MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

BODEN LANE OVER THE MBTA RAILROAD

(BRIDGE NO. N-03-012)

IN THE TOWN OF

NATICK

MIDDLESEX COUNTY

FEDERAL AID PROJECT NO. HIP(NGB)-003S(965)X

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	1	92
	PROJECT FILE NO. 607420		

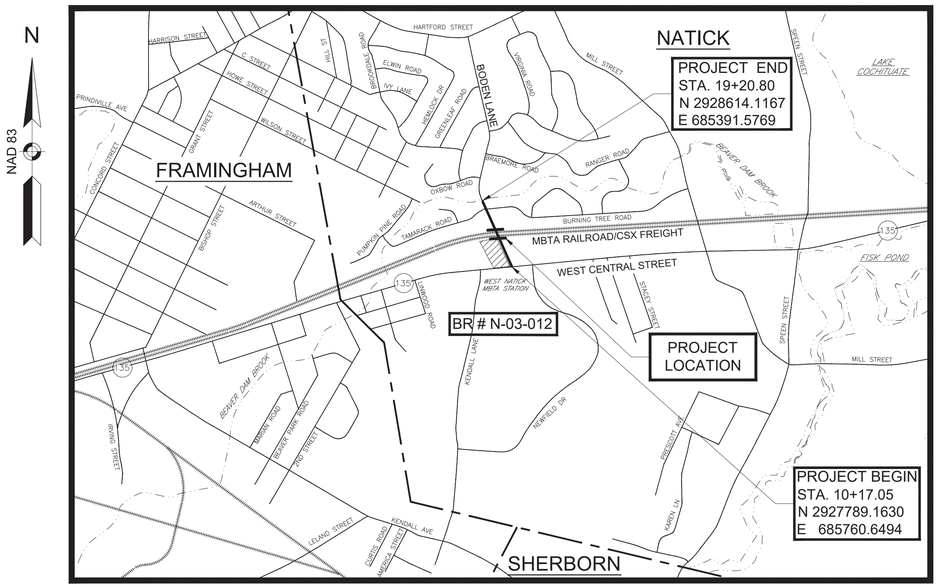
TITLE SHEET & INDEX

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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.

INDEX

SHEET NO.	DESCRIPTION
01	TITLE SHEET & INDEX
02	LEGEND & ABBREVIATIONS
03	KEY PLAN
04-05	TYPICAL SECTIONS
06-08	CONSTRUCTION BASELINE TIES
09-11	CONSTRUCTION PLANS
12-13	PROFILES
14-16	CURB TIE AND GRADING
17-19	TRAFFIC SIGN & PAVEMENT MARKINGS
20	TRAFFIC SIGN SUMMARY SHEET
21-29	TEMPORARY TRAFFIC CONTROL PLANS
30-31	TEMPORARY TRAFFIC CONTROL DETAILS
32-34	UTILITY PLANS
35	DRAINAGE TABLE
36	PROPOSED MBTA PTC RELOCATION
37-40	LANDSCAPING PLANS & DETAILS
41-42	CONSTRUCTION DETAILS
43-44	PEDESTRIAN CURB RAMP DETAILS
45-83	BRIDGE PLANS
84-92	CROSS SECTIONS



0 100 200 300 400

SCALE: 1" = 100'

LENGTH OF PROJECT = 903.75 FEET = 0.171 MILES

DESIGN DESIGNATION (BODEN LANE)	
DESIGN SPEED	25 MPH
ADT (2021)	4,387
ADT (2028)	4,736
K	9%
D	100%
T (PEAK HOUR)	X.X%
T (AVERAGE DAY)	X.X%
DHV	XXX
DDHV	426
FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR

COMMONWEALTH OF MASSACHUSETTS
KEITH V LINCOLN
CIVIL
No 42567
REGISTERED PROFESSIONAL ENGINEER

Keith Lincoln
Digitally signed by Keith Lincoln
Date: 2026.08.31 15:39:40 -04'00'

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752

DATE	DESCRIPTION	REV #

MassDOT
Massachusetts Department of Transportation
Highway Division

APPROVED

Carrie Lavallee
Digitally signed by Carrie Lavallee, P.E.
Date: 2026.09.02 10:01:38 -04'00'

09/01/2026

CHIEF ENGINEER **DATE**

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
99 / 100		CONTOURS (ON-THE-GROUND SURVEY DATA)
99 / 100		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT BARRIER
		COIR LOG SEDIMENT BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE, 12" WIDE
	CW	CROSSWALK, 12" WIDE
	SWL	SOLID WHITE LINE, 6" WIDE
	SYL	SOLID YELLOW LINE, 6" WIDE
	BWL	BROKEN WHITE LINE, 6" WIDE
	BYL	BROKEN YELLOW LINE, 6" WIDE
	DWL	DOTTED WHITE LINE, 6" WIDE - 3' LINE - 9' GAP
	DYL	DOTTED YELLOW LINE, 6" WIDE - 3' LINE - 9' GAP
	DWLEx	DOTTED WHITE LINE EXTENSION, 6" WIDE - 2' LINE - 6' GAP
	DYLEx	DOTTED YELLOW LINE EXTENSION, 6" WIDE - 2' LINE - 6' GAP
	DBWL	DOUBLE WHITE LINE, 6" WIDE EACH LINE
	DBYL	DOUBLE YELLOW LINE, 6" WIDE EACH LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BG	BUNGALOW
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
M&O	MILL & OVERLAY
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	PEDESTRIAN CURB RAMP
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	2	92
	PROJECT FILE NO. 607420		

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PW	POWER CASE
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SC	SALT CONTAINER
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

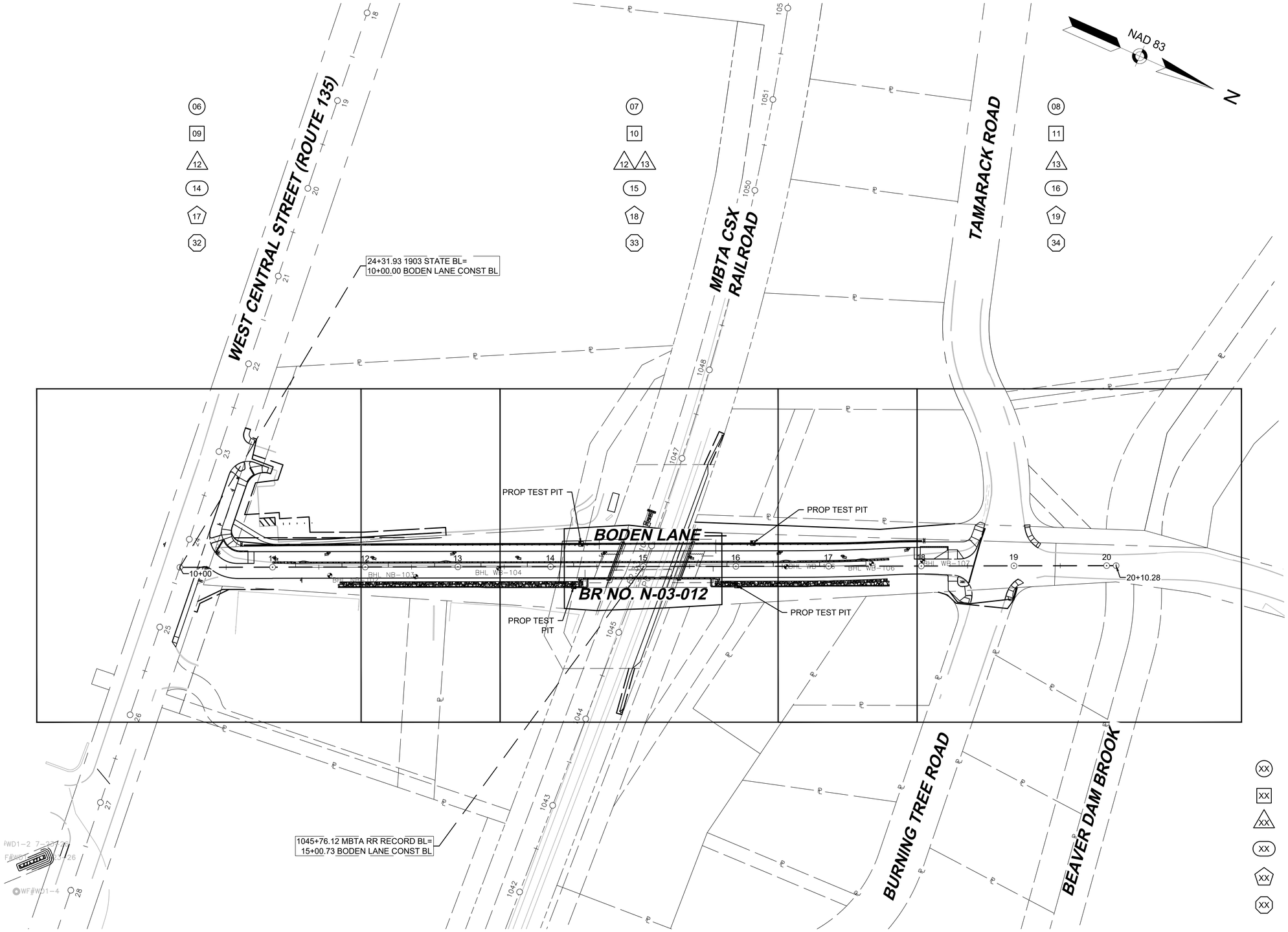
CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

