

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF
ROUTE 129 (LOWELL STREET)
(BRIDGE NO. W-38-029 (2KV))

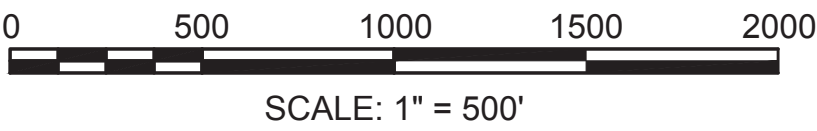
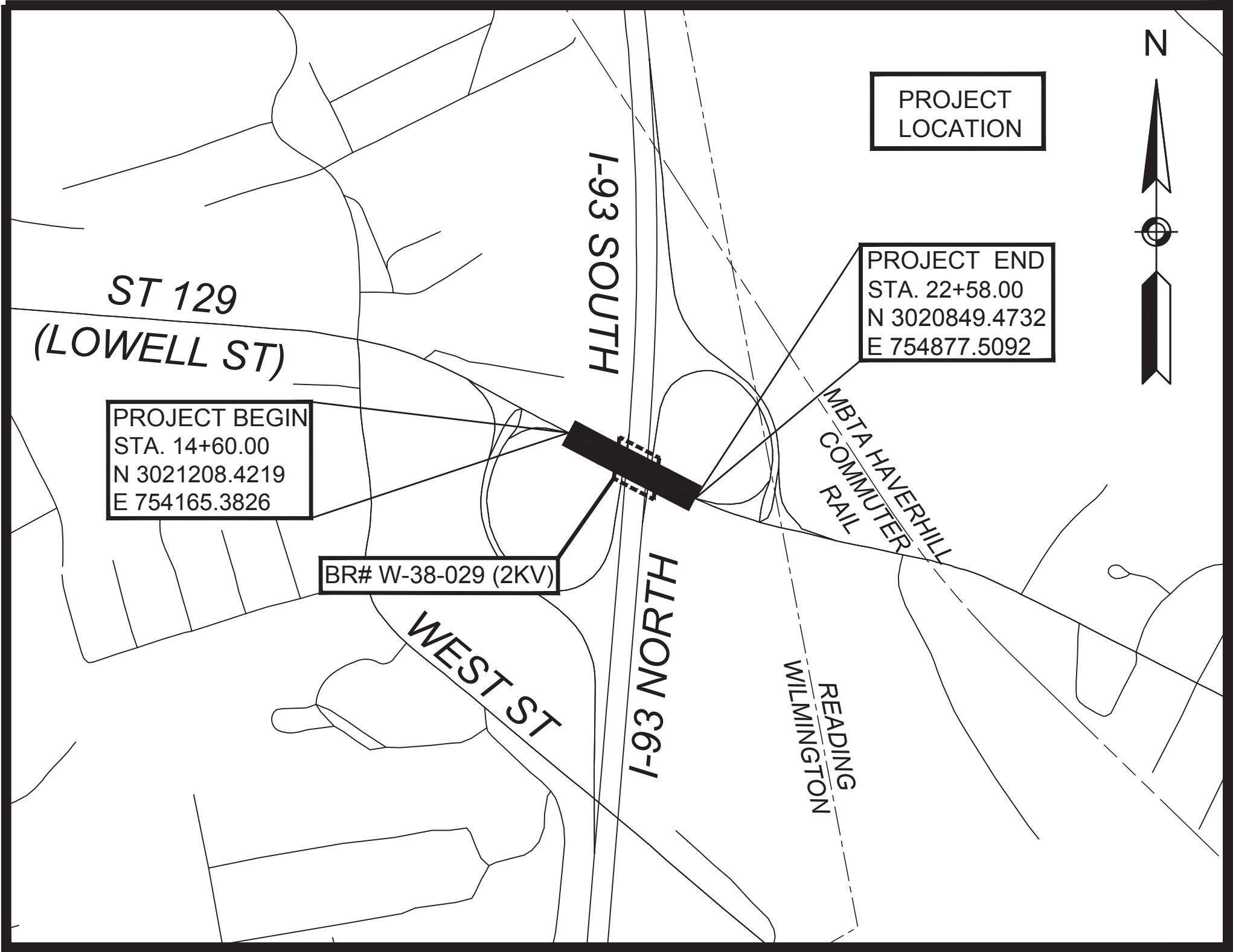
IN THE TOWN OF
WILMINGTON, MA
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. NHP(BRR-ON)/HIP(BR)-0034(029)X

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	1	96
PROJECT FILE NO.		608703	
TITLE SHEET & INDEX			

THESE PLANS ARE SUPPLEMENTED BY THE LATEST EDITIONS OF THE FOLLOWING PUBLICATIONS, AS IDENTIFIED IN THE CONTRACT SPECIAL PROVISIONS: THE MASSDOT CONSTRUCTION STANDARD DETAILS, THE MASSDOT STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE MASSDOT STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, THE MASSDOT OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, THE MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, AND THE ANSI AMERICAN STANDARD FOR NURSERY STOCK.

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LENGTH OF PROJECT = 798.00 FEET = 0.151 MILES

DESIGN DESIGNATION (ROUTE 129 (LOWELL STREET))

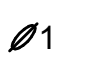
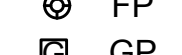
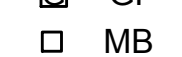
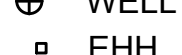
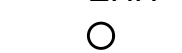
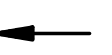
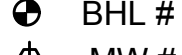
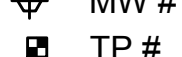
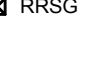
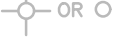
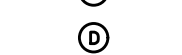
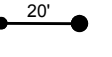
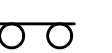
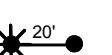
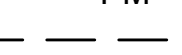
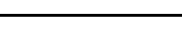
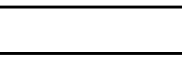
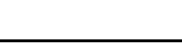
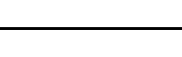
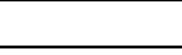
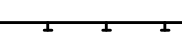
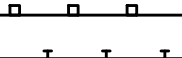
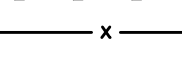
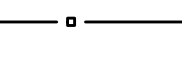
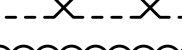
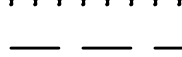
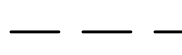
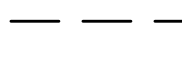
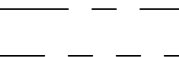
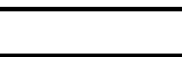
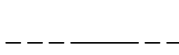
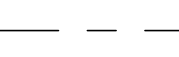
DESIGN SPEED	45 MPH
ADT (2024)	22,926
ADT (2044)	30,332
K	8.7%
D	60% EB
T (PEAK HOUR)	1.6%
T (AVERAGE DAY)	4.1%
DHV	2,639
DDHV	1,582
FUNCTIONAL CLASSIFICATION	Urban Principal Arterial



Ko Ishikura

Green International Affiliates, Inc.
A Lochner Company
100 Ames Pond Drive, Suite 200, Tewksbury, MA 01876

DATE	DESCRIPTION	REV #
APPROVED		
Carrie Lavallee, P.E.	Carrie Lavallee, P.E. 2025.09.02 11:17:17 -04'00"	09/02/2025
CHIEF ENGINEER		DATE

GENERAL SYMBOLS			TRAFFIC SYMBOLS			ABBREVIATIONS		
EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	GENERAL	WILMINGTON ROUTE 129 (LOWELL STREET)	
 JB	 JB	JERSEY BARRIER	 CB	 CB	CATCH BASIN	AADT	ANNUAL AVERAGE DAILY TRAFFIC	
 CB	 CB	CATCH BASIN CURB INLET	 FP	 FP	FLAG POLE	ABAN	ABANDON	
 GP	 GP	GAS PUMP	 MB	 MB	MAIL BOX	ADJ	ADJUST	
 MB	 MB	POST SQUARE	 PP	 PP	POST CIRCULAR	APPROX.	APPROXIMATE	
 Well	 Well	WELL	 EHH	 EHH	ELECTRIC HANDHOLE	A.C.	ASPHALT CONCRETE	
 EHH	 EHH	FENCE GATE POST	 GG	 GG	GAS GATE	ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE	
 GG	 GG	BORING HOLE	 BHL #	 BHL #	MONITORING WELL	BIT.	BITUMINOUS	
 BHL #	 BHL #	TEST PIT	 TP #	 TP #	HYDRANT	BC	BOTTOM OF CURB	
 MW #	 MW #	LIGHT POLE	 *	 *	LIGHT POLE	BD.	BOUND	
 TP #	 TP #	COUNTY BOUND	 RRS	 RRS	RAILROAD SIGNAL	BL	BASELINE	
 CO.BD.	 CO.BD.	GPS POINT	 OR	 OR	SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)	BLDG	BUILDING	
 C	 C	CABLE MANHOLE	 20'	 20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)	BM	BENCHMARK	
 D	 D	DRAINAGE MANHOLE	 H	 H	HIGH MAST POLE OR TOWER	BO	BY OTHERS	
 E	 E	ELECTRIC MANHOLE	 S	 S	SIGN AND POST	BOS	BOTTOM OF SLOPE	
 G	 G	GAS MANHOLE	 S	 S	SIGN AND POST (2 POSTS)	BR.	BRIDGE	
 M	 M	MISC MANHOLE	 * 20'	 * 20'	MAST ARM WITH LUMINAIRE	CB	CATCH BASIN	
 S	 S	SEWER MANHOLE	 O	 O	OPTICAL PRE-EMPTION DETECTOR	CBCI	CATCH BASIN WITH CURB INLET	
 T	 T	TELEPHONE MANHOLE	 C	 C	CONTROL CABINET, GROUND MOUNTED	CC	CEMENT CONCRETE	
 W	 W	WATER MANHOLE	 C	 C	CONTROL CABINET, POLE MOUNTED	CCM	CEMENT CONCRETE MASONRY	
 MHB	 MHB	MASSACHUSETTS HIGHWAY BOUND	 L	 L	LOAD CENTER ASSEMBLY	CEM	CEMENT	
 MON	 MON	MONUMENT	 P	 P	PULL BOX 12"x12" (OR AS NOTED)	CI	CURB INLET	
 SB	 SB	STONE BOUND	 E	 E	ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)	CIP	CAST IRON PIPE	
 TB	 TB	TOWN OR CITY BOUND	 ---	 ---	TRAFFIC SIGNAL CONDUIT	CLF	CHAIN LINK FENCE	
 Δ	 Δ	TRAVERSE OR TRIANGULATION STATION				CL	CENTERLINE	
 TPL or GUY	 TPL or GUY	TROLLEY POLE OR GUY POLE				CMP	CORRUGATED METAL PIPE	
 HTP	 HTP	TRANSMISSION POLE				CSP	CORRUGATED STEEL PIPE	
 UFB	 UFB	UTILITY POLE W/ FIREBOX				CO.	COUNTY	
 UPDL	 UPDL	UTILITY POLE WITH DOUBLE LIGHT				CONC	CONCRETE	
 ULT	 ULT	UTILITY POLE W / 1 LIGHT				CONT	CONTINUOUS	
 UPL	 UPL	UTILITY POLE				CONST	CONSTRUCTION	
 BUSH	 BUSH	BUSH				CR GR	CROWN GRADE	
 TREE	 TREE	TREE				DHV	DESIGN HOURLY VOLUME	
 STUMP	 STUMP	STUMP				DI	DROP INLET	
 SWAMP / MARSH	 SWAMP / MARSH	SWAMP / MARSH				DIA	DIAMETER	
 WG	 WG	WATER GATE				DIP	DUCTILE IRON PIPE	
 PM	 PM	PARKING METER				DMH	DRAIN MANHOLE	
 OVERHEAD CABLE/WIRE	 OVERHEAD CABLE/WIRE	OVERHEAD CABLE/WIRE				DW	STEADY DON'T WALK - PORTLAND ORANGE	
 CURBING	 CURBING	CURBING				DWY	DRIVEWAY	
 CONTOURS (ON-THE-GROUND SURVEY DATA)	 CONTOURS (ON-THE-GROUND SURVEY DATA)	CONTOURS (ON-THE-GROUND SURVEY DATA)				ELEV (or EL.)	ELEVATION	
 CONTOURS (PHOTOGRAMMETRIC DATA)	 CONTOURS (PHOTOGRAMMETRIC DATA)	CONTOURS (PHOTOGRAMMETRIC DATA)				EMB	EMBANKMENT	
 UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)				EOP	EDGE OF PAVEMENT	
 UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)				EXIST (or EX)	EXISTING	
 UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)				EXC	EXCAVATION	
 UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)				F&C	FRAME AND COVER	
 UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)				F&G	FRAME AND GRATE	
 UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)	 UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)	UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)				FDN.	FOUNDATION	
 BALANCED STONE WALL	 BALANCED STONE WALL	BALANCED STONE WALL				FES	FLARED END SECTION	
 GUARD RAIL - STEEL POSTS	 GUARD RAIL - STEEL POSTS	GUARD RAIL - STEEL POSTS				FLDSTN	FIELDSTONE	
 GUARD RAIL - WOOD POSTS	 GUARD RAIL - WOOD POSTS	GUARD RAIL - WOOD POSTS				GAR	GARAGE	
 GUARD RAIL - DOUBLE FACE - STEEL POSTS	 GUARD RAIL - DOUBLE FACE - STEEL POSTS	GUARD RAIL - DOUBLE FACE - STEEL POSTS				GD	GROUND	
 GUARD RAIL - DOUBLE FACE - WOOD POSTS	 GUARD RAIL - DOUBLE FACE - WOOD POSTS	GUARD RAIL - DOUBLE FACE - WOOD POSTS				GG	GAS GATE	
 CHAIN LINK OR METAL FENCE	 CHAIN LINK OR METAL FENCE	CHAIN LINK OR METAL FENCE				GI	GUTTER INLET	
 WOOD FENCE	 WOOD FENCE	WOOD FENCE				GIP	GALVANIZED IRON PIPE	
 SEDIMENT CONTROL BARRIER	 SEDIMENT CONTROL BARRIER	SEDIMENT CONTROL BARRIER				GRAN	GRANITE	
 TREE LINE	 TREE LINE	TREE LINE				GRAV	GRAVEL	
 SAWCUT LINE	 SAWCUT LINE	SAWCUT LINE				GRD	GUARD	
 TOP OR BOTTOM OF SLOPE	 TOP OR BOTTOM OF SLOPE	TOP OR BOTTOM OF SLOPE				HDW	HEADWALL	
 LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY	 LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY	LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY				HMA	HOT MIX ASPHALT	
 BANK OF RIVER OR STREAM	 BANK OF RIVER OR STREAM	BANK OF RIVER OR STREAM				HOR	HORIZONTAL	
 BORDER OF WETLAND								

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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GENERAL NOTES

GENERAL NOTES

- THE MINIMUM CLEAR PATH ON THE SIDEWALKS SHALL BE 4'-0" EXCLUDING THE SURFACE OF THE CURB. THE CONTRACTOR SHALL MAINTAIN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT, PUBLIC RIGHT-OF-WAY ACCESSIBILITY GUIDELINES, AND MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AT ALL OBSTRUCTIONS.
- GRANITE CURB SHALL TRANSITION AT THE PROJECT LIMITS TO MATCH EXISTING CURB REVEAL OR PAVEMENT SURFACE.
- THE CONTRACTOR SHALL RETAIN ALL CURBS, FENCES, WALLS, TREES, SHRUBS, POSTS, LANDSCAPE FEATURES, AND OTHER MISCELLANEOUS ITEMS WITHIN ABUTTING PROPERTIES, UNLESS OTHERWISE NOTED. WHEN RETAINING THOSE ITEMS IS NOT PRACTICAL IN THE OPINION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE, STOCKPILE, PROTECT AND RESET THE ITEMS. THE CONTRACTOR SHALL REPLACE ITEMS DAMAGED DURING REMOVAL, STOCKPILING, OR RESETTING DUE TO NEGLIGENCE, CARELESSNESS, OR MISHANDLING WITH EQUIVALENT NEW ITEMS AT NO COST TO THE OWNER. ITEMS NOTED AS TO BE REMOVED AND STACKED SHALL BE COORDINATED WITH THE RESPECTIVE OWNER.
- ALL TREES WITHIN THE SLOPE LIMIT SHALL BE RETAINED AND PROTECTED UNLESS OTHERWISE NOTED.
- TREATMENT OF SLOPE AREAS SHALL BE REPLACED IN KIND UNLESS OTHERWISE NOTED.
- SITE FEATURES OUTSIDE PROPOSED SAWCUT LINES AND PROPOSED LIMITS OF WORK SHALL BE RETAINED UNLESS OTHERWISE NOTED. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE TERM "PROPOSED" MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS. RE-USE OF EXISTING MATERIALS IS IDENTIFIED AS "REMOVE AND RESET" (R&R).
- THE CONTRACTOR SHALL REUSE EXISTING MATERIALS IDENTIFIED AS R&R UNLESS THEY ARE DEEMED UNSUITABLE BY THE ENGINEER.
- EXISTING GRAVEL BORROW DETERMINED TO BE SUITABLE BY THE ENGINEER AND MEETING THE REQUIREMENTS OF THE SPECIFICATIONS SHALL REMAIN.
- CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITY SERVICES THROUGHOUT CONSTRUCTION.
- ALL EXISTING CURB INLETS SHALL BE REMOVED AND DISCARDED AND QUANTIFIED UNDER ITEM 594, CURB REMOVED AND DISCARDED.
- THE CONTRACTOR SHALL CONTROL STORMWATER ON SITE AND PREVENT RUNOFF FROM ENTERING I-93 BELOW THE BRIDGE AND NO DISCHARGE SHALL BE DIRECTED TO I-93.

UTILITY NOTES:

- THE LOCATION OF ALL UNDERGROUND UTILITIES ARE SHOWN APPROXIMATE AND WERE COMPILED USING FIELD SURVEY INFORMATION AND AVAILABLE RECORD INFORMATION. THE LOCATION OF EXISTING PIPES OR OTHER UNDERGROUND STRUCTURES OR PROPERTY LINES ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL CALL "DIG SAFE" (1-888-344-7233) 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO ANY EXCAVATION TO OBTAIN ACCURATE UTILITY LOCATIONS.
- RECORD UTILITY INFORMATION FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES ARE APPROXIMATE ONLY AND ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.
- ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING OR REPAVING.
- SUBSURFACE UTILITY LOCATIONS HAVE BEEN PLOTTED TO MEET UTILITY QUALITY LEVEL "D" AS DESCRIBED IN ASCE STANDARD 38-02 AND SUMMARIZED ON THIS SHEET. THE UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS BASED ON ABOVE-GROUND FIELD OBSERVATION AND EXISTING RECORD INFORMATION RECEIVED FROM UTILITY STAKE-HOLDERS.
- INVERTS SHOWN ON PLAN ARE NOT GUARANTEED TO BE ACCURATE. DUE TO THE LIMITATIONS OF FIELD OBSERVATION AND SURVEY TECHNIQUES THE INVERTS ARE SHOWN AS APPROXIMATE ONLY AND SHALL NOT BE WARRANTED TO BE CORRECT. ADDITIONAL FIELD INVESTIGATION IS NECESSARY WHERE ACCURATE MEASUREMENTS ARE REQUIRED FOR DESIGN OF CRITICAL AREAS.
- WHERE AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED WORK, THE CONTRACTOR SHALL ACCURATELY DETERMINE THE LOCATION, ELEVATION AND SIZE OF THE UTILITY AND FURNISH THE INFORMATION TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN EXCAVATING NEAR AND BACKFILLING IN THE VICINITY OF EXISTING UTILITIES. THE CONTRACTOR SHALL USE HAND EXCAVATION WHERE APPROPRIATE TO PROTECT EXISTING UTILITIES.
- THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITIES IN SERVICE AT ALL TIMES UNLESS NOTED ON THE PLANS OR APPROVED BY THE ENGINEER.
- THE CONTRACTOR SHALL SUPPORT AND PROTECT EXISTING UTILITIES IN AND AROUND EXCAVATIONS, AND IN PARTICULAR, WHEN CROSSING OVER OR UNDER ANY DUCT OR PIPE. ALL PROTECTIVE MEASURES SHALL BE CONSIDERED INCIDENTAL WORK.
- IF THE CONTRACTOR DAMAGES ANY UTILITY SYSTEM, HE OR SHE SHALL IMMEDIATELY NOTIFY THE RESPECTIVE UTILITY COMPANY AND SHALL REPAIR/REPLACE THE AFFECTED SYSTEM AT HIS OR HER OWN EXPENSE.
- THE CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES AND MAKE ARRANGEMENTS FOR ADJUSTMENTS, ALTERATIONS AND REPLACEMENT OF PRIVATE UTILITIES.
- BELOW GROUND STRUCTURES ARE SHOWN SYMBOLIC UNLESS DIMENSIONED.
- THE EXISTING CONDITIONS SHOWN IN THE PLANS ARE TO BE USED FOR THE SPECIFIED PROJECT ONLY AND ARE NOT WARRANTED TO BE COMPLETE FOR ANY OTHER FUTURE PROJECTS.

SUMMARY OF UTILITY MAPPING QUALITY LEVELS:

THE FOLLOWING IS A SUMMARY OF THE SURVEY MAPPING LEVELS FOR UTILITIES AS DESCRIBED IN ASCE STANDARD 38-02, "STANDARD GUIDELINE FOR THE DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THESE GUIDELINES ARE MORE FULLY DESCRIBED IN THE ASCE STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15-MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER. INFORMATION IS ONLY VALID WITHIN THE VISIBLE LIMITS OF THE TEST HOLE.

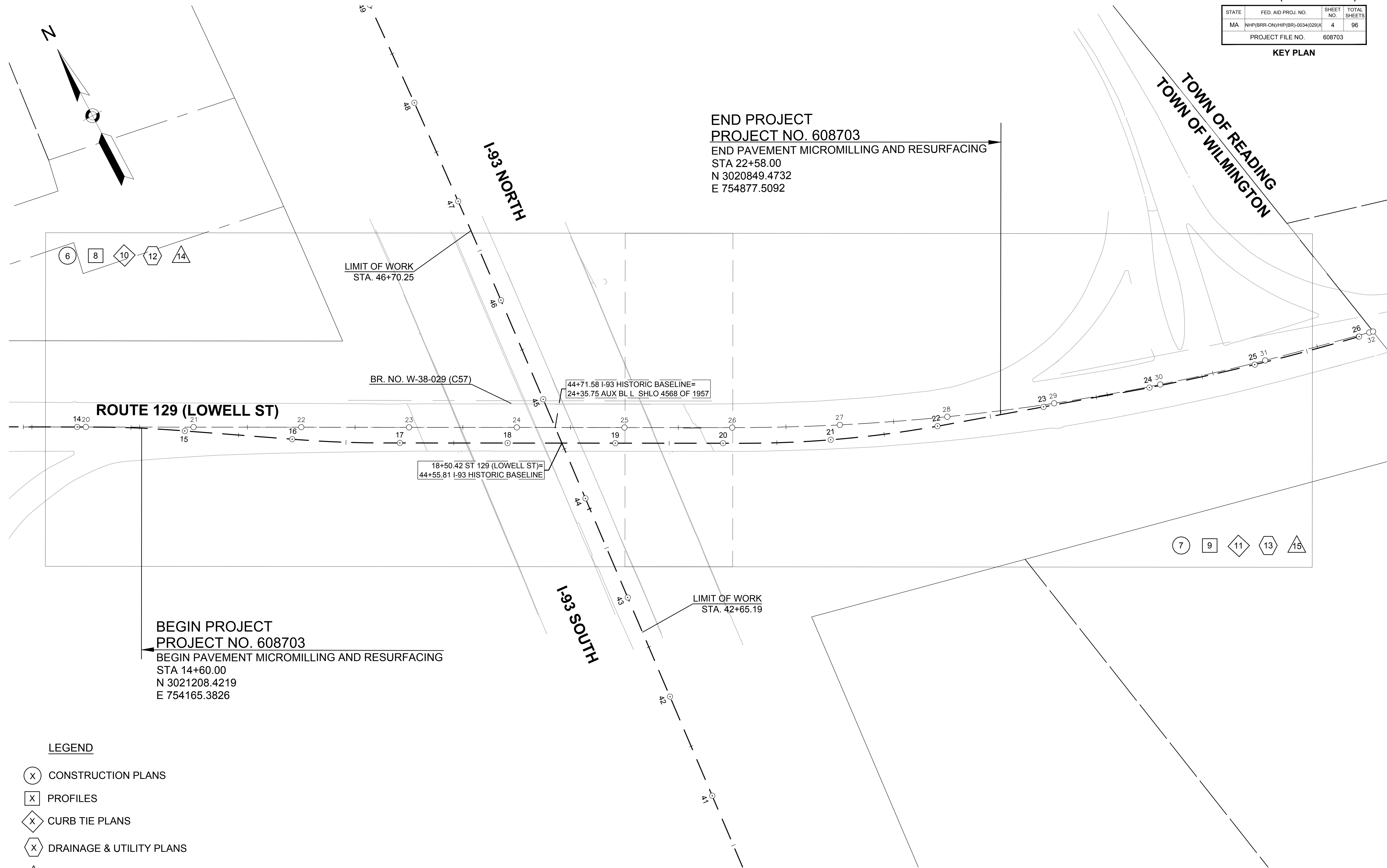
UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	4	96
PROJECT FILE NO.		608703	

KEY PLAN



END PROJECT
PROJECT NO. 608703

END PAVEMENT MICROMILLING AND RESURFACING
STA 22+58.00
N 3020849.4732
E 754877.5092

LIMIT OF WORK
STA. 46+70.25

BR. NO. W-38-029 (C57)

44+71.58 I-93 HISTORIC BASELINE=
24+35.75 AUX BL L SHLO 4568 OF 1957

18+50.42 ST 129 (LOWELL ST)=
44+55.81 I-93 HISTORIC BASELINE

LIMIT OF WORK
STA. 42+65.19

BEGIN PROJECT
PROJECT NO. 608703

BEGIN PAVEMENT MICROMILLING AND RESURFACING
STA 14+60.00
N 3021208.4219
E 754165.3826

LEGEND

- (X) CONSTRUCTION PLANS
- [X] PROFILES
- (X) CURB TIE PLANS
- (X) DRAINAGE & UTILITY PLANS
- (X) PAVEMENT MARKING & SIGNING PLAN

0 40 100 160
SCALE: 1" = 40'

WILMINGTON			
ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	5	96
PROJECT FILE NO.		608703	
TYPICAL SECTIONS			

PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT AND BOX WIDENING 4 FEET OR GREATER

SURFACE:	1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P) OVER ASPHALT EMULSION FOR TACK COAT OVER
INTERMEDIATE:	2.5" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
BASE:	4.5" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
SUB-BASE:	4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER 8" GRAVEL BORROW (TYPE B)

PROPOSED BOX WIDENING LESS THAN 4 FEET

SURFACE:	1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P) OVER ASPHALT EMULSION FOR TACK COAT OVER
INTERMEDIATE:	2.5" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT OVER
BASE:	6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER
SUB-BASE:	8" GRAVEL BORROW (TYPE B)

PROPOSED MICROMILLING AND RESURFACING

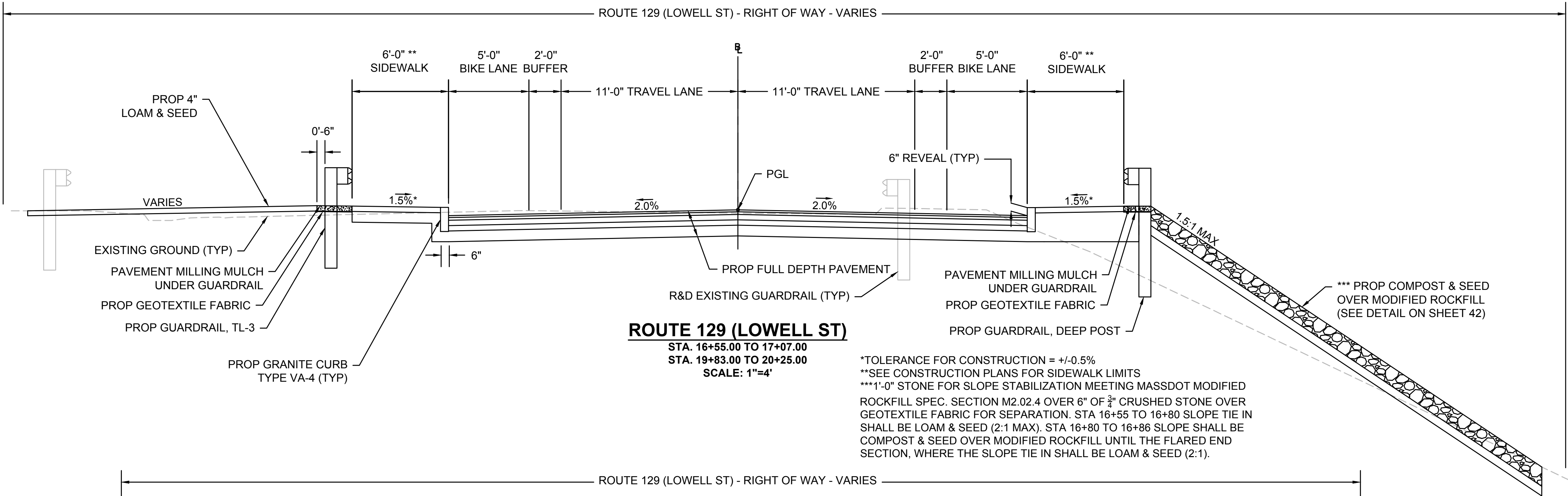
SURFACE:	1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P) OVER ASPHALT EMULSION FOR TACK COAT OVER
MICROMILLING:	1.5" PAVEMENT MICROMILLING

PROPOSED CEMENT CONCRETE SIDEWALK/ PEDESTRIAN CURB RAMPS

SURFACE:	4" CEMENT CONCRETE (4000 PSI, 3/4", 610 CEMENT CONCRETE) OVER
FOUNDATION:	8" GRAVEL BORROW (TYPE B)

NOTES:

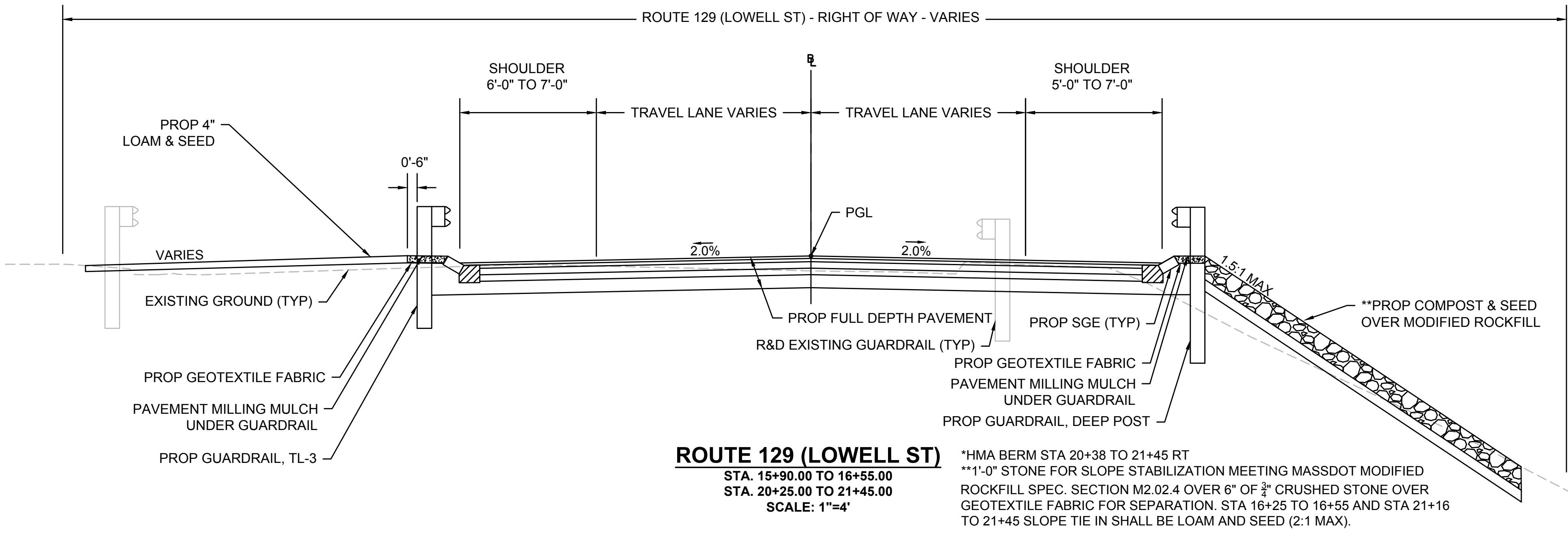
- TACK COAT SHALL BE APPLIED BETWEEN NEW PAVEMENT LAYERS AT A RATE OF 0.06 TO 0.08 GALLONS PER SQUARE YARD AND ON MILLED SURFACES AT A RATE OF 0.07 TO 0.09 GALLONS PER SQUARE YARD.
- THE SURFACE COURSE FOR EACH OF THE PAVEMENT SECTIONS SHALL BE PLACED IN ONE CONTINUOUS LAYER UNLESS OTHERWISE SPECIFIED.
- FOR PEDESTRIAN CURB RAMP LOCATIONS AND LIMITS SEE CONSTRUCTION PLANS.
- HMA JOINT SEALANT SHALL BE APPLIED TO ALL PAVEMENT JOINTS AND ALONG ADJOINING EDGES SUCH AS CURB AND CASTINGS.



ROUTE 129 (LOWELL ST)

STA. 16+55.00 TO 17+07.00
STA. 19+83.00 TO 20+25.00
SCALE: 1"=4'

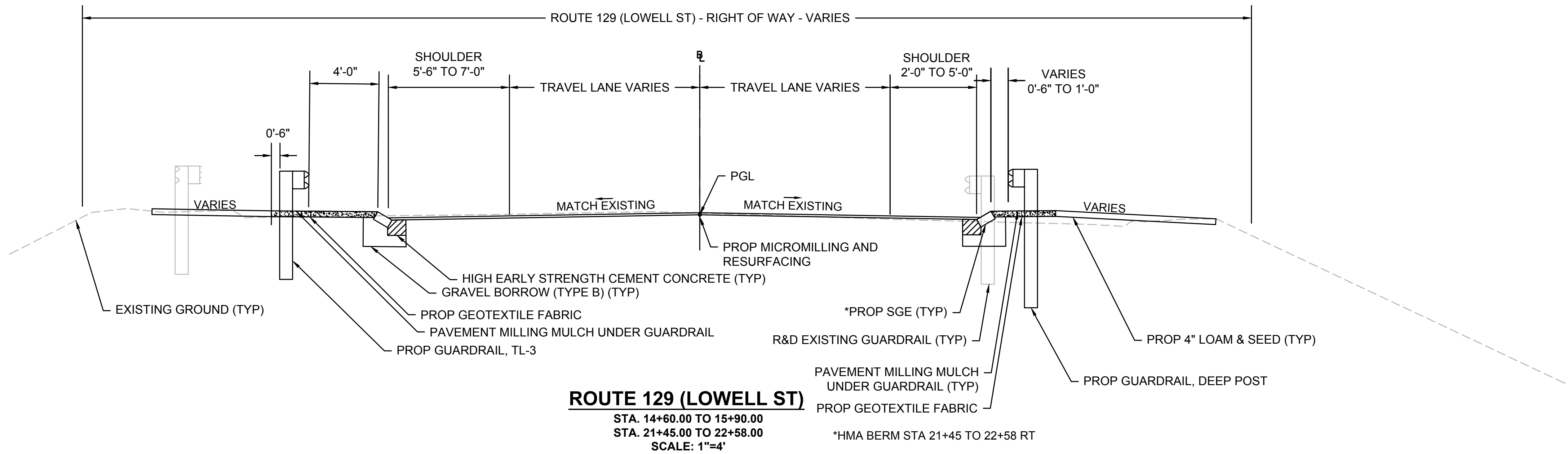
*TOLERANCE FOR CONSTRUCTION = +/-0.5%
**SEE CONSTRUCTION PLANS FOR SIDEWALK LIMITS
***1'-0" STONE FOR SLOPE STABILIZATION MEETING MASSDOT MODIFIED ROCKFILL SPEC. SECTION M2.02.4 OVER 6" OF 3/4" CRUSHED STONE OVER GEOTEXTILE FABRIC FOR SEPARATION. STA 16+55 TO 16+80 SLOPE TIE IN SHALL BE LOAM & SEED (2:1 MAX). STA 16+80 TO 16+86 SLOPE SHALL BE COMPOST & SEED OVER MODIFIED ROCKFILL UNTIL THE FLARED END SECTION, WHERE THE SLOPE TIE IN SHALL BE LOAM & SEED (2:1).



ROUTE 129 (LOWELL ST)

STA. 15+90.00 TO 16+55.00
STA. 20+25.00 TO 21+45.00
SCALE: 1"=4'

*HMA BERM STA 20+38 TO 21+45 RT
**1'-0" STONE FOR SLOPE STABILIZATION MEETING MASSDOT MODIFIED ROCKFILL SPEC. SECTION M2.02.4 OVER 6" OF 3/4" CRUSHED STONE OVER GEOTEXTILE FABRIC FOR SEPARATION. STA 16+25 TO 16+55 AND STA 21+16 TO 21+45 SLOPE TIE IN SHALL BE LOAM AND SEED (2:1 MAX).



ROUTE 129 (LOWELL ST)

STA. 14+60.00 TO 15+90.00
STA. 21+45.00 TO 22+58.00
SCALE: 1"=4'

*HMA BERM STA 21+45 TO 22+58 RT

HIGHWAY GUARD DETAILS

STA. 14+61 RT - STA. 14+95 RT TRANSITION TO NCHRP 350 GUARDRAIL, DEEP POST
STA. 14+59 LT - STA. 14+93 LT TRANSITION TO NCHRP 350 GUARDRAIL
STA. 14+95 RT - STA. 16+75 RT GUARDRAIL, DEEP POST (SINGLE FACED)
STA. 14+93 LT - STA. 16+53 LT GUARDRAIL, TL-3 (SINGLE FACED)
STA. 16+54 LT - STA. 16+88 LT TRANSITION TO BRIDGE RAIL
STA. 16+75 RT - STA. 17+09 RT TRANSITION TO BRIDGE RAIL

STA. 43+73 RT - STA. 44+07 RT TRANSITION TO NCHRP 350 GUARDRAIL
STA. 43+61 LT - STA. 43+95 LT TRANSITION TO NCHRP 350 GUARDRAIL
STA. 44+07 RT - STA. 45+26 RT GUARDRAIL, TL-3 (SINGLE FACED)
STA. 43+95 LT - STA. 45+27 LT GUARDRAIL, TL-3 (SINGLE FACED)
STA. 45+26 RT - STA. 45+60 RT TRANSITION TO NCHRP 350 GUARDRAIL
STA. 45+27 LT - STA. 45+61 LT TRANSITION TO NCHRP 350 GUARDRAIL

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

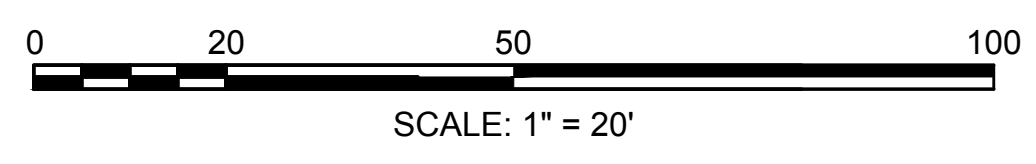
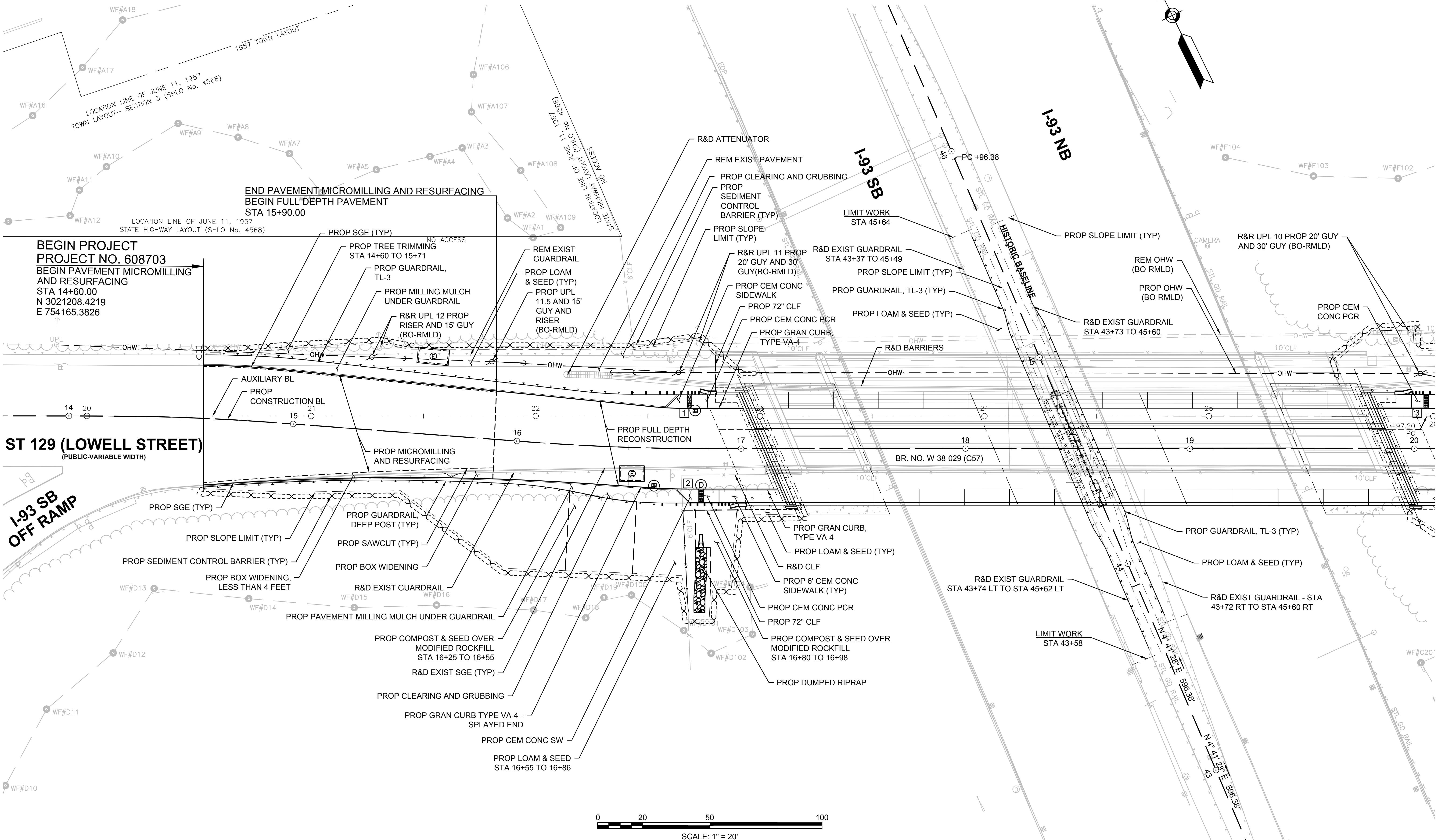
SEE SHEET 12

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	6	96

PROJECT FILE NO. 608703

CONSTRUCTION PLANS (1 OF 2)



FOR PROFILE SEE SHEET NO. 8

CONTINUED ON
SHEET NO. 7

HIGHWAY GUARD DETAILS

STA. 19+93 LT - STA. 20+27 LT TRANSITION TO BRIDGE RAIL
STA. 20+13 RT - STA. 20+47 RT TRANSITION TO BRIDGE RAIL
STA. 20+27 LT - STA. 22+30 LT GUARDRAIL, TL-3 (SINGLE FACED)
STA. 20+47 RT - STA. 22+23 RT GUARDRAIL, DEEP POST (SINGLE FACED)
STA. 22+30 LT - STA. 22+64 LT TRANSITION TO NCHRP 350 GUARDRAIL
STA. 22+23 RT - STA. 22+57 RT TRANSITION TO NCHRP 350 GUARDRAIL, DEEP POST

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

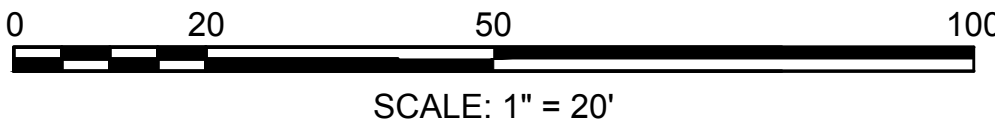
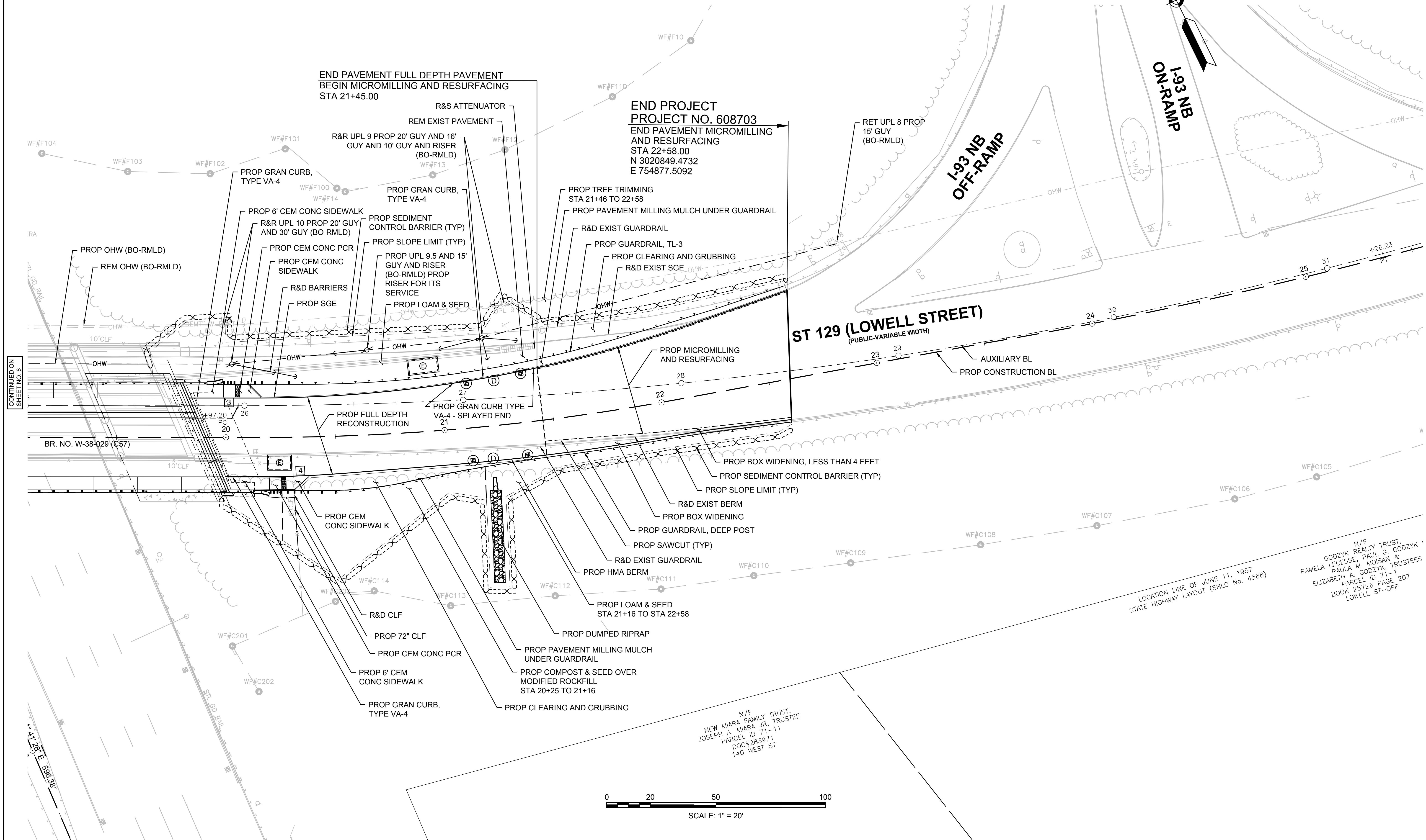
DRAINAGE DETAILS

SEE SHEET 13

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	7	96
PROJECT FILE NO.		608703	

CONSTRUCTION PLANS (2 OF 2)



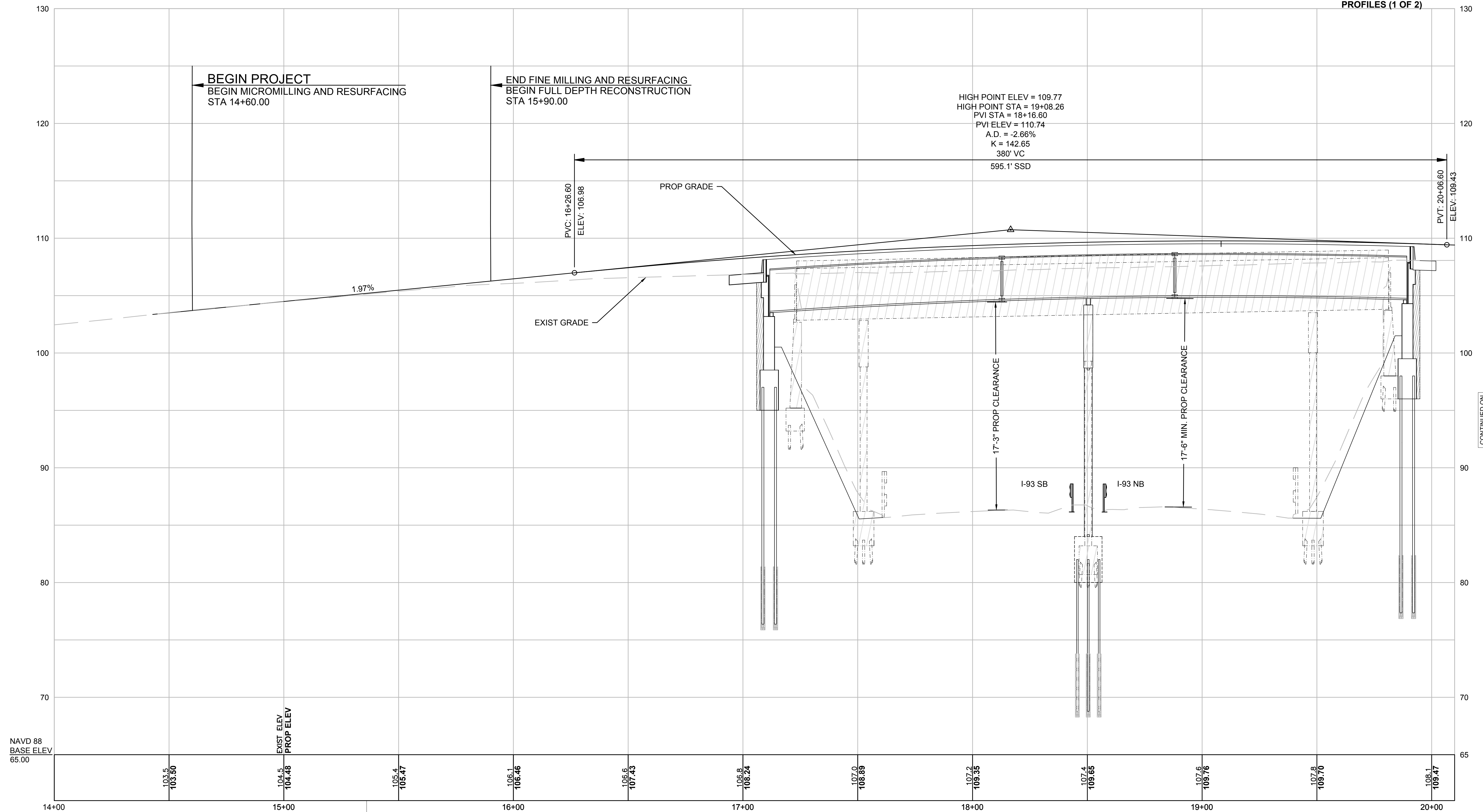
FOR PROFILE SEE SHEET NO. 9

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	8	96
PROJECT FILE NO.		608703	

PROFILES (1 OF 2)

ST 129 (LOWELL ST)



BEGIN PROJECT
BEGIN MICROMILLING AND RESURFACING
STA 14+60.00

END FINE MILLING AND RESURFACING
BEGIN FULL DEPTH RECONSTRUCTION
STA 15+90.00

HIGH POINT ELEV = 109.77
HIGH POINT STA = 19+08.26
PVI STA = 18+16.60
PVI ELEV = 110.74
A.D. = -2.66%
K = 142.65
380' VC
595.1' SSD

PROP GRADE

EXIST GRADE

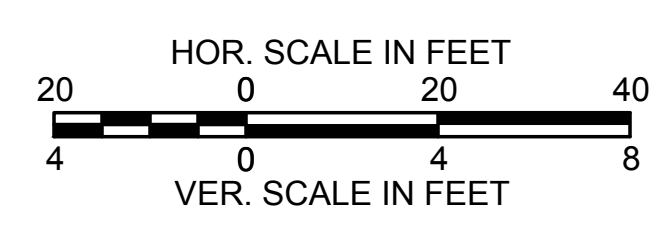
I-93 SB

I-93 NB

PVT: 20+06.60
ELEV: 109.43

NAVD 88
BASE ELEV
65.00

Benchmark #1
BM nail set in utility pole
Elevation=107.46
Sta. 15+36.06,
35.710' LT



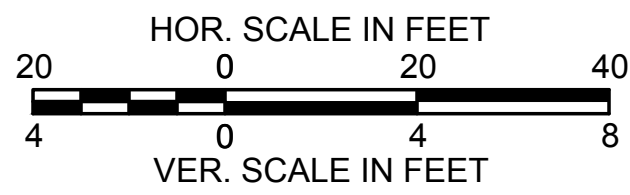
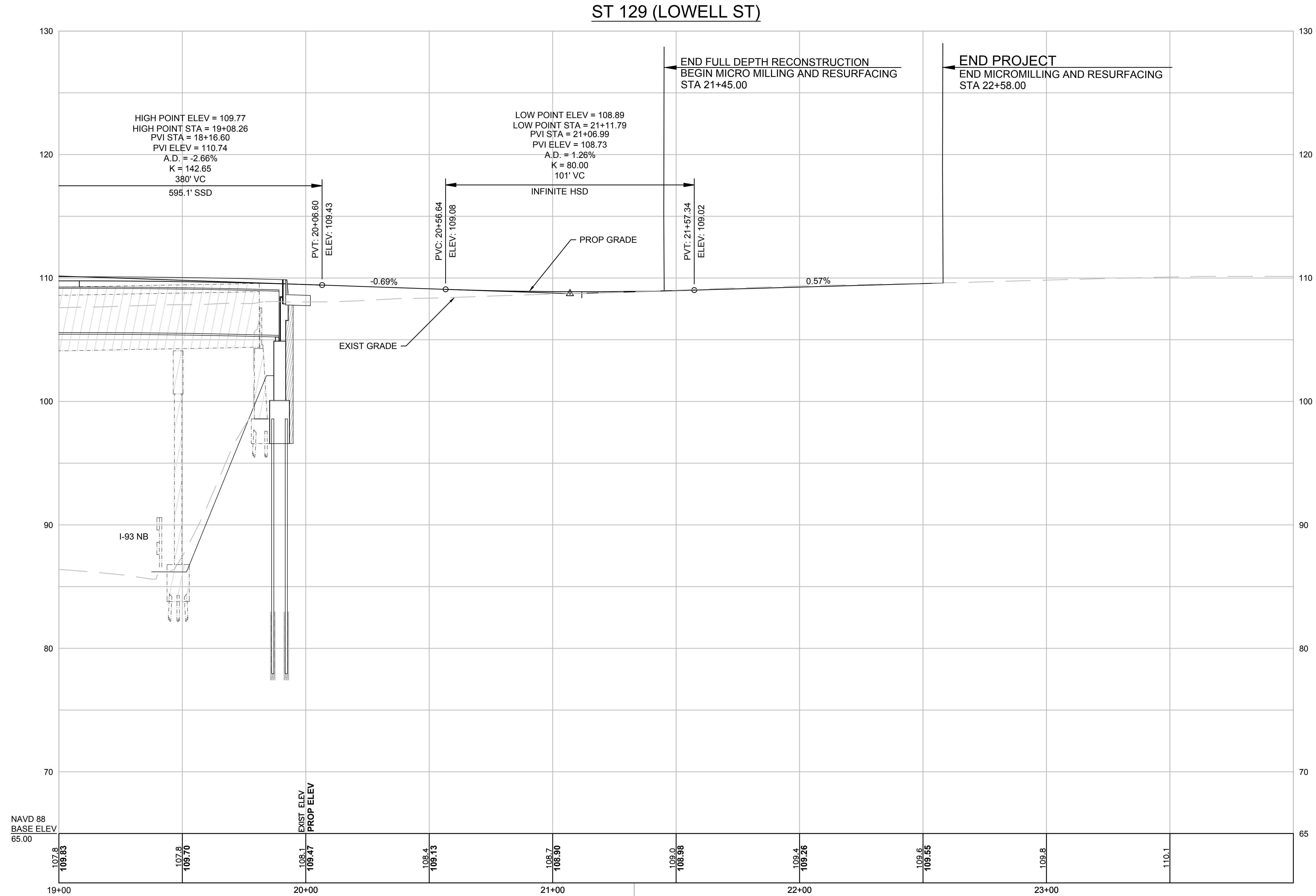
FOR CONSTRUCTION PLANS:
SEE SHEET NO. 6

CONTINUED ON
SHEET NO. 9

WILMINGTON
ROUTE 129 (LOWELL STREET)

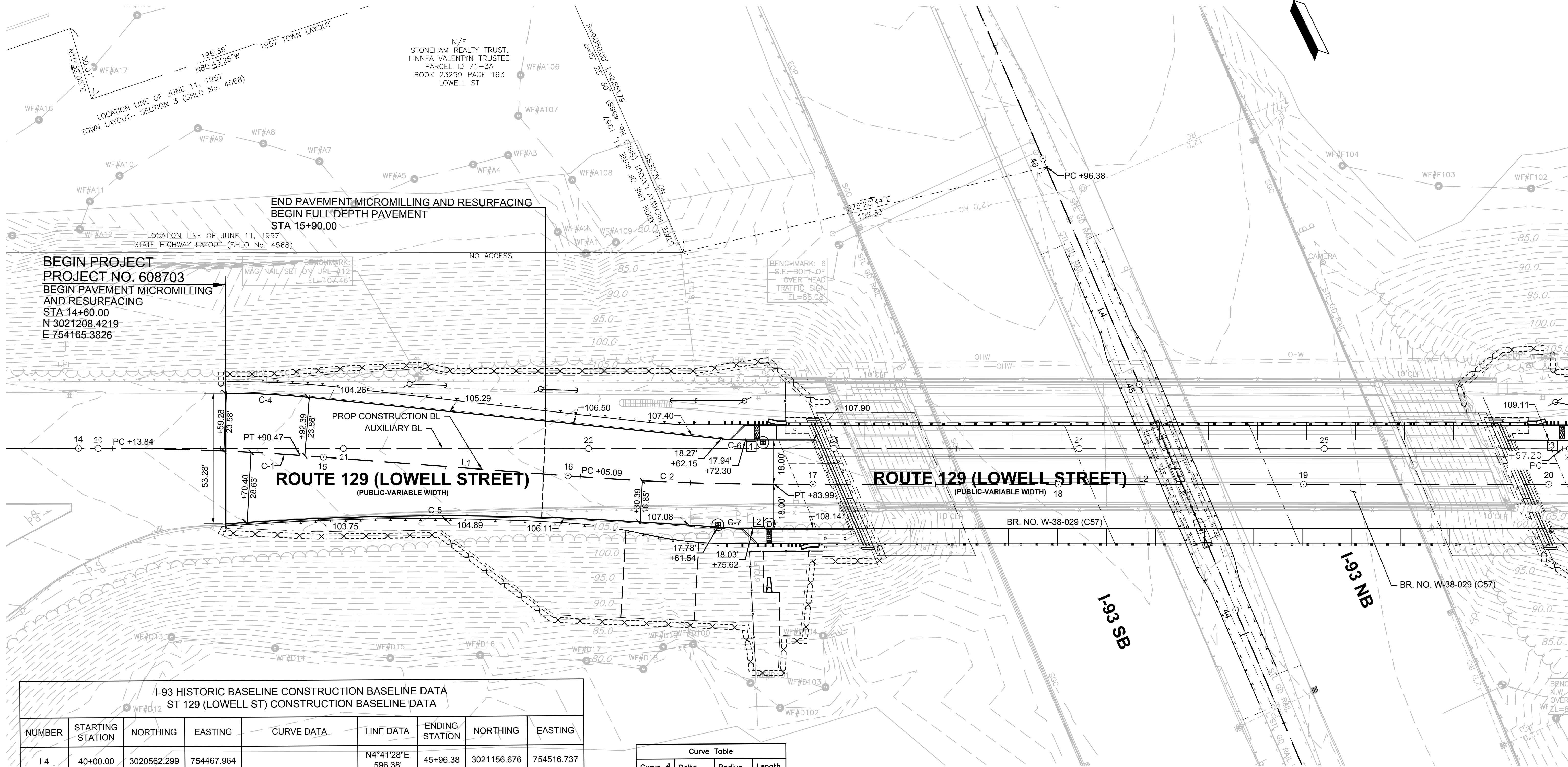
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	9	96
PROJECT FILE NO.		608703	

PROFILES (2 OF 2)



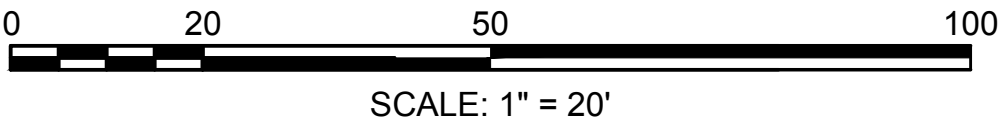
FOR CONSTRUCTION PLANS:
SEE SHEET NO. 7

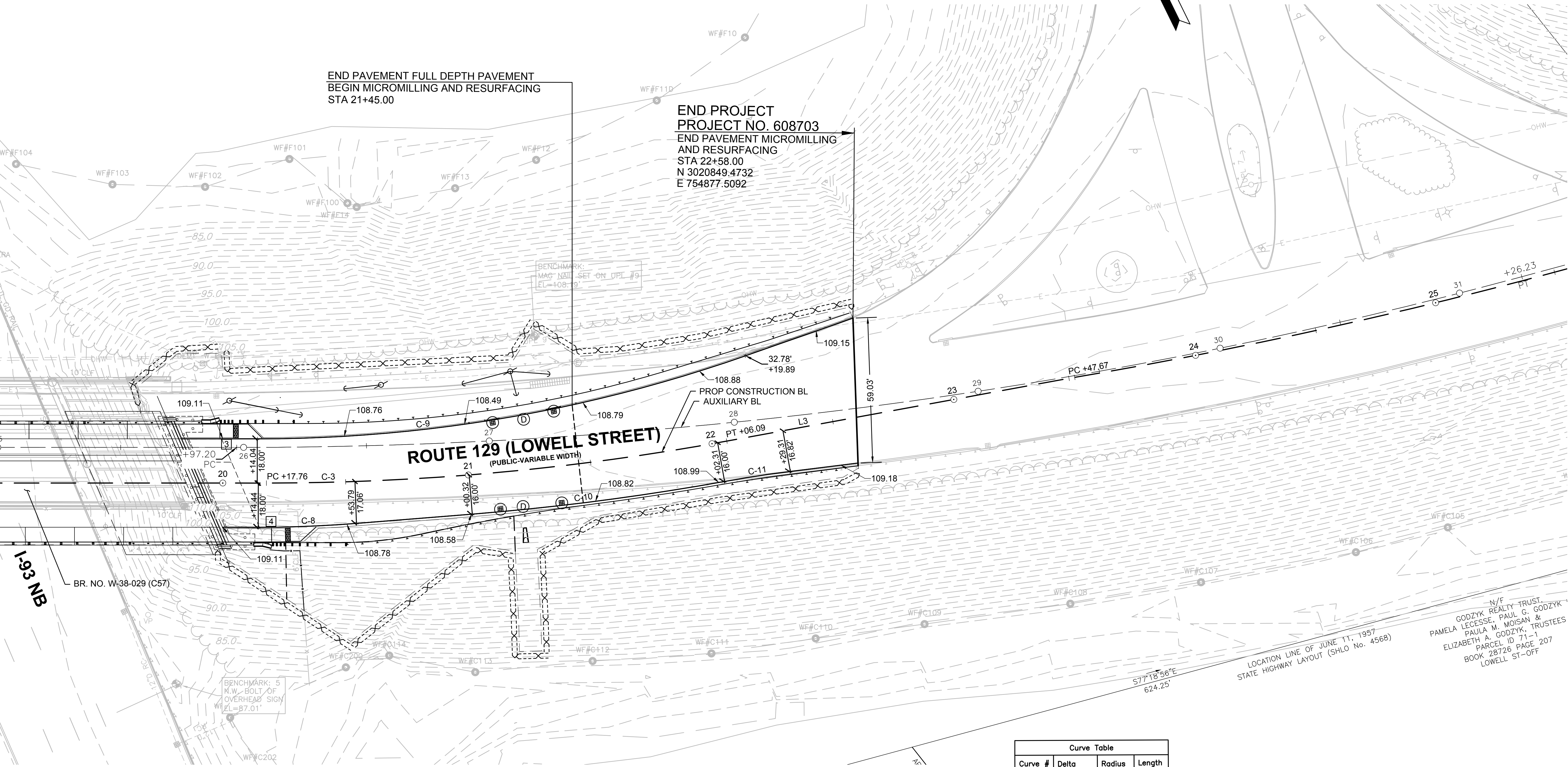
CONTINUED ON
SHEET NO. 8



I-93 HISTORIC BASELINE CONSTRUCTION BASELINE DATA ST 129 (LOWELL ST) CONSTRUCTION BASELINE DATA							
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING
L4	40+00.00	3020562.299	754467.964		N4°41'28"E 596.38'	45+96.38	3021156.676
C-1	14+13.84	3021233.060	754126.387	R=1040.00' Δ=4°13'19" L=76.64' T=38.33'		14+90.47	3021194.808
L1	14+90.47	3021194.808	754192.773		S57°48'49"E 114.62'	16+05.09	3021133.753
C-2	16+05.09	3021133.753	754289.777	R=1040.00' Δ=4°20'47" L=78.90' T=39.47'		16+83.99	3021094.300
L2	16+83.99	3021094.300	754358.076		S62°09'36"E 333.77'	20+17.76	3020938.427
							754653.217

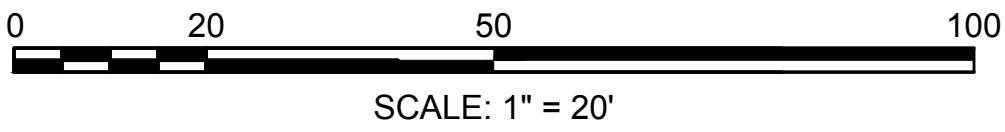
Curve Table			
Curve #	Delta	Radius	Length
C-4	5°32'55"	350.00	33.89
C-5	7°39'27"	1200.00	160.38
C-6	5°43'14"	100.00	9.98
C-7	3°45'58"	218.00	14.33

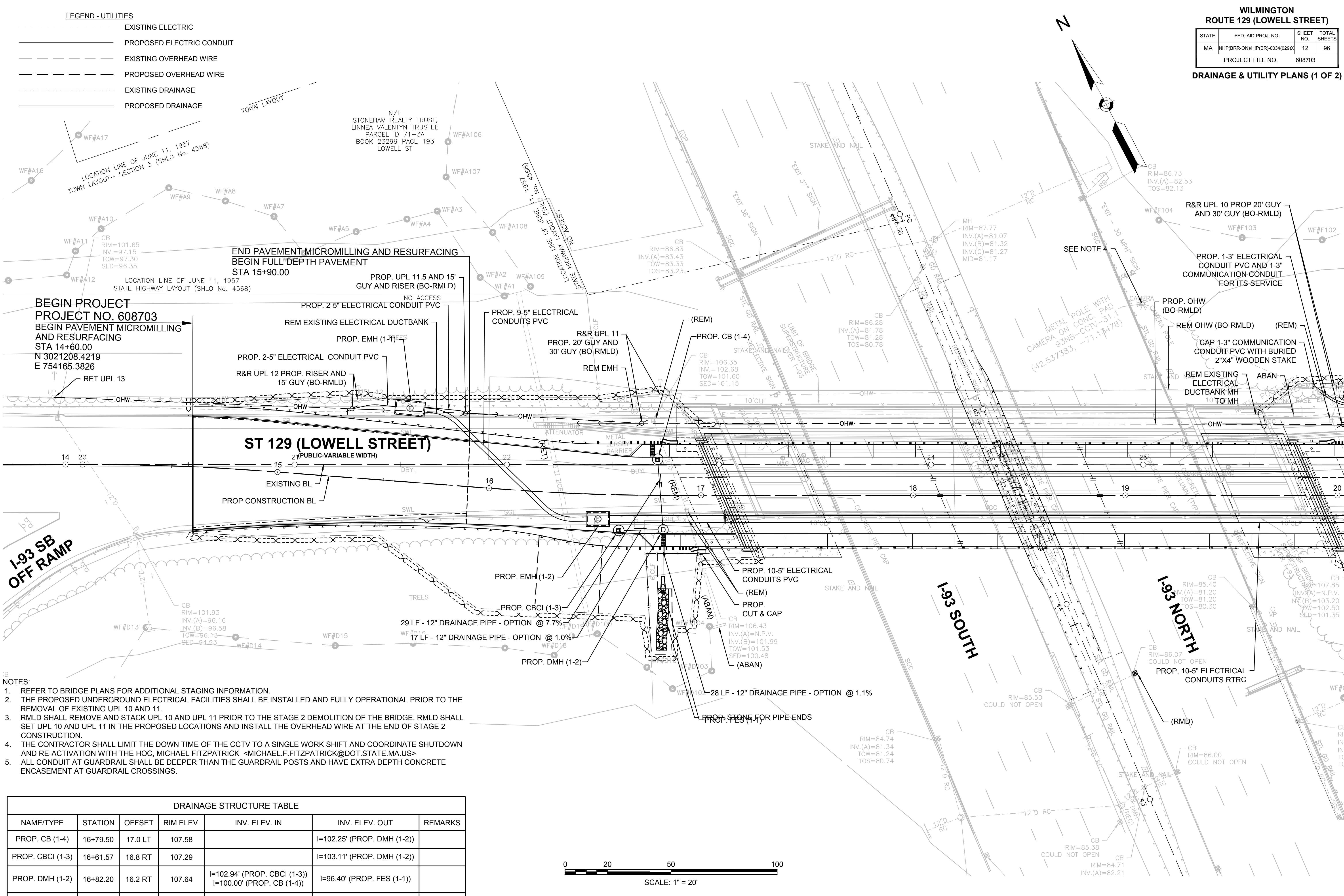




ST 129 (LOWELL ST) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C-3	20+17.76	3020938.427	754653.217	R= 1040.06' Δ= 10°22'29" L=188.33' T=94.42'		22+06.09	3020866.095	754826.820
L3	22+06.09	3020866.095	754826.820		S72°33'38"E 141.58'	23+47.67	3020823.664	754961.891

Curve Table			
Curve #	Delta	Radius	Length
C-8	4°34'55"	500.00	39.98
C-9	19°20'06"	600.00	202.48
C-10	5°37'06"	1056.11	103.56
C-11	3°06'07"	500.00	27.07





WILMINGTON
ROUTE 129 (LOWELL STREET)

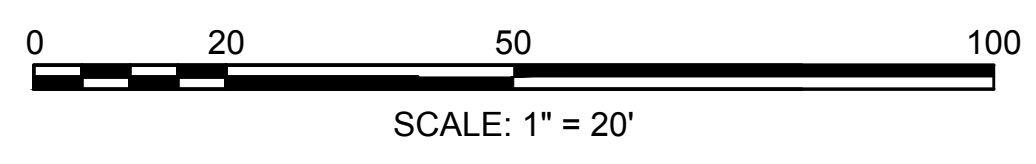
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)HIP(BR)-0034(029)X	12	96

PROJECT FILE NO. 608703

DRAINAGE & UTILITY PLANS (1 OF 2)

- NOTES:
- REFER TO BRIDGE PLANS FOR ADDITIONAL STAGING INFORMATION.
 - THE PROPOSED UNDERGROUND ELECTRICAL FACILITIES SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO THE REMOVAL OF EXISTING UPL 10 AND 11.
 - RMLD SHALL REMOVE AND STACK UPL 10 AND UPL 11 PRIOR TO THE STAGE 2 DEMOLITION OF THE BRIDGE. RMLD SHALL SET UPL 10 AND UPL 11 IN THE PROPOSED LOCATIONS AND INSTALL THE OVERHEAD WIRE AT THE END OF STAGE 2 CONSTRUCTION.
 - THE CONTRACTOR SHALL LIMIT THE DOWN TIME OF THE CCTV TO A SINGLE WORK SHIFT AND COORDINATE SHUTDOWN AND RE-ACTIVATION WITH THE HOC, MICHAEL FITZPATRICK <MICHAEL.F.FITZPATRICK@DOT.STATE.MA.US>
 - ALL CONDUIT AT GUARDRAIL SHALL BE DEEPER THAN THE GUARDRAIL POSTS AND HAVE EXTRA DEPTH CONCRETE ENCASEMENT AT GUARDRAIL CROSSINGS.

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. CB (1-4)	16+79.50	17.0 LT	107.58		I=102.25' (PROP. DMH (1-2))	
PROP. CBCI (1-3)	16+61.57	16.8 RT	107.29		I=103.11' (PROP. DMH (1-2))	
PROP. DMH (1-2)	16+82.20	16.2 RT	107.64	I=102.94' (PROP. CBCI (1-3)) I=100.00' (PROP. CB (1-4))	I=96.40' (PROP. FES (1-1))	
PROP. FES (1-1)	16+82.22	44.1 RT	96.10	I=96.10' (PROP. DMH (1-2))		



LEGEND - UTILITIES

- EXISTING ELECTRIC
- PROPOSED ELECTRIC CONDUIT
- EXISTING OVERHEAD WIRE
- PROPOSED OVERHEAD WIRE
- EXISTING DRAINAGE
- PROPOSED DRAINAGE

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)HIP(BR)-0034(029)X	13	96
PROJECT FILE NO.		608703	

DRAINAGE & UTILITY PLANS (2 OF 2)

END PROJECT
PROJECT NO. 608703
END PAVEMENT MICROMILLING
AND RESURFACING
STA 22+58.00
N 3020849.4732
E 754877.5092

END PAVEMENT FULL DEPTH PAVEMENT
BEGIN MICROMILLING AND RESURFACING
STA 21+45.00

ST 129 (LOWELL STREET)
(PUBLIC-VARIABLE WIDTH)

I-93 NB
OFF RAMP

I-93 NORTH

- NOTES:
- REFER TO BRIDGE PLANS FOR ADDITIONAL STAGING INFORMATION.
 - THE PROPOSED UNDERGROUND ELECTRICAL FACILITIES SHALL BE INSTALLED AND FULLY OPERATIONAL PRIOR TO THE REMOVAL OF EXISTING UPL 10 AND 11.
 - RMLD SHALL REMOVE AND STACK UPL 10 AND UPL 11 PRIOR TO THE STAGE 2 DEMOLITION OF THE BRIDGE. RMLD SHALL SET UPL 10 AND UPL 11 IN THE PROPOSED LOCATIONS AND INSTALL THE OVERHEAD WIRE AT THE END OF STAGE 2 CONSTRUCTION.
 - THE CONTRACTOR SHALL LIMIT THE DOWN TIME OF THE CCTV TO A SINGLE WORK SHIFT AND COORDINATE SHUTDOWN AND RE-ACTIVATION WITH THE HOC, MICHAEL FITZPATRICK <MICHAEL.F.FITZPATRICK@DOT.STATE.MA.US>
 - ALL CONDUIT AT GUARDRAIL SHALL BE DEEPER THAN THE GUARDRAIL POSTS AND HAVE EXTRA DEPTH CONCRETE ENCASEMENT AT GUARDRAIL CROSSINGS.

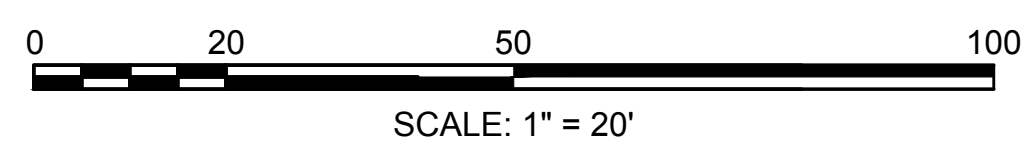
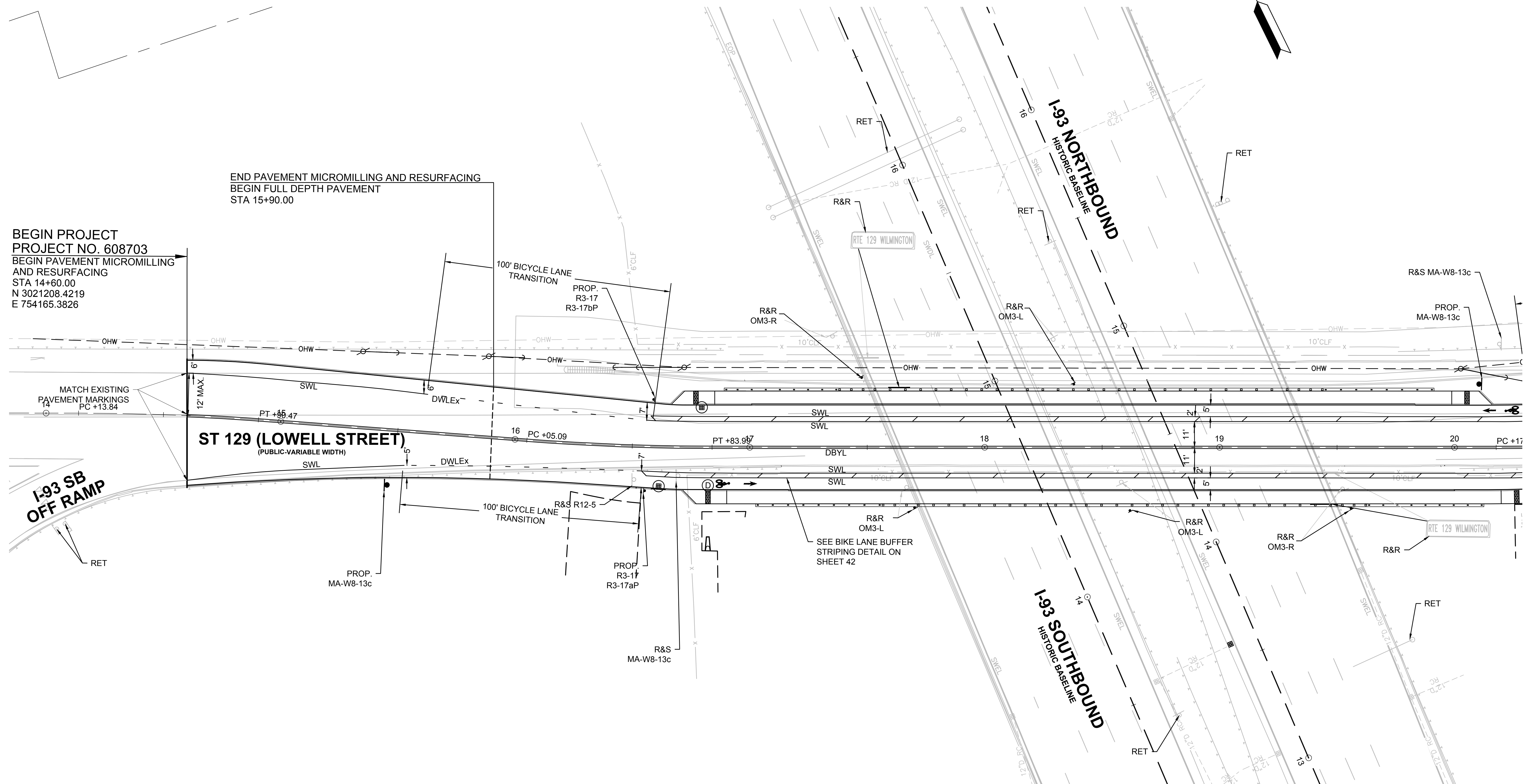
0 20 50 100
SCALE: 1" = 20'

N/F
GODZYK REALTY TRUST,
PAMELA LECESSÉ, PAUL G. GODZYK
PAULA M. MOISAN &
ELIZABETH A. GODZYK, TRUSTEES
PARCEL ID 71-1
BOOK 28726 PAGE 207
LOWELL ST-OFF

LOCATION LINE OF JUNE 11, 1957
STATE HIGHWAY LAYOUT (SHLO No. 4568)

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. CB (2-3)	21+11.76	15.0 RT	108.58		I=104.44' (PROP. DMH (2-2))	
PROP. CB (2-4)	21+36.47	15.0 RT	108.64		I=104.47' (PROP. DMH (2-2))	
PROP. CBCI (2-5)	21+11.76	20.4 LT	108.50		I=104.67' (PROP. DMH (2-6))	
PROP. CBCI (2-7)	21+37.52	22.5 LT	108.52		I=104.62' (PROP. DMH (2-6))	
PROP. DMH (2-2)	21+20.88	14.8 RT	108.62	I=104.35' (PROP. CB (2-3)) I=104.35' (PROP. CB (2-4)) I=104.35' (PROP. DMH (2-6))	I=104.25' (PROP. FES (2-1))	
PROP. DMH (2-6)	21+24.73	20.5 LT	108.51	I=104.53' (PROP. CBCI (2-5)) I=104.53' (PROP. CBCI (2-7))	I=104.43' (PROP. DMH (2-2))	
PROP. FES (2-1)	21+20.58	29.4 RT	104.15	I=104.15' (PROP. DMH (2-2))		

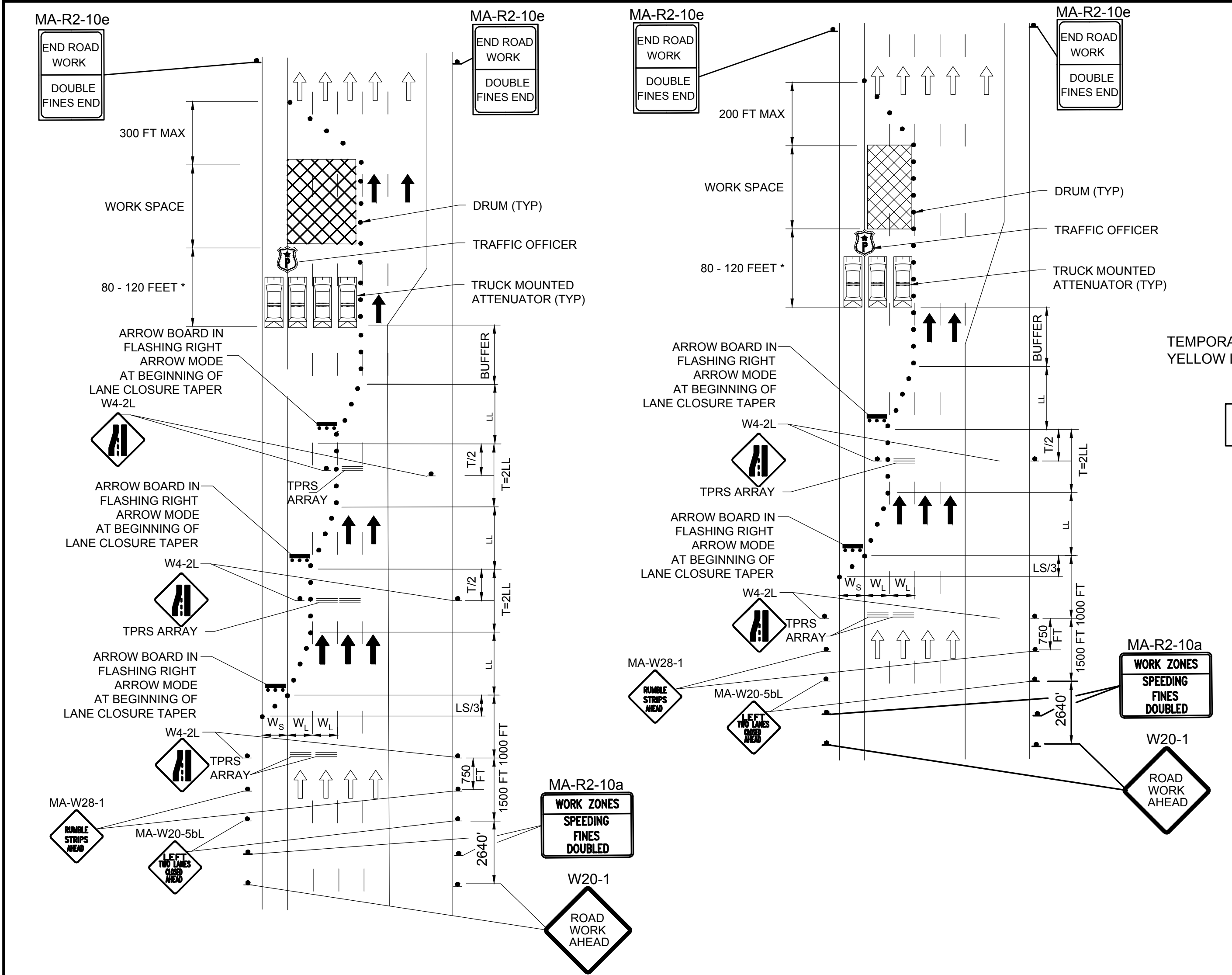
WILMINGTON			
ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	14	96
PROJECT FILE NO.		608703	
SIGN AND STRIPING PLAN (1 OF 2)			



CONTINUED ON
SHEET NO. 7

IDENTIFICATION	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (IN)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (IN)	HEIGHT (IN)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MRK.		BACKGROUND	LEGEND	BORDER			
R3-17	24	18		SEE MUTCD STD. DETAIL			4	RETRORE-FLECTIVE WHITE	RETRORE-FLECTIVE BLACK	RETRORE-FLECTIVE BLACK	4 MOUNTED ON P-5 POST	3.00	12.00
R3-17bP	24	8					2	RETRORE-FLECTIVE WHITE	RETRORE-FLECTIVE BLACK	RETRORE-FLECTIVE BLACK	MOUNTED WITH R3-17	1.33	2.67
R3-17aP	24	8					2	RETRORE-FLECTIVE WHITE	RETRORE-FLECTIVE BLACK	RETRORE-FLECTIVE BLACK	MOUNTED WITH R3-17	1.33	2.67
MA-W8-13c	36	36		SEE MASSDOT STD. SIGN DETAIL			2	RETRORE-FLECTIVE YELLOW	RETRORE-FLECTIVE BLACK	RETRORE-FLECTIVE BLACK	2 MOUNTED ON P-5 POST	9.00	18.00
												TOTAL	35.33

- NOTES:
- SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
 - SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2009 EDITION AND ALL REVISIONS, THE 2022 MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD, THE 2016 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION SIGN BOOK, AND THE STANDARDS MUNICIPAL TRAFFIC CODE FOR THE LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR. ALSO REFER TO THE MASSDOT 2024 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
 - UNLESS OTHERWISE NOTED, ALL POSTS SHALL BE P-5.
 - SIGNS SHALL BE MOUNTED SO THAT THE BOTTOM OF THE SIGN IS NO LESS THAN 7'-0" ABOVE ADJACENT ROADWAY SURFACE ELEVATION.
 - RETROREFLECTIVE SHEETING ON ALL TRAFFIC SIGNS SHALL CONFORM TO MASSDOT STANDARD SPECIFICATION M9.30.0.



**DIVIDED HIGHWAY -
I-93 LEFT THREE LANES CLOSURE**
NOT TO SCALE

NOTES

1. PROTECTION MEASURES SHALL BE APPROPRIATE FOR WORK CONDITIONS.
2. SHALL BE USED FOR SHORT TERM OR OVERNIGHT SETUP ONLY.
3. PROPER PROTECTIONS SHALL BE IN PLACE AT ALL TIMES, NOT ONLY DURING ACTIVE WORK.

**DIVIDED HIGHWAY -
I-93 LEFT TWO LANES CLOSURE**
NOT TO SCALE

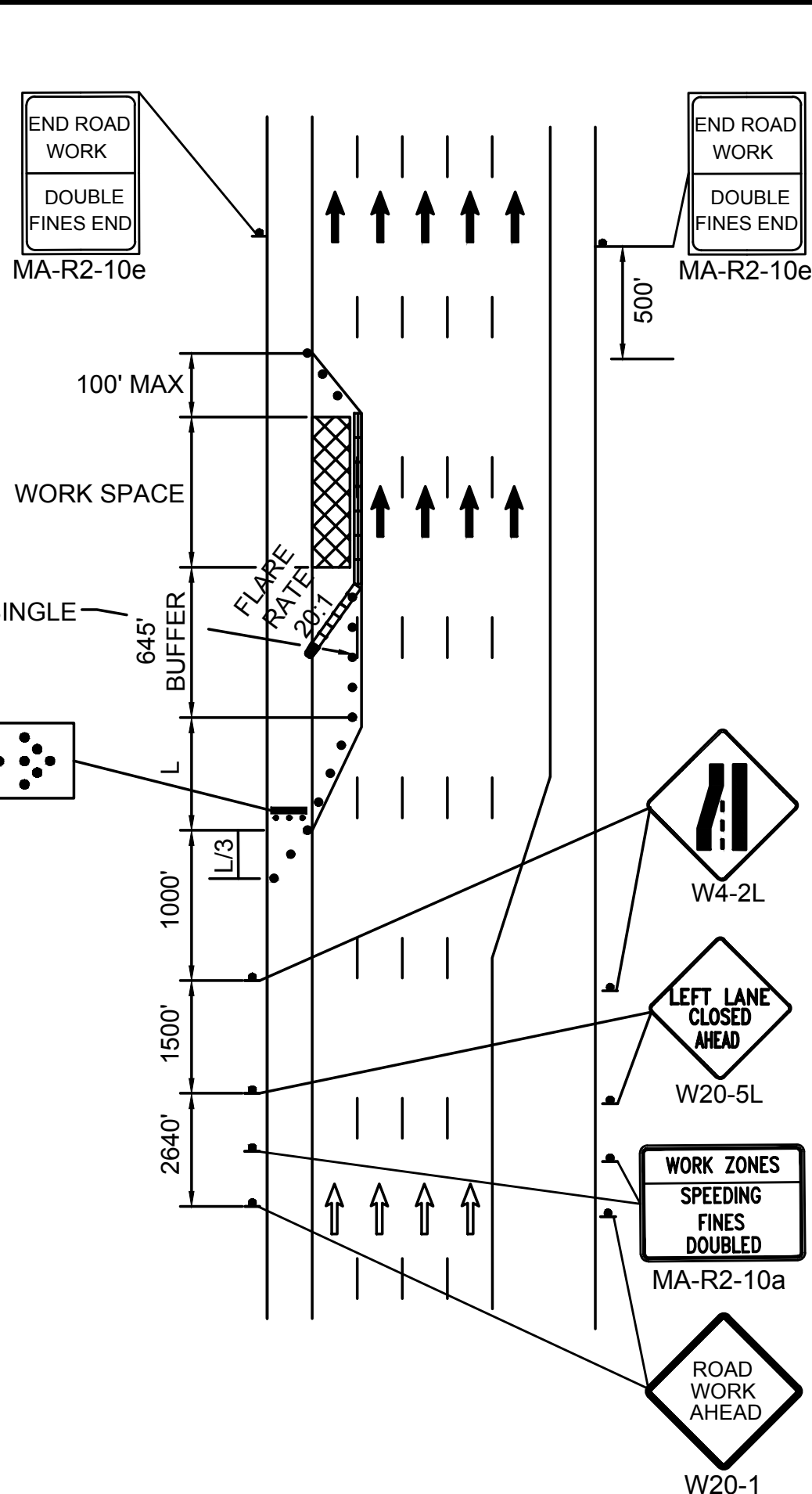
NOTES

1. PROTECTION MEASURES SHALL BE APPROPRIATE FOR WORK CONDITIONS.
2. SHALL BE USED FOR SHORT TERM OR OVERNIGHT SETUP ONLY.
3. PROPER PROTECTIONS SHALL BE IN PLACE AT ALL TIMES, NOT ONLY DURING ACTIVE WORK.

FORMULAS FOR DETERMINING TAPER LENGTHS
SOURCE: TABLE 6C-3 2009 MUTCD

TYPE OF TAPER	TAPER LENGTH (L)
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN. 100 FT MAX.
DOWNSTREAM TAPER	50 FT MIN. 100 FT MAX. PER LANE
TANGENT LENGTH**	AT LEAST 2L

** TANGENT LENGTH MEASURE BETWEEN TWO TAPERS



**DIVIDED HIGHWAY -
I-93 LEFT LANE CLOSURE**
NOT TO SCALE

NOTES

1. PROTECTION MEASURES SHALL BE APPROPRIATE FOR WORK CONDITIONS.
2. SHALL BE USED FOR LONG TERM AND INTERMEDIATE SETUP ONLY.
3. PROPER PROTECTIONS SHALL BE IN PLACE AT ALL TIMES, NOT ONLY DURING ACTIVE WORK.

FORMULAS FOR DETERMINING TAPER LENGTHS
SOURCE: TABLE 6C-4 2009 MUTCD

SPEED LIMIT (S)	TAPER LENGTH (L) IN FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED LIMIT IN MPH

WILMINGTON

ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HHP(BR)-0034(029)X	17	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL DETAIL - 1

TEMPORARY TRAFFIC CONTROL NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD), MASSACHUSETTS AMENDMENTS TO THE MUTCD AND ALL REVISIONS, UNLESS SUPERSEDED 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 PLACED 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 TRAVEL WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN "MANUAL FOR ASSESSING SAFETY OF HARDWARE" (MASH).
6. THE ADVISORY SPEED LIMIT, IF REQUIRED IN THE FIELD, SHALL BE DETERMINED BY THE ENGINEER.
7. MAXIMUM SPACING OF THE TRAFFIC DEVICES IN THE TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
8. MINIMUM LANE WIDTH IS TO BE 11 FT UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
9. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
10. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
11. THE CONTRACTOR SHALL COORDINATE APPROVAL OF ANY CHANGES TO THE TEMPORARY TRAFFIC CONTROL PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ALSO NOTIFY MASSDOT, THE TOWN OF WILMINGTON AND THE TOWN OF READING THREE (3) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
12. THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTOR'S APPROACH TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST EFFICIENT AND SAFE MANNER IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.
13. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER
14. WHEN EXISTING SIGNS ARE NO LONGER APPLICABLE THEY SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION. THE COST SHALL BE INCIDENTAL TO THE CONTRACT.
15. ALL SIGNS SHALL BE REFLECTORIZED, WITH REFLECTIVE SHEETING CONFORMING TO M9.30.0. ALL SIGN COLORS SHALL BE PER THE CONSTRUCTION SIGN SUMMARY TABLE AND CURRENT MUTCD.
16. WHEN TEMPORARY PAVEMENT MARKINGS ARE NO LONGER APPLICABLE THEY SHALL BE REMOVED. CONTRACTOR SHALL RECORD EXISTING PAVEMENT MARKINGS AND RESTORE ALL MARKINGS TO EXISTING CONDITIONS AT THE CONCLUSION OF CONSTRUCTION AT EACH LOCATION.
17. UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
18. CONTRACTOR SHALL INSTALL, RENEW, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
19. ACCESS/EGRESS TO ALL ABUTTERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
20. CONTRACTOR SHALL MAINTAIN EMERGENCY PASSAGE AT ALL TIMES TO BUILDINGS WITHIN AND ADJACENT TO THE PROJECT LIMITS AS WELL AS A LARGER AREA IF AFFECTED BY CONSTRUCTION CONDITIONS. CONTRACTOR SHALL MAINTAIN 24 HOUR EMERGENCY VEHICLE ACCESS TO CONSTRUCTION AREAS.
21. CONTRACTOR SHALL COORDINATE WITH ABUTTERS FOR THE PROPOSED WORK AND SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF THE WORK THAT WILL REQUIRE TEMPORARY CLOSURE OF ACCESS TO THEIR PROPERTY.
22. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL ABUTTING PROJECTS.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING SNOW WITHIN THE WORK ZONES.
24. WORK HOURS AND WORK HOUR RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.

LEGEND

•

CHANNELIZING DEVICE

→

DIRECTION OF TRAFFIC

●

SIGN (SHOWN FACING DOWN)

➡

PROPOSED DIRECTION OF TRAFFIC

🚚

TRUCK-MOUNTED ATTENUATOR

▨

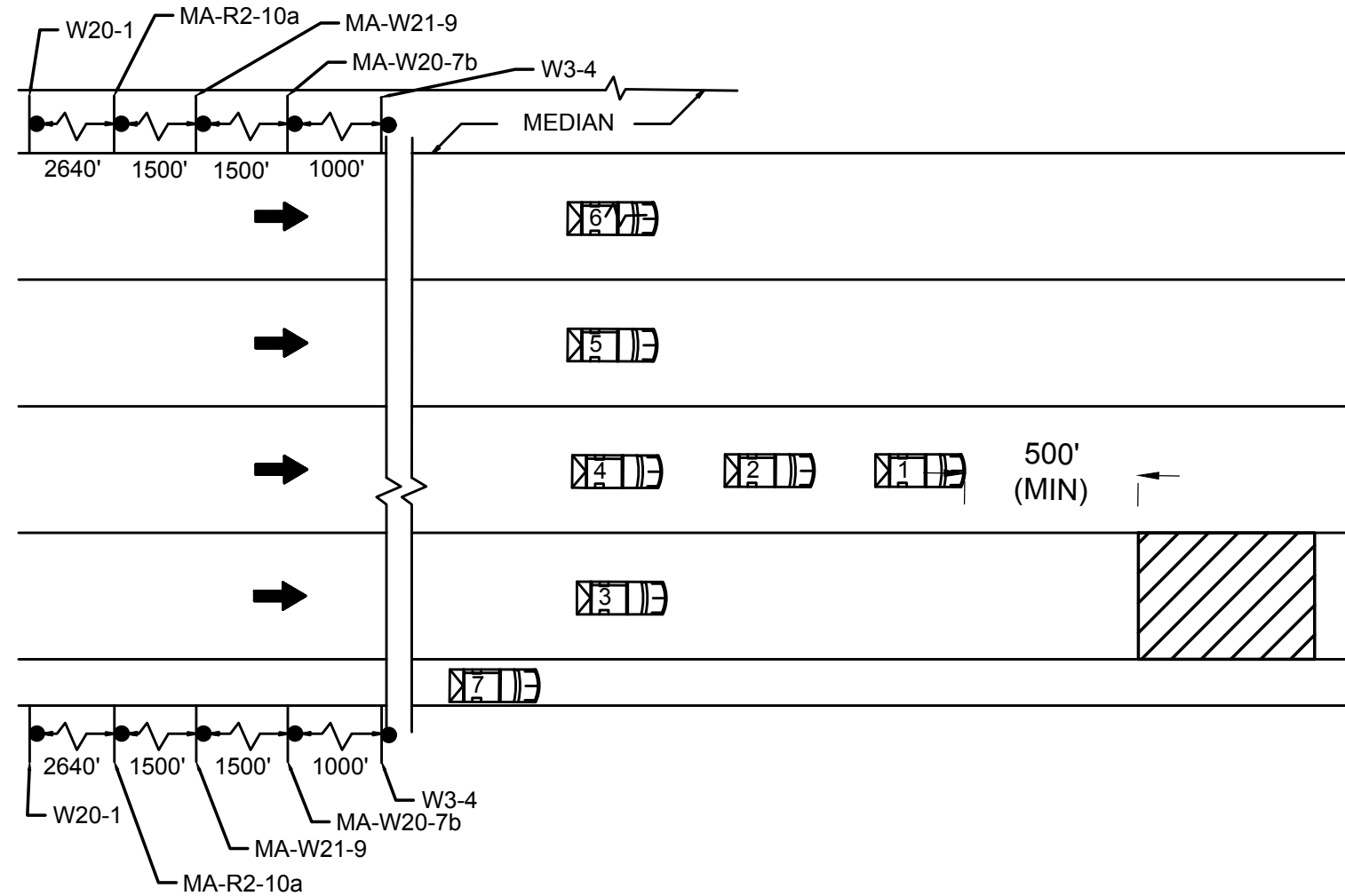
TYPE III BARRICADE

🚦

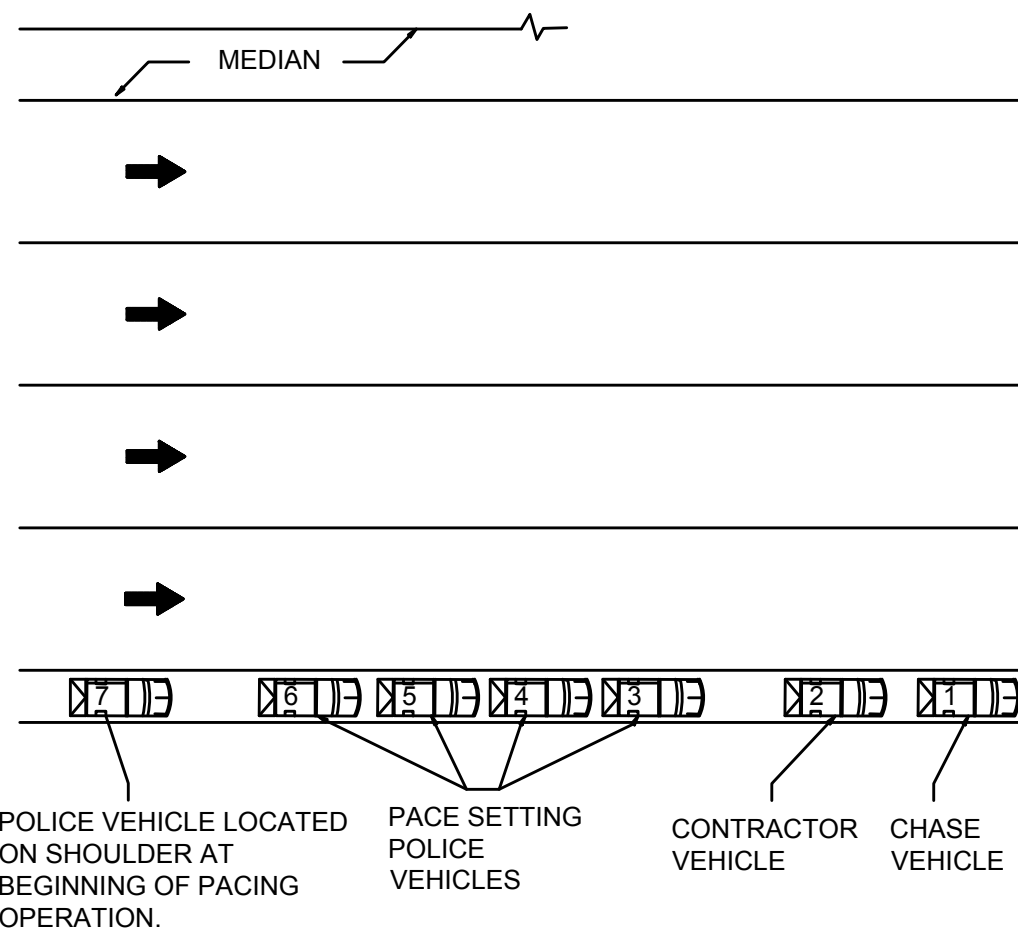
ARROW BOARD

▨

TEMPORARY IMPACT ATTENUATOR - TL-3 END TREATMENT

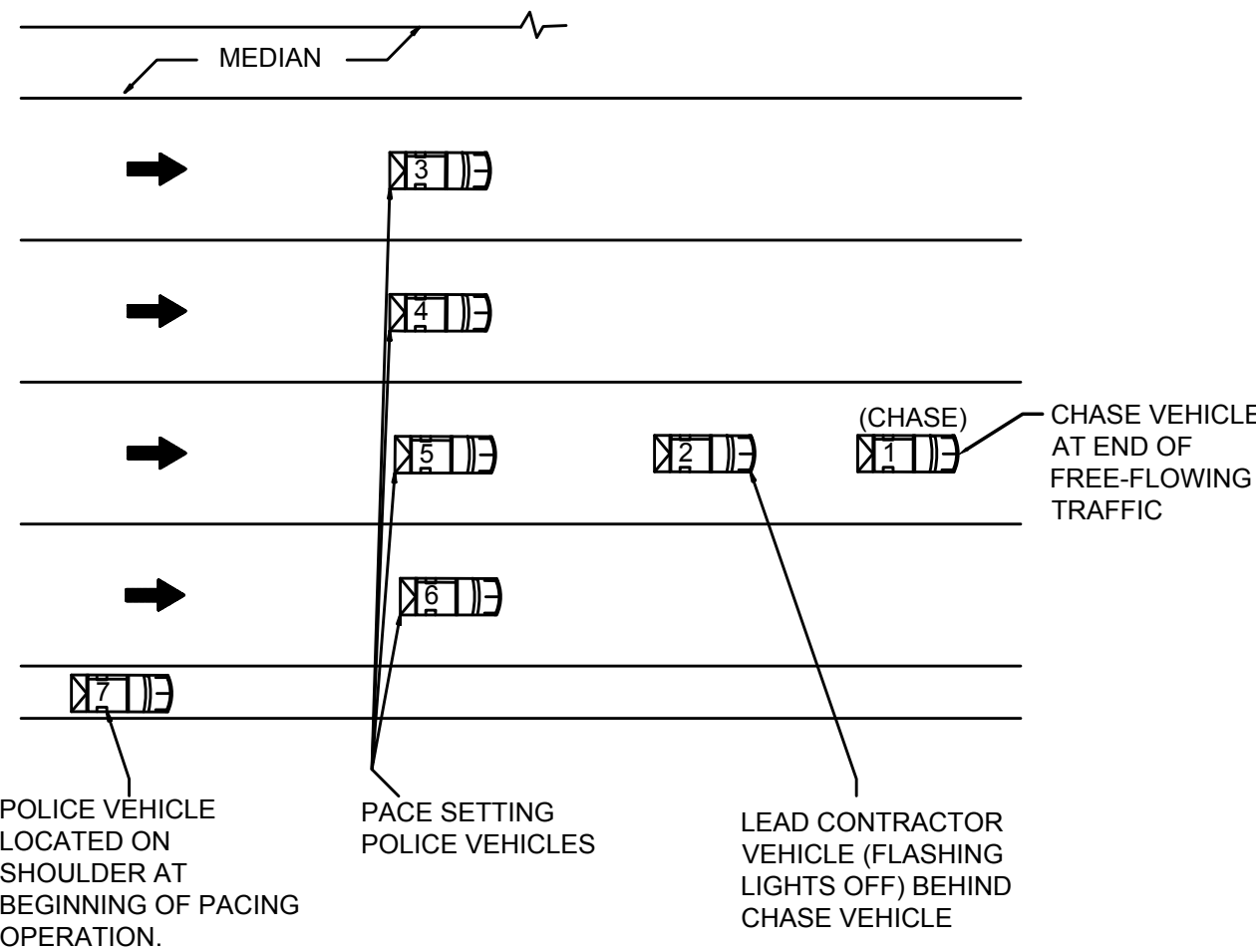


TYPICAL ROLLING ROAD
BLOCK ADVANCE SIGNS
NOT TO SCALE



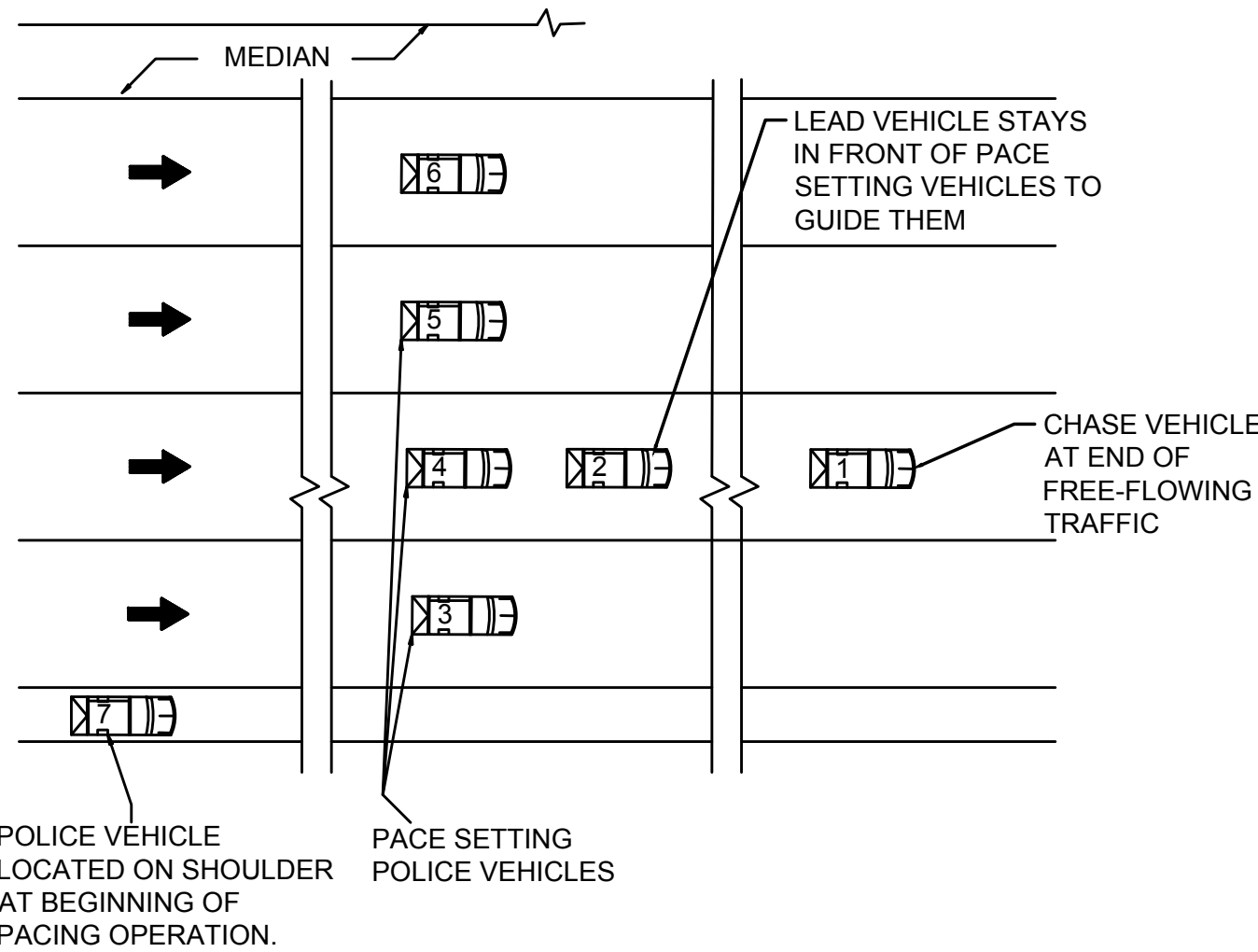
STAGE ONE ROLLING
ROAD BLOCK
NOT TO SCALE

NOTES:
STAGE ONE BEGINS WHEN OPERATION BEGINS WITH ALL VEHICLES IN ROLLING ROADBLOCK OPERATION BEING POSITIONED ON THE SHOULDER OF THE ROAD AT THE TOTAL PACING DISTANCE FROM THE WORK AREA WITH FLASHING LIGHTS OFF.



