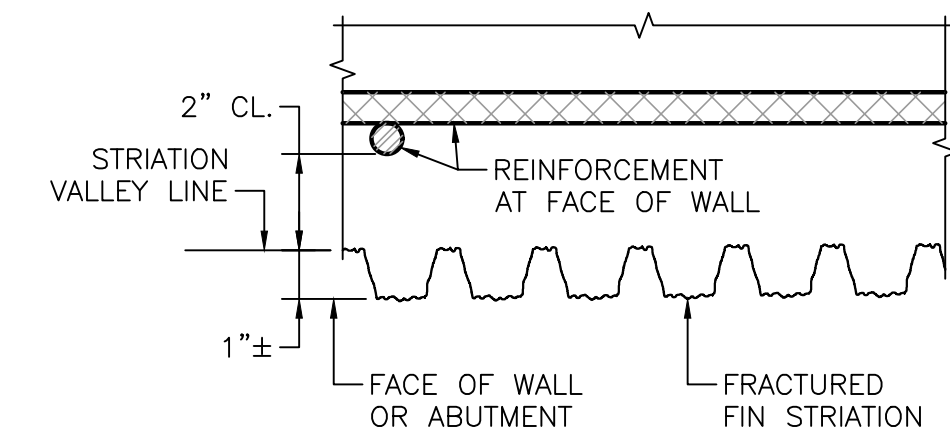
SECTION 8 - SLEEVE THRU ABUTMENT
 SCALE: 1/2" = 1'-0"



PARTIAL BACK OF ABUTMENT WALL ELEVATION
 SCALE: 1" = 1'-0"

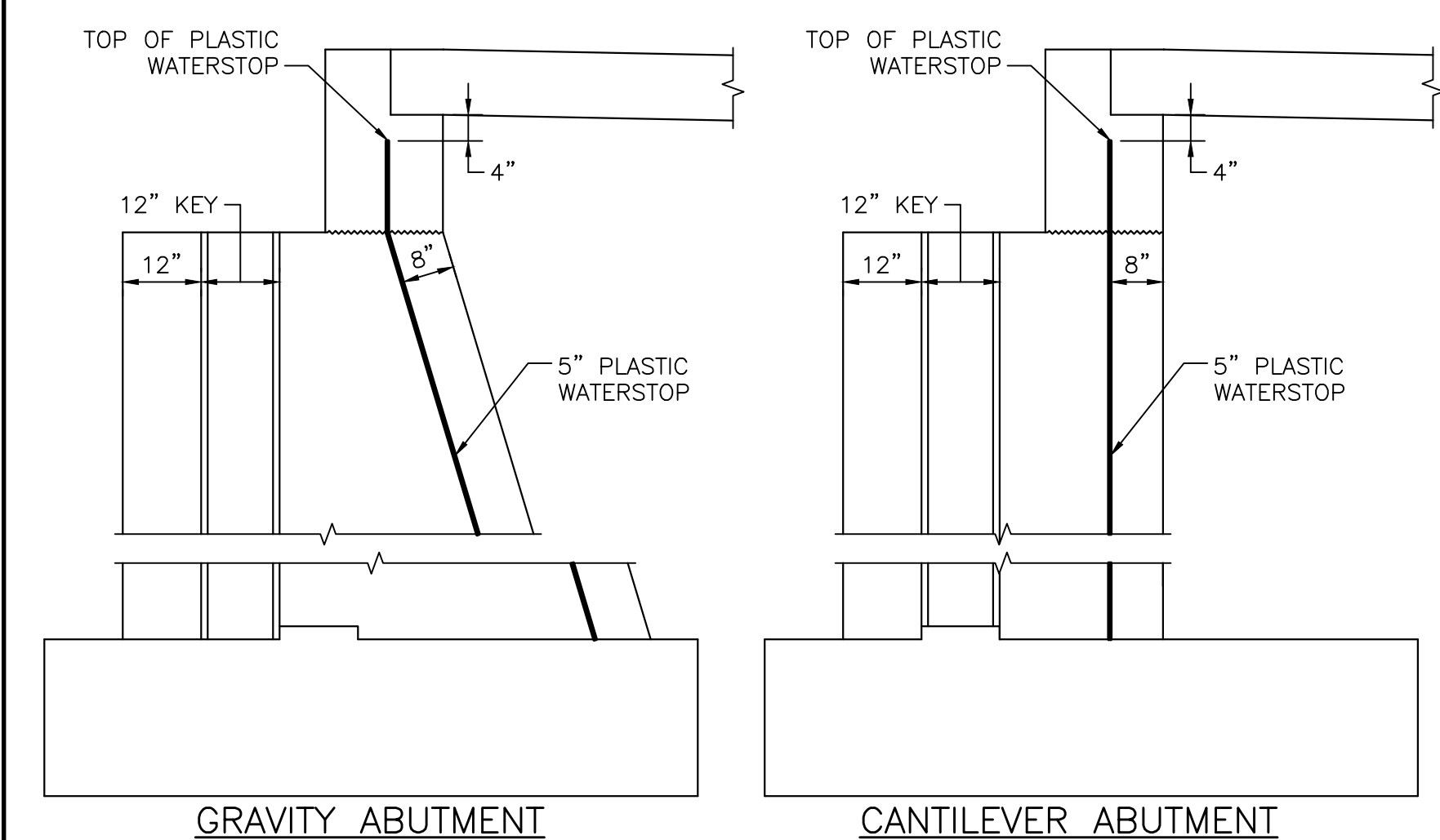


PAVEMENT SAWCUT DETAIL
 FULL SIZE



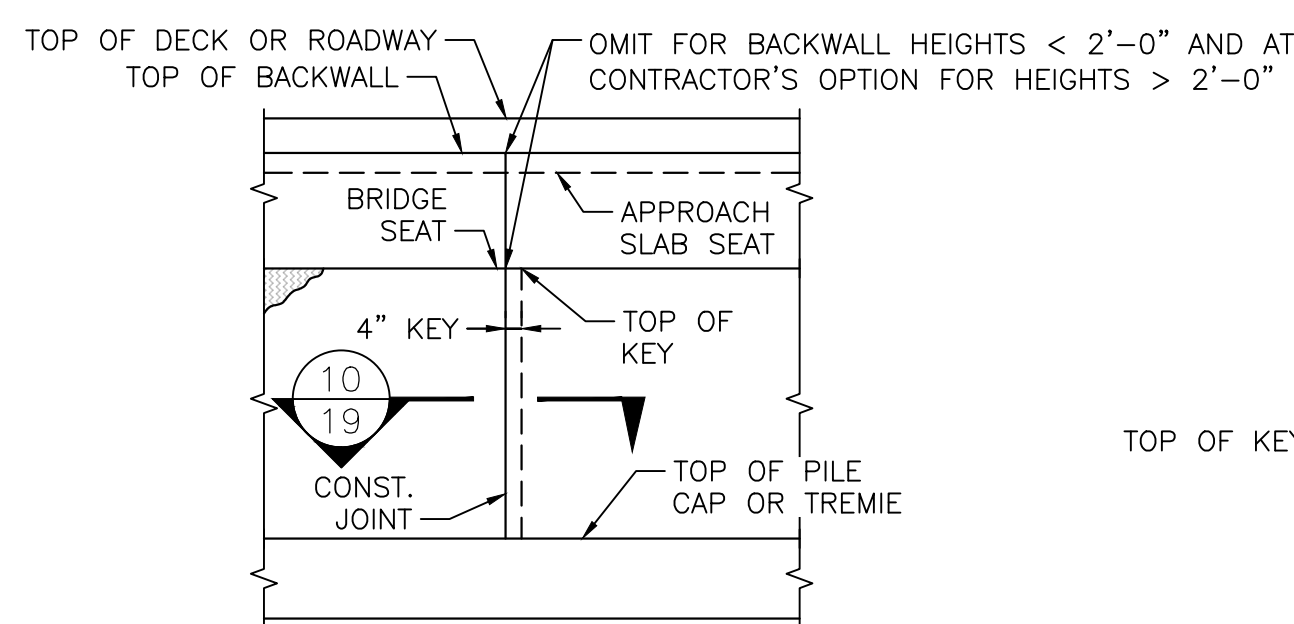
NOTES:
 1. THE CONTRACTOR SHALL MAKE SURE THAT THE STRIATION FINS ARE PLUMB AND LINED UP VERTICALLY FROM PANEL TO PANEL FOR THE FULL HEIGHT OF THE WALL.
 2. THE HORIZONTAL JOINT MAY BE OMITTED IF THE CONTRACTOR CAN DEMONSTRATE THAT THE FORM LINER PANELS CAN BE INSTALLED END TO END WITHOUT CREATING A VISIBLE SEAM IN THE FINAL CAST CONCRETE.

TYPICAL STRIATION DETAIL
 SCALE: 3" = 1'-0"

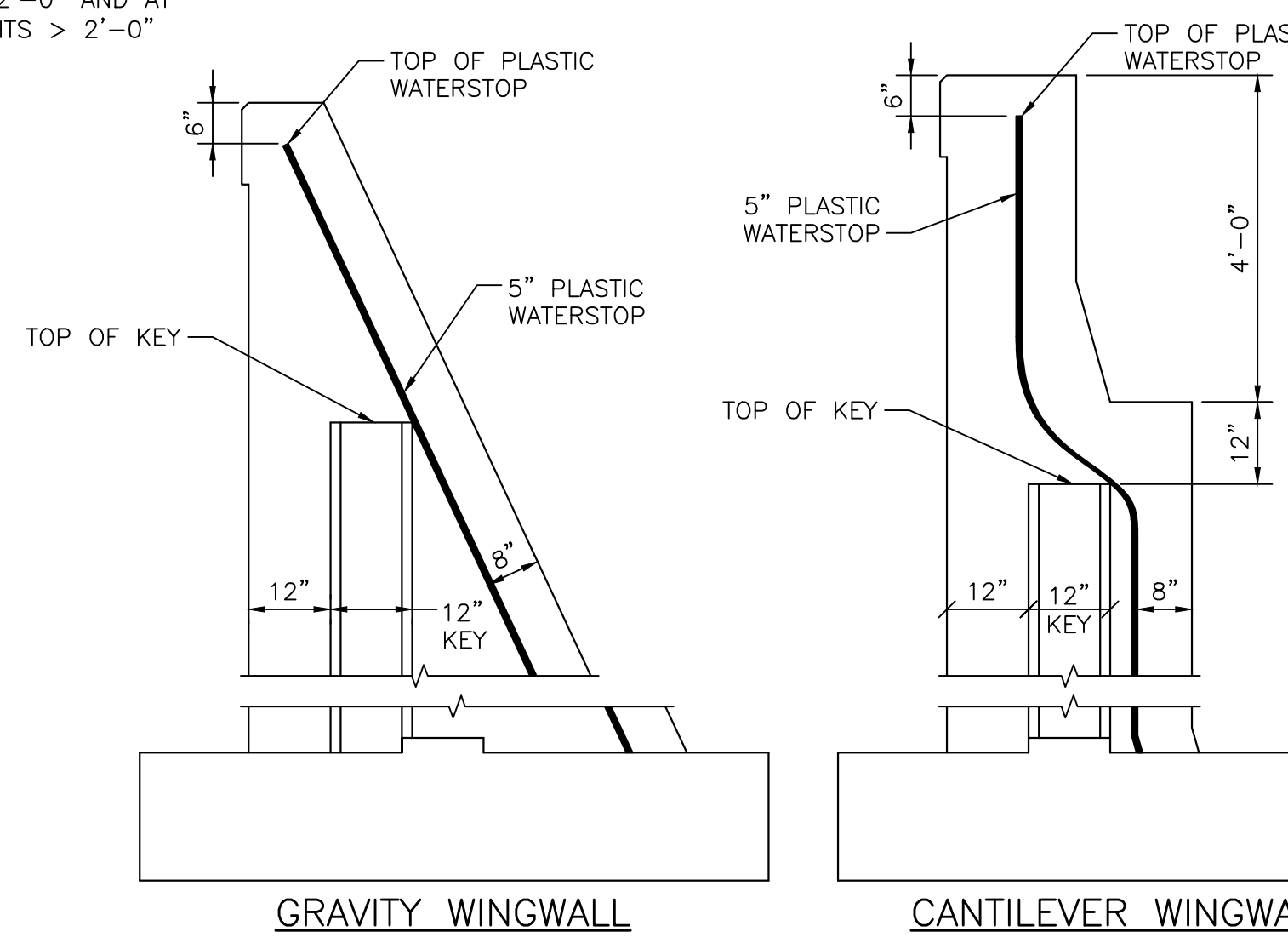


NOTE:
 REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

VERTICAL SECTION THROUGH CONSTRUCTION JOINT
 SCALE: 1/2" = 1'-0"

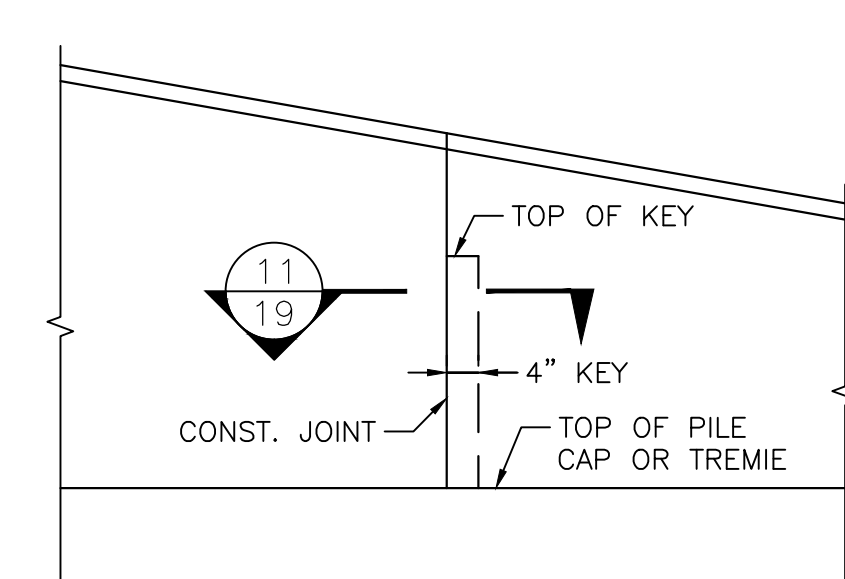


ELEVATION OF ABUTMENT
 NOT TO SCALE

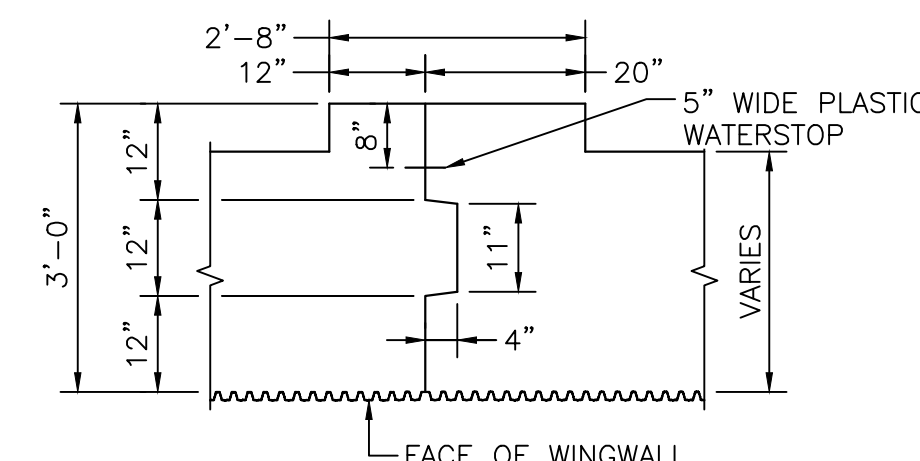


NOTE:
 REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

VERTICAL SECTION THROUGH CONSTRUCTION JOINT
 SCALE: 1/2" = 1'-0"



WINGWALL ELEVATION
 NOT TO SCALE



SECTION 11
 SCALE: 1/2" = 1'-0"

BETA GROUP INC. TEMPLATE (BETA) STANDARD_TEMPL_KIT_1.0.dwg (CIVIL 3D 2024) PLOTSTYLE (BETA) STB.BW (STB) USER(DWING)
 10/15/2024 4:36 PM C:\101056155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\RS(155)_10.DWG

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
MLN/DW

DESIGNED BY:
DW

CHECKED BY:
CWJ/PJK

REGISTERED PROFESSIONAL
 PREPARED BY
 CHRISTOPHER W. JONES
 STRUCTURAL
 No. 41025
 REGISTERED PROFESSIONAL ENGINEER
 10/15/2024



SUBCONSULTANT

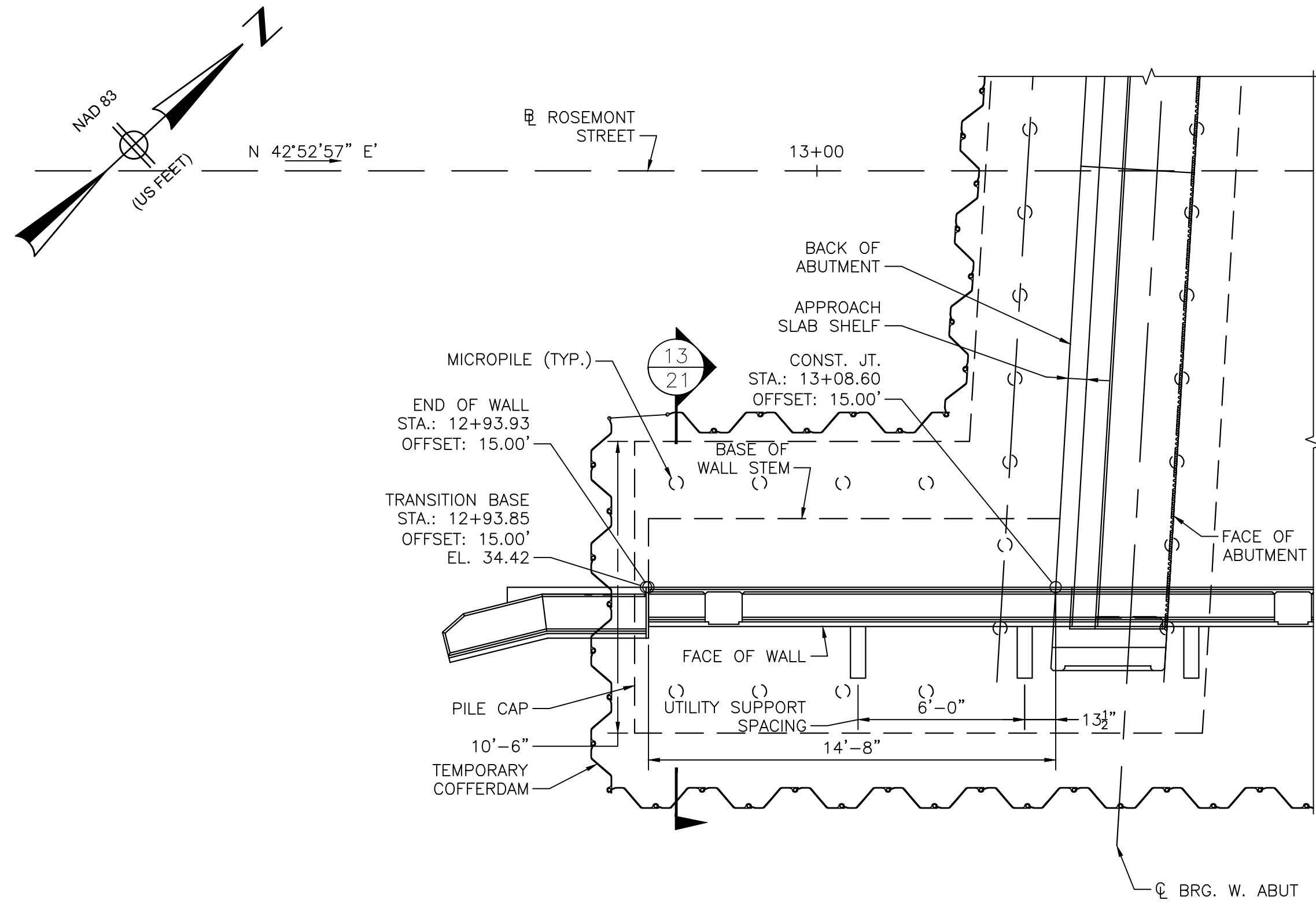
SCALE
AS SHOWN

TITLE

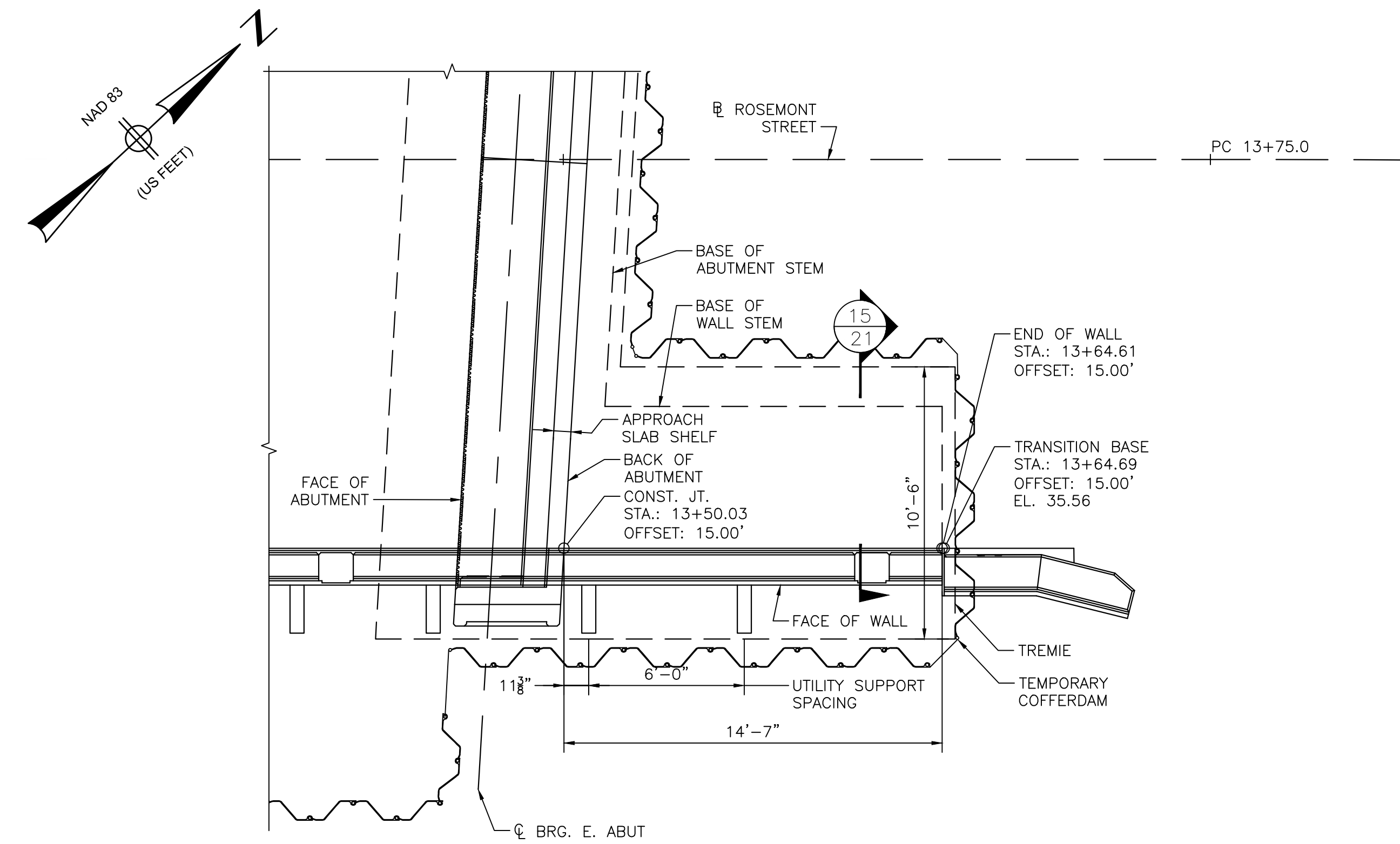
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 SUBSTRUCTURE DETAILS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 19