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NATICK
BODEN LANE OVER THE MBTA RAILROAD

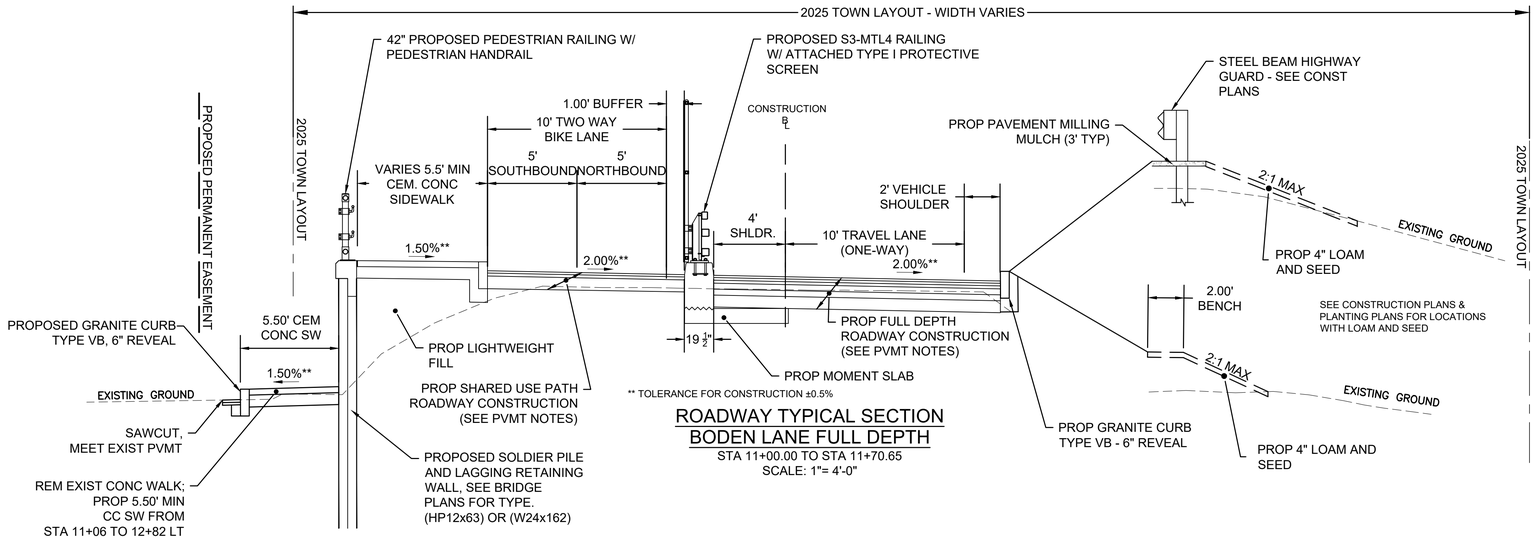
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MA	HIP(NGB)-003S(965)X	3	92
PROJECT FILE NO.	607420		

KEY PLAN



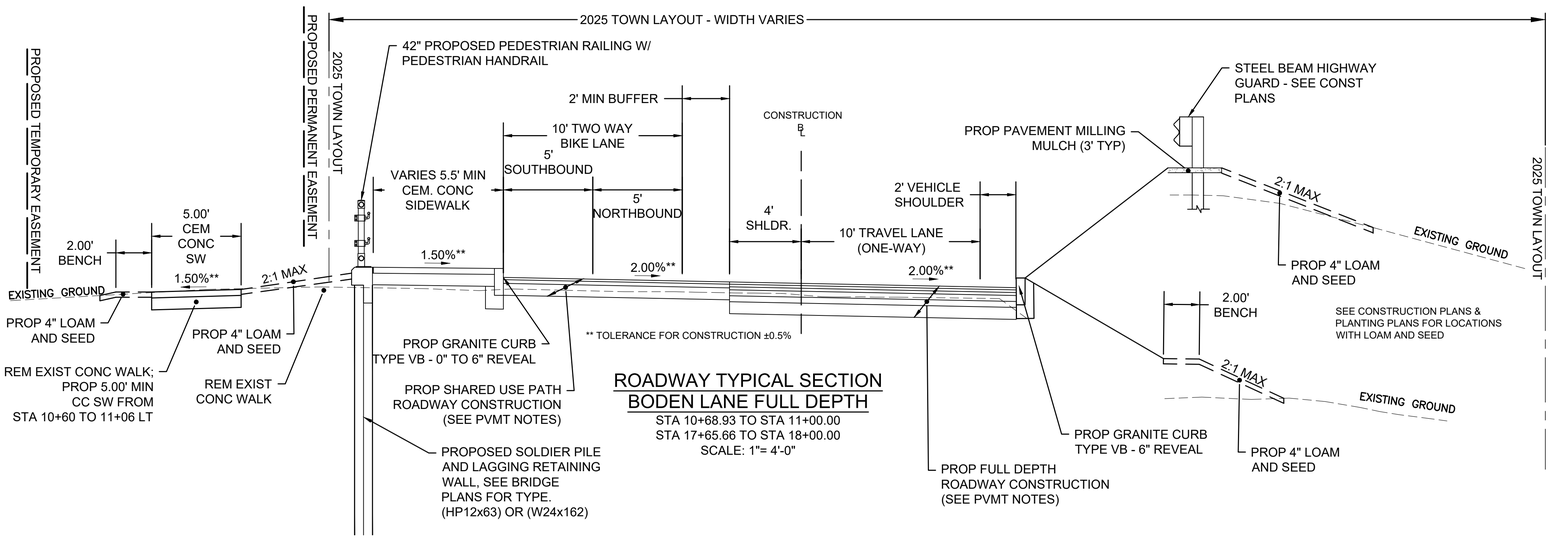
XX	CONSTRUCTION BASELINE TIES
XX	CONSTRUCTION PLANS
XX	PROFILES
XX	CURB TIE & GRADING PLANS
XX	TRAFFIC SIGN & PAVEMENT MARKINGS
XX	UTILITY PLANS