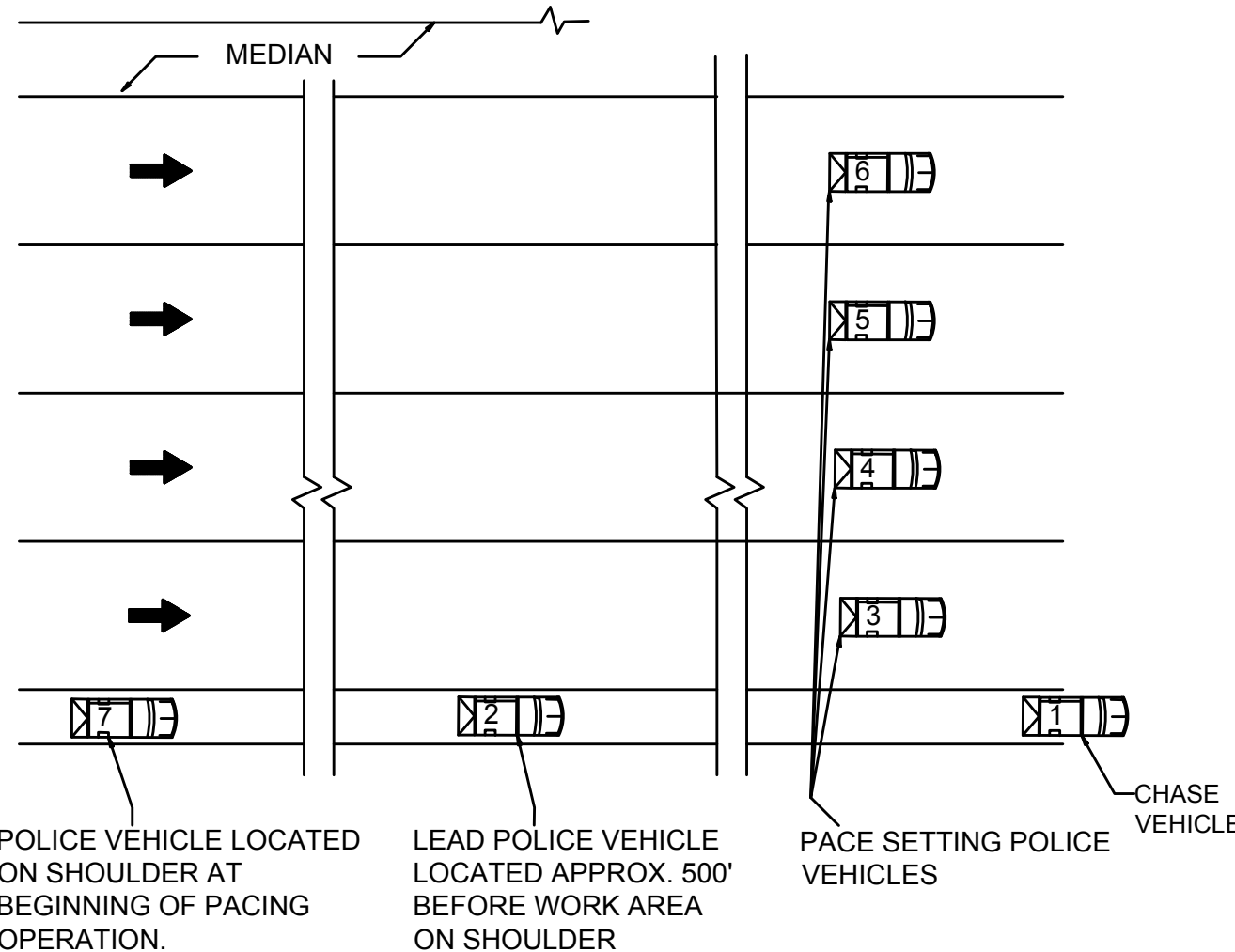
STAGE TWO ROLLING
ROAD BLOCK
NOT TO SCALE

NOTES:
STAGE TWO BEGINS AFTER RECEIVING THE SIGNAL FROM THE LEAD COORDINATOR, THE PACING AND LEAD VEHICLES ENTERING THE TRAFFIC STREAM. DURING THIS STAGE, THE PACING VEHICLES GET INTO SIDE-BY-SIDE POSITIONS IN THE TRAVEL LANES AND ANY DRIVABLE SHOULDERS, SLOWING TRAFFIC BEHIND THEM. ONCE IN POSITION, THE PACING VEHICLES TURN THEIR FLASHING LIGHTS ON AND SLOW TO THE SPECIFIED SPEED.



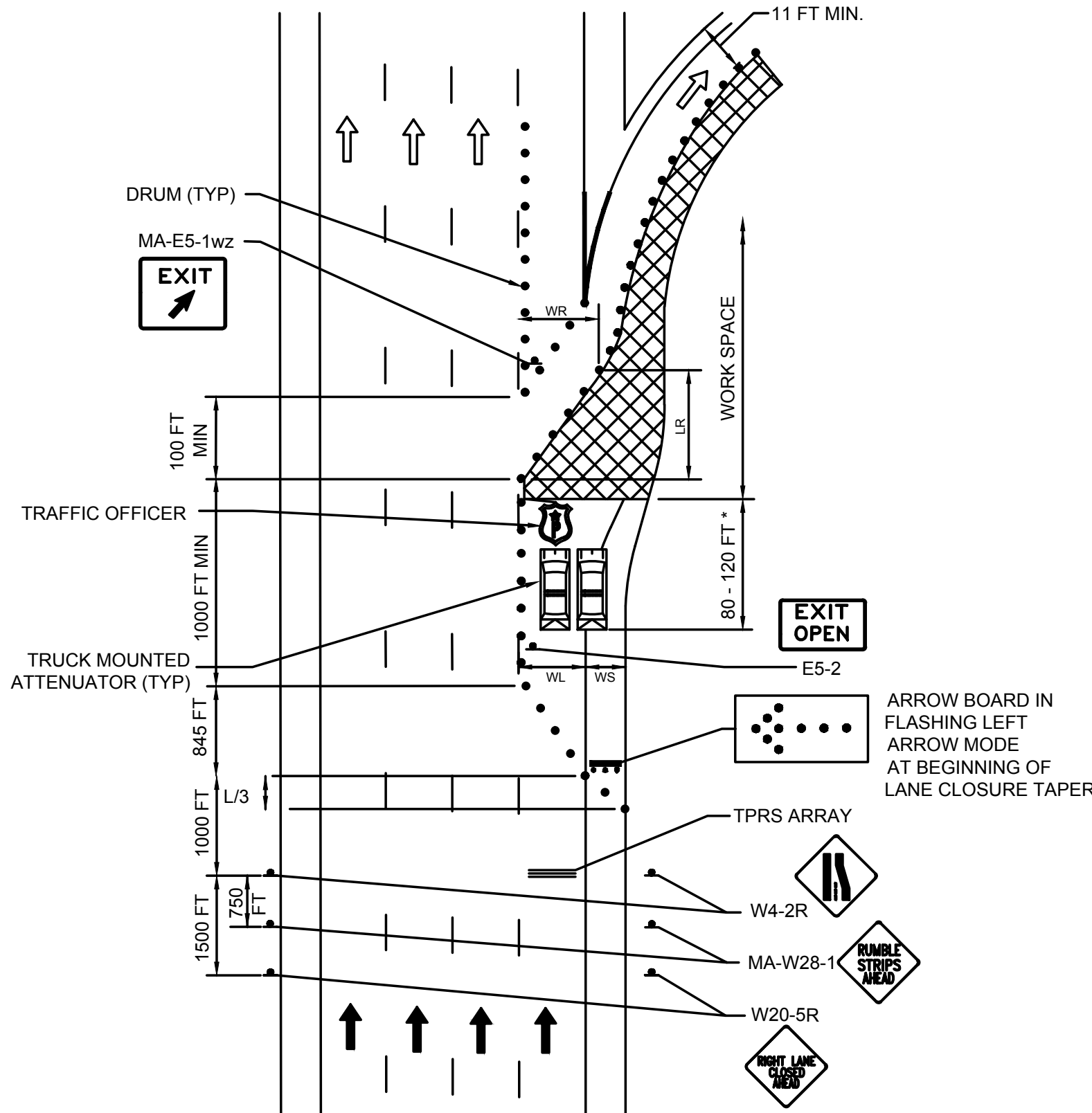
STAGE THREE ROLLING
ROAD BLOCK
NOT TO SCALE

NOTES:
STAGE THREE BEGINS WHEN A GAP LARGE ENOUGH TO ALLOW TIME FOR THE WORK TO BE COMPLETED HAS OPENED UP BETWEEN THE PACING VEHICLES AND THE FREE-FLOWING TRAFFIC IN FRONT OF THEM. CHASE VEHICLE SHALL FOLLOW THE LAST FREE-FLOWING VEHICLE AND VERIFY THAT ALL ACCESS POINTS BEFORE THE WORK ZONE HAVE BEEN CLOSED AND NO STOPPED VEHICLES REMAIN ON THE ROADWAY. WHEN THE CHASE VEHICLE PASSES THE WORK ZONE AND CONFIRMS WITH THE TRAFFIC CONTROL SUPERVISOR THAT THE ROADWAY IS CLOSED AND CLEAR, THE PROPOSED WORK CAN BEGIN.

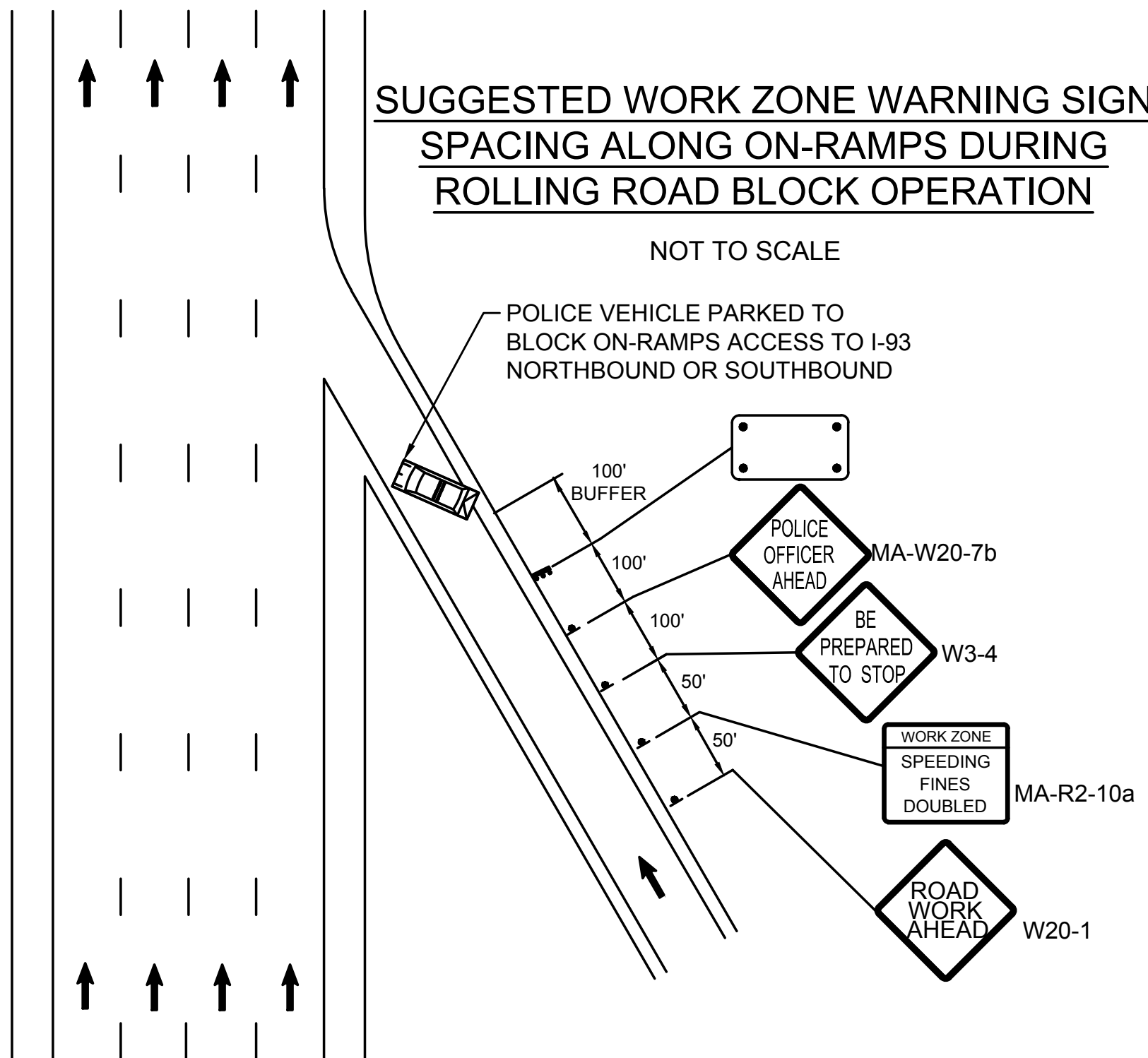


STAGE FOUR ROLLING
ROAD BLOCK
NOT TO SCALE

NOTES:
STAGE FOUR BEGINS WHEN THE PACE SETTING VEHICLES ARE WITHIN TWO MILES OF THE WORK AREA AT WHICH POINT THEY MUST NOTIFY THE LEAD COORDINATOR OF THEIR POSITION. IF THE WORK IS COMPLETED AND THE WORK SPACE IS CLEARED, THE PACE SETTING VEHICLES WOULD PROCEED THROUGH THE CLEARED WORK AREA AND IMMEDIATELY MOVE TO THE RIGHT SHOULDER.



TYPICAL TRAFFIC MANAGEMENT PLAN
DIVIDED HIGHWAY WORK IN VICINITY OF EXIT RAMP (APPROACH)
NOT TO SCALE



NOTES:

- 100' MINIMUM SIGN SPACING ALONG ON-RAMPS AND 500' MINIMUM SIGN SPACING ON I-93 NORTHBOUND IS RECOMMENDED.
- 100' MINIMUM SIGN SPACING ALONG ON-RAMPS AND 500' MINIMUM SIGN SPACING ON I-93 SOUTHBOUND IS RECOMMENDED.

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HHP(BR)-0034(029)X	19	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL DETAIL - 3

TRAFFIC PACING

- INSTALL MOVING OPERATIONS AHEAD (MA-W21-9) SIGNS APPROXIMATELY 1 MILE PRIOR TO THE WORK AREA AND INSTALL ROAD CLOSED (W20-3) SIGNS APPROXIMATELY 1000' PRIOR TO THE WORK AREA. THESE SIGNS SHALL REMAIN COVERED UNTIL THE PACING OPERATION BEGINS AND BE COVERED AGAIN WHEN THE PACING OPERATION HAS ENDED.
- SEE TYPICAL DETAIL SHEET 1 FOR SUGGESTED WORK ZONE WARNING SIGN SPACING ALONG I-93 DURING ROLLING ROAD BLOCK OPERATIONS.
- POLICE DETAILS SHALL BLOCK ACCESS POINTS UNTIL THE TRAFFIC CONTROL SUPERVISOR SAYS THE WORK ZONE IS ALL CLEAR AND THE ROLLING QUEUE HAS PASSES THE ACCESS POINT.
- PRIOR TO REQUESTING THAT THE TRAFFIC CONTROL OFFICER SUPERVISOR INITIATE THE PACING OPERATION, THE CONTRACTOR SHALL ENSURE THAT THE NECESSARY EQUIPMENT IS PROPERLY POSITIONED (OFF THE ROADWAY) FOR THE CONSTRUCTION ACTIVITY REQUIRING THE TRAFFIC PACING OPERATION.
- TRUCK MOUNTED ATTENUATOR(S) WITH CHANGEABLE MESSAGE SIGN(S) ARE REQUIRED TO PROTECT WORKERS AND/OR EQUIPMENT POSITIONED IN A TRAVEL LANE(S) AT THE WORK AREA DURING THE PACING OPERATION FROM AN ERRANT VEHICLE. IF NO WORKERS AND/OR EQUIPMENT ARE POSITIONED IN A TRAVEL LANE(S) AT THE WORK AREA, TRUCK MOUNTED ATTENUATOR(S) ARE NOT REQUIRED.
- A TRAFFIC CONTROL OFFICER SUPERVISOR SHALL BE STATIONED AT THE WORK AREA CONTINUOUSLY THROUGHOUT THE PACING OPERATION TO ENSURE RADIO COMMUNICATIONS BETWEEN THE CONTRACTOR AND/OR THE PROJECT ADMINISTRATOR, AND ALL THE POLICE VEHICLES INVOLVED IN THE PACING OPERATION.
- WHEN MORE THAN ONE PACING OPERATION IS REQUIRED IN ONE WORK PERIOD THE CONTRACTOR SHALL ALLOW SUFFICIENT TIME BETWEEN PACING OPERATIONS TO PERMIT TRAFFIC TO RETURN TO NORMAL/SPEEDS AND FLOW. ADDITIONAL TIME MAY BE REQUIRED BETWEEN PACING OPERATIONS TO ALLOW TRAFFIC TO RESUME NORMAL SPEEDS AND FLOW UPSTREAM OF THE WORK AREA AS DETERMINED BY THE PROJECT ADMINISTRATOR OR TRAFFIC CONTROL OFFICER SUPERVISOR.
- THE MINIMUM SPEED ALLOWED FOR PACING OPERATION IS 10MPH, WITH 20MPH THE PREFERRED SPEED.
- THE MAXIMUM ALLOWED WORK DURATION IS 30 MINUTES.
- THE MAXIMUM PRACTICAL OPERATION LENGTH IS 10 MILES.
- RRB IS TO BE DONE AT NIGHTTIME ONLY (HOURS TO BE APPROVED BY ENGINEER).

GENERAL ROLLING ROAD BLOCK NOTES

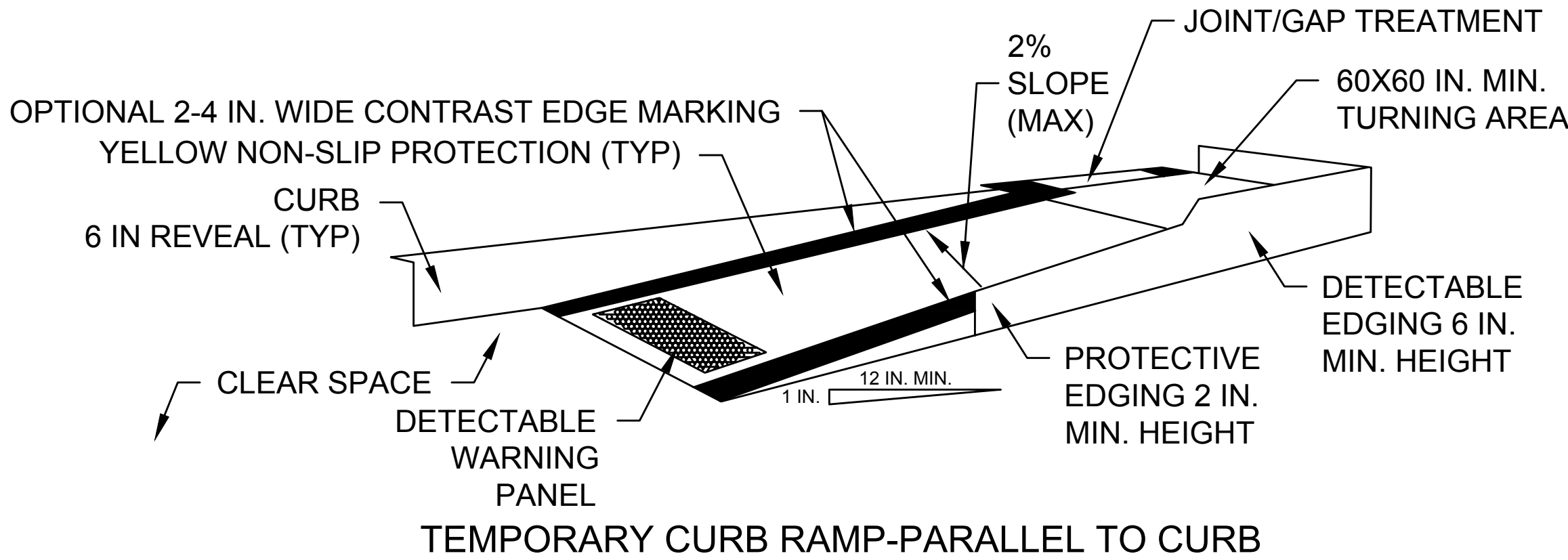
- SEE TYPICAL DETAIL SHEET 1 FOR SUGGESTED WORK ZONE WARNING SIGN SPACING ALONG I-93 DURING ROLLING ROAD BLOCK OPERATIONS.
- POLICE DETAILS SHALL BLOCK ACCESS POINTS UNTIL THE TRAFFIC CONTROL SUPERVISOR SAYS THE WORK ZONE IS ALL CLEAR AND THE ROLLING QUEUE HAS PASSES THE ACCESS POINT.

	I-93 SOUTHBOUND	I-93 NORTHBOUND
ANTICIPATED RAMP CLOSURE	LOWELL STREET OFF-RAMP	LOWELL STREET OFF-RAMP
POINT OF ENTRY: WORK VEHICLES	CONCORD STREET ON-RAMP	ATLANTIC AVENUE ON-RAMP
POINT OF ENTRY: GENERAL TRAFFIC	YANKEE DIVISION HWY OFF-RAMP	CONCORD STREET OFF-RAMP

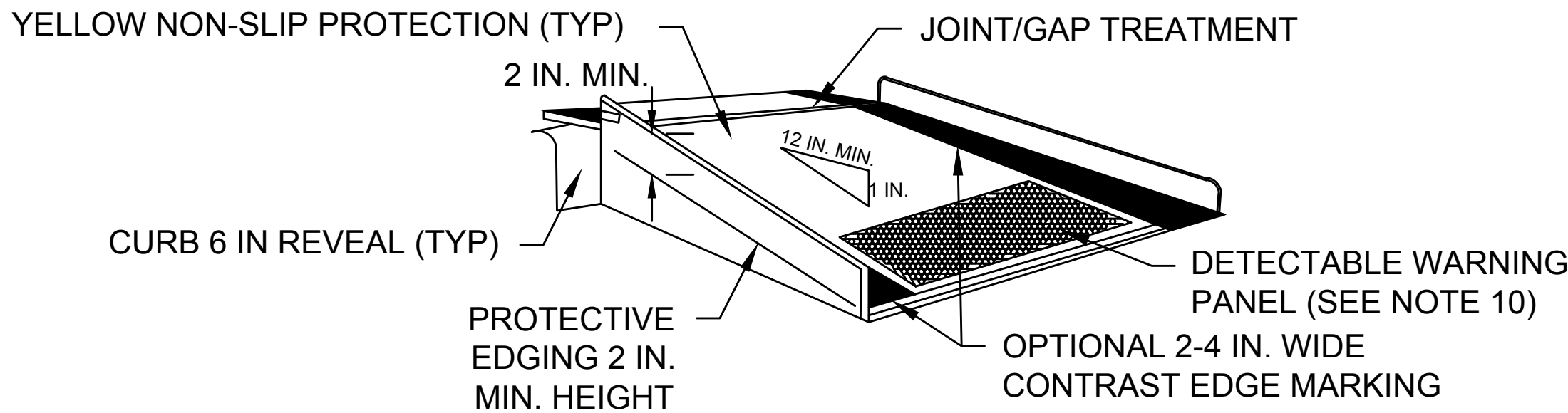
ANTICIPATED MAINLINE ROLLING ROAD BLOCKS
LOWELL STREET ON-RAMP CLOSURES

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ONJ)HIP(BR)-0034(029)X	20	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL DETAIL - 4



TEMPORARY CURB RAMP-PARALLEL TO CURB

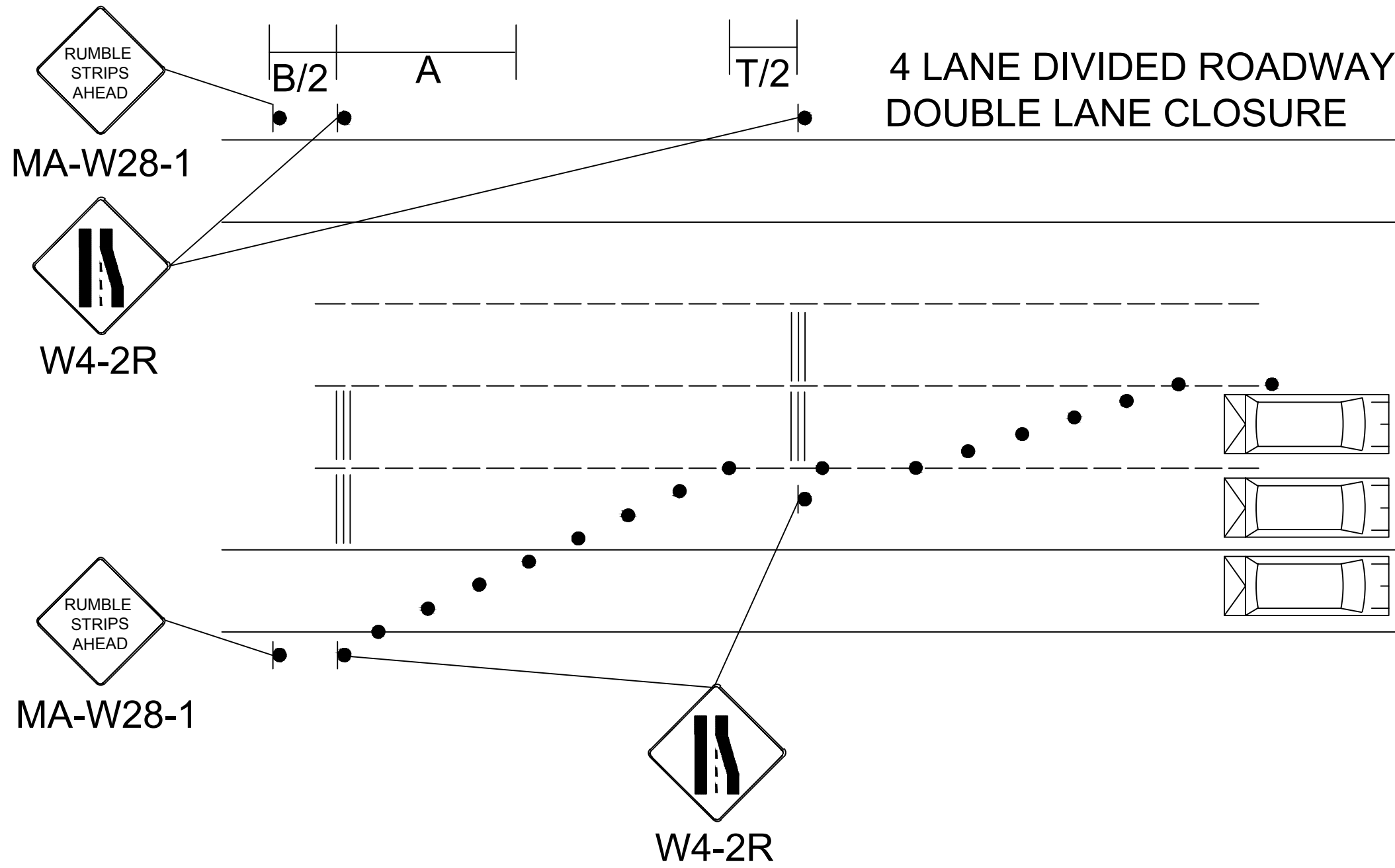


TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

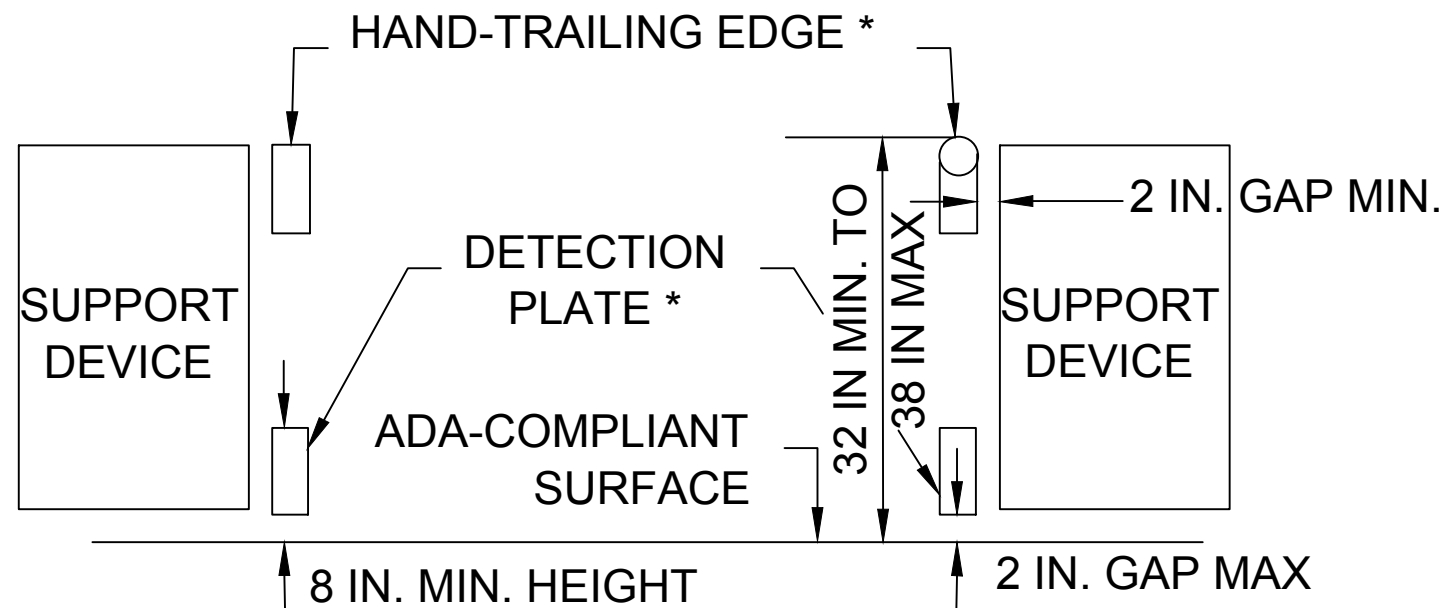
TEMPORARY CURB RAMP SYSTEM
(NOT TO SCALE)

NOTES:

- CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
- PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3 IN. OR MORE.
- DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
- CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
- THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE MARKED WITH A CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
- WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
- LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
- CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.
- TYPICAL DETAILS ON THIS SHEET MAY NOT BE NEEDED AND ARE PROVIDED FOR REFERENCE PURPOSES.
- IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.

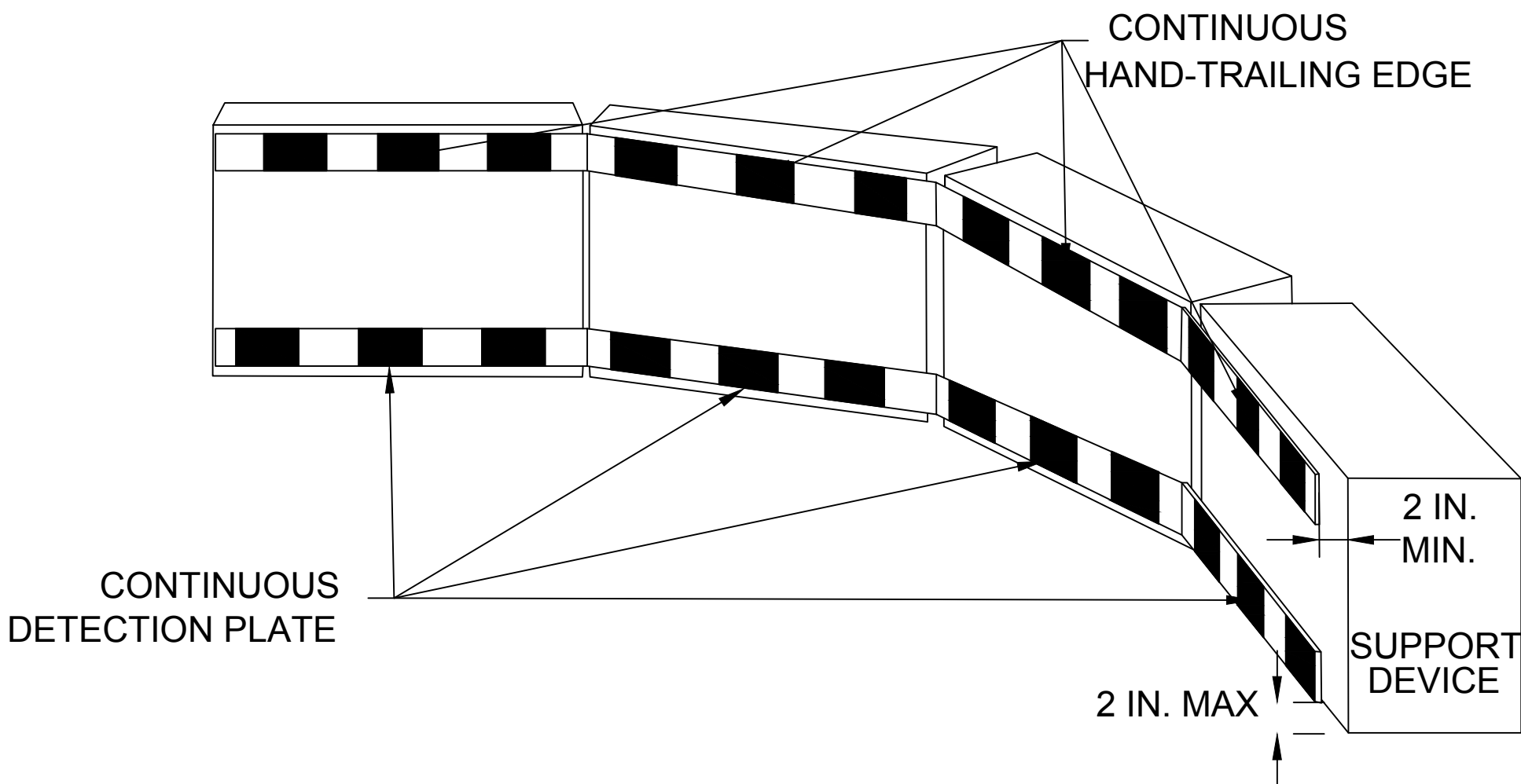


TEMPORARY PLACEMENT OF RUMBLE STRIPS
(NOT TO SCALE)



CROSS SECTION VIEW
PEDESTRIAN CHANNELIZING DEVICE

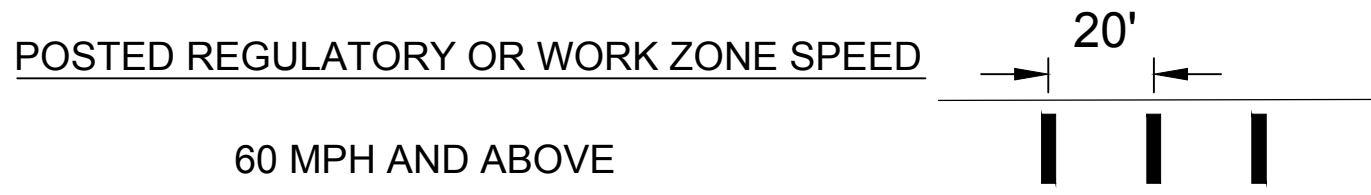
- * THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGH-OUT THE LENGTH OF THE PATH.



NOTES:

- THERE SHOULD BE AT LEAST A 2-INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
- A MAXIMUM 2-INCH GAP BETWEEN THE BOTTOM OF THE CONTINUOUS DETECTION PLATE AND THE WALKWAY MAY BE USED TO PROVIDE DRAINAGE.
- SHEETING PANELS MAY BE EITHER VERTICAL OR AT A 45-DEGREE ANGLE.
- HAND-TRAILING EDGE AND/OR DETECTION PLATES ARE OPTIONAL FOR CONTINUOUS WALLS.

TEMPORARY PEDESTRIAN BARRICADE
(NOT TO SCALE)

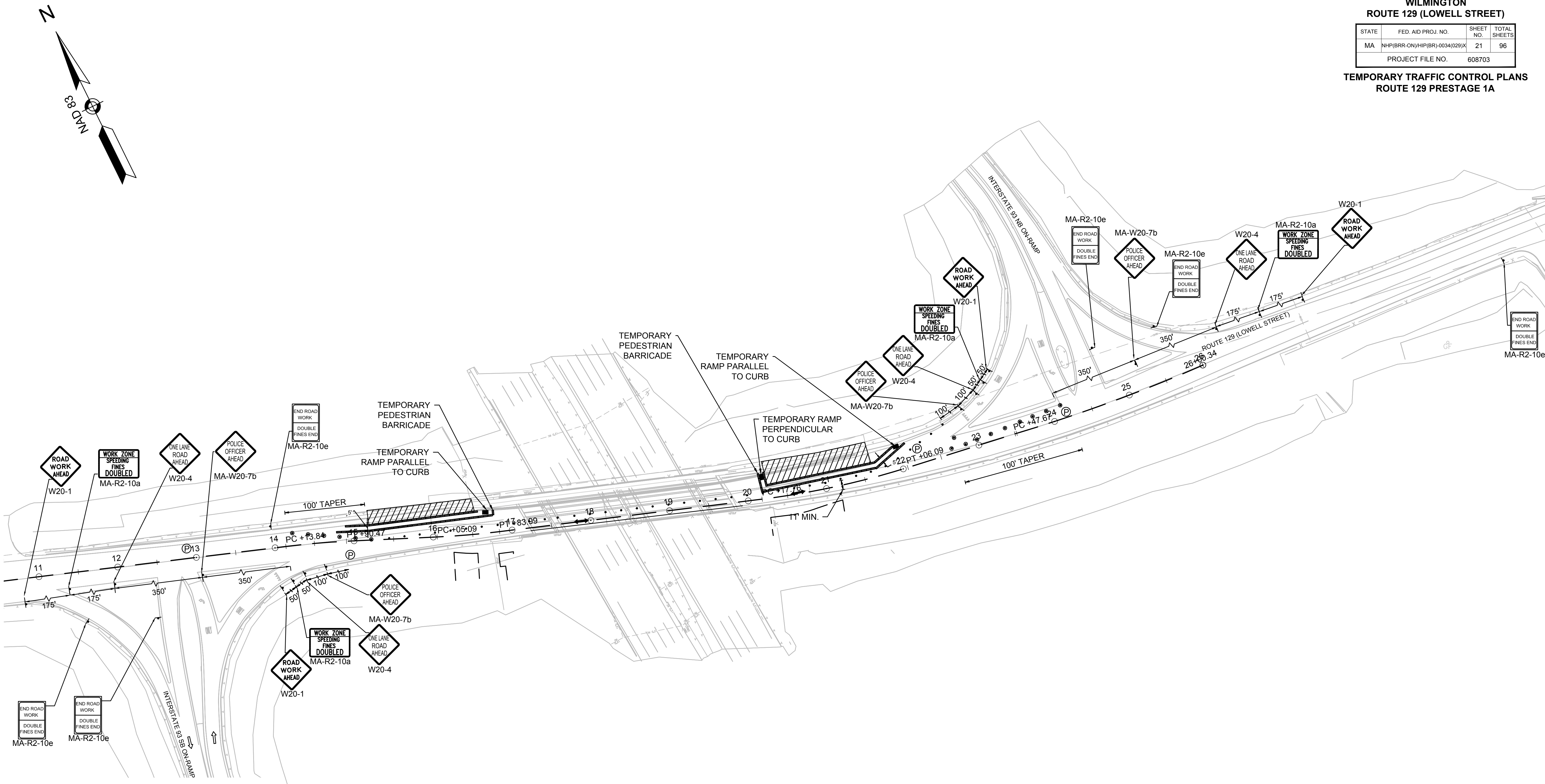


TEMPORARY RUMBLE STRIP DETAIL
(NOT TO SCALE)

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	21	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLANS
ROUTE 129 PRESTAGE 1A



LEGEND

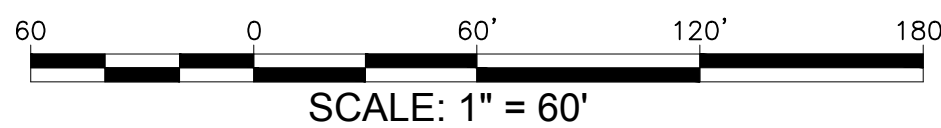
- WORK ZONE
- TEMPORARY BARRIER - TL-3
- TEMPORARY BARRIER - LIMITED DEFLECTION - TL-3
- TYPE III BARRICADE
- TRAFFIC SIGN
- PROPOSED DIRECTION OF TRAFFIC
- SEQUENTIALLY FLASHING DRUMS
- DRUMS
- POLICE OFFICER
- TEMPORARY PEDESTRIAN BARRICADE
- TEMPORARY PEDESTRIAN CURB RAMP

CONSTRUCTION EVENT:

- INSTALL ELECTRICAL CONDUIT.

NOTES:

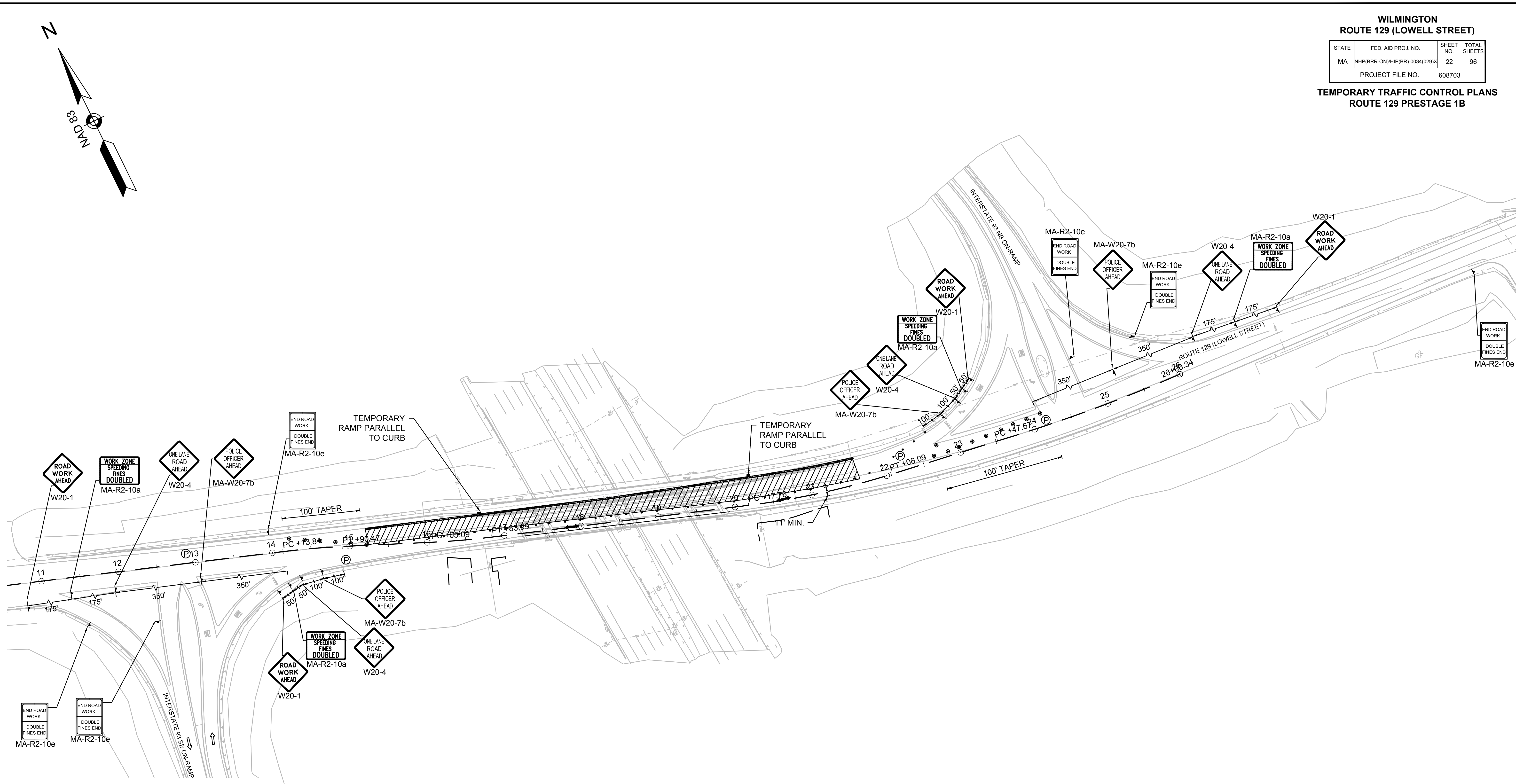
- A MINIMUM OF 11' WIDE TRAVEL LANE AND 1' WIDE SHOULDERS MUST BE MAINTAINED TO ACCOMMODATE ONE-WAY ALTERNATING TRAFFIC.
- SHORT TERM SET UP TO BE IMPLEMENTED DURING OFF-PEAK NIGHTTIME WORK FROM 12 AM TO 5 AM.



WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	22	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLANS
ROUTE 129 PRESTAGE 1B



LEGEND

- WORK ZONE
- TEMPORARY BARRIER - TL-3
- TEMPORARY BARRIER - LIMITED DEFLECTION - TL-3
- TYPE III BARRICADE
- TRAFFIC SIGN
- PROPOSED DIRECTION OF TRAFFIC
- SEQUENTIALLY FLASHING DRUMS
- DRUMS
- POLICE OFFICER
- TEMPORARY PEDESTRIAN CURB RAMP
- TEMPORARY PEDESTRIAN BARRICADE

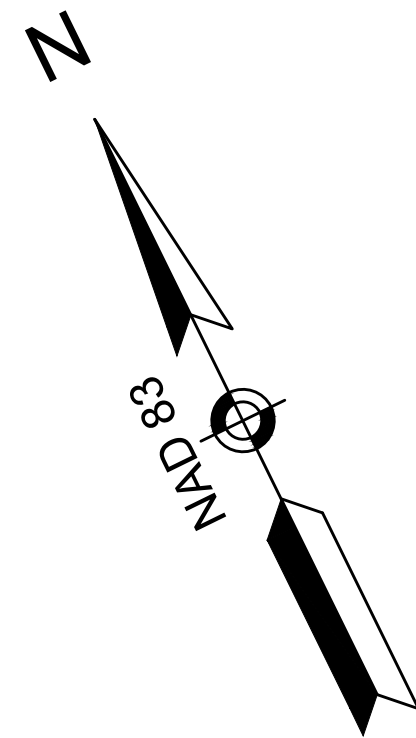
CONSTRUCTION EVENT:

1. INSTALL ELECTRICAL CONDUIT.

NOTES:

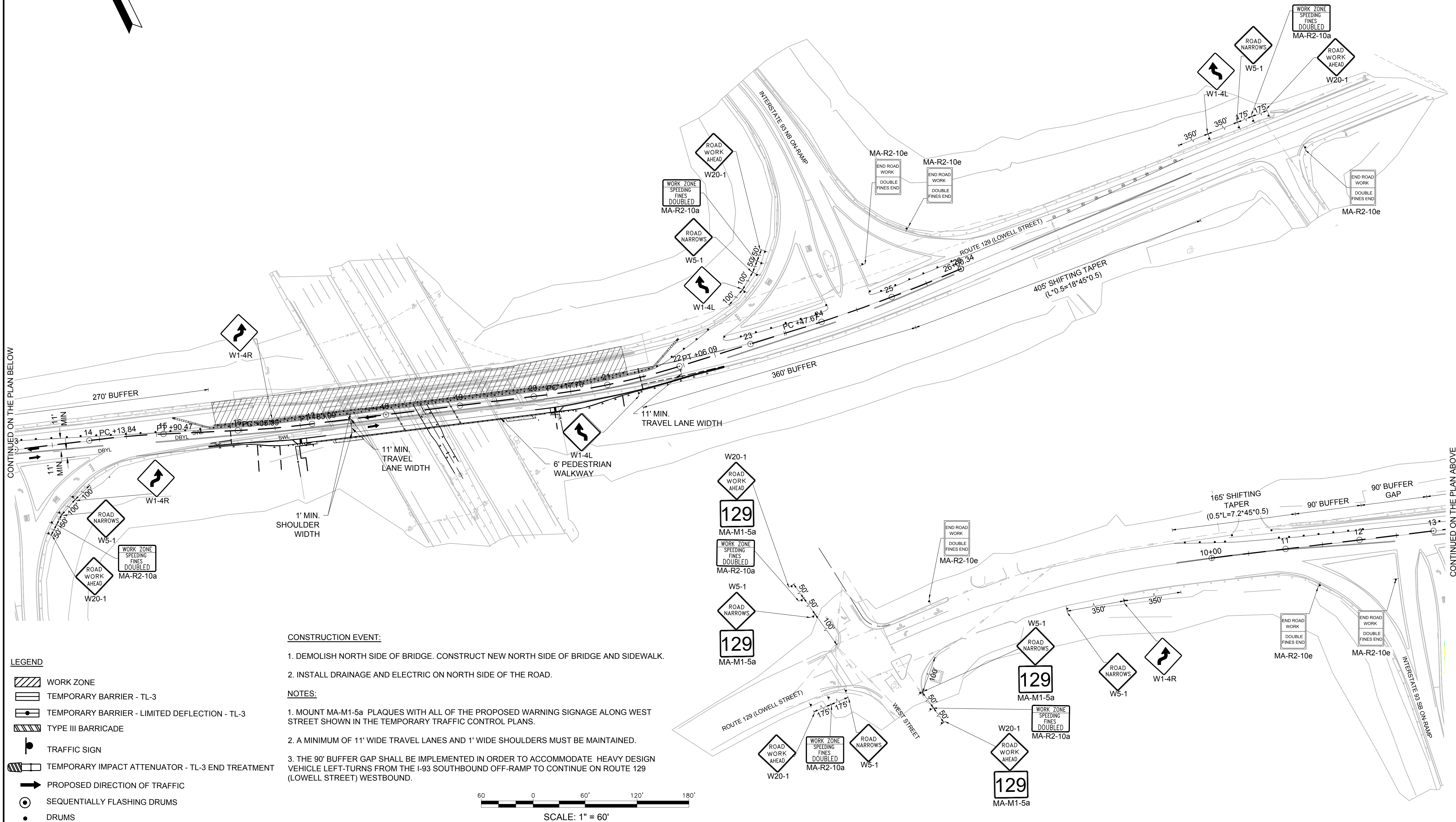
1. A MINIMUM OF 11' WIDE TRAVEL LANE AND 1' WIDE SHOULDERS MUST BE MAINTAINED TO ACCOMMODATE ONE-WAY ALTERNATING TRAFFIC.
2. SHORT TERM SET UP TO BE IMPLEMENTED DURING OFF-PEAK NIGHTTIME WORK FROM 12 AM TO 5 AM.

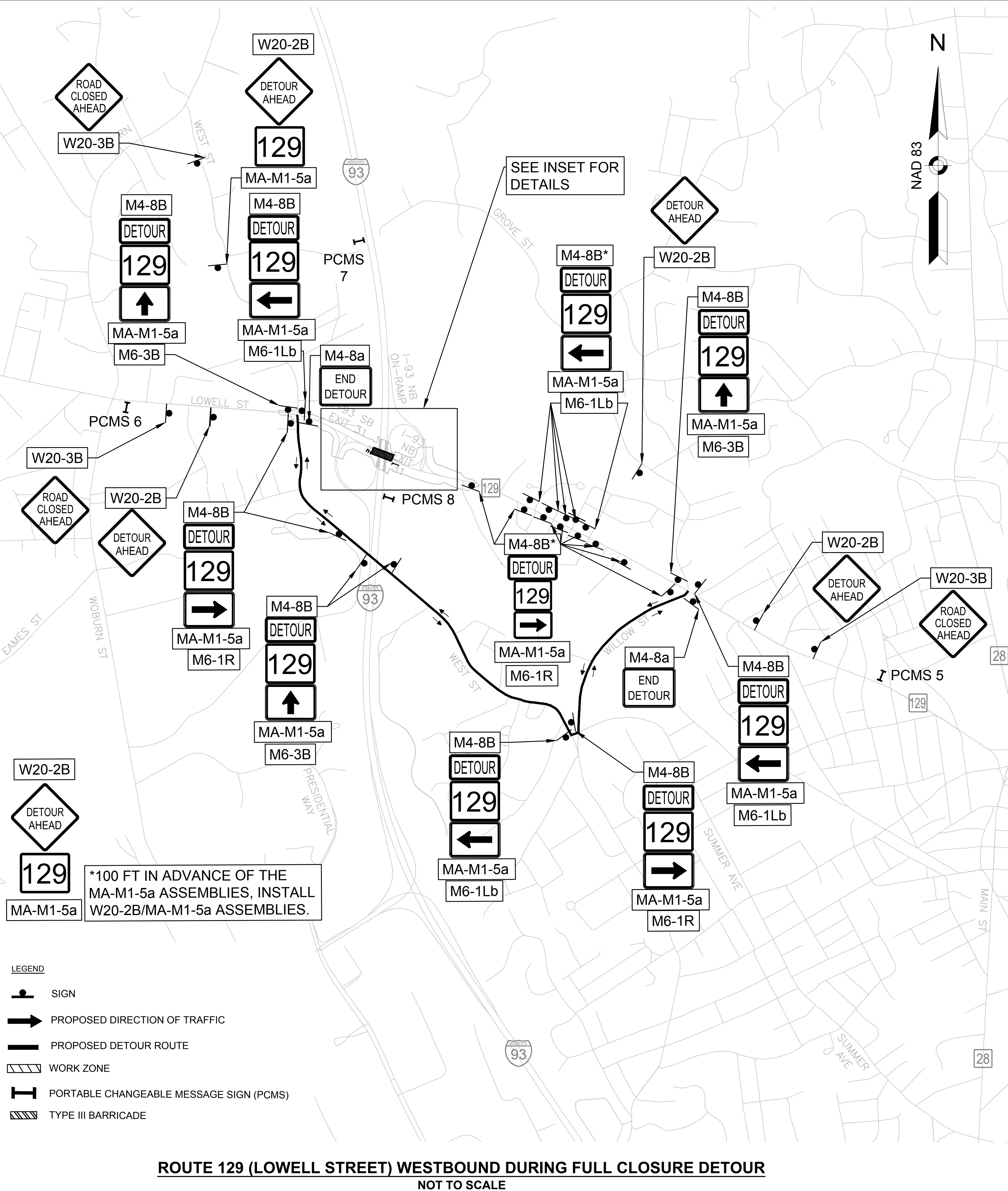




WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/H(P(BR)-0034(029)X	24	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLAN
ROUTE 129 STAGE 2





WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	25	96
PROJECT FILE NO.		608703	

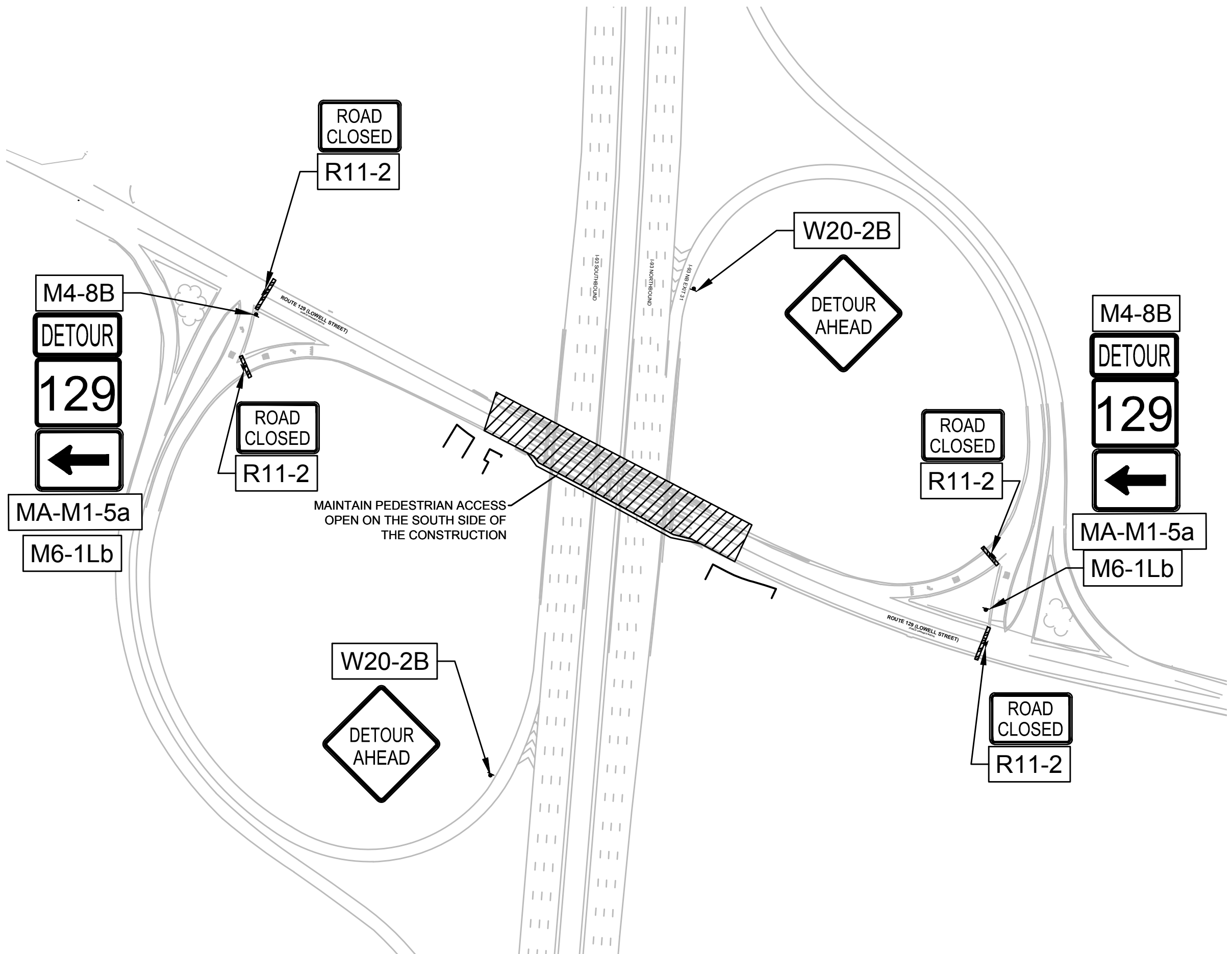
ROUTE 129 LOWELL STREET
WESTBOUND FULL CLOSURE DETOUR

DETOUR NOTES:

1. THIS SET UP SHALL BE IMPLEMENTED WITH THE ROUTE 129 FULL CLOSURE SHOWN BELOW. WORK HOURS AND WORK HOURS RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.
2. THE CONTRACTOR SHALL COORDINATE APPROVAL AND IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, TOWN OF READING, AND TOWN OF WILMINGTON DEPARTMENT OF PUBLIC WORKS PRIOR TO CONSTRUCTION ACTIVITIES.
3. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. DEPLOY ALL PCMS TWO WEEKS IN ADVANCE OF LOWELL STREET BRIDGE CLOSURE. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
4. USE FLAGS ON ADVANCED WARNING SIGNS. FLAGS SHALL BE AT LEAST 16" X 16".
5. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
6. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
7. EXISTING SIGNS NO LONGER APPLICABLE SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
8. SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SETH FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
9. SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
10. DETOUR TO BE IMPLEMENTED DURING 12AM-5AM.
11. WORK HOURS AND WORK HOUR RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 5,6,7,8	RTE 129 CLOSED	MMM/DD - MMM/DD 12AM-5AM

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 5,6,7,8	RTE 129 CLOSED	FOLLOW DETOUR AHEAD



LEGEND

- WORK ZONE
- TEMPORARY RUMBLE STRIPS
- TRAFFIC SIGN
- DRUMS

- PROPOSED DIRECTION OF TRAFFIC
- SEQUENTIALLY FLASHING DRUMS

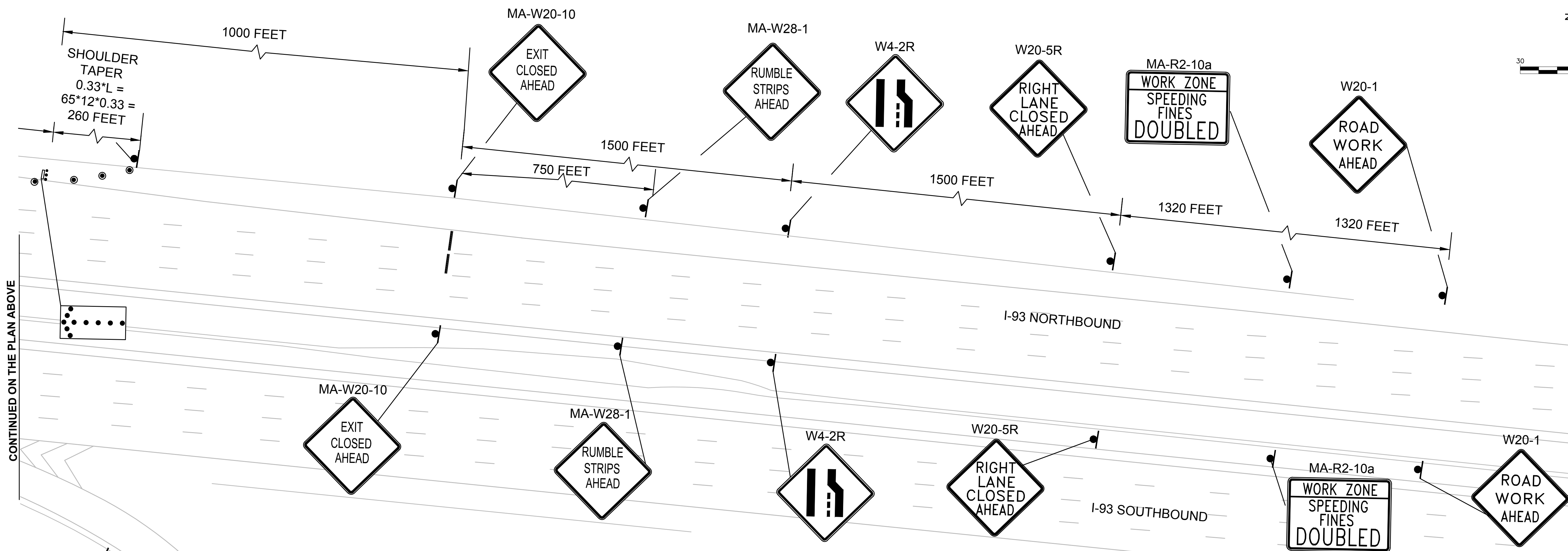
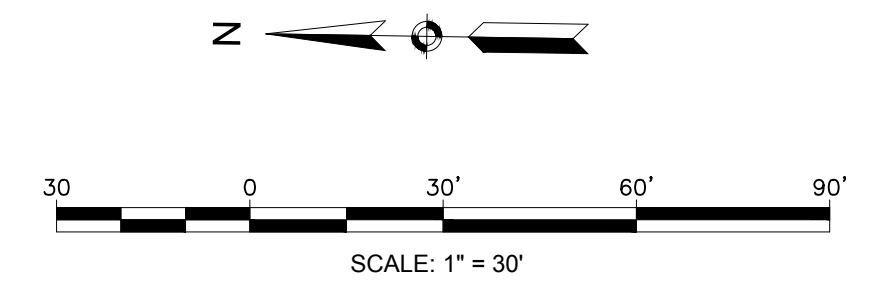
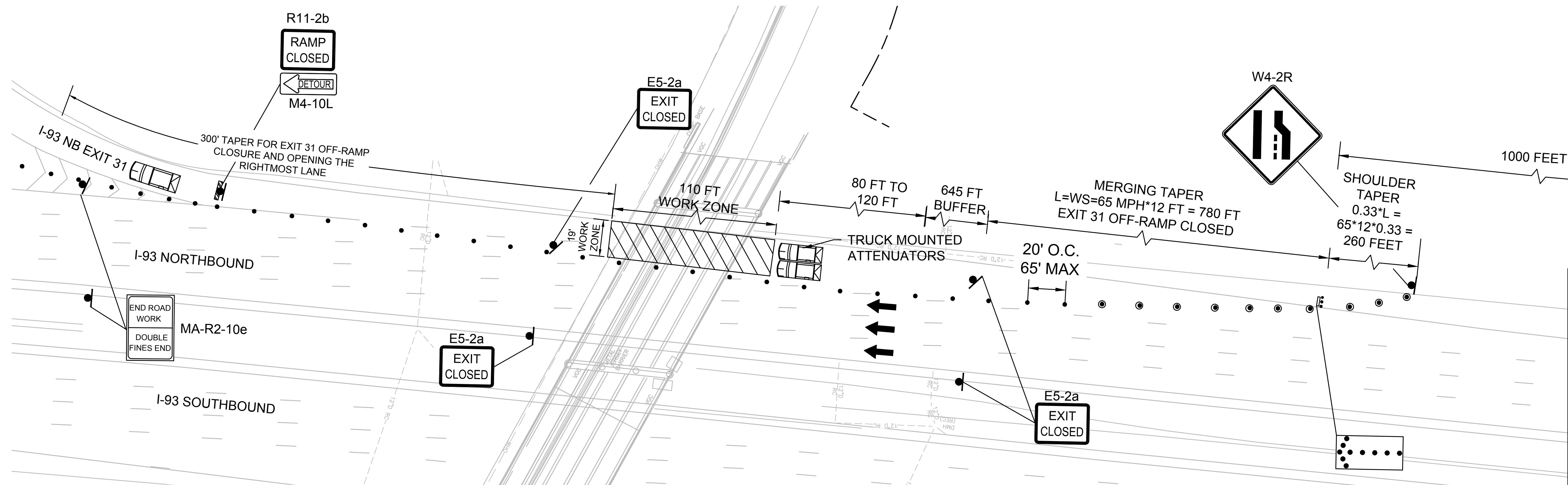
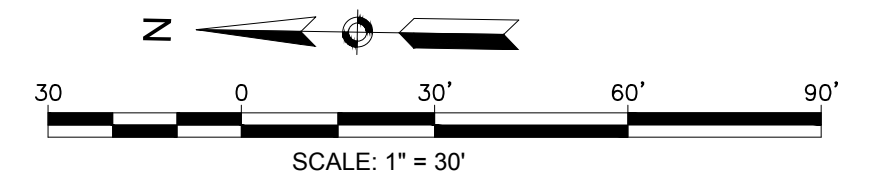
NOTE:

- TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	26	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLANS
I-93 NORTHBOUND ONE LANE CLOSURE



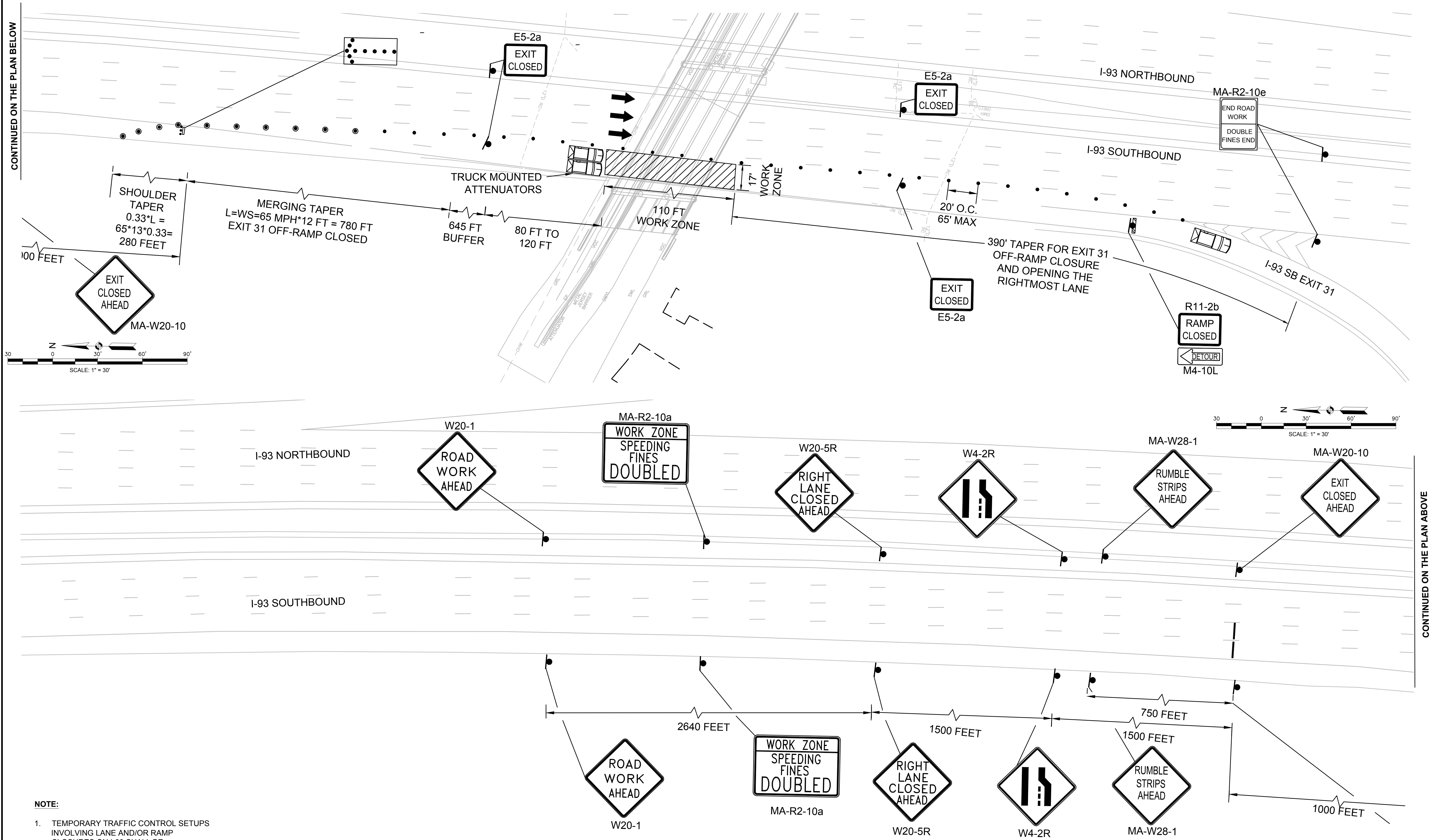
LEGEND

- WORK ZONE
- TEMPORARY RUMBLE STRIPS
- TRAFFIC SIGN
- DRUMS
- PROPOSED DIRECTION OF TRAFFIC
- SEQUENTIALLY FLASHING DRUMS

WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	27	96
PROJECT FILE NO.		608703	

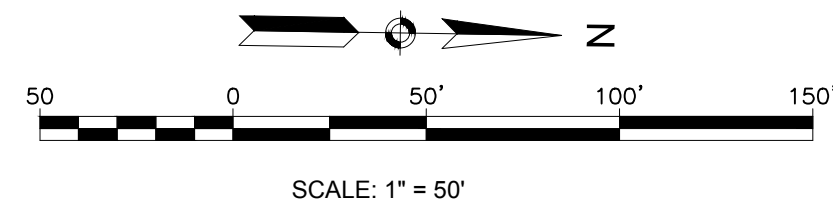
TEMPORARY TRAFFIC CONTROL PLANS
I-93 SOUTHBOUND ONE LANE CLOSURE



- NOTE:
- TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM

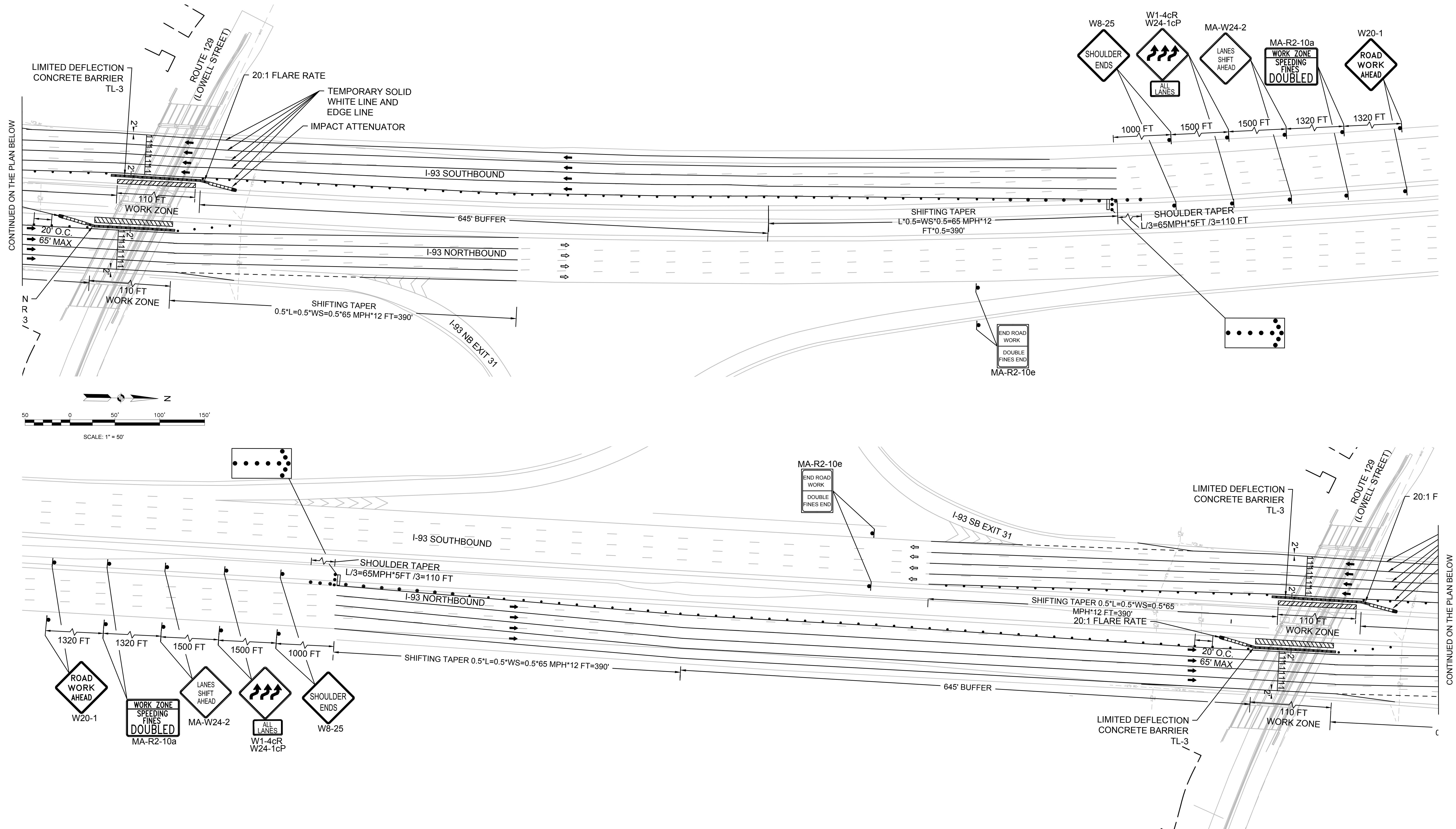
NOTE:

1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.



WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	28	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLAN
I-93 LEFT LANE CLOSURE

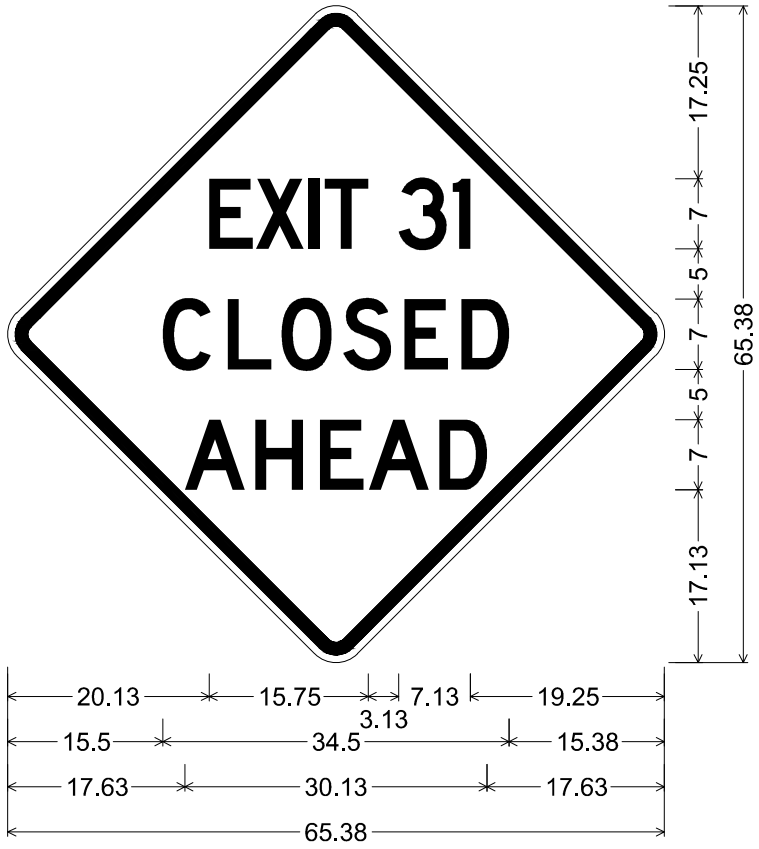


DETOUR NOTES:

1. THIS SET UP SHALL BE IMPLEMENTED WITH THE I-93 NORTHBOUND RAMP CLOSURE SHOWN ON SHEET 35. WORK HOURS AND WORK HOURS RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.
2. THE CONTRACTOR SHALL COORDINATE APPROVAL AND IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, TOWN OF READING, AND TOWN OF WILMINGTON DEPARTMENT OF PUBLIC WORKS PRIOR TO CONSTRUCTION ACTIVITIES.
3. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. DEPLOY ALL PCMS TWO WEEKS IN ADVANCE OF LOWELL STREET BRIDGE CLOSURE. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
4. USE FLAGS ON ADVANCED WARNING SIGNS. FLAGS SHALL BE AT LEAST 16" X 16".
5. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
6. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
7. EXISTING SIGNS NO LONGER APPLICABLE SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
8. SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
9. SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 1	EXIT 31 CLOSED	MMM/DD - MMM/DD 12AM-5AM

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 1	EXIT 31 CLOSED	FOLLOW DETOUR AHEAD

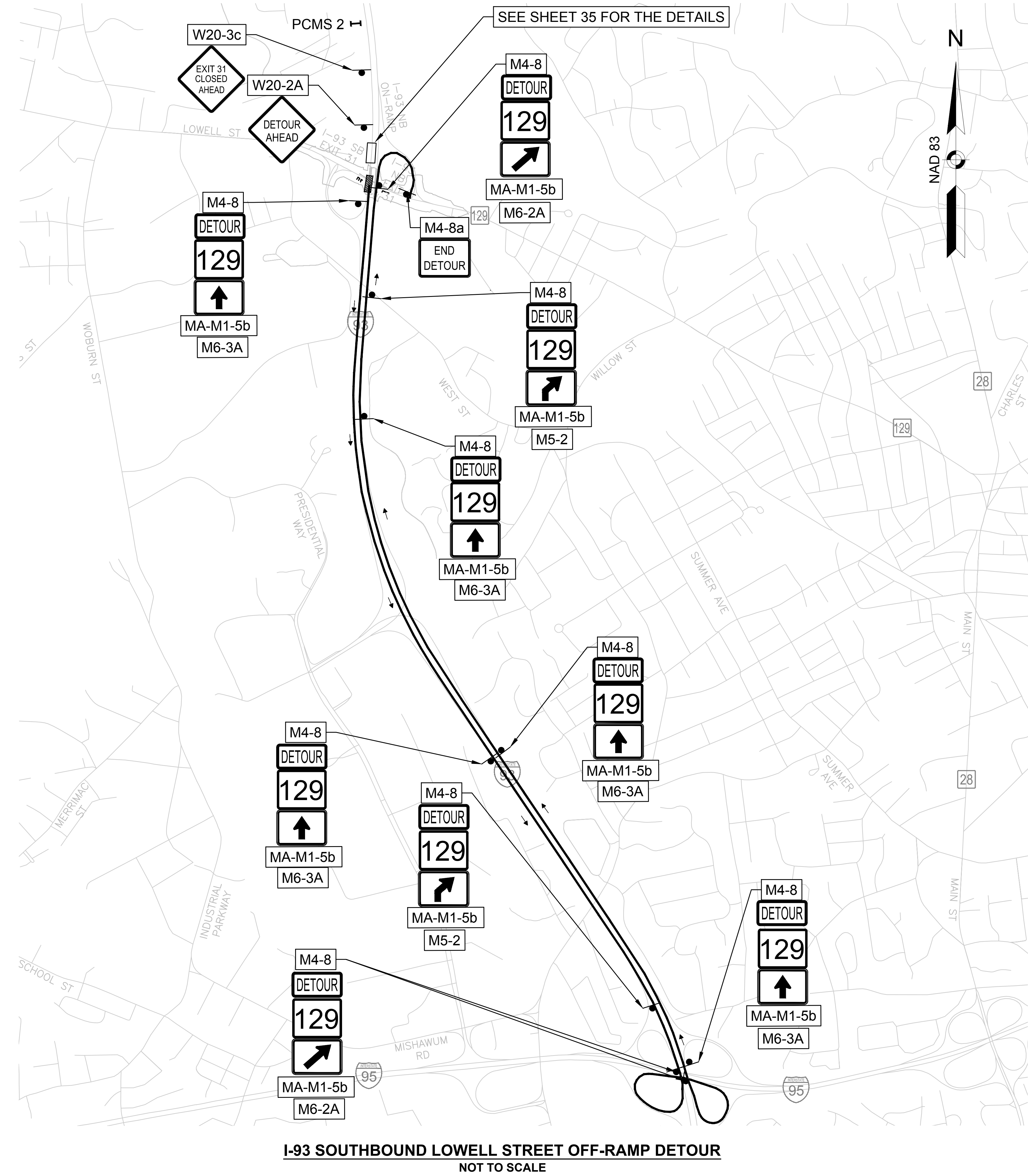


48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
"EXIT 31", D 2K specified length;
"CLOSED", D 2K specified length;
"AHEAD", D 2K;

SIGN DETAIL - W20-3c
NOT TO SCALE

- LEGEND
- SIGN
- PROPOSED DIRECTION OF TRAFFIC
- PROPOSED DETOUR ROUTE
- WORK ZONE
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

I-93 NORTHBOUND LOWELL STREET OFF-RAMP DETOUR
NOT TO SCALE



WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	30	96
PROJECT FILE NO.		608703	

I-93 SOUTHBOUND RAMP DETOUR

DETOUR NOTES:

1. THIS SET UP SHALL BE IMPLEMENTED WITH THE I-93 SOUTHBOUND RAMP CLOSURE SHOWN ON SHEET 36. WORK HOURS AND WORK HOURS RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.
2. THE CONTRACTOR SHALL COORDINATE APPROVAL AND IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, TOWN OF READING, AND TOWN OF WILMINGTON DEPARTMENT OF PUBLIC WORKS PRIOR TO CONSTRUCTION ACTIVITIES.
3. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. DEPLOY ALL PCMS TWO WEEKS IN ADVANCE OF LOWELL STREET BRIDGE CLOSURE. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
4. USE FLAGS ON ADVANCED WARNING SIGNS. FLAGS SHALL BE AT LEAST 16" X 16".
5. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
6. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
7. EXISTING SIGNS NO LONGER APPLICABLE SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
8. SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
9. SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 2	EXIT 31 CLOSED	MMM/DD - MMM/DD 12AM-5AM

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 2	EXIT 31 CLOSED	FOLLOW DETOUR AHEAD

- LEGEND
- SIGN
 - PROPOSED DIRECTION OF TRAFFIC
 - PROPOSED DETOUR ROUTE
 - WORK ZONE
 - PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

DETOUR NOTES:

1.

THIS SETUP SHALL BE IMPLEMENTED WITH THE I-93 SOUTHBOUND FULL CLOSURE SHOWN ON SHEET 33. WORK HOURS AND WORK HOURS RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.
2.

THE CONTRACTOR SHALL COORDINATE APPROVAL AND IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, TOWN OF READING, AND TOWN OF WILMINGTON DEPARTMENT OF PUBLIC WORKS PRIOR TO CONSTRUCTION ACTIVITIES.
3.

PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. DEPLOY ALL PCMS TWO WEEKS IN ADVANCE OF LOWELL STREET BRIDGE CLOSURE. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
4.

USE FLAGS ON ADVANCED WARNING SIGNS. FLAGS SHALL BE AT LEAST 16" X 16".
5.

TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
6.

THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
7.

EXISTING SIGNS NO LONGER APPLICABLE SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
8.

SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
9.

SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
10.

DETOUR TO BE IMPLEMENTED DURING 12AM-5AM.
11.

WORK HOURS AND WORK HOUR RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.

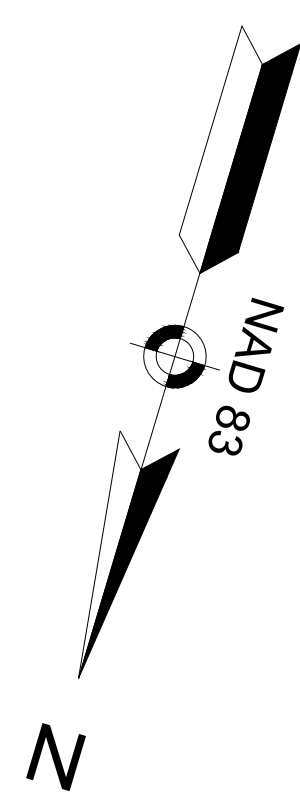
PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 3	I-93 SB CLOSED	MMM/DD - MMM/DD 12AM-5AM

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 3	I-93 SB CLOSED	FOLLOW DETOUR AHEAD

LEGEND

- SIGN
- PROPOSED DIRECTION OF TRAFFIC
- PROPOSED DETOUR ROUTE
- WORK ZONE
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

I-93 SOUTHBOUND FULL CLOSURE DETOUR
NOT TO SCALE



EXIT 33

MA-R2-10e

END ROAD WORK
DOUBLE FINES END

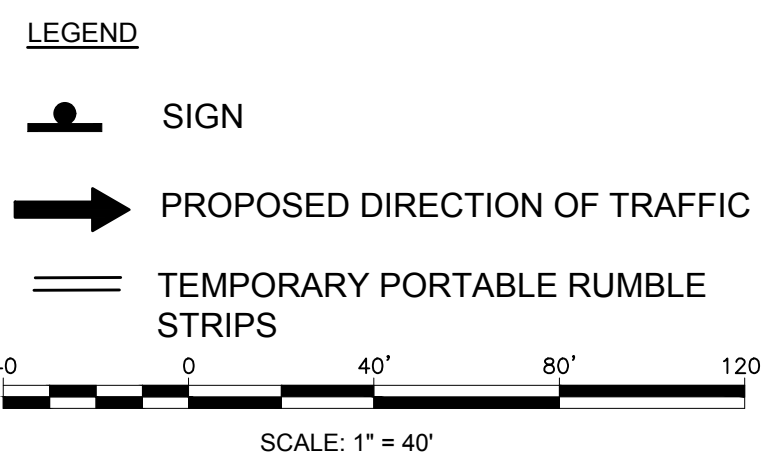
MERGING TAPER
L=WS=65 MPH*12 FT
= 780 FT

TANGENT LENGTH
2L=2*780 FT = 1560 FT

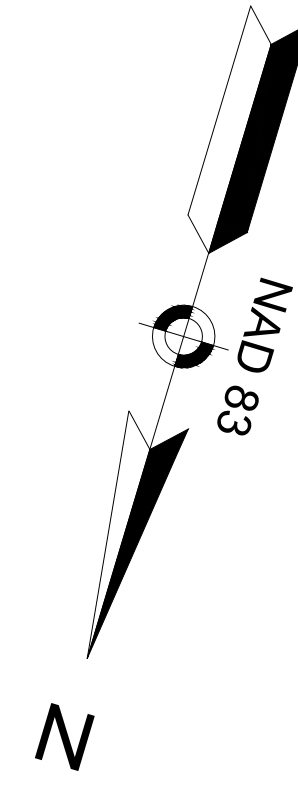
MERGING TAPER
L=WS=65 MPH*12 FT
= 780 FT

TANGENT LENGTH
2L=2*780 FT = 1560 FT

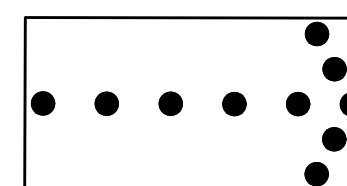
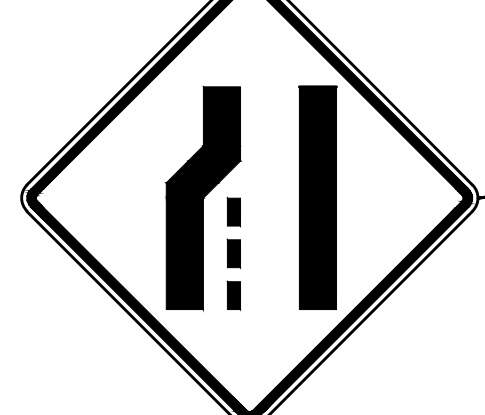
MERGING TAPER
L=WS=65 MPH*12 FT
= 780 FT



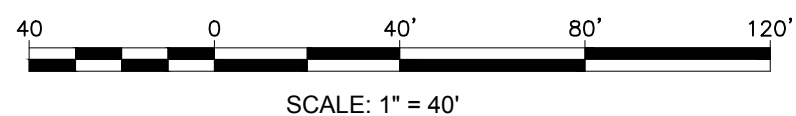
CONTINUED ON THE PLAN IN RIGHT



W4-2



W20-2



I-93 SOUTHBOUND CLOSURE
NOT TO SCALE

CONTINUED ON THE PLAN IN LEFT

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	32	96
PROJECT FILE NO.		608703	

I-93 SOUTHBOUND FULL CLOSURE DETOUR

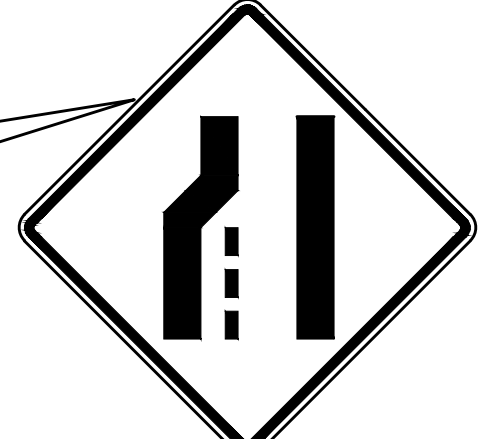
TANGENT LENGTH
2L=2*780 FT = 1560 FT

MERGING TAPER
L=WS=65 MPH*12 FT
= 780 FT

EXIT 34

EXIT 35

W4-2



W20-3



G20-1



DETOUR NOTES:

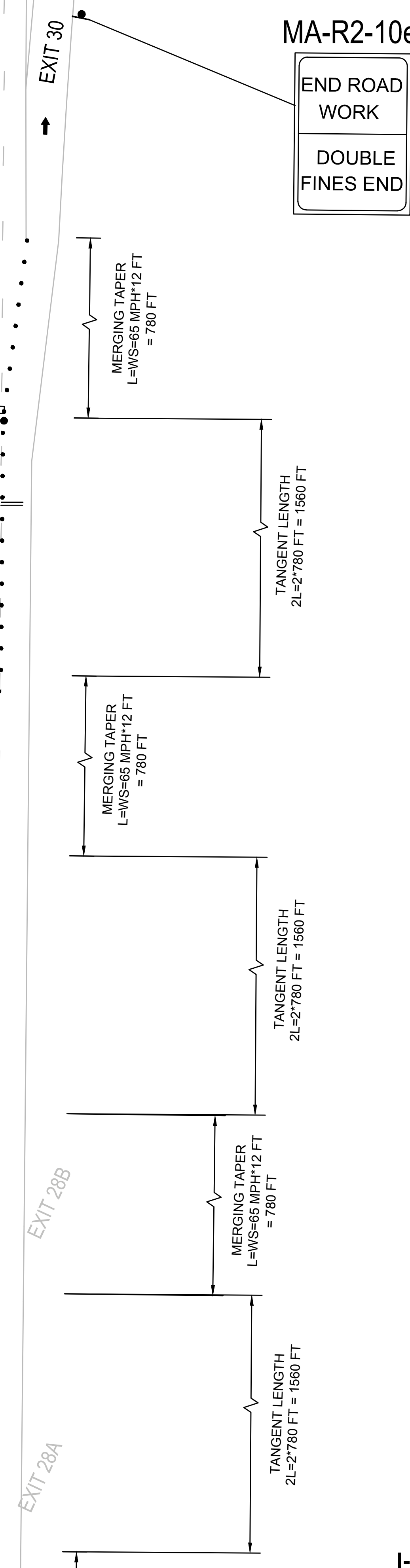
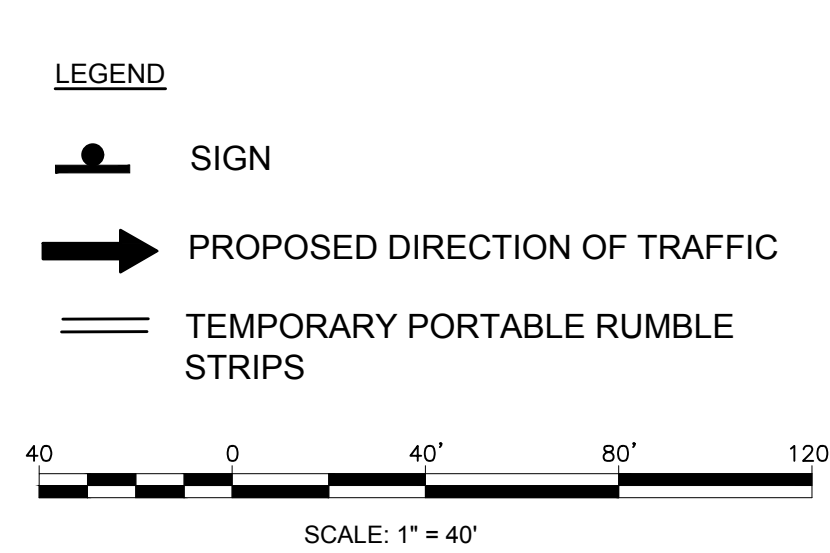
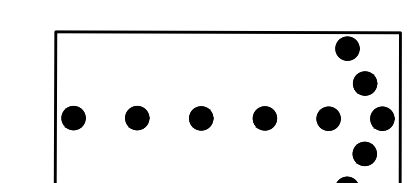
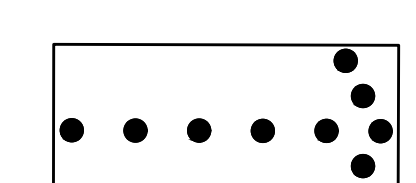
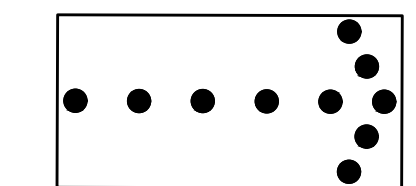
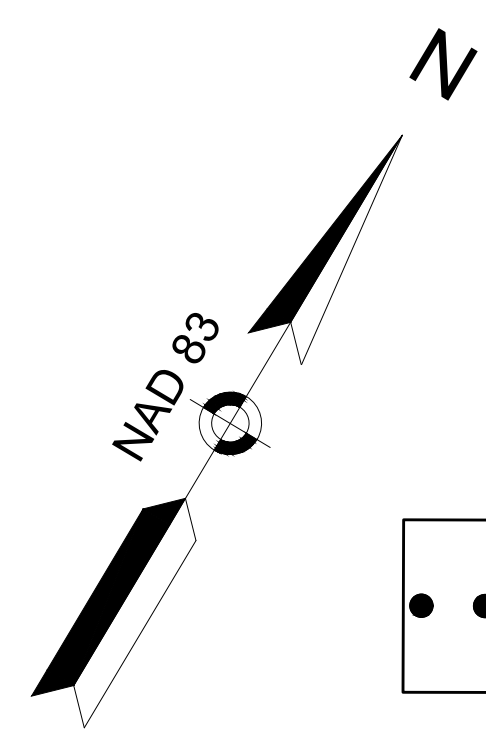
1. THIS SET UP SHALL BE IMPLEMENTED WITH THE I-93 NORTHBOUND FULL CLOSURE SHOWN ON SHEET 34. WORK HOURS AND WORK HOURS RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.
2. THE CONTRACTOR SHALL COORDINATE APPROVAL AND IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, TOWN OF READING, AND TOWN OF WILMINGTON DEPARTMENT OF PUBLIC WORKS PRIOR TO CONSTRUCTION ACTIVITIES.
3. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. DEPLOY ALL PCMS TWO WEEKS IN ADVANCE OF LOWELL STREET BRIDGE CLOSURE. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
4. USE FLAGS ON ADVANCED WARNING SIGNS. FLAGS SHALL BE AT LEAST 16" X 16".
5. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
6. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
7. EXISTING SIGNS NO LONGER APPLICABLE SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
8. SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
9. SIGN LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
10. DETOUR TO BE IMPLEMENTED DURING 12AM-5AM.
11. WORK HOURS AND WORK HOUR RESTRICTIONS SHALL BE IN ACCORDANCE WITH THE SPECIAL PROVISIONS SUPPLEMENT TO SUBSECTION 7.09.

PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 4	I-93 NB CLOSED	MMM/DD - MMM/DD 12AM-5AM

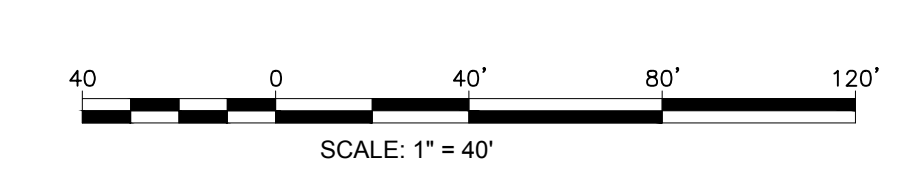
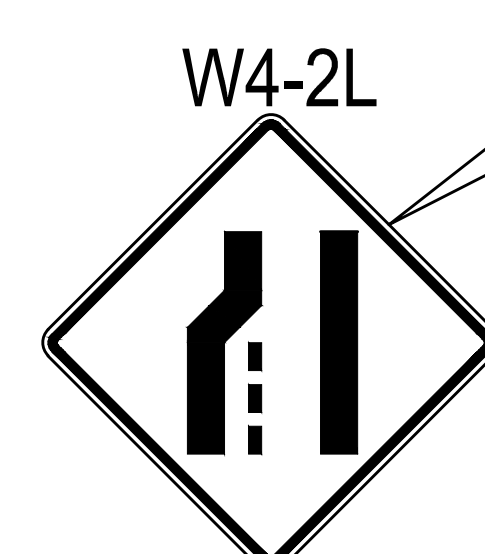
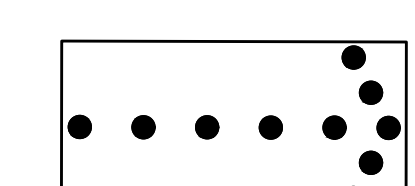
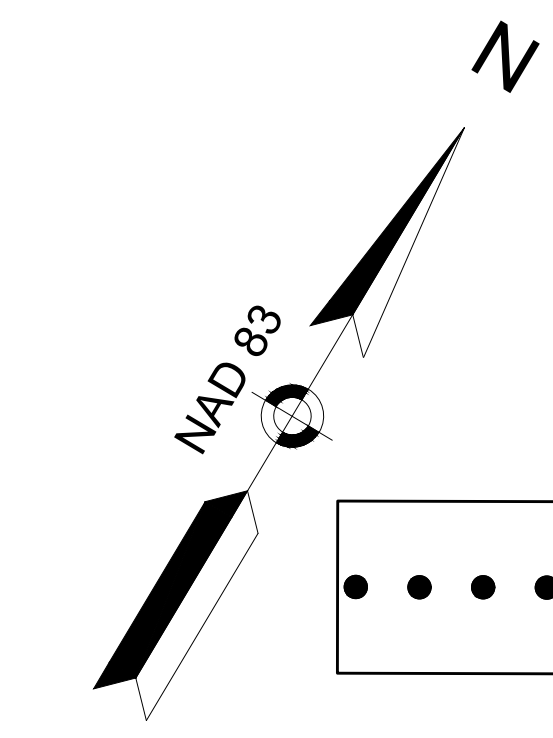
PCMS UNIT	PCMS ADVANCE NOTIFICATION MESSAGES	
	MESSAGE 1	MESSAGE 2
PCMS 4	I-93 NB CLOSED	FOLLOW DETOUR AHEAD

- LEGEND
- SIGN
- PROPOSED DIRECTION OF TRAFFIC
- PROPOSED DETOUR ROUTE
- WORK ZONE
- PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

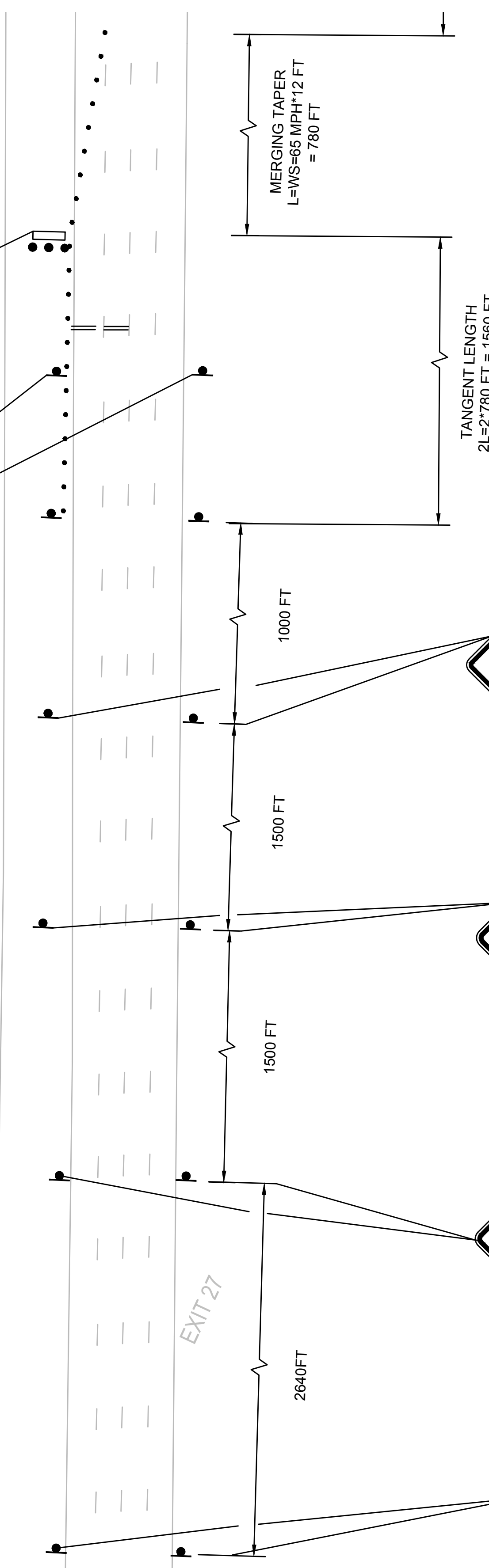
I-93 NORTHBOUND FULL CLOSURE DETOUR
NOT TO SCALE



I-93 NORTHBOUND CLOSURE
NOT TO SCALE



CONTINUED ON THE PLAN IN LEFT



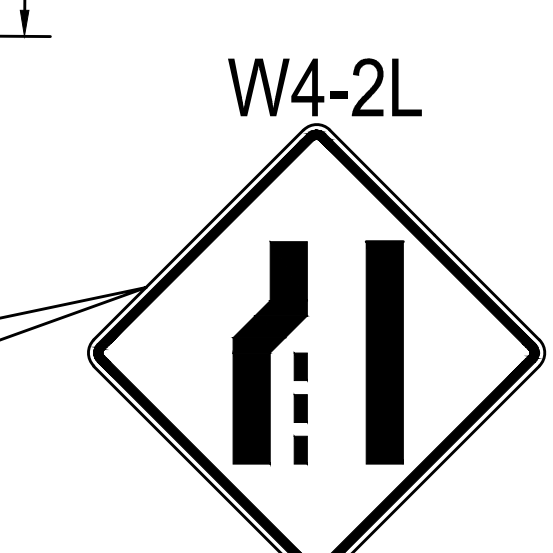
WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	34	96

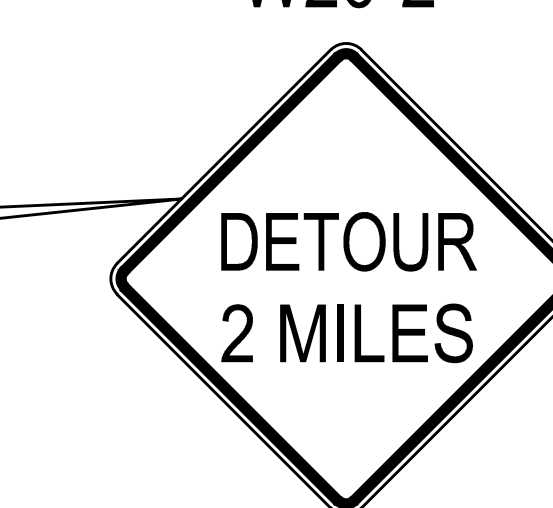
PROJECT FILE NO. 608703

I-93 NORTHBOUND FULL CLOSURE DETOUR

TANGENT LENGTH
2L=2*780 FT = 1560 FT



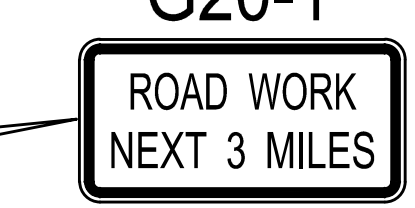
W20-2



W20-3



G20-1



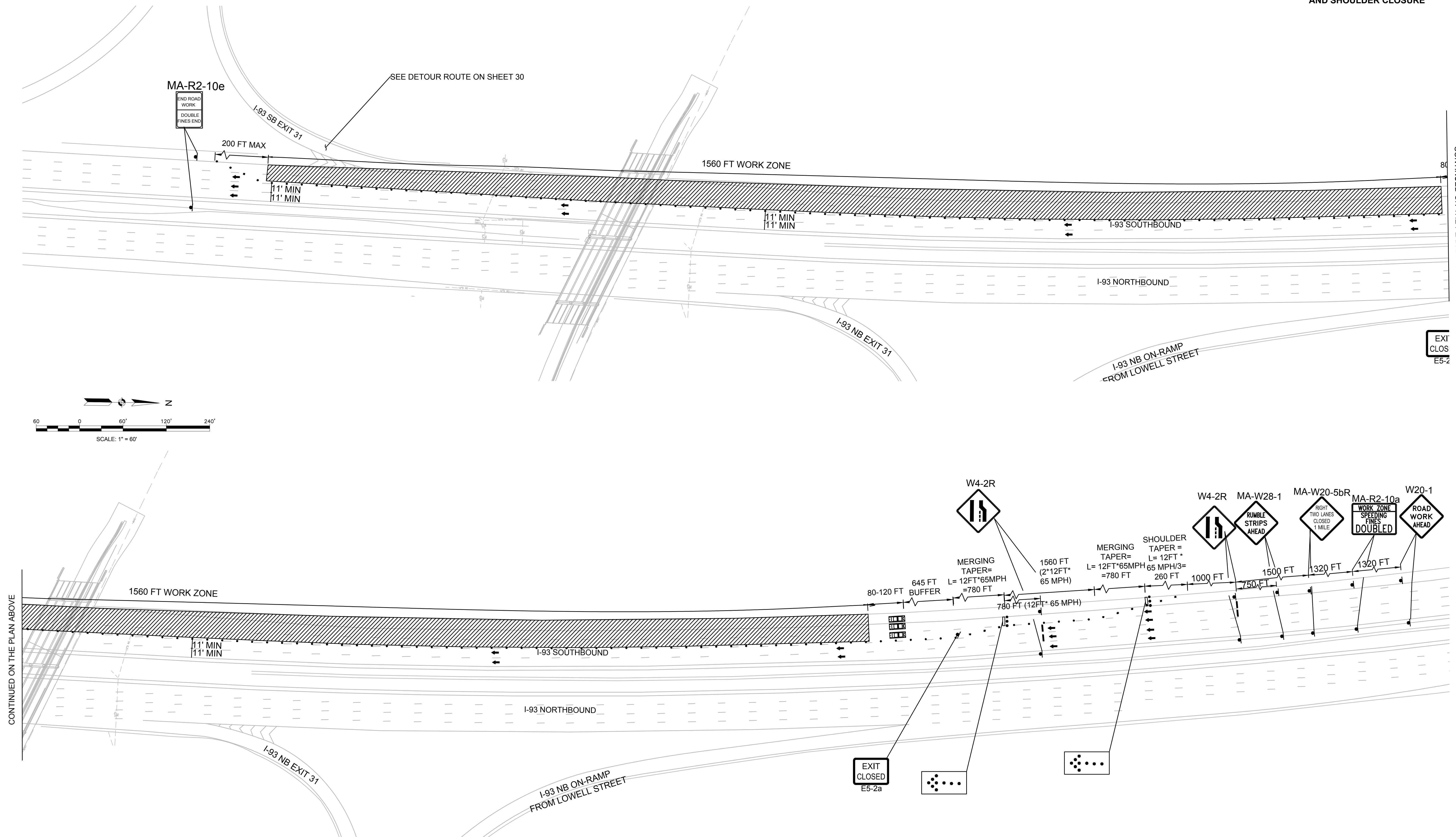
NOTE:

1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.
3. CONTRACTOR MAY ADJUST SIGN LOCATION ON FIELD TO AVOID PLACEMENT ON OBJECTS SUCH AS BRIDGE RAILS.

WILMINGTON
ROUTE 129 (LOWELL STREET)

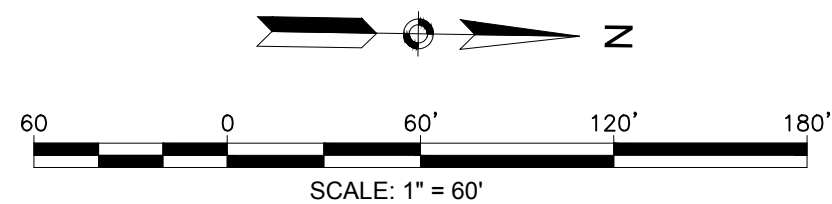
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	35	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLANS
I-93 SOUTHBOUND RIGHT TWO LANE
AND SHOULDER CLOSURE



NOTE:

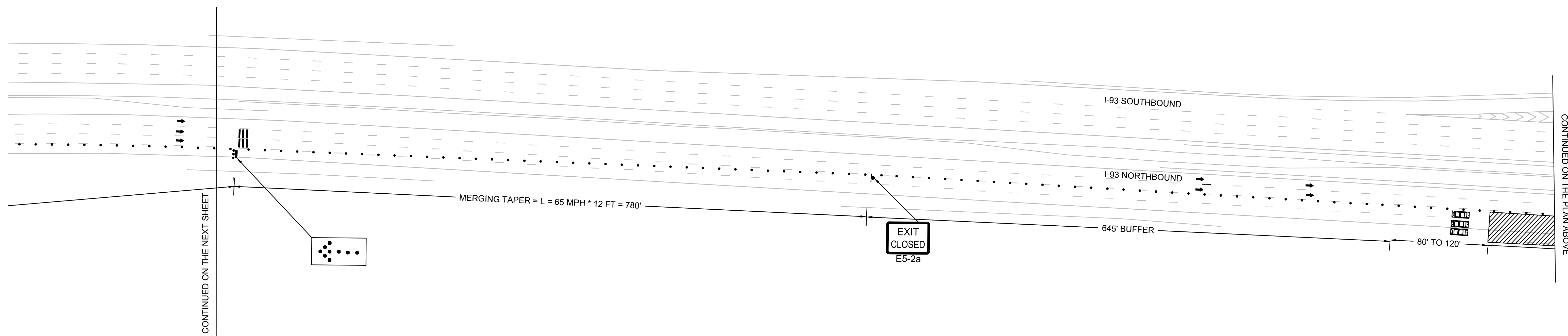
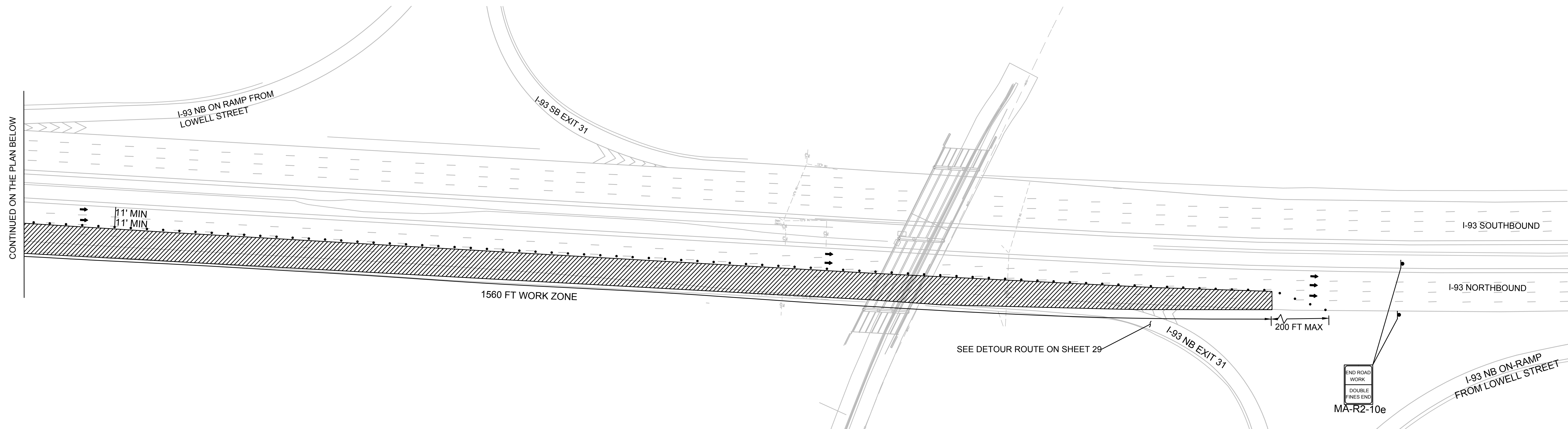
1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.
3. CONTRACTOR MAY ADJUST SIGN LOCATION ON FIELD TO AVOID PLACEMENT ON OBJECTS SUCH AS BRIDGE RAILS.



WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	36	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC CONTROL PLANS
I-93 NORTHBOUND RIGHT TWO LANE
AND SHOULDER CLOSURE - 1

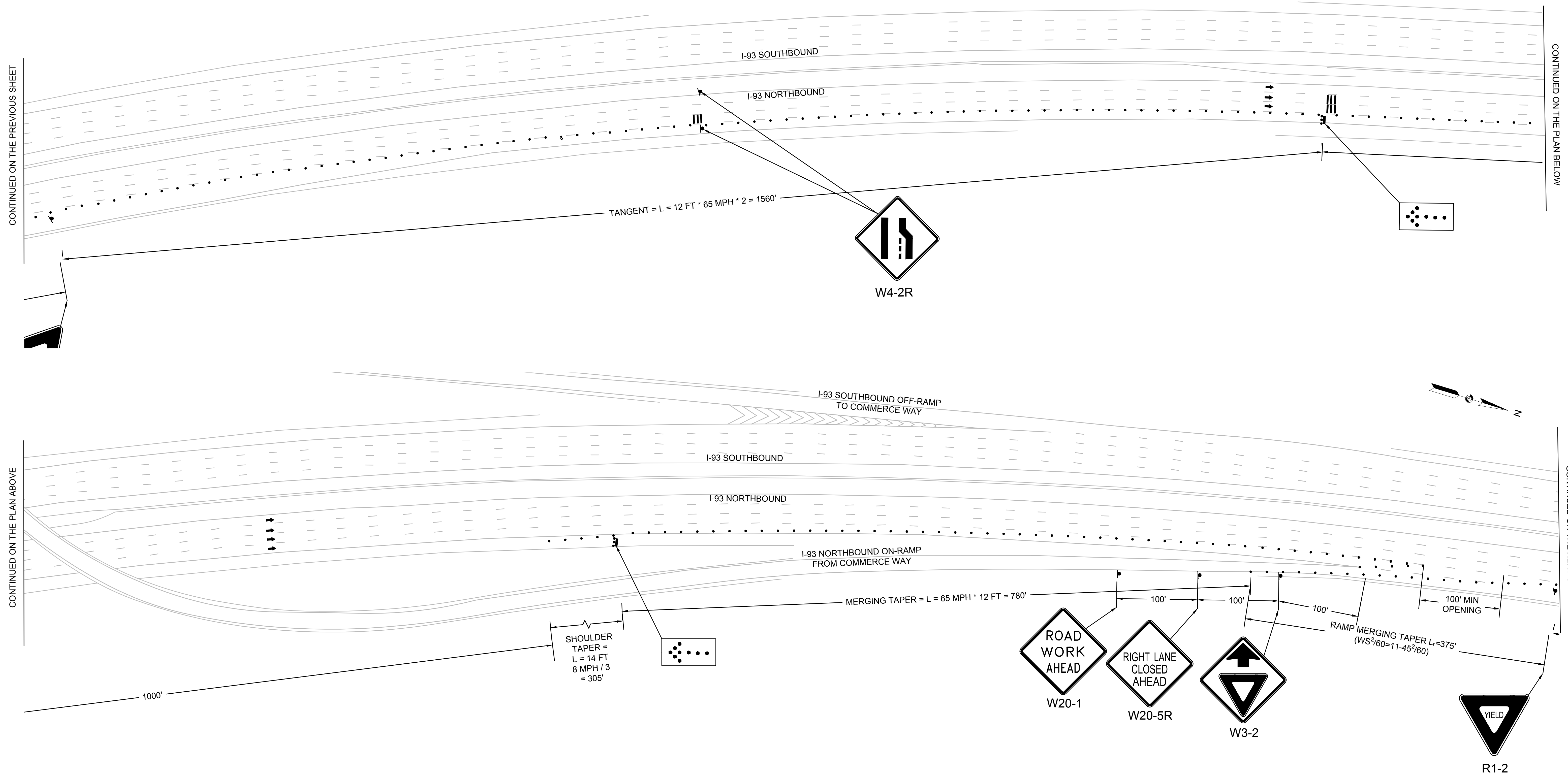


- NOTE:**
1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
 2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.
 3. CONTRACTOR MAY ADJUST SIGN LOCATION ON FIELD TO AVOID PLACEMENT ON OBJECTS SUCH AS BRIDGE RAILS.

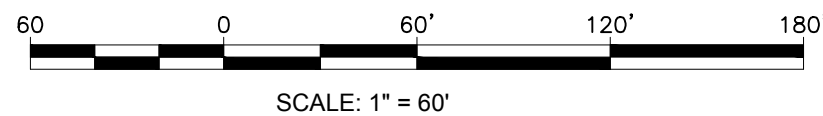


WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	37	96
PROJECT FILE NO.		608703	

**TEMPORARY TRAFFIC CONTROL PLANS
I-93 NORTHBOUND RIGHT TWO LANE
AND SHOULDER CLOSURE - 2**



- NOTE:**
1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
 2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.
 3. CONTRACTOR MAY ADJUST SIGN LOCATION ON FIELD TO AVOID PLACEMENT ON OBJECTS SUCH AS BRIDGE RAILS.

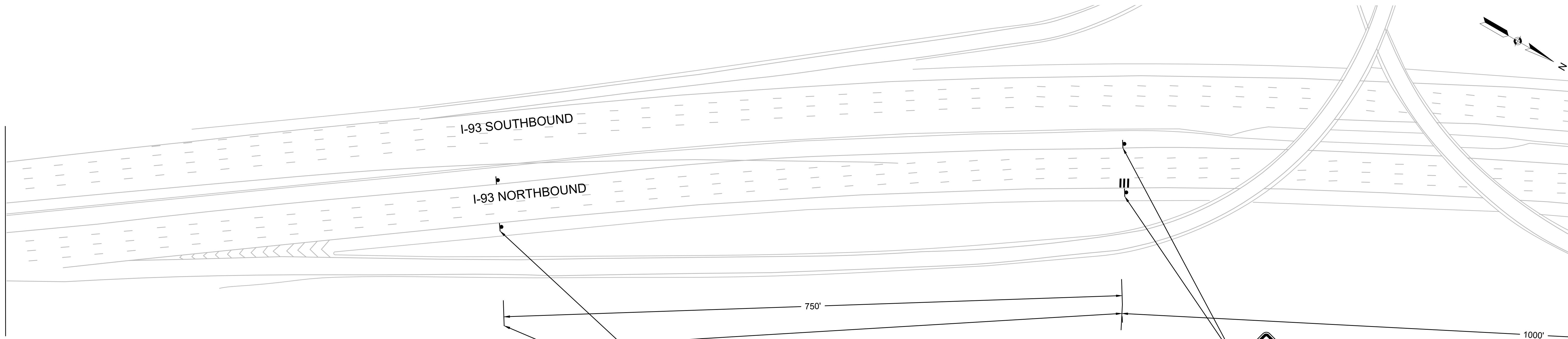


WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	38	96
PROJECT FILE NO.		608703	

**TEMPORARY TRAFFIC CONTROL PLANS
I-93 NORTHBOUND RIGHT TWO LANE
AND SHOULDER CLOSURE - 3**

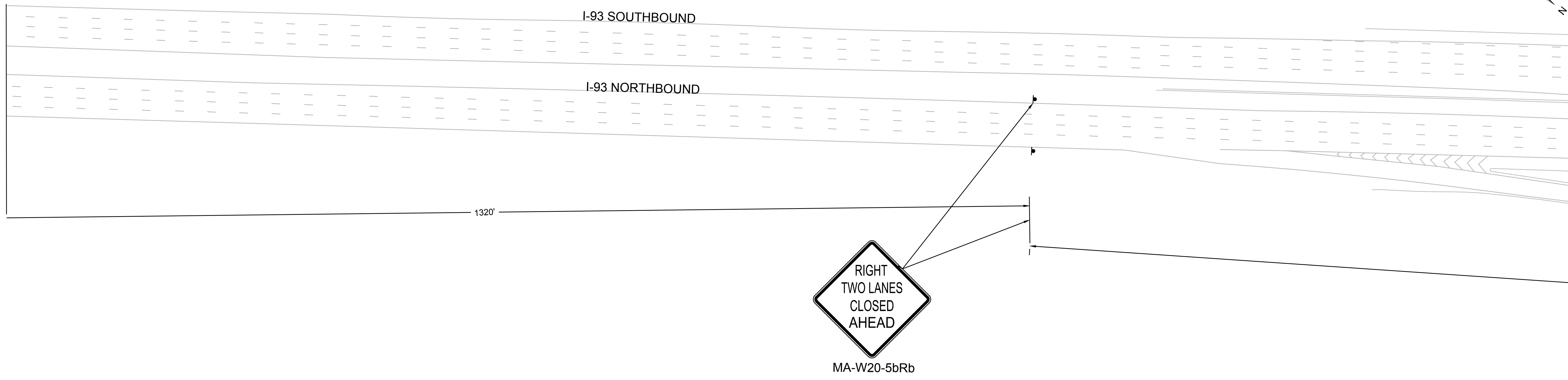
CONTINUED ON THE PREVIOUS SHEET

CONTINUED ON THE PLAN BELOW

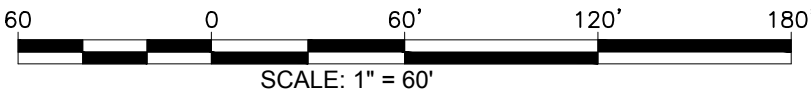


CONTINUED ON THE PLAN ABOVE

CONTINUED ON THE NEXT SHEET

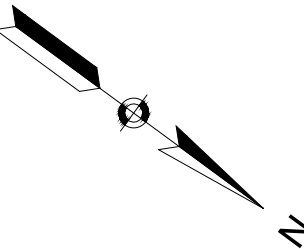


- NOTE:**
1. TEMPORARY TRAFFIC CONTROL SETUPS INVOLVING LANE AND/OR RAMP CLOSURES ON I-93 SHALL BE RESTRICTED TO 12 AM TO 5 AM.
 2. EXISTING SLOTTED TWO-WAY WHITE-RED PAVEMENT MARKERS SHALL BE REMOVED WITHIN THE RESTRIPING LIMITS DEPICTED ON THIS SHEET AND SHALL BE REPLACED IN KIND FOLLOWING RESTORATION OF THE EXISTING TRAVEL LANES.
 3. CONTRACTOR MAY ADJUST SIGN LOCATION ON FIELD TO AVOID PLACEMENT ON OBJECTS SUCH AS BRIDGE RAILS.

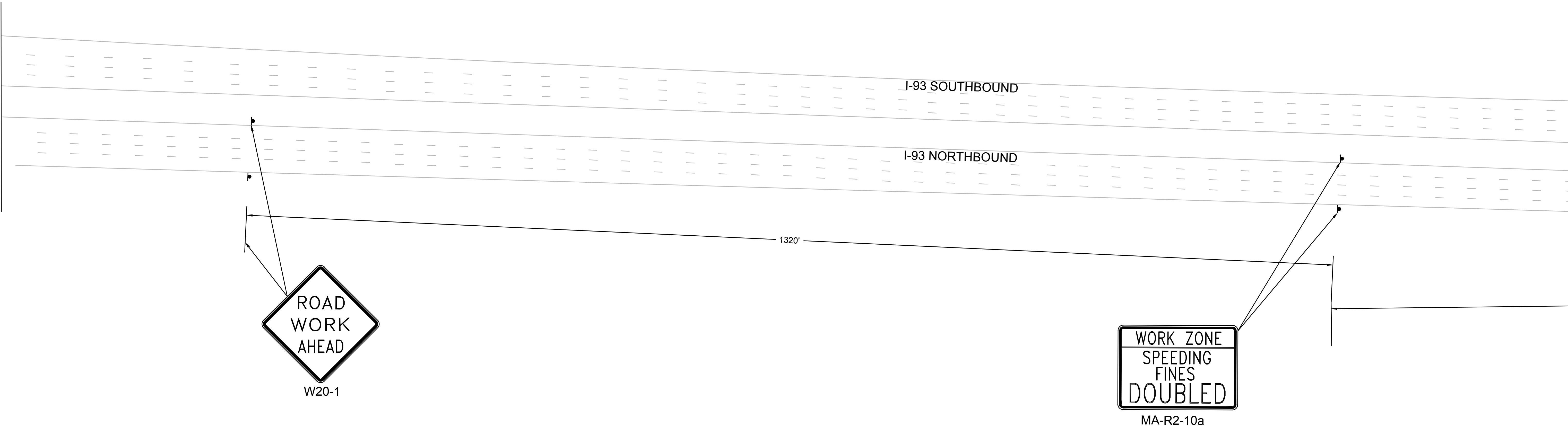


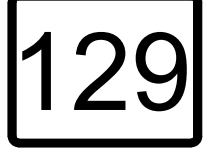
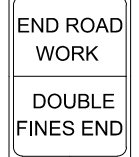
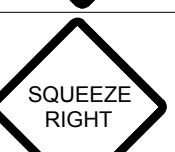
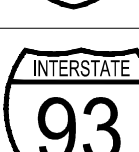
WILMINGTON			
ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	39	96
PROJECT FILE NO.		608703	

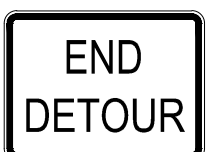
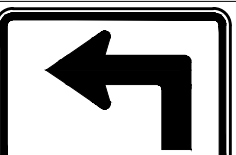
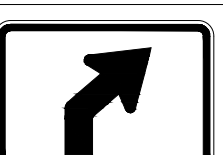
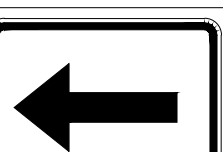
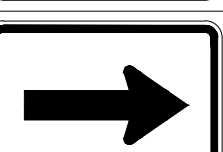
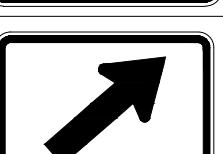
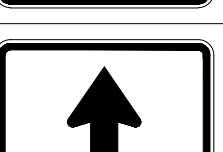
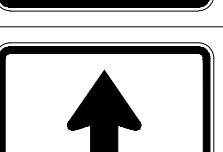
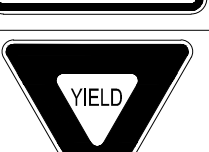
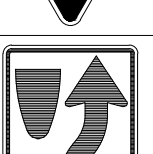
TEMPORARY TRAFFIC CONTROL PLANS
I-93 NORTHBOUND RIGHT TWO LANE
AND SHOULDER CLOSURE - 4



CONTINUED ON THE PREVIOUS SHEET



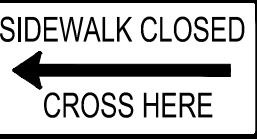
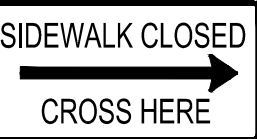
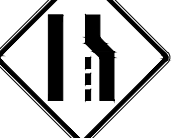
IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MRK.		BACKGROUND	LEGEND	BORDER		
MA-E5-1wz	48	48		SEE MASSDOT STD. SIGN BOOK			1	ORANGE	BLACK	BLACK	16.00	16.00
MA-M1-5a	30	24					26	WHITE	BLACK	BLACK	5.00	130.00
MA-M1-5b	45	36					9	WHITE	BLACK	BLACK	11.25	101.25
MA-R2-10a	60	48					6	RETROREFLECTIVE ORANGE AND WHITE	BLACK	BLACK	20.00	120.00
MA-R2-10e	48	60					7	RETROREFLECTIVE ORANGE AND WHITE	BLACK	BLACK	20.00	140.00
MA-W20-5bL	48	48					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	32.00
MA-W20-5bR	48	48					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	32.00
MA-W20-5bRb	48	48					1	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	16.00
MA-W20-7b	36	36					4	RETROREFLECTIVE ORANGE	BLACK	BLACK	9.00	36.00
MA-W20-10	48	48					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	32.00
MA-W21-9	48	48					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	32.00
MA-W24-2	48	48					4	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	64.00
MA-W28-1	48	48					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	16.00	32.00
MA-W30-8R	36	36					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	9.00	18.00
E5-2	48	36		SEE MUTCD STD. DETAIL			1	RETROREFLECTIVE ORANGE	BLACK	BLACK	12.00	12.00
E5-2a	48	36					4	RETROREFLECTIVE ORANGE	BLACK	BLACK	12.00	48.00
M1-1A	36	36					2	BLUE AND RED	BLACK	BLACK	9.00	18.00
M1-1B	24	24					8	BLUE AND RED	BLACK	BLACK	4.00	32.00
M3-1A	36	18					2	WHITE	BLACK	BLACK	4.50	9.00
M3-1B	24	12					8	WHITE	BLACK	BLACK	2.00	16.00

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MRK.		BACKGROUND	LEGEND	BORDER		
M3-3A	36	18		SEE MUTCD STD. DETAIL			2	WHITE	BLACK	BLACK	4.50	9.00
M3-3B	24	12					9	WHITE	BLACK	BLACK	2.00	18.00
M4-8	30	15					9	RETROREFLECTIVE ORANGE	BLACK	BLACK	3.13	28.13
M4-8B	24	12					24	RETROREFLECTIVE ORANGE	BLACK	BLACK	2.00	48.00
M4-8a	24	18					2	RETROREFLECTIVE ORANGE	BLACK	BLACK	3.00	6.00
M4-10L	48	18					1	RETROREFLECTIVE ORANGE	BLACK	BLACK	6.00	6.00
M5-1L	21	15					2	WHITE	BLACK	BLACK	2.19	4.38
M5-2	30	21					2	WHITE	BLACK	BLACK	4.38	8.75
M6-1Lb	21	15					5	WHITE	BLACK	BLACK	2.19	10.94
M6-1R	21	15					11	WHITE	BLACK	BLACK	2.19	24.06
M6-2A	30	21					2	WHITE	BLACK	BLACK	4.38	8.75
M6-2B	21	15					1	WHITE	BLACK	BLACK	2.19	2.19
M6-3A	30	21					5	WHITE	BLACK	BLACK	4.38	21.88
M6-3B	21	15					4	WHITE	BLACK	BLACK	2.19	8.75
R1-2	36X36X36						1	RETROREFLECTIVE WHITE	BLACK	BLACK	3.90	3.90
R4-7	24	30					2	RETROREFLECTIVE WHITE	BLACK	BLACK	5.00	10.00

WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	40	96
PROJECT FILE NO.		608703	

TEMPORARY TRAFFIC SIGN
SUMMARY (1 OF 2)

- NOTES:
- ALL SIGNS ARE TO BE RETROREFLECTIVE UNLESS SPECIFIED OTHERWISE.
 - SIGN SUPPORTS SHALL BE AS SET FORTH IN THE NCHRP 350 REPORT.
 - SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 11TH EDITION AND ALL REVISIONS, THE 2022 MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD, THE 2016 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION SIGN BOOK, AND THE STANDARD MUNICIPAL TRAFFIC CODE FOR THE LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR. ALSO REFER TO THE MASSDOT 2024 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SUBSECTION M9.30.0.

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MK.		BACKGROUND	LEGEND	BORDER		
R9-11aL	24	12		SEE MUTCD STD. DETAIL			1	RETRORE-FLECTIVE WHITE	BLACK	BLACK	2.00	2.00
R9-11aR	24	12					1	RETRORE-FLECTIVE WHITE	BLACK	BLACK	2.00	2.00
R9-8	36	18					2	RETRORE-FLECTIVE WHITE	BLACK	BLACK	4.50	9.00
R9-9	24	12					2	RETRORE-FLECTIVE WHITE	BLACK	BLACK	2.00	4.00
R11-2	48	30					4	RETRORE-FLECTIVE WHITE	BLACK	BLACK	10.00	40.00
R11-2b	48	30					1	RETRORE-FLECTIVE WHITE	BLACK	BLACK	10.00	10.00
W1-4cR	48	48					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	64.00
W1-4R	36	36					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	36.00
W1-4L	36	36					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	36.00
W3-2	36	36					1	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	9.00
W3-4	36	36					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	18.00
W4-2R	48	48					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	64.00
W4-2L	48	48					6	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	96.00
W5-1	36	36					7	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	63.00
W8-25	48	48					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	64.00
W11-2	30	30					4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	6.25	25.00
W16-7PL	21	15					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	2.19	4.38
W16-7PR	21	15					0	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	2.19	0.00
W16-9p	24	12					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	2.00	4.00

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES)		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MK.		BACKGROUND	LEGEND	BORDER		
G20-1	36	36		SEE MUTCD STD. DETAIL			2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	18.00
W20-1	48	48					6	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	96.00
W20-2A	48	48					1	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	16.00
W20-2	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W20-2B	36	36					19	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	171.00
W20-3A	48	48					1	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	16.00
W20-3	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W20-3B	36	36					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	18.00
W20-3c	48	48		SEE SIGN DETAIL ON SHEET 29			1	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	16.00
W20-4	36	36		SEE MUTCD STD. DETAIL			4	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	9.00	36.00
W20-5R	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W20-5L	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W21-5aL	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W21-5bL	48	48					2	RETROREFLE-CTIVE ORANGE	BLACK	BLACK	16.00	32.00
W24-1cP	30	24					4	RETRORE-FLECTIVE ORANGE	BLACK	BLACK	5.00	20.00
R11-2	48	30					4	WHITE	BLACK	BLACK	10.00	40.00
											TOTAL (S.F.)	2344.34

WILMINGTON

ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	41	96

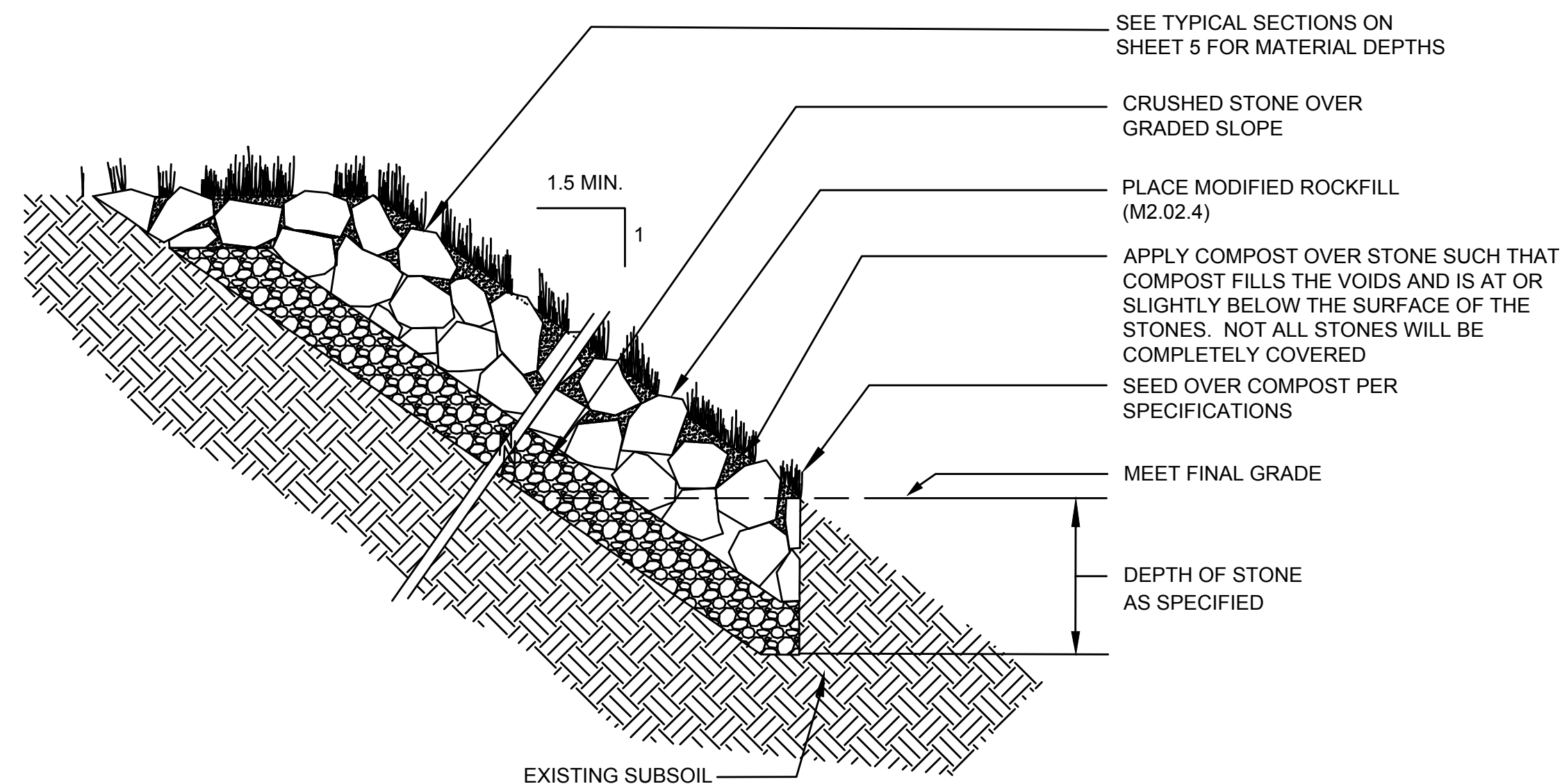
PROJECT FILE NO. 608703

TEMPORARY TRAFFIC SIGN SUMMARY (2 OF 2)

- NOTES:
- ALL SIGNS ARE TO BE RETROREFLECTIVE UNLESS SPECIFIED OTHERWISE.
 - SIGN SUPPORTS SHALL BE AS SET FORTH IN THE NCHRP 350 REPORT.
 - SEE THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 11TH EDITION AND ALL REVISIONS, THE 2022 MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD, THE 2016 MASSACHUSETTS DEPARTMENT OF TRANSPORTATION SIGN BOOK, AND THE STANDARD MUNICIPAL TRAFFIC CODE FOR THE LATEST SPECIFICATIONS ON TEXT DIMENSIONS AND COLOR. ALSO REFER TO THE MASSDOT 2024 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES SUBSECTION M9.30.0.

WILMINGTON			
ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	42	96
PROJECT FILE NO.		608703	

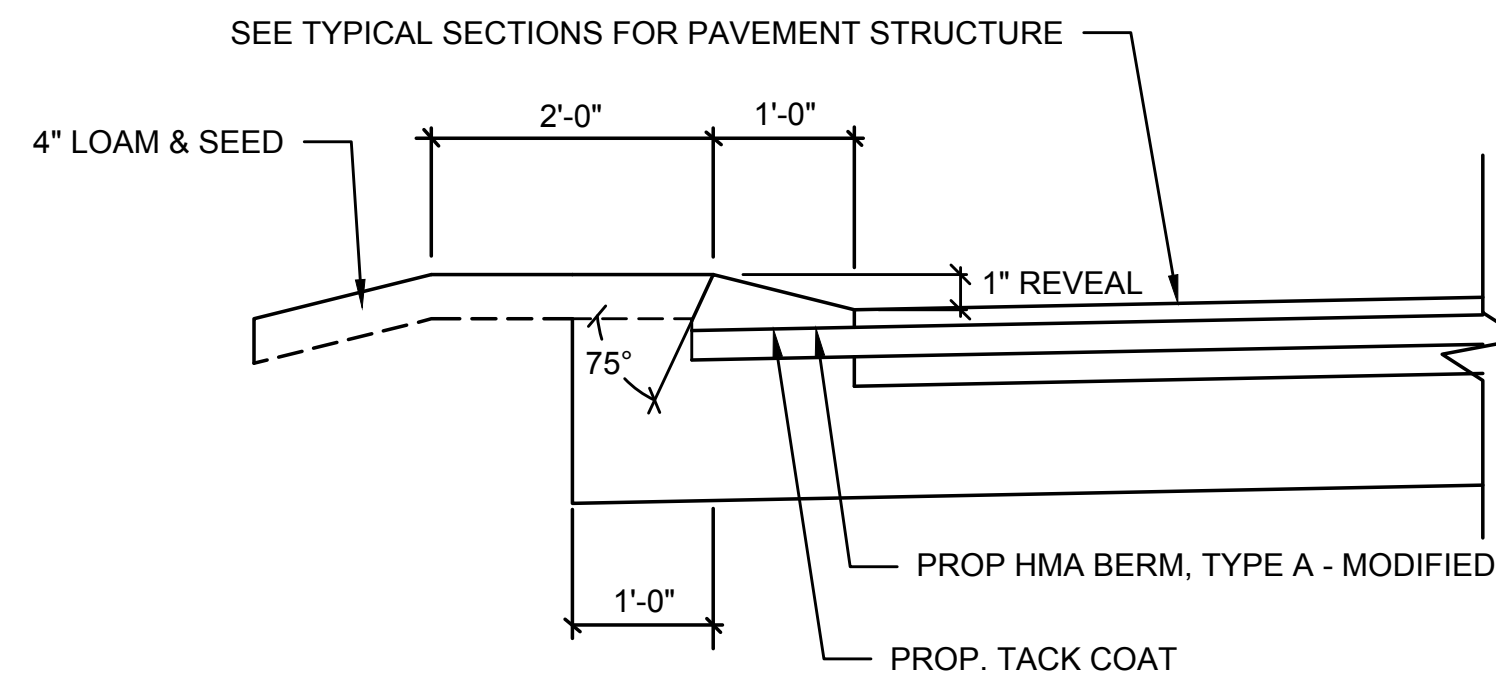
CONSTRUCTION DETAILS (1 OF 2)



COMPOST AND SEED OVER MODIFIED ROCKFILL (NON-WATERWAY)

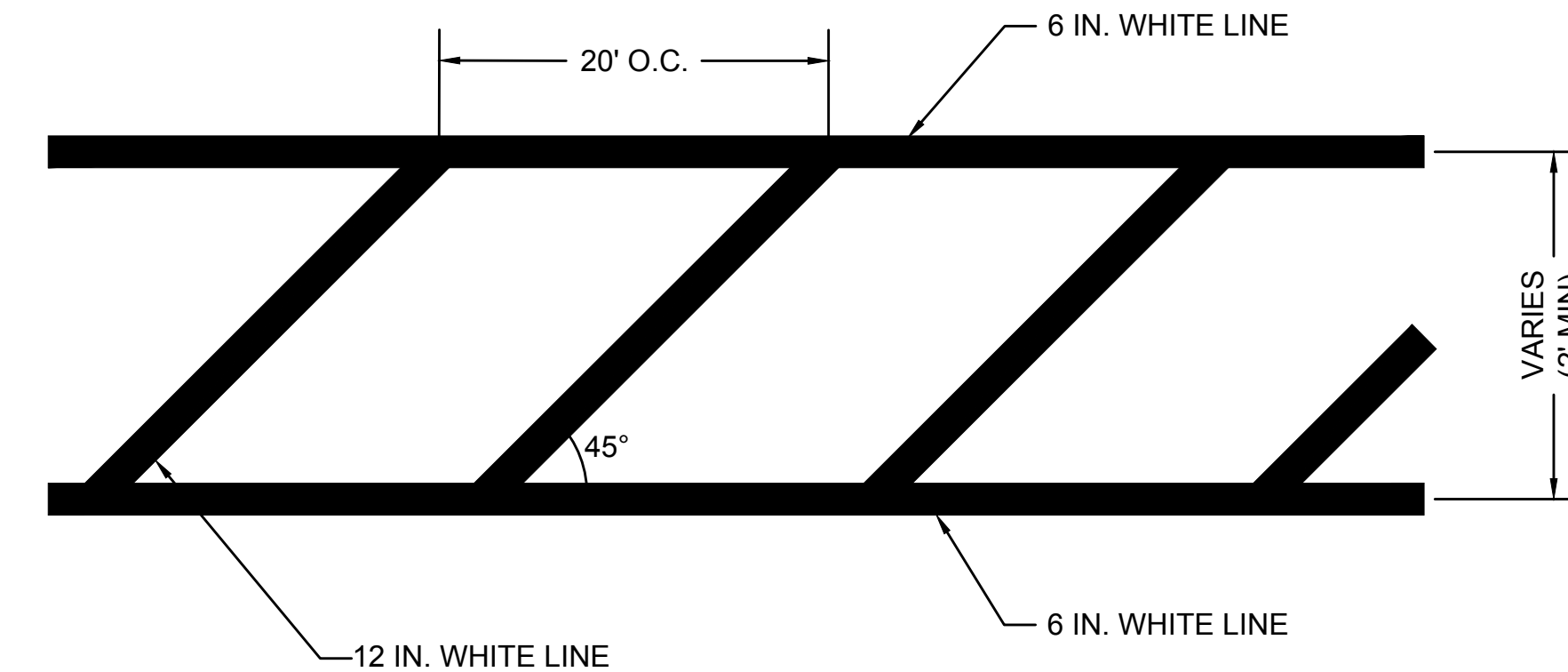
NOT TO SCALE

20160320_MassDOT



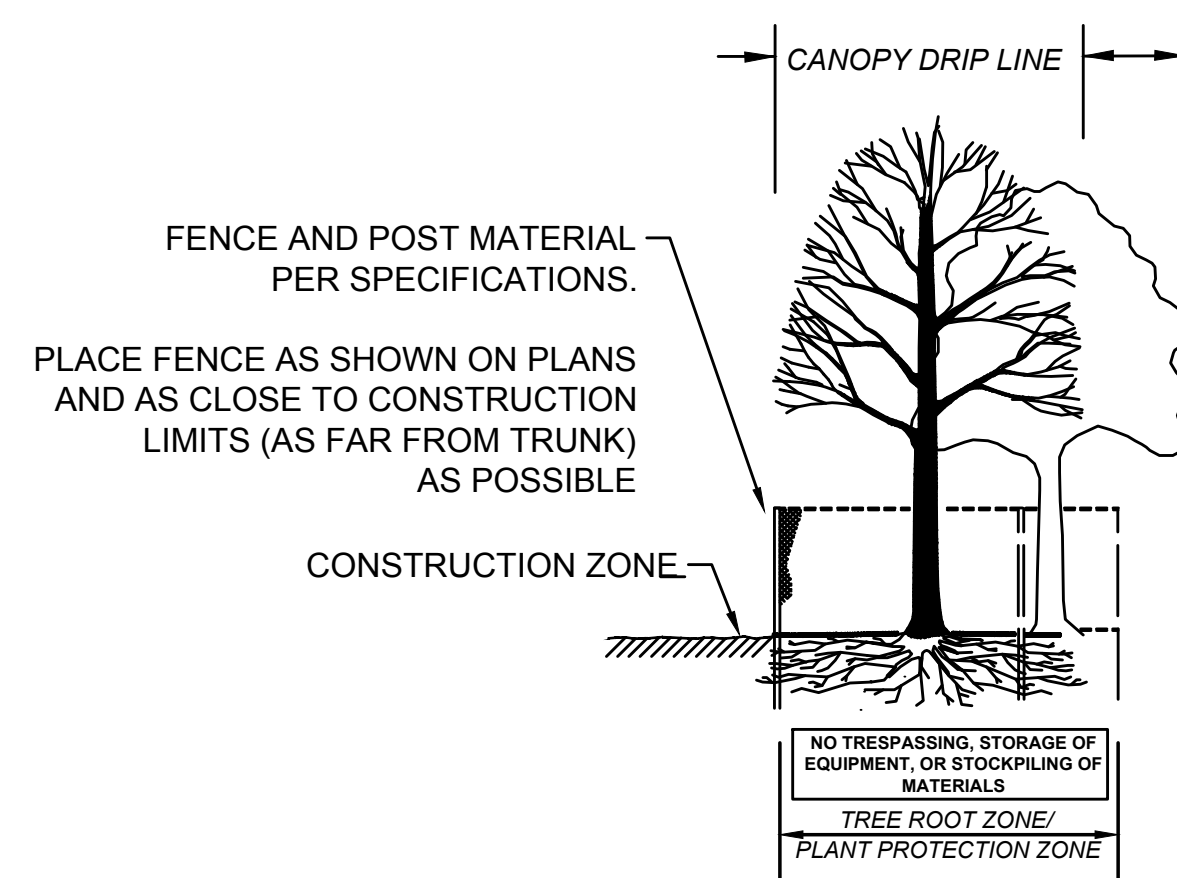
HMA BERM, TYPE A - MODIFIED

NOT TO SCALE



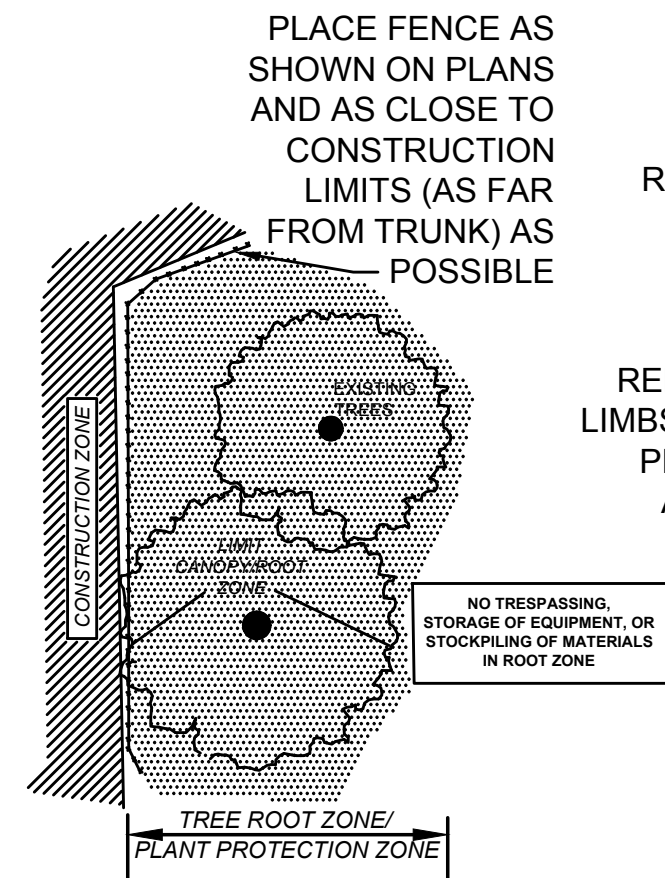
BICYCLE LANE BUFFER STRIPING DETAIL

NOT TO SCALE

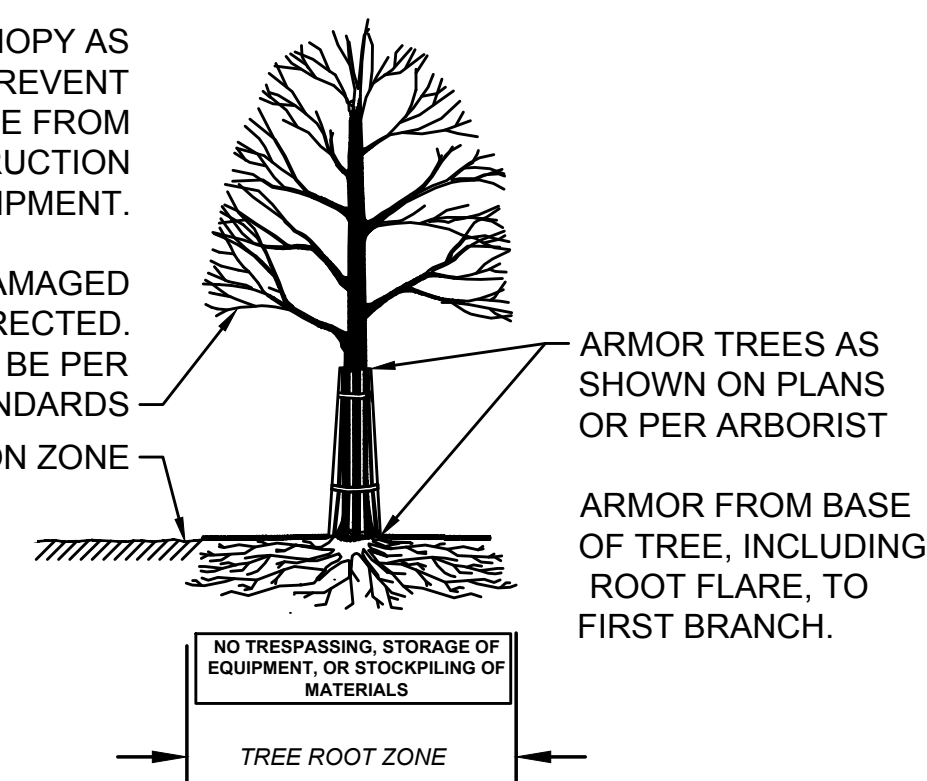


SECTION - FENCE PROTECTION OF ROOT ZONE

NOT TO SCALE

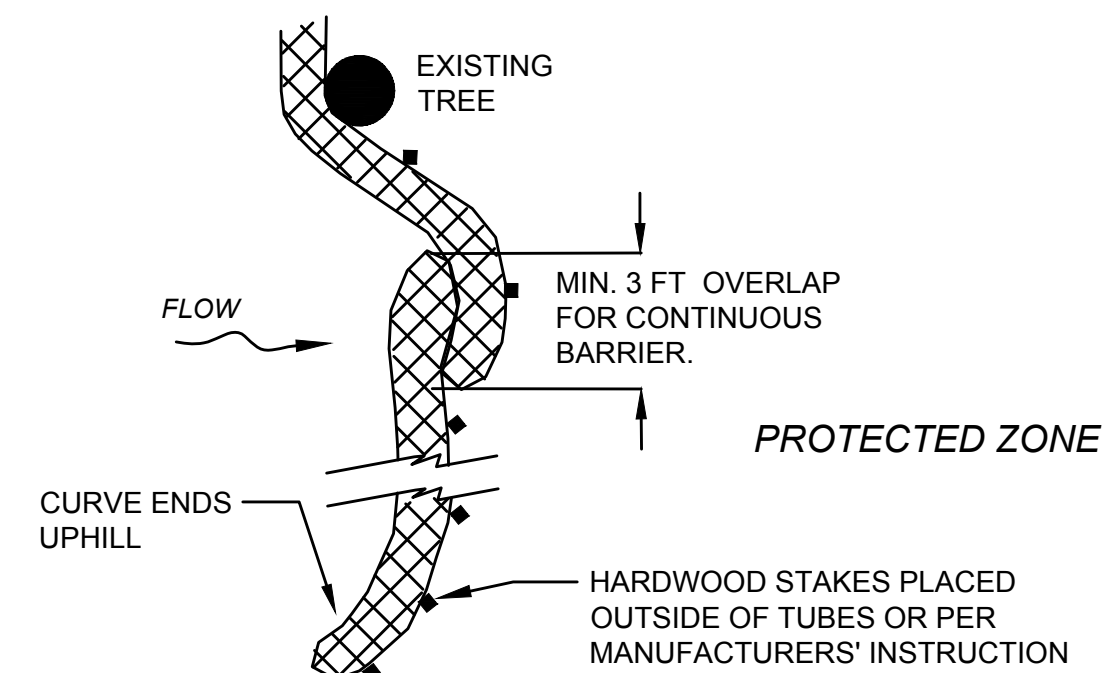


PLAN VIEW - FENCE PROTECTION OF ROOT ZONE



SECTION - TRUNK ARMORING & PRUNING

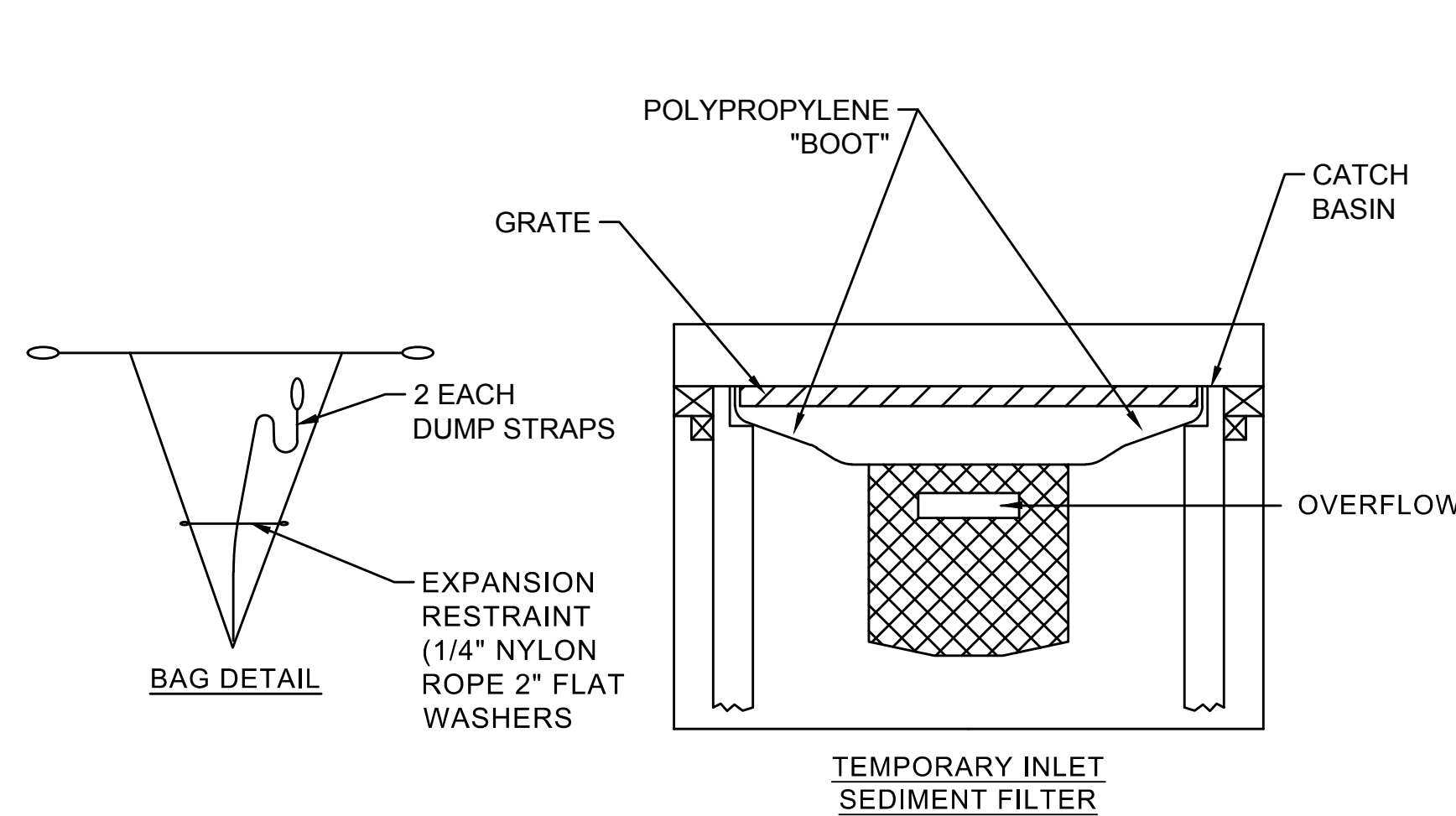
TREE PROTECTION DETAILS



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

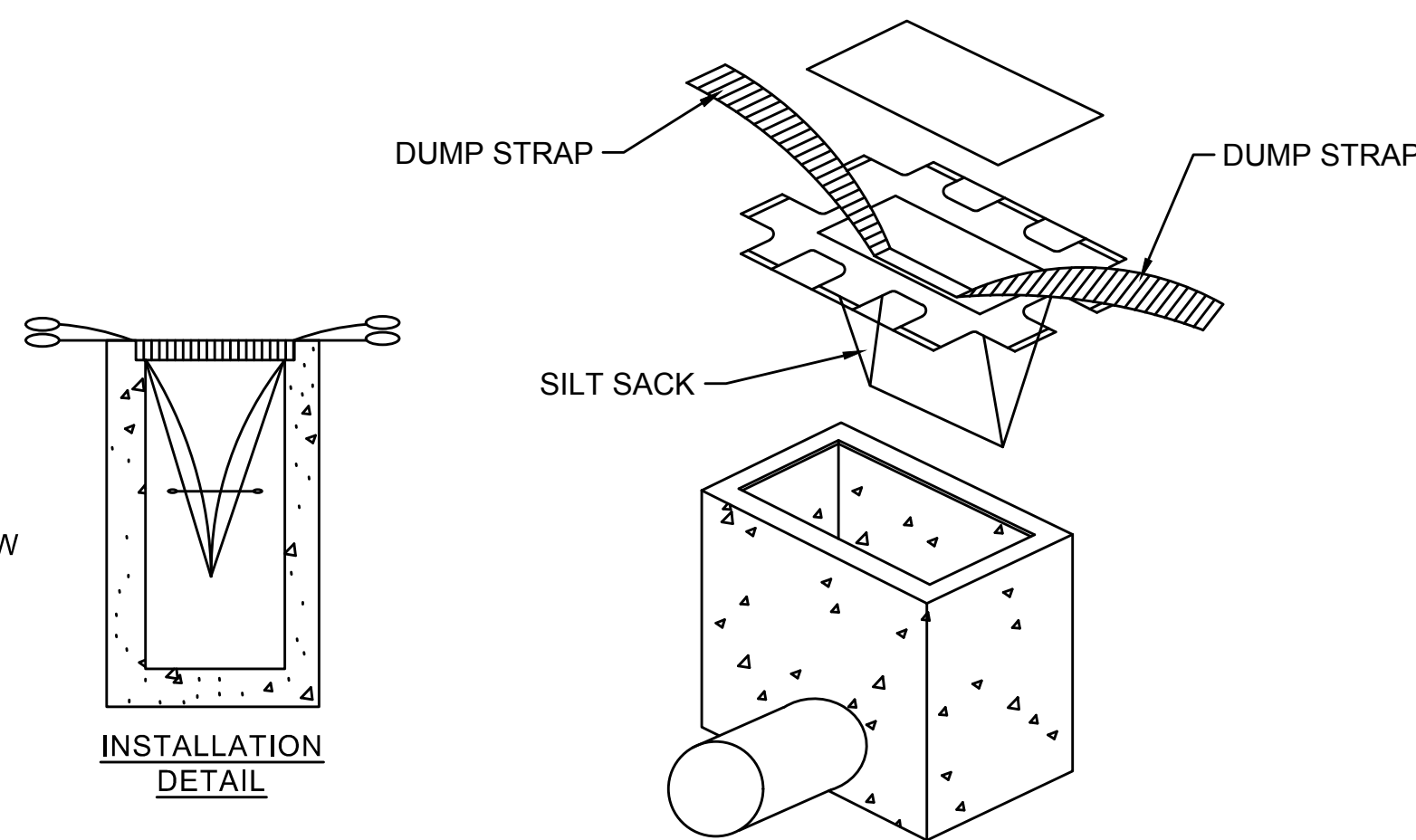
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW



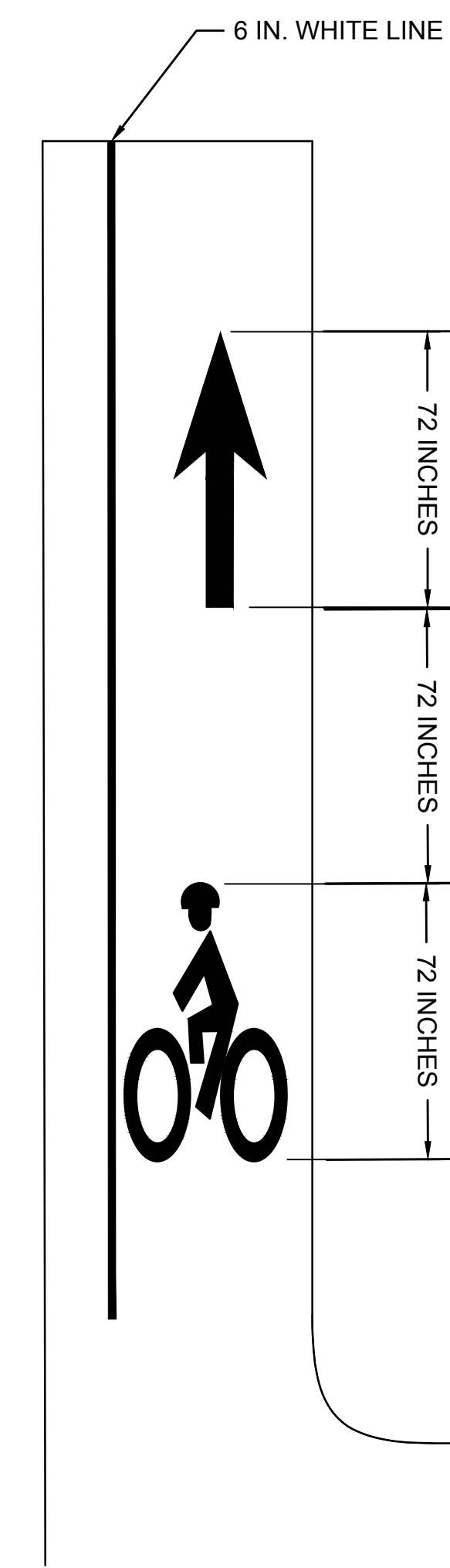
INLET PROTECTION SILT SACK

NOT TO SCALE



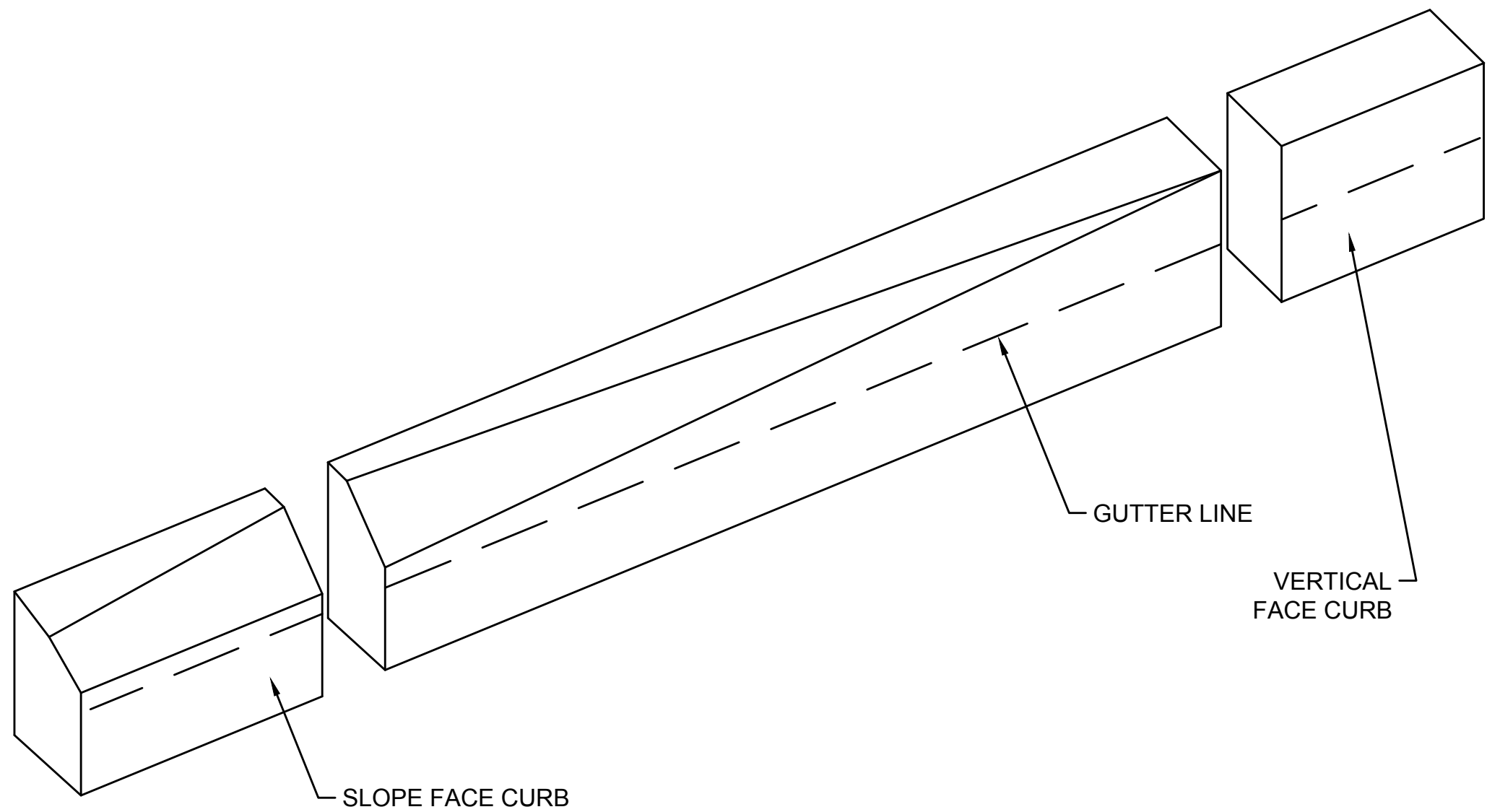
SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



BICYCLE LANE MARKING DETAIL

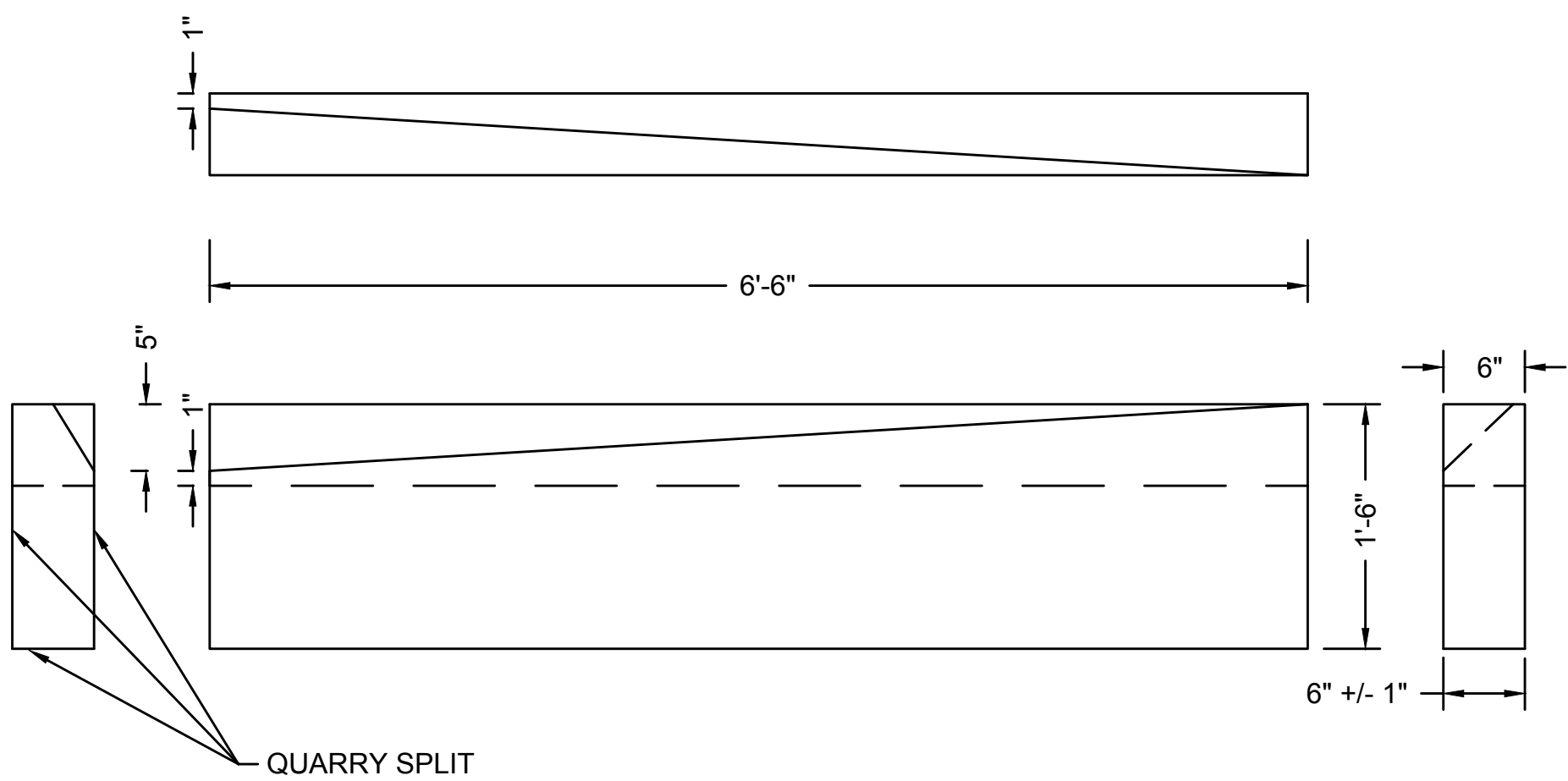
NOT TO SCALE



GRANITE CURB TYPE VA4 - SPLAYED END

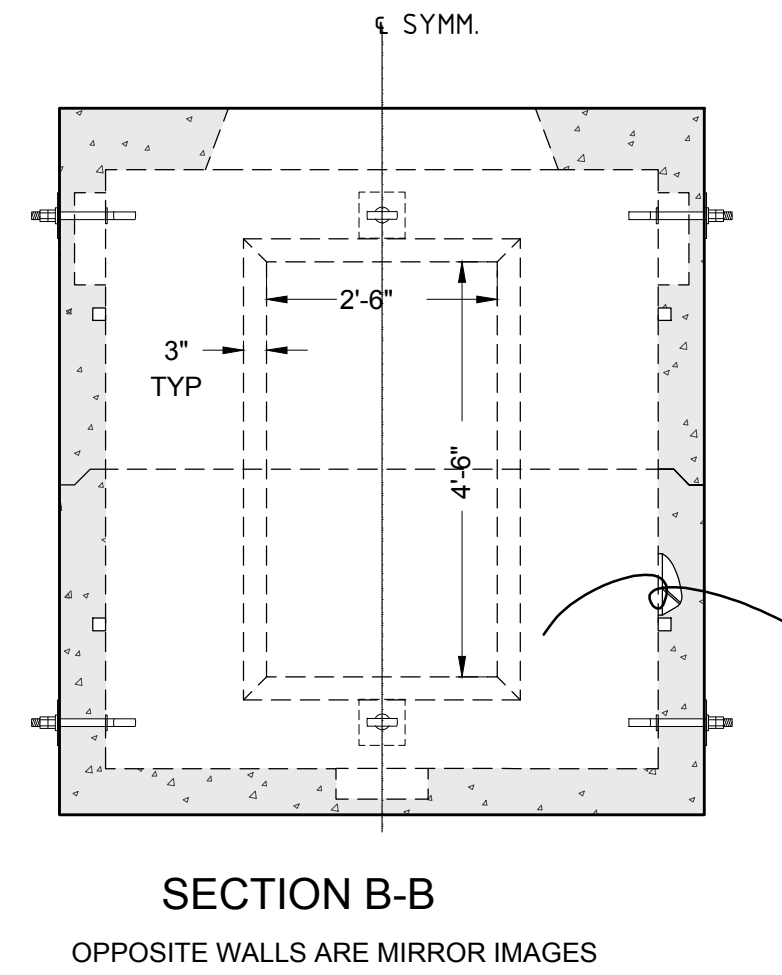
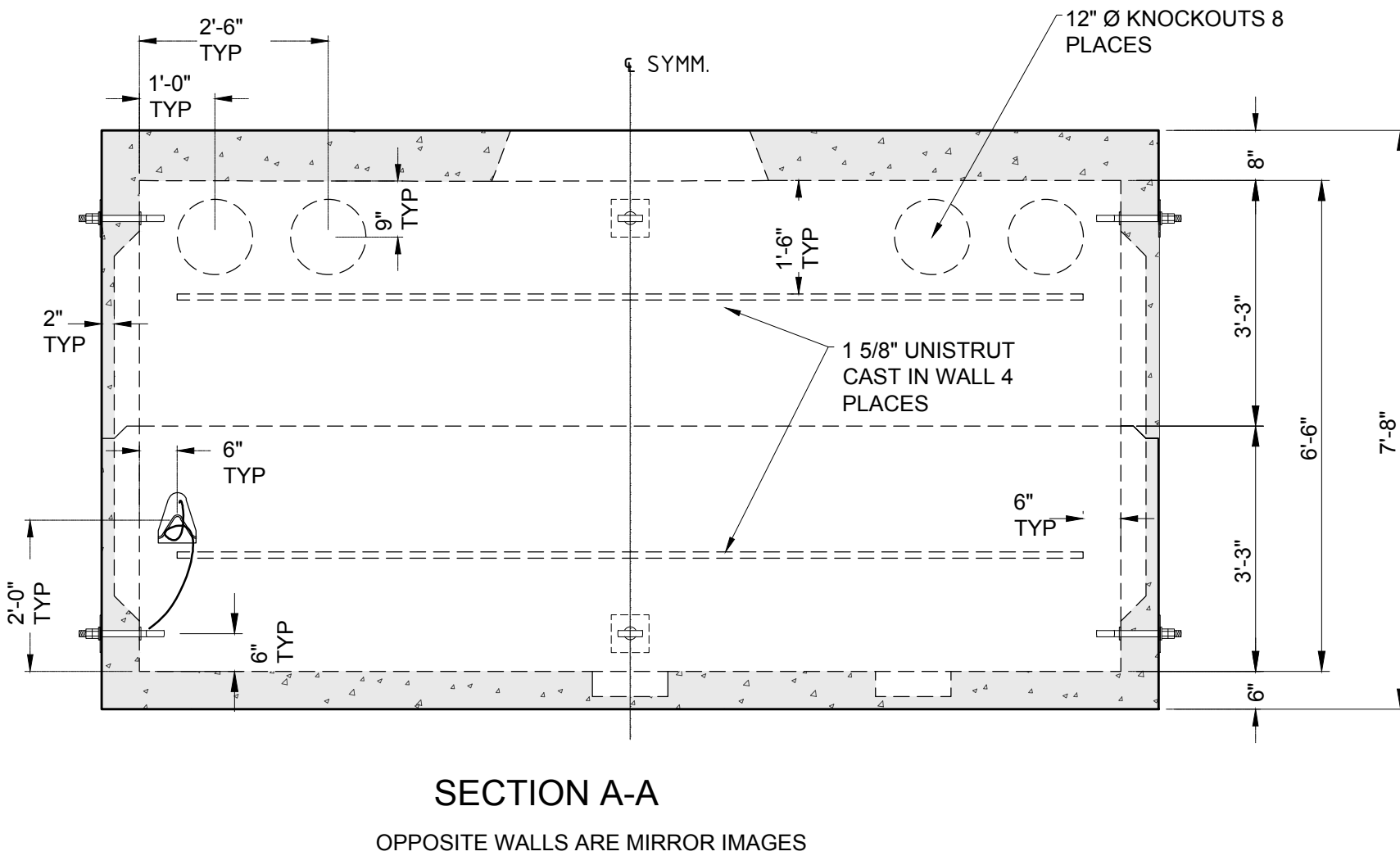
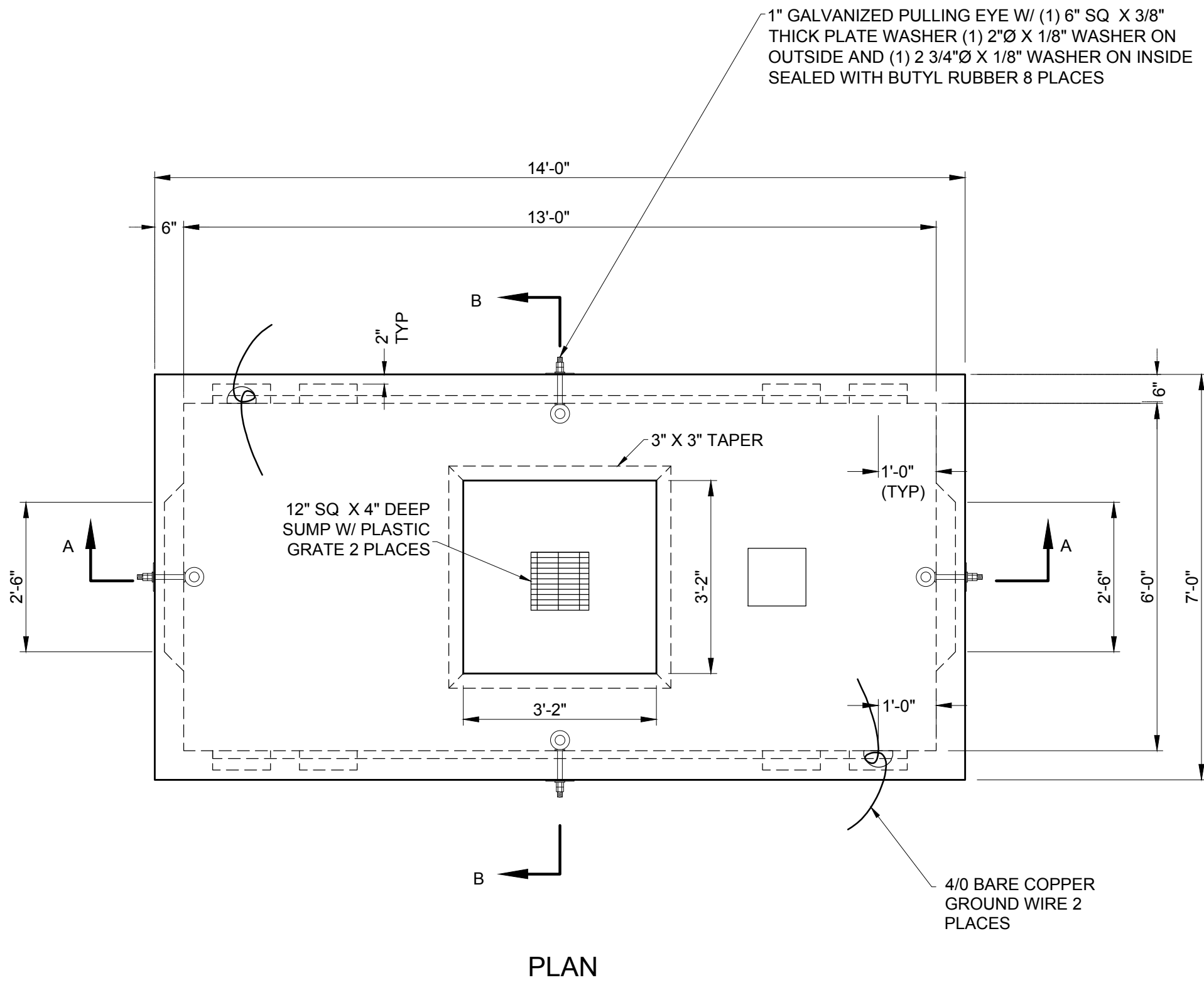
NOT TO SCALE

- NOTE:
1. TOP SURFACE AND SLOPED SURFACE TO BE DRESSED BY SAW. REMAINDER TO BE QUARRY SPLIT.
 2. DETAIL SHOWS TRANSITION CURB FOR ONE DIRECTION. FOR OTHER DIRECTION USE OPPOSITE HAND.



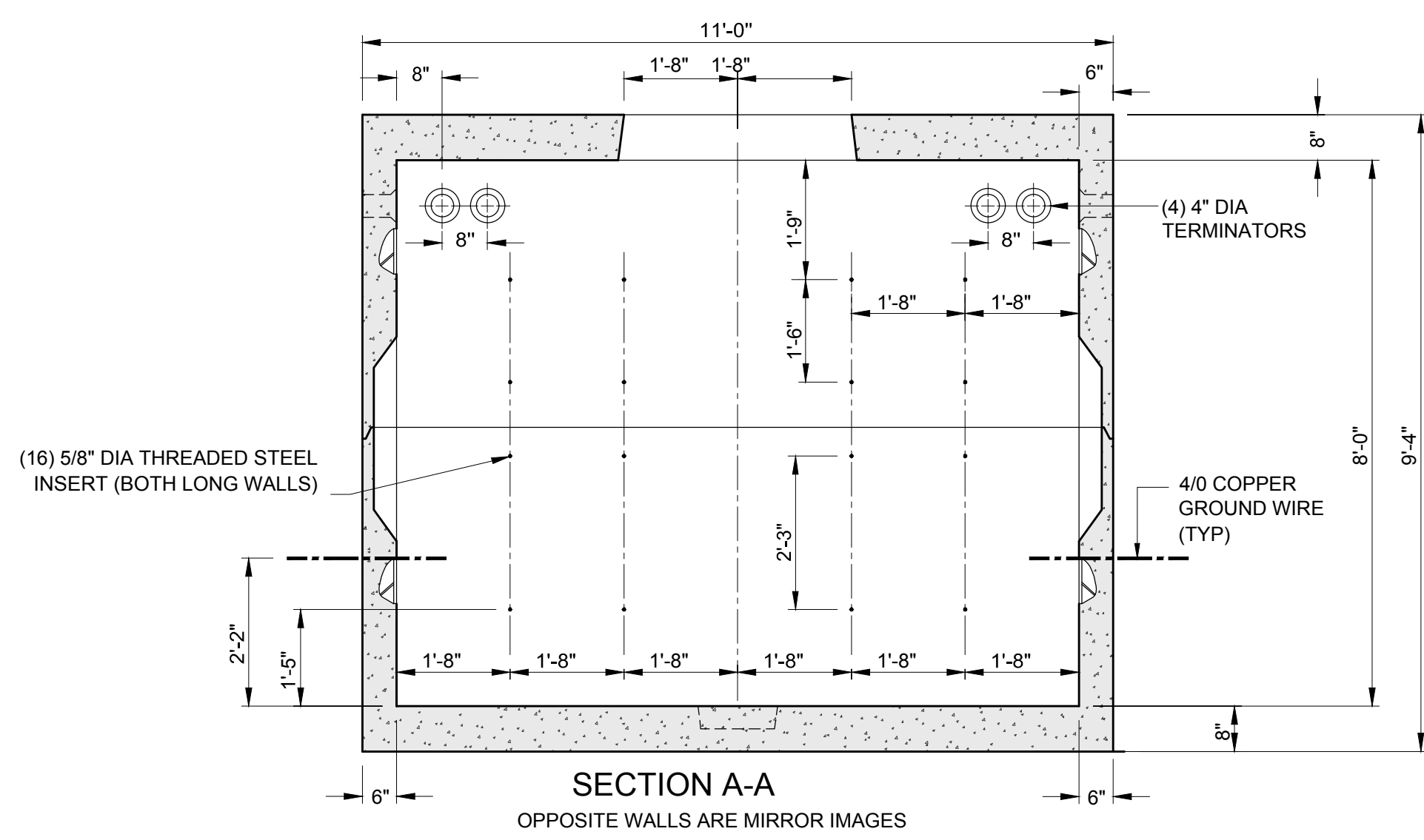
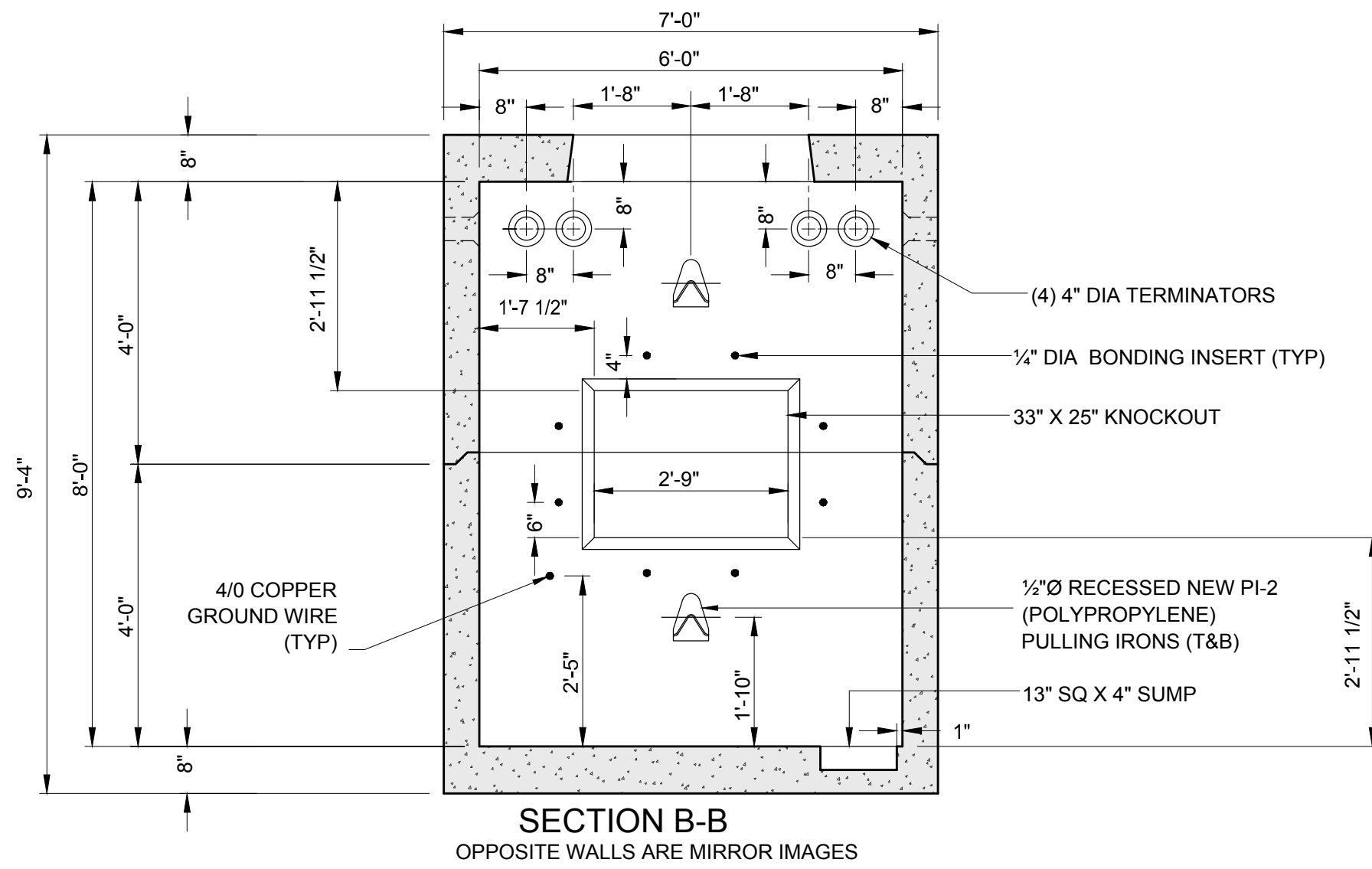
WILMINGTON ROUTE 129 (LOWELL STREET)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	44	96
PROJECT FILE NO.		608703	

DRAINAGE & UTILITY DETAILS (1 OF 3)



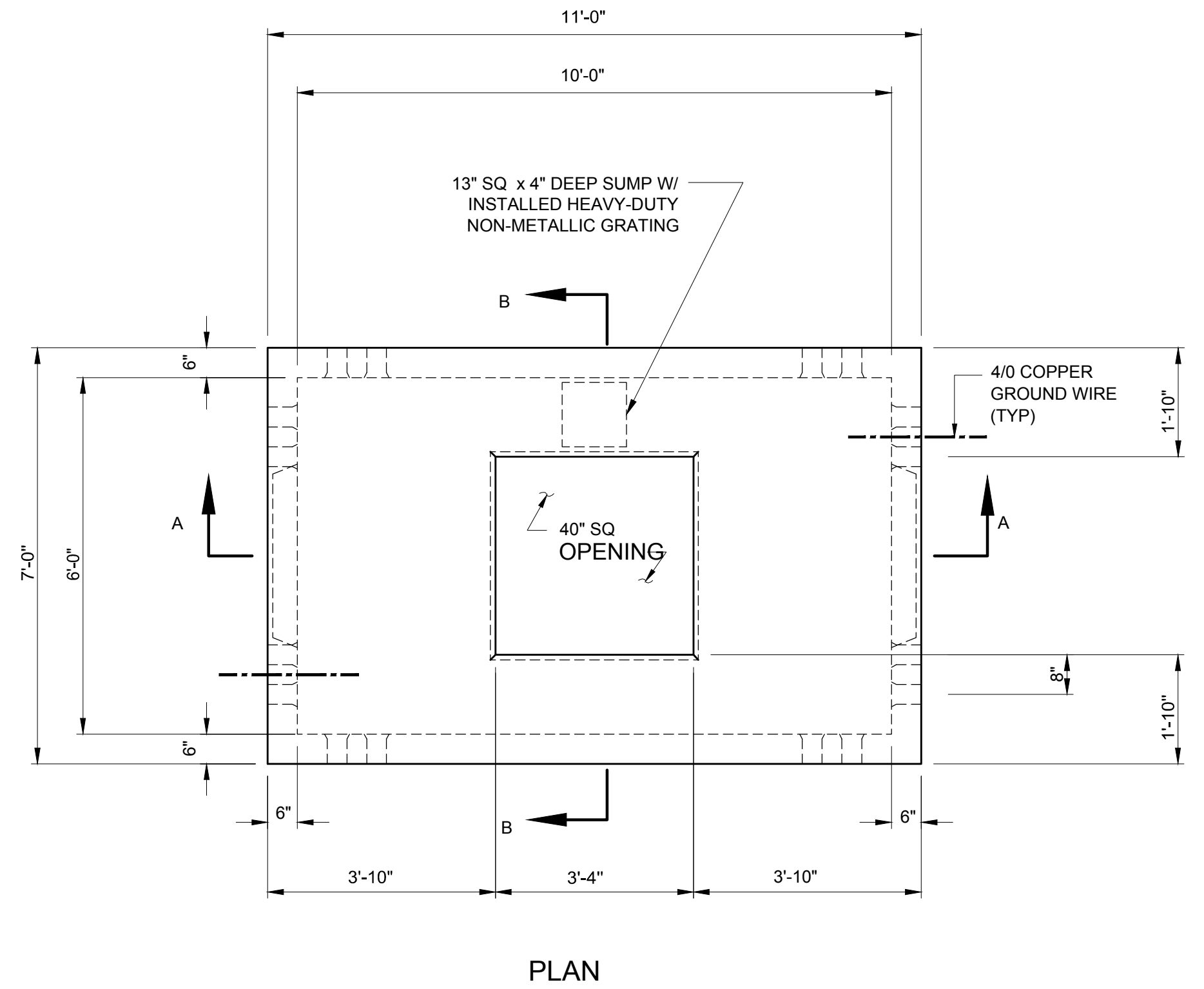
ELECTRIC MANHOLE - RMLD 6'X13'

NOT TO SCALE



ELECTRIC MANHOLE - RMLD 6'X10'

NOT TO SCALE



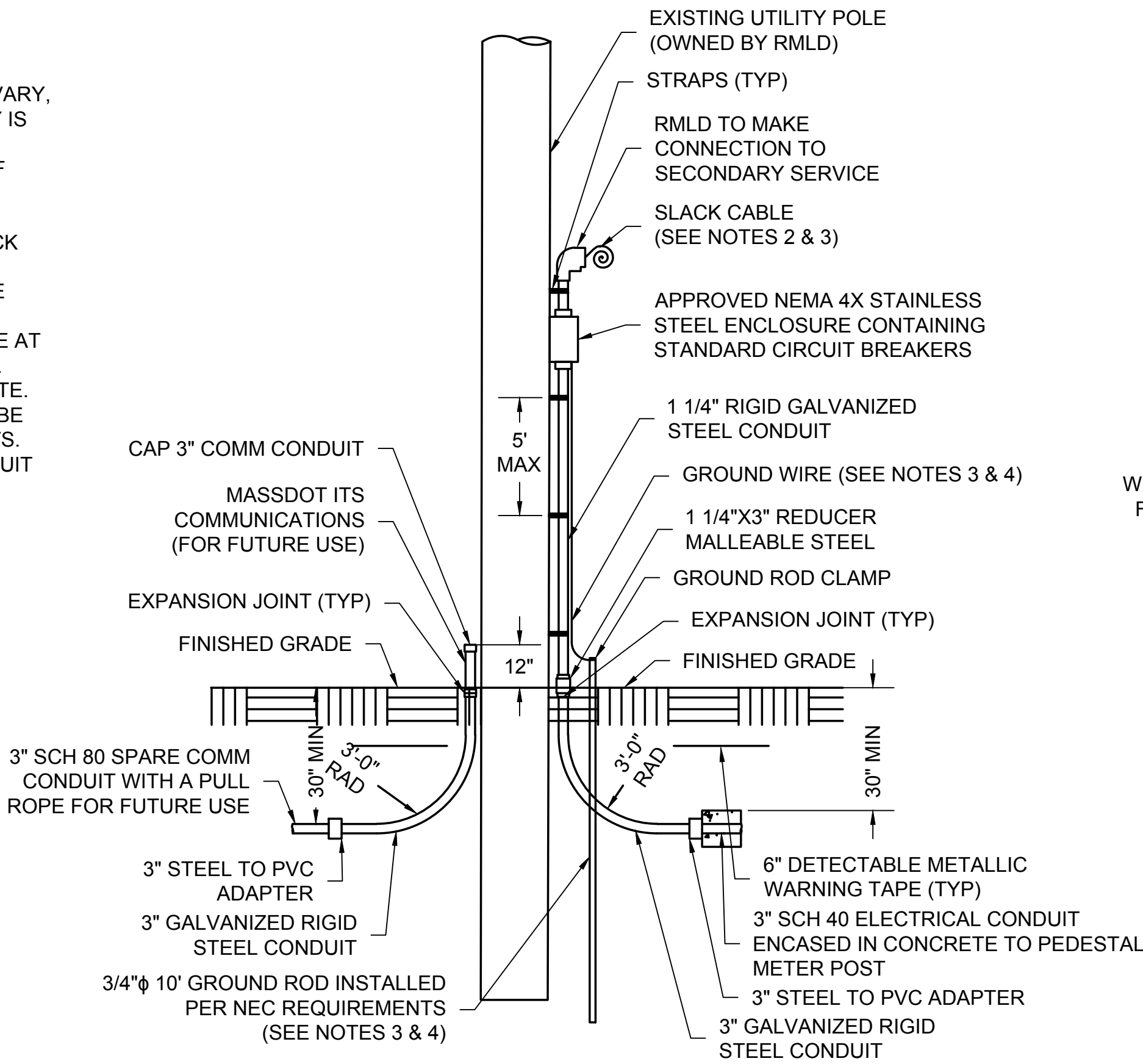
WILMINGTON
ROUTE 129 (LOWELL STREET)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)HIP(BR)-0034(029)X	45	96
PROJECT FILE NO.		608703	

DRAINAGE & UTILITY DETAILS (2 OF 3)

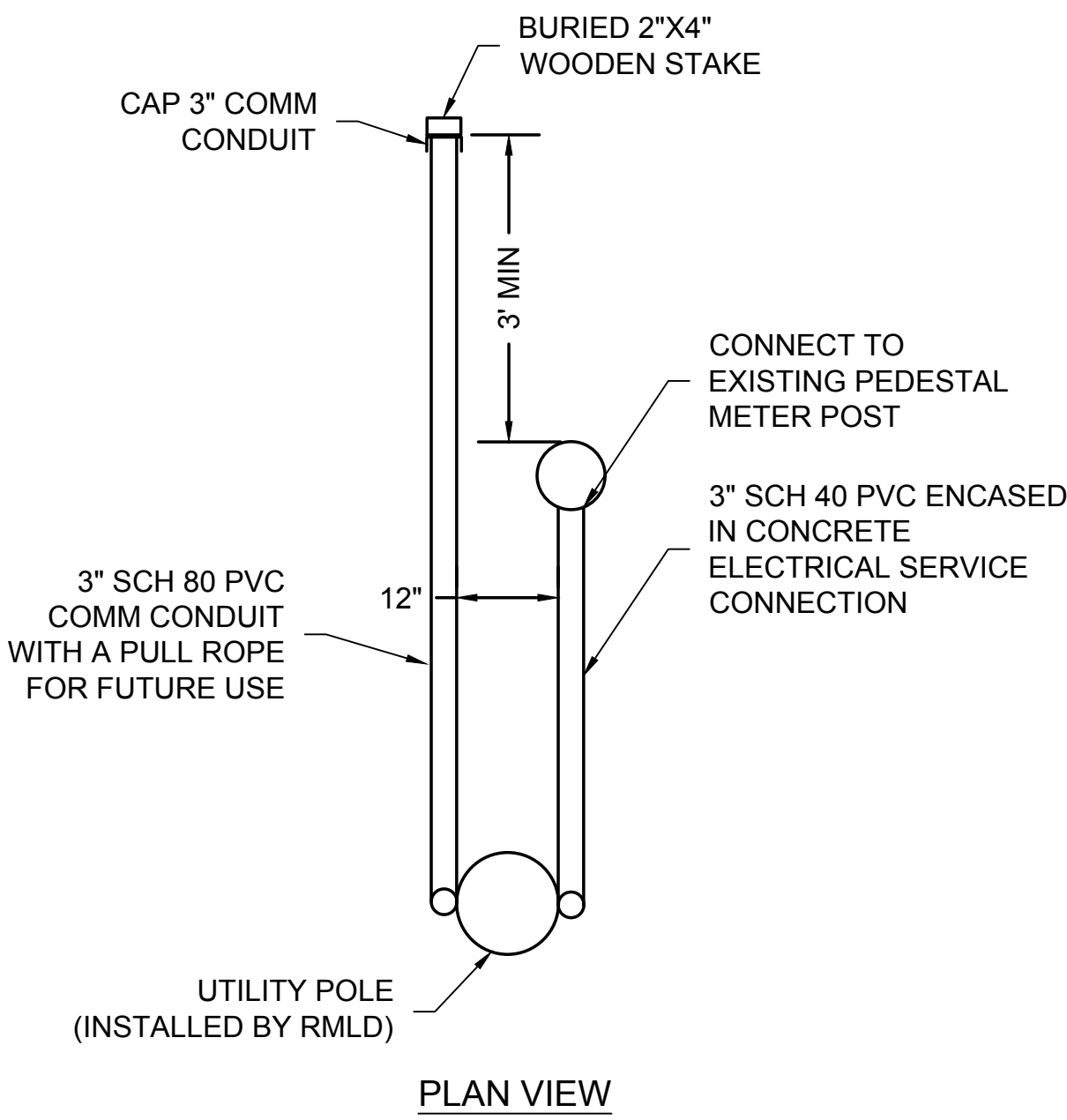
NOTES:

1. SPECIFIC ATTACHMENTS AND CONNECTIONS MAY VARY, COORDINATION WITH THE LOCAL UTILITY COMPANY IS REQUIRED BY THE CONTRACTOR.
2. CONTRACTOR SHALL LEAVE A MINIMUM OF 10 FT OF SLACK CABLES AT THE TOP OF THE DISCONNECT SWITCH FOR UTILITY COMPANY TO MAKE POWER SERVICE CONNECTIONS WHERE APPLICABLE. SLACK POWER SERVICE CABLE SHALL BE OF ADEQUATE LENGTH TO MAKE CONNECTION AT THE TOP OF THE UTILITY POLE.
3. CONTRACTOR SHALL LEAVE A SLACK GROUND WIRE AT THE POLE RISER AND THE UTILITY COMPANY SHALL MAKE THE GROUND WIRE CONNECTION AT EACH SITE. AT EXISTING UTILITY POLES, GROUND WIRE SHALL BE INSTALLED IF NO GROUND ROD CONNECTION EXISTS. CONTRACTOR SHALL BOND THE RIGID STEEL CONDUIT RISER TO THE GROUNDING SYSTEM.
- 4.