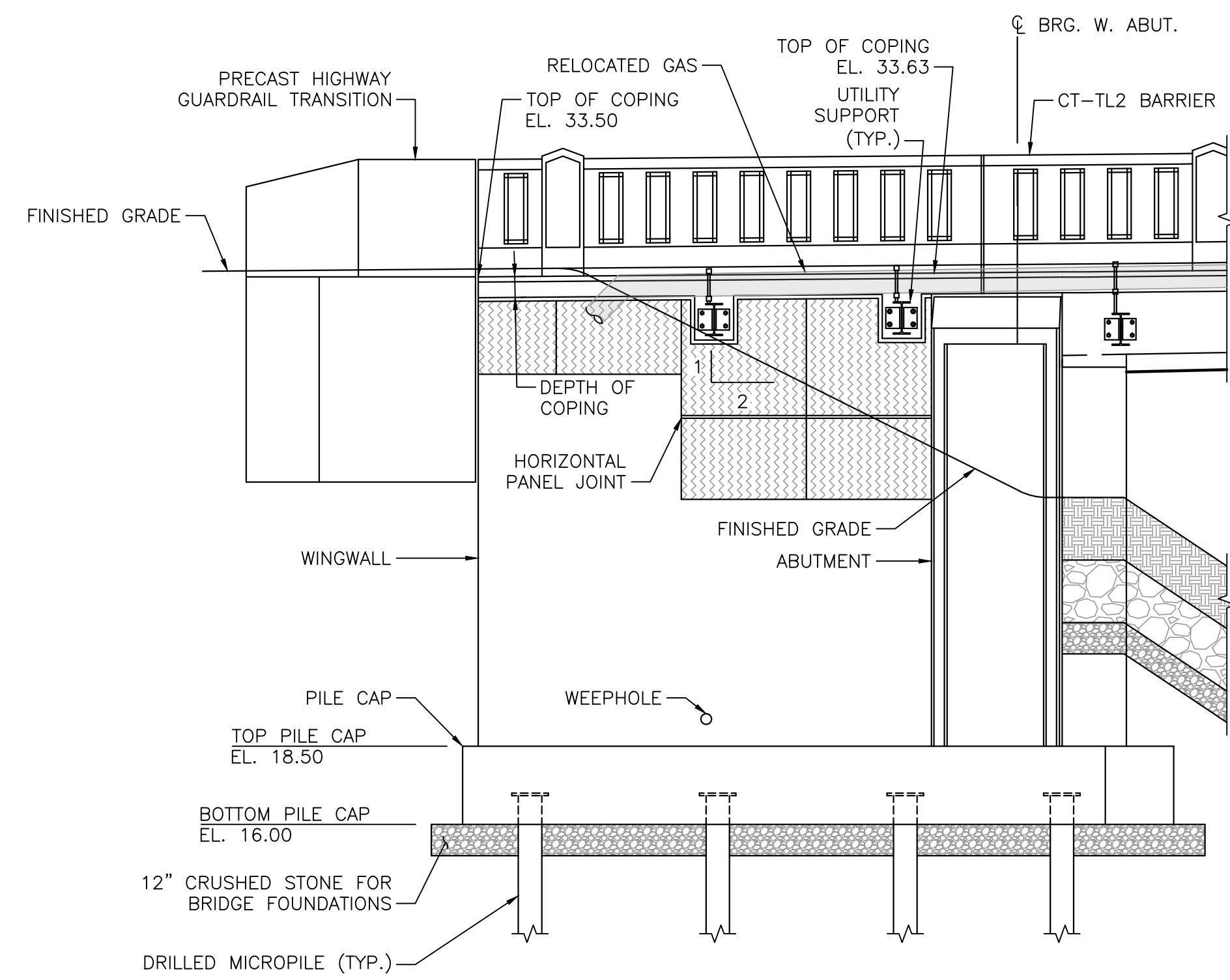
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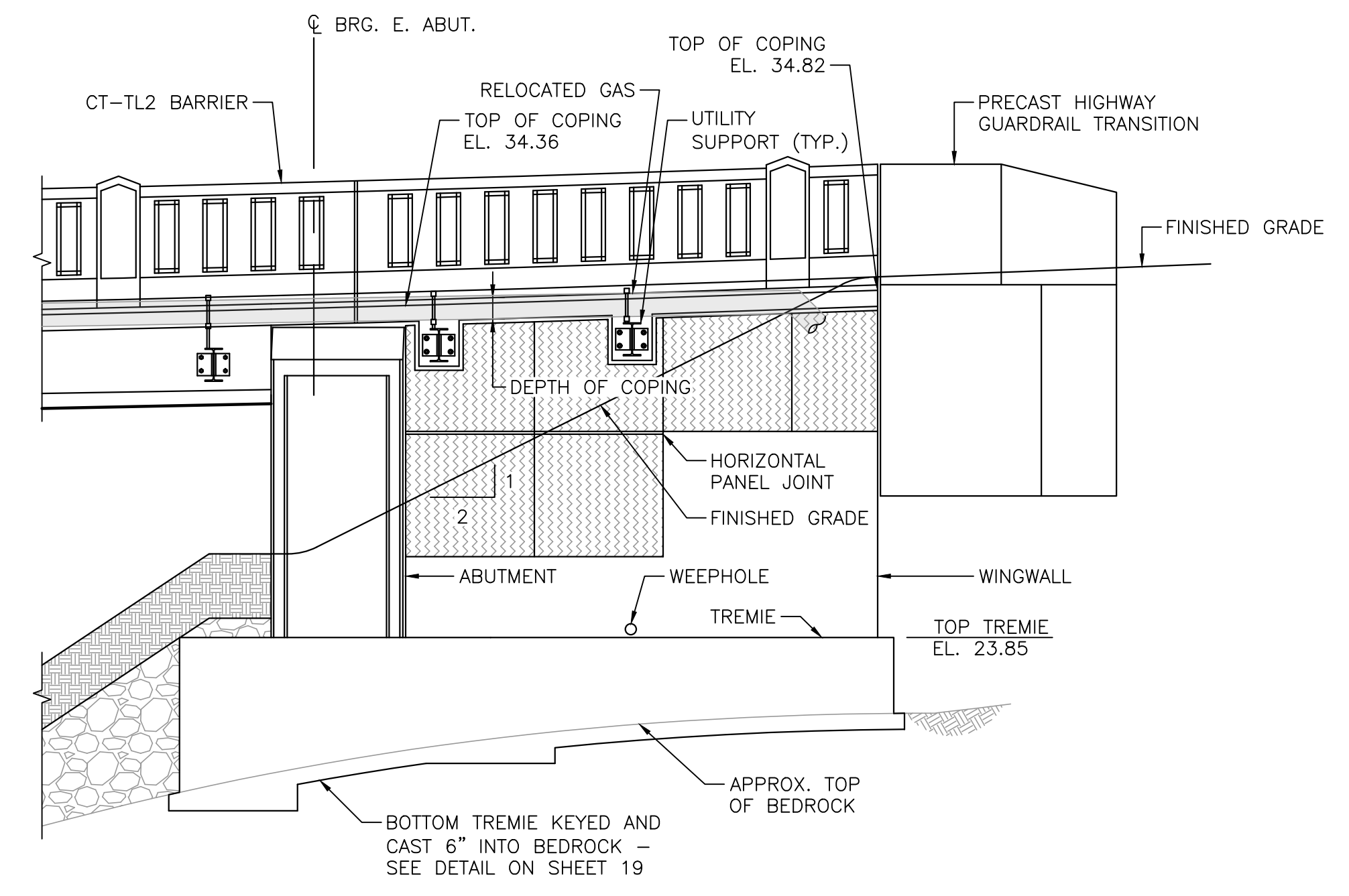
SOUTHWEST WINGWALL PLAN
SCALE: 1/4" = 1'-0"



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



SOUTHWEST WINGWALL ELEVATION
SCALE: 1/4" = 1'-0"

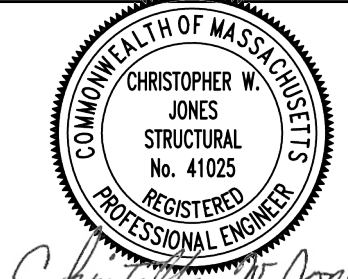



SOUTHEAST WINGWALL ELEVATION
SCALE: 1/4" = 1'-0"

10/15/2024 4:37 PM C:\101056155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\BETA\STB-BW\STB) USER(DWONG) PLOTSTYLE (BETA STB-BW\STB) USER(DWONG)

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
MLN/DW
 DESIGNED BY:
DW
 CHECKED BY:
CWJ/PJK

REGISTERED PROFESSIONAL
 PREPARED BY

 Christopher W. Jones
 10/15/2024

SUBCONSULTANT

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SCALE
 AS SHOWN

TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 SOUTH WINGWALL PLANS & ELEVATIONS
 BRIDGE NO. H-12-024 (CFF)

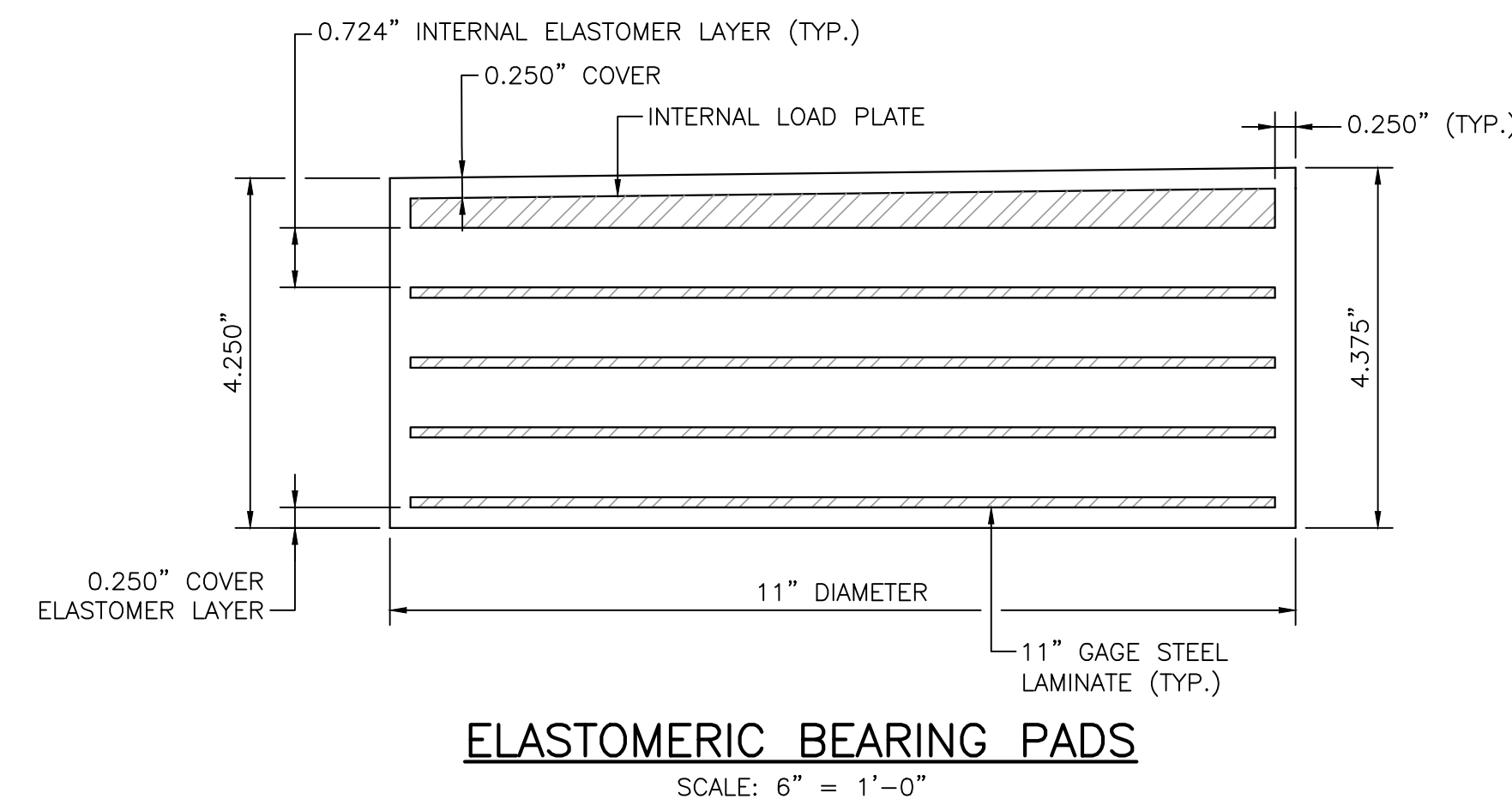
BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 20

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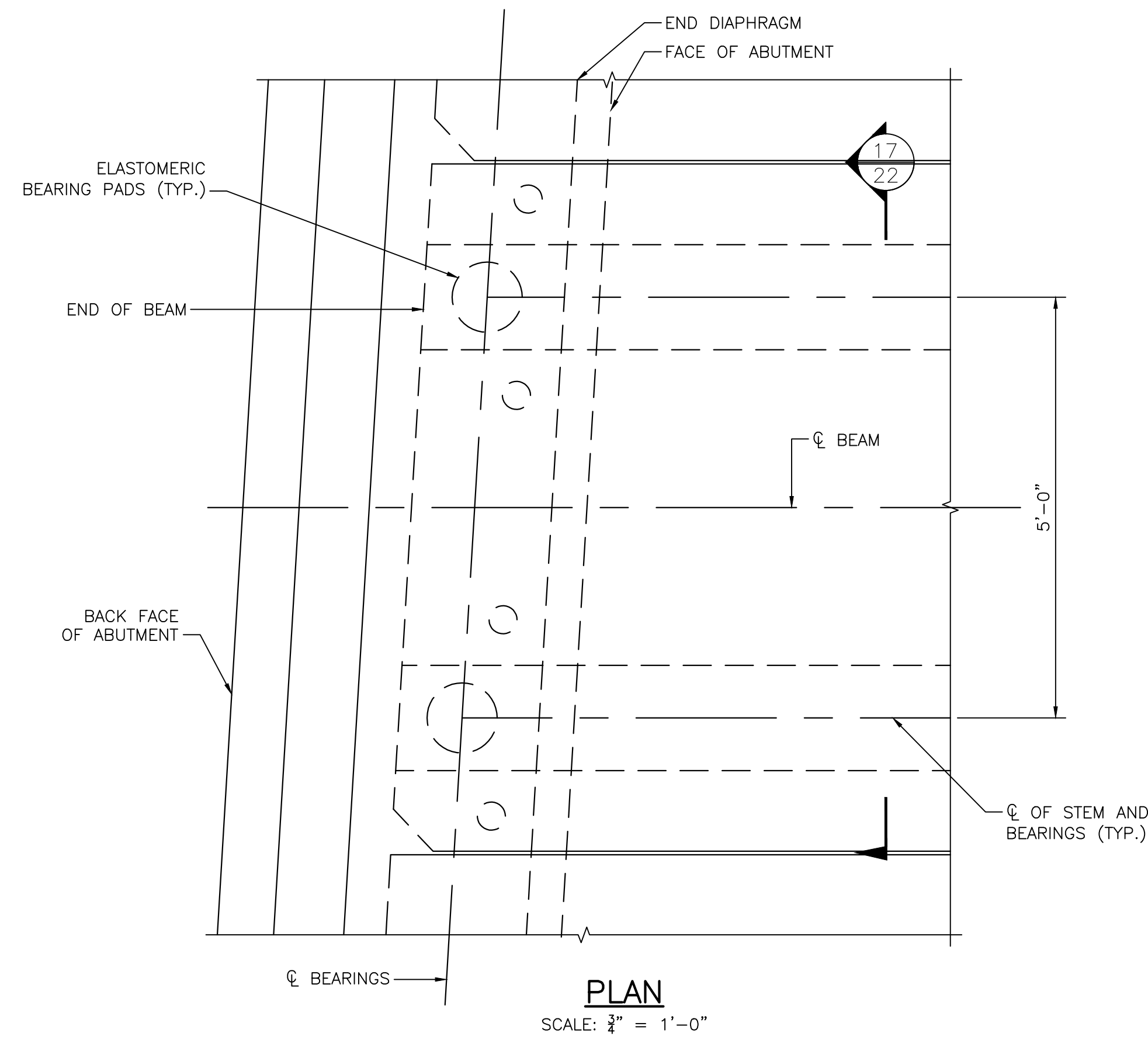
10/15/2024 4:37 PM C:\BETA\GROUP\INC\TEMPLATE\BETA_STANDARD_TEMPLATE_1.0.dwg CIVIL_3D_2024 PLOTSTYLE (BETA_STB.BV1.STB) USER(DWONG)

NOTES:

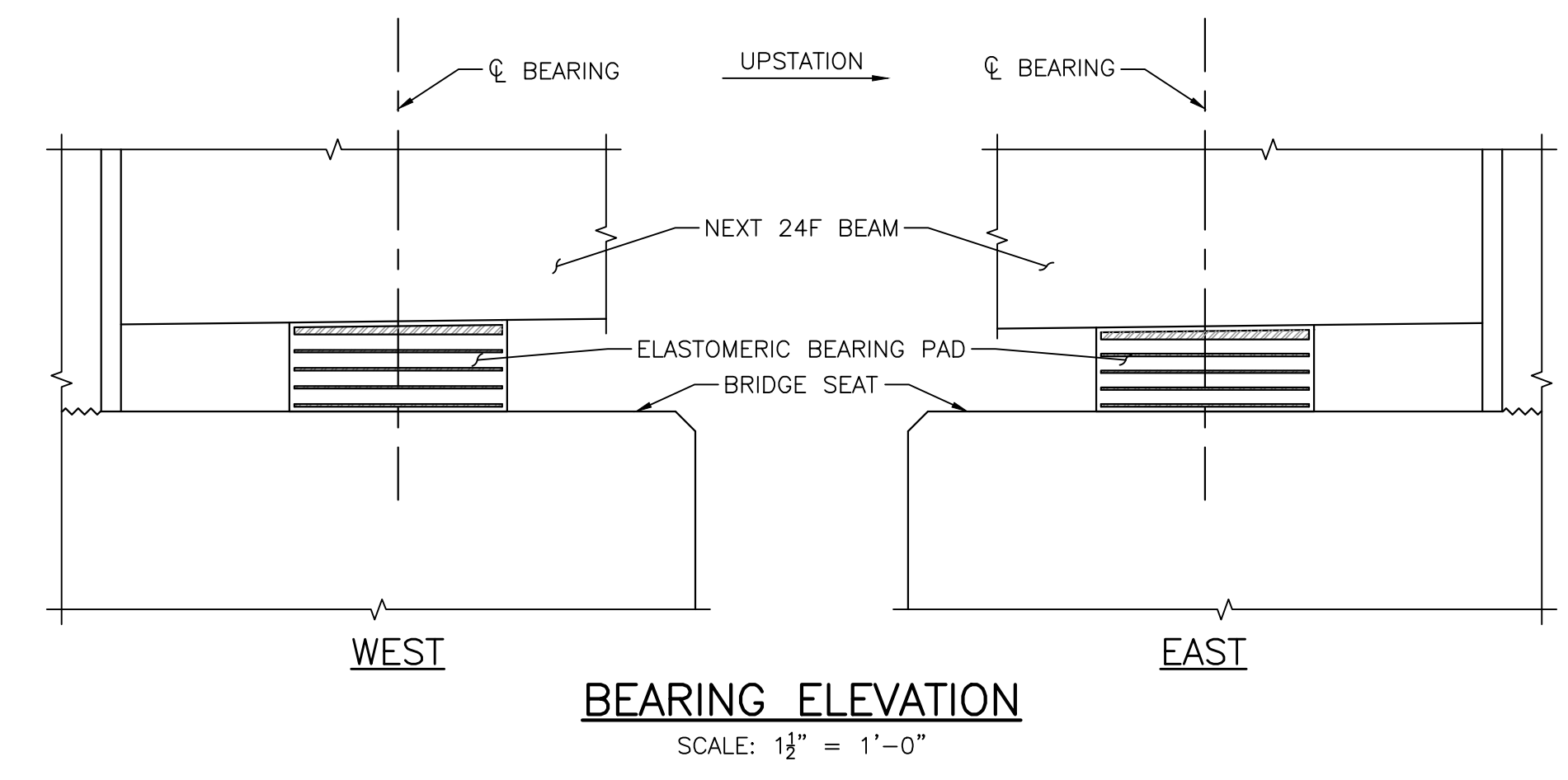
1. BEARING IS DESIGNED USING AASHTO METHOD B.
2. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
3. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36 OR HIGHER. ALL EDGES OF STEEL LAMINATES SHALL BE GROUND SMOOTH.
4. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 58.91 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.62 KSI.
5. THE 25 YEAR CREEP STRAIN SHALL BE LIMITED TO 35%.
6. TAPERED INTERNAL LOAD PLATE SHALL CONFORM TO AASHTO M 270 GRADE 36 OR GRADE 50. ALL EDGES OF TAPERED INTERNAL LOAD PLATE SHALL BE GROUND SMOOTH.
7. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDED THE BEARING LOCATION ON THE BRIDGE, AND A $\frac{1}{32}$ " DEEP DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER BEARING IS INSTALLED.
8. BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 30°F AND 90°F. IF BEAMS ARE ERECTED AT OTHER AMBIENT TEMPERATURES, THEY WILL HAVE TO BE JACKED AND THE ELASTOMERIC BEARINGS RECENTERED WHEN THE TEMPERATURE RETURNS TO THAT RANGE.