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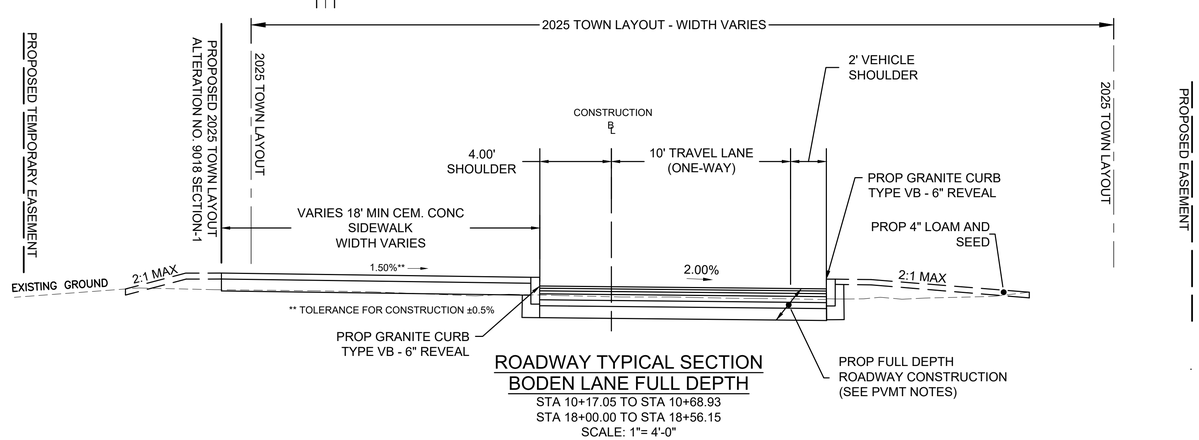
ROADWAY TYPICAL SECTION
BODEN LANE FULL DEPTH

STA 11+00.00 TO STA 11+70.65
SCALE: 1"= 4'-0"



ROADWAY TYPICAL SECTION
BODEN LANE FULL DEPTH

STA 10+68.93 TO STA 11+00.00
STA 17+65.66 TO STA 18+00.00
SCALE: 1"= 4'-0"



ROADWAY TYPICAL SECTION
BODEN LANE FULL DEPTH

STA 10+17.05 TO STA 10+68.93
STA 18+00.00 TO STA 18+56.15
SCALE: 1"= 4'-0"

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	4	92
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TYPICAL SECTIONS

PAVEMENT NOTES

PROPOSED BRIDGE SURFACE

SURFACE COURSE:
1.50" SUPERPAVE BRIDGE SURFACE COURSE 9.5 POLYMER (SSC-B - 9.5 - P) OVER
ASPHALT EMULSION FOR TACK COAT OVER
INTERMEDIATE COURSE:
1.50" SUPERPAVE BRIDGE PROTECTIVE COURSE 9.5 POLYMER (SPC-B - 9.5 - P) OVER
SPRAY APPLIED MEMBRANE WATERPROOFING

PROPOSED FULL DEPTH PAVEMENT

SURFACE COURSE:
1.50" SUPERPAVE SURFACE COURSE 9.5 POLYMER (SSC - 9.5 - P) OVER
ASPHALT EMULSION FOR TACK COAT OVER
1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC - 12.5) OVER
ASPHALT EMULSION FOR TACK COAT (RS-1h) OVER

INTERMEDIATE COURSE:
2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5) OVER
ASPHALT EMULSION FOR TACK COAT (RS-1h) OVER

BASE:
4" SUPERPAVE BASE COURSE - 37.5 (SBC - 37.5)

SUBBASE:
4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW TYPE b

PROPOSED HMA SHARED USE PATH, HMA SIDEWALK

SURFACE COURSE:
1.50" SUPERPAVE SURFACE COURSE 9.5 POLYMER (SSC - 9.5 - P) OVER
ASPHALT EMULSION FOR TACK COAT OVER

INTERMEDIATE COURSE:
2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC - 12.5) OVER
ASPHALT EMULSION FOR TACK COAT (RS-1h) OVER

SUBBASE:
8" GRAVEL BORROW TYPE b

PROPOSED CEMENT CONCRETE SIDEWALK/ SUP/ PEDESTRIAN CURB RAMP/ BIKE RAMP

SURFACE : 4" CEMENT CONCRETE WALK SURFACE 4000 PSI, 3/4", 610 LB OVER
FOUNDATION: 8" GRAVEL BORROW, TYPE b

NOTES:

- PER PROWAG REGULATIONS, PEDESTRIAN PATH OF TRAVEL SHALL BE NO LESS THAN 4'-0" WIDE AND FREE OF VERTICAL OBSTRUCTIONS.

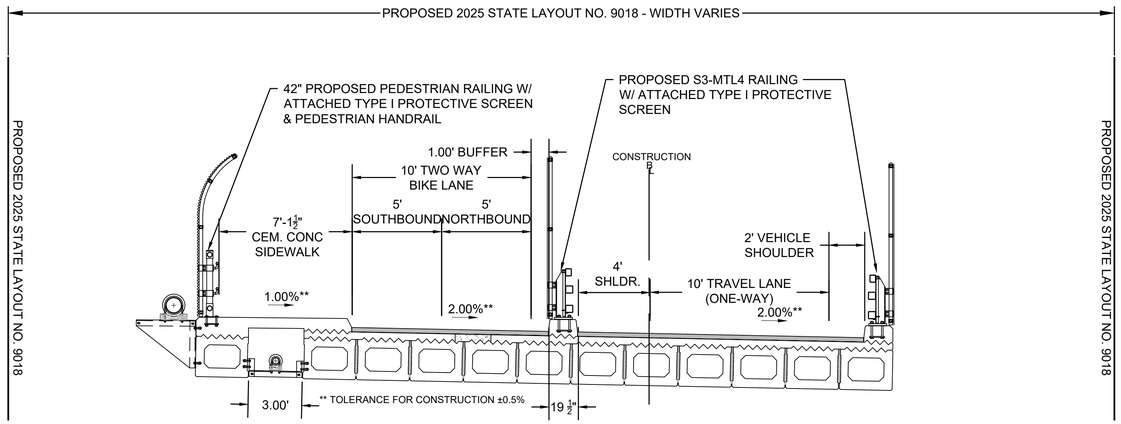
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NATICK
BODEN LANE OVER THE MBTA RAILROAD

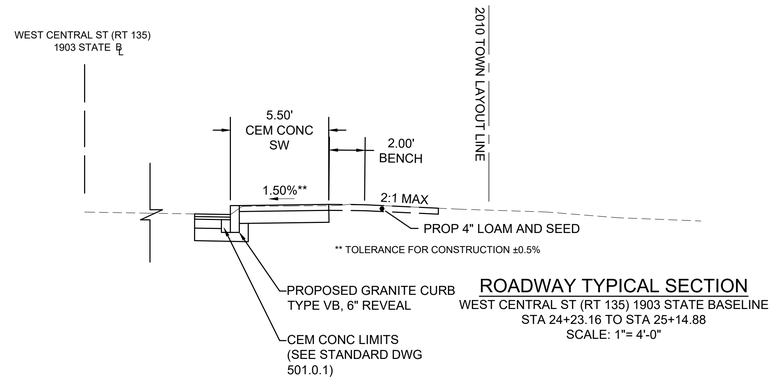
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	5	92
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TYPICAL SECTIONS