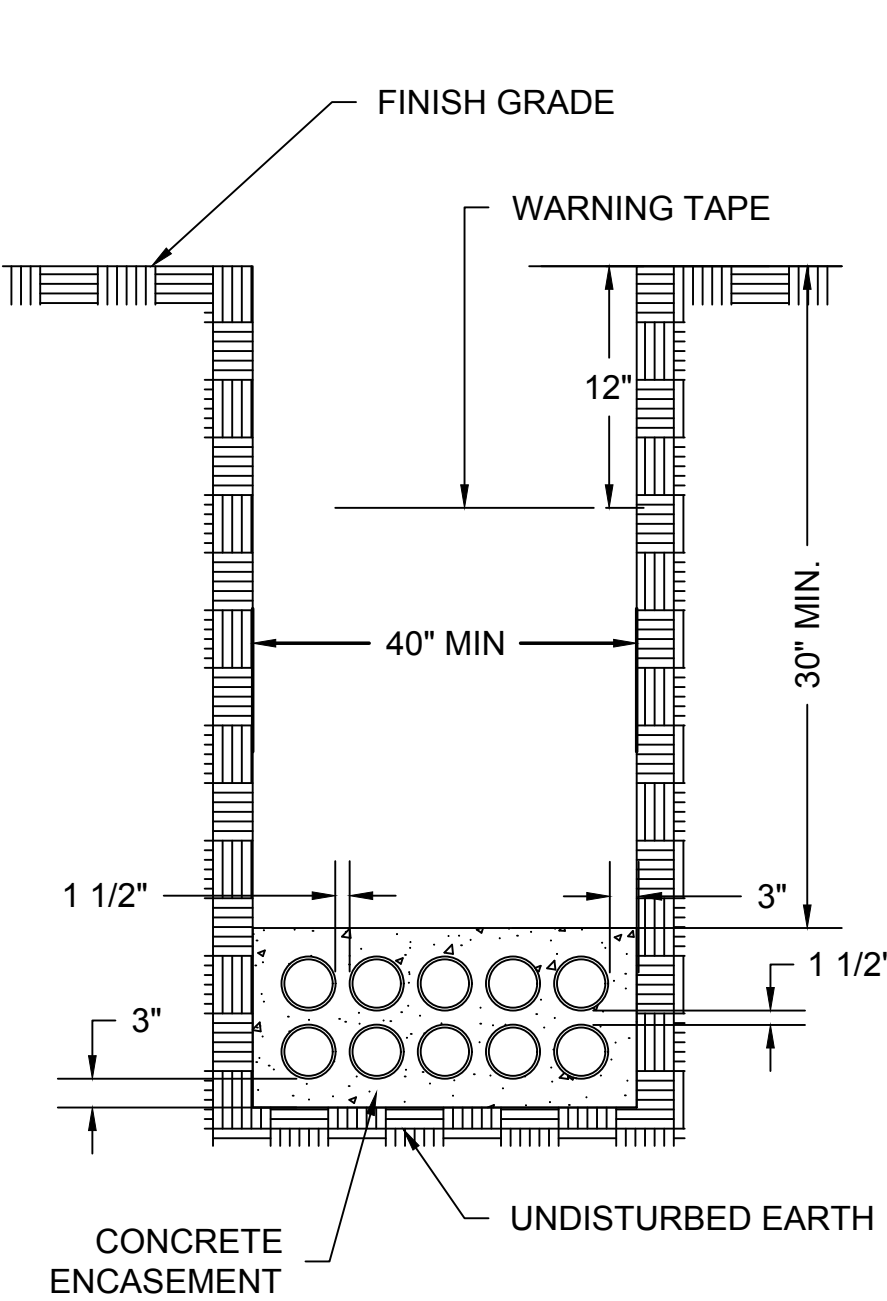
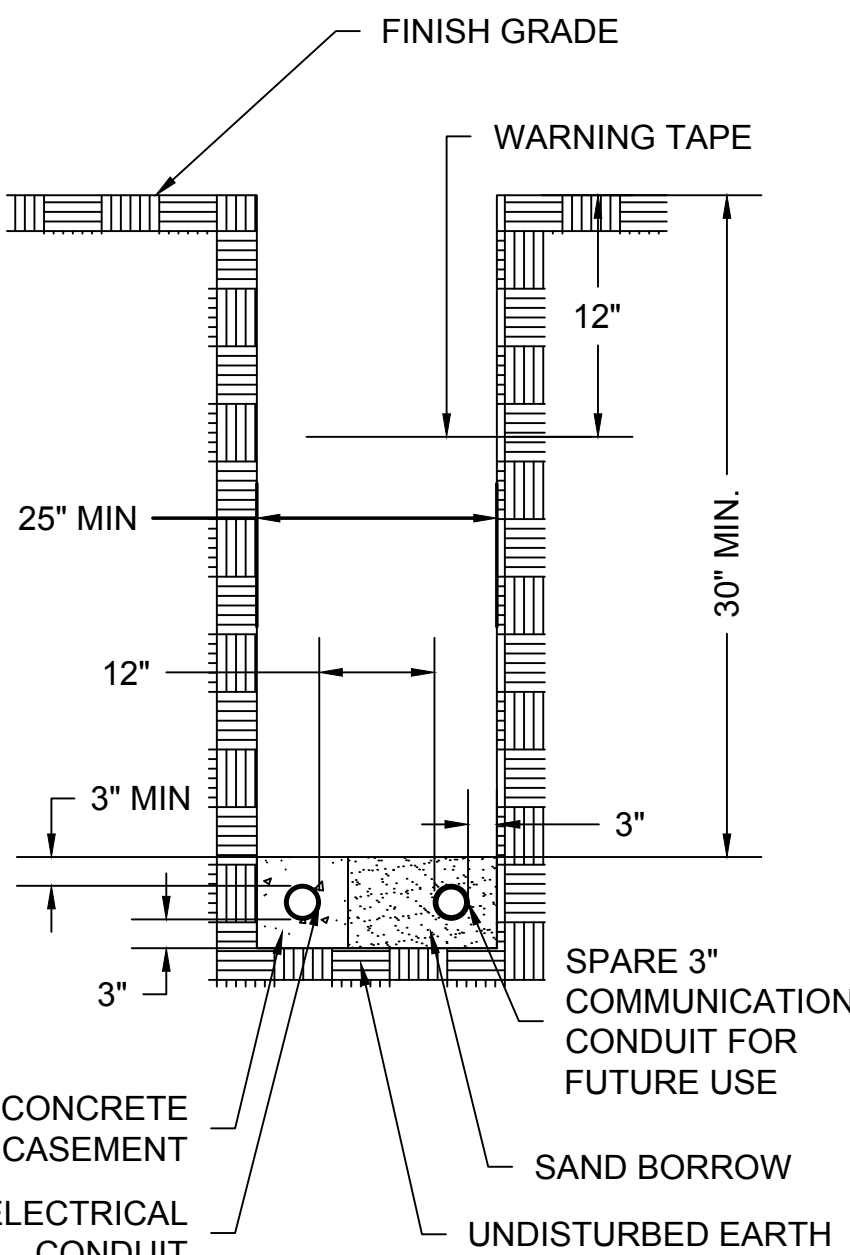
SERVICE CONNECTION (OVERHEAD)

NOT TO SCALE

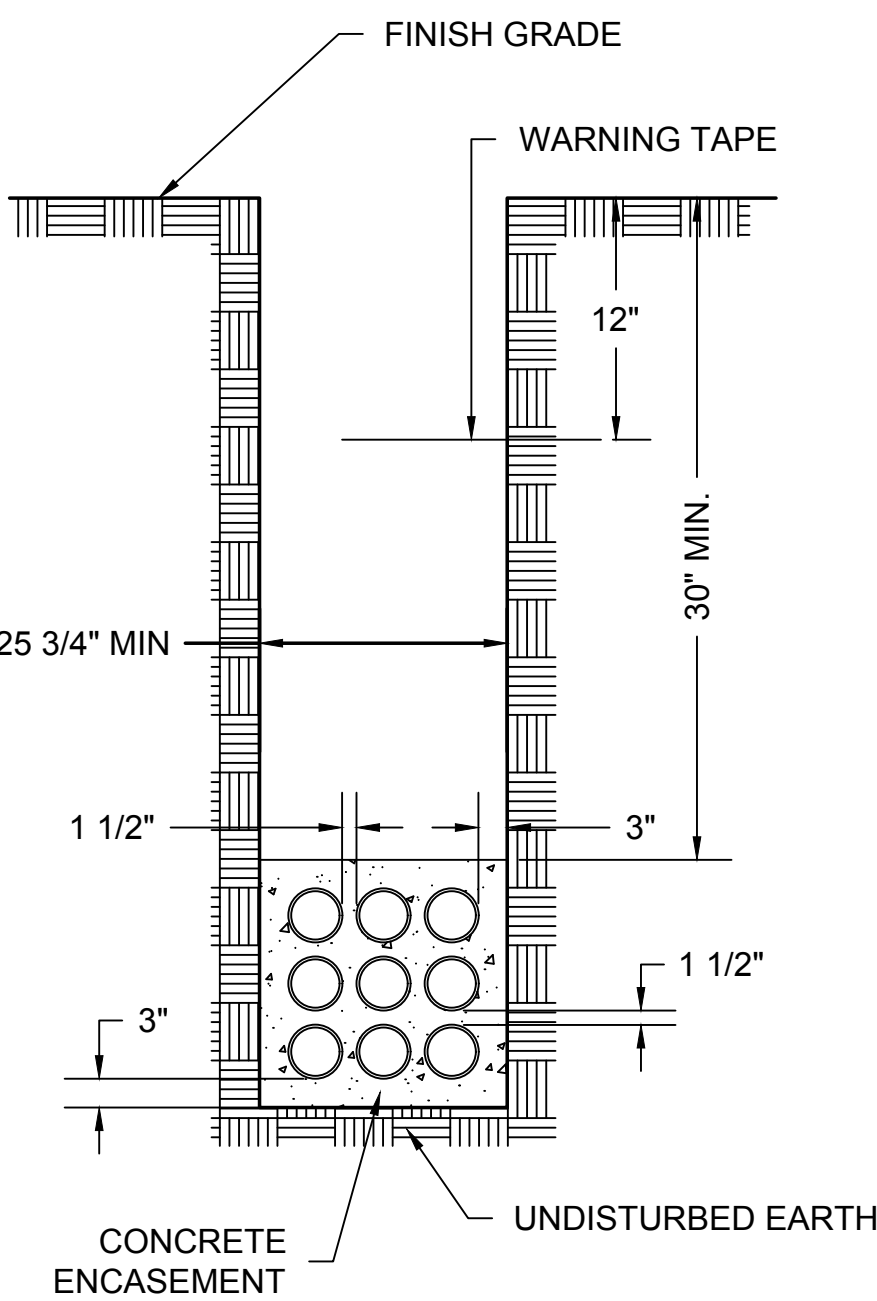


ITS SERVICE CONNECTION DUCT BANK AND TRENCH

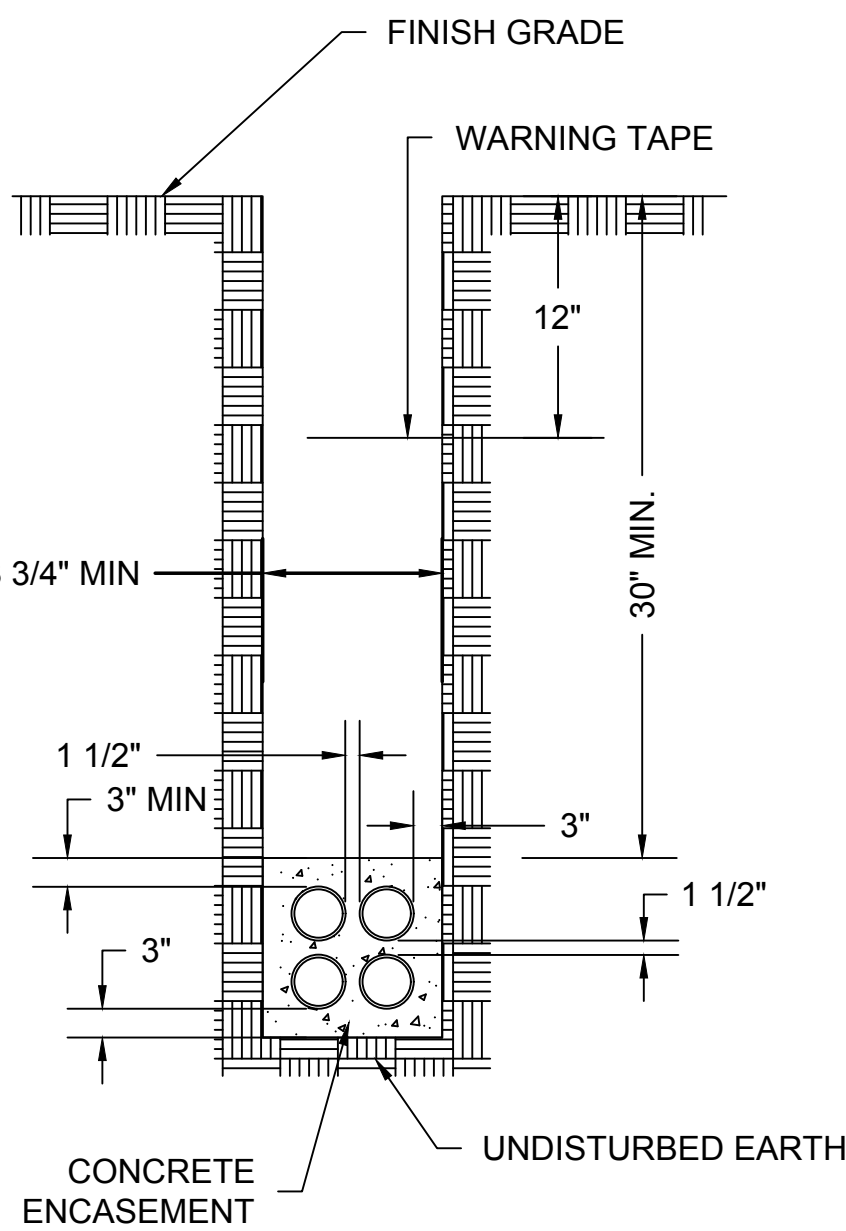
NOT TO SCALE



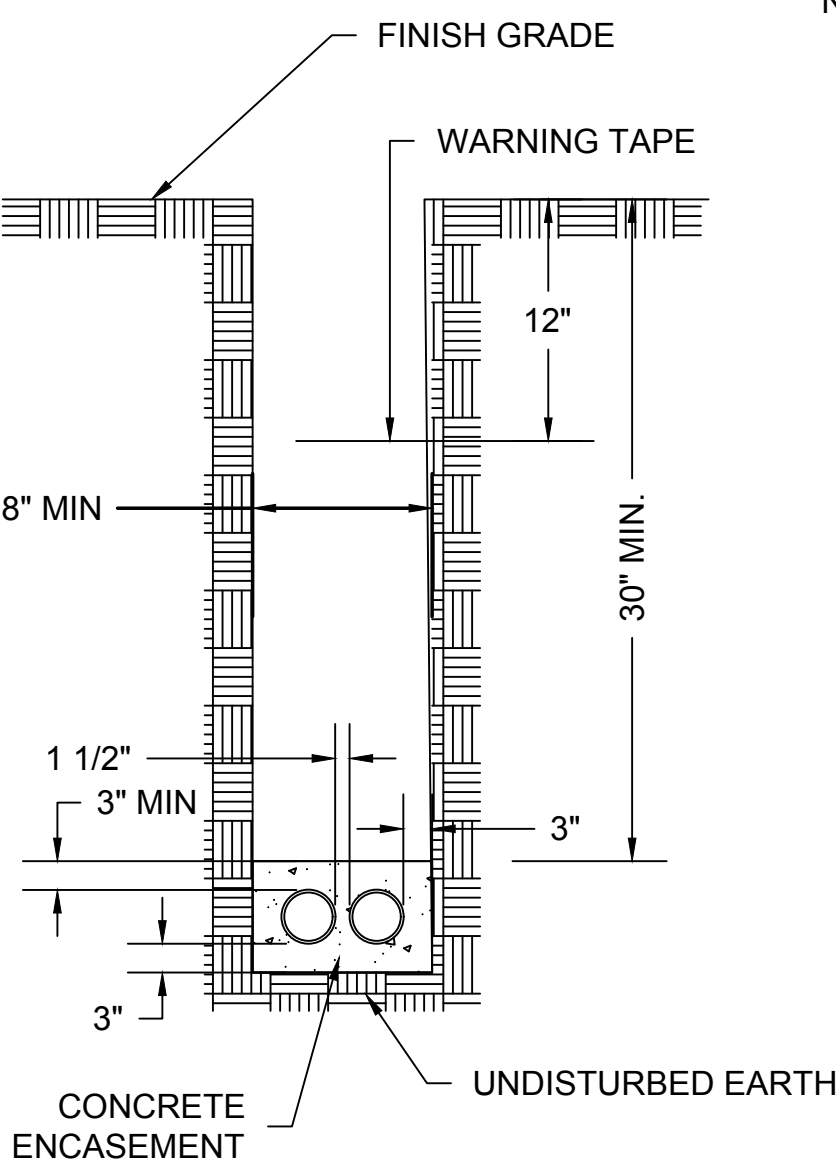
10-5" CONDUIT DUCT BANK
CONCRETE ENCASED



9-5" CONDUIT DUCT BANK
CONCRETE ENCASED



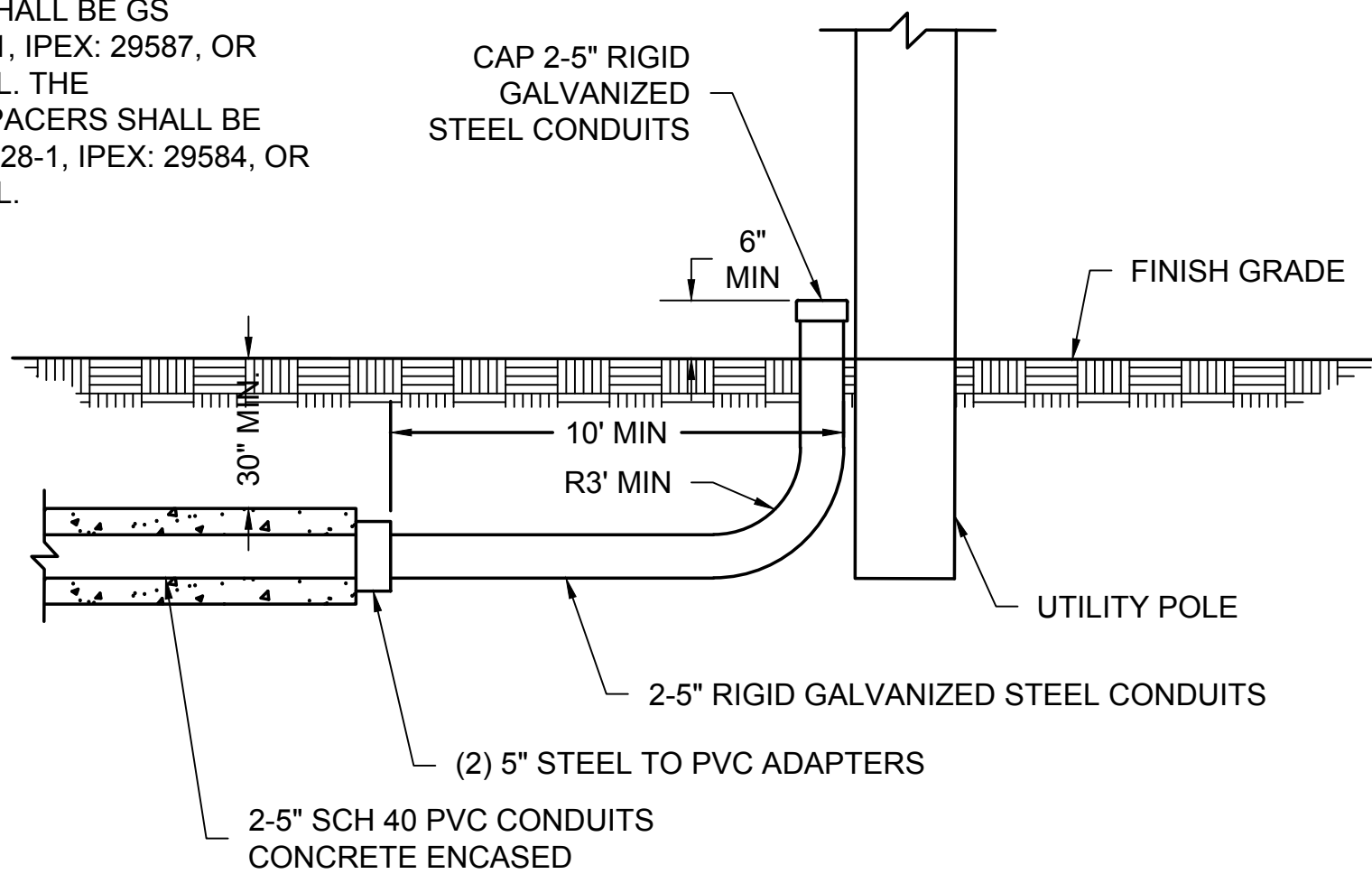
4-5" CONDUIT DUCT BANK
CONCRETE ENCASED



2-5" CONDUIT DUCT BANK
CONCRETE ENCASED

NOTES:

1. ELECTRICAL DUCT BANKS SHALL BE ENCASED IN CONCRETE.
2. ELECTRICAL DUCT BANKS SHALL BE INSTALLED WITH INTERMEDIATE SPACERS BETWEEN THE CONDUITS AND BASE SPACERS BELOW THE CONDUITS. THE SPACERS SHALL BE PLACED EVERY 5 TO 8 FEET. THE BASE SPACERS SHALL BE GS INDUSTRIES: 129-1, IPEX: 29587, OR APPROVED EQUAL. THE INTERMEDIATE SPACERS SHALL BE GS INDUSTRIES: 128-1, IPEX: 29584, OR APPROVED EQUAL.



2-5" ELECTRIC CONDUIT SWEEPS AT UTILITY POLE RISERS

NOT TO SCALE

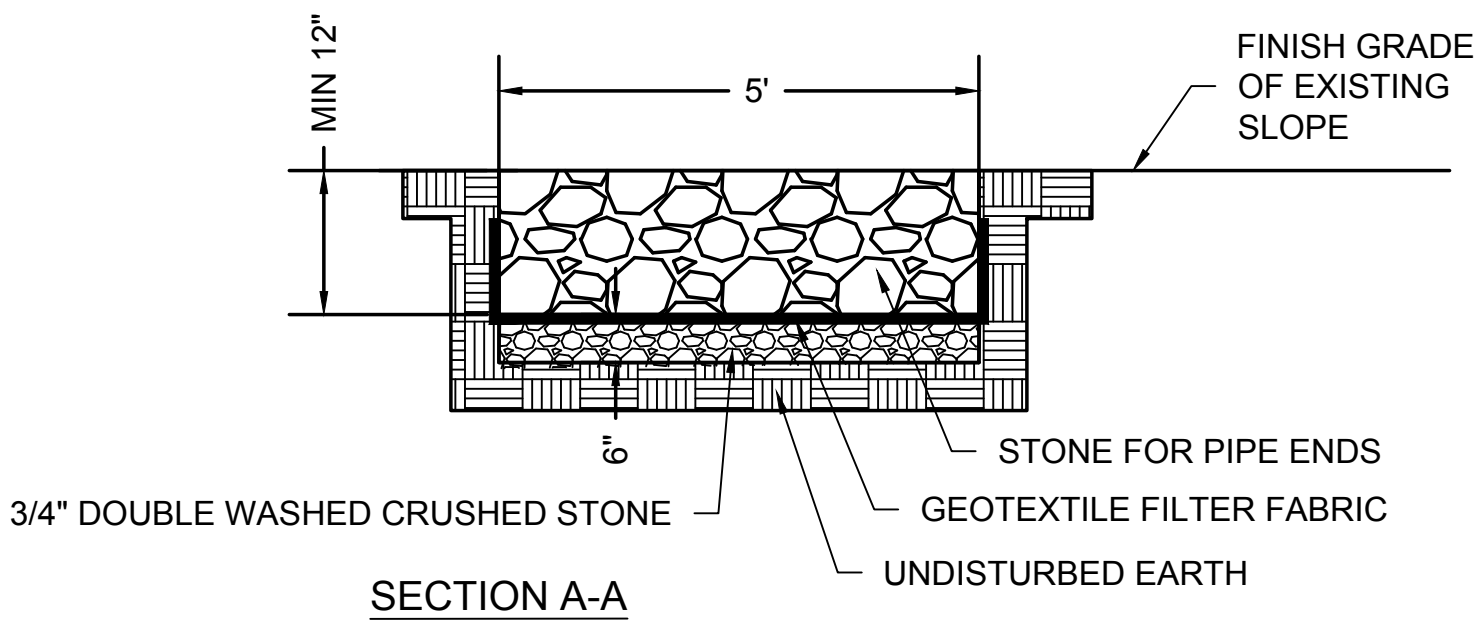
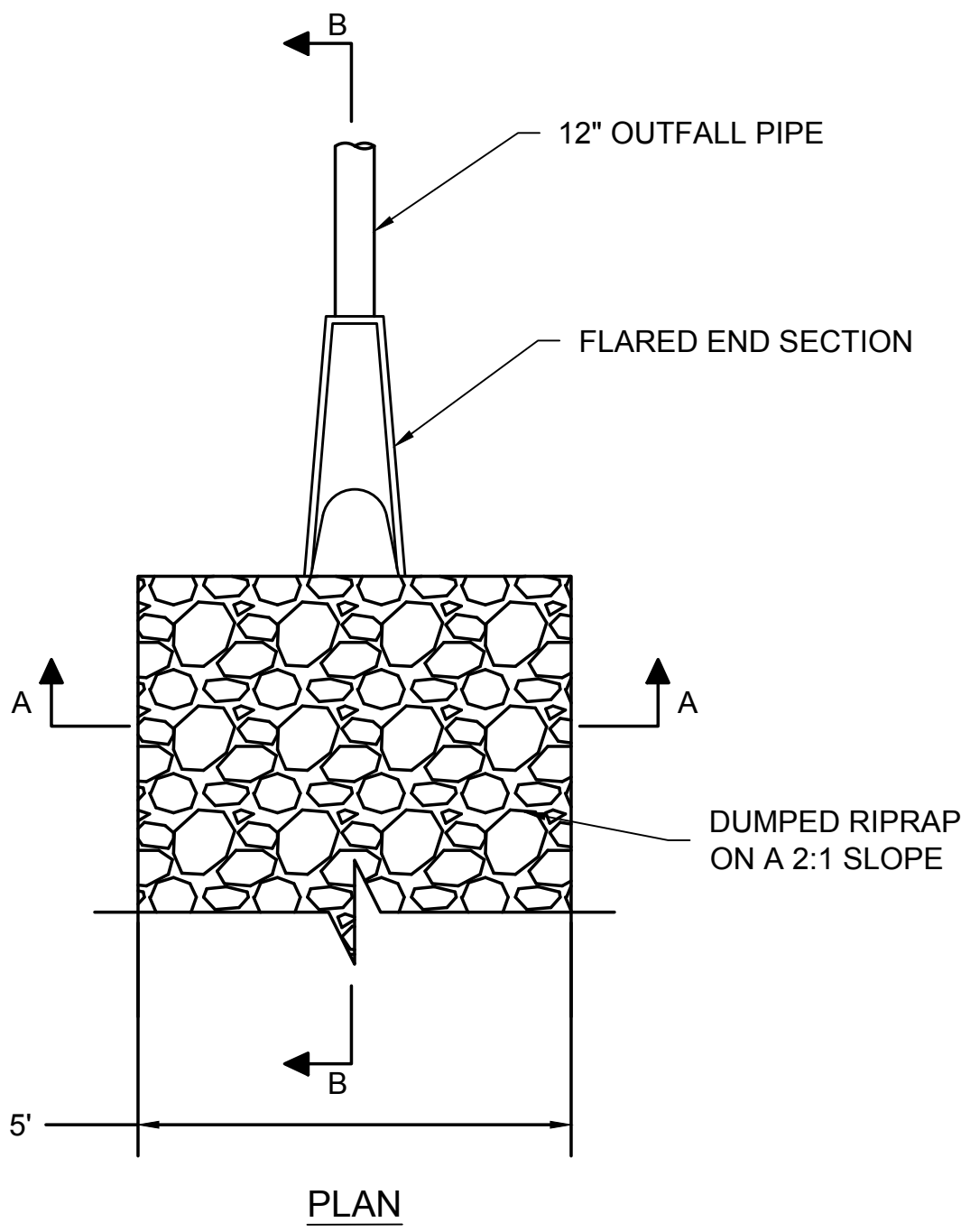
ELECTRICAL DUCT BANKS AND TRENCHES

NOT TO SCALE

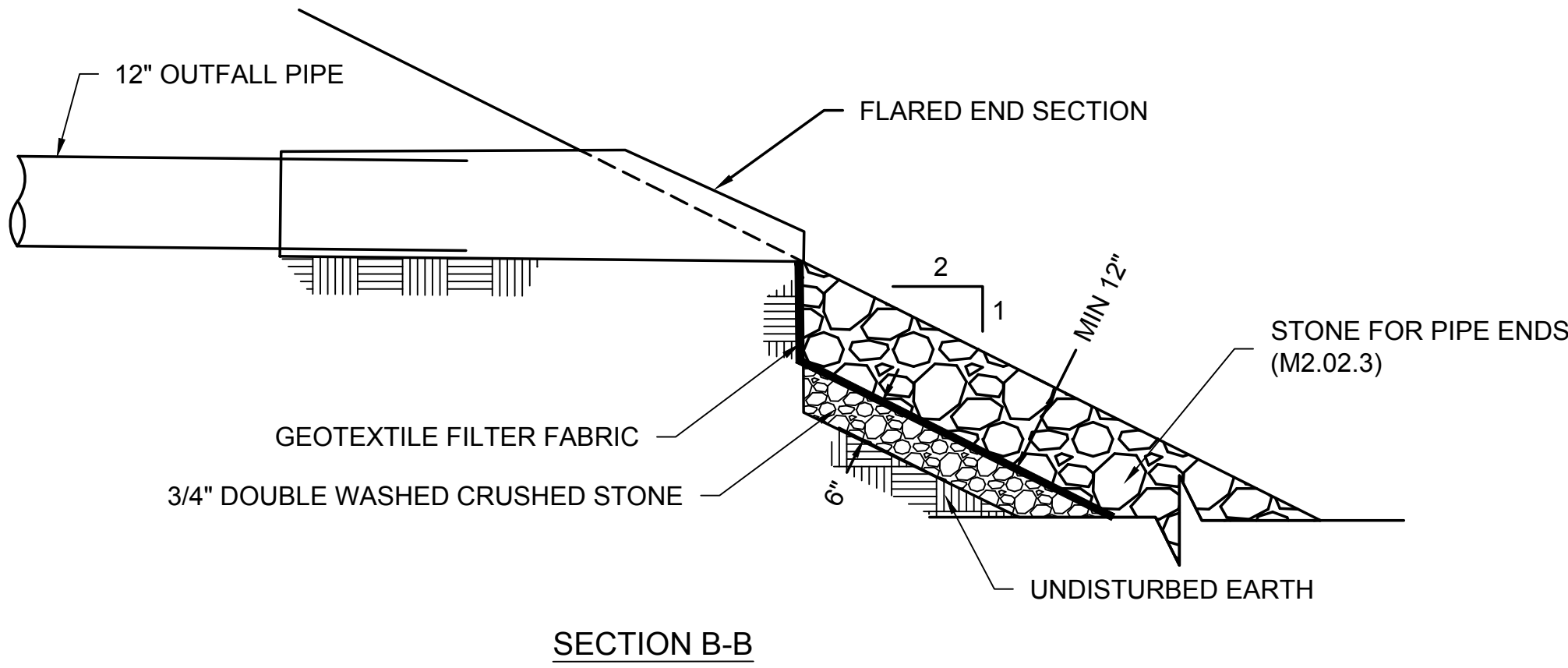
WILMINGTON
ROUTE 129 (LOWELL STREET)

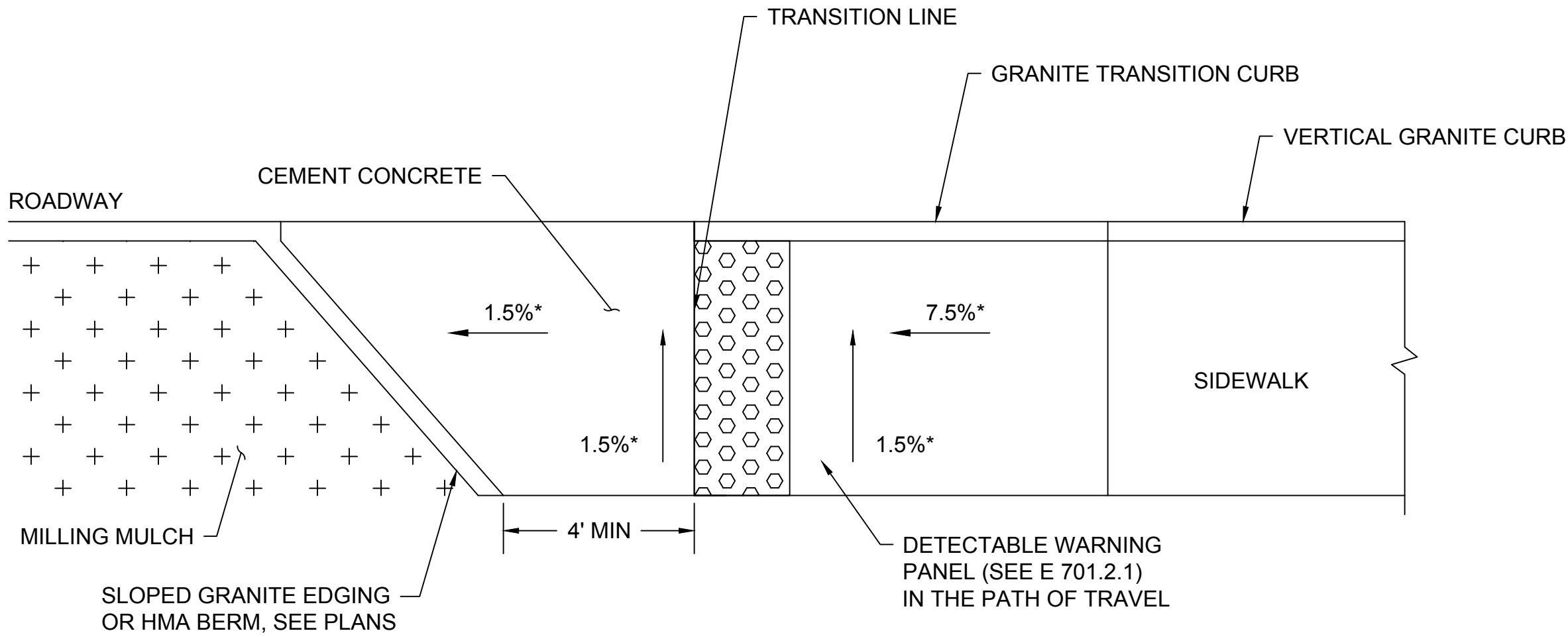
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	46	96
PROJECT FILE NO.		608703	

DRAINAGE & UTILITY DETAILS (3 OF 3)



STONE FOR PIPE ENDS ON SLOPE
NOT TO SCALE





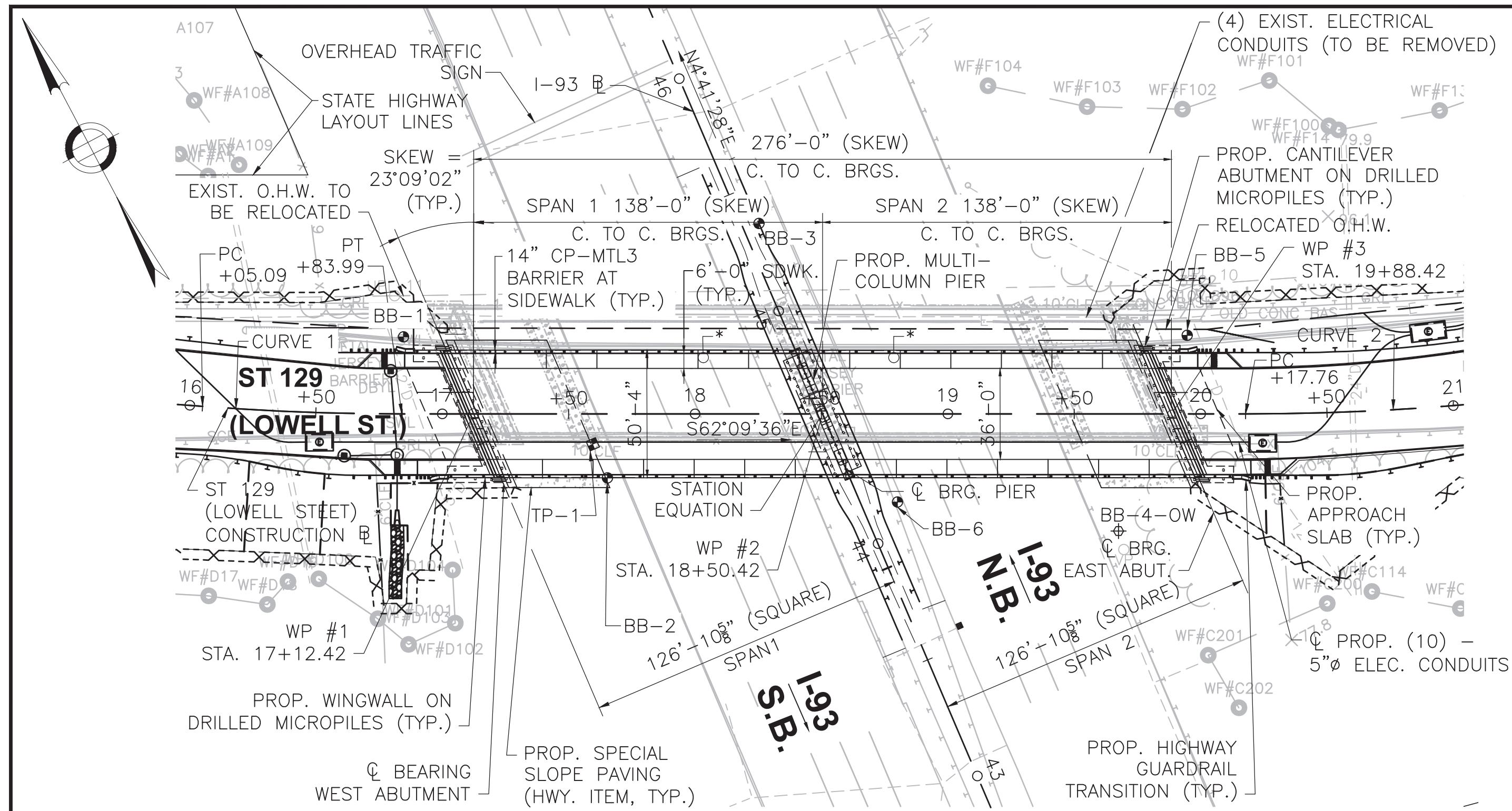
NOTES:

* = TOLERANCE FOR CONSTRUCTION ±0.5%

** = REFER TO MASSDOT CONSTRUCTION STANDARDS DRAWING NO. E 701.2.1 FOR DETECTABLE WARNING PANEL DETAIL. WARNING PANEL SHALL BE CUT AS REQUIRED TO EXTEND ACROSS ENTIRE RAMP OPENING. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED CURB RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARDS.

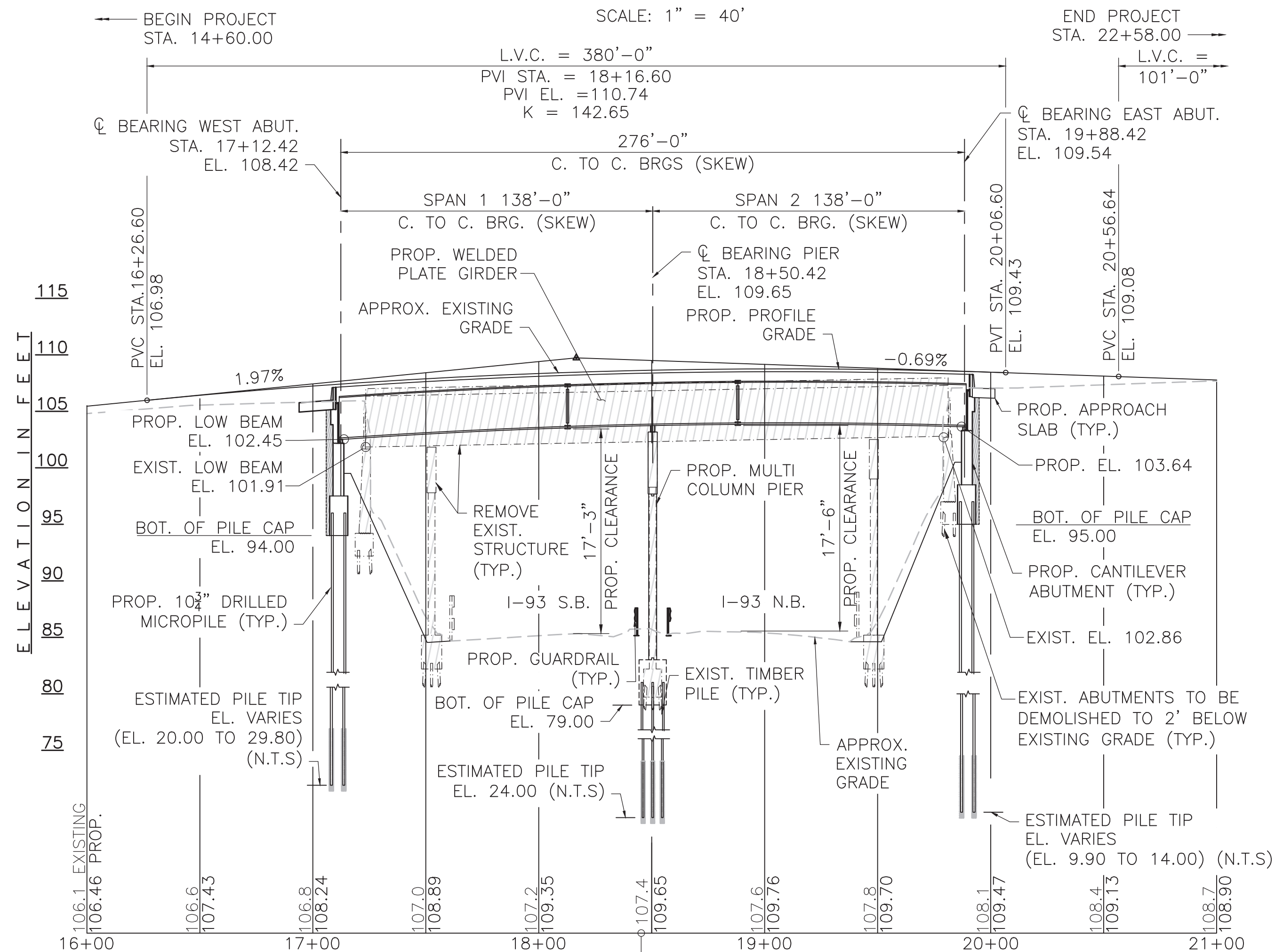
TRANSITION RAMP TO SHOULDER
NOT TO SCALE

CURB CUT RAMP DETAIL TABLE						
PEDESTRIAN CURB #	STATION	OFFSET	WIDTH OF SIDEWALK	WIDTH OF RAMP (MIN. 5'-0")	ROADWAY GUTTER SLOPE (%)	TRANSITION LENGTH (FT)
1	16+76.95	18.50' LT	5'-6"	5'-6"	1.59	9'-0"
2	16+82.24	18.50' RT	5'-6"	5'-6"	1.61	9'-0"
3	20+05.72	18.50' LT	5'-6"	5'-6"	-0.67	7'-8"
4	20+26.30	18.50' RT	5'-6"	5'-6"	-0.69	7'-8"



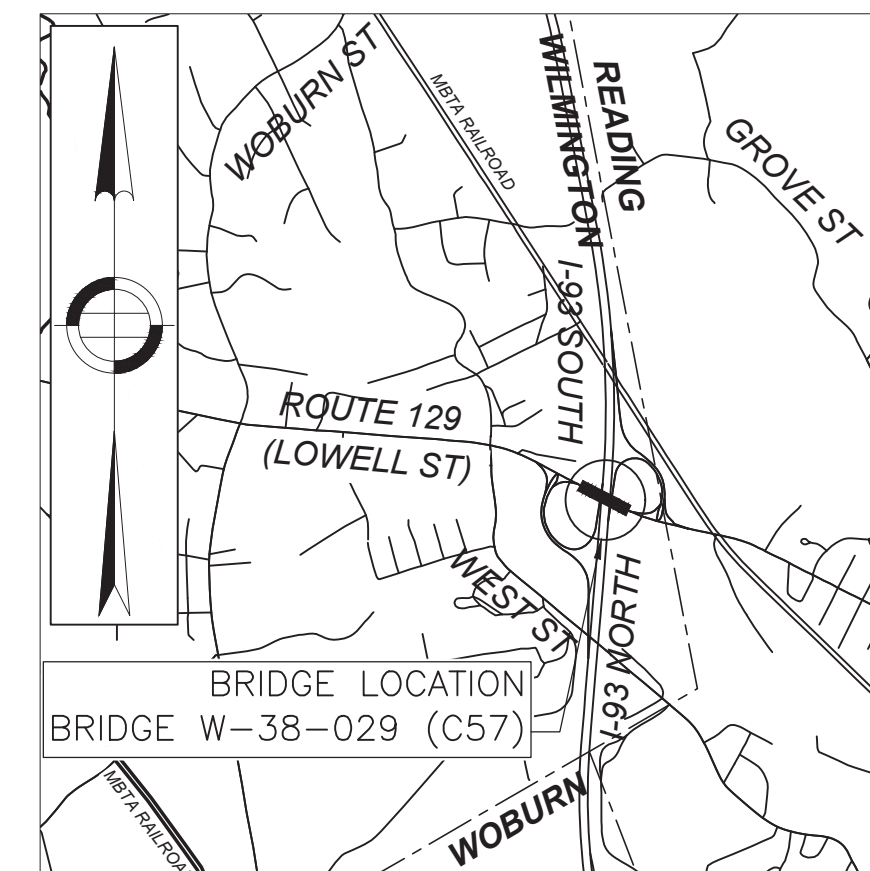
KEY PLAN

SCALE: 1" = 40'



PROFILE - ST 129 (LOWELL STREET)

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 8'



LOCUS PLAN

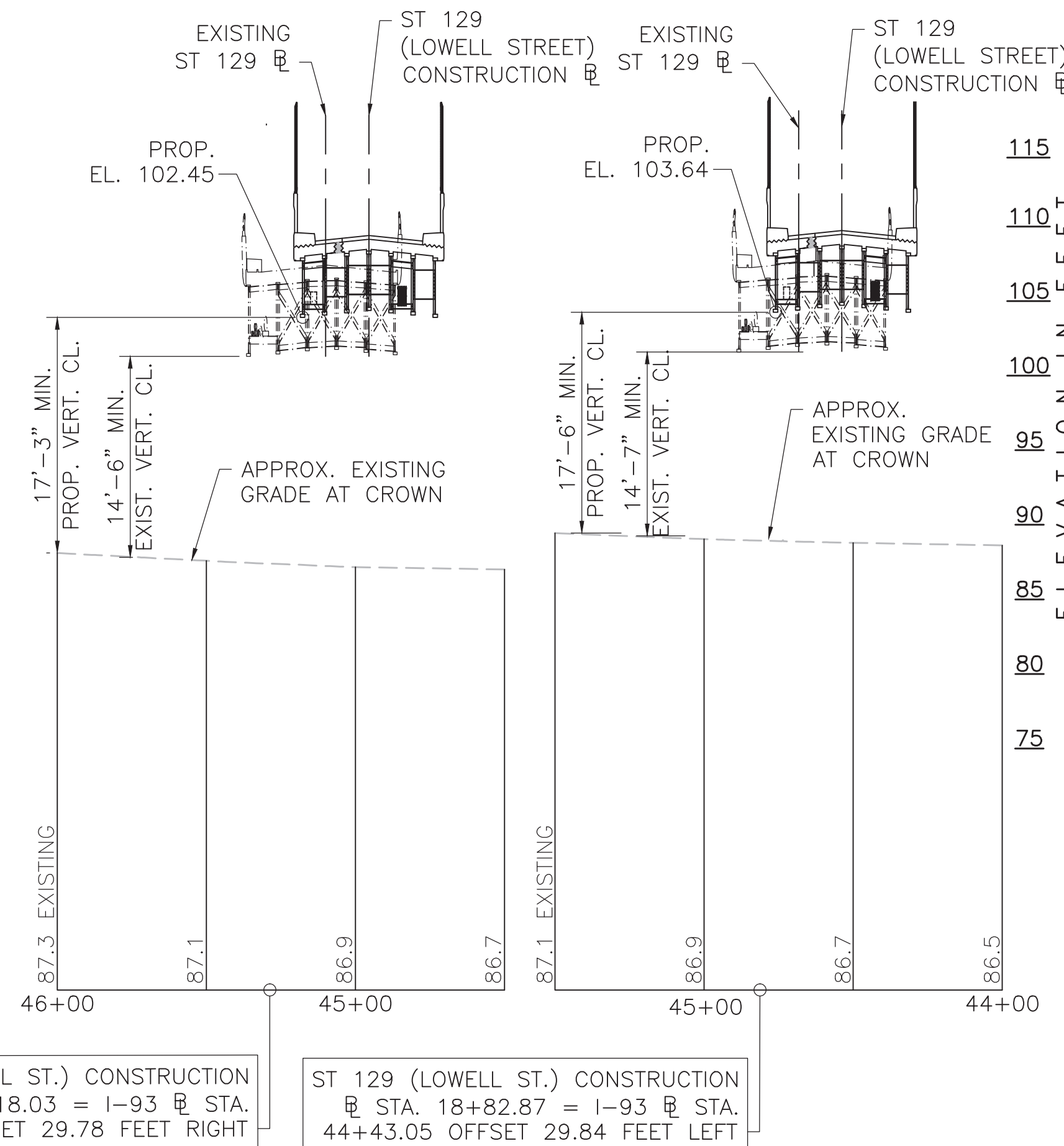
SCALE: 1" = 2000'

STATION EQUATION: ST 129 CONSTRUCTION @
STA. 18+50.42 = I-93 @ STA. 44+55.81

HORIZONTAL 1 CURVE DATA
PC = STA. 16+05.09
Δ = 4°-20'-47"
R = 1040.00'
L = 78.90'
T = 39.47'

HORIZONTAL 2 CURVE DATA
PC = STA. 20+17.76
Δ = 10°-22'-29"
R = 1040.06'
L = 188.33'
T = 94.42'

*APPROXIMATE LOCATIONS OF MINIMUM VERTICAL CLEARANCE



NOTE: OFFSET SHOWN IS TO THE CROWN OF THE EXISTING ROADWAY.

PROFILE - I-93 SB

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 8'

PROFILE - I-93 NB

HORIZ. SCALE: 1" = 40'
VERT. SCALE: 1" = 8'

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)HPI(BR)-0034(029)X	48	96
PROJECT FILE NO. 608703			
KEY PLAN, PROFILE, AND LOCUS			

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 Michael Cruz Digitally signed by Michael Cruz Date: 2025.08.19 10:07:45 -04'00'	August 30, 2025	ISSUED FOR CONSTRUCTION	
	 PROPOSED BRIDGE WILMINGTON ST 129 (LOWELL ST) OVER I-93		
	MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS		
	Alexander K. Bardow, P.E. Digitally signed by Alexander K. Bardow, P.E. Date: 2025.08.19 13:35:19 -04'00'	Carrie Lavallee, P.E. Digitally signed by Carrie Lavallee, P.E. Date: 2025.08.02 11:20:04 -04'00'	
STATE BRIDGE ENGINEER		CHIEF ENGINEER	

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020, FOR HL-93 LOADING.

MASSDOT BENCH MARK:

BENCHMARK #1: MAG NAIL ON UPL #12
15+36.06 – 35.710'LT
NORTHING: 3021200.750
EASTING: 754250.374
ELEVATION: 107.46'

BENCHMARK #2: MAG NAIL ON UPL #9

21+33.00 – 53.568'LT
NORTHING: 3020940.276
EASTING: 754777.512
ELEVATION: 108.19'

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

DATE:

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

MASSDOT SURVEY:

THE EXISTING CONDITION SHOWN ON THIS BASE MAP ARE THE RESULT OF AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BETWEEN DECEMBER 11, 2017 AND DECEMBER 28, 2017 BY GREEN INTERNATIONAL AFFILIATES, INC. (GREEN). FIELD CHECK AND ADDITIONAL PARTIAL SURVEY WAS PERFORMED ON AUGUST 13, 2024, AND DECEMBER 6, 2024. ELECTRONIC SURVEY DATA MAY BE OBTAINED FROM MASSDOT AT THE REQUEST OF THE CONTRACTOR.

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.

GEOTECHNICAL REPORT:

REFER TO GEOTECHNICAL REPORT FOR BRIDGE W-38-029, DATED JULY 2025, PREPARED BY LAMSON ENGINEERING CORPORATION.

EXISTING CONDITIONS:

DIMENSIONS OF THE EXISTING STRUCTURE SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THEY HAVE BEEN TAKEN FROM THE ORIGINAL DESIGN DRAWINGS, AND ARE NOT GUARANTEED.

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

CONCRETE:

UNLESS OTHERWISE SPECIFIED, ALL CONCRETE SHALL BE 5000 HP CONCRETE.

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

REINFORCEMENT:

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

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS	#7 BARS	#8 BARS
1. NONE	16"	17"	21"	30"	34"
2. 12" OF CONCRETE BELOW BAR	18"	22"	27"	39"	44"
3. EPOXY COATED BARS, COVER < 3D _b , OR CLEAR SPACING < 6D _b	21"	26"	31"	44"	51"
4. COATED BARS, ALL OTHER CASES	17"	21"	25"	36"	41"
5. CONDITION 2. AND 3.	23"	29"	35"	50"	57"
6. CONDITION 2. AND 4.	21"	27"	32"	46"	53"

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

STRUCTURAL STEEL:

SEE SHEET 27 FOR STRUCTURAL STEEL NOTES.

ESTIMATED QUANTITIES (NOT GUARANTEED)		
ITEM	QTY.	UNIT
DEMOLITION OF SUPERSTRUCTURE OF EXISTING BRIDGE NO. W-38-029	1	LS
REINFORCED CONCRETE EXCAVATION	495	CY
REINFORCED CONCRETE DECK EXCAVATION (FULL DEPTH)	26	SY
REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH)	10	CY
BRIDGE EXCAVATION	1240	CY
CLASS B ROCK EXCAVATION	65	CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	255	CY
CONTROLLED LOW-STRENGTH MATERIAL (>300 PSI)	5	CY
SUPERPAVE BRIDGE PROTECTIVE COURSE-9.5 POLYMER (SSC-B-9.5-P)	105	TON
SUPERPAVE BRIDGE PROTECTIVE COURSE-9.5 POLYMER (SPC-B-9.5-P)	105	TON
EMERGENCY RESPONSE	4	EA
RAPID SET CONCRETE	15	CY
STEEL REINFORCEMENT FOR STRUCTURES	2400	LB
MECHANICAL REINFORCEMENT BAR SPLICER	20	EA
DRILLED MICROPILE	6780	FT
MICROPILE VERIFICATION LOAD TEST	1	EA
MICROPILE PROOF LOAD TEST	3	EA
TEMPORARY SHORING	1	LS
TEMPORARY EARTH SUPPORT SYSTEM BRIDGE NO. W-38-029	1	LS
MISCELLANEOUS STEEL REPAIRS	2700	LB
TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. W-38-029	1	LS
BRIDGE STRUCTURE, BRIDGE NO. W-38-029	1	LS

WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-CN)/HIP(BR)-0034(029)X	49	96
PROJECT FILE NO.		608703	

GENERAL NOTES AND ESTIMATED QUANTITIES

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2044	2044
AVERAGE DAILY TRAFFIC – PRESENT	22,926	183,556
AVERAGE DAILY TRAFFIC – DESIGN YEAR	30,332	235,326
DESIGN HOURLY VOLUME	2,639	16,002
DIRECTIONAL DISTRIBUTION	60%	55%
TRUCK PERCENTAGE – AVERAGE DAY	4.1%	3.1%
TRUCK PERCENTAGE – PEAK HOUR	1.6%	5.6%
DESIGN SPEED	45 MPH	65 MPH
DIRECTIONAL DESIGN HOURLY VOLUME	1,582	8,799

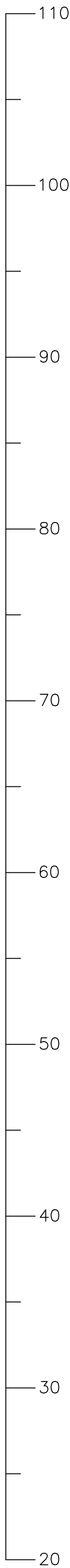
SEISMIC DESIGN CRITERIA

DESIGN RETURN PERIOD:	2,500
DESIGN SPECTRA	
As	0.181g
SDs	0.283g
SD1	0.142g
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

\\gryhdc\engineering\Shared\Engineering\Projects\2021\12\0506\1158_11XX_Wilmington_S1129\060703\DWG\030209\BoringLog_BB03\W38029.dwg

ELEVATION IN FEET



PROP. BOTTOM OF PILE CAP
WEST ABUTMENT
EL. 94.00

ESTIMATED MICROPILE TIP AT
WEST ABUTMENT VARIES
EL. 29.80

massDOT Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com				Boring No. BB-1 (Bridge Boring)		Page 1/1
City/Town: Wilmington		Bridge No.: W-38-029 (2KV)		Project File No.: 608703		Contract No.: -		
Location: State Route 129 (Lowell St.) over I-93 NB & SB		Date & Time Started: 12/17/18 9:30 a.m.		Date & Time Completed: 12/20/18 12:30 p.m.		Total Hours: 18		
Groundwater: Depth (Feet): 28'		Date & Time: 12/20/18 9:45 a.m.		Inspector's Name: William Howe				
Coordinates: N 3,021,116 E 754,378		Ground Elevation (Feet): 106.7'						
Drilling Company: Crawford Drilling Services, LLC				Driller's Name: Anthony Martinelli		Helper's Name: Darrel Green		
Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches Coring Times Minute Per Foot				Recovery (inches)	Field Description	Strata Changes
S-1	1' - 3'	15	12	10	21	16"	Asphalt Dry, medium dense, brown, FINE SAND.	6"
S-2	4' - 6'	12	11	9	8	6"	Moist, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-3	9' - 11'	17	11	12	17	11"	Moist, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-4	14' - 16'	12	11	12	11	10"	Moist, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-5	19' - 21'	12	14	15	19	13"	Dry, medium dense, brown, FINE SAND.	
S-6	24' - 26'	17	26	29	19	13"	Dry, very dense, brown, FINE TO COARSE SAND, trace fine to medium gravel.	
S-7	29' - 31'	10	6	5	7	15"	Moist, medium dense, brown, FINE TO COARSE SAND, trace inorganic silt.	
S-8	34' - 36'	8	5	3	2	12"	Wet, loose, brown, FINE TO COARSE SAND, trace inorganic silt.	37'
S-9	39' - 41'	7	12	16	15	12"	Wet, medium dense, gray, FINE SAND.	42'
S-10	44' - 46'	13	11	12	17	9"	Wet, medium dense, brown, FINE TO COARSE SAND.	
S-11	49' - 51'	13	10	10	11	9"	Wet, medium dense, brown, FINE TO COARSE SAND.	
S-12	54' - 56'	7	10	10	14	21"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.	
S-13	59' - 61'	10	12	15	43	13"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.	61'
S-14	64' - 66'	6	6	13	15	16"	Wet, medium dense, gray, FINE SAND, trace inorganic silt.	63'
S-15	69' - 70'11"	14	34	21	99/5"	9"	Wet, very dense, gray, FINE TO COARSE SAND, some fine to medium gravel, trace inorganic silt. Top of Bedrock @ 70'11"	70'11"
C-1	71' - 76'	3	4	3	3	4	Fresh, slightly fractured, light to dark gray, GNEISS. Percent Recovery = 85% RQD = 35.5'/60" = 59%	
C-2	76' - 81'	5	3	3	3	3	Fresh, slightly fractured, light to dark gray, GNEISS. Percent Recovery = 100% RQD = 52'/60" = 87%	
						Bottom of Exploration @ 81'		81'
Notes:				Arrow-Board: N/A Signs: 6 Cones: 30		Protective Device Stand: - Box: - Well Depth: - Solid Pipe: - Stick Up Pipe: - Screen Pipe: -		
Penetration Resistance (N) Guide:								
Cohesionless Soils (Sands, Gravels)				Cohesive Soils (Sills, Clays)		Type of Drill Rig: Mobile B-57		
Relative Density		Penetration Resistance		Consistency		Hammer Weight: 140 lbs Fall: 24"		
Very Loose		0 - 4		Very Soft		Casing Types: HW NW		
Loose		4 - 10		Soft		Depth: 4' 3"		
Medium Dense		10 - 30		Medium Stiff		Sampler Type: S/S Size: 1 3/8" ID		
Dense		30 - 50		Stiff		Automatic Hammer Weight: 140 lbs		
Very Dense		Over 50		Very Stiff		Safety Hammer Weight:		
N=Sum of Second and Third 6" Blow Counts				Hard		Donut Hammer Weight:		Fall: 30"
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less								

BB-1

SCALE: $\frac{3}{16}" = 1'-0"$

GROUND WATER NOTES:

THE WATER LEVELS RECORDED IN THE TABLE ARE THOSE MEASURED ON THE DATES GIVEN AND DO NOT NECESSARILY REPRESENT GROUND WATER LEVEL AT TIME OF CONSTRUCTION.

GROUNDWATER LEVELS IN OBSERVATION WELL IN BORING BB-4-OW	
DATE	ELEVATION
07/10/2019	78.0
07/29/2024	77.0

massDOT Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com				Boring No. BB-2 (Bridge Boring)		Page 1/2
City/Town: Wilmington		Bridge No.: W-38-029 (2KV)		Project File No.: 608703		Contract No.: -		
Location: State Route 129 (Lowell St.) over I-93 NB & SB		Date & Time Started: 6/30/19 9:30 p.m.		Date & Time Completed: 7/2/19 3:30 a.m.		Total Hours: 12		
Groundwater Depth (Feet): 6'		Coordinates: N 3,021,034 E 754,418		Ground Elevation (Feet): 87.0'		Inspector's Name: Weijie Dong		
Drilling Company: New England Boring Contractors		Driller's Name: Kenneth Smith		Helper's Name: Garrett Peacock				
Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches Coring Times Minute Per Foot		Recovery (inches)	Field Description	Strata Changes		
S-1	0' - 2'	1	2	6	7	12"	Topsoil	6"
S-2	4' - 6'	6	8	11	12	10"	Dry, loose, brown, FINE SAND.	
S-3	9' - 11'	8	7	7	6	10"	Dry, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-4	14' - 16'	7	9	12	22	13"	Moist, medium dense, brown, FINE SAND, trace inorganic silt.	10'6"
S-5	19' - 21'	8	7	9	11	12"	Moist, medium dense, gray, FINE SAND, trace inorganic silt.	
S-6	24' - 26'	5	5	7	10	11"	Moist, medium dense, brown, FINE TO COARSE SAND, trace inorganic silt.	24'
S-7	29' - 31'	20	12	9	8	7"	Wet, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel, trace inorganic silt.	
S-8	34' - 36'	5	8	10	10	15"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.	
S-9	39' - 41'	4	5	6	6	14"	Wet, medium dense, brown, FINE SAND, some inorganic silt.	
S-10	44' - 46'	6	6	8	11	15"	Wet, medium dense, brown, FINE SAND, some inorganic silt.	
S-11	49' - 51'	5	4	5	5	16"	Wet, medium dense, brown, FINE SAND, some inorganic silt.	
S-12	54' - 56'	20	37	35	28	8"	Wet, very dense, brown, FINE TO COARSE SAND, some inorganic silt.	57'6"
						COBBLES		59'

BB-2

SCALE: $\frac{3}{16}" = 1'-0"$

BORING NOTES:

- LOCATION OF BORINGS SHOWN ON THE PLAN THUS: BB-#
- LOCATION OF TEST PITS SHOWN ON THE PLANS THUS: TP-#
- LOCATION OF OBSERVATION WELLS SHOWN ON THE PLANS THUS: BB-#
- 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 NUMBER OF BLOWS REQUIRED TO DRIVE A 1 $\frac{3}{8}$ " 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 IN DECEMBER 2018, JANUARY 2019, AND JULY 2019. THE TEST PIT WAS EXCAVATED IN JUNE 2019.
- DECEMBER 2018 AND JANUARY 2019 BORINGS WERE MADE BY CRAWFORD DRILLING SERVICES, LLC, 25 BATHRICK ROAD, WESTMINSTER, MA, 01473. JULY 2019 BORINGS AND JUNE 2019 TEST PIT WERE MADE BY NEW ENGLAND BORING CONTRACTORS, 40 FORDWAY STREET, DERRY, NH, 03038.
- THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

massDOT Boring Log		LAMSON ENGINEERING CORPORATION 4377 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com					Boring No. BB-2 (Bridge Boring)		Page 2/2
							Scale: 1" = 5'		
Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches Coring Times Minute Per Foot			Recovery (inches)	Field Description	Strata Changes		
S-13	59' - 61'	10	17	22	75	8"	Wet, dense, gray, FINE TO COARSE SAND, some fine to medium gravel, some inorganic silt.	61'	
C-1	62' - 64'	4	6		21"	Top of Bedrock @ 61' Core barrel was jammed.			
C-2	64' - 68'	6	7	6	5	48"	Fresh, moderate fractured, light to dark gray, GNEISS. Percent Recovery = 88% RQD = 18"/24" = 75%		
							Core barrel was jammed.		
							Fresh, moderate fractured, light to dark gray, GNEISS. Percent Recovery = 100% RQD = 21"/48" = 44%		
C-3	68' - 72'	7	6	6	5	48"	Core barrel was jammed.		
							Fresh, moderate fractured, light to dark gray, GNEISS. Percent Recovery = 100% RQD = 33"/48" = 69%		
							Bottom of Exploration @ 72'		
Notes:		* Moved boring approximately 19' South & 19' East of original location due to steep slope. New coordinates and elevation are estimated.					Arrow-Board: 1 Signs: - Stick Up Pipe: -	Protective Device: Stand: - Box: - Solid Pipe: - Screen Pipe: -	
							Penetration Resistance (N) Guide:		Type of Drill Rig: Mobile B-59
Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Sills, Clays)		Hammer Weight: 300 lbs		Fall: 24"			
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Casing Types: HW	NW	Size: 4"			
Very Loose	0 - 4	Very Soft	0 - 2	Depth: 62'		Sampler Type: S/S			
Loose	4 - 10	Soft	2 - 4	Automatic Hammer Weight: 140 lbs		Safety Hammer Weight:			
Medium Dense	10 - 30	Medium Stiff	4 - 8	Donut Hammer Weight:		Fall: 30"			
Dense	30 - 50	Stiff	8 - 15						
Very Dense	Over 50	Very Stiff	15 - 30						
N=Sum of Second and Third 6" Blow Counts		Hard		Over 30					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less									

BB-2 (CONT.)

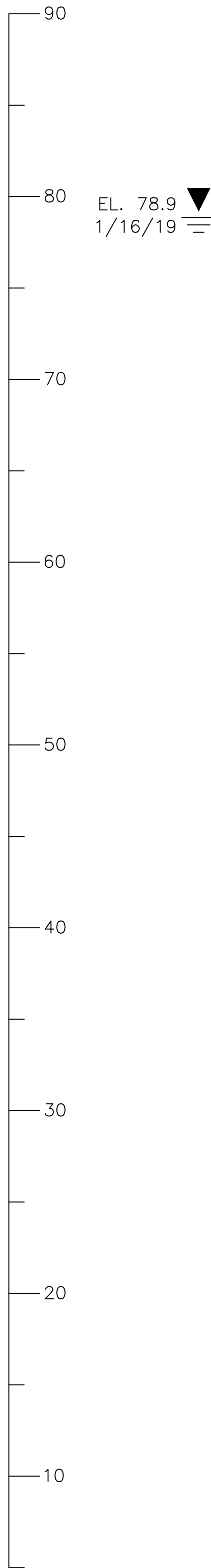
SCALE: $\frac{3}{16}" = 1'-0"$

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

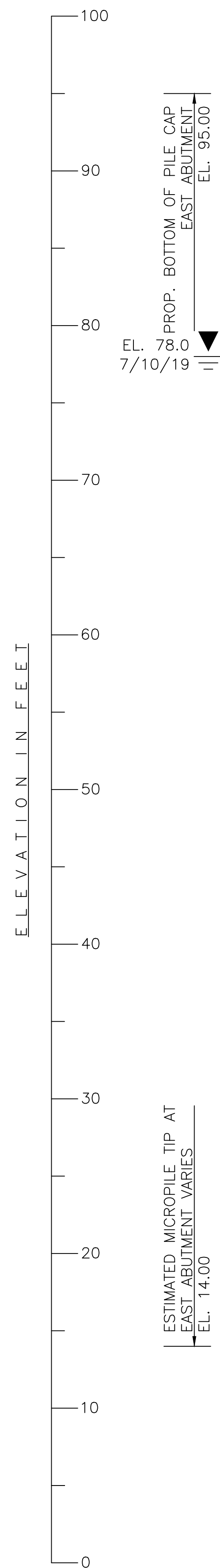
SHEET 3 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

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ELEVATION IN FEET



massDOT Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com					Boring No. BB-3 (Bridge Boring)		Page 1/2
City/Town: Wilmington		Bridge No.: W-38-029 (2KV)			Project File No.: 608703		Contract No.: -		
Location: State Route 129 (Lowell St.) over I-93 NB & SB		Date & Time Started: 1/13/19 10:30 p.m.			Date & Time Completed: 1/17/19 1:30 a.m.		Total Hours: 17		
Groundwater Depth (Feet): 8'4"		Date & Time: 1/16/19 10:00 p.m.			Inspector's Name: William Howe				
Coordinates: N 73,021,095 E 754,518		Ground Elevation (Feet): 87.2			Driller's Name: Anthony Martinelli				Helper's Name: **
Drilling Company: Crawford Drilling Services, LLC									
Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches Coring Times Minute Per Foot				Recovery (inches)	Field Description		Strata Changes
S-1	0' - 2'	20	15	10	10	14"	Topsoil		8"
S-2	4' - 6'	8	17	14	15	8"	Dry, medium dense, brown, FINE TO COARSE SAND, trace fine gravel.		
S-3	9' - 11'	20	21	15	13	13"	Moist, dense, brown, FINE TO COARSE SAND, some fine to medium gravel.		
S-4	14' - 16'	4	3	3	2	9"	Wet, dense, brown, FINE TO COARSE SAND, trace inorganic silt.		
S-5	19' - 21'	30	36	23	24	9"	Wet, loose, brown, FINE TO COARSE SAND, trace inorganic silt.		18"
S-6	24' - 26'	8	9	8	7	11"	Wet, very dense, gray, FINE TO COARSE SAND, some fine to medium gravel, trace inorganic silt.		22"
S-7	29' - 31'	8	8	9	12	0"	Wet, medium dense, brown, FINE TO COARSE SAND, trace inorganic silt.		
S-8	34' - 36'	9	8	9	12	16"	No Recovery Brown, SAND from wash.		
S-9	39' - 41'	4	7	7	9	12"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.		
S-10	44' - 46'	4	5	7	15	15"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.		47"
S-11	49' - 51'	13	14	7	8	3"	Wet, medium dense, gray, FINE TO MEDIUM GRAVEL, trace fine sand.		51'3"
S-12	54' - 56'	21	74	62	57	12"	BOULDER		53'6"
C-1	59' - 64'	3	4	5	3	56.5"	Wet, very dense, gray, FINE TO COARSE SAND AND FINE TO MEDIUM GRAVEL, trace inorganic silt.		57'2"
C-2	64' - 69'	4	4	3	2	3	Top of Bedrock @ 57'2" Rollerbit to 59', began coring.		
							Wet, very dense, slightly fractured, gray, GNEISS. Percent Recovery = 94% RQD = 56.5'/60" = 94%		
							Slightly weathered, slightly fractured, gray, GNEISS. Percent Recovery = 100% RQD = 48'/60" = 80%		
							Bottom of Exploration @ 69'		69'
Notes: **Moved boring approximately 53' North of original location to the left shoulder of I-93 NB due to coring through the bridge deck is not safe/ to avoid overhead wires. Coordinates and elevation are estimated.									
**There were two drillers helpers: Hamilton Workman and Jim Thibault									
Cohesionless Soils (Sands, Gravels)						Cohesive Soils (Sills, Clays)		Arrow-Board: 1	
Penetration Resistance (N) Guide:								Signs: 6	
Relative Density						Consistency		Cones: 50	
Penetration Resistance						Penetration Resistance		Protective Device	
Very Loose						Very Soft		Well Depth: -	
Loose						Soft		Solid Pipe: -	
Medium Dense						Medium Stiff		Stick Up Pipe: -	
Dense						Stiff		Screen Pipe: -	
Very Dense						Very Stiff			
N=Sum of Second and Third 6" Blow Counts						Hard		Type of Drill Rig: Mobile B-57	
						Over 30		Hammer Weight: 140 lbs	
								Fall: 24"	
								Casing Types: HW	
								NW	
								Size: 4"	
								Depth: 49'	
								57"	
								Sampler Type: S/S	
								Size: 1 3/4" ID	
								Automatic Hammer Weight: 140 lbs	
								Safety Hammer Weight:	
								Donut Hammer Weight:	
								Fall: 30"	
								Core Barrel Type: NX	
								Size: 2.15" ID	



 Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msnr.com				Boring No. BB-4-OW (Bridge Boring)		Page 1/1	
City/Town: Wilmington		Bridge No.: W-38-029 (2KV)		Project File No.: 608703		Contract No.: -			
Location: State Route 129 (Lowell St.) over I-93 NB & SB				Date & Time Started: 7/8/19 9:30 p.m.		Total Hours: -			
Groundwater Depth (Feet): 9'		Date & Time: 7/10/19 9:00 p.m.		Date & Time Completed: 7/11/19 4:30 a.m.		22			
Coordinates: N "0,020,0921 E "754,587				Ground Elevation (Feet): "87.0"		Inspector's Name: Weijie Dong			
Drilling Company: New England Boring Contractors				Driller's Name: Walter Hoeckele		Helper's Name: Michael Misiaszek			
Sample Number	Depth Range (Feet)	Blow Counts per 6 inches		Recovery (inches)	Field Description			Strata Changes	
		Coring Times	Minute	Per Foot					
S-1	0' - 2'	1	2	6	6	12"	Topsoil Dry, loose, brown, FINE SAND.		
S-2	4' - 6'	14	10	12	14	16"	Dry, medium dense, brown, FINE SAND, trace fine gravel.		
S-3	9' - 11'	6	6	8	10	8"	Wet, medium dense, brown, FINE SAND.		
S-4	14' - 16'	7	9	9	14	14"	Wet, medium dense, brown, FINE SAND.		
S-5	19' - 21'	9	11	13	10	7"	Wet, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.		
S-6	24' - 26'	5	5	7	8	0"	No Recovery Brown, SAND from wash.		
S-7	29' - 31'	4	5	6	7	9"	Wet, medium dense, brown, FINE SAND.		
S-8	34' - 36'	4	5	6	8	14"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.		
S-9	39' - 39'3"	120/3"				3"	Wet, very dense, brown, FINE SAND, trace inorganic silt.	39'3"	
							BOULDERS	43'	
S-10	44' - 46'	9	10	10	10	14"	Wet, medium dense, brown, FINE SAND, trace inorganic silt.		
S-11	49' - 51'	4	6	9	11	0"	No Recovery		
S-12	54' - 56'	2	4	4	3	12"	Wet, loose, gray, FINE SAND, trace inorganic silt.		
S-13	59' - 61'	24	36	35	31	9"	Wet, very dense, brown, FINE TO COARSE SAND AND FINE GRAVEL, some inorganic silt.		
S-14	64' - 66'	21	19	17	19	6"	Wet, dense, brown, FINE TO COARSE SAND AND FINE GRAVEL, some inorganic silt.		
							Top of Bedrock @ 67'	67'	
C-1	68.5' - 73.5'	9	9	5	6	8	60"	Rollerbit to 68.5', began coring Fresh, slightly fractured, light to dark gray, GNEISS. Percent Recovery = 100% RQD = 42"/60" = 70%	
C-2	73.5' - 78.5'	7	6	5	6	7	60"	Fresh, slightly fractured, light to dark gray, GNEISS. Percent Recovery = 100% RQD = 56"/60" = 93%	
								Bottom of Exploration @ 78.5'	78.5'
Notes: *Moved boring approximately 22' South and 20' West of original location due to steep slope. Coordinates and elevation are estimated.				Arrow-Board: - Signs: - Cones: -		Protective Device Stand: 1 Box: - Well Depth: 22.5' Solid Pipe: 10' Stick Up Pipe: 2.5' Screen Pipe: 10'			
Penetration Resistance (N) Guide:				Type of Drill Rig: ATV D-50					
Cohesionless Soils (Sands, Gravels)				Cohesive Soils (Sills, Clays)					
Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Relative Density	Penetration Resistance	Consistency	Penetration Resistance	Hammer Weight: 300 lbs	Fall: 24"
Very Loose	0 - 4	Very Soft	0 - 2	Very Loose	0 - 4	Very Soft	0 - 2	Sizing Types: HW	NW
Loose	4 - 10	Soft	2 - 4	Loose	10 - 30	Medium Stiff	4 - 8	Size: 4"	3"
Medium Dense	10 - 30	Medium Stiff	8 - 15	Medium Dense	30 - 50	Stiff	15 - 30	Depth: 39'	68'
Dense	30 - 50	Stiff	15 - 30	Dense	Over 50	Very Stiff	15 - 30	Sampler Type: S/S	Size: 1 3/8" ID
Very Dense	Over 50	Very Stiff	15 - 30	Very Dense	Over 50	Hard	Over 30	Automatic Hammer Weight: 140 lbs	
N-Sum of Second and Third 6" Blow Counts				Donut Hammer Weight: Fall: 30"					
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less				Core Barrel Type: NX Size: 2.15" ID					

BB-4-OW

SCALE: $\frac{3}{16}" = 1'-0"$

WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	52	96
PROJECT FILE NO.		608703	

BORING LOG 3

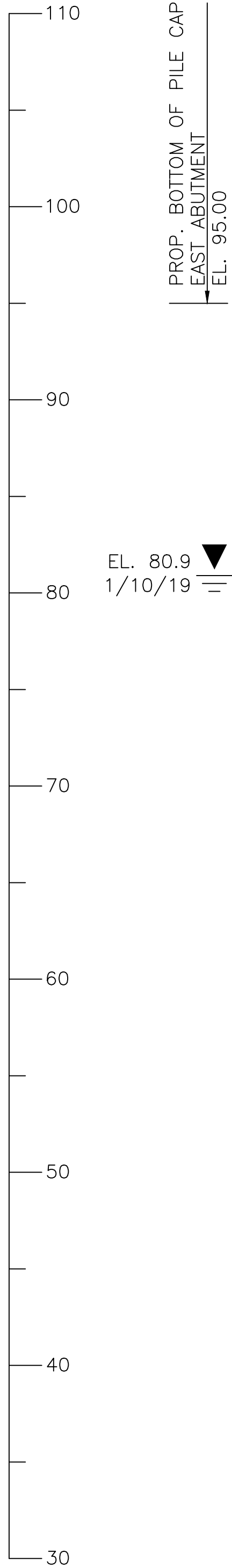
BORING NOTES:

1. SEE SHEET 3 FOR BORING, OBSERVATION WELL, AND TEST PIT NOTES.

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: 	
USE ONLY PRINTS	OF LATEST DATE

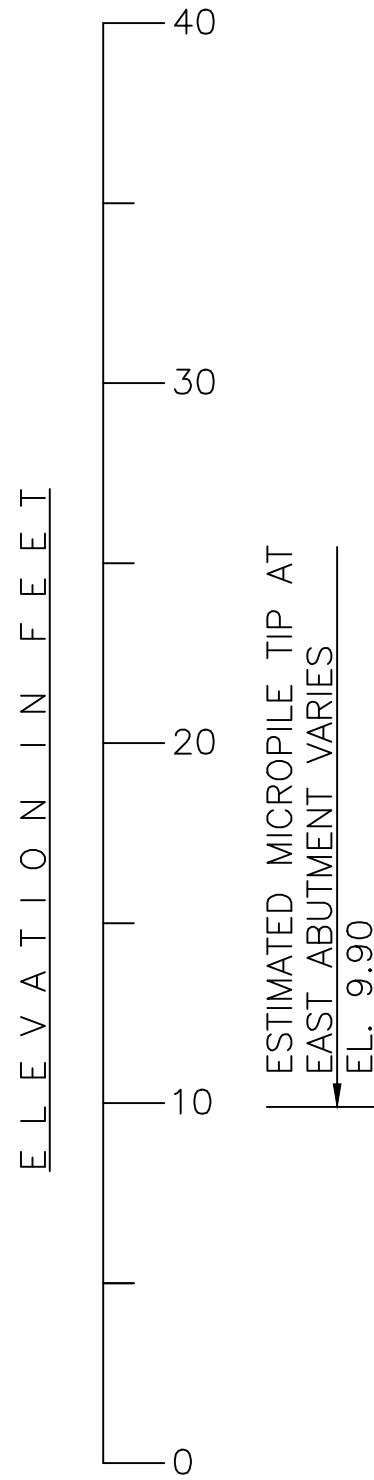
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ELEVATION IN FEET



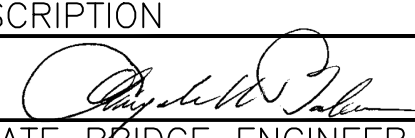
massDOT Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com				Boring No. BB-5 (Bridge Boring)		Page 1/2
City/Town: Wilmington		Bridge No.: W-38-029 (2KV)		Project File No.: 608703		Contract No.: -		
Location: State Route 129 (Lowell St.) over I-93 NB & SB		Date & Time Started: 1/3/19 9:30 a.m.		Total Hours: 22.5		Scale: 1" = 5'		
Groundwater Depth (Feet): 27		Date & Time: 1/10/19 9:35 a.m.		Date & Time Completed: 1/10/19 1:30 p.m.		Coordinates: N 3,020,981 E 754,643		
Ground Elevation (Feet): 107.9		Inspector's Name: William Howe		Drilling Company: Crawford Drilling Services, LLC				
Driller's Name: Anthony Martinelli		Helper's Name: Hamilton Workman		Sample Number				
Depth Range (Feet)		Blow Counts per 6 Inches		Recovery (inches)		Field Description		Strata Changes
Coring Times Minute Per Foot								
S-1	6" - 26"	1	5	6	10	16"	Asphalt	8"
S-2	4' - 6'	13	10	13	15	11"	Moist, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel, trace inorganic silt.	
							COBBLE	6'6"
S-3	9' - 11'	13	15	18	18	6"	Moist, dense, brown, FINE TO COARSE SAND AND FINE TO MEDIUM GRAVEL.	7'
S-4	14' - 16'	39	77	15	16	14"	Moist, very dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-5	19' - 21'	10	16	18	16	11"	Moist, dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-6	24' - 26'	12	16	18	24	10"	Moist, dense, brown, FINE TO COARSE SAND.	
S-7	29' - 31'	5	5	5	7	6"	Moist, medium dense, brown, FINE TO COARSE SAND.	
S-8	34' - 36'	3	WOR/12"	1		0"	No Recovery Brown SAND AND GRAVEL from wash.	38'
S-9	39' - 41'	8	13	13	15	11"	Moist, medium dense, gray, FINE SAND.	
S-10	44' - 46'	5	9	14	17	12"	Wet, medium dense, gray, FINE SAND.	
S-11	49' - 51'	10	14	15	21	10"	Wet, medium dense, gray, FINE SAND.	
S-12	54' - 56'	11	12	13	13	8"	Wet, medium dense, gray, FINE TO COARSE SAND, some fine to medium gravel.	57'
S-13	59' - 61'	12	12	15	15	11"	Wet, medium dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-14	64' - 66'	18	19	27	22	4"	Wet, dense, brown, FINE TO COARSE SAND, some fine to medium gravel.	
S-15	69' - 71'	15	14	14	17	12"	Wet, medium dense, brown, FINE SAND.	
S-16	74' - 76'	11	13	16	16	11"	Wet, medium dense, brown, FINE SAND.	

BB-5
SCALE: $\frac{3}{16}" = 1'-0"$



massDOT Boring Log		LAMSON ENGINEERING CORPORATION 437 Cherry Street, #109, Newton, Massachusetts 02465 Phone: (617) 558-0101 E-Mail: Lamsoneng@msn.com					Boring No. BB-5 (Bridge Boring)		Page 2/2
							Scale: 1" = 5'		
Sample Number	Depth Range (Feet)	Blow Counts per 6 Inches				Recovery (inches)	Field Description	Strata Changes	
		Coring	Times	Minute	Per Foot				
S-17	79' - 81'	12	14	15	19	11"	Wet, medium dense, brown, FINE SAND.		
								83'	
S-18	84' - 86'	9	7	7	14	12"	Wet, medium dense, gray, FINE SAND.		
								87'	
S-19	89' - 91'	32	22	15	17	8"	Wet, dense, gray, FINE TO MEDIUM GRAVEL, trace fine to coarse sand, trace inorganic silt.		
							Top of Bedrock @ 92'	92'	
C-1	94' - 99'	3	4	3	3	56.5"	Fresh, moderately fractured, light to dark gray, GNEISS. Percent Recovery = 94% RQD = 30"/60" = 50%		
C-2	99' - 104'	3	4	4	3	46.5"	Fresh, slightly fractured, light to dark gray, GNEISS. Percent Recovery = 78% RQD = 39"/60" = 65%		
							Bottom of Exploration @ 104'	104'	
Notes: WOR = Weight of Rods							Arrow-Board: N/A Signs: 6 Cones: 30	Protective Device Stand: - Well Depth: - Stick Up Pipe: - Screen Pipe: -	Box: - Solid Pipe: - Screen Pipe: -
Penetration Resistance (N) Guide:							Type of Drill Rig: Mobile B-57		
Cohesionless Soils (Sands, Gravels)				Cohesive Soils (Sils, Clays)			Hammer Weight: 140 lbs Fall: 24"		
Relative Density		Penetration Resistance		Consistency		Penetration Resistance		Casing Types: HW NW	
Very Loose		0 - 4		Very Soft		0 - 2		Size: 4" 3"	
Loose		4 - 10		Soft		2 - 4		Depth: 89' 92'	
Medium Dense		10 - 30		Medium Stiff		4 - 8		Sampler Type: S/S Size: 1 1/4" ID	
Dense		30 - 50		Stiff		8 - 15		Automatic Hammer Weight: 140 lbs	
Very Dense		Over 50		Very Stiff		15 - 30		Safety Hammer Weight:	
N=Sum of Second and Third 6" Blow Counts				Hard		Over 30		Donut Hammer Weight: Fall: 30"	
Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less							Core Barrel Type: NX Size: 2.15" ID		

BB-5 (CONT'D)
SCALE: $\frac{3}{16}" = 1'-0"$

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY: 	
STATE BRIDGE ENGINEER	
USE ONLY PRINTS OF LATEST DATE	

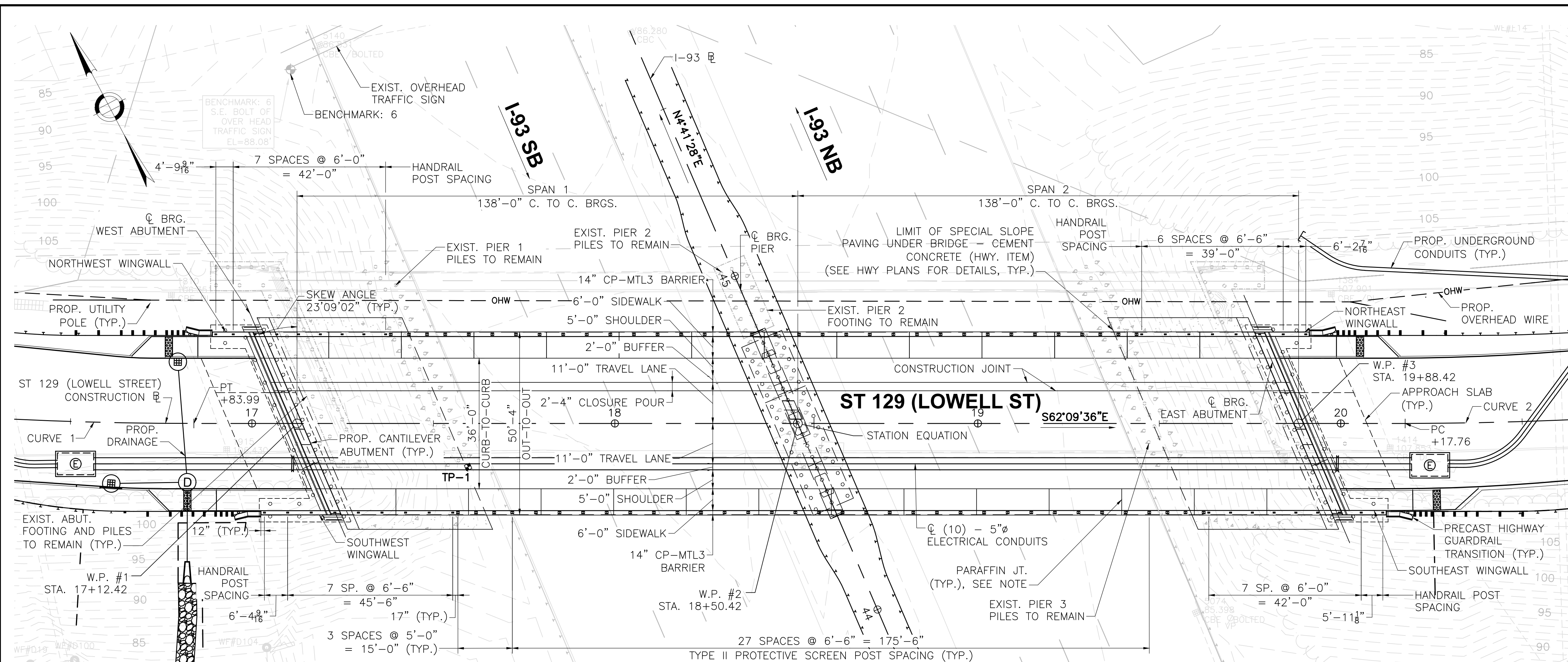
WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	53	96
PROJECT FILE NO.		608703	

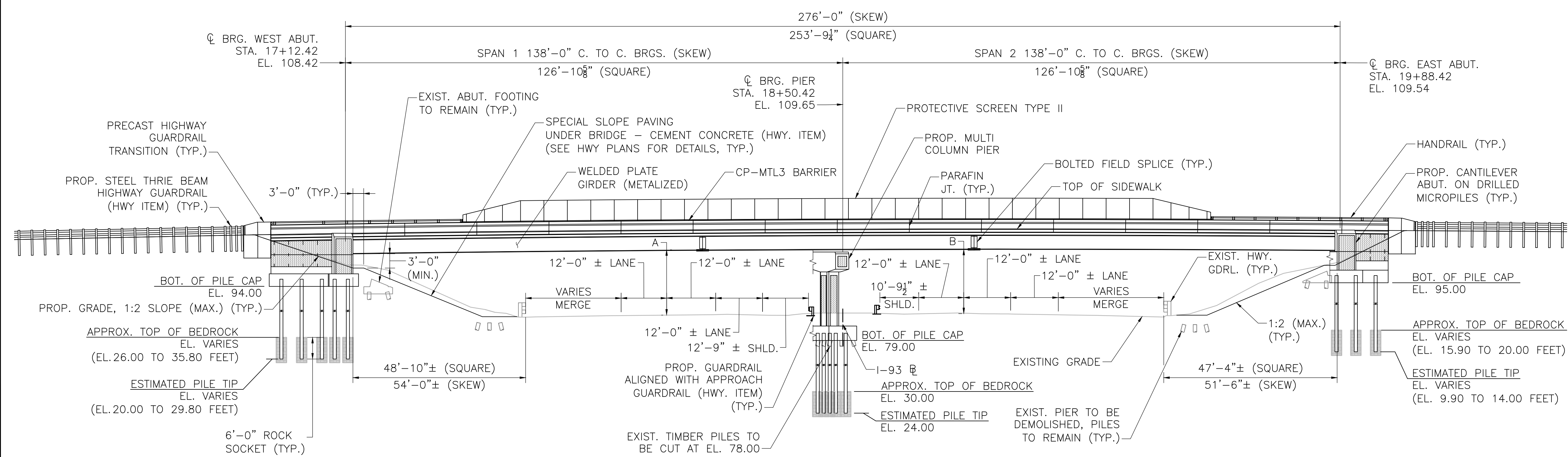
BORING LOG 4

BORING NOTES:

- SEE SHEET 3 FOR BORING, OBSERVATION WELL, AND TEST PIT NOTES.



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



SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	54	96
PROJECT FILE NO.		608703	

GENERAL PLAN AND ELEVATION

NOTE:
SEE DECK PLAN, SHEET 32, FOR
PARAFFIN JOINT SPACING

STATION EQUATION: ST 129 CONSTRUCTION @
STA. 18+50.42 = I-93 @ STA. 44+55.81

HORIZONTAL CURVE 1 DATA		HORIZONTAL CURVE 2 DATA	
PC = STA. 16+05.09	$\Delta = 4^{\circ}-20'-47''$	PC = STA. 20+17.76	$\Delta = 10^{\circ}-22'-29''$
R = 1040.00'	L = 78.90'	R = 1040.06'	L = 188.33'
T = 39.47'		T = 94.42'	

NOTE:
ALL HORIZONTAL DIMENSIONS SHOWN
UNDER STRUCTURE ARE SQUARE

MINIMUM VERTICAL CLEARANCES		
LOCATION	EXISTING	PROPOSED
A	14'-6"	17'-3"
B	14'-7"	17'-6"

August 30, 2025	ISSUED FOR CONSTRUCTION
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AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

I:\egym\dwg\general\Structural\Engineering\Projects\2021\105621056_11\Wilmington ST 129 over I-93\DWG\Bridges\608703_Br07(V38029).dwg

608703_Br07(V38029).DWG 11-August-2025 11:23 AM Final Structural Submittal (SF)

WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	55	96
PROJECT FILE NO.		608703	

STAGE 1 DEMOLITION PLAN AND SECTIONS

GENERAL STAGE CONSTRUCTION NOTES:

- SEE HIGHWAY PLANS FOR ADDITIONAL TRAFFIC MANAGEMENT REQUIREMENTS.
- ALL TEMPORARY BARRIERS PLACED ON THE BRIDGE ARE TO BE LIMITED DEFLECTION (TL-3).
- ALL TEMPORARY SUPPORT OF EXCAVATION SHALL BE DESIGNED BY THE CONTRACTOR FOLLOWING THE REQUIREMENTS OF THE SPECIAL PROVISIONS FOR ITEM 950.51 TEMPORARY EARTH SUPPORT SYSTEM.
- ALL TEMPORARY PIER SUPPORT SHALL BE DESIGNED BY THE CONTRACTOR FOLLOWING THE REQUIREMENTS OF THE SPECIAL PROVISIONS FOR ITEM 950.1 TEMPORARY SHORING.
- THE CONTRACTOR SHALL MAKE ANY NECESSARY REPAIRS TO THE EXISTING STEEL GIRDERS DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER.

SUGGESTED SEQUENCE OF CONSTRUCTION — PRE-STAGE 1

- CONTRACTOR TO COORDINATE REMOVAL OF EXISTING CABLES WITH READING MUNICIPAL LIGHT DEPARTMENT.
- INSTALL TEMPORARY PROTECTIVE SHIELDING.
- MAKE NECESSARY REPAIRS TO BEAM AND GIRDER ENDS AT THE PIERS OF EXISTING BRIDGE THAT IS TO REMAIN IN STAGE 1.
- MAKE NECESSARY REPAIRS TO THE TOP AND BOTTOM OF DECK OF THE EXISTING BRIDGE THAT IS TO REMAIN IN STAGE 1.
- INSTALL CONTRACTOR DESIGNED TEMPORARY DECK SUPPORT WHERE SHOWN.
- INSTALL TEMPORARY PIER SUPPORT (CONTRACTOR DESIGN). SEE SHEET 11 FOR REQUIRED DESIGN LOADS.
- REMOVE THE EXISTING METAL JERSEY BARRIER AND DISPOSE BY CONTRACTOR.

SUGGESTED SEQUENCE OF DEMOLITION — STAGE 1

- INSTALL TEMPORARY BARRIERS (TL-3) — LIMITED DEFLECTION WHERE SHOWN.
- TRANSITION TRAFFIC TO TWO-LANE BI-DIRECTIONAL TRAVEL ON THE NORTHERN PORTION OF THE BRIDGE.
- REMOVE PORTION OF EXISTING SUPERSTRUCTURE TO LIMIT SHOWN.
- INSTALL TEMPORARY SUPPORT OF EXCAVATION AT ABUTMENTS AND PIER.
- REMOVE PORTION OF EXISTING CENTRAL PIER INCLUDING TEMPORARY STEEL SHORING TOWER AND TIMBER CRIBBING AT GIRDER 6. REMOVE PORTIONS OF PIERS 1 AND 3 AND THE EXISTING ABUTMENTS FOR THE LIMITS OF STAGE 1 CONSTRUCTION.

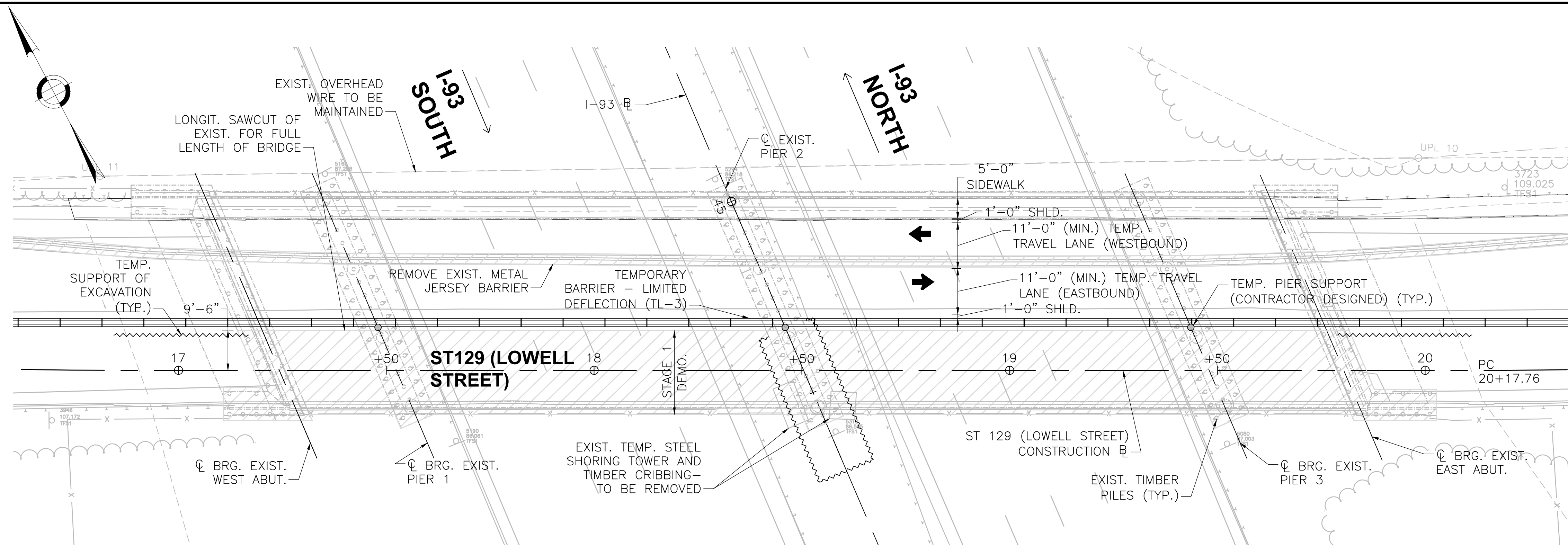
LEGEND

 LIMITS OF DEMOLITION

*3'-0" FOR TEMPORARY BARRIER WIDTH PLUS DYNAMIC DEFLECTION

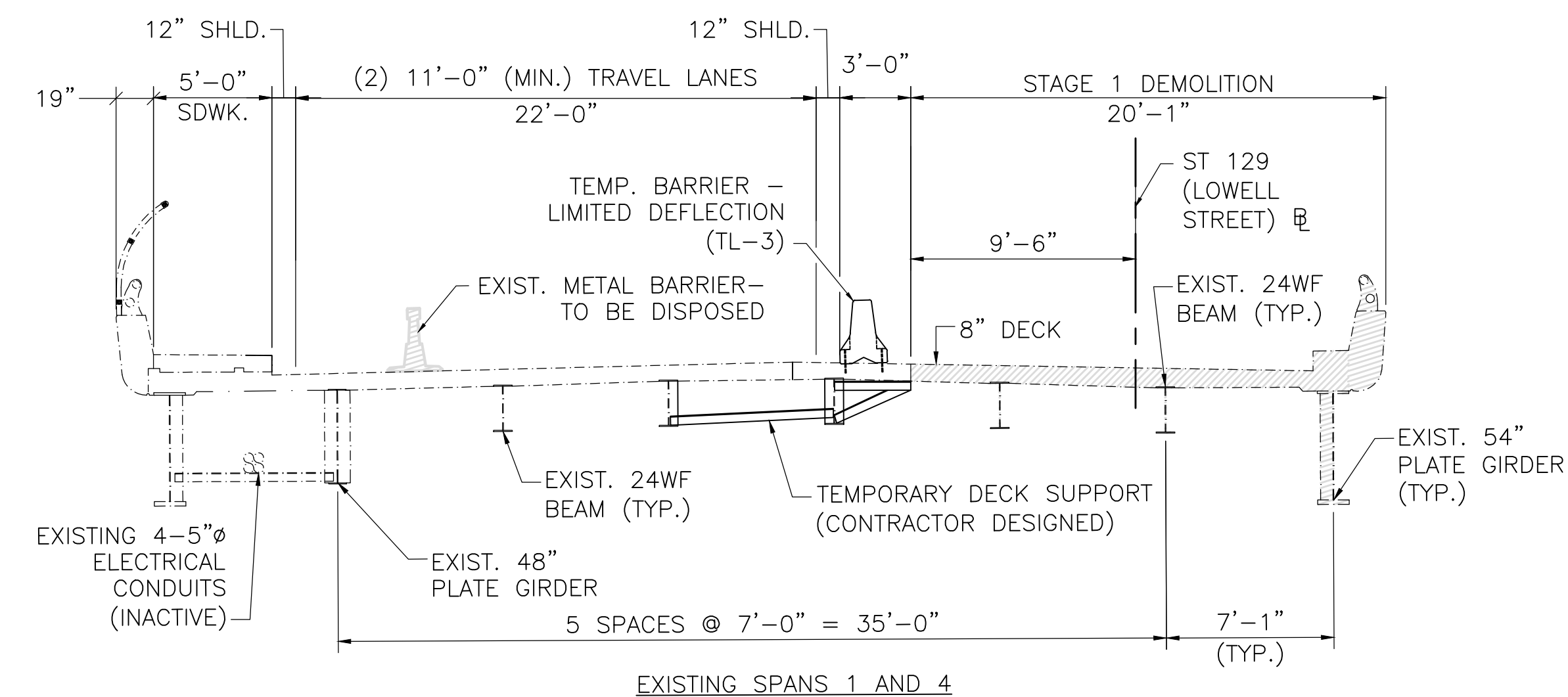
August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

SHEET 8 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)



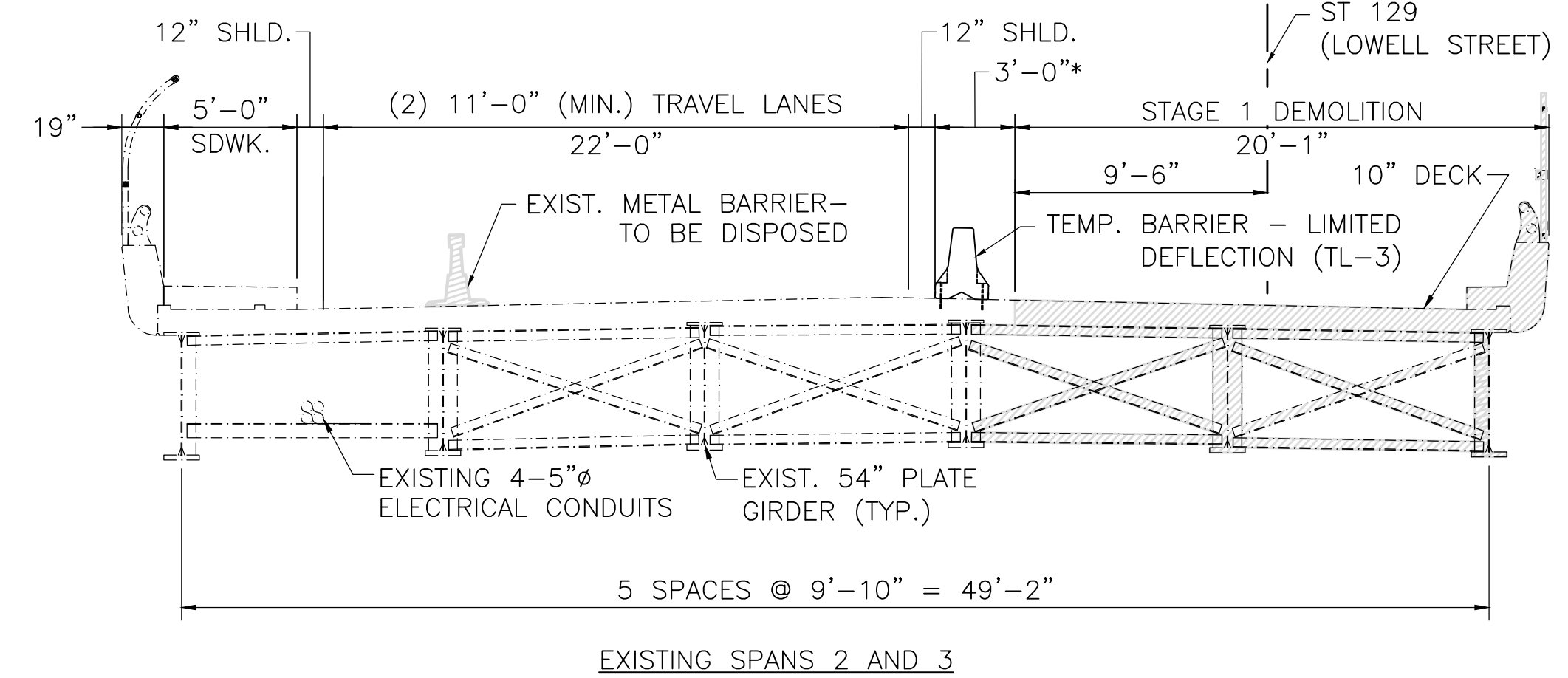
STAGE 1 DEMOLITION PLAN

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



STAGE 1 DEMOLITION SECTION

SCALE: $\frac{3}{16}$ " = 1'-0"



WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	57	96
PROJECT FILE NO.		608703	

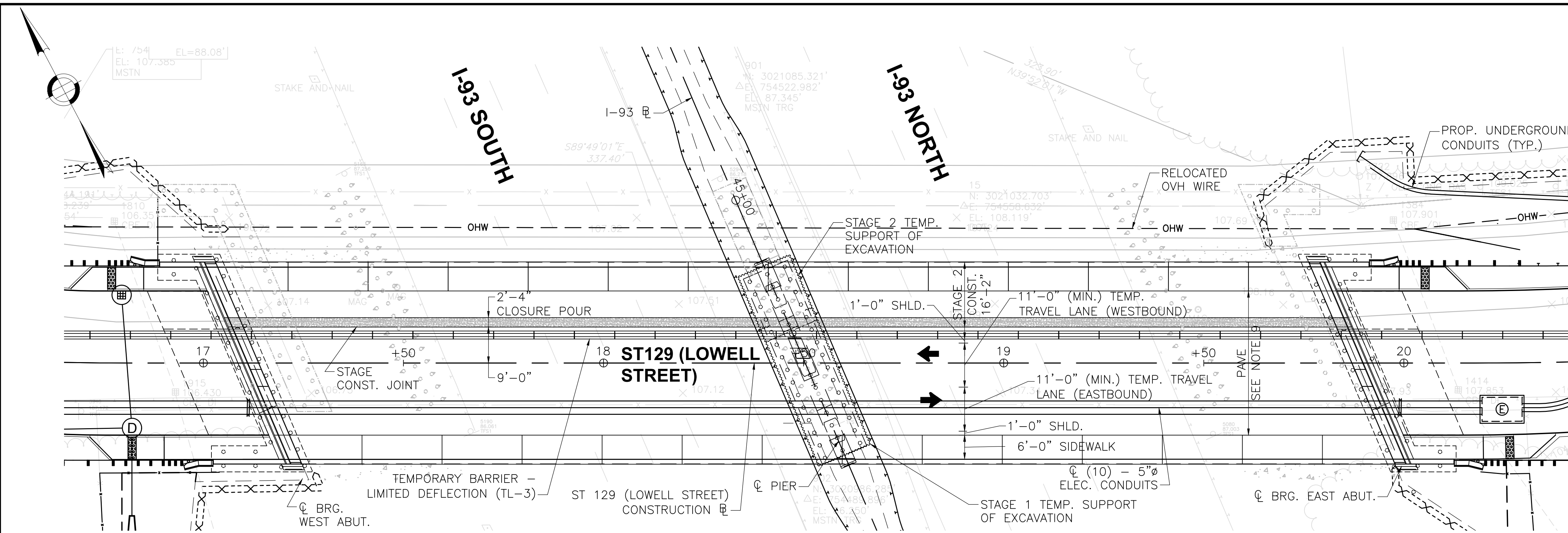
STAGE 2 CONSTRUCTION PLAN AND SECTIONS

GENERAL STAGE CONSTRUCTION NOTES:

1. REFER TO SHEET 8 FOR GENERAL CONSTRUCTION NOTES.

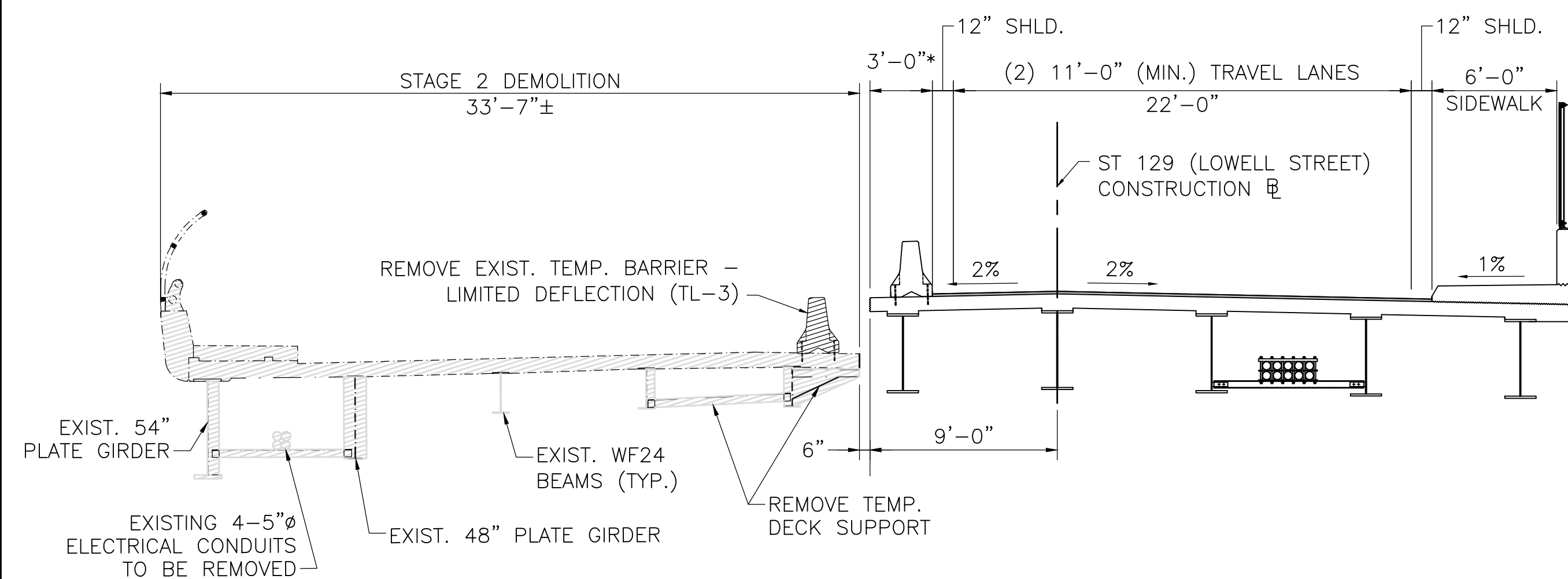
SUGGESTED SEQUENCE OF CONSTRUCTION – STAGE 2

1. INSTALL NEW TEMPORARY BARRIERS – LIMITED DEFLECTION (TL-3) ON NEWLY CONSTRUCTED PORTION OF THE BRIDGE AS SHOWN.
2. RELOCATE ST 129 (LOWELL STREET) TWO-WAY TRAFFIC TO SOUTHERN NEWLY CONSTRUCTED PORTION OF THE BRIDGE.
3. INSTALL TEMPORARY PROTECTIVE SHIELDING AND TEMPORARY SUPPORT OF EXCAVATION AS NEEDED.
4. REMOVE THE REMAINING PORTION OF THE EXISTING STRUCTURE FOR THE LIMITS SHOWN.
5. REMOVE THE REMAINING PORTION OF THE CENTRAL PIER. REMOVE THE REMAINING PORTIONS OF PIERS 1 AND 3 AND THE EXISTING ABUTMENTS.
6. INSTALL MICROPILES AND CONSTRUCT THE REMAINING PORTION OF THE PROPOSED SUBSTRUCTURE AND SUPERSTRUCTURE FOR THE STAGE 2 CONSTRUCTION LIMITS SHOWN.
7. REMOVE OR CUT-DOWN TEMPORARY SUPPORT OF EXCAVATION AS NEEDED.
8. REMOVE TEMPORARY BARRIER – LIMITED DEFLECTION (TL3) AND PLACE $1\frac{1}{2}$ " SUPERPAVE BRIDGE PROTECTIVE COURSE FOR THE LIMITS SHOWN.
9. PLACE $1\frac{1}{2}$ " SUPERPAVE BRIDGE SURFACE COURSE FOR THE ENTIRE ROADWAY WIDTH.



