

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	1	55
PROJECT FILE NO.		608858	

TITLE SHEET & INDEX

PLAN AND PROFILE OF
EAST OXBOW ROAD OVER OXBOW BROOK
(BRIDGE NO. C-05-042)

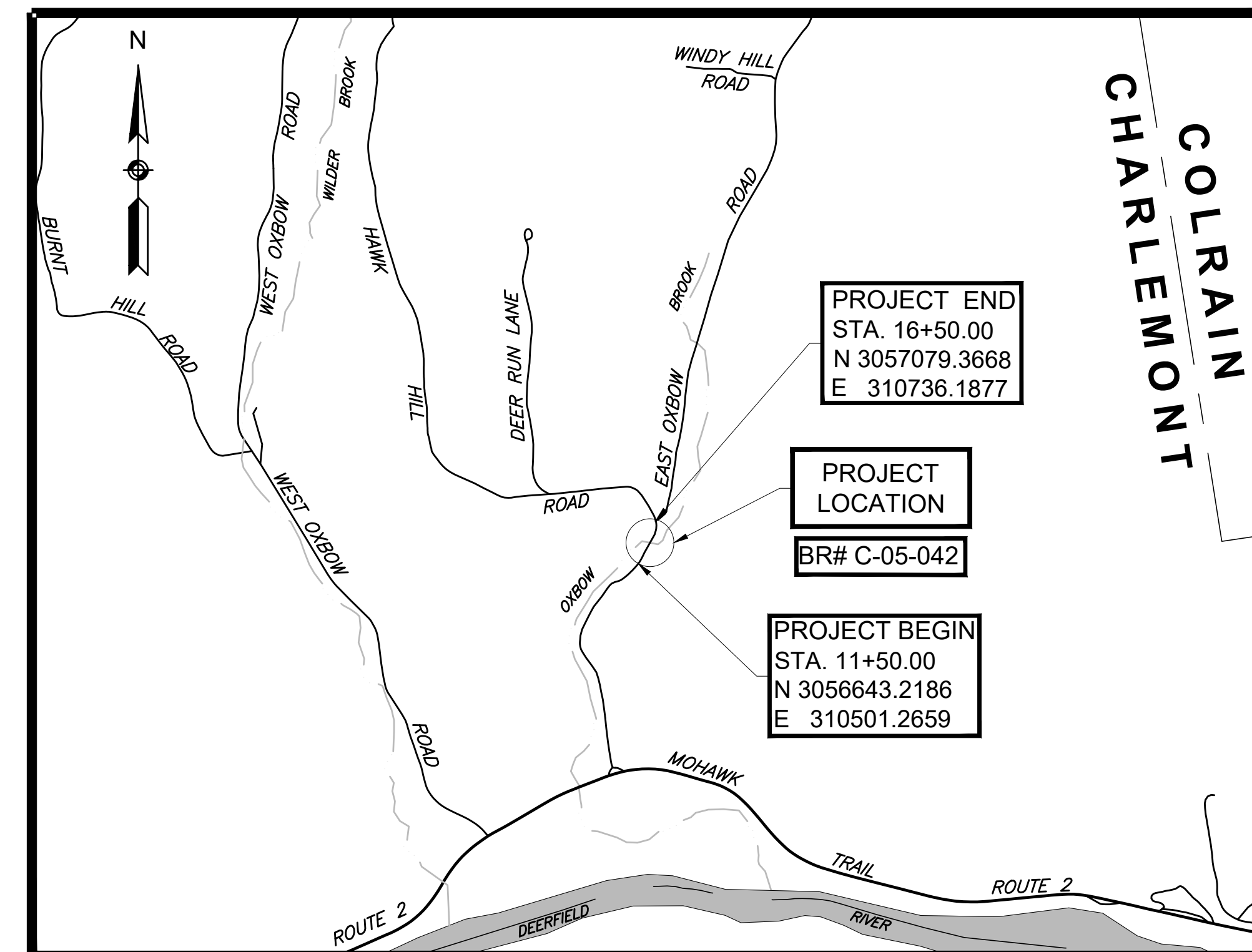
IN THE TOWN OF
CHARLEMONT
FRANKLIN COUNTY

FEDERAL AID PROJECT NO. STP(BR-OFF)-003S(716)X

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, 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.

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DESIGN DESIGNATION (EAST OXBOW ROAD)

DESIGN SPEED	25 MPH
ADT (2019)	647*
ADT (2039)	715
T	2%*
FUNCTIONAL CLASSIFICATION	RURAL LOCAL

*VALUES OBTAINED FROM 2019 ROUTINE INSPECTION REPORT



LENGTH OF PROJECT = 500.00 FEET = 0.095 MILE

	DATE	DESCRIPTION	REV #
	<p>APPROVED</p> <p>Carrie Lavallee, P.E. Digitally signed by Carrie Lavallee, P.E. Date: 2024.02.08 17:02:00 -05'00'</p> <p>02/08/2024</p>		
	CHIEF ENGINEER		DATE

GENERAL SYMBOLS

Table with columns: EXISTING, PROPOSED, and DESCRIPTION. Lists symbols for various infrastructure elements like Jersey Barrier, Catch Basin, Gas Pump, Manholes, and Easements.

TRAFFIC SYMBOLS

Table with columns: EXISTING, PROPOSED, and DESCRIPTION. Lists symbols for traffic-related elements like Controller Phase Actuated, Traffic Signal Head, and Traffic Signal Conduit.

PAVEMENT MARKINGS SYMBOLS

Table with columns: EXISTING, PROPOSED, and DESCRIPTION. Lists symbols for pavement markings such as Pavement Arrow - White, Stop Line, and various Solid and Broken White/Yellow Lines.

ABBREVIATIONS

Table with columns: GENERAL and DESCRIPTION. Lists abbreviations for traffic and surveying terms, such as AADT, ADJ, APPROX., ACCM PIPE, BIT, BC, BD, BL, BLDG, BM, BO, BOS, BR, CB, CBCI, CC, CCM, CEM, CI, CIP, CLF, CL, CMP, CSP, CO, CONC, CONT, CONST, CR GR, DHV, DI, DIA, DIP, DW, DWY, ELEV (or EL.), EMB, EOP, EXIST (or EX), EXC, F&C, F&G, FDN, FLDSTN, GAR, GD, GG, GI, GIP, GRAN, GRAV, GRD, HDW, HMA, HOR, HYD, INV, JCT, L, LB, LP, LT, MAX, MB, MH, MHB, MIN, NIC, NO., PC, PCC, P.G.L., PI, POC, POT, PRC, PROJ, PROP, PSB, PT, PVC, PVI, PVT, PVMT, and PWW.

CHARLEMONT EAST OXBOW ROAD OVER OXBOW BROOK

Legend & Abbreviations summary table with columns: STATE, FED. AID PROJ. NO., SHEET NO., TOTAL SHEETS. Values include MA, STP(BR-OFF)-003S(716)X, 2, 55, and PROJECT FILE NO. 608858.

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

Table with columns: GENERAL and DESCRIPTION. Continues the list of abbreviations, including R (Radius of Curvature), R&D (Remove and Dispose), RCP (Reinforced Concrete Pipe), RD (Road), RDWY (Roadway), REM (Remove), RET (Retain), RET WALL (Retaining Wall), ROW (Right of Way), RR (Railroad), R&R (Remove and Reset), R&S (Remove and Stack), RT (Right), SB (Stone Bound), SHLD (Shoulder), SMH (Sewer Manhole), ST (Street), STA (Station), SSD (Stopping Sight Distance), SHLO (State Highway Layout Line), SW (Sidewalk), T (Tangent Distance of Curve/Truck %), TAN (Tangent), TEMP (Temporary), TC (Top of Curb), TOS (Top of Slope), TYP (Typical), UP (Utility Pole), VAR (Varies), VERT (Vertical), VC (Vertical Curve), WCR (Wheel Chair Ramp), WG (Water Gate), WIP (Wrought Iron Pipe), WM (Water Meter/Water Main), and X-SECT (Cross Section).

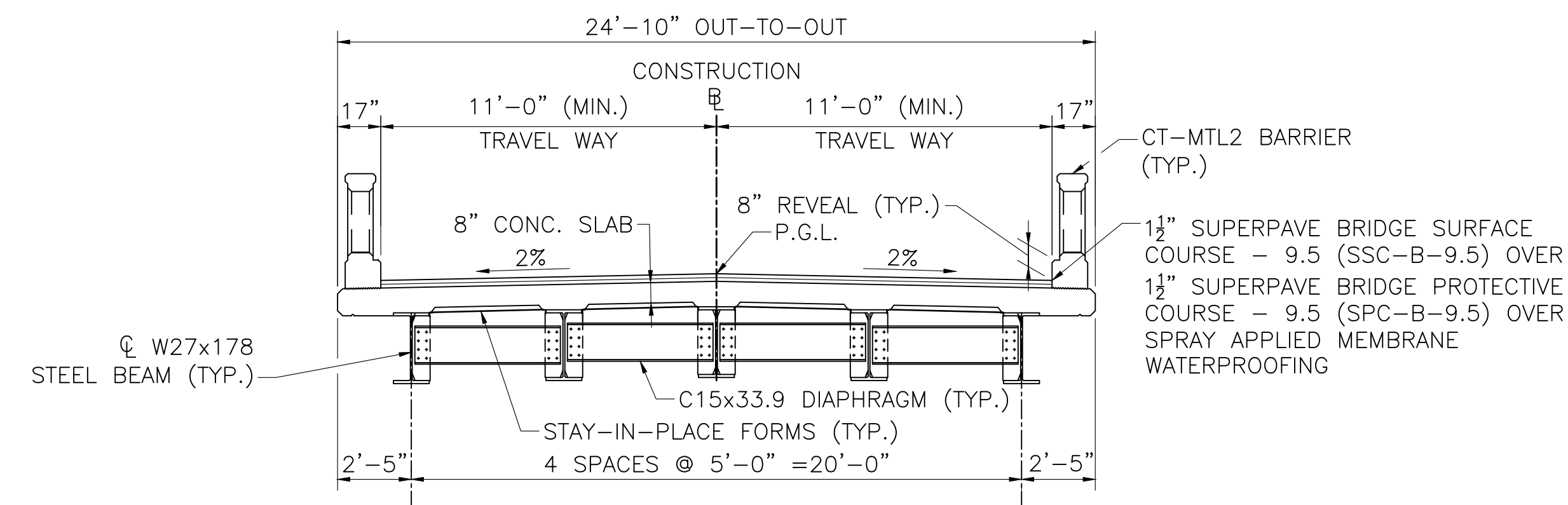
TRAFFIC SIGNAL ABBREVIATIONS

Table with columns: ABBREVIATION and DESCRIPTION. Lists abbreviations for traffic signals, such as CAB (Cabinet), CCVE (Closed Circuit Video Equipment), DW (Steady Upraised Hand), FDW (Flashing Upraised Hand), FR (Flashing Circular Red), FRL (Flashing Red Left Arrow), FRR (Flashing Red Right Arrow), FY (Flashing Circular Yellow), FYL (Flashing Yellow Left Arrow), FYR (Flashing Yellow Right Arrow), G (Steady Circular Green), GL (Steady Green Left Arrow), GR (Steady Green Right Arrow), GSL (Steady Green Slash Left Arrow), GSR (Steady Green Slash Right Arrow), GV (Steady Green Vertical Arrow), OL (Overlap), PED (Pedestrian), PTZ (Pan, Tilt, Zoom), R (Steady Circular Red), RL (Steady Red Left Arrow), RR (Steady Red Right Arrow), TR SIG (Traffic Signal), TSC (Traffic Signal Conduit), W (Steady Walking Person), Y (Steady Circular Yellow), and YL (Steady Yellow Left Arrow).

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

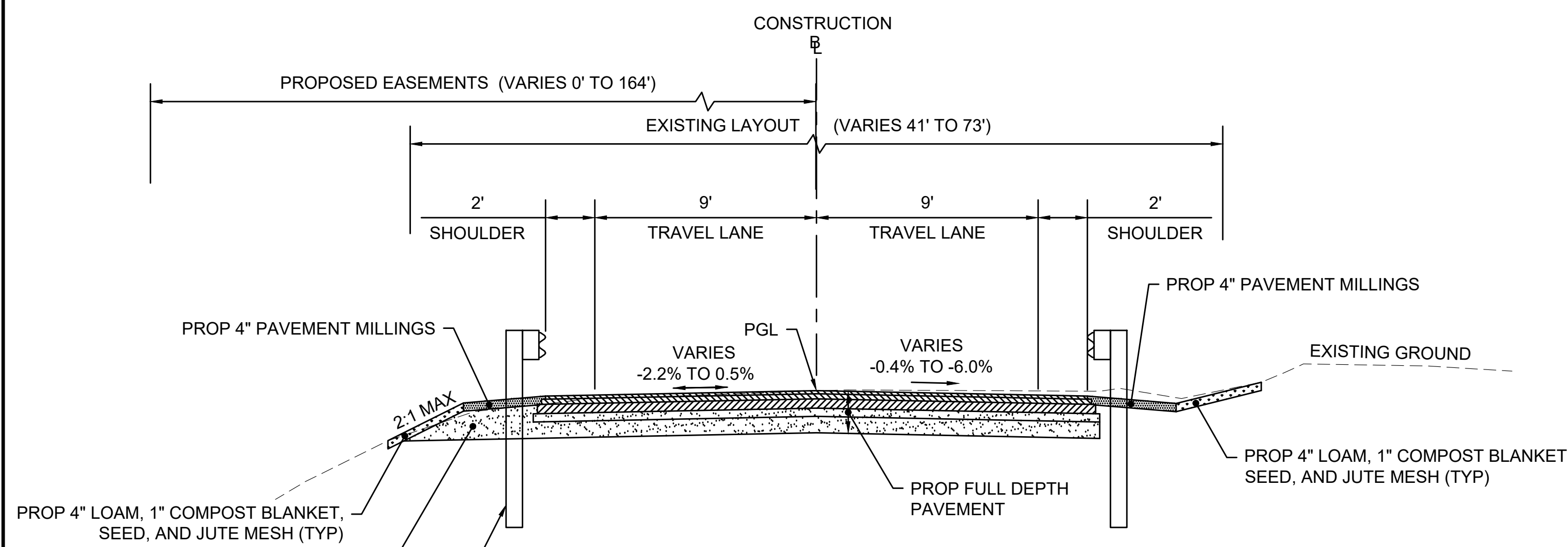
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	3	55
PROJECT FILE NO.		608858	

TYPICAL SECTIONS



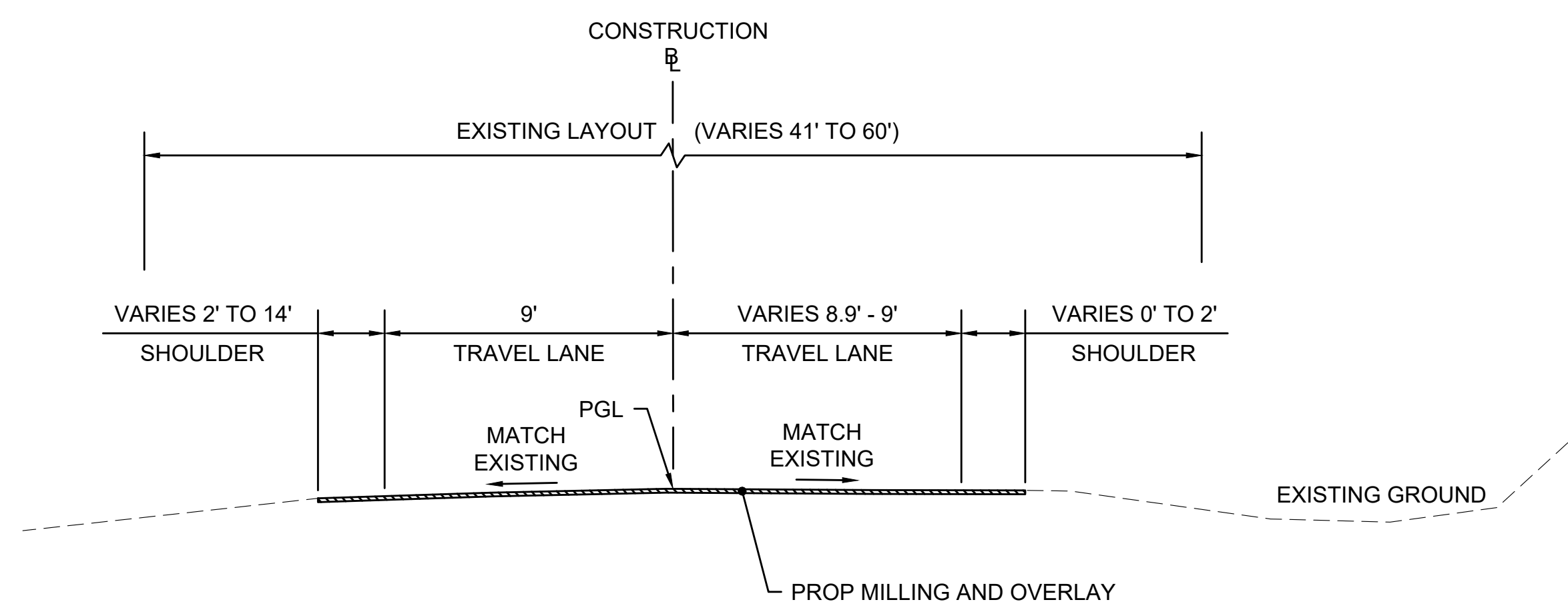
TYPICAL BRIDGE SECTION EAST OXBOW ROAD

STA. 13+76.16 TO STA. 14+48.55
SCALE: 1" = 4'



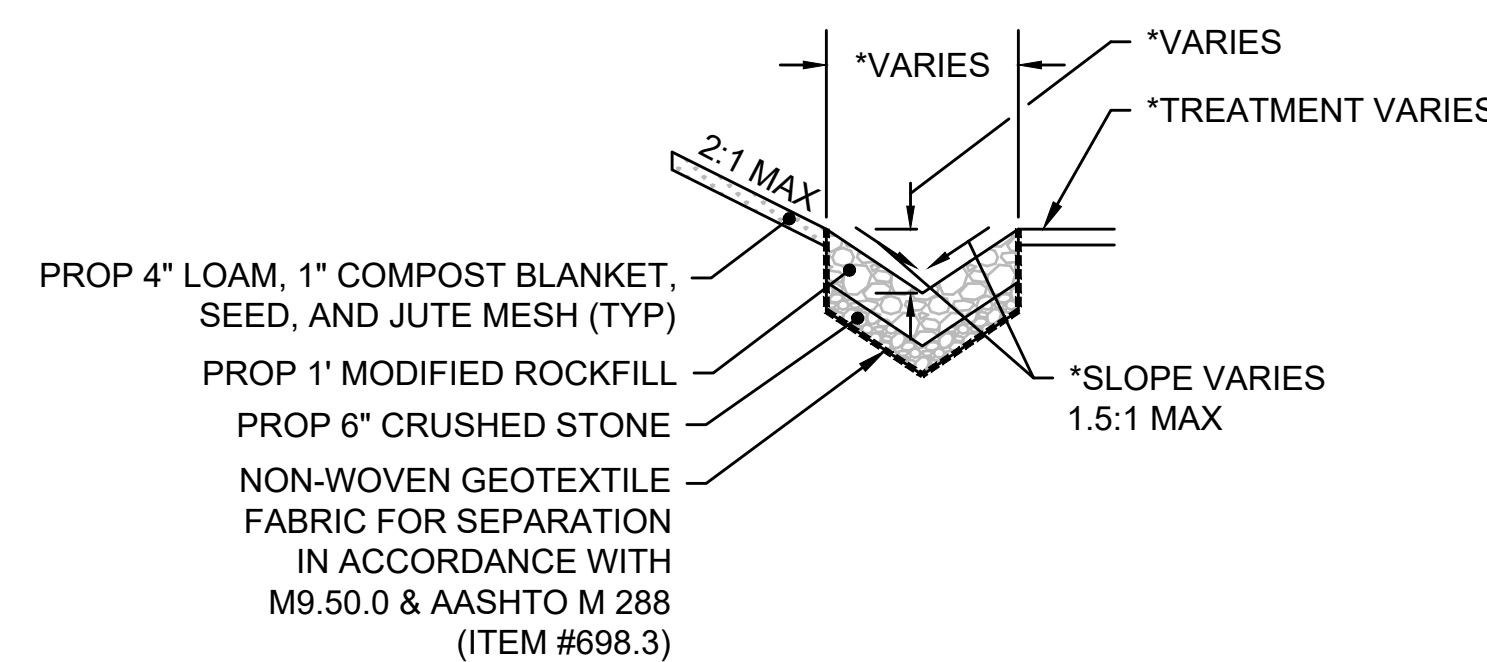
TYPICAL SECTION EAST OXBOW ROAD

STA. 11+60.00 TO STA. 13+76.16
STA. 14+48.55 TO STA. 15+85.00
SCALE: 1" = 4'



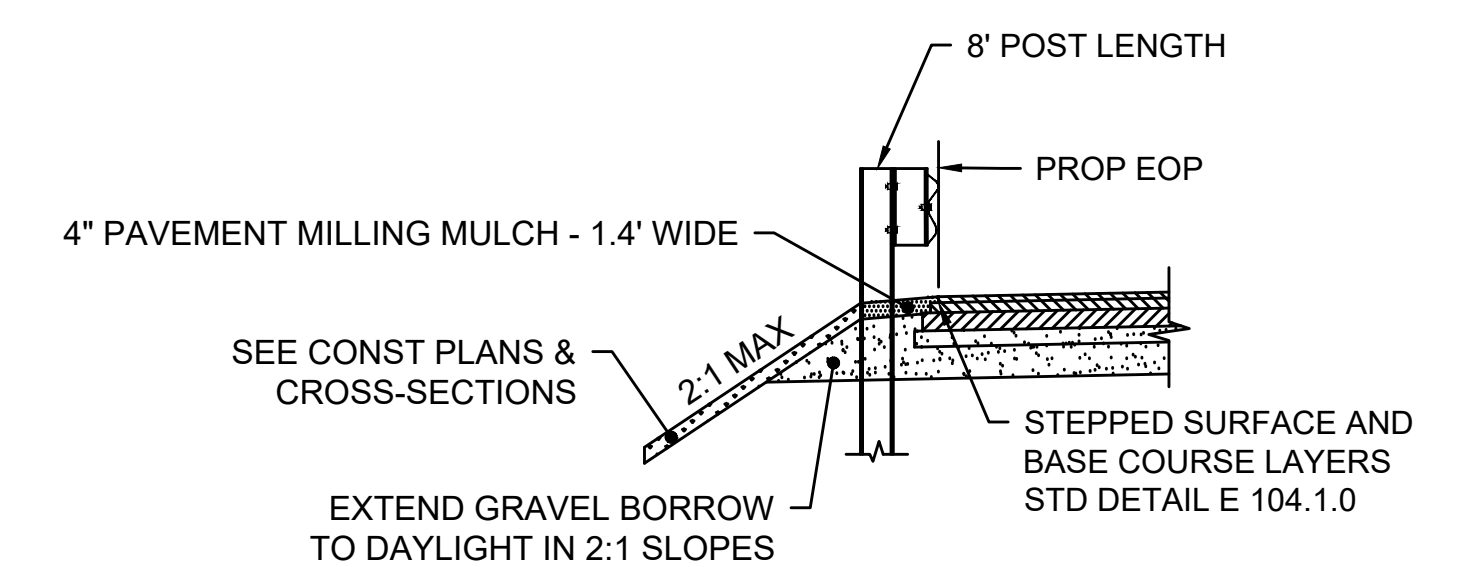
TYPICAL SECTION EAST OXBOW ROAD

STA. 11+50.00 TO STA. 11+60.00
STA. 15+85.00 TO STA. 16+50.00
SCALE: 1" = 4'

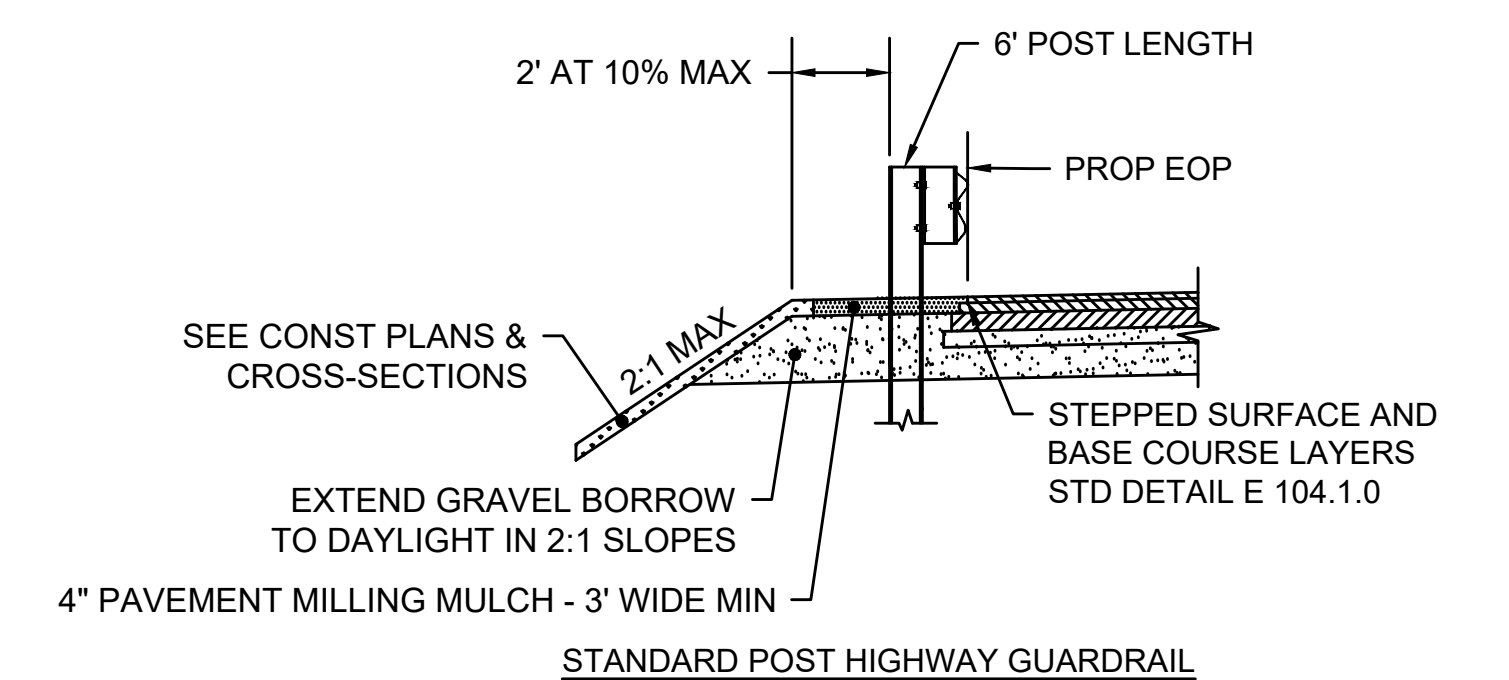


TYPICAL ROCKFILL SWALE

*SEE CONSTRUCTION PLAN AND CROSS-SECTIONS
NOT TO SCALE



DEEP POST HIGHWAY GUARDRAIL



STANDARD POST HIGHWAY GUARDRAIL

NOTE:
FOR GUARDRAIL LOCATIONS SEE CONSTRUCTION PLAN.

HIGHWAY GUARDRAIL DETAILS

NOT TO SCALE

PAVEMENT NOTES:

PROPOSED FULL DEPTH PAVEMENT:

SURFACE: 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
2 1/2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER

BASE: 4 1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER

SUBBASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER
8" GRAVEL BORROW - TYPE C

PROPOSED MILLING AND OVERLAY:

SURFACE: 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5) OVER ASPHALT EMULSION FOR TACK COAT

PROPOSED PAVEMENT OVER BRIDGE:

SURFACE: 1 1/2" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B-9.5) OVER

1 1/2" SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 (SPC-B-9.5) OVER SPRAY APPLIED MEMBRANE WATERPROOFING

NOTES:

THE FINAL 1 1/2" SURFACE COURSE OF SUPERPAVE SHALL BE PLACED IN ONE CONTINUOUS OPERATION FROM BEGIN TO END OF PROJECT, FOR EACH SIDE OF THE ROADWAY.

TACK COAT APPLICATION RATES FOR SPECIFIC SURFACE CONDITIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING:

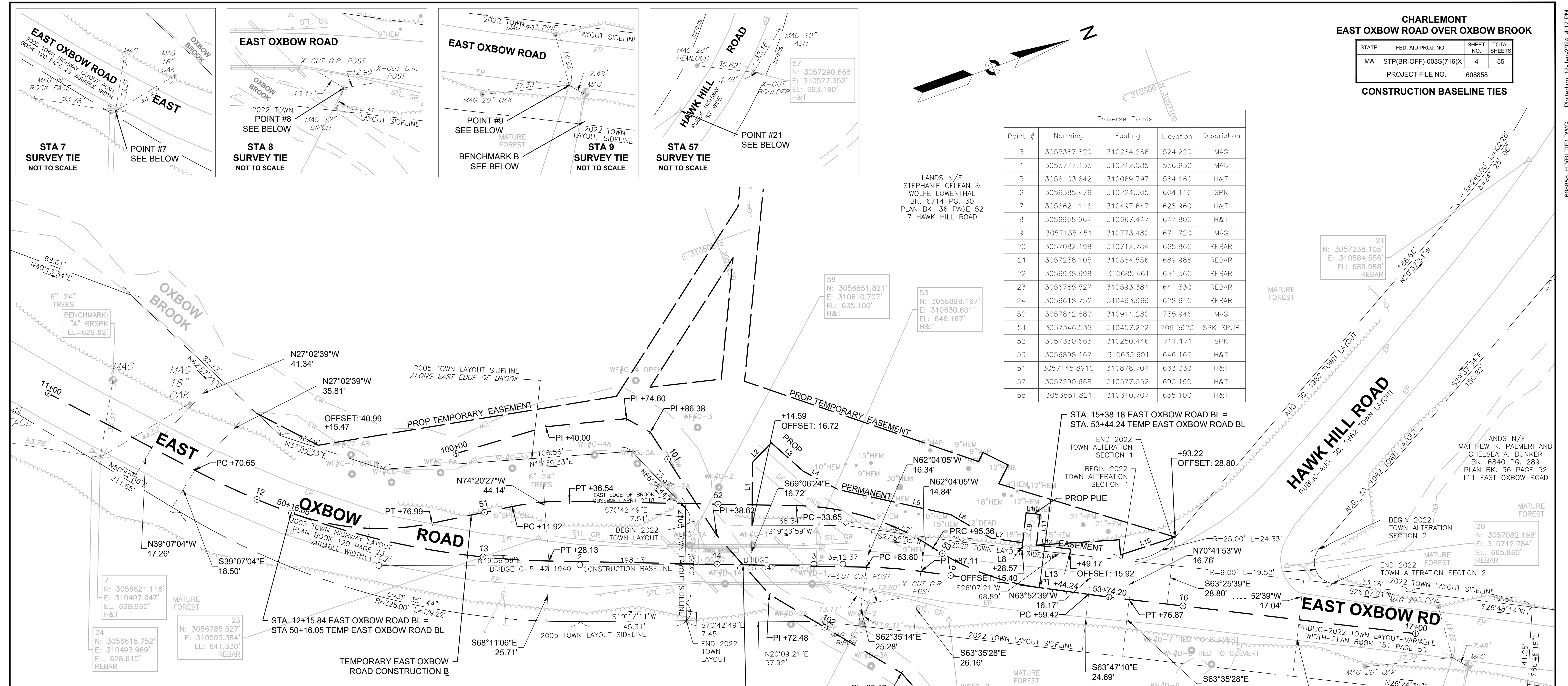
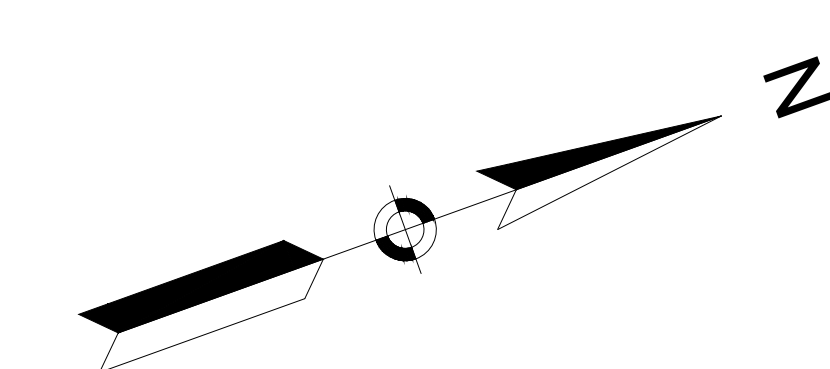
- ON A NEW HMA SURFACE, NOT OPENED TO TRAFFIC, THE EMULSION APPLICATION RATE SHALL EQUAL 0.06 TO 0.08 GALLONS PER SQUARE YARD
- ON AN EXISTING TIGHT SMOOTH PAVEMENT THE EMULSION APPLICATION RATE SHALL EQUAL 0.06 TO 0.08 GALLONS PER SQUARE YARD
- ON A MILLED SURFACE THE EMULSION APPLICATION RATE SHALL EQUAL 0.07 TO 0.09 GALLONS PER SQUARE YARD
- ON CEMENT CONCRETE BASE COURSE THE EMULSION APPLICATION RATE SHALL BE EQUAL TO SPRAY APPLICATION FOR ADJACENT SURFACE
- ON NEW HMA PATCHES THE EMULSION APPLICATION RATE SHALL EQUAL 0.06 TO 0.09 GALLONS PER SQUARE YARD

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CONSTRUCTION BASELINE TIES

Point #	Northing	Easting	Elevation	Description
3	3055387.820	310284.266	524.220	MAG
4	3055777.135	310212.085	556.930	MAG
5	3056103.642	310069.797	584.160	H&T
6	3056385.476	310224.305	604.110	SPK
7	3056621.116	310497.647	628.960	H&T
8	3056908.964	310667.447	647.800	H&T
9	3057135.451	310773.480	671.720	MAG
20	3057082.198	310712.784	665.860	REBAR
21	3057238.105	310584.556	689.988	REBAR
22	3056938.698	310685.461	651.560	REBAR
23	3056785.527	310593.384	641.330	REBAR
24	3056618.752	310493.969	628.610	REBAR
50	3057842.880	310911.280	735.946	MAG
51	3057346.539	310457.222	706.5920	SPK SPUR
52	3057330.663	310250.446	711.171	SPK
53	3056898.167	310630.601	646.167	H&T
54	3057145.8910	310878.704	663.030	H&T
57	3057290.668	310577.352	693.190	H&T
58	3056851.821	310610.707	635.100	H&T



- BOUNDARY INFORMATION SHOWN HEREON WAS COMPILED FROM AN ACTUAL FIELD SURVEY CONDUCTED ON APRIL 12, 2018 THROUGH APRIL 25, 2018 BY WSP AND SUPPLEMENTED BY A 2022 PLAN PREPARED BY CHA CONSULTING, INC. TITLED "PLAN OF PROPOSED TOWN HIGHWAY LAYOUT OF A PORTION OF EAST OXBOW ROAD AND AN ALTERATION OF HAWK HILL ROAD IN CHARLEMONT MASSACHUSETTS", WHICH PLAN WAS ACCEPTED AT A TOWN MEETING AND HAS BEEN RECORDED IN PLAN BOOK 151 PAGE 50. NEW UTILITY POLES, OVERHEAD WIRES, AND SIGNS WERE FIELD SURVEYED ON SEPTEMBER, 2021. SURVEY FIELD NOTES CAN BE FOUND IN MASSDOT SURVEY NOTEBOOK 41401.
- NORTH ORIENTATION AND BEARING BASE PER GRID NORTH.
- THE LOCATION OF UNDERGROUND IMPROVEMENTS, UTILITIES OR ENCROACHMENTS, IF ANY EXIST, OR AS SHOWN HEREON, ARE NOT CERTIFIED. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A UTILITY MARK OUT SERVICE. THE LOCATION OF UNDERGROUND UTILITIES DEPICTED ON THIS PLAN HAVE BEEN COMPILED FROM VARIOUS SOURCES, INCLUDING, BUT NOT LIMITED TO INFORMATION AND RECORD PLANS OBTAINED FROM VARIOUS UTILITY PROVIDERS, AND LOCATION OF STRUCTURES VISUALLY IDENTIFIED AND LOCATED DURING THE COURSE OF THE FIELD SURVEY. THE LOCATION OF ALL UTILITIES DEPICTED ON THIS PLAN SHALL BE CONSIDERED APPROXIMATE. WSP MAKES NO WARRANTY NOR GUARANTEE AS TO THE ACCURACY OF THE LOCATION OF THE UTILITY LINES DEPICTED ON THIS PLAN. FURTHERMORE, WSP MAKES NO WARRANTY NOR GUARANTEE THAT THE UTILITIES DEPICTED ON THIS MAP COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ROUTE, SIZE AND LOCATION OF ALL UTILITIES MUST BE VERIFIED BY THE APPROPRIATE AUTHORITIES. THE PROPER UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION SHALL BE NOTIFIED, AND A UTILITY MARKOUT SERVICE DEPLOYED PRIOR TO CONDUCTING TEST BORINGS, EXCAVATIONS AND/OR CONSTRUCTION.
- THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF AN UP TO DATE ABSTRACT OF TITLE.
- HORIZONTAL COORDINATES RELATIVE TO THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MASSACHUSETTS MAINLAND ZONE, BASED ON THE NORTH AMERICAN DATUM OF 1983, NAD83 (2011) EPOCH 2010.00.
- ELEVATIONS RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 1988.
- HORIZONTAL COORDINATE AND ELEVATION UNITS ARE U.S. SURVEY FEET.
- AN EXISTING PAIR OF GPS CONTROL POINTS, NUMBERS 2069 AND 2070, WAS SET BY MASSDOT APPROXIMATELY 2500 FEET SOUTH OF BRIDGE C-05-042. WSP RAN A MAIN TRAVERSE, ORIGINATING ON THE PROVIDED GPS CONTROL PAIR, TO THE NORTH ALONG EAST OXBOW ROAD TO BRIDGE C-05-042. A CLOSING PAIR TO THE NORTH OF BRIDGE C-05-042 WAS NOT PROVIDED BY MASSDOT, THEREFORE THE MAIN TRAVERSE WAS RAN BACK THROUGH THE EXISTING STATIONS (CLOSING THE HORIZON) BACK TO THE ORIGINATING PAIR TO CALCULATE A TRAVERSE CLOSURE AND PERFORM HORIZONTAL ADJUSTMENTS. ALL PROJECT CONTROL WAS THREE-WIRE LEVELLED AND ADJUSTED OFF OF GPS CONTROL POINT NUMBER 2070.
- THE WETLAND DELINEATION WAS PERFORMED BY EPSILON ON JULY 3, 2018 AND SEPTEMBER OF 2021.
- THE BOUNDARY ALONG THE EAST EDGE OF THE OXBOW BROOK WAS ESTABLISHED BY SHOTS TAKEN ON THE BOTTOM OF SLOPE OF THE EAST BANK OF THE BROOK IN APRIL 2018. ADDITIONAL BOUNDARY OF THE 2005 TOWN HIGHWAY LAYOUT THAT RUNS ALONG THE EAST EDGE OF THE BROOK THAT WAS OUTSIDE OF THE SURVEY SCOPE AREA WAS DRAWN IN BY SCALING THE 2005 TOWN HIGHWAY LAYOUT MAP. A TIE LINE IS PROVIDED ON THE MAP FROM WHERE THE SURVEY SCOPE AREA AND 2018 DEFINITION OF THE EAST EDGE OF THE OXBOW BROOK ENDS TO THE NEAREST CORNER OF THE LAYOUT.
- THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY HIGHWAY BOUND OR PRIVATE PROPERTY PIN THAT MAY BE DAMAGED OR DESTROYED DURING CONSTRUCTION TO ITS RESPECTIVE LOCATION JUST PRIOR TO CONSTRUCTION.

PERM EASEMENT LINE TABLE

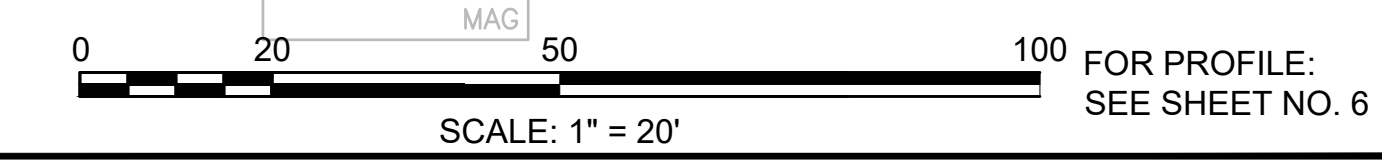
Line #	Direction	Length
L1	N69°50'39"W	27.02
L2	N26°26'31"W	11.65
L3	N61°27'05"E	18.23
L4	N47°30'49"E	16.88
L5	N32°18'38"E	49.21
L6	N50°00'26"E	19.98
L7	N28°06'14"E	13.62
L8	S63°35'28"E	2.61
L9	N63°35'28"W	15.49
L10	N26°24'32"E	6.00
L11	S63°35'28"E	13.21
L12	N26°24'32"E	14.61
L13	S63°35'28"E	2.18
L15	N1°46'44"E	24.57

EAST OXBOW ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	11+00.00	3056609.3950	310464.4425		N47°25'53"E 70.65'	11+70.65	3056657.1861	310516.4722
C1	11+70.65	3056657.1861	310516.4722	R=340.00 Δ=26°32'17" L=157.48' T=80.18'		13+28.13	3056786.3315	310604.1155
L2	13+28.13	3056786.3315	310604.1155		N20°53'36"E 135.67'	14+83.80	3056913.0792	310652.4989
L3	14+83.80	3056913.0792	310652.4989	R=200.00 Δ=6°40'45" L=23.31' T=11.67'		14+87.11	3056934.3278	310662.0631
C2	14+87.11	3056934.3278	310662.0631		N27°34'21"E 72.30'	15+59.42	3056998.4206	310695.5310
C3	15+59.42	3056998.4206	310695.5310	R=1000.00 Δ=1°00'00" L=17.45' T=8.73'		15+76.87	3057013.9614	310703.4742
L4	15+76.87	3057013.9614	310703.4742		N26°34'21"E 123.13'	17+00.00	3057124.0892	310758.5563

TEMPORARY EAST OXBOW ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	50+16.05	3056689.8790	310547.6306	R=110.00 Δ=31°44'37" L=80.94' T=31.28'		50+76.99	3056744.8681	310572.0483
L1	50+76.99	3056744.8681	310572.0483		N8°04'18"E 34.93'	51+11.92	3056779.4528	310576.9530
C2	51+11.92	3056779.4528	310576.9530	R=110.00 Δ=12°49'13" L=24.61' T=12.36'		51+36.54	3056803.2344	310583.0954
L2	51+36.54	3056803.2344	310583.0954		N20°53'31"E 97.12'	52+33.85	3056893.9657	310617.7279
C3	52+33.85	3056893.9657	310617.7279	R=110.00 Δ=32°08'23" L=61.70' T=31.69'		52+95.36	3056942.6254	310654.3448
C4	52+95.36	3056942.6254	310654.3458	R=110.00 Δ=25°27'33" L=48.88' T=24.85'		53+44.24	3056979.5967	310685.7015
L4	53+44.24	3056979.5967	310685.7015		N27°34'21"E 29.96'	53+74.20	3057006.1563	310699.5704



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CONSTRUCTION PLAN

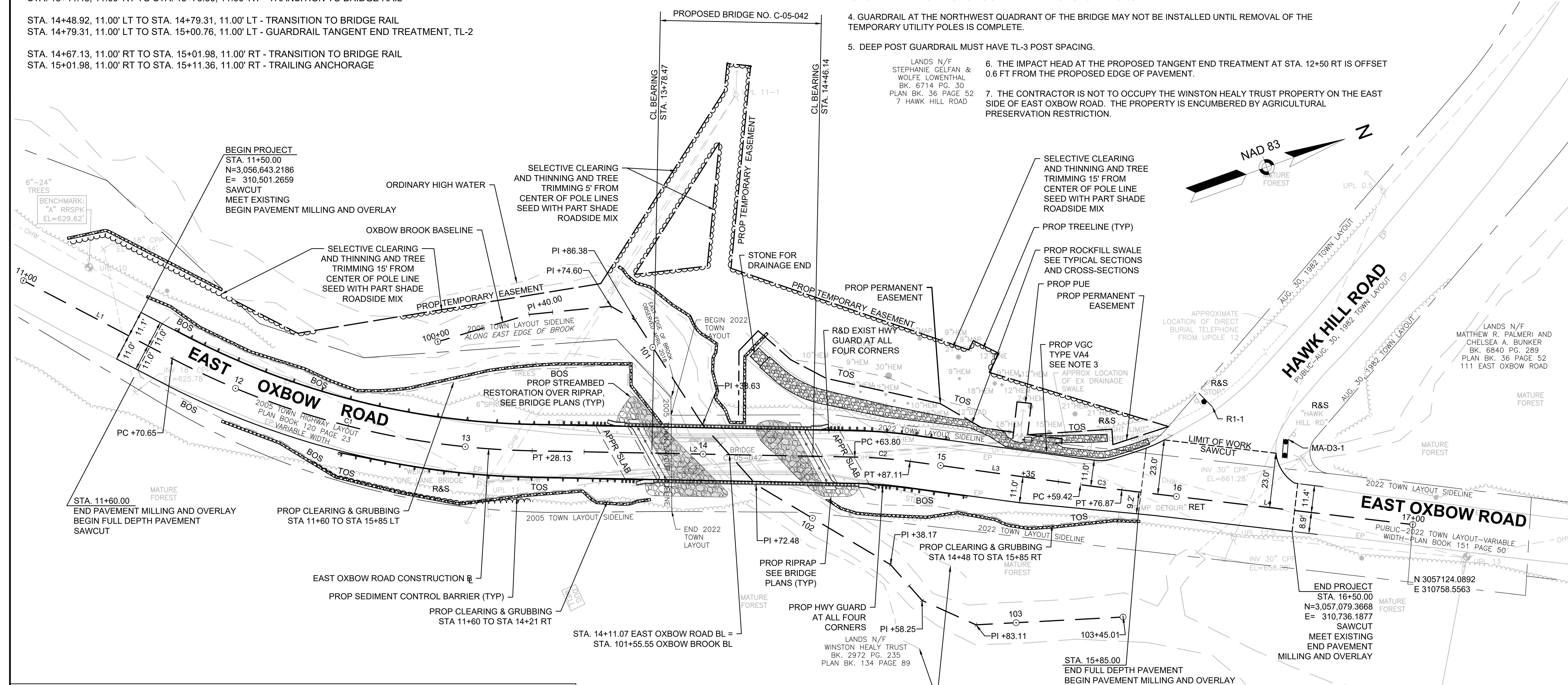
NOTES:

- PAY LIMITS FOR CLEARING AND GRUBBING MAY EXTEND UP TO 5' BEYOND THE LIMIT OF GRADING AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. PAY LIMITS FOR SELECTIVE CLEARING AND THINNING EXTEND FROM THE LIMIT OF CLEARING AND GRUBBING REQUIRED TO THE EXTENT REQUIRED BY THE UTILITIES, AS APPROXIMATED ON THE WEST SIDE (UP TO 15' FROM CENTER OF POLE LINE).
- STUMPS IN AREAS OF SELECTIVE CLEARING AND THINNING MAY BE LEFT IN PLACE TO AID IN SLOPE STABILIZATION. STUMPS SHALL BE CUT NO MORE THAN 12" ABOVE THE GROUND.
- GRANITE CURB TRANSITION FROM 0" TO 9" REVEAL STA 15+26 TO 15+29 LT. 9" REVEAL FROM STA 15+29 TO STA 15+40 LT. TRANSITION FROM 9" TO 0" REVEAL STA 15+40 TO STA 15+50 LT.
- GUARDRAIL AT THE NORTHWEST QUADRANT OF THE BRIDGE MAY NOT BE INSTALLED UNTIL REMOVAL OF THE TEMPORARY UTILITY POLES IS COMPLETE.
- DEEP POST GUARDRAIL MUST HAVE TL-3 POST SPACING.

LANDS N/F
STEPHANIE GELFAN &
WOLFE LOWENTHAL
BK. 6714 PG. 30
PLAN BK. 36 PAGE 52
7 HAWK HILL ROAD

- THE IMPACT HEAD AT THE PROPOSED TANGENT END TREATMENT AT STA. 12+50 RT IS OFFSET 0.6 FT FROM THE PROPOSED EDGE OF PAVEMENT.
- THE CONTRACTOR IS NOT TO OCCUPY THE WINSTON HEALY TRUST PROPERTY ON THE EAST SIDE OF EAST OXBOW ROAD. THE PROPERTY IS ENCUMBERED BY AGRICULTURAL PRESERVATION RESTRICTION.

- HIGHWAY GUARD DETAILS**
- STA. 11+67.44, 11.00' LT TO STA. 11+77.02, 11.00' LT - TRAILING ANCHORAGE
 - STA. 11+77.02, 11.00' LT TO STA. 12+28.69, 11.00' LT - GUARDRAIL, TL-2 (SINGLE FACED)
 - STA. 12+28.69, 11.00' LT TO STA. 12+80.37, 11.00' LT - GUARDRAIL, DEEP POST (SINGLE FACED)
 - STA. 12+80.37, 11.00' LT TO STA. 13+31.91, 11.00' LT - GUARDRAIL, TL-2 (SINGLE FACED)
 - STA. 13+31.91, 11.00' LT TO STA. 13+63.16, 11.00' LT - TRANSITION TO BRIDGE RAIL
- DRAINAGE DETAILS**
- SEE BELOW
- TYPE VA CURB AT TRANSITIONS TO BRIDGE RAIL:**
- TRANSITION CURB STA 13+44.4 TO STA 13+50.7 LT
 - CURB STA 13+50.7 TO STA 13+61.9 LT
 - TRANSITION CURB STA 13+57.0 TO STA 13+63.2 RT
 - CURB STA 13+63.2 TO STA 13+74.5 RT
 - CURB STA 14+50.2 TO STA 14+61.4 LT
 - TRANSITION CURB STA 14+61.4 TO STA 14+67.5 LT
 - CURB STA 14+71.1 TO STA 14+83.0 RT
 - TRANSITION CURB STA 14+83.0 TO STA 14+89.5 RT
- HIGHWAY GUARD DETAILS (continued):**
- STA. 12+50.13, 11.60' RT TO STA. 12+71.29, 11.00' RT - GUARDRAIL TANGENT END TREATMENT, TL-2
 - STA. 12+71.29, 11.00' RT TO STA. 13+44.45, 11.00' RT - GUARDRAIL, TL-3 (SINGLE FACED)
 - STA. 13+44.45, 11.00' RT TO STA. 13+76.30, 11.00' RT - TRANSITION TO BRIDGE RAIL
 - STA. 14+48.92, 11.00' LT TO STA. 14+79.31, 11.00' LT - TRANSITION TO BRIDGE RAIL
 - STA. 14+79.31, 11.00' LT TO STA. 15+00.76, 11.00' LT - GUARDRAIL TANGENT END TREATMENT, TL-2
 - STA. 14+67.13, 11.00' RT TO STA. 15+01.98, 11.00' RT - TRANSITION TO BRIDGE RAIL
 - STA. 15+01.98, 11.00' RT TO STA. 15+11.36, 11.00' RT - TRAILING ANCHORAGE

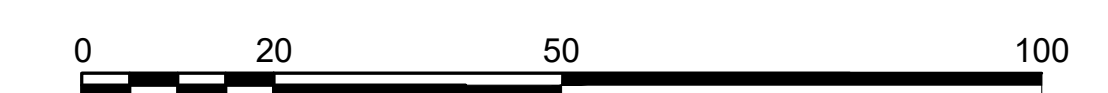


EAST OXBOW ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	11+00.00	3056609.3950	310464.4425		N47°25'53"E 70.65'	11+70.65	3056657.1861	310516.4722
C1	11+70.65	3056657.1861	310516.4722	R = 340.00' Δ= 26°32'17" L=157.48' T=80.18'		13+28.13	3056786.3315	310604.1155
L2	13+28.13	3056786.3315	310604.1155		N20°53'36"E 135.67'	14+63.80	3056913.0792	310652.4989
C2	14+63.80	3056913.0792	310652.4989	R = 200.00' Δ= 6°40'45" L=23.31' T=11.67'		14+87.11	3056934.3278	310662.0631
L3	14+87.11	3056934.3278	310662.0631		N27°34'21"E 72.30'	15+59.42	3056998.4206	310695.5310
C3	15+59.42	3056998.4206	310695.5310	R = 1000.00' Δ= 1°00'00" L=17.45' T=8.73'		15+76.87	3057013.9614	310703.4742
L4	15+76.87	3057013.9614	310703.4742		N26°34'21"E 123.13'	17+00.00	3057124.0892	310758.5563

PROPOSED SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (SF)	AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR.		BACK-GROUND	LEGEND	BORDER			
MA-D3-1	54	12	Hawk Hill Rd	3	3	NA	2	GREEN	WHITE	WHITE	2 P-5	4.5	9
R1-1	30	30	STOP	SEE MUTCD			1	RED	WHITE	WHITE	1 P-5	6.25	6.25



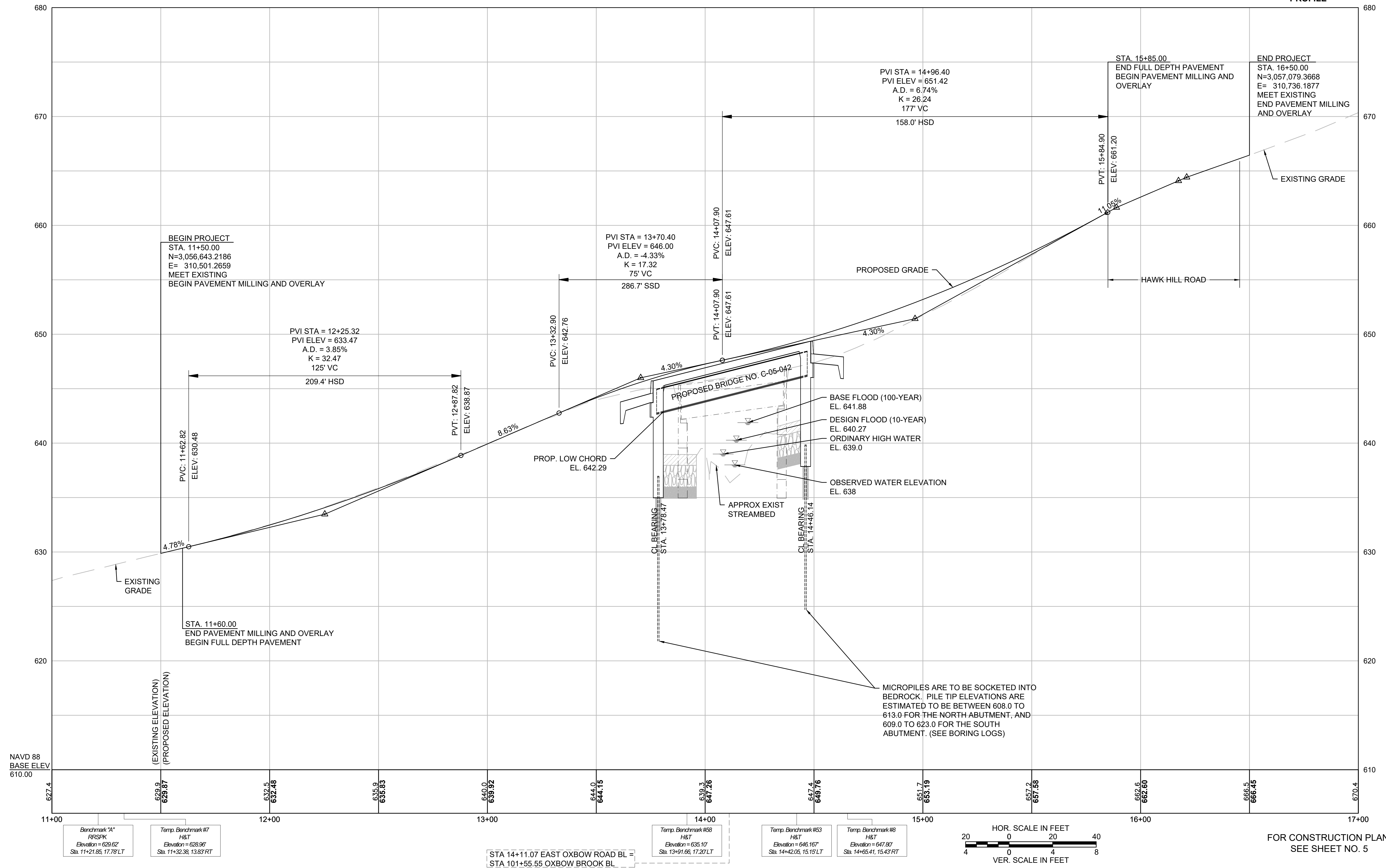
FOR PROFILE:
SEE SHEET NO. 6

EAST OXBOW ROAD

CHARLEMONT EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	6	55
PROJECT FILE NO. 608858			

PROFILE



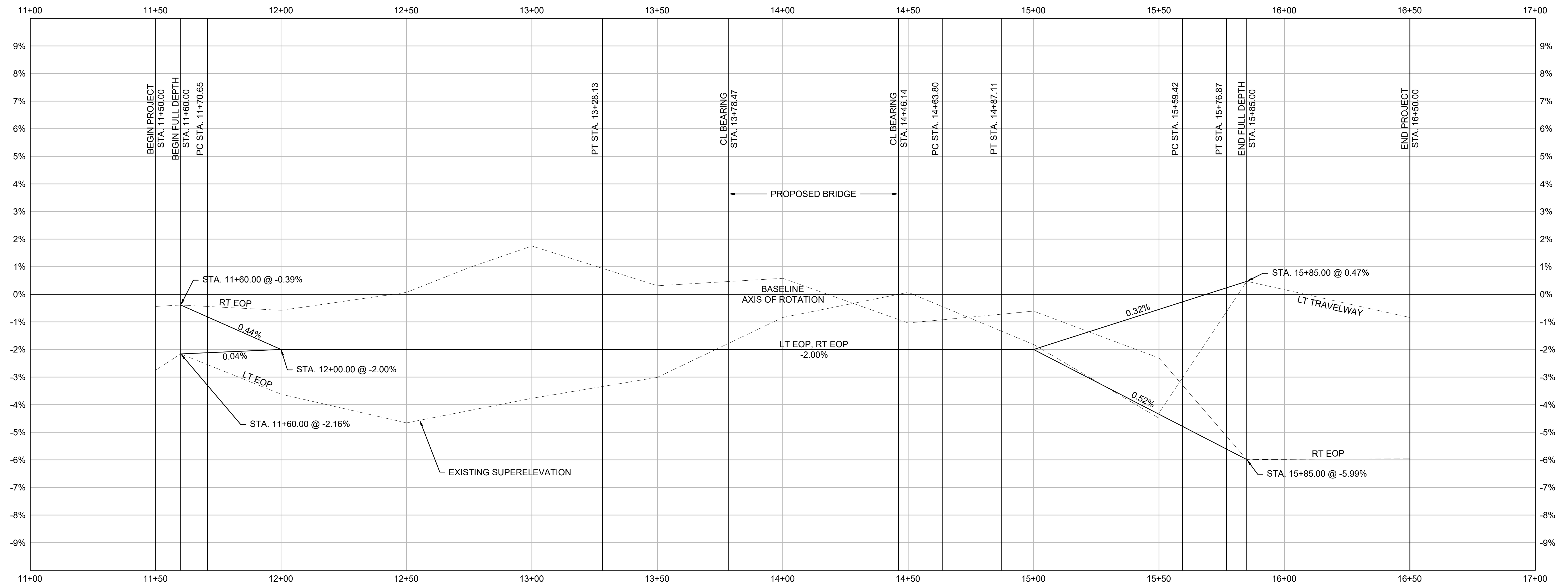
608858_HD(P&P).DWG Plotted on 17-Jan-2024 4:17 PM

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	7	55
PROJECT FILE NO.		608858	

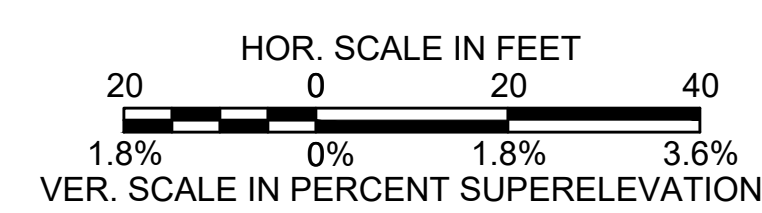
SUPERELEVATION DIAGRAM

EAST OXBOW ROAD



SUPERELEVATION CRITERIA:

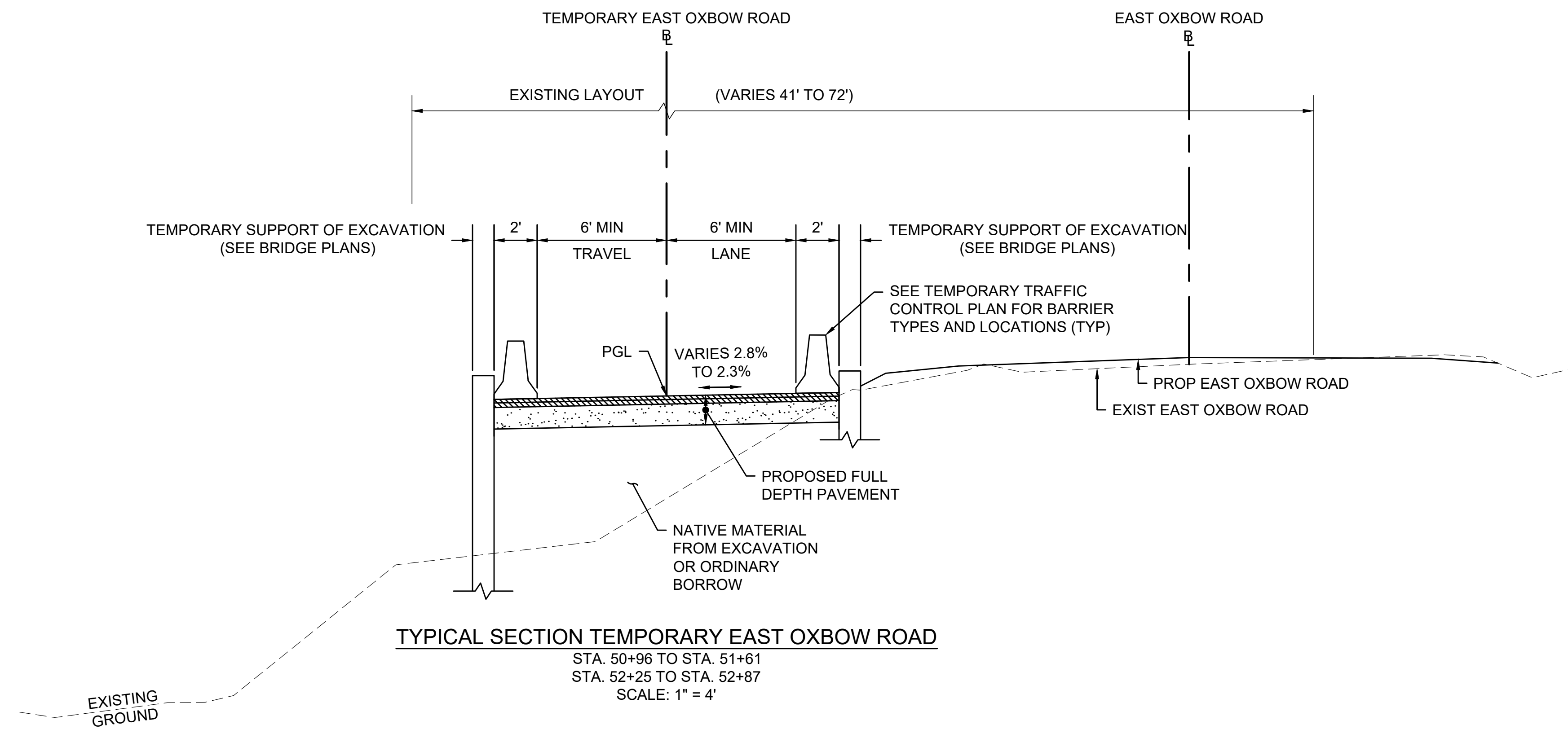
DESIGN SPEED = 25 MPH
MAX. RELATIVE GRADIENT = 0.70% (1:143) (PDDG Exhibit 4-20)



**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	8	55
PROJECT FILE NO.		608858	

TEMPORARY TRAFFIC CONTROL PLANS - 1 OF 10



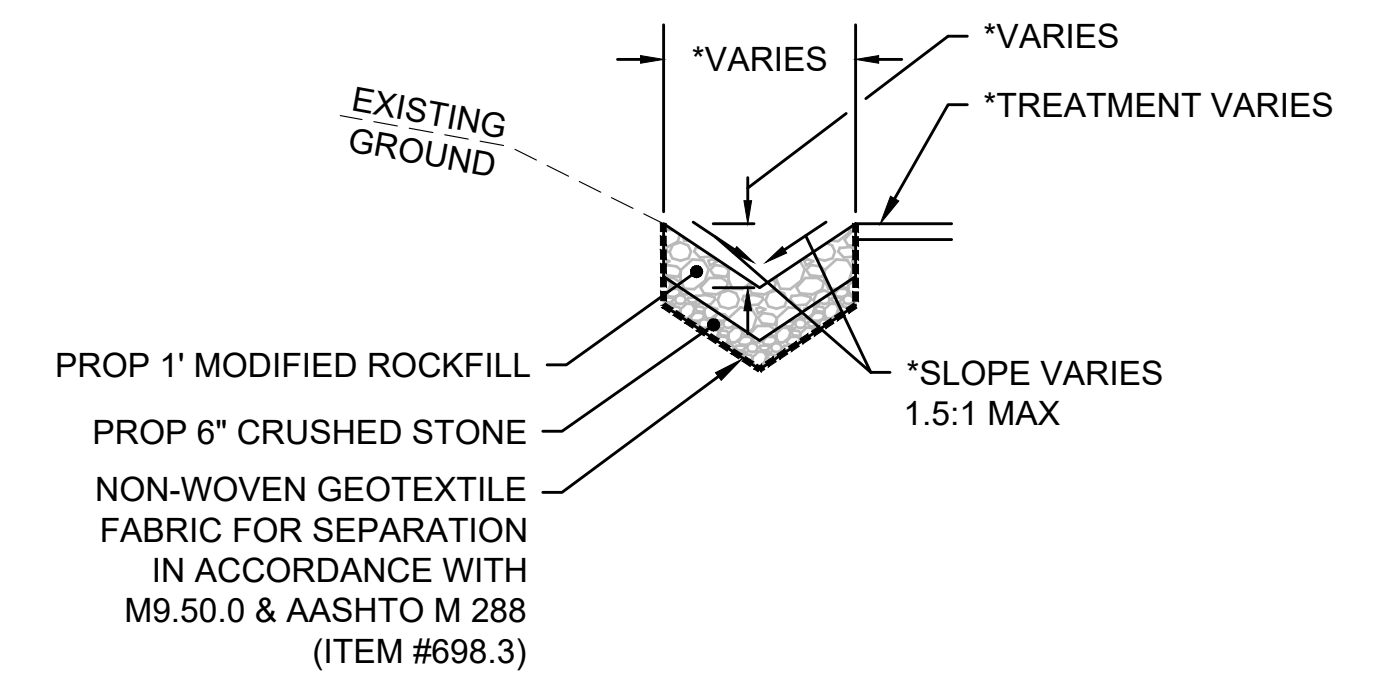
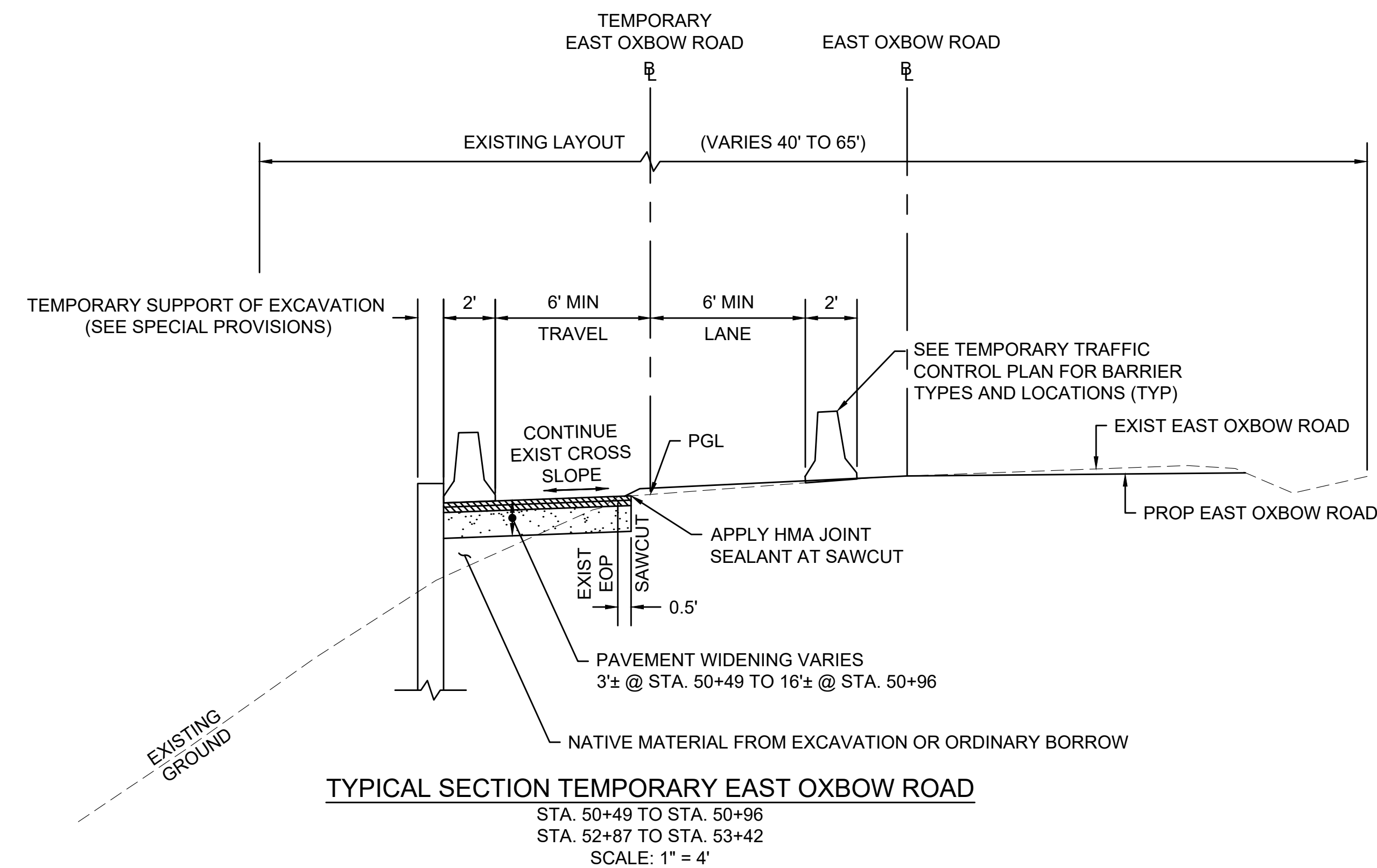
PAVEMENT NOTES:

PROPOSED FULL DEPTH PAVEMENT:

SURFACE: 2" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
 2 1/2" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER

SUBBASE: 12" GRAVEL BORROW - TYPE C

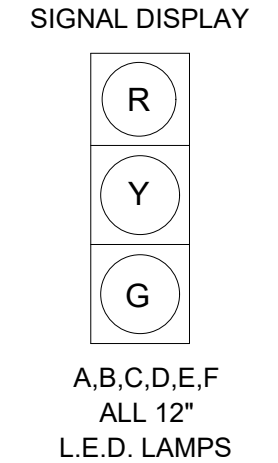
ALL HMA PAVING, HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT, AND HMA JOINT ADHESIVE SHALL CONFORM WITH SECTION 450 HOT MIX ASPHALT PAVEMENT SPECIFICATIONS.



**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	9	55
PROJECT FILE NO.		608858	

TEMPORARY TRAFFIC CONTROL PLANS - 2 OF 10

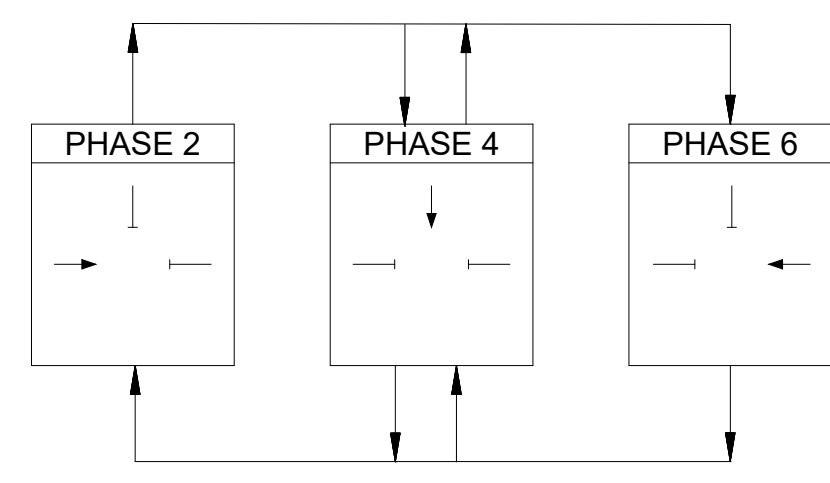


FULLY-ACTUATED	<input checked="" type="checkbox"/>	WIRE	<input type="checkbox"/>
SEMI-ACTUATED	<input type="checkbox"/>	TBCU	<input type="checkbox"/>
PRE-TIMED	<input type="checkbox"/>		
ISOLATED	<input checked="" type="checkbox"/>		
COORDINATED	<input type="checkbox"/>		

	TIMING IN SECONDS								
	PHASE 2			PHASE 4			PHASE 6		
MINIMUM GREEN	7			7			7		
VEHICLE INTERVAL	2			2			2		
MAXIMUM GREEN I	20			20			20		
DELAYED GREEN	22								
YELLOW CLEAR		4			4			4	
ALL RED CLEAR				24			2		2
WALK INTERVAL									
PED CLEARANCE									
DETECTOR	NON-LOCK	NON-LOCK	NON-LOCK						
RECALL TO MINIMUM	OFF	OFF	OFF	ON					

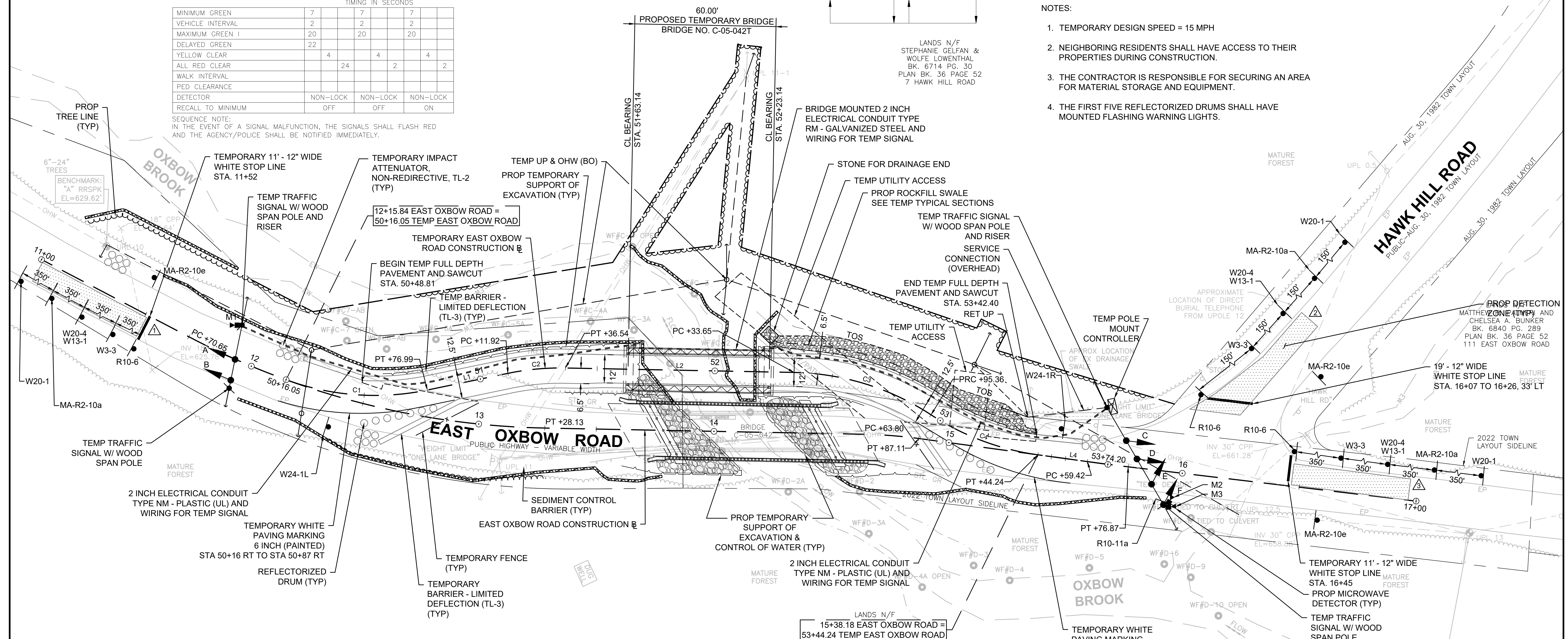
SEQUENCE NOTE:
IN THE EVENT OF A SIGNAL MALFUNCTION, THE SIGNALS SHALL FLASH RED AND THE AGENCY/POLICE SHALL BE NOTIFIED IMMEDIATELY.