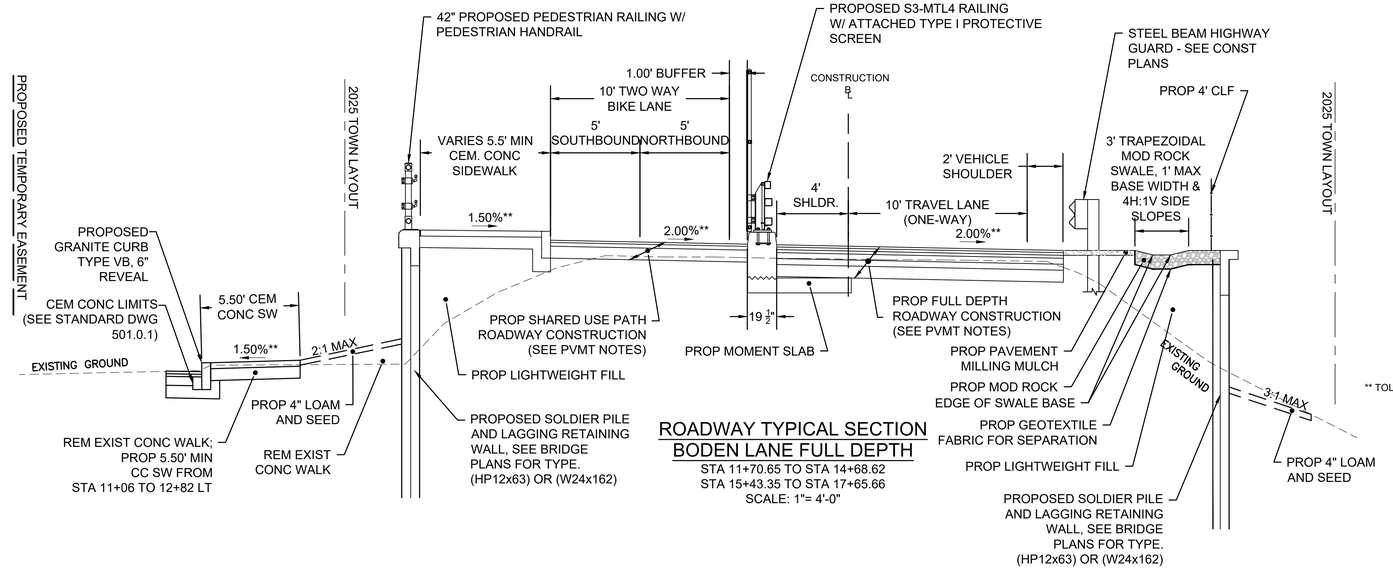
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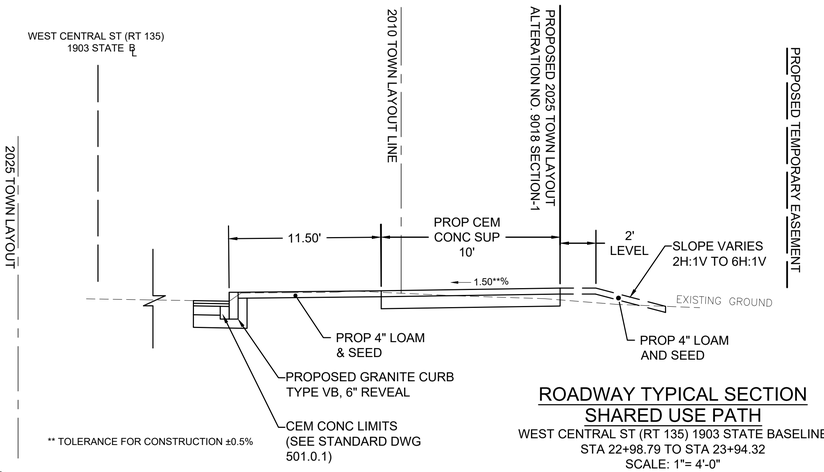
ROADWAY TYPICAL SECTION
BODEN LANE BRIDGE
STA 14+68.62 TO STA 15+43.35
SCALE: 1"= 4'-0"



ROADWAY TYPICAL SECTION
WEST CENTRAL ST (RT 135) 1903 STATE BASELINE
STA 24+23.16 TO STA 25+14.88
SCALE: 1"= 4'-0"



ROADWAY TYPICAL SECTION
BODEN LANE FULL DEPTH
STA 11+70.65 TO STA 14+68.62
STA 15+43.35 TO STA 17+65.66
SCALE: 1"= 4'-0"



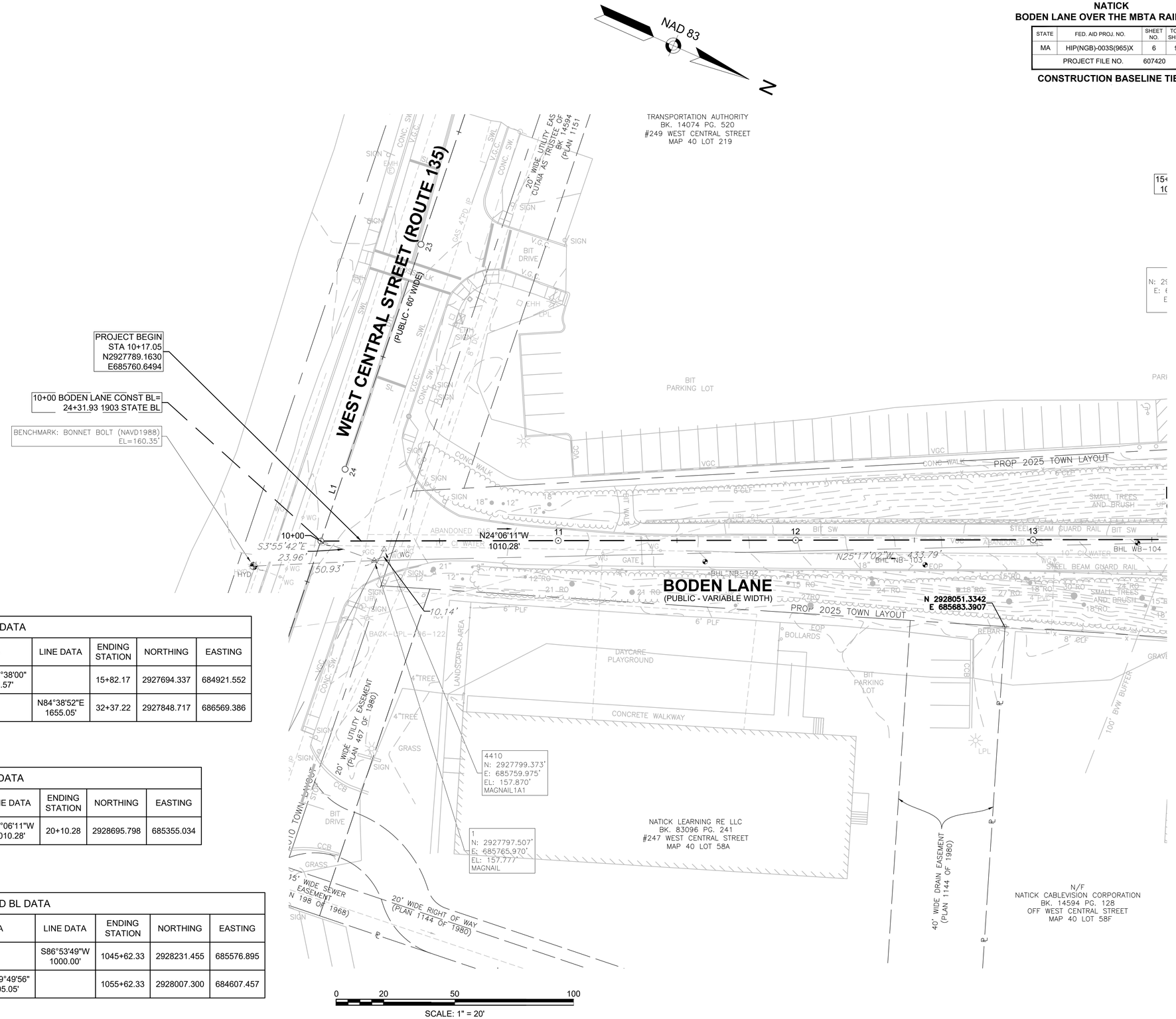
ROADWAY TYPICAL SECTION
SHARED USE PATH
WEST CENTRAL ST (RT 135) 1903 STATE BASELINE
STA 22+98.79 TO STA 23+94.32
SCALE: 1"= 4'-0"

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CONSTRUCTION BASELINE TIES

607420_HDI(CONST BL TIES).DWG Plotted on 15-Sep-2026 11:02 AM



1903 STATE BL DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	11+80.19	2927620.024	684527.087	R=2166.00' Δ=10°38'00" L=401.98' T=201.57'		15+82.17	2927694.337	684921.552
L1	15+82.17	2927694.337	684921.552		N84°38'52"E 1655.05'	32+37.22	2927848.717	686569.386

BODEN LANE CONST BL DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L2	10+00.00	2927773.602	685767.611		N24°06'11"W 1010.28'	20+10.28	2928695.798	685355.034