STAGE 2 CONSTRUCTION PLAN

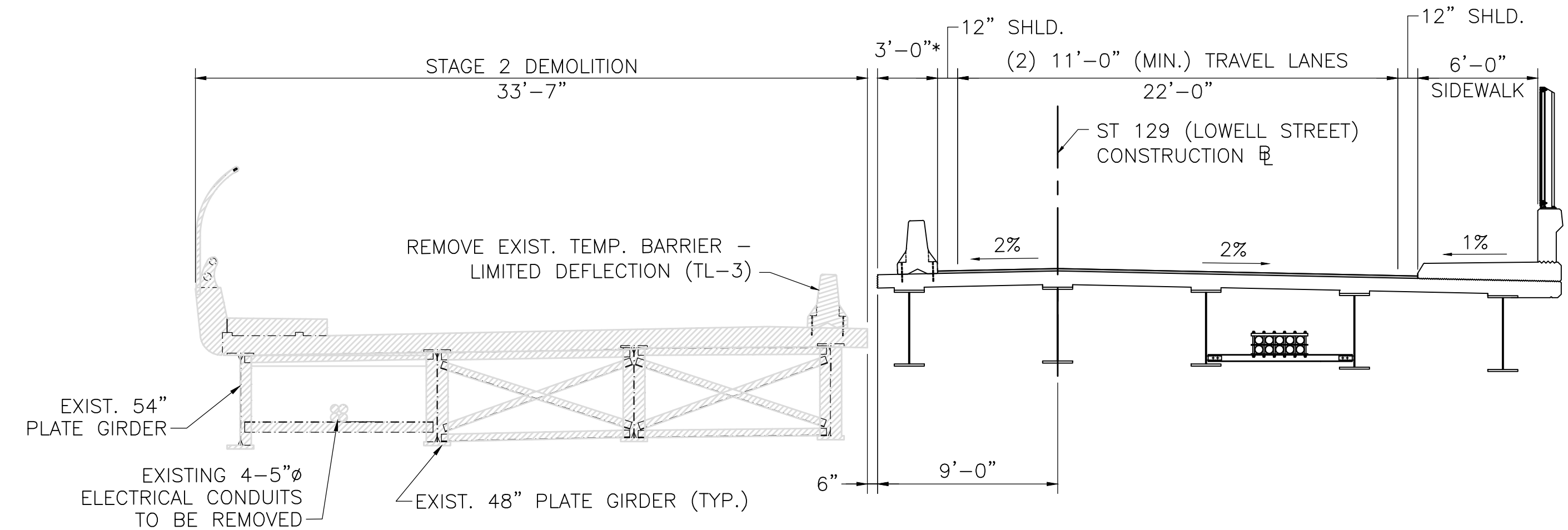
SCALE: $\frac{1}{16}$ " = 1'-0"



EXISTING SPANS 1 AND 4, AND
PROPOSED SPANS 1 AND 2

STAGE 2 DEMOLITION SECTION

SCALE: $\frac{3}{16}$ " = 1'-0"

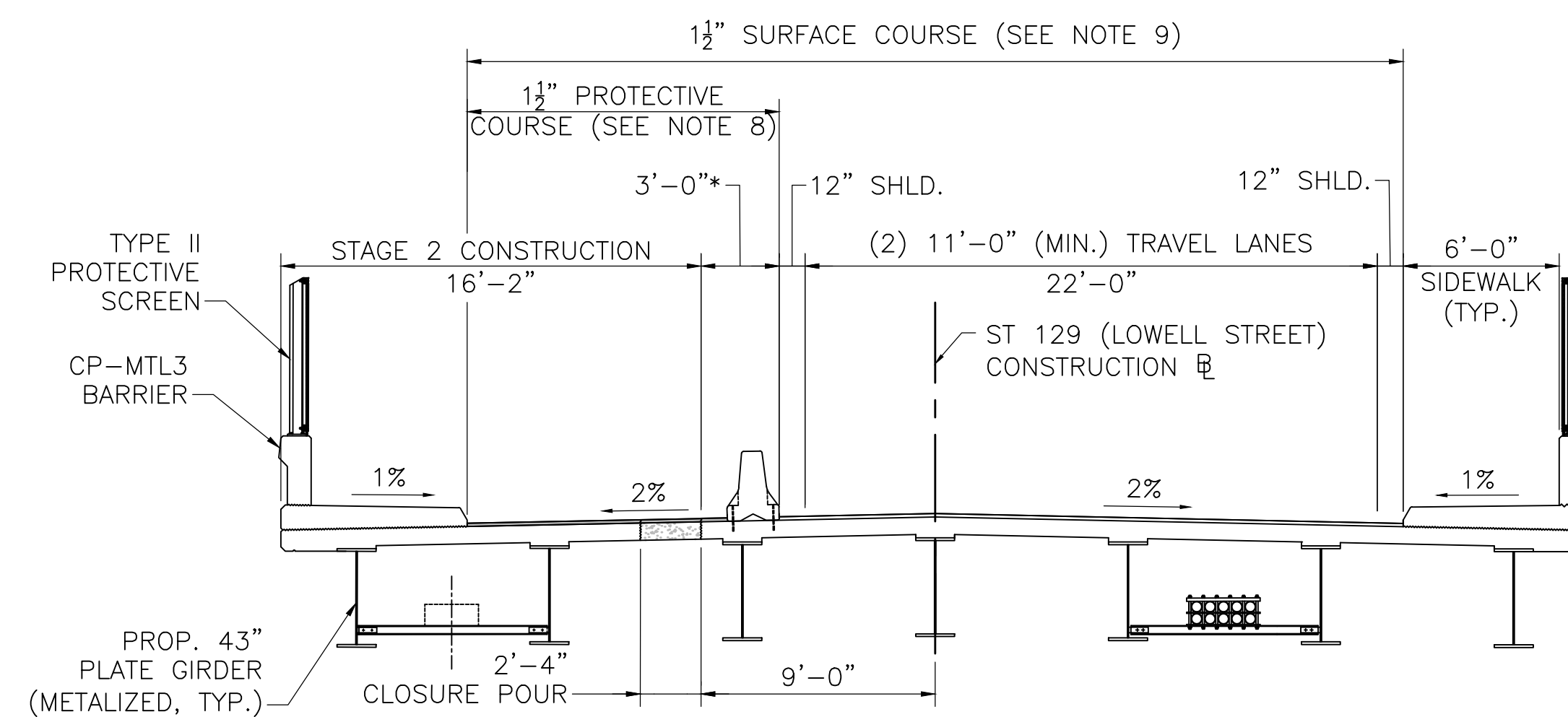


EXISTING SPANS 2 AND 3, AND
PROPOSED SPANS 1 AND 2

LEGEND

LIMITS OF DEMOLITION

*3'-0" FOR TEMPORARY BARRIER WIDTH PLUS DYNAMIC DEFLECTION

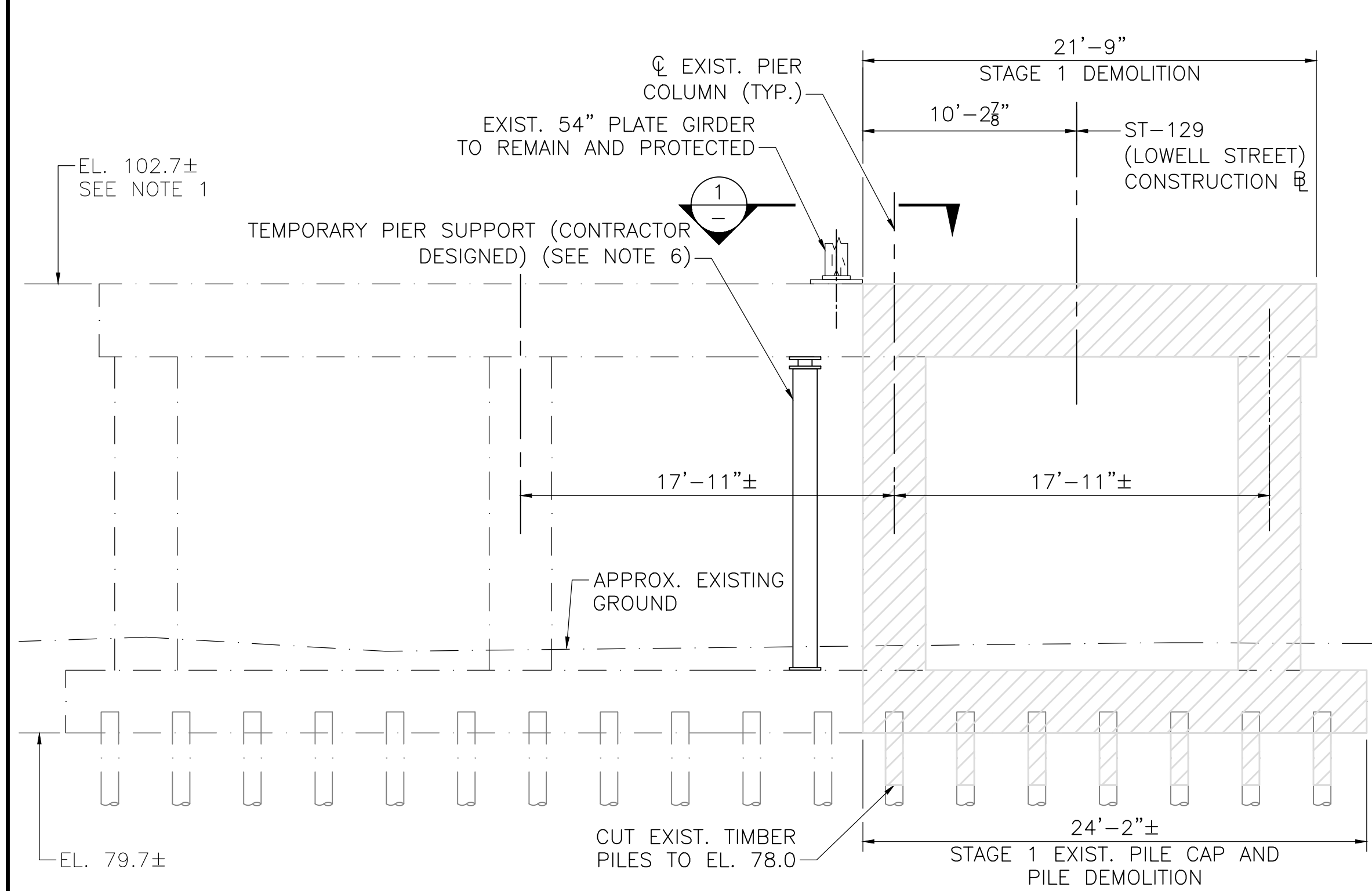


STAGE 2 CONSTRUCTION SECTION

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

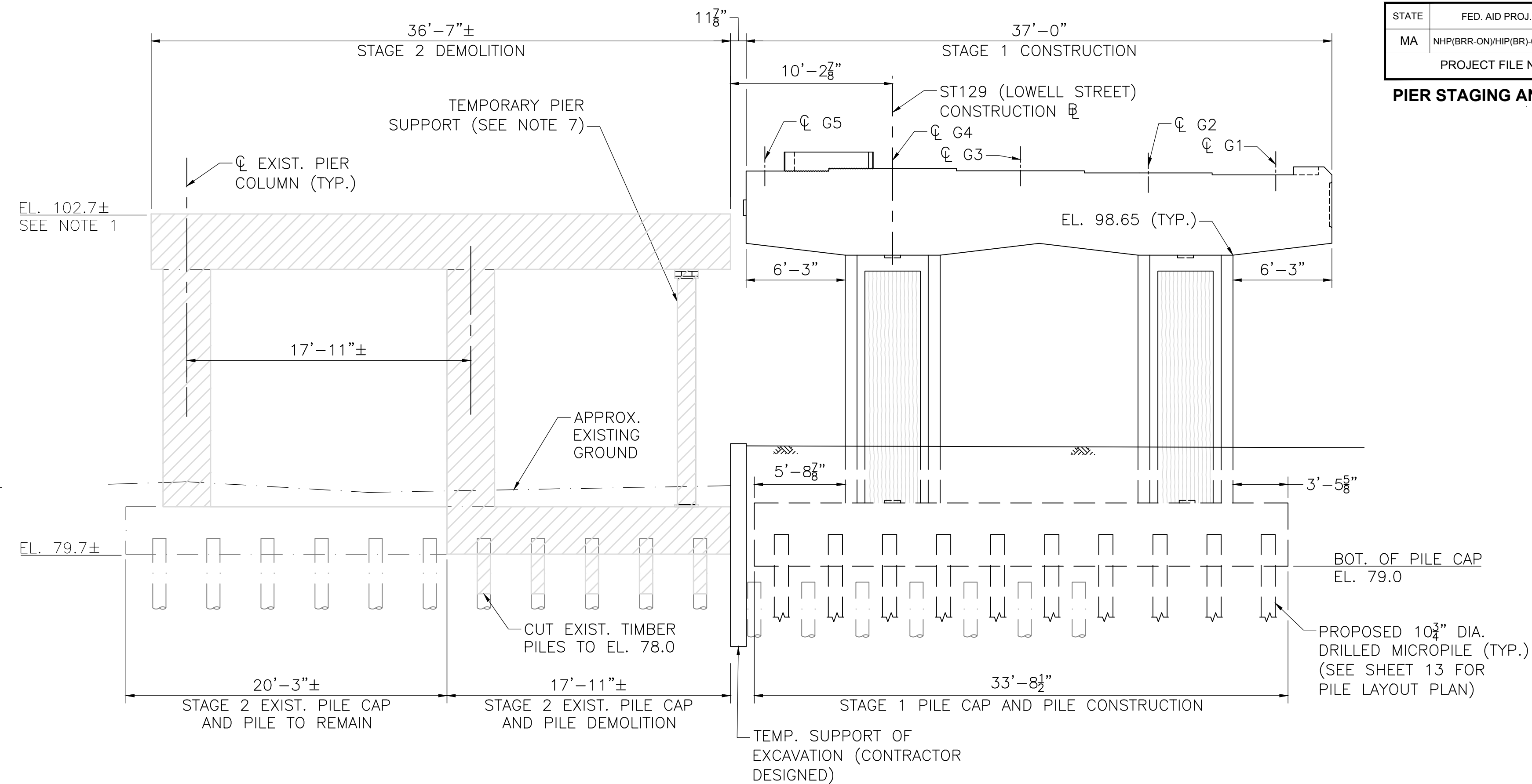
August 30, 2025	ISSUED FOR CONSTRUCTION
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AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

SHEET 10 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)



STAGE 1 DEMOLITION – EXISTING PIER 2

SCALE: $\frac{3}{16}$ " = 1'-0"



STAGE 1 CONSTRUCTION/STAGE 2 DEMOLITION – PIER 2

SCALE: $\frac{3}{16}$ " = 1'-0"

PIER STAGING NOTES

- EXISTING ELEVATIONS AND DIMENSIONS ARE TAKEN FROM EXISTING PLANS. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS IN THE FIELD.
- ALL DIMENSIONS ARE GIVEN ALONG THE SKEW. REFER TO SHEETS 13 AND 22 FOR RELEVANT PROPOSED PIER DIMENSION.
- PIER DEMOLITION AND CONSTRUCTION ACTIVITIES SHALL BE COORDINATED WITH THE TRAFFIC MANAGEMENT PLANS FOR I-93, SEE HIGHWAY PLANS.
- STAGING SHOWN FOR EXISTING PIER 2 DEMOLITION AND PROPOSED PIER CONSTRUCTION. DEMOLITION FOR EXISTING PIERS 1 AND 3 SHALL BE SIMILAR.
- THE MATERIAL USED TO FILL THE VOIDS LEFT BY EXISTING PIER COLUMN OR FOOTING SHALL BE GRAVEL BORROW OVER THE ROADWAY. FOR OTHER CONDITIONS USE ORDINARY BORROW.
- TEMPORARY SHORING (ITEM 950.1) SHOWN IS CONCEPTUAL AND SHALL BE INSTALLED PRIOR TO DEMOLITION OF THE PIER CAP IN STAGE 1. THE CONTRACTOR SHALL DESIGN TEMPORARY PIER SUPPORT TO SAFELY WITHSTAND ALL APPLICABLE CONSTRUCTION, DEAD AND LIVE LOADS AND SHALL SUBMIT RELEVANT CALCULATIONS FOR THE REVIEW AND APPROVAL OF THE ENGINEER.

DESIGN SERVICE DL = 280 K

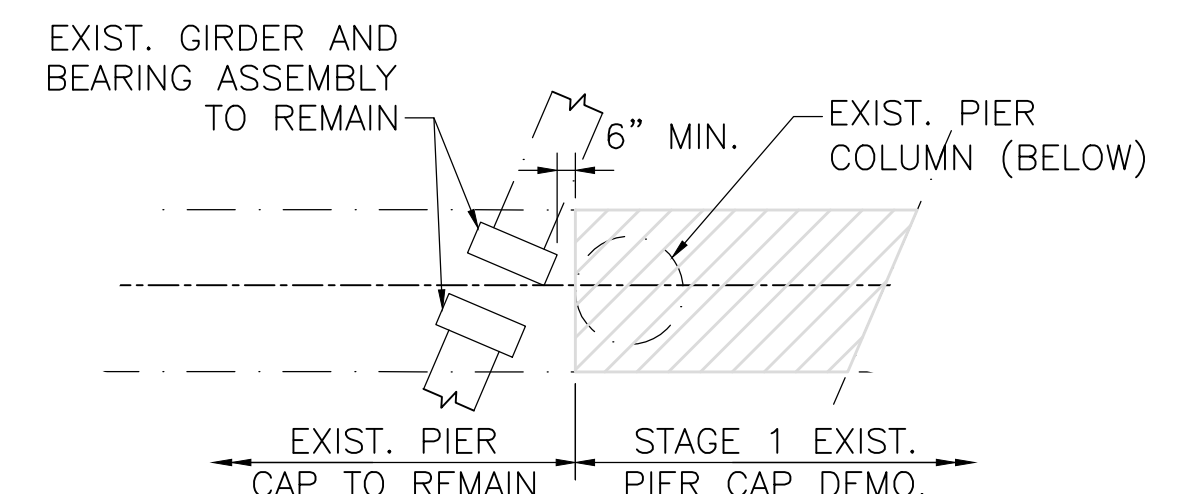
DESIGN SERVICE LL = 120 K (HS20)

DESIGN SERVICE LONG. LOAD = 12 K

- DURING STAGE 2 DEMOLITION, THE REMAINING EXISTING PIER CAP SHALL BE DEMOLISHED IN ITS ENTIRETY, PRIOR TO REMOVAL OF THE TEMPORARY PIER SUPPORT.

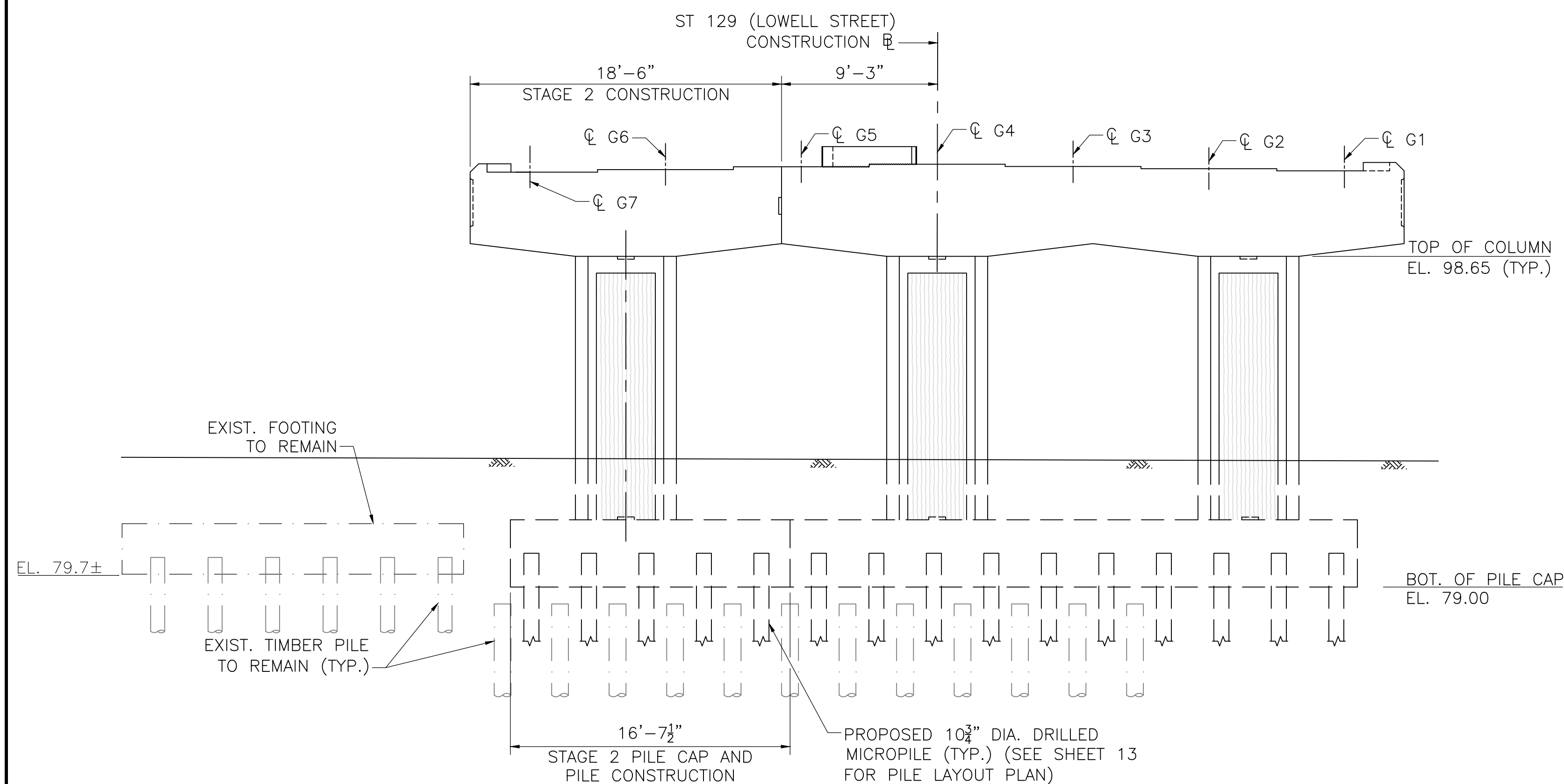
LEGEND

LIMITS OF DEMOLITION



SECTION 1

SCALE: $\frac{3}{16}$ " = 1'-0"



STAGE 2 CONSTRUCTION – PIER 2

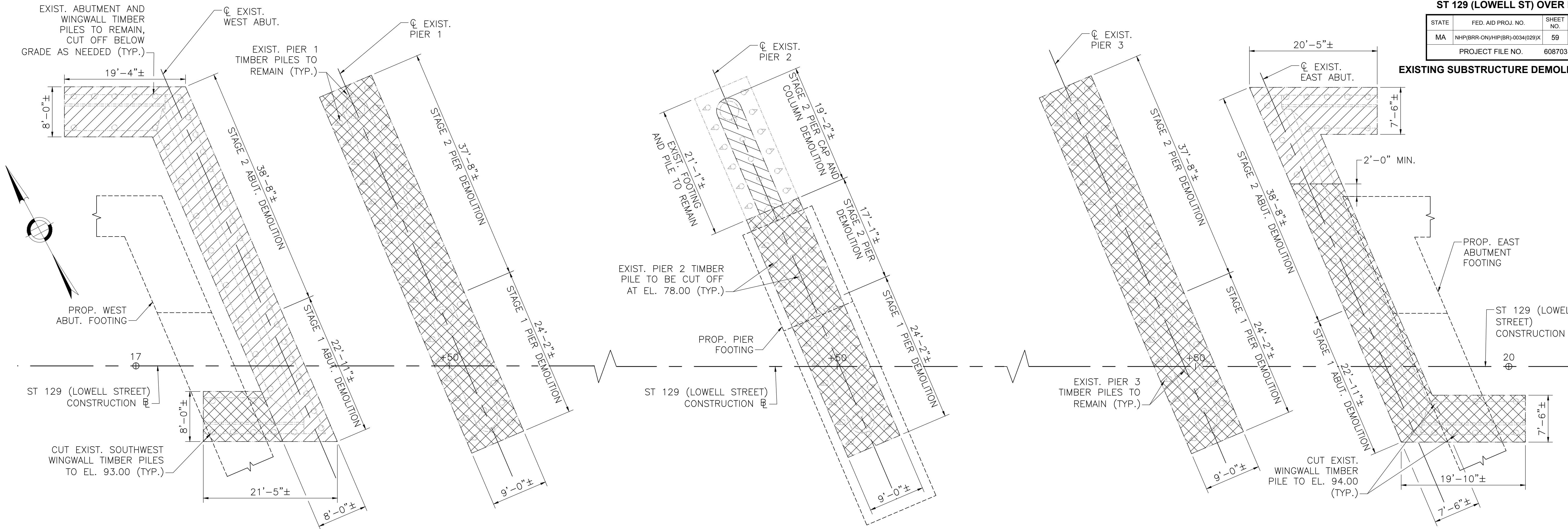
SCALE: $\frac{3}{16}$ " = 1'-0"

August 30, 2025	ISSUED FOR CONSTRUCTION
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AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

WILMINGTON
ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	59	96
PROJECT FILE NO.		608703	

EXISTING SUBSTRUCTURE DEMOLITION PLAN



SUBSTRUCTURE DEMOLITION PLAN

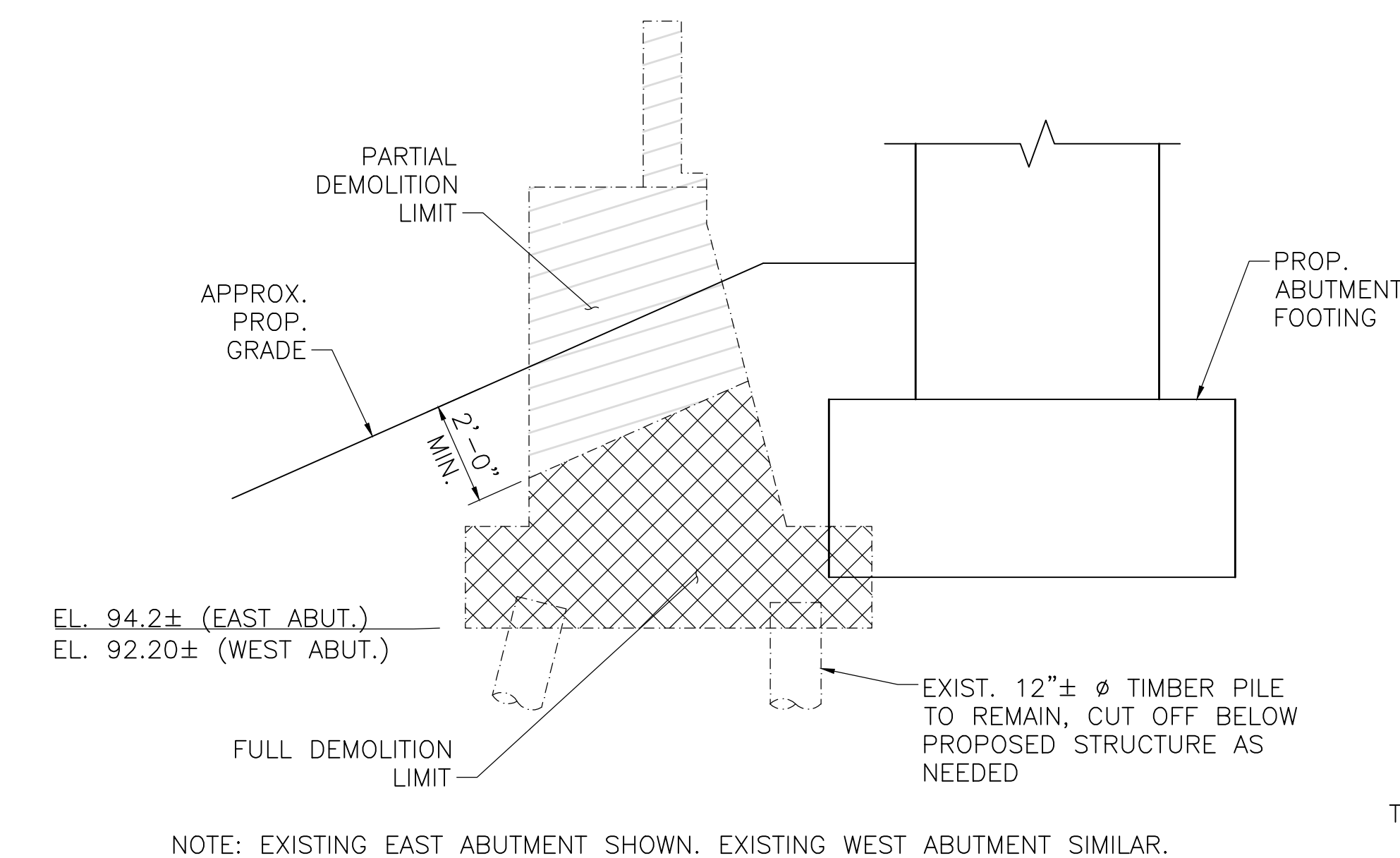
SCALE: $\frac{1}{8}" = 1'-0"$

GENERAL SUBSTRUCTURE DEMOLITION NOTES:

- PARTIAL SUBSTRUCTURE DEMOLITION SHALL INCLUDES DEMOLISHING ALL SUBSTRUCTURE ELEMENTS TO 2'-0" BELOW FINISH GRADE.
- FULL SUBSTRUCTURE DEMOLITION SHALL INCLUDES DEMOLISHING ALL SUBSTRUCTURE ELEMENTS TO THE BOTTOM OF THE FOOTING. UNLESS OTHERWISE NOTED, EXISTING TIMBER PILE SHALL BE CUT DOWN AS NEEDED AND REMAIN IN PLACE.
- SEE EXISTING PLANS FOR ADDITIONAL DIMENSIONS NOT SHOWN HERE.

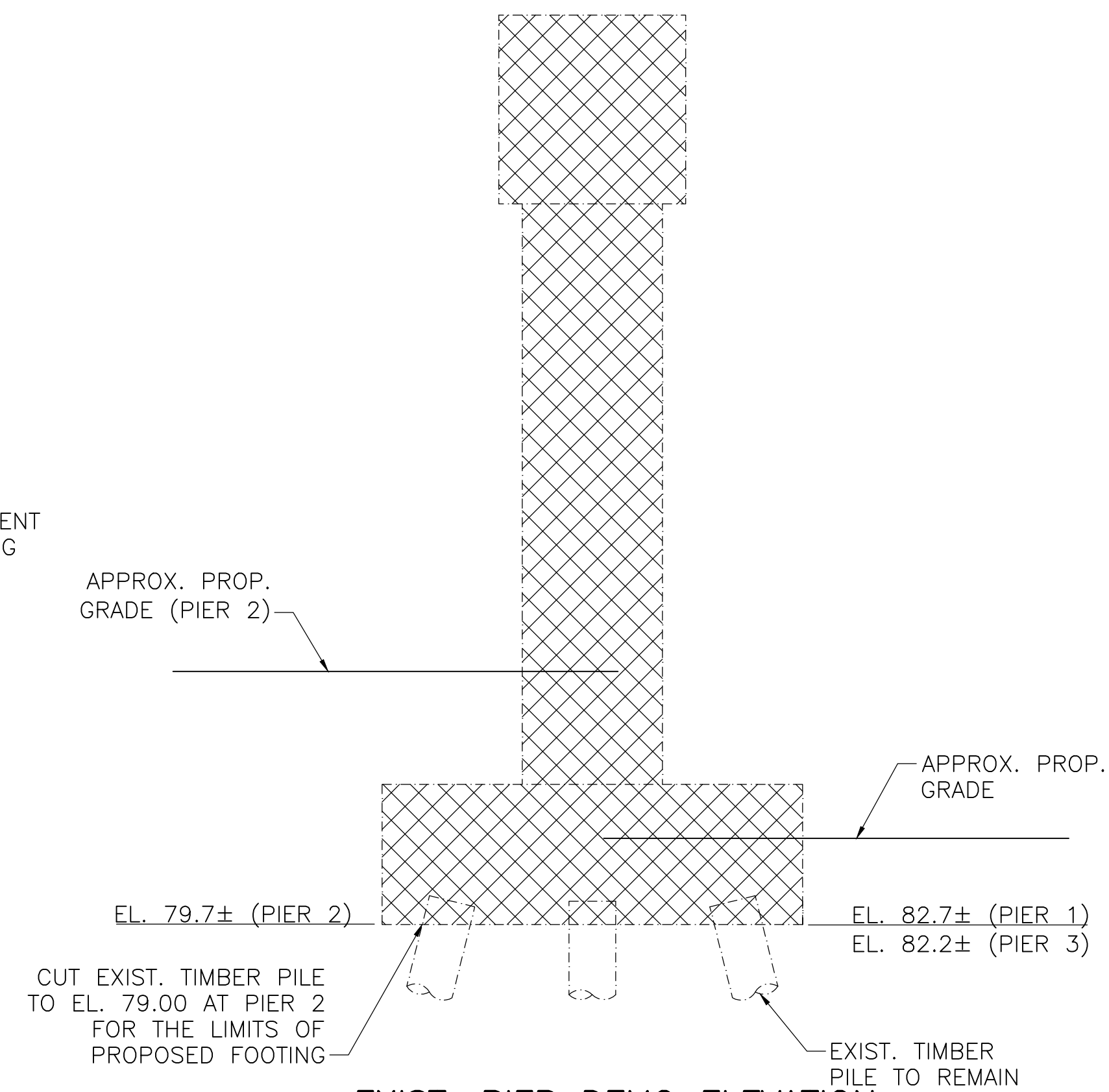
LEGEND

- LIMITS OF PARTIAL SUBSTRUCTURE DEMOLITION
- LIMITS OF FULL SUBSTRUCTURE DEMOLITION



EXIST. ABUTMENT DEMO ELEVATION

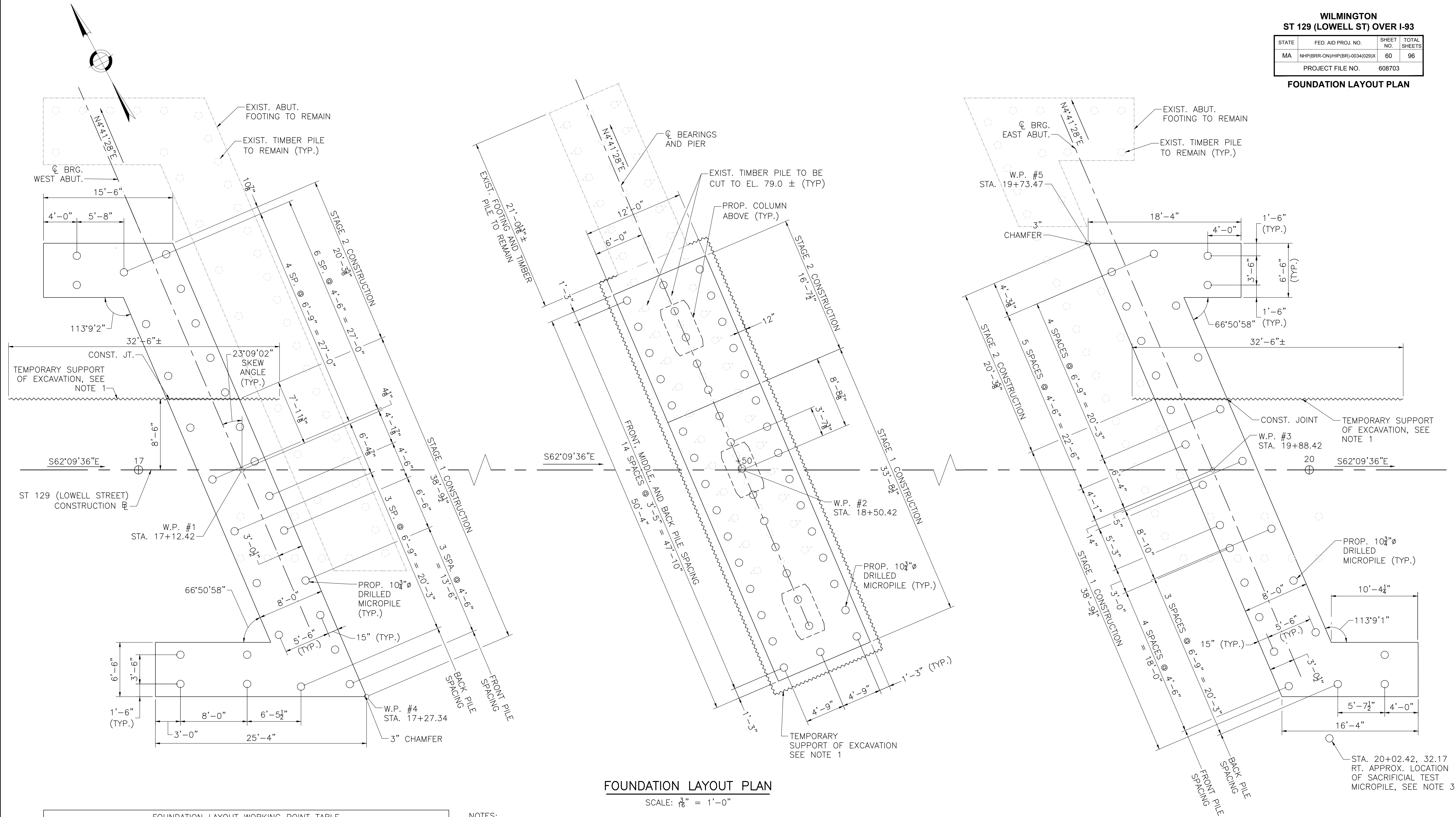
SCALE: $\frac{3}{8}" = 1'-0"$



EXIST. PIER DEMO ELEVATION

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

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FOUNDATION LAYOUT PLAN
SCALE: $\frac{1}{8}" = 1'-0"$

FOUNDATION LAYOUT WORKING POINT TABLE				
WORKING POINT	STATION	OFFSET	NORTHING	EASTING
W.P. #1	17+12.42	00.00'	3021081.0237	754383.2140
W.P. #2	18+50.42	00.00'	3021016.5773	754505.2413
W.P. #3	19+88.42	00.00'	3020952.1308	754627.2686
W.P. #4	17+27.33	27.141' RT	3021050.0601	754383.7263
W.P. #5	19+73.47	27.167' LT	3020983.1337	754626.7380

NOTES:

- TEMPORARY EARTH SUPPORT SYSTEM SHOWN IS CONCEPTUAL AND SHALL BE DESIGNED BY CONTRACTOR IN ACCORDANCE WITH SPECIAL PROVISION ITEM NO. 950.51 AND THE TRAFFIC CONTROL PLAN REQUIREMENT.
- SEE SHEET 14 FOR PILE TESTING REQUIREMENTS.
- THE VERIFICATION TEST MICROPILE SHALL BE A SACRIFICIAL MICROPILE. THE VERIFICATION TEST SHALL BE PERFORMED PRIOR TO CONSTRUCTION OF THE PRODUCTION MICROPILES, AND THE VERIFICATION TEST LOCATION IS APPROXIMATE AS SHOWN. THE CONTRACTOR SHALL SELECT THE EXACT LOCATION OF THE VERIFICATION TEST MICROPILE WITH APPROVAL FROM THE ENGINEER.
- A PROOF LOAD TEST SHALL BE PERFORMED AT EACH SUBSTRUCTURE LOCATION.

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WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	61	96
PROJECT FILE NO.		608703	

MICROPILE DETAILS

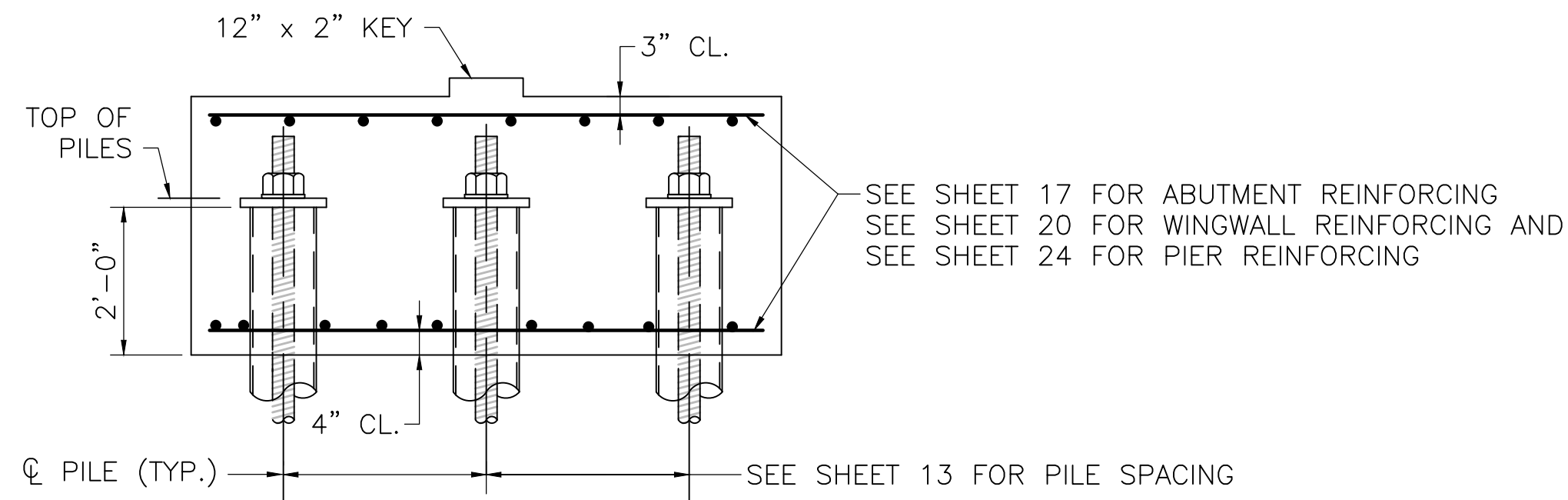
NOTES:

- FACTORED AXIAL DESIGN LOAD PER MICROPILE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
 - STRENGTH I LIMIT STATE
FACTORED AXIAL DESIGN LOAD FOR PIER = 151 KIPS.
 - STRENGTH I LIMIT STATE
FACTORED AXIAL DESIGN LOAD FOR ABUTMENT = 167 KIPS.
 - STRENGTH I LIMIT STATE
FACTORED AXIAL DESIGN LOAD FOR WINGWALL = 79 KIPS.
- THE FACTORED STRUCTURAL PILE RESISTANCE IS 264 KIPS AND IS THE PRODUCT OF THE NOMINAL STRUCTURAL RESISTANCE OF 352 KIPS AND A RESISTANCE FACTOR OF 0.75.
- THE FACTORED GEOTECHNICAL PILE RESISTANCE IS 193 KIPS AND IS THE PRODUCT OF THE NOMINAL GEOTECHNICAL RESISTANCE OF 351 KIPS AND A RESISTANCE FACTOR OF 0.55.
- THE ESTIMATED TIP ELEVATION IS SHOWN BELOW.

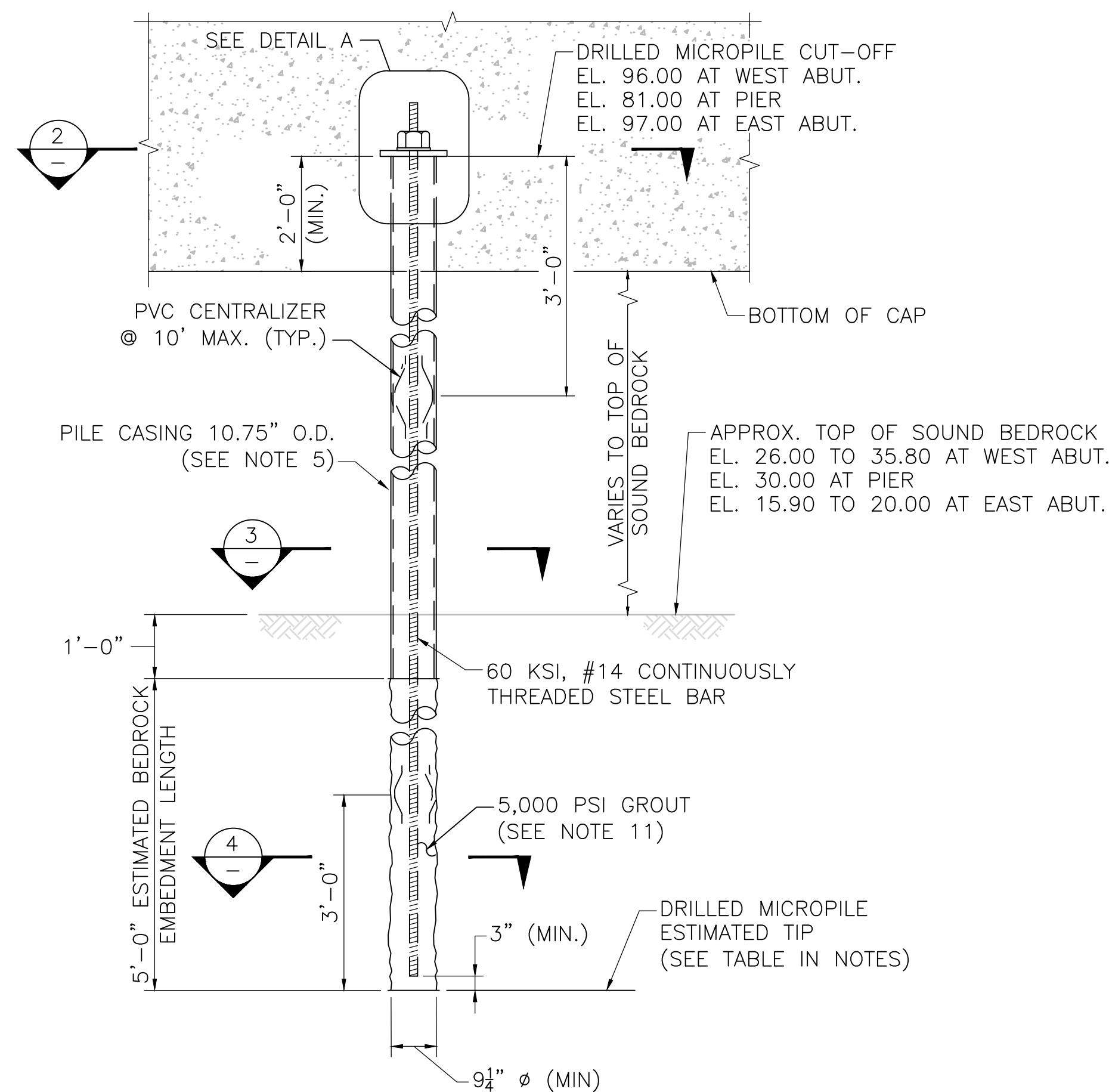
ESTIMATED TIP ELEVATION (FT)	
WEST ABUT.	EL. 20.0 TO EL. 29.8
PIER	EL. 24.0
EAST ABUT.	EL. 9.9 TO 14.0
- STEEL CASING SHALL BE PRIME STEEL AND MEET THE REQUIREMENTS OF API 5L PSL1 GRADE 52 WITH SR 15 SUPPLEMENTAL REQUIREMENTS.
- THREADED STEEL BAR SHALL BE CONTINUOUSLY THREADED FOR THE ENTIRE BAR LENGTH CONFORMING TO AASHTO M31, HAVING A MINIMUM YIELD STRENGTH OF 60 KSI.
- THREADED CASING JOINTS ARE NOT ALLOWED WITHIN 3'-0" OF THE BOTTOM OF THE PILE CAP.
- 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 5000 PSI AND CEMENT SHALL CONFORM TO AASHTO M85 TYPE I OR II.
- 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.

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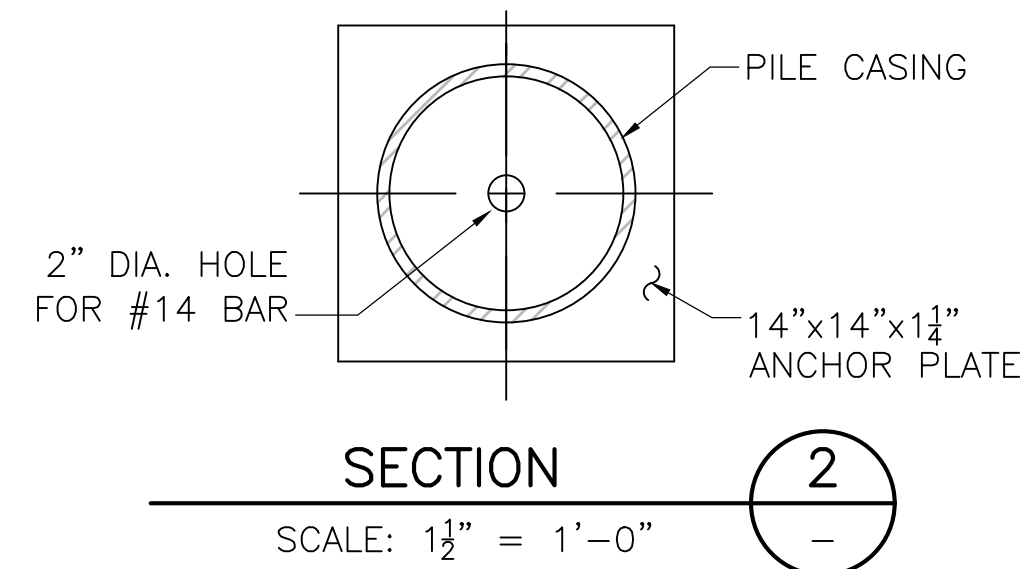
SHEET 14 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)



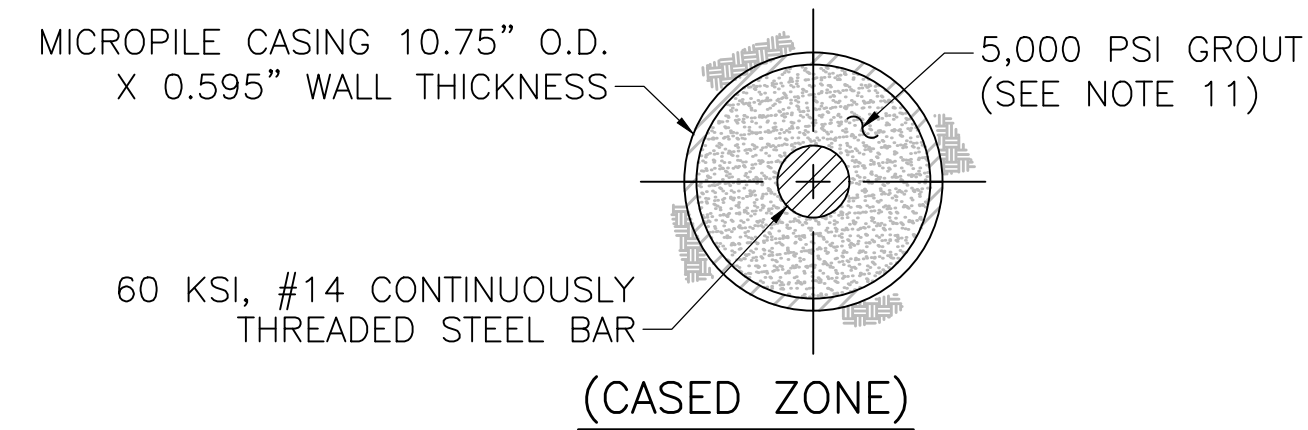
SECTION THROUGH PILE CAP
SCALE: 1/2" = 1'-0"



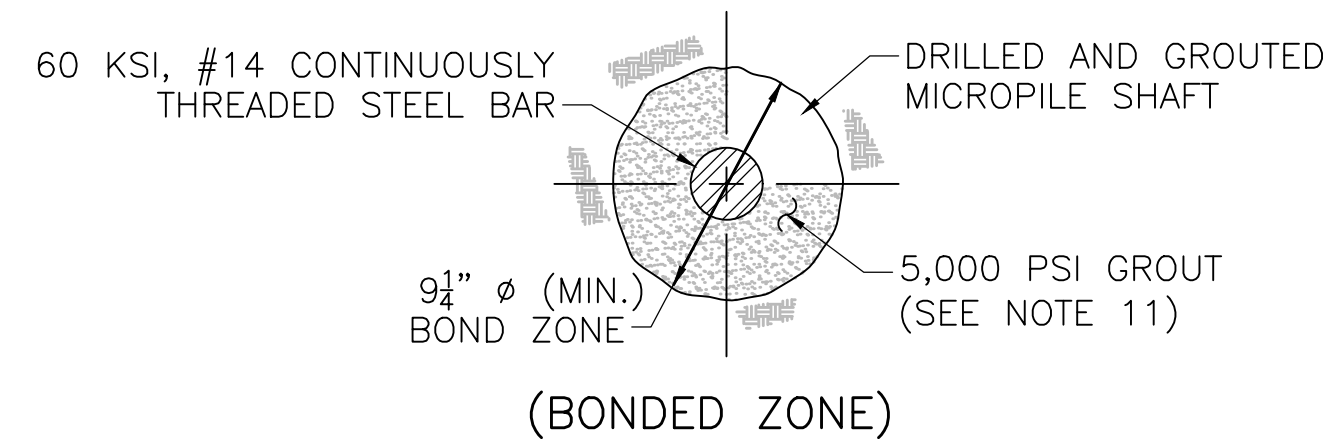
VERTICAL SECTION THROUGH PILE
SCALE: 1/2" = 1'-0"



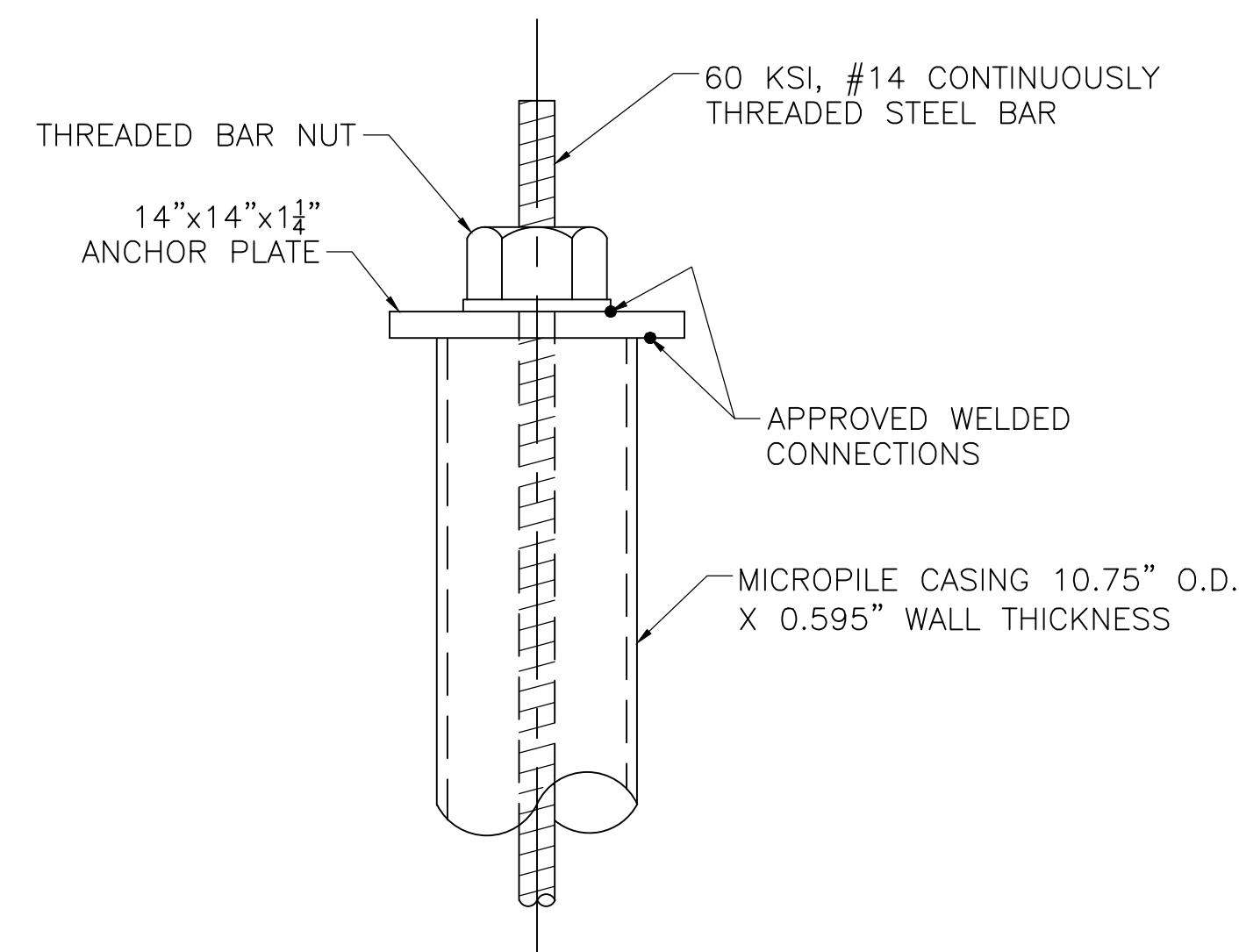
SECTION 2
SCALE: 1 1/2" = 1'-0"



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



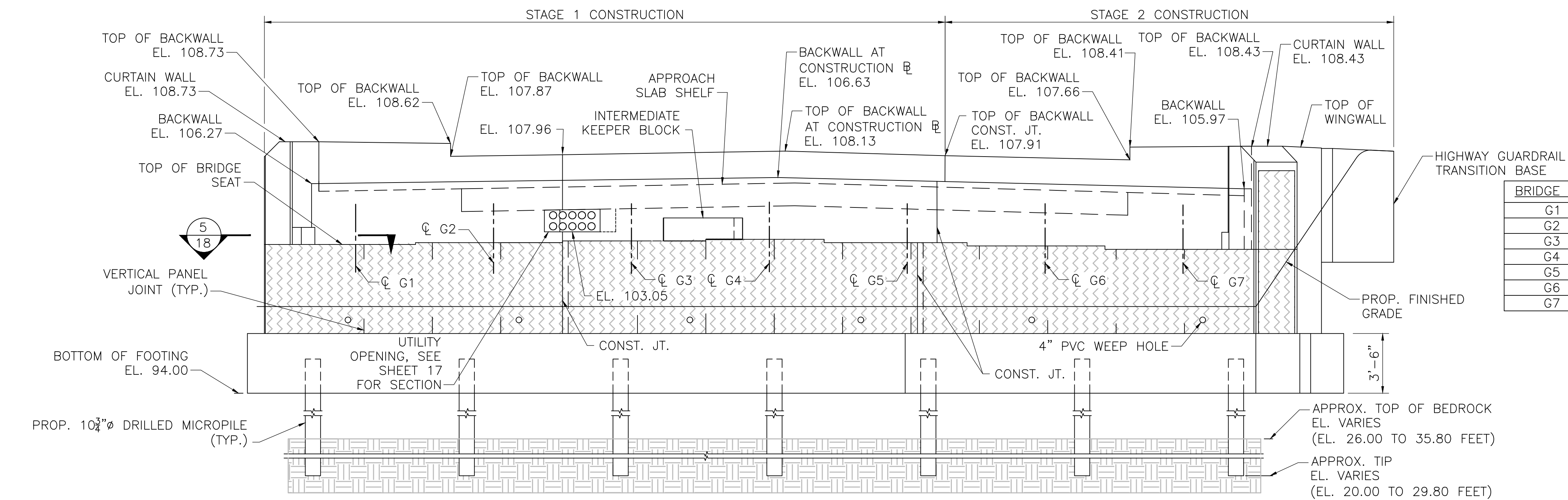
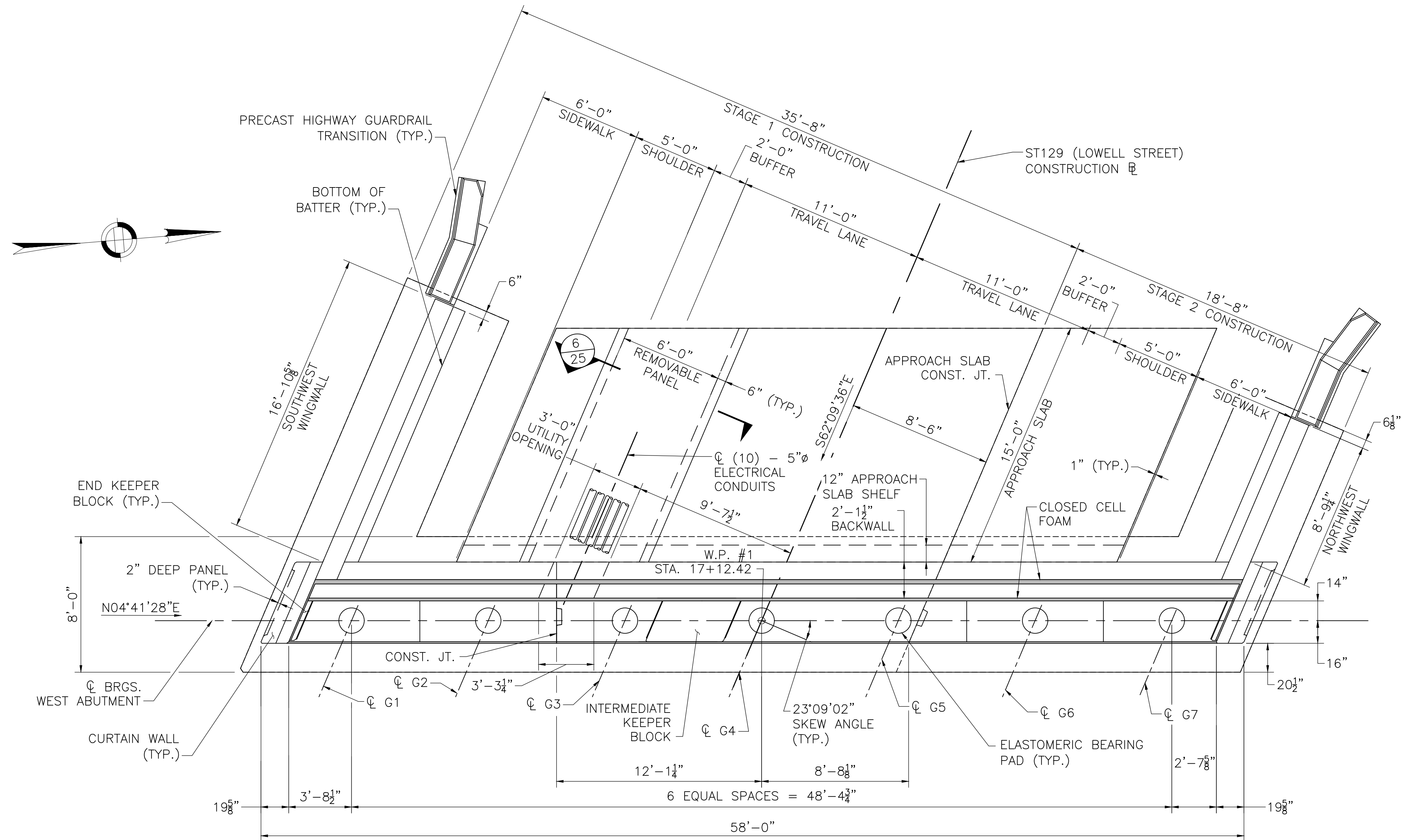
SECTION 4
SCALE: 1 1/2" = 1'-0"



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

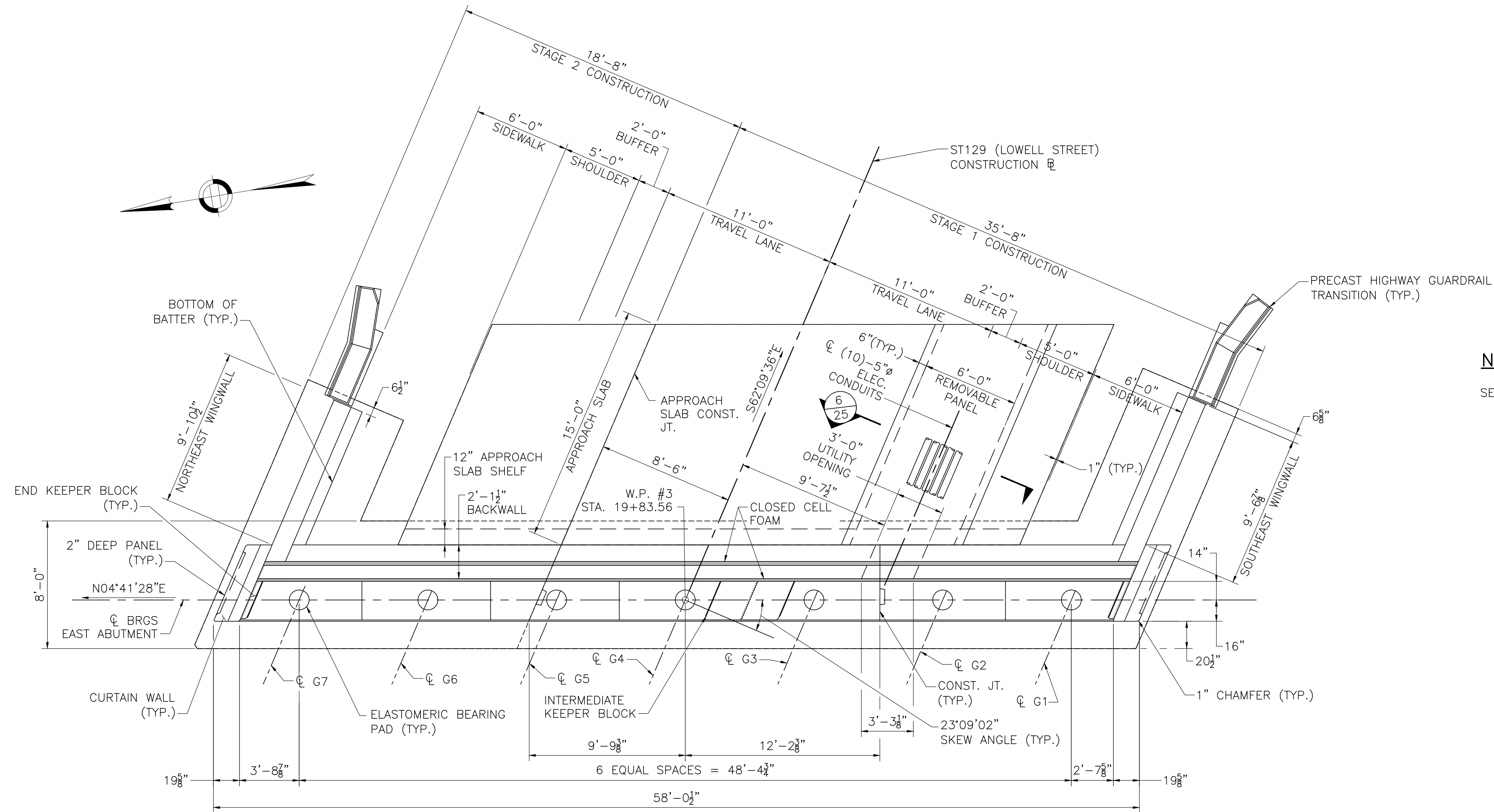
WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
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MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	62	96
PROJECT FILE NO.		608703	

WEST ABUTMENT PLAN AND ELEVATION



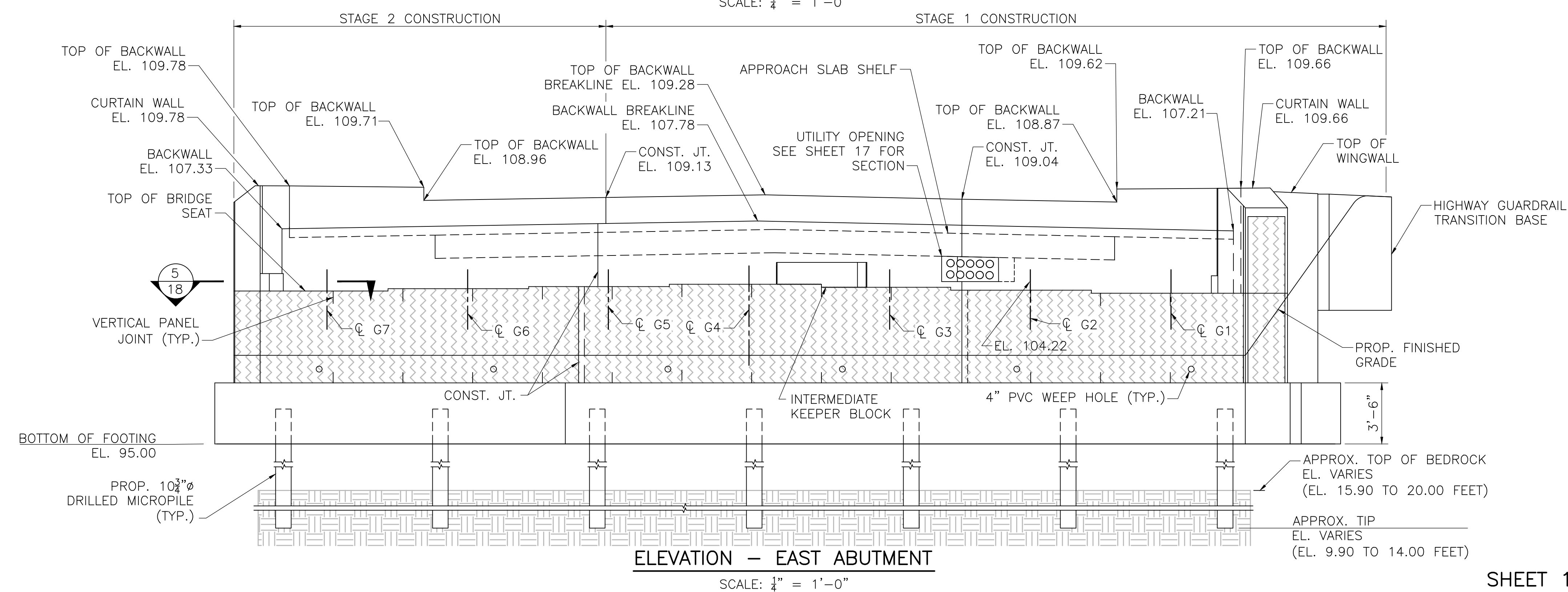
BRIDGE SEAT ELEVATIONS	
G1	102.69
G2	102.80
G3	102.90
G4	103.01
G5	102.82
G6	102.62
G7	102.43

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NOTES:

SEE SHEET 15 FOR GENERAL ABUTMENT NOTES.



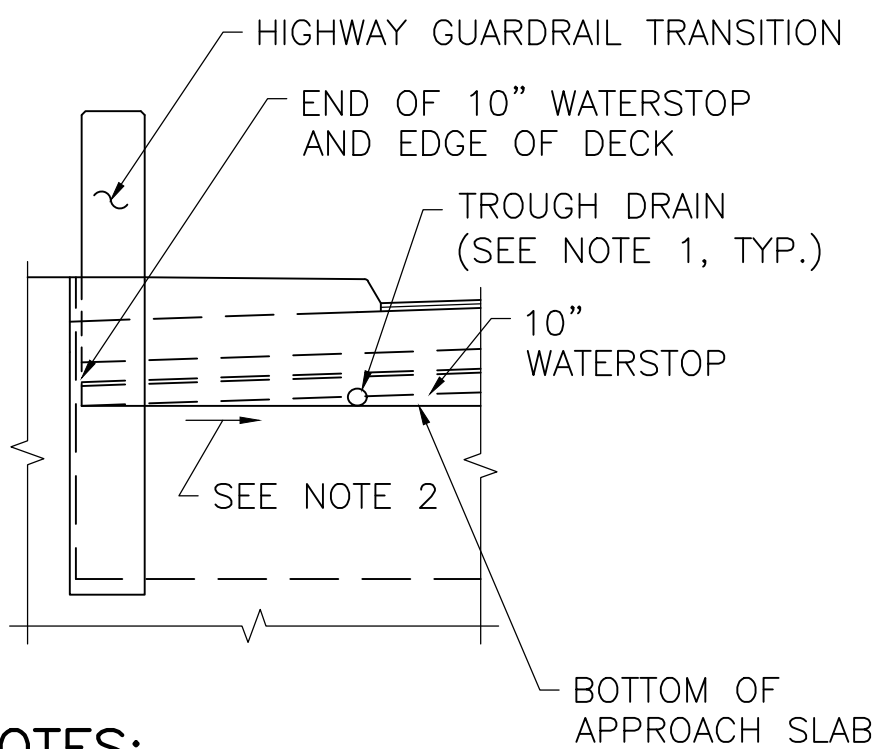
BRIDGE SEAT ELEVATIONS	
G1	103.63
G2	103.80
G3	103.97
G4	104.13
G5	104.00
G6	103.87
G7	103.74

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TYPICAL ABUTMENT SECTIONS			

NOTES:

- 4" ϕ WEEP HOLES 10'-0" O.C. LOCATED 12" ABOVE THE HEEL OF THE FOOTING SLOPING 1" PER FOOT TOWARDS THE FRONT FACE. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
- ALL REINFORCEMENT SHALL BE COATED.
- TOP OF BACKWALL SHALL BE TROWELED SMOOTH PARALLEL TO THE PROFILE GRADE.
- CONSTRUCTION JOINTS SHALL BE GIVEN A RAKE FINISH WITH A $\frac{1}{4}$ " MINIMUM AMPLITUDE.
- SEE SHEET 14 FOR MICROPILE DETAILS AND NOTES.

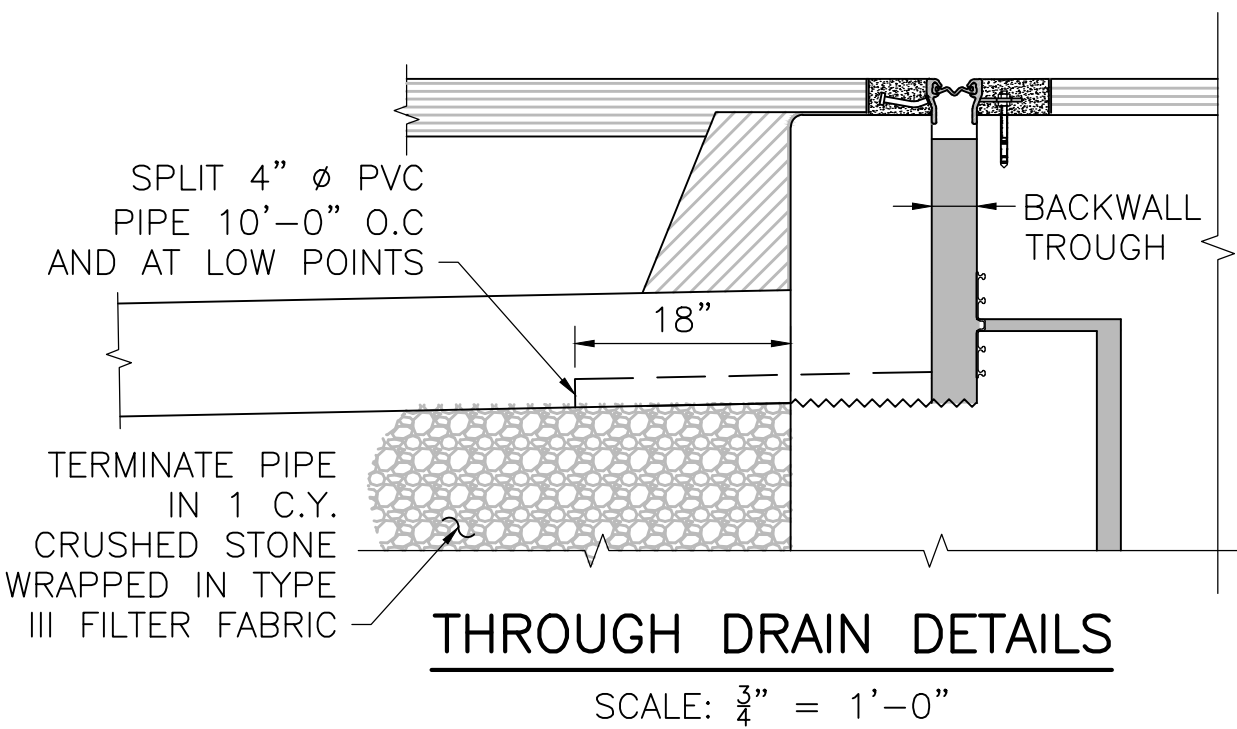


NOTES:

- PROVIDE BACKWALL THROUGH DRAINS 10'-0" O.C. AND AT LOW POINTS.
- SLOPE BACKWALL TROUGH UNDER SIDEWALK 5% MIN. TOWARDS THE DRAIN.

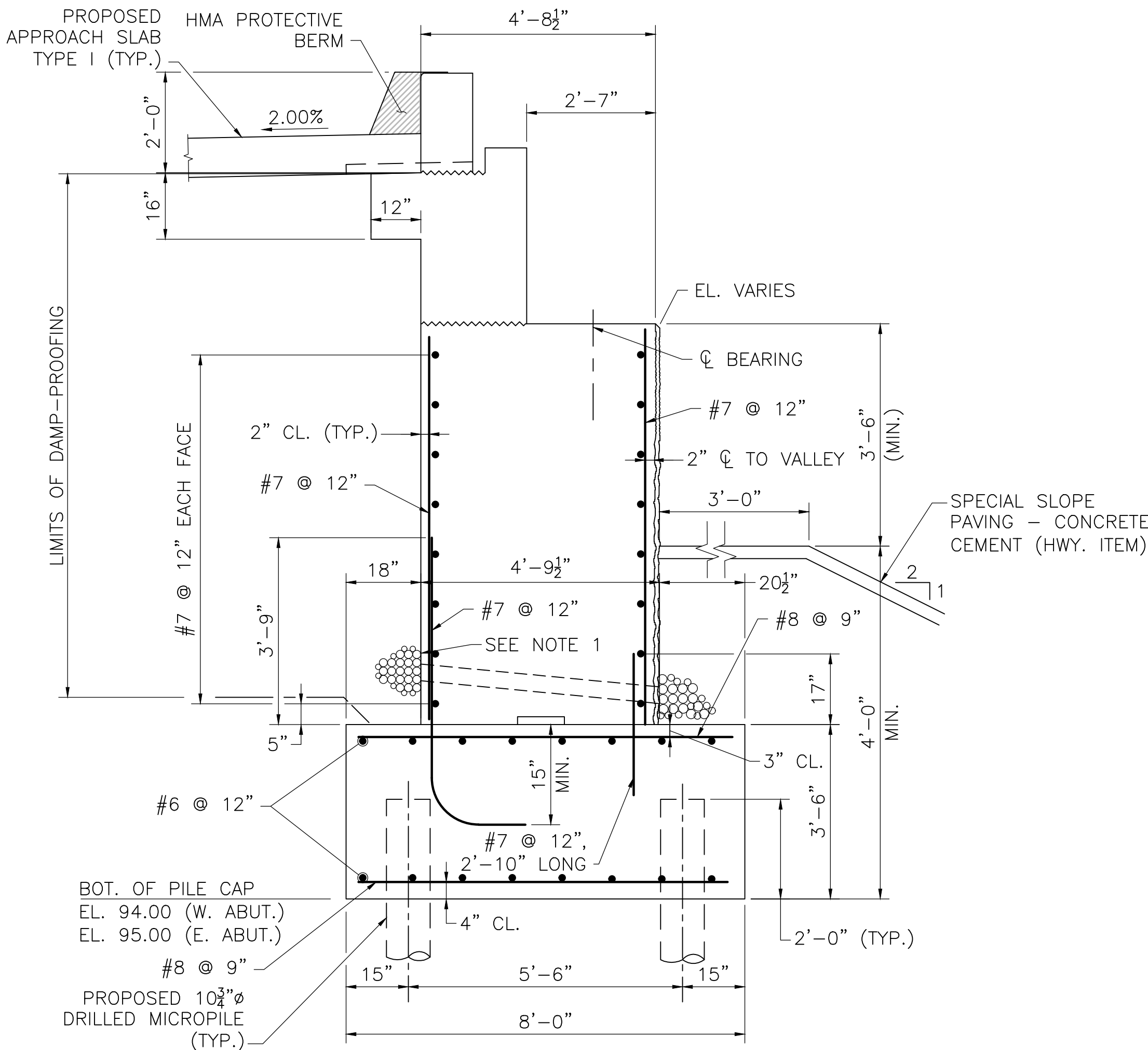
END OF DECK ELEVATION

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



August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

SHEET 17 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

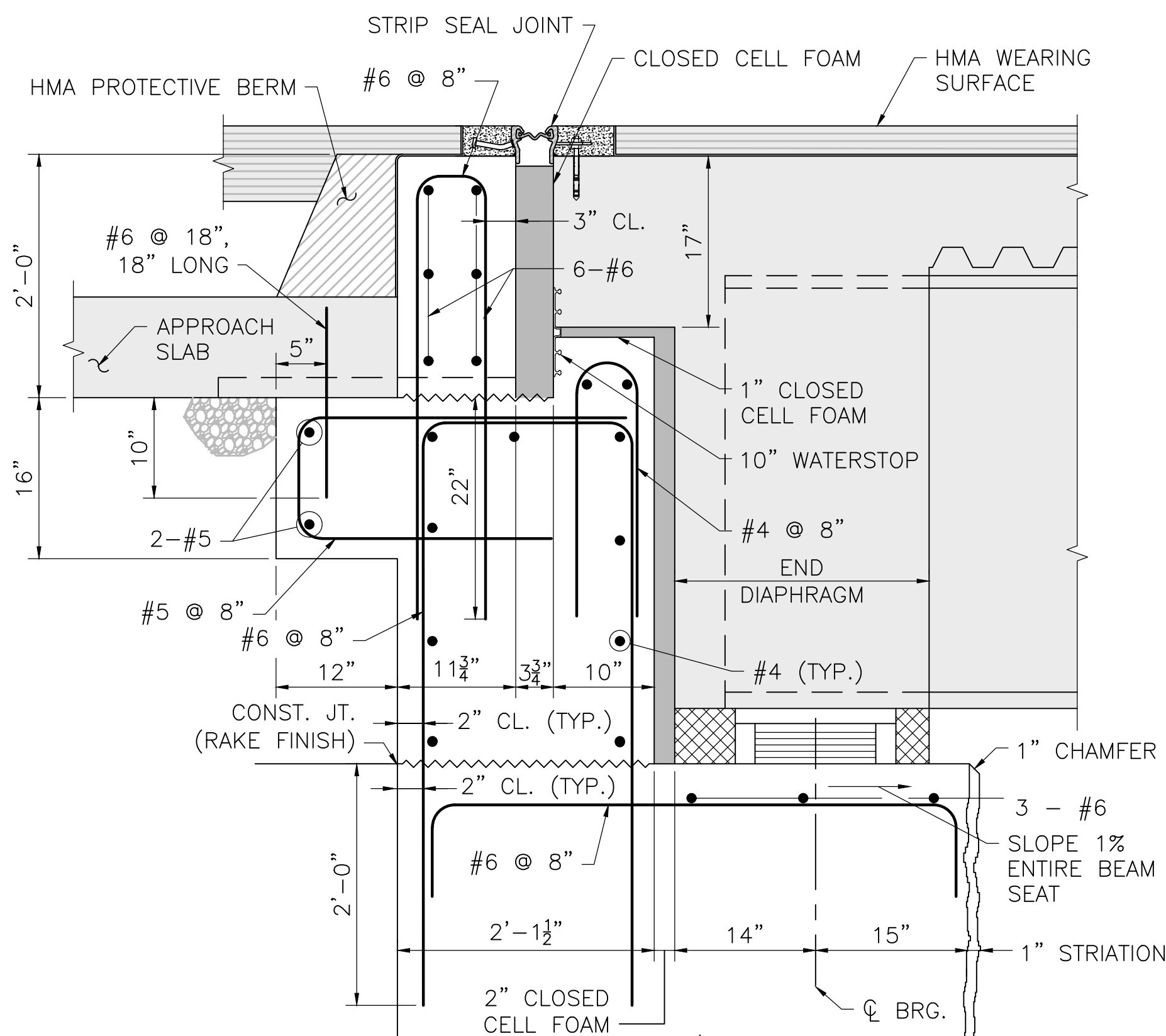


TYPICAL ABUTMENT SECTION

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

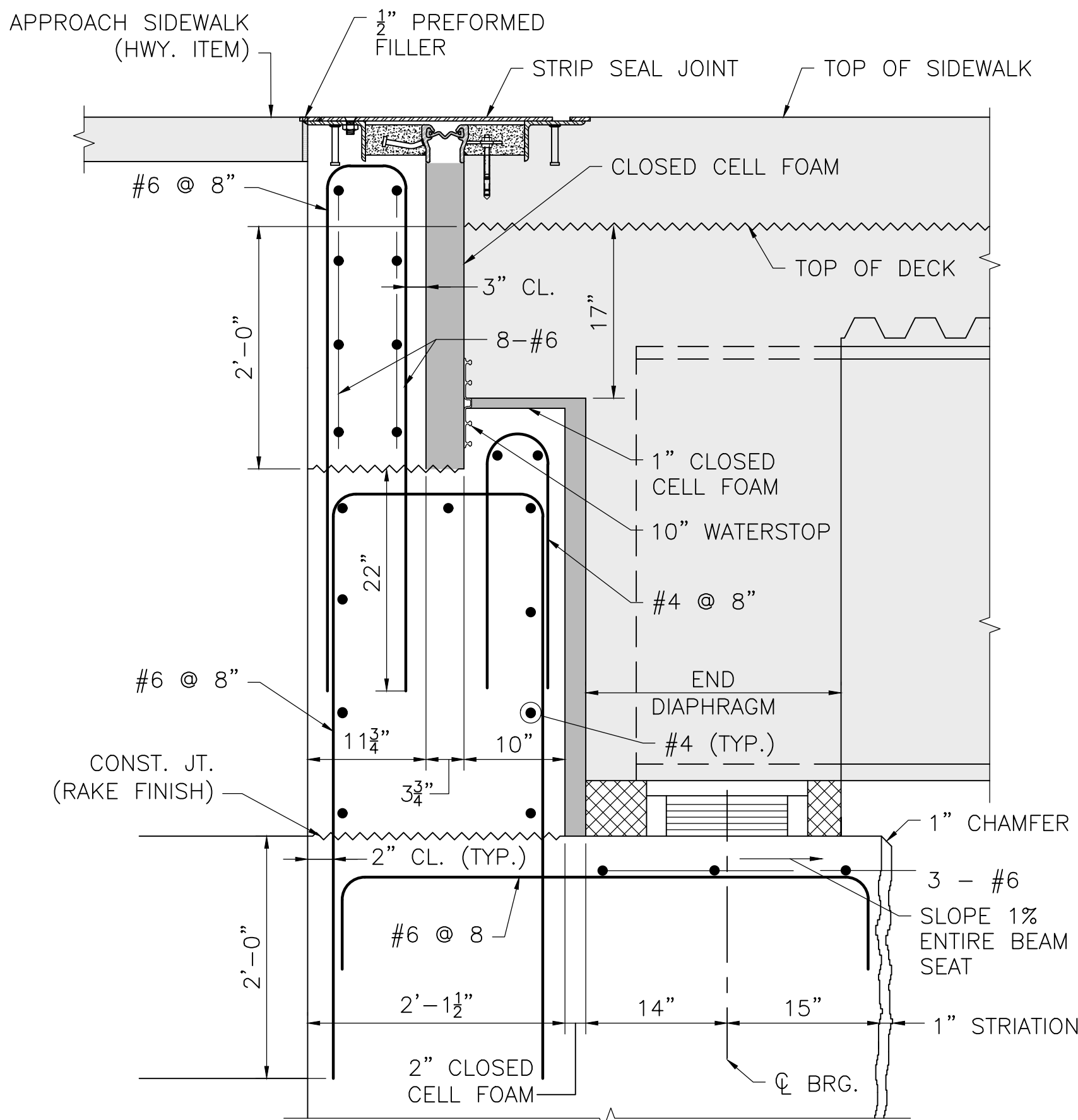
NOTE:

SEE DETAILS AT ABUTMENT ON THIS SHEET FOR DIMENSIONS NOT SHOWN HERE.



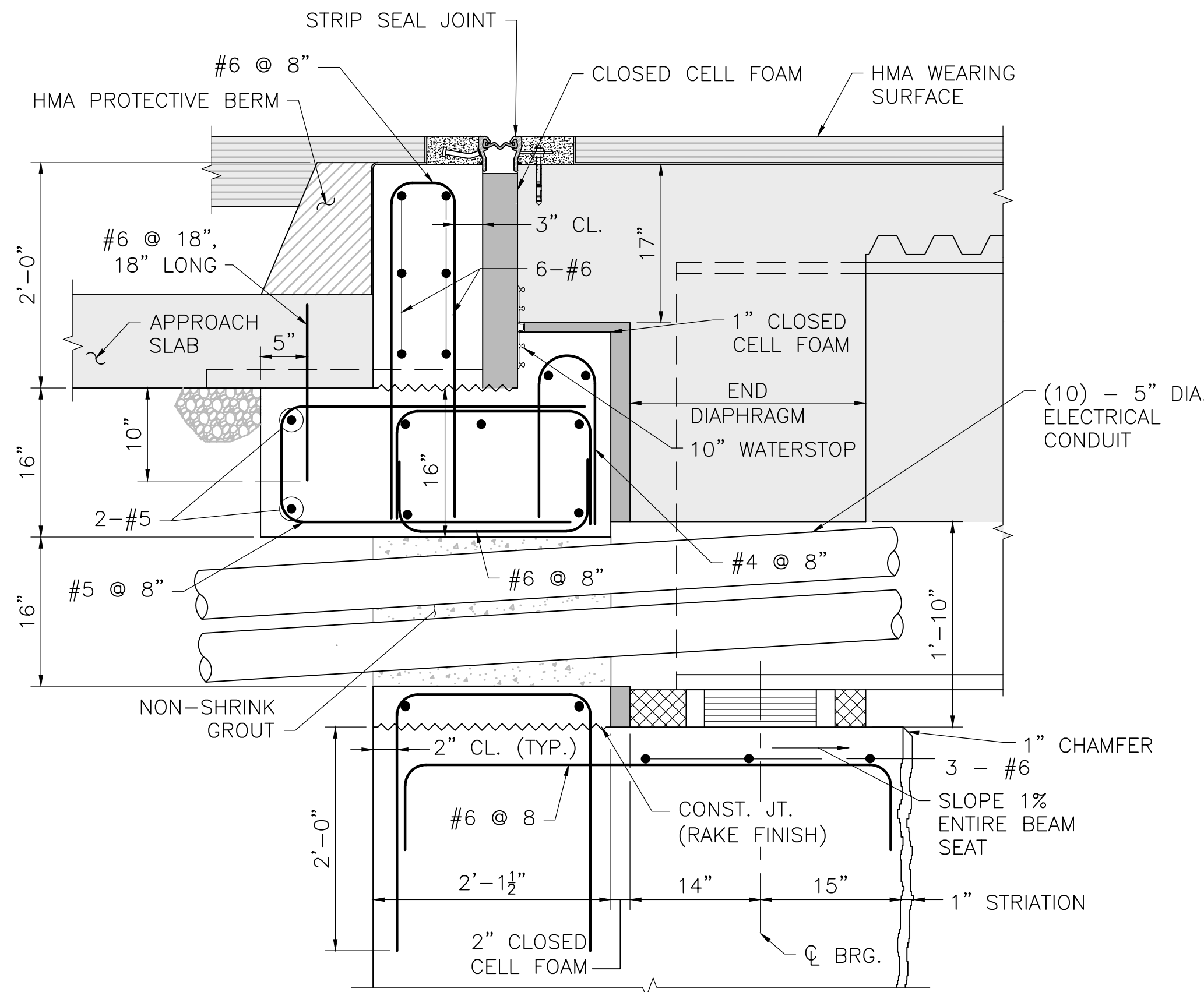
DETAILS AT ABUTMENT - ROADWAY SECTION

SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT - SIDEWALK SECTION

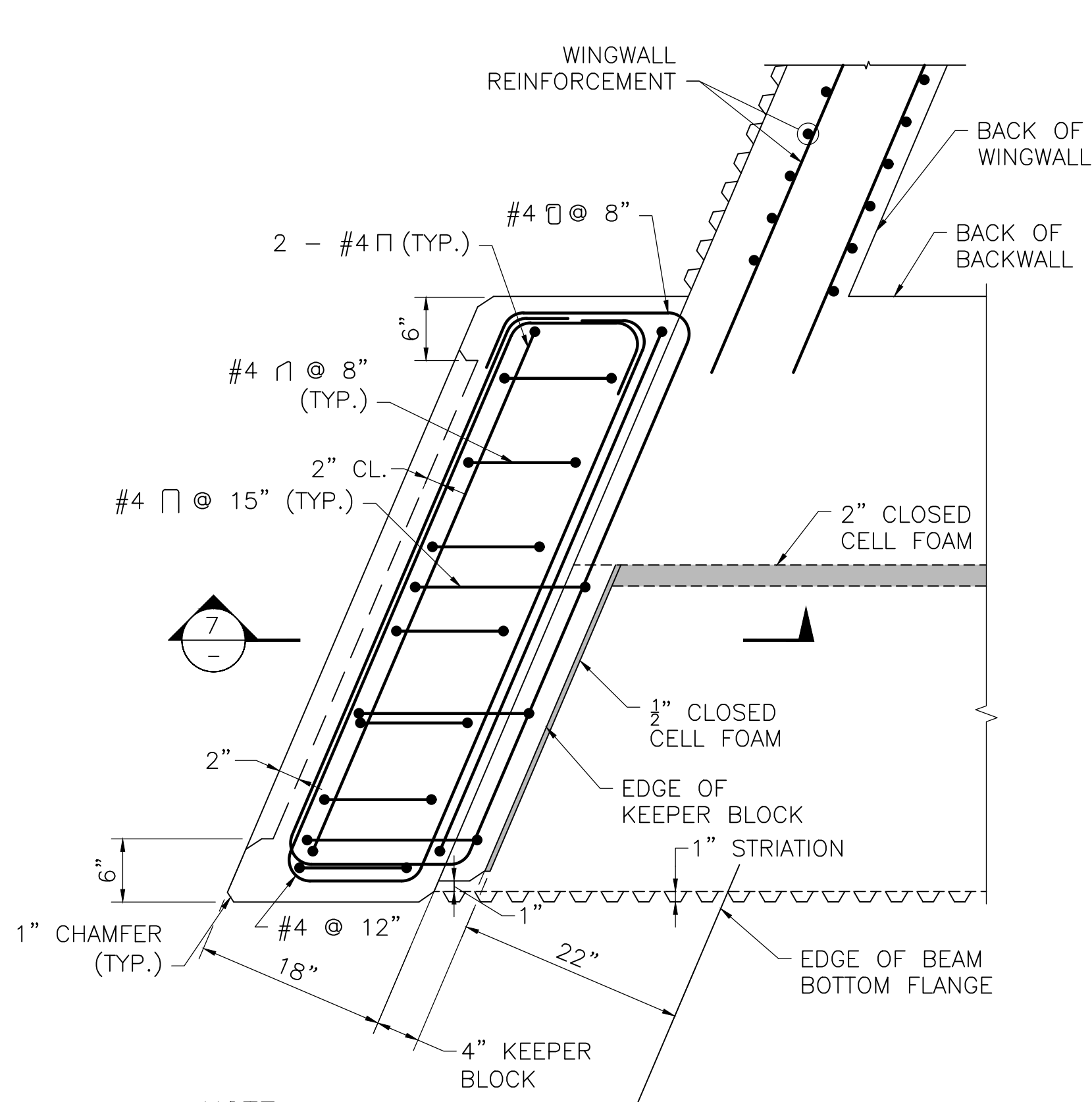
SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT - UTILITY OPENING AT ROADWAY SECTION

SCALE: 1" = 1'-0"

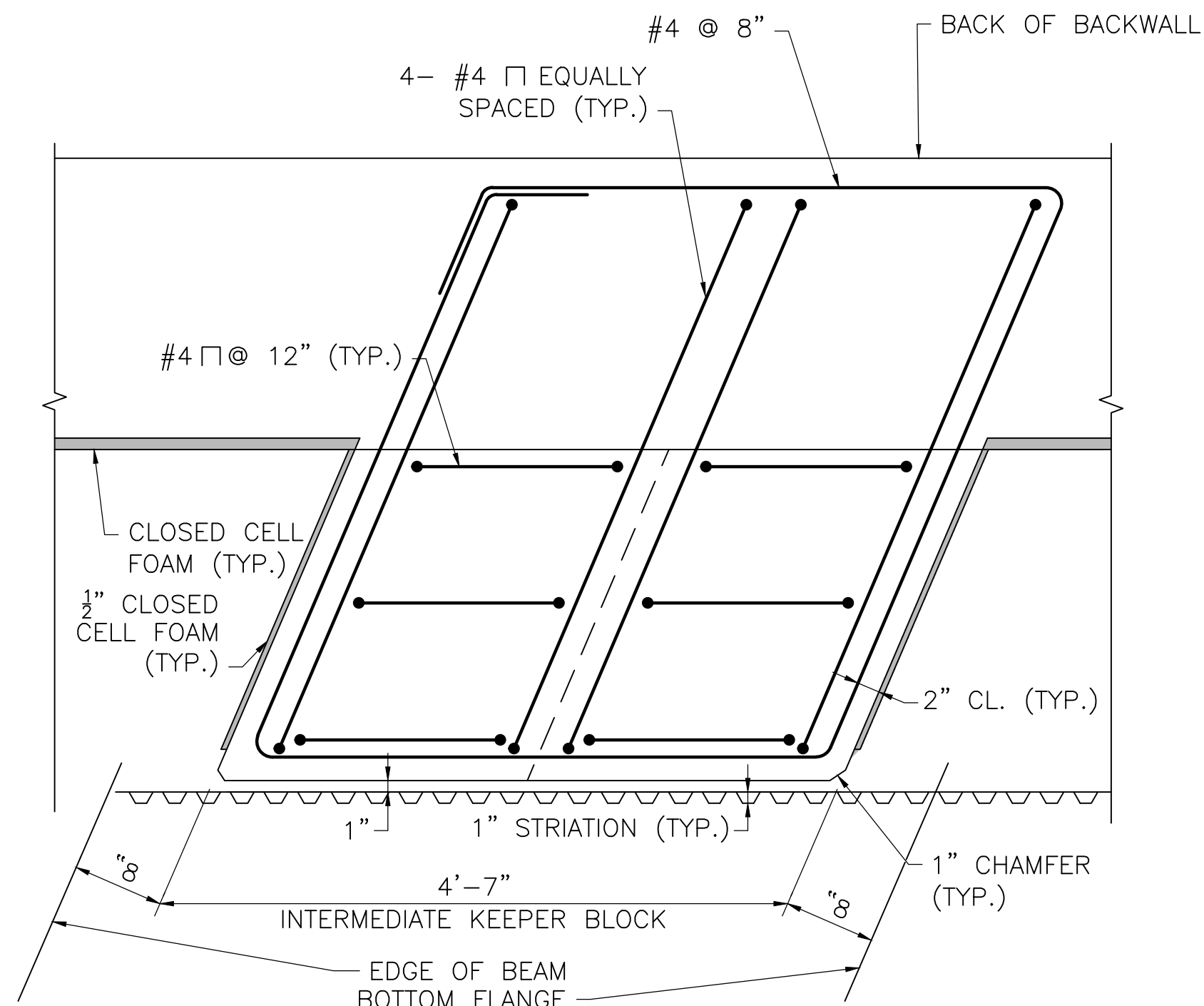
WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	65	96
PROJECT FILE NO. 608703			
ABUTMENT DETAILS			



NOTE:
BACKWALL REINFORCEMENT NOT SHOWN FOR CLARITY.