PREFERENTIAL PHASING SEQUENCE



NOTES:

1. TEMPORARY DESIGN SPEED = 15 MPH
2. NEIGHBORING RESIDENTS SHALL HAVE ACCESS TO THEIR PROPERTIES DURING CONSTRUCTION.
3. THE CONTRACTOR IS RESPONSIBLE FOR SECURING AN AREA FOR MATERIAL STORAGE AND EQUIPMENT.
4. THE FIRST FIVE REFLECTORIZED DRUMS SHALL HAVE MOUNTED FLASHING WARNING LIGHTS.



TEMPORARY EAST OXBOW ROAD CONSTRUCTION BASELINE DATA

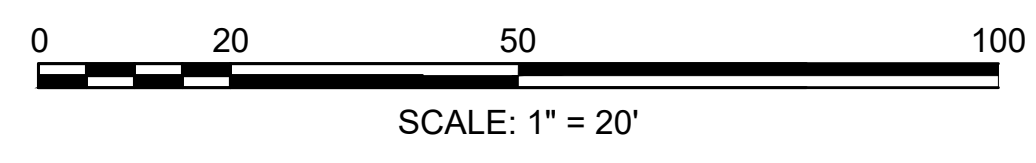
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	50+16.05	3056689.8790	310547.6306	R = 110.00' Δ= 31°44'37" L=60.94' T=31.28'		50+76.99	3056744.8681	310572.0483
L1	50+76.99	3056744.8681	310572.0483		N8°04'18"E 34.93'	51+11.92	3056779.4528	310576.9530
C2	51+11.92	3056779.4528	310576.9530	R = 110.00' Δ= 12°49'13" L=24.61' T=12.36'		51+36.54	3056803.2344	310583.0954
L2	51+36.54	3056803.2344	310583.0954		N20°53'31"E 97.12'	52+33.65	3056893.9657	310617.7279
C3	52+33.65	3056893.9657	310617.7279	R = 110.00' Δ= 32°08'23" L=61.70' T=31.69'		52+95.36	3056942.6254	310654.3448
C4	52+95.36	3056942.6261	310654.3458	R = 110.00' Δ= 25°27'33" L=48.88' T=24.85'		53+44.24	3056979.5967	310685.7015
L4	53+44.24	3056979.5967	310685.7015		N27°34'21"E 29.96'	53+74.20	3057006.1563	310699.5704

MAJOR ITEMS REQUIRED

PAY ITEM	QUANTITY	UNIT	ITEM
816.81	4	EA	WOODEN STRAIN POLES (40 FT. LONG MIN.) WITH GUYS
	1	EA	TS 2 TYPE 1 CABINET IN A SIZE 5 POLE MOUNTED CABINET
	80	FT	3" CONDUIT, SCHEDULE 80, TYPE NM RISER
	1	EA	TRAFFIC SIGNAL CONTROLLER
	6	EA	SIGNAL HEAD, 3-SECTION, 12" LENSES W/ BACKPLATES
	6	EA	SPAN WIRE MOUNTING ASSEMBLY 1 WAY
	1	LS	MICROWAVE DETECTION SYSTEM
	1,150	FT	TRAFFIC SIGNAL CABLE TYPE #1
	100	FT	TRAFFIC SIGNAL STEEL MESSENGER CABLE - TYPE 0
	60	FT	2 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL
813.80	335	FT	2 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL)
	1	LS	ALL MISC. EQUIPMENT, JUNCTION BOXES, CONDUIT MOUNTINGS, TRAFFIC SIGNAL CABLE, FITTINGS AND OTHER INCIDENTAL MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL
	1	LS	SERVICE CONNECTION (OVERHEAD)

MICROWAVE DETECTOR DATA

DETECTOR ZONE	MICROWAVE DETECTOR	ZONE SIZE	PHASE CALLED	PHASE EXTEND
△	M1	9' x 50'	2	2
△	M2	9' x 50'	4	4
△	M3	9' x 50'	6	6



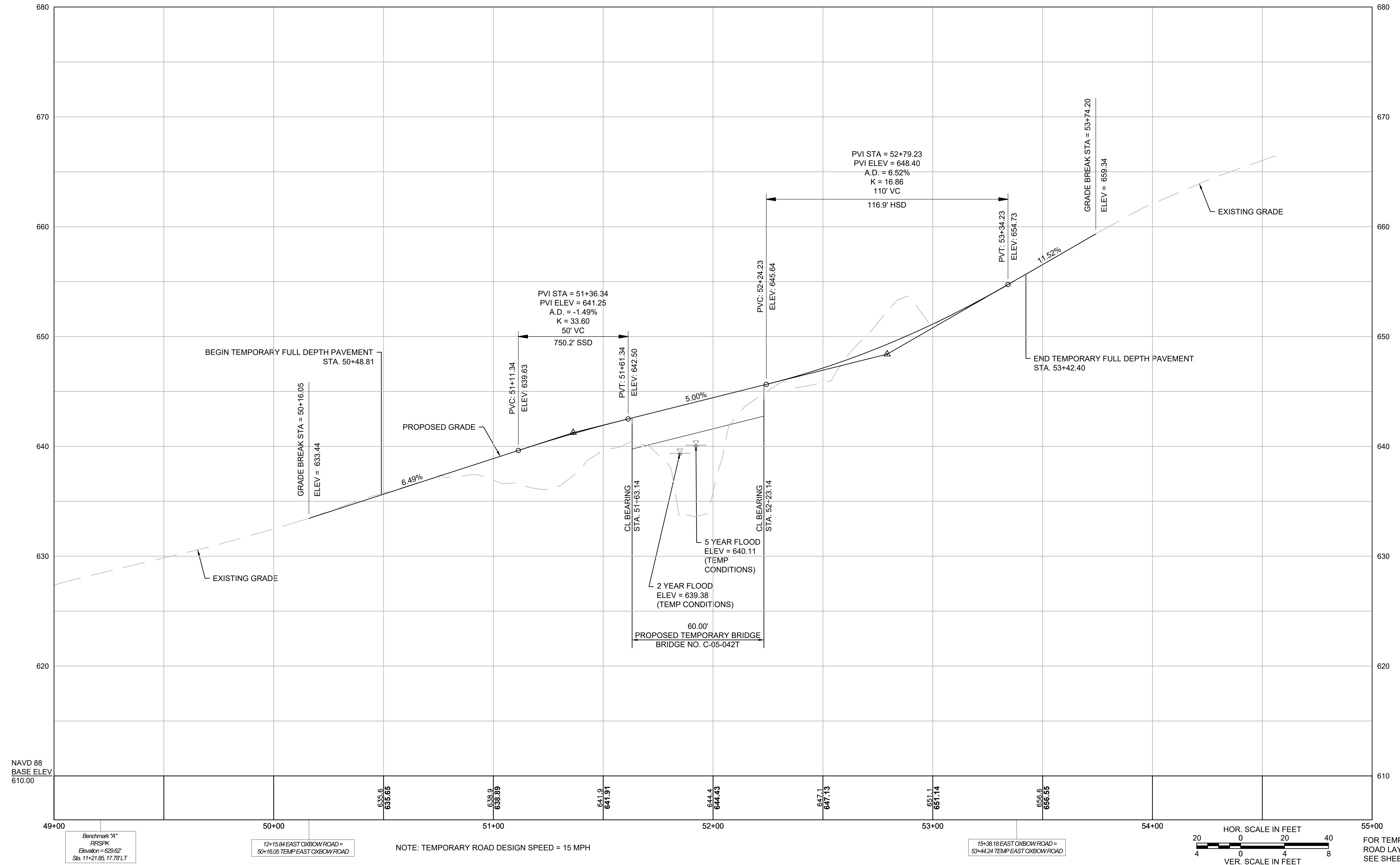
FOR TEMPORARY ROAD PROFILE: SEE SHEET NO. 10

TEMPORARY EAST OXBOW ROAD

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	10	55
PROJECT FILE NO.		608858	

TEMPORARY TRAFFIC CONTROL PLANS - 3 OF 10



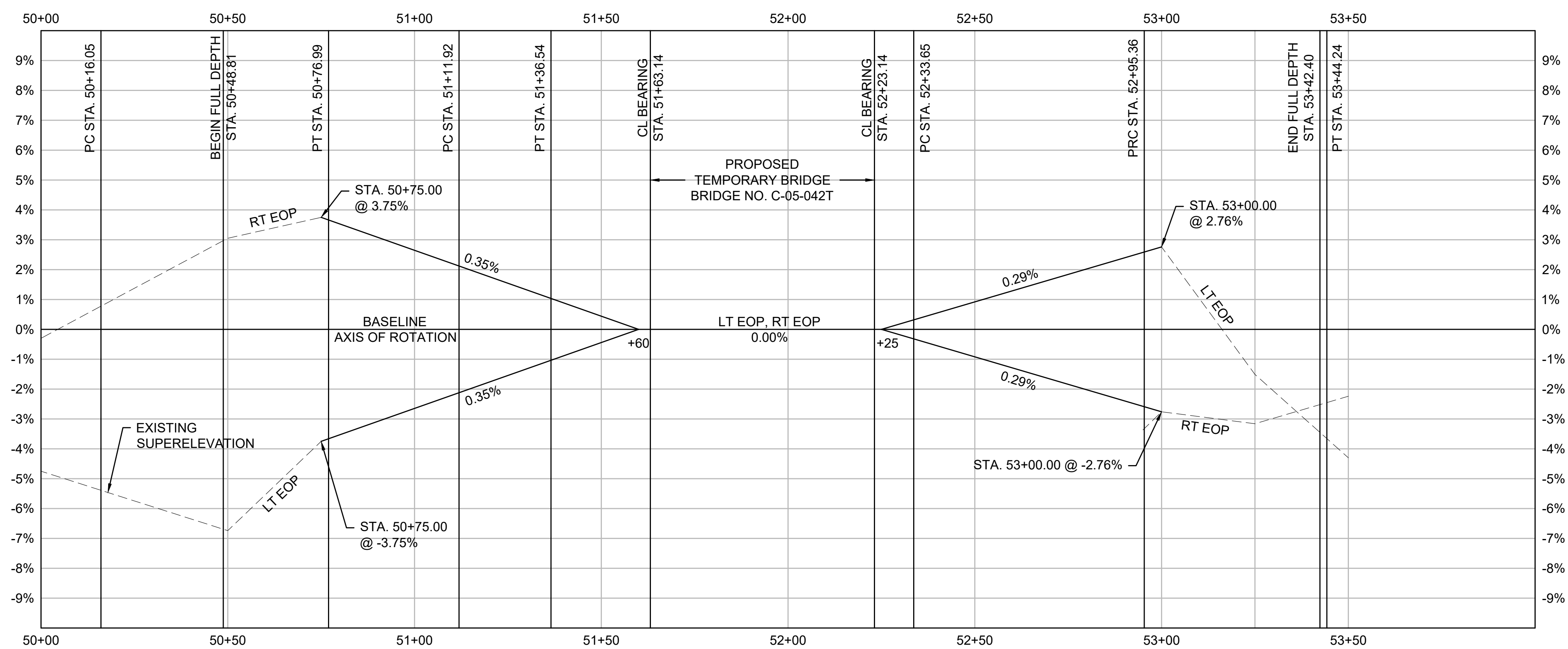
608858_HD(TTCP).DWG Plotted on 17-Jan-2024 4:18 PM

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	11	55
PROJECT FILE NO.		608858	

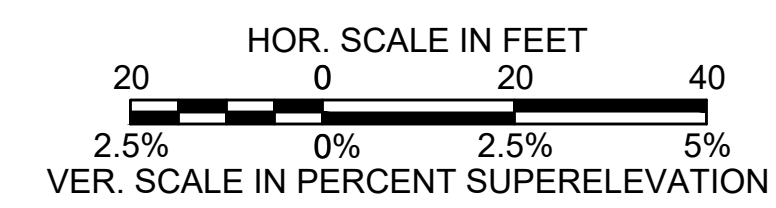
TEMPORARY TRAFFIC CONTROL PLANS - 4 OF 10
SUPERELEVATION DIAGRAM

TEMPORARY EAST OXBOW ROAD



SUPERELEVATION CRITERIA:

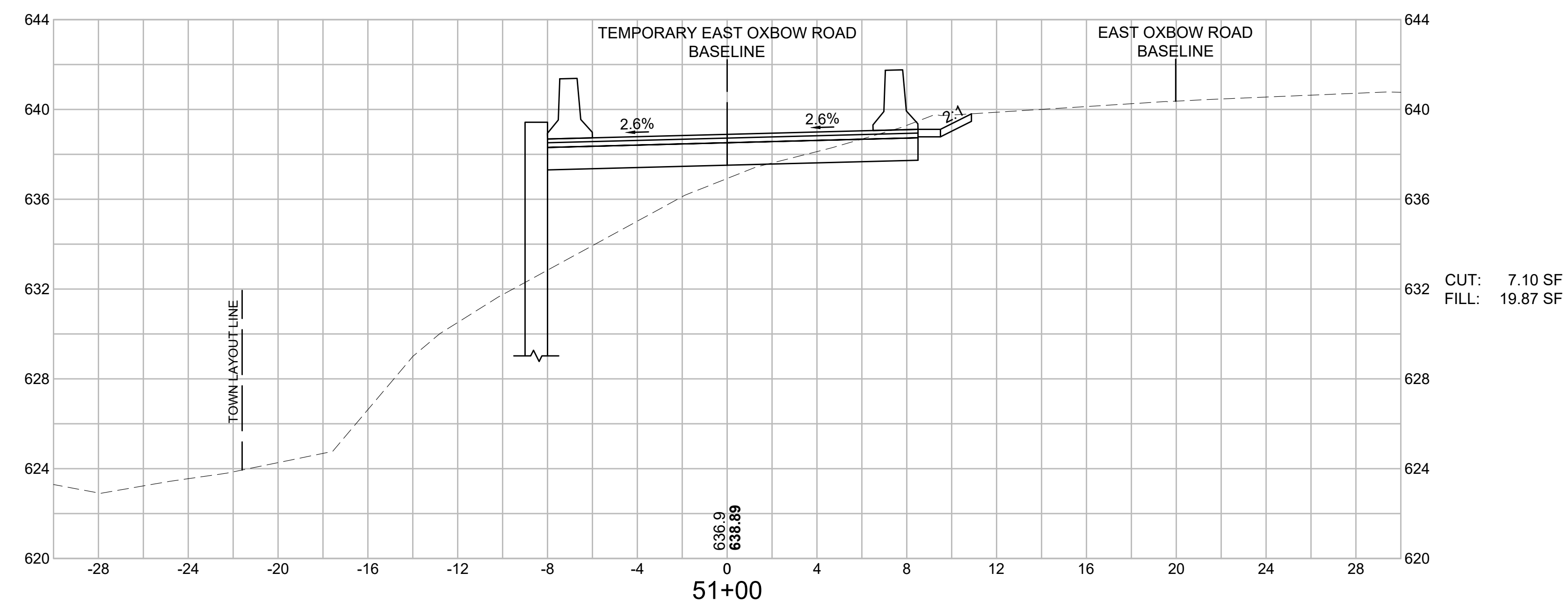
DESIGN SPEED = 15 MPH
MAX. RELATIVE GRADIENT = 0.78% (1:128) (PDDG Exhibit 4-20)



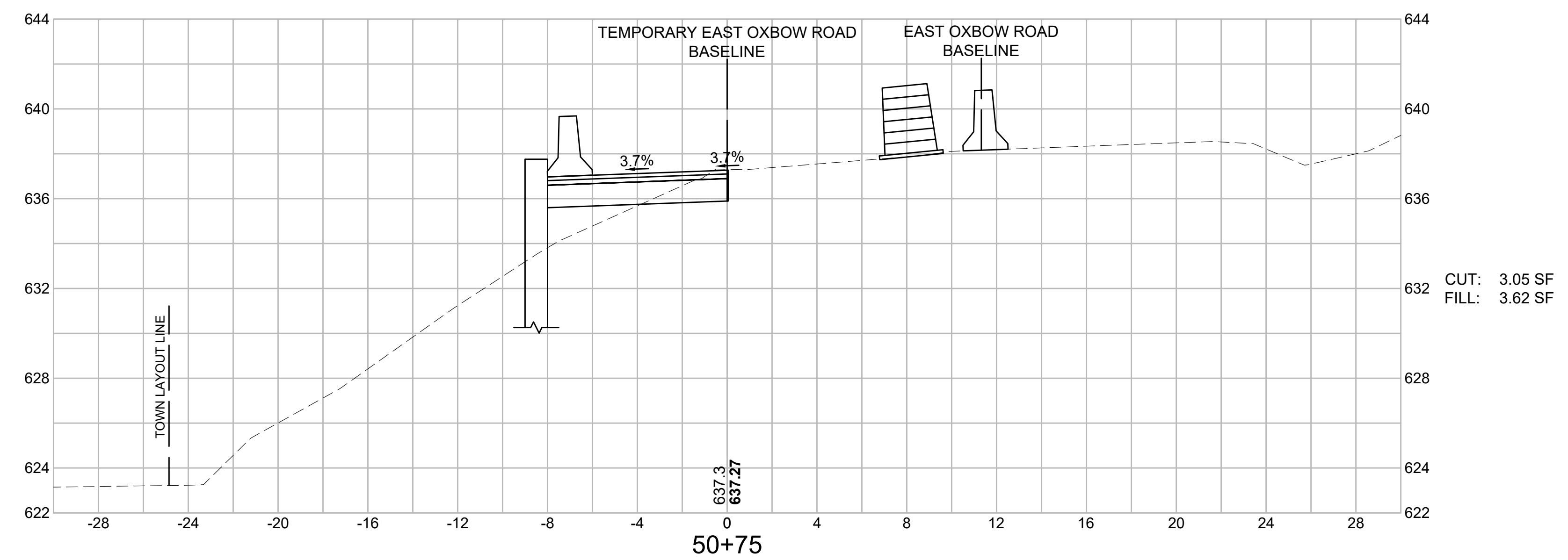
CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	12	55
PROJECT FILE NO.		608858	

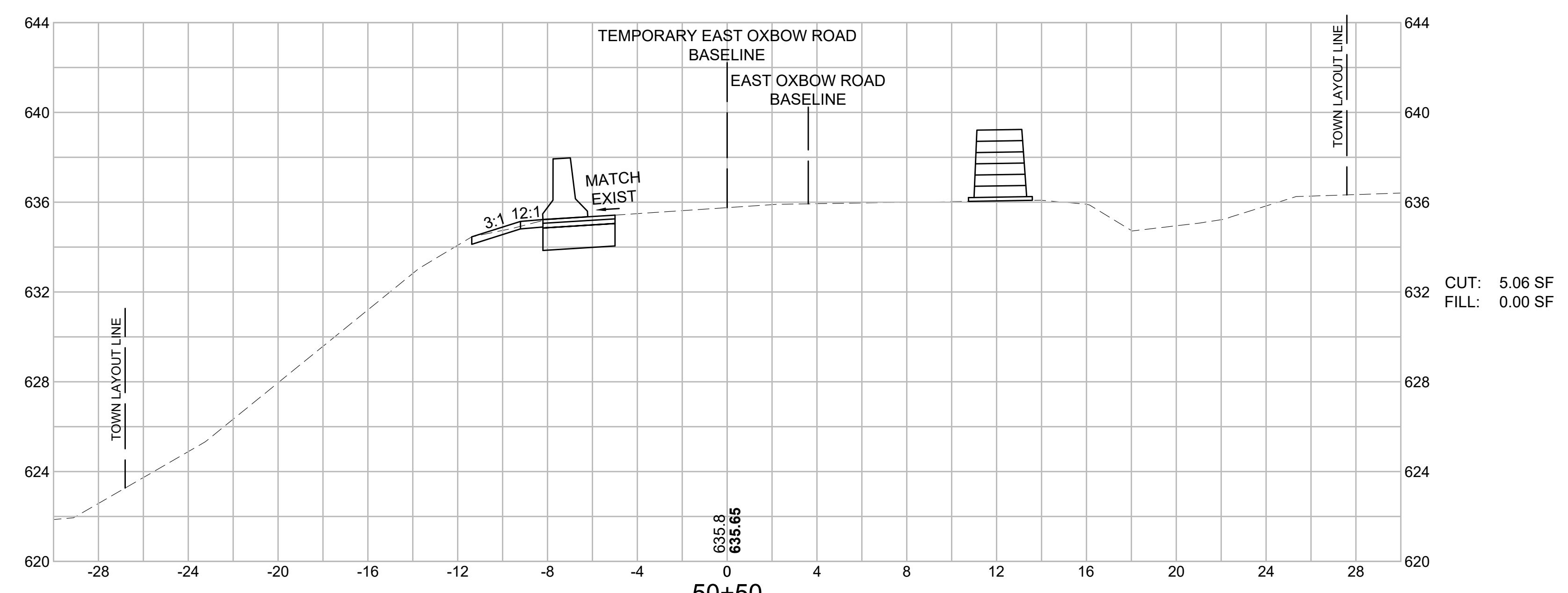
TEMPORARY TRAFFIC CONTROL PLANS - 5 OF 10
TEMPORARY EAST OXBOW ROAD CROSS SECTIONS



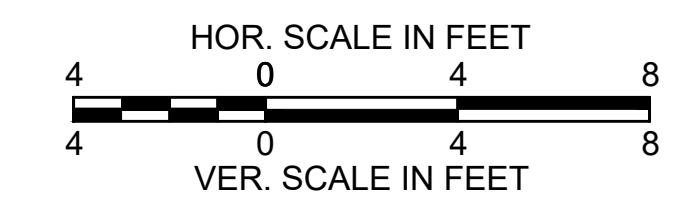
51+00
TEMPORARY EAST OXBOW ROAD B



50+75
TEMPORARY EAST OXBOW ROAD B



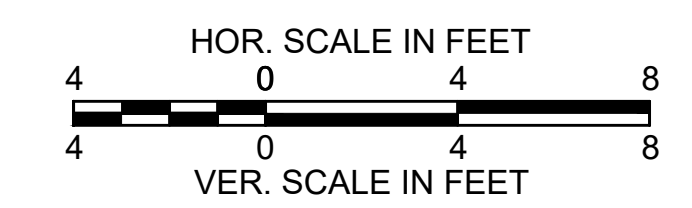
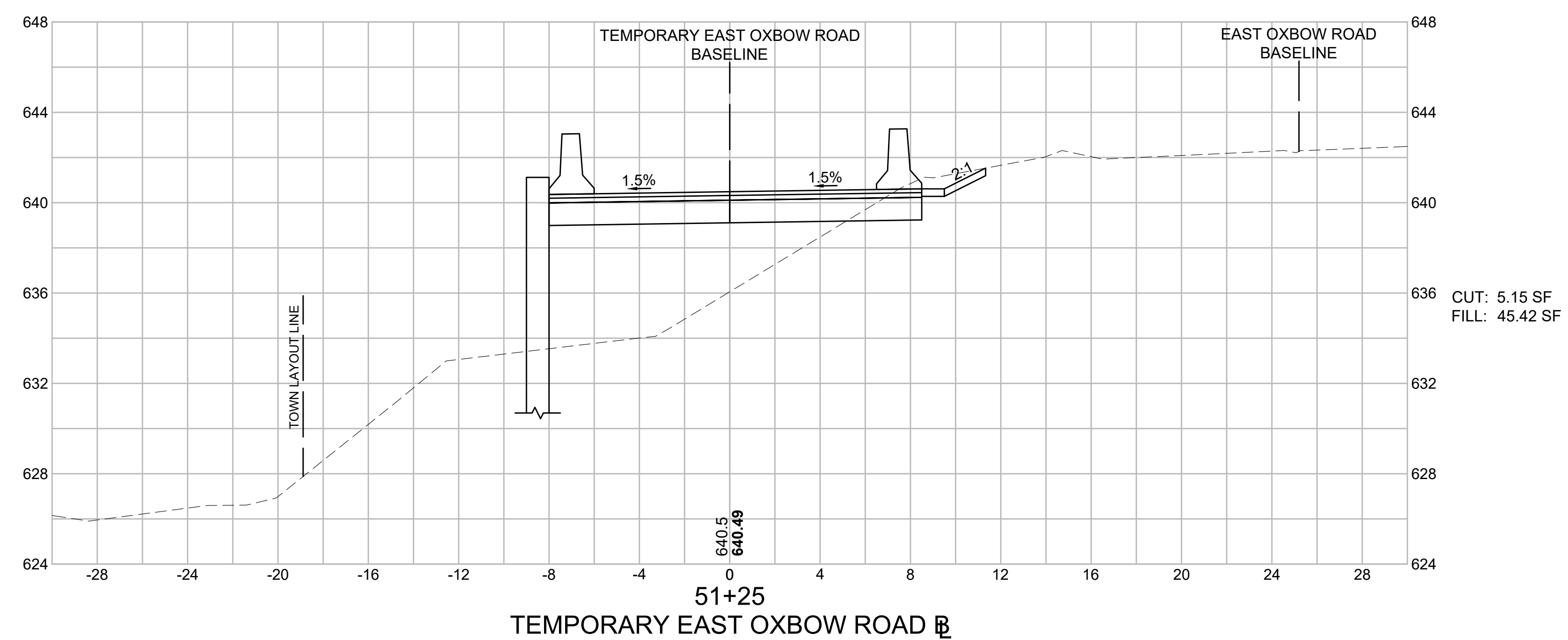
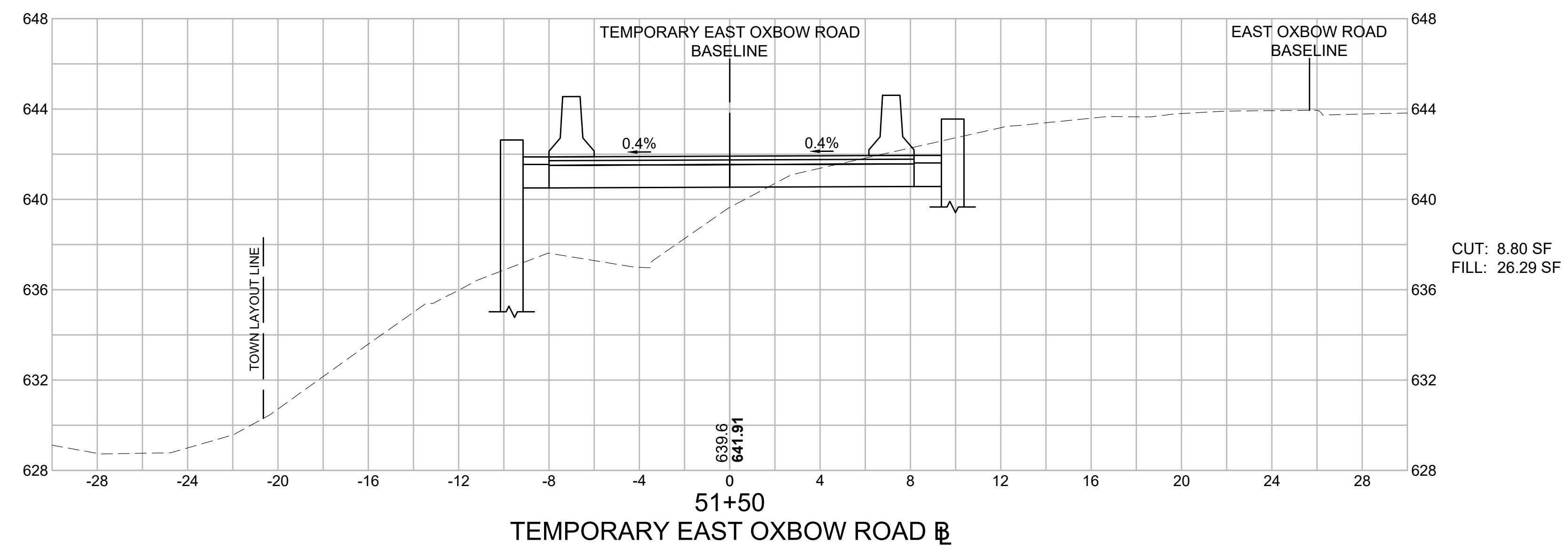
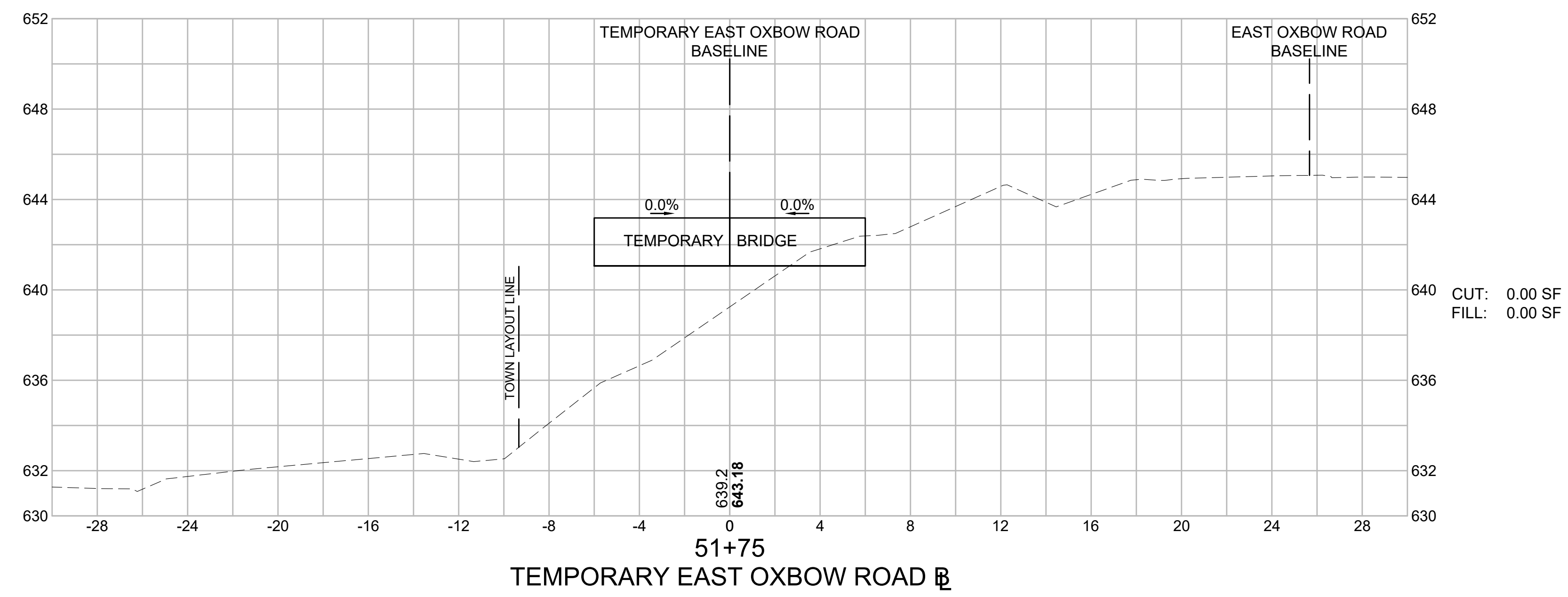
50+50
TEMPORARY EAST OXBOW ROAD B
BEGIN TEMP FULL DEPTH PAVEMENT AND SAWCUT



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	13	55
PROJECT FILE NO.		608858	

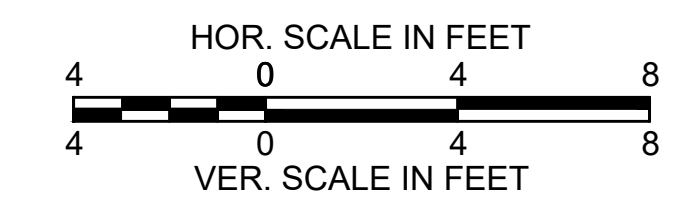
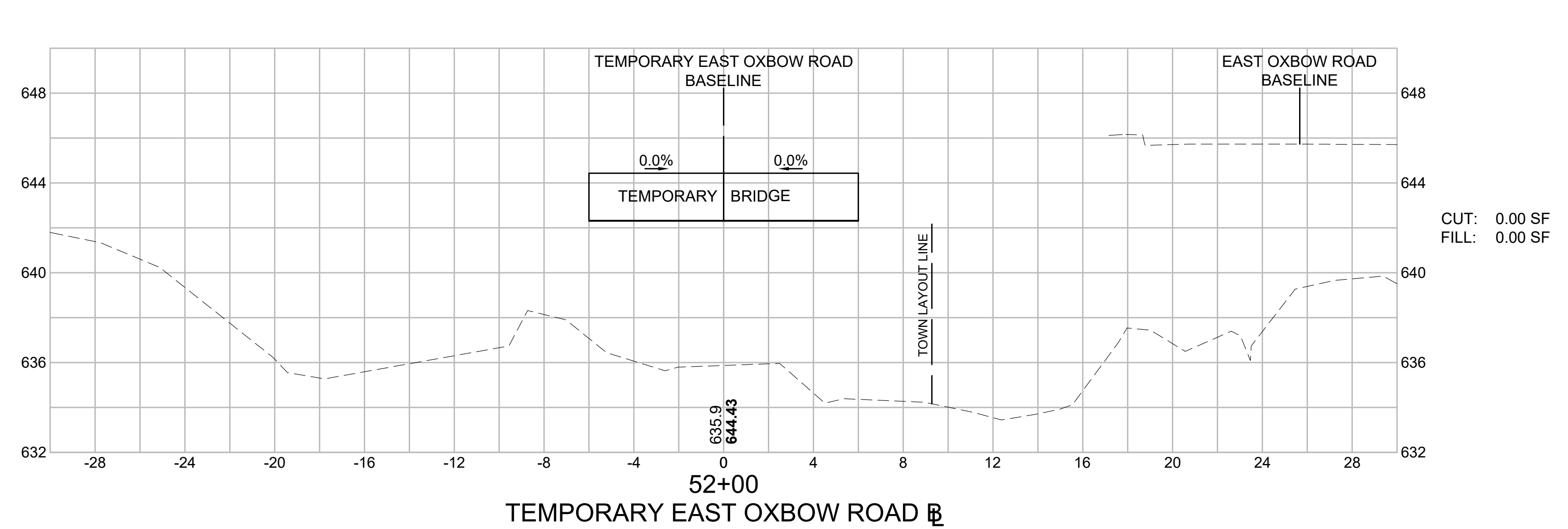
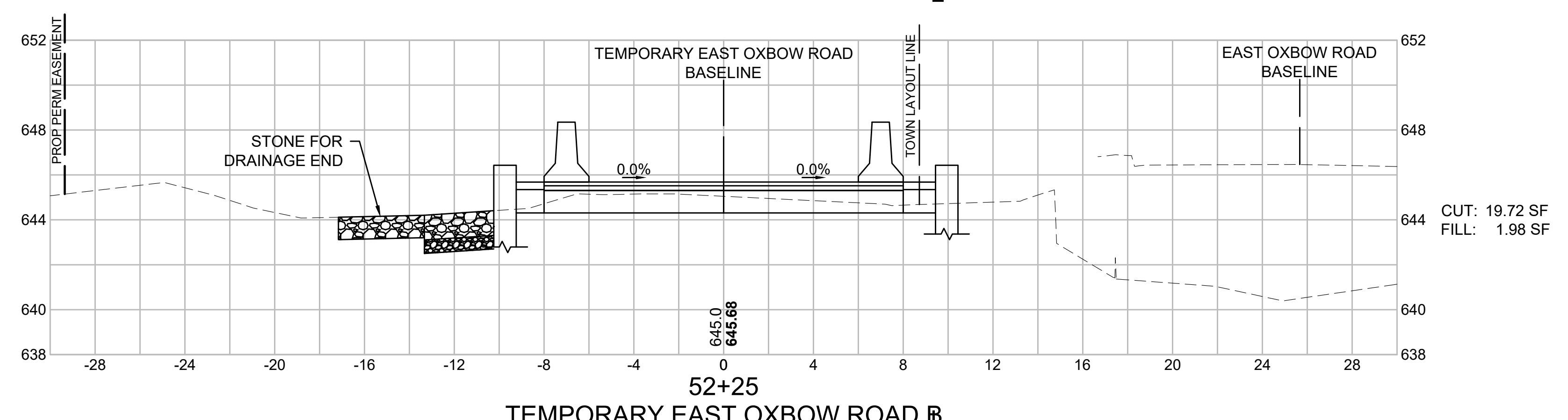
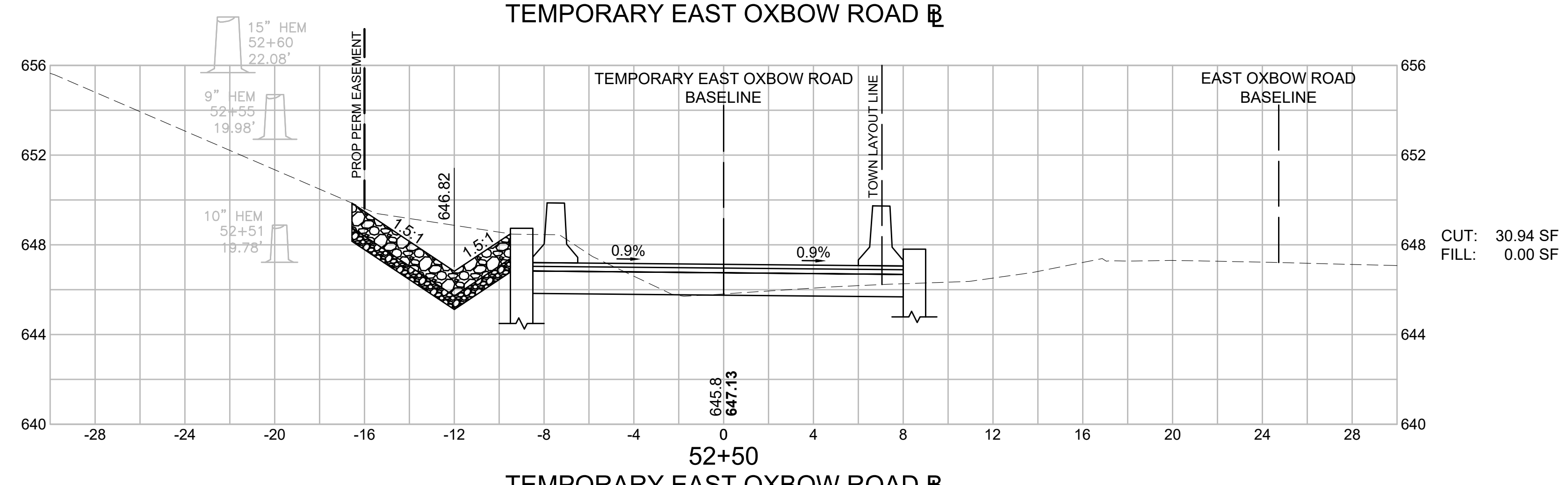
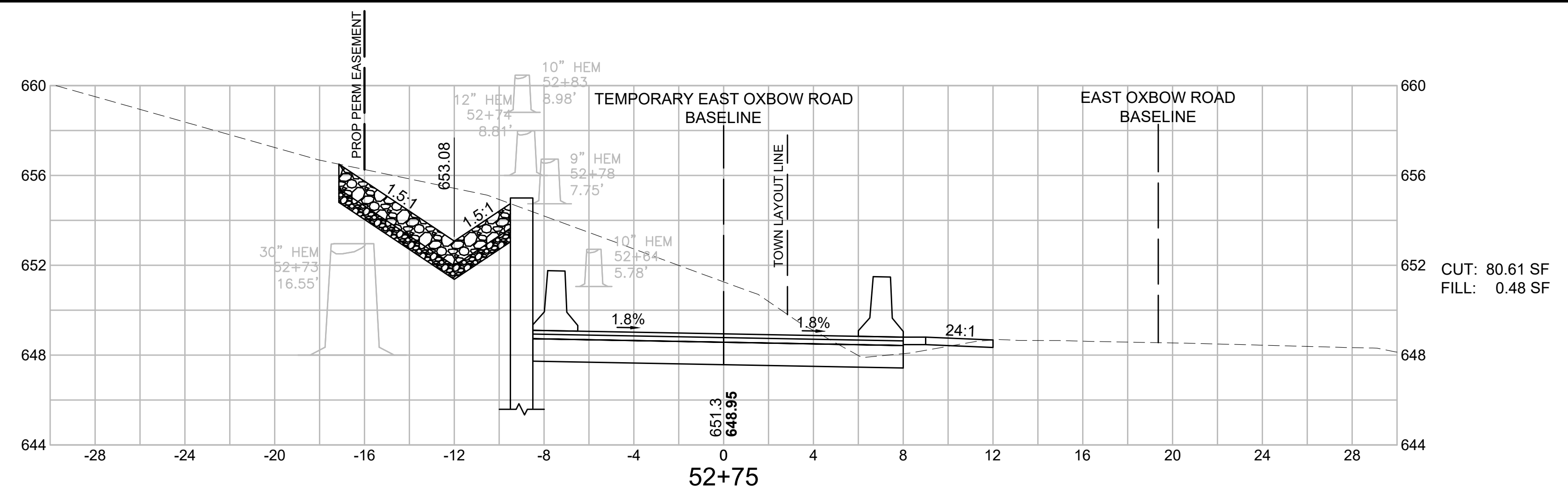
TEMPORARY TRAFFIC CONTROL PLANS - 6 OF 10
TEMPORARY EAST OXBOW ROAD CROSS SECTIONS



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	14	55
PROJECT FILE NO.		608858	

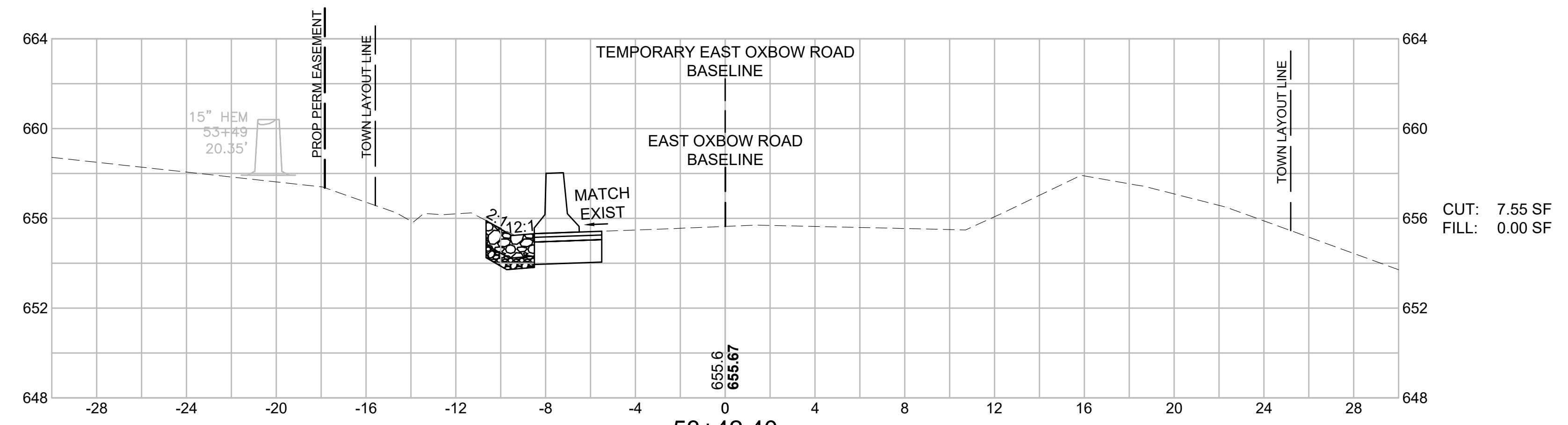
TEMPORARY TRAFFIC CONTROL PLANS - 7 OF 10
TEMPORARY EAST OXBOW ROAD CROSS SECTIONS



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

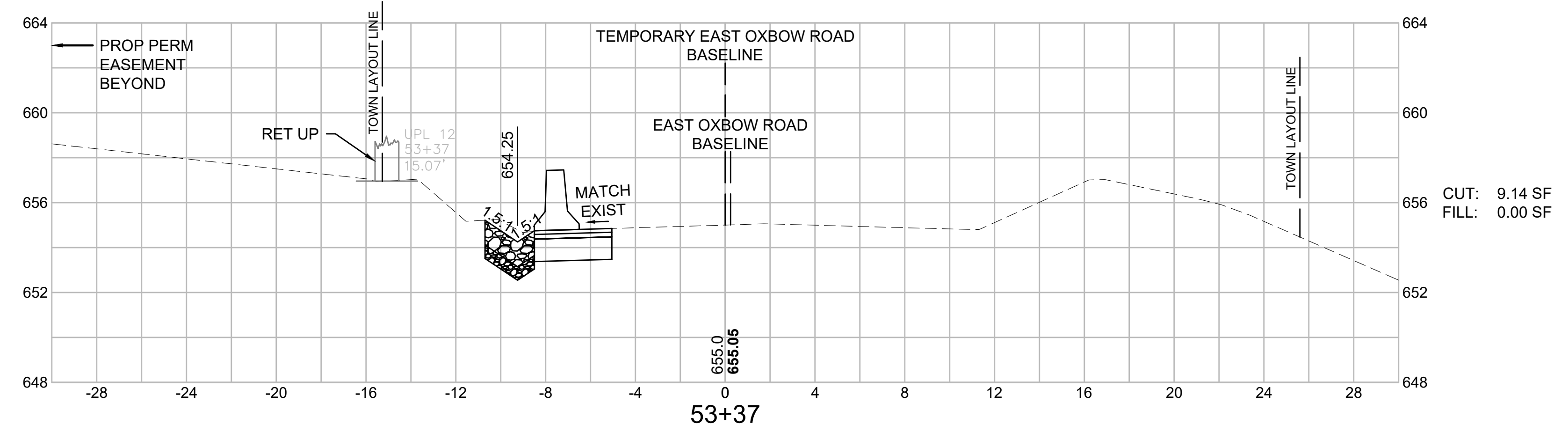
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	15	55
PROJECT FILE NO.		608858	

TEMPORARY TRAFFIC CONTROL PLANS - 8 OF 10
TEMPORARY EAST OXBOW ROAD CROSS SECTIONS



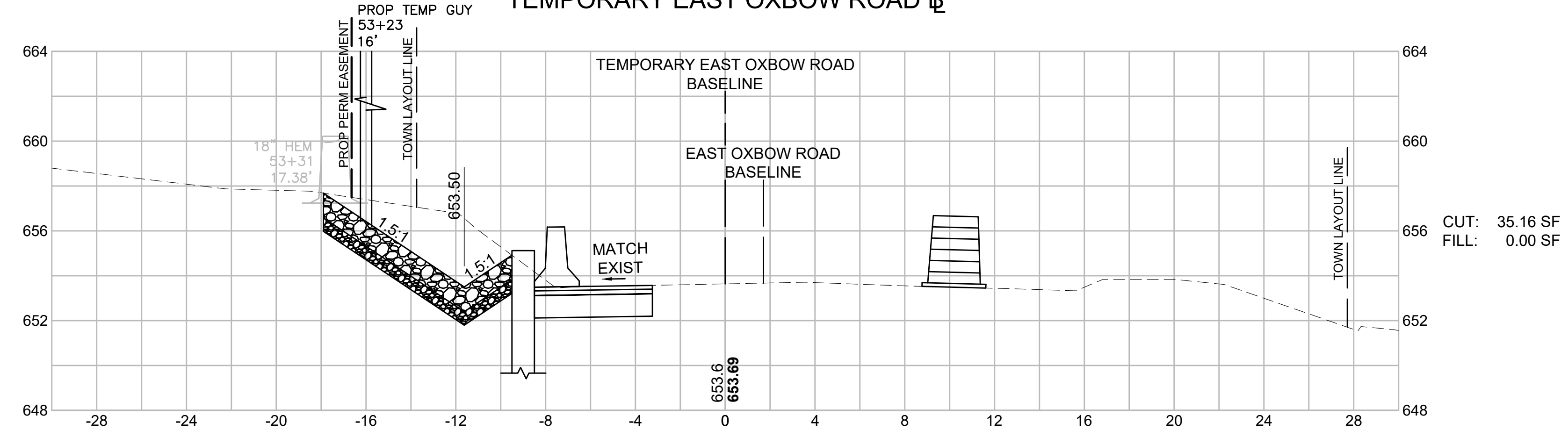
53+42.40
TEMPORARY EAST OXBOW ROAD
END TEMP FULL DEPTH PAVEMENT AND SAWCUT

CUT: 7.55 SF
FILL: 0.00 SF



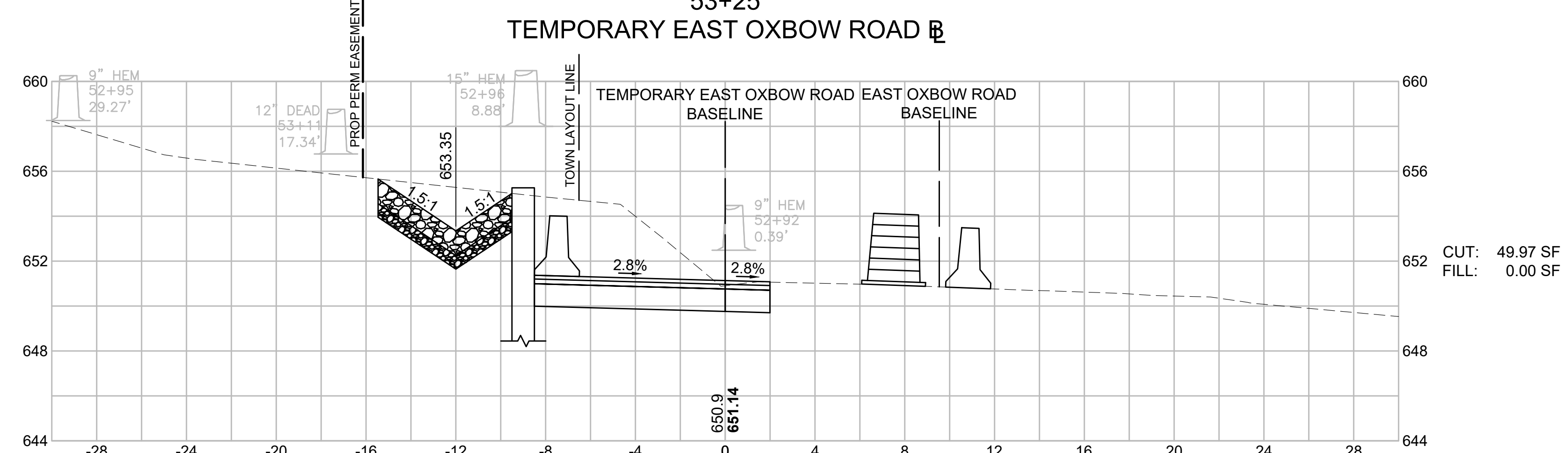
53+37
TEMPORARY EAST OXBOW ROAD

CUT: 9.14 SF
FILL: 0.00 SF



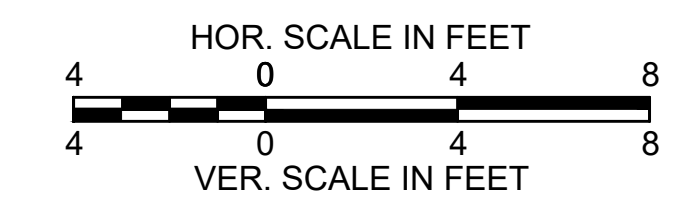
53+25
TEMPORARY EAST OXBOW ROAD

CUT: 35.16 SF
FILL: 0.00 SF

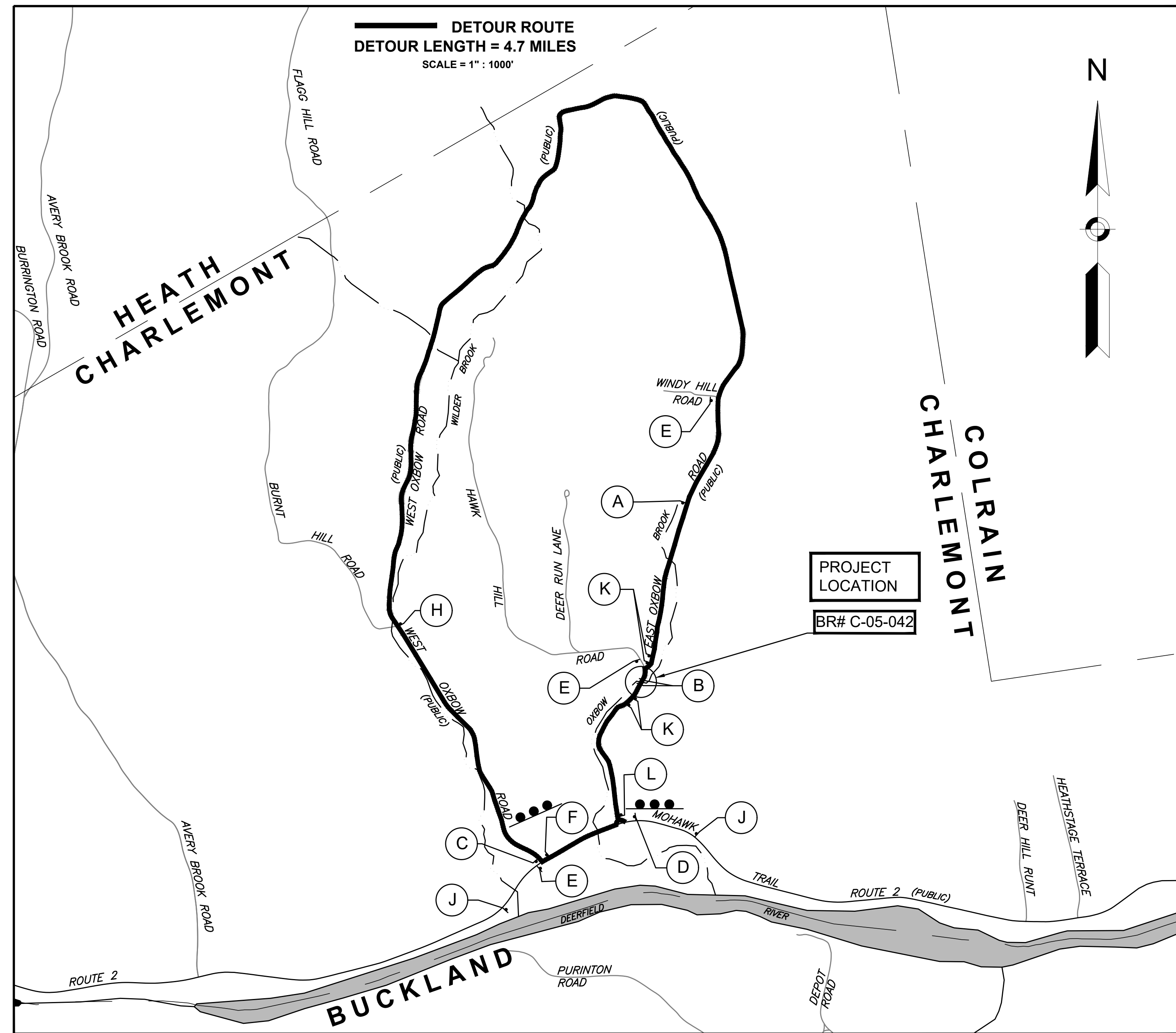


53+00
TEMPORARY EAST OXBOW ROAD

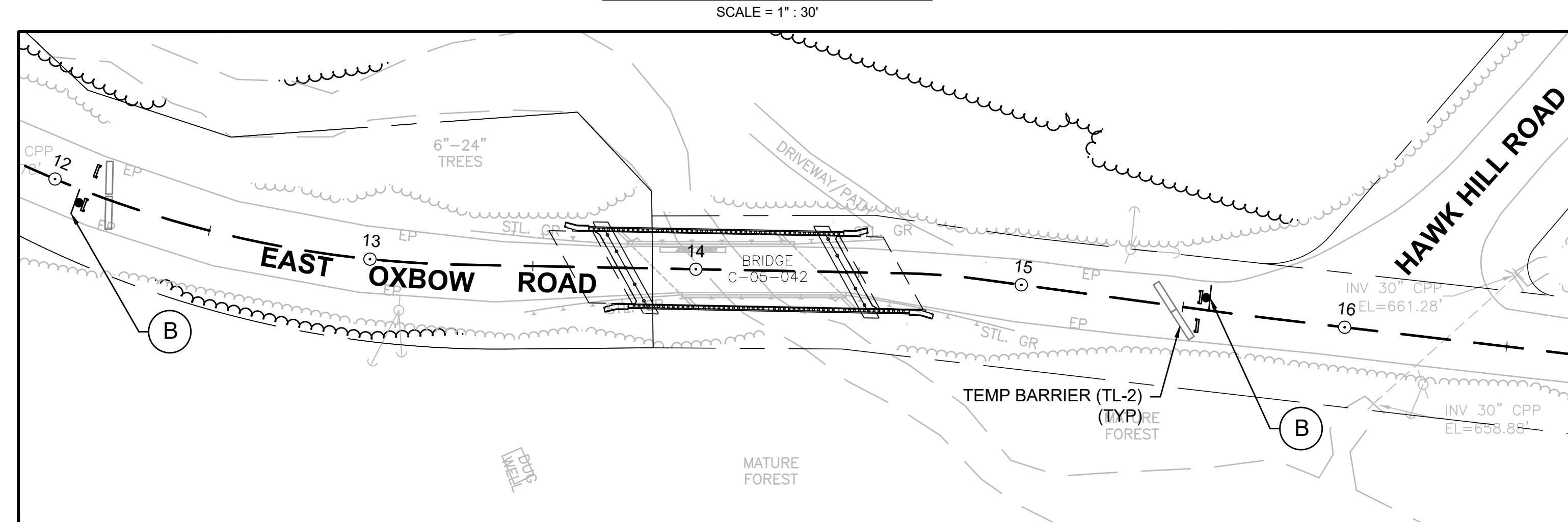
CUT: 49.97 SF
FILL: 0.00 SF



SHORT TERM DETOUR PLAN



BRIDGE CLOSURE PLAN



**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	16	55
PROJECT FILE NO.		608858	

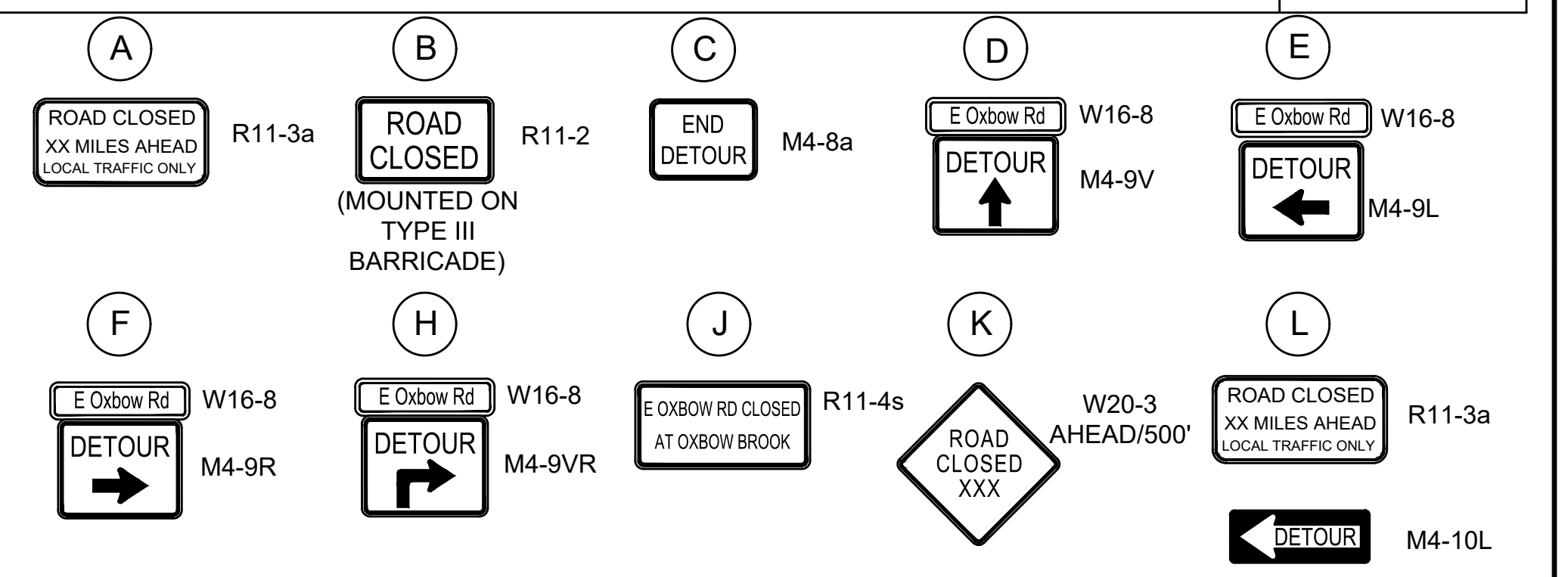
DETOUR SIGN SUMMARY

TEMPORARY TRAFFIC CONTROL PLANS - 9 OF 10

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (SF)	AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR.		BACK-GROUND	LEGEND	BORDER			
M4-8a	24	18	END DETOUR	SEE MUTCD			1	FLUORESCENT ORANGE	BLACK	BLACK	P-5 1	3	3
M4-9L	30	24	DETOUR ←				3	FLUORESCENT ORANGE	BLACK	BLACK	P-5 3	5	15
M4-9R	30	24	DETOUR →				1	FLUORESCENT ORANGE	BLACK	BLACK	P-5 1	5	5
M4-9V	30	24	DETOUR ↑				1	FLUORESCENT ORANGE	BLACK	BLACK	P-5 1	5	5
M4-9VR	30	24	DETOUR ↗				1	FLUORESCENT ORANGE	BLACK	BLACK	P-5 1	5	5
M4-10L	48	18	← DETOUR				1	FLUORESCENT ORANGE	BLACK	BLACK	MOUNT W/ R11-3A	6	6
R11-2	48	30	ROAD CLOSED				2	WHITE	BLACK	BLACK	MOUNT W/ TYPE III BARRICADE	10	20
R11-3a	60	30	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY				2	WHITE	BLACK	BLACK	P-5 4	12.5	25
R11-4s	60	30	E OXBOW RD CLOSED AT OXBOW BROOK				2	WHITE	BLACK	BLACK	P-5 4	12.5	25
W20-3	36	36	ROAD CLOSED XXX				4	FLUORESCENT ORANGE	BLACK	BLACK	P-5 4	9	36
W16-8	36	8	E Oxbow Rd	6	3	NA	6	FLUORESCENT ORANGE	BLACK	BLACK	MOUNT W/ M4-9 SIGNS	2	12
TOTAL AREA OF SIGNS (SQUARE FEET)												157	

LEGEND

- TEMPORARY TRAFFIC SIGN
- TEMPORARY BARRIER
- PORTABLE BREAKAWAY BARRICADE TYPE III
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)



NOTES:

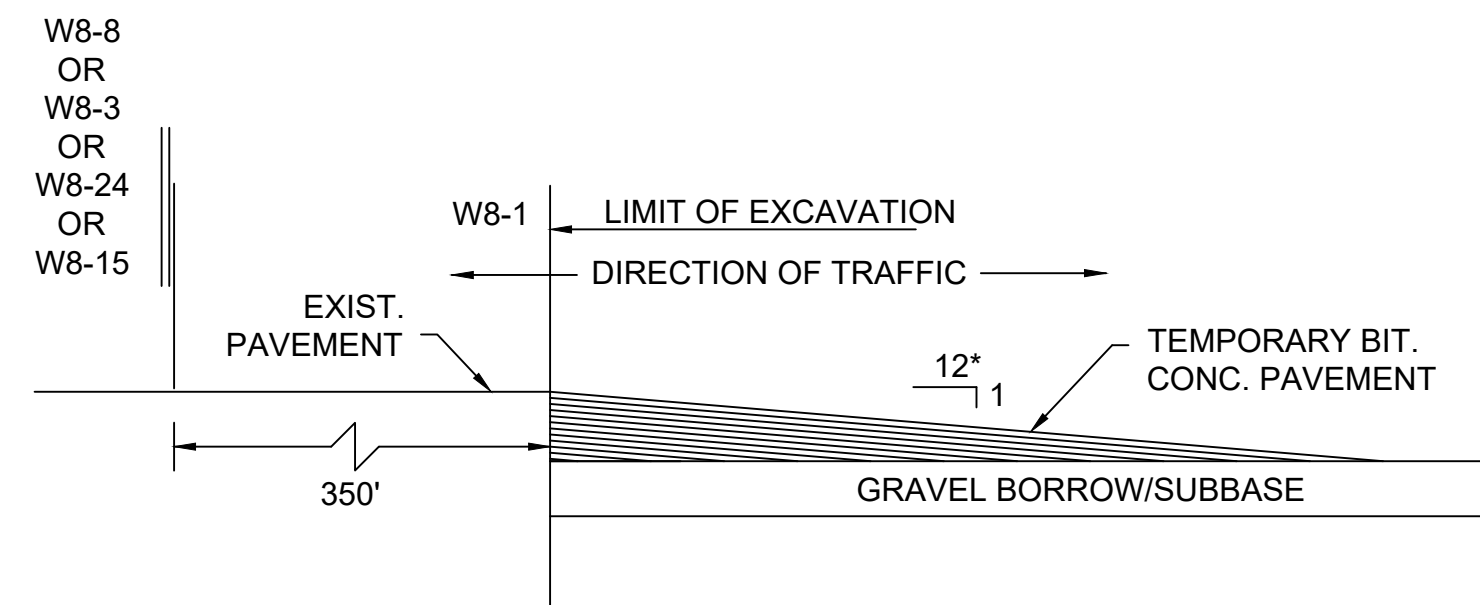
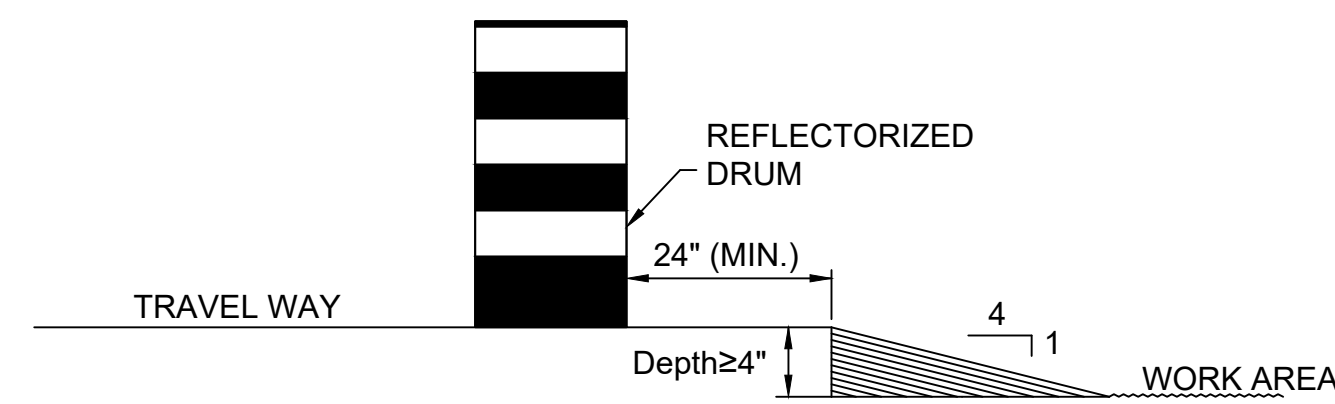
1. THIS IS A SHORT TERM DETOUR FOR BEAM UNLOADING AND PLACEMENT, TEMPORARY BRIDGE INSTALLATION, PAVING, AND ANY ASSOCIATED TEMPORARY ROAD WORK REQUIRING A CLOSURE, AND ANY OTHER ACTIVITIES THAT DO NOT ALLOW ENOUGH SPACE TO MAINTAIN A SINGLE LANE OF TRAFFIC AS APPROVED BY THE ENGINEER.
2. THE DETOUR ROUTE SHALL BE GRADED AND COMPACTED IN ACCORDANCE WITH THE SPECIAL PROVISION FOR ITEM 170.001 PRIOR TO IMPLEMENTING THE DETOUR ROUTE.
3. SIGNS ALONG THE DETOUR ROUTE SHALL BE PLACED WITHIN THE PUBLIC RIGHT OF WAY.
4. PROVIDE NOTICE TO THE TOWN OF CHARLEMONT AT LEAST 72 HOURS PRIOR TO IMPLEMENTING THE DETOUR. DISPLAY UPCOMING BRIDGE CLOSURE ON PORTABLE CHANGEABLE MESSAGE SIGN (PCMS) AT LEAST ONE WEEK PRIOR TO DETOUR IMPLEMENTATION.
5. CLOSURES AT THE BRIDGE REQUIRING THE USE OF A DETOUR SHALL BE RESTRICTED TO NON-WINTER AND NON-MUD SEASONS, WHICH WILL BE DETERMINED TO BE FROM APRIL 1ST TO NOVEMBER 30TH. DUE TO THE UNPREDICTABILITY OF THE WEATHER IMPACTING THE ROADWAY CONDITION, THE TOWN AND ENGINEER MAY DETERMINE IF A DETOUR IS PERMISSIBLE AT ANY POINT THROUGHOUT THE YEAR. THE CONTRACTOR MUST PROVIDE JUSTIFICATION FOR ALL DETOUR REQUESTS, RECEIVE APPROVAL FROM BOTH THE TOWN AND ENGINEER PRIOR TO THE IMPLEMENTATION OF ALL DETOURS, AND GIVE RESIDENTS EXPECTED TO UTILIZE THE DETOUR ADEQUATE ADVANCED NOTICE OF ANY CLOSURES.