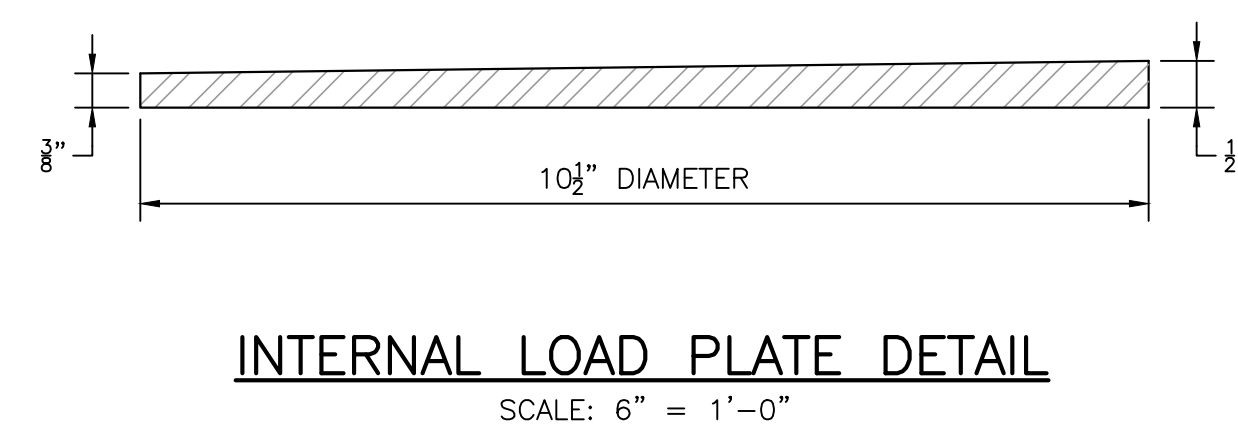
ELASTOMERIC BEARING PADS
SCALE: 6" = 1'-0"



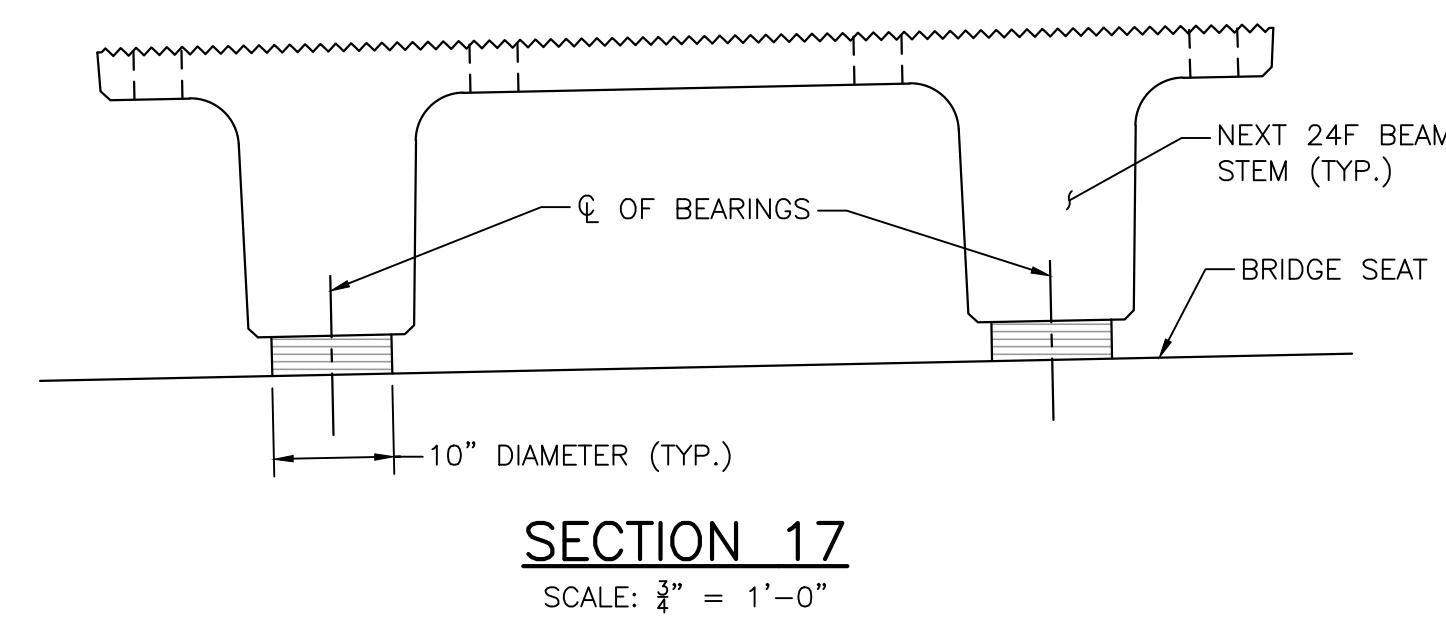
PLAN
SCALE: $\frac{3}{4}$ " = 1'-0"



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



INTERNAL LOAD PLATE DETAIL
SCALE: 6" = 1'-0"



SECTION 17
SCALE: $\frac{3}{4}$ " = 1'-0"

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
 DESIGNED BY: DW
 CHECKED BY: CWJ/PJK

REGISTERED PROFESSIONAL ENGINEER
 CHRISTOPHER W. JONES
 STRUCTURAL
 No. 41025
 10/15/2024

PREPARED BY: **BETA**
 www.BETA-Inc.com

SUBCONSULTANT

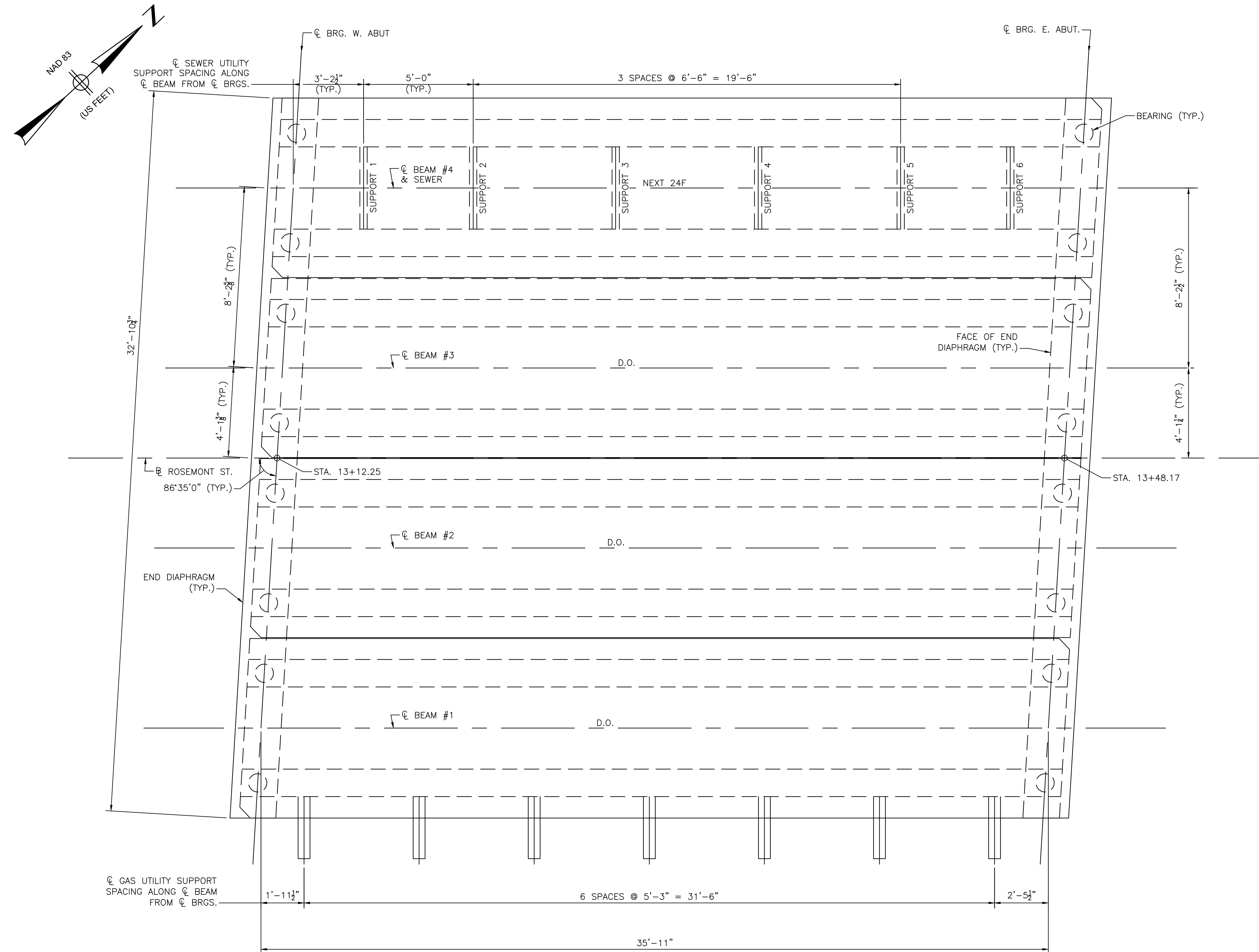
SCALE: AS SHOWN

**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 BEARING DETAILS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
 SHEET NO. 22

FRAMING PLAN NOTES:

1. FOR NEXT 24F BEAM DETAILS, SEE SHEET 24.
2. FOR END DIAPHRAGM PLAN AND ELEVATION, SEE SHEET 25.
3. SEE UTILITY SUPPORT DETAILS ON SHEET 26. FOR ADDITIONAL UTILITY SPACING ALONG THE WINGWALLS, REFER TO SHEET 20.



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

BETA GROUP INC. TEMPLATE (BETA STANDARD TEMPLATE - 1.0.2024) CIVIL 3D (CIVIL 3D 2024) PLOTSTYLE (BETA STB.BV1.STB) USER(DWONG)
10/15/2024 4:38 PM C:\B1\056155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\SR(155_14).DWG

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
DESIGNED BY: DW
CHECKED BY: CWJ/PJK

REGISTERED PROFESSIONAL

 PREPARED BY

 10/15/2024

SUBCONSULTANT

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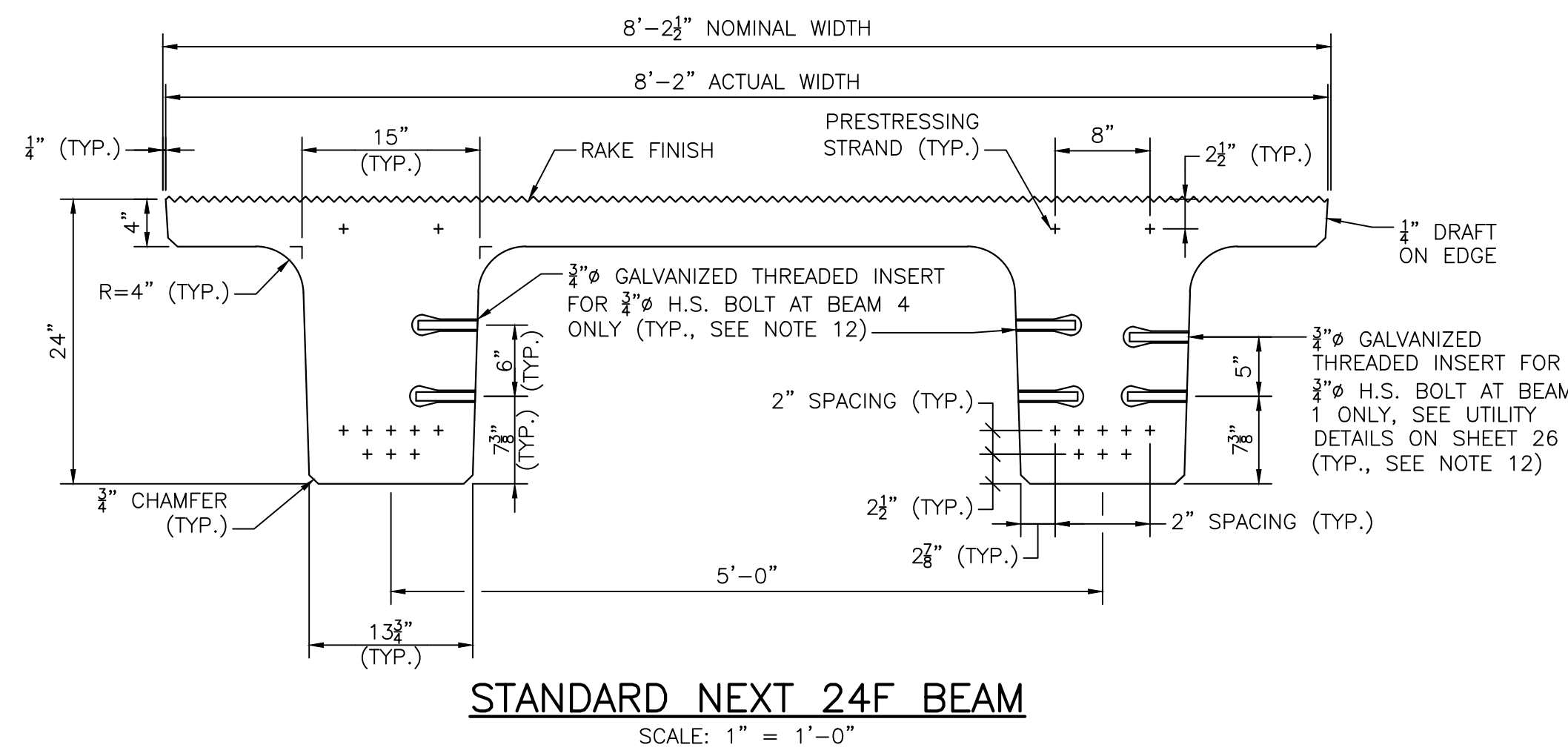
SCALE AS SHOWN

TITLE ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS FRAMING PLAN BRIDGE NO. H-12-024 (CFF)
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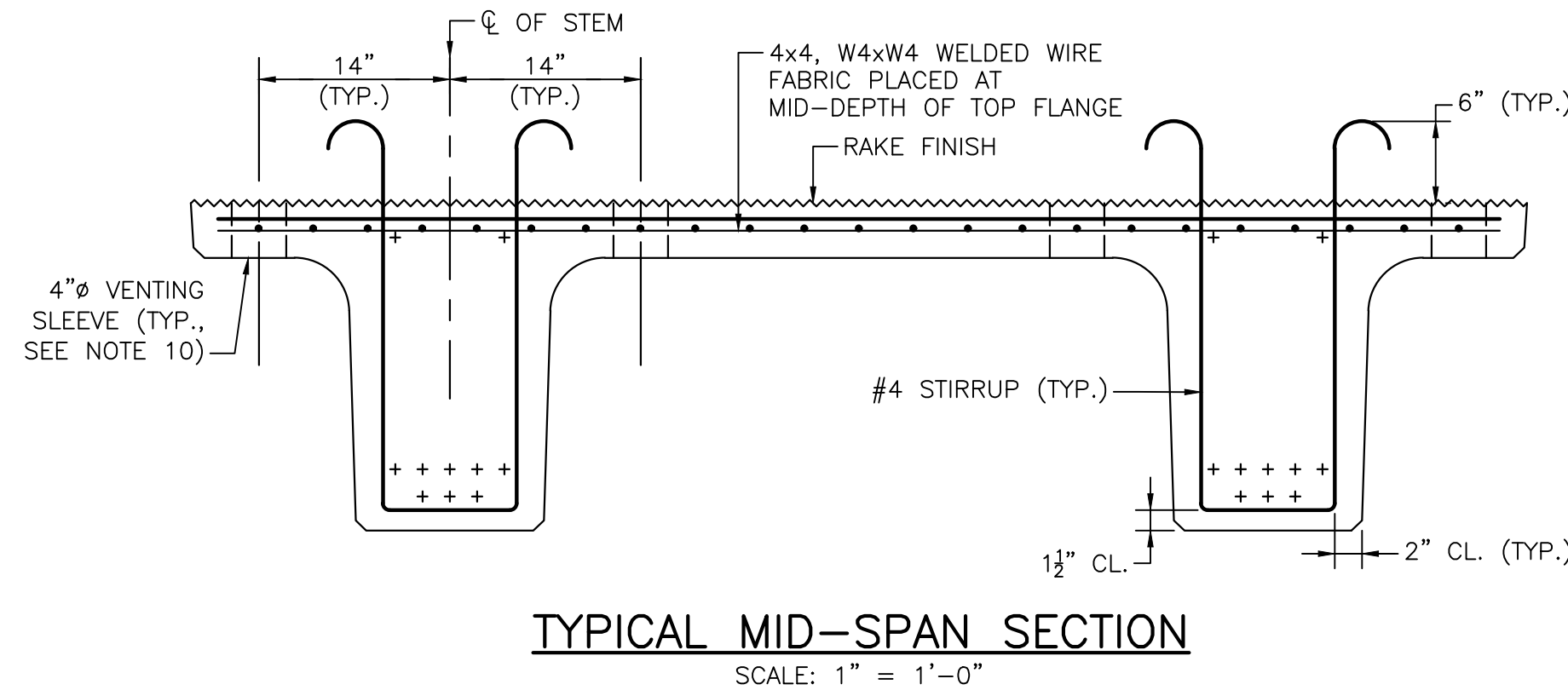
BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 23

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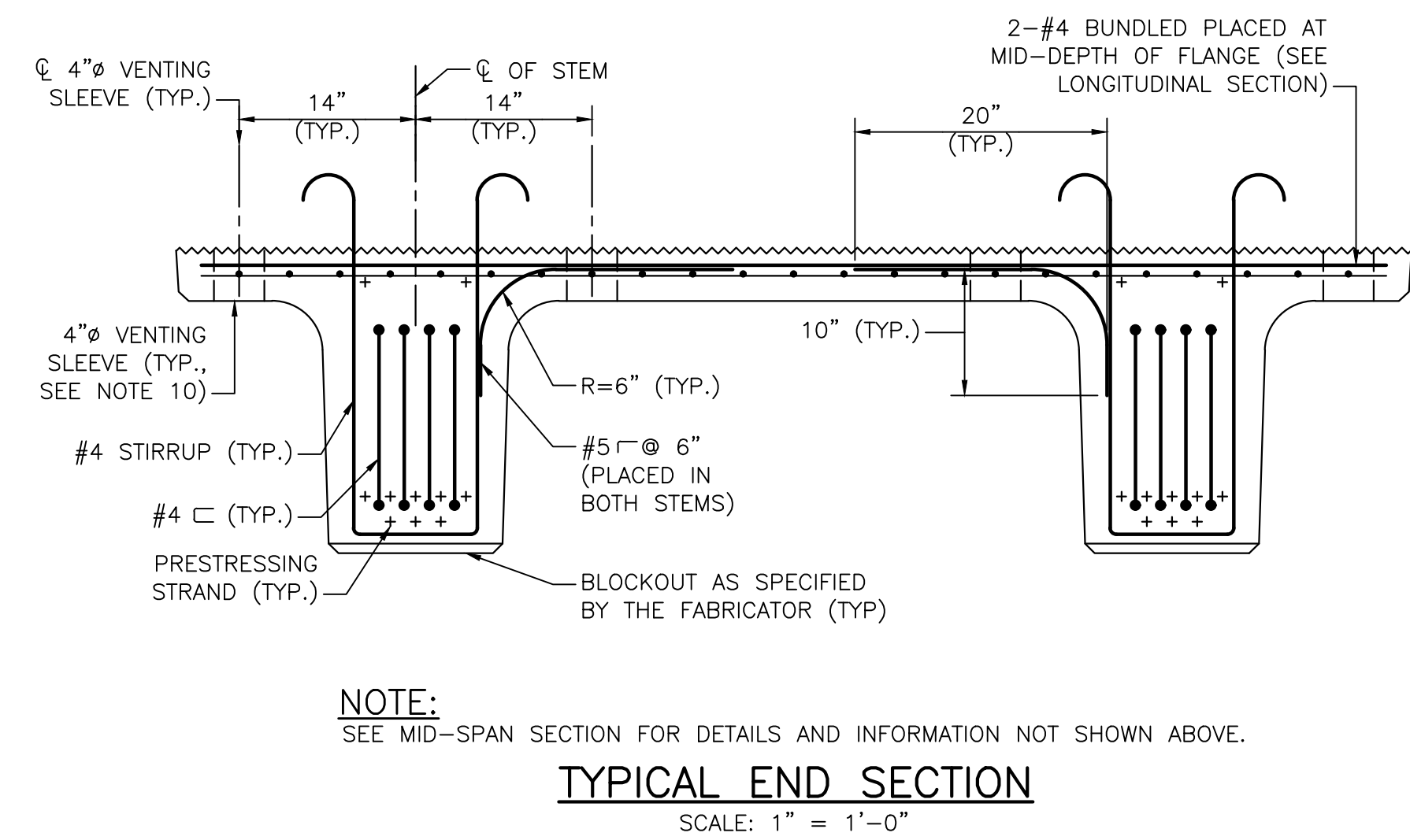
BETA GROUP, INC. TEMPLATE (BETA) STANDARD TEMPLATE - 1.0 (2024) CIVIL 3D (2024) PLOTSTYLE (BETA) STB (BIV) (STB) USER (DWG) 10/15/2024 4:38 PM C:\PROJECTS\155-HAVERHILL-ROSEMONT ST BRIDGE\DRAWING FILES\PLANSET\155-15.DWG