MBTA RR RECORD BL DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	1035+62.33	2928285.587	686575.429		S86°53'49"W 1000.00'	1045+62.33	2928231.455	685576.895
C2	1045+62.33	2928231.455	685576.895	R=2889.01' Δ=19°49'56" L=1000.00' T=505.05'		1055+62.33	2928007.300	684607.457

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	7	92
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CONSTRUCTION BASELINE TIES

NAD 83

N

607420_HD(CONST BL TIES).DWG Plotted on 15-Sep-2026 11:02 AM

CONTINUED ON SHEET NO. 6

CONTINUED ON SHEET NO. 8

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 14074 PG. 520
#249 WEST CENTRAL STREET
MAP 40 LOT 219

15+00.73 BODEN LANE CONST BL=
1045+76.12 MBTA RR RECORD BL

5
N: 2928212.567'
E: 685525.137'
EL: 158.622'
MAGNAIL

2
N: 2928189.739'
E: 685580.697'
EL: 177.322'
MAGNAIL

20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)

RAILROAD SIDELINE

20' WIDE DRAIN EASEMENT TO CHARLES A. CUTAIA TRUSTEE OF FIRST ATLANTIC TRUST (PLAN 1151 OF 1980) and (PLAN 394 of 1982) BK. 14594 PG. 121

R=2889.01'
L=1000.00'
T=505.05'

MBTA CSX RAILROAD
BOSTON & ALBANY RAILROAD

RAILROAD SIDELINE

UPL NO
LPL

N/F
CHRISTINE M. THERRIEN AND
JESICA PAGANO-THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 3351A)

THE INHABITANTS OF THE TOWN OF NATICK,
UNDER THE CARE AND CUSTODY OF THE TOWN
OF NATICK CONSERVATION COMMISSION
(SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

EDGE OF 220' CHAPTER 634
MASSDOT BRIDGE EASEMENT
(PLAN 97 OF 1973)

45 END

START

CONC RET WALL
CONC PLATFORM
TIMBER RET WALL
RAILROAD TRACKS
4' CHAIN LINK FENCE
CONC PLATFORM
CONC RET WALL
6' CLF

BIT PARKING LOT

VGC
CONC SW
BENCH
WOOD FENCE
CONTINUE
CONC WALK
BIT WALK

WOODS

6' STOCKADE FENCE

23.82'
54.77'
60.07'
16.28'
18.87'
N67°40'17"W
1046
1045

PROP 2025 TOWN LAYOUT

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

SMALL TREES AND BRUSH
UPL 25
SPL 20
TIMBER RET WALL
STEEL BEAM GUARD RAIL
BIT SW
ABANDONED GAS
BHL WB-104
10" CI WATER
BOLLARDS
SIGN
WG
WATER
TEMP WOOD BRIDGE
BOULDERO
GATE
BHL WB-106
BHL WB-105
EOP
BOULDERO
STEEL BEAM GUARD RAIL

12 13 14 15 16 17

N24°06'11"W L2
1010.28'

N25°17'02"W 433.79'
BHL NB-103

BRIDGE NO. N-03-012

N22°13'52"W 473.54'

2025 TOWN LAYOUT
6' STOCKADE FENCE

N 2928051.3342
E 685683.3907

REBAR

N 2928267.4564
E 685595.8625

BDH

GRASS

GRAVEL NEW UP

CONC HEADWALL

8" CLF

100' BVW BUFFER

50' BVW BUFFER

OUTSIDE RAIL

N63°17'41"E
138.50'
53.51'

S36°53'49"W
60.07'

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 12815 PG. 372

RAILROAD SIDELINE

EDGE OF 220' CHAPTER 634
MASSDOT BRIDGE EASEMENT
(PLAN 97 OF 1973)

18.67'

B4 END
B1 START

L3
1044

40' WIDE DRAIN EASEMENT
(PLAN 1144 OF 1980)

N/F
NATICK CABLEVISION CORPORATION
BK. 14594 PG. 128
OFF WEST CENTRAL STREET
MAP 40 LOT 58F

N/F
TOWN OF NATICK
(TAX COLLECTION DEPT.)
LC CERT. 168145
LC DOC. 1781547
LC BK. 970 PG. 195
#46 BURNING TREE ROAD
MAP 40 LOT 136

4
N: 2928274.811'
E: 685648.866'
EL: 158.094'
HUBTACK

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND
ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

BIT DRIVE

0 20 50 100
SCALE: 1" = 20'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	8	92
PROJECT FILE NO.	607420		

CONSTRUCTION BASELINE TIES

NAD 83

N

CONTINUED ON SHEET NO. 7

N/F
CHRISTINE M. THERRIEN AND
JESICA PAGANO–THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

20' WIDE MDC SEWER EASEMENT
(L.C. PLAN 33514)

THE INHABITANTS OF THE TOWN OF NATICK,
UNDER THE CARE AND CUSTODY OF THE TOWN
OF NATICK CONSERVATION COMMISSION
(SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

TAMARACK ROAD
(PUBLIC - 50' WIDE)

1971 TOWN LAYOUT

20' WIDE DRAIN EASEMENT
(PLAN 1096 OF 1969)

N/F
BENJAMIN ROSEN AND
YELENA SHUSTER
BK. 74981 PG. 112
#1 TAMARACK ROAD
MAP 39 LOT 36ZA

LINE OF EASEMENT
BEAVER DAM BROOK EASEMENT
(PLAN 1096 OF 1969)

BEAVER DAM BROOK

LINE OF EASEMENT

N/F
NATICK CONSERVATION COMMISSION
BK. 67241 PG. 502
#0 TAMARACK ROAD
MAP 39 LOT 36ZB

N/F
INHABITANTS OF THE
TOWN OF NATICK
BODEN LANE CEMETERY
BK. N/A PG. N/A
#56 BODEN LANE
MAP 39 LOT 38

N 2928534.8647
E 685345.4594

N 2928518.0217
E 685384.4176

6' STOCKADE FENCE

20' UTILITY EASEMENT
(PLAN 1096 OF 1969)

PROJECT END
STA 19+20.80
N2928614.1167
E685391.5769

7
N: 2928778.846'
E: 685305.149'
EL: 147.976'
MAGNAIL–7

R–1 START
R–2
R–3
R–4
R–5 END

1772 TOWN LAYOUT

CEMETARY

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

2025 TOWN LAYOUT

N24°06'11"W
1010.28'

N22°13'52"W 473.54'

45.02'
S35°29'22"W
17.15'

11.41'

N 2928623.7001
E 685412.0643

N 2928610.2232
E 685436.4151

3
N: 2928628.082'
E: 685401.535'
EL: 154.232'
MAGNAIL

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND
ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

BURNING TREE ROAD
(PRIVATE - 50' WIDE)

SUAL AND ELANA F. BERELOWITZ
LCBK. 1230 PG. 119
#47 BURNING TREE ROAD
MAP 40 LOT 139

BEAVER DAM BROOK EASEMENT
(L.C. PLAN 33514)
(PLAN 1096 OF 1969)

LINE OF EASEMENT

BEAVER DAM BROOK

LINE OF EASEMENT

N/F
BERNARD & GINETTE MACK
LCBK. 1041 PG. 46
#45 BURNING TREE ROAD
MAP 40 LOT 140

N/F
THE CHABAD CENTER
OF NATICK IN
BK. 27089 PG. 221
#159 BODEN LANE
MAP 40 LOT 57

0 20 50 100
SCALE: 1" = 20'

607420_HD(CONST BL TIES).DWG Plotted on 15-Sep-2026 11:02 AM

HIGHWAY GUARD DETAILS

TRAILING ANCHORAGE	11+35 RT TO 11+44 RT
GUARDRAIL, TL-2 (SINGLE FACED)	11+44 RT TO 14+00 RT
TRANSITION TO BRIDGE RAIL	14+00 RT TO 14+33 RT
TRANSITION TO BRIDGE RAIL	15+81 RT TO 16+15 RT
GUARDRAIL, TL-2 (SINGLE FACED)	16+15 RT TO 18+00 RT
GUARDRAIL TANGENT END TREATMENT, TL-2	18+00 RT

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	9	92
	PROJECT FILE NO. 607420		

CONSTRUCTION PLANS

607420_HD(CONST PLANS).DWG Plotted on 15-Sep-2026 11:02 AM

NAD 83

N

MATCH LINE

WEST CENTRAL S

20'x20' SEWER EASEMENT (PLAN 198 OF 1968)

2010 TOWN LAYOUT

SMH(REC)

UPL

GUY

GRASS

CBCI
R=156.22'
I1=151.92' (10"DIP)
I2=152.02' (10"DIP)
SUMP=150.92'

CONC. SW.