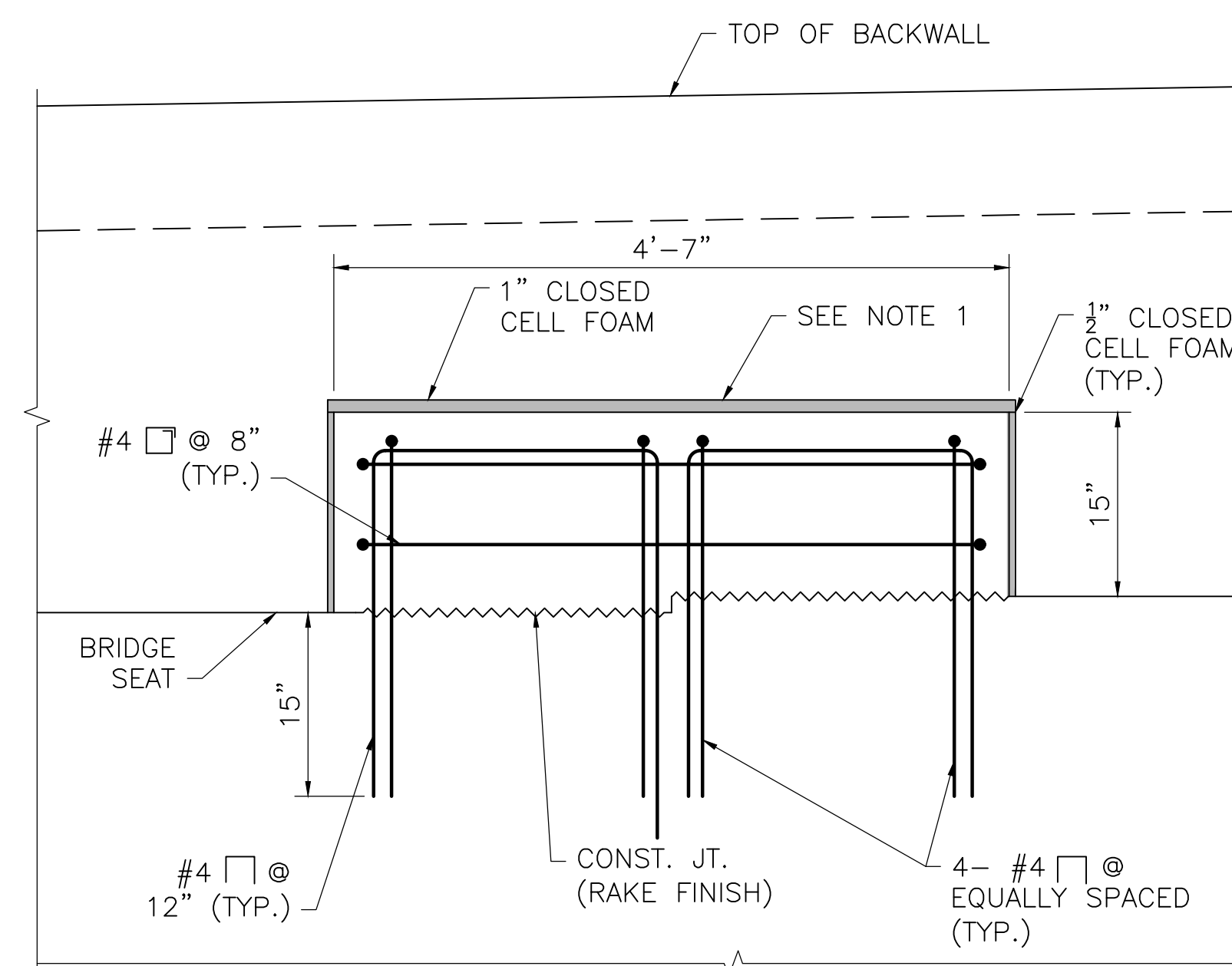
SECTION 5

SCALE: 1" = 1'-0"



INTERMEDIATE KEEPER BLOCK

SCALE: 1" = 1'-0"

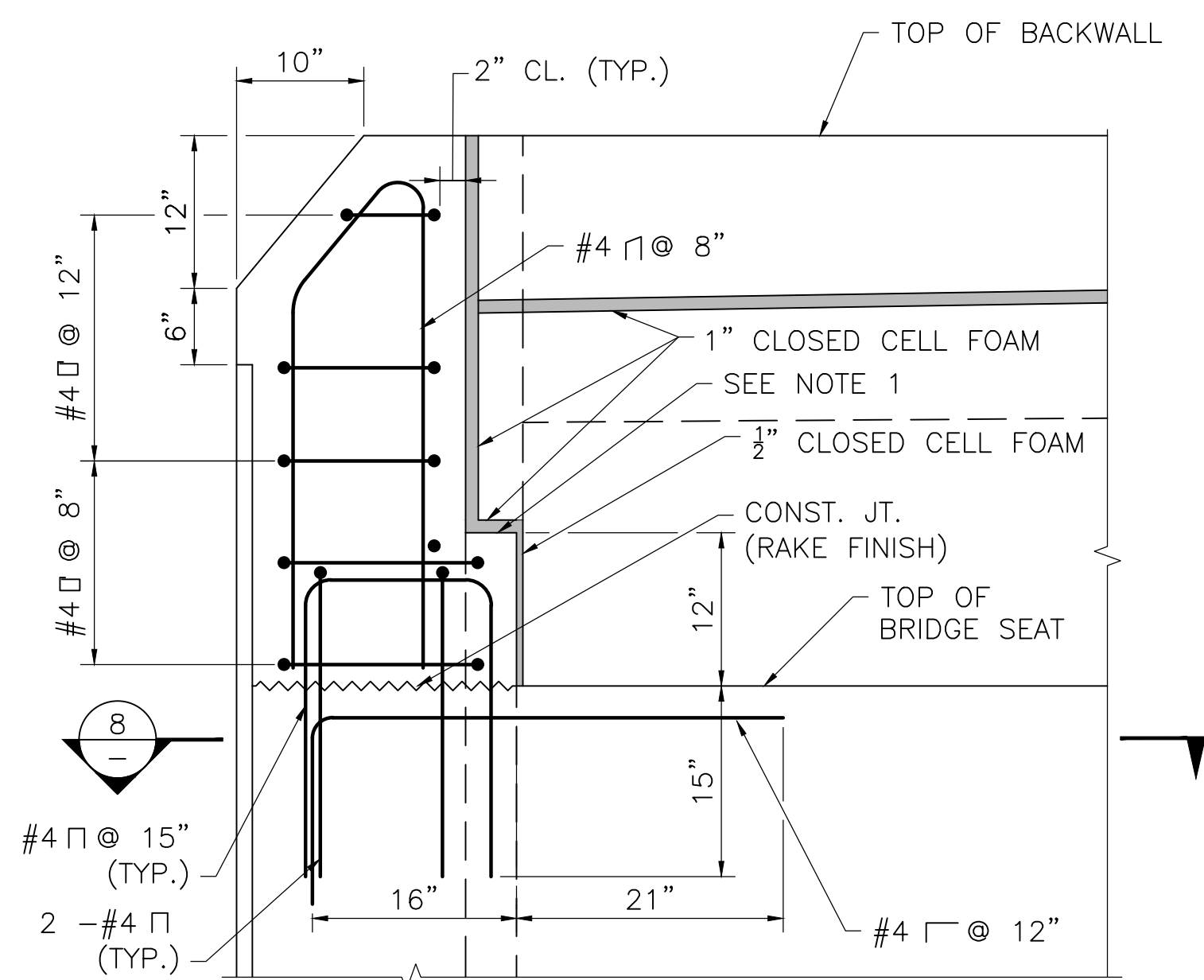


NOTES:

- TOP OF KEEPER BLOCK SHALL BE TROWELED SMOOTH PARALLEL TO PROFILE GRADE.
- ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT HAS BEEN OMITTED FOR CLARITY.

VERTICAL SECTION AT KEEPER BLOCK

SCALE: 1" = 1'-0"

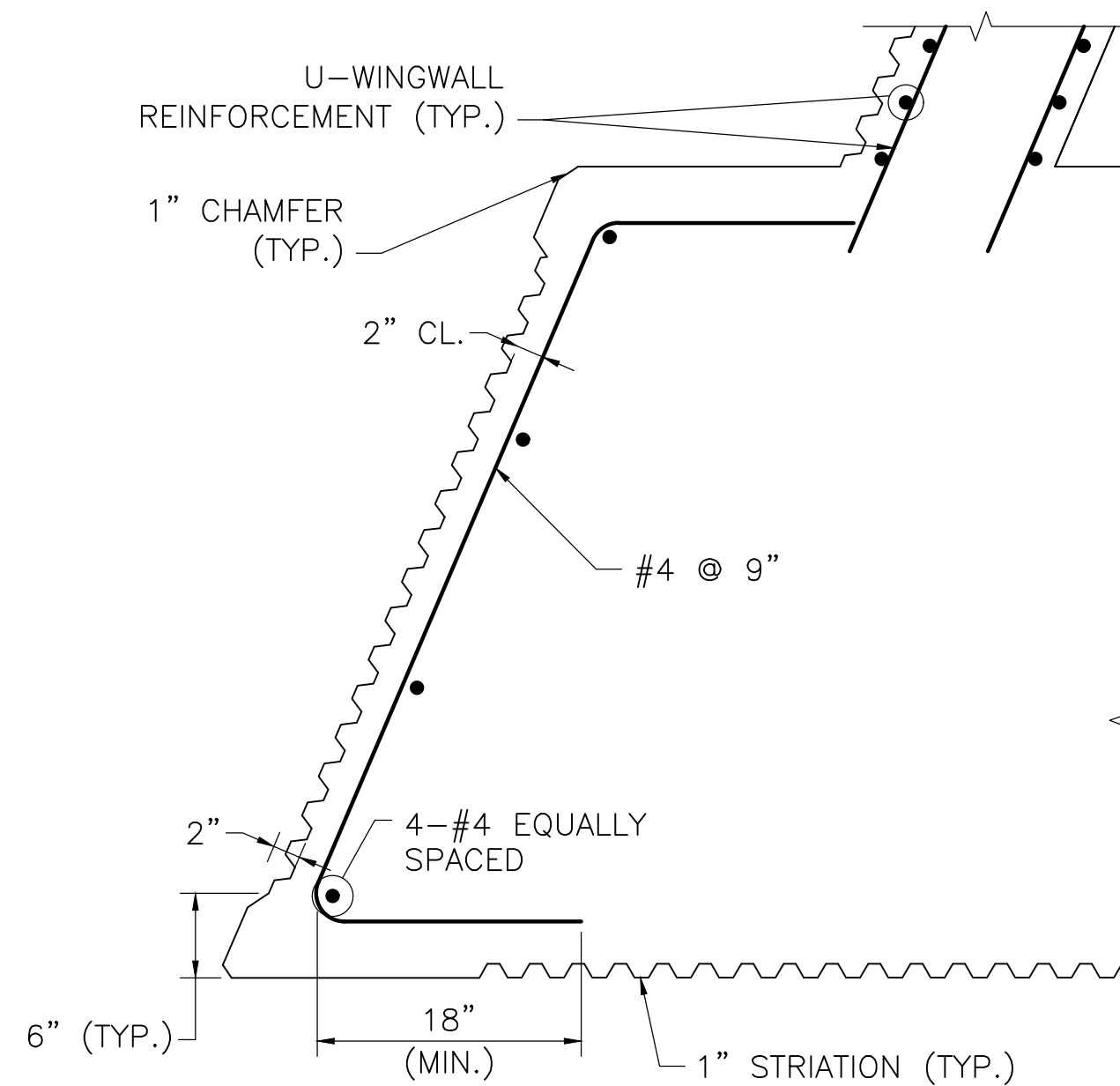


NOTES:

- TOP OF KEEPER BLOCK SHALL BE TROWELED SMOOTH PARALLEL TO PROFILE GRADE.
- ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT HAS BEEN OMITTED FOR CLARITY.

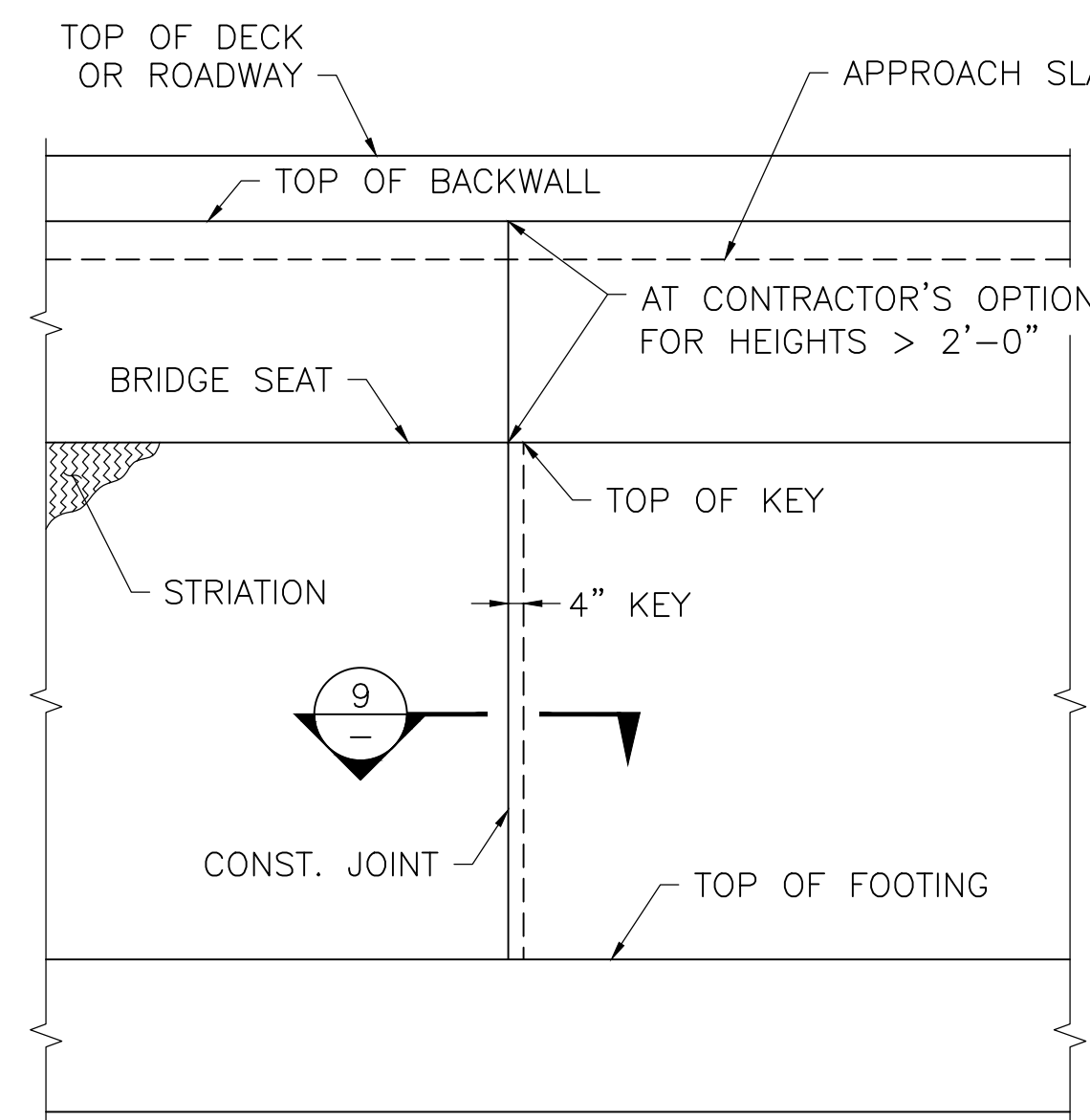
SECTION 7

SCALE: 1" = 1'-0"



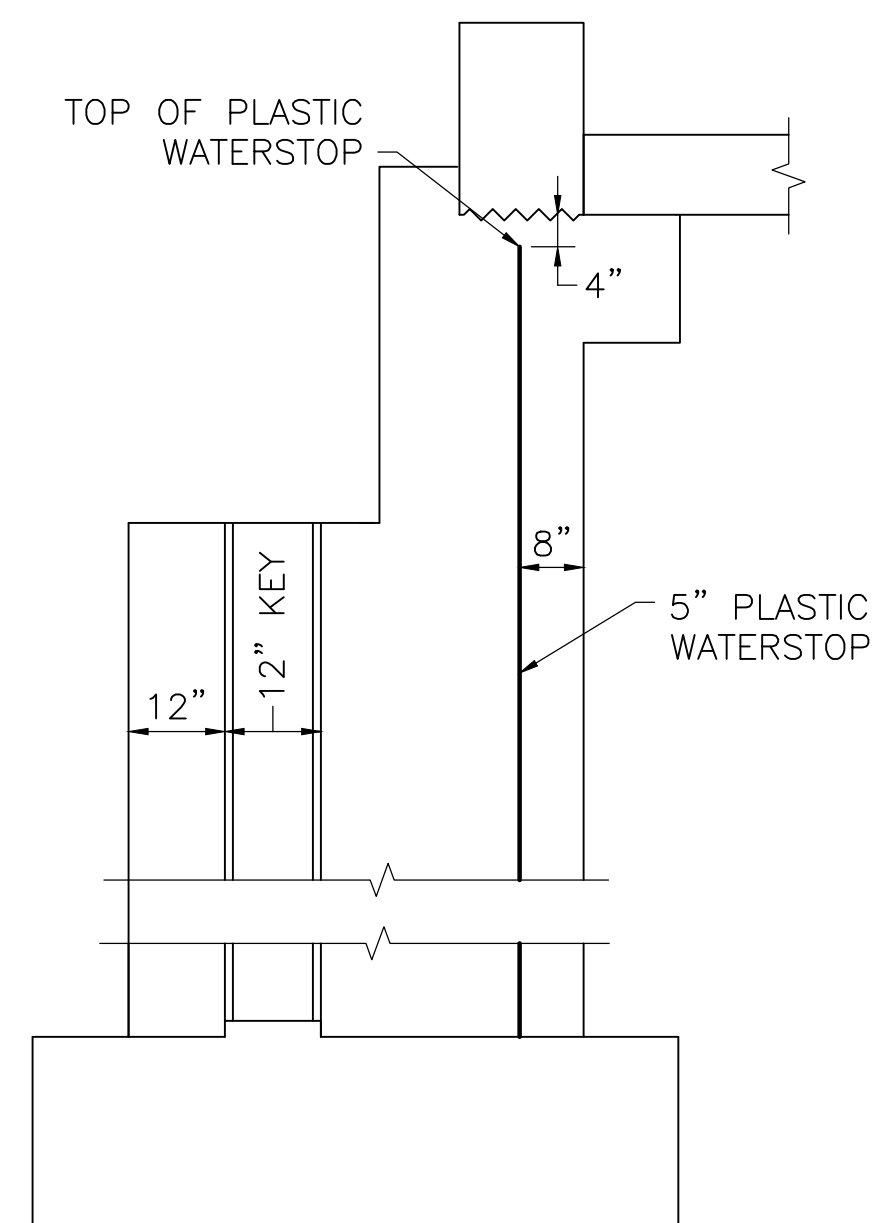
SECTION 8

SCALE: 1" = 1'-0"



ELEVATION OF ABUTMENT

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

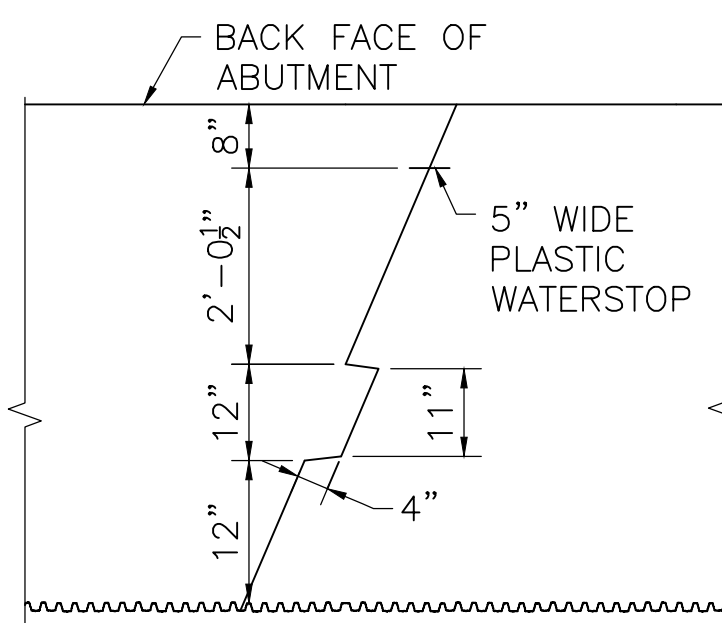


NOTE:

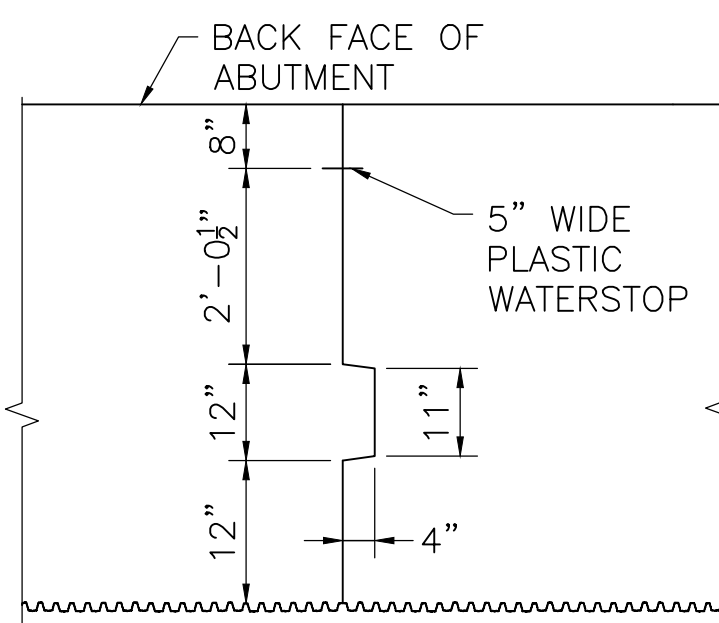
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

SECTION THRU CONSTRUCTION JOINT

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



SKEWED CONSTRUCTION JOINT



SQUARE CONSTRUCTION JOINT

NOTES:

- WEST ABUTMENT SHOWN, EAST ABUTMENT SIMILAR.
- PRIMARY REINFORCING SHALL BE PLACED SQUARE WHERE FEASIBLE, AND SPLAYED AS NEEDED AT ACUTE CORNER LOCATIONS.

SECTION 9

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

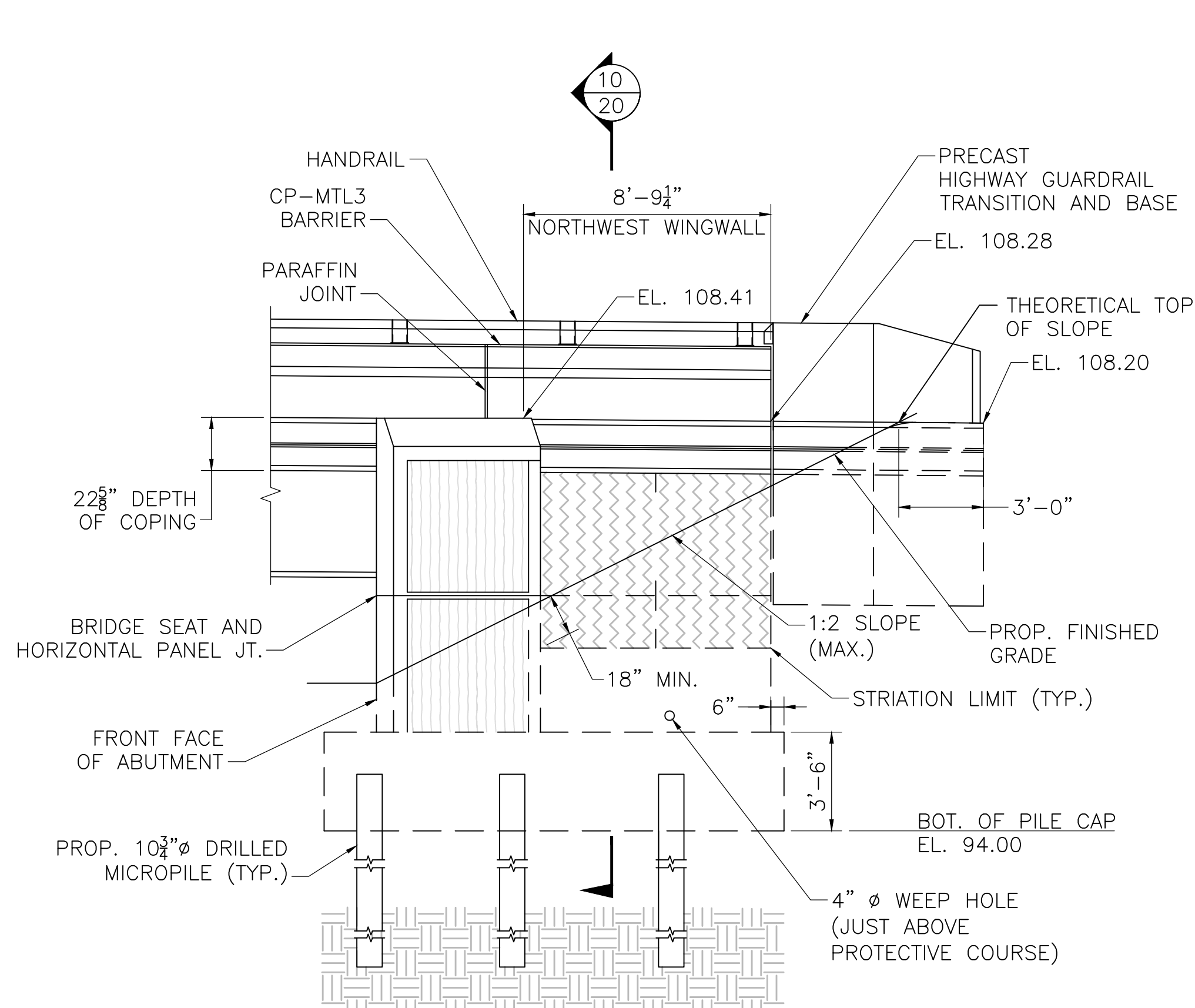
August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

SHEET 18 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	66	96
PROJECT FILE NO.		608703	
WINGWALL ELEVATIONS			

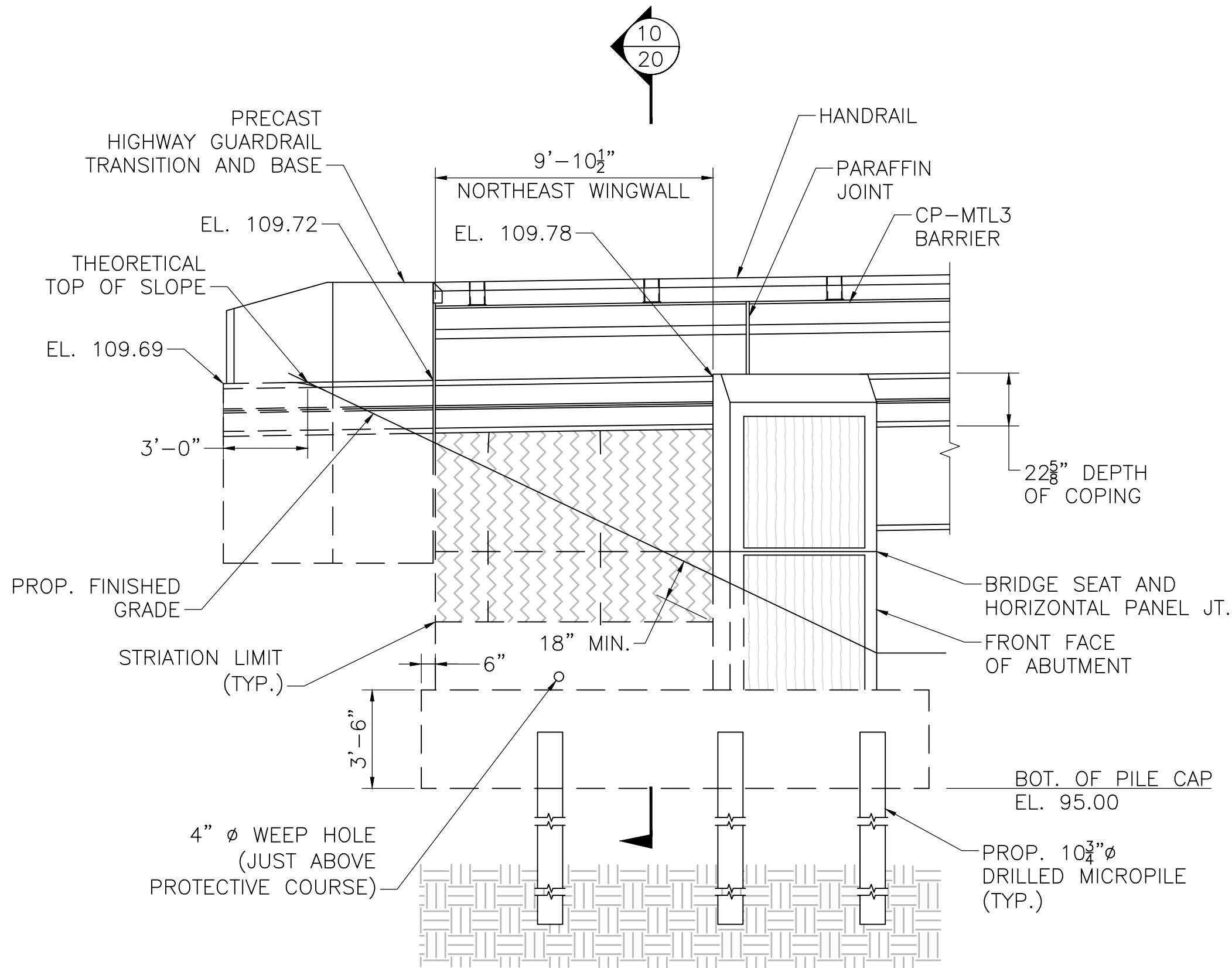
NOTES:

- SEE GENERAL PLAN, SHEET 7, FOR HANDRAIL POST SPACING.
- SEE FOUNDATION LAYOUT PLAN, SHEET 13, FOR FOOTING DIMENSIONS NOT SHOWN HERE.
- ONLY FRONT PILES SHOWN FOR CLARITY, SEE SHEET 13 FOR COMPLETE PILE LAYOUT.
- SEE SHEET 20 FOR GENERAL WINGWALL NOTES.
- HORIZONTAL PANEL JOINTS SHALL BE LEVEL.



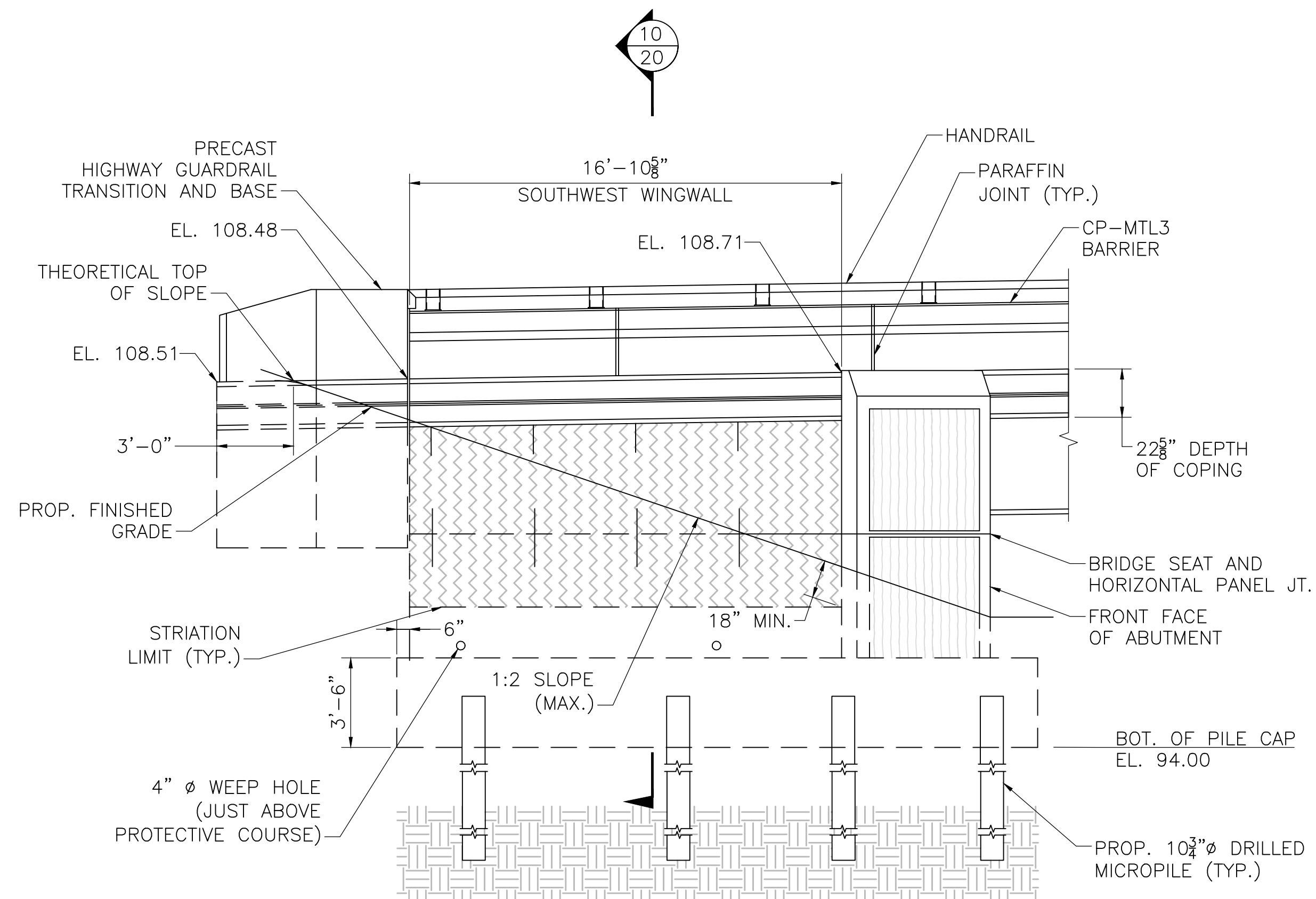
NORTHWEST WINGWALL — ELEVATION

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



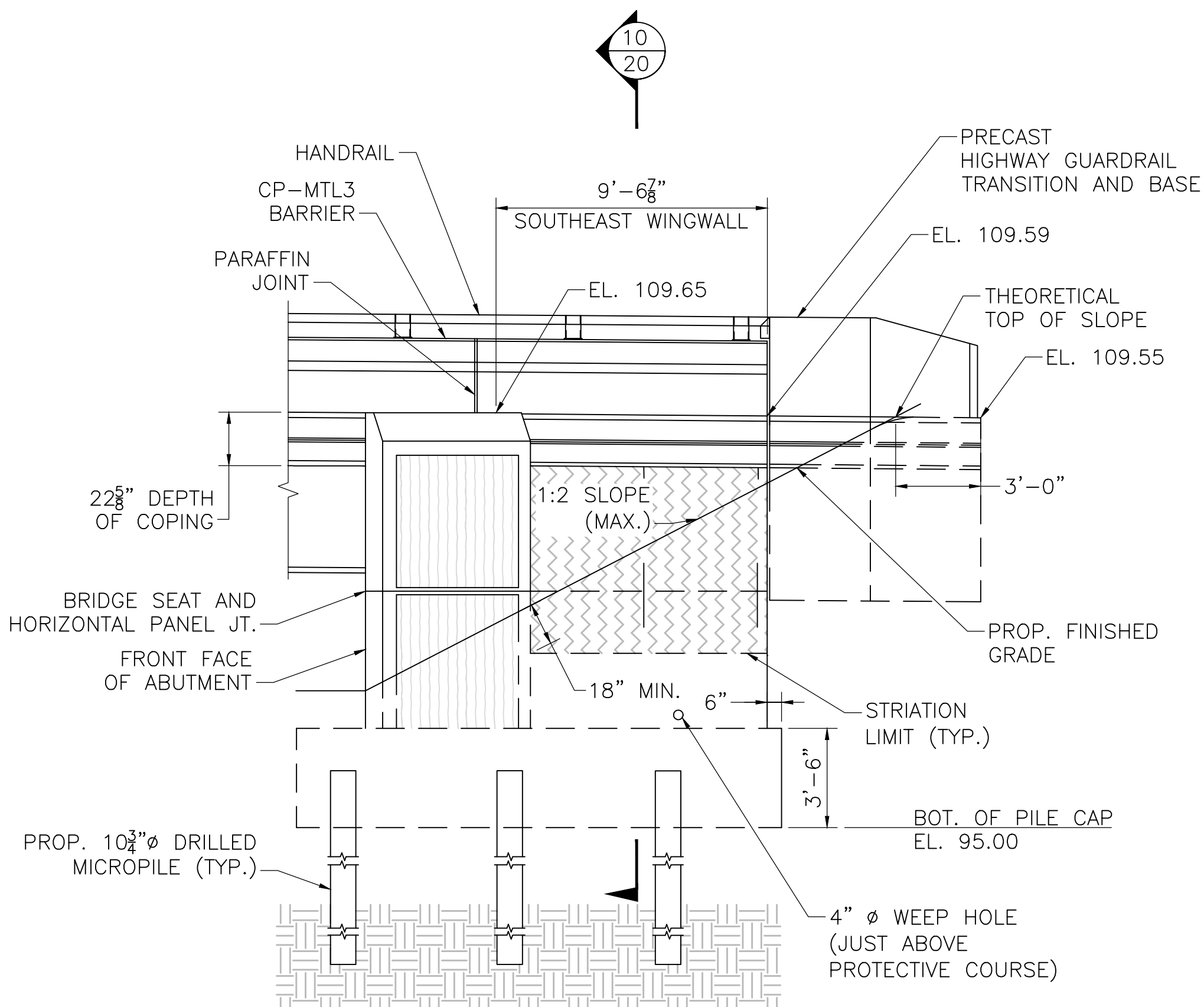
NORTHEAST WINGWALL — ELEVATION

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



SOUTHWEST WINGWALL — ELEVATION

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

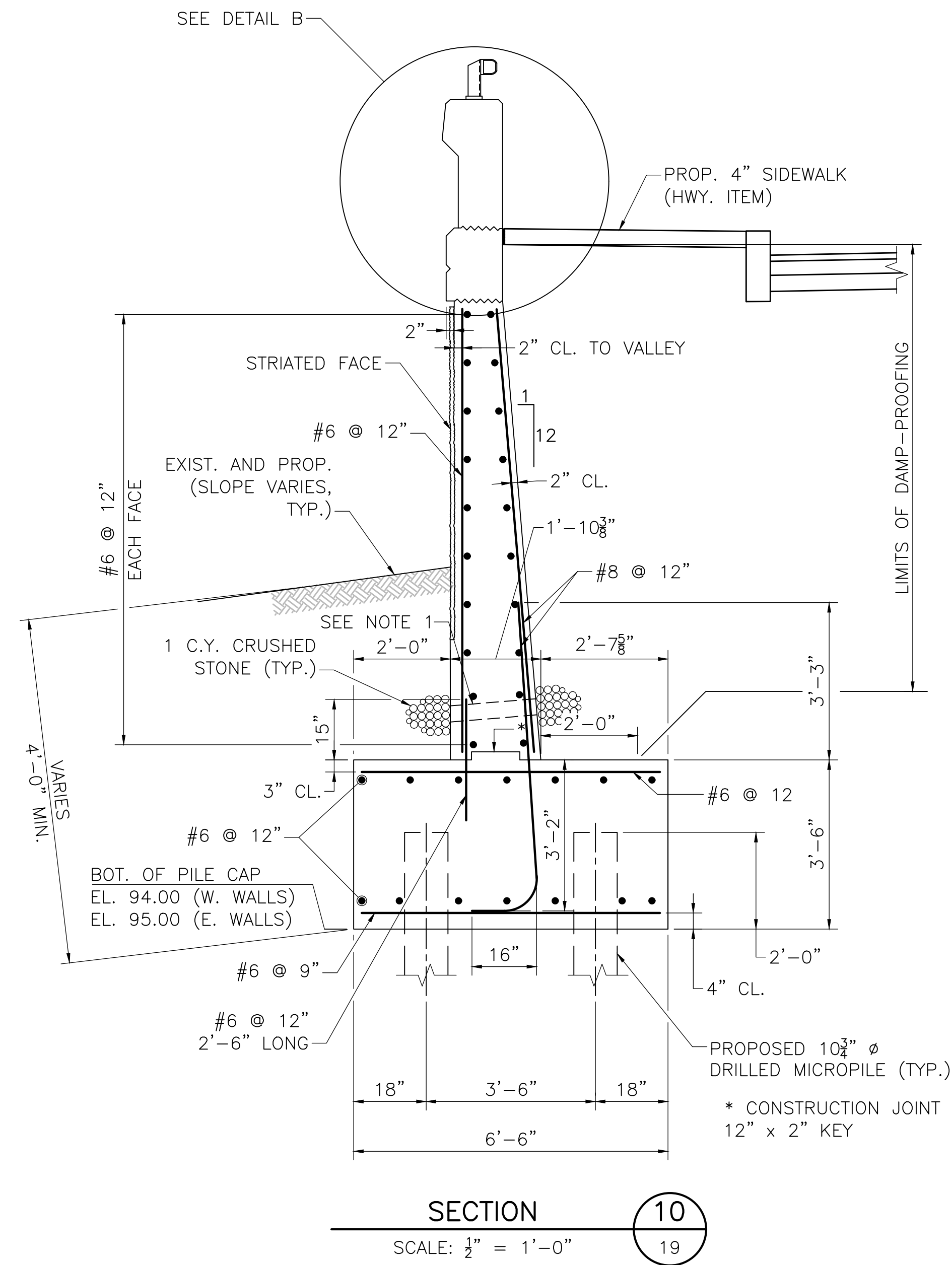


SOUTHEAST WINGWALL — ELEVATION

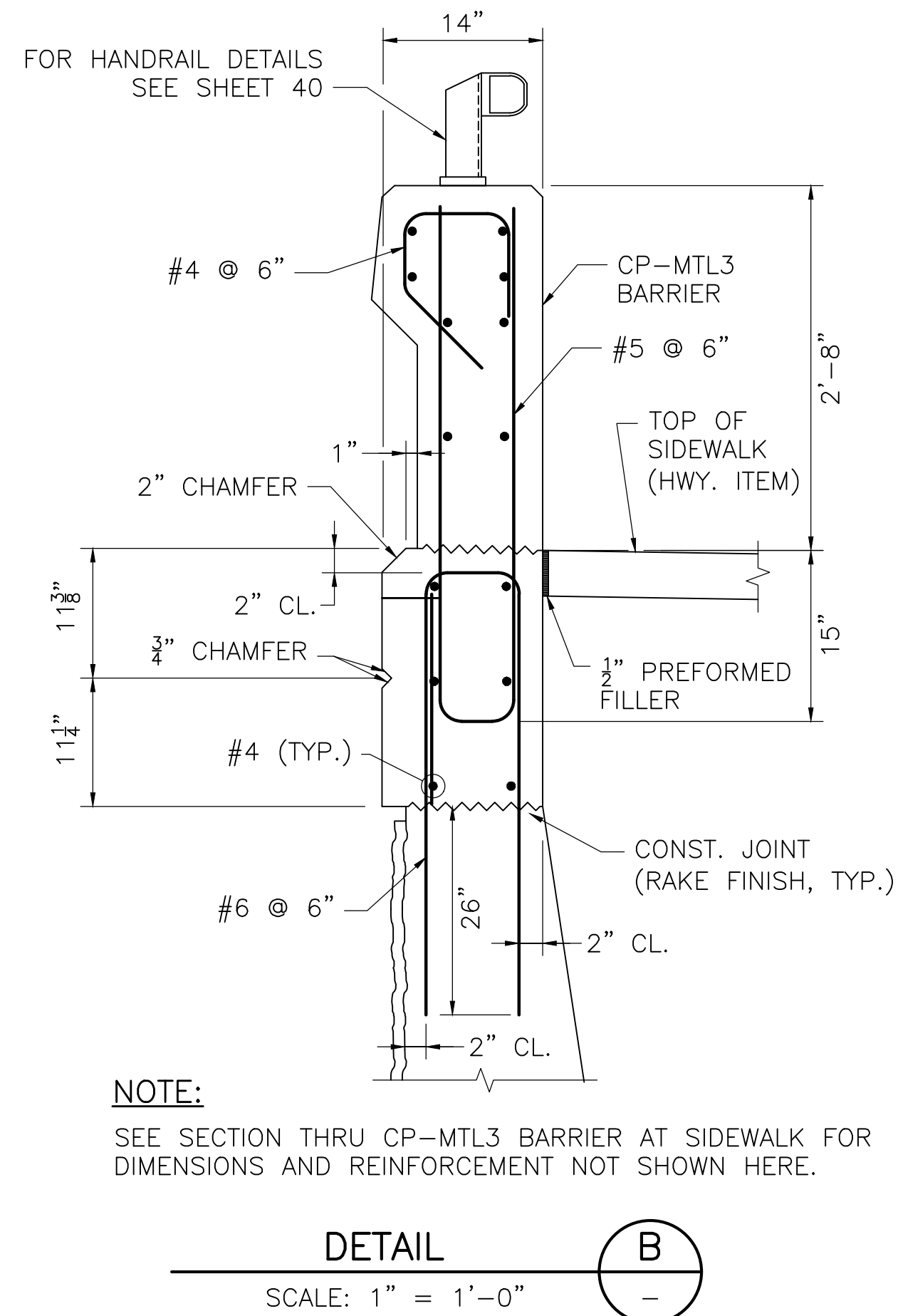
SCALE: 1/4" = 1'-0"

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

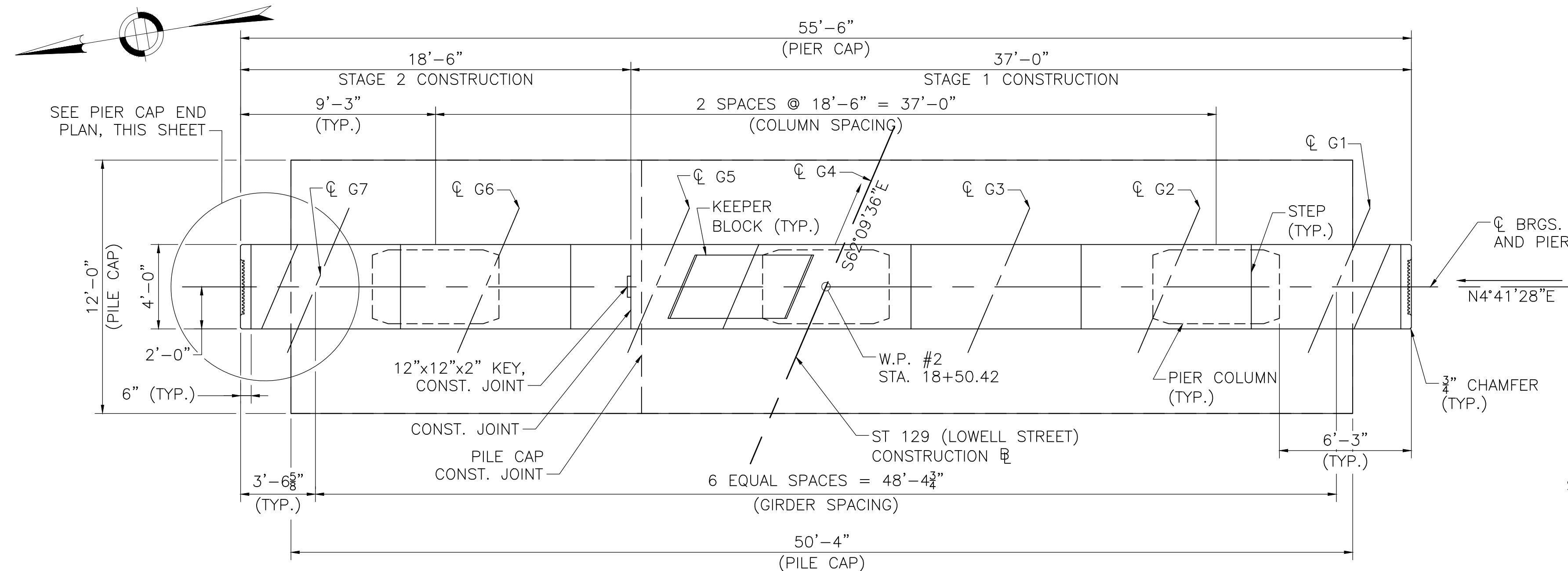
WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	67	96
PROJECT FILE NO.		608703	
WINGWALL SECTIONS			



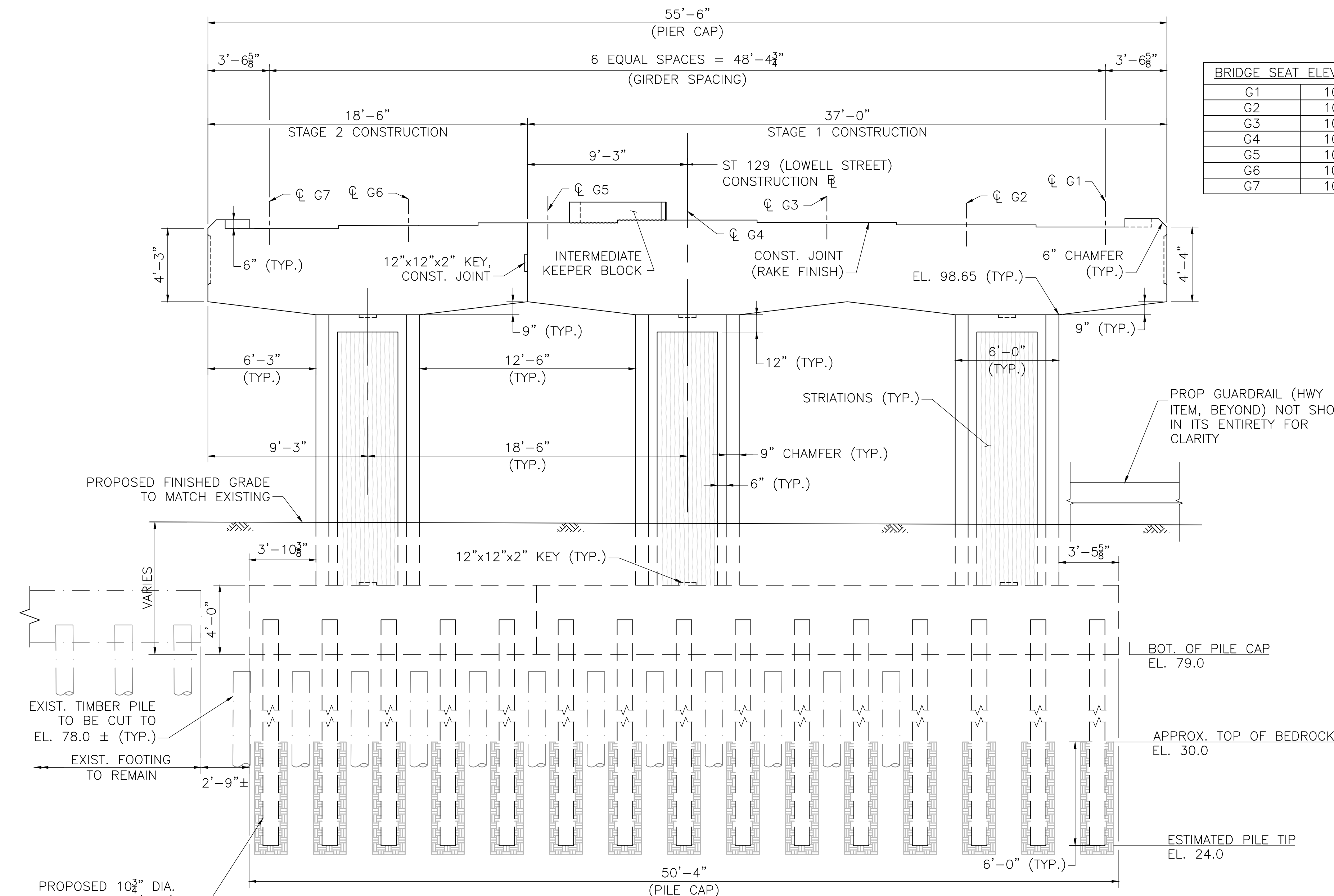
- NOTES:
- 4" Ø WEEP HOLES 10'-0" O.C. LOCATED 12" ABOVE THE HEEL OF THE FOOTING SLOPING 1" PER FOOT TOWARDS THE FRONT FACE. PROVIDE 1 CUBIC YARD OF CRUSHED STONE AT EACH END OF WEEP HOLE.
 - SEE SHEET 14 FOR MICROPILE NOTES.



August 30, 2025	ISSUED FOR CONSTRUCTION
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THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

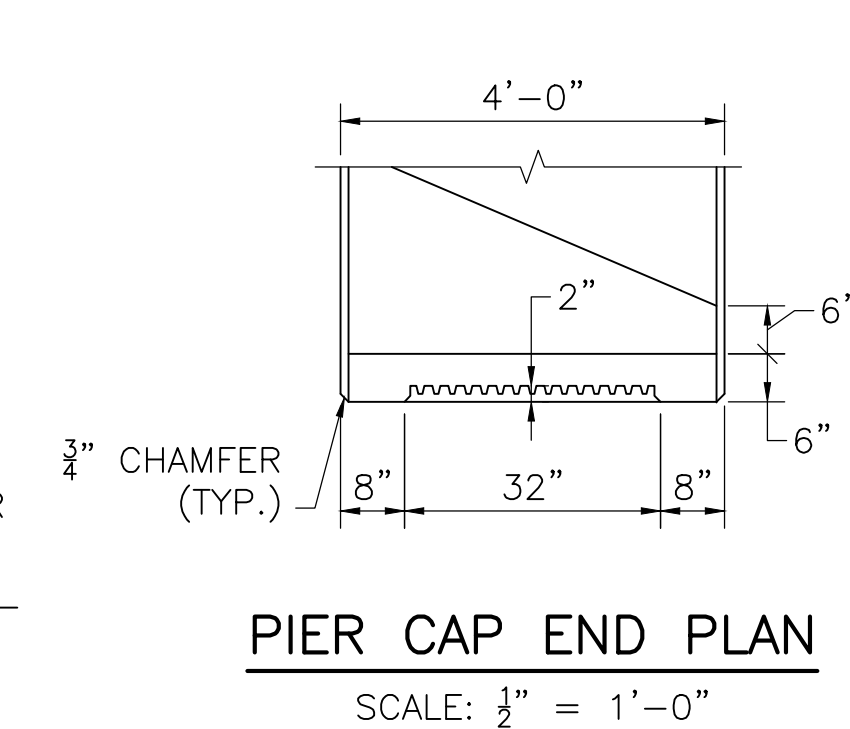


PIER PLAN
SCALE: 1/4" = 1'-0"

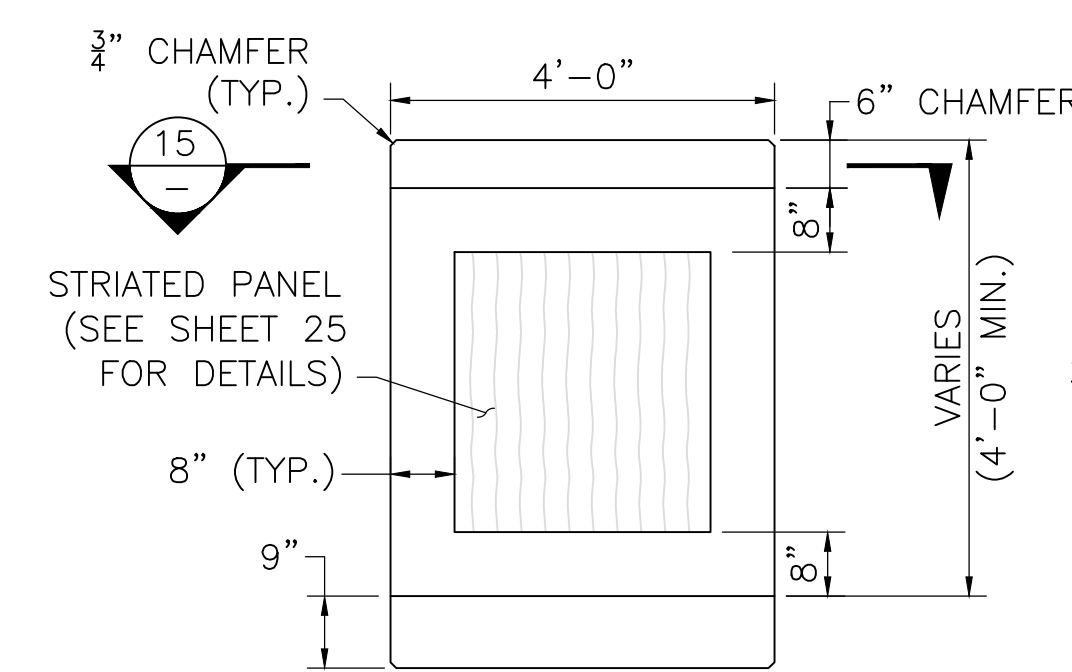


WEST PIER ELEVATION
SCALE: 1/4" = 1'-0"

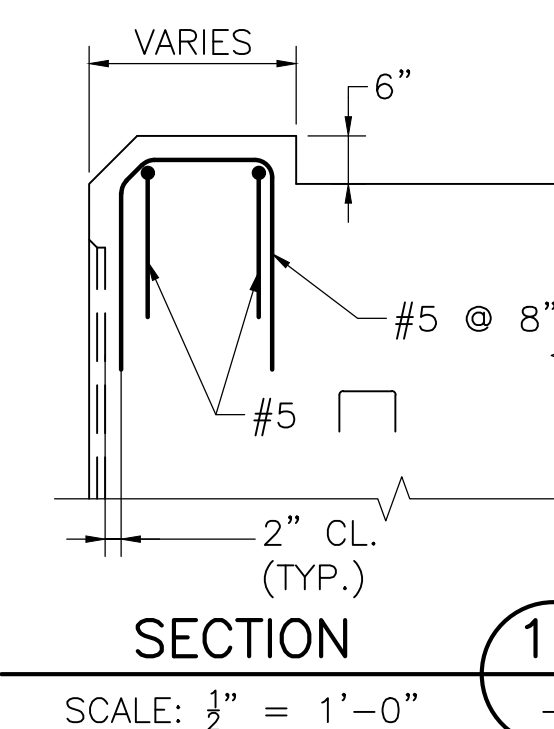
BRIDGE SEAT ELEVATIONS	
G1	103.65
G2	103.79
G3	103.93
G4	104.06
G5	103.90
G6	103.74
G7	103.57



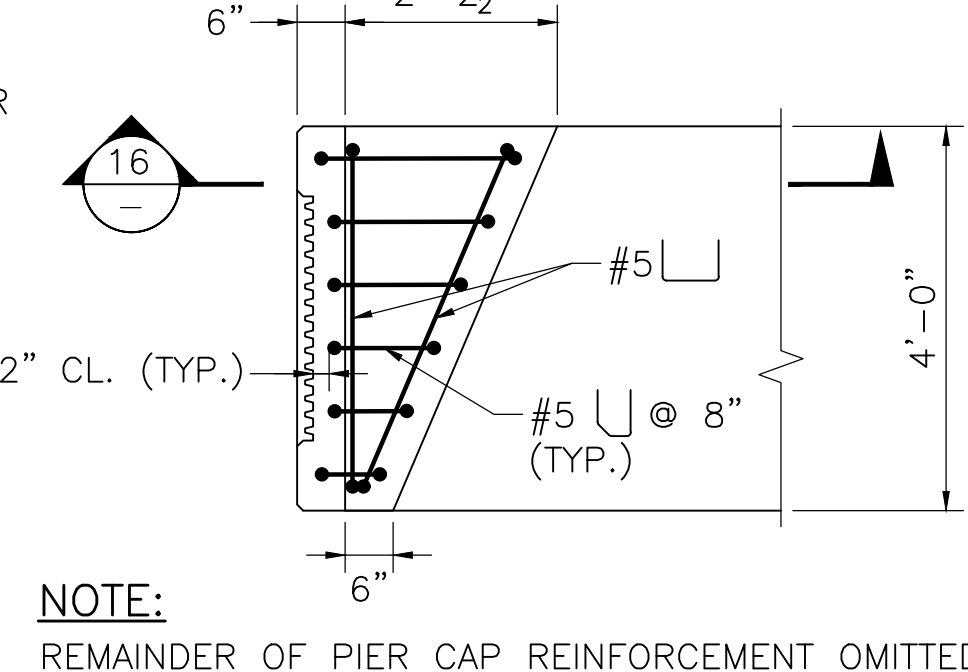
PIER CAP END PLAN
SCALE: 1/2" = 1'-0"



PIER CAP END ELEVATION
SCALE: 1/2" = 1'-0"



SECTION 16
SCALE: 1/2" = 1'-0"



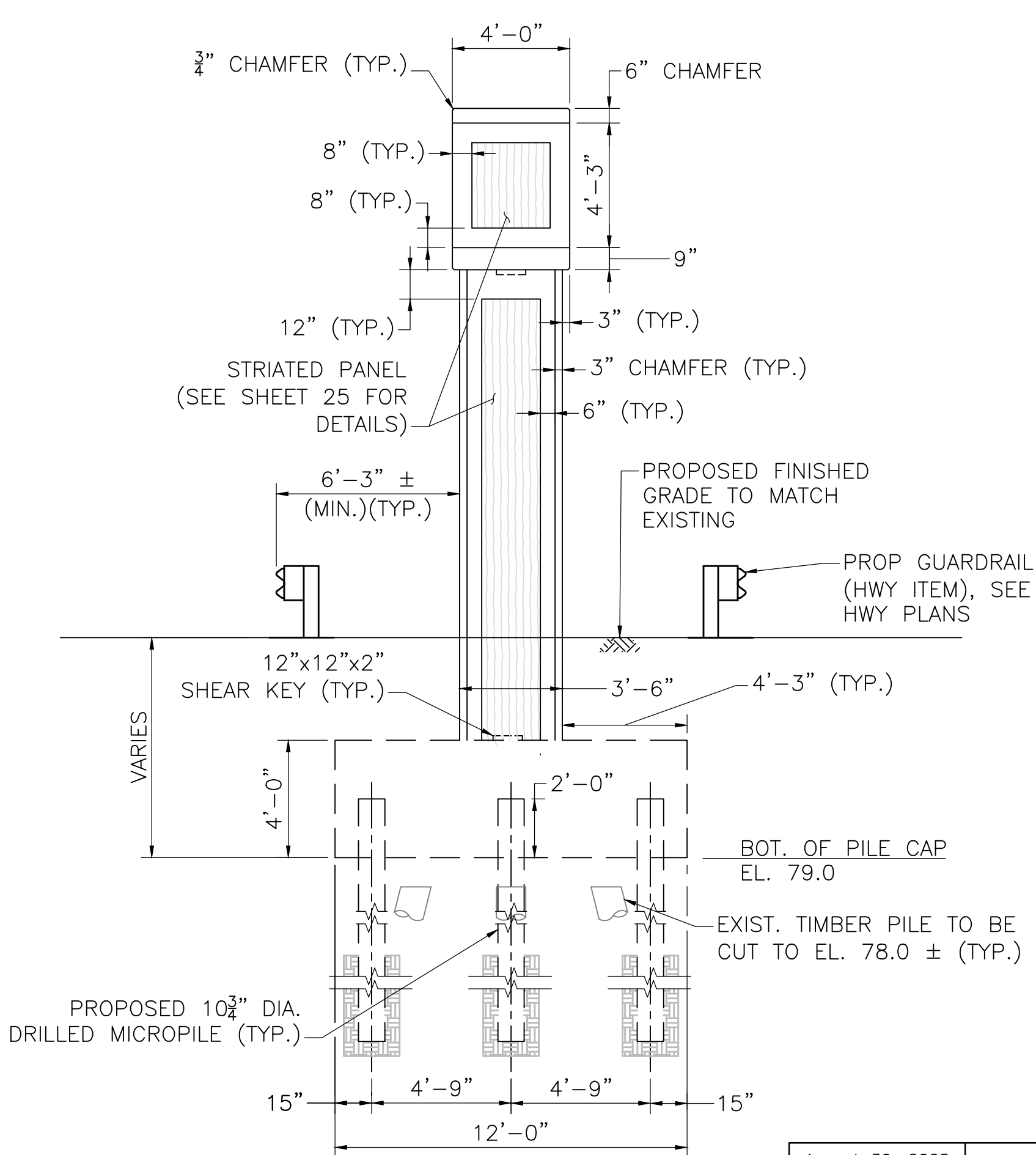
SECTION 15
SCALE: 1/2" = 1'-0"

WILMINGTON ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	69	96
PROJECT FILE NO. 608703			

PIER PLAN AND ELEVATION

NOTE:
REMAINDER OF PIER CAP REINFORCEMENT OMITTED FOR CLARITY.

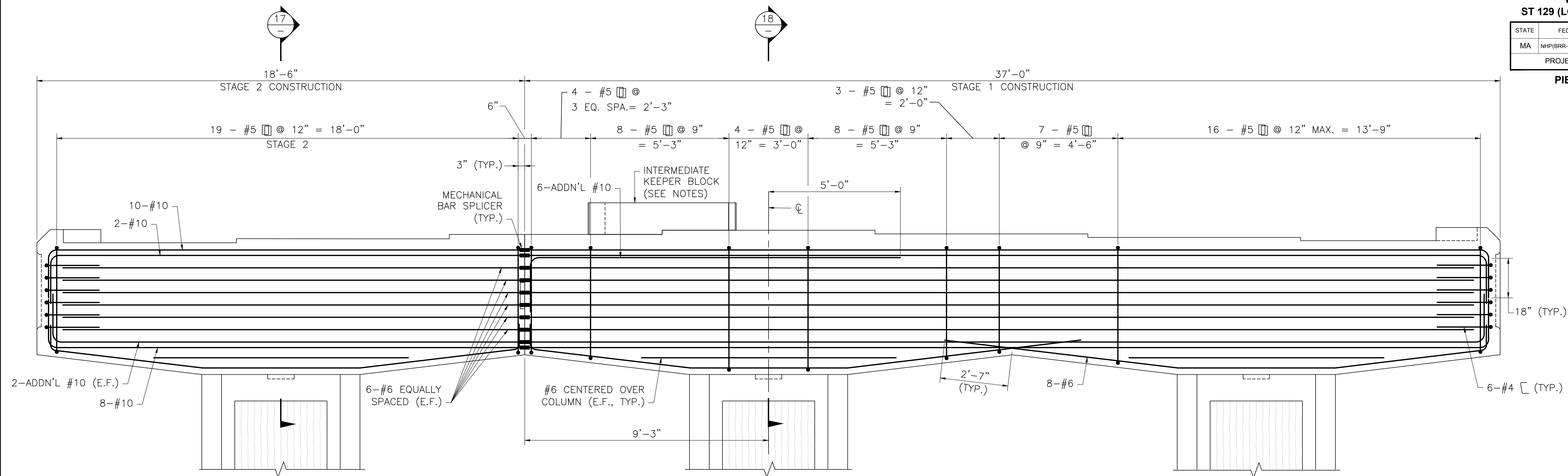
NOTE:
REMAINDER OF PIER CAP REINFORCEMENT OMITTED FOR CLARITY.



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

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

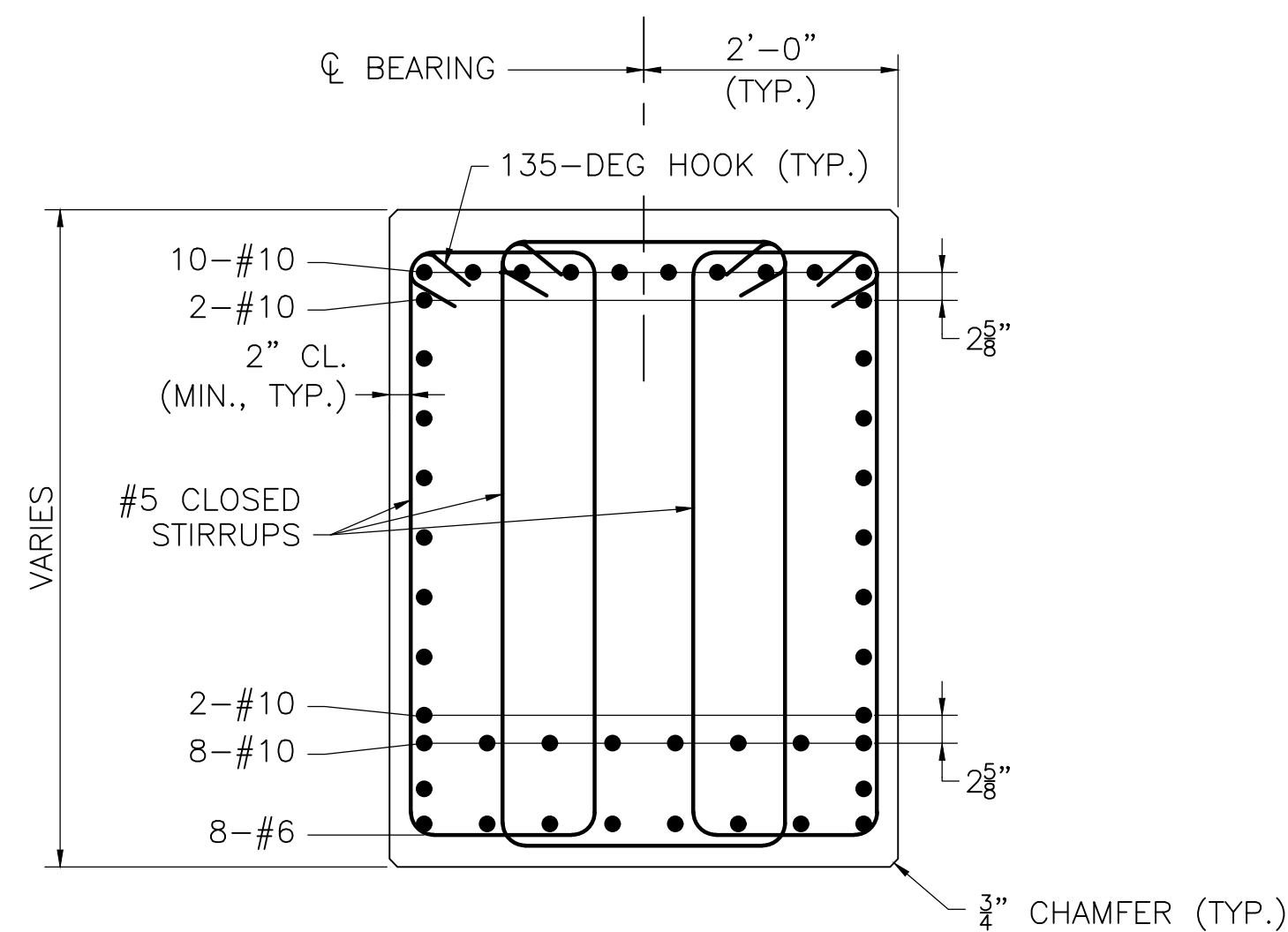
WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	70	96
PROJECT FILE NO.		608703	
PIER SECTIONS 1			



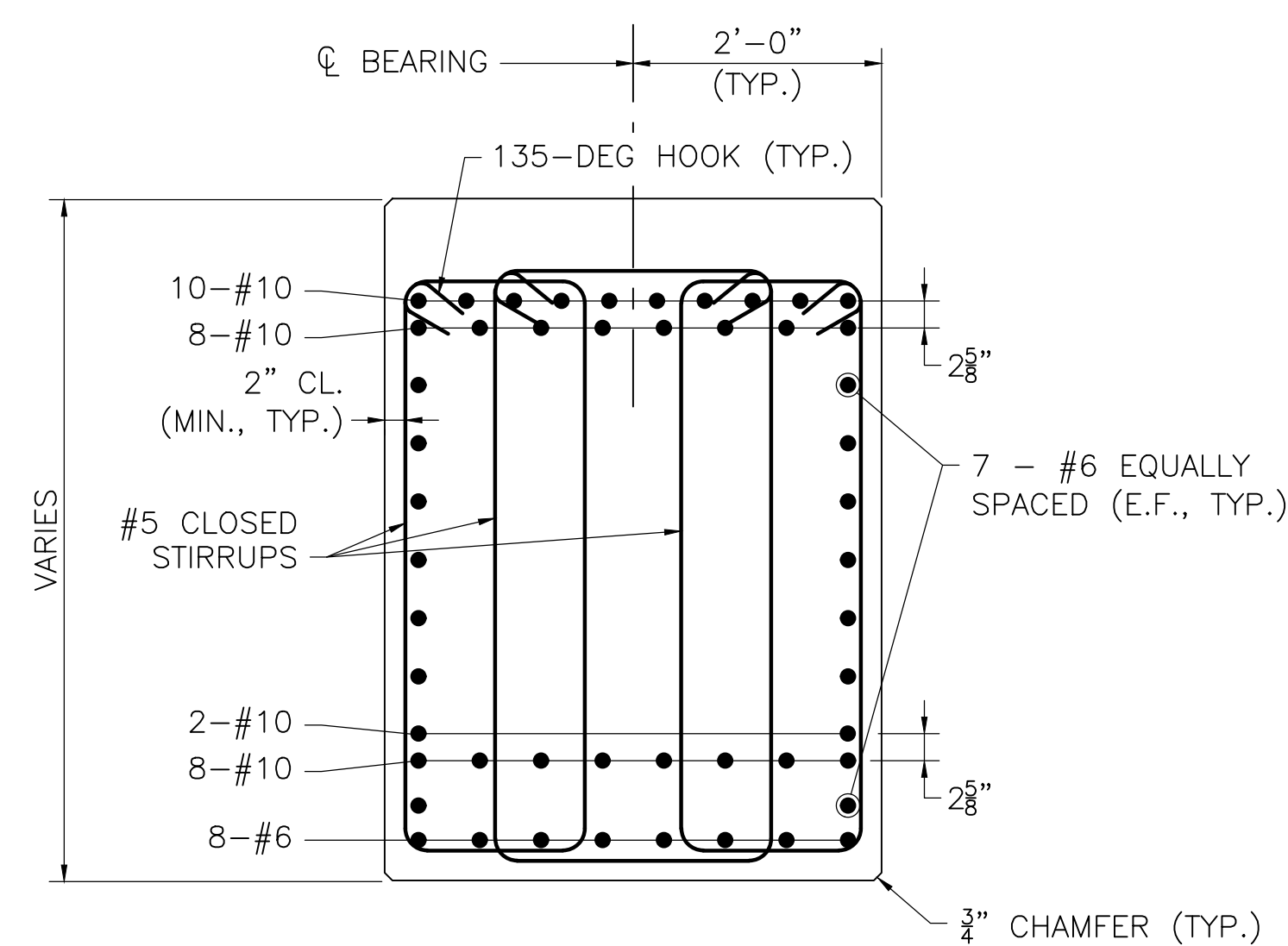
PIER CAP REINFORCEMENT DETAIL
SCALE: $\frac{1}{2}$ " = 1'-0"

NOTES:

- CONTRACTOR SHALL PREPARE THE SURFACE OF ANY PREVIOUSLY CAST CONCRETE BY WATER-BLAST TO REMOVE ALL LAITANCE AND DEBRIS.
- THE CONTRACTOR SHALL MAKE SURE THAT THE FORM LINER PANELS ARE ORIENTATED APPROPRIATELY, PLUMB AND LINED UP VERTICALLY FROM PANEL TO PANEL FOR THE FULL HEIGHT OF THE WALL.
- THE FORM LINER PANELS SHALL BE INSTALLED END TO END WITHOUT CREATING A VISIBLE SEAM IN THE FINAL CAST CONCRETE.
- SEE SHEET 22 FOR CAP END DETAILS.
- SEE SHEET 24 FOR PIER COLUMN REINFORCING AND KEEPER BLOCK DETAILS.



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

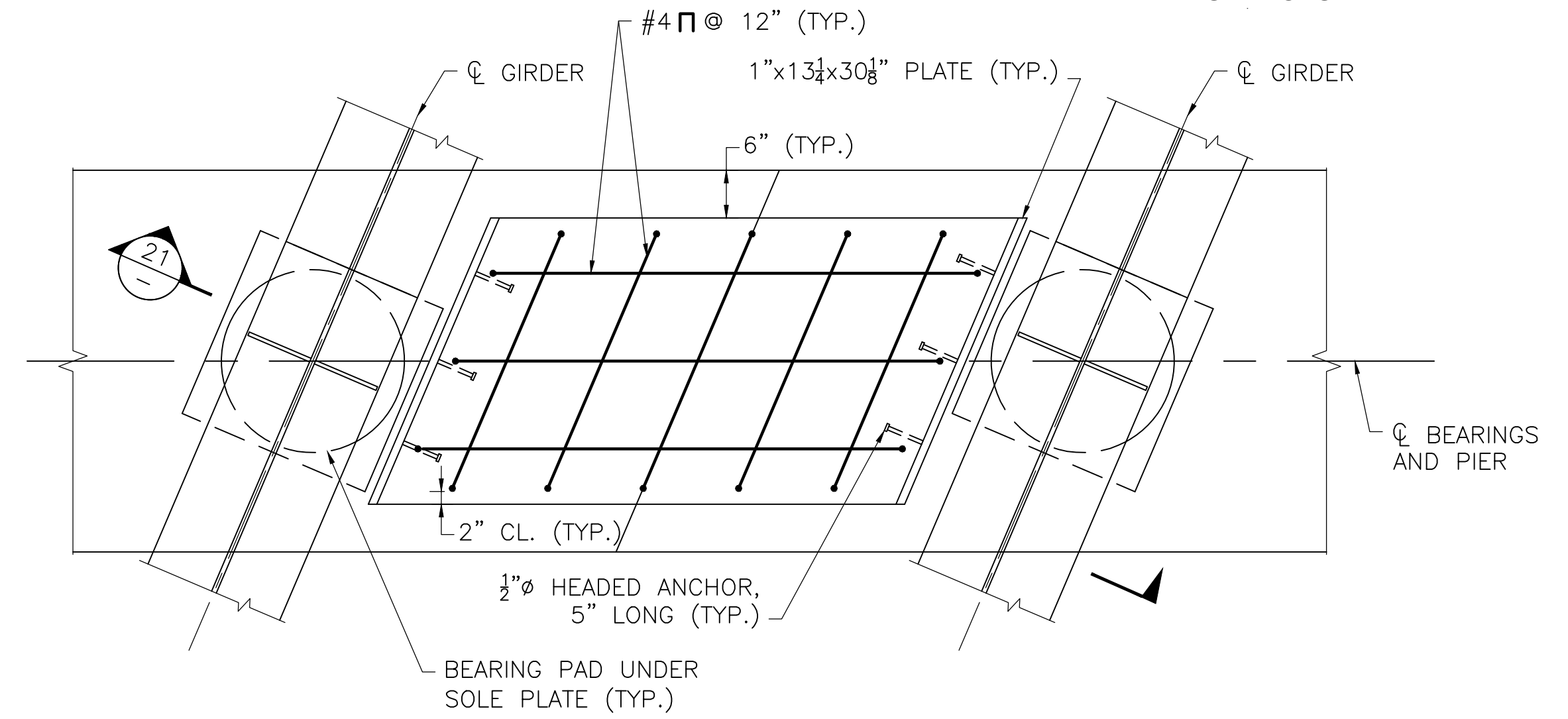


SECTION 18
SCALE: $\frac{3}{4}$ " = 1'-0"

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	71	96
PROJECT FILE NO.		608703	

PIER SECTIONS 2

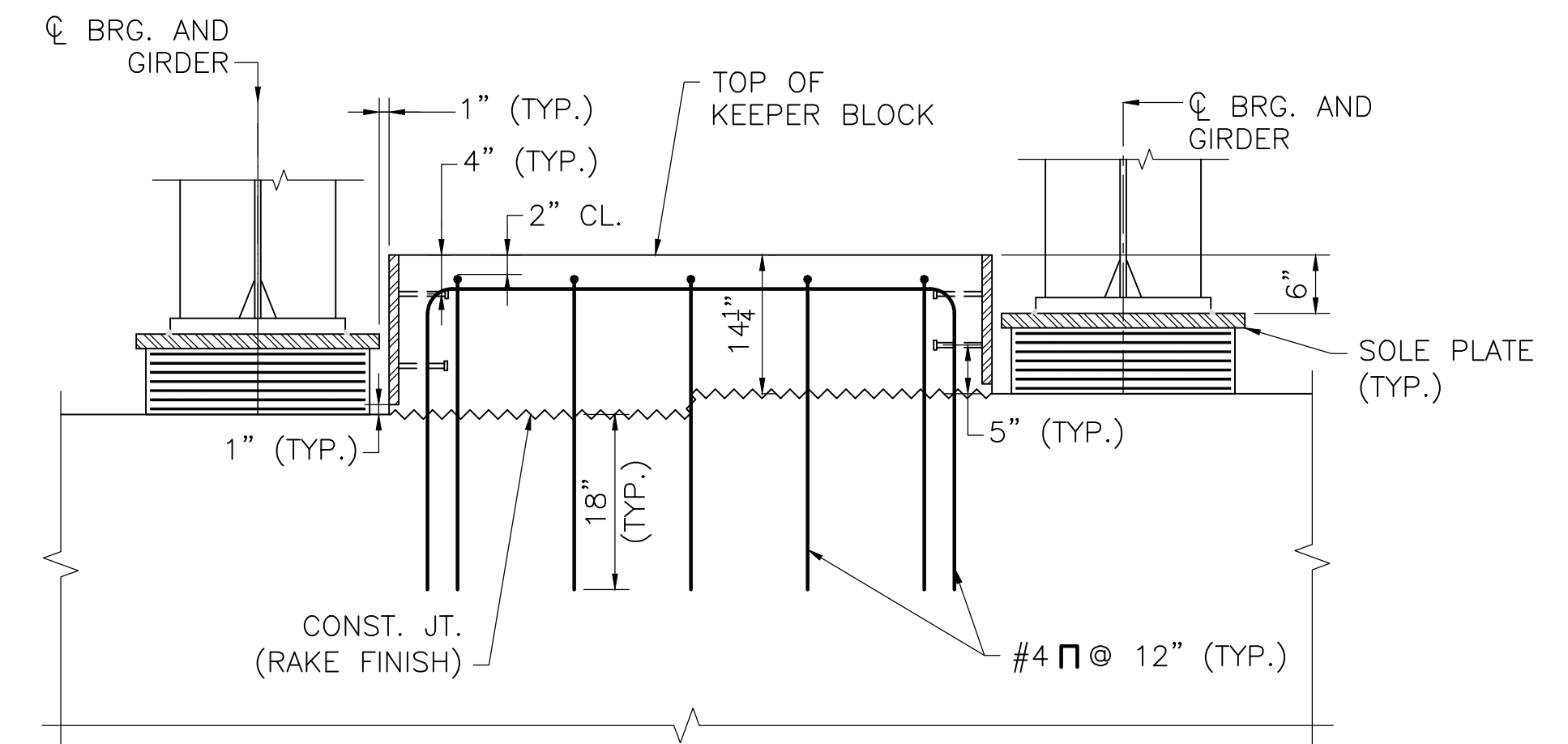


NOTES:

- KEEPER BLOCKS SHALL BE CAST BEFORE BEAMS ARE SET.
- STEEL PLATES EMBEDDED IN KEEPER BLOCK SHALL BE HOT-DIP GALVANIZED.

PLAN OF KEEPER BLOCK

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



NOTES:

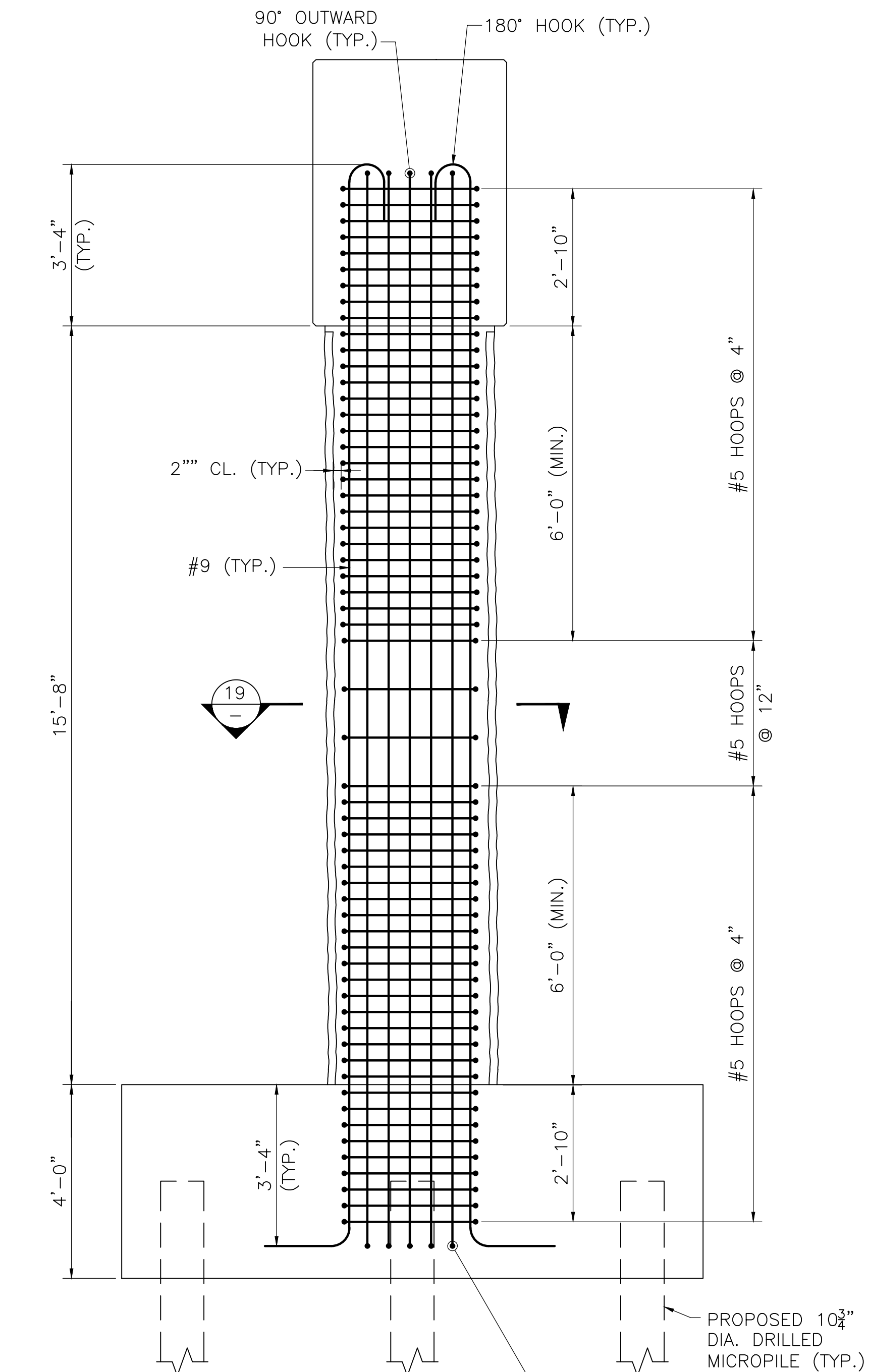
- TOP OF INTERMEDIATE KEEPER BLOCK SHALL BE TROWELED SMOOTH.
- REMAINDER OF PIER CAP REINFORCEMENT OMITTED FOR CLARITY.

SECTION 21

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

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER	
USE ONLY PRINTS OF LATEST DATE	

SHEET 24 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

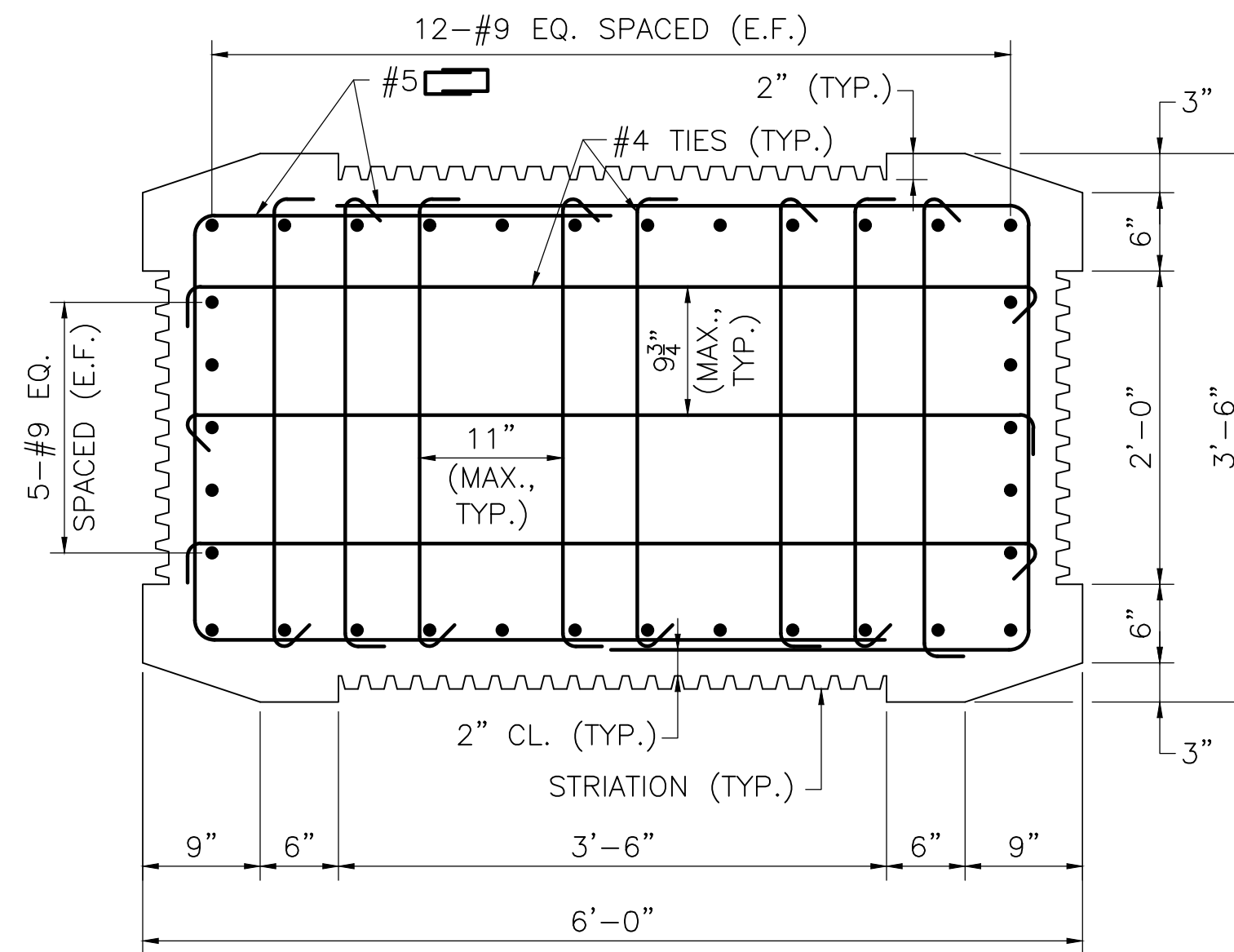


NOTES:

- PIER AND PILE CAP REINFORCEMENT NOT SHOWN FOR CLARITY.
- SEE PILE CAP ELEVATION ON THIS SHEET.

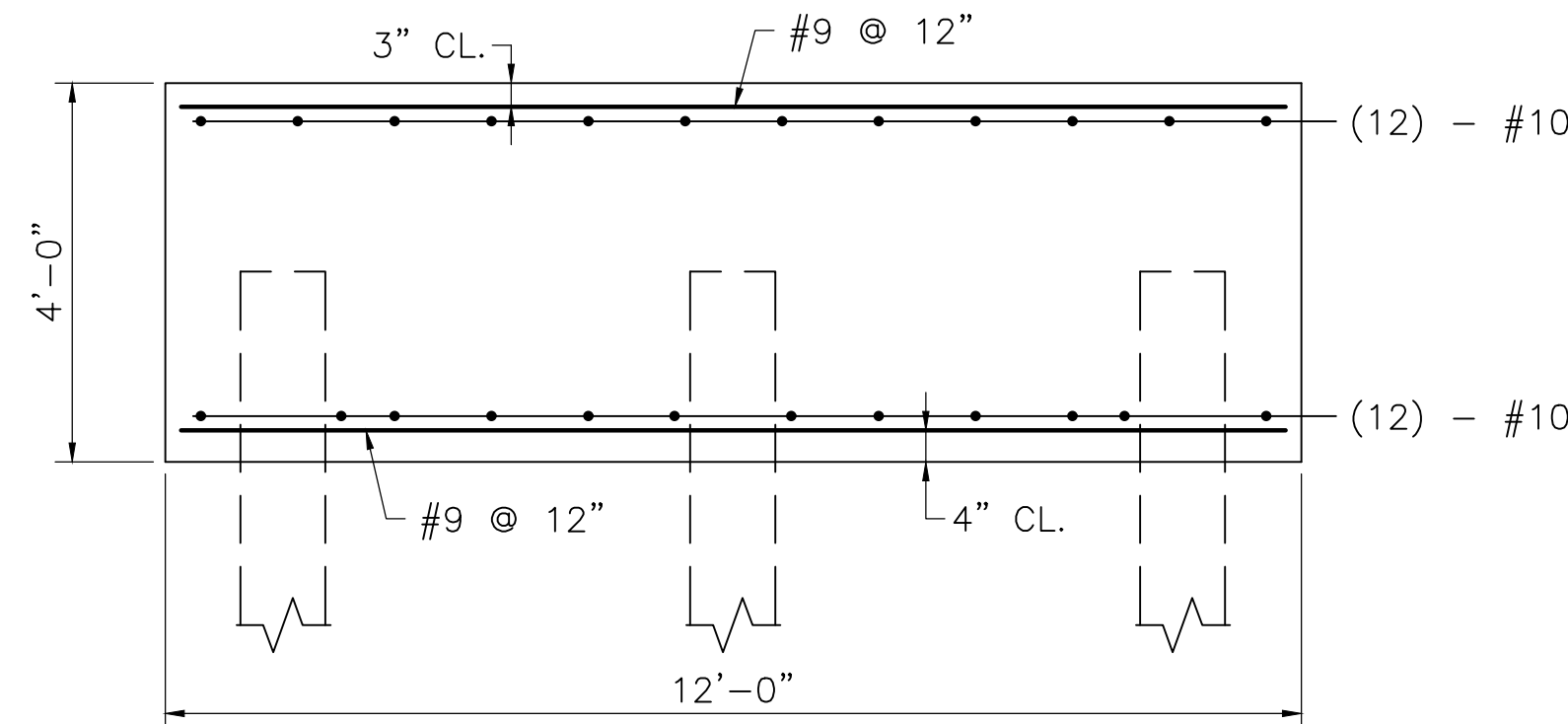
PIER COLUMN REINFORCEMENT

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



SECTION 19

SCALE: 1" = 1'-0"

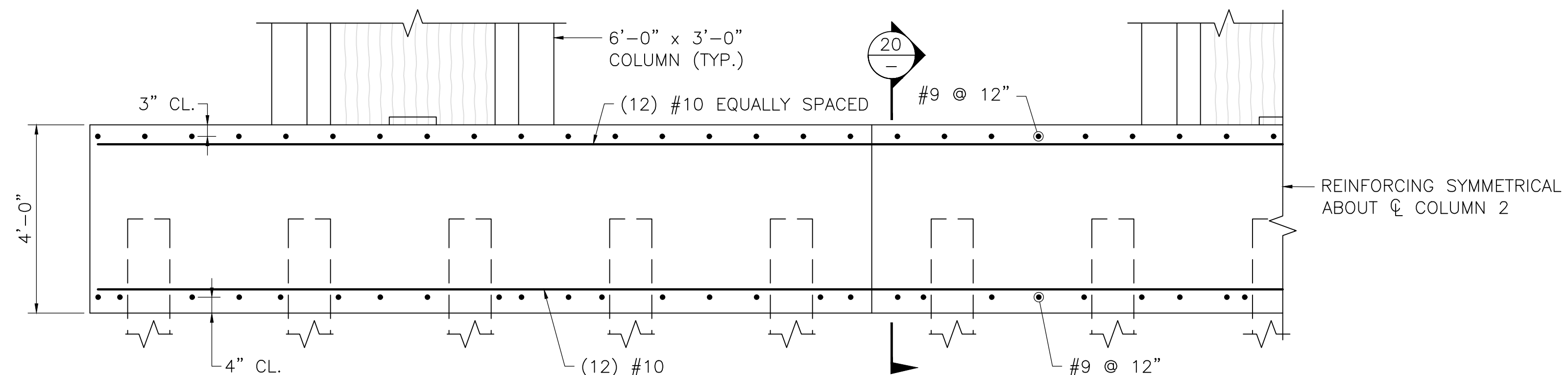


NOTE:

COLUMN REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 20

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

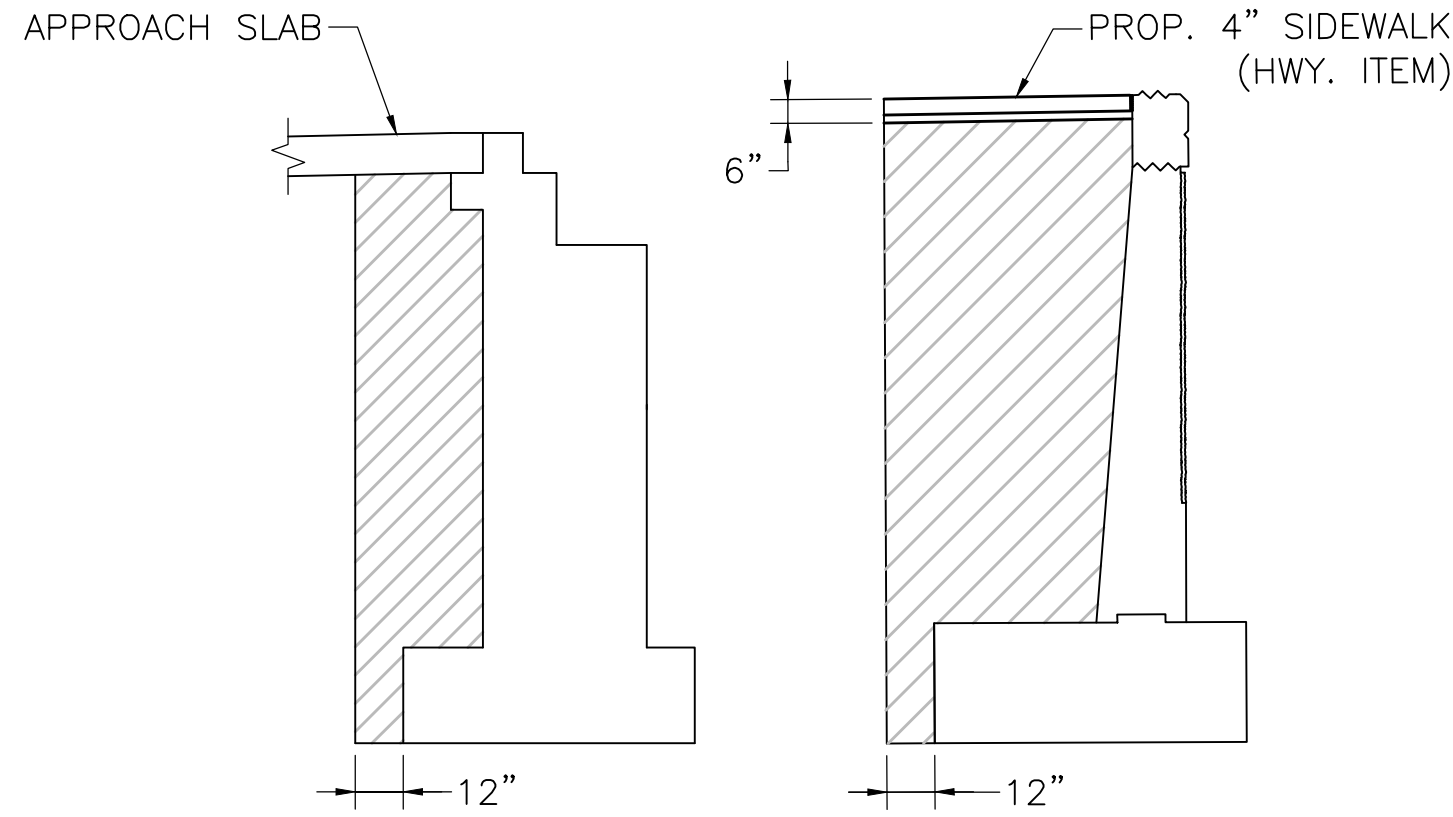


NOTE:

COLUMN REINFORCEMENT NOT SHOWN FOR CLARITY.

PILE CAP ELEVATION

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



CANTILEVER ABUTMENT

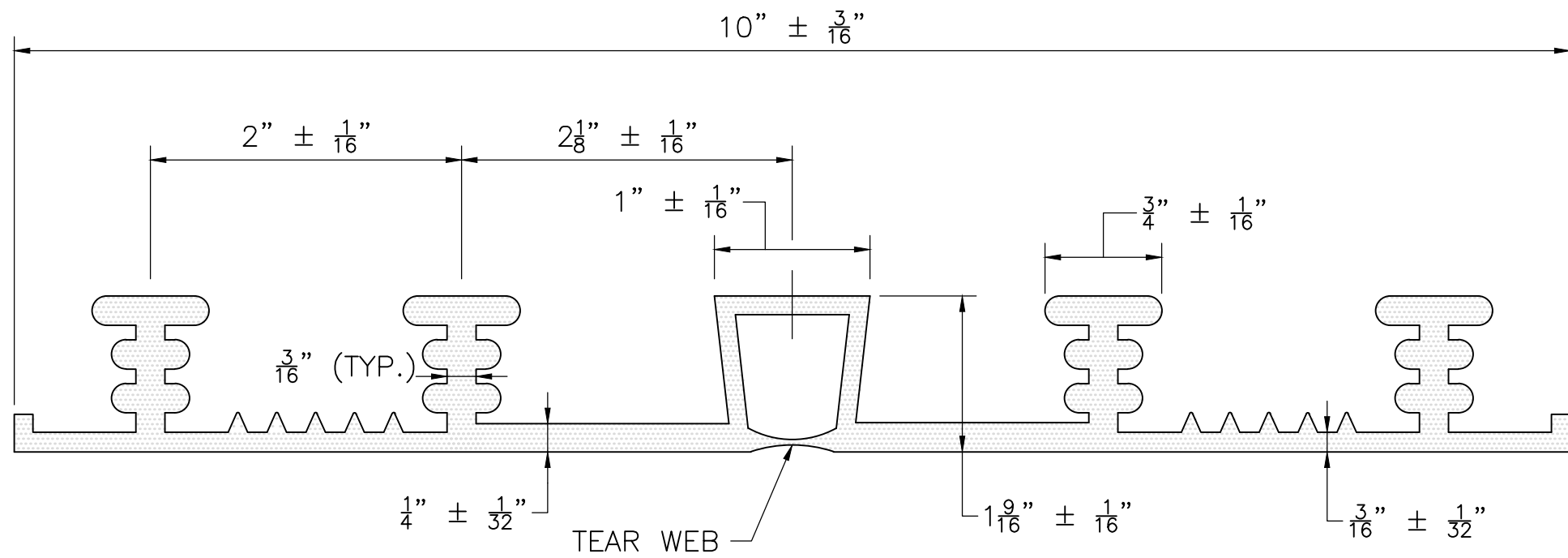
WINGWALL

NOTE:

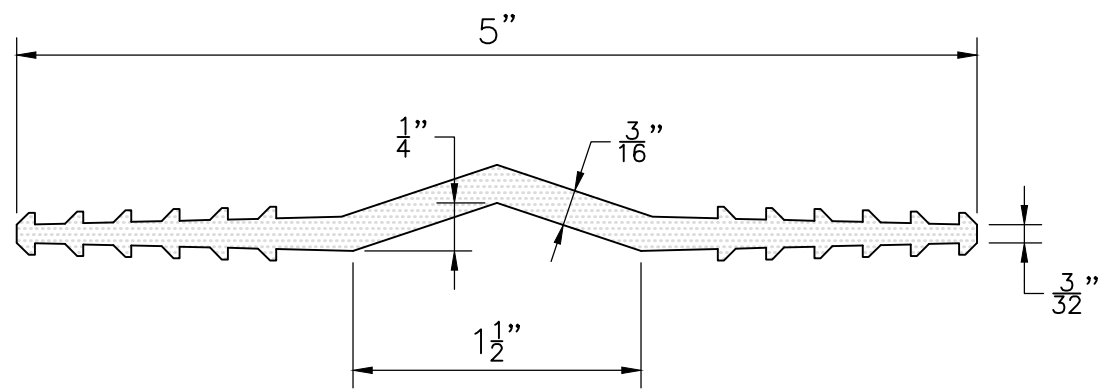
HATCHED AREA INDICATES LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES.

LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES

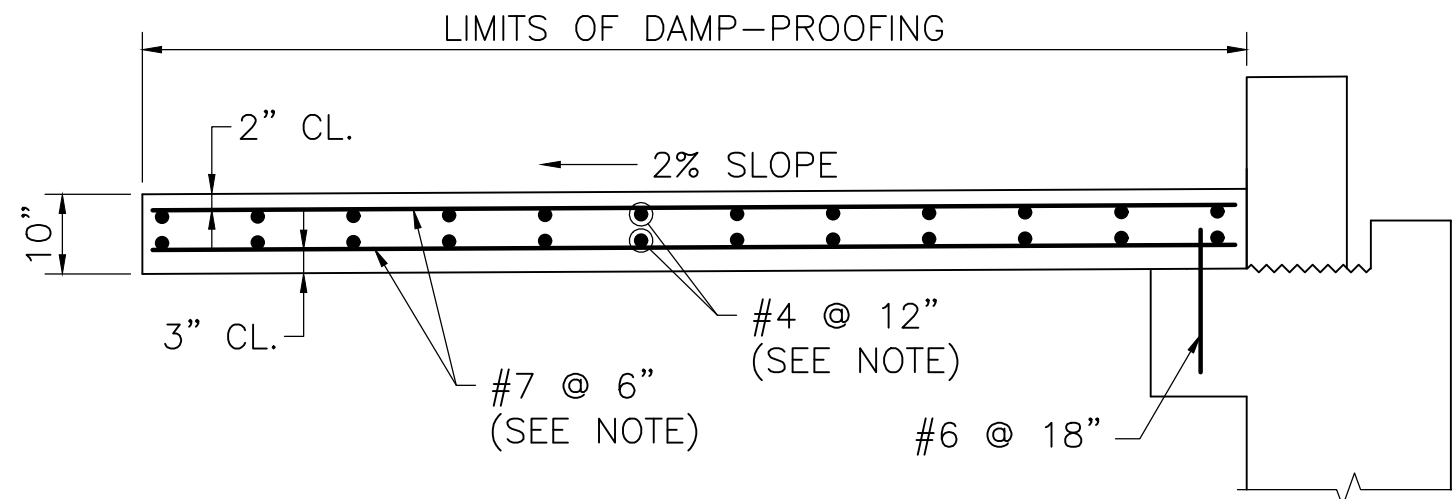
SCALE: $\frac{1}{4}" = 1'-0"$



10" WATERSTOP
FULL SIZE



5" WATERSTOP
FULL SIZE

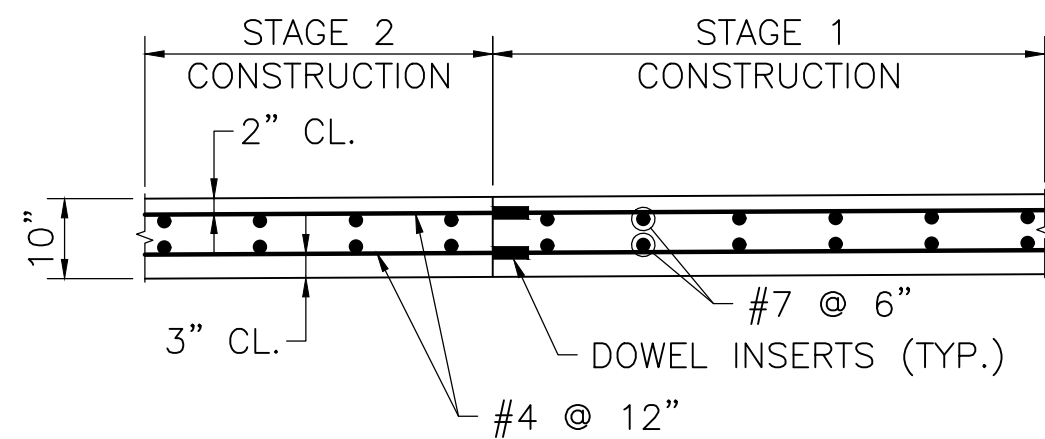


NOTE:

1. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO CONSTRUCTION BASELINE.
2. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.
3. ALL REINFORCEMENT SHALL NOT BE COATED.

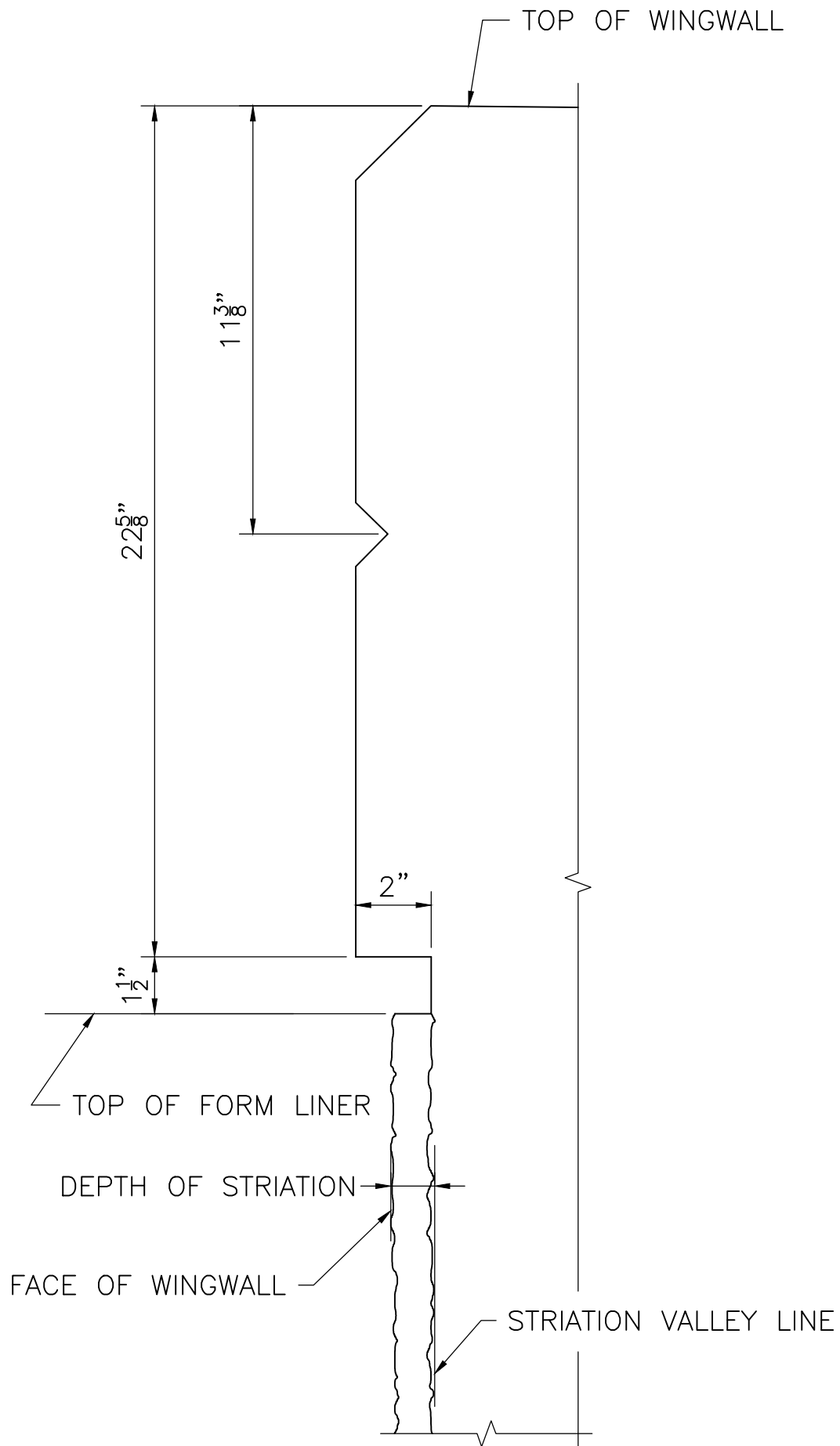
APPROACH SLAB DETAILS

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



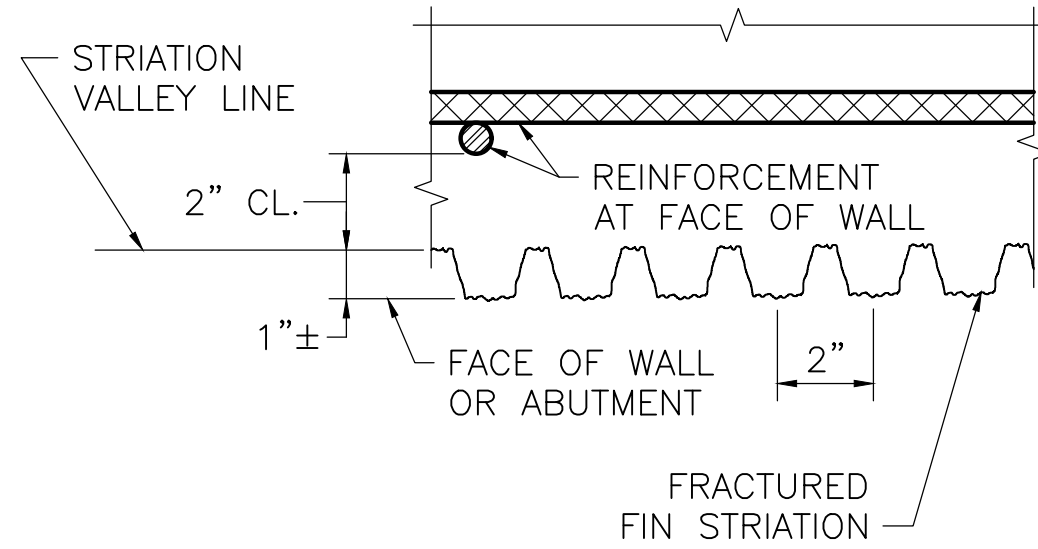
APPROACH SLAB CONSTRUCTION JOINT DETAIL

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



DETAIL AT TOP OF WINGWALL

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

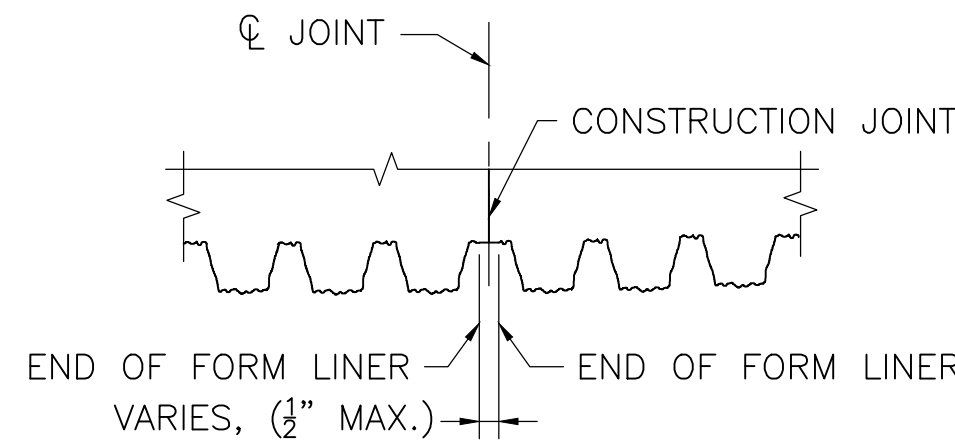


NOTES:

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

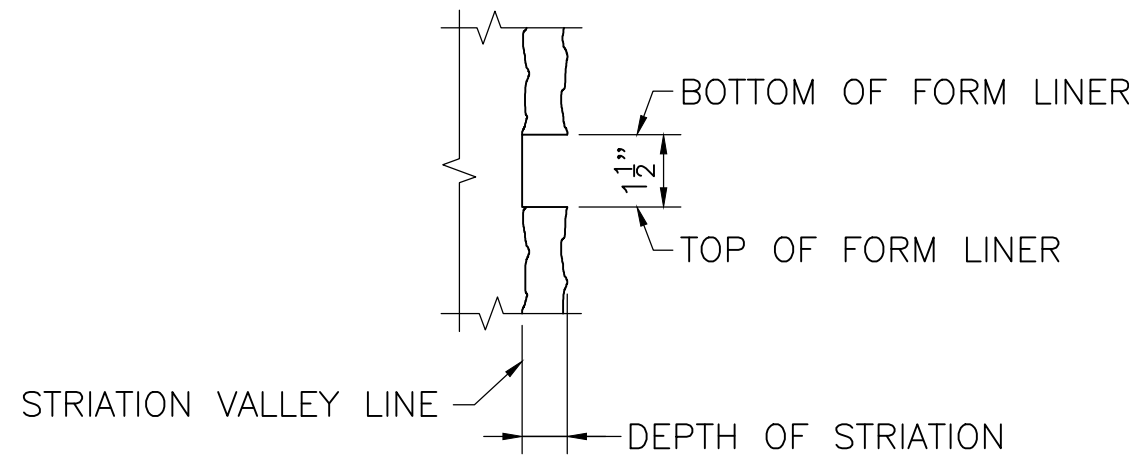
TYPICAL STRIATION DETAIL

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



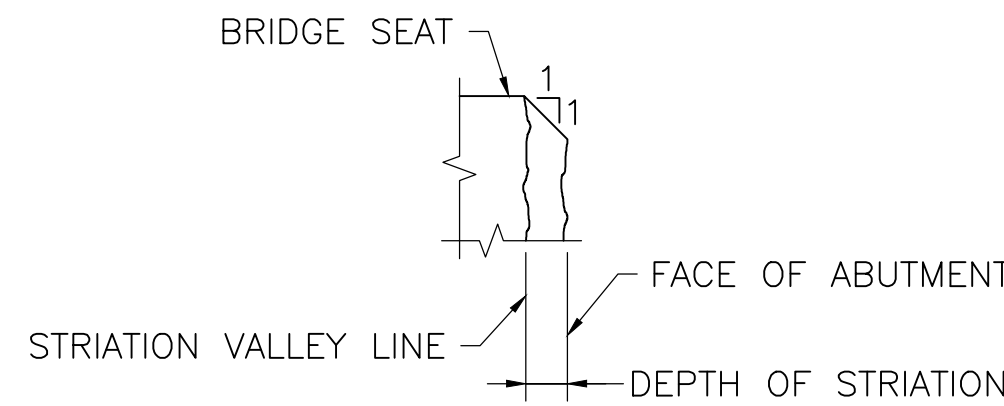
CONSTRUCTION JOINT

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



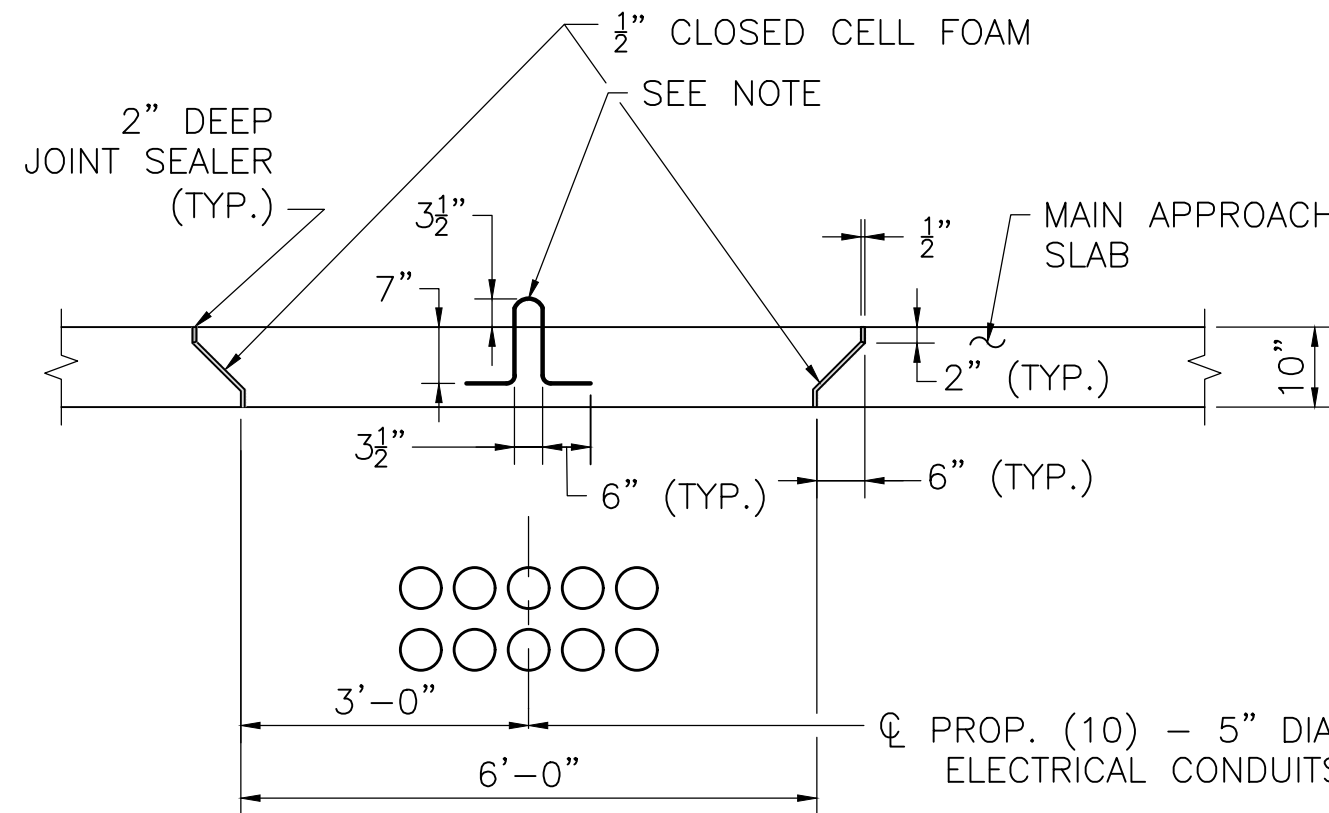
HORIZONTAL PANEL JOINT

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



DETAIL AT BRIDGE SEAT

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

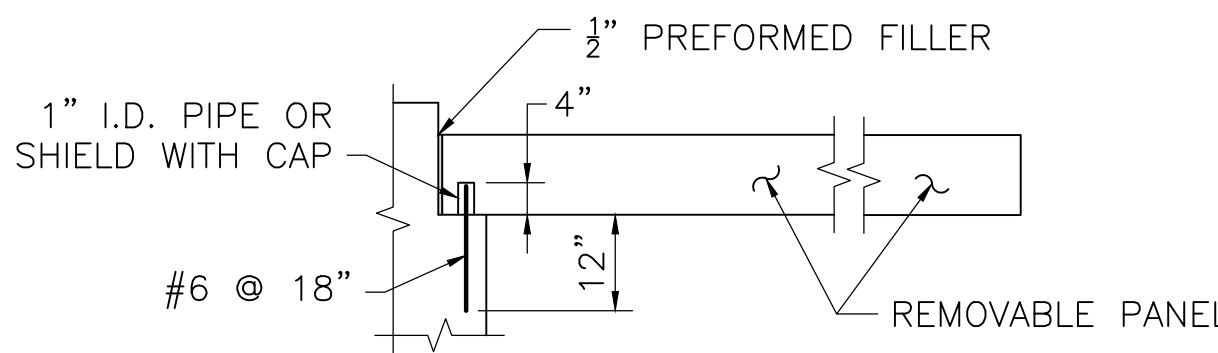


NOTE:

2 LIFT HOOKS REQUIRED. USE #5 COATED REBAR AT QUARTER POINTS.

SECTION 6

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

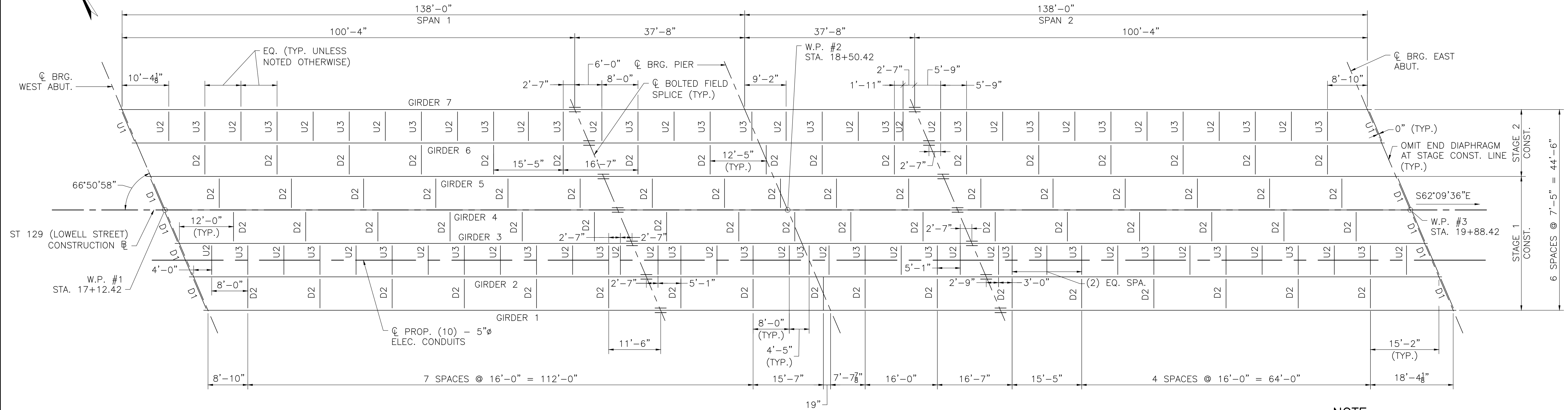


REMOVABLE PANEL DETAIL AT ABUTMENTS

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

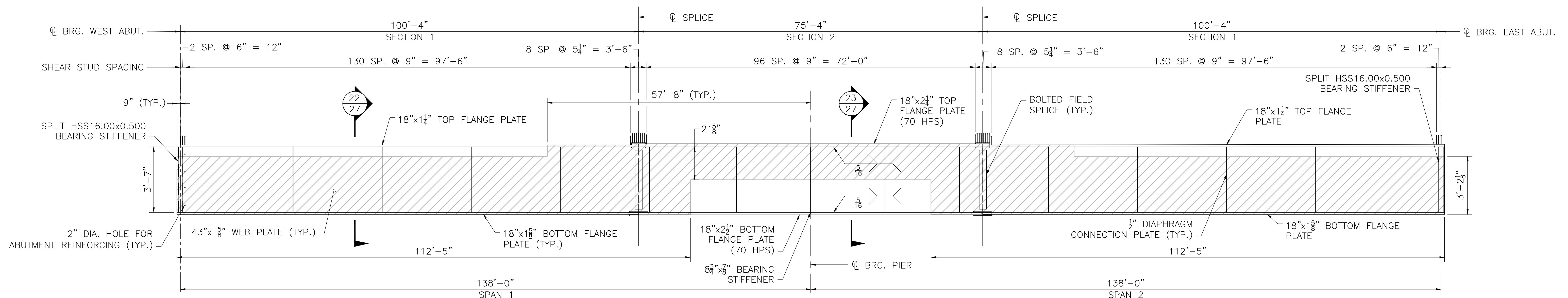
August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	73	96
PROJECT FILE NO.		608703	
FRAMING PLAN			



FRAMING PLAN
SCALE: $\frac{3}{32}'' = 1'-0''$

NOTE:
D1 = C12x20.7 (TYPICAL END DIAPHRAGM)
D2 = W24x55 (TYPICAL INTERMEDIATE DIAPHRAGM)
U1 = UTILITY SUPPORT AT END DIAPHRAGM
U2 = UTILITY SUPPORT BETWEEN DIAPHRAGMS
U3 = UTILITY SUPPORT AT DIAPHRAGMS

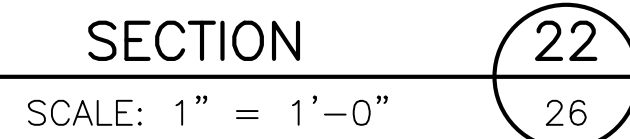
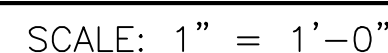


GIRDER ELEVATION
HORIZ SCALE: $\frac{3}{32}'' = 1'-0''$
VERT. SCALE: $\frac{3}{8}'' = 1'-0''$

Denotes locations of net tensile stress under strength I loading combination

August 30, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT	
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER	
USE ONLY PRINTS OF LATEST DATE	

1. D1 = C12x20.7 (TYPICAL END DIAPHRAGM)
D2 = W24x55 (TYPICAL INTERMEDIATE DIAPHRAGM)
U1 = UTILITY SUPPORT AT END DIAPHRAGM
U2 = UTILITY SUPPORT BETWEEN DIAPHRAGMS
U3 = UTILITY SUPPORT AT DIAPHRAGMS
2. SEE SHEET 29 FOR DIAPHRAGM AND UTILITY SUPPORT DETAILS.
3. THE PRIMARY MEMBERS ARE GIRDER 1 THROUGH GIRDER 7. REFER TO SHEET 26 FOR LIMITS OF NET TENSILE STRESS.
4. ALL DIAPHRAGMS, TRANSVERSE CONNECTION PLATES, INTERMEDIATE STIFFENERS, BEARING STIFFENERS, AND SOLE PLATES CONSIDERED SECONDARY MEMBERS.
5. ALL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50, WITH THE EXCEPTION OF THE TOP AND BOTTOM FLANGES OF GIRDER SECTION 2 WHICH SHALL CONFORM TO AASHTO M 270 GRADE 70 HPS.
6. ALL HIGH STRENGTH BOLTS SHALL BE $\frac{7}{8}$ " ϕ 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.
7. 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 0.50, 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.
8. ALL WELDING AND THE PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, BRIDGE WELDING CODE (AASHTO AWS D1.5) AND ALL INTERIM REVISIONS PUBLISHED BY AASHTO AS OF THE BID OPENING DATE.
9. ALL DIAPHRAGMS SHALL BE DETAILED AND FABRICATED TO THE TOTAL DEAD LOAD FIT (TDLF) CONDITION.
10. THE GIRDERS SHALL BE FABRICATED SO THAT UNDER FULL DEAD LOAD THE ENDS ARE PLUMB.
11. ALL GIRDERS SHALL BE METALIZED. THE ENTIRE FASCIA GIRDERS SHALL BE METALIZED AND PAINTED, AMS STANDARD 595A COLOR NUMBER 14223 OF THE FEDERAL STANDARD 595B. DIAPHRAGMS AND UTILITY SUPPORTS SHALL BE HOT-DIP GALVANIZED.



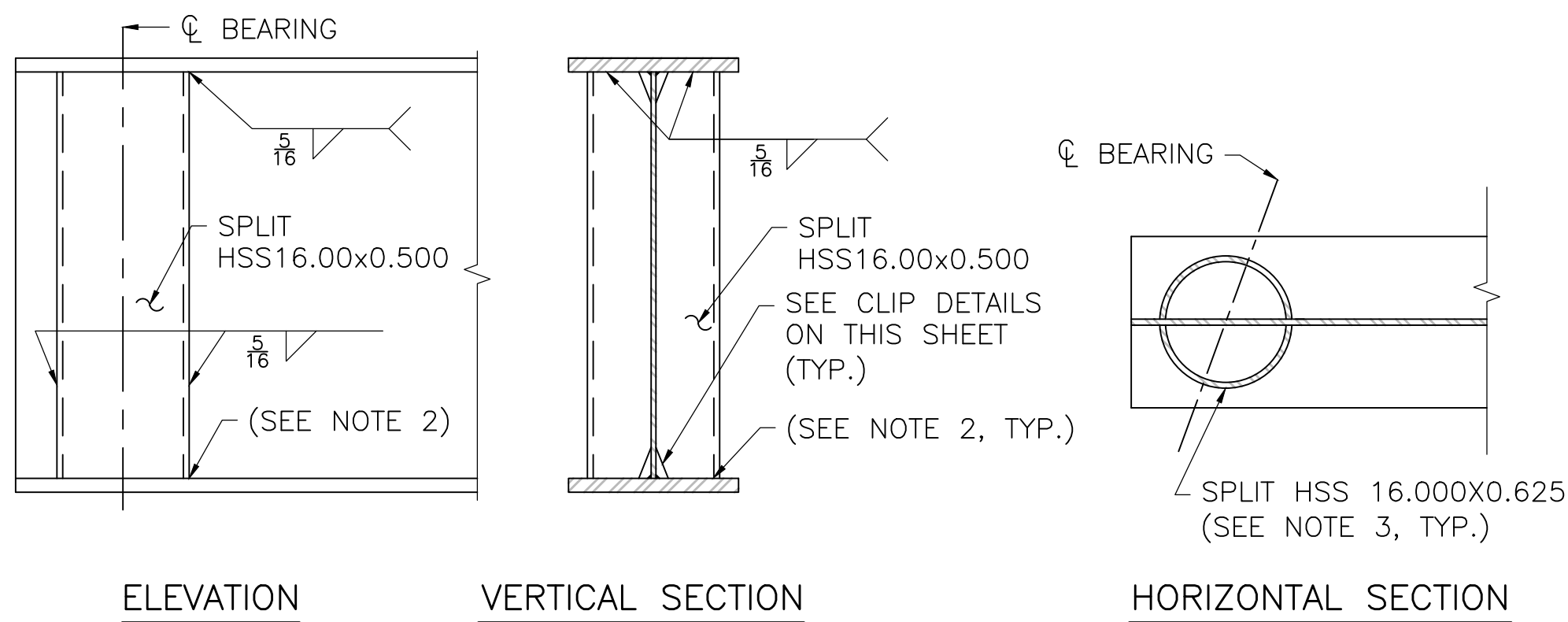
CAMBER TABLE (INCHES)																						
GIRDER NO.		SPAN 1										SPAN 2										
		℄ BRG. ABUT.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	℄ BRG. PIER	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	℄ BRG. ABUT.
G1, G2, & G7	STEEL DL DEFLECTION	0.000	0.396	0.728	0.947	1.031	0.977	0.808	0.563	0.303	0.093	0.000	0.093	0.303	0.563	0.808	0.977	1.031	0.947	0.728	0.396	0.000
	CONC. DL DEFLECTION	0.000	1.060	1.940	2.519	2.735	2.583	2.121	1.465	0.783	0.235	0.000	0.235	0.783	1.465	2.121	2.583	2.735	2.519	1.940	1.060	0.000
	S.D.L DEFLECTION	0.000	0.675	1.240	1.617	1.764	1.676	1.390	0.969	0.524	0.158	0.000	0.158	0.524	0.969	1.390	1.676	1.764	1.617	1.240	0.675	0.000
	VERT. CURVE CAMBER	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000
	TOTAL CAMBER	0.000	2.851	5.188	6.762	7.449	7.235	6.238	4.676	2.890	1.206	0.000	1.206	2.890	4.676	6.238	7.235	7.449	6.762	5.318	2.851	0.000
G3 & G6	STEEL DL DEFLECTION	0.000	0.536	0.983	1.277	1.390	1.316	1.087	0.754	0.407	0.123	0.000	0.123	0.407	0.754	1.087	1.316	1.390	1.277	0.983	0.536	0.000
	CONC. DL DEFLECTION	0.000	1.023	1.872	2.432	2.640	2.493	2.047	1.414	0.756	0.227	0.000	0.227	0.756	1.414	2.047	2.493	2.640	2.432	1.872	1.023	0.000
	S.D.L DEFLECTION	0.000	0.460	0.843	1.098	1.198	1.139	0.944	0.660	0.357	0.108	0.000	0.108	0.357	0.660	0.944	1.139	1.198	1.098	0.843	0.460	0.000
	VERT. CURVE CAMBER	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000
	TOTAL CAMBER	0.000	2.739	4.978	6.486	7.147	6.947	5.997	4.507	2.800	1.178	0.000	1.178	2.800	4.507	5.997	6.947	7.147	6.486	5.108	2.739	0.000
G4 & G5	STEEL DL DEFLECTION	0.000	0.417	0.766	0.995	1.084	1.027	0.849	0.590	0.319	0.097	0.000	0.097	0.319	0.590	0.849	1.027	1.084	0.995	0.766	0.417	0.000
	CONC. DL DEFLECTION	0.000	1.023	1.872	2.432	2.640	2.493	2.047	1.414	0.756	0.227	0.000	0.227	0.756	1.414	2.047	2.493	2.640	2.432	1.872	1.023	0.000
	S.D.L DEFLECTION	0.000	0.460	0.843	1.098	1.198	1.139	0.944	0.660	0.357	0.108	0.000	0.108	0.357	0.660	0.944	1.139	1.198	1.098	0.843	0.460	0.000
	VERT. CURVE CAMBER	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000	0.720	1.280	1.679	1.919	1.999	1.919	1.679	1.280	0.720	0.000
	TOTAL CAMBER	0.000	2.620	4.761	6.204	6.841	5.733	5.759	4.343	2.712	1.152	0.000	1.152	2.712	4.343	5.759	5.733	6.841	6.204	3.481	2.620	0.000

GIRDER CAMBER TABLE
NOT TO SCALE

August 30, 2025	ISSUED FOR CONSTRUCTION
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AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	75	96
PROJECT FILE NO.		608703	

GIRDER DETAILS 2

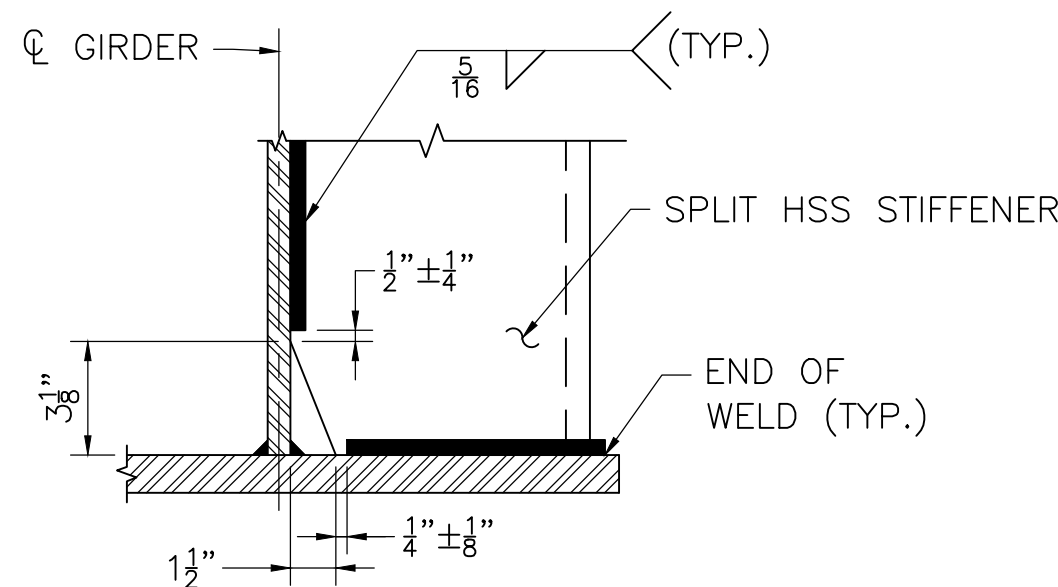


NOTES:

- ALL BEARING STIFFENERS SHALL BE PLUMB.
- BEARING STIFFENERS AT TENSION FLANGE CAN BE WELDED WITH A COMPLETE JOINT PENETRATION WELD (CJP) WITH A REINFORCING FILLET OR FABRICATED FOR TIGHT FIT AND WELDED WITH 5/16" FILLET WELDS BOTH SIDES OF THE STIFFENER.
- ROUND HSS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500 GRADE C.

ROUND BEARING STIFFENER

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

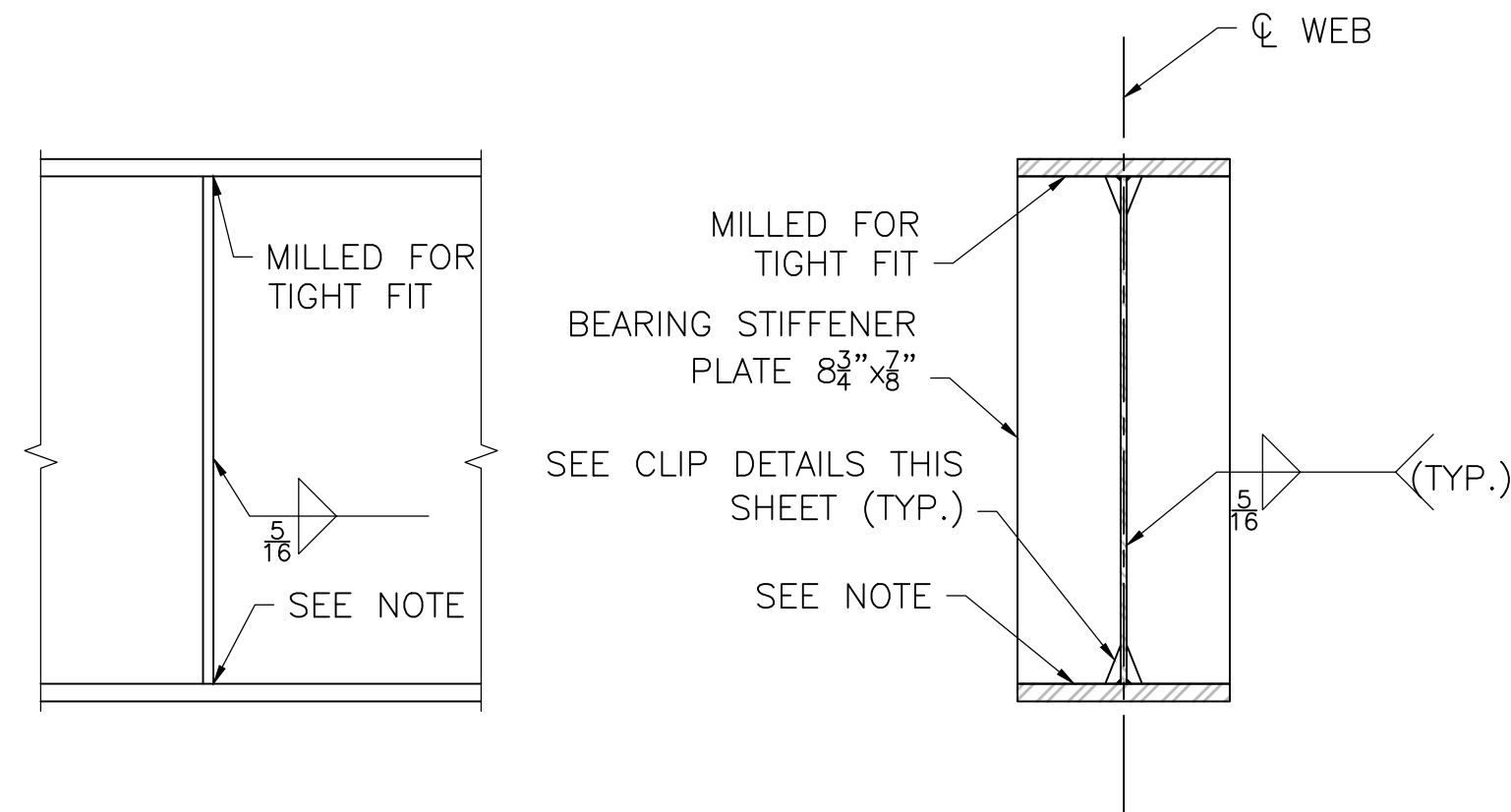


NOTE:

COMPLETE JOINT PENETRATION WELD (CJP) WITH A REINFORCING FILLET OR BE MILLED FOR TIGHT FIT AND WELDED WITH 5/16" FILLET WELDS ALL AROUND.

ROUND BEARING STIFFENER CLIP DETAIL

NOT TO SCALE

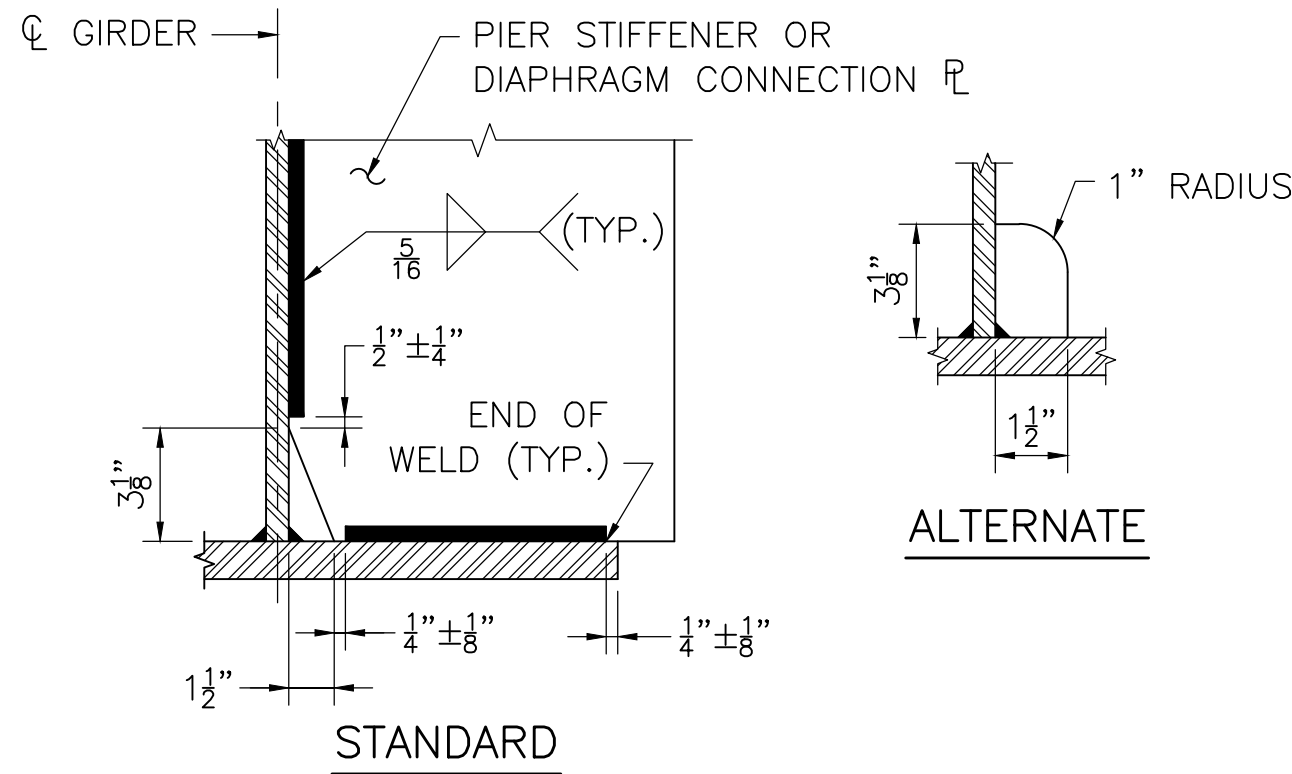


NOTE:

BEARING STIFFENER PLATE AT BOTTOM FLANGE SHALL BE MILLED FOR TIGHT FIT AND WELDED WITH 5/16" FILLET WELDS BOTH SIDES OF PLATE.

PIER BEARING STIFFENER

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

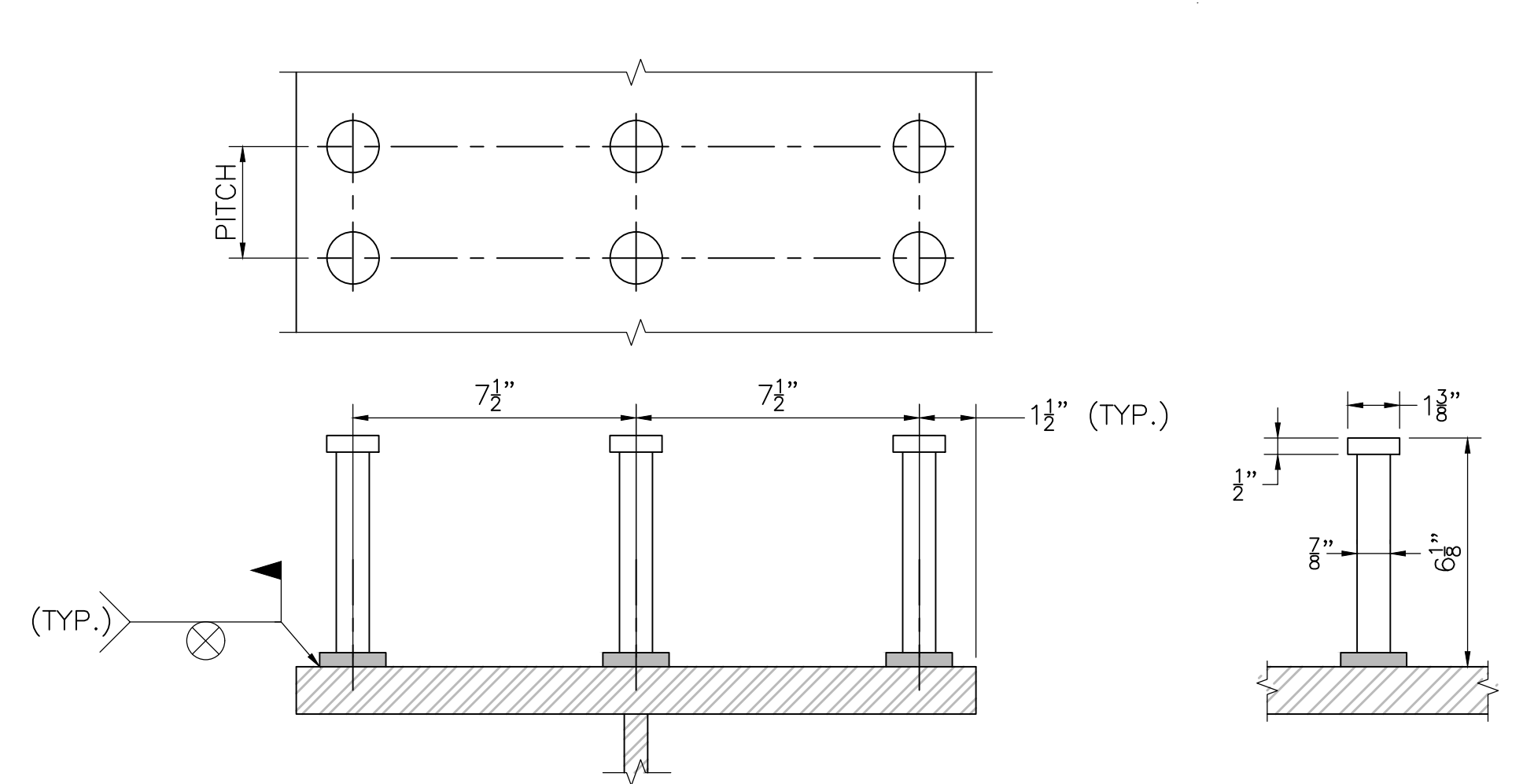


NOTE:

AT PIER BEARING STIFFENER LOCATIONS, MODIFY THE PLATE ATTACHMENT TO THE FLANGES AS SHOWN IN THE TYPICAL STIFFENER ATTACHMENTS ON THIS SHEET.

STIFFENER AND CONNECTION PLATE CLIP DETAIL

NOT TO SCALE



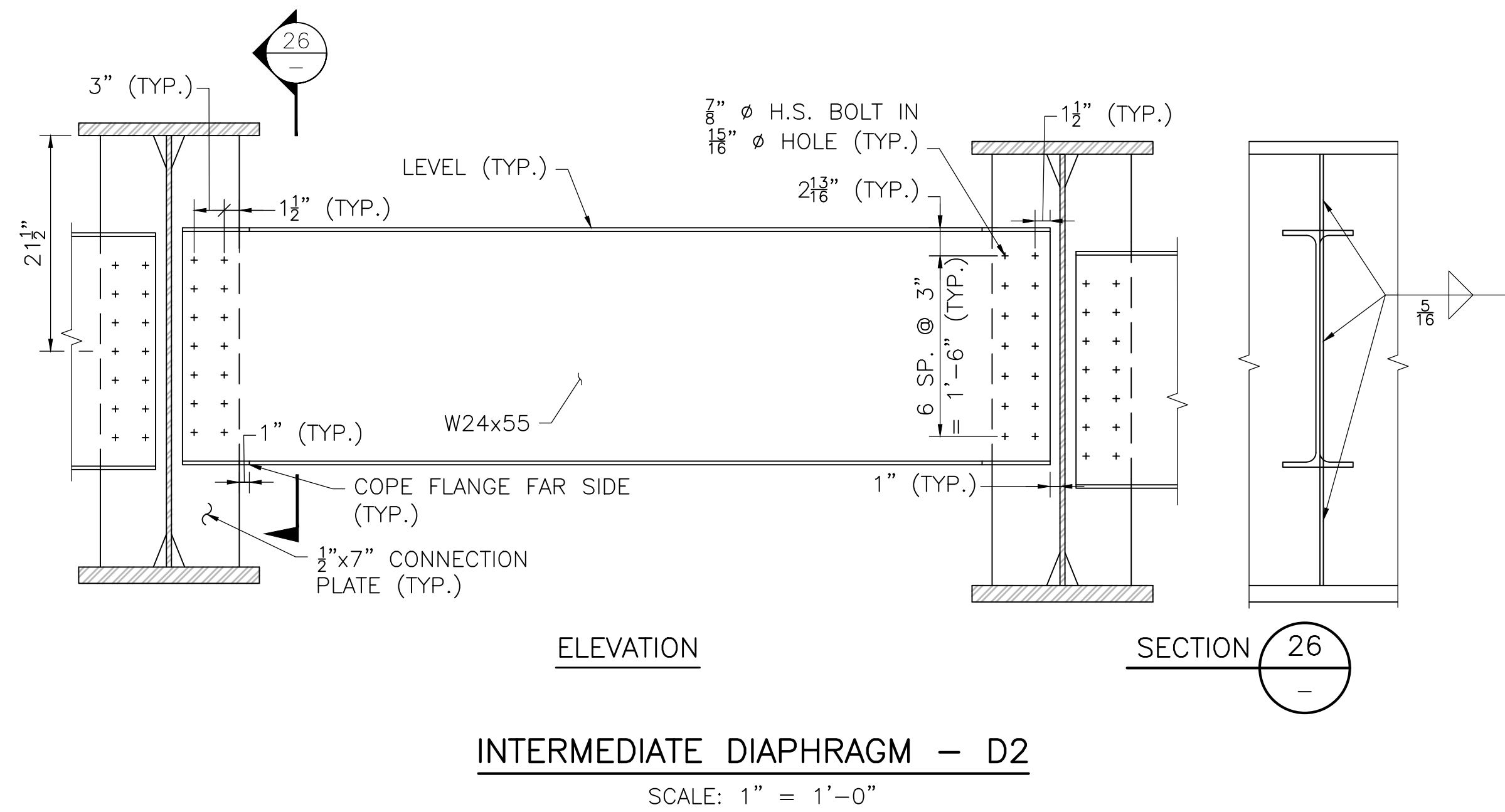
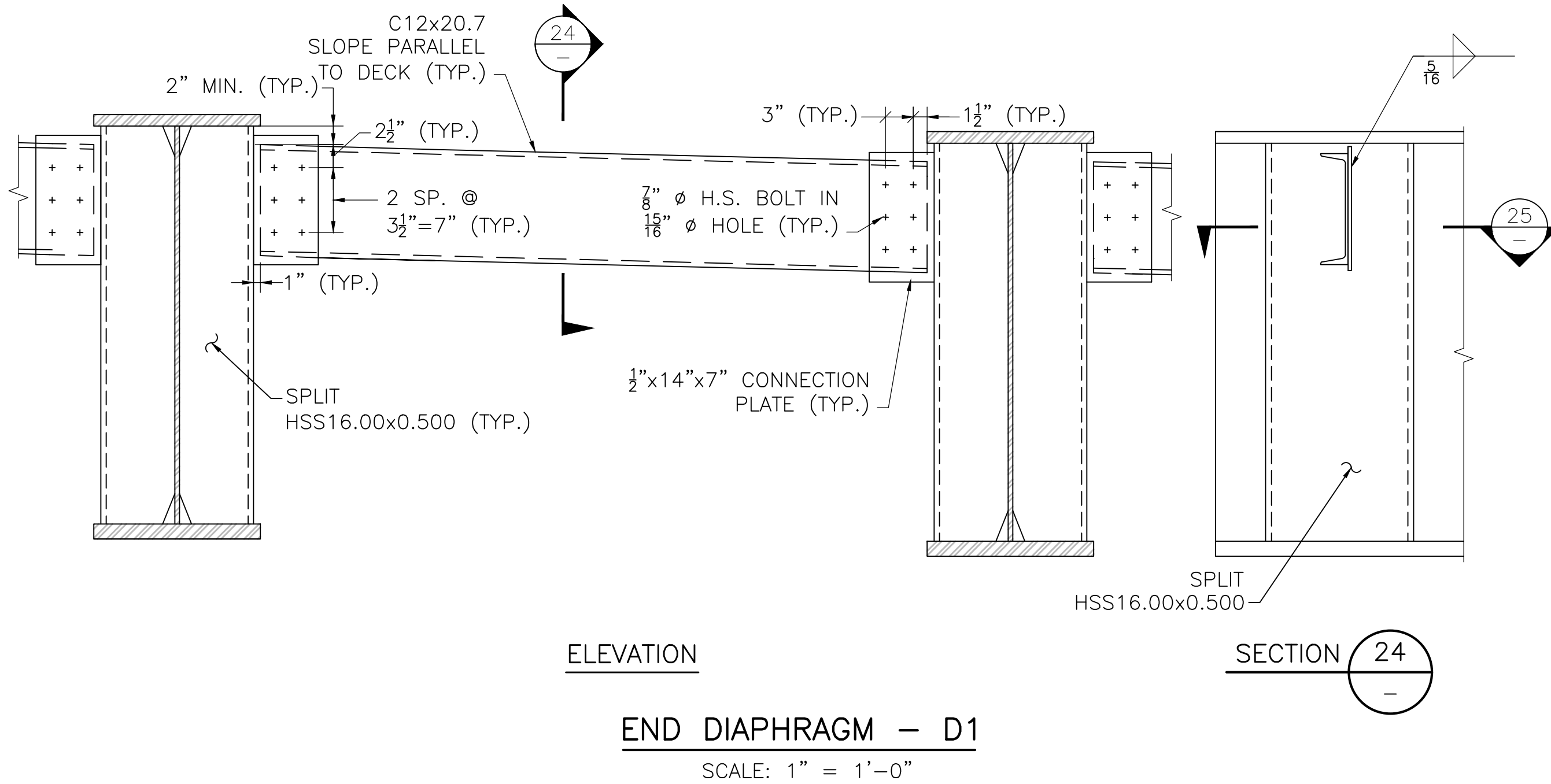
NOTES:

- 3/4" Ø STUDS MAY BE SUBSTITUTED FOR 7/8" Ø STUDS BY ADJUSTING THE PITCH TO PROVIDE AN EQUIVALENT CROSS-SECTIONAL AREA PER FOOT.
- SEE GIRDER ELEVATION SHEET 26, FOR STUD SHEAR CONNECTOR PITCH.

STUD SHEAR CONNECTORS

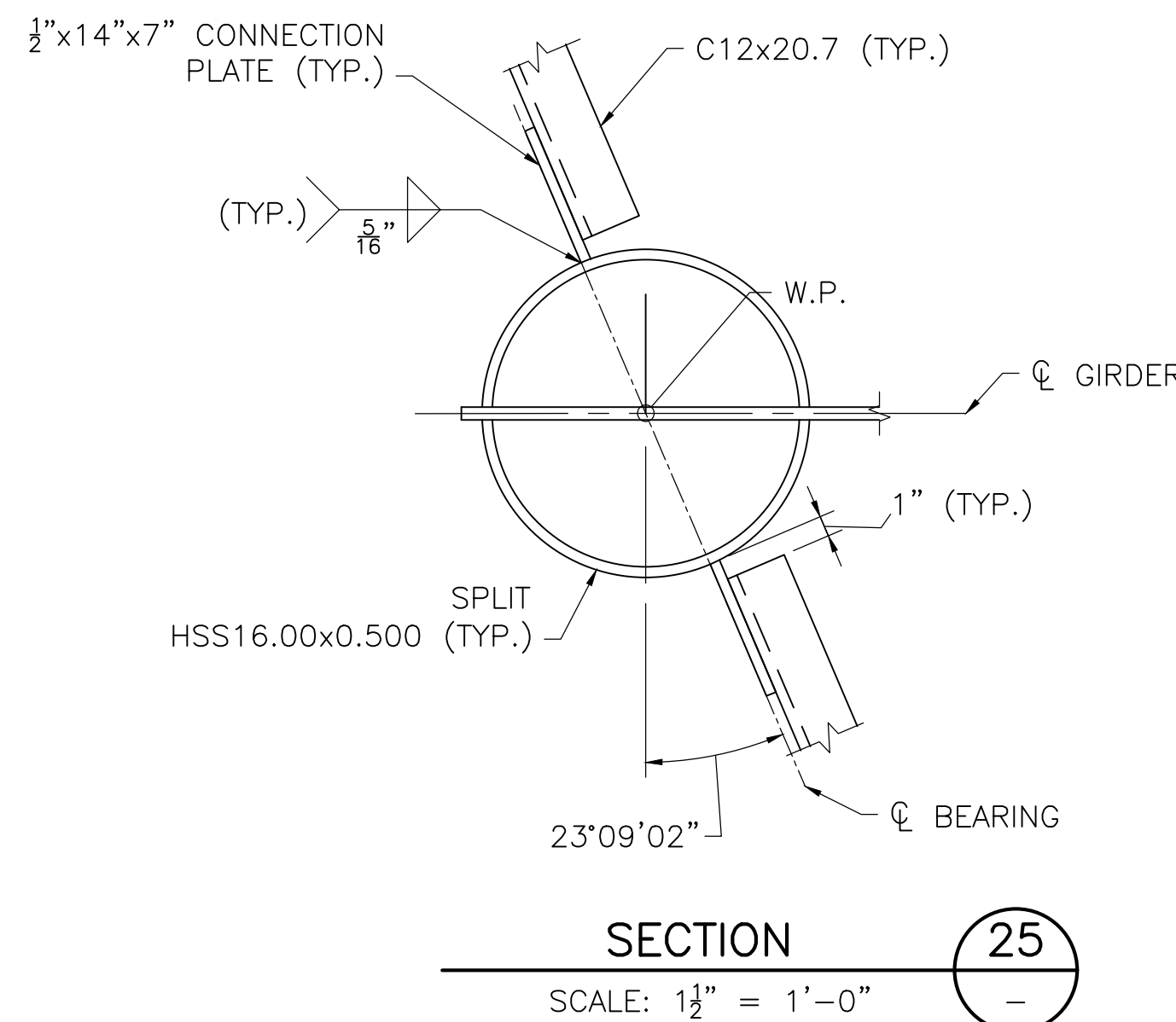
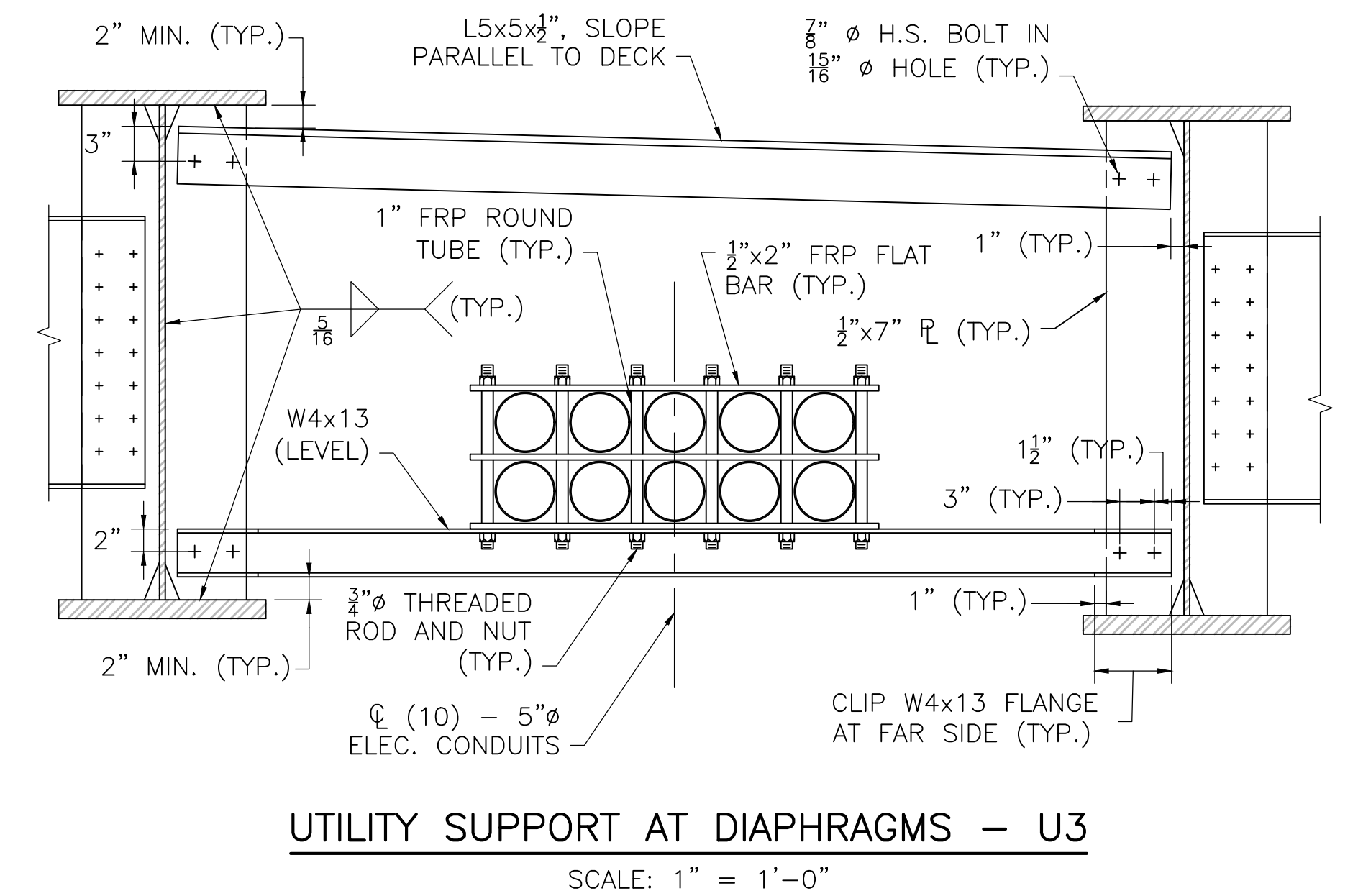
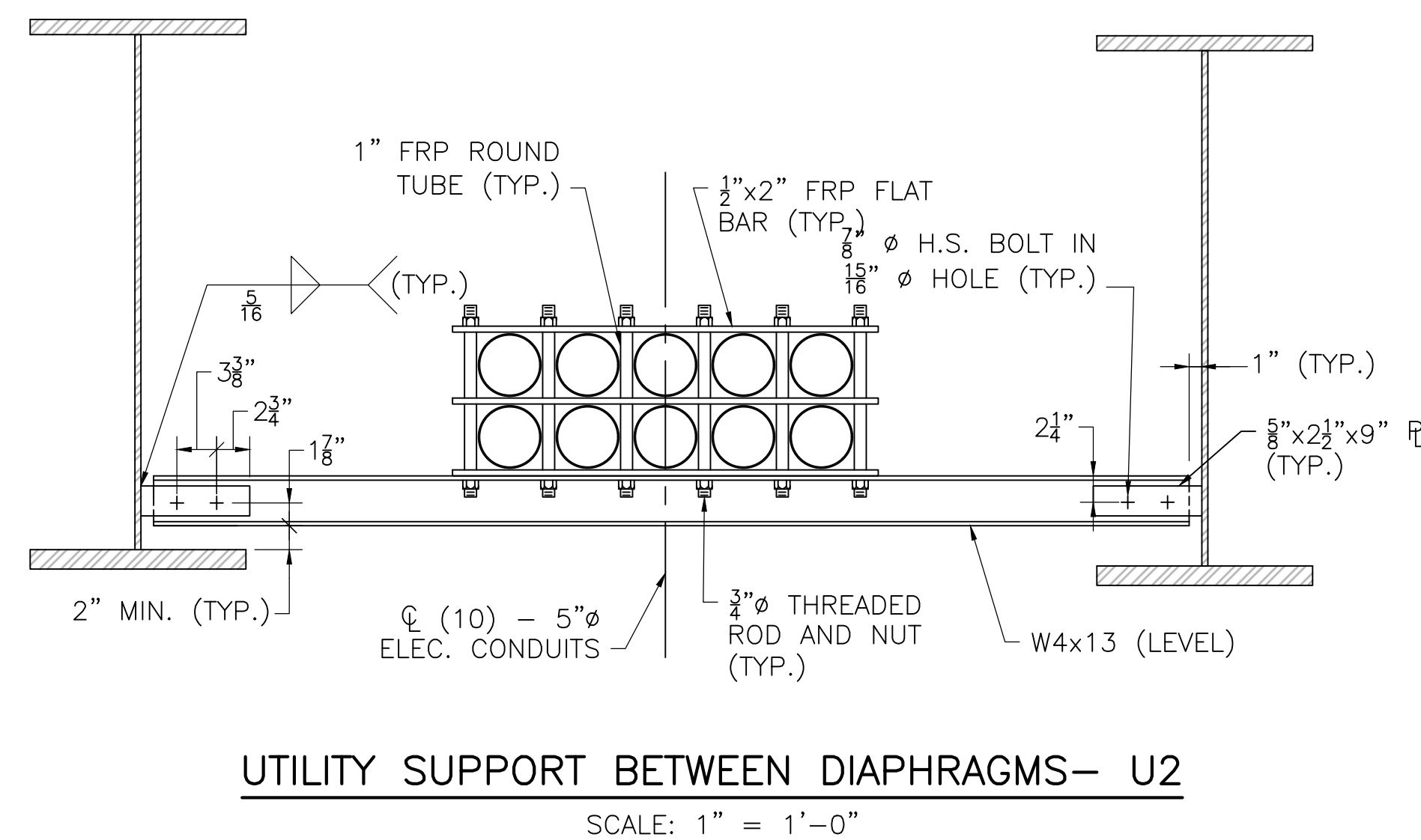
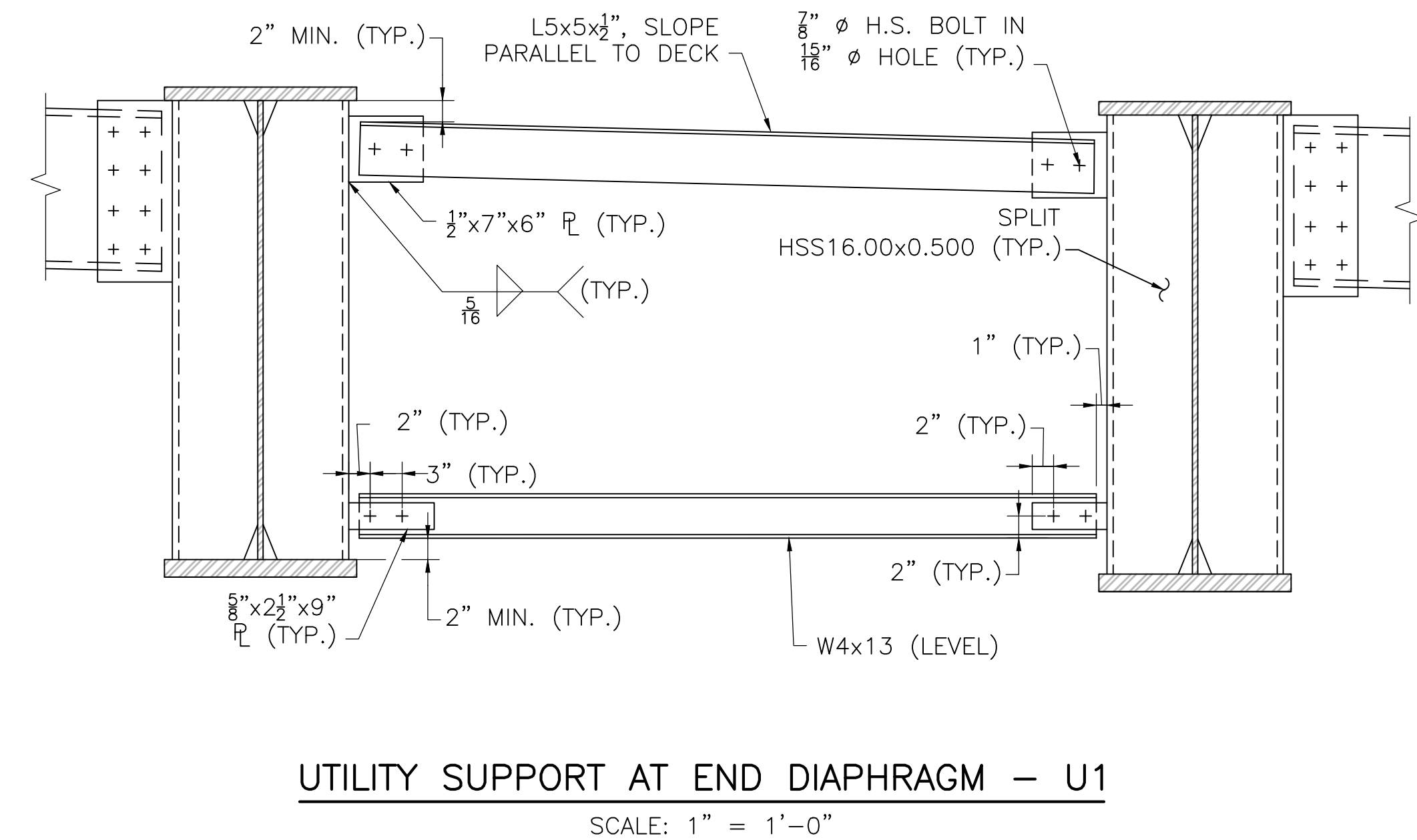
NOT TO SCALE

August 30, 2025	ISSUED FOR CONSTRUCTION
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USE ONLY PRINTS OF LATEST DATE	



WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	76	96
PROJECT FILE NO.		608703	

DIAPHRAGM AND UTILITY SUPPORT DETAILS



August 30, 2025	ISSUED FOR CONSTRUCTION
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SHEET 29 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	77	96
PROJECT FILE NO.		608703	

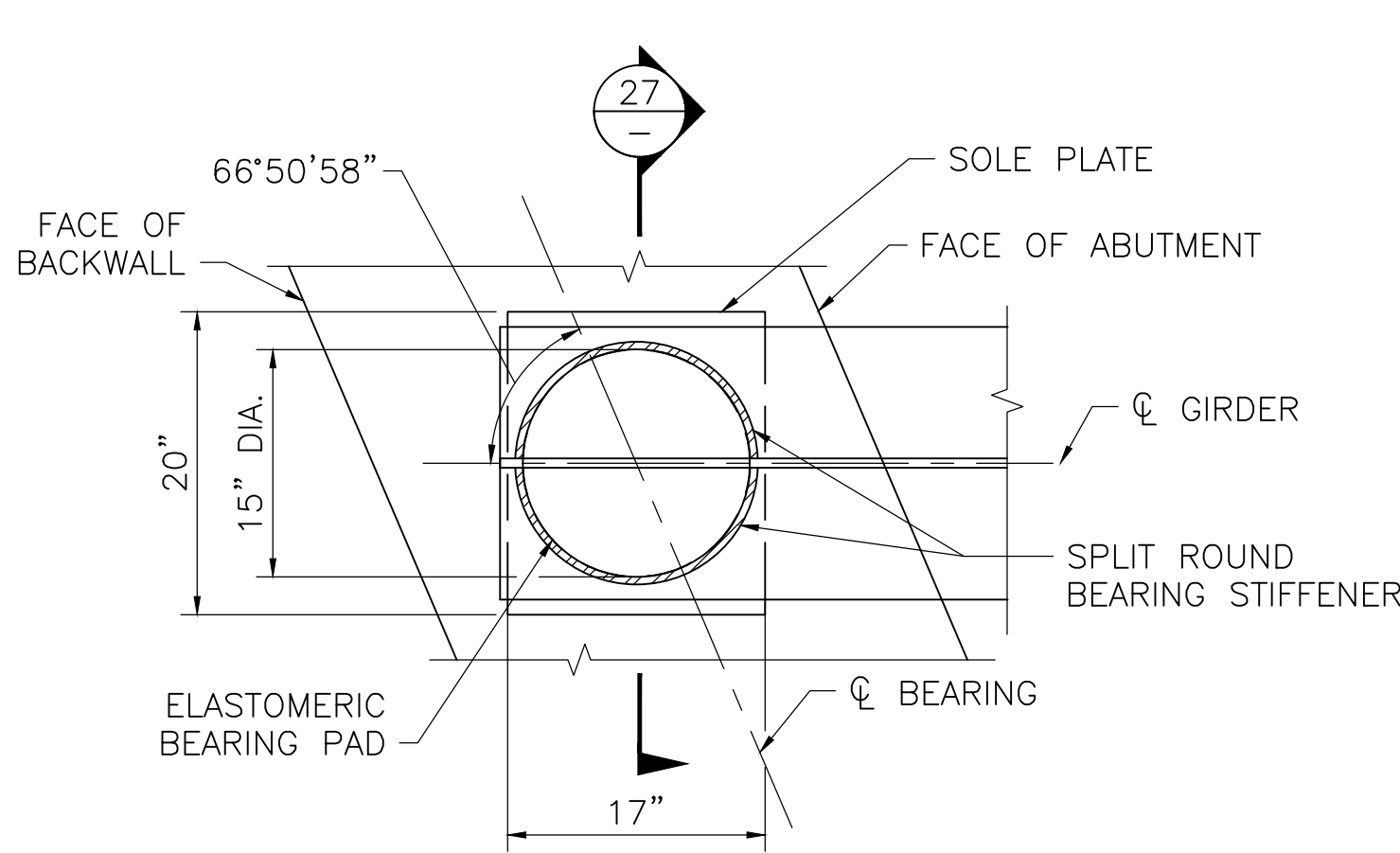
BEARING DETAILS

NOTES:

- THIS BEARING IS DESIGNED USING AASHTO METHOD B.
- ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
- STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36 OR HIGHER. ALL EDGES OF STEEL LAMINATES SHALL BE GROUND SMOOTH.
- THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS LISTED IN THE TABLE BELOW. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD.

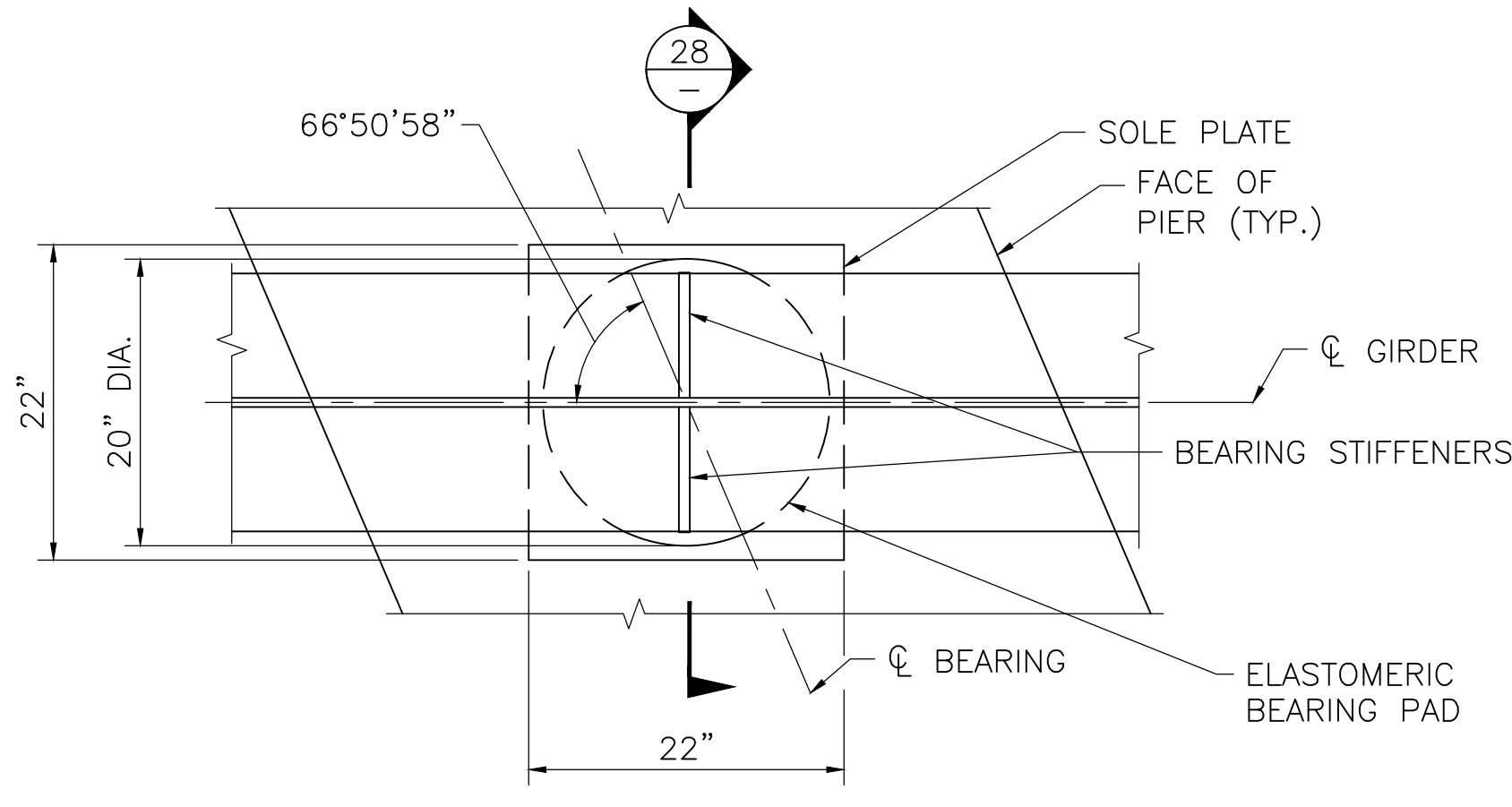
BEARING DESIGN LOAD TABLE		
	LOAD (KIPS)	STRESS (KSI)
ABUTMENT	185.00	1.05
PIER	568.00	1.81

- THE 25 YEAR CREEP STRAIN SHALL BE LIMITED TO 35%.
- ELASTOMERIC BEARING PAD SHALL NOT BE VULCANIZED TO THE SOLE PLATE.
- STEEL SOLE PLATE SHALL CONFORM TO AASHTO M 270 GRADE 36 OR GRADE 50 AND SHALL BE HOT-DIP GALVANIZED OR METALIZED.
- CENTER THE ELASTOMERIC PAD UNDER THE SOLE PLATE DURING BEAM ERECTION.
- BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 30 °F AND 90 °F. IF BEAMS ARE ERECTED AT OTHER AMBIENT TEMPERATURES, THEY WILL HAVE TO BE JACKED AND THE ELASTOMERIC BEARINGS RECENTERED WHEN THE TEMPERATURE RETURNS TO THAT RANGE.



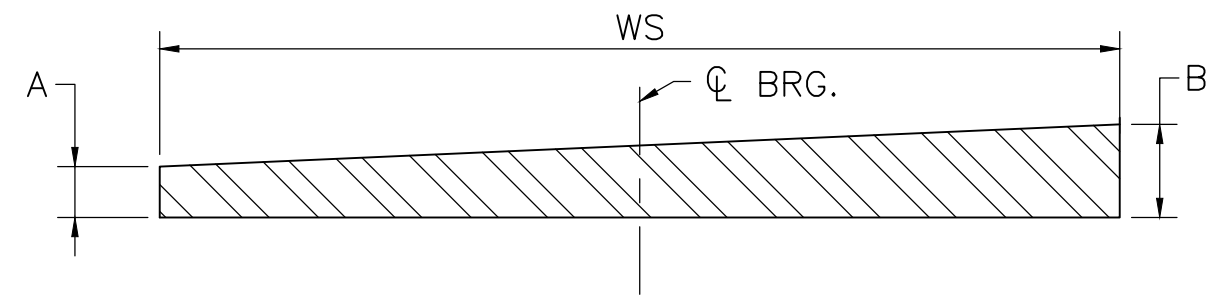
PLAN AT ABUTMENT

SCALE: 1" = 1'-0"



PLAN AT PIER

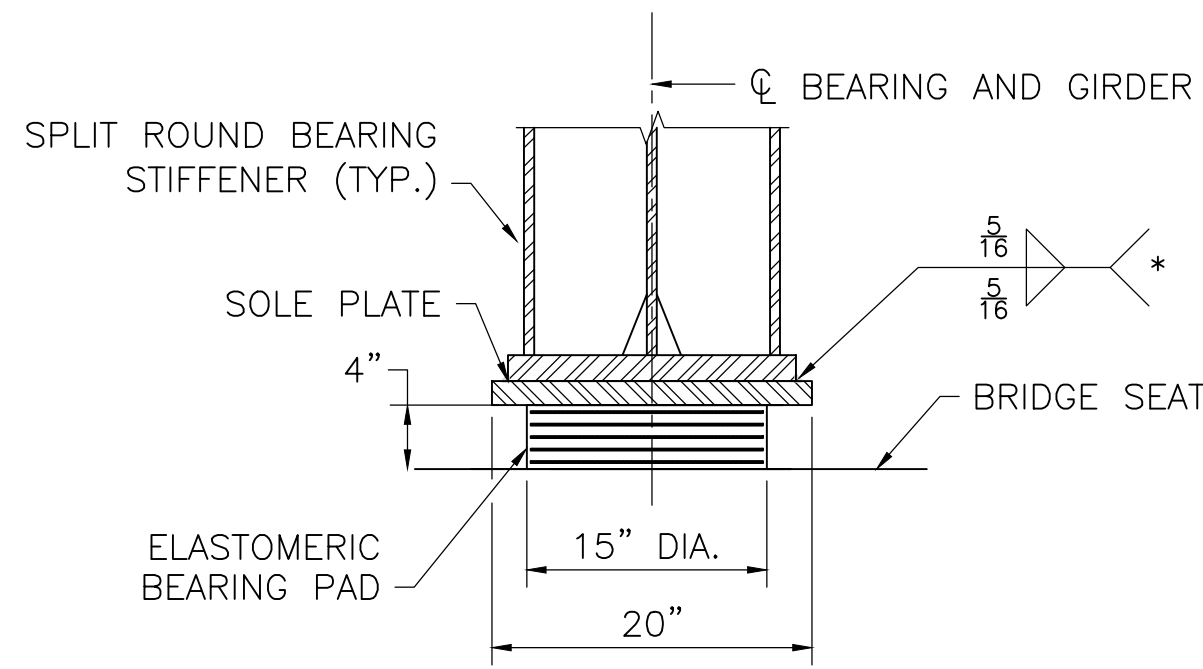
SCALE: 1" = 1'-0"



SOLE PLATE DIMENSIONS (INCH)			
	"A"	"B"	"WS"
WEST ABUTMENT	1 1/2"	1 1/2"	17"
PIER	1 1/2"	1 1/2"	22"
EAST ABUTMENT	1 1/2"	1 1/2"	17"

SOLE PLATE DIMENSION

SCALE: 3" = 1'-0"

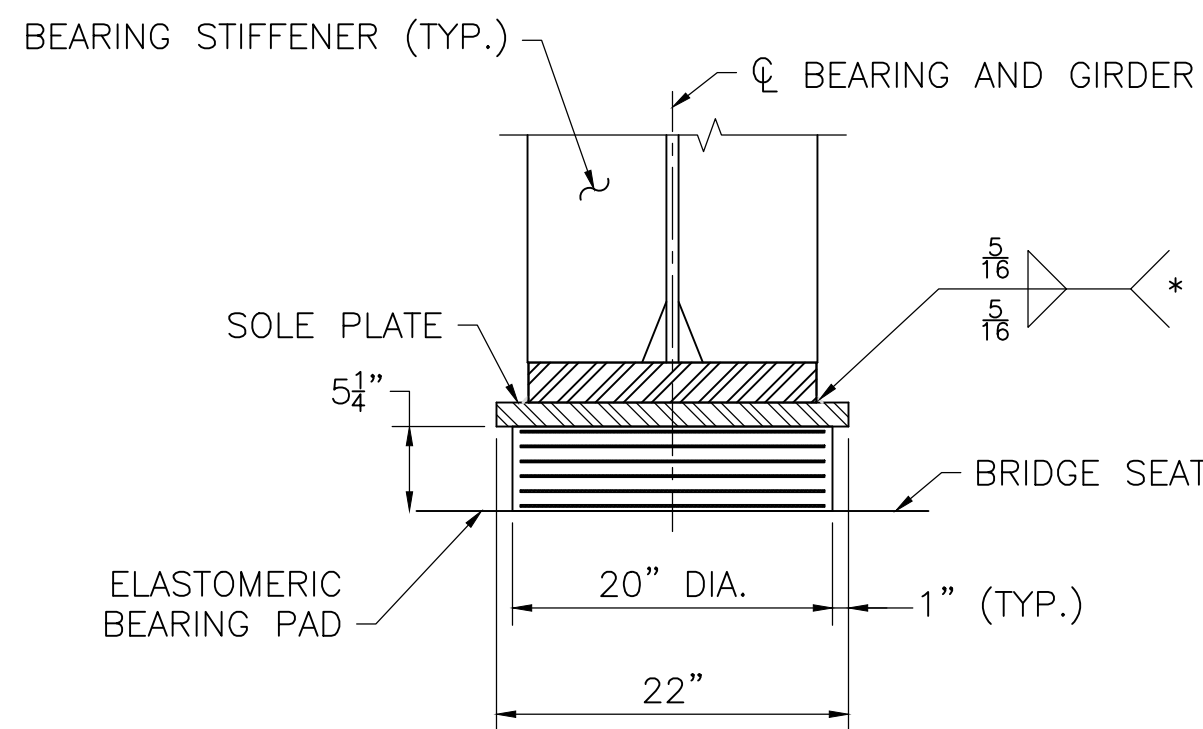


(*) - WELDS SHALL TERMINATE 1/4" FROM EDGE OF PLATE.

SECTION

27

SCALE: 1" = 1'-0"

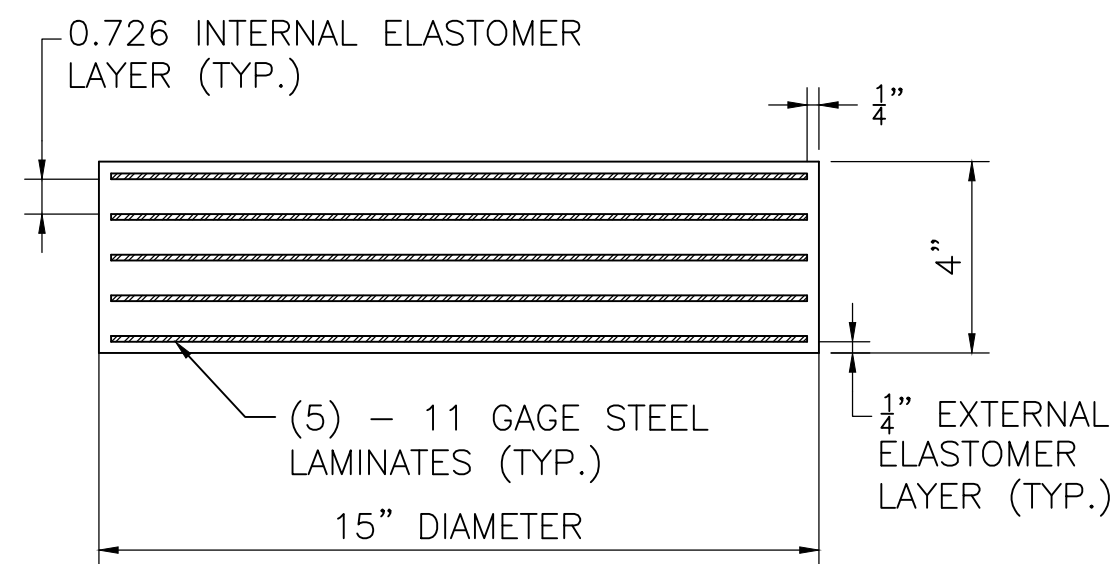


(*) - WELDS SHALL TERMINATE 1/4" FROM EDGE OF PLATE.

SECTION

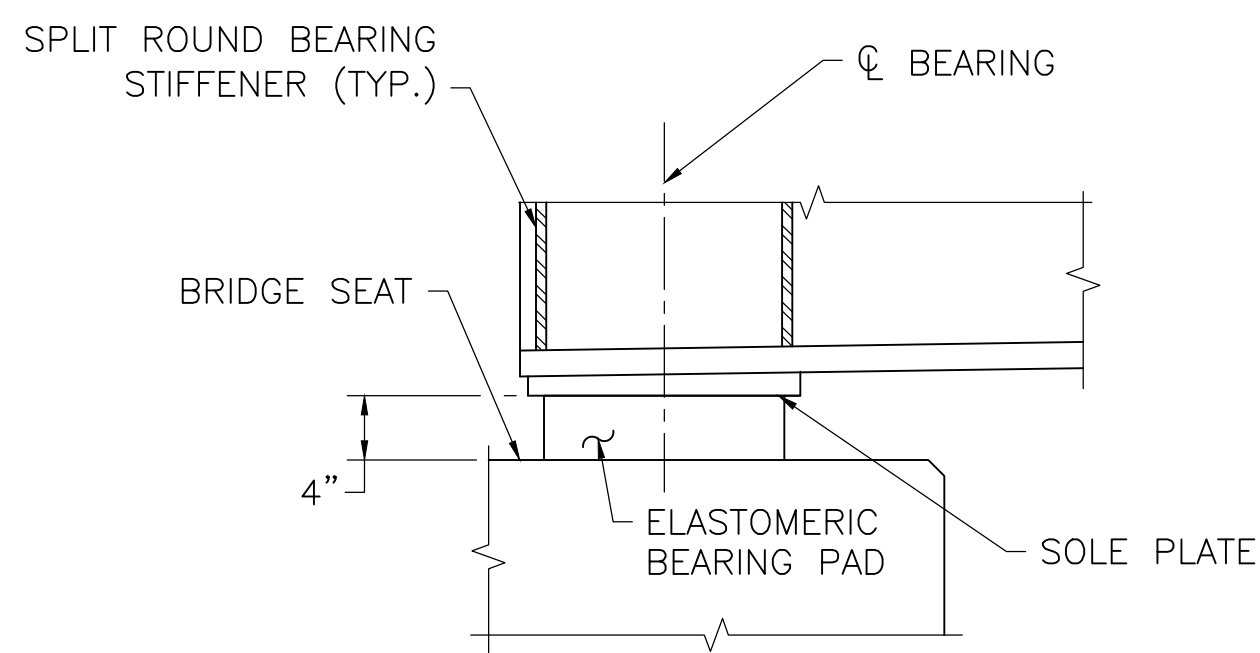
28

SCALE: 1" = 1'-0"



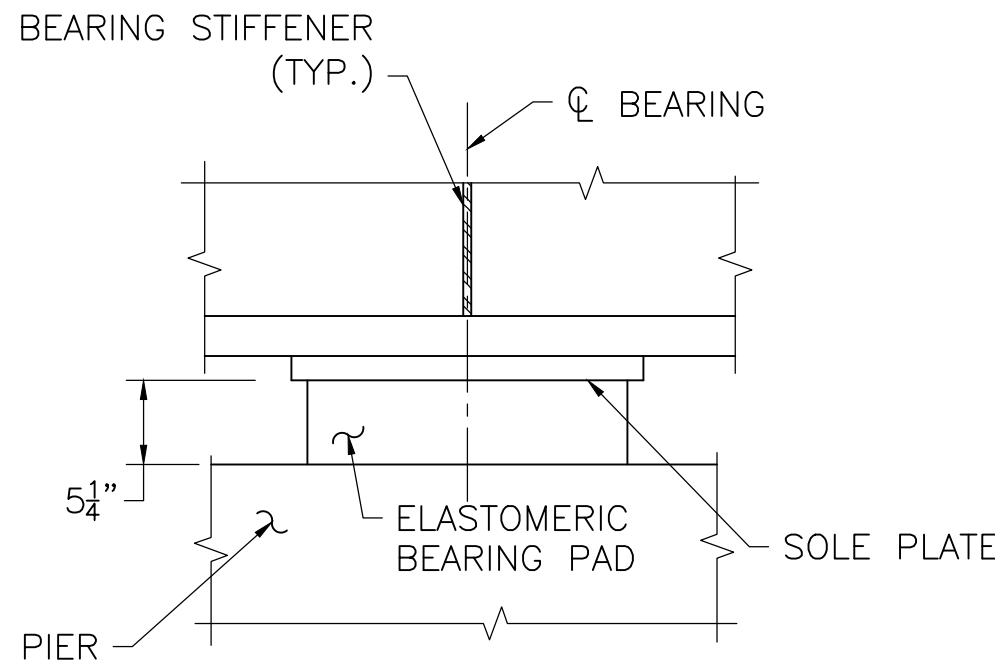
ELASTOMERIC BEARING PAD AT ABUTMENT

SCALE: 3" = 1'-0"



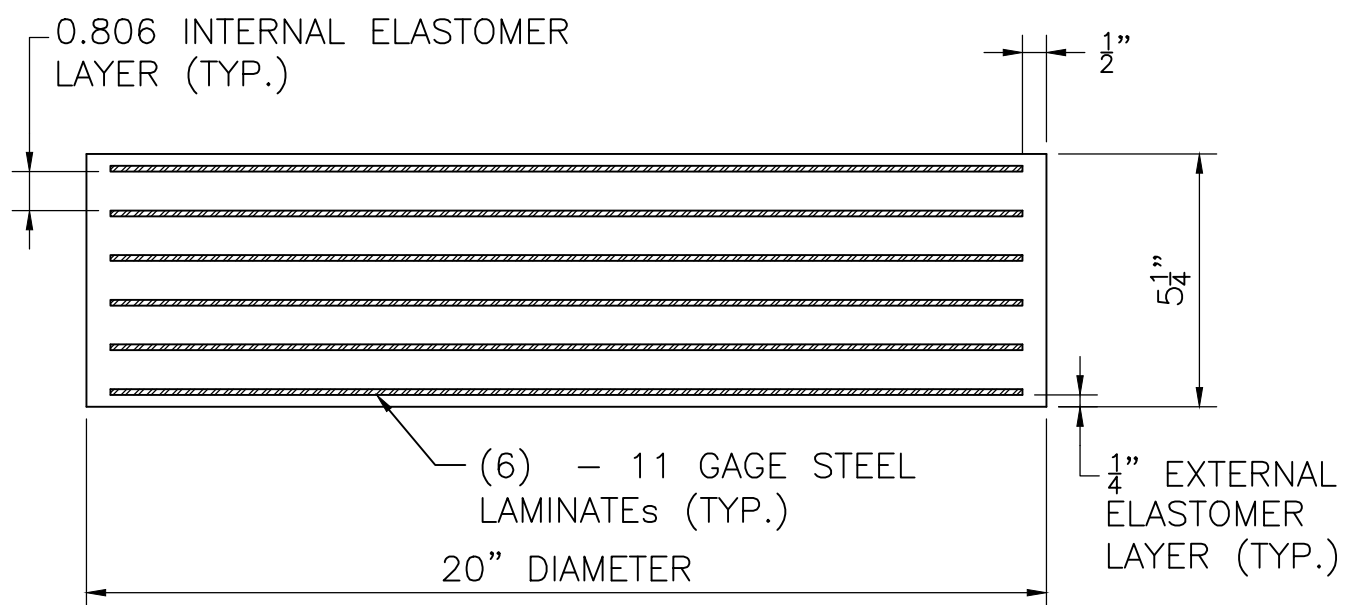
ELEVATION AT ABUTMENT

SCALE: 1" = 1'-0"



ELEVATION AT PIER

SCALE: 1" = 1'-0"

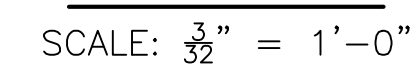


ELASTOMERIC BEARING PAD AT PIER

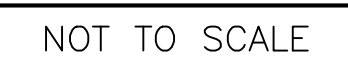
SCALE: 3" = 1'-0"

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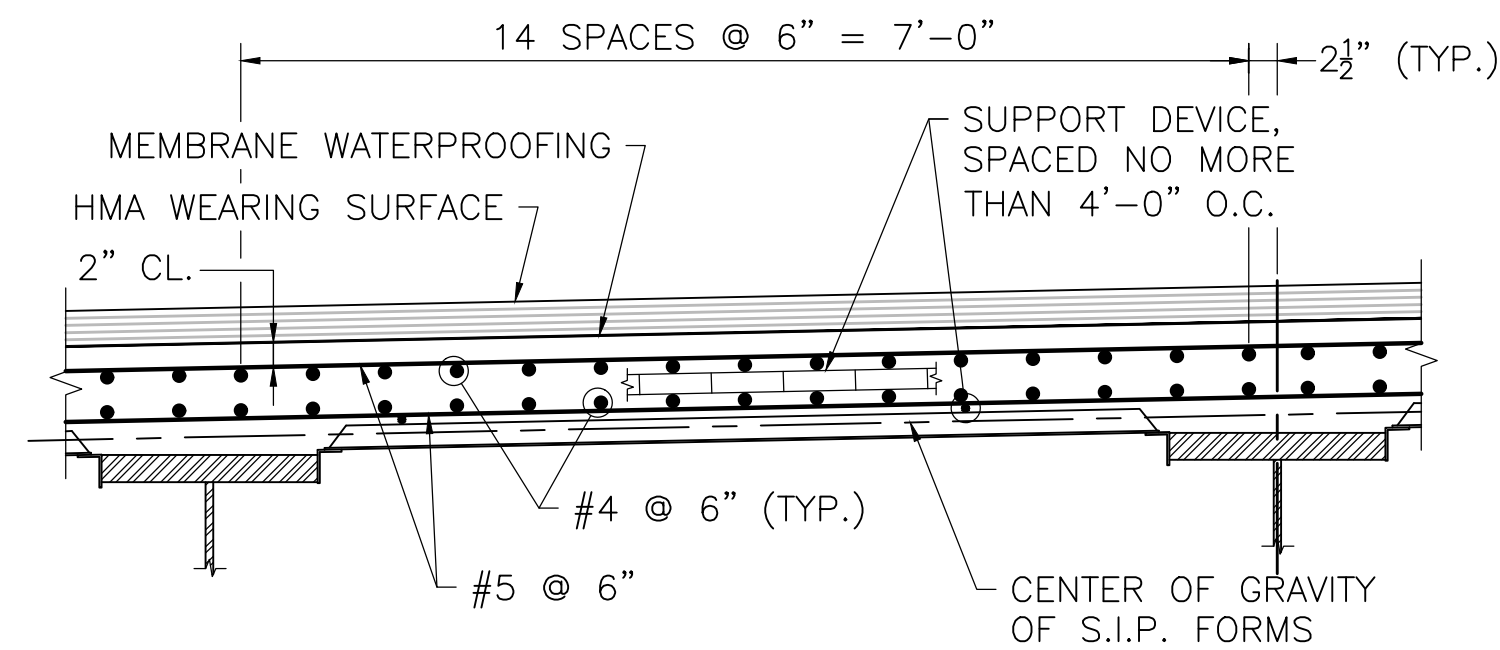
— PARAFFIN JOINT SPACING
(FROM END OF DECK)



NOT TO SCALE



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DATE	DESCRIPTION
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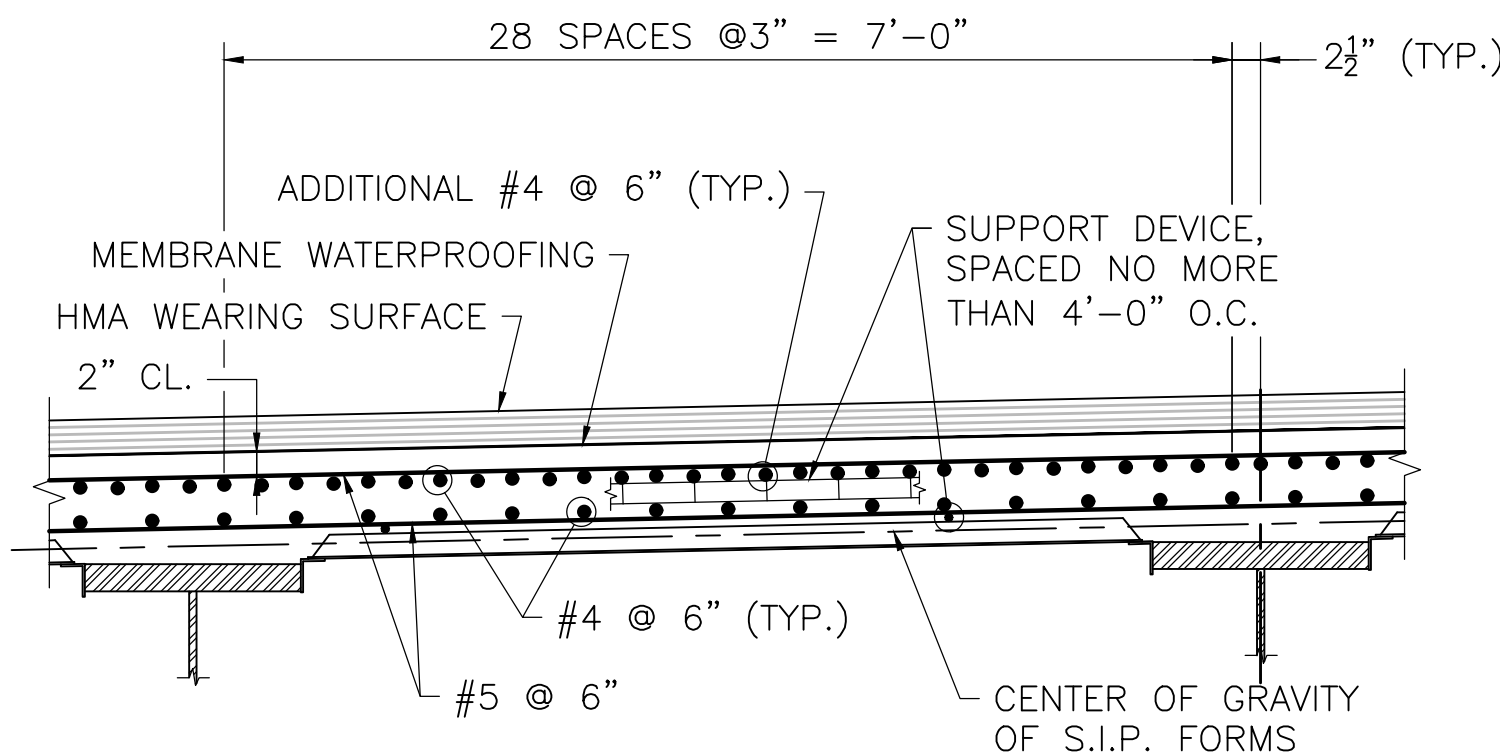


NOTES:

- LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE $\bar{C}$ OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE $\bar{C}$ OF CONSTRUCTION.
- ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
- THE FINISHED SURFACE OF THE BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.

TYPICAL DECK REINFORCEMENT

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

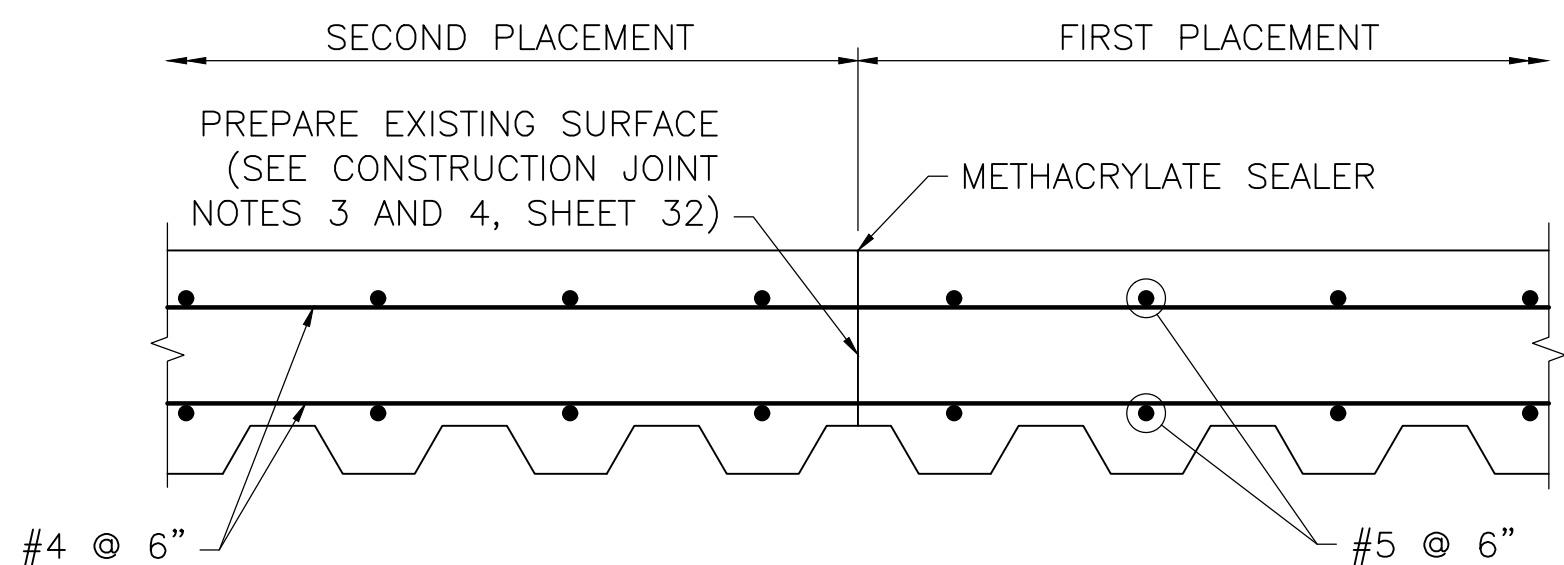


DECK REINFORCEMENT AT PIER

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

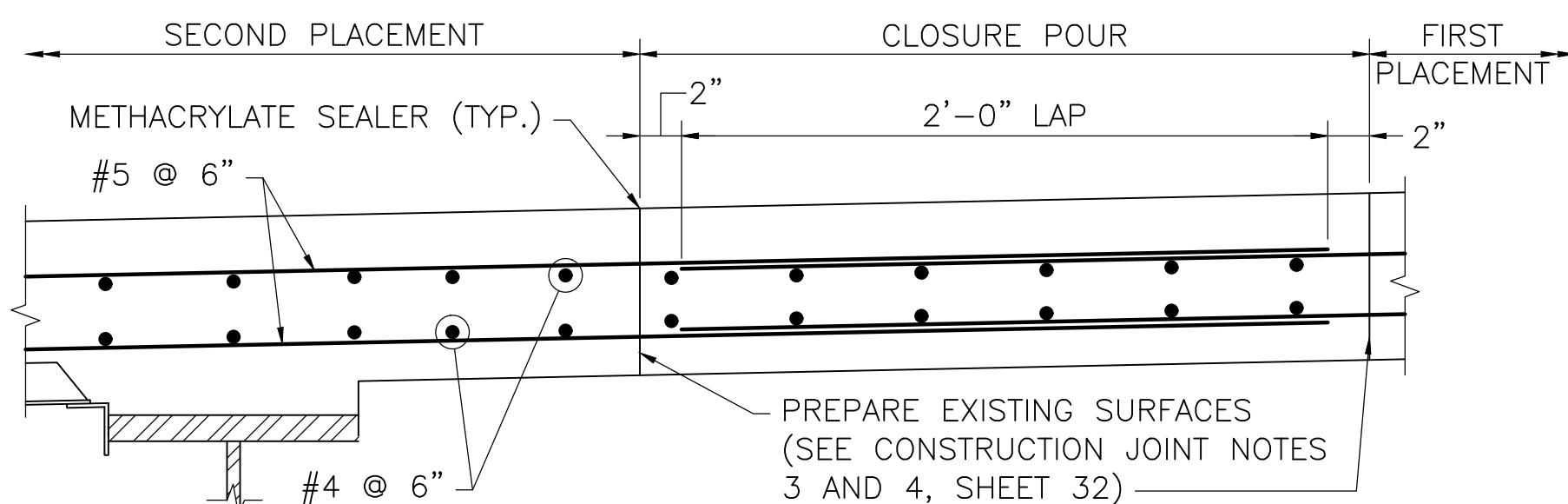
NOTES:

SEE SHEET 32 FOR DECK CONSTRUCTION JOINT NOTES.