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	17	55
PROJECT FILE NO.		608858	

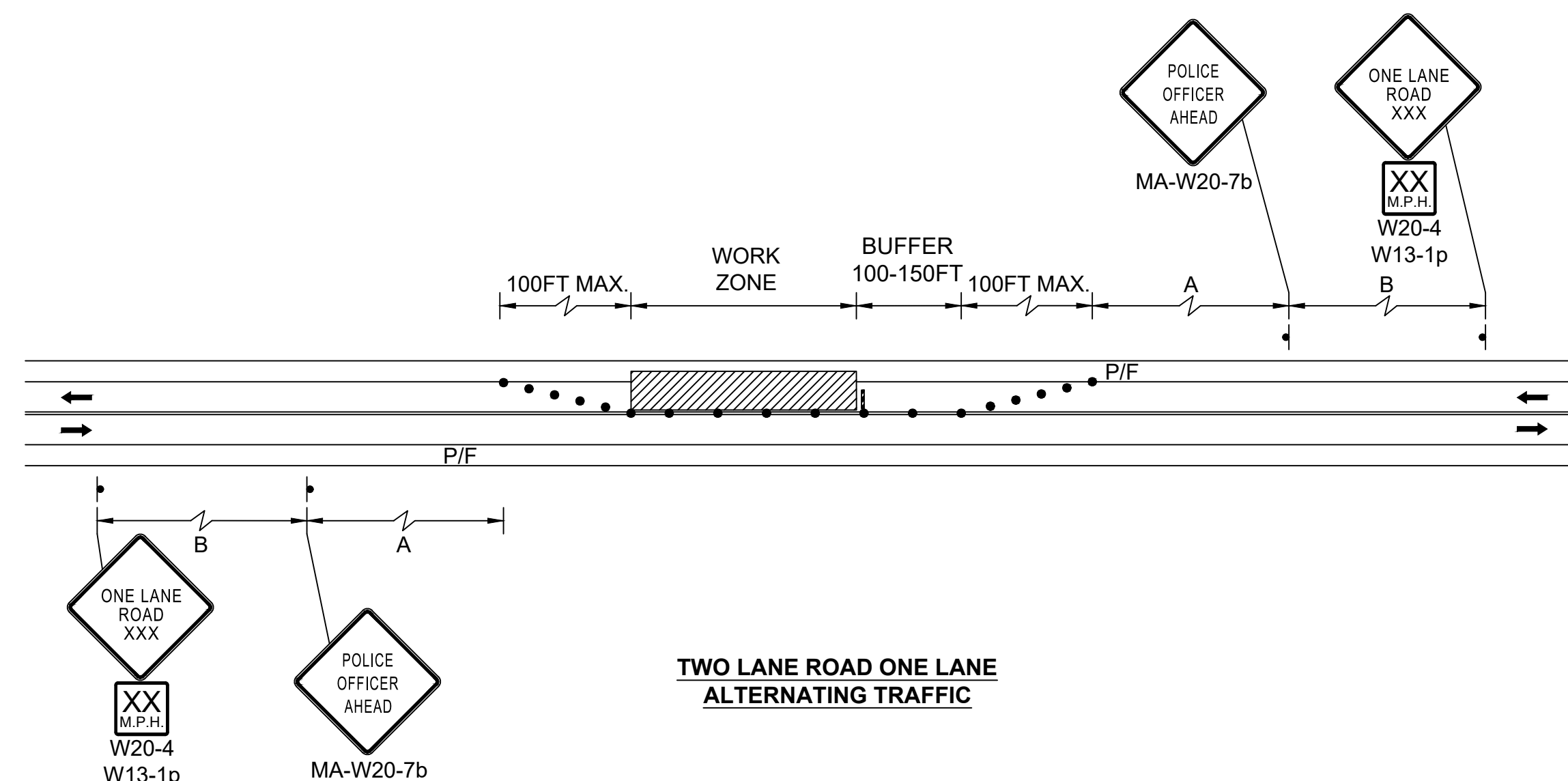
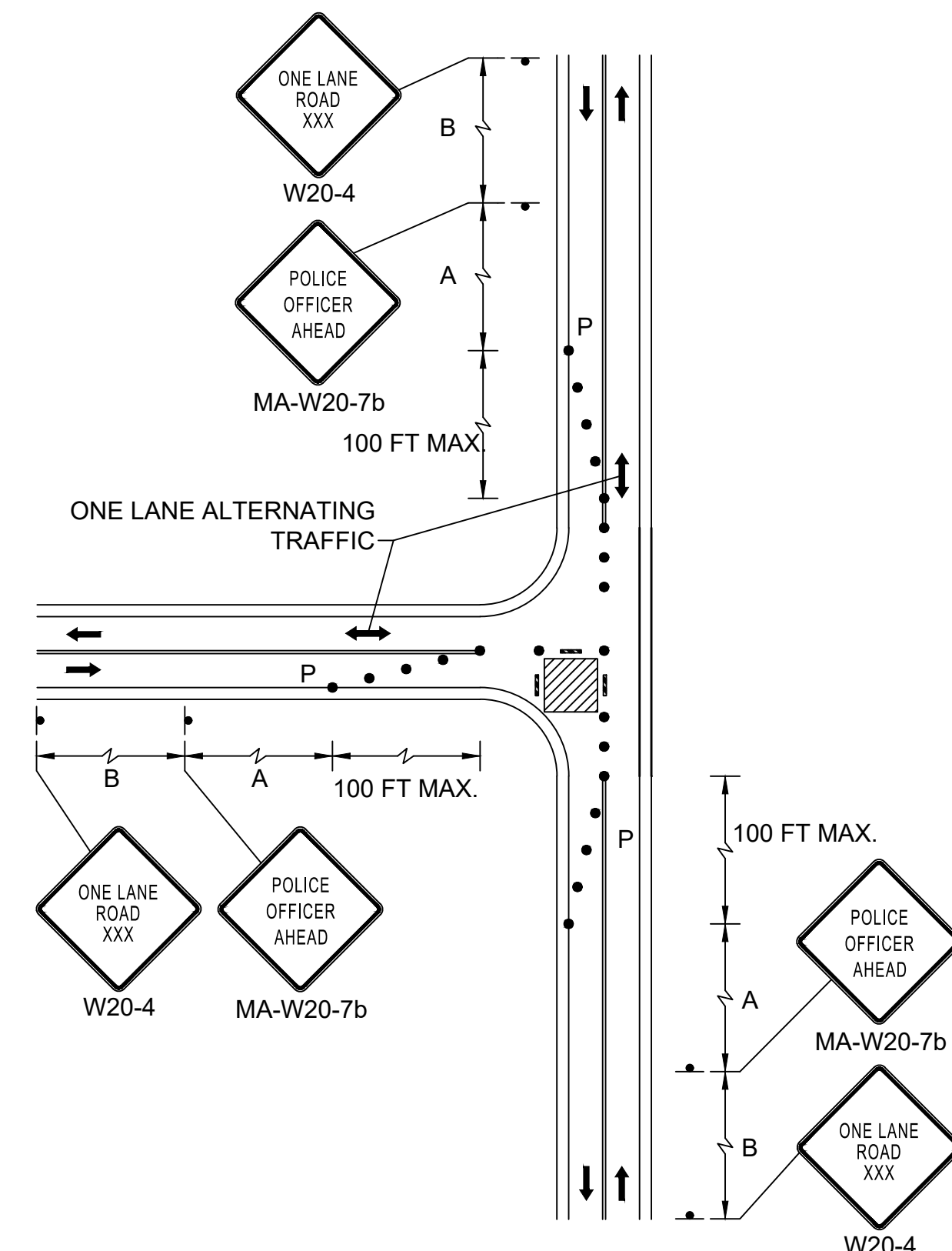
TEMPORARY TRAFFIC CONTROL PLANS - 10 OF 10

608858_HDT(TCP).DWG Plotted on 17-Jan-2024 4:19 PM



LATERAL AND LONGITUDINAL DROP-OFF DETAILS

DISTANCES BETWEEN SIGNS ARE AS FOLLOWS
A=350'
B=350'
L=125'



IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			NUMBER OF POSTS REQUIRED	UNIT AREA (SF)	AREA (SF)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR.		BACK- GROUND	LEGEND	BORDER			
MA-R2-10a	48	36	WORK ZONE SPEEDING FINES DOUBLED	SEE MASSDOT STANDARD SIGN BOOK			3	FLUORESCENT ORANGE/WHITE	BLACK	BLACK	3	12	36
MA-R2-10e	36	48	END ROAD WORK DOUBLE FINES END	SEE MASSDOT STANDARD SIGN BOOK			3	FLUORESCENT ORANGE/WHITE	BLACK	BLACK	3	12	36
MA-W20-7b	36	36	POLICE OFFICER AHEAD	SEE MASSDOT STANDARD SIGN BOOK			3	FLUORESCENT ORANGE	BLACK	BLACK	3	9	27
R10-6	24	36	STOP HERE ON RED	SEE MUTCD			3	WHITE	BLACK	BLACK	3	6	18
R10-11a	30	36	NO TURN ON RED				1	WHITE	BLACK	BLACK	0 (MOUNT ON WOOD POLE)	7.5	7.5
W3-3	36	36	ROAD WORK AHEAD				3	FLUORESCENT ORANGE	BLACK	BLACK	3	9	27
W13-1p	18	18	15 MPH				3	FLUORESCENT ORANGE	BLACK	BLACK	MOUNT W/ W20-4	2.25	6.75
W20-1	36	36	ROAD WORK AHEAD				3	FLUORESCENT ORANGE	BLACK	BLACK	3	9	27
W20-4	36	36	ONE LANE ROAD AHEAD				3	FLUORESCENT ORANGE	BLACK	BLACK	3	9	27
W24-1R	36	36	RIGHT TURN AHEAD				1	FLUORESCENT ORANGE	BLACK	BLACK	1	9	9
W24-1L	36	36	LEFT TURN AHEAD				1	FLUORESCENT ORANGE	BLACK	BLACK	1	9	9
TOTAL AREA OF SIGNS (SQUARE FEET)											230.25		

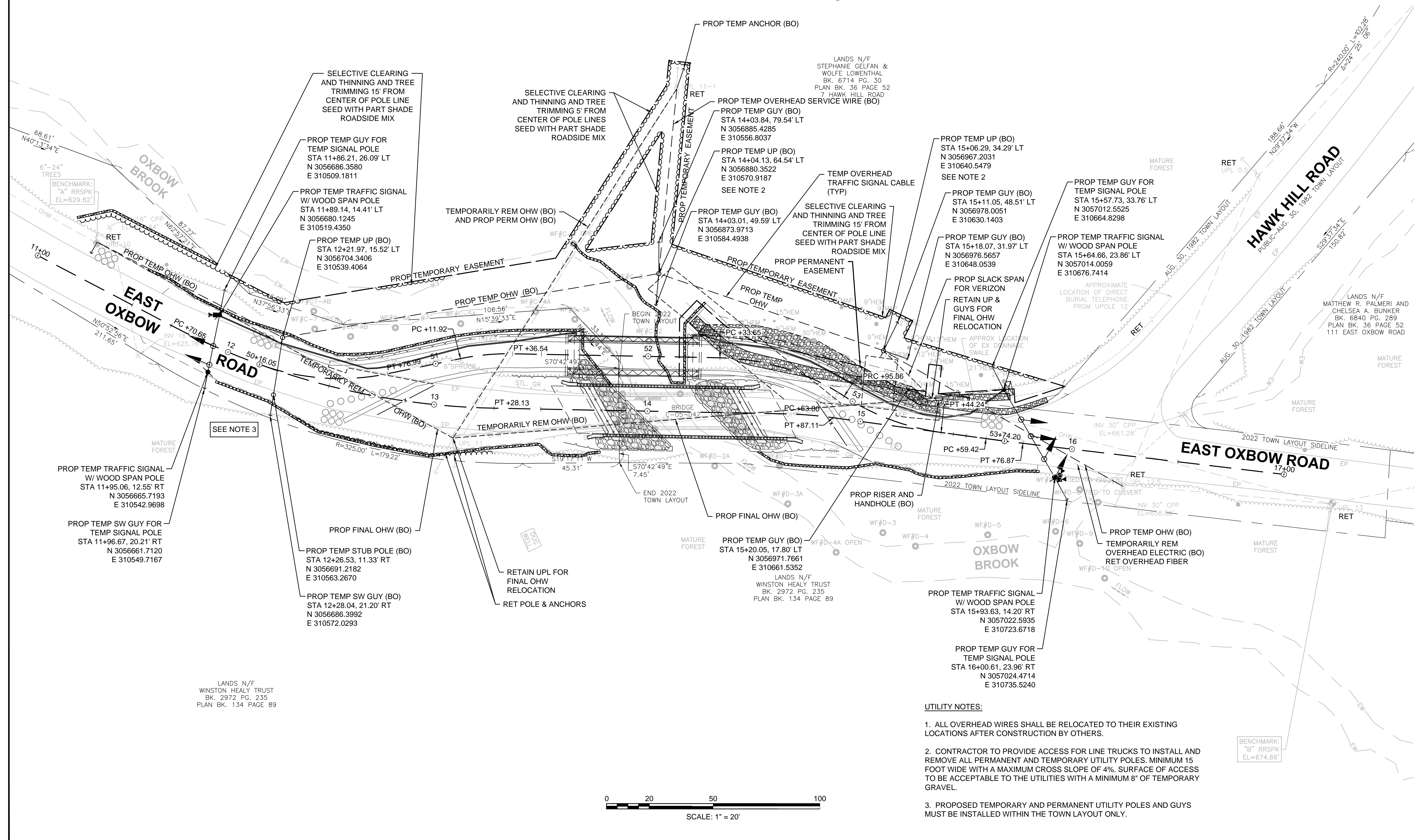
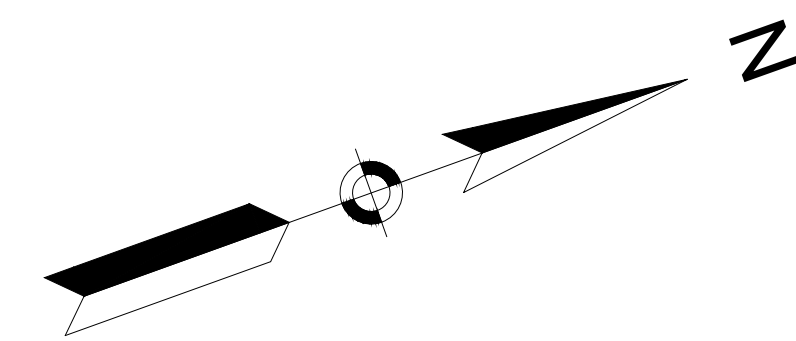
NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN THE NCHRP REPORT 350, TITLED "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR THE "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS.
7. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
8. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
9. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUM OR BARRIER.
10. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

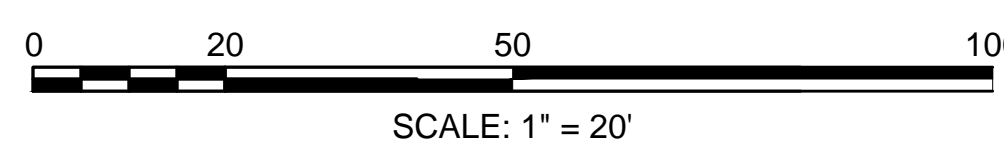
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	18	55
PROJECT FILE NO.		608858	

UTILITY PLAN

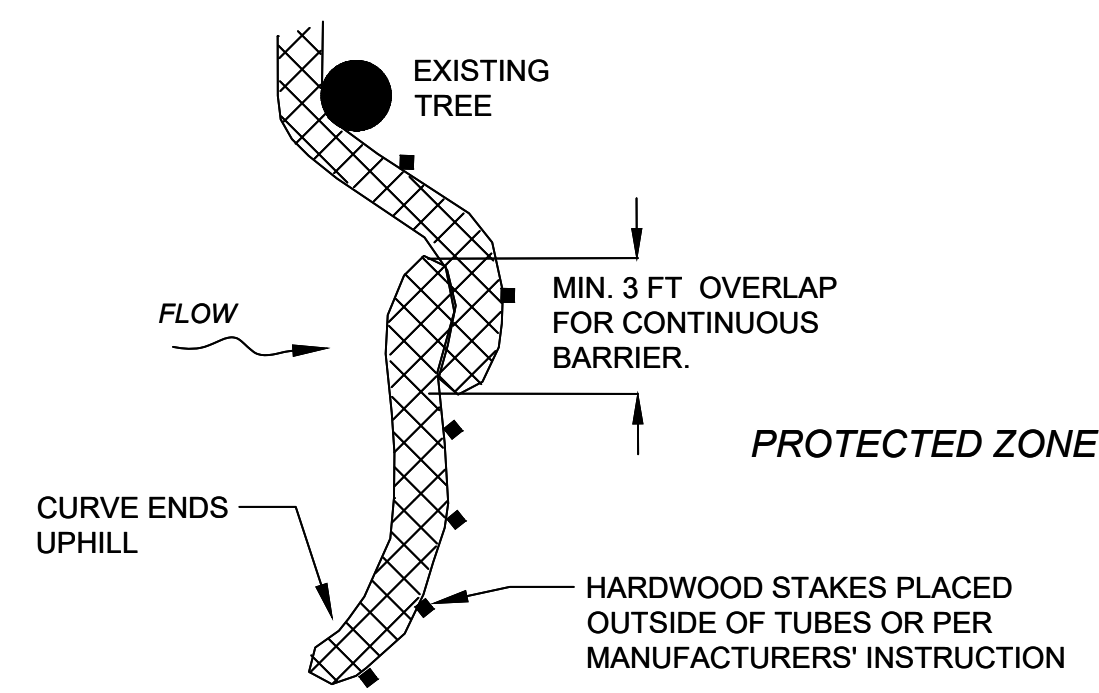


- UTILITY NOTES:**
- ALL OVERHEAD WIRES SHALL BE RELOCATED TO THEIR EXISTING LOCATIONS AFTER CONSTRUCTION BY OTHERS.
 - CONTRACTOR TO PROVIDE ACCESS FOR LINE TRUCKS TO INSTALL AND REMOVE ALL PERMANENT AND TEMPORARY UTILITY POLES. MINIMUM 15 FOOT WIDE WITH A MAXIMUM CROSS SLOPE OF 4%. SURFACE OF ACCESS TO BE ACCEPTABLE TO THE UTILITIES WITH A MINIMUM 8" OF TEMPORARY GRAVEL.
 - PROPOSED TEMPORARY AND PERMANENT UTILITY POLES AND GUYS MUST BE INSTALLED WITHIN THE TOWN LAYOUT ONLY.



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	19	55
PROJECT FILE NO.		608858	

CONSTRUCTION DETAILS

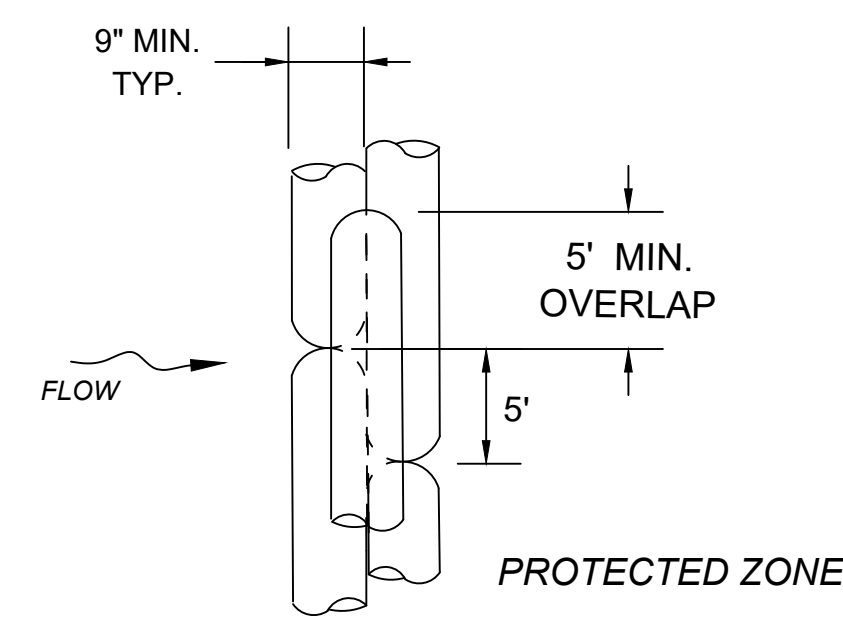


- PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.
- PLACE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE
- ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.
- PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

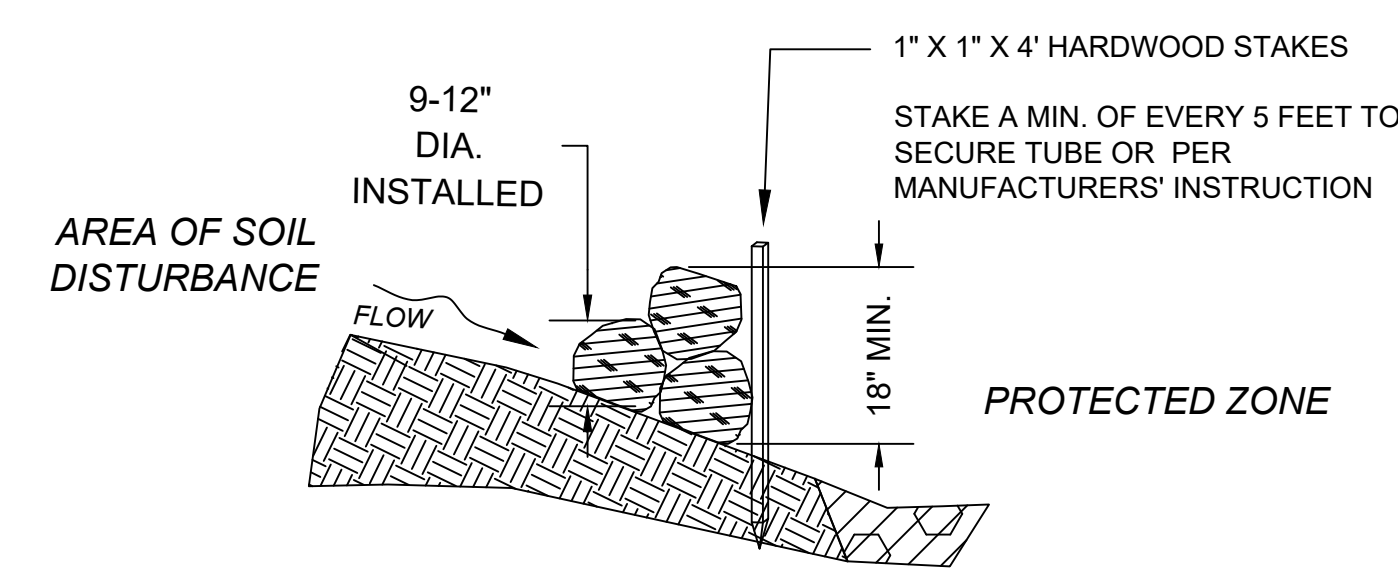
PLAN VIEW

COMPOST FILTER TUBE

NOT TO SCALE



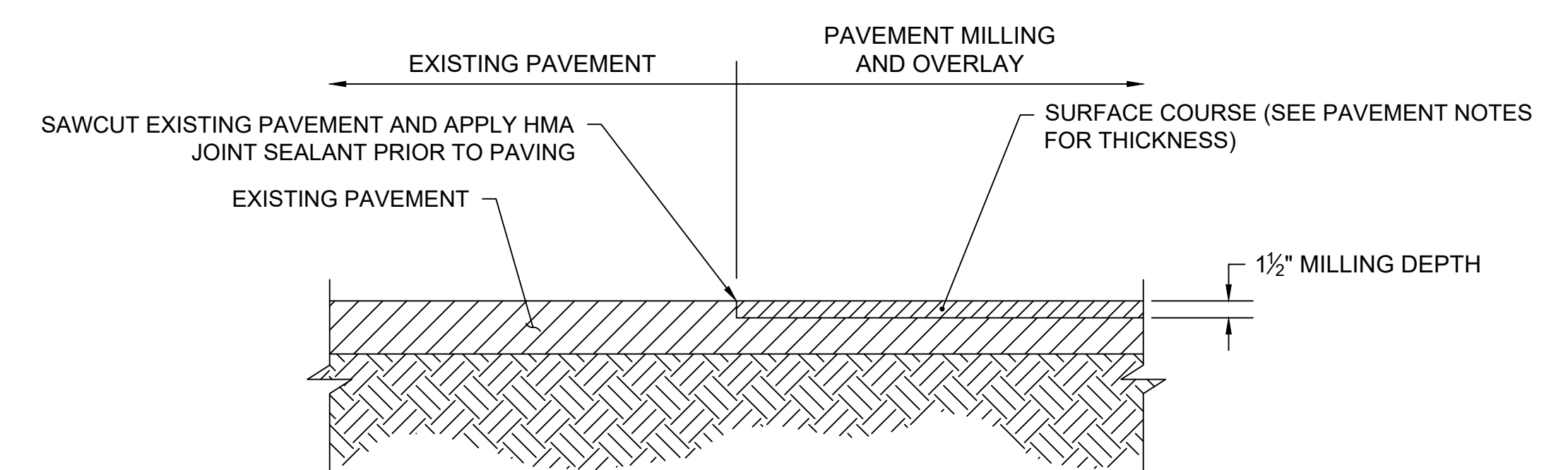
PLAN VIEW



SECTION

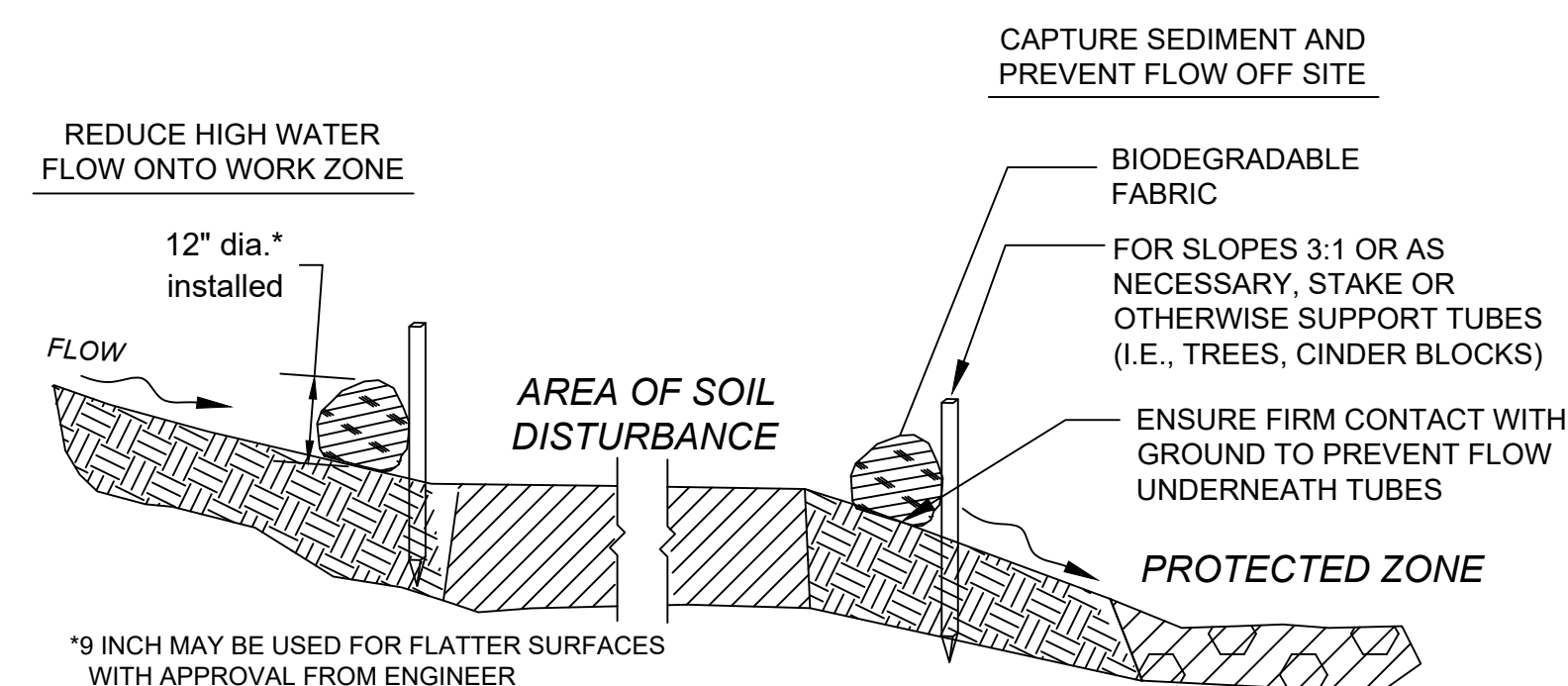
COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

NOT TO SCALE



PAVEMENT MILLING AND OVERLAY JOINT DETAIL AT EXISTING PAVEMENT

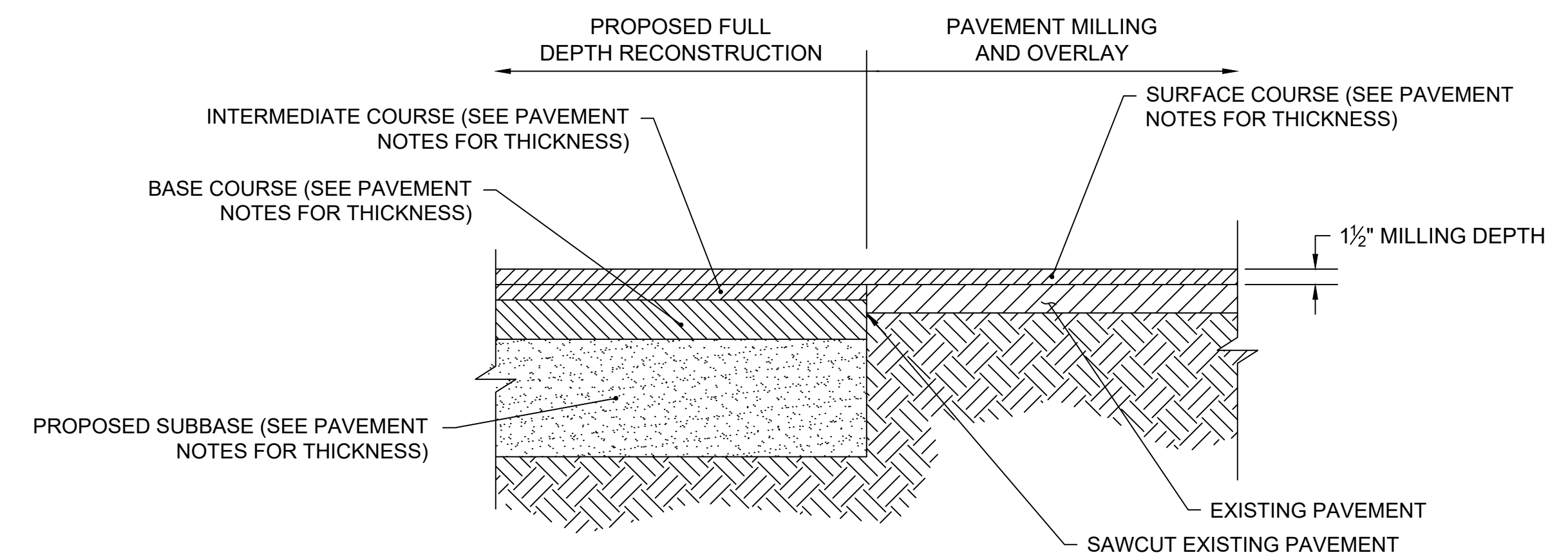
NOT TO SCALE



SECTION

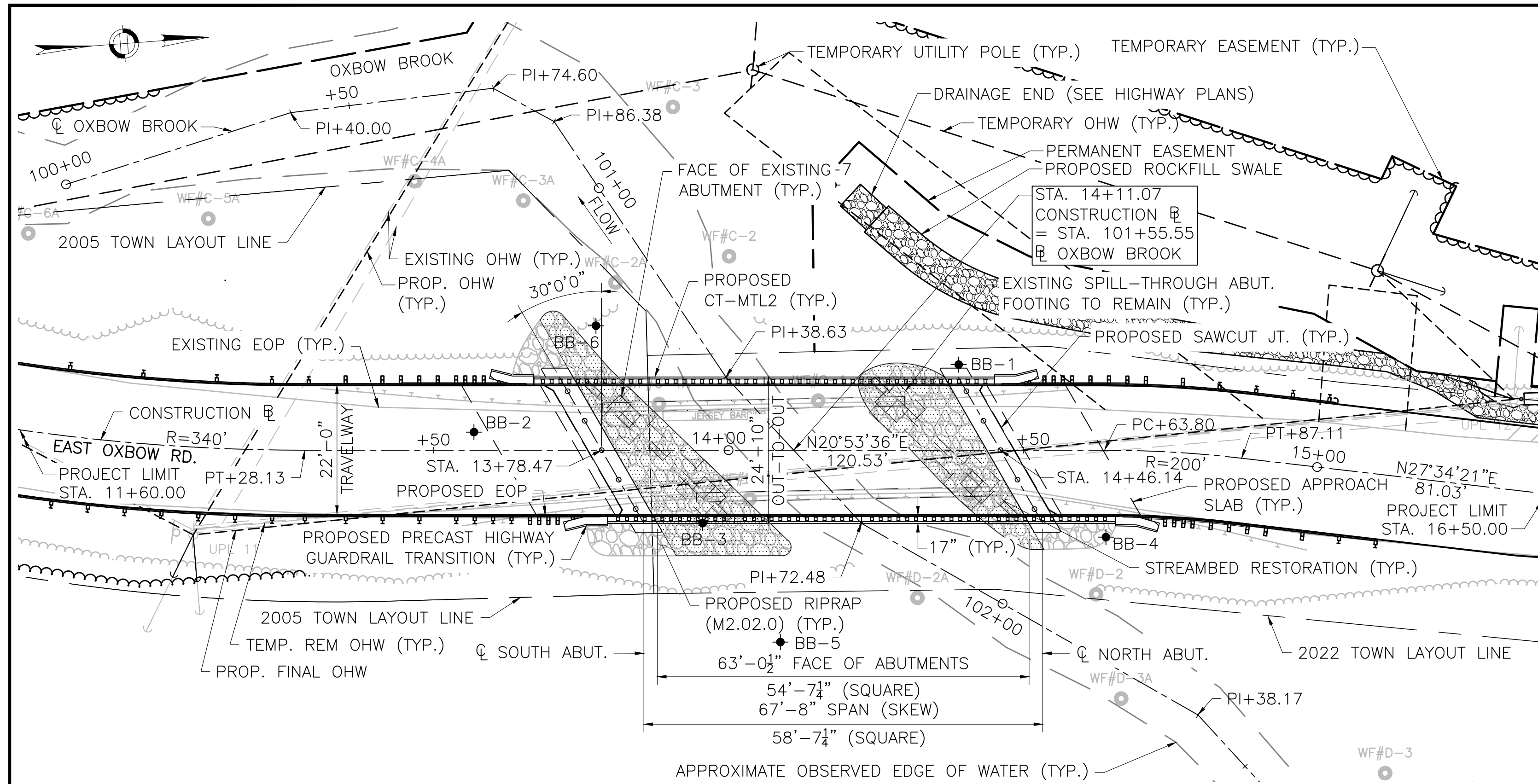
SEDIMENT BARRIER - COMPOST FILTER TUBES

NOT TO SCALE

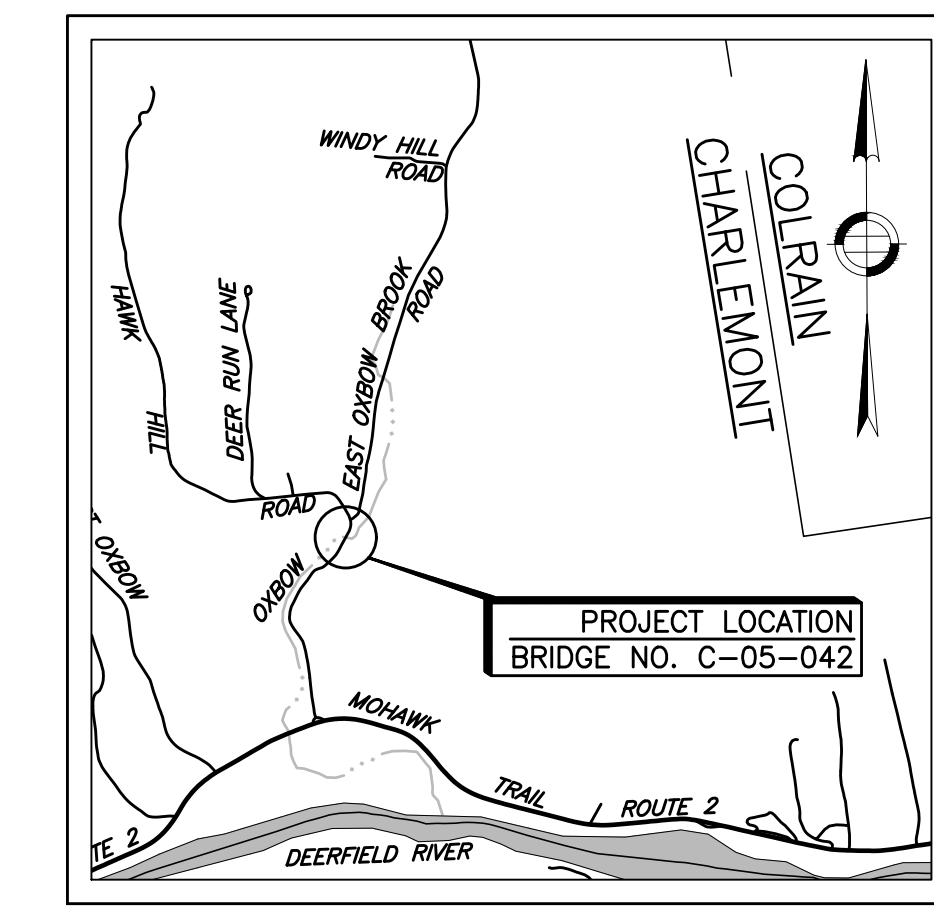


PAVEMENT MILLING AND OVERLAY JOINT DETAIL AT FULL DEPTH RECONSTRUCTION

NOT TO SCALE



KEY PLAN
SCALE: 1" = 15'



LOCUS
SCALE: 1" = 1000'

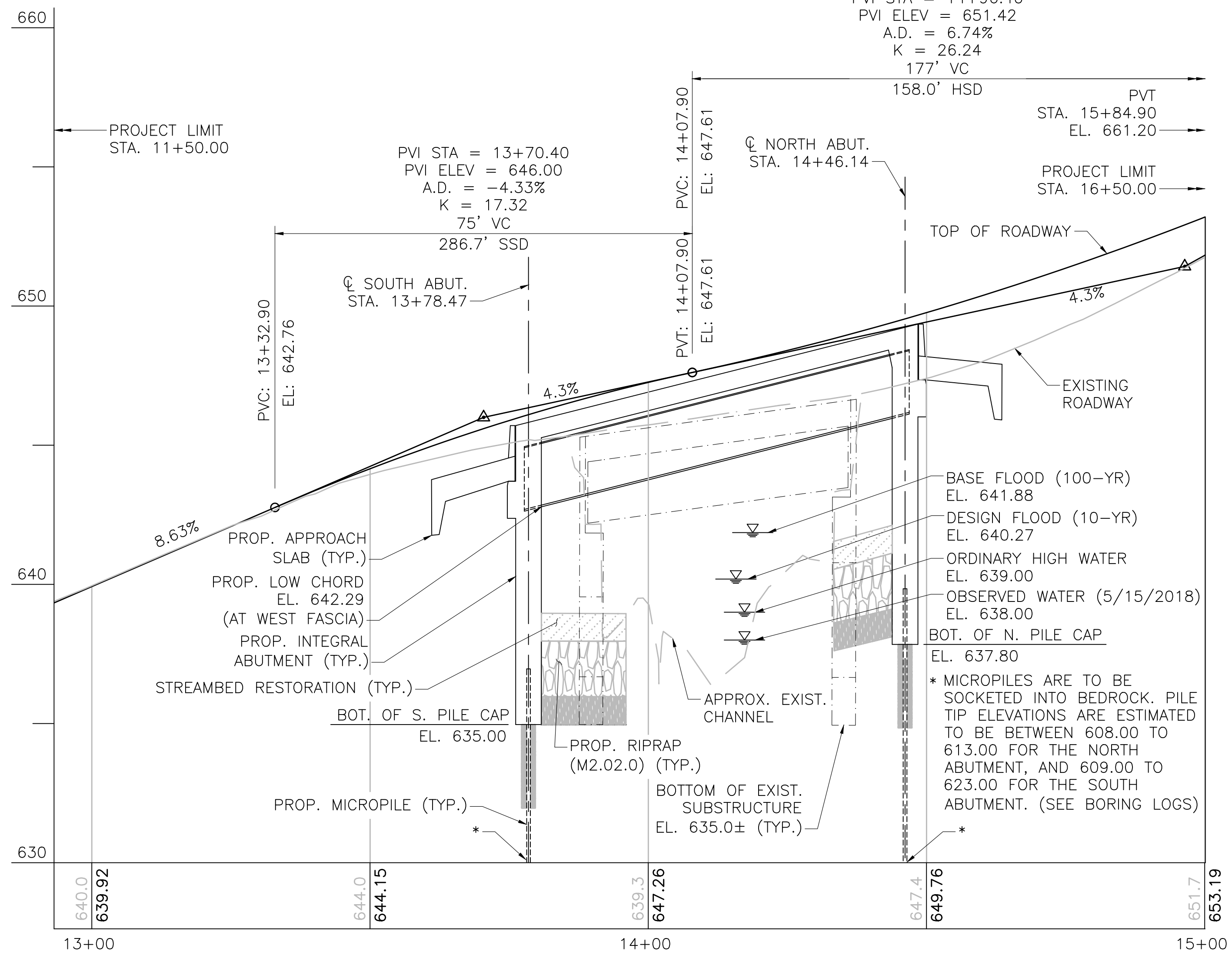
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	20	55
PROJECT FILE NO.		608858	

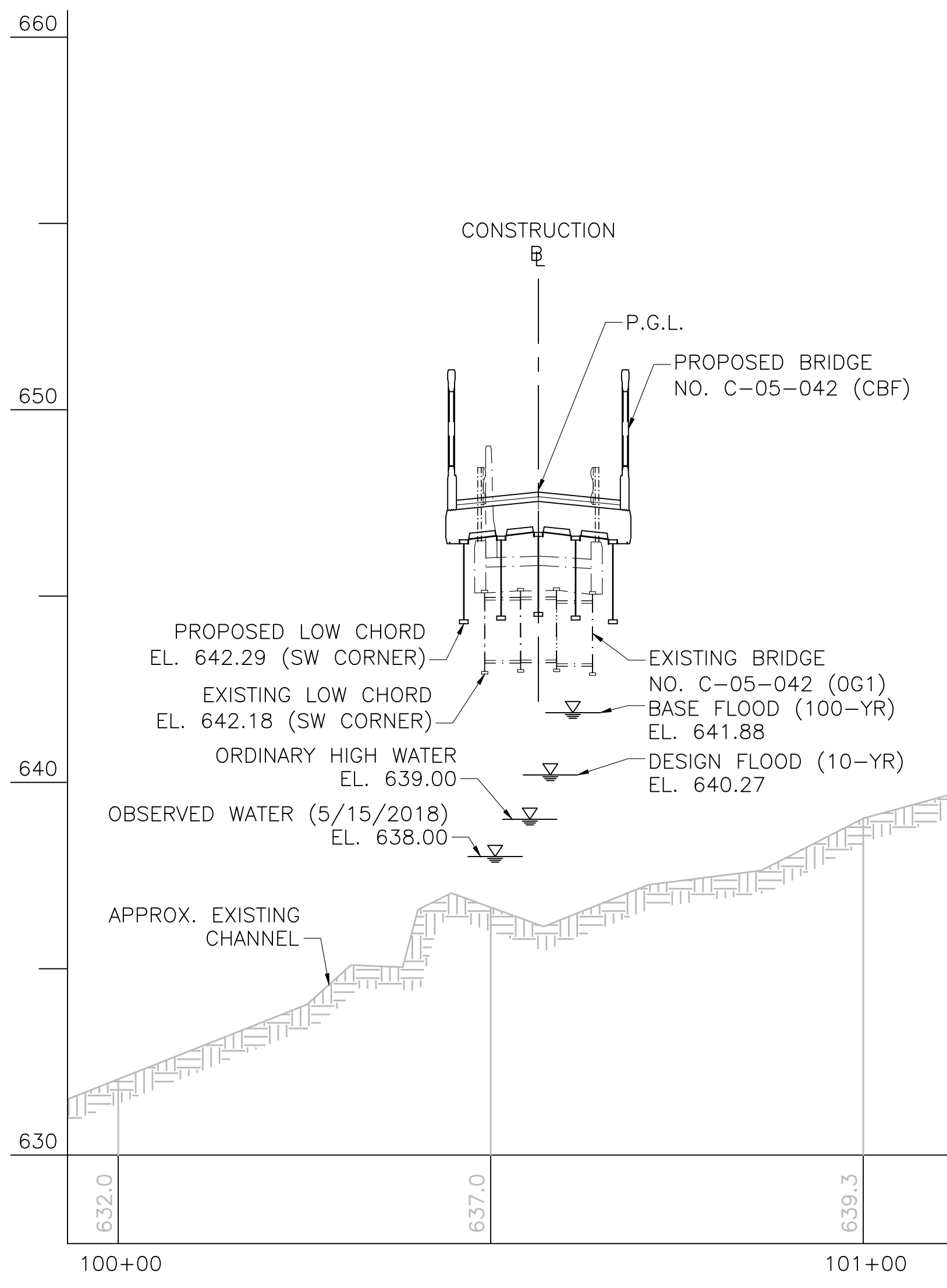
GENERAL PLAN

INDEX OF SHEETS

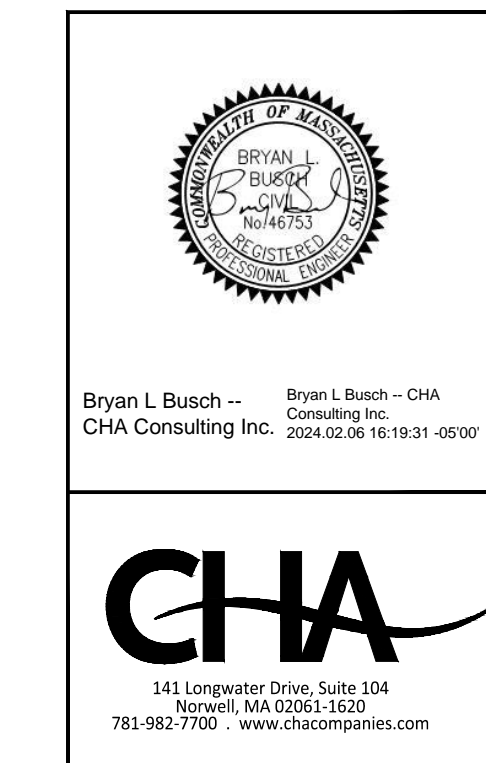
- 1 GENERAL PLAN
- 2 GENERAL NOTES
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- 4 BORING LOGS II
- 5 BORING LOGS III
- 6 BORING LOGS IV
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EAST OXBOW ROAD PROFILE
HORIZONTAL SCALE: 1" = 15'
VERTICAL SCALE: 1" = 5'



OXBOW BROOK PROFILE
HORIZONTAL SCALE: 1" = 10'
VERTICAL SCALE: 1" = 5'



FEBRUARY 17, 2024 ISSUED FOR CONSTRUCTION

massDOT
Massachusetts Department of Transportation
Highway Division

**PROPOSED BRIDGE
CHARLEMONT
EAST OXBOW ROAD
OVER OXBOW BROOK**

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

Alexander K. Bardow, P.E. STATE BRIDGE ENGINEER
John Bechard, P.E. CHIEF ENGINEER

Digitally signed by Alexander K. Bardow, P.E. Date: 2024.02.07 09:14:48 -0500
Digitally signed by John Bechard, P.E. Date: 2024.02.06 16:19:31 -0500

608858_BR1(C05042).DWG Plotted on 15-Jan-2024 5:20 PM Final Structural Submittal (SF) 13-September-2023

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	21	55
PROJECT FILE NO.		608858	

GENERAL NOTES

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, FOR HL-93 LOADING.

MASSDOT BENCH MARK:

BM A: RRSPK, EL. 629.62,
STA. 11+21.24, OFFSET 18.63' LT
BM B: RRSPK (UPL 13), EL. 674.66
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE NORTHWEST AND SOUTHEAST 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.

MASSDOT SURVEY NOTEBOOK:

SURVEY PERFORMED BY WSP 155 MAIN DUNSTABLE ROAD, SUITE 120 & 125, NASHUA, NH 03060 FROM APRIL 12, 2018 THROUGH APRIL 25, 2018. FIELD NOTES ARE RECORDED IN MASSDOT FIELD NOTEBOOK 41401. COPIES OF ELECTRONIC SURVEY FILES MAY BE OBTAINED FROM THE MASSDOT - HIGHWAY DIVISION.

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.

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 < 3d _b , OR CLEAR SPACING < 6d _b	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

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

REINFORCING STEEL FOR APPROACH SLABS MAY BE UNCOATED. ALL OTHER PROPOSED REINFORCING STEEL SHALL BE EPOXY COATED, UNLESS NOTED OTHERWISE.

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE MEMBRANE WATERPROOFING FOR BRIDGE DECKS - SPRAY APPLIED.

CONCRETE:

ALL ELEMENTS OF BRIDGE ARE CAST IN PLACE EXCEPT FOR HIGHWAY GUARDRAIL TRANSITIONS.

ALL CONCRETE SHALL BE 4000 HP CONCRETE, EXCEPT AS NOTED BELOW:
CT-MTL2 BARRIERS SHALL BE 5000 PSI, 3/8 IN. HP CONCRETE AND HIGHWAY GUARDRAIL TRANSITIONS SHALL BE 5000 HP CONCRETE.

CONCRETE PLACEMENTS WHERE ALL VOLUMETRIC DIMENSIONS ARE 4 FEET OR GREATER SHALL BE CONSIDERED MASS CONCRETE IN ACCORDANCE WITH SECTION 901 OF THE MASSDOT SUPPLEMENTAL SPECIFICATIONS.

STRUCTURAL STEEL

STRUCTURAL STEEL SHALL BE AASHTO M 270 GRADE 50, HOT-DIP GALVANIZED, UNPAINTED.

EXISTING CONDITION:

EXISTING DIMENSIONS ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND VERIFY ALL PRESENT DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY & ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS, AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

EXISTING PLANS:

PLANS FOR THE EXISTING BRIDGE ARE AVAILABLE THROUGH THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION PLANS AND RECORDS ROOM IN BOSTON.

GEOTECHNICAL REPORT:

REFER TO GEOTECHNICAL REPORT DATED MARCH 9, 2023 BY NOBIS GROUP.

SIGNIFICANT ARTESIAN CONDITIONS HAVE BEEN ENCOUNTERED AT THE SITE, WITH SOME READINGS AS HIGH AS APPROXIMATELY 10 FT ABOVE GROUND SURFACE. THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN TO HANDLE ALL ARTESIAN AND GROUNDWATER CONDITIONS AT THE SITE WHICH WILL REQUIRE REVIEW AND APPROVAL BY MASSDOT PRIOR TO THE PERFORMANCE OF ANY SUBSURFACE WORK. SEE SPECIAL PROVISIONS.

ESTIMATED QUANTITIES:

(NOT GUARANTEED)

ITEM NO.	ITEM	UNIT	QUANTITY
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. C-05-042 (OG1)	LS	1
127.1	REINFORCED CONCRETE EXCAVATION	CY	35
140.	BRIDGE EXCAVATION	CY	130
141.	CLASS A TRENCH EXCAVATION	CY	80
144.	CLASS B ROCK EXCAVATION	CY	12
151.1	GRAVEL BORROW FOR BRIDGE FOUNDATIONS	CY	230
153.1	CONTROLLED DENSITY FILL - NON-EXCAVATABLE	CY	2
156.	CRUSHED STONE	TON	60
156.1	CRUSHED STONE FOR BRIDGE FOUNDATIONS	TON	30
450.60	SUPERPAVE BRIDGE SURFACE COURSE - 9.5 (SSC-B - 9.5)	TON	18
450.70	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 (SPC-B - 9.5)	TON	18
450.71	SUPERPAVE BRIDGE PROTECTIVE COURSE - 12.5 (SPC-B - 12.5)	TON	4
698.4	GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL	SY	130
945.10	DRILLED MICROPILES	FT	200
948.60	MICROPILE VERIFICATION LOAD TEST	EA	2
948.61	MICROPILE PROOF LOAD TEST	EA	2
953.1	TEMPORARY SUPPORT OF EXCAVATION	LS	1
983.1	RIPRAP	TON	140
983.101	STREAMBED RESTORATION	CY	35
991.1	CONTROL OF WATER - STRUCTURE NO. C-05-042	LS	1
993.1	TEMPORARY BRIDGE NO. C-05-042T	LS	1
994.01	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. C-05-042 (OG1)	LS	1
995.01	BRIDGE STRUCTURE, NO. C-05-042 (CBF)	LS	1
995.012	INSTRUMENTATION FOR BRIDGE NO. C-05-042 (CBF)	LS	1

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2038	
AVERAGE DAILY TRAFFIC - PRESENT	647	
AVERAGE DAILY TRAFFIC - DESIGN YEAR	715	
DESIGN HOURLY VOLUME	N/A	
DIRECTIONAL DISTRIBUTION	N/A	
TRUCK PERCENTAGE - AVERAGE DAY	N/A	
TRUCK PERCENTAGE - PEAK HOUR	N/A	
DESIGN SPEED	25 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	N/A	

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1,000 YEARS
DESIGN SPECTRA	
As	0.070
SDs	0.158
SD1	0.068
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	1.26
DESIGN FLOOD DISCHARGE (C.F.S.)	183
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S.)	4.03
DESIGN FLOOD ELEVATION (FEET, NAVD)	640.27
BASE (100-YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	383
BASE FLOOD ELEVATION (FEET, NAVD)	641.88
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT	
RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	4.57
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT	
RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	4.52
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	N/A
FREQUENCY (IF KNOWN, YEARS)	N/A
MAXIMUM ELEVATION (FEET, NAVD)	N/A
DATE (MM/YYYY)	N/A
HISTORY OF ICE FLOES	N/A
EVIDENCE OF SCOUR AND EROSION	CHANNEL BED HEADCUT AT DOWNSTREAM FACE OF BRIDGE

TEMPORARY WATER CONTROL DESIGN DATA			
DESIGN FLOOD DISCHARGE:	79	136	C.F.S
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY):	2	5	YEARS
DESIGN FLOOD ELEVATION:	639.38	640.11	FEET, NAVD

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

608858_BR2(C05042).DWG Plotted on: 15-Jan-2024 5:21 PM 13-September-2023 Final Structural Submittal (SF)

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	22	55
PROJECT FILE NO.		608858	

BORING LOGS I

BORING LOG									
					Boring No.: BB-1 Boring Location: Near Prop. North Abut. N: 3056895 E: 310630 Checked by: <u>A. Jones</u> Date Start: <u>December 17, 2018</u> Date Finish: <u>December 18, 2018</u> Ground Surface Elev.: <u>(+/-) 646</u> Datum: <u>NAVD88</u>				
Project: <u>East Oxbow Road over Oxbow Brook - Bridge No. C-05-042</u> Location: <u>Charlemon, Massachusetts</u> Nobis Project No.: <u>94960.00 / MassDOT No. 608858</u>					Contractor: <u>Seaboard Drilling, Inc.</u> Driller: <u>M. Glynn</u> Nobis Rep.: <u>P. Clarke</u>				
Rig Type / Model: <u>ATV / Diedrich D-50 Turbo</u> Hammer Type: <u>Automatic Hammer</u> Hammer Hoist: <u>Automatic</u>					Drilling Method: <u>Split-Spoon</u> Sampler: <u>1-3/8</u> Date: <u>12/18/18</u> Time: <u>11:20</u> Depth Below Ground (ft.): <u>0 (Artesian)</u> Depth to Bottom of Hole (ft.): <u>17</u> Depth to Bottom of Hole (ft.): <u>37</u> Stabilization Time: <u>0 minutes</u>				
Depth (ft.)	Type & No.	Rec (ft.)	Blow/6 in.	REC %	Drilling Rate (min/ft)	Grain Size	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System - Modified Burmeister)	
1	S-1	10	0-2				647.0 / 2.0	S-1A (2") Medium dense, dark brown, fine to coarse SAND, some Silt, some fine Gravel, very few roots, moist. (TOPSOIL).	
2								S-1B (8") Medium dense, dark gray-brown, fine to coarse GRAVEL and fine to coarse Sand, some Silt, very few asphalt particles and fragments, dry. (FILL).	
3	S-2	4	2-4					S-2: Loose, gray-brown, fine to coarse GRAVEL, some fine to coarse Sand, little Clay & Silt, dry. (FILL).	
4								S-3A (3") Hard, brown, CLAY & SILT, some fine to coarse Sand, some fine Gravel, very few roots, moist. (FILL).	
5	S-3	7	4-5.4				641.7 / 4.3	S-3B (4") Very dense, dark gray-brown, inferred decomposed cobble/boulder particles and fragments, dry. (GLACIAL TILL).	
6								S-4: Very stiff, gray, CLAY & SILT, little fine to medium Sand, little fine Gravel, wet. (GLACIAL TILL). Laboratory Test Performed - Grain Size Analysis (Sieve Only): Gravel = 15.8%, Sand = 14.4%, Silt & Clay = 69.8%.	
7								S-5: Very stiff, gray, Silty CLAY, little fine Sand, trace fine Gravel, wet. (GLACIAL TILL).	
8								S-6: Very stiff, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, wet. (GLACIAL TILL).	
9	S-4	16	8-10					S-7: Very stiff, gray, CLAY & SILT, some fine to coarse Sand, trace fine Gravel, wet. (GLACIAL TILL).	
10								Increased drilling resistance observed at approximately 22.5 feet below ground surface.	
11	S-5	15	10-12						
12									
13									
14									
15									
16	S-6	5	15-17						
17									
18									
19									
20									
21	S-7	13	20-22						
22									
23									
24									
25									
26									

Soil Percentage Non-Soil NOTES:
 1) Casing unable to be advanced beyond approximately 3 feet below ground surface due to obstruction(s) (inferred trace little 10-20 very few several cobbles/boulders). Boring offset approximately two (2) feet south for second attempt.
 2) Oxbow Brook measured at approximately 8 feet below existing bridge deck surface prior to drilling.
 3) Water introduced to borehole during drive and wash drilling procedure.

BORING NO. BB-1
SCALE: 1" = 5'-0"

∇ BOT. OF N. PILE CAP
EL. 637.8±
EXIST. B.O.F.
EL. 635.0±

BORING LOG									
					Boring No.: BB-1 Boring Location: Near Prop. North Abut. N: 3056895 E: 310630 Checked by: <u>A. Jones</u> Date Start: <u>December 17, 2018</u> Date Finish: <u>December 18, 2018</u> Ground Surface Elev.: <u>(+/-) 646</u> Datum: <u>NAVD88</u>				
Project: <u>East Oxbow Road over Oxbow Brook - Bridge No. C-05-042</u> Location: <u>Charlemon, Massachusetts</u> Nobis Project No.: <u>94960.00 / MassDOT No. 608858</u>					Contractor: <u>Seaboard Drilling, Inc.</u> Driller: <u>M. Glynn</u> Nobis Rep.: <u>P. Clarke</u>				
Rig Type / Model: <u>ATV / Diedrich D-50 Turbo</u> Hammer Type: <u>Automatic Hammer</u> Hammer Hoist: <u>Automatic</u>					Drilling Method: <u>Split-Spoon</u> Sampler: <u>1-3/8</u> Date: <u>12/18/18</u> Time: <u>11:20</u> Depth Below Ground (ft.): <u>0 (Artesian)</u> Depth to Bottom of Hole (ft.): <u>17</u> Depth to Bottom of Hole (ft.): <u>37</u> Stabilization Time: <u>0 minutes</u>				
Depth (ft.)	Type & No.	Rec (ft.)	Blow/6 in.	REC %	Drilling Rate (min/ft)	Grain Size	Stratum Elev. / Depth (ft.)	SAMPLE DESCRIPTION AND REMARKS (Classification System - Modified Burmeister)	
26	S-8	8	25-25.7	31	60/27		609.0 / 26.0	S-8: Hard, gray, CLAY & SILT, some fine to coarse Sand, trace fine Gravel, wet. (GLACIAL TILL).	
27								Inferred transition to less competent rock based on observed drilling behavior.	
28	C-1	55	27-32		92/82		619.0 / 27.0	C-1: Very Hard, fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, horizontal to low-angle joints. Occasional thin beds of quartz-mica schist.	
29									
30									
31									
32									
33	C-2	58	32-37		97/85			C-2: Very Hard, very slightly weathered to fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, horizontal to moderately-dipping joints. Occasional thin beds of quartz-mica schist.	
34									
35									
36									
37							609.0 / 37.0	Boring terminated at 37 feet.	
38									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									

Soil Percentage Non-Soil NOTES:
 4) Artesian conditions observed after sampling bedrock. To control the pressure head and the upward flow of water, approximately 25 gallons of grout was tremied down borehole to create a seal. Upon departing the site, water was no longer flowing upward.

BORING NO. BB-1 (CONT'D)
SCALE: 1" = 5'-0"

ESTIMATED PILE TIP
EL. 613.0±

BORING NOTES:

- LOCATION OF BORINGS SHOWN ON THE PLANS THUS:
- BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
- WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
- FIGURES IN COLUMNS INDICATE THE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
- BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
- ALL BORINGS WERE MADE BETWEEN DECEMBER 2018 AND NOVEMBER 2019.
- ALL BORINGS WERE MADE BY:
SEABOARD DRILLING, INC.
649 MEADOW ST,
CHICOPPEE, MA 01013
AND
NEW ENGLAND BORING CONTRACTORS
40 FORDWAY ST,
DERRY, NH, 03038
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.
- OBSERVED GROUND WATER ELEVATION SHOWN ON BORING LOGS THUS:
- SIGNIFICANT ARTESIAN CONDITIONS HAVE BEEN ENCOUNTERED AT THE SITE, WITH SOME READINGS AS HIGH AS APPROXIMATELY 12 FT ABOVE GROUND SURFACE. THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN TO HANDLE ALL ARTESIAN AND GROUNDWATER CONDITIONS AT THE SITE WHICH WILL REQUIRE REVIEW AND APPROVAL BY MASSDOT PRIOR TO THE PERFORMANCE OF ANY SUBSURFACE WORK. ARTESIAN PRESSURES WERE MONITORED USING PIEZOMETERS AND RESULTS ARE PROVIDED IN THE GEOTECHNICAL REPORT, WHICH IS PRESENTED AS "APPENDIX A" IN THE SPECIAL PROVISIONS.

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	23	55
PROJECT FILE NO.		608858	

BORING LOGS II

		BORING LOG		Boring No.: BB-2
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. South Abut. N: 3056814 E: 310611
Nobis Project No.: 94960.00 / MassDOT No. 608858		Checked by: A. Jones		Date Start: December 19, 2018
Date Finish: December 19, 2018		Ground Surface Elev.: (+) 644.5		Datum: NAVD88
Contractor: Seaboard Drilling, Inc.		Rig Type / Model: Truck / B-53 Mobile		
Driller: M. Glynn		Hammer Type: Safety Hammer		
Nobis Rep.: P. Clarke		Hammer Hoist: Wire Winch		

Drilling Method		Sampler		Groundwater Observations			
Type	Casing	Split-Spoon	Date	Time	Depth Below Ground (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
			12/19/19	12:45	7.7	10	30
Size ID (in.)	4				1-3/8		
Advancement	Drive and Wash		140-lb Hammer				

Down (ft.)	SAMPLE INFORMATION			REC %	Blow/6 in.	Drilling Rate (min/ft)	Grain Size	Stratum Elev. / Depth (ft.)	LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	Type & No.	Rec (ft.)	Depth (ft.)								
1								642.7 / 0.3	ASPHALT	Asphalt (4")	
2	S-1	8	1-3	28					FILL	S-1: Very dense, brown, fine to coarse SAND, some SILT, little fine Gravel, pocket of CLAY & SILT. very few asphalt particles and fragments dry. (FILL).	
3								641.5 / 3.0		S-2: Hard, gray, Silty CLAY, little fine Sand. moist. (GLACIAL TILL).	
4	S-2	18	3-5	15						S-3: Hard, gray, Silty CLAY, trace fine Sand. moist. (GLACIAL TILL).	
5										S-4: No Recovery.	
6	S-3	10	5-7	14					GLACIAL TLL	S-5A (13"): Hard, gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, wet. (GLACIAL TILL).	
7										S-5B (2"): Hard, gray, CLAY & SILT, little fine to coarse Sand, inferred cobbler/boulder particles. wet. (GLACIAL TILL).	
8										S-6: Hard, gray, CLAY, little fine to coarse Sand, trace fine Gravel, wet. (GLACIAL TILL).	
9										C-1: Gray, CLAY & SILT, little fine to coarse Sand, trace fine Gravel, numerous inferred cobbler/boulder fragments and pieces, wet. (GLACIAL TILL).	
10	S-4	0	10-12	14							
11											
12											
13											
14											
15	S-5	15	15-17	22							
16											
17											
18											
19											
20	S-6	4	20-20.4	100/5							
21											
22	C-1	36	21-25	76	2.5						
23											
24											
25											

Soil Percentage Non-Soil
 trace 5-10 very few
 little 10-20 few
 some 20-35 several
 and 35-50 numerous

NOTES:
 1) Water introduced to borehole during drive and wash drilling procedure.

Page No. 1 of 2

BORING NO. BB-2
SCALE: 1" = 5'-0"

EXIST. B.O.F.
EL. 635.0±
BOT. OF S. PILE CAP
EL. 635.0±

		BORING LOG		Boring No.: BB-2
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. South Abut. N: 3056814 E: 310611
Nobis Project No.: 94960.00 / MassDOT No. 608858		Checked by: A. Jones		Date Start: December 19, 2018
Date Finish: December 19, 2018		Ground Surface Elev.: (+) 644.5		Datum: NAVD88
Contractor: Seaboard Drilling, Inc.		Rig Type / Model: Truck / B-53 Mobile		
Driller: M. Glynn		Hammer Type: Safety Hammer		
Nobis Rep.: P. Clarke		Hammer Hoist: Wire Winch		

Drilling Method		Sampler		Groundwater Observations			
Type	Casing	Split-Spoon	Date	Time	Depth Below Ground (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time
			12/19/19	12:45	7.7	10	30
Size ID (in.)	4				1-3/8		
Advancement	Drive and Wash		140-lb Hammer				

Down (ft.)	SAMPLE INFORMATION			REC %	Blow/6 in.	Drilling Rate (min/ft)	Grain Size	Stratum Elev. / Depth (ft.)	LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmister)	NOTES
	Type & No.	Rec (ft.)	Depth (ft.)								
26	S-7	2	25-25.8	49	100/3				GLACIAL TLL	S-7: Very dense, dark gray, fine to coarse GRAVEL, little fine to coarse Sand, trace SILT. (GLACIAL TILL). Increased drilling resistance observed at approximately 25 feet below ground surface.	
27									WEATHERED BEDROCK	Inferred transition to less competent rock based on observed drilling behavior.	
28										C-2: Very Hard, very slightly weathered to fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, low-angle to high-angle joints. Occasional thin beds of quartz-mica schist.	
29											
30											
31	C-3	48	30-35	80/65	3.5				BEDROCK	C-3: Very Hard, fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, low-angle to moderately-dipping joints. Occasional thin beds of quartz-mica schist.	
32											
33											
34											
35								609.9 / 35.0		Boring terminated at 35 feet.	
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47											
48											
49											
50											

Soil Percentage Non-Soil
 trace 5-10 very few
 little 10-20 few
 some 20-35 several
 and 35-50 numerous

NOTES:
 2) Borehole tremie-grouted and pavement restored using asphalt cold-patch.

Page No. 2 of 2

BORING NO. BB-2 (CONT'D)
SCALE: 1" = 5'-0"

ESTIMATED PILE TIP
EL. 612.5

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

608858_BR3-9(C05042)DWG Plotted on 15-Jan-2024 5:21 PM 13-September-2023 Final Structural Submittal (SF)

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	24	55
PROJECT FILE NO.		608858	

BORING LOGS III

		BORING LOG		Boring No.: BB-3
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. South Abut. N: 3056845 E: 310640
Nobis Project No.: 94960.00 / MassDOT No. 608858		Rig Type / Model: Acker Soil Scout		Checked by: A. Jones
Contractor: New England Boring Contractors		Driller: P. Lebossier		Date Start: April 16, 2019
Nobis Rep.: P. Clarke		Hammer Type: Safety Hammer		Date Finish: April 17, 2019
Hammer Hoist: Rope & Cathead		Ground Surface Elev.: (+/-) 645.5		Datum: NAVD88

Type	Casing	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time	
4	1-3/8	Split-Spoon	04/17/19	15:00	0 (Artesian)	Out	34	5 hours

Depth (ft.)	Type	Rec (ft.)	Depth (ft.)	Blow/6 in.	REC % / RSD %	Drilling Rate (min/ft)	Gravel (%)	LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmeister)
2				6				FLL	S-1B (10"): Medium dense, brown, fine to coarse GRAVEL, some fine to coarse Sand, little Silt, very few asphalt particles. moist. (FILL).
3				9					
4				9				641.5 / 4.0	S-2: Very stiff, gray, SILT & CLAY, little fine Sand, trace fine Gravel. wet. (GLACIAL TILL).
5				7					
6				11					
7									
8									
9									
10	S-3	9	9-11	18					S-3: Hard, gray, Silty CLAY, little fine to coarse Sand. wet. (GLACIAL TILL).
11				18					
12				21					
13									
14									
15	S-4	6	14-16	22					S-4: Hard, gray, Silty CLAY, some fine to coarse Sand. wet. (GLACIAL TILL).
16				17					
17				26					
18				37					
19									
20	S-5	19	19-21	13					S-5: Hard, gray, Silty CLAY, some fine to coarse Sand, trace fine Gravel. wet. (GLACIAL TILL). [Laboratory Test Performed - Grain Size Analysis (Sieve Only): Gravel = 6.1%, Sand = 28.8%, Silt & Clay = 65.1%]
21				13					
22				24					
23				32					
24									
25	C-1	60	24-29	100/78	3			621.5 / 24.0	C-1: Very Hard, fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, low-angle to moderately-dipping BEDROCK

Soil Percentage Non-Soil
trace little 5-10 very few
some 10-20 few
and 20-35 several
35-50 numerous

NOTES:
1) Water introduced to borehole during drive and wash drilling procedure.

Page No. 1 of 2

BORING NO. BB-3
SCALE: 1" = 5'-0"

EXIST. B.O.F.
EL. 635.0±
BOT. OF S. PILE CAP
EL. 635.0±

		BORING LOG		Boring No.: BB-3
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. South Abut. N: 3056845 E: 310640
Nobis Project No.: 94960.00 / MassDOT No. 608858		Rig Type / Model: Acker Soil Scout		Checked by: A. Jones
Contractor: New England Boring Contractors		Driller: P. Lebossier		Date Start: April 16, 2019
Nobis Rep.: P. Clarke		Hammer Type: Safety Hammer		Date Finish: April 17, 2019
Hammer Hoist: Rope & Cathead		Ground Surface Elev.: (+/-) 645.5		Datum: NAVD88

Type	Casing	Sampler	Groundwater Observations					
			Date	Time	Depth Below Ground (ft.)	Depth to Bottom of Hole (ft.)	Stabilization Time	
4	1-3/8	Split-Spoon	04/17/19	15:00	0 (Artesian)	Out	34	5 hours

Depth (ft.)	Type	Rec (ft.)	Depth (ft.)	Blow/6 in.	REC % / RSD %	Drilling Rate (min/ft)	Gravel (%)	LITHOLOGY	SAMPLE DESCRIPTION AND REMARKS (Classification System: Modified Burmeister)
27				4					
28				6					
29				6					
30	C-2	55	29-34	92/66	4.5			BEDROCK	C-2: Very Hard, fresh, moderately fractured to sound, light gray, very fine- to medium-grained, SCHIST, close to moderately close, horizontal to low-angle joints. Occasional thin beds of quartz-mica schist.
31				10.3					
32				13					
33				13					
34				13.5				611.5 / 34.0	Boring terminated at 34 feet.

Soil Percentage Non-Soil
trace little 5-10 very few
some 10-20 few
and 20-35 several
35-50 numerous

NOTES:
2) Artesian conditions observed after sampling bedrock. To control the pressure head and the upward flow of water, grout was trenched down borehole to create a seal. Upon departing the site, water was no longer flowing upward.