STANDARD NEXT 24F BEAM
SCALE: 1" = 1'-0"

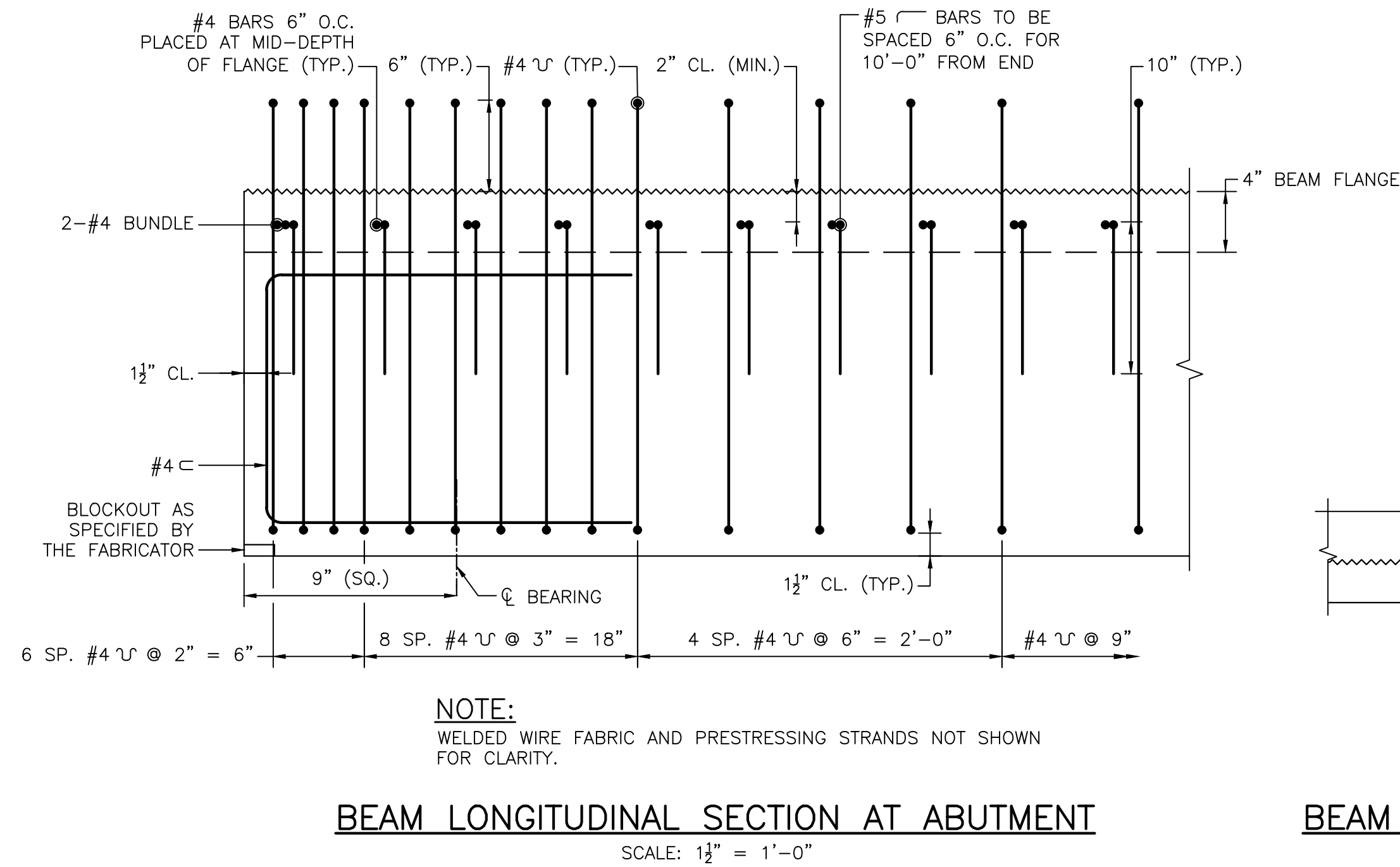


TYPICAL MID-SPAN SECTION
SCALE: 1" = 1'-0"

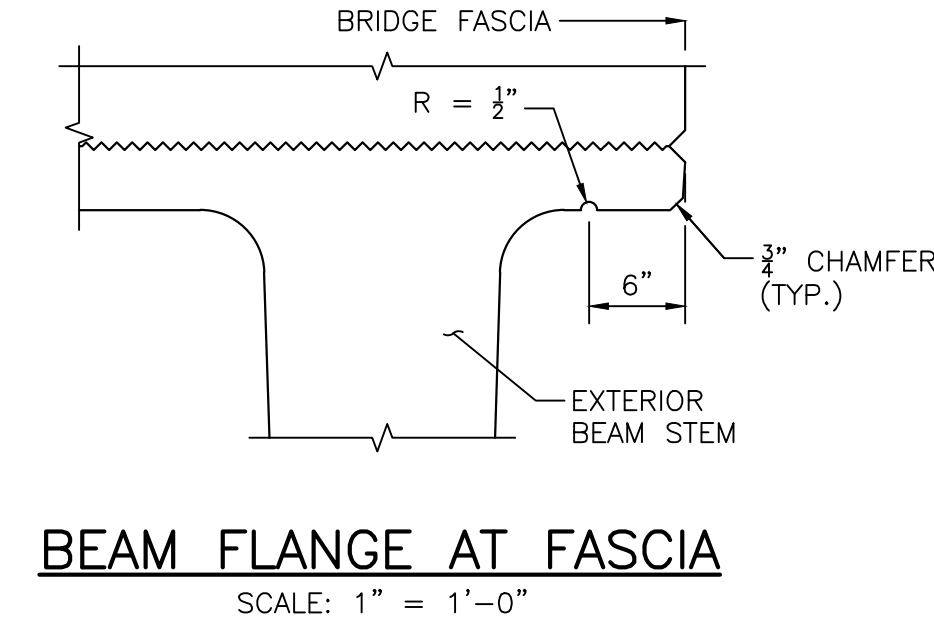


NOTE:
SEE MID-SPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

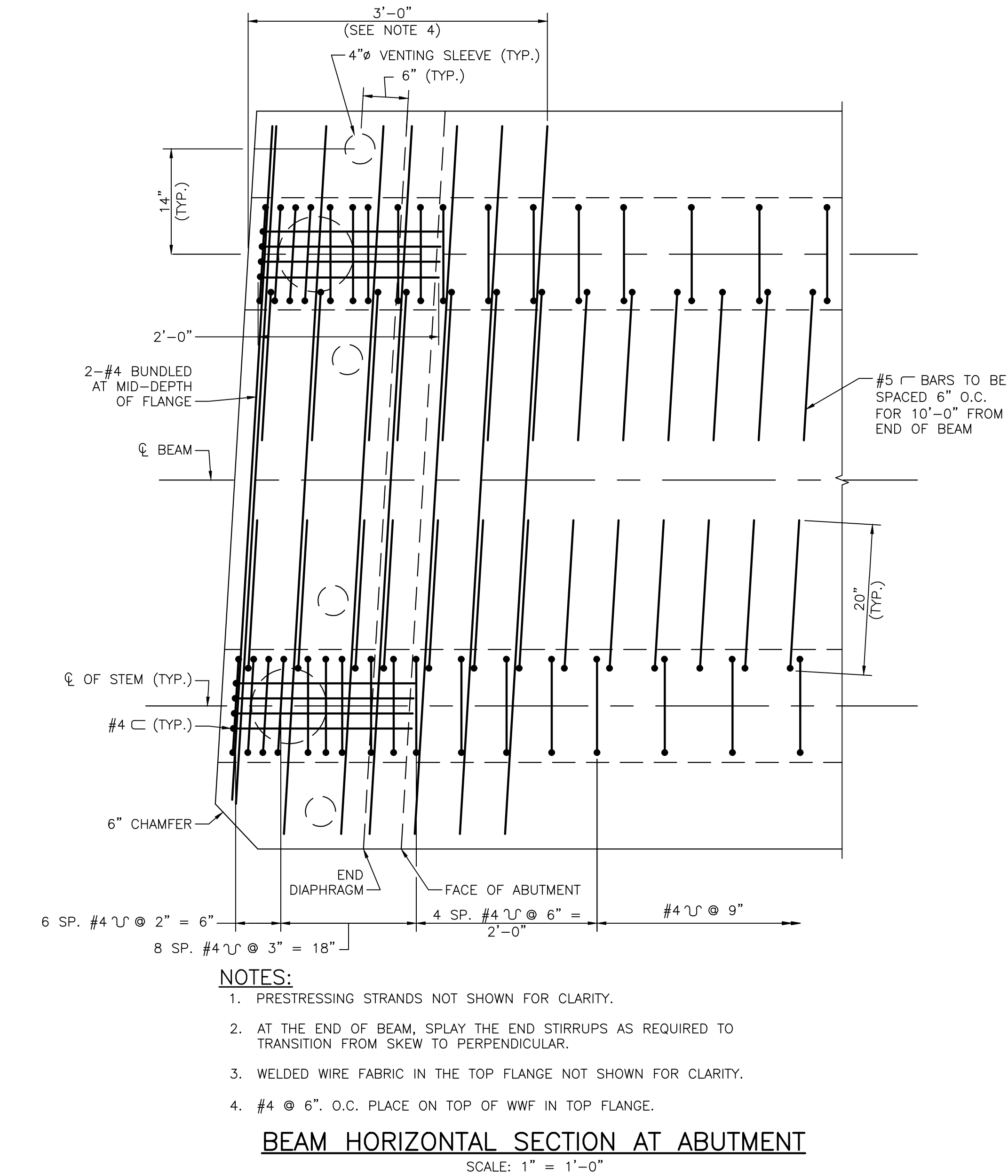
TYPICAL END SECTION
SCALE: 1" = 1'-0"



BEAM LONGITUDINAL SECTION AT ABUTMENT
SCALE: 1/2" = 1'-0"



BEAM FLANGE AT FASCIA
SCALE: 1" = 1'-0"



- NOTES:**
- PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.
 - AT THE END OF BEAM, SPREAD THE END STIRRUPS AS REQUIRED TO TRANSITION FROM SKEW TO PERPENDICULAR.
 - WELDED WIRE FABRIC IN THE TOP FLANGE NOT SHOWN FOR CLARITY.
 - #4 @ 6" O.C. PLACE ON TOP OF WWF IN TOP FLANGE.

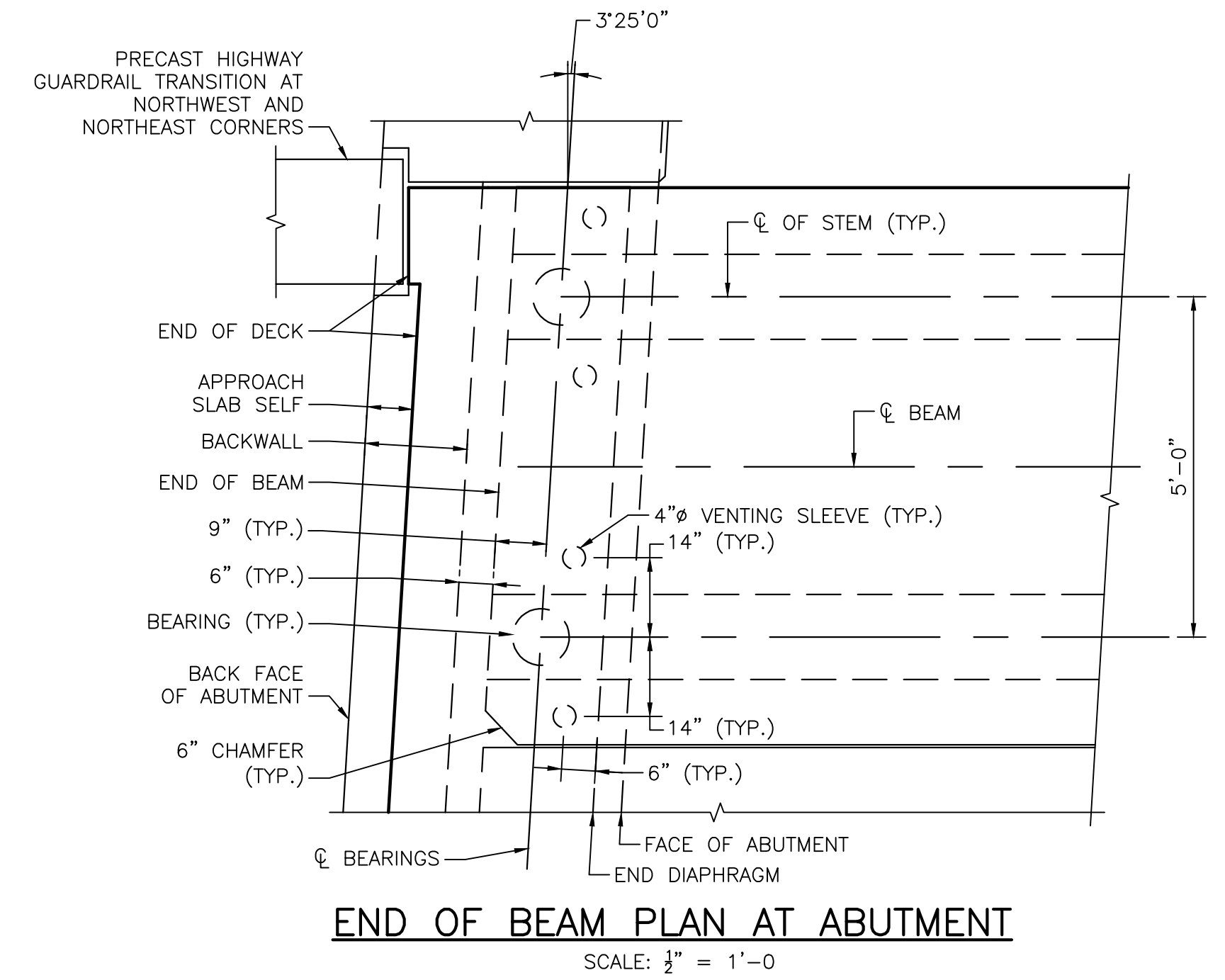
BEAM HORIZONTAL SECTION AT ABUTMENT
SCALE: 1" = 1'-0"

LEGEND:

+ DENOTES PRESTRESSING STRAIGHT STRANDS

PRESTRESS NOTES:

- ALL PRETENSIONING ELEMENTS SHALL BE 0.6"Ø, UNCOATED, SEVEN-WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M 203.
- THE NOMINAL TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270 KSI.
- THE INITIAL TENSION PER 0.6"Ø STRAND SHALL BE 44 KIPS.
- THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 8000 PSI.
- NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY A CYLINDER TEST, OF AT LEAST 6000 PSI.
- THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKED FINISH (1/2" AMPLITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).
- THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES AND BEAM STRESSES DURING LIFTING AND HANDLING WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
- ALL REINFORCEMENT IN THESE DETAILS SHALL BE EPOXY COATED.
- STRANDS SHOWN ARE TYPICAL EACH BEAM.
- 4" Ø VENTING SLEEVES SHALL BE PLACED 6" FROM THE FACE OF ABUTMENT.
- TO CONTROL CRACKING AT THE END OF THE BEAM, THE FABRICATOR SHALL DEBOND APPROXIMATELY 50% OF STRANDS FOR THE FIRST 6" FROM THE END OF THE BEAM.
- THE 3/8" Ø GALVANIZED THREADED INSERTS FOR 3/8" Ø H.S. BOLTS SHALL BE CAST INTO THE PRECAST BEAMS BY THE FABRICATOR. THEY SHALL PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 4.0 KIPS AND A MINIMUM NOMINAL SHEAR RESISTANCE OF 4.0 KIPS IN 3000 PSI CONCRETE.



END OF BEAM PLAN AT ABUTMENT
SCALE: 1/2" = 1'-0"

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
DESIGNED BY: DW
CHECKED BY: CWJ/PJK



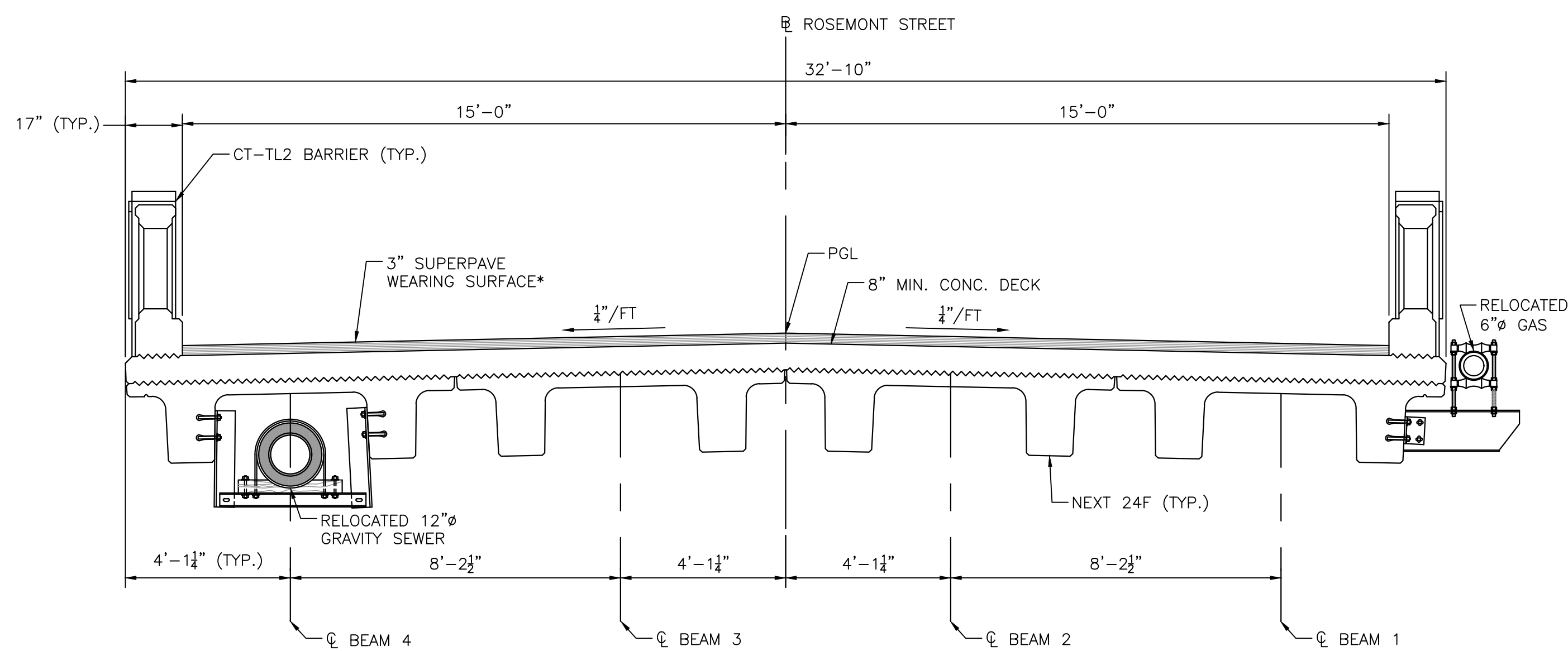
REGISTERED PROFESSIONAL	PREPARED BY	SUBCONSULTANT	SCALE	TITLE
			AS SHOWN	ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS BEAM DETAILS BRIDGE NO. H-12-024 (CFF)

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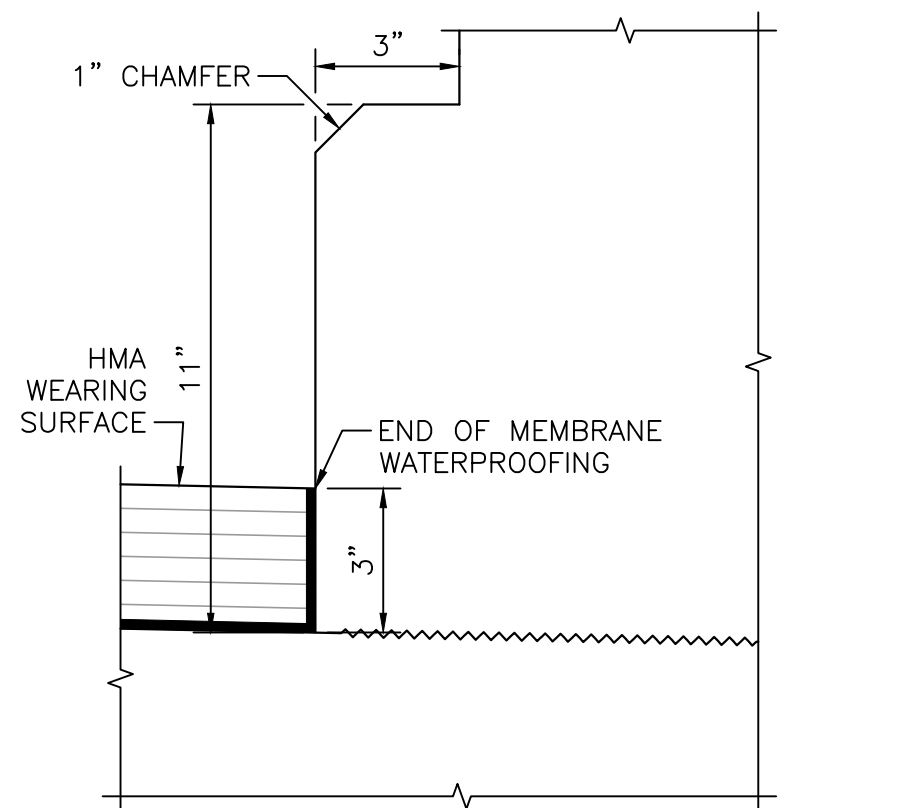
BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 24

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION



* 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 12.5 - POLYMER (SSC-B-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
 1 1/2" SUPERPAVE BRIDGE PROTECTIVE COURSE - 12.5 - POLYMER (SPC-B-12.5-P) OVER SPRAY APPLIED MEMBRANE WATERPROOFING FOR BRIDGE DECKS

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



FACE OF SAFETY CURB DETAILS
 SCALE: 3" = 1'-0"

MIDSPAN DEFLECTION (INCHES)			
POSITIVE VALUES DENOTE UPWARD DEFLECTION			
BEAM	LOAD TYPE	INITIAL	ERECTION
BEAM #1	PRESTRESSING	0.64	1.15
	SELF WEIGHT	-0.18	-0.33
	NONCOMPOSITE DL	-	-0.12
	SUPERIMPOSED DL	-	-0.17
	TOTAL	0.46	0.53
BEAM #2	PRESTRESSING	0.64	1.15
	SELF WEIGHT	-0.18	-0.33
	NONCOMPOSITE DL	-	-0.12
	SUPERIMPOSED DL	-	-0.14
	TOTAL	0.46	0.56
BEAM #3	PRESTRESSING	0.64	1.15
	SELF WEIGHT	-0.18	-0.33
	NONCOMPOSITE DL	-	-0.12
	SUPERIMPOSED DL	-	-0.14
	TOTAL	0.46	0.56
BEAM #4	PRESTRESSING	0.64	1.15
	SELF WEIGHT	-0.18	-0.33
	NONCOMPOSITE DL	-	-0.12
	SUPERIMPOSED DL	-	-0.17
	TOTAL	0.46	0.53

- DECK NOTES:**
- ROADWAY DECK SLAB SHALL BE 5000 PSI HP CEMENT CONCRETE.
 - LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE CL OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE CL OF CONSTRUCTION.
 - ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
 - THE FINISHED SURFACE OF BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.
 - THE HIGHWAY GUARDRAIL TRANSITIONS SHALL BE INSTALLED PRIOR TO POURING THE CONCRETE DECK.