VGC

MS. WALL

SIGN

CBCI
R=156.26'
I1=150.86' (10"DIP)
I2=151.16' (12"RCP)
SUMP=150.26'

LPL

EMH

TMH

(2)27"RO

12"RO

18"RO

6"RM

#WD1-3 7-28-RO

24"RO

PROP PERM TRENCH HMA PATCH

PROP CC PCR 1
MEET EXIST VERT CURB
MEET EXIST CEM CONC WALK
PROP CC PCR 2
PROP VERT GRAN CURB TYPE VB
PROP TRAPEZOILDAL DELINEATOR (12" WIDE)
PROP RAISED CEM CONC AREA
PROP LEVEL LANDING AREA
PROP CC PCR 3
R&R
RET CABINET
ADJ EHH
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
PROP 10' CC SUP

PROJECT BEGIN
STA 10+17.05
N2927789.1630
E685760.6494

10+00 BODEN LANE CONST BL=
24+31.93 1903 STATE BL

BENCHMARK: BONNET BOLT (NAVD1988)
EL=160.35'

PROP TOWN LAYOUT ALTERATION
PROP CC PCR4
PROP TRAPEZOILDAL DELINEATOR (12" WIDE)

PROP CC WALK

R=10'
R=30'
R=46'

10+00

WEST CENTRAL STREET (ROUTE 135)
(PUBLIC - 60' WIDE)

18.0'
R&R
REM
11.50'
10.00'

PROP 5' CC SW

PROP 5.5' CC SW

CONST ℄

16.0'
16.00'

SAWCUT

20' WIDE UTILITY EASEMENT TO CHARLES A. CUTAIA AS TRUSTEE OF FIRST ATLANTIC TRUST BK 14594 PG 121 (PLAN 1151 OF 1980)

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 14074 PG. 520
#249 WEST CENTRAL STREET
MAP 40 LOT 219

PROP CLEARING & GRUBBING LIMITS

PROP SOLDIER PILE & LAGGING RET WALL

RET EX PCR
BEGIN PROP PEDESTRIAN RAIL, STA 10+69
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
PROP BIKE RAMP 1
PROP PEDESTRIAN RAILING
PROP SOLDIER PILE & LAGGING RET WALL, BEGIN AT STA 10+69. REFER TO BRIDGE PLANS
BEGIN 5.5' SW WIDTH
R&R GRAN CURB (SEE STANDARD DWG 501.0.1)
PROP IMPACT ATTENUATOR ATTACHED TO S3-MTL4

PROP LOAM & SEED (SEE NOTE)
PROP 42" PEDESTRIAN RAILING WITH PEDESTRIAN HAND RAIL
SAWCUT, MEET EXIST SW
R&S 6' CLF, STA 11+34 TO STA 12+83
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
R&R CLF IN PLACE, 177± LF

TEMP EASEMENT
PERM EASEMENT
R&R VGC
SAWCUT
RET CONC WALK
PROP 2025 TOWN LAYOUT
PROP 5.5' CC SW
PROP 5.5' CC SW (MIN)
REM(2)
REM
REM SMALL TREES AND BRUSH
PROP GRANITE CURB TYPE VB
REM BIT SW
REM EX GUARDRAIL
PROP S3-MTL4 RAIL
1.00'
CONST ℄
16.00'
REM TREE
R&S GATE
BODEN LANE
(PUBLIC - VARIABLE WIDTH)
REM TREE
REM TREE
REM TREE
REM EX BIT PVMT
PROP HMA SUP CONSTRUCTION
PROP FULL DEPTH CONSTRUCTION
PROP SEDIMENT CONTROL BARRIER (TYP)
PROP V-NOTCH SWALE AT UPL, 0 FT BASE WIDTH (TYP)
PROP LOAM & SEED (SEE NOTE)
PROP SLOPE LIMITS
PROP GUARDRAIL , TL-2
EDGE OF SWALE BASE
PROP PAVEMENT MILLING MULCH
PROP MOD ROCK & MOD ROCK DRAINAGE SWALE
PROP SOLDIER PILE & LAGGING RET WALL
RET TREE, PROP TREE PROT & TRIMMING
PROP 4' CLF
PROP CLEARING & GRUBBING LIMITS

PROP TREE & PLANT PROTECTION FENCE
RET TREE, PROP TREE PROT & TRIMMING
PROP TRANS CURB
PROP EDGE OF PAVEMENT
RET TREE, PROP TREE PROT & TRIMMING
PROP TRAILING ANCHORAGE
RET CONC BOUND
PROP LOAM & SEED (SEE NOTE)
PROP SLOPE LIMITS
REM EX GUARDRAIL
RET TREE, PROP TREE PROT & TRIMMING
PROP PAVEMENT MILLING MULCH
NATICK LEARNING RE LLC
BK. 83096 PG. 241
#247 WEST CENTRAL STREET
MAP 40 LOT 58A

PERM EASEMENT
PROP CC PCR 5
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
PROP CC PCR 6

20' WIDE UTILITY EASEMENT (PLAN 467 OF 1980)

MATCH LINE

20'x20' SEWER EASEMENT (PLAN 198 OF 1968)

PROP PERM TRENCH HMA PATCH

15' WIDE SEWER EASEMENT (PLAN 198 OF 1968)

20' WIDE RIGHT OF WAY (PLAN 1144 OF 1980)

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

N/F
NATICK CABLEVISION CORPORATION
BK. 14594 PG. 128
OFF WEST CENTRAL STREET
MAP 40 LOT 58F

CONTINUED ON SHEET NO. 10

CONTINUED, SEE UTILITY PLANS

0 20 50 100
SCALE: 1" = 20'

FOR CONSTRUCTION PROFILE:
SEE SHEET NO. 12

GENERAL NOTES

- THE CONTRACTOR SHALL CLEAR AND GRUB THE SIDE SLOPES TO THE BOTTOM OF THE PROPOSED SLOPE LIMITS SHOWN ON THE PLANS.
- TREES WITHIN THE CLEARING AND GRUBBING LIMITS SHALL BE REMOVED UNDER CLEARING AND GRUBBING UNLESS OTHERWISE NOTED.
- SEE LANDSCAPE PLAN FOR LOAM AND SEED TREATMENT.

HIGHWAY GUARD DETAILS

TRAILING ANCHORAGE	11+35 RT TO 11+44 RT
GUARDRAIL, TL-2 (SINGLE FACED)	11+44 RT TO 14+00 RT
TRANSITION TO BRIDGE RAIL	14+00 RT TO 14+33 RT
TRANSITION TO BRIDGE RAIL	15+81 RT TO 16+15 RT
GUARDRAIL, TL-2 (SINGLE FACED)	16+15 RT TO 18+00 RT
GUARDRAIL TANGENT END TREATMENT, TL-2	18+00 RT

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

NAD 83

N

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	10	92
	PROJECT FILE NO. 607420		