Page No. 2 of 2

BORING NO. BB-3 (CONT'D)
SCALE: 1" = 5'-0"

ESTIMATED PILE TIP
EL. 615.5

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

608858_BB3-9(C05042)DWG Plotted on 15-Jan-2024 5:21 PM 13-September-2023 Final Structural Submittal (SF)

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	25	55
PROJECT FILE NO.		608858	

BORING LOGS IV

		BORING LOG		Boring No.: BB-4	
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. Temp. North Abut. N: 3056908 E: 310666	
Nobis Project No.: 94960.00 / MassDOT No. 608858		Nobis Rep.: P. Clarke		Checked by: A. Jones	
Contractor: New England Boring Contractors		Rig Type / Model: Acker Soil Scout		Date Start: April 17, 2019	
Driller: P. Lebossier		Hammer Type: Safety Hammer		Date Finish: April 18, 2019	
Nobis Rep.: P. Clarke		Hammer Hoist: Rope & Cathead		Ground Surface Elev.: (+/-) 647.5	
				Datum: NAVD88	
Drilling Method: Casing		Sampler: Split-Spoon		Date: 04/18/19	
Type: 4		Size ID (in.): 1-3/8		Time: 12:00	
Advancement: Drive and Wash		140-lb Hammer		Depth Below Ground (ft.): 0 (Artesian)	
				Depth to Bottom of Hole (ft.): Out	
				Stabilization Time: 43	
				2 hours	
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS	
Down (ft.)	Type & No.	Rec (ft.)	Depth (ft.)	Blow/6 in.	REC % / ROD %
1	S-1	12	0-2	1	
2				2	
3				5	
4				10	
5	S-2	2	4-4.5	11	80/0
6	C-1	16	4.5-6.2	60/0	6
7				2	
8					
9					
10	S-3	4	9-11	12	
11				14	
12				11	
13				12	
14					
15	S-4	13	14-16	8	
16				8	
17				13	
18				15	
19					
20	S-5	9	19-21	7	
21				9	
22				11	
23				15	
24					
25	S-6	6	24-24.8	6	50/37
Soil	Percentage	Non-Soil	NOTES:		
trace	5 - 10	very few	1) Water introduced to borehole during drive and wash drilling procedure.		
little	10 - 20	few			
some	20 - 35	several			
and	35 - 50	numerous			

BORING NO. BB-4
SCALE: 1" = 5'-0"

▽ BOT. OF N. PILE CAP
EL. 637.8±
EXIST. B.O.F.
EL. 635.0±

		BORING LOG		Boring No.: BB-4	
Project: East Oxbow Road over Oxbow Brook - Bridge No. C-05-042		Location: Charlemon, Massachusetts		Boring Location: Near Prop. Temp. North Abut. N: 3056908 E: 310666	
Nobis Project No.: 94960.00 / MassDOT No. 608858		Nobis Rep.: P. Clarke		Checked by: A. Jones	
Contractor: New England Boring Contractors		Rig Type / Model: Acker Soil Scout		Date Start: April 17, 2019	
Driller: P. Lebossier		Hammer Type: Safety Hammer		Date Finish: April 18, 2019	
Nobis Rep.: P. Clarke		Hammer Hoist: Rope & Cathead		Ground Surface Elev.: (+/-) 647.5	
				Datum: NAVD88	
Drilling Method: Casing		Sampler: Split-Spoon		Date: 04/18/19	
Type: 4		Size ID (in.): 1-3/8		Time: 12:00	
Advancement: Drive and Wash		140-lb Hammer		Depth Below Ground (ft.): 0 (Artesian)	
				Depth to Bottom of Hole (ft.): Out	
				Stabilization Time: 43	
				2 hours	
SAMPLE INFORMATION		LITHOLOGY		SAMPLE DESCRIPTION AND REMARKS	
Down (ft.)	Type & No.	Rec (ft.)	Depth (ft.)	Blow/6 in.	REC % / ROD %
26	C-2	24	25-27	100/0	2.5
27					2.5
28					
29					
30					
31	S-7	20	30-31.9	5	
32				13	
33				26	
34				50/82	
35					
36	C-3	60	33-38	100/70	3
37					2.5
38					5
39					5.5
40					6
41					
42	C-4	28	38-43	47/8	2.5
43					5.5
44					6.8
45					2.2
46					4
47					
48					
49					
50					
Soil	Percentage	Non-Soil	NOTES:		
trace	5 - 10	very few	2) Artesian conditions observed after sampling bedrock. To control the pressure head and the upward flow of water, grout was		
little	10 - 20	few	tremied down borehole to create a seal. Upon departing the site, water was no longer flowing upward.		
some	20 - 35	several			
and	35 - 50	numerous			

BORING NO. BB-4 (CONT'D)
SCALE: 1" = 5'-0"

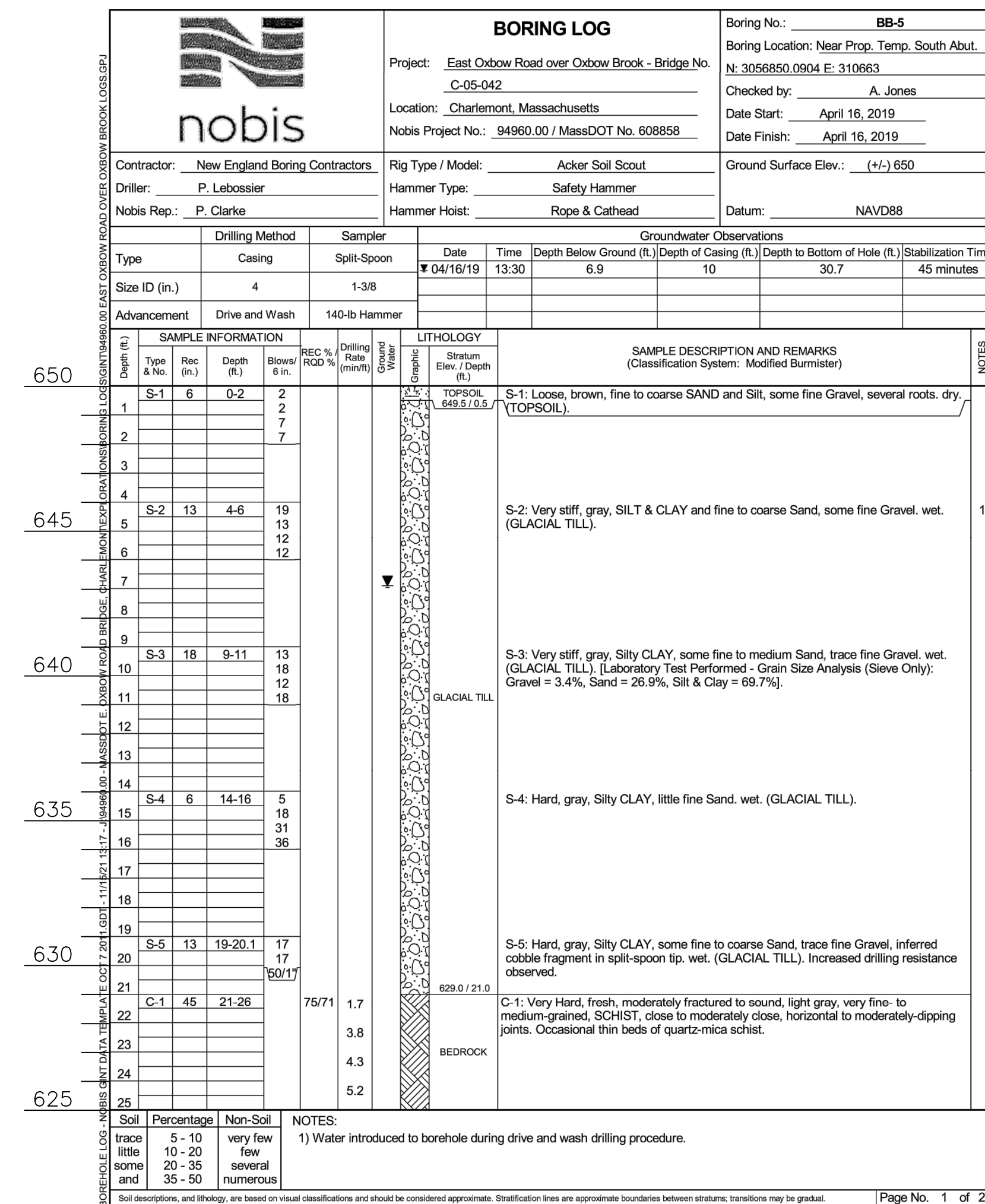
ESTIMATED PILE TIP
EL. 608.5

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

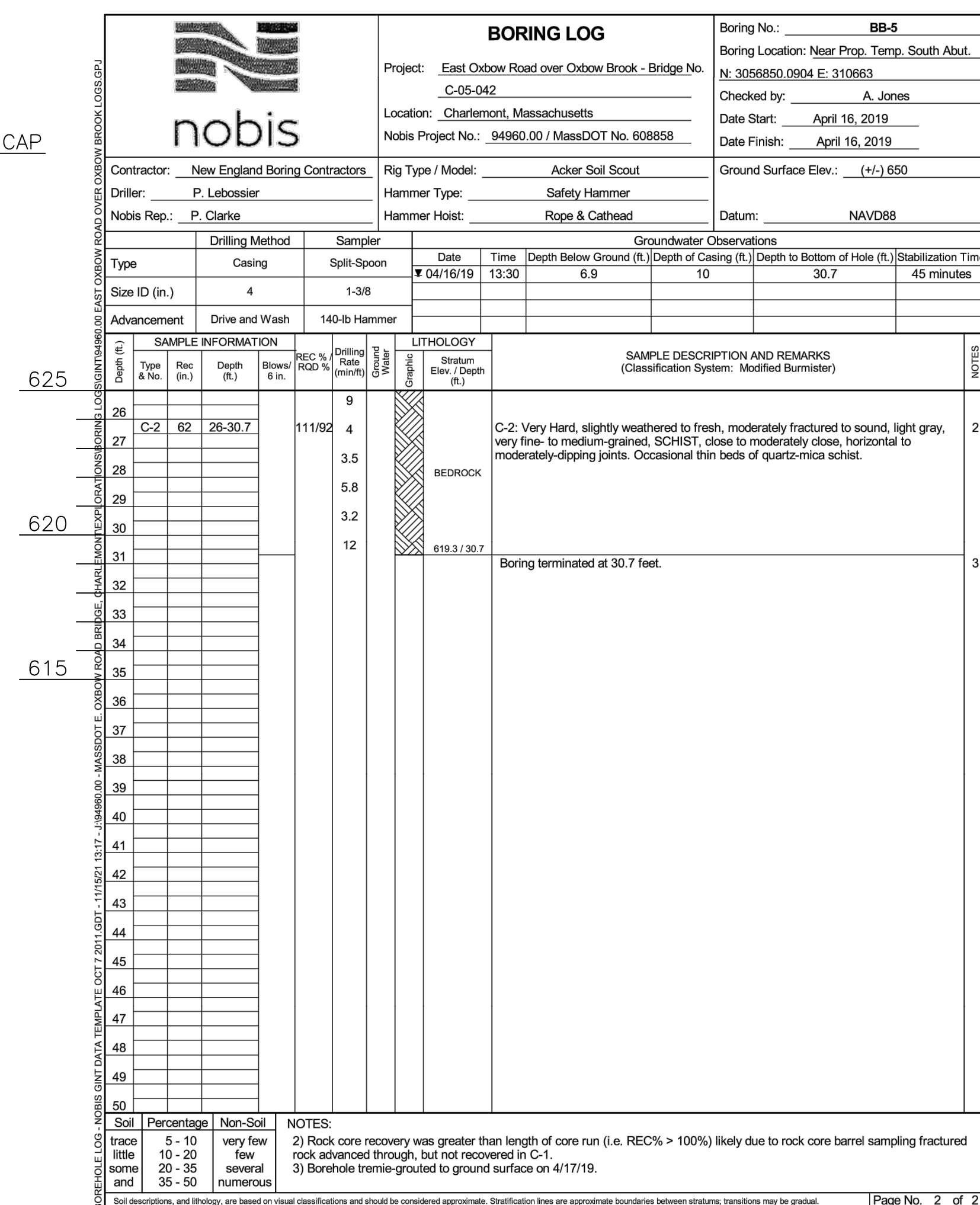
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	26	55
PROJECT FILE NO.		608858	

BORING LOGS V



BORING NO. BB-5
SCALE: 1" = 5'-0"

EXIST. B.O.F.
EL. 635.0±
BOT. OF S. PILE CAP
EL. 635.0±



BORING NO. BB-5 (CONT'D)
SCALE: 1" = 5'-0"

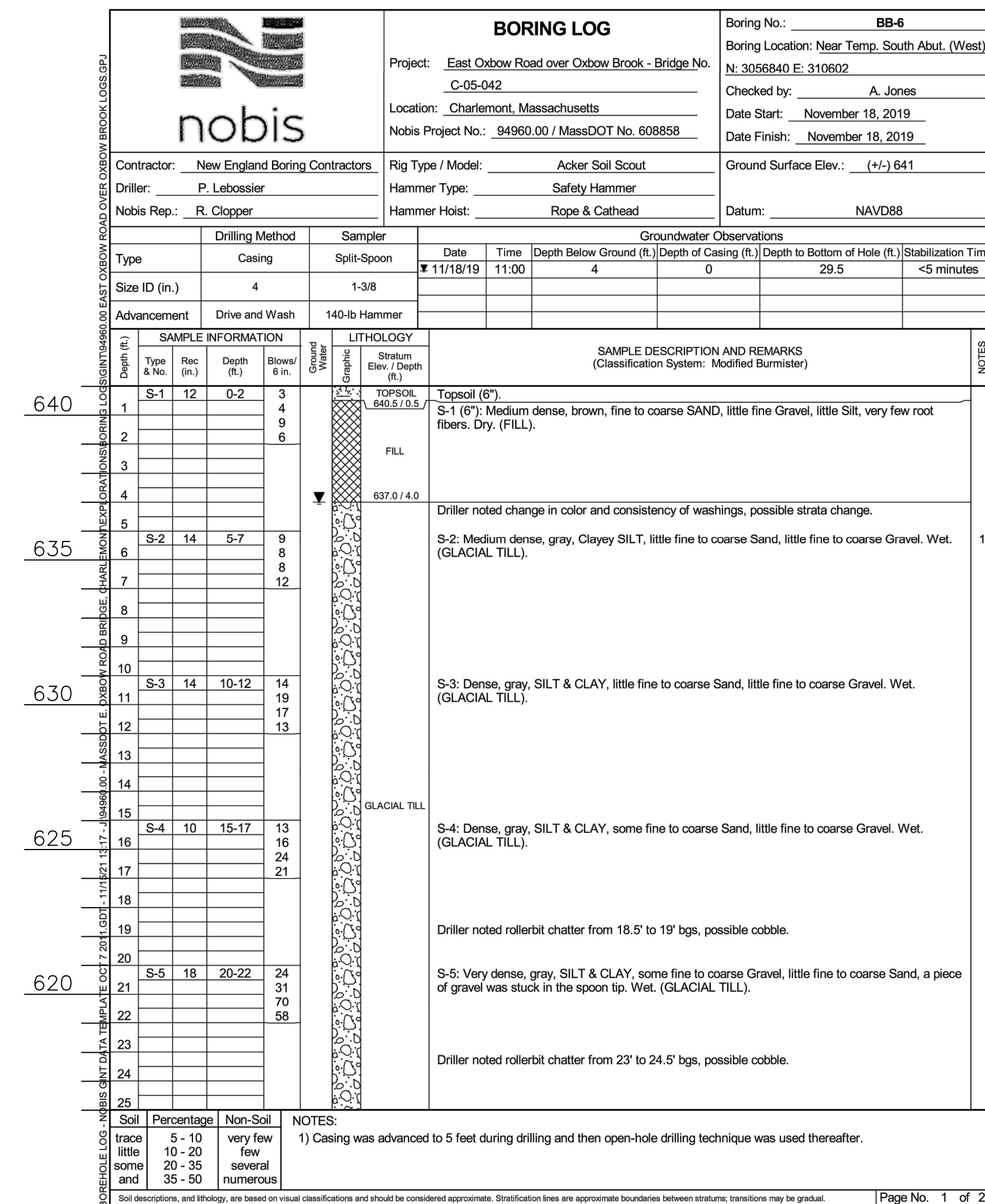
ESTIMATED PILE TIP
EL. 623.0

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY: <i>[Signature]</i> STATE BRIDGE ENGINEER	
USE ONLY PRINTS OF LATEST DATE	

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

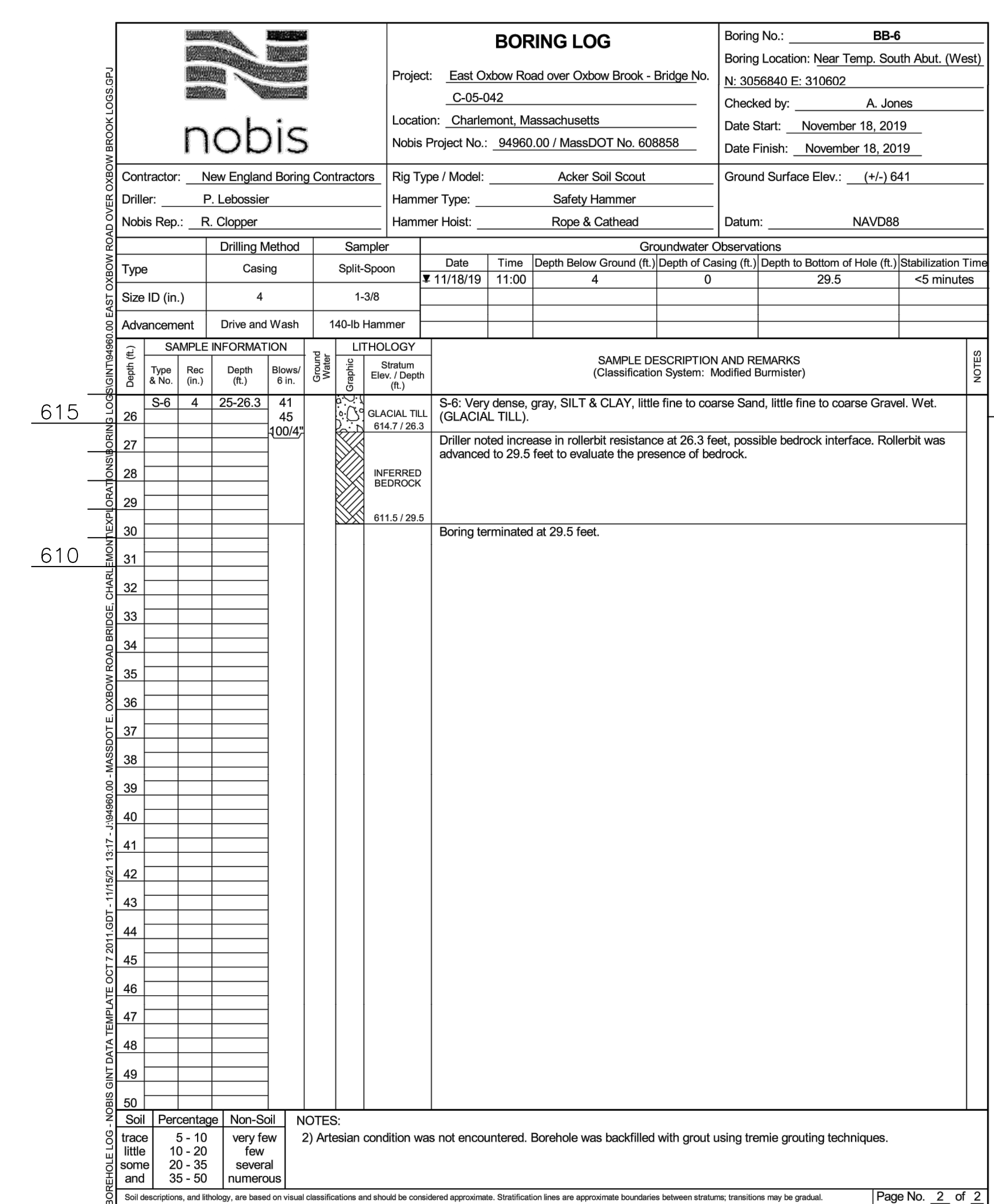
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	27	55
PROJECT FILE NO.		608858	

BORING LOGS VI



BORING NO. BB-6
SCALE: 1" = 5'-0"

EXIST. B.O.F.
EL. 635.0±
BOT. OF S. PILE CAP
EL. 635.0±



BORING NO. BB-6 (CONT'D)
SCALE: 1" = 5'-0"

ESTIMATED PILE TIP
EL. 609.0

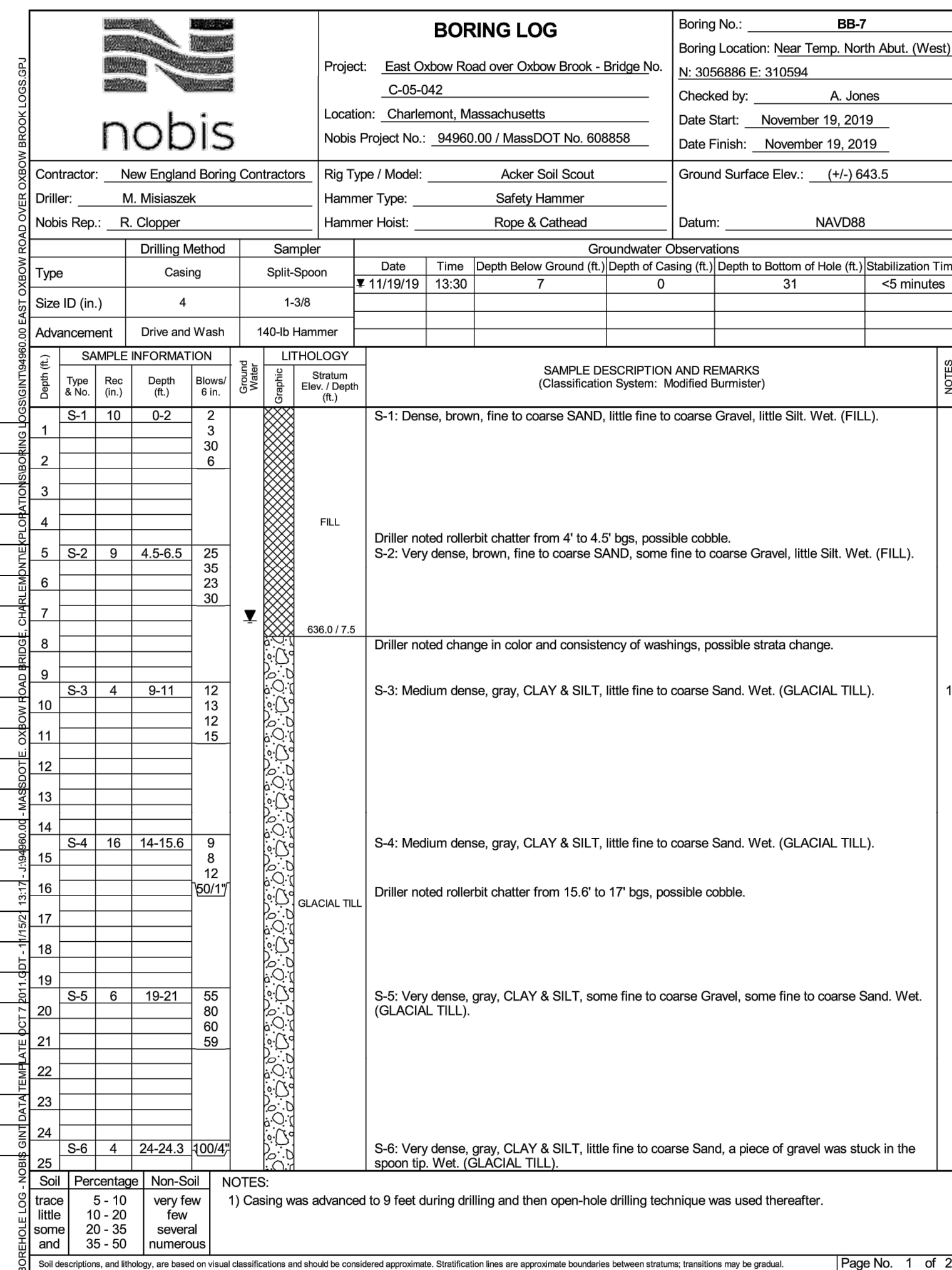
FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
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608858_BR3-9(C05042)DWG Plotted on 15-Jan-2024 5:21 PM 13-September-2023 Final Structural Submittal (SF)

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	28	55
PROJECT FILE NO.		608858	

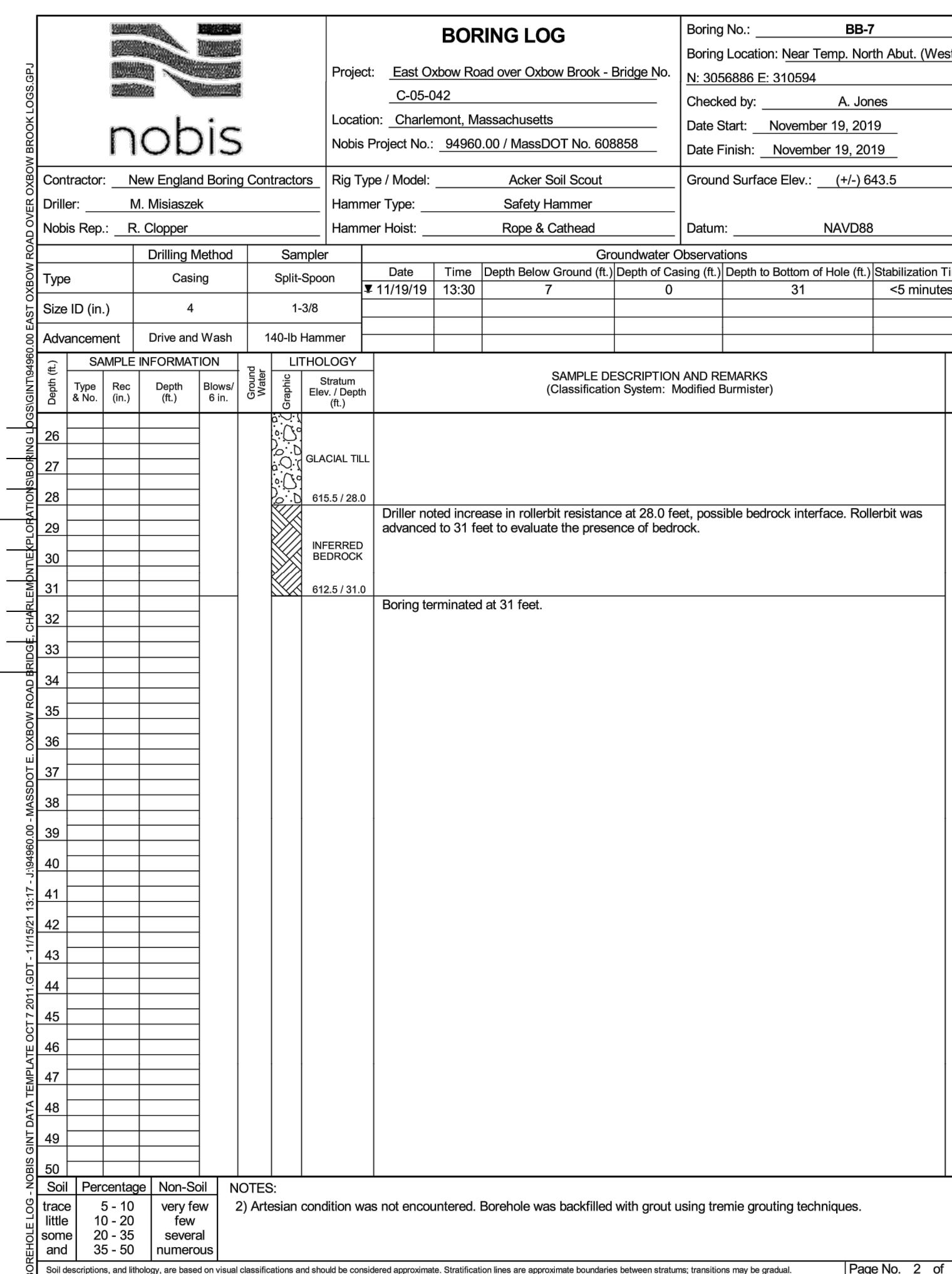
BORING LOGS VII



BORING NO. BB-7
SCALE: 1" = 5'-0"

▽ BOT. OF N. PILE CAP
EL. 637.8±

EXIST. B.O.F.
EL. 635.0±



BORING NO. BB-7 (CONT'D)
SCALE: 1" = 5'-0"

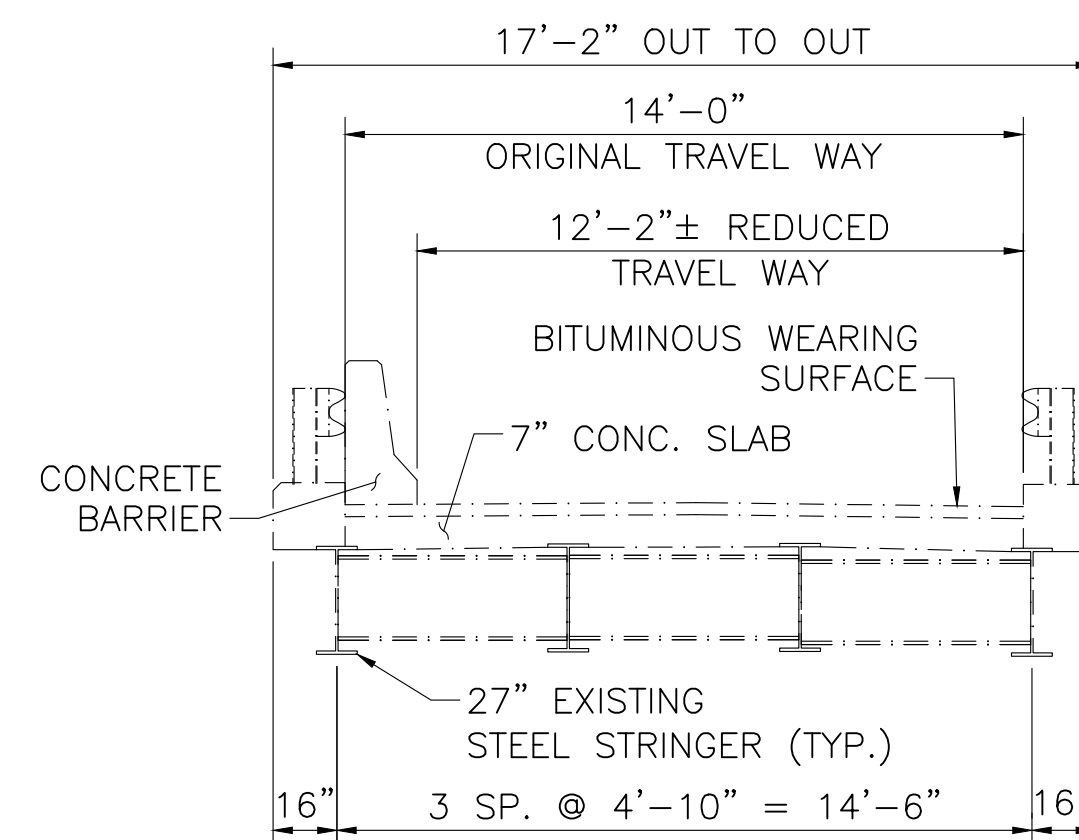
ESTIMATED PILE TIP
EL. 613.0±

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CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	29	55
PROJECT FILE NO.		608858	

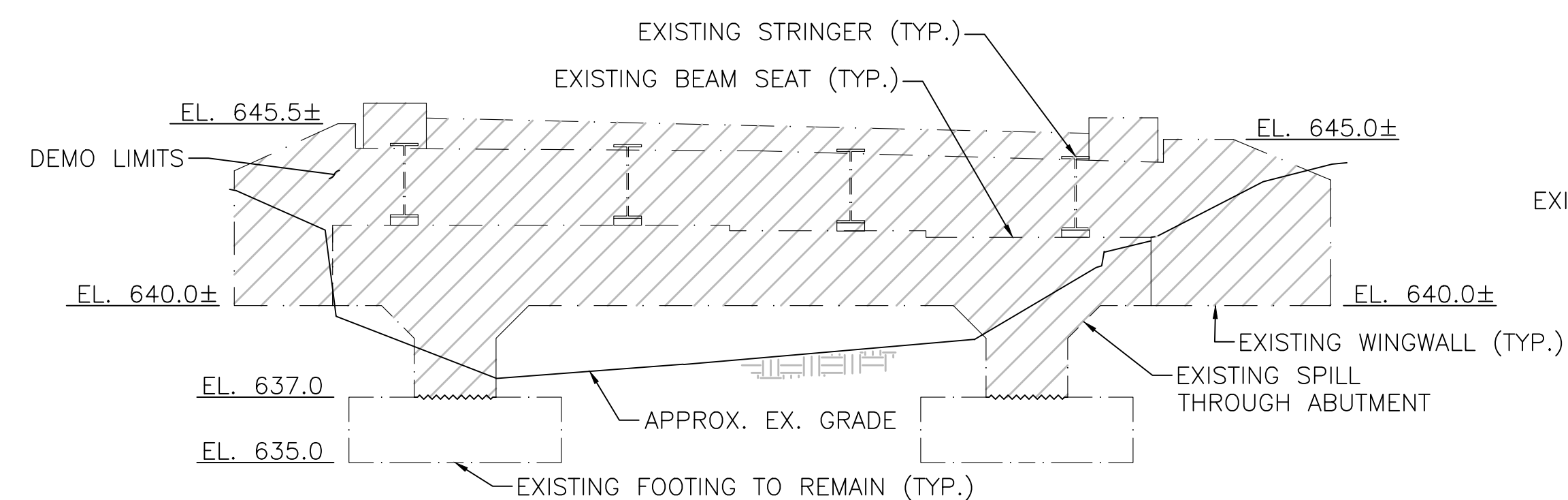
DEMOLITION PLAN



EXISTING CROSS SECTION

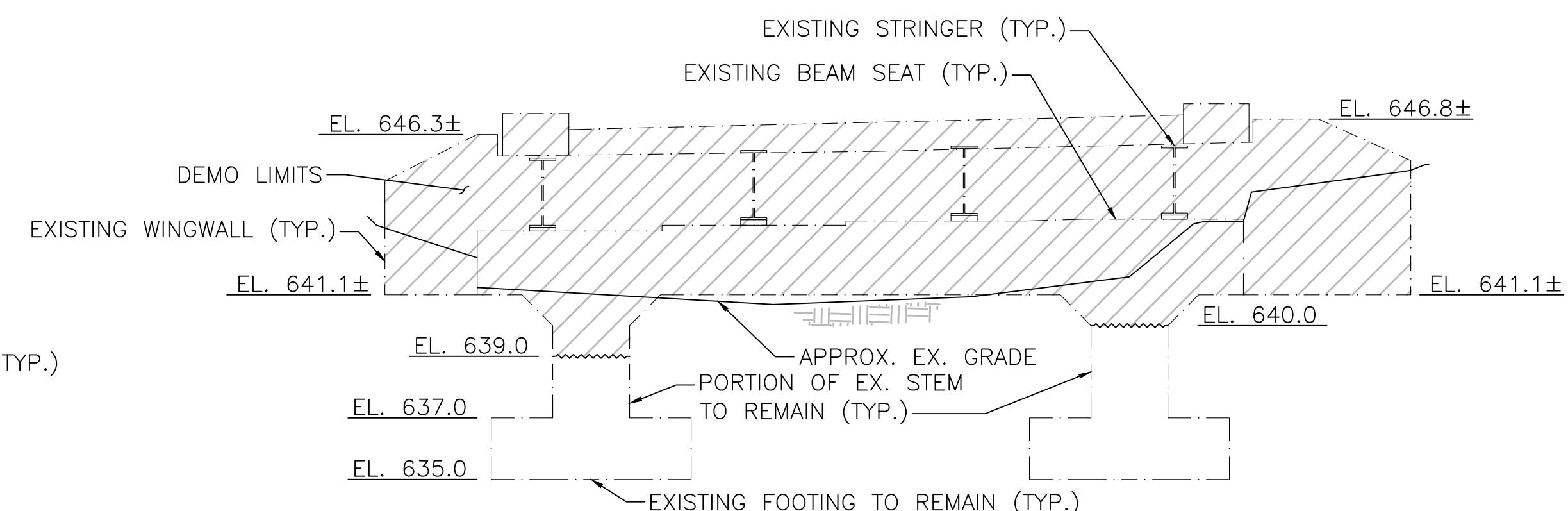
SCALE: $\frac{1}{4}$ " = 1'-0"

NOTE: EXISTING SUPERSTRUCTURE SHALL BE REMOVED IN ITS ENTIRETY



SOUTH ABUTMENT DEMO ELEVATION

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



NORTH ABUTMENT DEMO ELEVATION

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

NOTE:

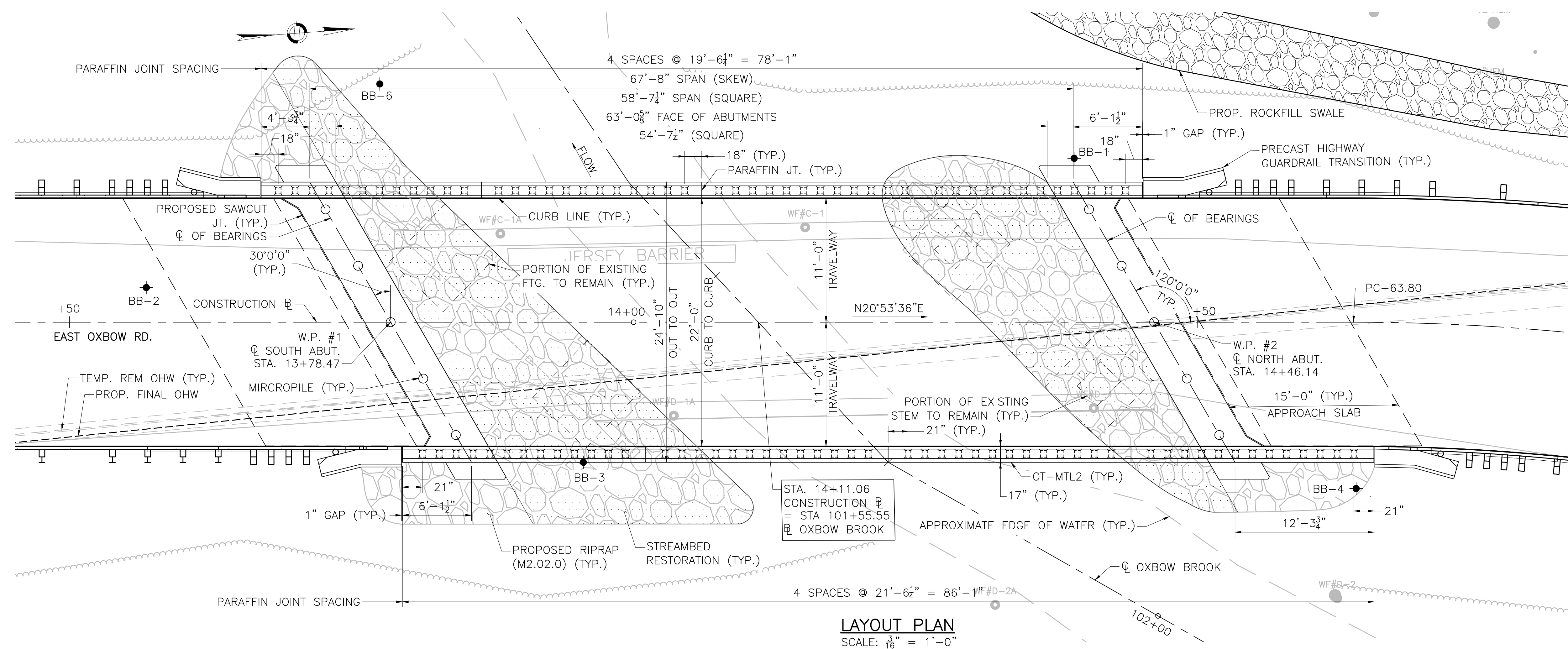
EXISTING SUBSTRUCTURE MAY BE REMOVED BEYOND THE LIMITS SHOWN AT THE EXPENSE OF THE CONTRACTOR.

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
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THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
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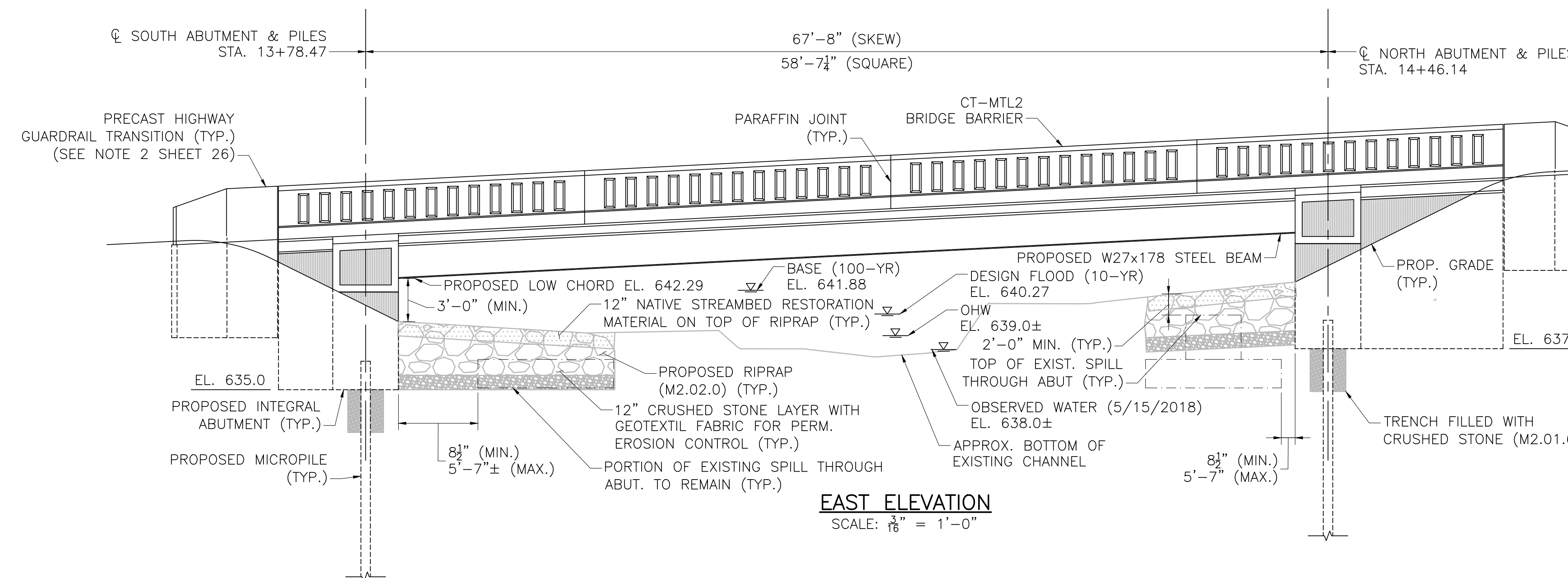
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	30	55
PROJECT FILE NO.		608858	

LAYOUT & ELEVATION



LAYOUT PLAN
SCALE: $\frac{1}{16}'' = 1'-0''$



EAST ELEVATION
SCALE: $\frac{1}{16}'' = 1'-0''$

WORKING POINT LOCATIONS				
NO.	DESCRIPTION	STATION	NORTHING	EASTING
1	CONSTRUCTION, SOUTH ABUTMENT	13+78.47	3056833.3665	310622.0702
2	CONSTRUCTION, NORTH ABUTMENT	14+46.14	3056896.5838	310646.2021

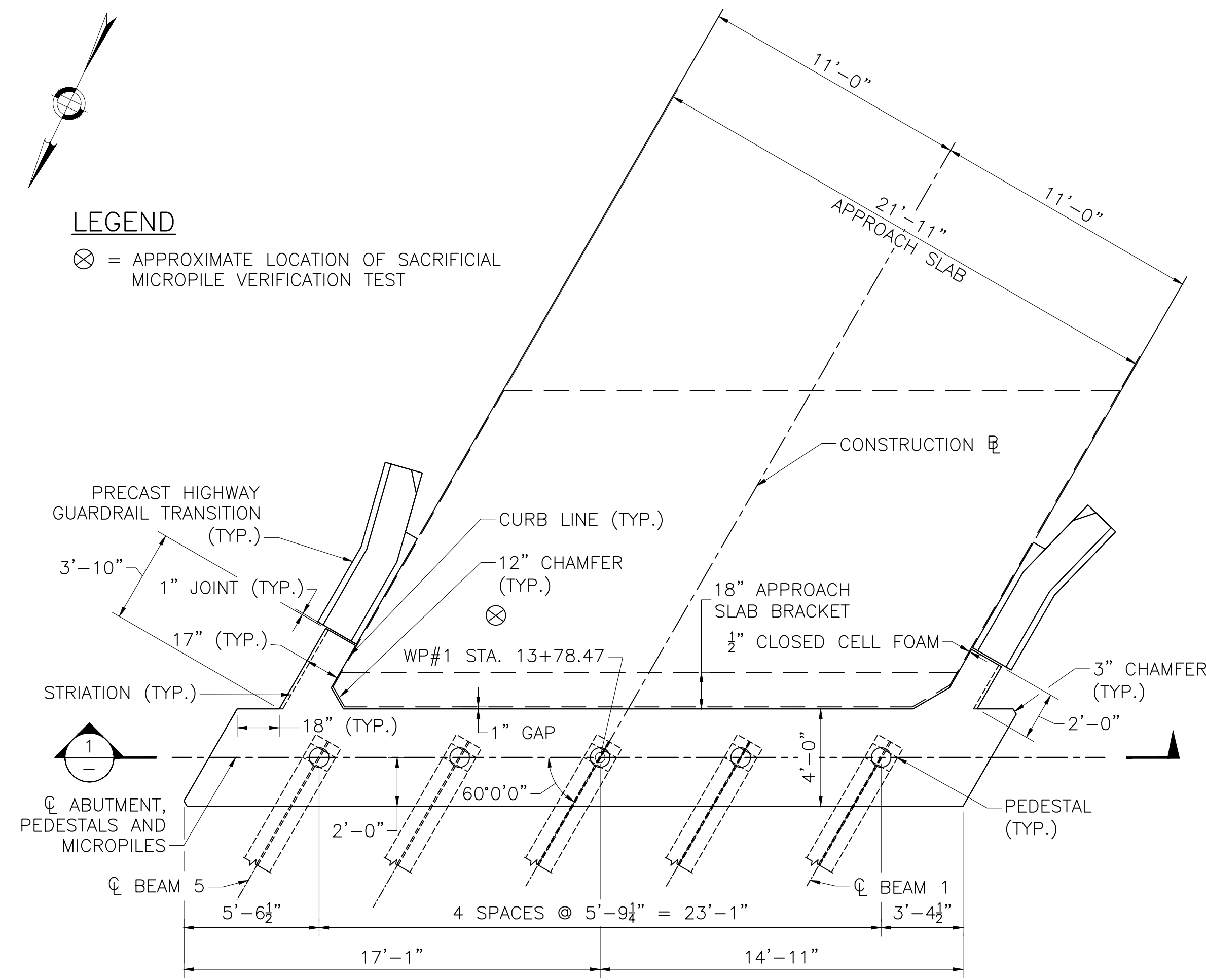
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MA	STP(BR-OFF)-003S(716)X	31	55
PROJECT FILE NO.		608858	

SOUTH ABUTMENT

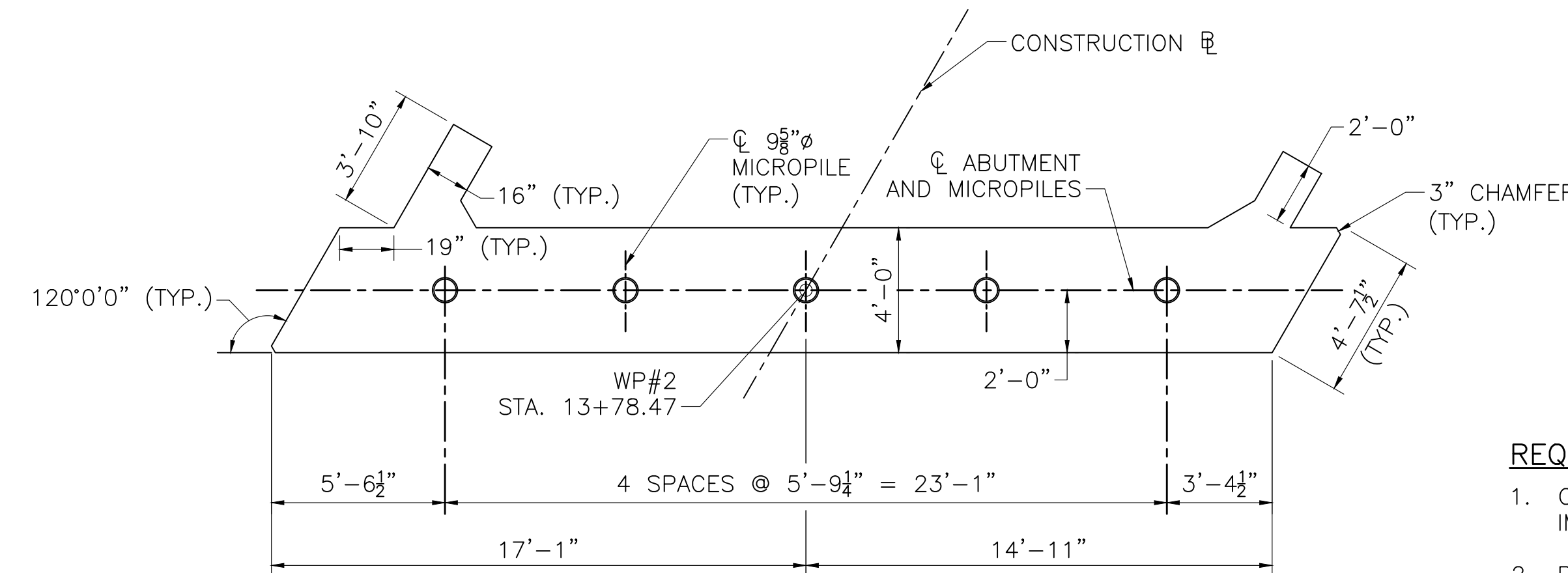
LEGEND

⊗ = APPROXIMATE LOCATION OF SACRIFICIAL MICROPILE VERIFICATION TEST



SOUTH ABUTMENT PLAN

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

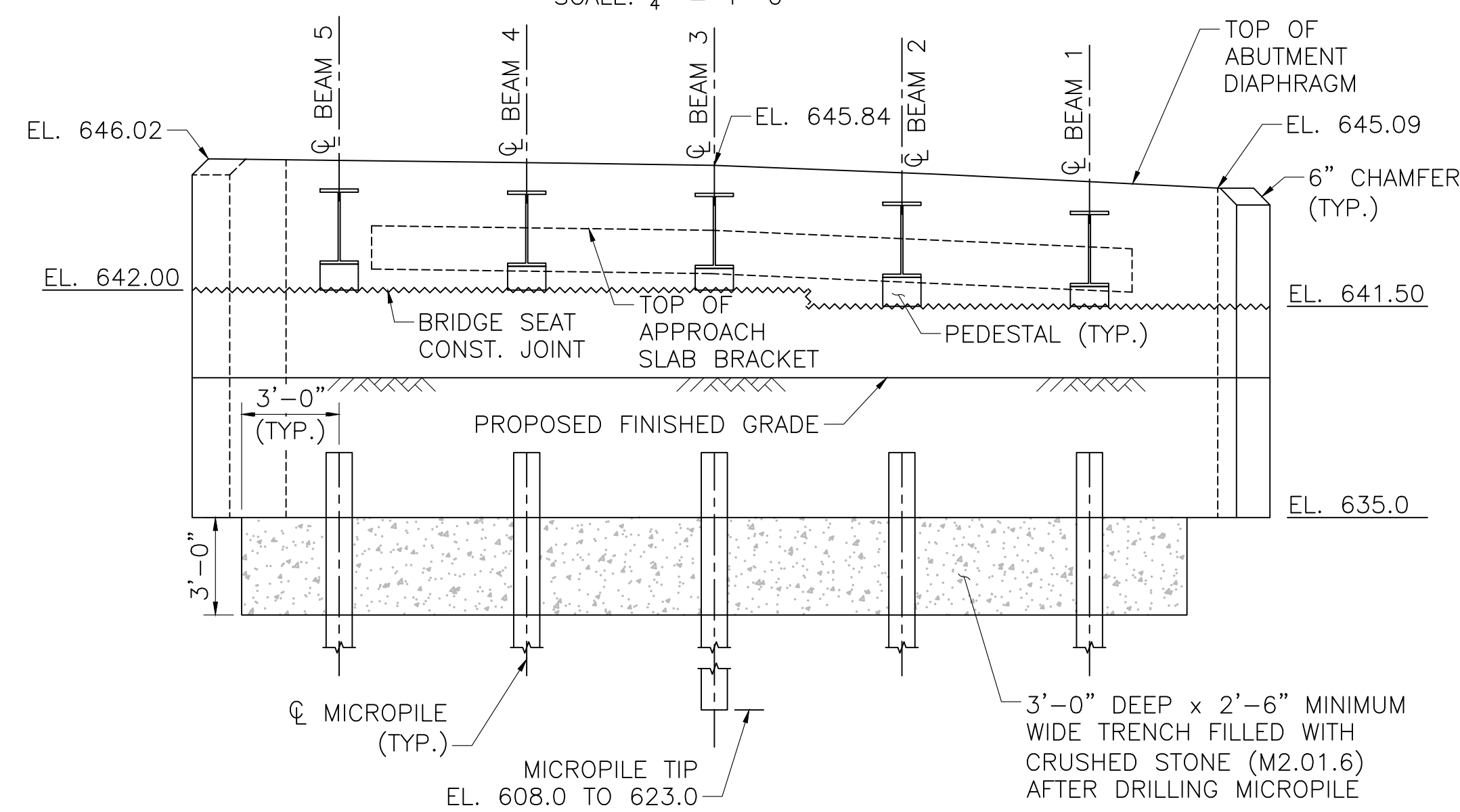


SOUTH ABUTMENT FOUNDATION PLAN

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

REQUIRED PILE LOCATION TOLERANCES:

1. CONFORMANCE TO THE FOLLOWING TOLERANCES IS OF EXTREME IMPORTANCE TO FOUNDATIONS OF THIS TYPE.
2. PRIOR TO DRILLING, EACH ABUTMENT MICROPILE SHALL BE HELD BY TEMPLATE TO WITHIN 1" OF PLAN LOCATION.
3. AFTER EACH ABUTMENT MICROPILE IS DRILLED, THE TOP OF THE MICROPILE SHALL BE WITHIN 3" OF PLAN LOCATION.



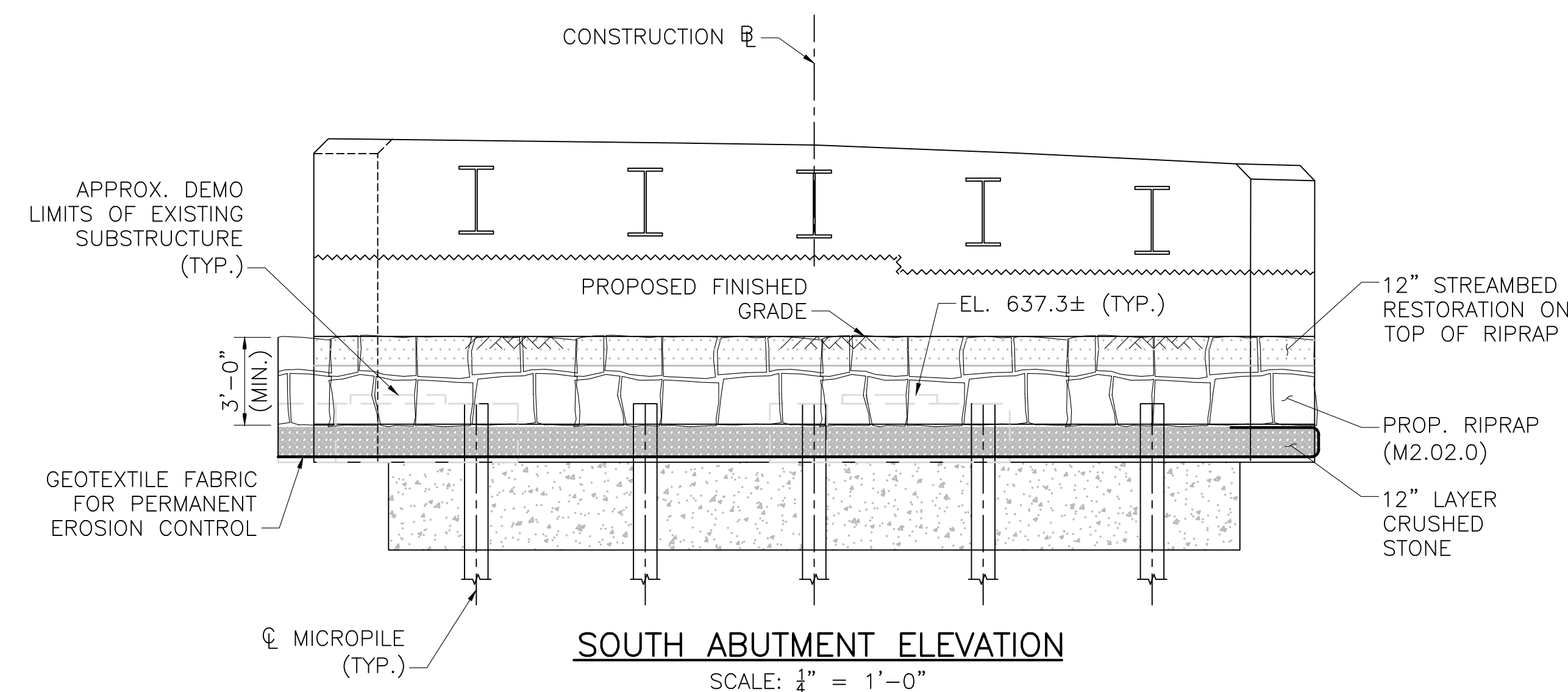
SECTION 1

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

TOP OF PEDESTAL ELEVATIONS SOUTH ABUTMENT	
BEAM	ELEVATION
1	642.15
2	642.43
3	642.70
4	642.77
5	642.84

INTEGRAL ABUTMENT ELEVATION NOTES:

1. ALL ELEVATIONS SHOWN ARE AT ABUTMENT CENTERLINE.
2. DETAILS ABOVE DECK LEVEL OMITTED FOR CLARITY.
3. TOP OF PEDESTAL ELEVATIONS SHOWN ARE TOP OF CONCRETE AND DO NOT INCLUDE ERECTION PAD THICKNESS.
4. TOP OF PEDESTAL ELEVATIONS SHOWN ARE BASED ON ESTIMATED CAMBERS. SEE BEAM CAMBER TABLE ON SHEET 21 OF 26.



SOUTH ABUTMENT ELEVATION

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

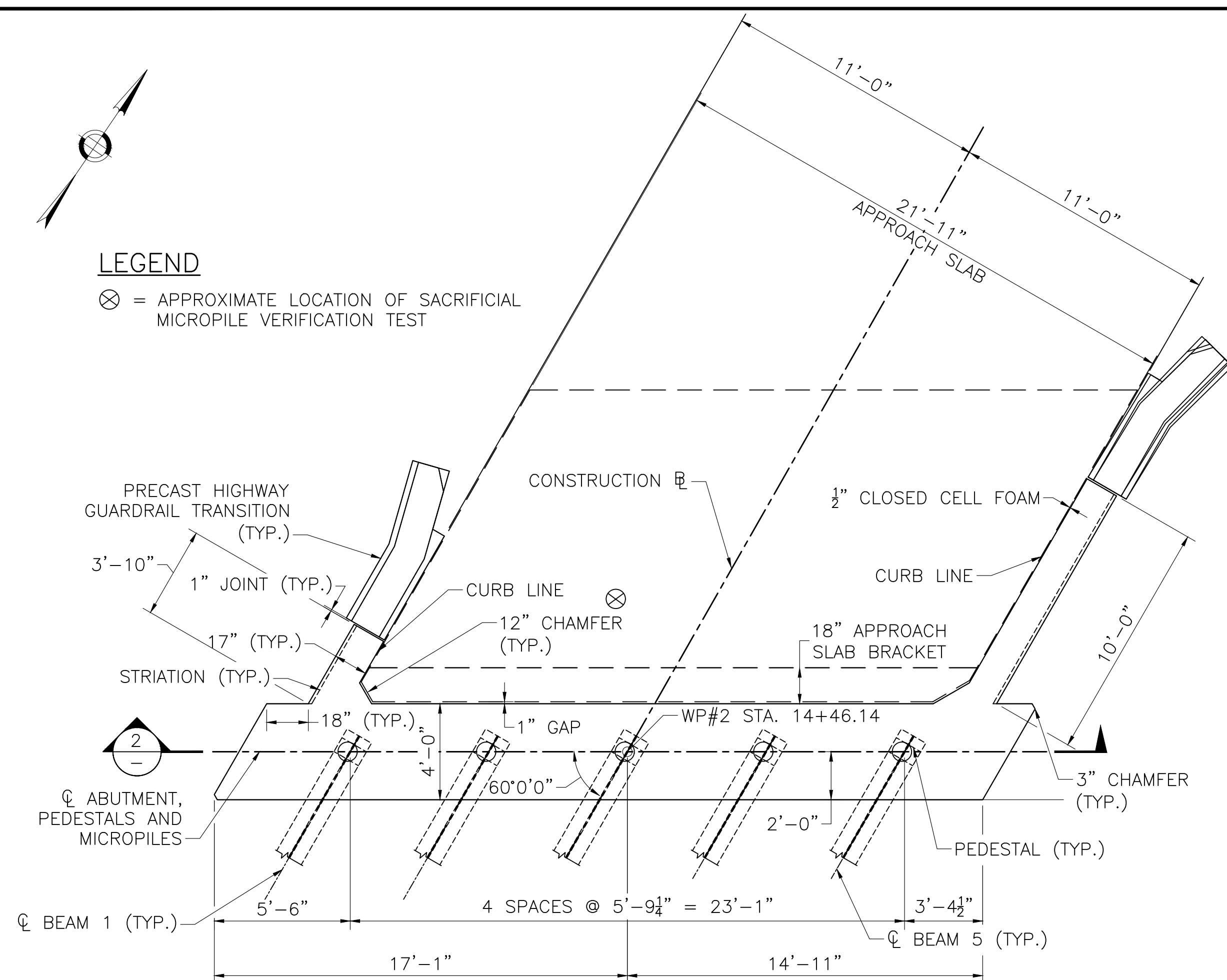
FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
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MA	STP(BR-OFF)-003S(716)X	32	55
PROJECT FILE NO.		608858	

NORTH ABUTMENT

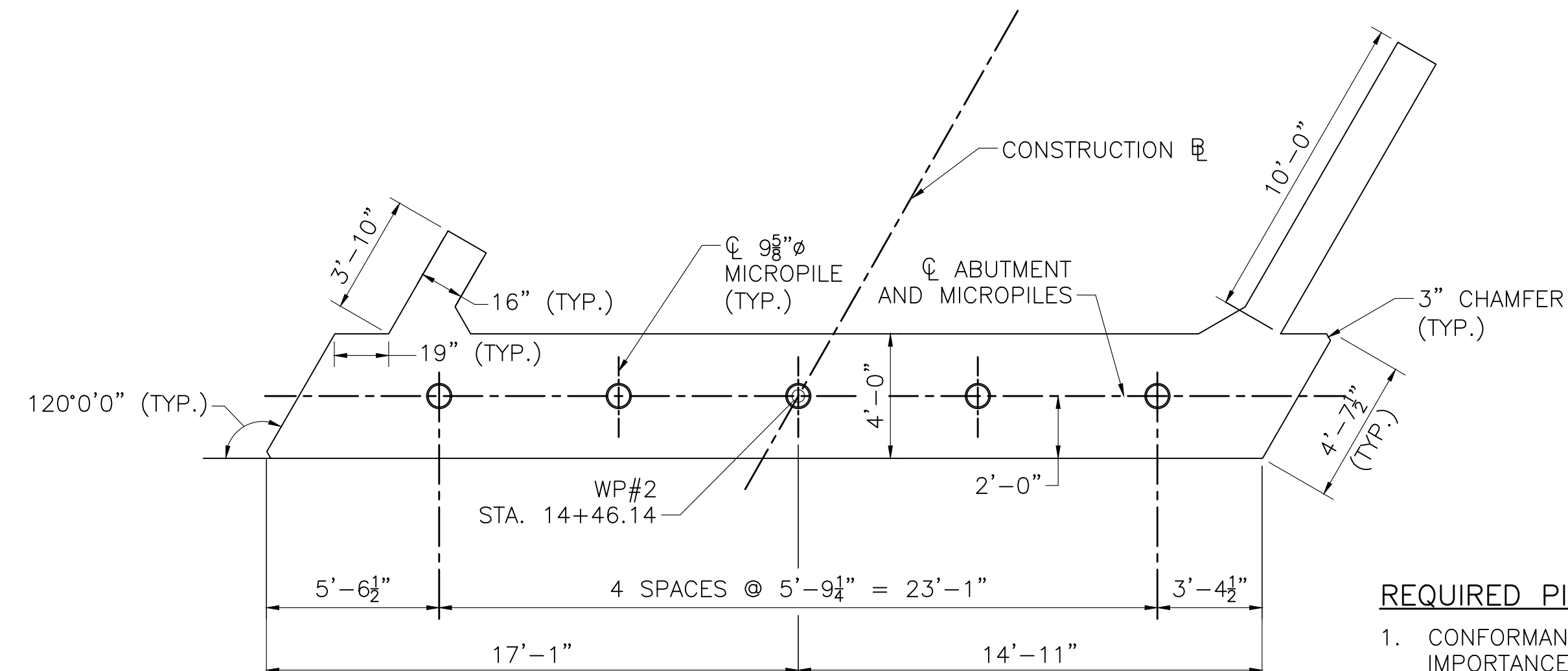
LEGEND

⊗ = APPROXIMATE LOCATION OF SACRIFICIAL MICROPILE VERIFICATION TEST



NORTH ABUTMENT PLAN

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

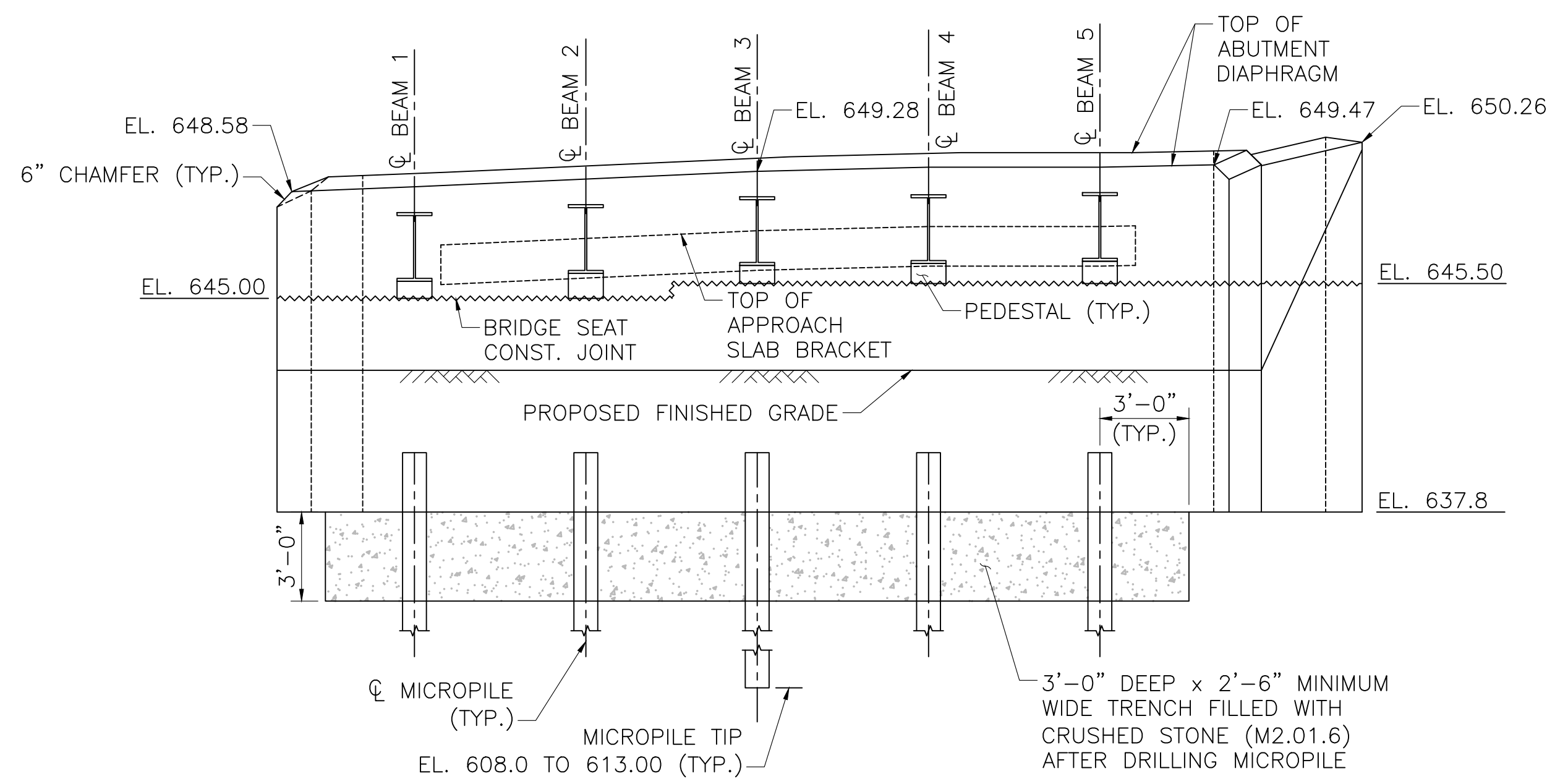


NORTH ABUTMENT FOUNDATION PLAN

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

REQUIRED PILE LOCATION TOLERANCES:

1. CONFORMANCE TO THE FOLLOWING TOLERANCES IS OF EXTREME IMPORTANCE TO FOUNDATIONS OF THIS TYPE.
2. PRIOR TO DRILLING, EACH ABUTMENT MICROPILE SHALL BE HELD BY TEMPLATE TO WITHIN 1" OF PLAN LOCATION.
3. AFTER EACH ABUTMENT MICROPILE IS DRILLED, THE TOP OF THE MICROPILE SHALL BE WITHIN 3" OF PLAN LOCATION.



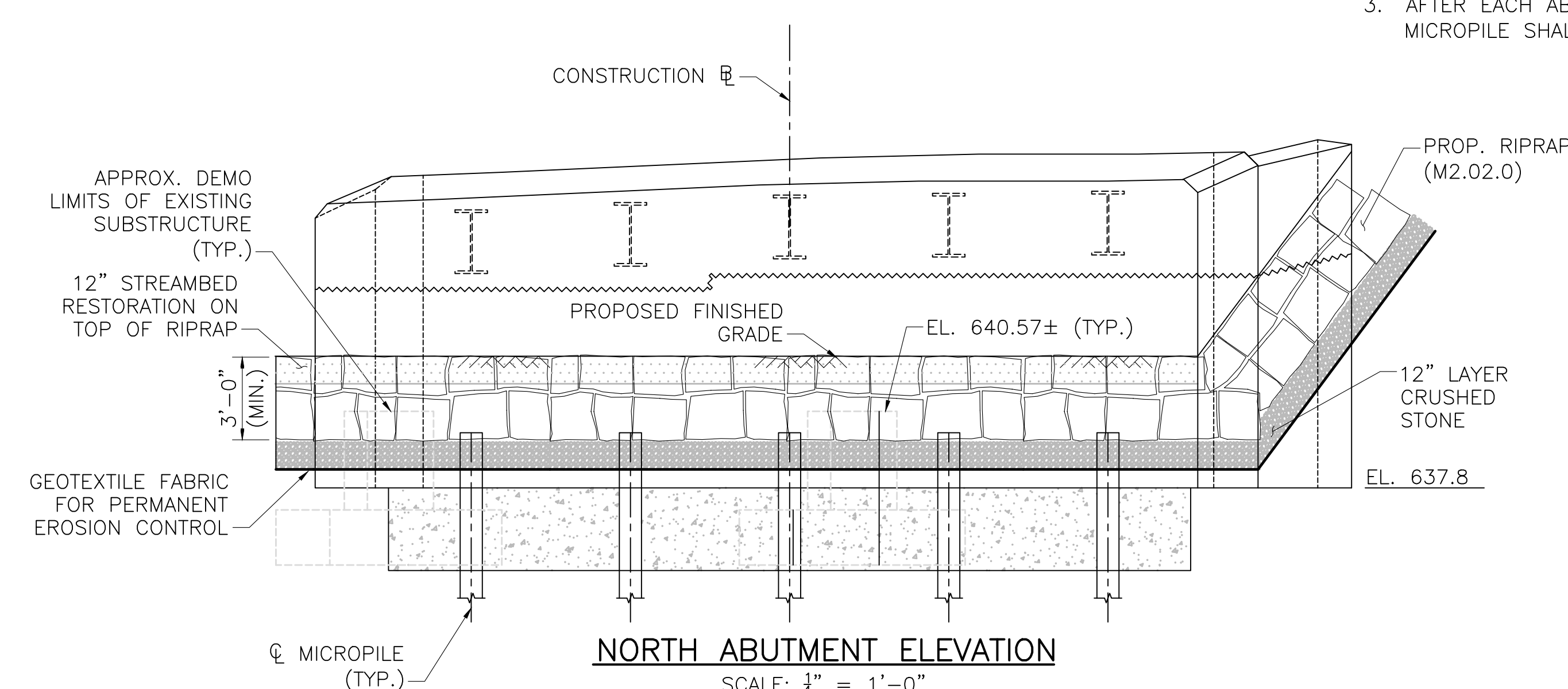
SECTION 2

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

BEAM	ELEVATION
1	645.46
2	645.74
3	646.02
4	646.09
5	646.16

INTEGRAL ABUTMENT ELEVATION NOTES:

1. ALL ELEVATIONS SHOWN ARE AT ABUTMENT CENTERLINE.
2. DETAILS ABOVE DECK LEVEL OMITTED FOR CLARITY.
3. TOP OF PEDESTAL ELEVATIONS SHOWN ARE TOP OF CONCRETE AND DO NOT INCLUDE ERECTION PAD THICKNESS.
4. TOP OF PEDESTAL ELEVATIONS SHOWN ARE BASED ON ESTIMATED CAMBERS. SEE BEAM CAMBER TABLE ON SHEET 21 OF 26.



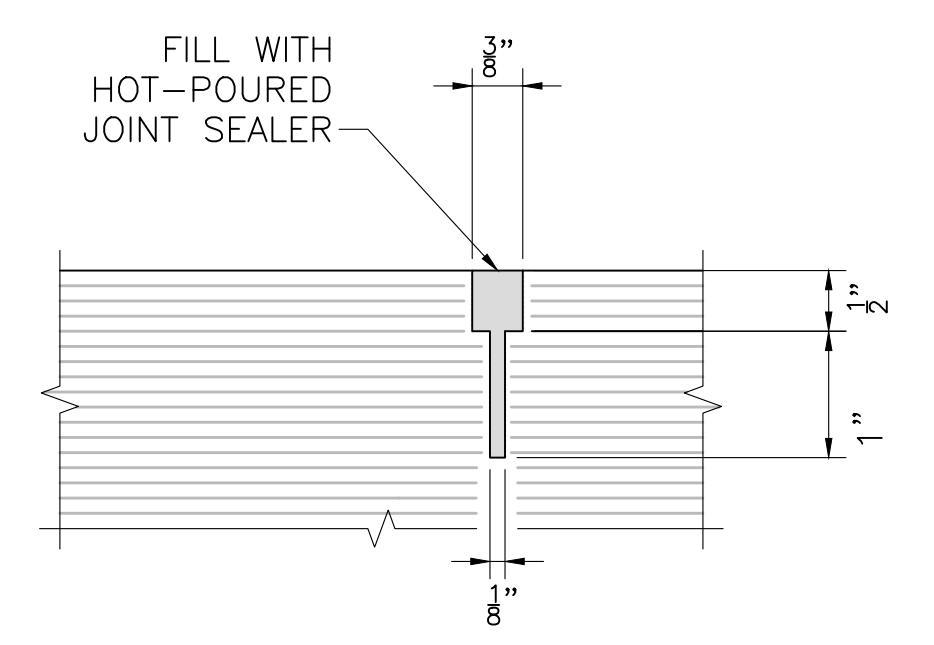
NORTH ABUTMENT ELEVATION

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

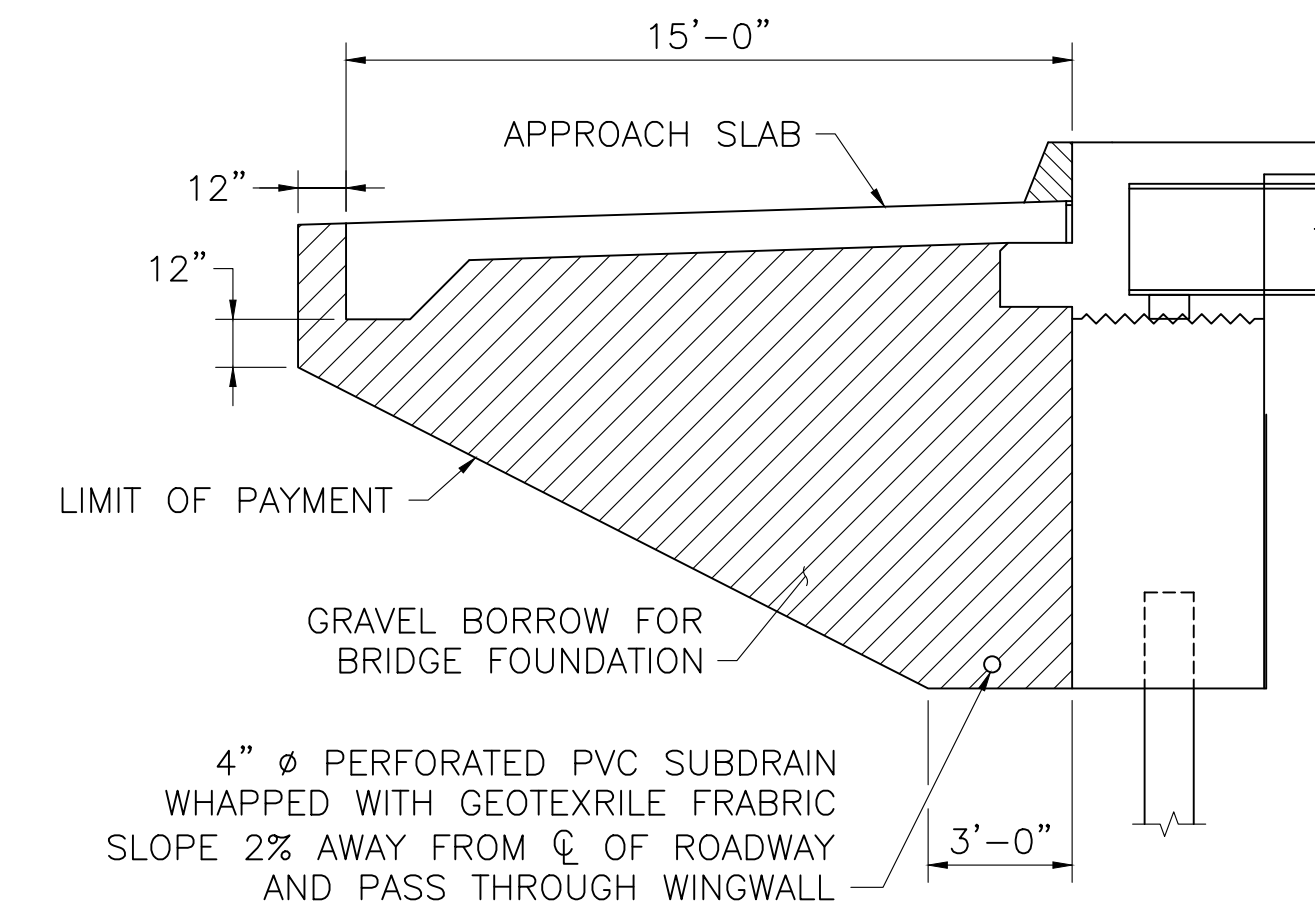
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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	33	55
PROJECT FILE NO.		608858	

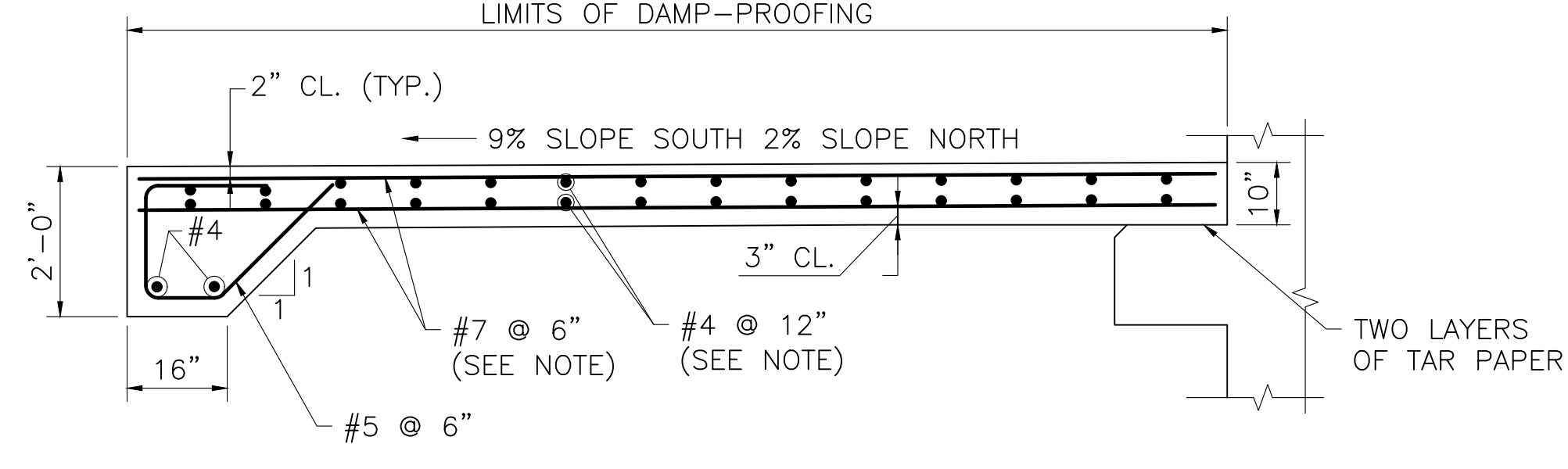
ABUTMENT DETAILS I



PAVEMENT SAWCUT DETAIL
NOT TO SCALE

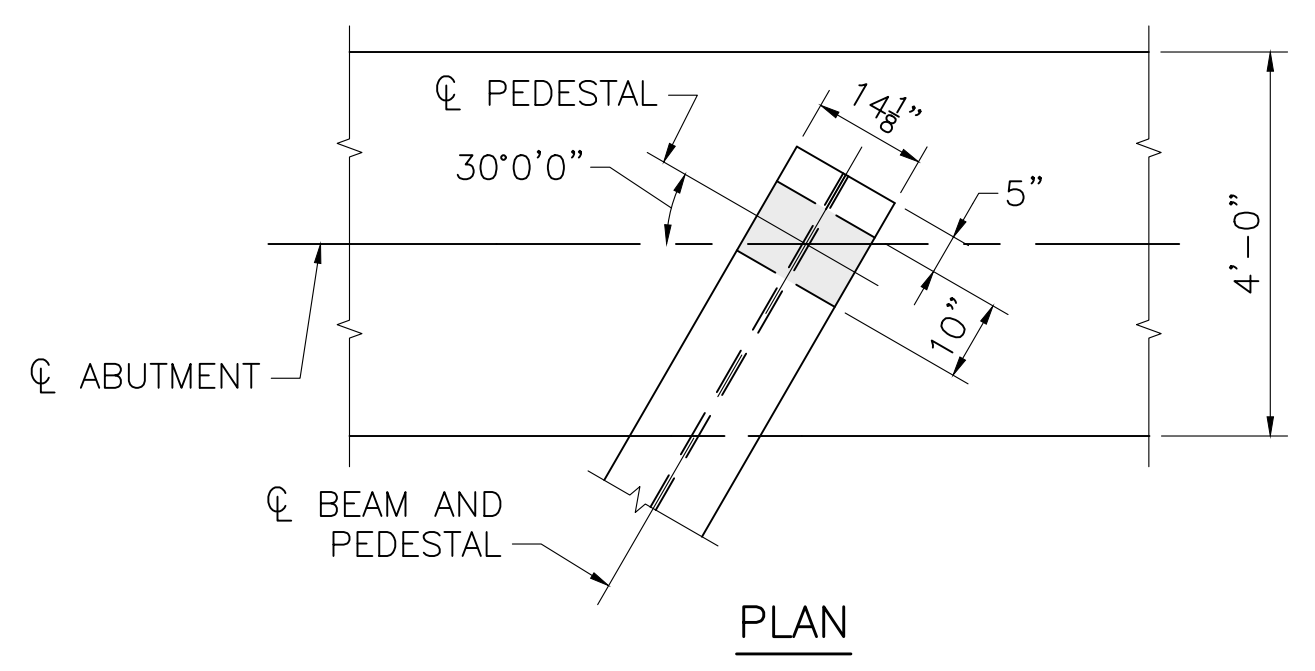


ABUTMENT BACKFILL
SCALE: 1/4" = 1'-0"



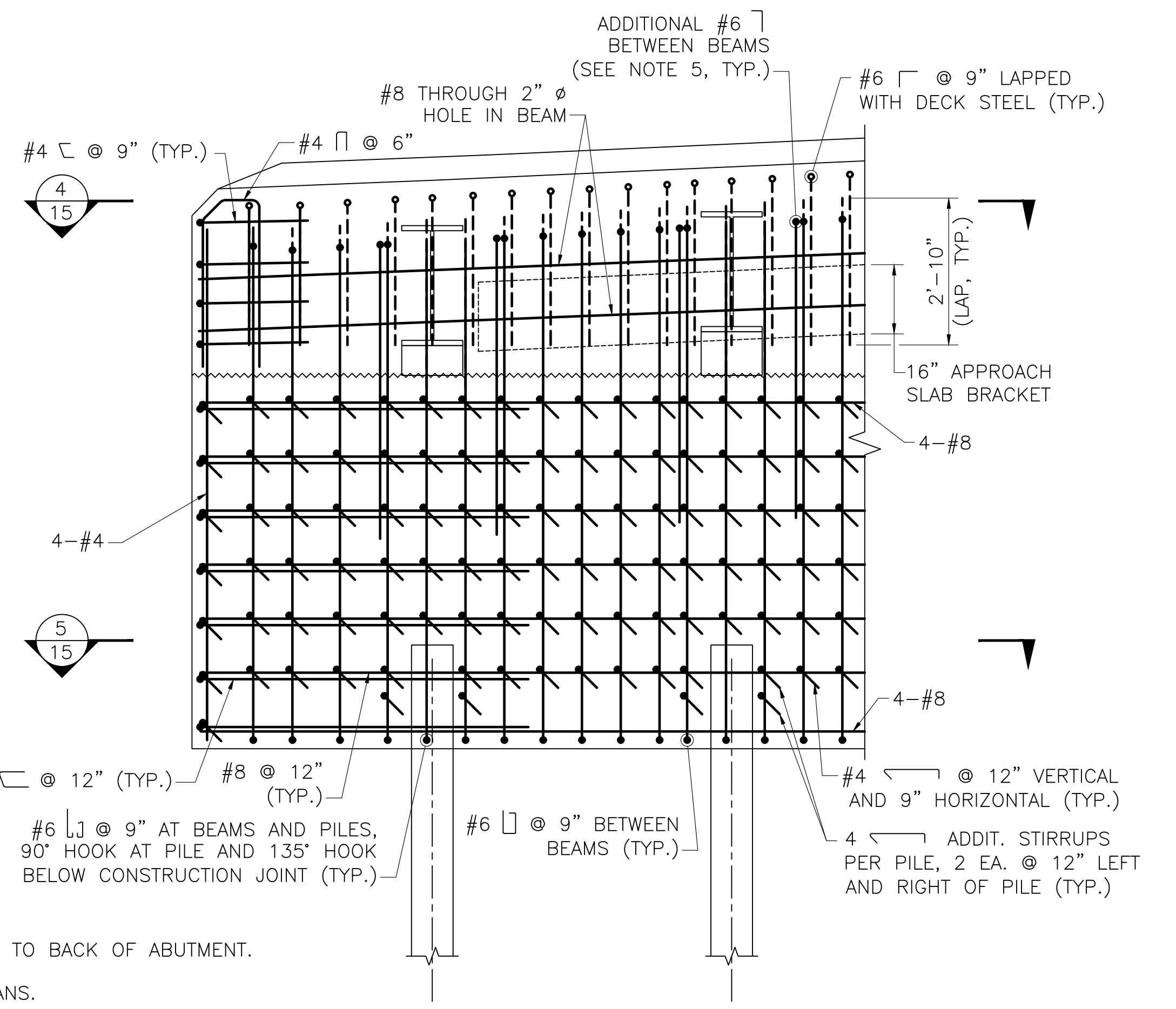
APPROACH SLAB DETAILS
SCALE: 1/2" = 1'-0"

NOTE:
PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO CONSTRUCTION & PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.