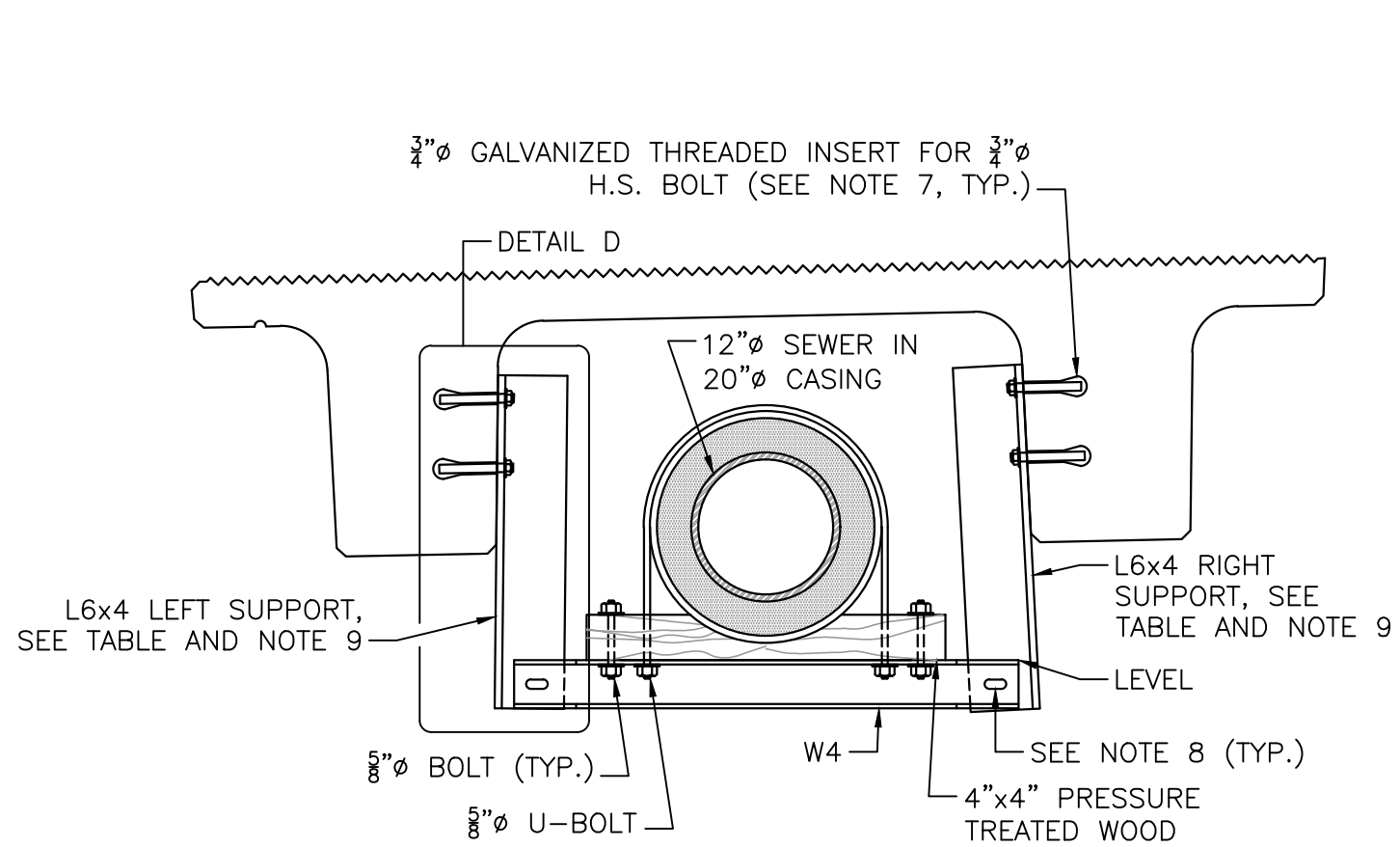
THEORETICAL DECK THICKNESS (INCHES)			
LOCATION	LEFT EDGE OF DECK SLAB (BEAM 4)	AT BASELINE	RIGHT EDGE OF DECK SLAB (BEAM 1)
CL BRGS. W. ABUT.	9 3/8"	9 3/8"	9 3/8"
MIDSPAN	8"	8"	8"
CL BRGS. E. ABUT.	9 3/8"	9 3/8"	9 3/8"

- UTILITY SUPPORT NOTES:**
- ALL STRUCTURAL STEEL FOR UTILITY SUPPORTS SHALL CONFORM TO A572 M 270 GRADE 36 OR 50. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE HOT-DIP GALVANIZED.
 - THE 3/8" GALVANIZED THREADED INSERTS FOR 3/8" H.S. BOLTS SHALL BE CAST INTO THE PRECAST BEAMS BY THE FABRICATOR. THEY SHALL PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 4.0 KIPS AND A MINIMUM NOMINAL SHEAR RESISTANCE OF 4.0 KIPS IN 3000 PSI CONCRETE.
 - 1 1/2" x 1 1/2" HORIZONTAL SLOTTED HOLE IN W4 OR W12 AND 1 1/2" x 1 1/2" VERTICAL SLOTTED HOLE IN ANGLE FOR 3/8" H.S. BOLT (TYP.)
 - LEFT AND RIGHT SUPPORT LENGTHS GIVEN IN THE TABLE ARE LOOKING UPSTATION. REFER TO FRAMING PLAN ON SHEET 23 FOR SUPPORT LOCATIONS.

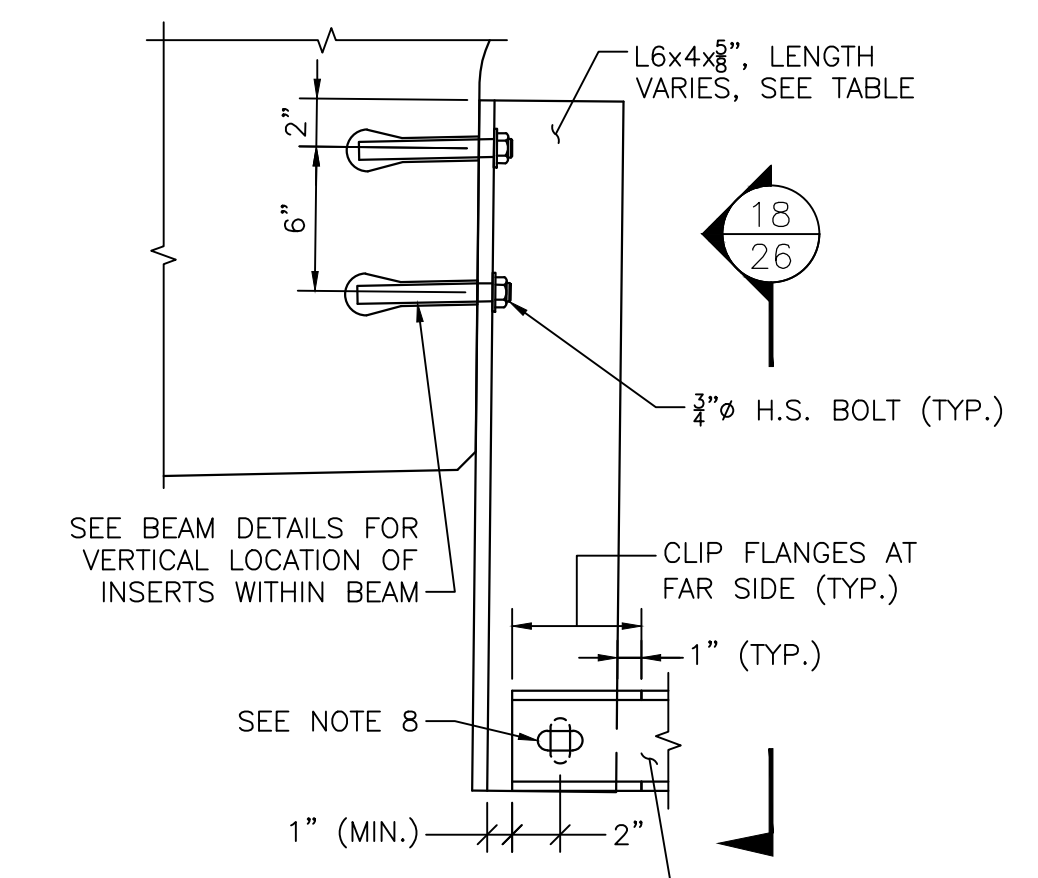
UTILITY SUPPORT ANGLE LENGTHS		
SUPPORT #	LEFT SUPPORT	RIGHT SUPPORT
1	25 3/8"	26 3/8"
2	26 1/8"	27 1/8"
3	26 3/8"	27 3/8"
4	27 1/2"	28 1/2"
5	28 1/2"	29 1/2"
6	28 3/4"	29 3/4"

- MIDSPAN DEFLECTION NOTES:**
- CAMBERS AND DEFLECTIONS IN THE TABLE ARE NOT GUARANTEED AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
 - THE BEAM CONCRETE MODULUS OF ELASTICITY AT TRANSFER USED IN THE ABOVE BEAM CAMBER IS ASSUMED TO BE 4877 PSI.
 - THE BEAM CONCRETE MODULUS OF ELASTICITY USED IN ABOVE BEAM DEFLECTION IS ASSUMED TO BE 5363 PSI (AT 28 DAYS).

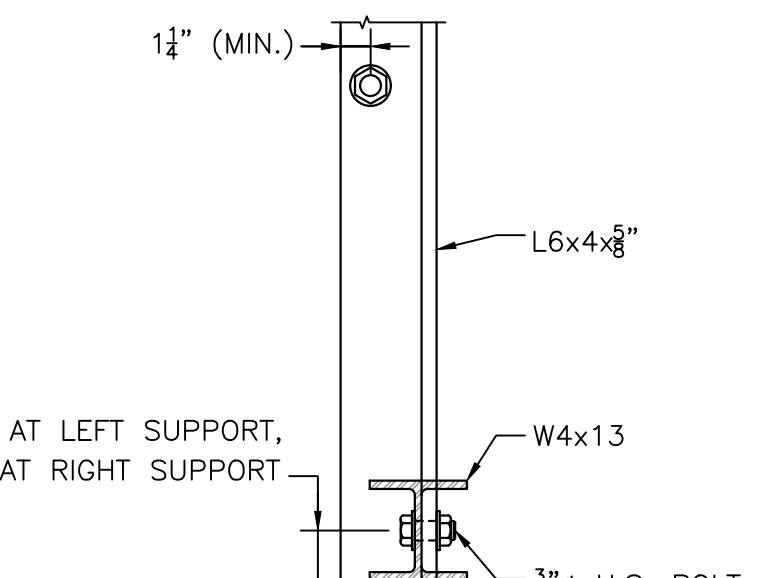
- THEORETICAL DECK THICKNESS NOTES:**
- TABLE INDICATES THE THEORETICAL THICKNESS OF THE DECK SLAB IN INCHES BASED UPON ASSUMED BEAM CAMBERS AT ERECTION.
 - TABLE IS PROVIDED IN ASSIST IN ESTIMATING THE REQUIRED CONCRETE VOLUME.
 - THE ACTUAL DECK THICKNESSES WILL BE AS REQUIRED TO MEET THE PROFILE GRADE.



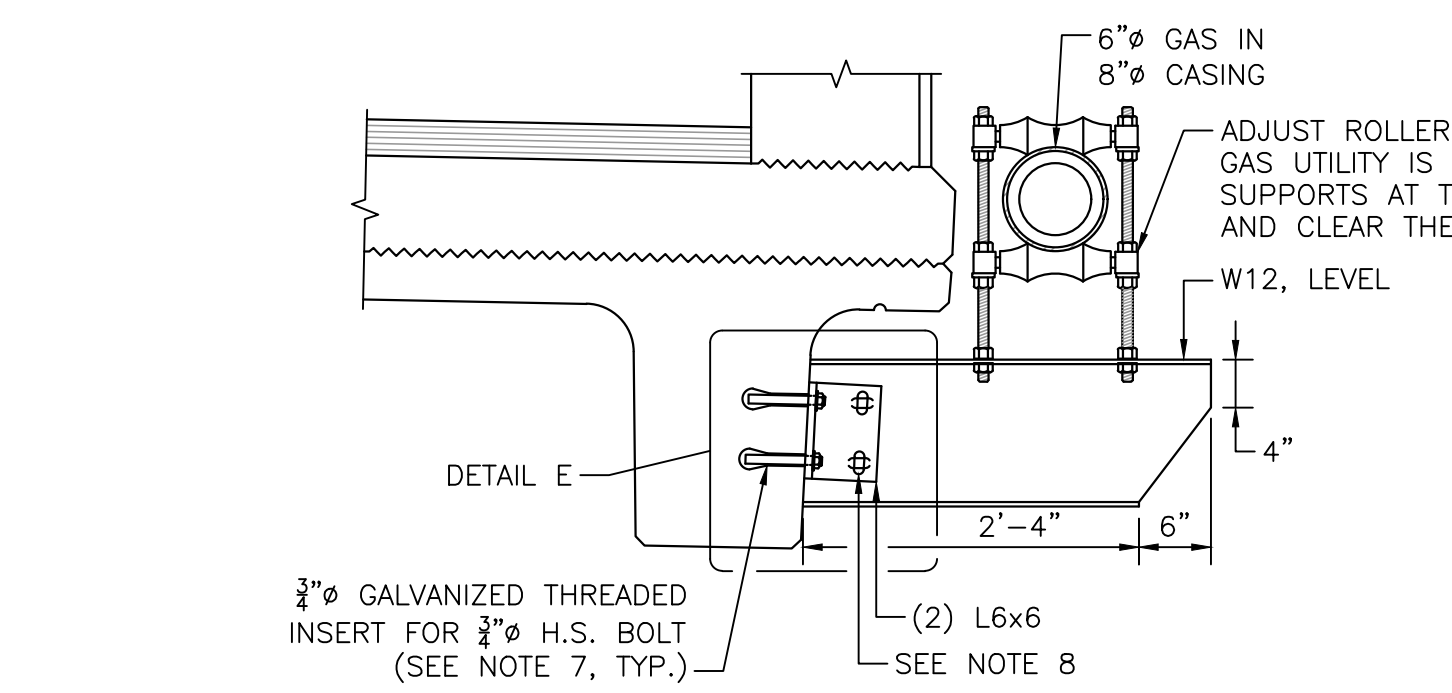
UTILITY SUPPORT AT BAY DETAILS
 SCALE: 3/4" = 1'-0"



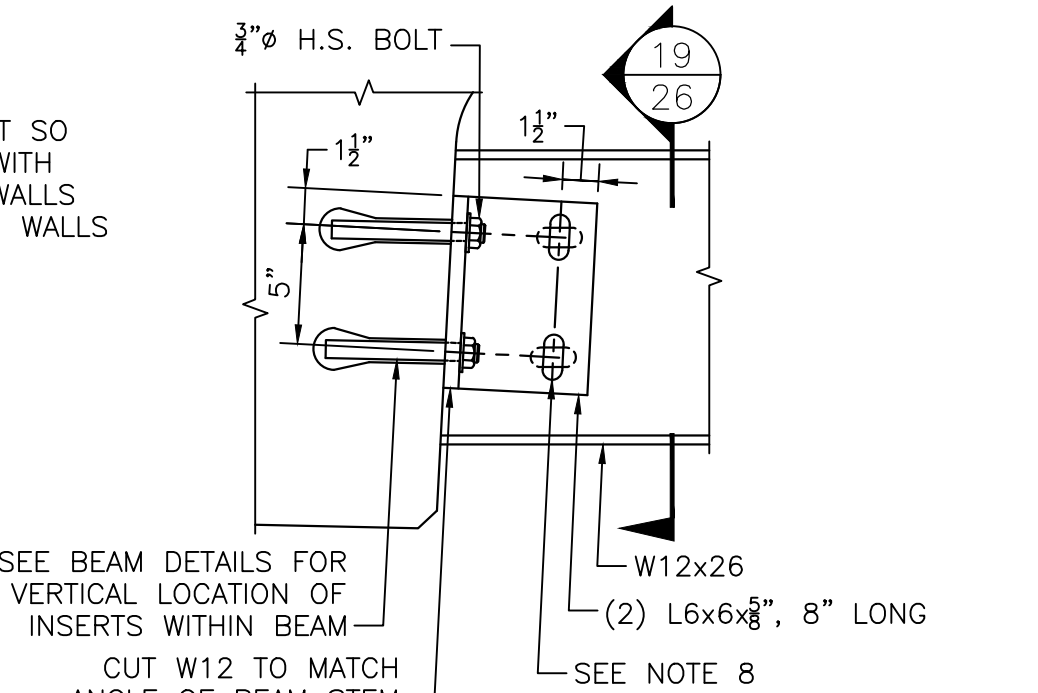
DETAIL D
 SCALE: 1 1/2" = 1'-0"



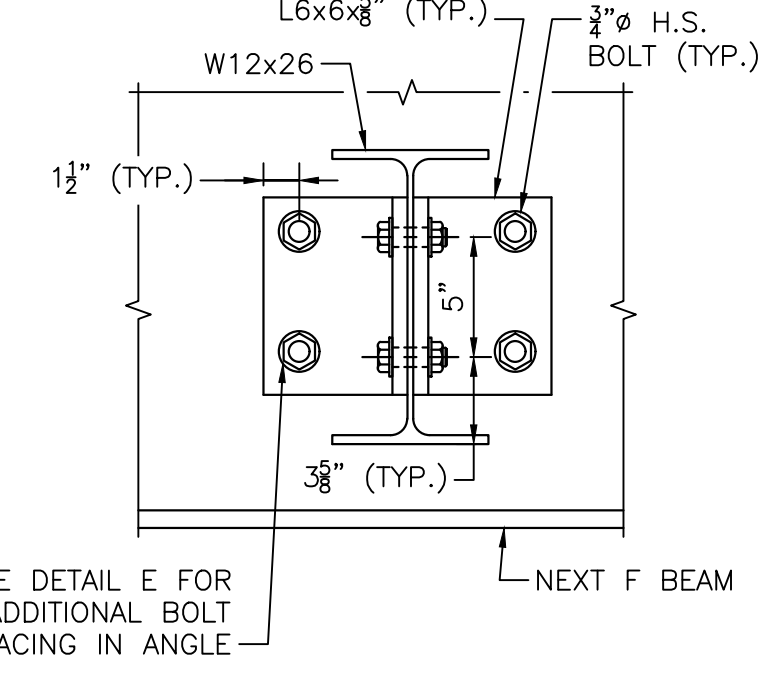
SECTION 18
 SCALE: 1 1/2" = 1'-0"



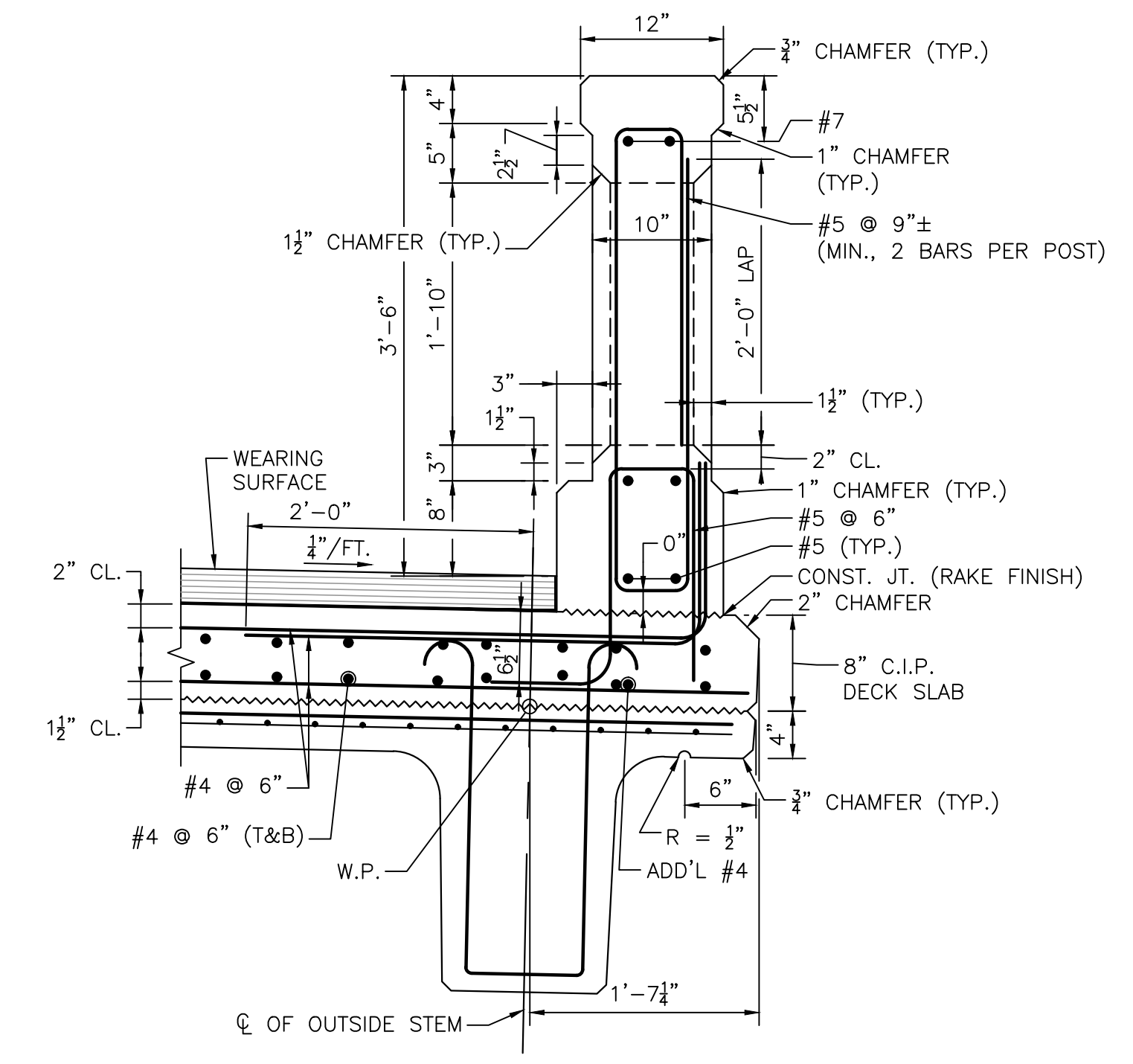
UTILITY SUPPORT AT FASCIA DETAILS
 SCALE: 3/4" = 1'-0"