CONSTRUCTION PLANS

607420_HD(CONST PLANS).DWG Plotted on 15-Sep-2026 11:03 AM

CONTINUED ON SHEET NO. 9

CONTINUED ON SHEET NO. 11

PROP CLEARING & GRUBBING LIMITS
PROP SOLDIER PILE & LAGGING RET WALL
PROP LOAM & SEED (SEE NOTE)
PROP 42" PEDESTRIAN RAILING WITH PEDESTRIAN HAND RAIL
SAWCUT, MEET EXIST SW
R&S 6' CLF, STA 11+34 TO STA 12+83
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
R&R CLF IN PLACE, 177± LF
PROP TREE & PLANT PROTECTION FENCE
RET TREE, PROP TREE PROT & TRIMMING
PROP SEDIMENT CONTROL BARRIER (TYP)
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 14074 PG. 520 #249 WEST CENTRAL STREET MAP 40 LOT 219
15+00.73 BODEN LANE CONST BL = 1045+76.12 MBTA RR RECORD BL
MBTA CSX RAILROAD
RAILROAD SIDELINE
20' WIDE DRAIN EASEMENT TRUSTEE OF FIRST AP PC BK. 14594 PG. (PLAN 1151 OF 1980) and (
20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 12815 PG. 372
EDGE OF 220' CHAPTER 634 MASSDOT BRIDGE EASEMENT (PLAN 97 OF 1973)
20' WIDE MDC SEWER EASEMENT (LC. PLAN 335A)
N/F CHRISTINE M. THERRIEN AND JESICA PAGANO–THERRIEN BK. 63213 PG. 555 #2 TAMARACK ROAD MAP 39 LOT 36K
THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION (SUBJECT TO ARTICLE 97) BK. 23478 PG. 432 BK. 67241 PG. 502
PROP SEDIMENT CONTROL BARRIER (TYP)
PROP PEDESTRIAN RAILING
PROP SLOPE LIMITS
PROP LOAM & SEED (SEE NOTE)
PROP SOLDIER PILE & LAGGING RET WALL
PROP 42" PEDESTRIAN RAILING WITH PEDESTRIAN HAND RAIL
PROP IMPACT ATTENUATOR ATTACHED TO S3-MTL4
REM EX BIT PVMT
REM EX GUARDRAIL
PROP HMA SUP CONSTRUCTION
RET CONC PLATFORM
RET CONC WALK
RET CONC SW
RET CLF
RET FENCE
6' STOCKADE FENCE
RET
REM
R&R BY MBTA
R&R VGC
SAWCUT
PROP SHLO
REM TIMBER RET WALL
REM TREE
PROP 2025 TOWN LAYOUT
2025 TOWN LAYOUT
PROP 5.5' CC SW (MIN)
PROP 7.0' CC SW (MIN)
REM SMALL TREES AND BRUSH
REM EX GUARDRAIL
PROP GRANITE CURB TYPE VB
REM BIT SW
PROP S3-MTL4 RAIL
CONST ℄
BODEN LANE
(PUBLIC - VARIABLE WIDTH)
BRIDGE NO. N-03-012
TEMP REIN CONC BRIDGE
END TRANSITION TO BRIDGE RAIL
PROP GUARDRAIL , TL-2
PROP EDGE OF PAVEMENT
R=2020'
REM EX BIT PVMT
PROP HMA SUP CONSTRUCTION
PROP FULL DEPTH CONSTRUCTION
PROP V-NOTCH SWALE AT UPL, 0 FT BASE WIDTH (TYP)
PROP SEDIMENT CONTROL BARRIER (TYP)
PROP LOAM & SEED (SEE NOTE)
PROP SLOPE LIMITS
EDGE OF SWALE BASE
PROP SOLDIER PILE & LAGGING RET WALL
RET TREE, PROP TREE PROT & TRIMMING
PROP 4' CLF
PROP MOD ROCK & MOD ROCK DRAINAGE SWALE
RET TREE, PROP TREE PROT & TRIMMING
BEGIN TRANSITION TO BRIDGE RAIL
END TRANSITION TO BRIDGE RAIL
PROP TREE & PLANT PROTECTION FENCE
REM SIGN (BOR)
PROPOSED S3-MTL4 RAILING W/ ATTACHED PROTECTIVE SCREEN
PROP V-NOTCH SWALE AT UPL, 0 FT BASE WIDTH (TYP)
PROP PAVEMENT MILLING MULCH
PROP DRAINAGE SWALE BOTTOM
PROP 4' CLF
PROP FULL DEPTH CONSTRUCTION
EDGE OF SWALE BASE
PROP TREE & PLANT PROTECTION FENCE
PROP MOD ROCK & MOD ROCK DRAINAGE SWALE
PROP CLEARING & GRUBBING LIMITS
40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)
N/F NATICK CABLEVISION CORPORATION BK. 14594 PG. 128 OFF WEST CENTRAL STREET MAP 40 LOT 58F
N/F TOWN OF NATICK (TAX COLLECTION DEPT.) LC CERT. 168145 LC DOC. 1781547 LC BK. 970 PG. 195 #46 BURNING TREE ROAD MAP 40 LOT 136
2021 FILOMENA LOFFA TRUST LC CERT. 278015 LC DOC. 1900248 LCBK. 1582 PG. 45 #52 BURNING TREE ROAD MAP 40 LOT 137
MICHAEL J. LEE AND ANNETTE WONG TRUST LC CERT. 281034 LC DOC. 1929018 LCBK. 1597 PG. 281034 #54 BURNING TREE ROAD MAP 40 LOT 138

GENERAL NOTES

- THE CONTRACTOR SHALL CLEAR AND GRUB THE SIDE SLOPES TO THE BOTTOM OF THE PROPOSED SLOPE LIMITS SHOWN ON THE PLANS.
- TREES WITHIN THE CLEARING AND GRUBBING LIMITS SHALL BE REMOVED UNDER CLEARING AND GRUBBING UNLESS OTHERWISE NOTED.
- SEE LANDSCAPE PLAN FOR LOAM AND SEED TREATMENT.

0 20 50 100
SCALE: 1" = 20'

FOR CONSTRUCTION PROFILE: SEE SHEETS NO. 12 & 13

HIGHWAY GUARD DETAILS

TRAILING ANCHORAGE	11+35 RT TO 11+44 RT
GUARDRAIL, TL-2 (SINGLE FACED)	11+44 RT TO 14+00 RT
TRANSITION TO BRIDGE RAIL	14+00 RT TO 14+33 RT
TRANSITION TO BRIDGE RAIL	15+81 RT TO 16+15 RT
GUARDRAIL, TL-2 (SINGLE FACED)	16+15 RT TO 18+00 RT
GUARDRAIL TANGENT END TREATMENT, TL-2	18+00 RT