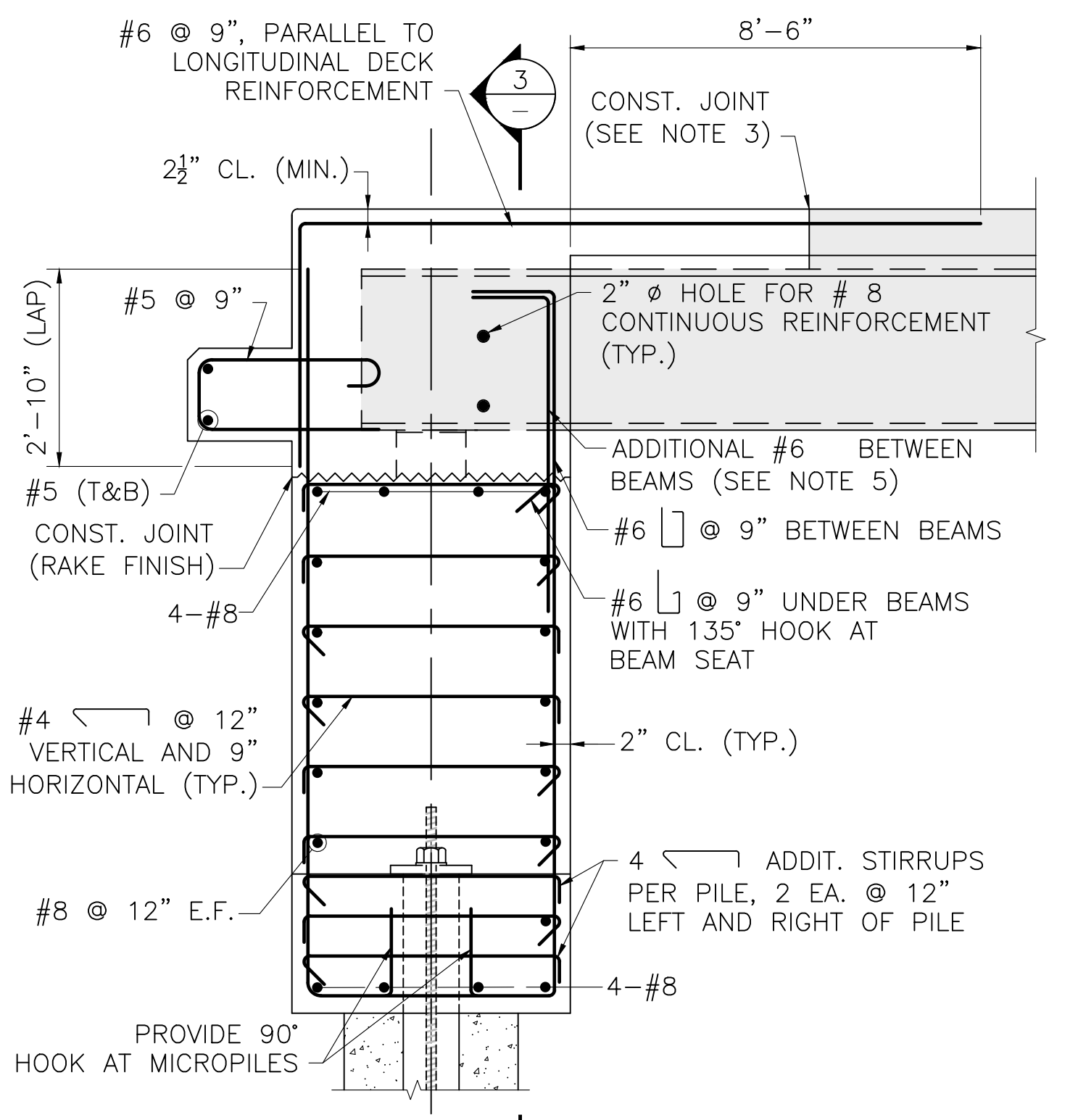


PEDESTAL DETAILS
SCALE: 1/2" = 1'-0"

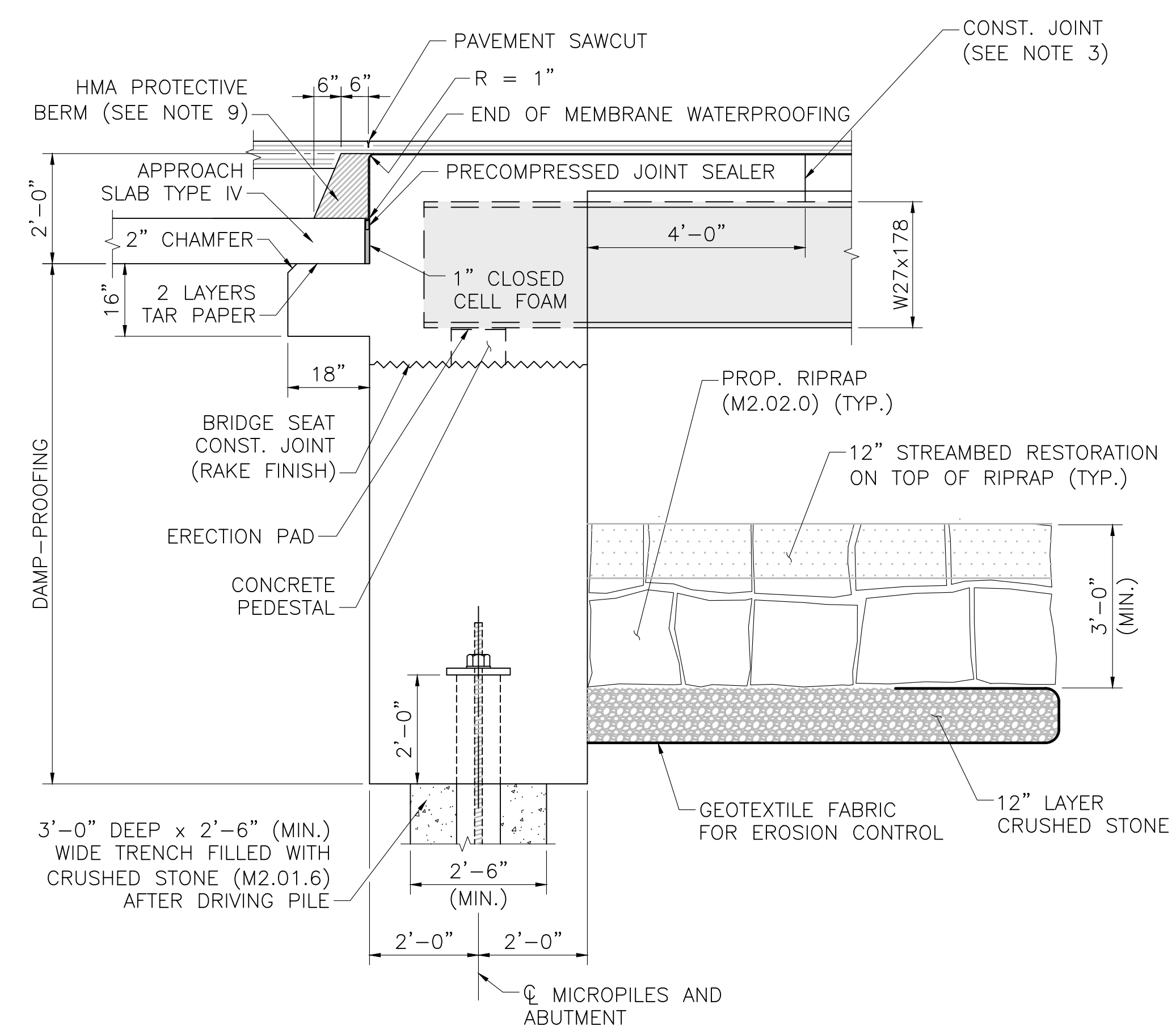
PEDESTAL NOTE:
SEE NORTH AND SOUTH ABUTMENT SECTIONS ON SHEETS 12 & 13 OF 26 FOR TOP OF PEDESTAL ELEVATIONS.



SECTION 3
SCALE: 1/2" = 1'-0"



TYPICAL INTEGRAL ABUTMENT REINFORCEMENT
SCALE: 1/2" = 1'-0"



TYPICAL INTEGRAL ABUTMENT ROADWAY SECTION
SCALE: 1/2" = 1'-0"

INTEGRAL ABUTMENT CONSTRUCTION NOTES:

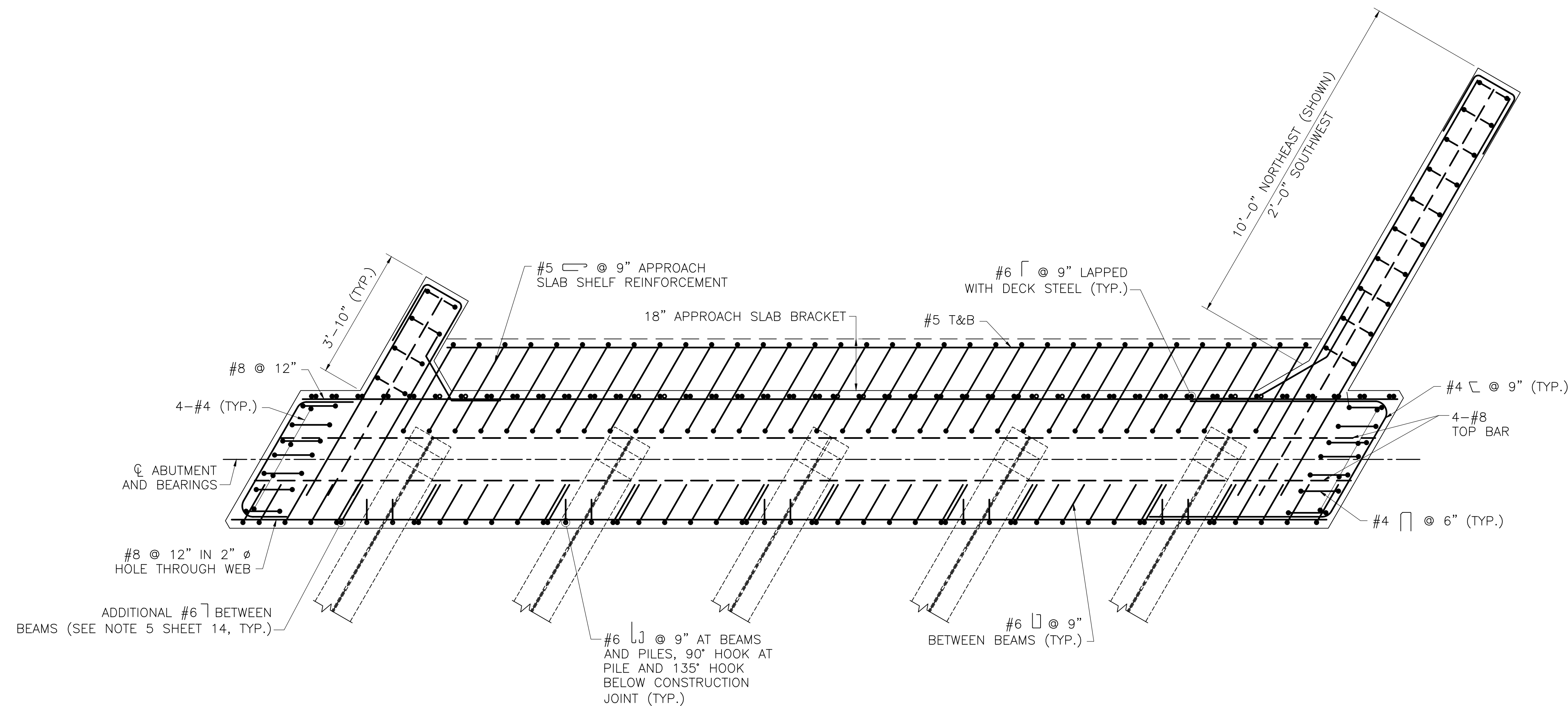
1. ALL REINFORCEMENT SHALL BE EPOXY COATED EXCEPT APPROACH SLABS.
2. DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY. CONTINUE DECK SLAB REINFORCEMENT TO BACK OF ABUTMENT.
3. THE CONTRACTOR SHALL FOLLOW THE DECK PLACEMENT SEQUENCE AS SHOWN ON THESE PLANS.
4. ALL CONCRETE SHALL CONTAIN SUPERPLASTICIZER TO ENSURE ADEQUATE CONSOLIDATION.
5. THE NUMBER OF ADDITIONAL #6 BARS BETWEEN BEAMS SHALL BE EQUAL TO THE NUMBER OF #6 BARS WHICH ARE TERMINATED UNDERNEATH THE BEAM IN A 135° HOOK.
6. BOTH ABUTMENTS SHALL BE BACKFILLED SIMULTANEOUSLY. NO MORE THAN 24 INCHES OF DIFFERENTIAL BACKFILL HEIGHT SHALL BE PERMITTED. BACKFILLING SHALL NOT BEGIN UNTIL THE ABUTMENT AND DECK CONSTRUCTION IS COMPLETE.
7. THE CONTRACTOR MAY USE MECHANICAL REINFORCING BAR SPLICERS IN LIEU OF TENSION LAP SPLICES TO FACILITATE CONSTRUCTION. HOWEVER, NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR THE USE OF MECHANICAL REINFORCING BAR SPLICERS.
8. THE TOP OF THE HMA PROTECTIVE BERM SHALL MATCH THE TOP OF THE ABUTMENT DIAPHRAGM.
9. HMA PROTECTIVE BERM TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC-B-12.5) PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER.
10. A TRENCH WITH A DEPTH OF 3'-0" AND A MINIMUM WIDTH OF 2'-6" SHALL BE CONSTRUCTED DIRECTLY BELOW THE BOTTOM OF THE PILE CAP ELEVATION. AFTER THE MICROPILES ARE INSTALLED, THE TRENCH SHALL BE FILLED WITH CRUSHED STONE (M2.01.6).
11. THREADED CASING JOINTS SHALL NOT BE LOCATED WITHIN 3'-0" OF THE PILE CAP, SEE SPECIAL PROVISIONS.

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CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	34	55
PROJECT FILE NO.		608858	

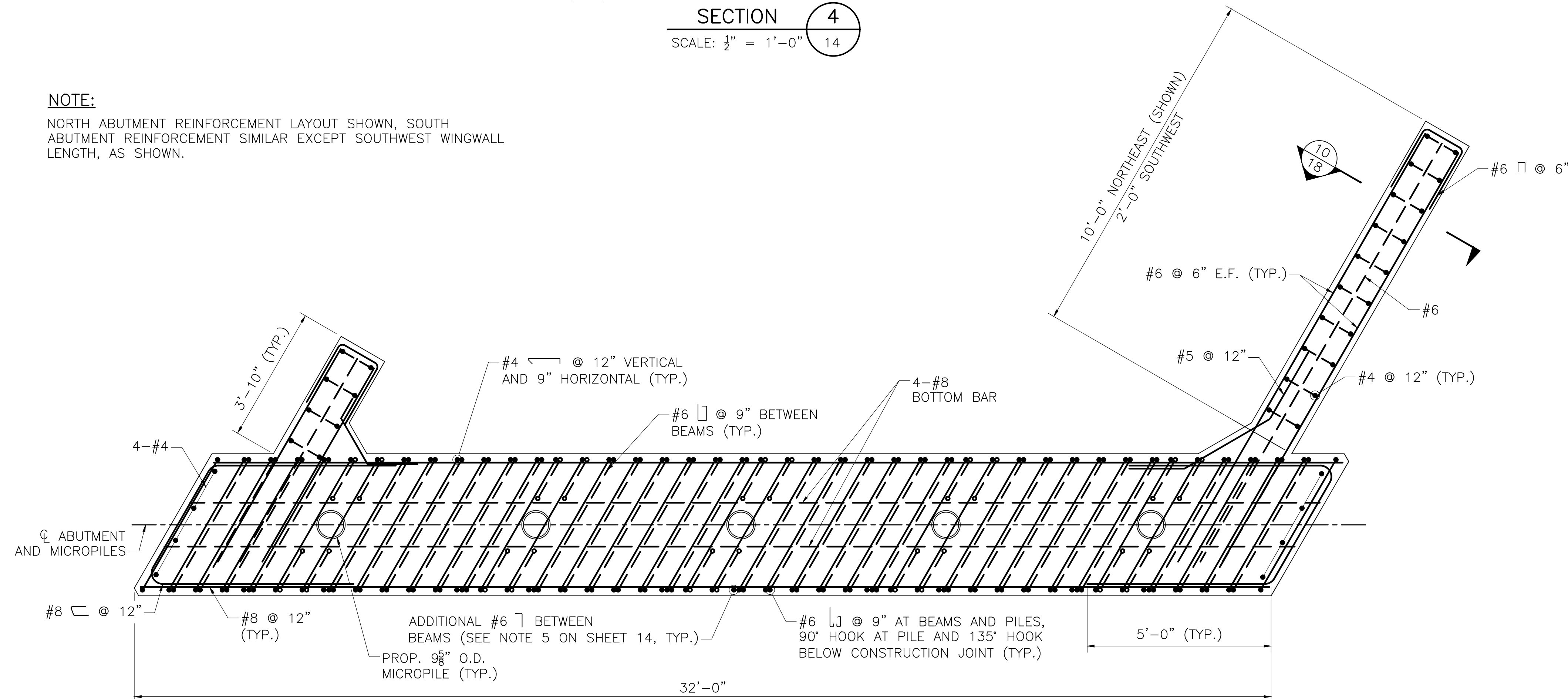
ABUTMENT DETAILS II



SECTION 4
SCALE: 1/2" = 1'-0"

NOTE:

NORTH ABUTMENT REINFORCEMENT LAYOUT SHOWN, SOUTH ABUTMENT REINFORCEMENT SIMILAR EXCEPT SOUTHWEST WINGWALL LENGTH, AS SHOWN.

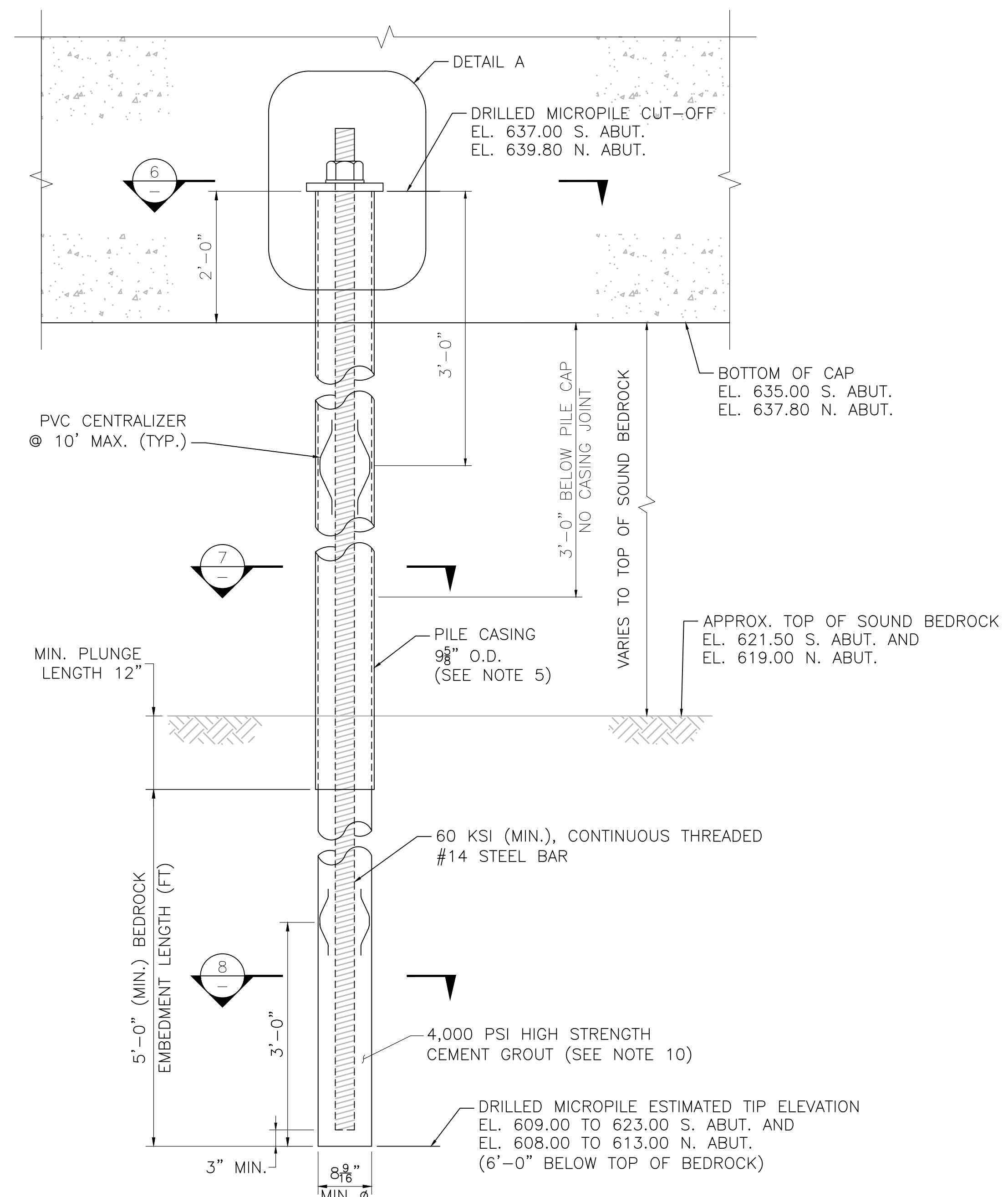


SECTION 5
SCALE: 1/2" = 1'-0"

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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	35	55
PROJECT FILE NO.		608858	

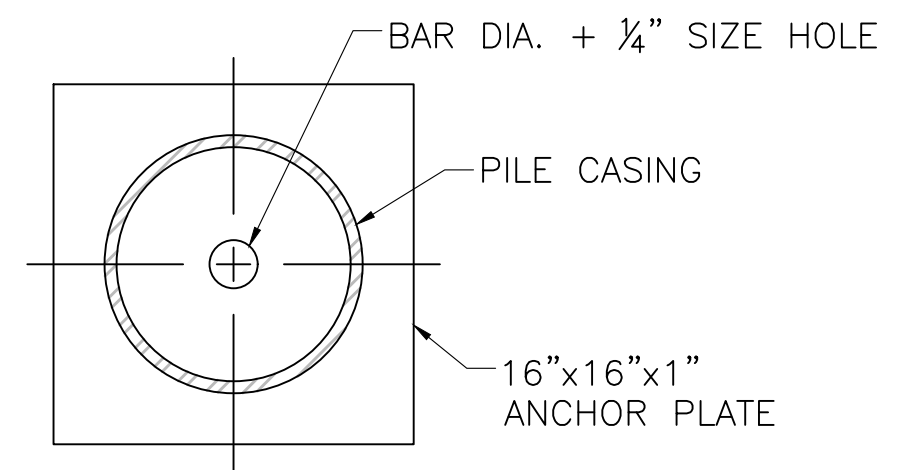
MICROPILE DETAILS



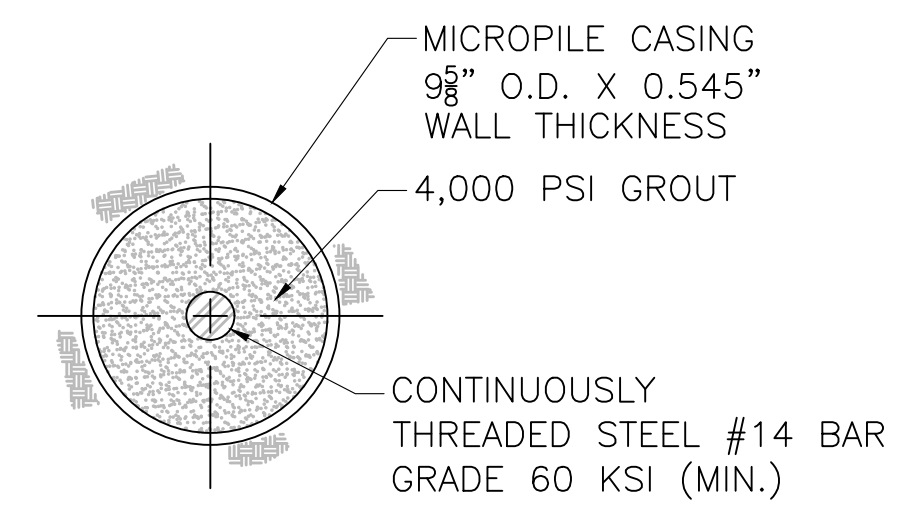
MICROPILE VERTICAL SECTION
NOT TO SCALE

MICROPILE INSTALLATION PROCEDURE:

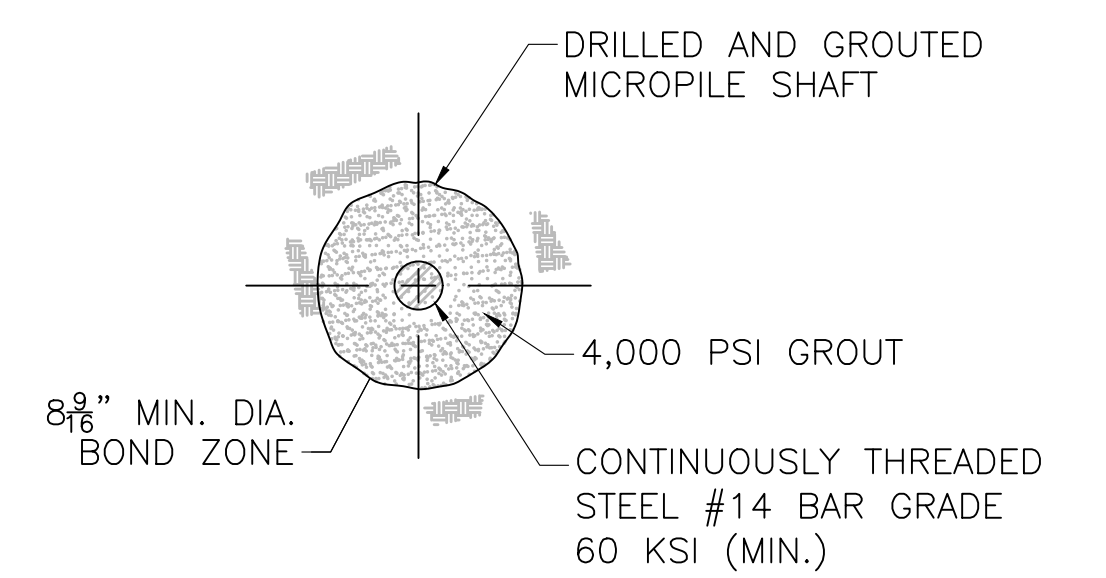
- ADVANCE STEEL CASING TO A MINIMUM DEPTH OF 12" BELOW TOP OF BEDROCK UTILIZING ROTARY DRILLING TECHNIQUES AND THEN CONTINUE DRILLING, UNCASIED, FOR A MINIMUM BOND LENGTH OF 5'-0".
- PLACE REINFORCING BAR WITH CENTRALIZER CASING.
- TREMIE CASING FULL DEPTH WITH NEAT CEMENT GROUT.
- CEMENT GROUT SHALL BE PLACED UNDER GRAVITY HEAD ONLY.
- NO PRESSURE GROUTING IS TO TAKE PLACE FOR THE INSTALLATION OF THE MICROPILES NOR IS CASING TO EXTEND INTO THE REQUIRED BOND ZONE.
- TRIM TOP OF CASING TO PROPER ELEVATION.
- CONSISTENCY OF PILES INSTALLATION SHALL BE MONITORED AND RECORDED AS DESCRIBED IN THE SPECIAL PROVISIONS. MONITORED AND RECORDED DATA SHALL INCLUDE TOTAL PILE LENGTH, SOIL/ROCK ENCOUNTERED DURING INSTALLATION, AND ANY OBSTRUCTION OR IRREGULARITIES.
- SIGNIFICANT ARTESIAN CONDITIONS HAVE BEEN ENCOUNTERED AT THE SITE, WITH SOME READINGS AS HIGH AS APPROXIMATELY 12 FT ABOVE GROUND SURFACE. THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN TO HANDLE ALL ARTESIAN AND GROUNDWATER CONDITIONS AT THE SITE WHICH WILL REQUIRE REVIEW AND APPROVAL BY MASSDOT PRIOR TO THE PERFORMANCE OF ANY SUBSURFACE WORK. SEE SPECIAL PROVISIONS.



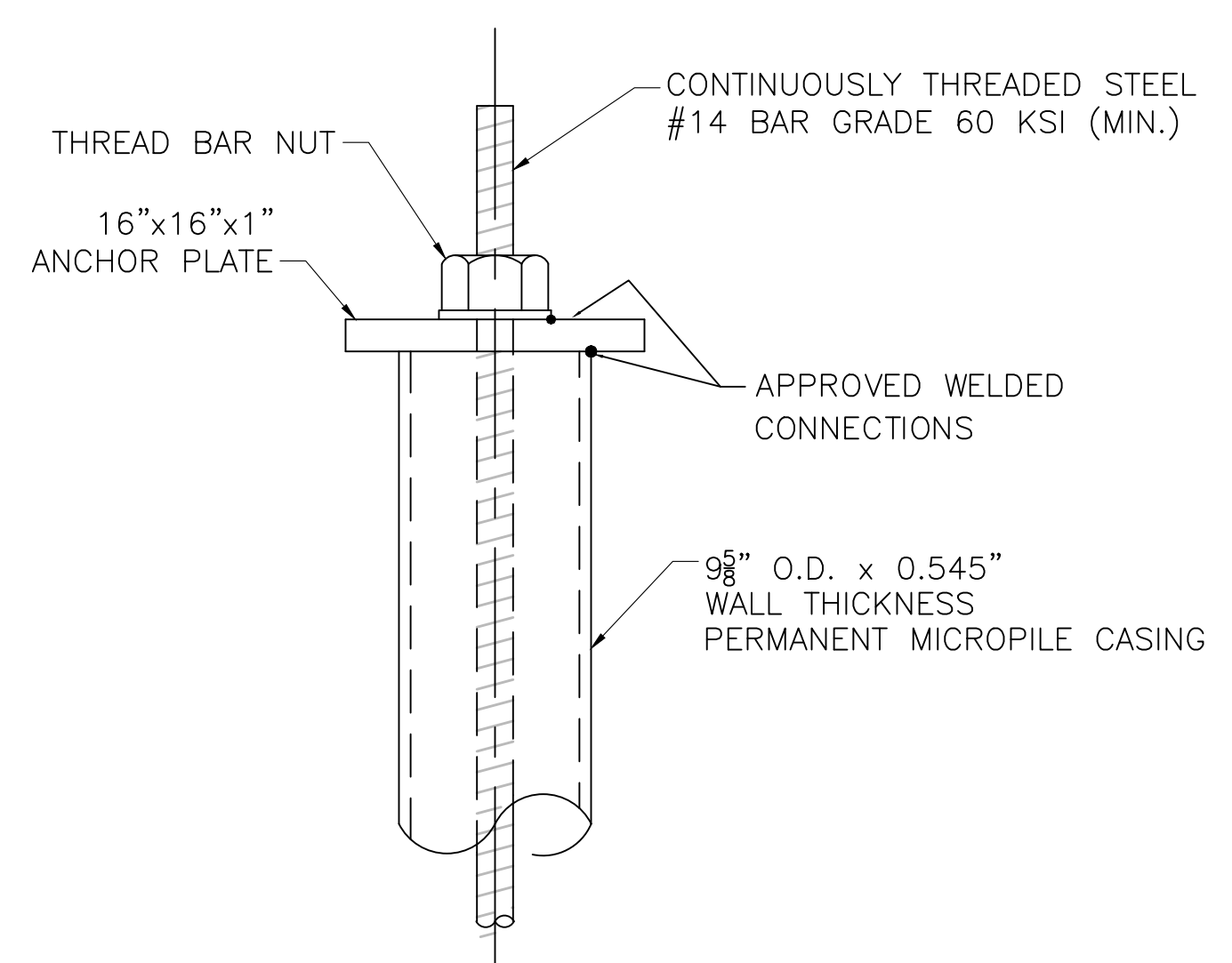
SECTION 6
SCALE: 1 1/2" = 1'-0"



SECTION 7
SCALE: 1 1/2" = 1'-0"



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



DETAIL A
NOT TO SCALE

MICROPILE NOTES:

- FACTORED AXIAL DESIGN LOAD PER MICROPILE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATION. STRENGTH 1 LIMIT STATE
FACTORED COMPRESSIVE AXIAL LOAD = 201 KIPS
- THE FACTORED STRUCTURAL PILE RESISTANCE IS 205 KIPS (UNCASIED) AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF 273 KIPS AND A RESISTANCE FACTOR OF 0.75.
- THE FACTORED GEOTECHNICAL PILE RESISTANCE IS 225 KIPS AND IS THE PRODUCT OF THE NOMINAL GEOTECHNICAL RESISTANCE OF 322 KIPS AND A RESISTANCE FACTOR OF 0.70.
- THE ESTIMATED TIP ELEVATION IS 609.00 TO 623.00 FEET FOR THE SOUTH ABUTMENT AND 608.00 TO 613.00 FOR THE NORTH ABUTMENT. (6'-0" MIN. BELOW TOP OF BEDROCK).
- STEEL CASING SHALL BE PRIME STEEL AND MEET THE REQUIREMENTS OF API 5L PSL1 GRADE 80 KSI WITH SR 15 SUPPLEMENTAL REQUIREMENTS.
- THREADED STEEL BAR SHALL BE CONTINUOUSLY THREADED FOR THE ENTIRE BAR LENGTH CONFORMING TO AASHTO M31, HAVING A MINIMUM YIELD STRENGTH OF 60 KSI. THREADED HOLLOW BARS MAY ALSO BE USED WITH THE APPROVAL OF THE ENGINEER.
- NUT AND BAR COUPLING SHALL BE PROVIDED FROM THE SAME MANUFACTURER AS THE THREADED STEEL BAR.
- BAR COUPLING SHALL BE FULLY ENGAGED ON THE THREADED STEEL BAR AND SHALL NOT BE LOCATED IN THE TOP THIRD OF THE MICROPILE LENGTH.
- ANCHOR PLATE SHALL MEET THE REQUIREMENTS OF AASHTO M270 GRADE 50.
- GROUT SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI AND CEMENT SHALL CONFORM TO AASHTO M85 TYPE III OR IV, SHOULD BE THE PRODUCT OF ONE MANUFACTURER.
- GROUT SHALL BE PLACED USING TREMIE METHODS.
- THE CONTRACTOR SHALL SUBMIT A MICROPILE SCHEDULE, MICROPILE INSTALLATION, AND MICROPILE TESTING PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER.
- SEE SPECIAL PROVISION ITEM 945.10 DRILLED MICROPILES, ITEM 948.60 MICROPILE VERIFICATION LOAD TEST, AND ITEM 948.61 MICROPILE PROOF LOAD TEST FOR ADDITIONAL MICROPILE SPECIFICATIONS.
- TWO MICROPILE PROOF LOAD TESTS SHALL BE PERFORMED ON TWO PRODUCTION PILES, ONE AT THE SOUTH ABUTMENT AND ONE AT THE NORTH ABUTMENT. MICROPILES USED FOR PROOF TESTS SHALL BE DETERMINED BY THE ENGINEER AND CONTRACTOR AFTER ALL PILES ARE INSTALLED.
- TWO MICROPILE VERIFICATION TESTS SHALL BE PERFORMED ON TWO SACRIFICIAL PILES, ONE AT THE SOUTH ABUTMENT AND ONE AT THE NORTH ABUTMENT. SEE ABUTMENT PLANS FOR APPROXIMATE LOCATIONS.

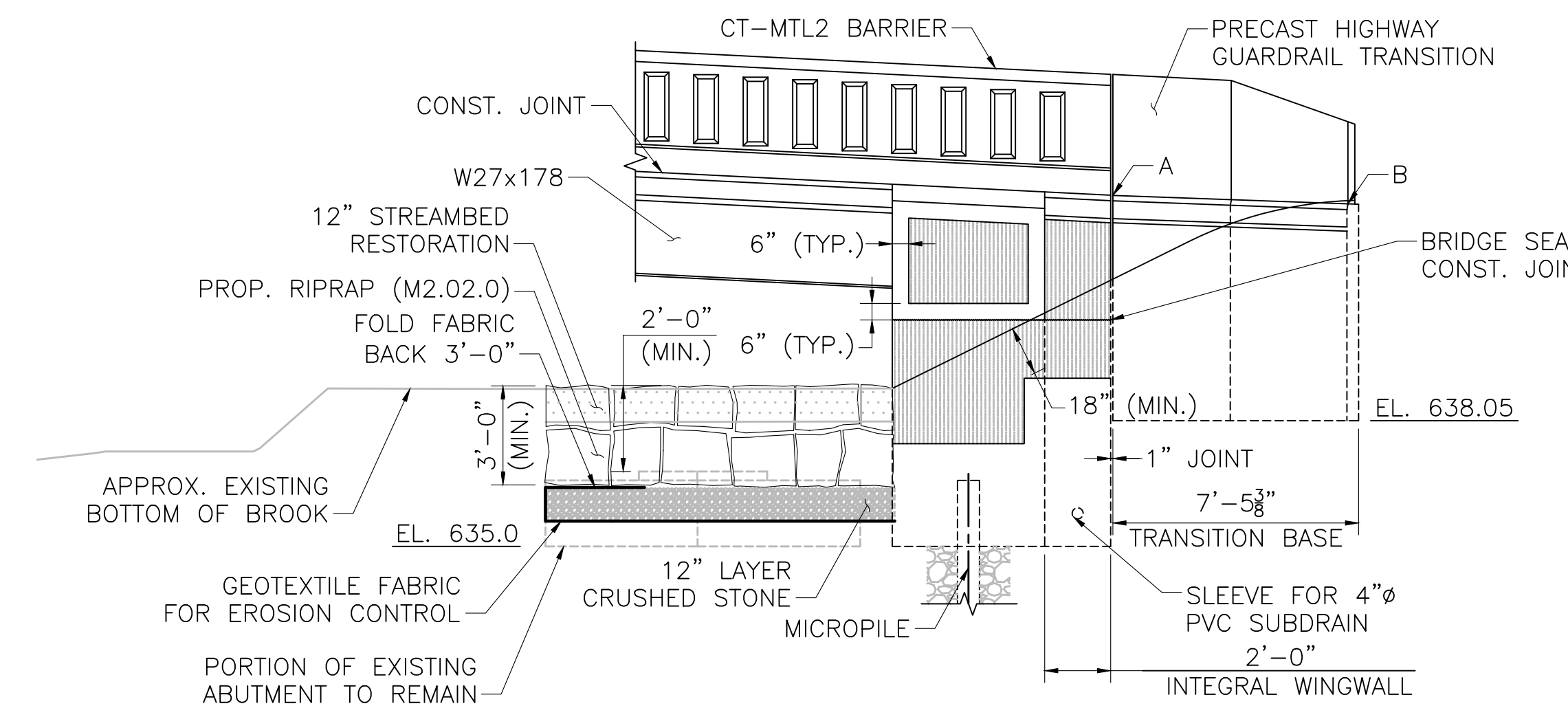
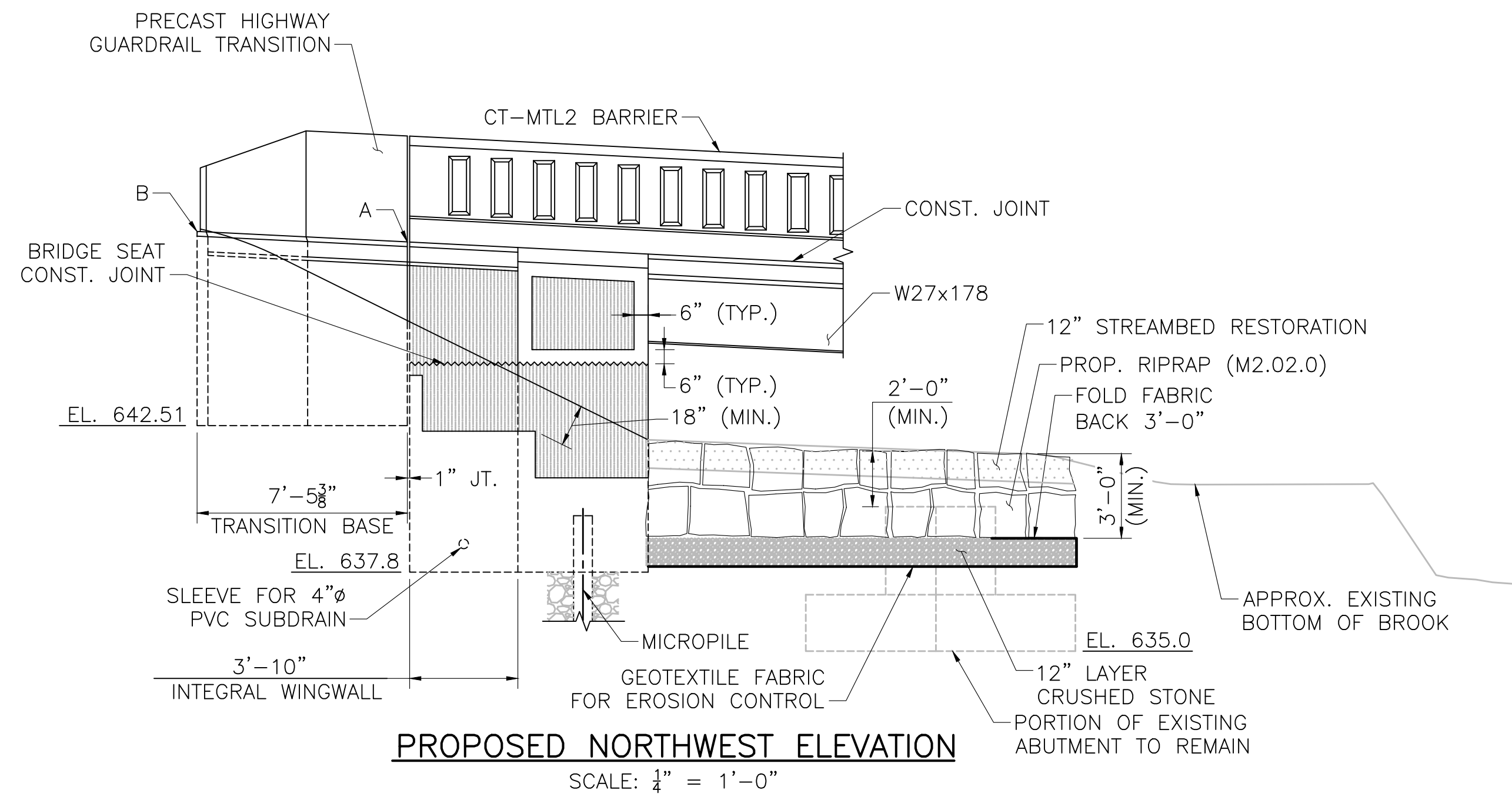
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USE ONLY PRINTS OF LATEST DATE	

608858_BR12-18(C05042).DWG Plotted on 15-Jan-2024 5:23 PM 13-September-2023 Final Structural Submittal (SF)

CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	36	55
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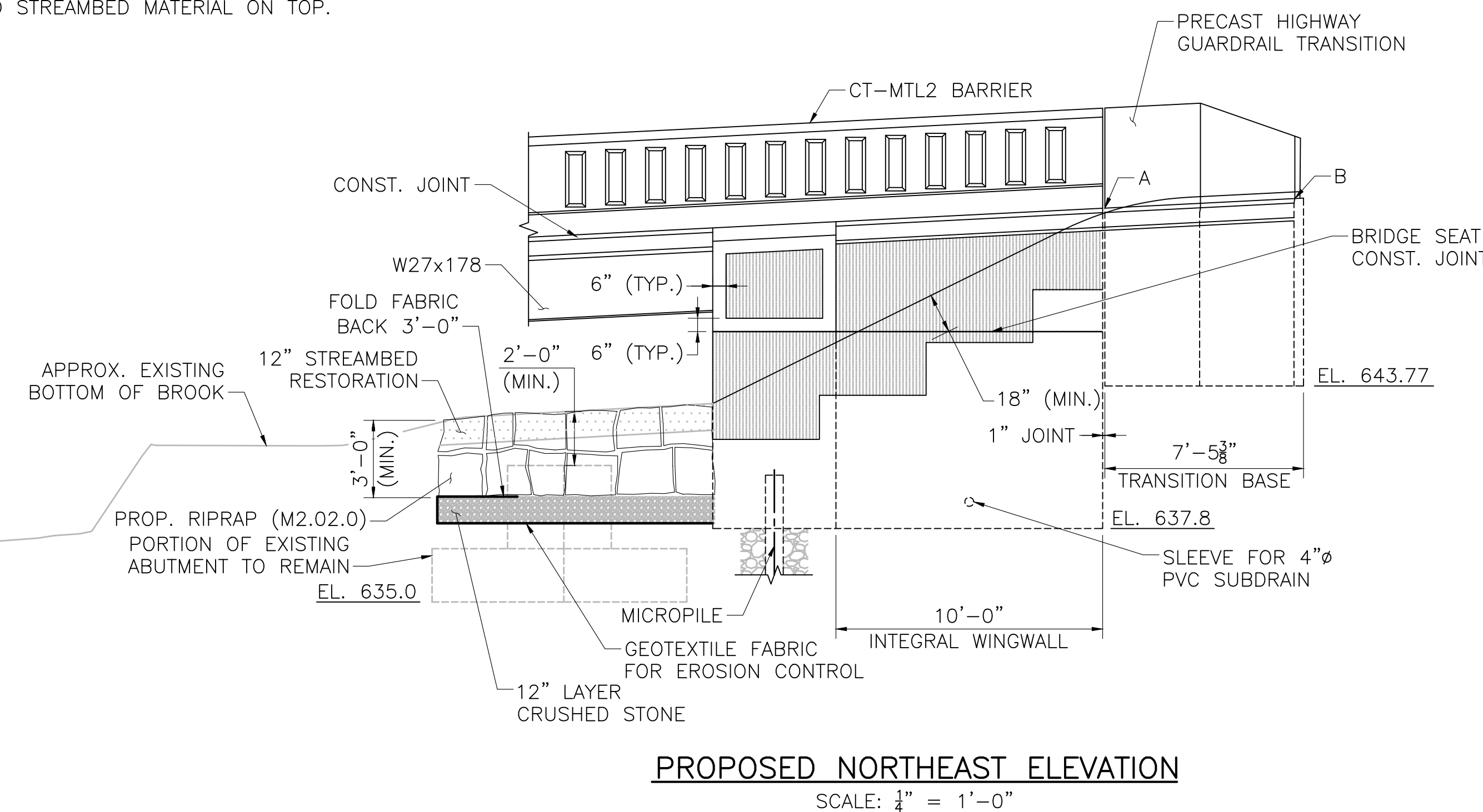
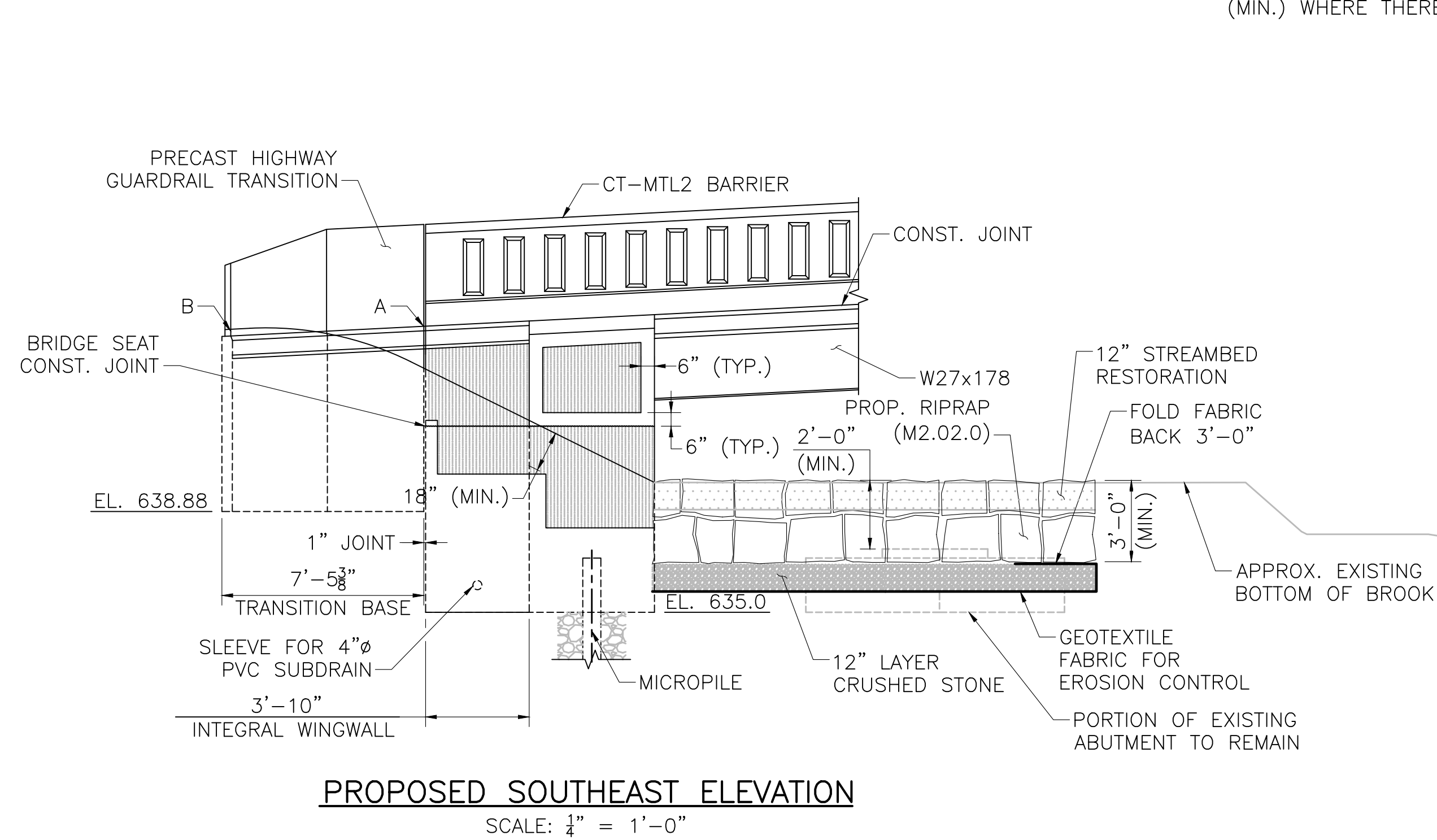
WINGWALL ELEVATIONS



PRECAST HIGHWAY GUARDRAIL TRANSITION CORNER ELEVATIONS		
LOCATION	A	B
NW	649.26	649.55
SW	645.14	644.80
NE	650.52	650.87
SE	645.93	645.63

NOTES:

1. PROPOSED RIPRAP AND CRUSHED STONE ALONG EMBANKMENTS NOT SHOWN FOR CLARITY.
2. AS SHOWN IN THE LAYOUT PLAN ON SHEET 11 OF 27, STREAMBED RESTORATION DOES NOT CONTINUE UP THE WINGWALL EMBANKMENTS. RIPRAP THICKNESS SHALL INCREASE TO 3'-0" (MIN.) WHERE THERE IS NO STREAMBED MATERIAL ON TOP.

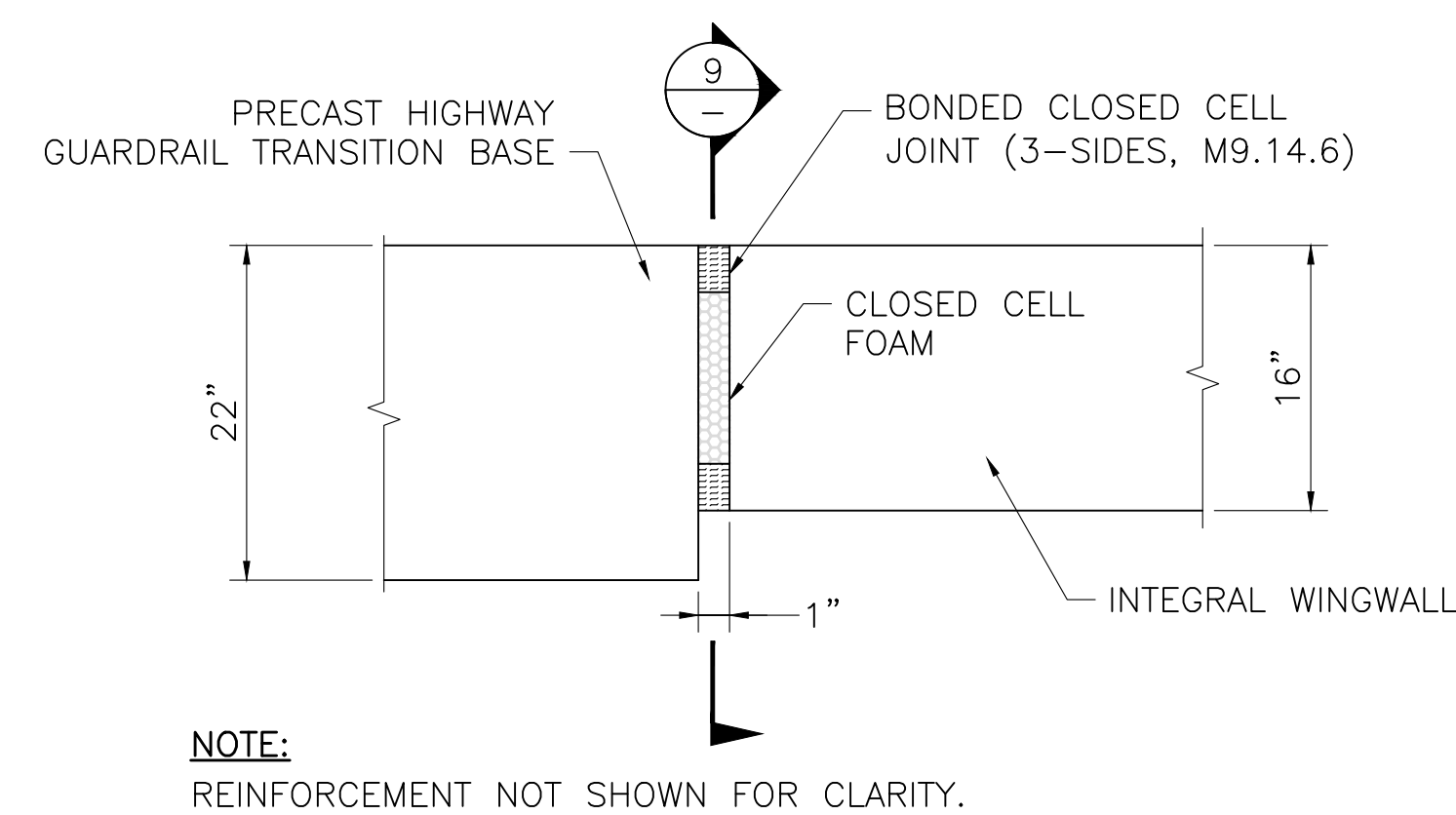
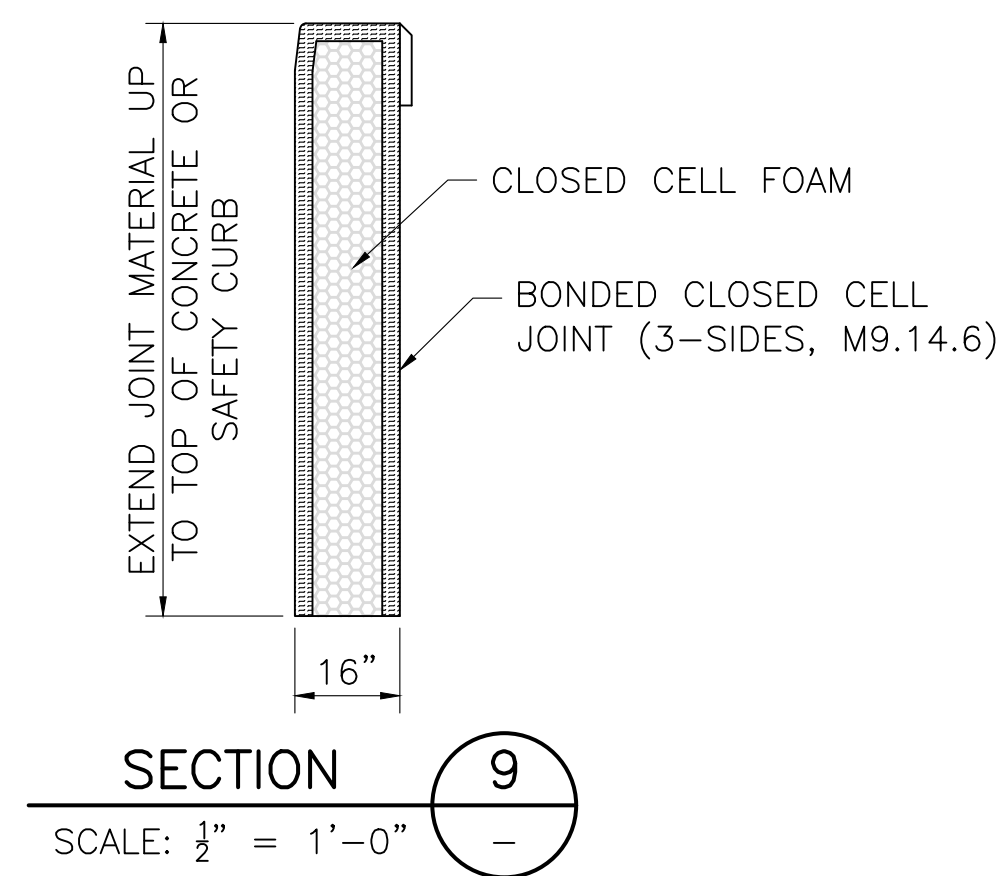


FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
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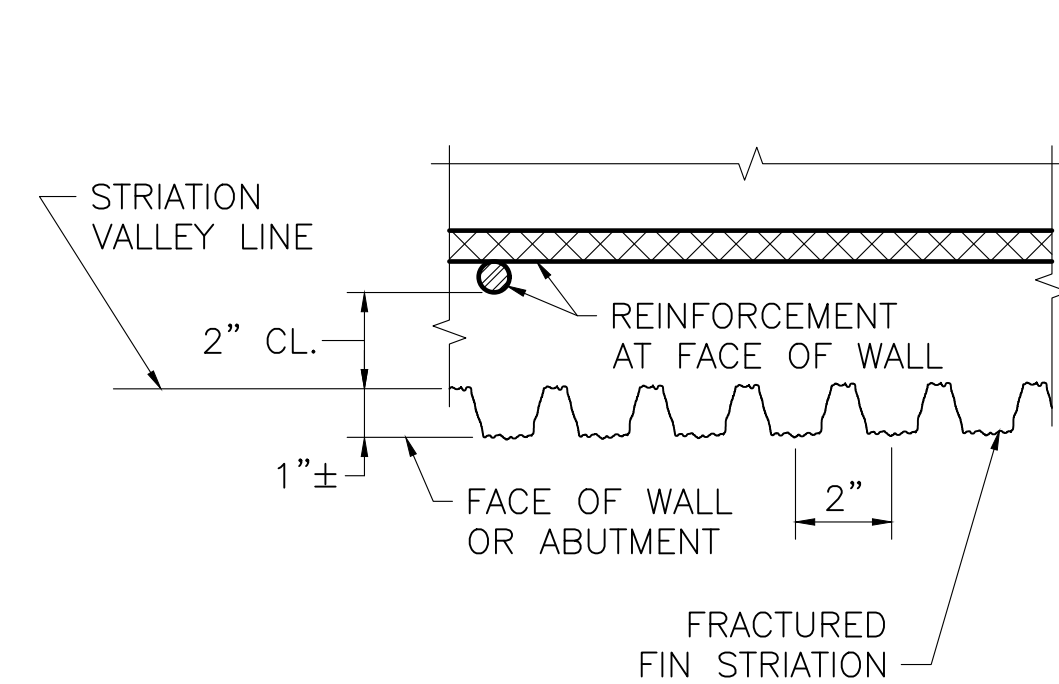
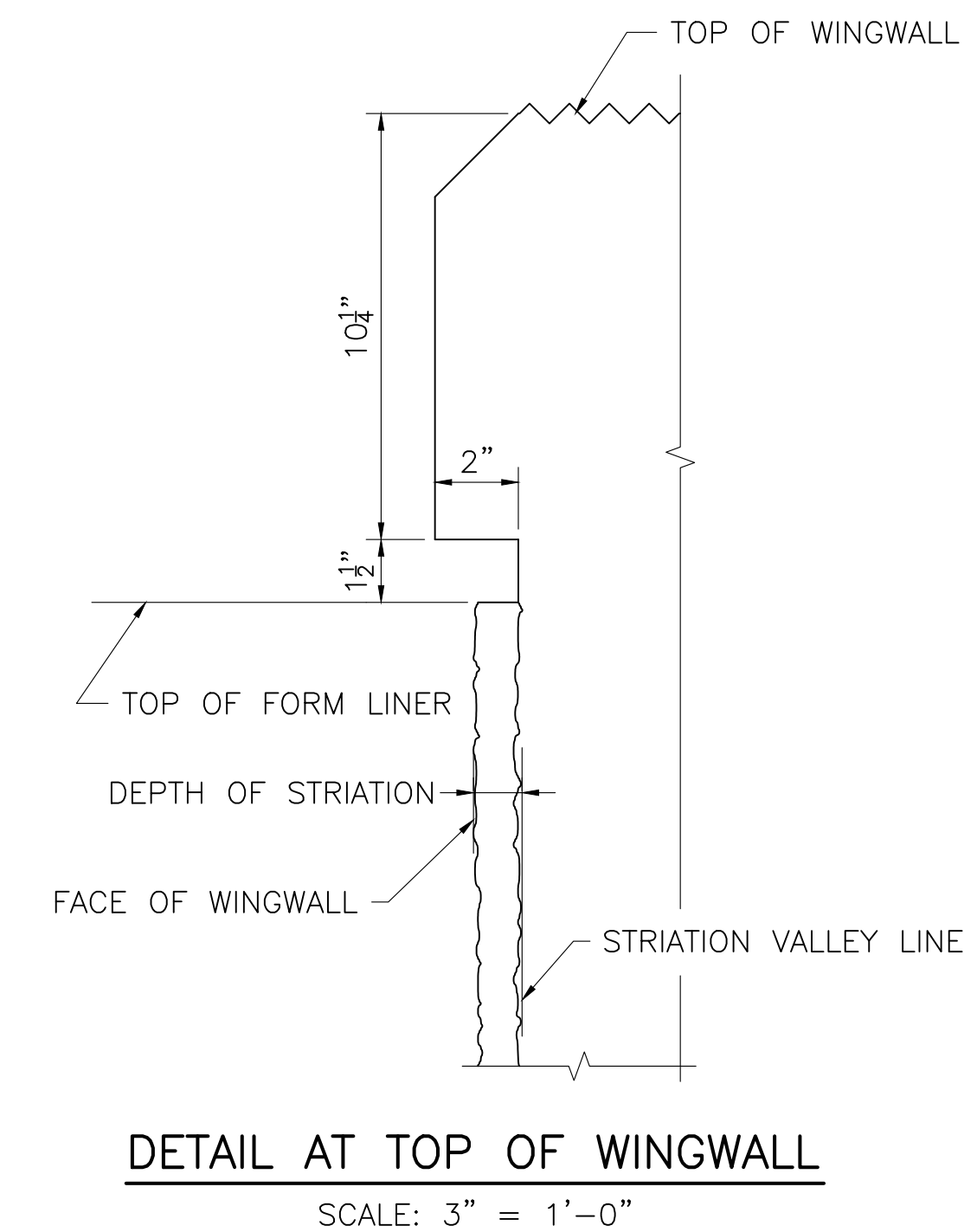
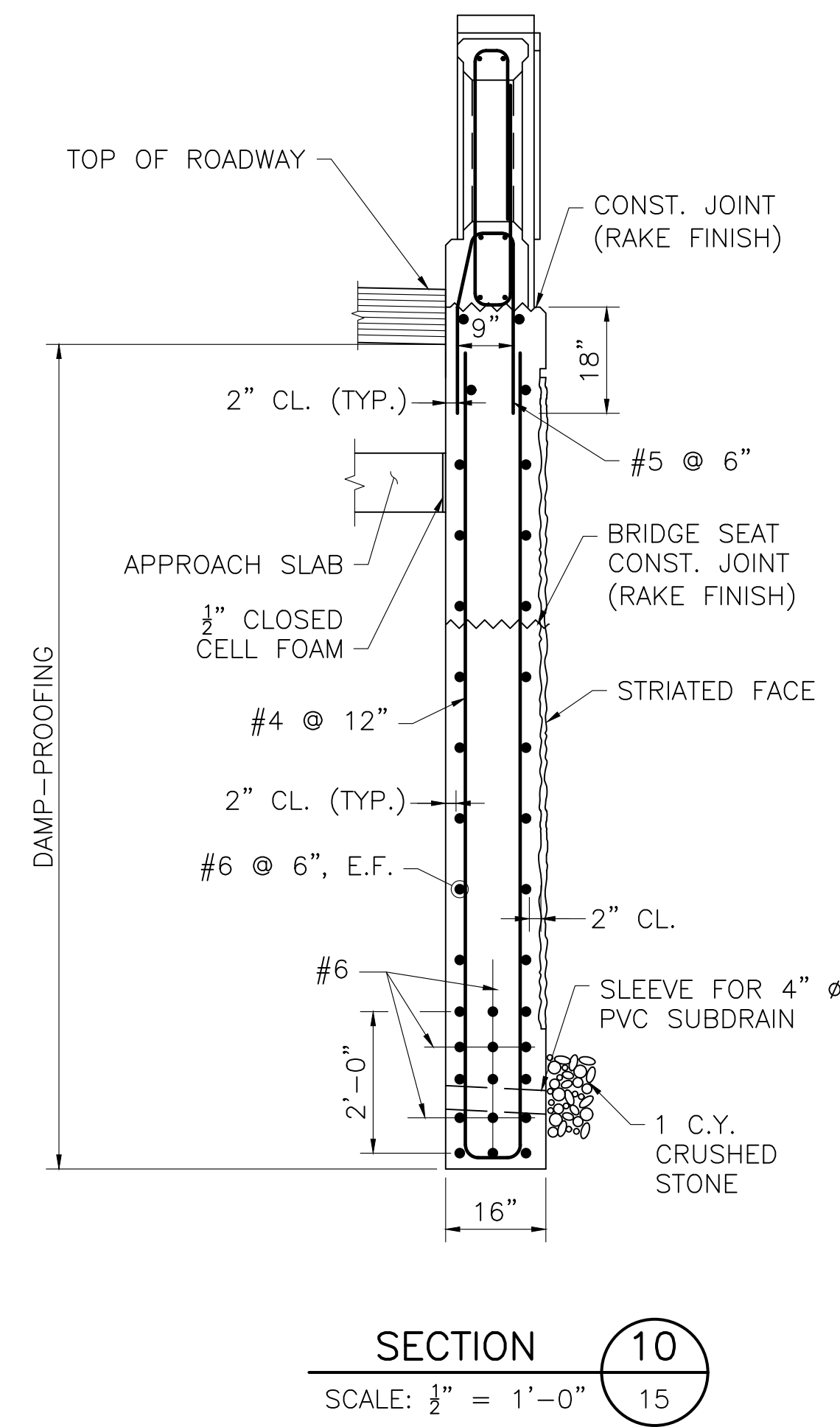
CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	37	55
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WINGWALL DETAILS

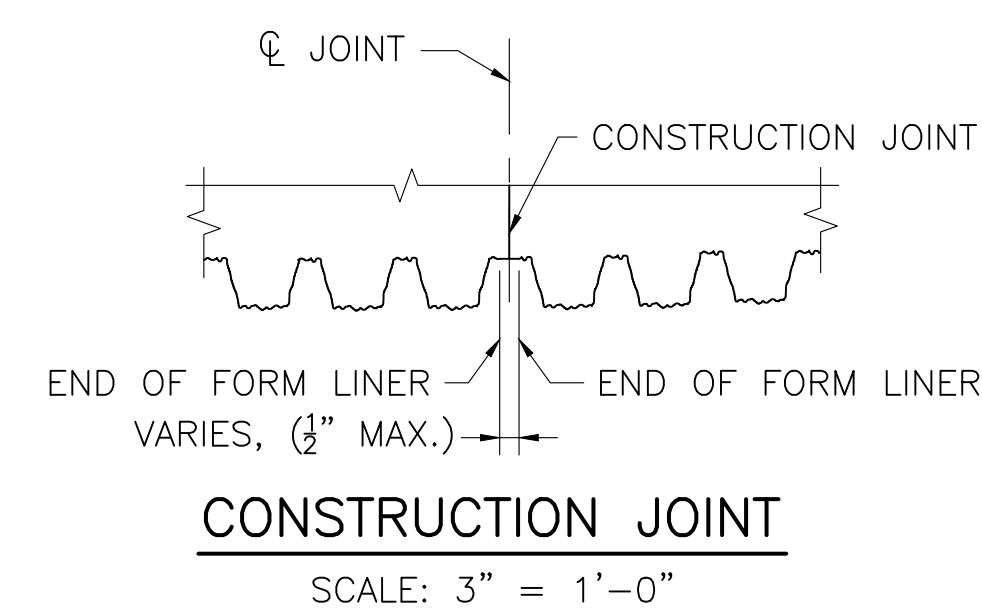
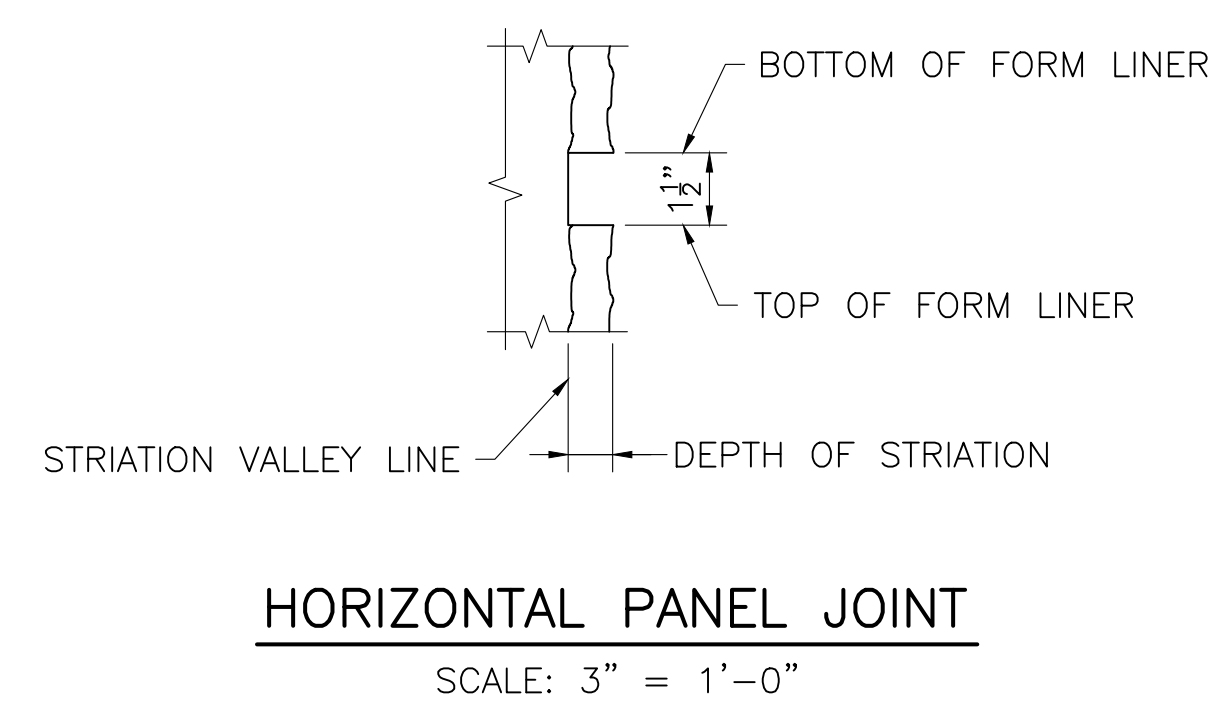


NOTE:
REINFORCEMENT NOT SHOWN FOR CLARITY.