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

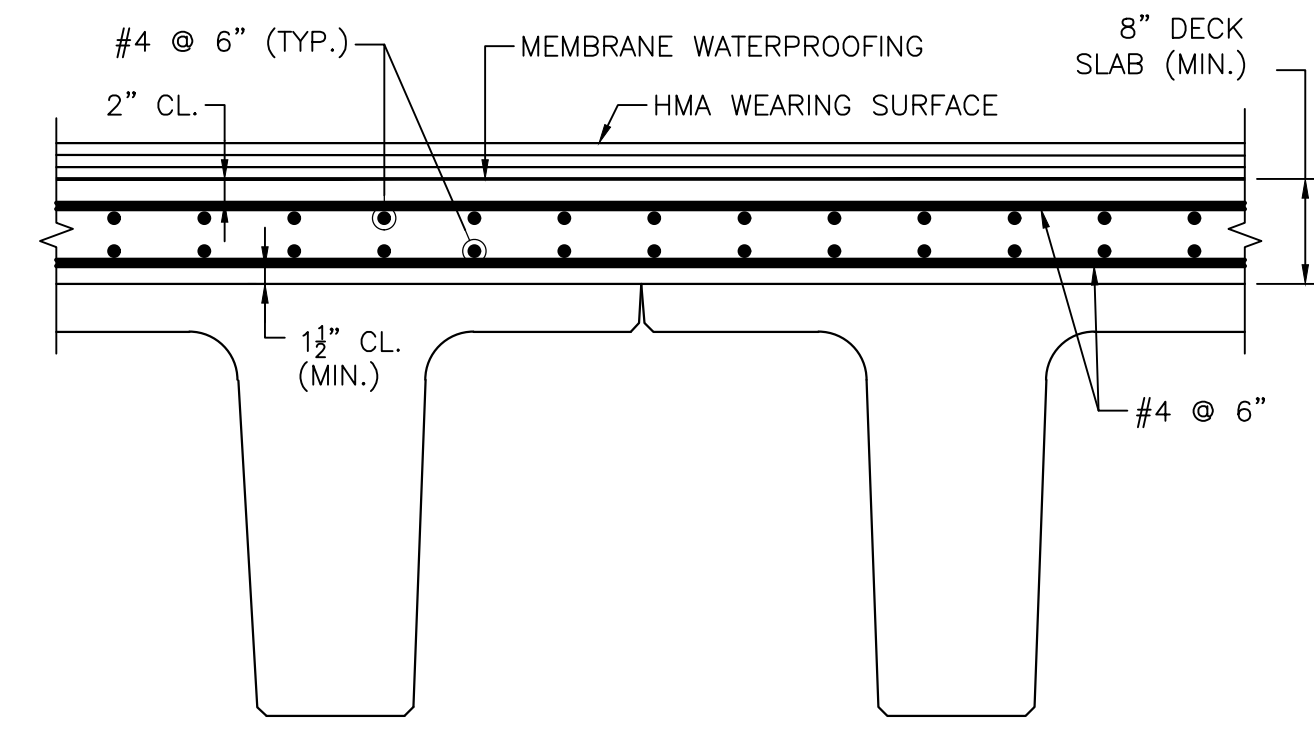


SECTION 19
 SCALE: 1 1/2" = 1'-0"



NOTE:
 PRESTRESSING STRANDS IN THE BEAM ARE NOT SHOWN FOR CLARITY.

SECTION THRU CT-TL2 SAFETY CURB
 SCALE: 1" = 1'-0"



- NOTES:**
- LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE CL OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE CL OF CONSTRUCTION.
 - ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
 - THE FINISHED SURFACE OF BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.

TYPICAL DECK REINFORCEMENT
 SCALE: 3/4" = 1'-0"

BETA GROUP INC. TEMPLATE (BETA) STANDARD_TEMP.PLT, 10/09/2014 CIVIL 3D (R20) PLOTSTYLE (BETA) STB.BV1(STB) USER(DWONG)
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NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:	MLN/DW
DESIGNED BY:	DW
CHECKED BY:	CWJ/PJK

REGISTERED PROFESSIONAL
 CHRISTOPHER W. JONES
 STRUCTURAL
 No. 41025
 PROFESSIONAL ENGINEER
 10/15/2024



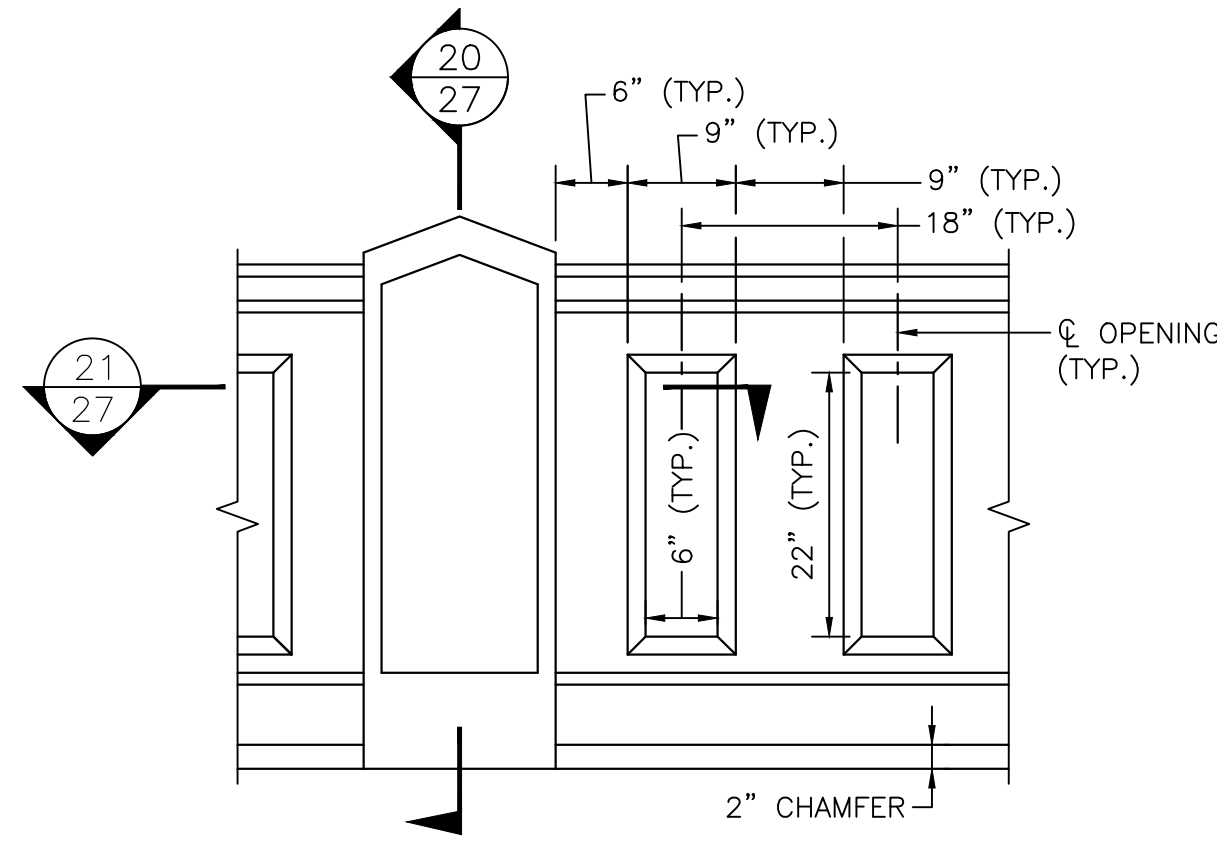
PREPARED BY	
SUBCONSULTANT	

SCALE	AS SHOWN
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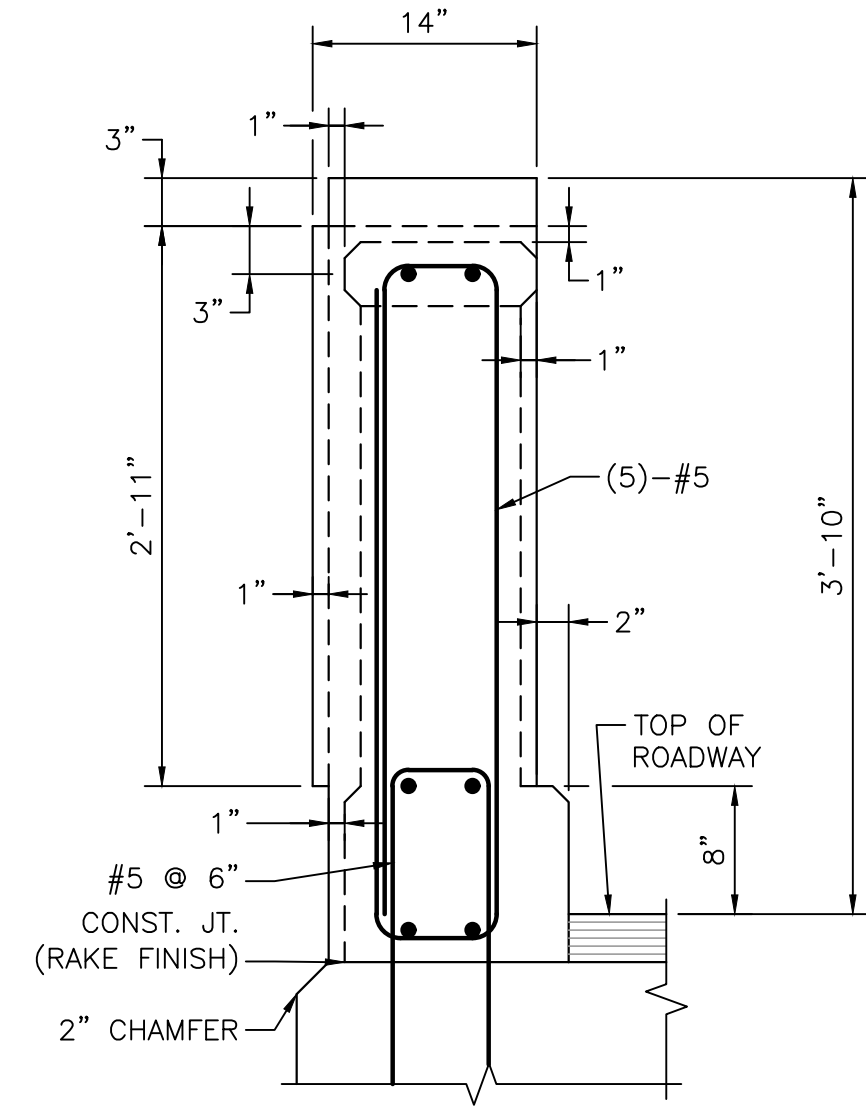
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
TRANSVERSE SECTION & DECK DETAILS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO.	6155
ISSUE DATE	10/16/2024
SHEET NO.	26

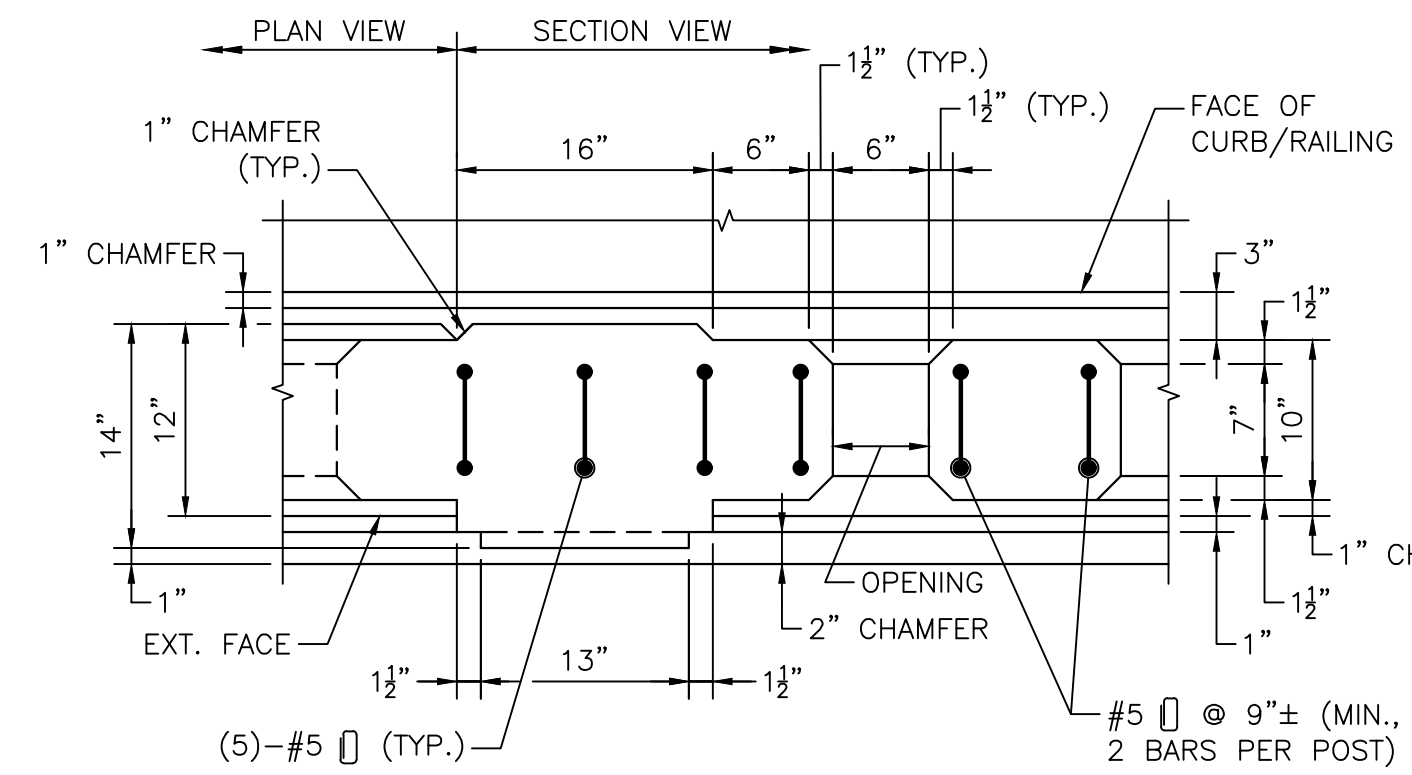
BETA GROUP, INC. TEMPLATE (BETA_STANDARD_TEMP.PLT) - 1.0.0001 CIVIL 3D (CIVIL_3D_0001) PLOTSTYLE (BETA.STB BIV.STB) USER(DWING)
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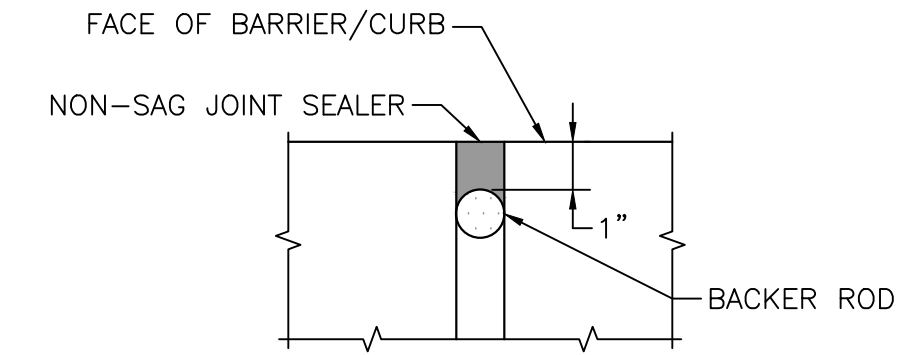
EXTERIOR BARRIER ELEVATION AT SAFETY CURB
SCALE: 3/4" = 1'-0"



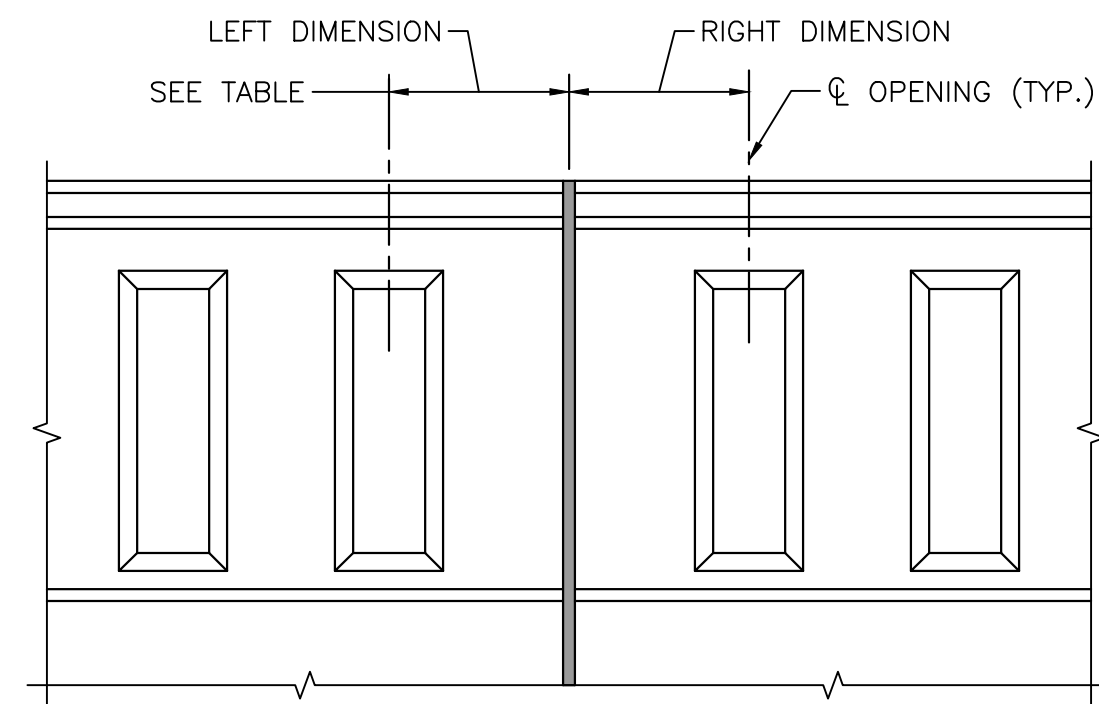
SECTION 20
SCALE: 1" = 1'-0"



SECTION 21
SCALE: 1" = 1'-0"



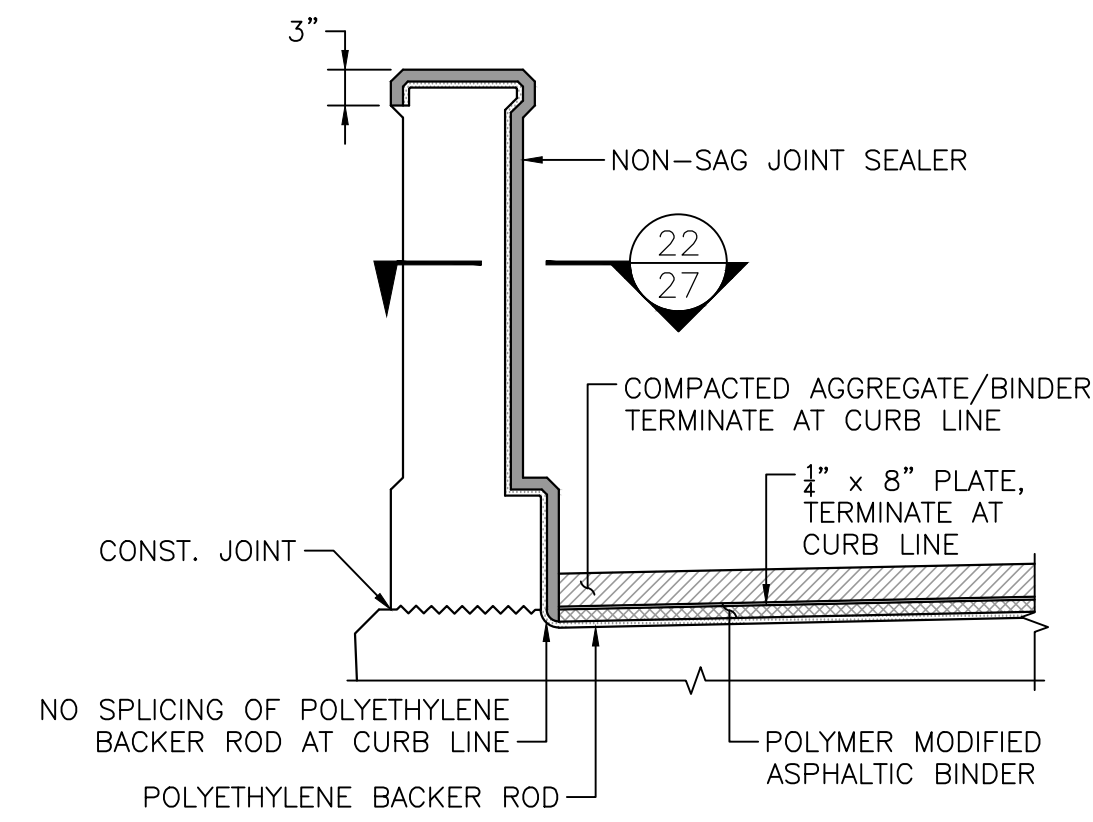
SECTION 22
SCALE: 3" = 1'-0"



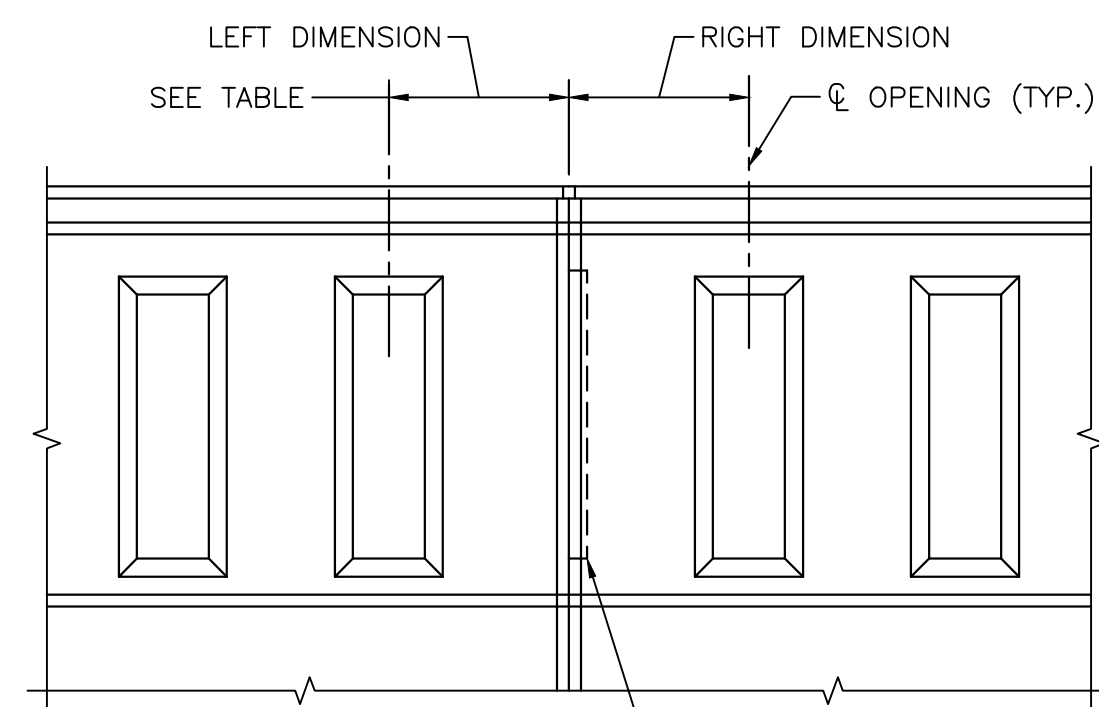
EXPANSION JOINT
SCALE: 3/4" = 1'-0"

EXPANSION JOINT DIMENSIONS		
JOINT	LEFT DIMENSION	RIGHT DIMENSION
E1	SEE SHEET 29	-
E2	-	SEE SHEET 29
E3	23 1/2"	23 1/2"
E4	24 1/2"	24 1/2"

- NOTES:**
- DIMENSIONS ARE TAKEN FROM EXTERIOR FACE OF BARRIER FACING TOWARDS ROADWAY.
 - SEE GENERAL PLAN SHEET 13 FOR LOCATION ON PLAN.