TRANSVERSE CONSTRUCTION JOINT DETAIL

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



LONGITUDINAL CONSTRUCTION JOINT DETAIL

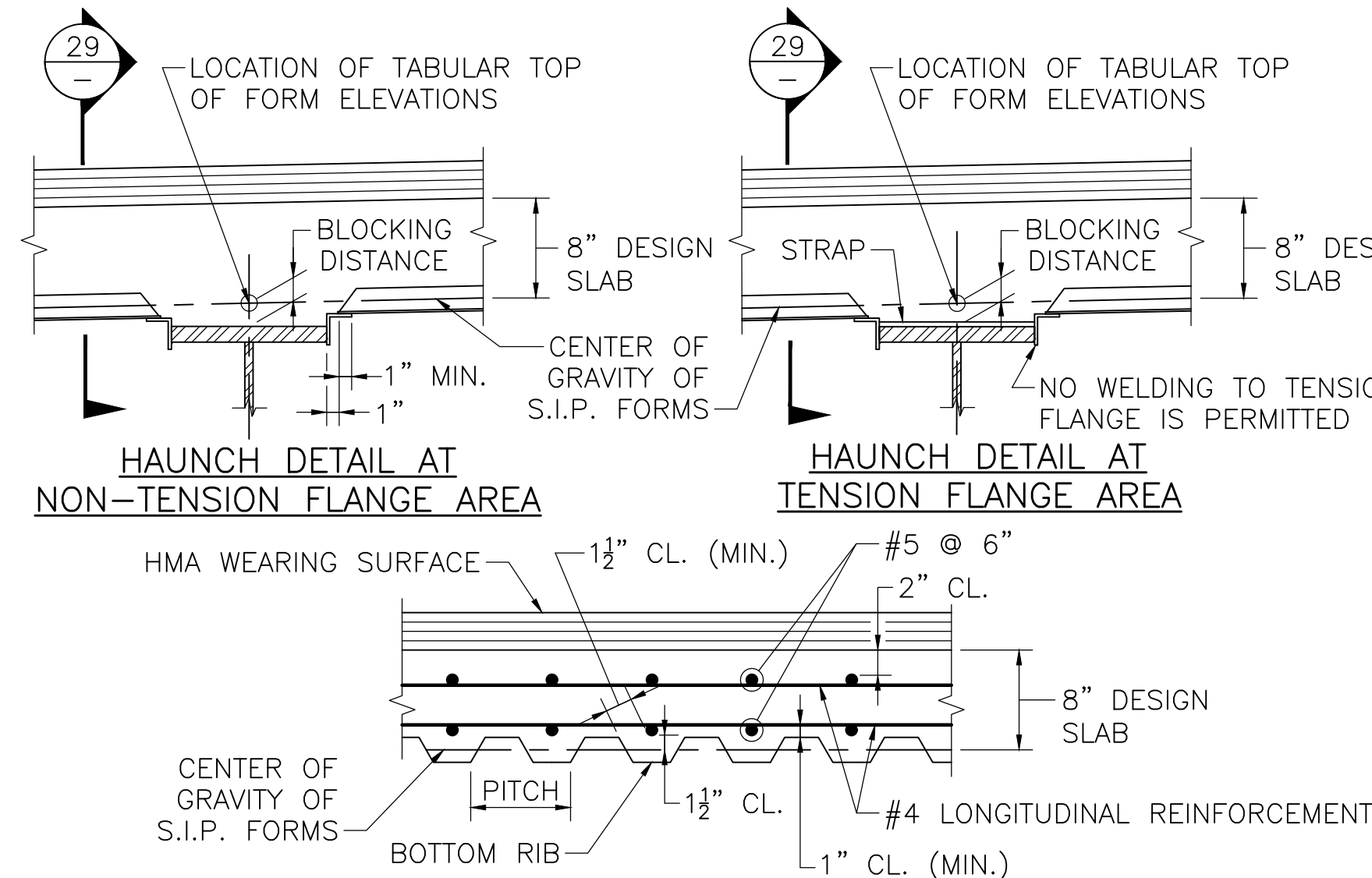
SCALE: $1\frac{1}{2}$ " = 1'-0"

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

GIRDER NO.	SPAN 1										INCREASING STATIONS →	SPAN 2									
	℄ BRG. ABUT.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	℄ BRG. PIER	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	℄ BRG. ABUT
1	107.18	107.50	107.78	108.01	108.17	108.27	108.32	108.32	108.31	108.30	108.32	108.39	108.50	108.60	108.69	108.74	108.74	108.67	108.53	108.35	108.12
2	107.29	107.64	107.87	108.09	108.25	108.36	108.41	108.43	108.43	108.43	108.46	108.53	108.63	108.73	108.81	108.86	108.85	108.79	108.67	108.50	108.29
3	107.39	107.74	107.97	108.19	108.39	108.35	108.46	108.52	108.55	108.55	108.56	108.59	108.67	108.77	108.87	108.95	108.99	108.99	108.93	108.66	108.46
4	107.50	107.85	108.08	108.30	108.47	108.58	108.65	108.67	108.68	108.69	108.73	108.81	108.91	109.01	109.10	109.15	109.15	109.09	108.98	108.82	108.62
5	107.31	107.66	107.89	108.12	108.29	108.41	108.47	108.50	108.59	108.51	108.53	108.57	108.65	108.75	108.86	108.95	109.00	108.95	108.84	108.68	108.49
6	107.11	107.48	107.72	107.95	108.13	108.25	108.31	108.34	108.35	108.37	108.40	108.49	108.60	108.71	108.81	108.87	108.88	108.82	108.72	108.56	108.36
7	106.92	107.30	107.56	107.80	107.98	108.10	108.17	108.19	108.19	108.20	108.24	108.33	108.45	108.58	108.69	108.76	108.77	108.72	108.60	108.44	108.23

NOTE:

AFTER THE BEAMS ARE ERECTED BUT BEFORE THE FORMS ARE BUILT, ELEVATIONS ON TOP OF THE FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF THE SLAB AT CENTER LINE OF BEAM.

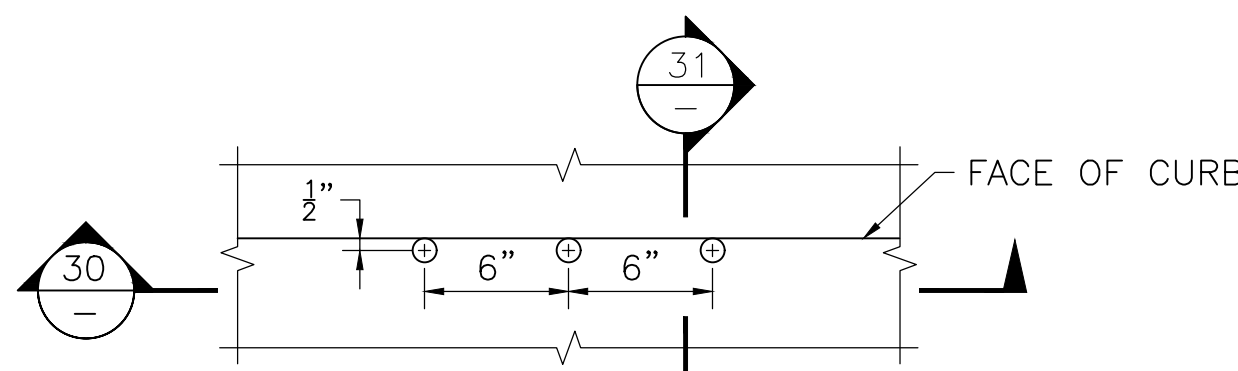


SECTION

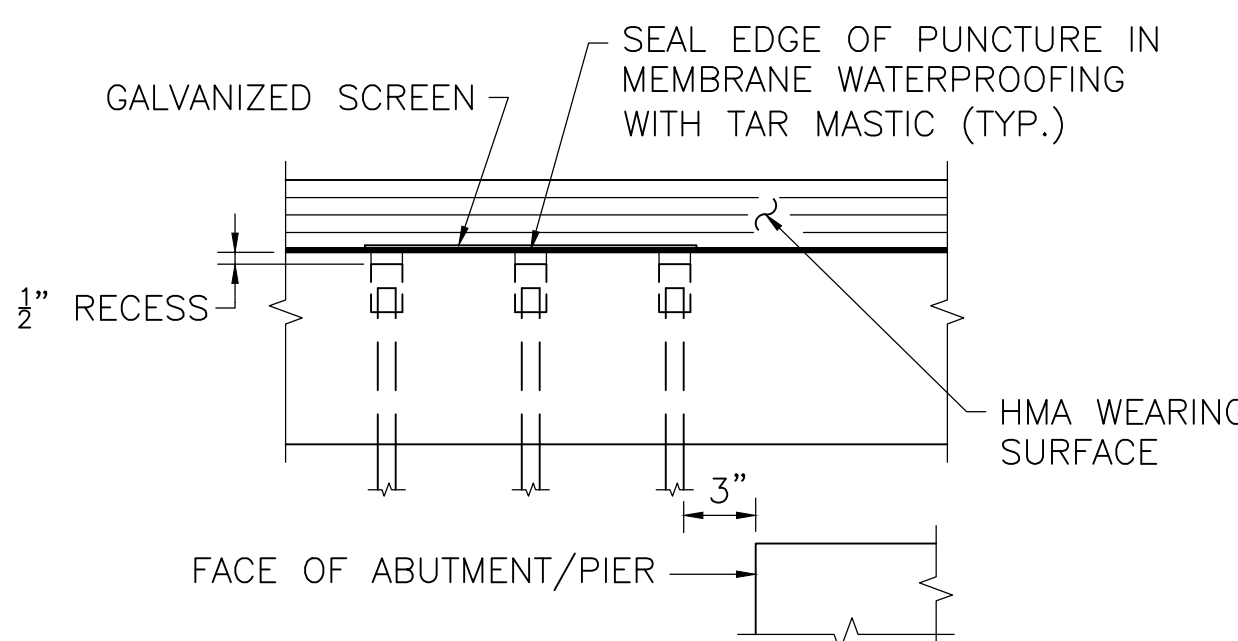
SCALE: 1" = 1'-0"

STAY-IN-PLACE FORM DETAILS

SCALE: 1" = 1'-0"



DECK PLAN

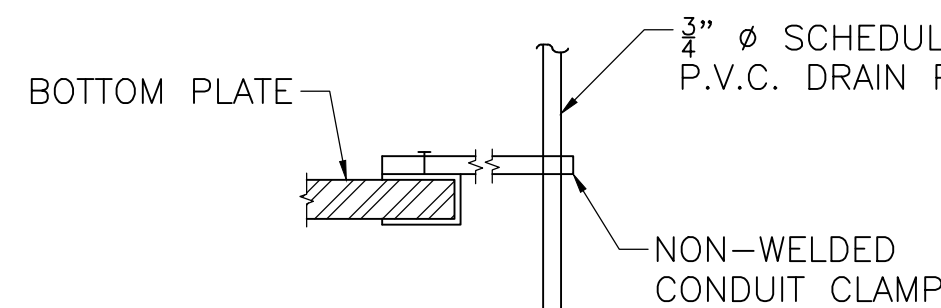


SECTION

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

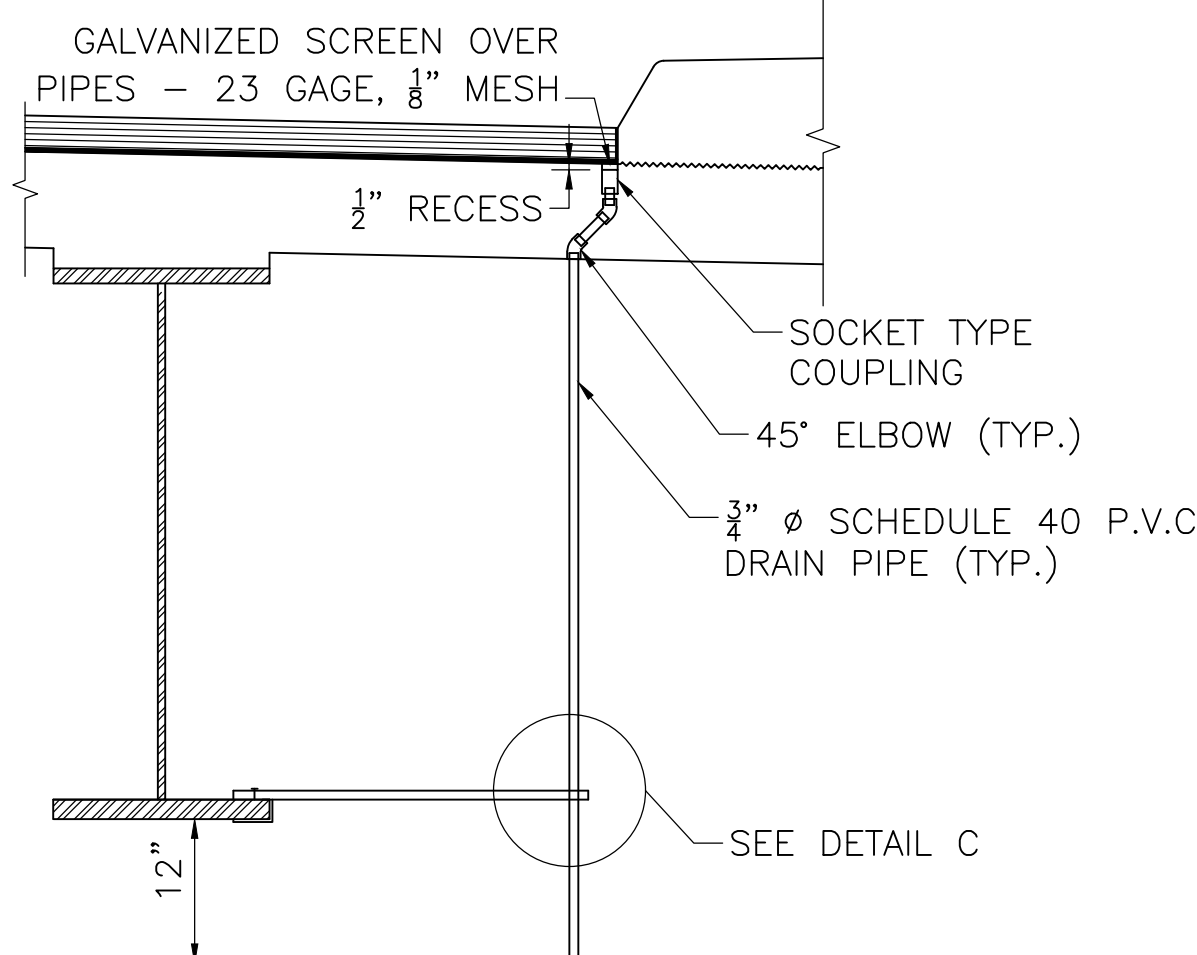
DECK DRAIN PIPES

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



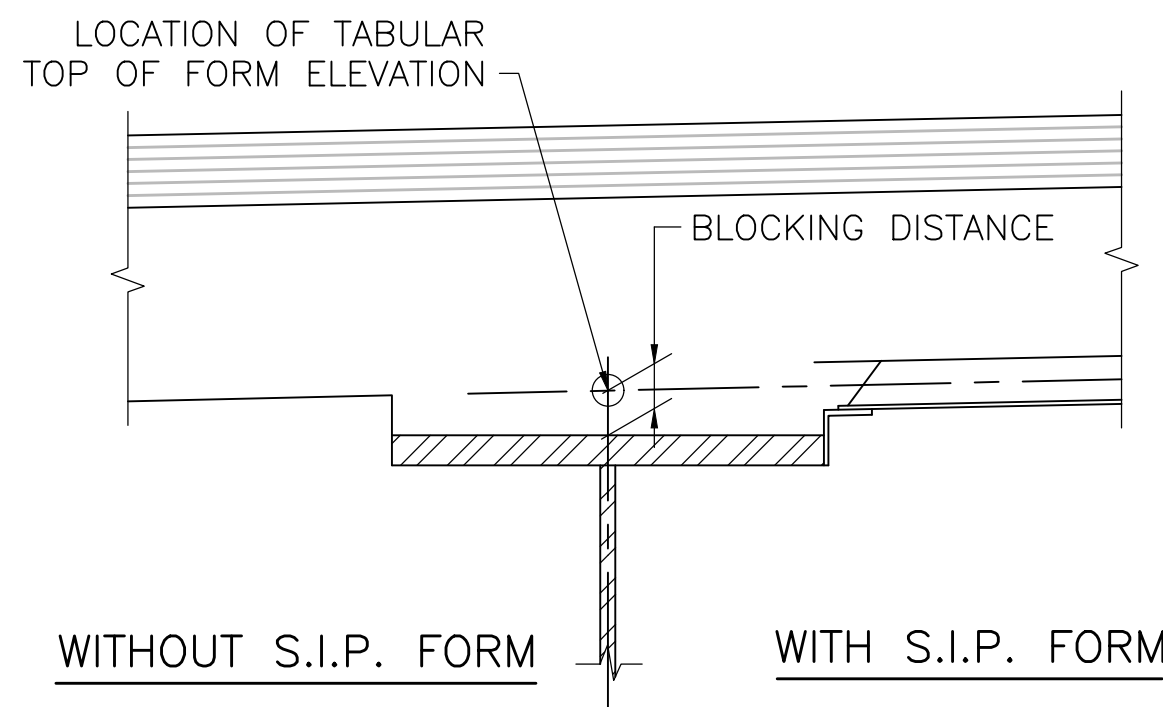
DETAIL

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



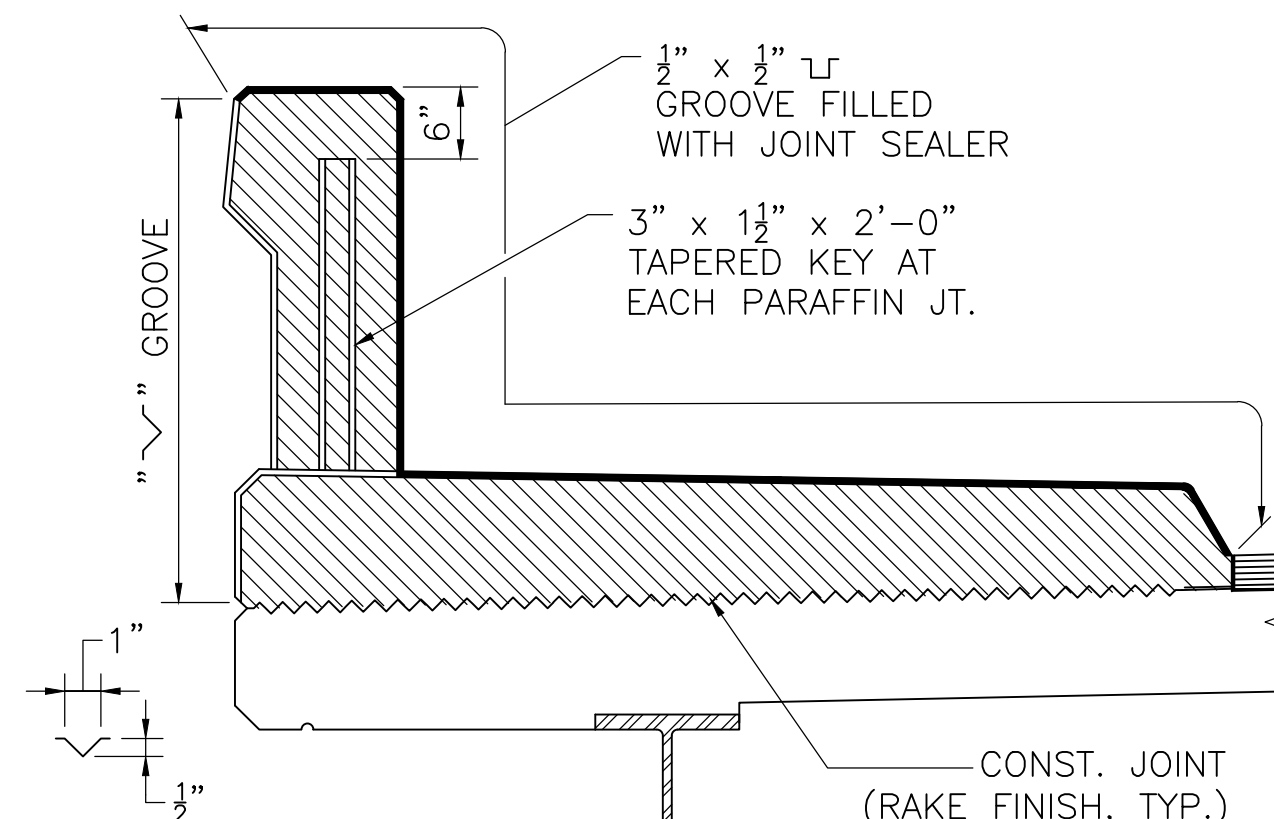
SECTION

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



HAUNCH DETAIL

SCALE: $\frac{3}{4}$ " = 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

PARAFFIN JOINT DETAILS

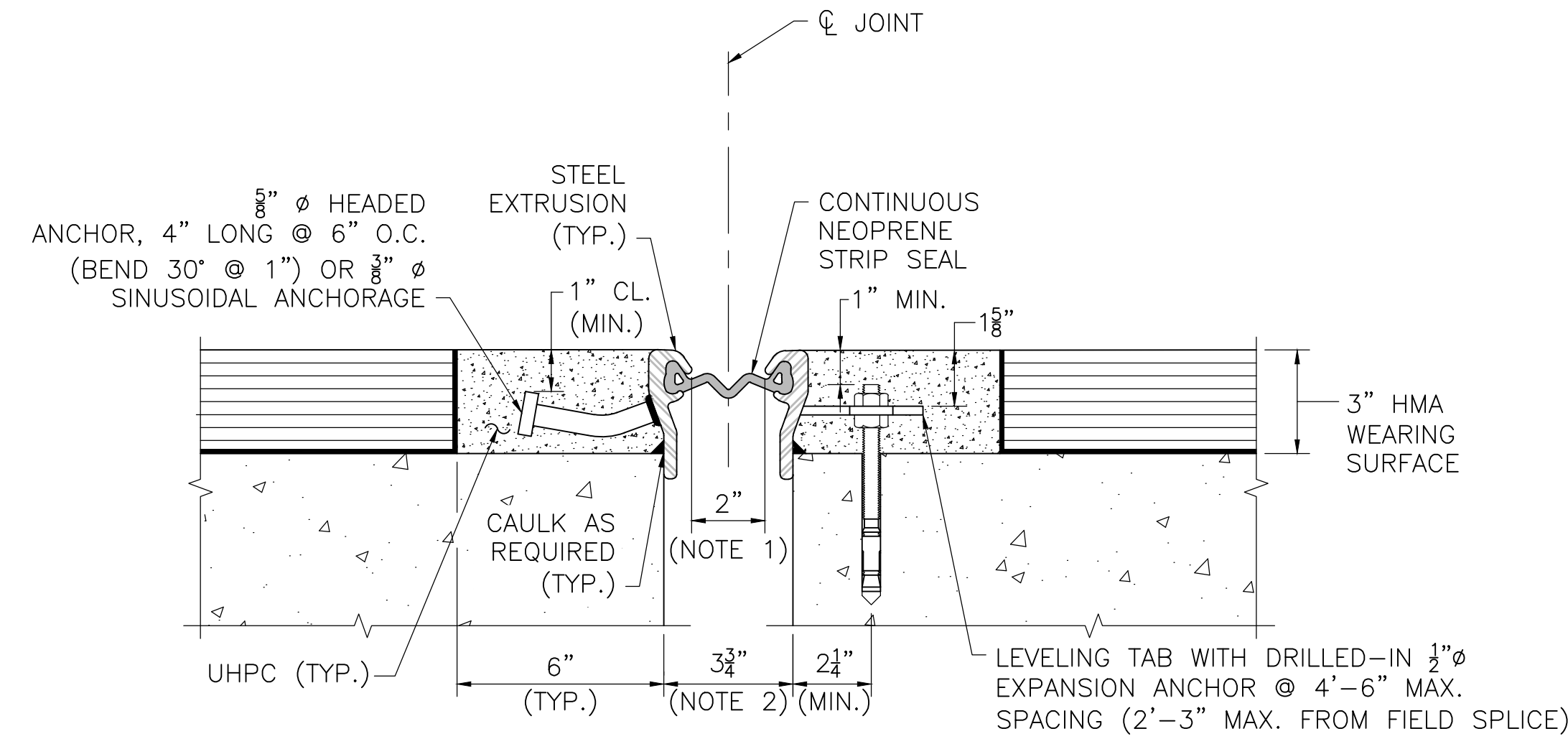
SCALE: $\frac{3}{4}$ " = 1'-0"

August 30, 2025	ISSUED FOR CONSTRUCTION
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Technical drawing of a barrier end breakout detail. The drawing shows a cross-section of a barrier with various components and dimensions. Key features include:

- Dimensions:**
 - Overall width: 14'
 - Sidewalk width: 6'-0"
 - Barrier thickness: 22 3/8"
 - Plate thickness: 10 3/8"
 - Gap: 1"
 - Joint offset: 3 3/4"
 - Face of curb offset: 1 1/2" (TYP.)
 - Max. offset: 6"
- Components and Materials:**
 - 8" THICK GALVANIZED REMOVABLE SLIDING CHECKERED PLATE
 - 5/8" Ø, 4" LONG STUD ANCHOR @ 12" O.C. MAX. (TYP.)
 - LEVELING TAB WITH DRILLED-IN 1/2" Ø EXPANSION ANCHOR @ 4'-6" MAX. SPACING (2'-3" MAX. FROM FIELD SPLICE, TYP.)
 - CONTINUOUS NEOPRENE STRIP SEAL
 - UHPG (TYP.)
 - STEEL EXTRUSION (TYP.)
 - 5/8" Ø HEADED ANCHOR, 4" LONG @ 6" O.C. (BEND 30° @ 1") OR 3/8" Ø SINUSOIDAL ANCHORAGE (TYP.)
 - FACE OF CURB
 - FACE OF BARRIER, END OF BLOCKOUT WITH UHPG, AND END OF L6x4x3/8
- Other Details:**
 - 36, 35, 37 (Marker numbers)
 - 3/4" Ø S.S. SCREWS WITH S.S. NUTS @ 12" O.C. MAX. (SEE NOTE 6, TYP.)
 - L6x4x3/8 (TYP.)
 - 12" (TYP.)
 - 11" (TYP.)
 - 10 3/8" PLATE
 - 24"
 - 14"
 - 6'-0" SIDEWALK
 - 22 3/8" CHECKERED PL
 - 1" GAP
 - 3 3/4" JOINT
 - 1 1/2" (TYP.)
 - 6"
 - 3/4" Ø S.S. SCREWS WITH S.S. NUTS @ 12" O.C. MAX. (SEE NOTE 6, TYP.)
 - L6x4x3/8 (TYP.)
 - 5/8" Ø HEADED ANCHOR, 4" LONG @ 6" O.C. (BEND 30° @ 1") OR 3/8" Ø SINUSOIDAL ANCHORAGE (TYP.)
 - FACE OF CURB
 - FACE OF BARRIER, END OF BLOCKOUT WITH UHPG, AND END OF L6x4x3/8

SCALE: 1" = 1'-0"



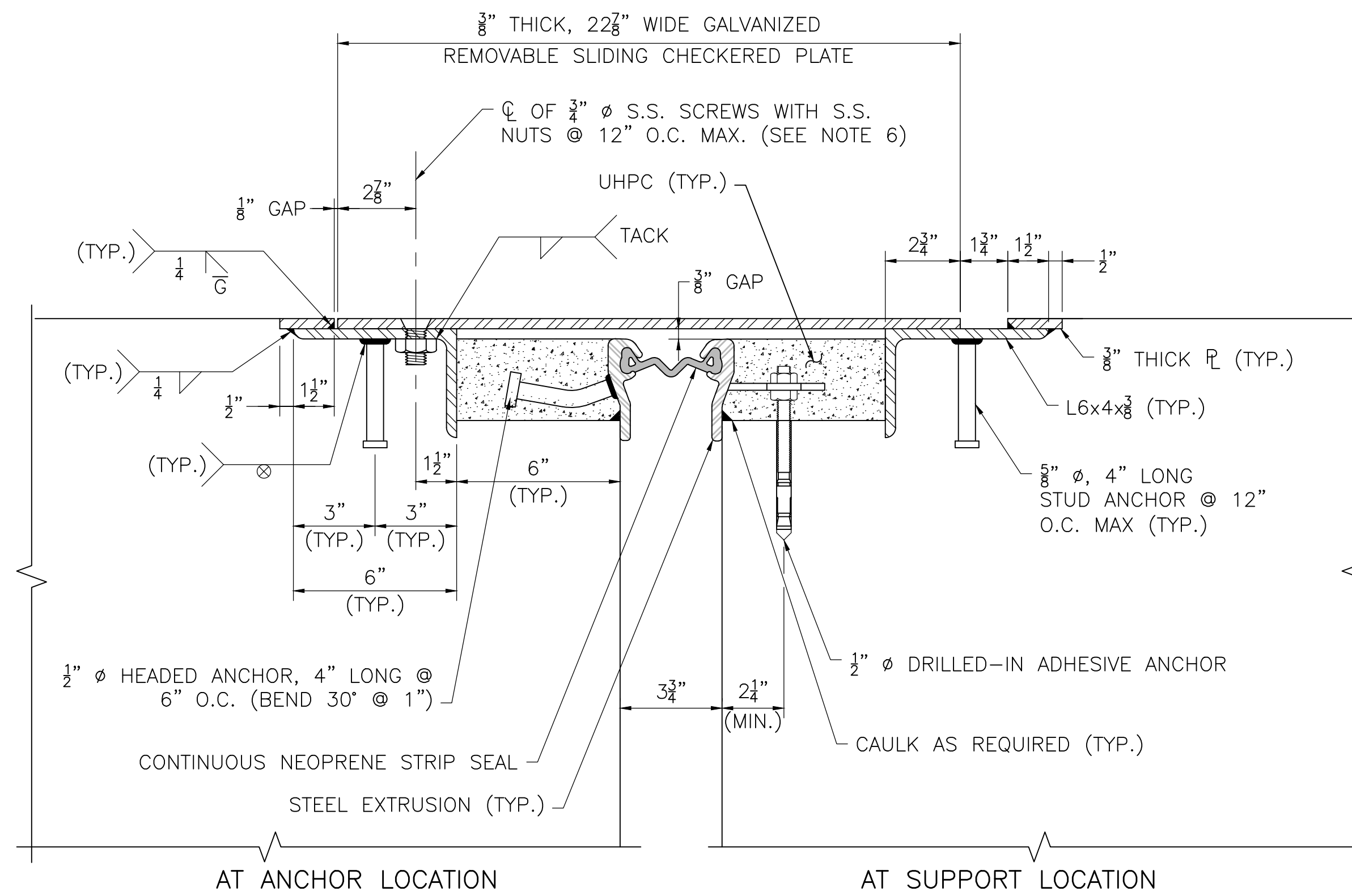
AT SUPPORT LOCATION

1. OPENING IS BASED ON 70°F. ADJUST FOR AMBIENT TEMPERATURE AT TIME OF CONCRETE PLACEMENT.
2. NEOPRENE SEAL TO BE INSTALLED WHEN AMBIENT TEMPERATURE PROVIDES A MINIMUM 2" GAP BETWEEN THE EXTRUSIONS.

ACCEPTABLE STRIP SEAL JOINTS		
MANUFACTURER	STEEL EXTRUSION MODEL	NEOPRENE STRIP SEAL MODEL
WATSON BOWMAN ACME	TYPE R	ES-400
D.S. BROWN	TYPE SSCM2	A2R-400

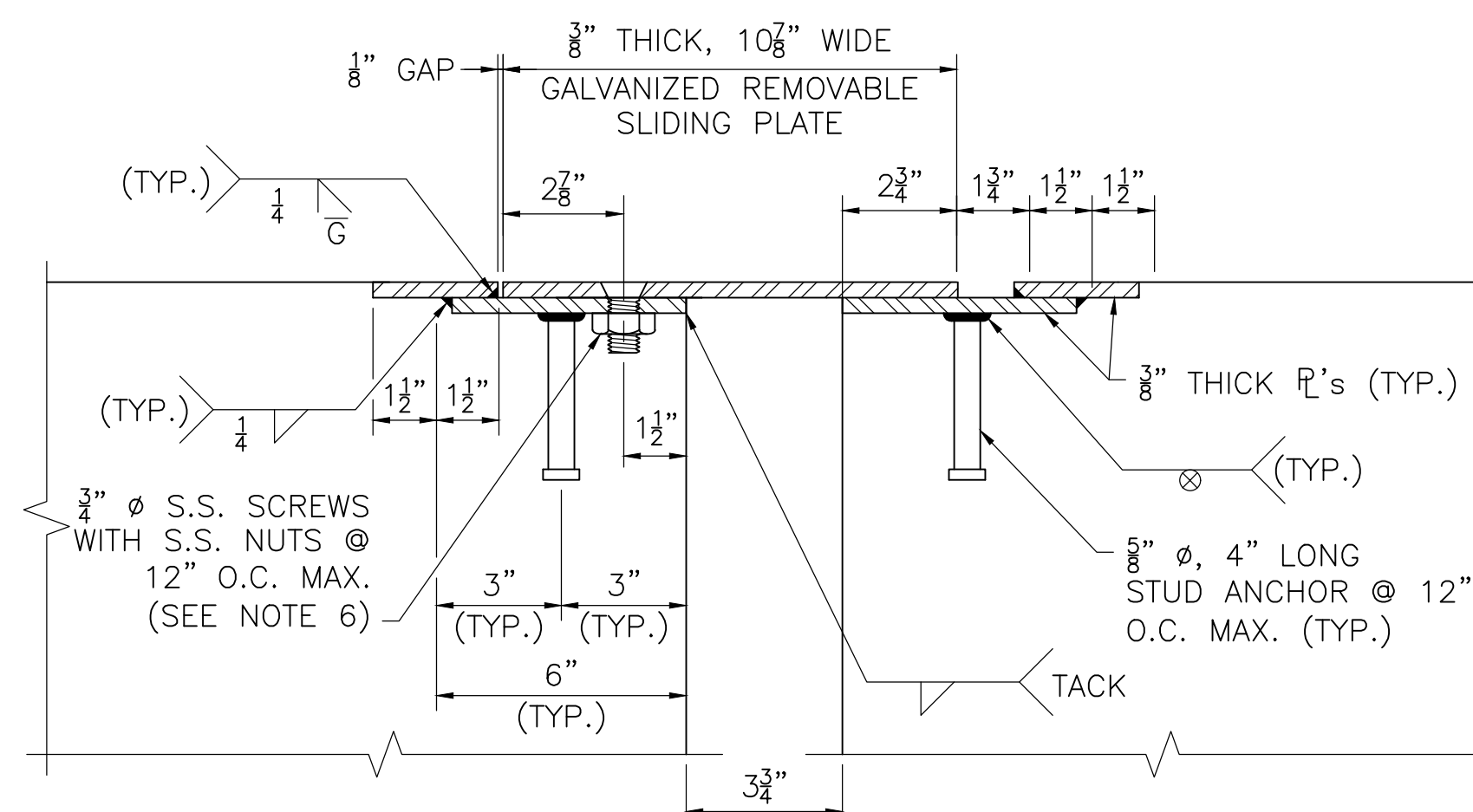
34

SCALE: 3" = 1'-0"



35

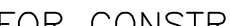
SCALE: 3" = 1'-0"



36

SCALE: 3" = 1'-0"

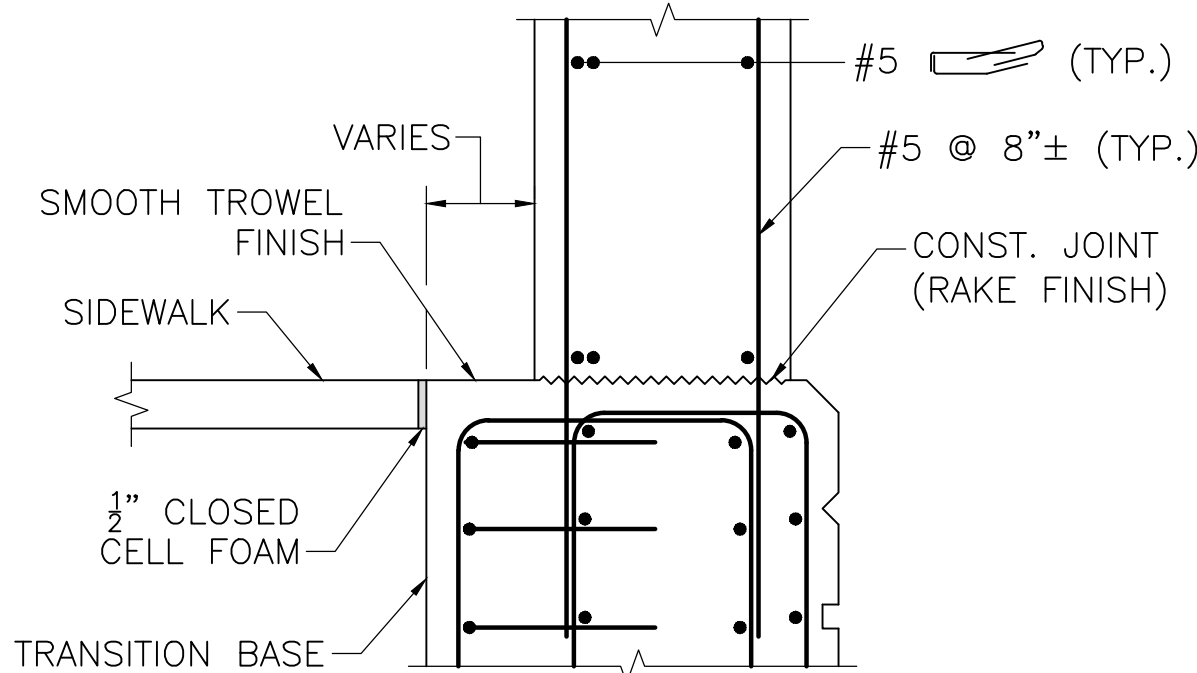
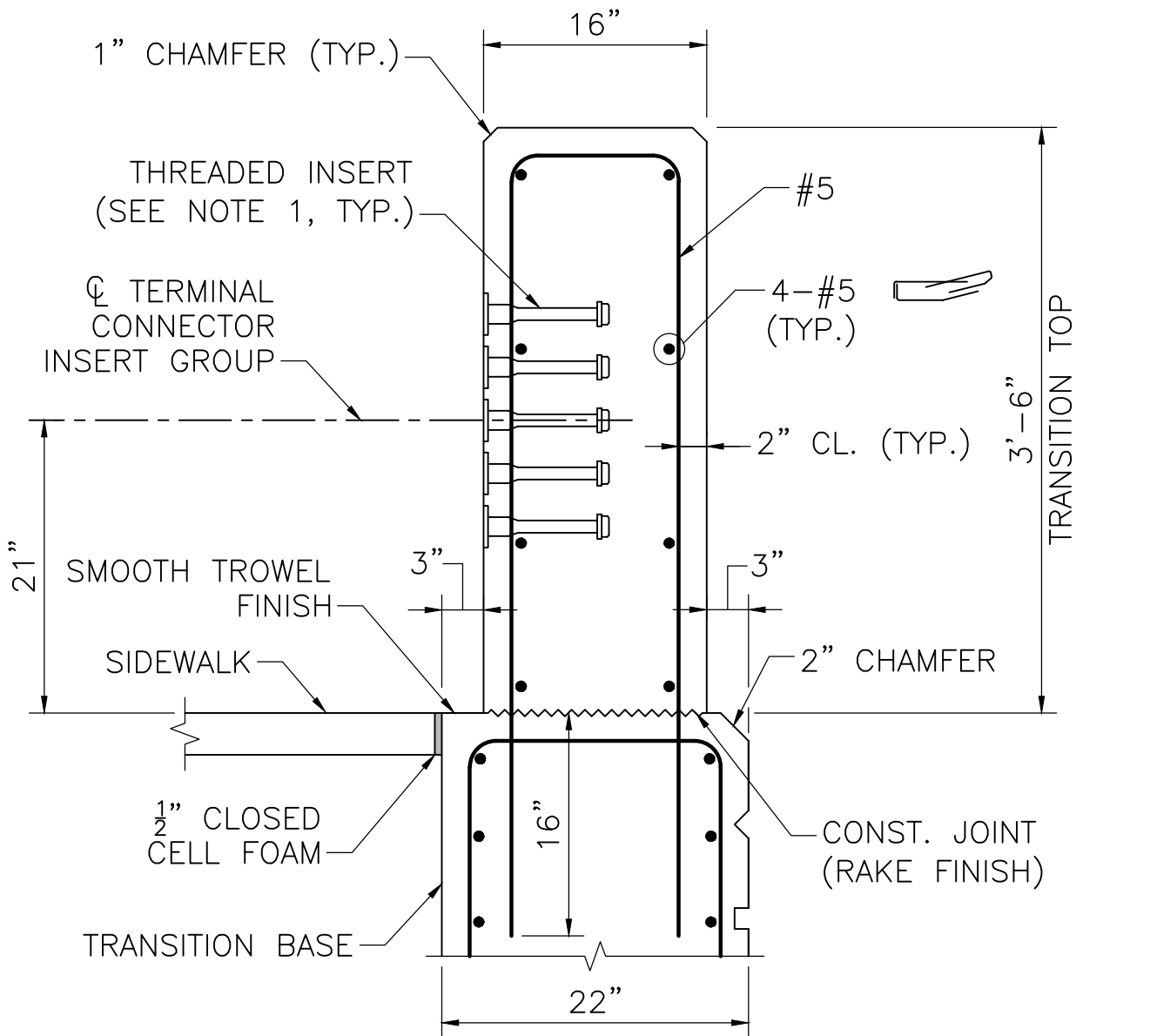
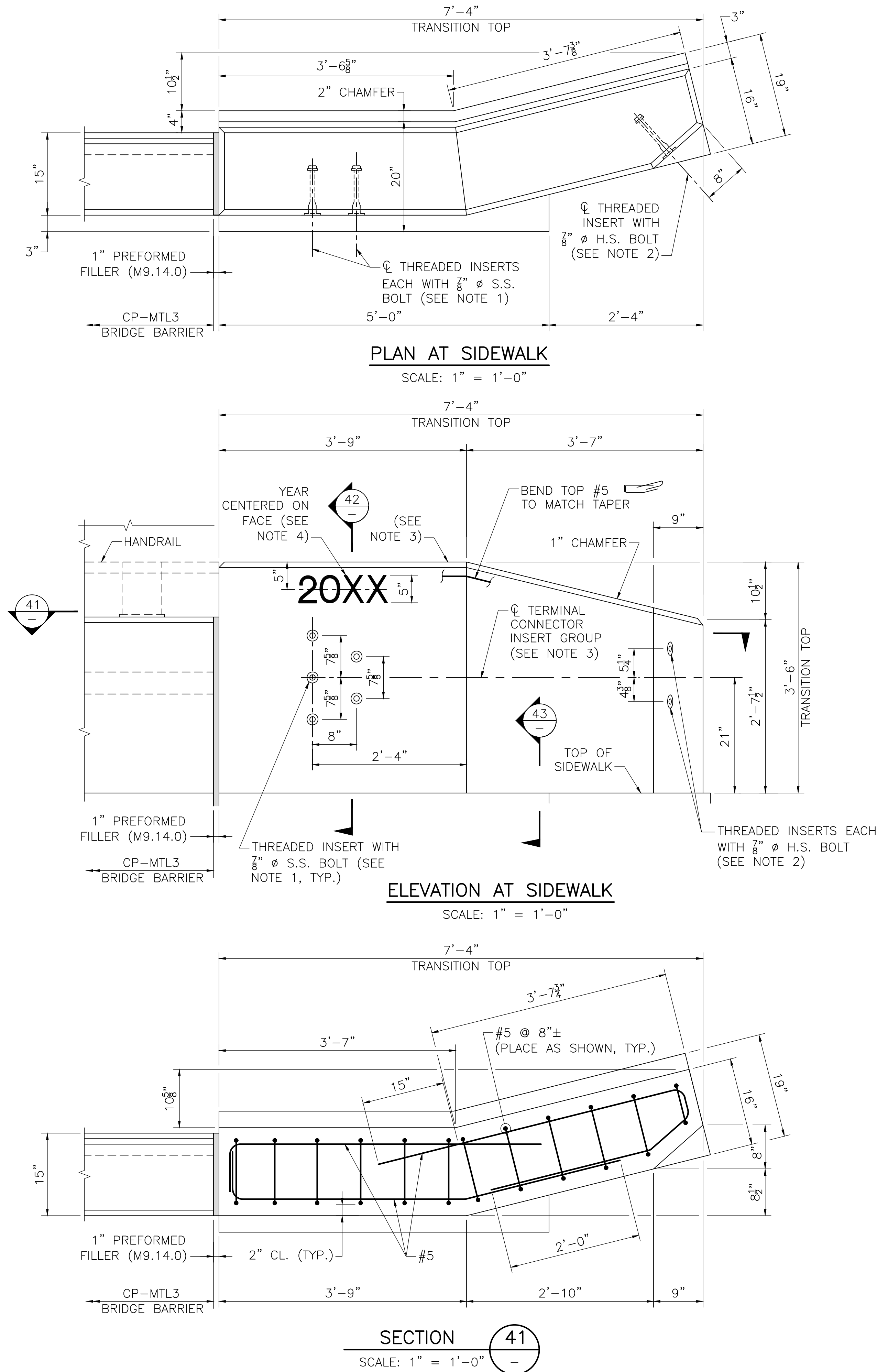
1. THE DETAILS SHOWN HERE ARE INTENDED AS A GENERAL GUIDE FOR A TYPICAL GLANDULAR TYPE STRIP SEAL JOINT SYSTEM. SHOP DRAWINGS WHICH INCLUDE DETAILS OF THE GLAND SHAPE, STEEL EXTRUSION SHAPE, WELDING PROCEDURE SPECIFICATIONS, ANCHOR ARRANGEMENT, TEMPERATURE CORRECTION REQUIREMENTS, AND TEMPORARY SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER ACCORDING TO THE STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50. AFTER THE COMPLETION OF ALL WELDING OPERATIONS STEEL PLATE ASSEMBLIES SHALL BE HOT-DIP GALVANIZED.
3. UHPC BLOCKOUT SHALL BE SANDBLASTED AND CLEANED WITH COMPRESSED OIL-LESS AIR PRIOR TO CASTING UHPC. UHPC HEADERS SHALL BE FORMED AND CAST TO ALLOW THE HEADERS TO MOVE INDEPENDENTLY WITH THEIR RESPECTIVE BRIDGE SPAN UNTIL THE UHPC IS FULLY CURED.
4. NEOPRENE STRIP SEAL SHALL BE BONDED TO STEEL EXTRUSION WITH APPROVED ADHESIVE.
5. INSTALL CONTINUOUS NEOPRENE STRIP SEAL IN THE FIELD. SPLICING OF SEAL IS NOT PERMITTED. TEMPORARY SEAL SHALL BE REQUIRED ON STAGE CONSTRUCTION PROJECTS.
6. PRIOR TO PLACEMENT OF SIDEWALK CONCRETE, LUBRICATE STAINLESS STEEL SCREWS WITH GRAPHITE AND SET SECURELY IN PLACE. MACHINE SCREWS TO BE TEMPORARILY REMOVED AFTER CONCRETE HAS ATTAINED FINAL SET.
7. NO WELDING OF PORTIONS OF STEEL EXTRUSIONS IN DIRECT CONTACT WITH NEOPRENE SEAL SHALL BE PERMITTED.

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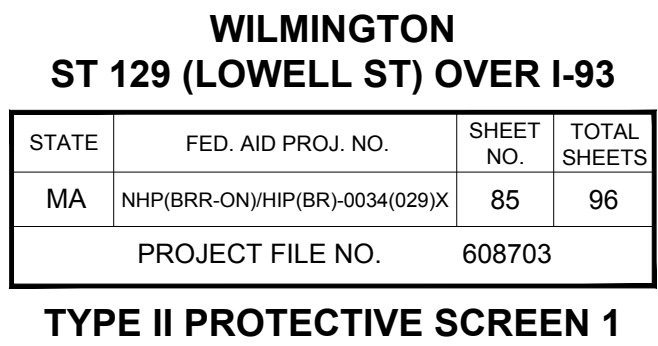
WILMINGTON			
ST 129 (LOWELL ST) OVER I-93			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HIP(BR)-0034(029)X	84	96
PROJECT FILE NO.		608703	

HIGHWAY GUARDRAIL TRANSITION DETAILS

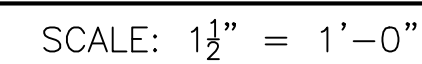
- NOTES:
1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER $\frac{7}{8}$ " ϕ S.S. (STAINLESS STEEL) BOLT. S.S. BOLTS SHALL BE $\frac{7}{8}$ " ϕ x $1\frac{1}{2}$ " LONG FULLY THREADED CONFORMING TO ASTM F593D WITH AISI TYPE 304N S.S. WASHERS. INSERTS FOR $\frac{7}{8}$ " S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
 2. $\frac{7}{8}$ " ϕ HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 GRADE 325 TYPE 1 GALVANIZED. USE ADDITIONAL WASHERS AS REQUIRED TO PROPERLY ENGAGE THE BOLTS.
 3. FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF THE BRIDGE BARRIERS 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.
 4. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.
 4. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
 5. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 HP CEMENT CONCRETE.
 6. 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 $\frac{1}{2}$ " 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.



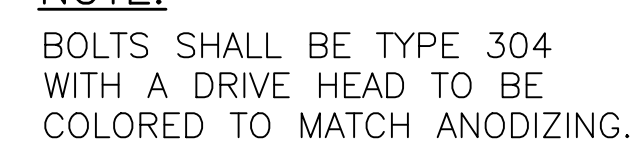
August 30, 2025	ISSUED FOR CONSTRUCTION
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August 30, 2025	ISSUED FOR CONSTRUCTION
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FULL SIZE

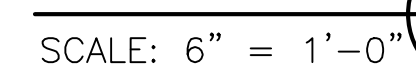
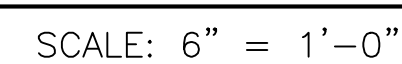
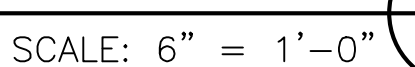
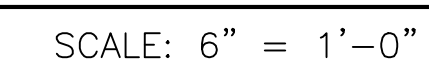
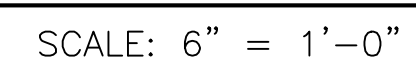


FULL SIZE



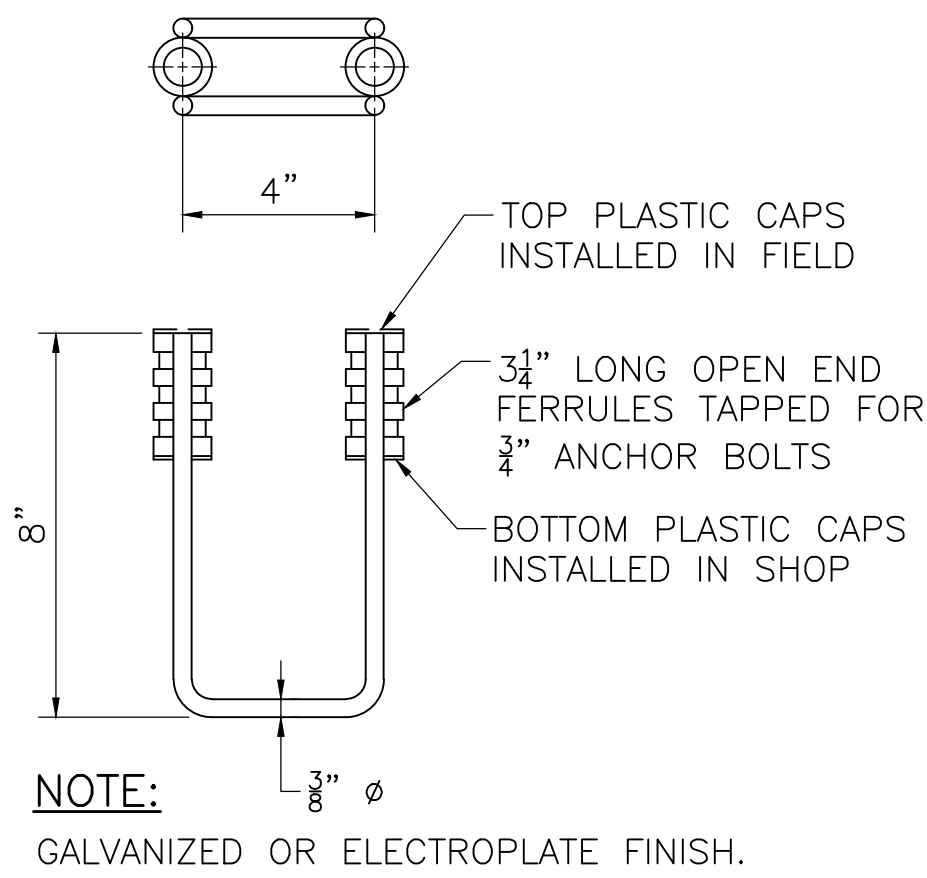
1. WELDING OF TOP COVER PLATE AND RAILS OF NON-TAPERED END IS SIMILAR.
2. WELDS AND MITERING TYPICAL FOR ALL ANGLED CORNERS.
3. WELD TYPICAL FOR TOP AND BOTTOM END CORNERS OF RAIL. INTERRUPT WELD AT SLOT IN BACK OF RAIL.

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



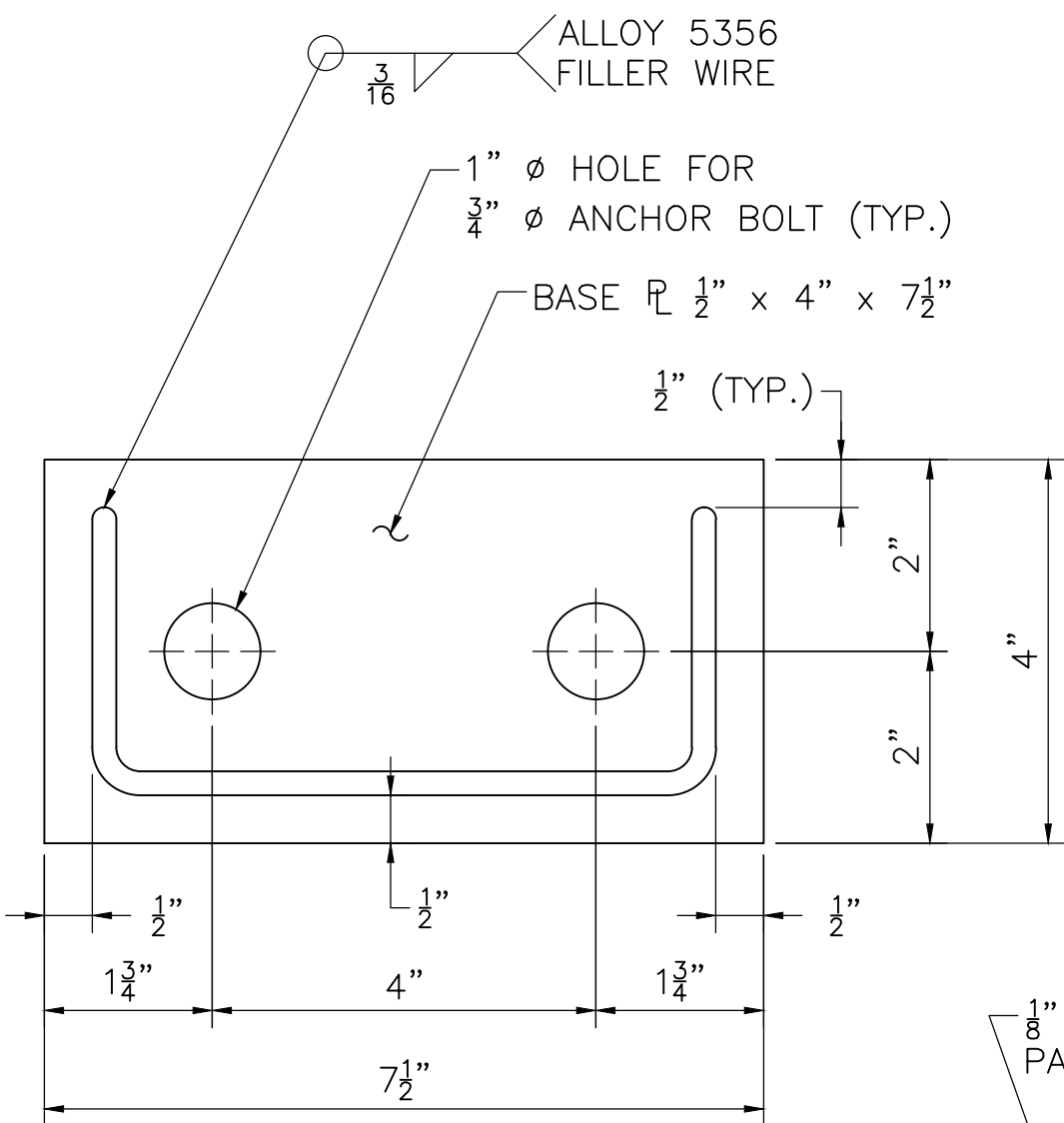
SHEET 39 OF 40 SHEETS BRIDGE NO. W-38-029 (C57)

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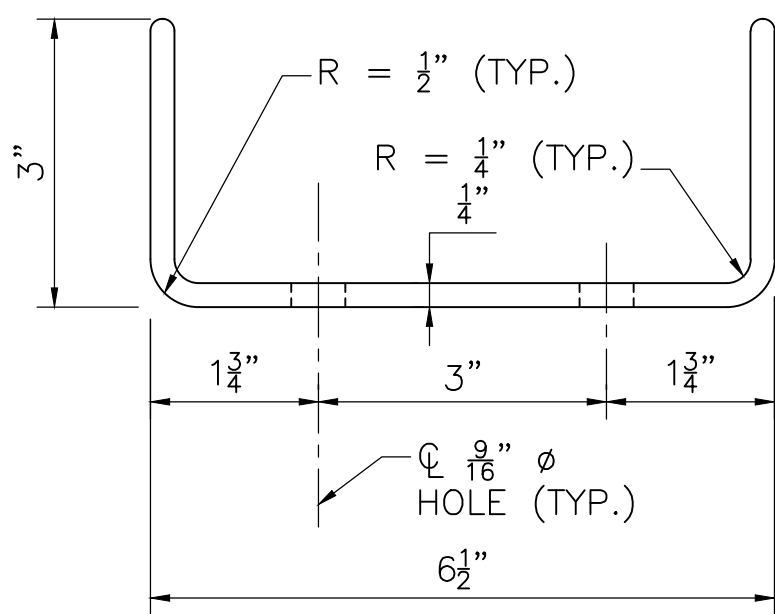
ANCHOR CAGE

SCALE: 3" = 1'-0"



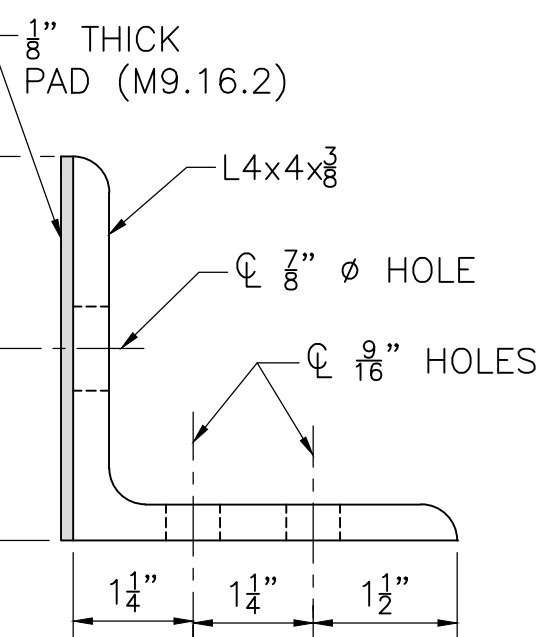
BASE PLATE DETAIL

SCALE: 6" = 1'-0"

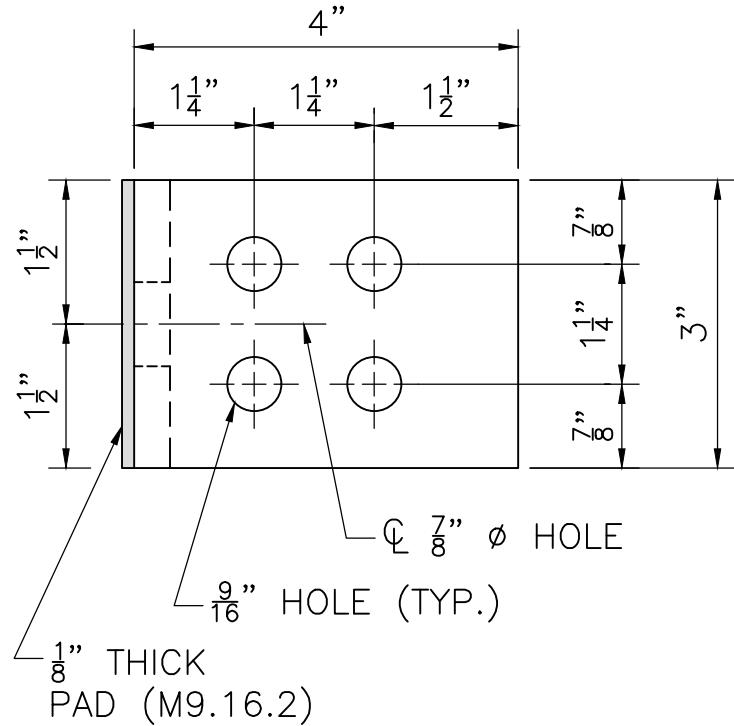


POST DETAIL

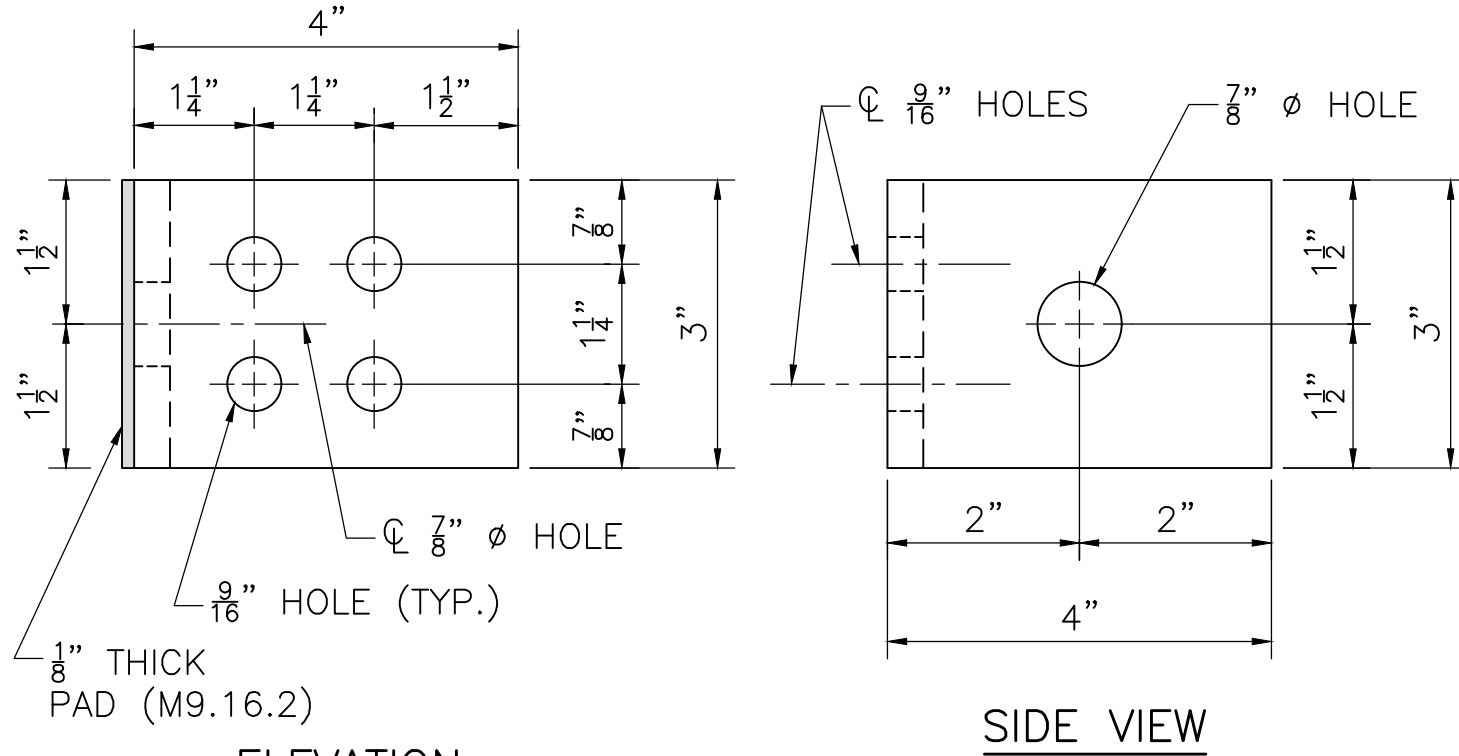
SCALE: 6" = 1'-0"



TOP VIEW



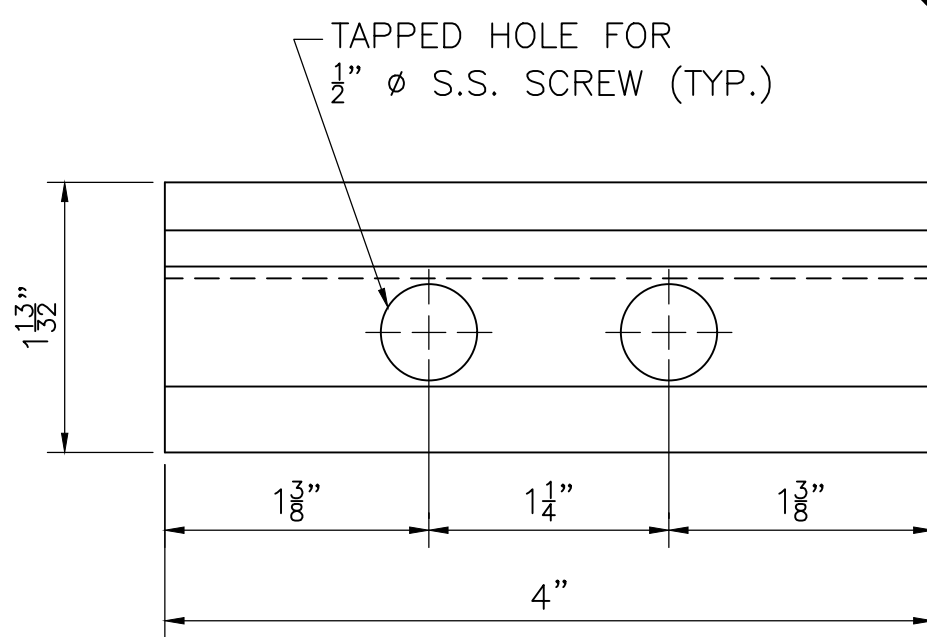
ELEVATION



SIDE VIEW

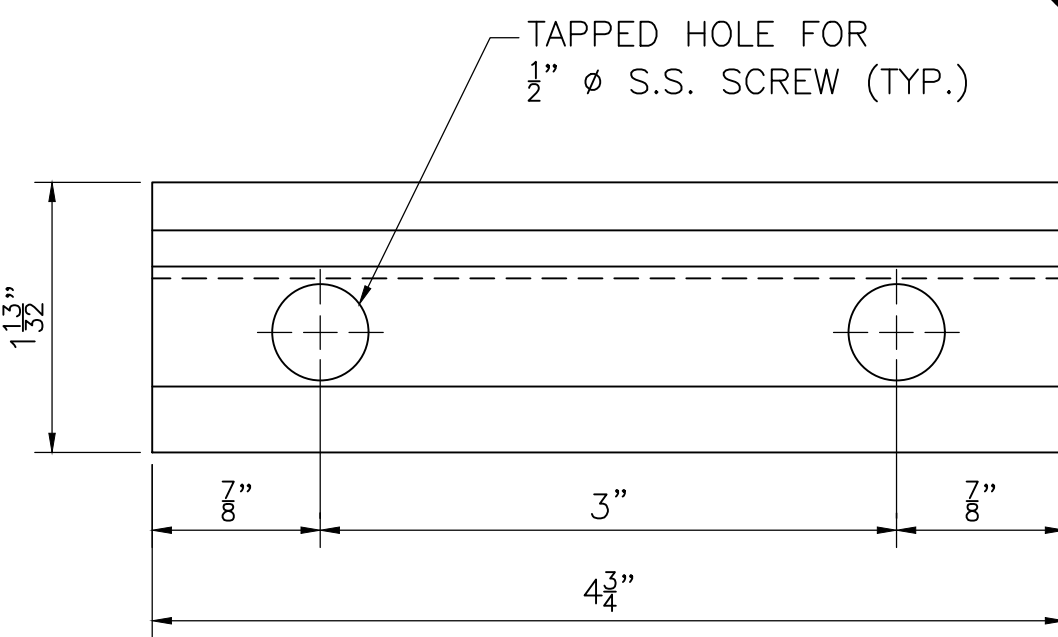
CONCRETE CLIP

SCALE: 6" = 1'-0"



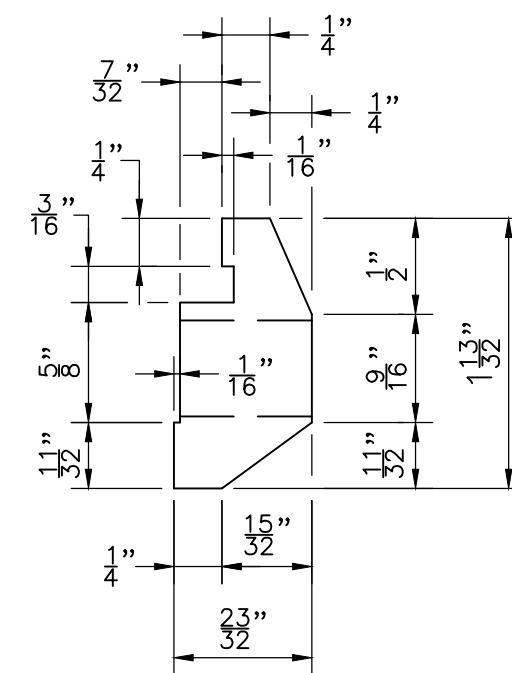
CLAMP BAR AT CONCRETE CLIP

FULL SIZE



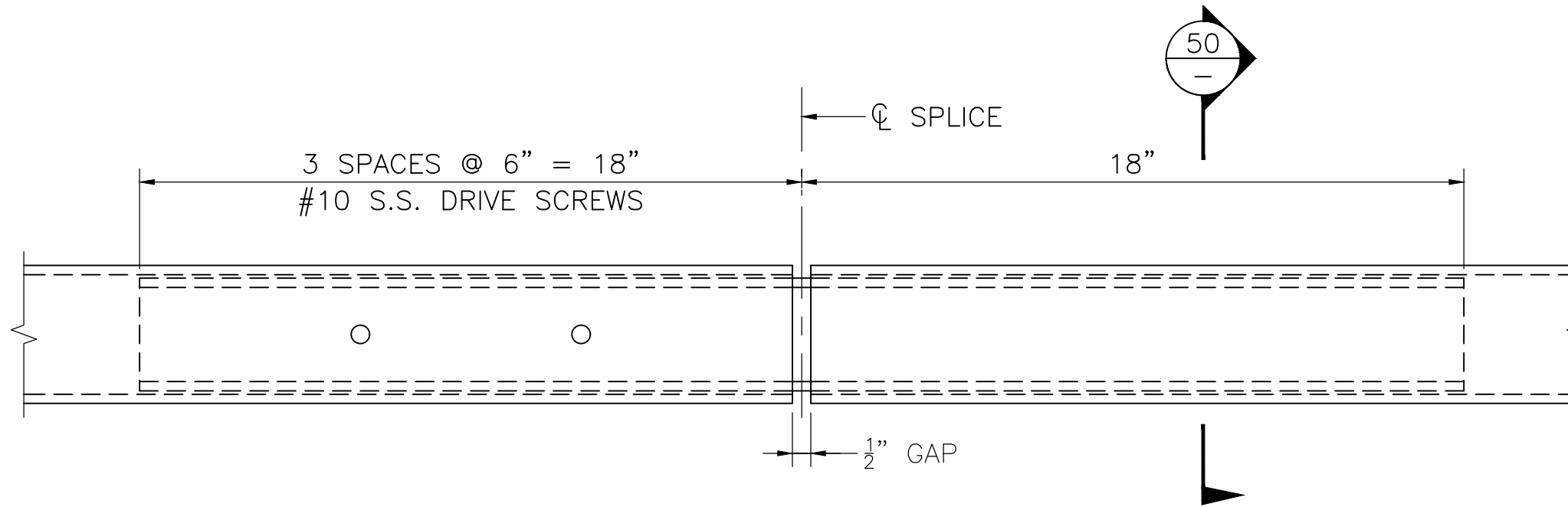
CLAMP BAR AT POST

FULL SIZE



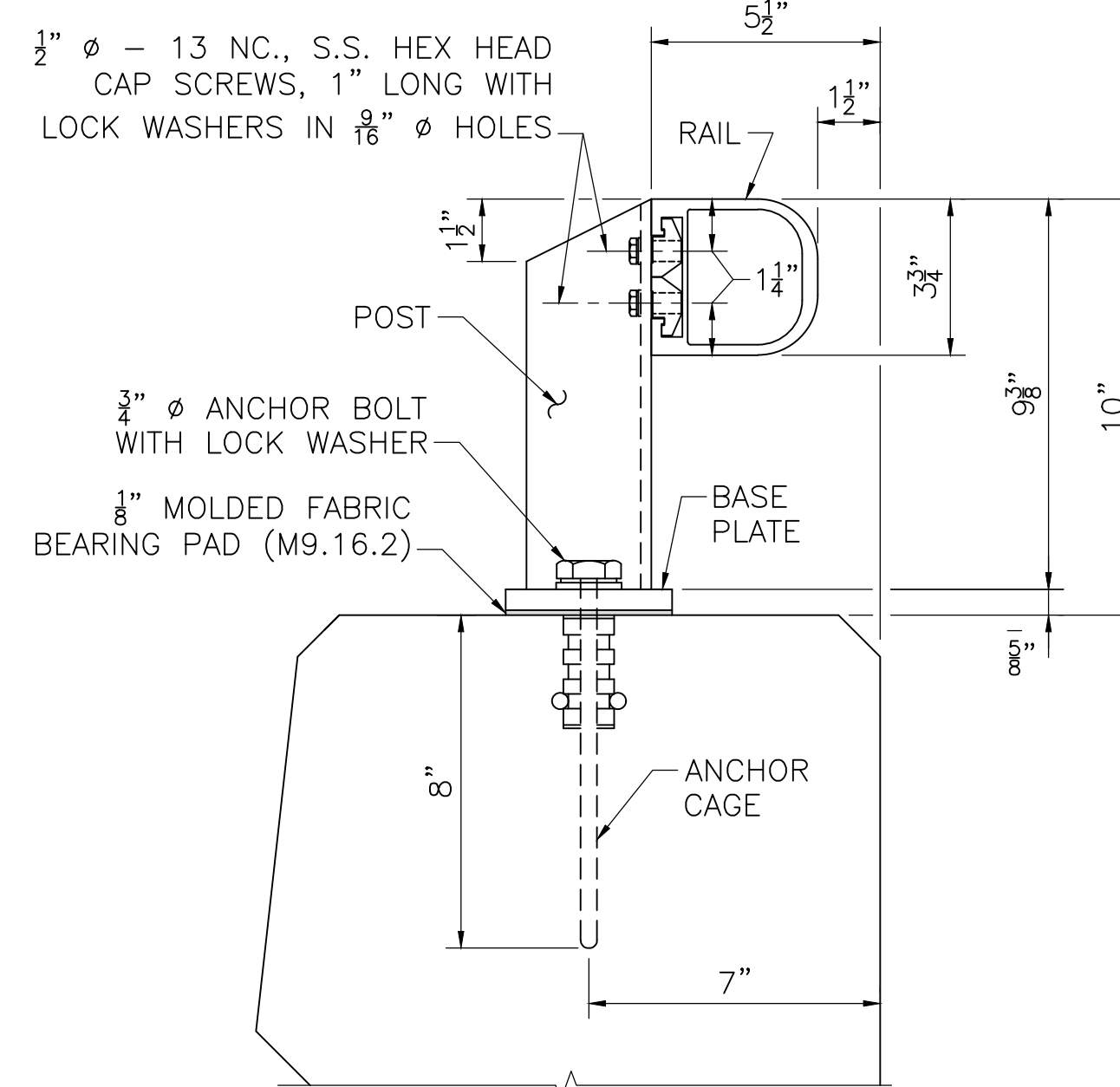
SECTION 49

FULL SIZE



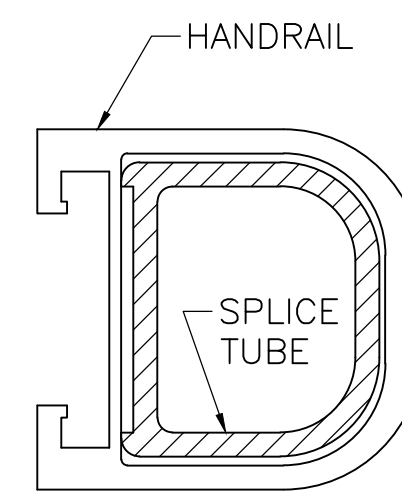
HANDRAIL SPLICE

SCALE: 3" = 1'-0"



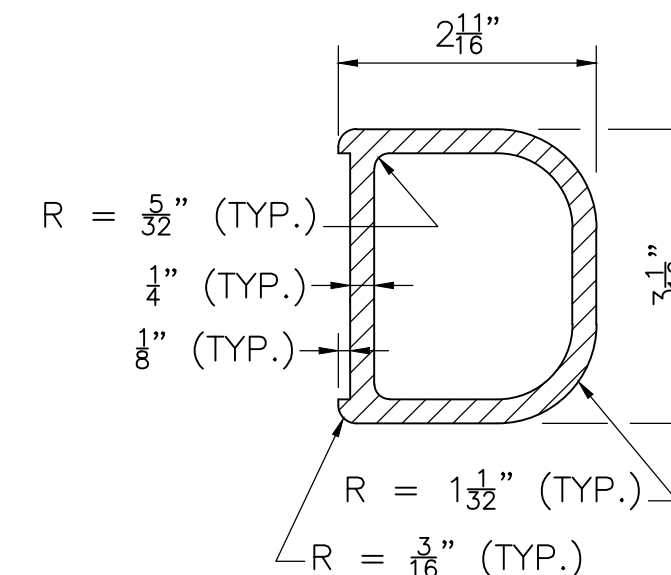
SECTION 48

SCALE: 3" = 1'-0"



SECTION 50

SCALE: 6" = 1'-0"



SPLICE TUBE

SCALE: 6" = 1'-0"

HANDRAIL ELEVATION

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

WILMINGTON ST 129 (LOWELL ST) OVER I-93

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	NHP(BRR-ON)/HPI(BR)-0034(029)X	87	96
PROJECT FILE NO.			608703

HANDRAIL DETAILS

FINISH:

POSTS, RAILS, BASE PLATES, CONCRETE CLIP AND SPLICE TUBE SHALL RECEIVE A DARK BRONZE ANODIZED FINISH.

MATERIALS:

RAIL, POST AND BASE PLATE _____ ASTM B 221, ALLOY 6061-T6

CLAMP BAR, RAIL SPLICE AND CONC. CLIP _____ ASTM B 221, ALLOY 6061-T6

S.S. FASTENERS _____ ASTM A 193 GRADE B8 (TYPE 304)

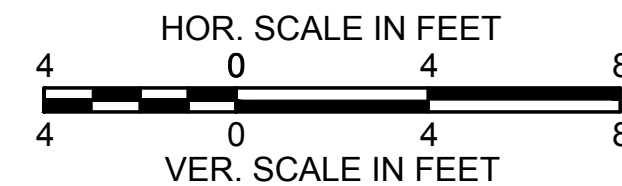
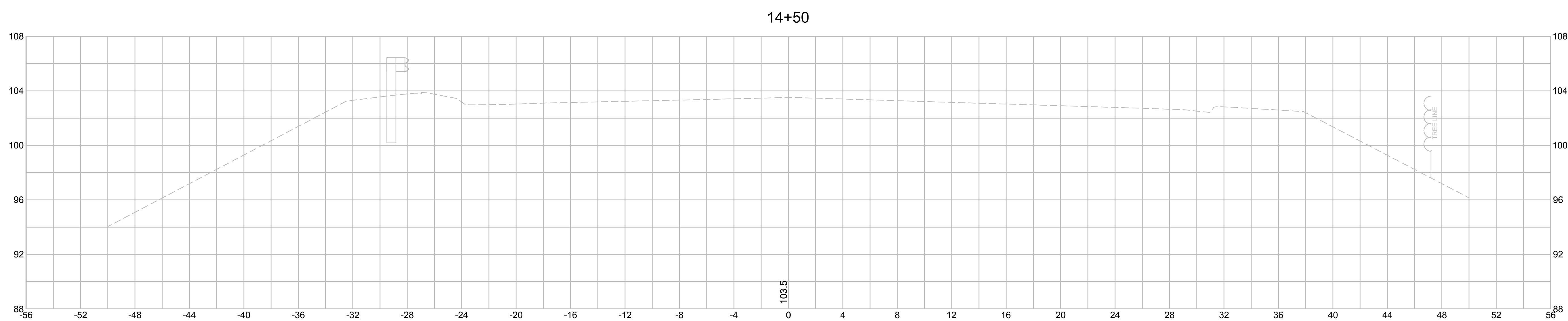
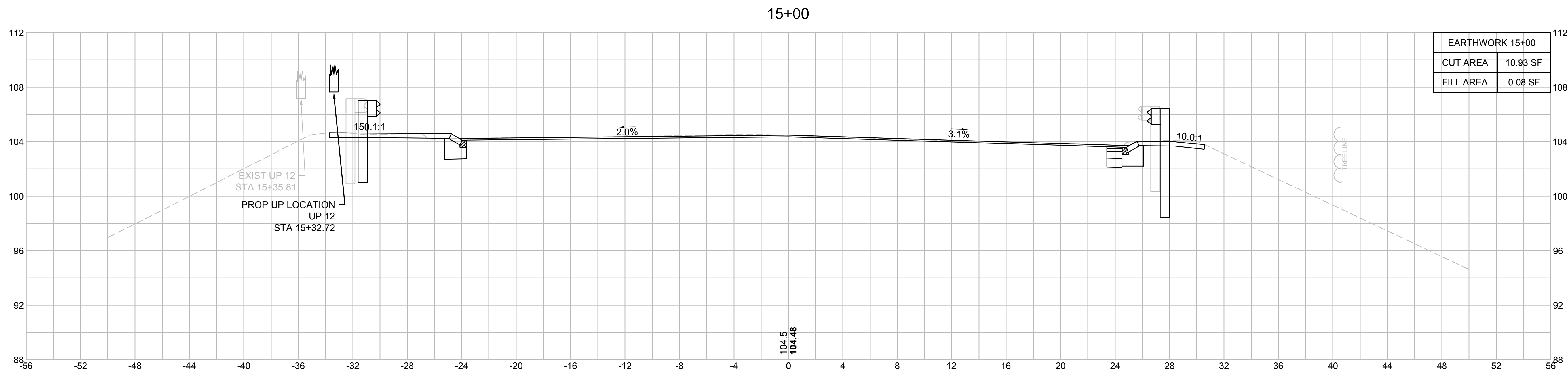
ANCHOR BOLTS _____ ASTM F3125 GRADE 325 TYPE 1 GALVANIZED (ROTATION CAPACITY TEST NOT REQUIRED)

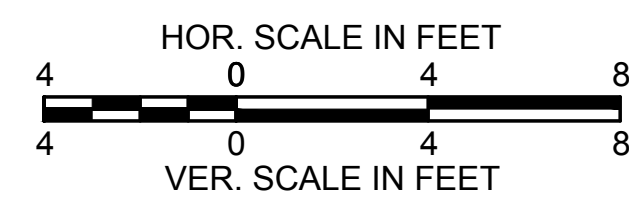
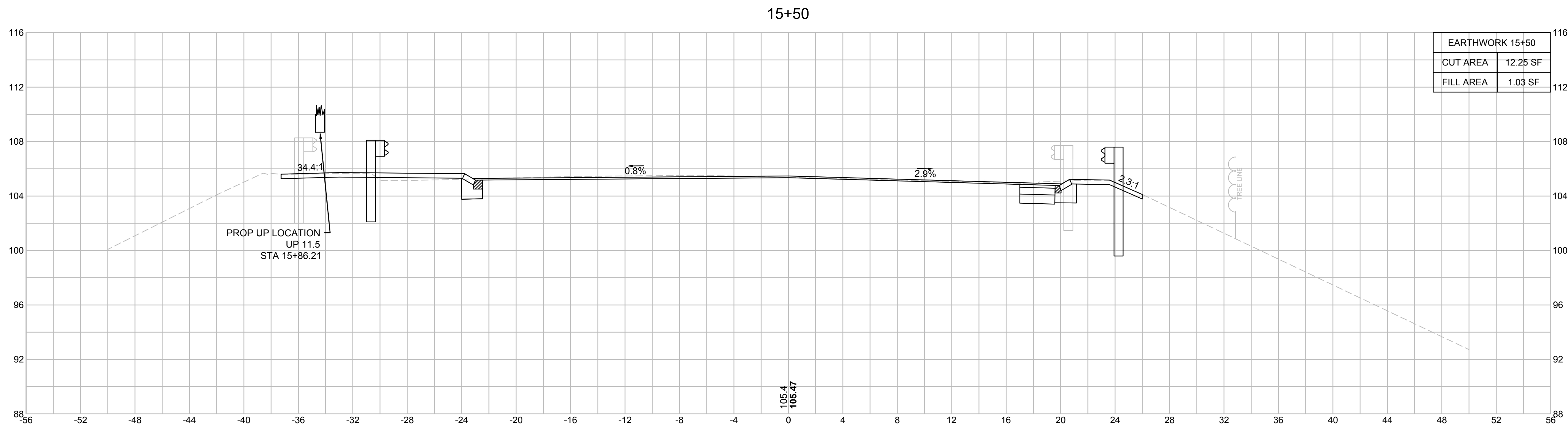
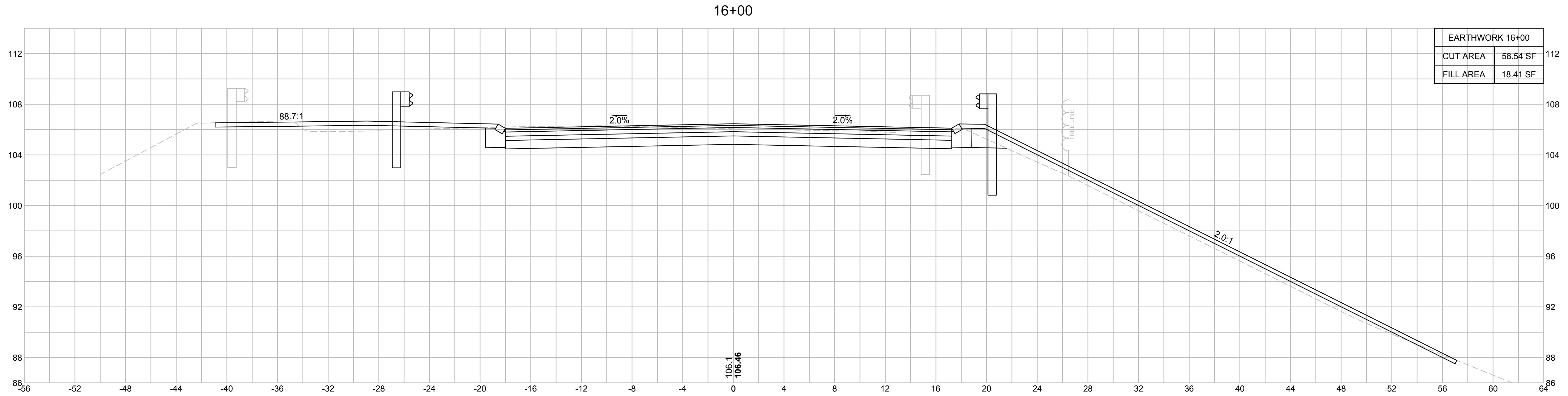
ALUMINUM WASHERS _____ ASTM B 209 ALLOY ALCLAD 2024-T4

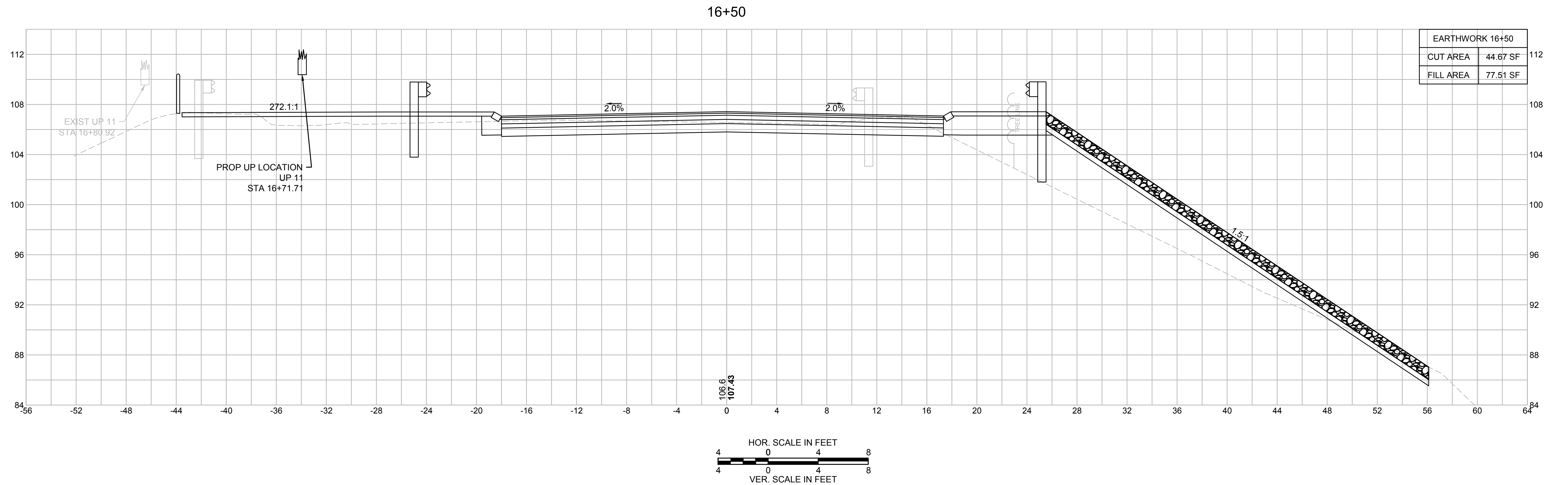
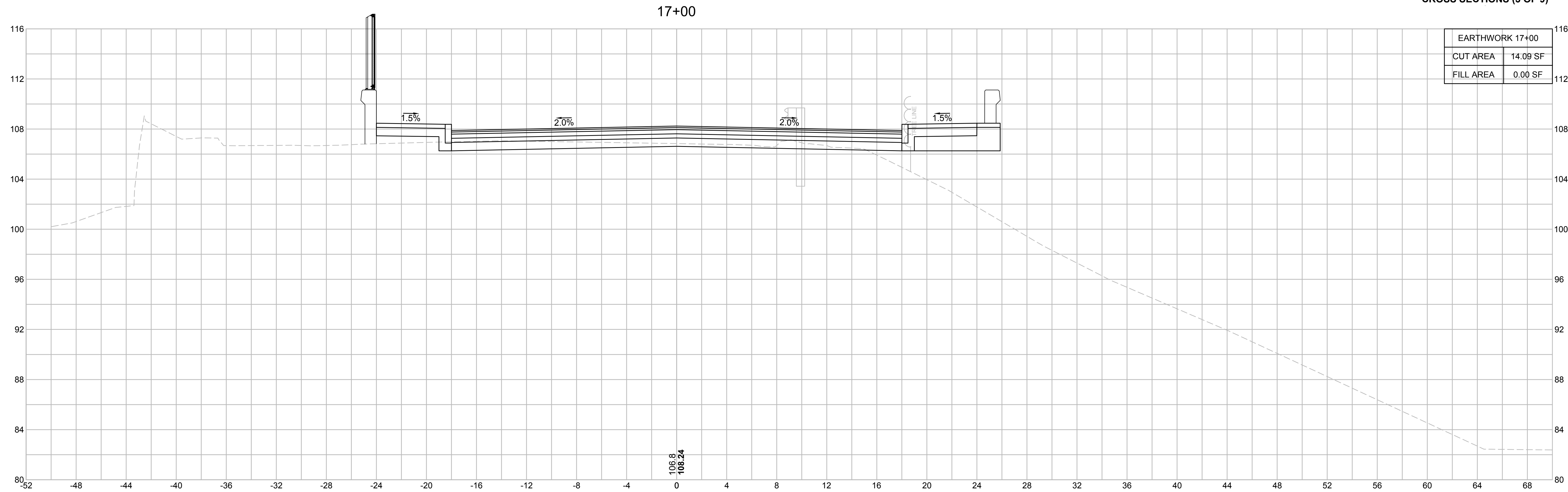
GENERAL NOTES:

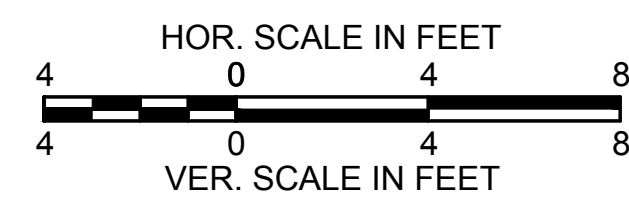
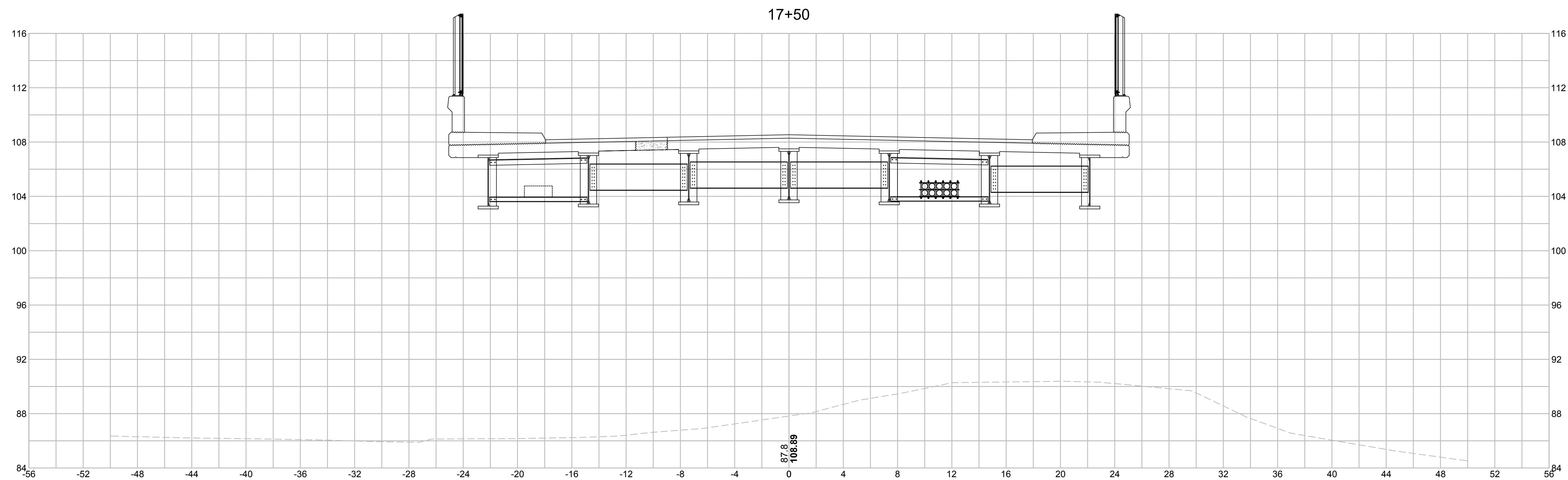
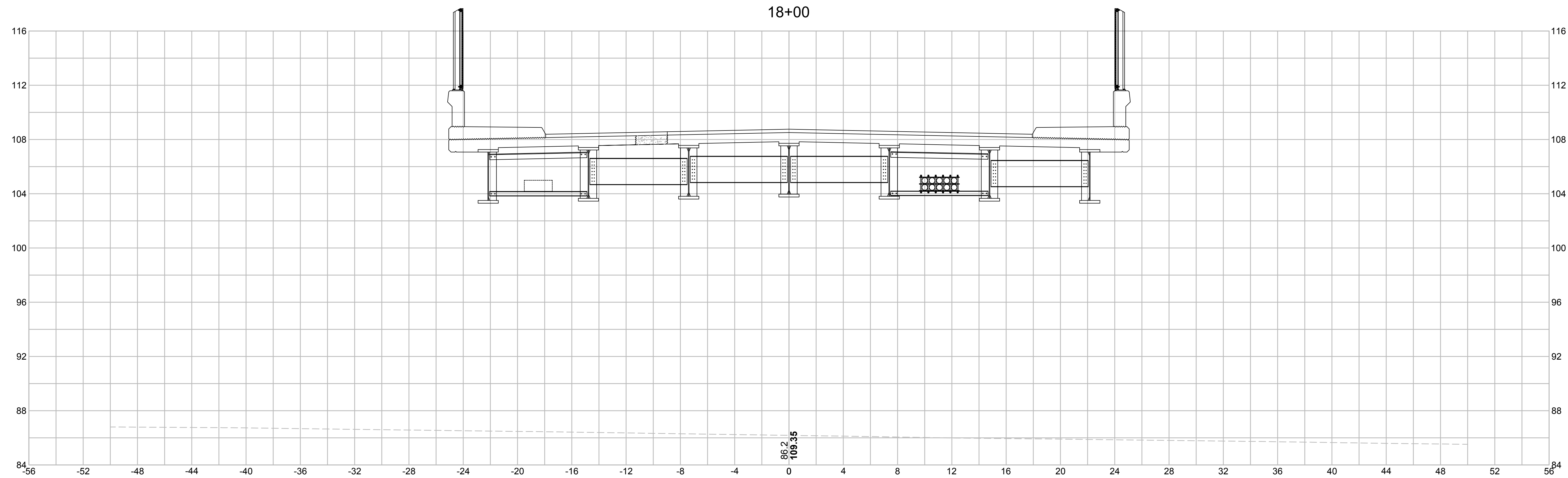
- RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR POST, IF POSSIBLE.
- RAILS SHALL HAVE A HANDRAIL SPLICE, WITH A 1/2" GAP, BETWEEN CONTINUOUS LENGTHS OF RAIL AND IN THE PANEL OVER A BRIDGE EXPANSION JOINT. 1/2" GAP SHALL BE INCREASE AS REQUIRED.
- OTHER CONFIGURATIONS OF THE INTERNAL WALLS OF THE RAIL EXTRUSION MAY BE SUBMITTED FOR APPROVAL.
- AT 45° MITRES, TRIM OFF 1/16" NUB ON VERTICAL RAIL SECTION AS NEEDED TO ALLOW BOTTOM HORIZONTAL CLAMP BAR TO PROPERLY ENGAGE THE HORIZONTAL RAIL.

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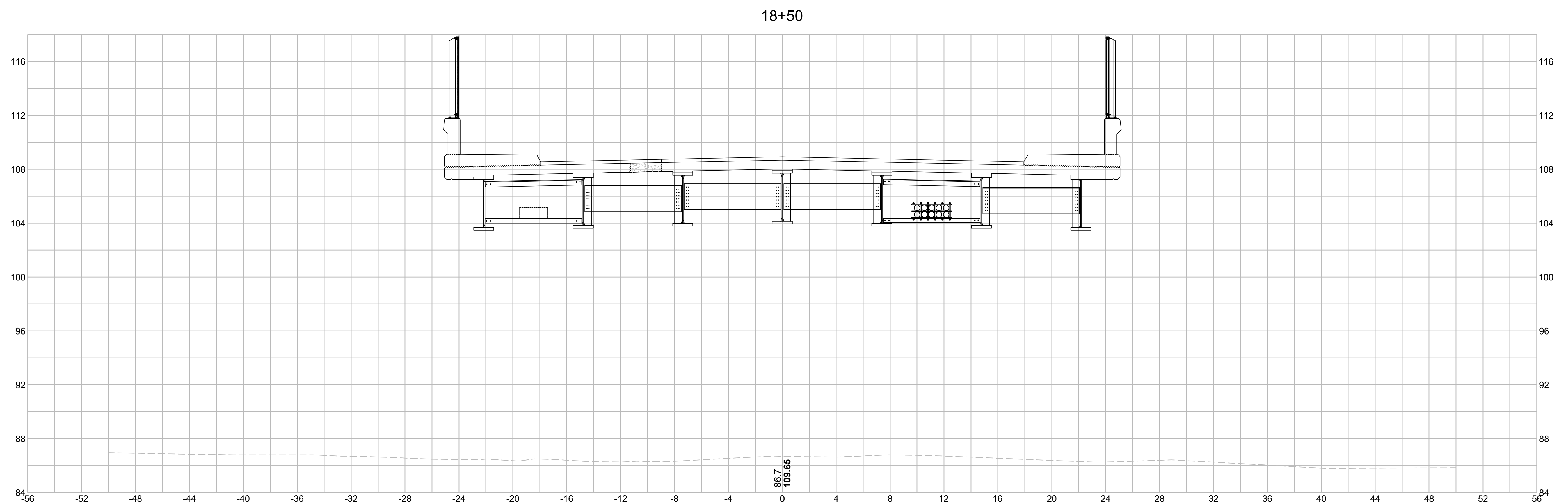
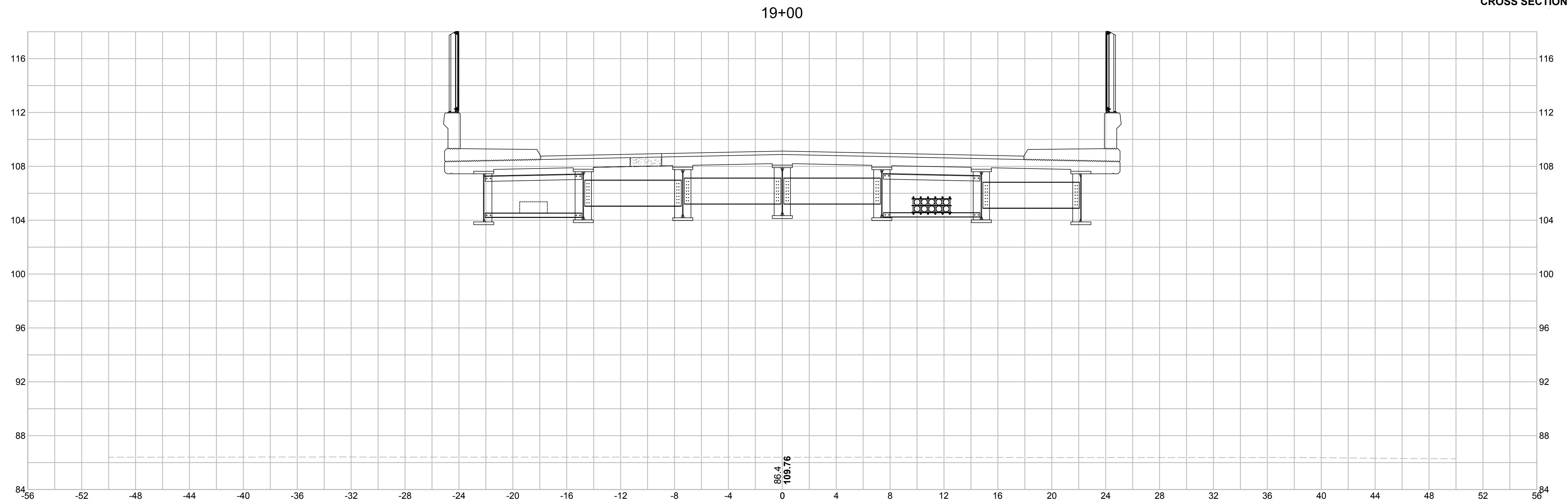






WILMINGTON
ROUTE 129 (LOWELL STREET)

CROSS SECTIONS (5 OF 9)



HOR. SCALE IN FEET

4 0 4 8

VER. SCALE IN FEET

4 0 4 8