NOTES:

1. THE CONTRACTOR SHALL MAKE SURE THAT THE STRIATION FINNS 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.



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CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	38	55
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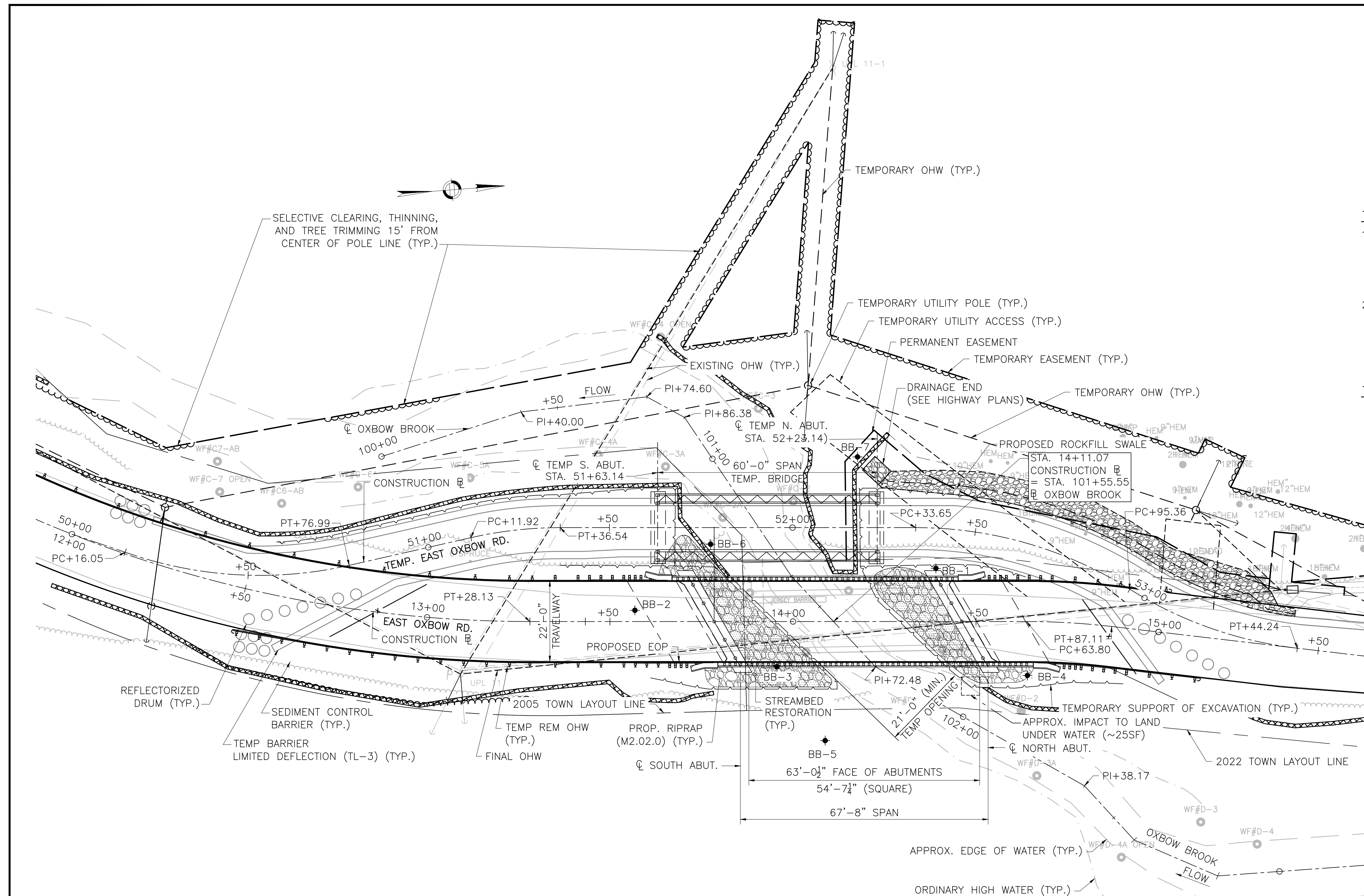
ENVIRONMENTAL IMPACT PLAN

TEMPORARY WATER CONTROL DESIGN DATA:

- CONSTRUCTION DURATION LESS THAN ONE YEAR:
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 50% (2-YEARS)
DESIGN FLOOD DISCHARGE: 79 CUBIC FEET PER SECOND
TEMPORARY DESIGN WATER SURFACE ELEVATION: 639.38 FT, NAVD
MINIMUM TOP OF TEMPORARY COFFERDAM ELEVATION: 640.38 FT, NAVD
- CONSTRUCTION DURATION MORE THAN ONE YEAR BUT LESS THAN TWO YEARS:
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 20% (5-YEARS)
DESIGN FLOOD DISCHARGE: 136 CUBIC FEET PER SECOND
TEMPORARY DESIGN WATER SURFACE ELEVATION: 640.11 FT, NAVD
MINIMUM TOP OF TEMPORARY COFFERDAM ELEVATION: 641.11 FT, NAVD

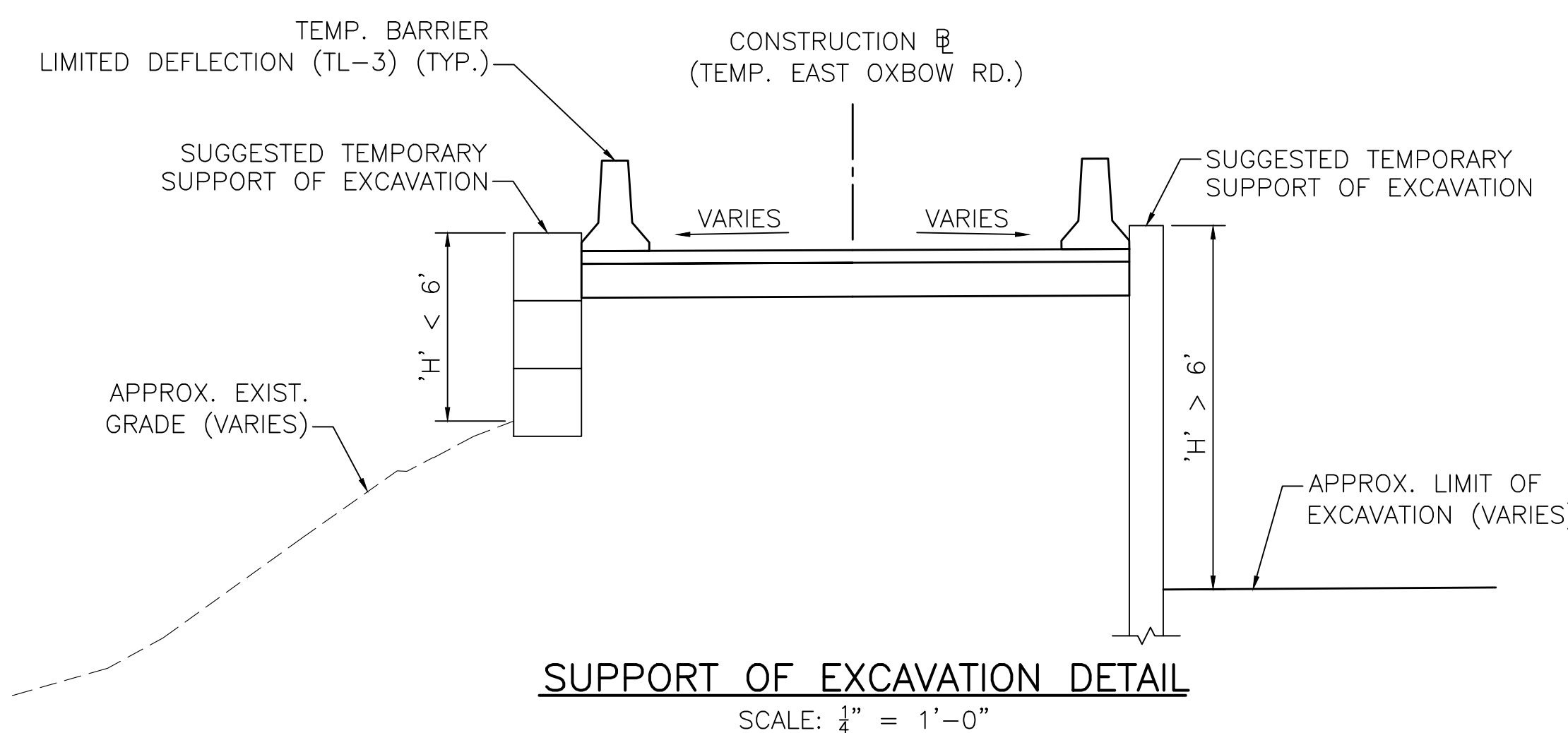
TEMPORARY SUPPORT OF EXCAVATION NOTES:

- THE TEMPORARY SUPPORT OF EXCAVATION SHALL BE DESIGNED BY THE CONTRACTOR. SEE SPECIAL PROVISIONS.
- WHEN DESIGNING THE TEMPORARY SUPPORT OF EXCAVATION, THE CONTRACTOR SHOULD CONSIDER THE PREDOMINANCE OF BOULDERS AT THE SITE. INTERFERENCE FROM BOULDERS SHOULD BE ANTICIPATED AND INCLUDED IN THE LUMP SUM COST OF ITEM 953.1 - TEMPORARY SUPPORT OF EXCAVATION, AS NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR BOULDER REMOVAL.
- DUE TO THE PRESENCE OF BOULDERS, DRIVING SHEETING MAY BE DIFFICULT AND IS NOT RECOMMENDED. OTHER SUPPORT OF EXCAVATION SYSTEMS, SUCH AS GABIONS, MICROPILES OR PRE-DRILLED SOLDIER PILES AND LAGGING SHOULD BE INVESTIGATED. SEE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT INCLUDED AS AN APPENDIX IN SPECIAL PROVISIONS.
- TEMPORARY SUPPORT OF EXCAVATION IN THE VICINITY OF THE PROPOSED BRIDGE AND WITHIN THE ZONE OF INFLUENCE SHALL BE LEFT IN PLACE AND CUT A MINIMUM OF 2'-0" BELOW FINAL GRADE. SOIL THAT SUPPORTS THE BRIDGE, AS DEFINED IN THE SPECIAL PROVISION FOR ITEM 953.1, IS CONSIDERED AS THE ZONE OF INFLUENCE.



ENVIRONMENTAL IMPACT PLAN

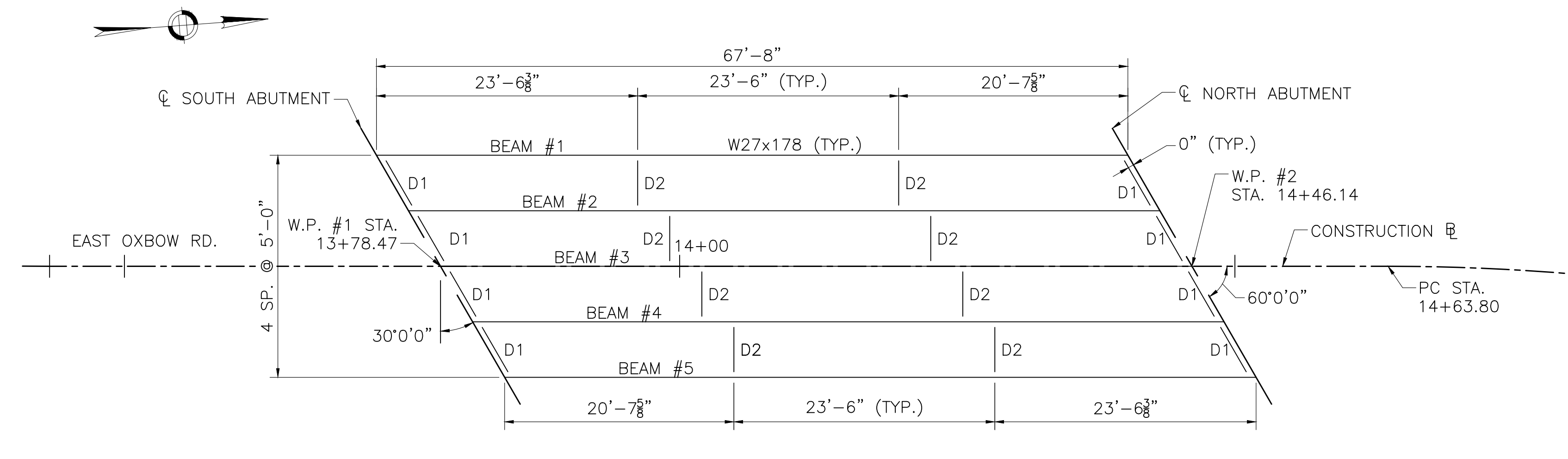
SCALE: 1" = 15'-0"



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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	39	55
PROJECT FILE NO.		608858	

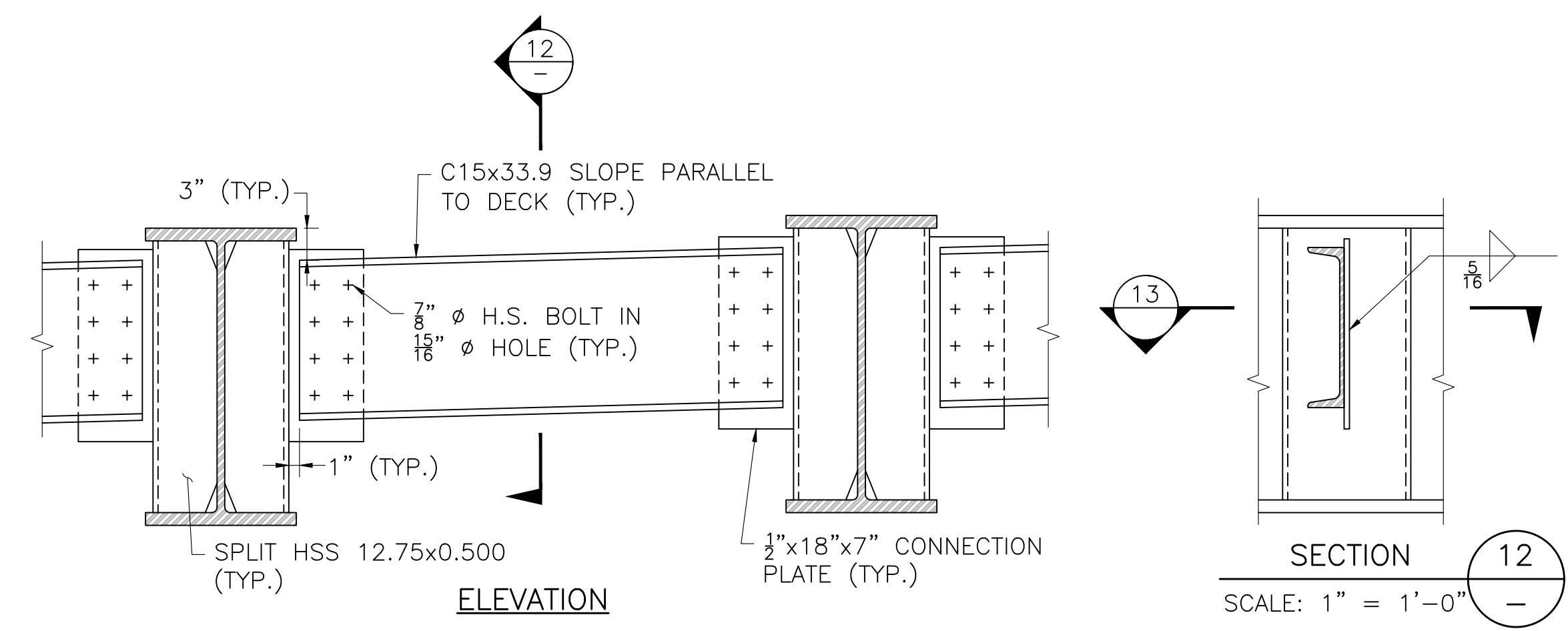
FRAMING PLAN



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

NOTES:

- D1 = C15x33.9 (TYPICAL END DIAPHRAGM)
D2 = C15x33.9 (TYPICAL INTERMEDIATE DIAPHRAGM)
- SEE THIS SHEET FOR DIAPHRAGM DETAILS
- THE PRIMARY MEMBERS ARE BEAM #1 THROUGH BEAM #5.
- ALL DIAPHRAGMS AND DIAPHRAGM CONNECTION PLATES ARE CONSIDERED SECONDARY MEMBERS.
- ALL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50.
- ALL HIGH STRENGTH BOLTS SHALL BE 7/8" DIA. CONFORMING TO THE REQUIREMENTS OF ASTM F3125 GRADE A325 TYPE 1 GALVANIZED, UNLESS OTHERWISE NOTED. NUTS AND WASHERS SHALL BE LISTED AS SUITABLE IN THE ASTM F3125 SPECIFICATION FOR GRADE A325.
- ALL CONNECTIONS HAVE BEEN DESIGNED FOR A CLASS B SURFACE CONDITION, ASSUMING A COEFFICIENT OF FRICTION ON THE FAYING SURFACES EQUAL TO OR GREATER THAN 0.5, EXCEPT FOR THE CONNECTION OF THE DIAPHRAGMS TO THE TRANSVERSE CONNECTION PLATE, WHICH HAS BEEN DESIGNED FOR CLASS C WITH A COEFFICIENT OF FRICTION OF 0.30.
- ALL WELDING AND THE PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE BRIDGE WELDING CODE (AASHTO AWS D1.5) AND ALL INTERIM REVISIONS PUBLISHED BY AASHTO AS OF THE BID OPENING DATE.
- ALL DIAPHRAGMS SHALL BE DETAILED AND FABRICATED TO THE TOTAL DEAD LOAD FIT (TLDF) CONDITION.
- THE BEAMS SHALL BE FABRICATED SO THAT THE ENDS OF THE BEAMS ARE PLUMB UNDER FULL DEAD LOAD.
- ALL STRUCTURAL STEEL SHALL BE AASHTO M 270 GRADE 50, HOT-DIP GALVANIZED, UNPAINTED.

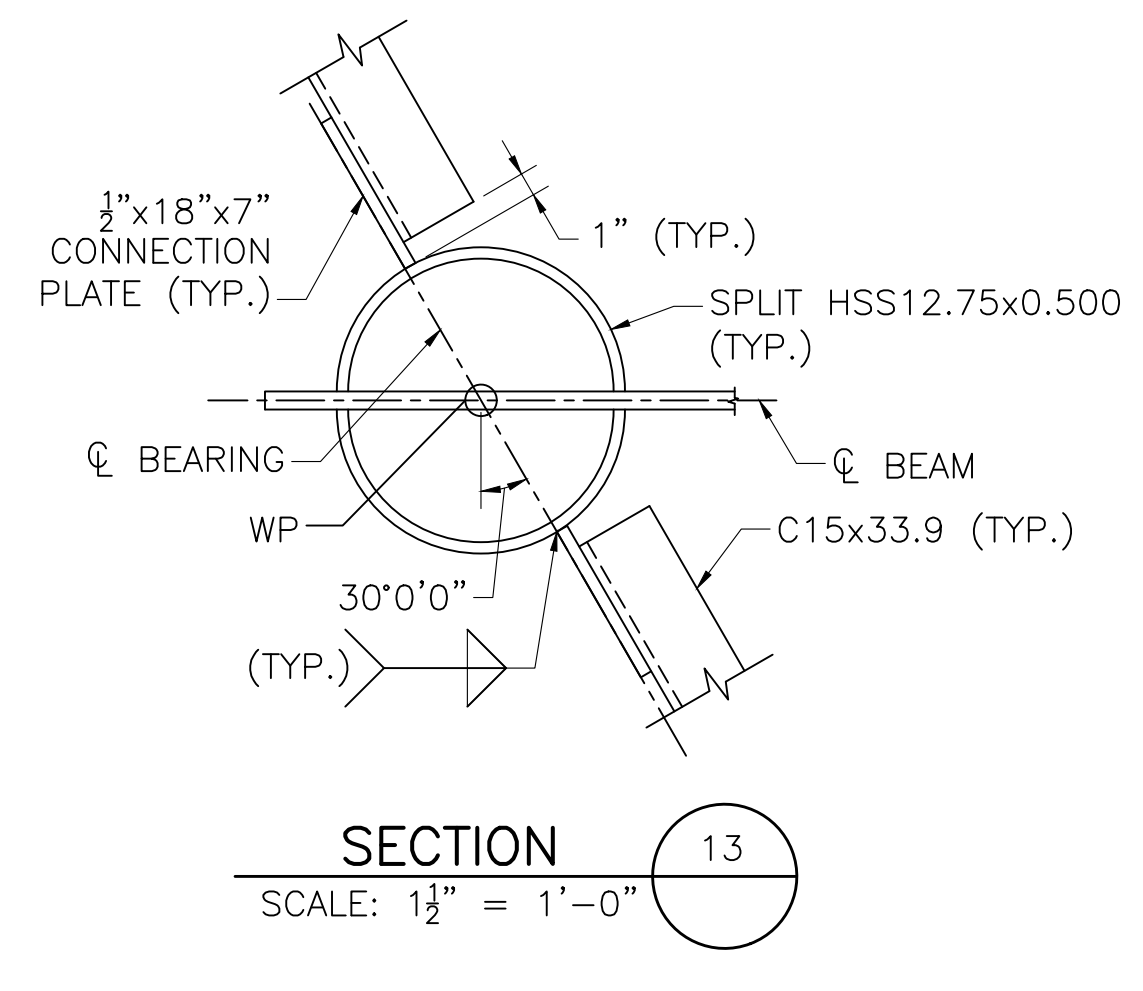


ELEVATION

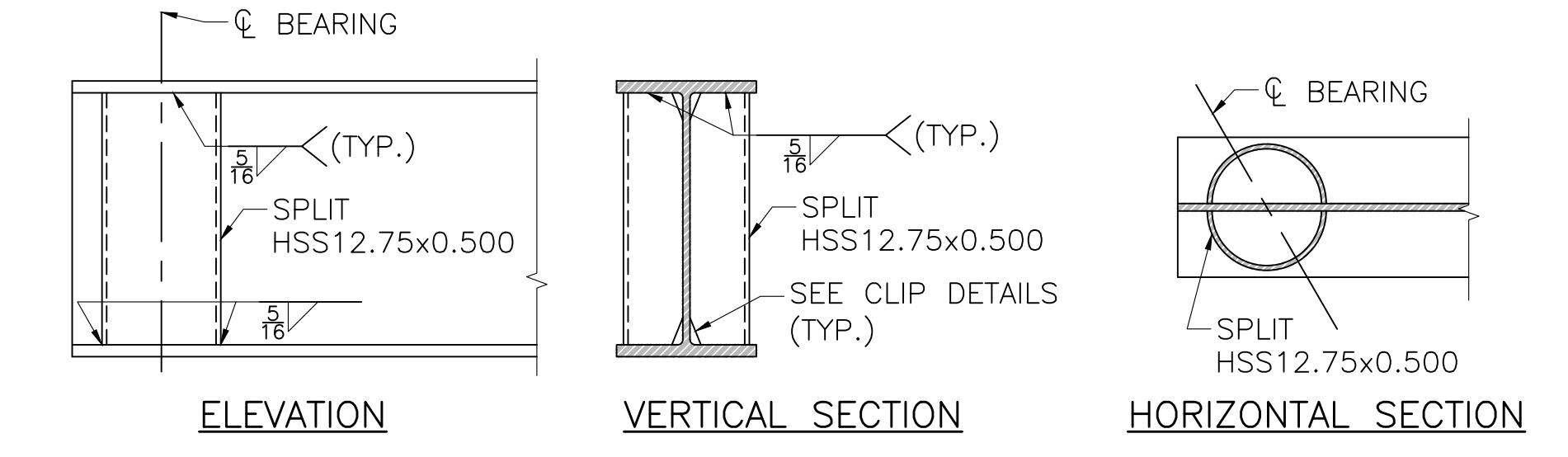
SECTION 12
SCALE: 1" = 1'-0"

NOTE:
SEE CLIP DETAILS

END DIAPHRAGM - D1
SCALE: 1" = 1'-0"

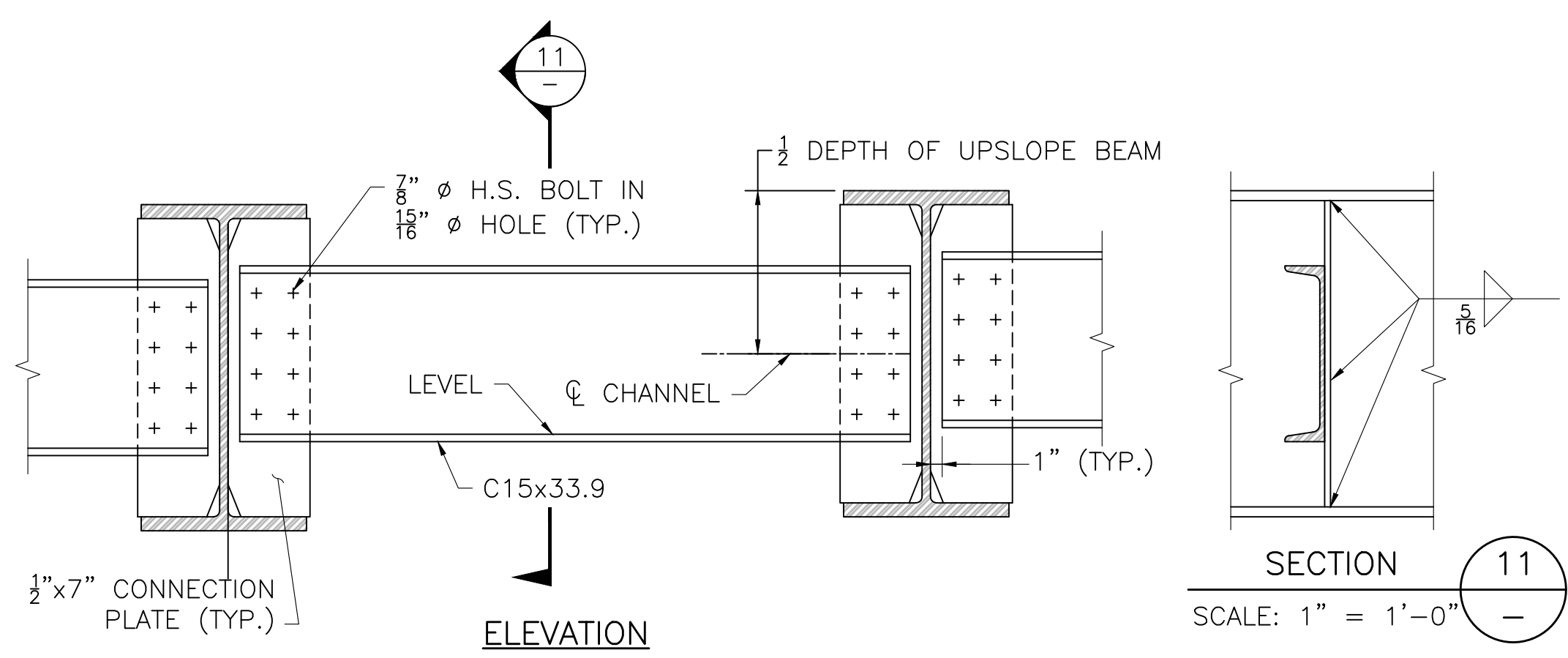


SECTION 13
SCALE: 1/2" = 1'-0"



NOTE: ROUND HSS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE C

ROUND BEARING STIFFENER
SCALE: 3/4" = 1'-0"

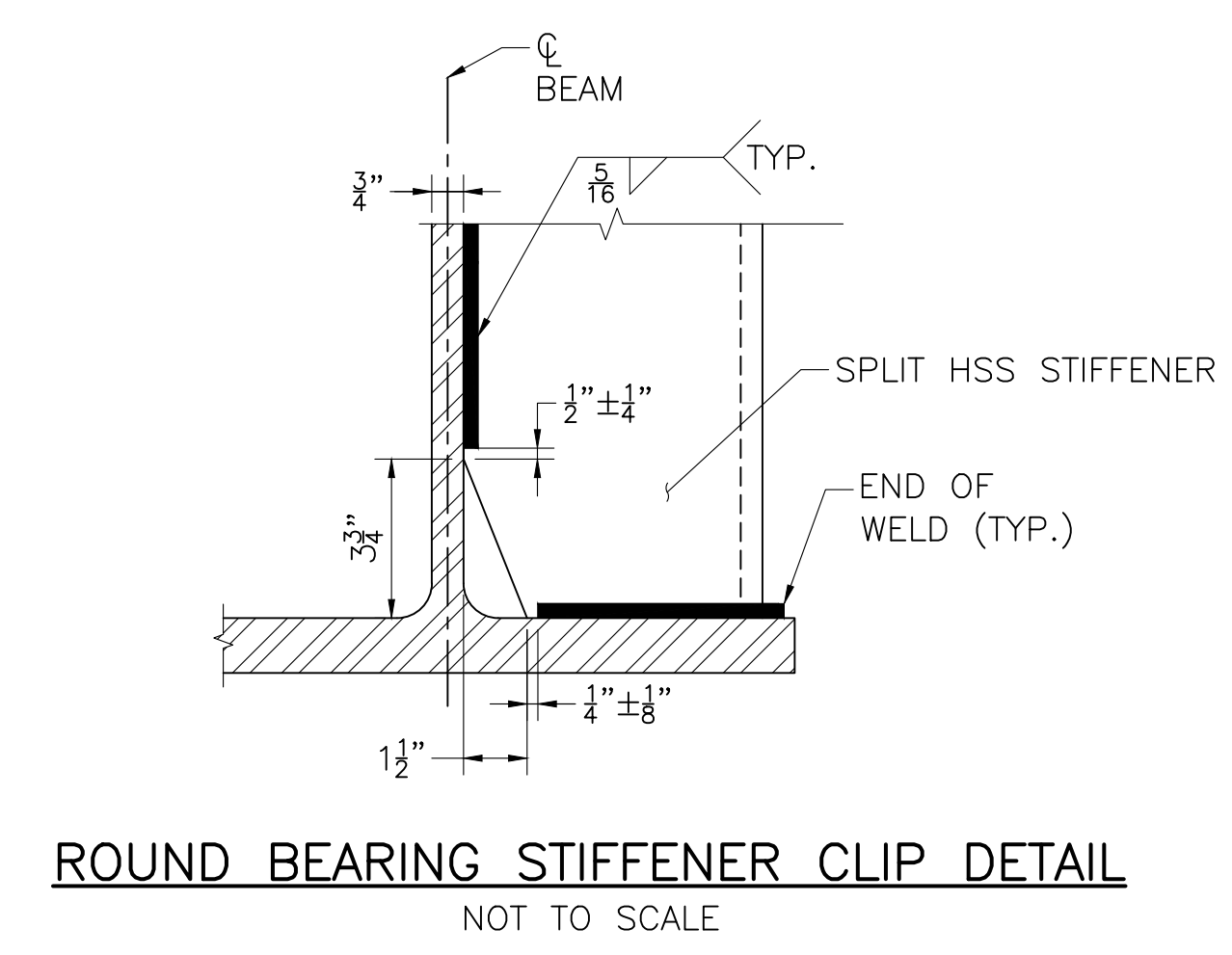


ELEVATION

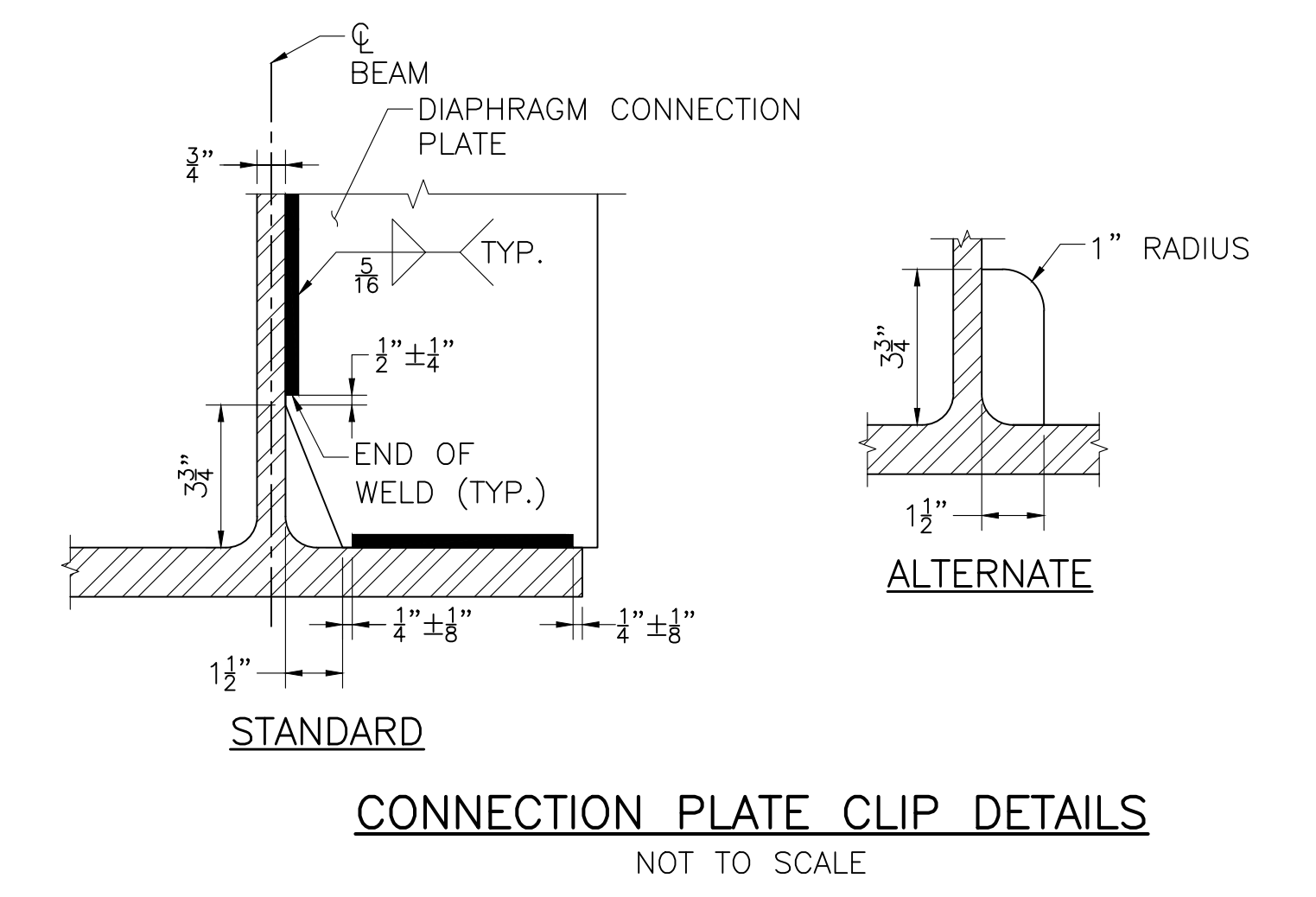
SECTION 11
SCALE: 1" = 1'-0"

NOTE:
SEE CLIP DETAILS

INTERMEDIATE DIAPHRAGM - D2
SCALE: 1" = 1'-0"



ROUND BEARING STIFFENER CLIP DETAIL
NOT TO SCALE



CONNECTION PLATE CLIP DETAILS
NOT TO SCALE

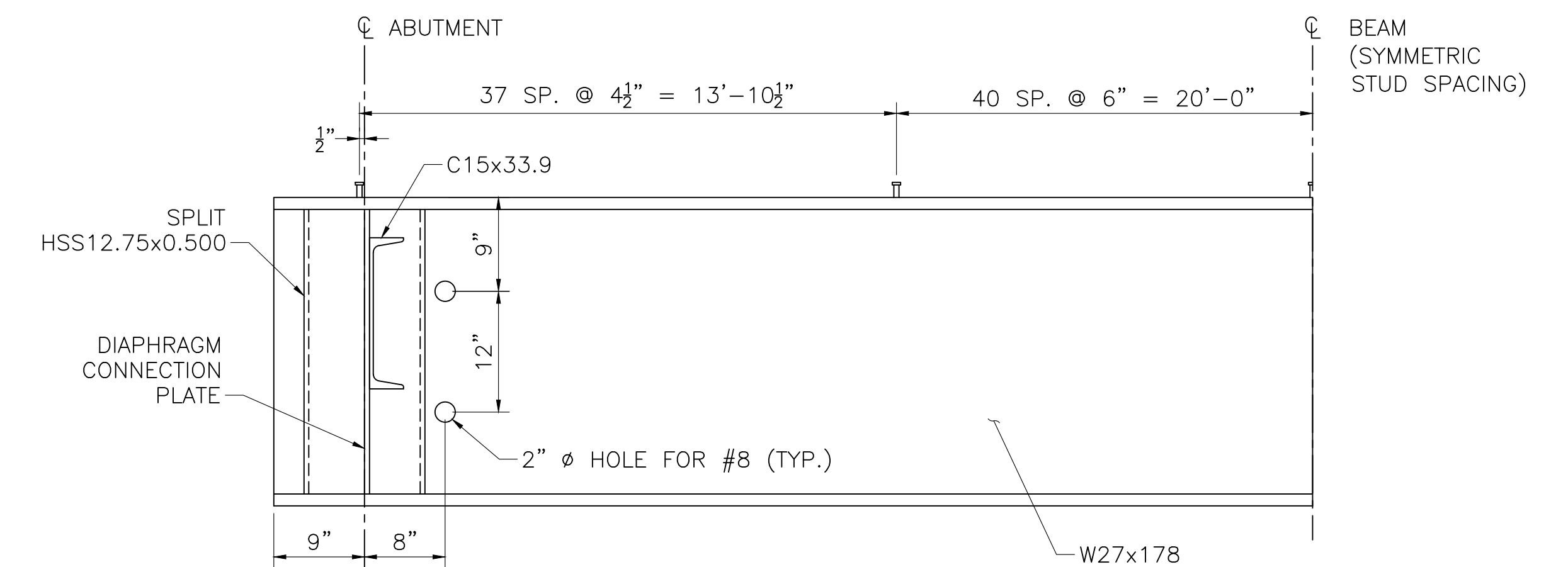
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CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

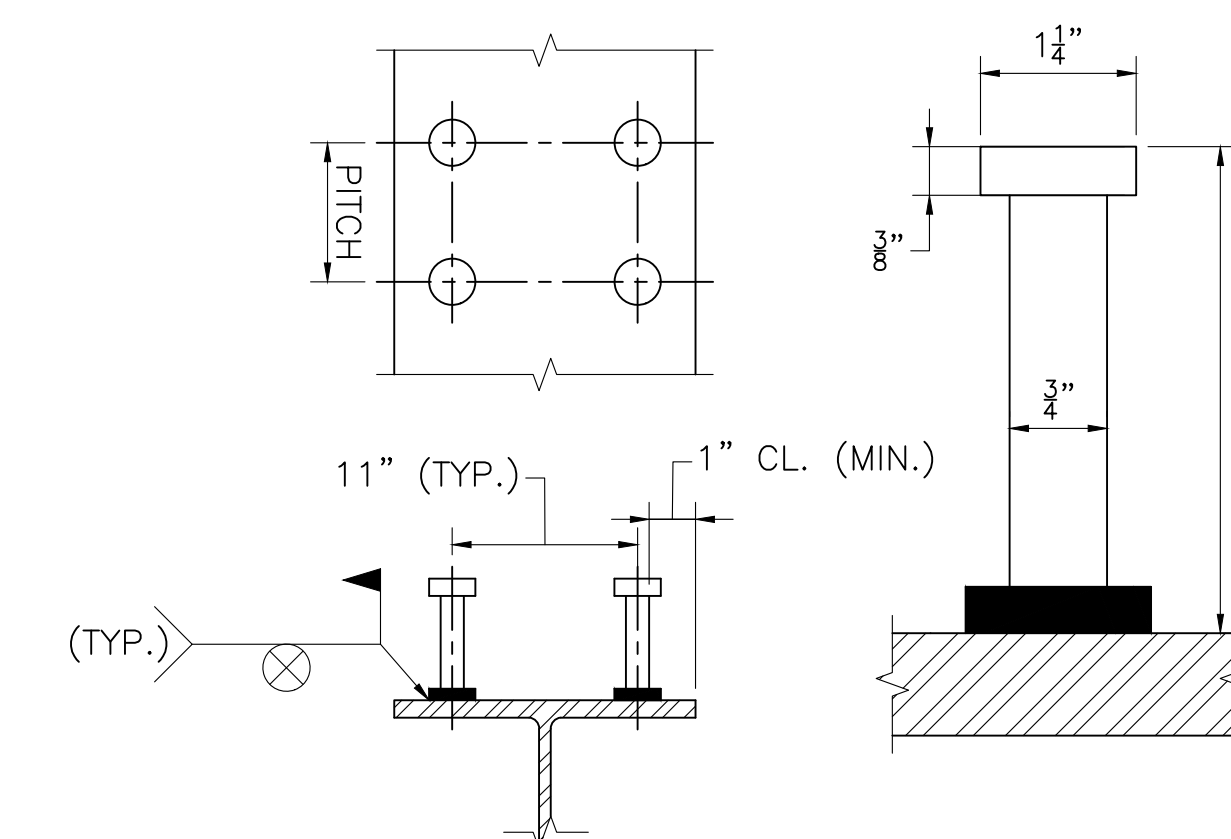
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	40	55
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STEEL DETAILS

BEAM NO.		CL. BRG. S. ABUT.	CAMBER TABLE (INCHES)										CL. BRG. N. ABUT.
			0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L		
1	STEEL DL DEFLECTION	0.00	0.13	0.25	0.35	0.40	0.42	0.40	0.35	0.25	0.13	0.00	
	CONC. DL DEFLECTION	0.00	0.42	0.80	1.10	1.28	1.35	1.28	1.10	0.80	0.42	0.00	
	S.D.L. DEFLECTION	0.00	0.20	0.37	0.51	0.60	0.63	0.60	0.51	0.37	0.20	0.00	
	VERT. CURVE CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	ADDITIONAL CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TOTAL CAMBER	0.00	0.75	1.42	1.95	2.28	2.40	2.28	1.95	1.42	0.75	0.00	
2	STEEL DL DEFLECTION	0.00	0.14	0.26	0.35	0.41	0.44	0.41	0.35	0.26	0.14	0.00	
	CONC. DL DEFLECTION	0.00	0.38	0.72	0.98	1.15	1.21	1.15	0.98	0.72	0.38	0.00	
	S.D.L. DEFLECTION	0.00	0.15	0.28	0.39	0.46	0.48	0.46	0.39	0.28	0.15	0.00	
	VERT. CURVE CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	ADDITIONAL CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TOTAL CAMBER	0.00	0.67	1.26	1.73	2.02	2.12	2.02	1.73	1.26	0.67	0.00	
3	STEEL DL DEFLECTION	0.00	0.14	0.26	0.35	0.41	0.44	0.41	0.35	0.26	0.14	0.00	
	CONC. DL DEFLECTION	0.00	0.38	0.72	0.98	1.15	1.21	1.15	0.98	0.72	0.38	0.00	
	S.D.L. DEFLECTION	0.00	0.14	0.27	0.37	0.44	0.46	0.44	0.37	0.27	0.14	0.00	
	VERT. CURVE CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	ADDITIONAL CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TOTAL CAMBER	0.00	0.66	1.25	1.71	2.00	2.10	2.00	1.71	1.25	0.66	0.00	
4	STEEL DL DEFLECTION	0.00	0.14	0.26	0.35	0.41	0.44	0.41	0.35	0.26	0.14	0.00	
	CONC. DL DEFLECTION	0.00	0.38	0.72	0.98	1.15	1.21	1.15	0.98	0.72	0.38	0.00	
	S.D.L. DEFLECTION	0.00	0.15	0.28	0.39	0.46	0.48	0.46	0.39	0.28	0.15	0.00	
	VERT. CURVE CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	ADDITIONAL CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TOTAL CAMBER	0.00	0.67	1.26	1.73	2.02	2.12	2.02	1.73	1.26	0.67	0.00	
5	STEEL DL DEFLECTION	0.00	0.13	0.25	0.35	0.40	0.42	0.40	0.35	0.25	0.13	0.00	
	CONC. DL DEFLECTION	0.00	0.42	0.80	1.10	1.28	1.35	1.28	1.10	0.80	0.42	0.00	
	S.D.L. DEFLECTION	0.00	0.20	0.37	0.51	0.60	0.63	0.60	0.51	0.37	0.20	0.00	
	VERT. CURVE CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	ADDITIONAL CAMBER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	TOTAL CAMBER	0.00	0.75	1.42	1.95	2.28	2.40	2.28	1.95	1.42	0.75	0.00	



TYPICAL BEAM ELEVATION
NOT TO SCALE



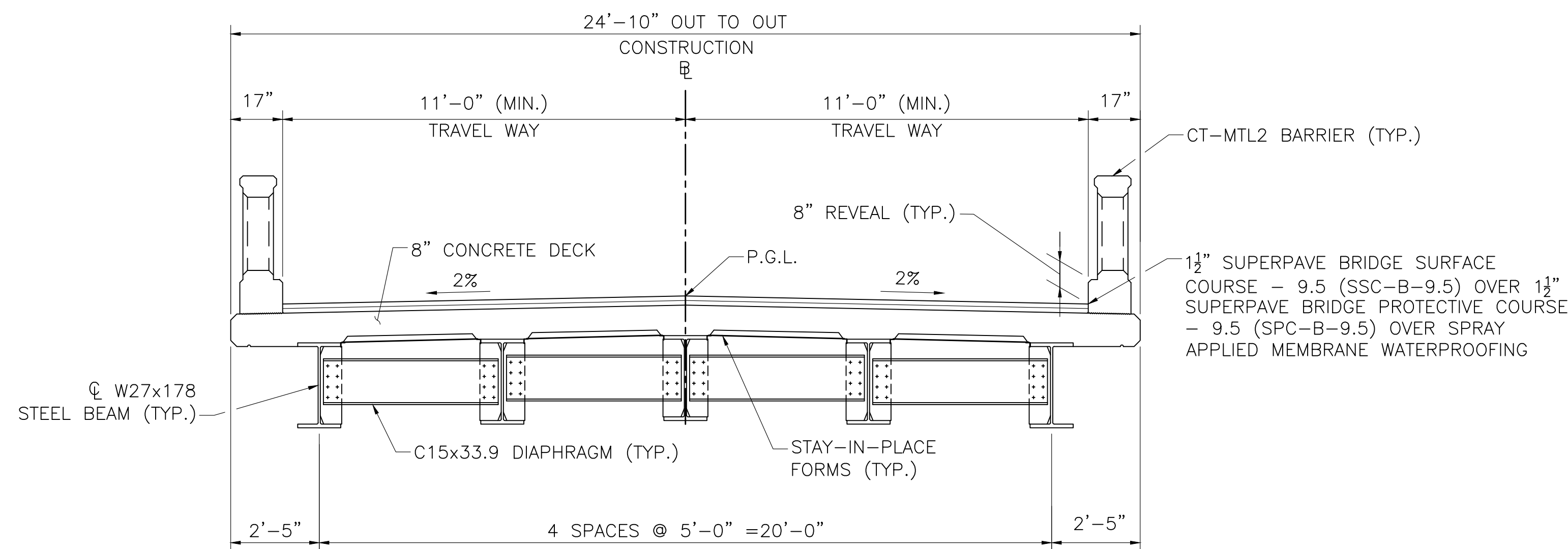
NOTE:
7/8" Ø STUDS MAY BE SUBSTITUTED FOR 3/4" Ø STUDS BY ADJUSTING THE PITCH TO PROVIDE AN EQUIVALENT CROSS-SECTIONAL AREA PER FOOT.

STUD SHEAR CONNECTORS
NOT TO SCALE

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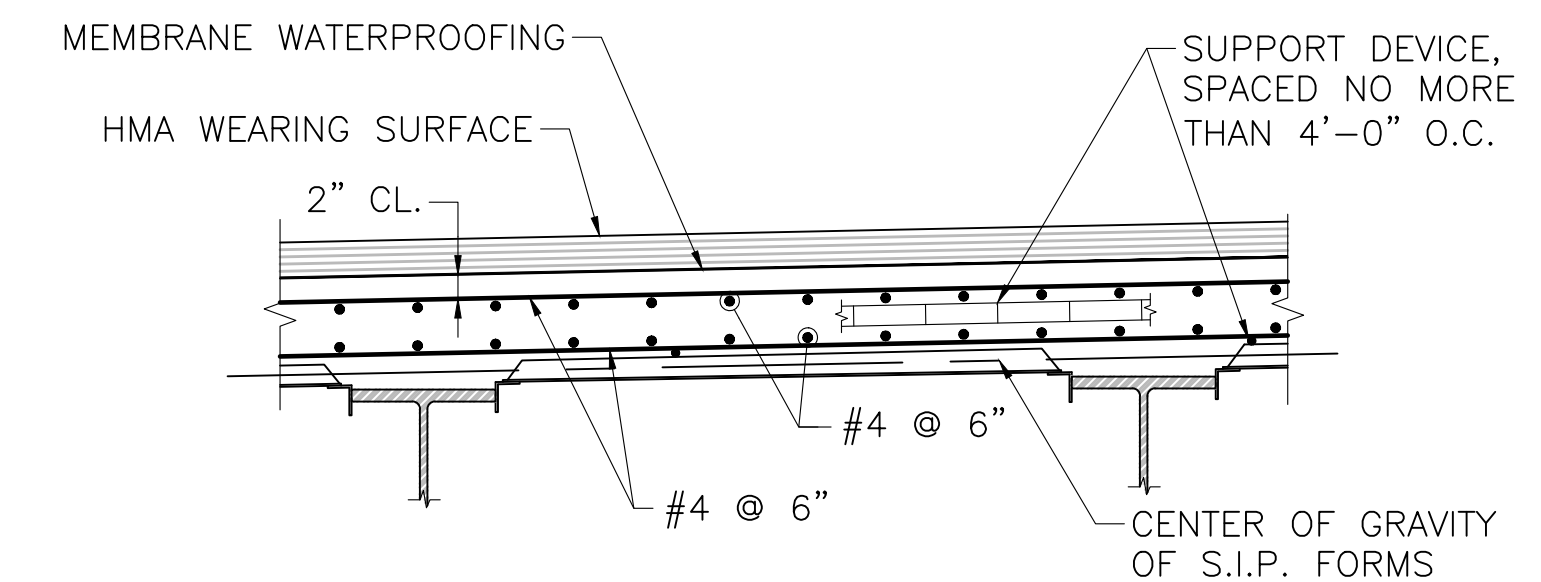
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	41	55
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DECK DETAILS I



PROPOSED TRANSVERSE SECTION

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

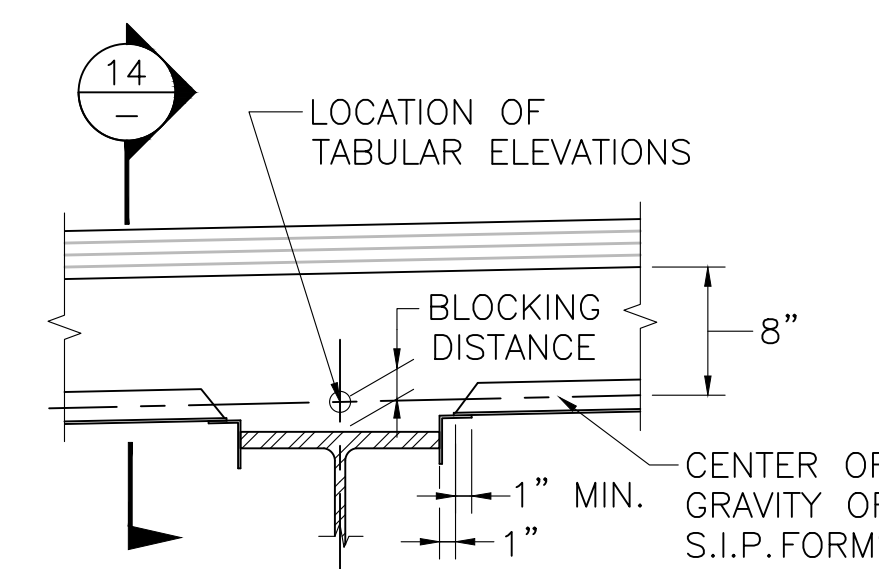


TYPICAL DECK REINFORCEMENT

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

NOTES:

1. LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE \square OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE \square OF CONSTRUCTION.
2. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
3. 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.

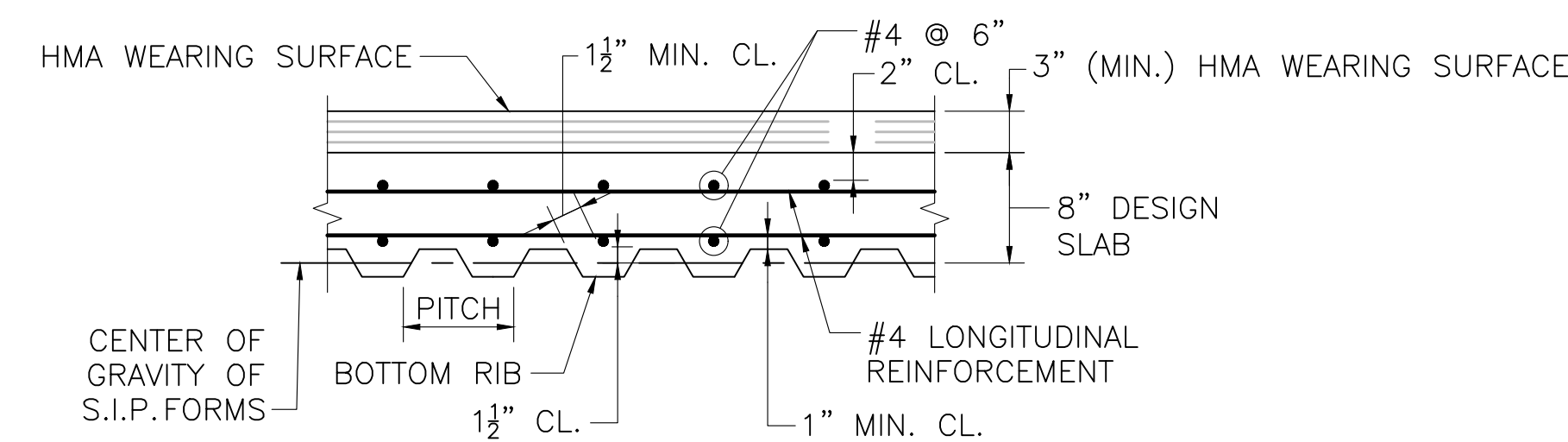


HAUNCH DETAIL

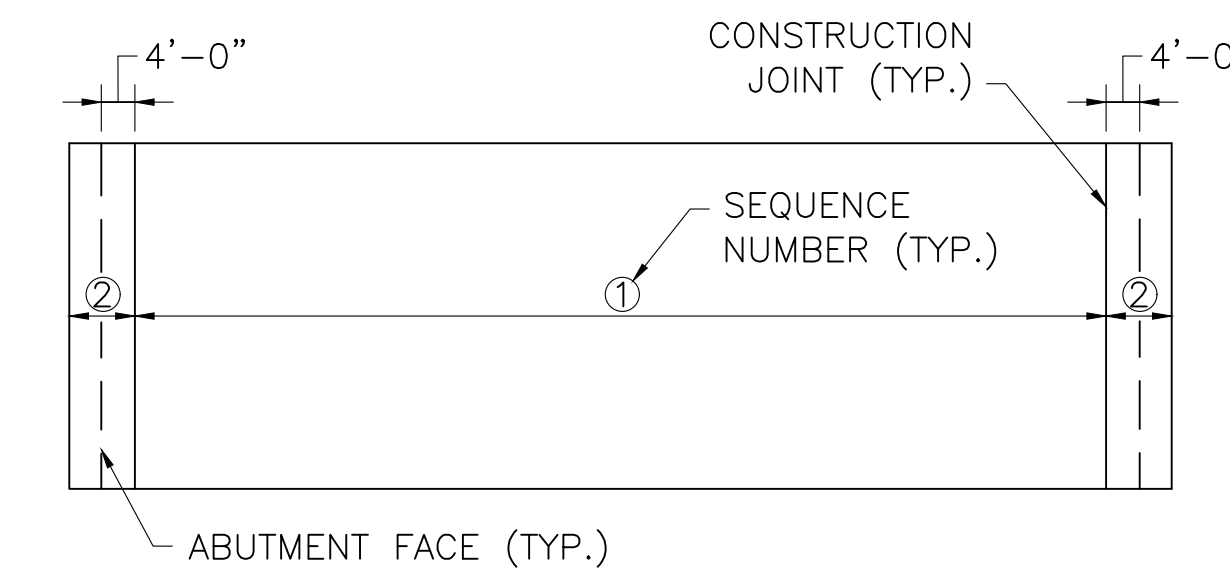
BEAM NO.	TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE										
	S. CL. BRG.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	N. CL. BRG.
1	644.62	645.09	645.52	645.92	646.28	646.60	646.89	647.18	647.47	647.78	648.09
2	644.90	645.35	645.77	646.15	646.49	646.80	647.10	647.40	647.70	648.02	648.35
3	645.18	645.61	646.02	646.39	646.72	647.03	647.33	647.64	647.95	648.28	648.62
4	645.25	645.67	646.07	646.43	646.75	647.06	647.37	647.69	648.01	648.34	648.68
5	645.31	645.74	646.13	646.48	646.80	647.12	647.43	647.75	648.08	648.41	648.76

NOTE:

AFTER THE BEAMS ARE ERECTED BUT BEFORE THE FORMS ARE PLACED, THE ELEVATION AT THE TOP OF THE FLANGE OF EACH BEAM SHALL BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN EACH OBTAINED ELEVATION AND ITS CORRESPONDING ELEVATION SHOWN IN THE TABLE IS THE BLOCKING DISTANCE FROM THE TOP OF THE BEAM TO THE BOTTOM OF THE SLAB AT THE CENTERLINE OF THE BEAM.



SECTION 14
NOT TO SCALE

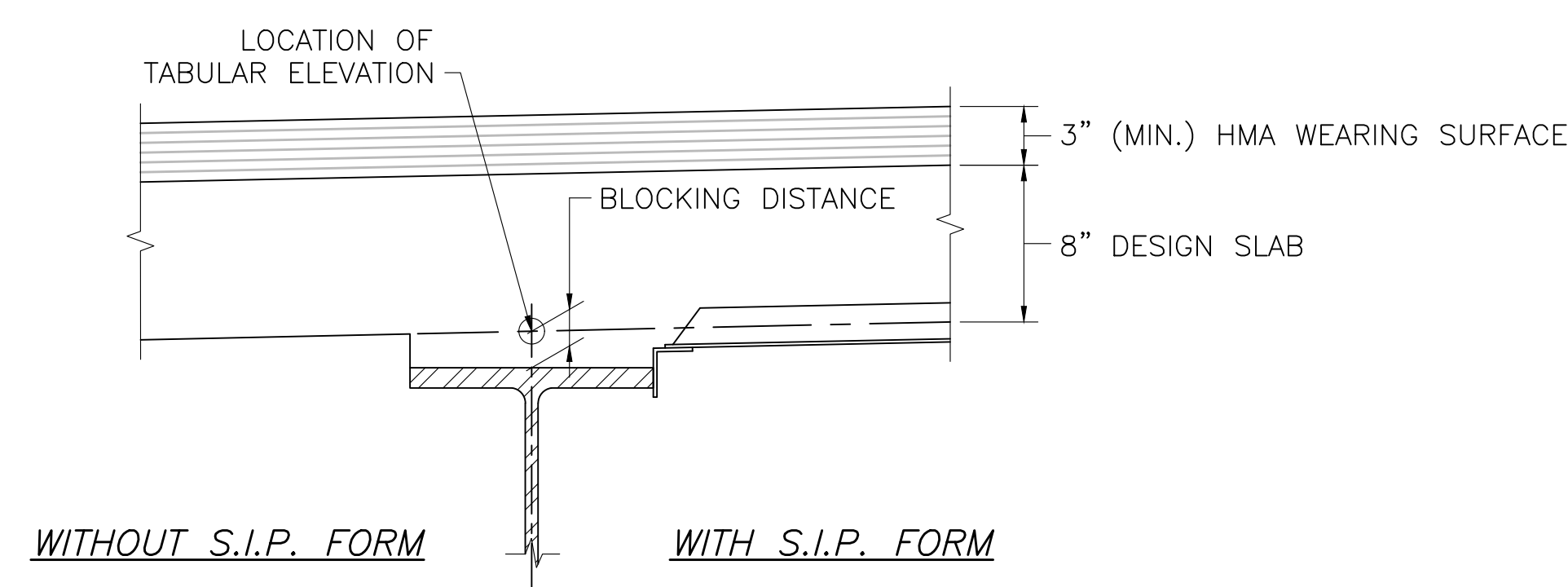


DECK POURING SEQUENCE

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

NOTES:

1. BRIDGE DECK SLAB SHALL BE PLACED IN ACCORDANCE WITH THE PLACEMENT SEQUENCE SHOWN ON THE CONSTRUCTION DRAWINGS.
2. THE CONTRACTOR MAY PLACE THE ENTIRE DECK IN ONE CONTINUOUS OPERATION WITHOUT CONSTRUCTION JOINTS WITH THE APPROVAL OF THE ENGINEER, PROVIDED THAT THE INITIAL SET ($f'_c = 500$ PSI) OF ALL CONCRETE DOES NOT OCCUR UNTIL AFTER THE COMPLETION OF THE PLACEMENT. AN APPROVED RETARDER SHALL BE USED, WHEN NECESSARY, TO RETAIN THE WORKABILITY OF THE CONCRETE. IF MULTIPLE PLACEMENTS ARE MADE, A MINIMUM OF 72 HOURS SHALL PASS BETWEEN PLACEMENTS.



HAUNCH DETAIL

NOT TO SCALE

S.I.P. FORM NOTES

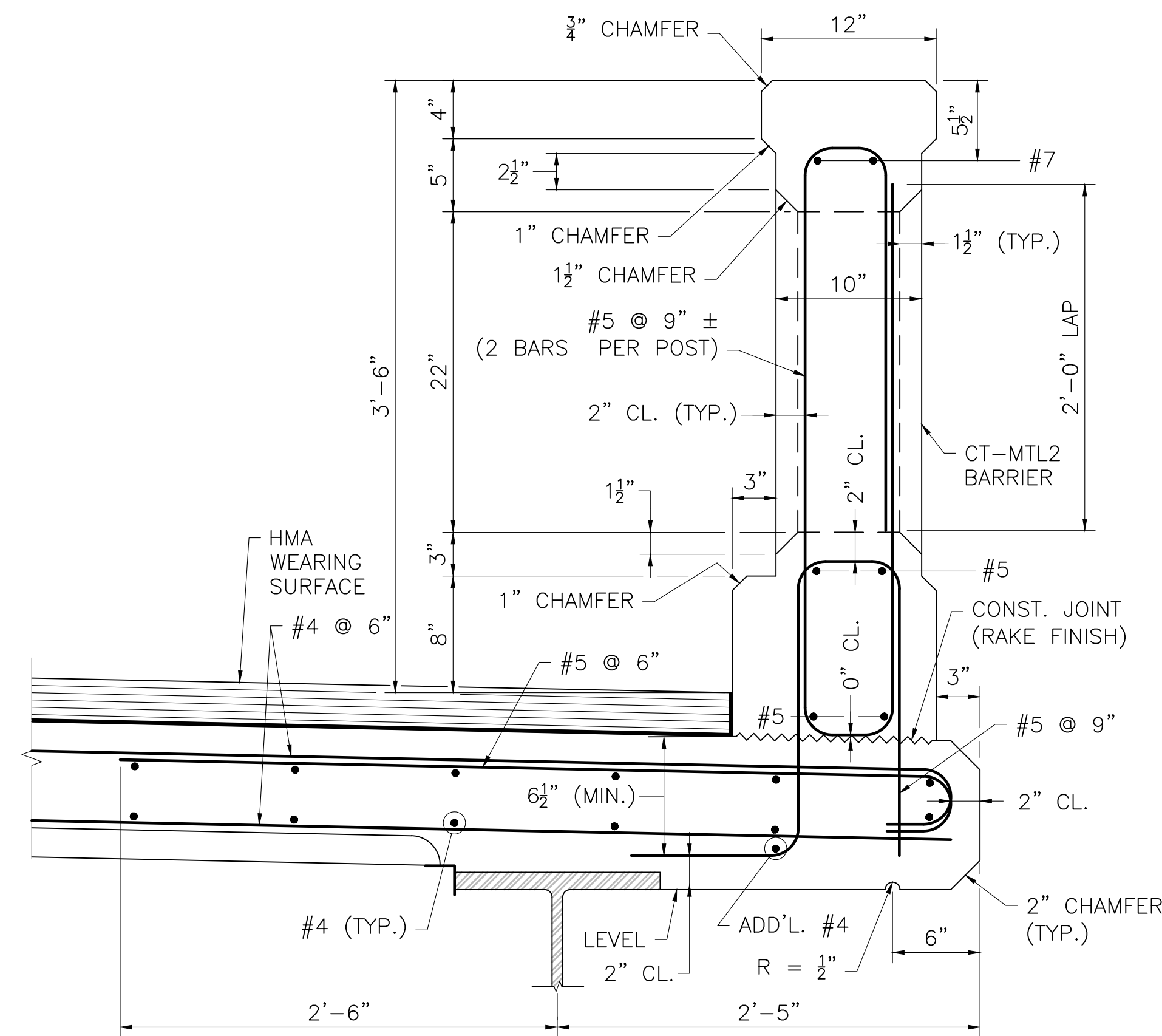
1. FOR 2" S.I.P. FORM, SET BOTTOM OF FORM 1" BELOW ELEVATION GIVEN IN TABLE. FOR 3" S.I.P. FORM, SET BOTTOM OF FORM 1 1/2" BELOW TABLE ELEVATIONS.
2. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSURE PIECES WILL NOT BE ALLOWED.
3. SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
4. ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE S.I.P. FORM.
5. CONTRACTOR SHALL DESIGN AND DETAIL ALL ELEMENTS OF THE FORMING SYSTEM AND SHALL SUBMIT TO THE ENGINEER FOR APPROVAL.
6. IN CASES WHERE STANDARD 2" OR 3" DEEP S.I.P. FORMS DO NOT SATISFY DESIGN REQUIREMENTS AN ALTERNATIVE FORMING SYSTEM CONSISTING OF DEEPER S.I.P. FORMS OR REMOVABLE FORMS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE DESIGN THICKNESS OF THE SLAB SHALL NOT BE REDUCED.