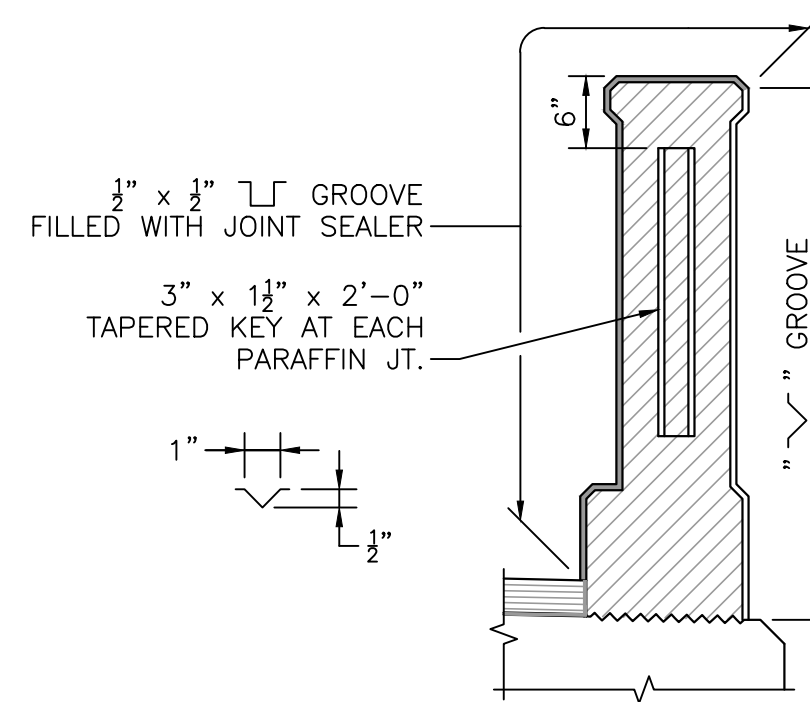
SAFETY CURB JOINT DETAIL AT CT-TL2 BARRIER
SCALE: 3/4" = 1'-0"



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

PARAFFIN JOINT DIMENSIONS		
JOINT	LEFT DIMENSION	RIGHT DIMENSION
P1	20 1/2"	20 1/2"
P2	18"	18"

- NOTES:**
- DIMENSIONS ARE TAKEN FROM EXTERIOR FACE OF BARRIER FACING TOWARDS ROADWAY.
 - SEE GENERAL PLAN SHEET 13 FOR LOCATION ON PLAN.



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

SAFETY CURB SIDE PARAFFIN JOINT DETAILS
SCALE: 3/4" = 1'-0"

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
DESIGNED BY: DW
CHECKED BY: CWJ/PJK

REGISTERED PROFESSIONAL

 PREPARED BY

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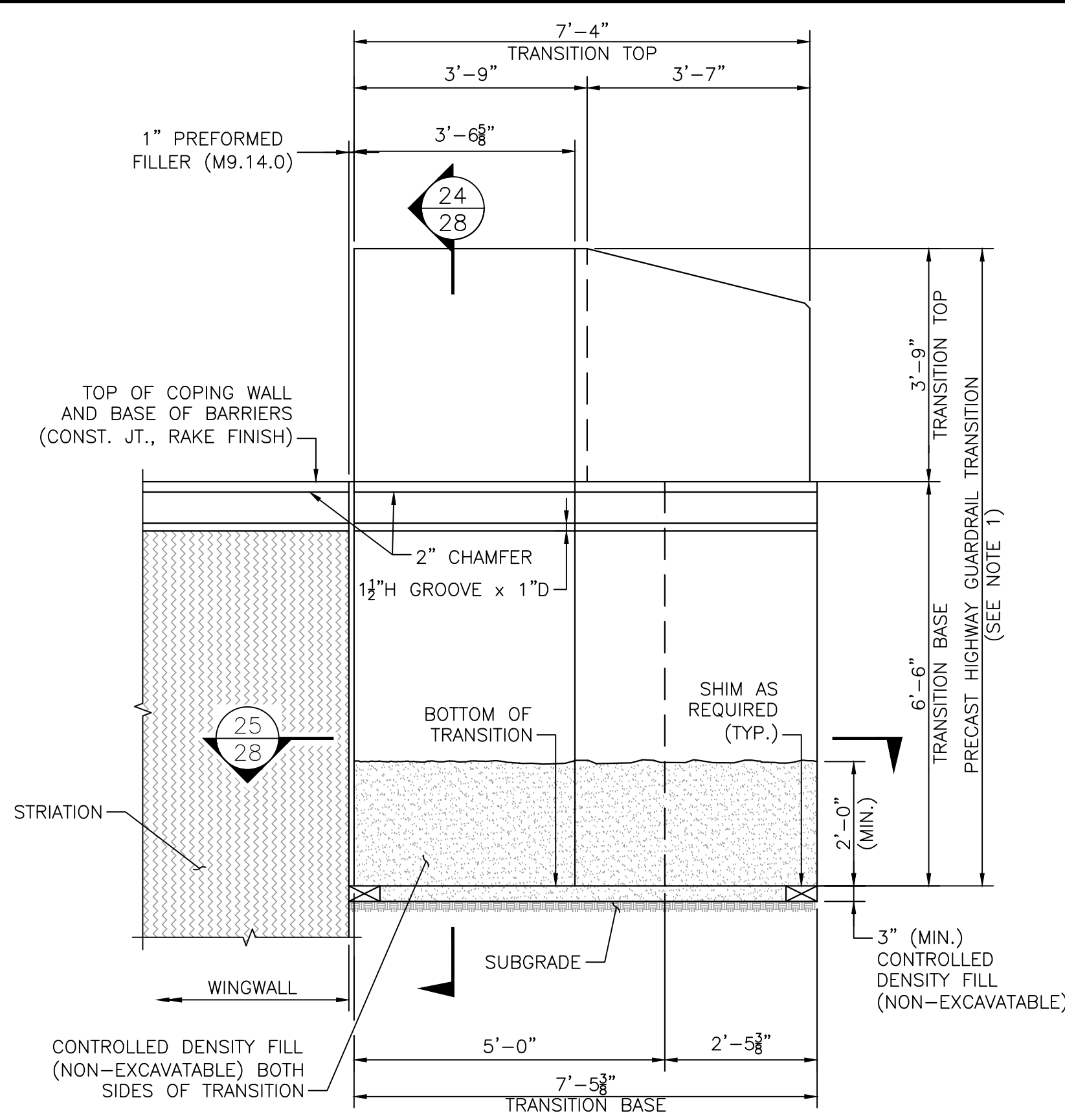
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SCALE AS SHOWN

TITLE ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS CT-TL2 BARRIER DETAILS BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 27

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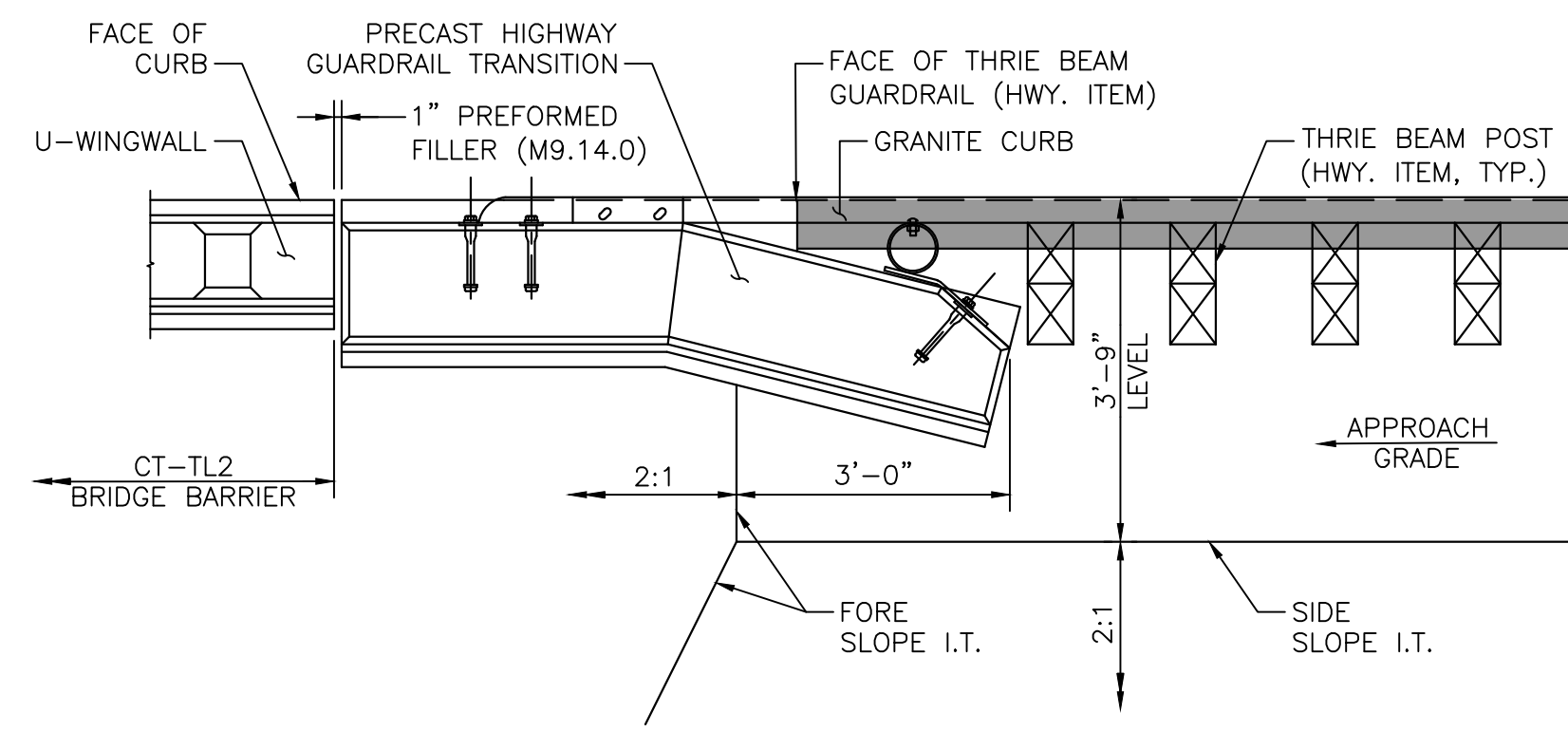
PRECAST GUARDRAIL TRANSITION ELEVATION AT U-WINGWALL

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

- NOTES:**
- 1 1/2" x 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.
 - REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

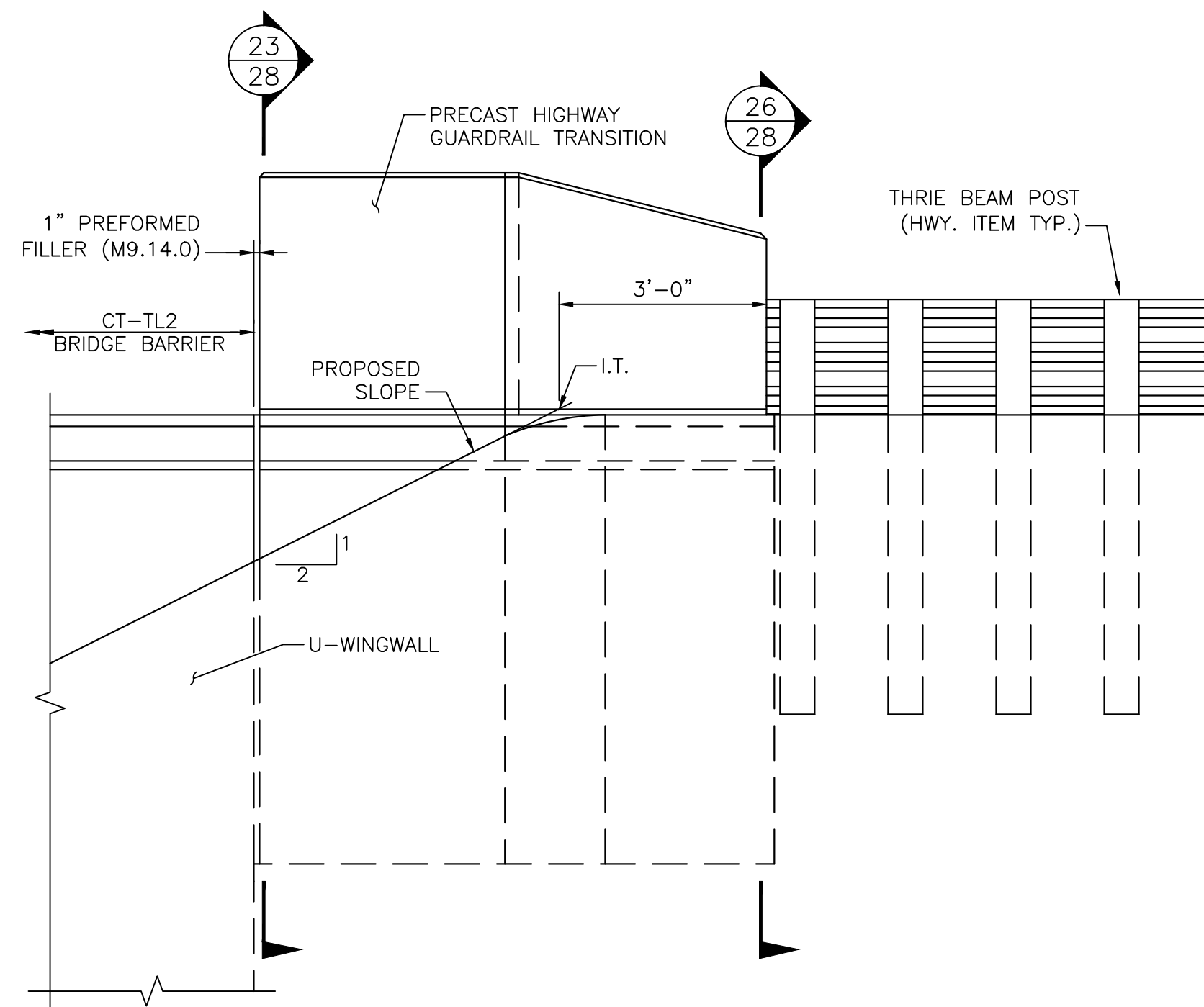
SECTION 24

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



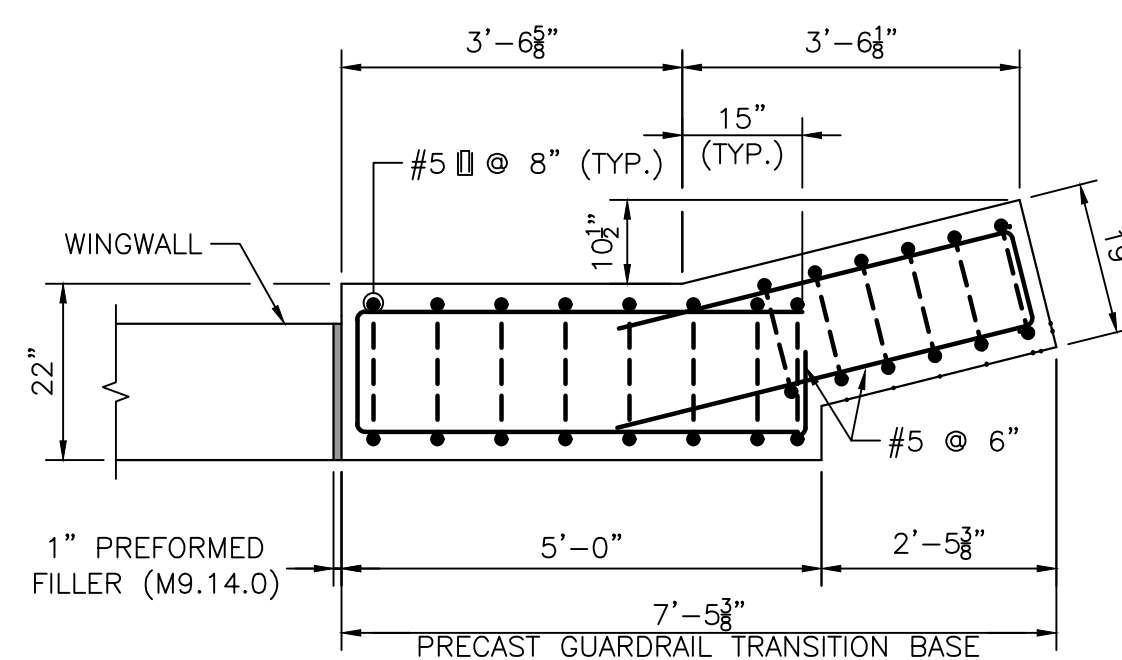
GRADING REQUIREMENTS PLAN

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



GRADING REQUIREMENTS ELEVATION

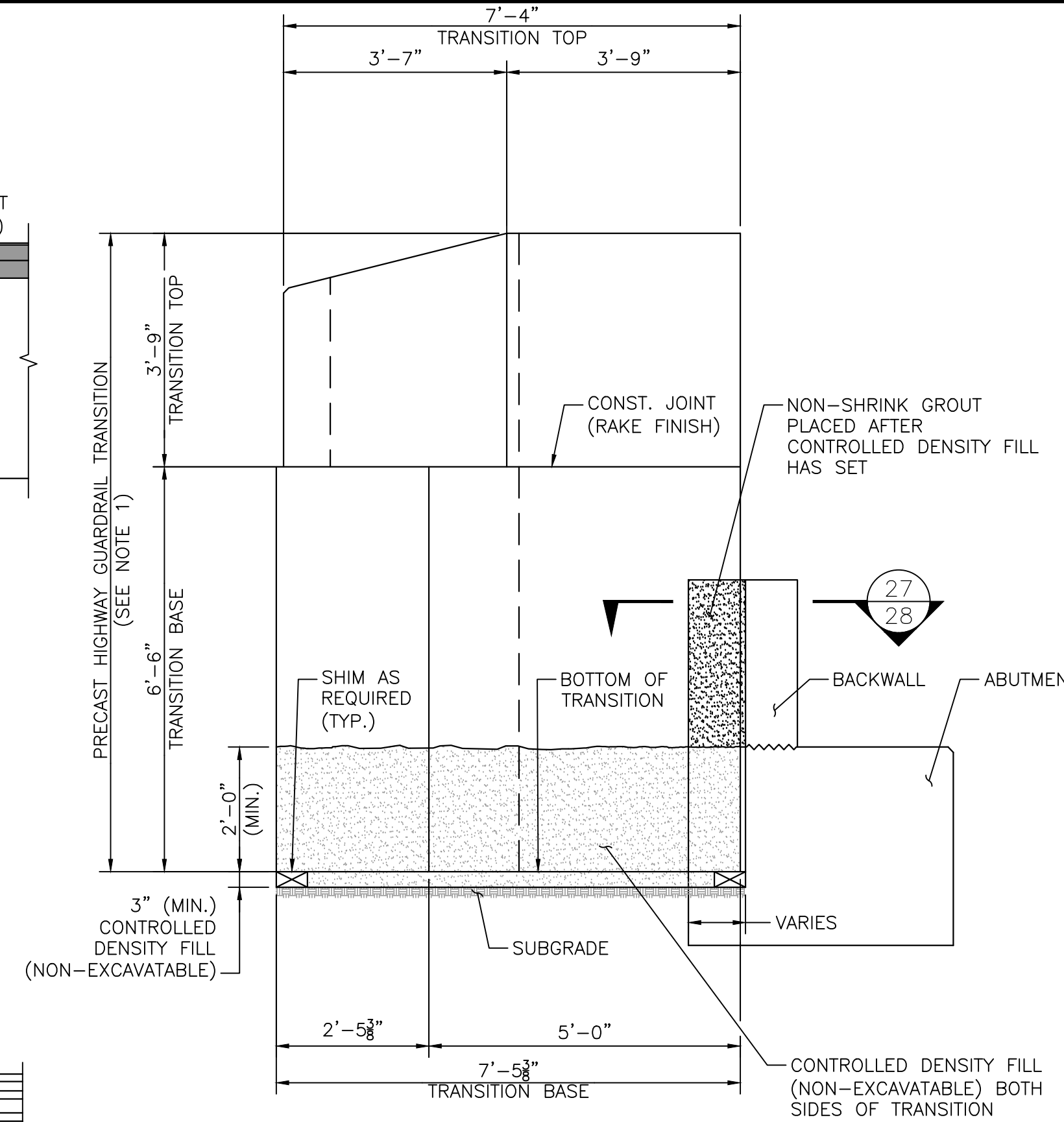
SCALE: 1/2" = 1'-0"