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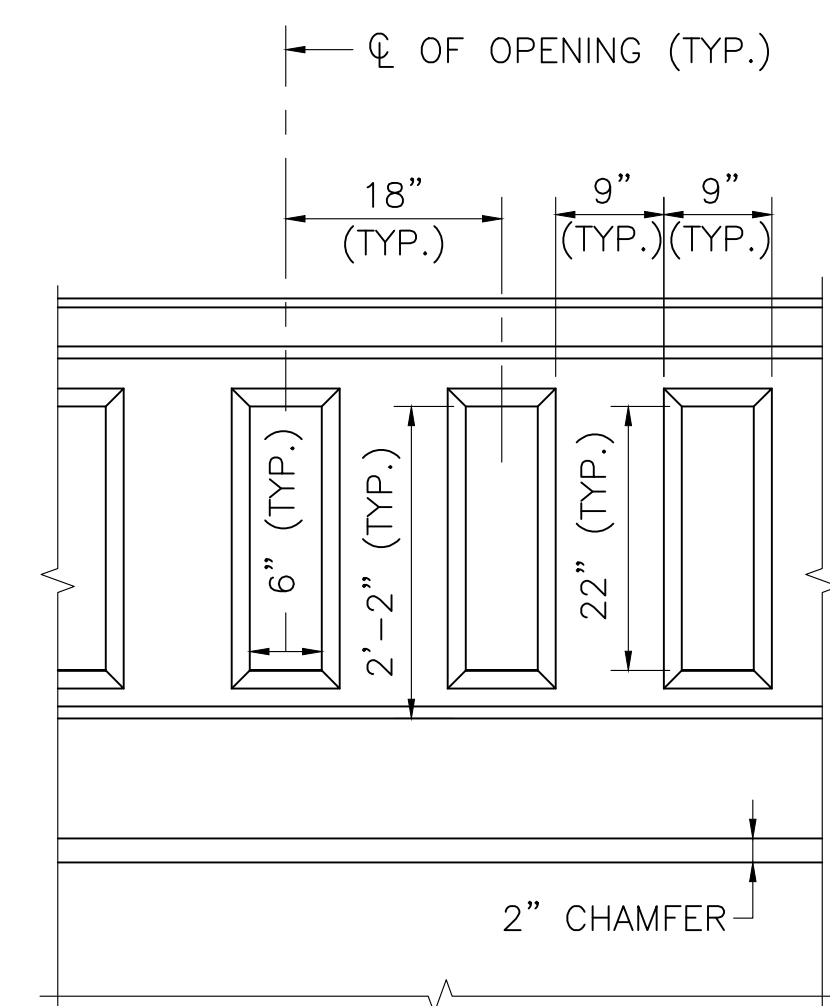
CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	42	55
PROJECT FILE NO.		608858	

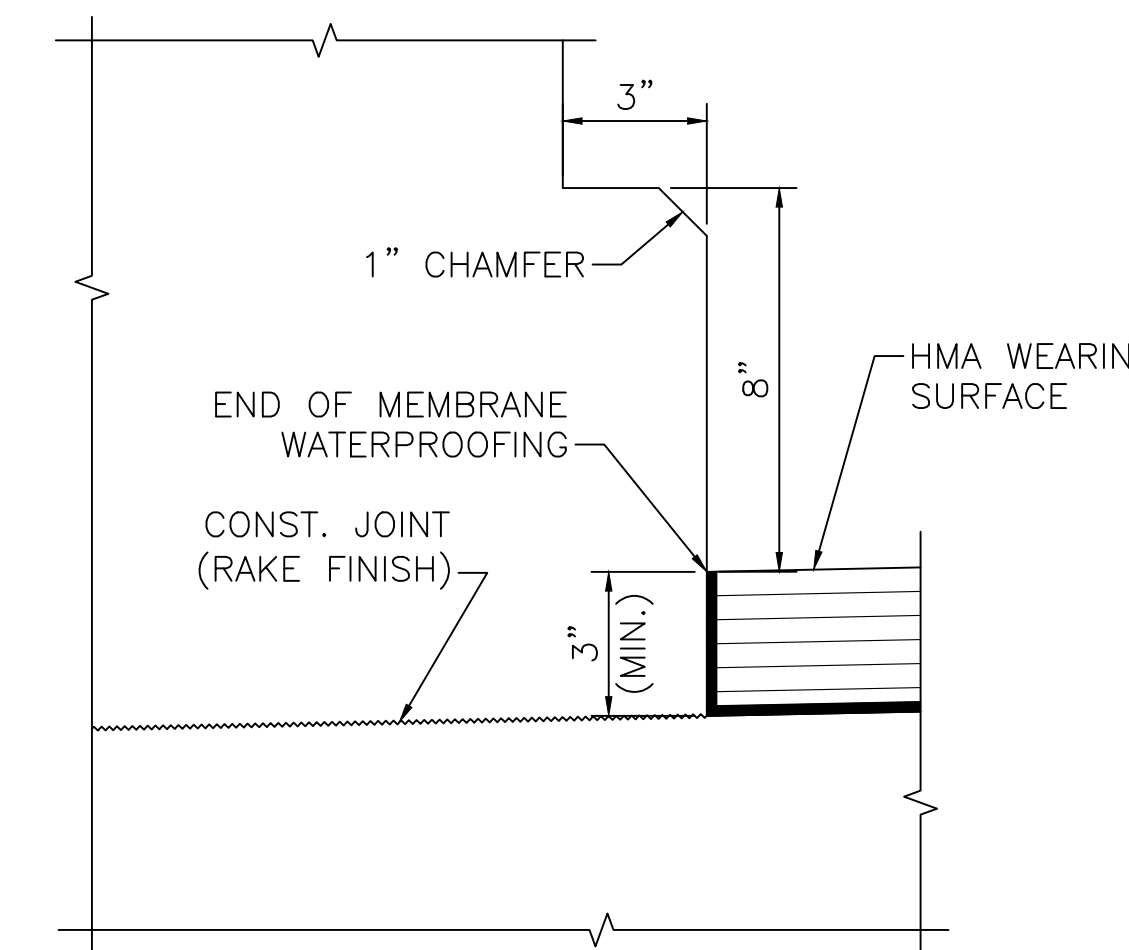
DECK DETAILS II



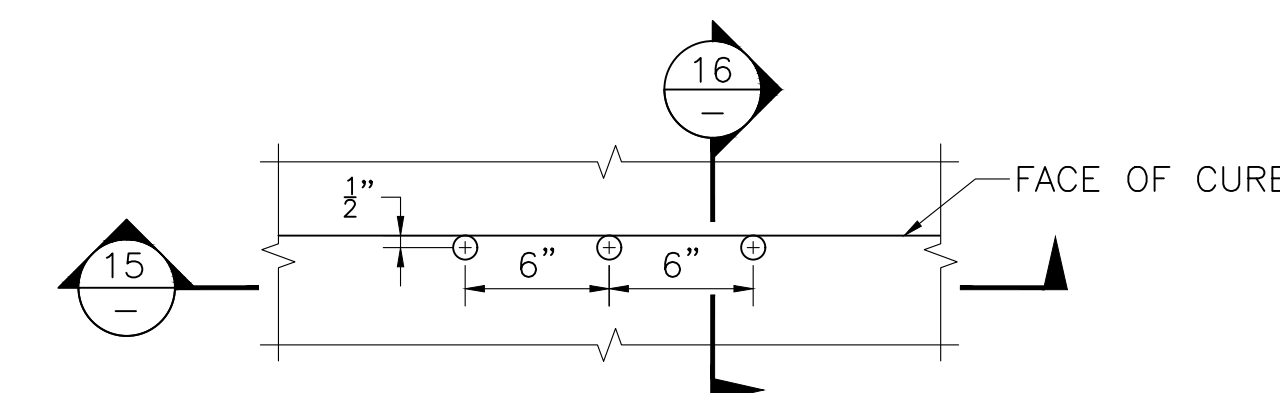
SECTION THRU SAFETY CURB
SCALE: 1 1/2" = 1'-0"



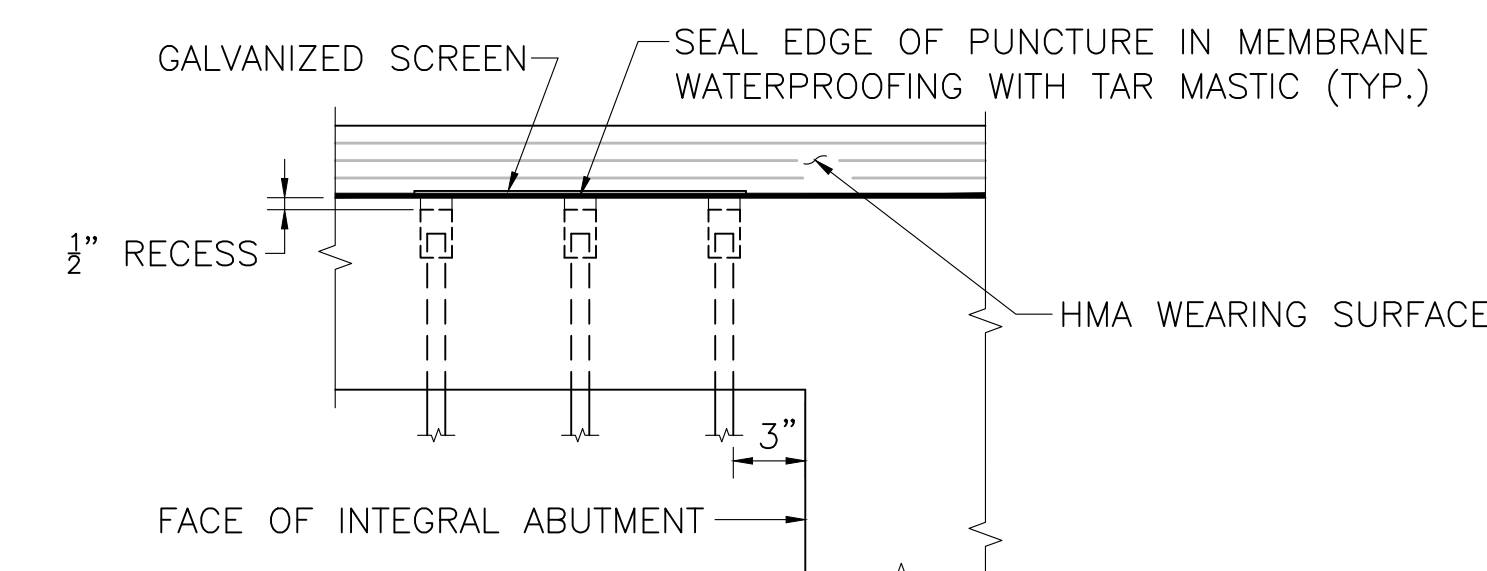
EXTERIOR BARRIER ELEVATION
SCALE: 3/4" = 1'-0"



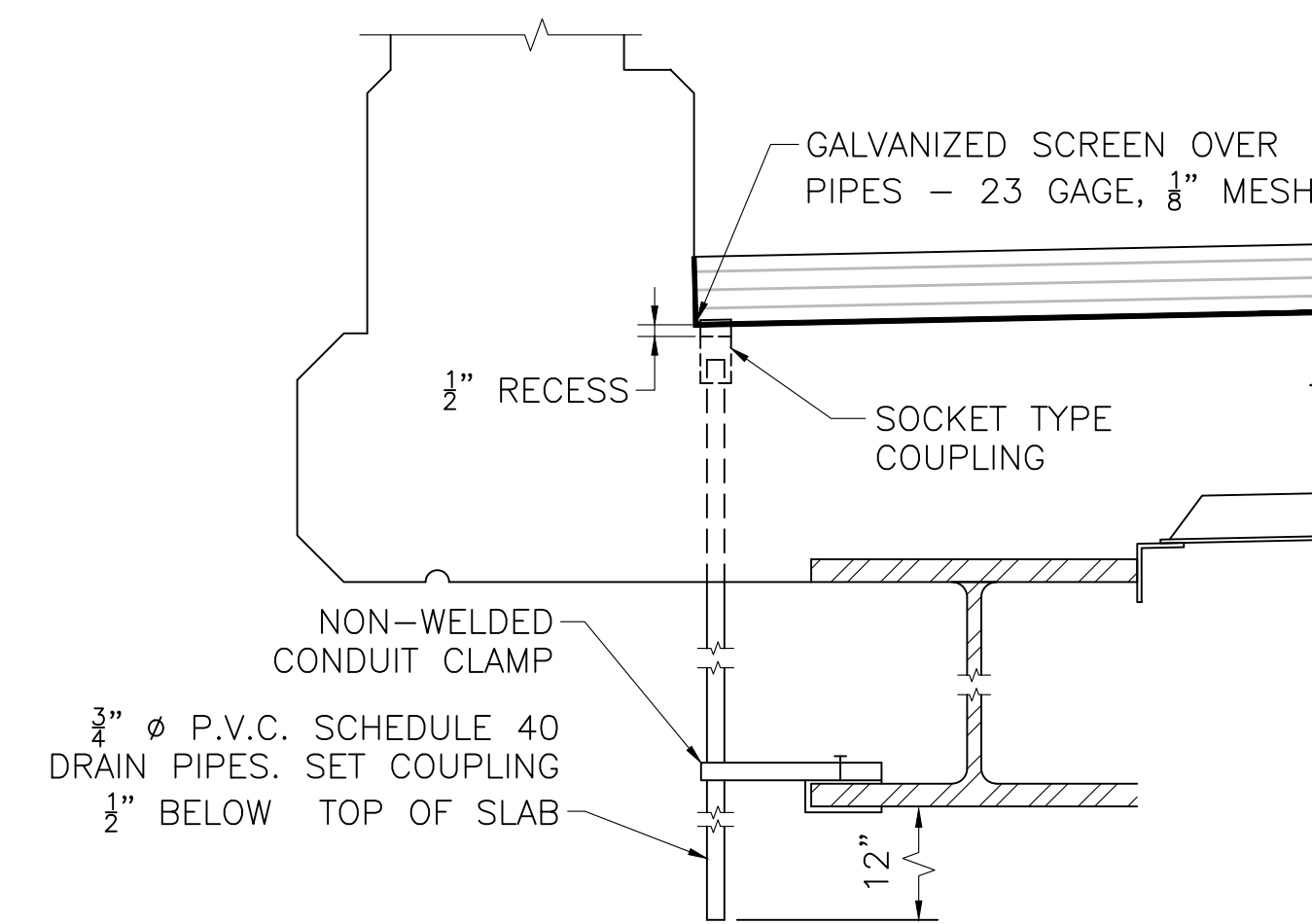
FACE OF SAFETY CURB DETAIL
SCALE: 3" = 1'-0"



DECK PLAN



SECTION 15

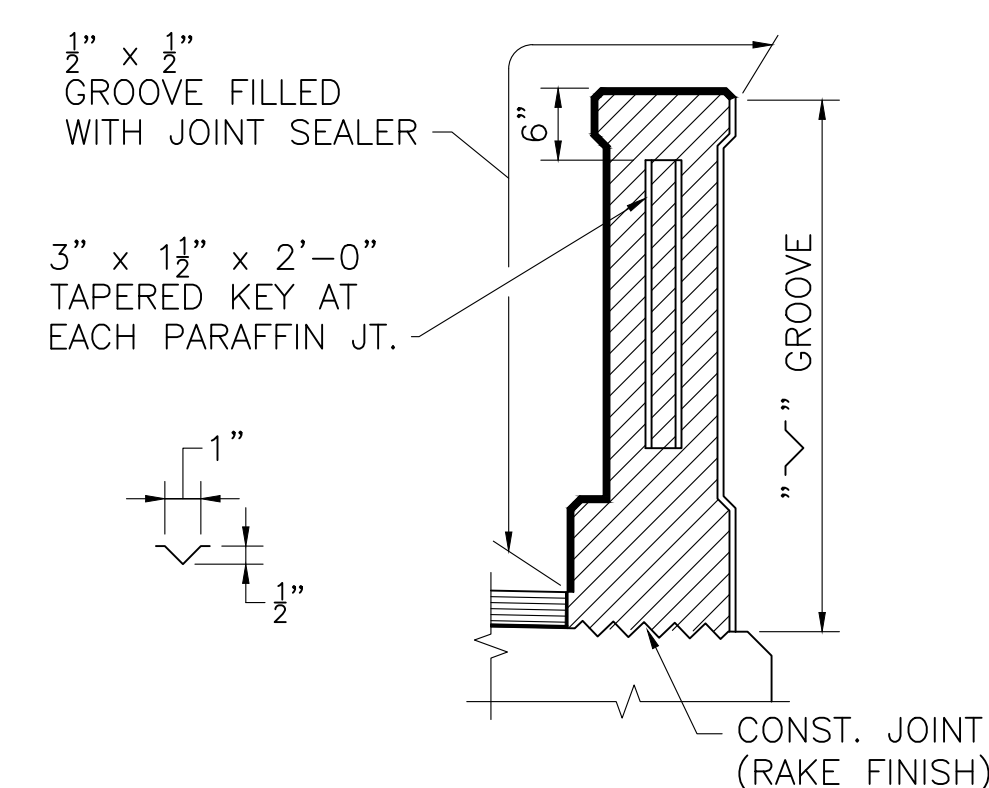


SECTION 16

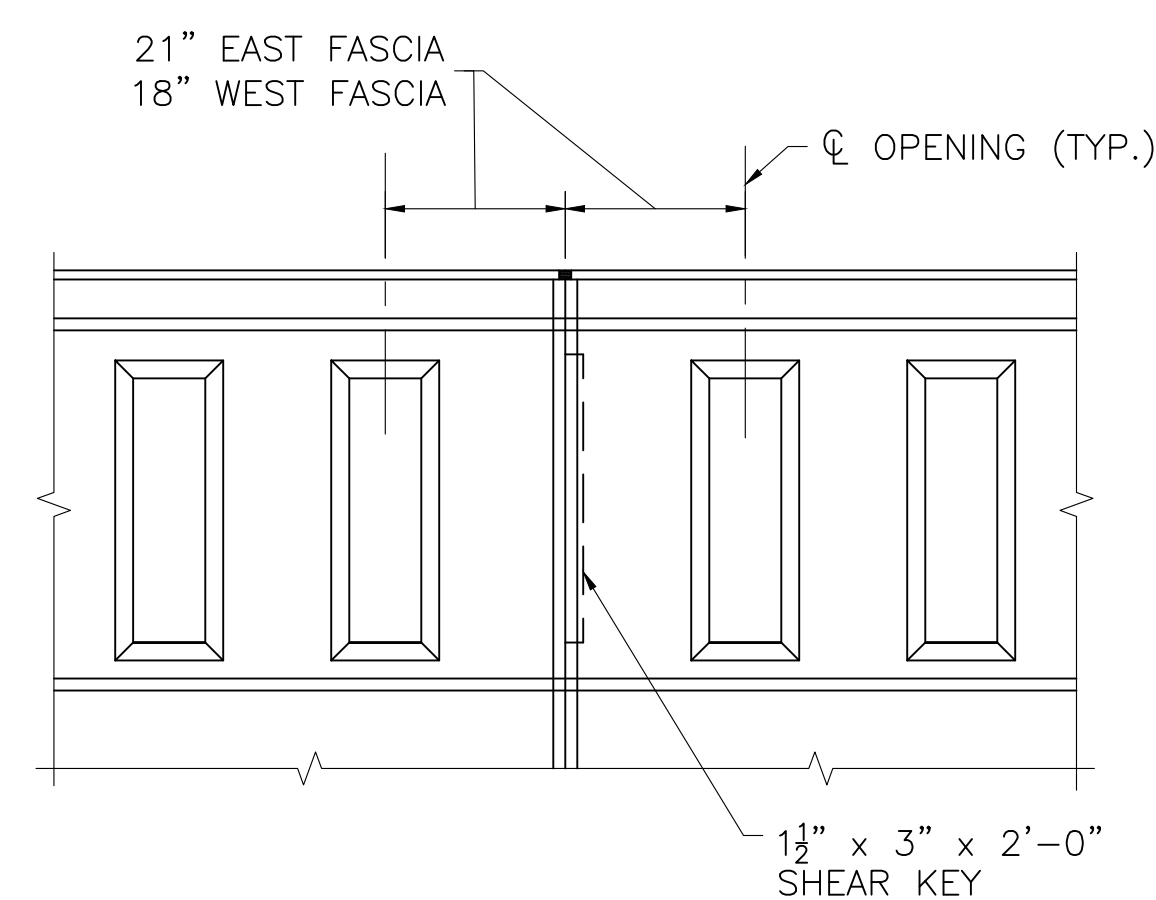
DECK DRAIN DETAILS
SCALE: 1 1/2" = 1'-0"

NOTE:

DRAINS SHALL BE LOCATED AT ALL ROADWAY JOINTS AND/OR LOW POINT OF VERTICAL CURVE.



SECTION THRU PARAFFIN JOINT



ELEVATION

PARAFFIN JOINT DETAILS

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

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.

DATE	DESCRIPTION
FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

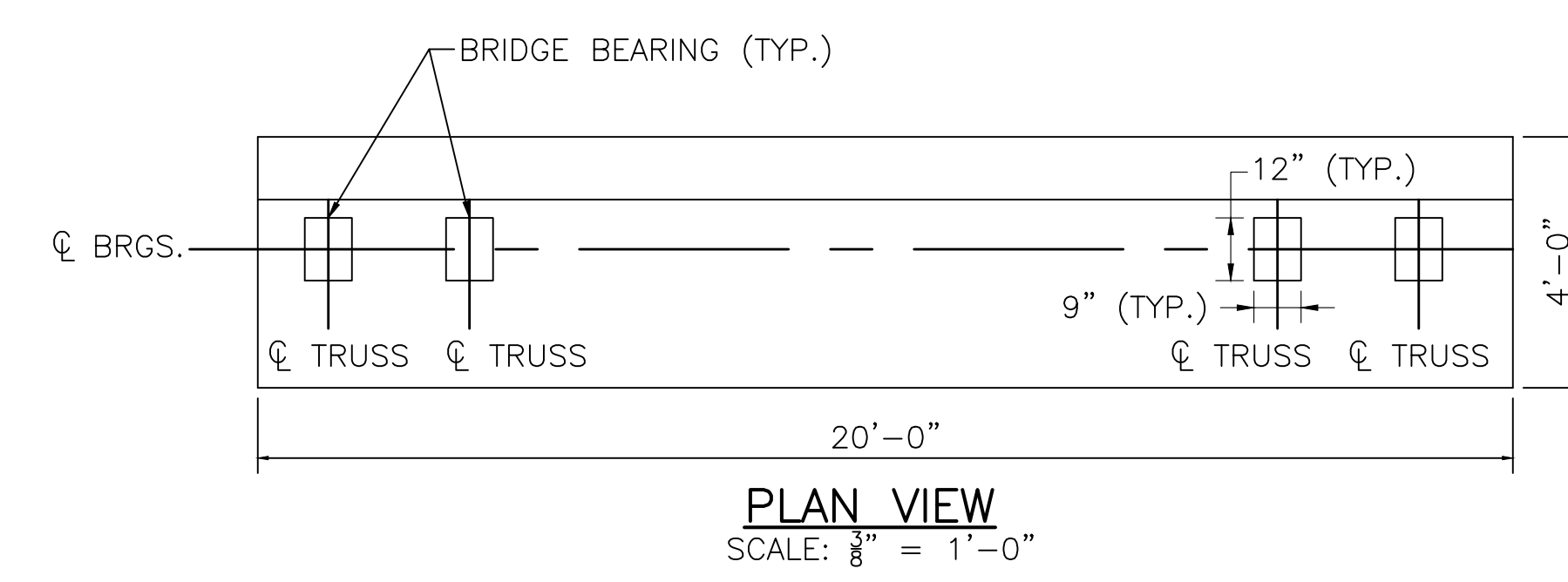
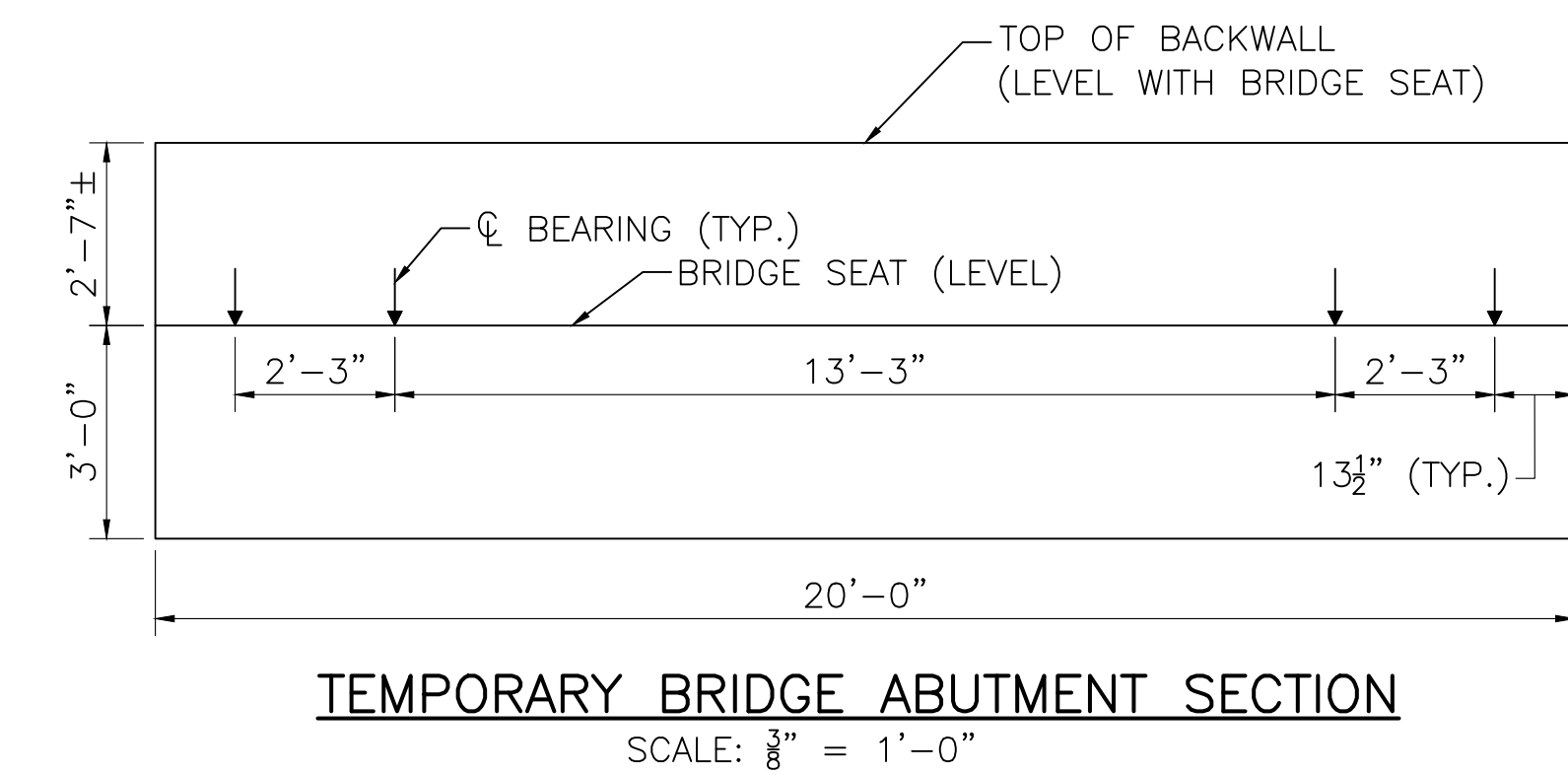
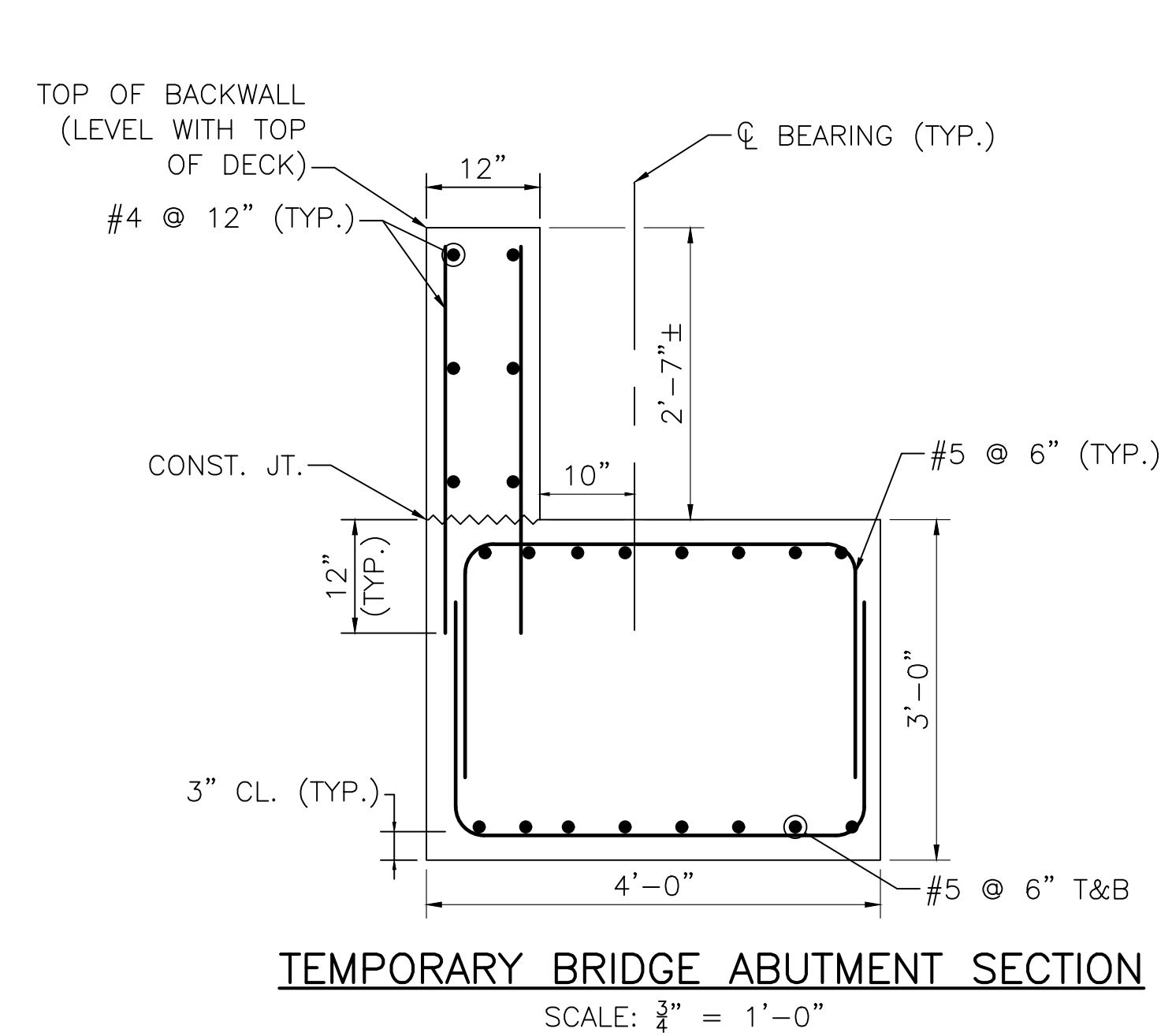
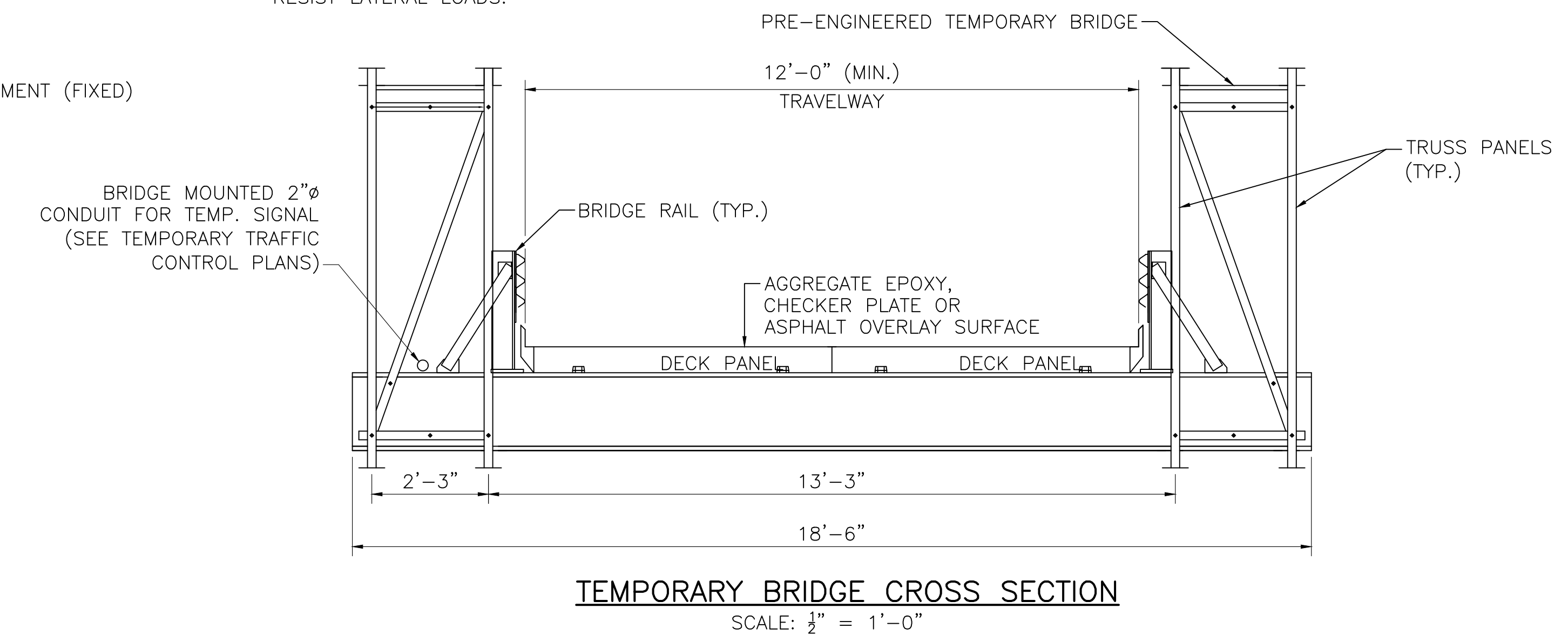
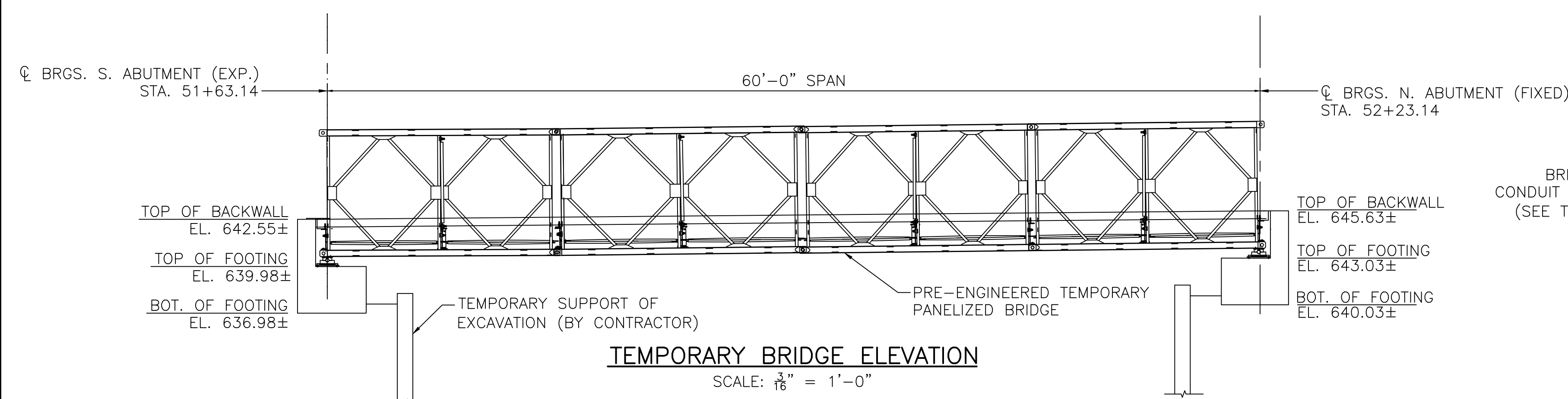
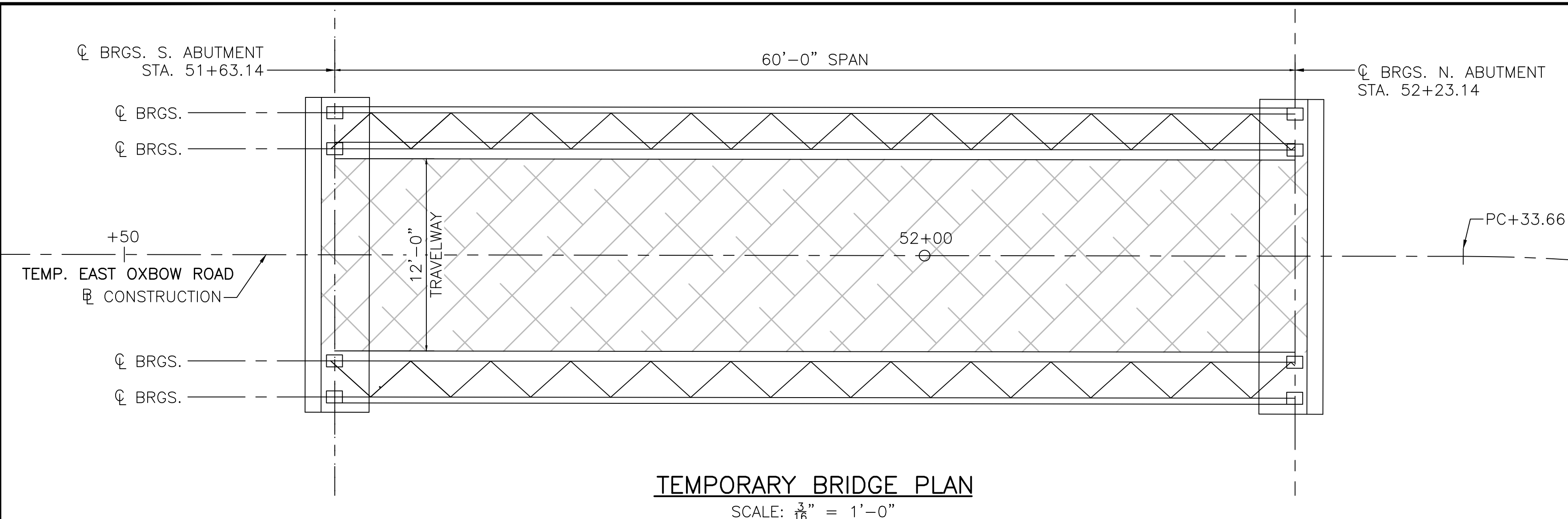
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	43	55
PROJECT FILE NO.		608858	

TEMPORARY BRIDGE

NOTES:

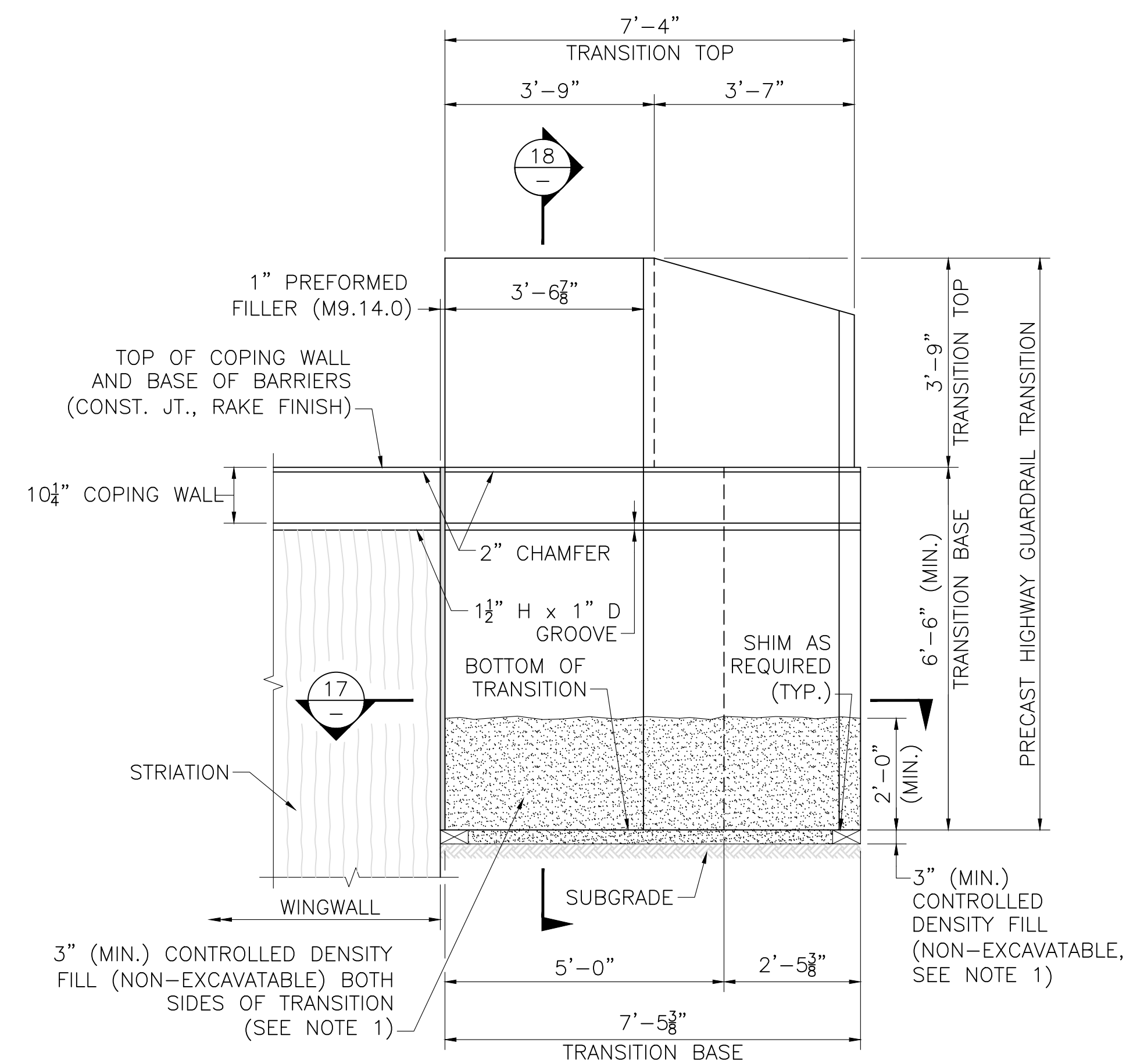
- DIMENSIONS MAY VARY WITH TEMPORARY BRIDGE MANUFACTURER. CONTRACTOR SHALL COORDINATE AND CONFIRM DIMENSIONS.
- THE FACTORED BEARING PRESSURE = 3.7 KSF AS PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION. FACTORED BEARING RESISTANCE = 9.8 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.
- THE CONTRACTOR SHALL AVOID OVERSTRESSING THE TEMPORARY SUPPORT OF EXCAVATION.
- APPROXIMATE TOP OF BACKWALL ELEVATIONS TO MEET GRADE: 642.55± (SOUTH END) AND 645.63± (NORTH END).
- APPROXIMATE BOTTOM OF BACKWALL ELEVATIONS ARE TO BE VERIFIED BY DIMENSIONS GIVEN BY TEMPORARY BRIDGE MANUFACTURER.
- BOTTOM OF FOOTING ELEVATIONS MAY BE ADJUSTED BASED ON FINAL FOUNDATION DIMENSIONS.
- ALL REINFORCING BARS SHALL BE UNCOATED.
- ALL CONCRETE SHALL BE 4000 PSI, 3/4" IN, 585 CEMENT CONCRETE.
- CONSTRUCT BACKWALLS AFTER BRIDGE IS IN PLACE. CAST 3" DIAMETER VOIDS AT ANCHOR BOLT LOCATIONS. GROUT IN ANCHOR BOLTS AFTER BRIDGE IS IN POSITION.
- ALL EXPANSION BEARINGS SHALL BE GREASED AT INSTALLATION. EXPANSION BEARINGS SHALL ACCOMMODATE 0.33" OF EXPANSION AND 0.47" OF CONTRACTION DUE TO THERMAL MOVEMENTS.
- BRIDGE SHALL BE DESIGNED FOR HL93 LOADING.
- TEMPORARY ABUTMENTS ARE DESIGNED FOR FACTORED SUPERSTRUCTURE DEAD LOAD = 27 KIPS AND LIVE LOAD = 96 KIPS AT EACH CORNER (TOTAL SUPERSTRUCTURE LOADS: DEAD = 108 KIPS, LIVE = 384 KIPS).
- THE FACTORED TRANSVERSE DESIGN WIND LOAD PER ABUTMENT IS 10 KIPS, CONTRACTOR SHALL PROVIDE RESTRAINTS AT ABUTMENTS, AS NECESSARY, TO RESIST LATERAL LOADS.



FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
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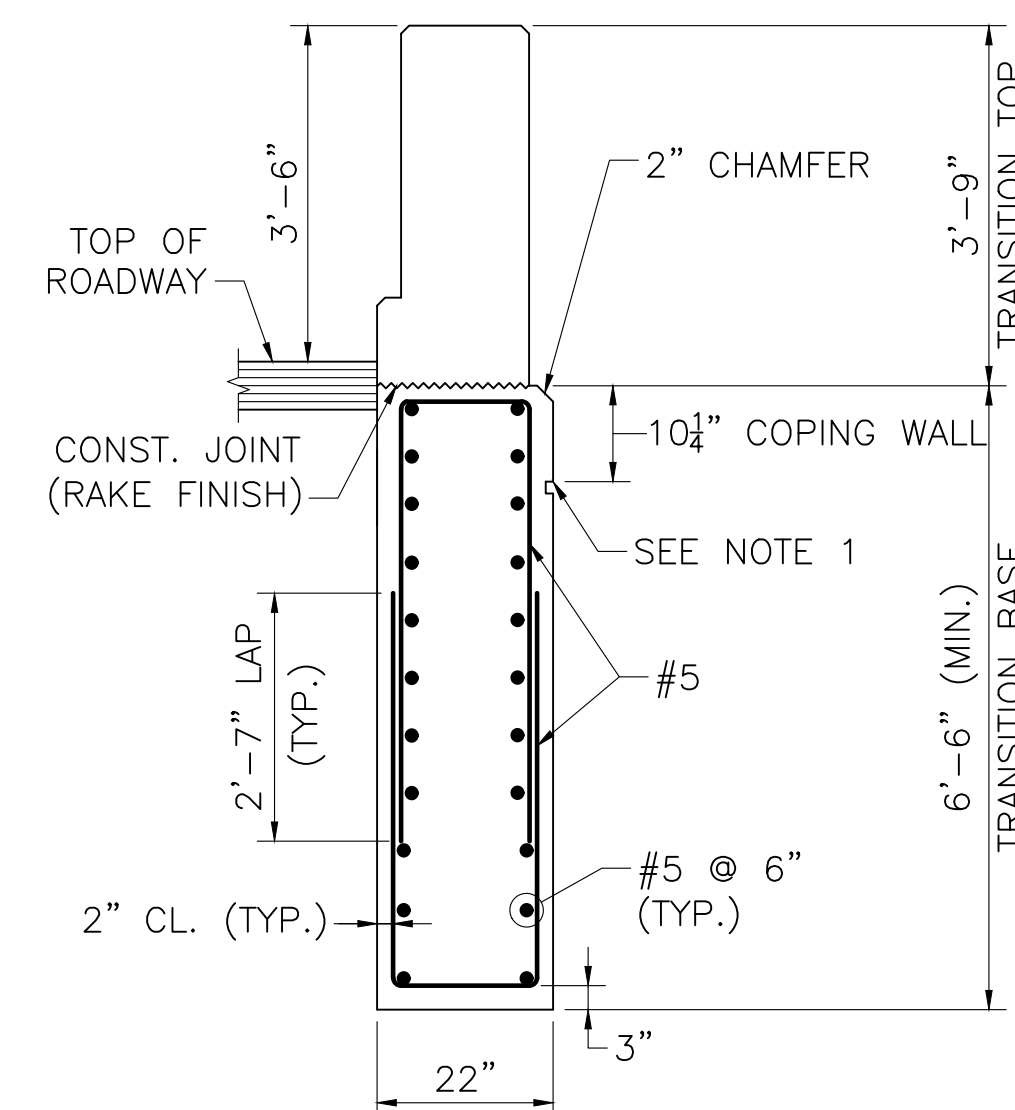
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	44	55
PROJECT FILE NO.		608858	

HIGHWAY GUARDRAIL TRANSITION DETAILS I



PRECAST GUARDRAIL TRANSITION
ELEVATION AT U-WINGWALL

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

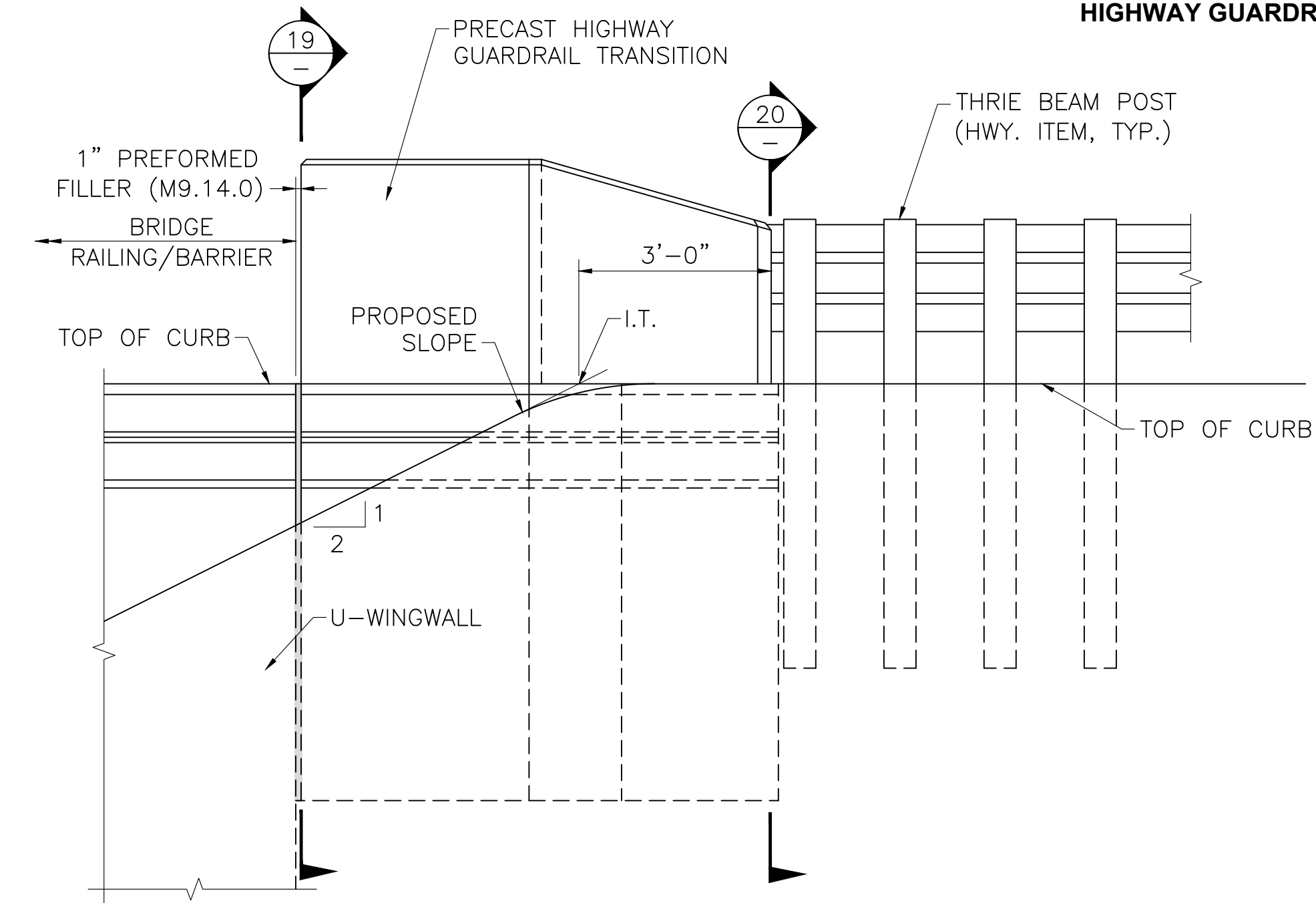


NOTES:

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

SECTION 18

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

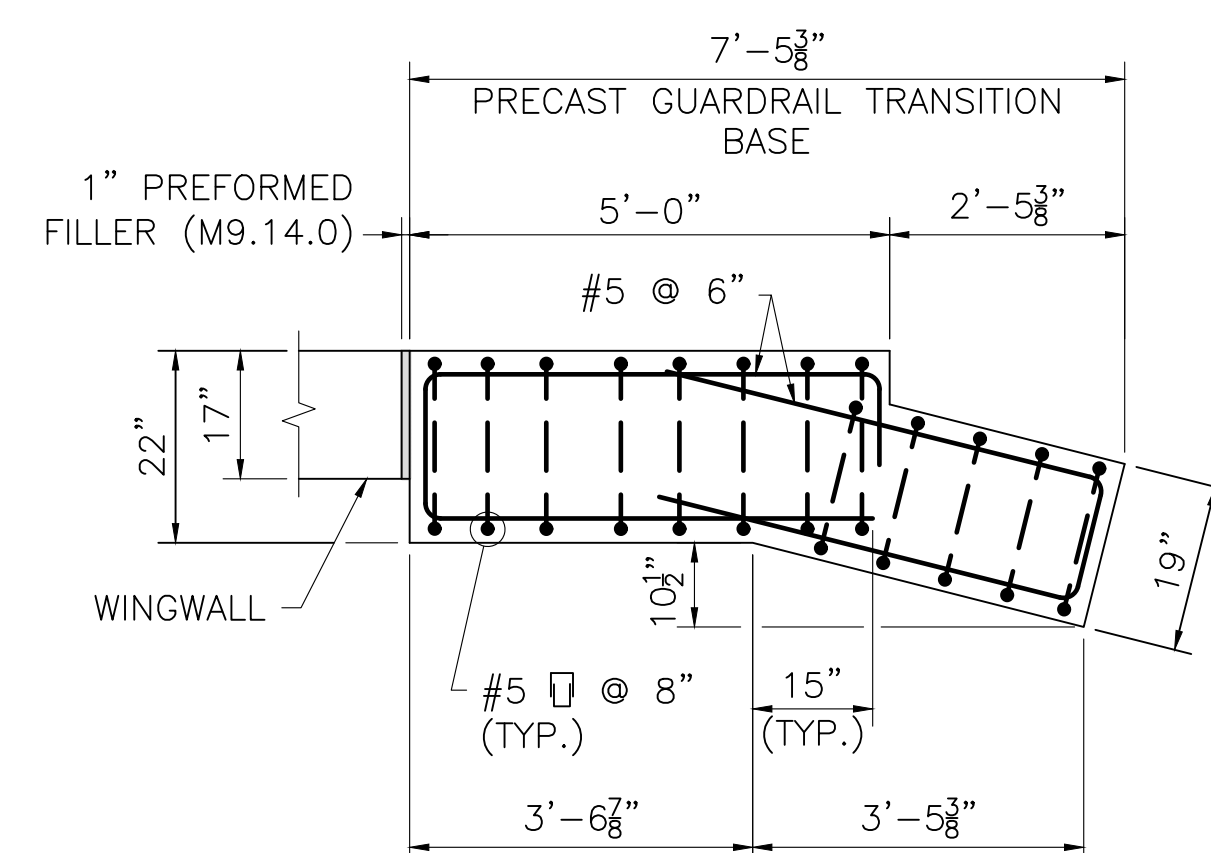


GRADING REQUIREMENTS ELEVATION

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

NOTES:

- 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 BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
- 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.
- BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.

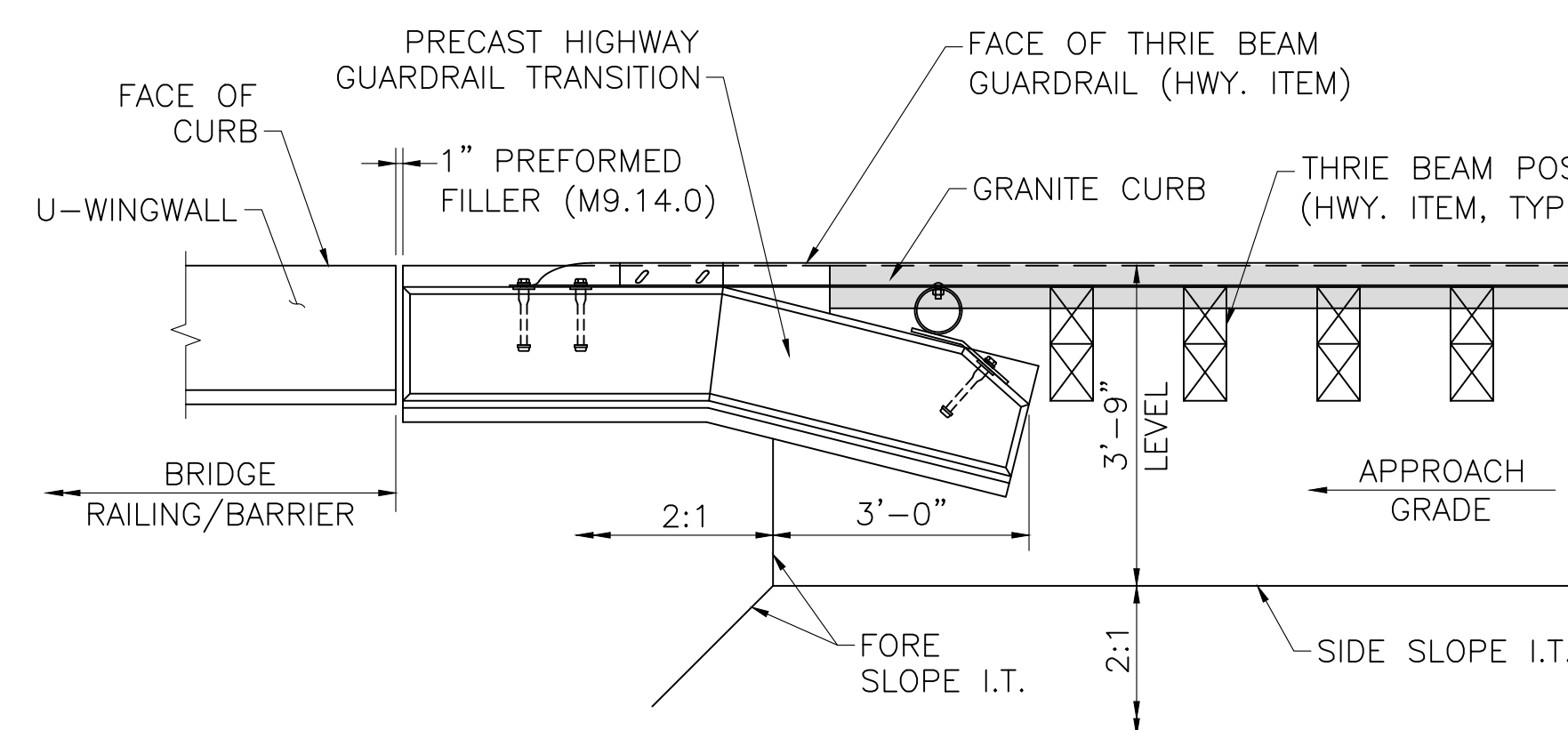


NOTE:

WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

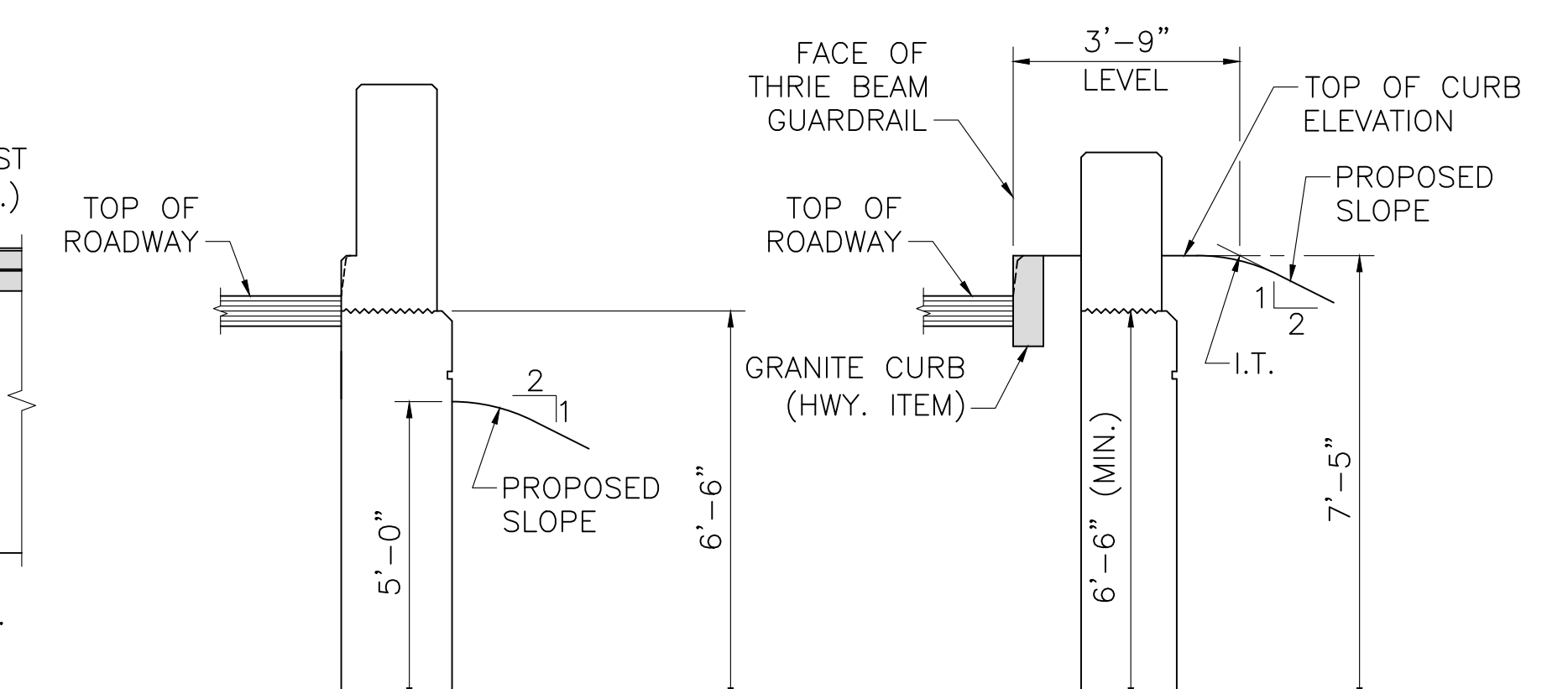
SECTION 17

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



GRADING REQUIREMENTS PLAN

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



SECTION 19

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

SECTION 20

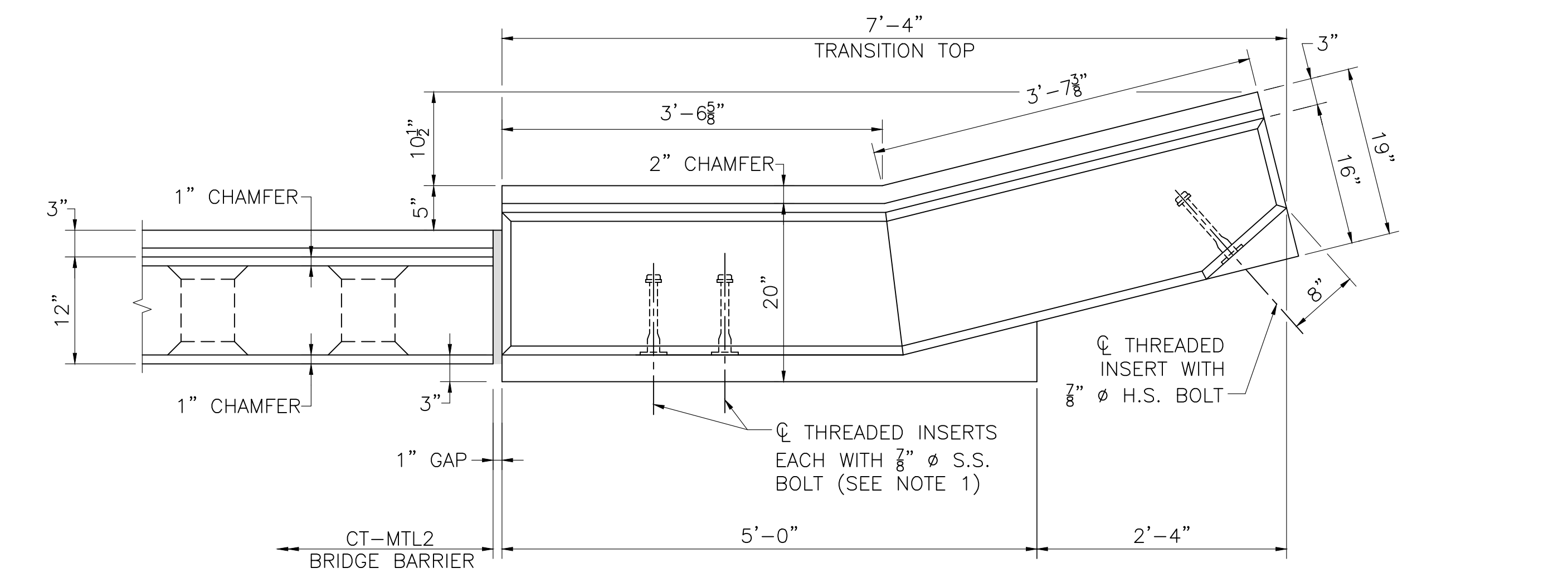
SCALE: 3/8" = 1'-0"

FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
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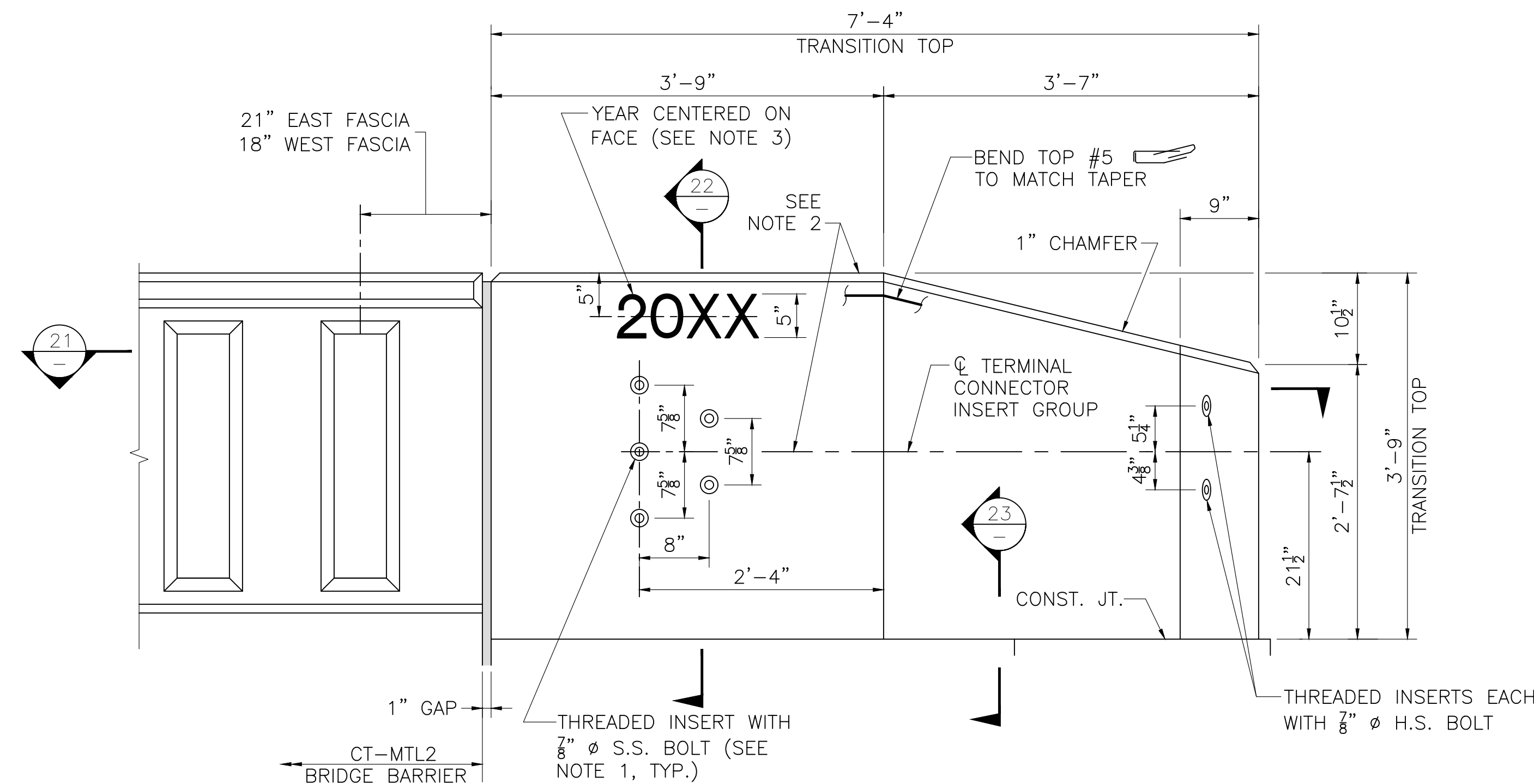
CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	45	55
PROJECT FILE NO.		608858	

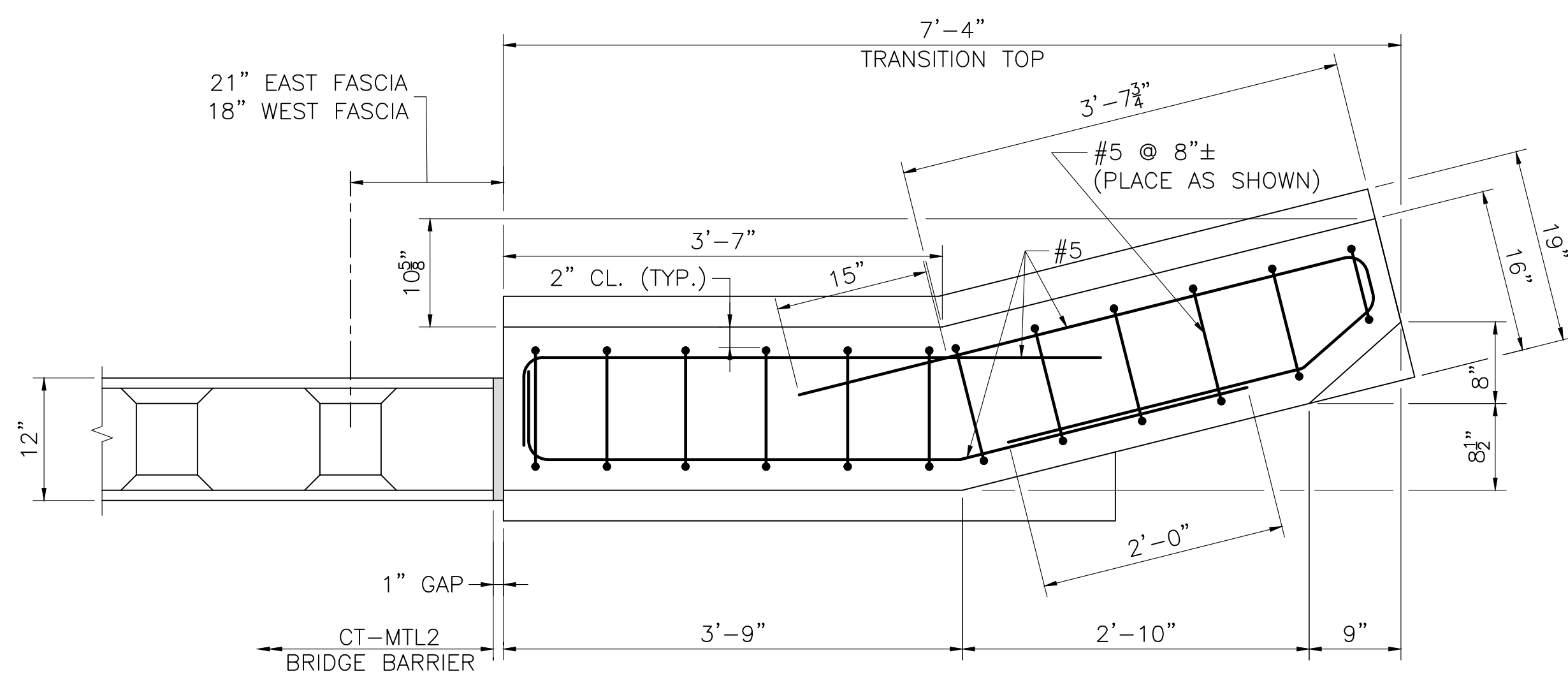
HIGHWAY GUARDRAIL TRANSITION DETAILS II



PLAN
SCALE: 1" = 1'-0"

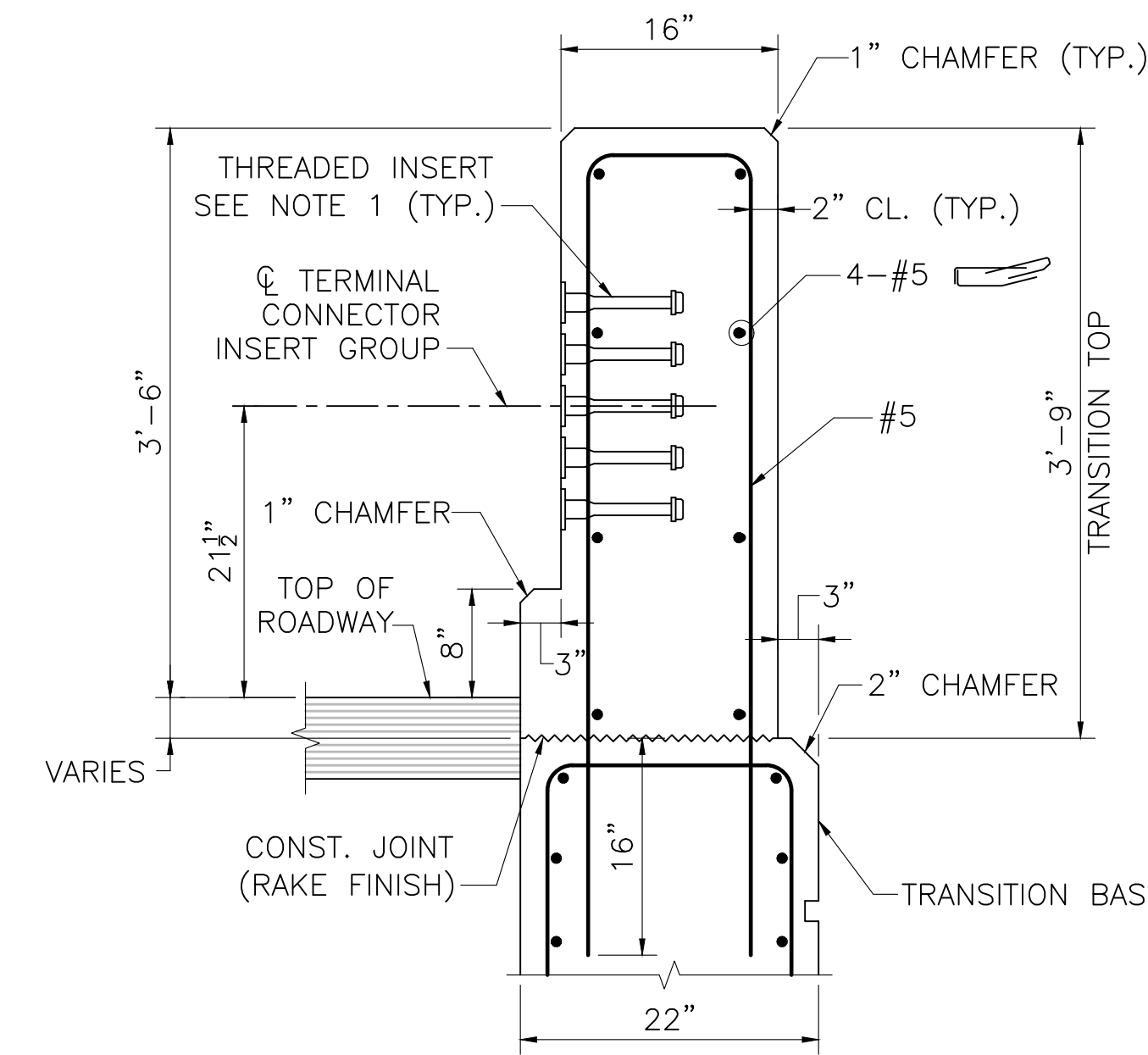


ELEVATION AT SIDEWALK
SCALE: 1" = 1'-0"

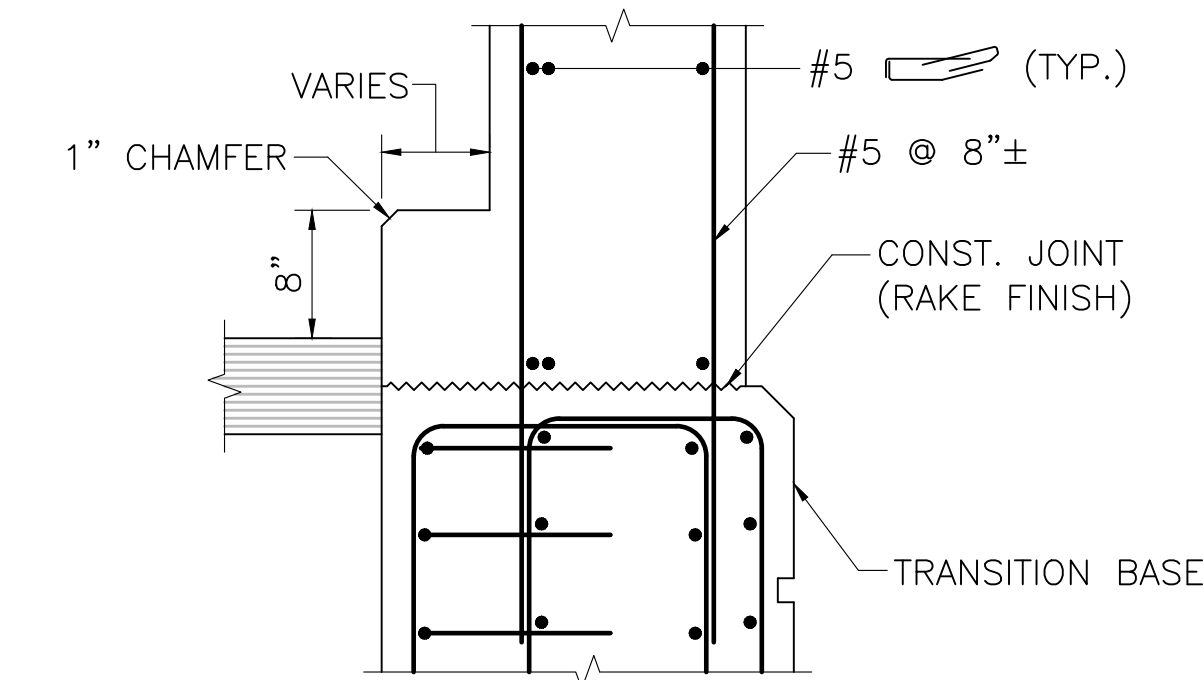


SECTION 21
SCALE: 1" = 1'-0"

TOP OF PRECAST HIGHWAY GUARDRAIL TRANSITION FOR CT-MTL2 BARRIER



SECTION 22 AT SAFETY CURB
SCALE: 1" = 1'-0"



SECTION 23 AT SAFETY CURB
SCALE: 1" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER 7/8" Ø S.S. BOLT. S.S. BOLTS SHALL BE 7/8" Ø x 1 1/2" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR 7/8" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. THE TRANSITION TOP, THE TOP OF THE BRIDGE BARRIERS, AND THE TOP OF THE TRANSITION BASE SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, 3/4", 685 HP CEMENT CONCRETE.
5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1 1/2" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

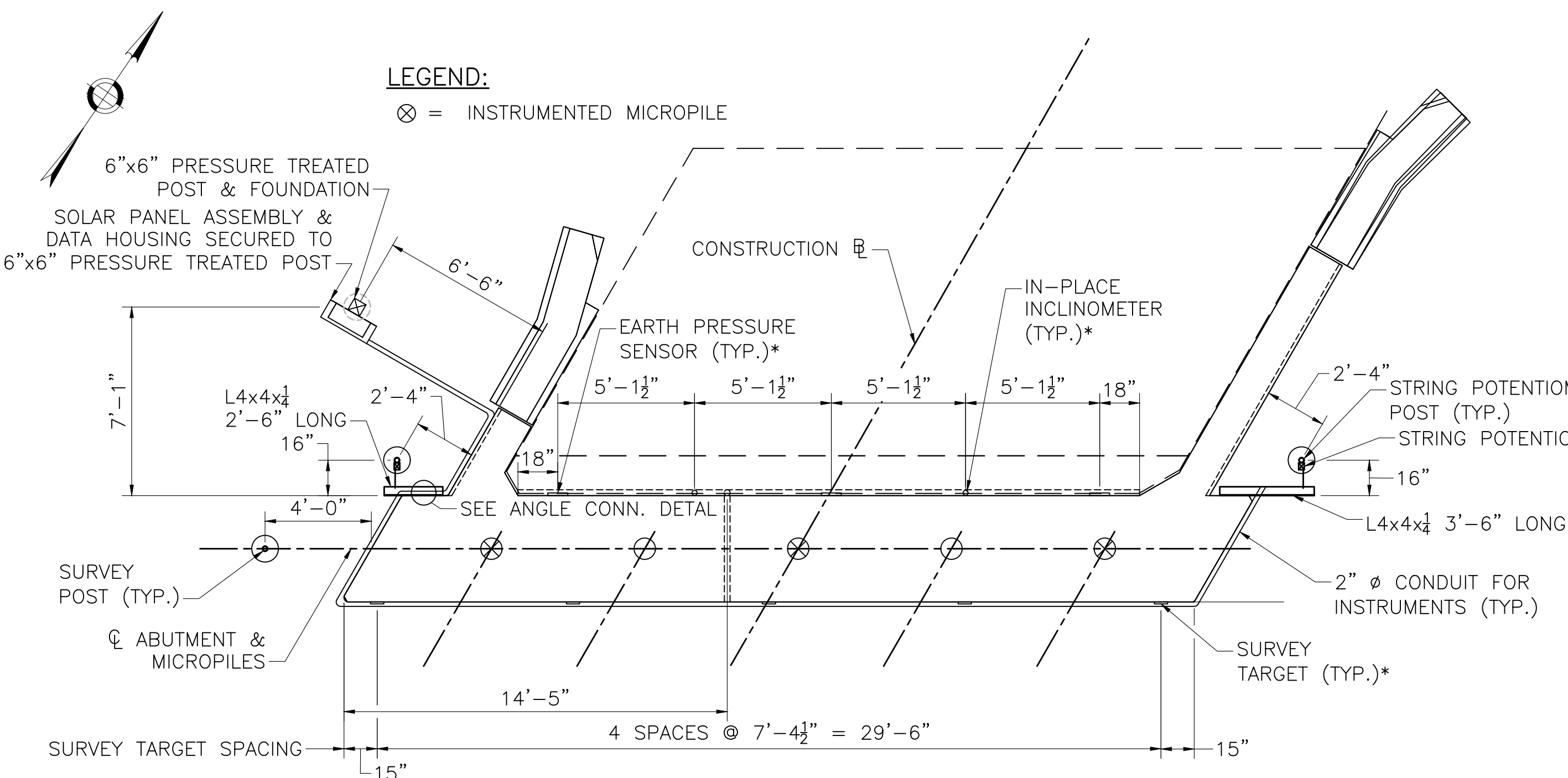
FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	46	55
PROJECT FILE NO.		608858	

INSTRUMENTATION PLAN & DETAILS

INSTRUMENTATION CONSTRUCTION NOTES:

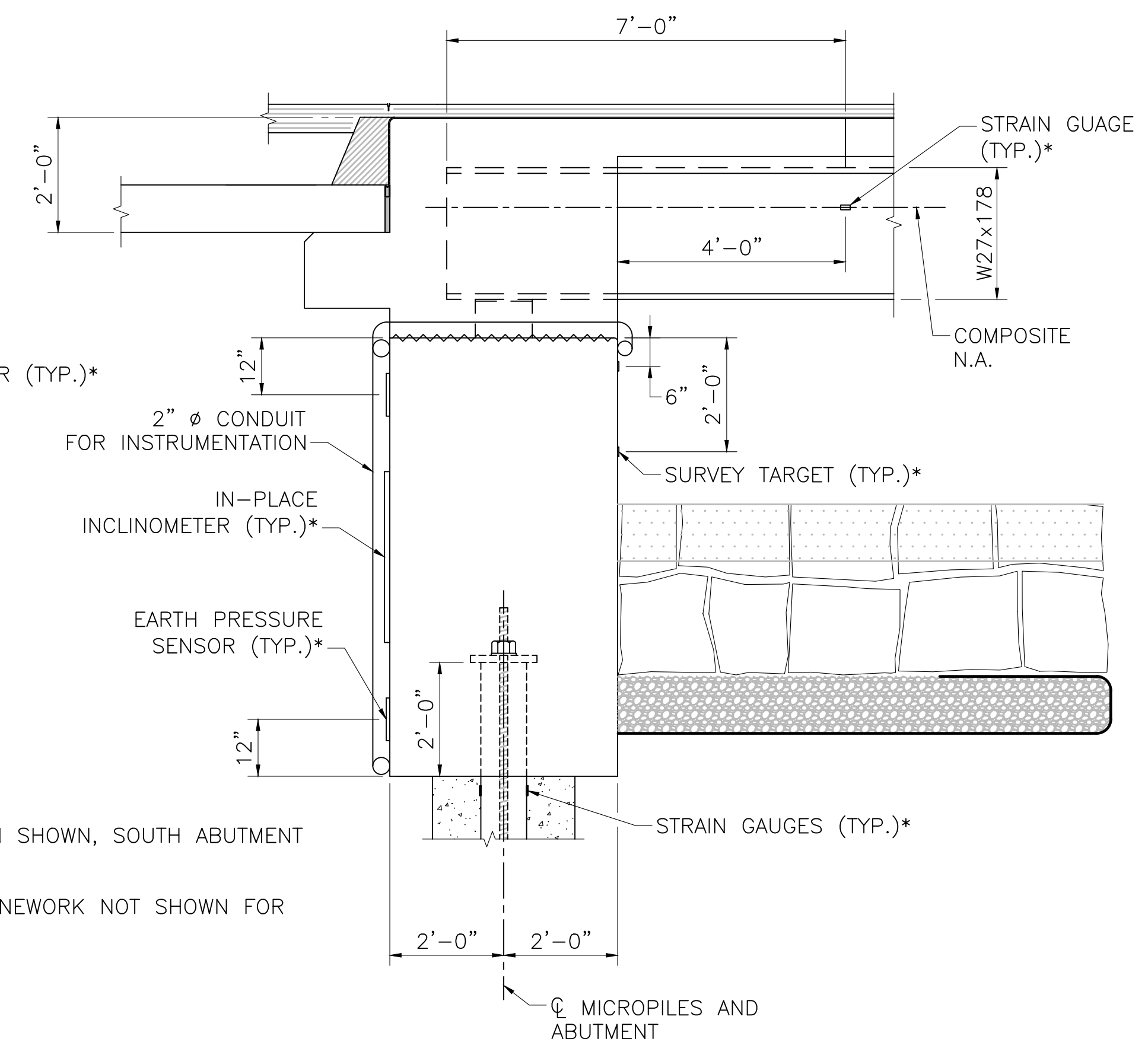
- SEE SPECIAL PROVISIONS 995.012 FOR FURTHER DETAILS ON INSTRUMENTATION.
- * DENOTES INSTRUMENTATION TO BE PROVIDED AND INSTALLED BY MASSDOT.
- TO PROPERLY INSTALL THE INSTRUMENTATION SYSTEM, MASSDOT WILL REQUIRE MULTIPLE INSTALLATION WINDOWS DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE SUFFICIENT TIME AND PROPER ACCESS FOR INSTALLATION. COORDINATION WITH MASSDOT WILL BE REQUIRED AND A MINIMUM OF 48 HOURS NOTICE SHALL BE PROVIDED PRIOR TO EACH INSTALLATION WINDOW. REFER TO SPECIAL PROVISIONS FOR DESCRIPTIONS OF EACH INSTALLATION WINDOW.
- STRAIN GAUGES ON THE BEAMS SHALL BE ADHERED TO THE INTERIOR OF THE WEB AND POSITIONED AT THE COMPOSITE NEUTRAL AXIS. GAUGES SHALL BE POSITIONED PARALLEL TO THE LONGITUDINAL AXIS OF THE BEAM.
- CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE INSTRUMENTS AND CABLES. TIME DELAYS TO THE PROJECT DUE TO THE NEGLIGENT DAMAGE OF THE INSTRUMENTS BY THE CONTRACTOR'S CONSTRUCTION ACTIVITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SURVEY POST TO BE INSTALLED WEST OF NORTH ABUTMENT AND EAST OF SOUTH ABUTMENT. SOLAR PANELS AND DATA ACQUISITION HOUSING TO BE INSTALLED WEST SIDE OF EACH ABUTMENT.
- STEEL ANGLE MATERIAL SHALL BE AASHTO M270 GRADE 36 (MIN.), HOT-DIP GALVANIZED.
- PIPE STEEL SHALL CONFORM WITH ASTM A53 GR.B, HOT-DIP GALVANIZED.
- ALL CONCRETE PLACED FOR THE MONITORING PLAN SHALL BE 4000 HP.