NOTE:
WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

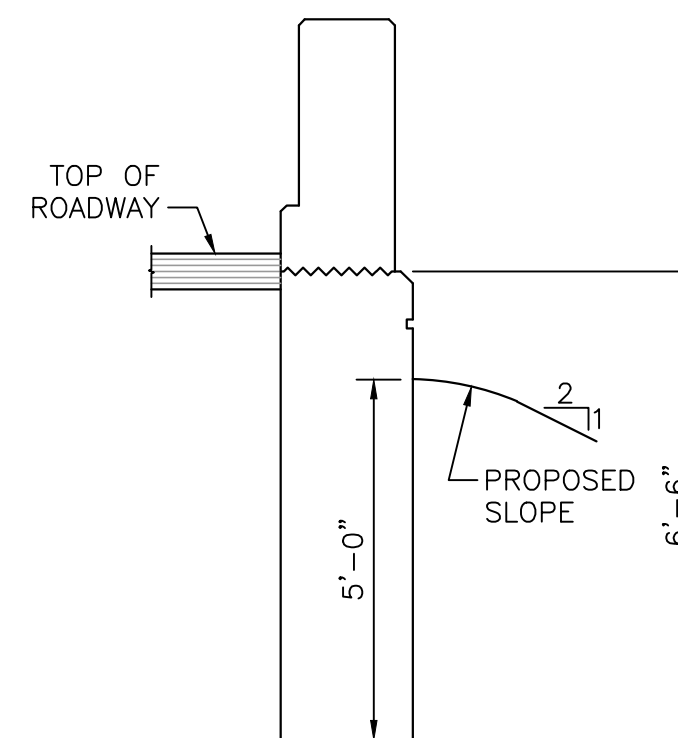
SECTION 25

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



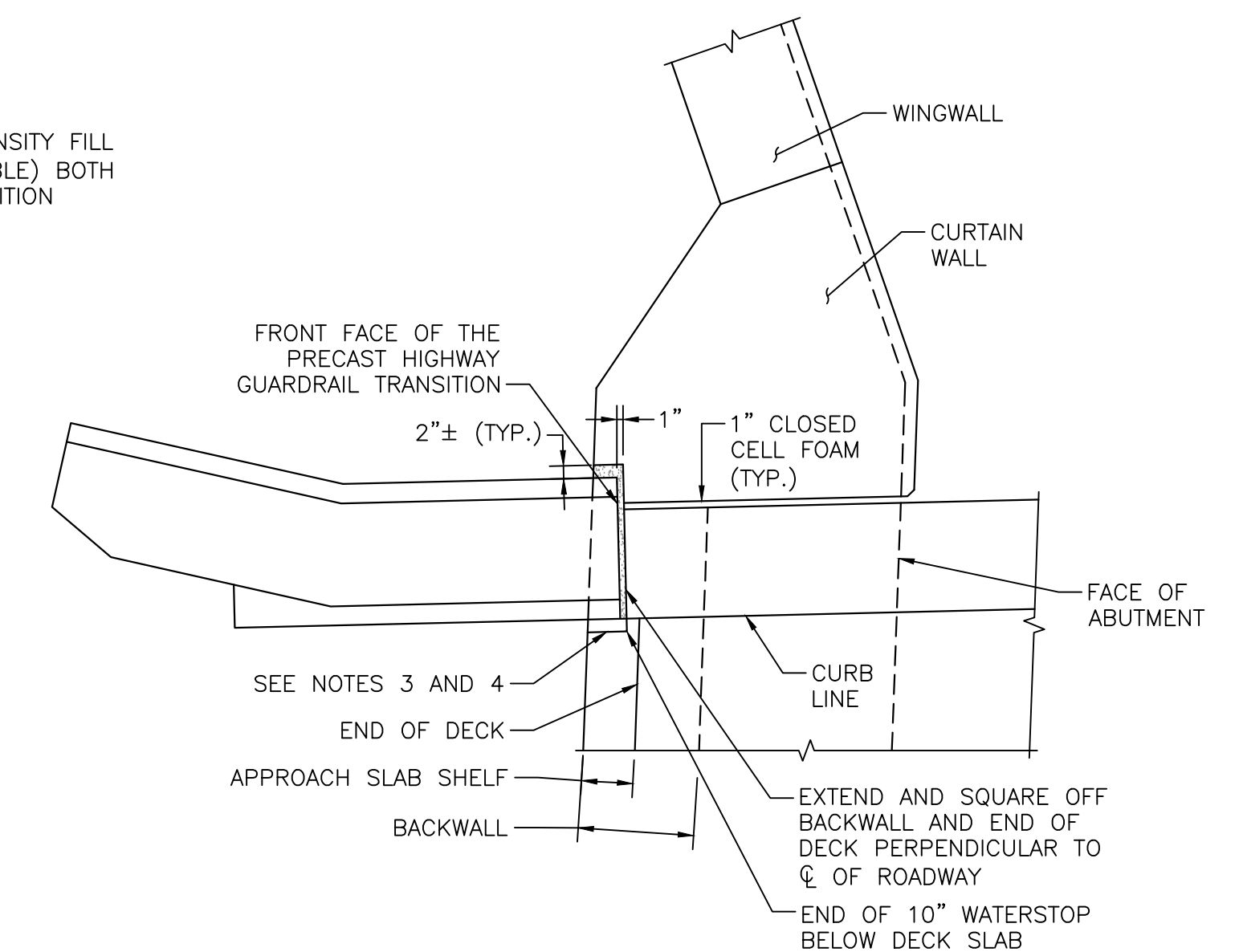
PRECAST GUARDRAIL TRANSITION ELEVATION AT SPLAYED WINGWALL

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



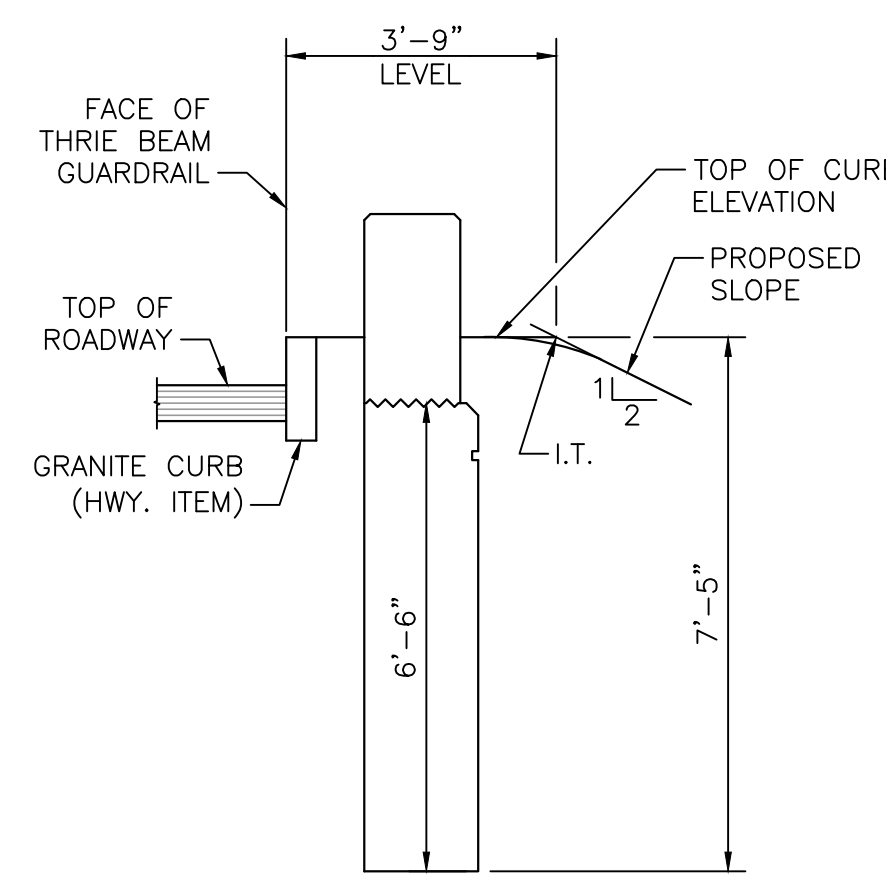
SECTION 23

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



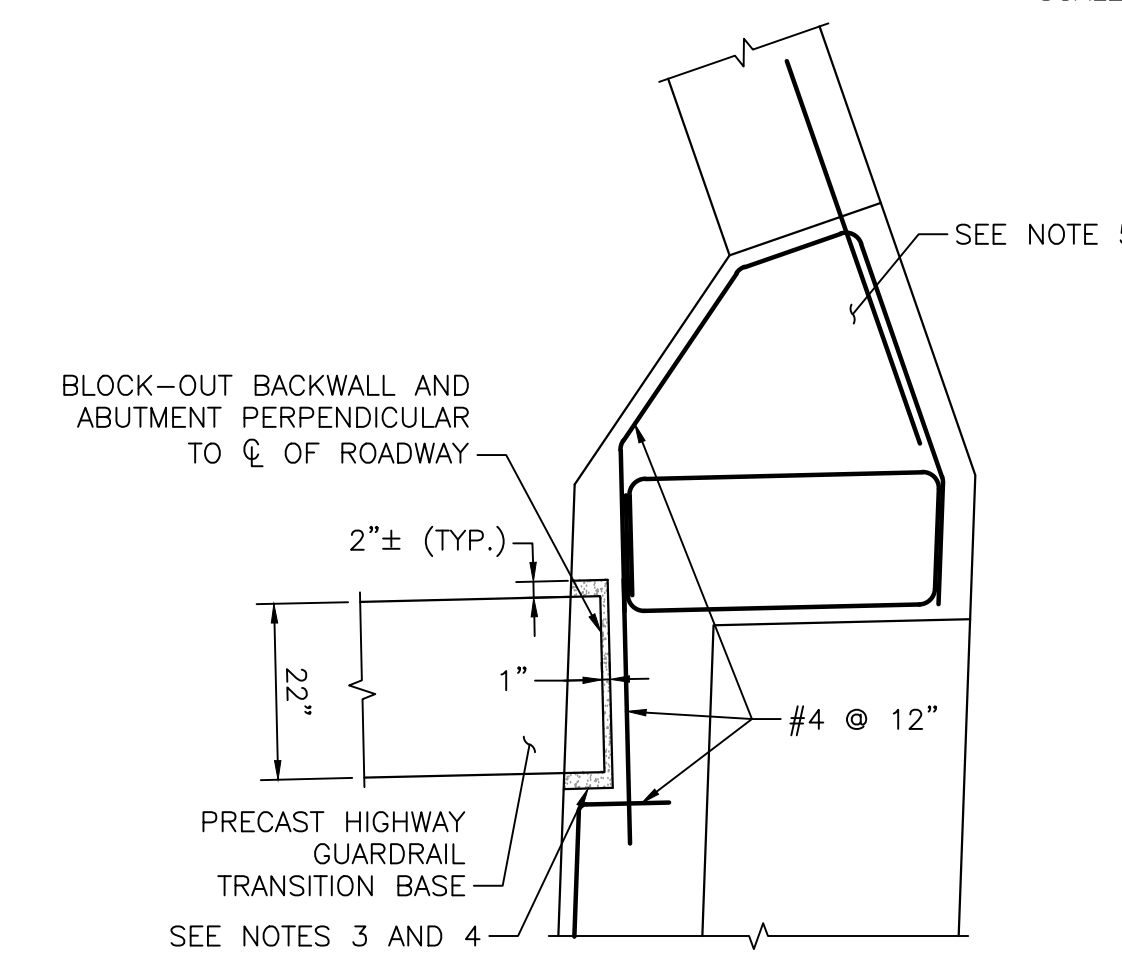
PRECAST GUARDRAIL TRANSITION PLAN AT SPLAYED WINGWALL

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



SECTION 26

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



SECTION 27

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

NOTES:

- PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI HP CEMENT CONCRETE.
- GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
- CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
- AFTER CONTROLLED DENSITY FILL (NON-EXCAVATABLE) HAS SET THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK-OUT IN BACKWALL AND ABUTMENT WITH NON-SHRINK GROUT UP TO THE TOP OF BACKWALL.
- THE REST OF THE REINFORCEMENT NOT SHOWN FOR CLARITY.

ADDITIONAL NOTES FOR PRECAST HIGHWAY GUARDRAIL TRANSITIONS AT NORTH SPLAYED WINGWALLS

- AFTER CONTROLLED DENSITY FILL (NON-EXCAVATABLE) HAS SET THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK-OUT IN BACKWALL AND ABUTMENT WITH NON-SHRINK GROUT UP TO THE TOP OF BACKWALL.
- THE REST OF THE REINFORCEMENT NOT SHOWN FOR CLARITY.

10/15/2024 4:40 PM

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: MLN/DW
DESIGNED BY: DW
CHECKED BY: CWJ/PJK

REGISTERED PROFESSIONAL

 PREPARED BY

 10/15/2024

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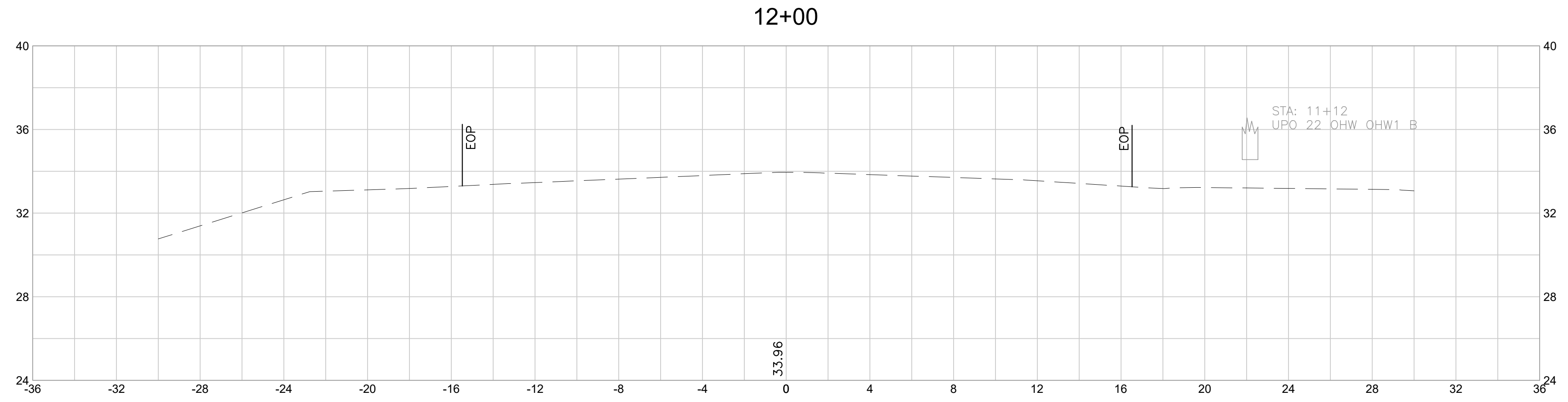
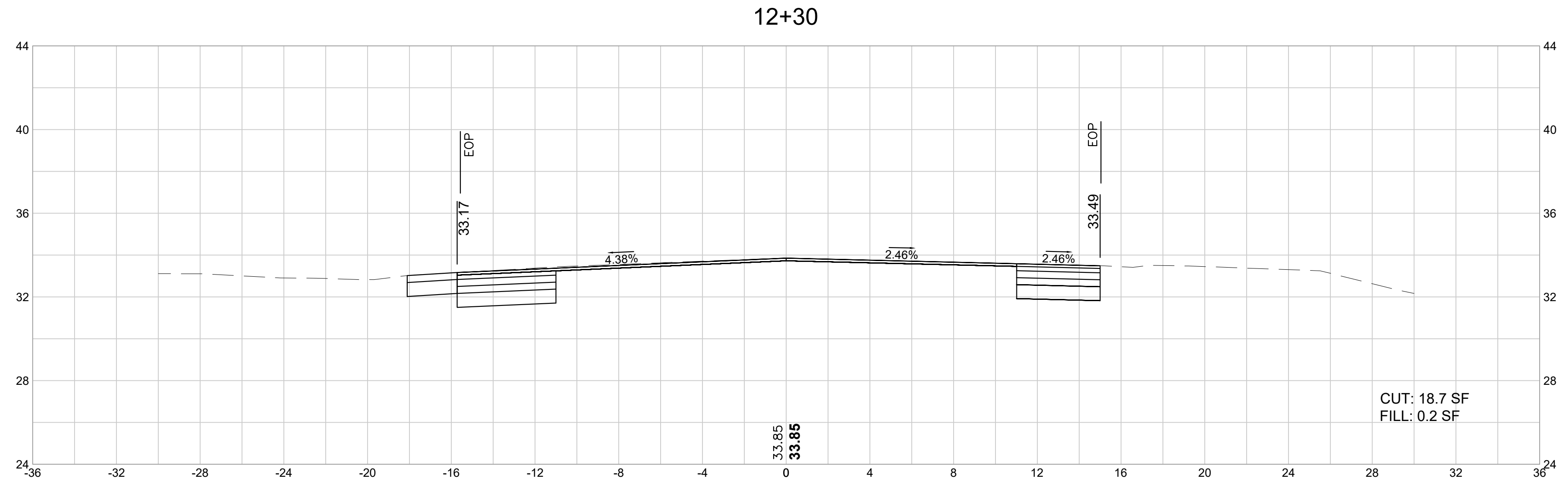
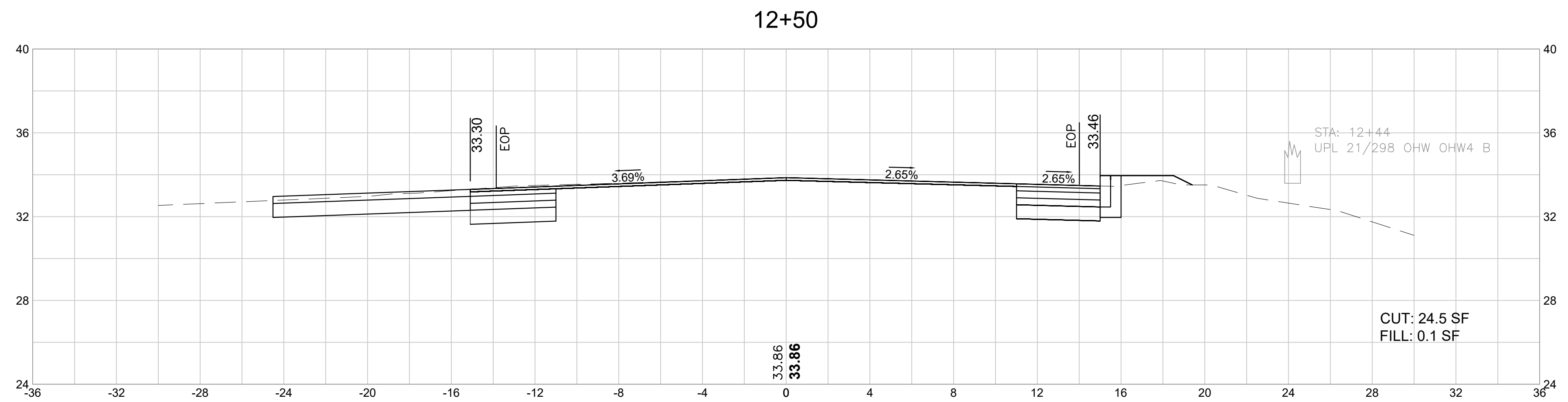
SUBCONSULTANT
SCALE
AS SHOWN

TITLE
ROSEMONT STREET OVER LITTLE RIVER HAVERHILL, MASSACHUSETTS HIGHWAY GUARDRAIL TRANSITION (1 OF 2)
BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
ISSUE DATE 10/16/2024
SHEET NO. 28

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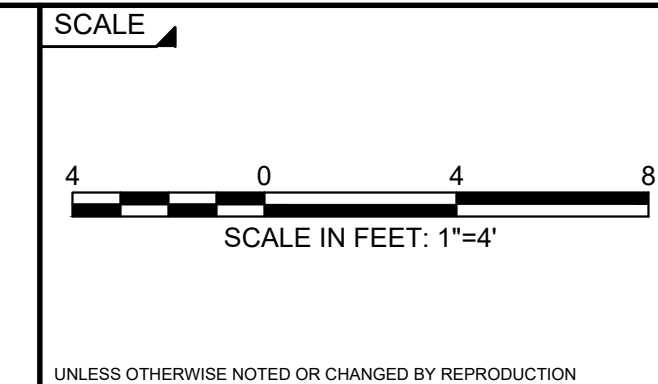
NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY:
 KYL
 DESIGNED BY:
 KYL
 CHECKED BY:
 DJ

REGISTERED PROFESSIONAL
 PREPARED BY



SUBCONSULTANT



TITLE
**ROSEMONT STREET OVER LITTLE RIVER
 HAVERHILL, MASSACHUSETTS**
 CROSS SECTIONS
 BRIDGE NO. H-12-024 (CFF)

BETA JOB NO. 6155
 ISSUE DATE 10/16/2024
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