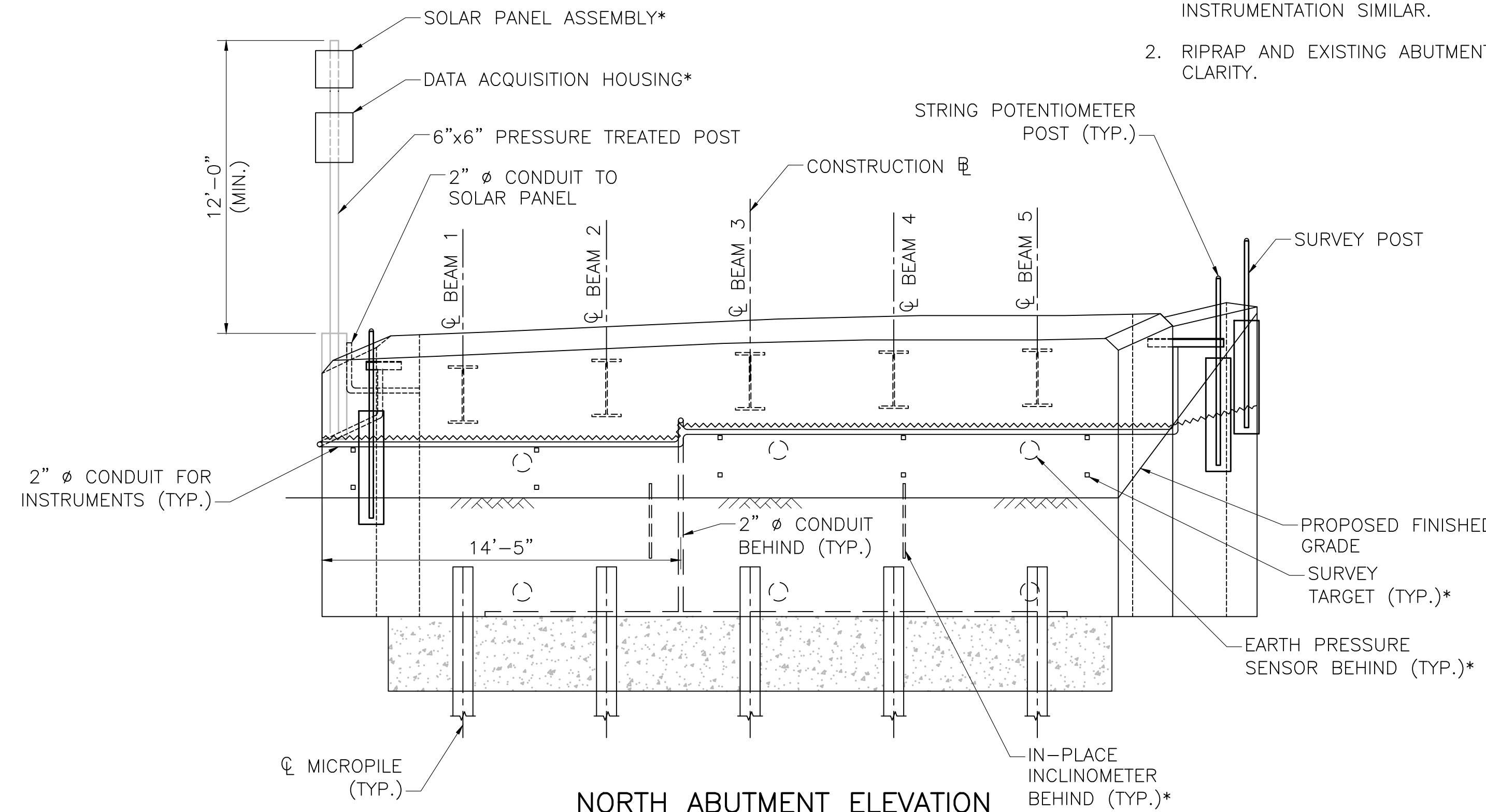
NORTH ABUTMENT PLAN
SCALE: 1/4" = 1'-0"

NOTES:

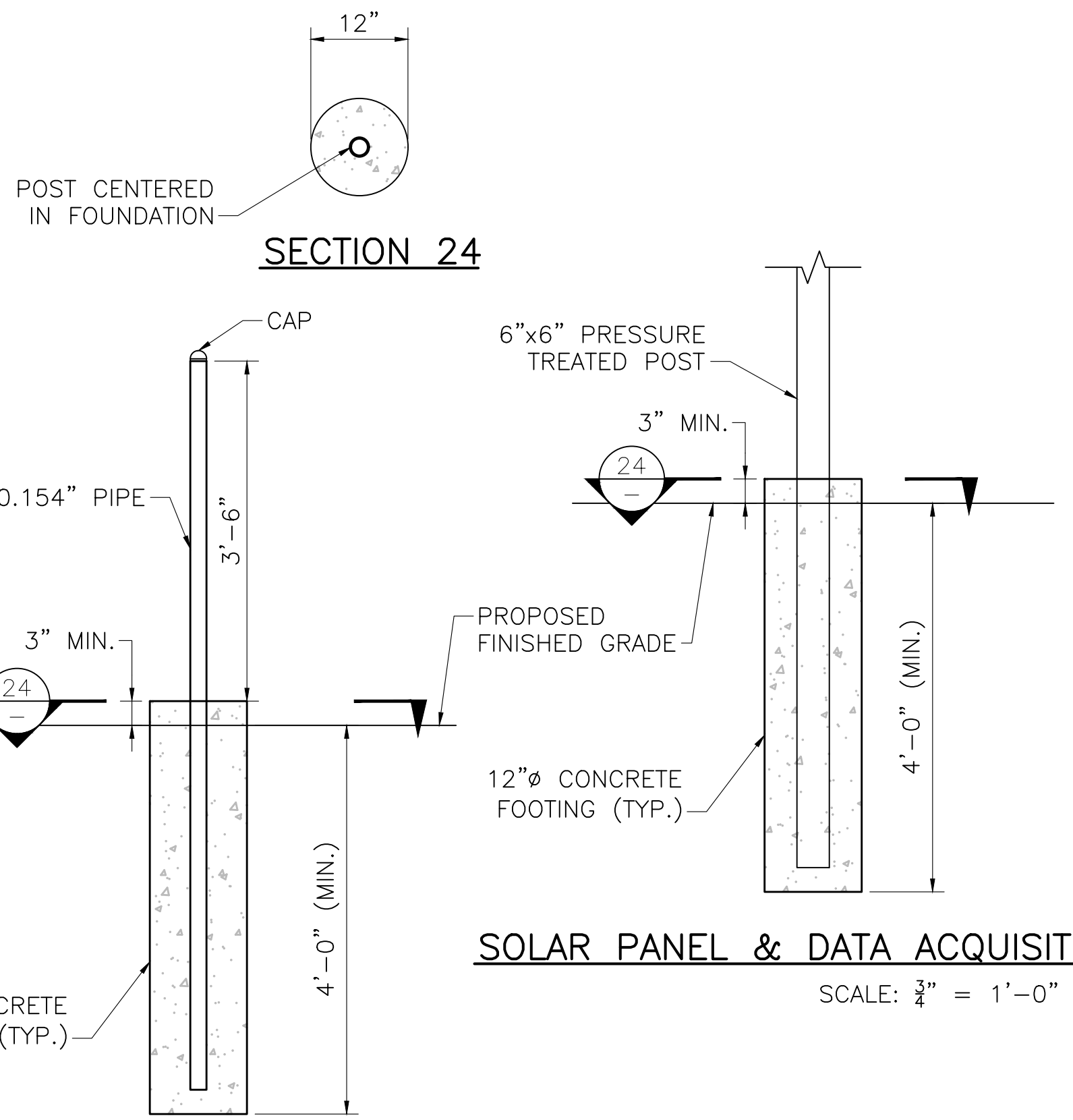
- NORTH ABUTMENT INSTRUMENTATION SHOWN, SOUTH ABUTMENT INSTRUMENTATION SIMILAR.
- RIPRAP AND EXISTING ABUTMENT LINEWORK NOT SHOWN FOR CLARITY.



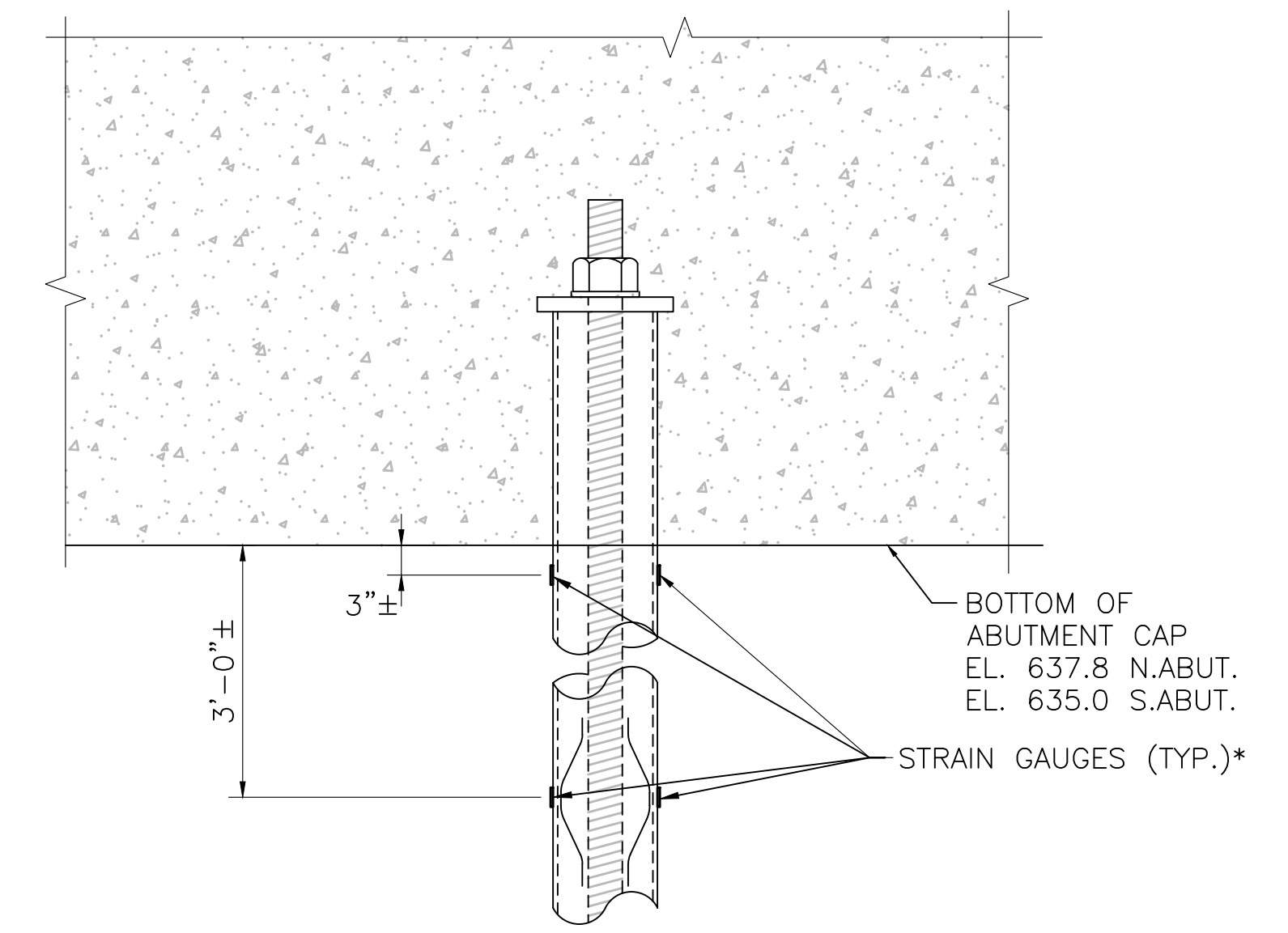
TYPICAL INTEGRAL ABUTMENT ROADWAY SECTION
SCALE: 1/2" = 1'-0"



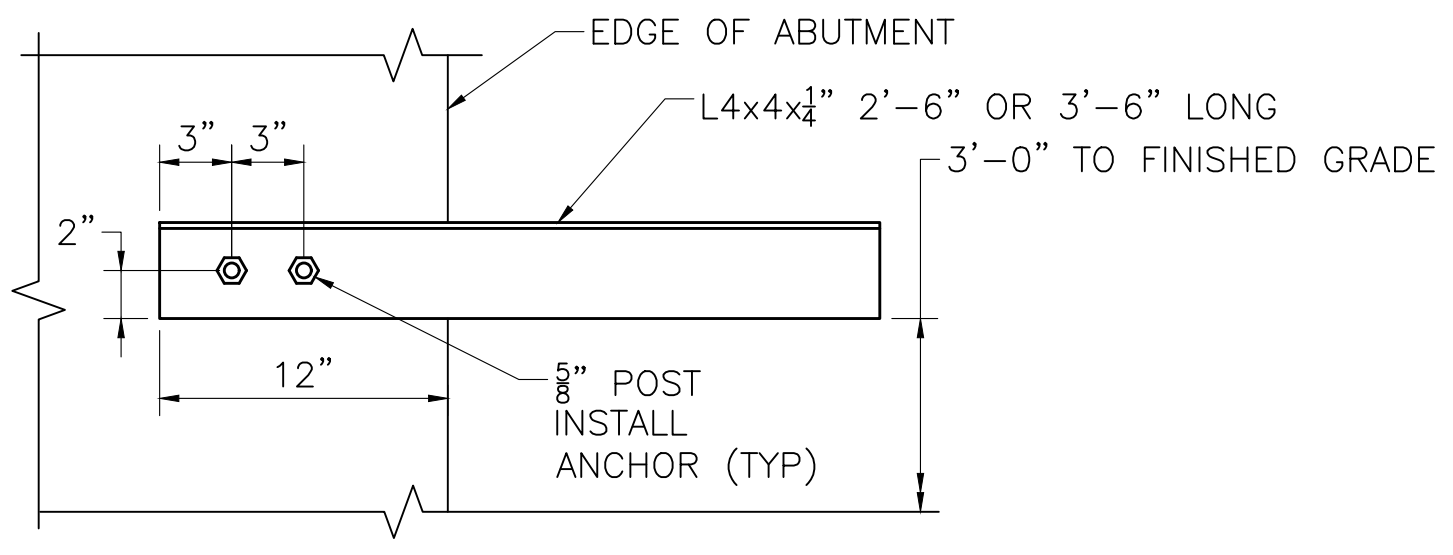
NORTH ABUTMENT ELEVATION
SCALE: 1/4" = 1'-0"



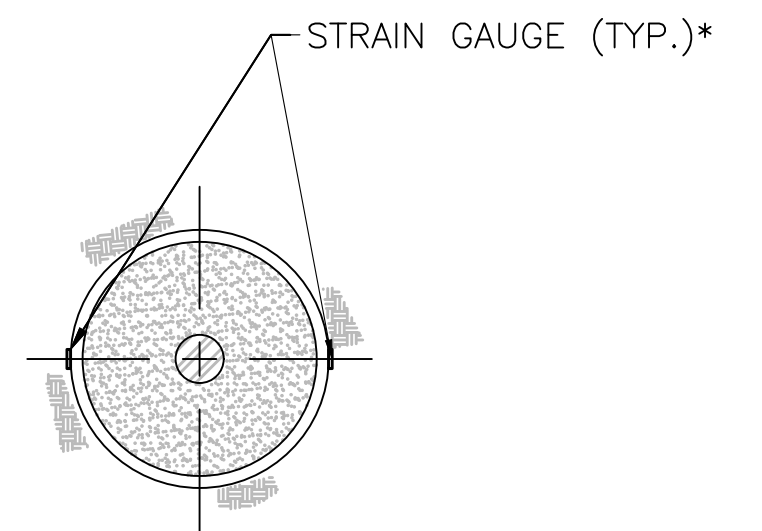
SURVEY & STRING POTENTIOMETER POST
SCALE: 3/4" = 1'-0"



STRAIN GAUGE LOCATIONS ON MICROPILES
SCALE: 3/4" = 1'-0"



ANGLE ATTACHMENT DETAIL
SCALE: 1 1/2" = 1'-0"



SECTION AT MICROPILE STRAIN GAUGES
SCALE: 1 1/2" = 1'-0"

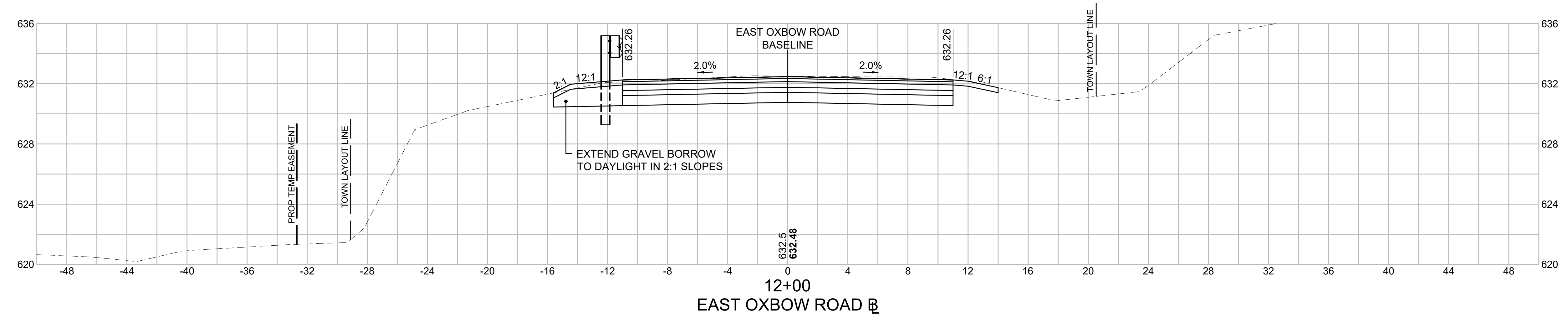
DATE	DESCRIPTION
FEBRUARY 17, 2024	ISSUED FOR CONSTRUCTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

608858_BR27(C05042).DWG Plotted on 15-Jan-2024 5:25 PM 13-September-2023 Final Structural Submittal (SF)

**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	47	55
PROJECT FILE NO.		608858	

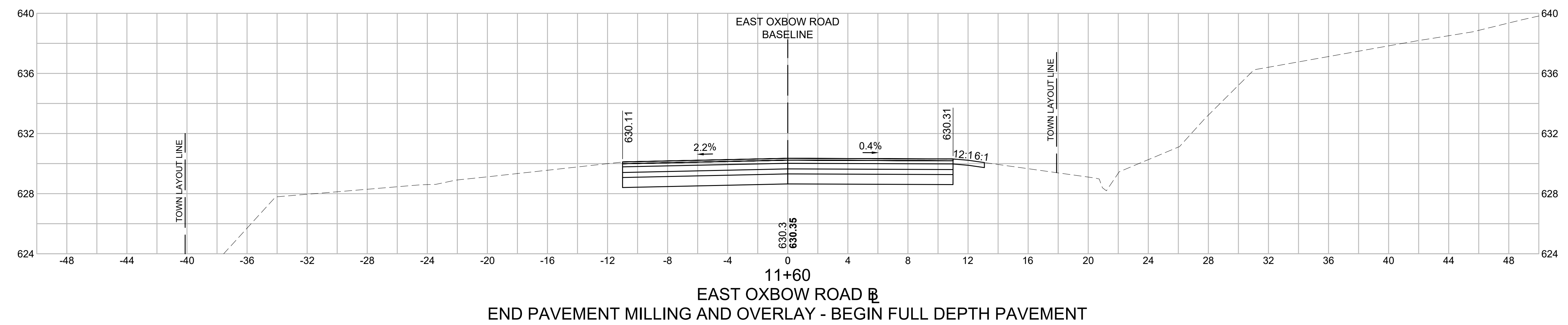
CROSS SECTIONS - 1



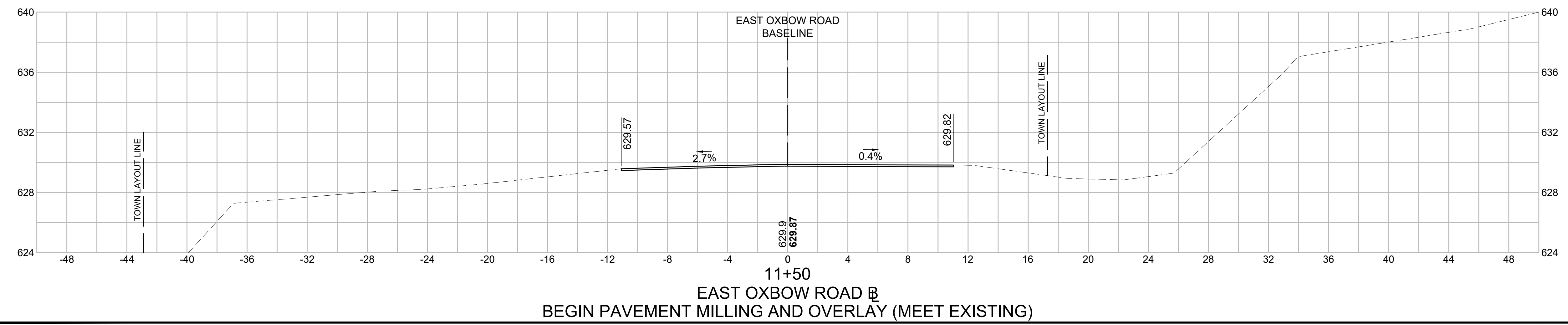
CUT: 45.71 SF
FILL: 0.00 SF



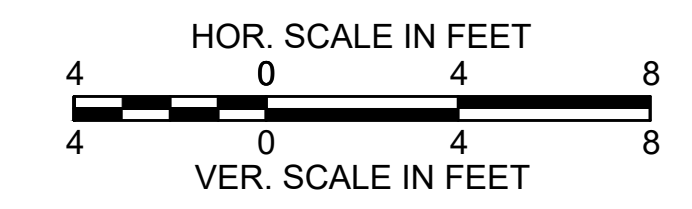
CUT: 39.92 SF
FILL: 0.00 SF



CUT: 38.12 SF
FILL: 0.00 SF



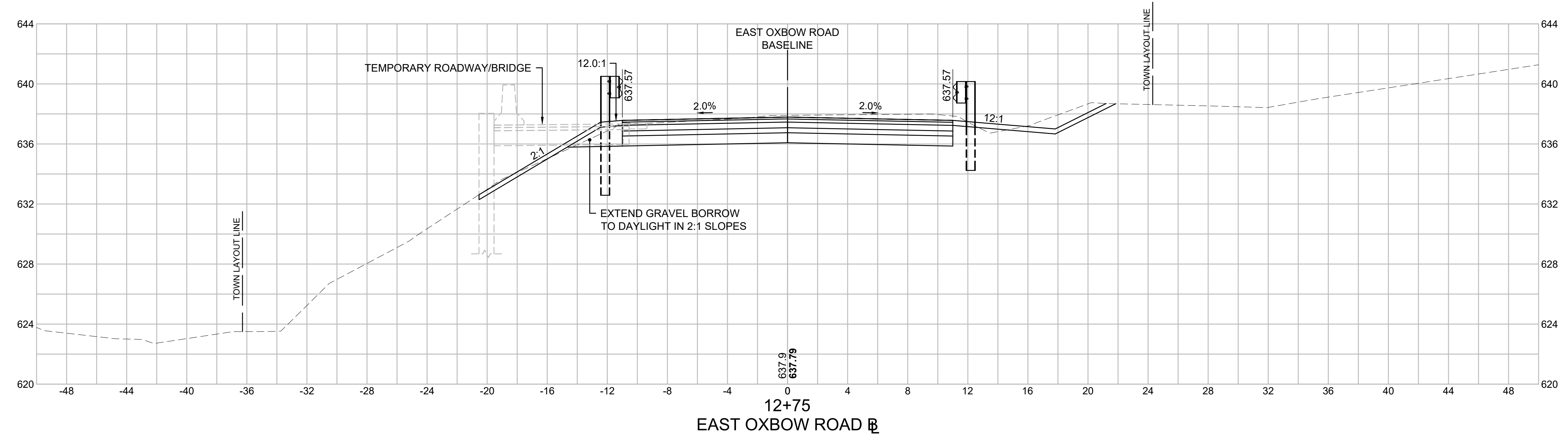
CUT: 0.00 SF
FILL: 0.00 SF



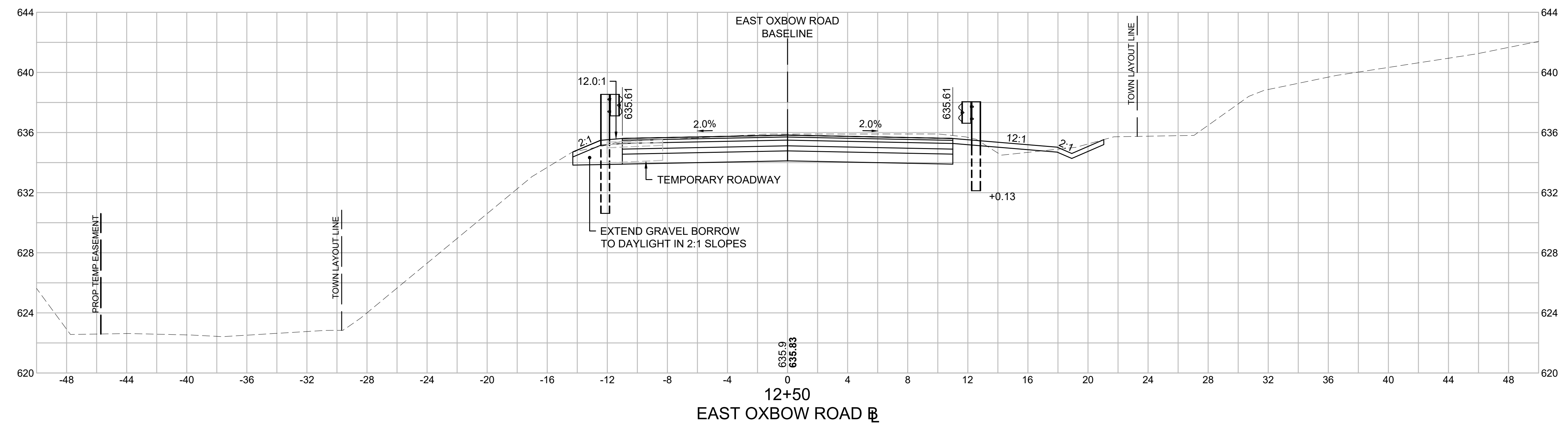
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	48	55
PROJECT FILE NO.		608858	

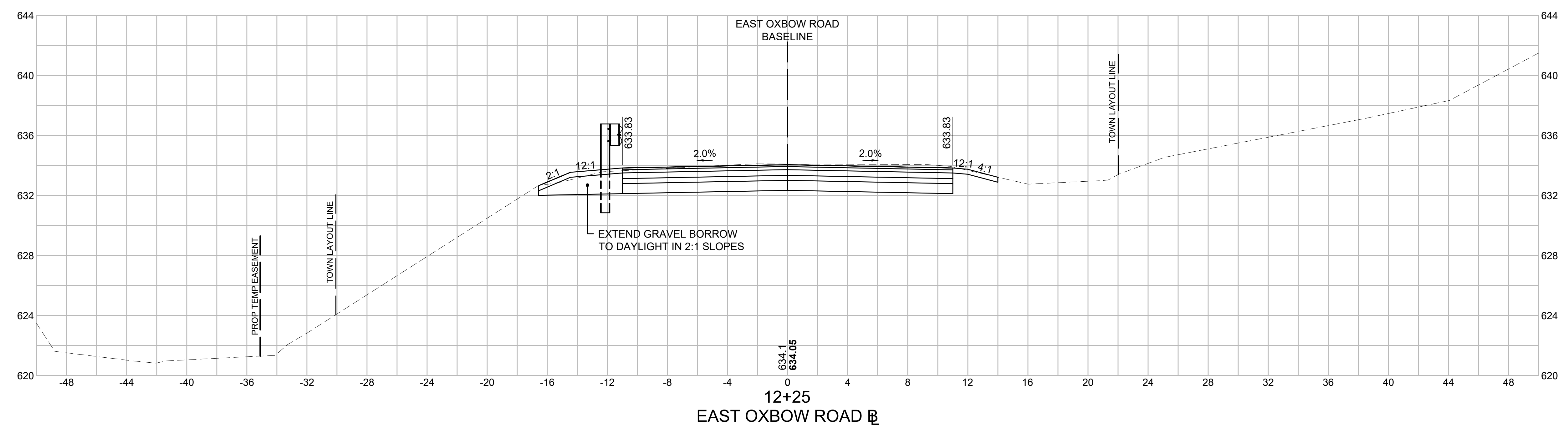
CROSS SECTIONS - 2



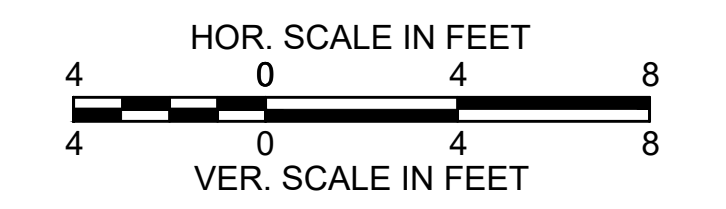
CUT: 64.94 SF
FILL: 0.30 SF



CUT: 45.6 SF
FILL: 0.93 SF



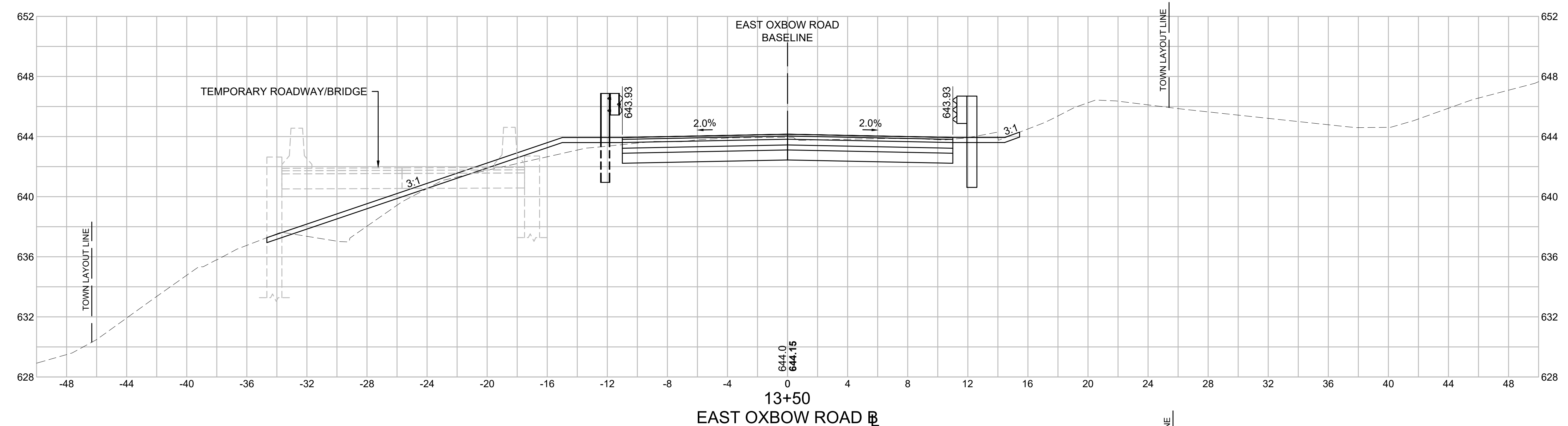
CUT: 46.04 SF
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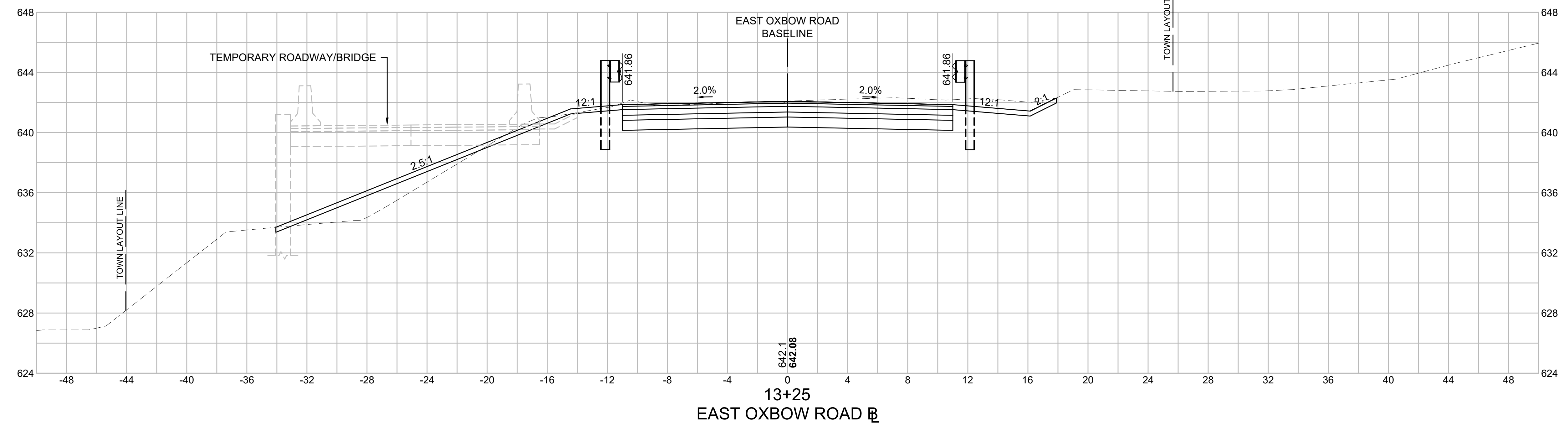
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	49	55
PROJECT FILE NO.		608858	

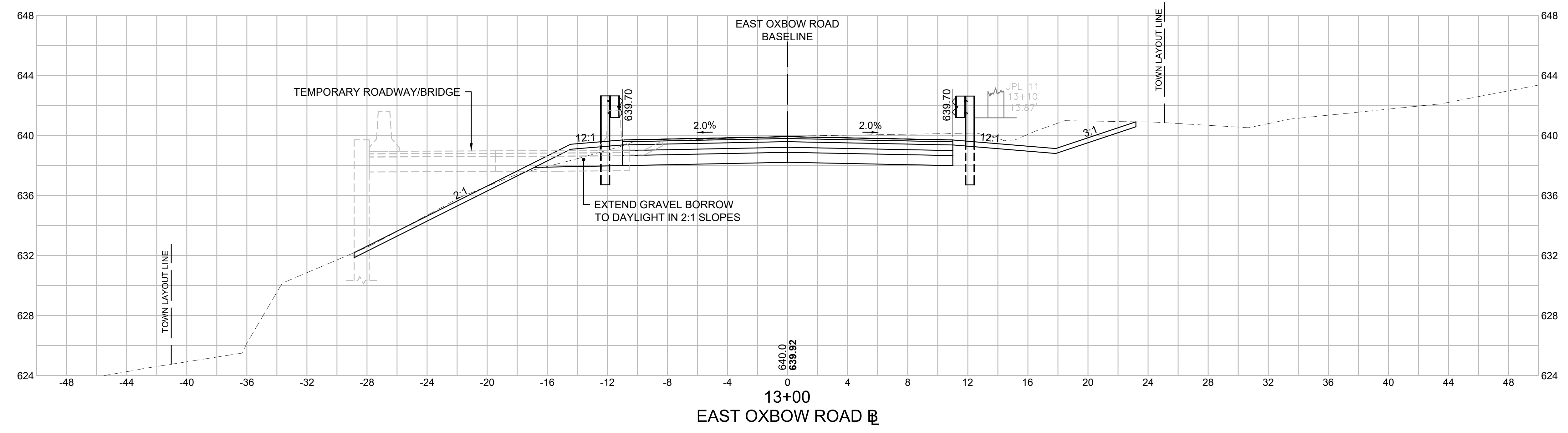
CROSS SECTIONS - 3



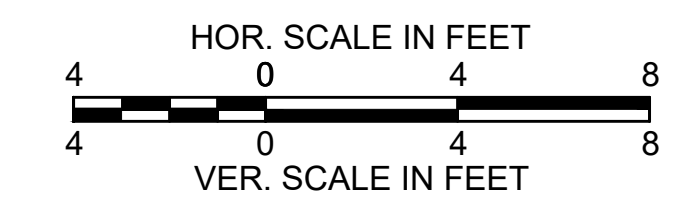
CUT: 72.17 SF
FILL: 9.94 SF



CUT: 106.0 SF
FILL: 0.00 SF



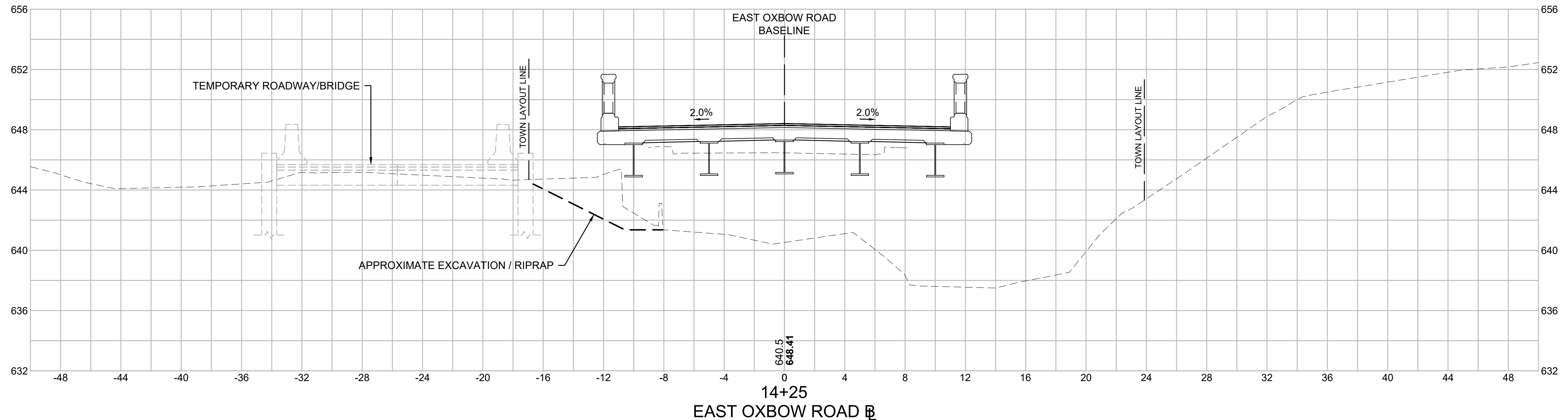
CUT: 102.6 SF
FILL: 1.98 SF



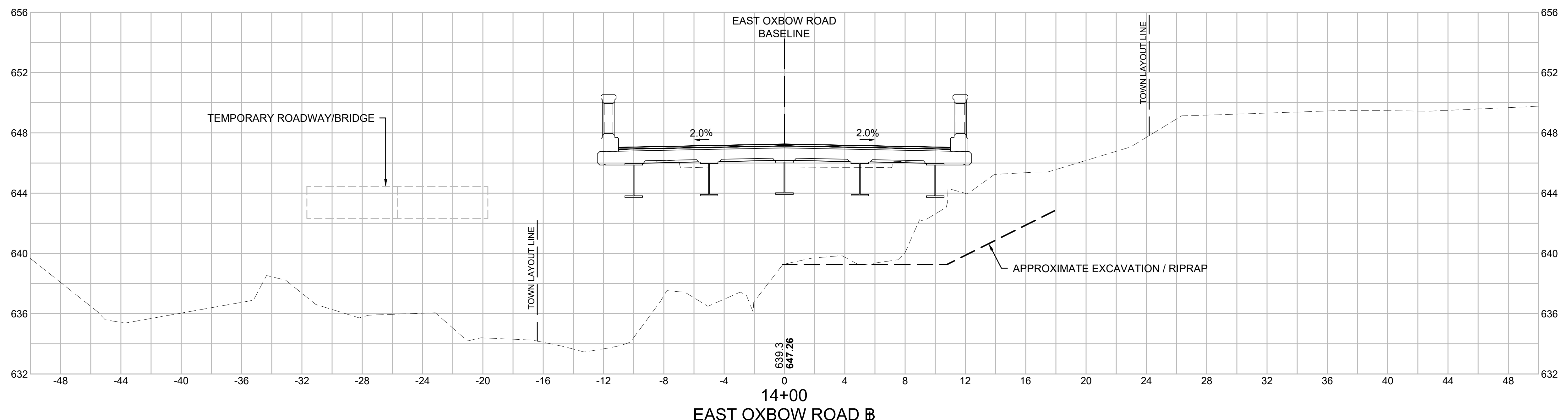
**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	50	55
PROJECT FILE NO.		608858	

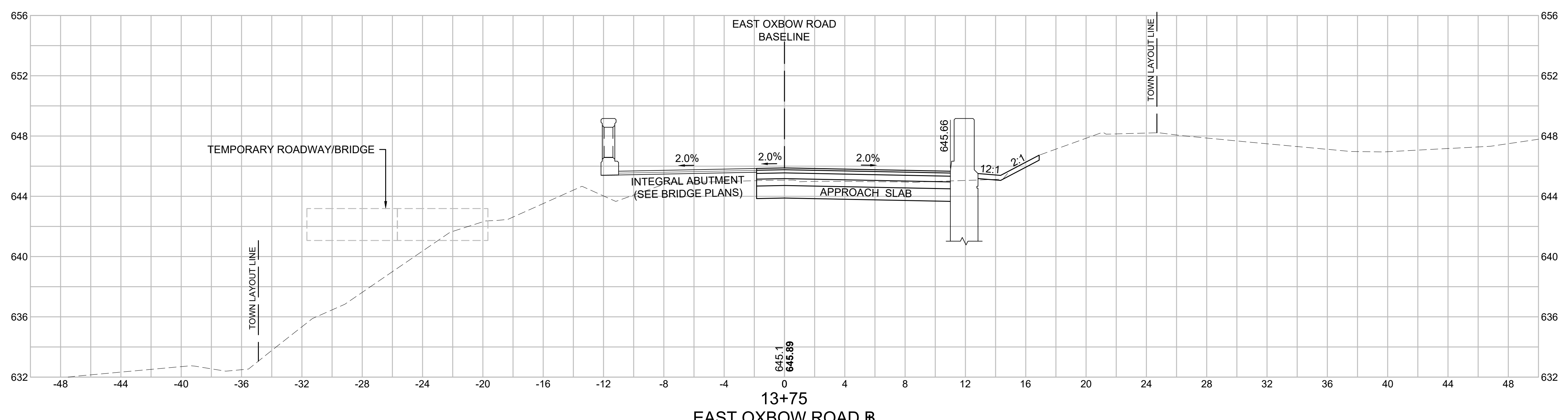
CROSS SECTIONS - 4



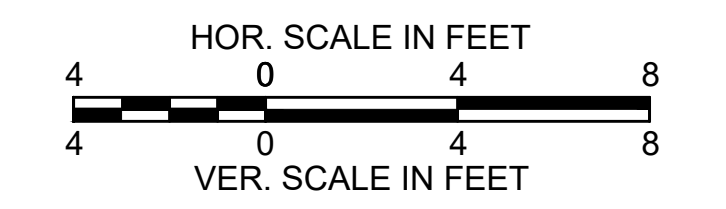
**14+25
EAST OXBOW ROAD**



**14+00
EAST OXBOW ROAD**



**13+75
EAST OXBOW ROAD**



**CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK**

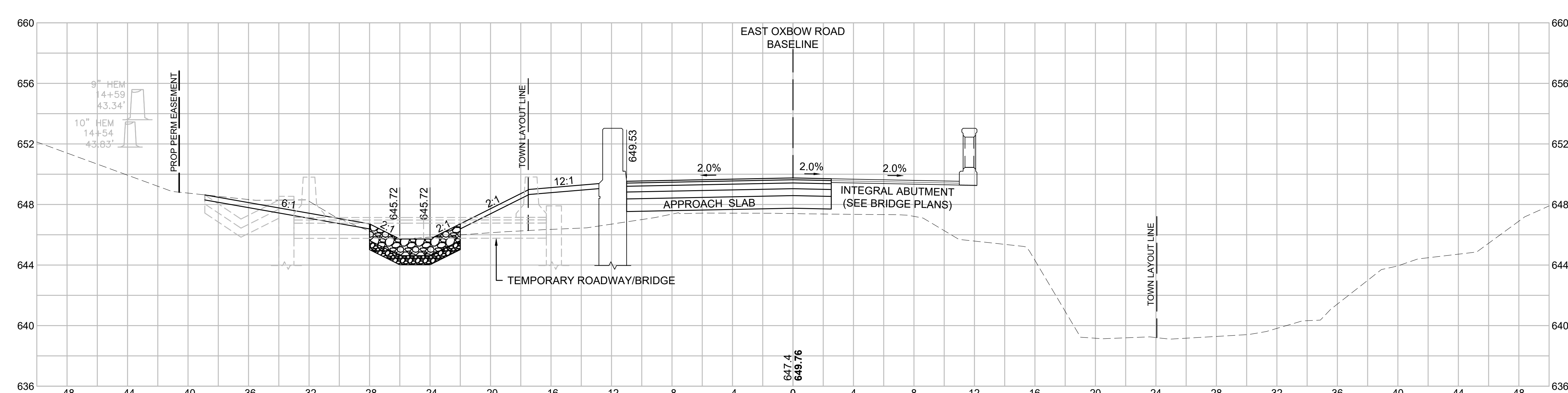
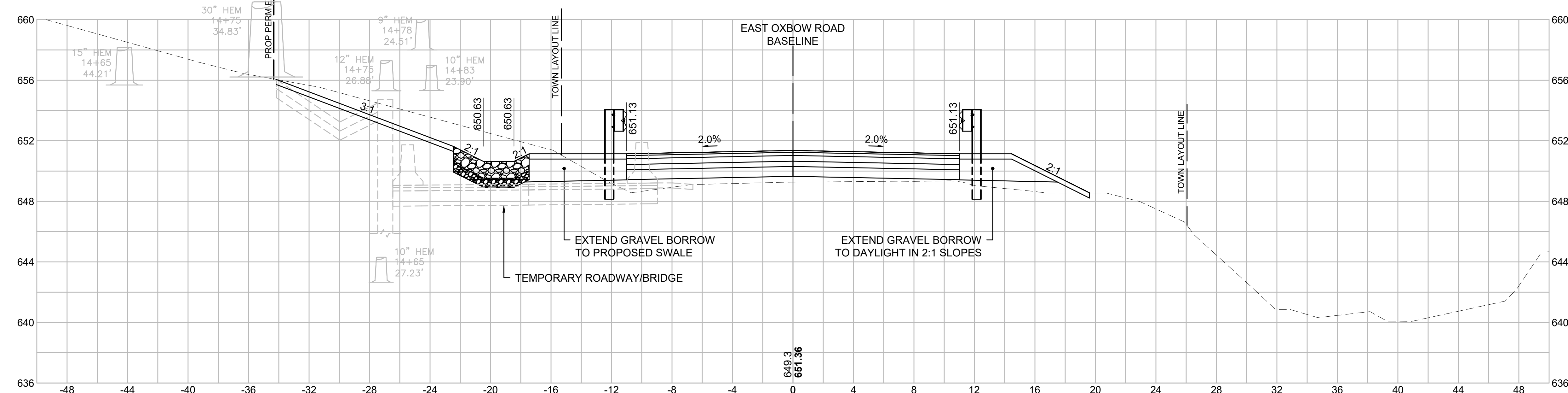
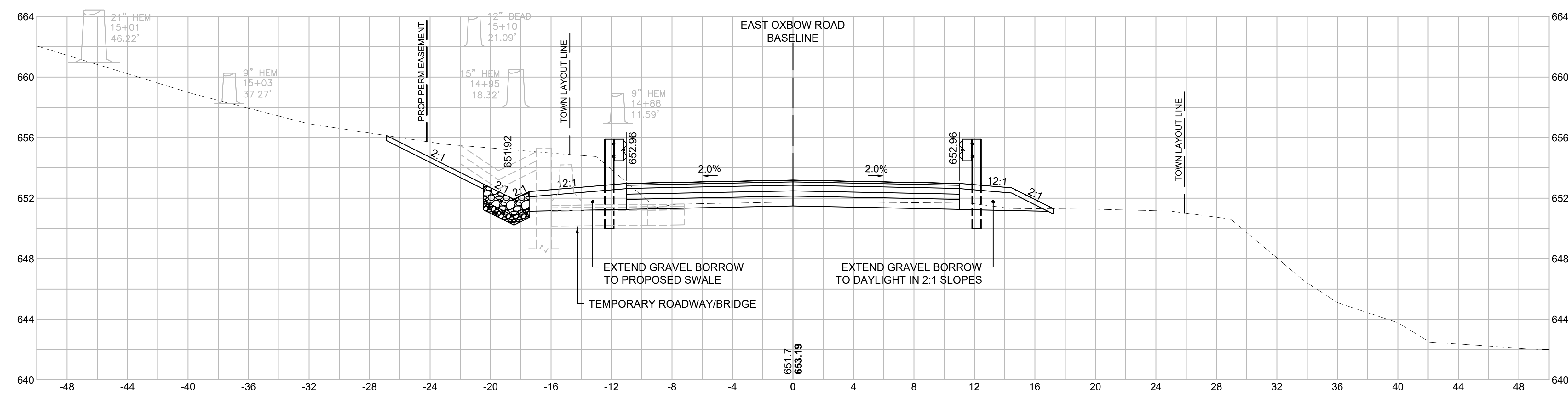
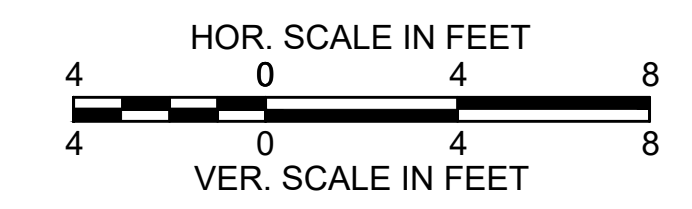
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	51	55
PROJECT FILE NO. 608858			

CROSS SECTIONS - 5

CUT: 41.36 SF
FILL: 10.1 SF

CUT: 32.99 SF
FILL: 62.51 SF

CUT: 37.41 SF
FILL: 38.17 SF



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

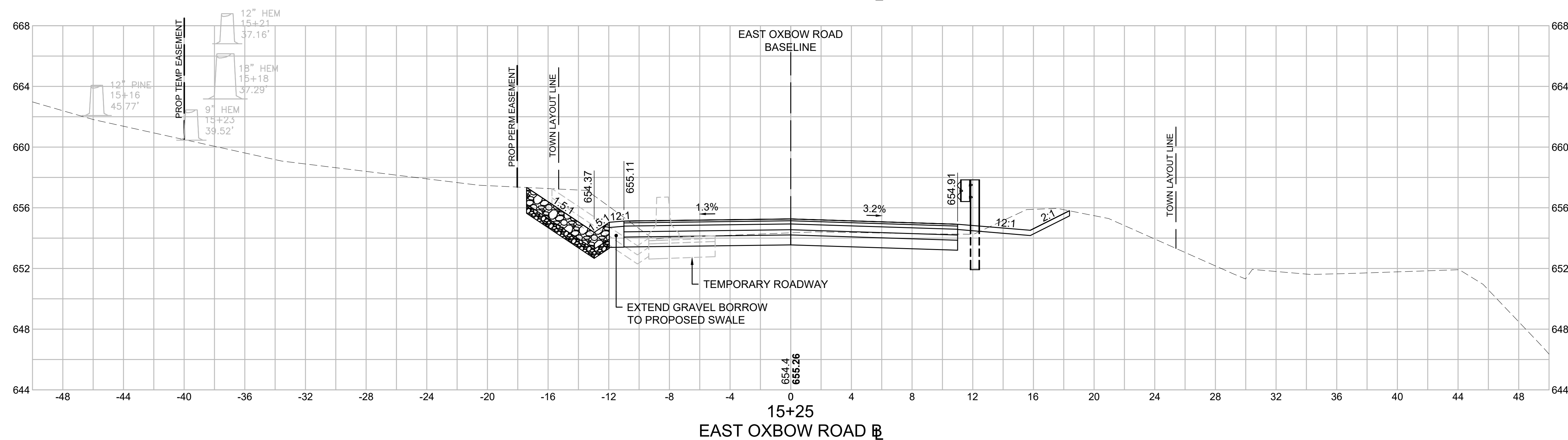
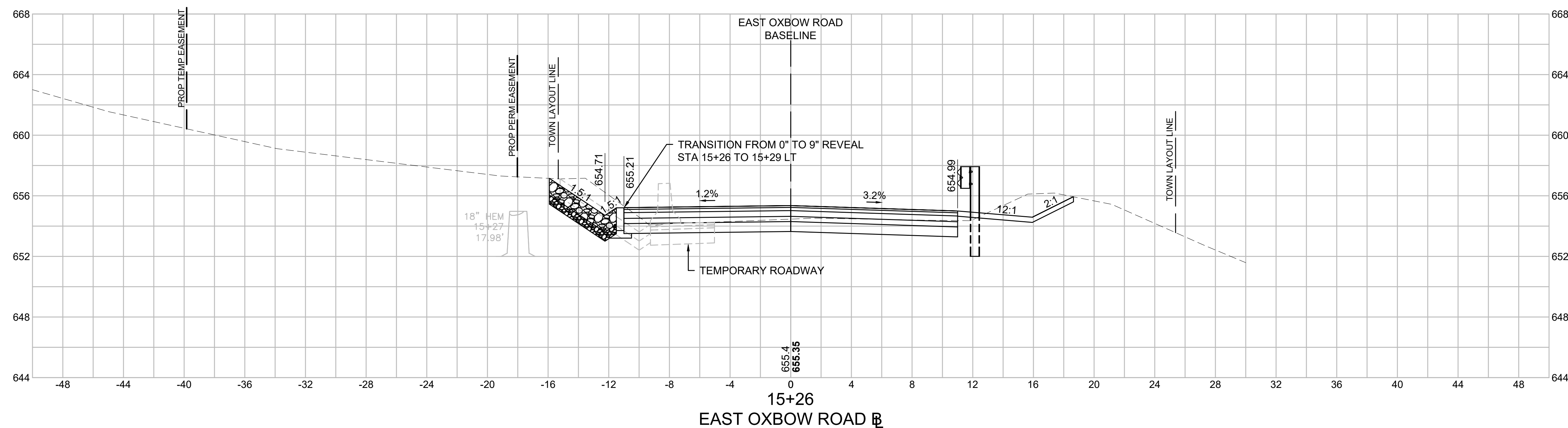
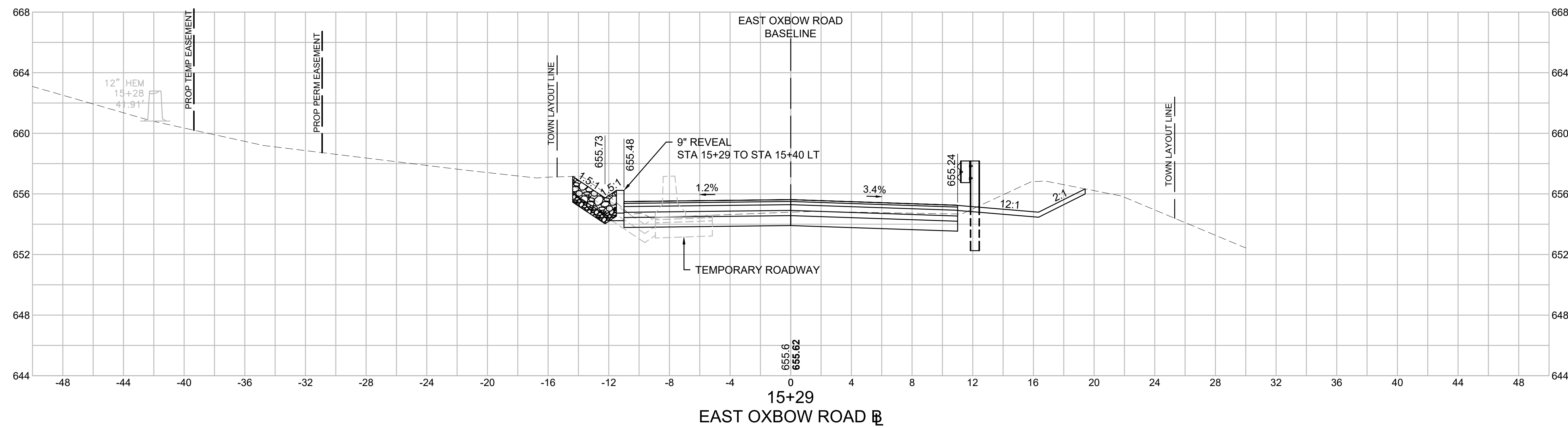
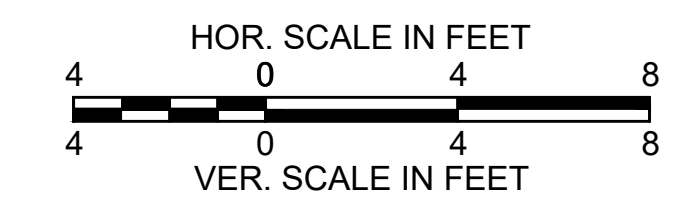
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	52	55
PROJECT FILE NO.		608858	

CROSS SECTIONS - 6

CUT: 39.04 SF
FILL: 4.13 SF

CUT: 39.14 SF
FILL: 4.59 SF

CUT: 42.78 SF
FILL: 5.20 SF



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

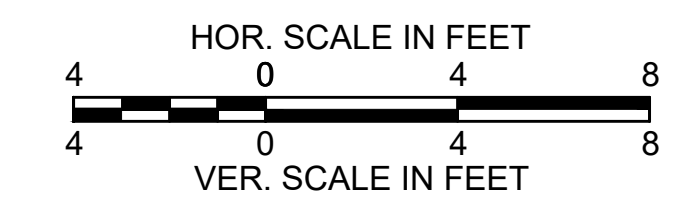
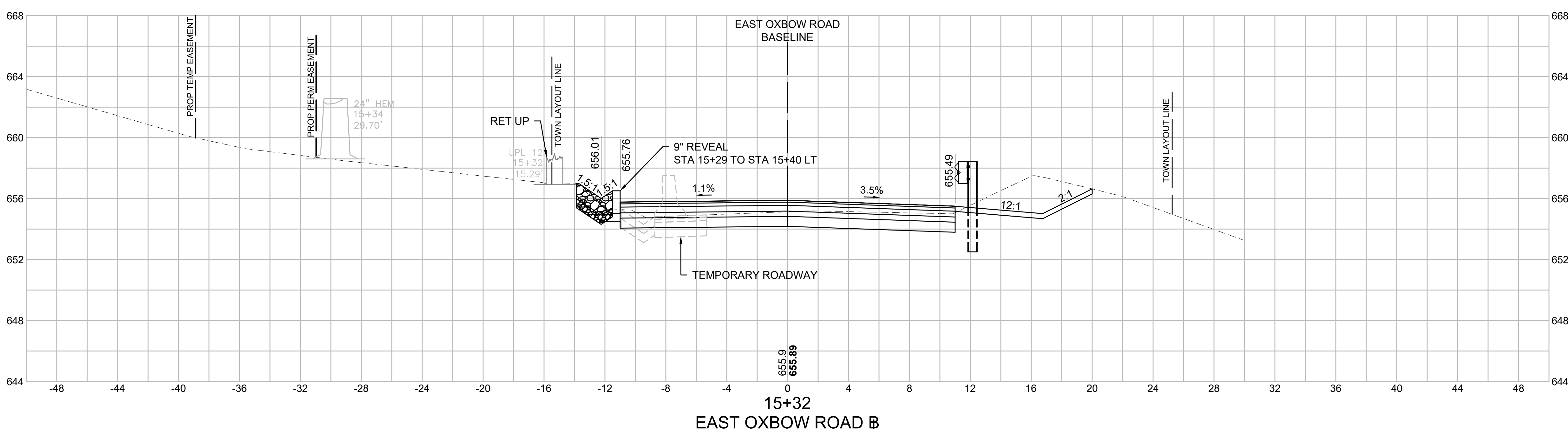
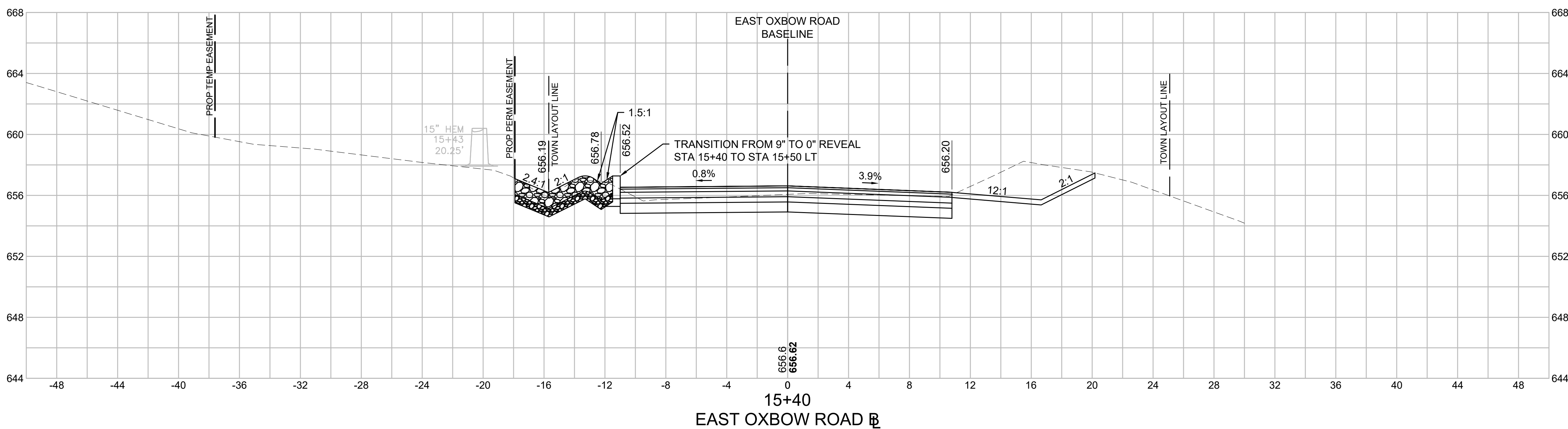
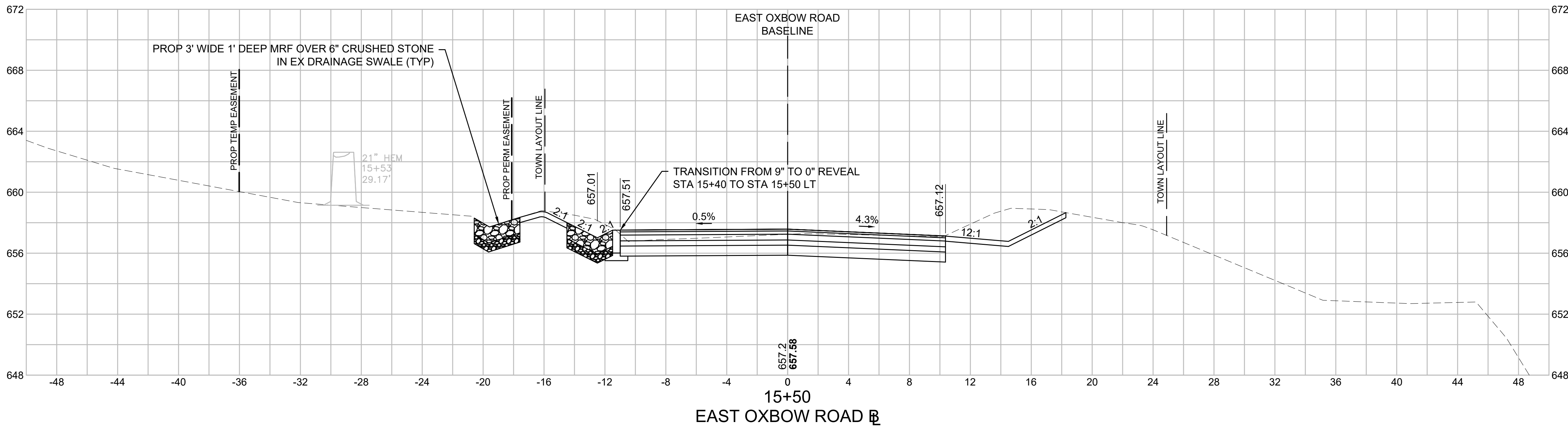
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	53	55
PROJECT FILE NO.		608858	

CROSS SECTIONS - 7

CUT: 55.86 SF
FILL: 0.00 SF

CUT: 50.90 SF
FILL: 0.00 SF

CUT: 41.82 SF
FILL: 3.25 SF



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

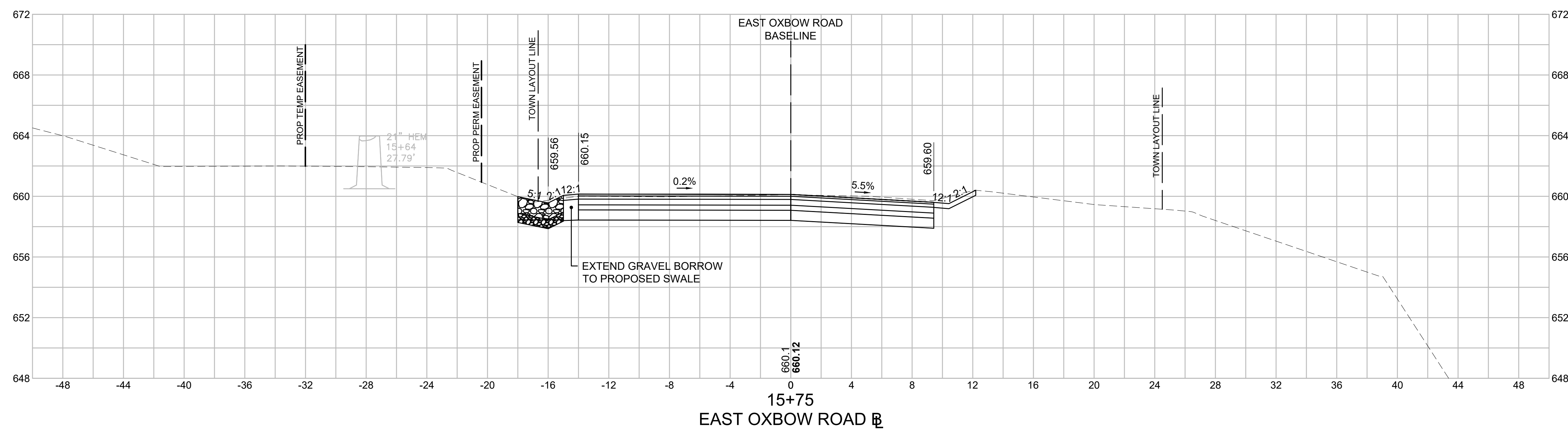
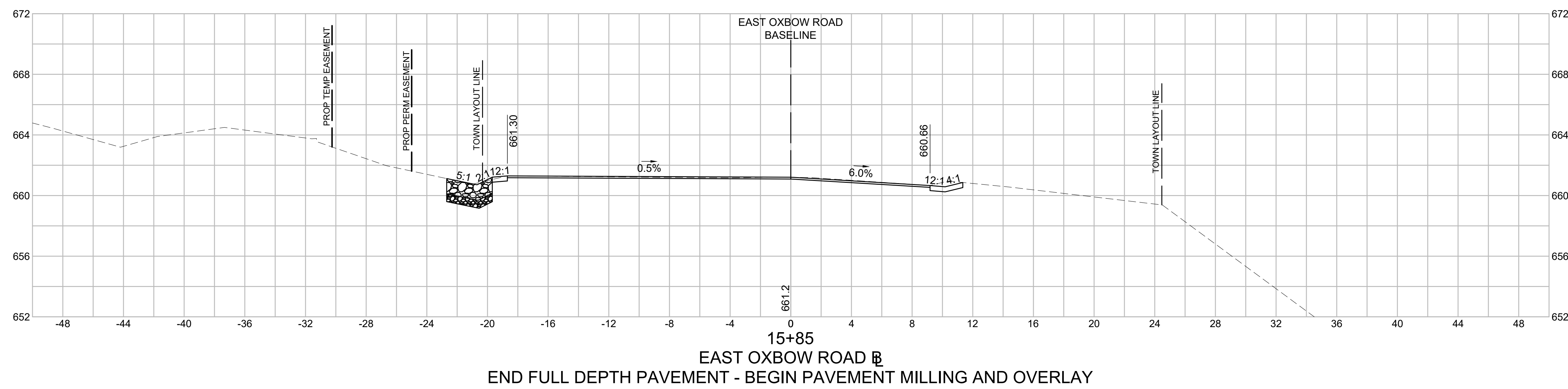
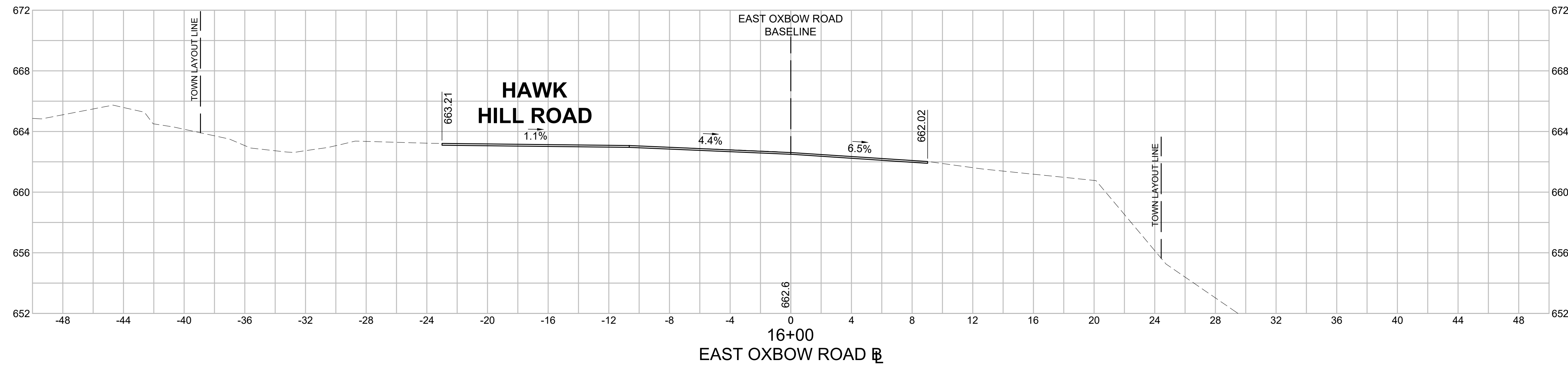
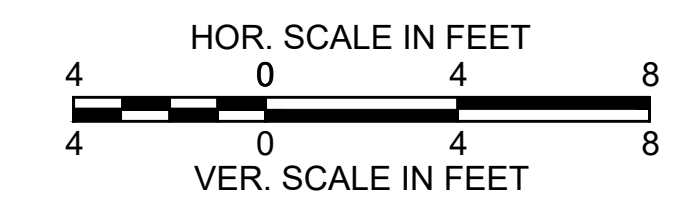
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	54	55
PROJECT FILE NO.		608858	

CROSS SECTIONS - 8

CUT: 0.00 SF
FILL: 0.00 SF

CUT: 6.01 SF
FILL: 0.00 SF

CUT: 47.48 SF
FILL: 0.00 SF



CHARLEMONT
EAST OXBOW ROAD OVER OXBOW BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(716)X	55	55
PROJECT FILE NO.		608858	

CROSS SECTIONS - 9