WATER SUPPLY ALTERATIONS

SEE UTILITY PLANS

DRAINAGE DETAILS

SEE UTILITY PLANS

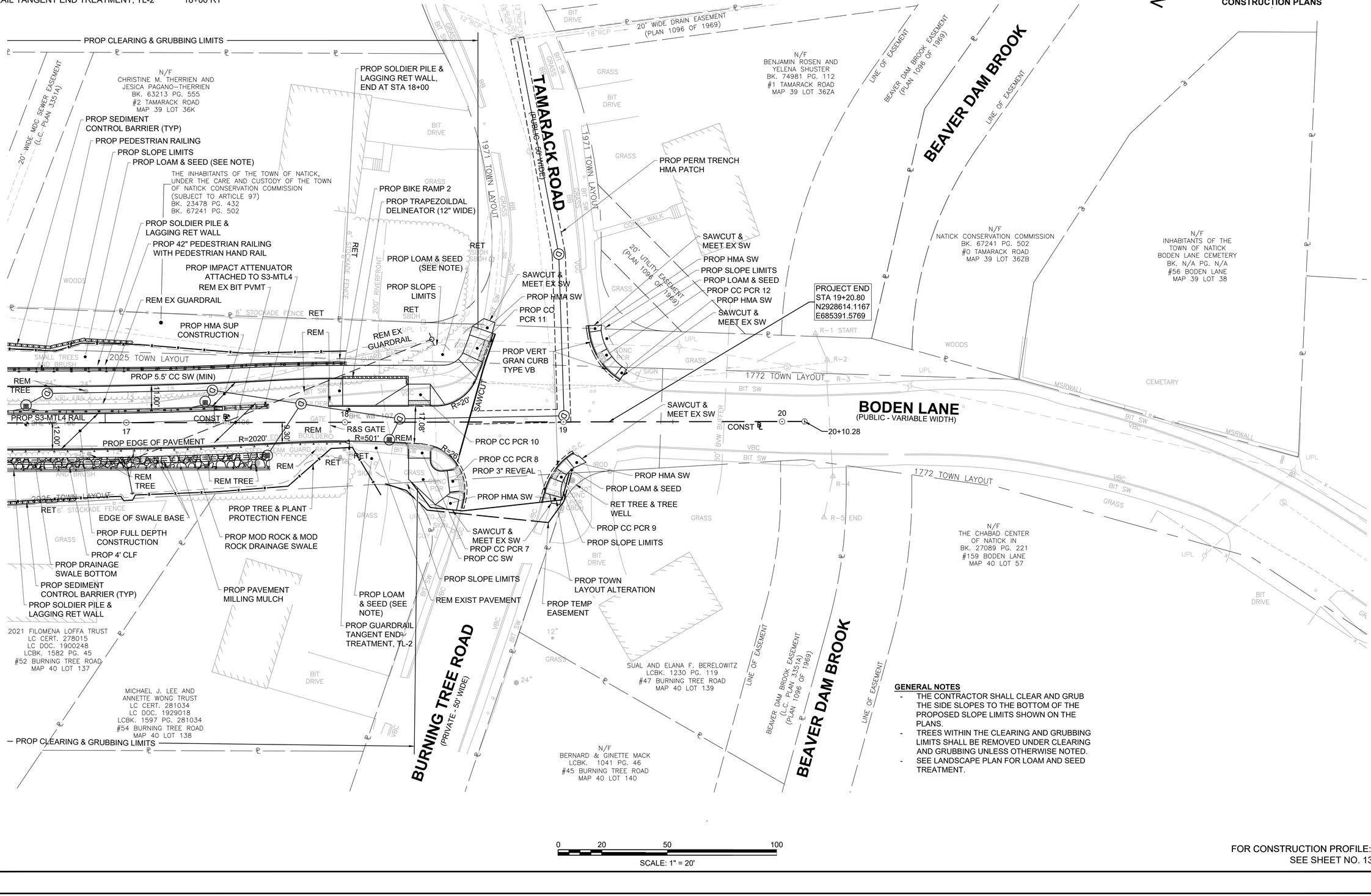
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	11	92
	PROJECT FILE NO. 607420		

CONSTRUCTION PLANS

NAD 83

N



GENERAL NOTES

- THE CONTRACTOR SHALL CLEAR AND GRUB THE SIDE SLOPES TO THE BOTTOM OF THE PROPOSED SLOPE LIMITS SHOWN ON THE PLANS.
- TREES WITHIN THE CLEARING AND GRUBBING LIMITS SHALL BE REMOVED UNDER CLEARING AND GRUBBING UNLESS OTHERWISE NOTED.
- SEE LANDSCAPE PLAN FOR LOAM AND SEED TREATMENT.

FOR CONSTRUCTION PROFILE:
SEE SHEET NO. 13

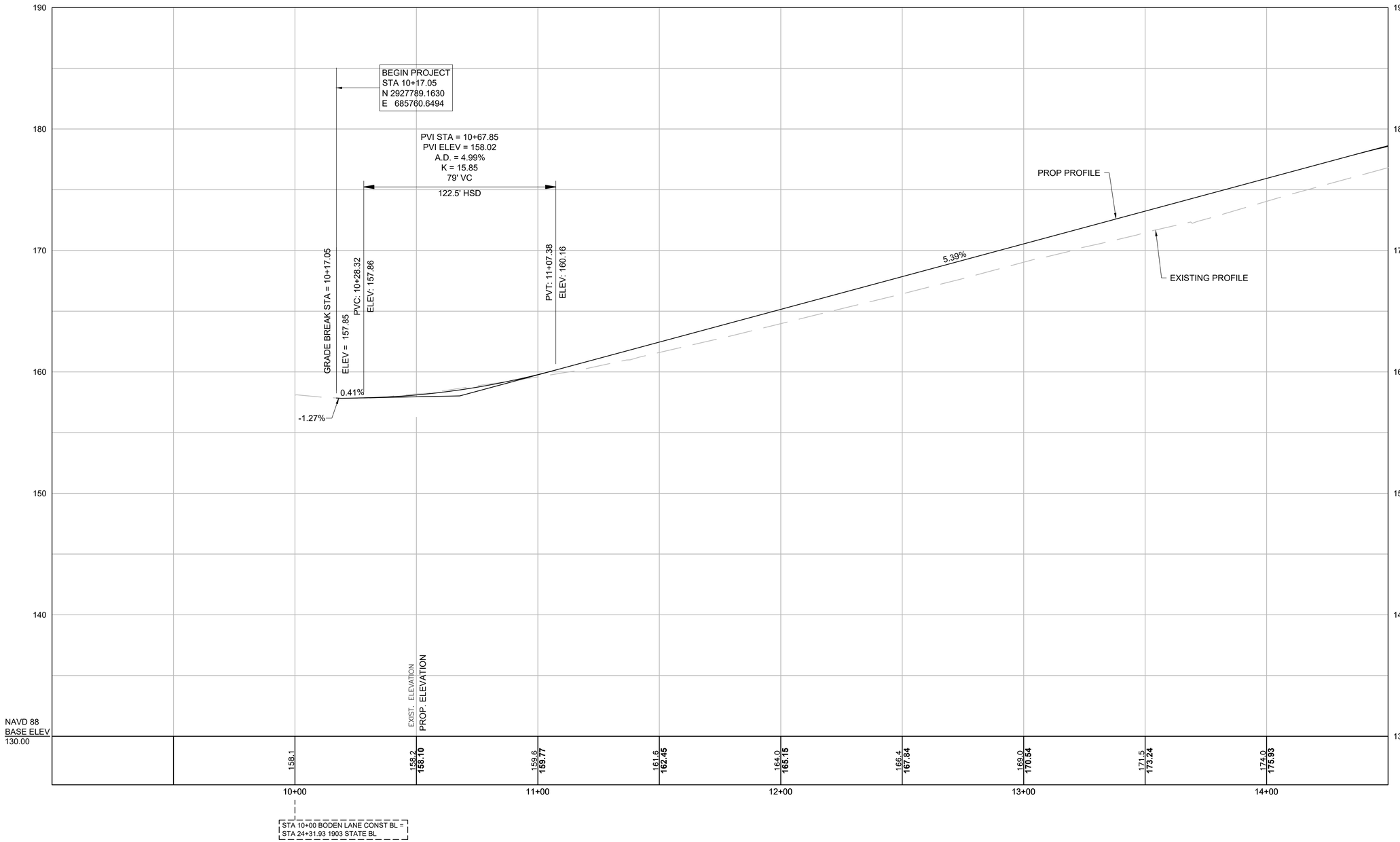
607420_HD(CONST PLANS).DWG Plotted on 15-Sep-2026 11:03 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	12	92
PROJECT FILE NO.	607420		

PROFILE

BODEN LANE PROFILE 1



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

FOR CONSTRUCTION PROFILE:
NO. 09-10

607420_HDi(PROFILE).DWG Plotted on 15-Sep-2026 11:03 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	13	92
PROJECT FILE NO.	607420		

PROFILE

BODEN LANE PROFILE 2

CONTINUED ON SHEET NO. 12

HIGH POINT ELEV = 179.84
HIGH POINT STA = 15+08.12
PVI STA = 15+19.90
PVI ELEV = 182.40
A.D. = -12.57%
K = 13.21
166' VC
~~168.9' SSD~~

PVC: 14+36.90
ELEV: 177.92

PVT: 16+02.90
ELEV: 176.44

EXISTING TEMPORARY PEDESTRIAN BRIDGE

PROP PROFILE

-7.18%

EXISTING PROFILE

GRADE BREAK STA = 18+56.15
ELEV = 158.27

END PROJECT
STA 19+20.80
N2928614.1167
E685391.5769

190
180
170
160
150
140
130

NAVD 88
BASE ELEV
130.00

	EXIST. ELEVATION	PROP. ELEVATION
15+00	176.8	178.56
	177.3	179.82
	176.7	179.18
16+00	173.4	176.65
	170.4	173.06
17+00	167.3	169.47
	164.3	165.89
18+00	161.6	162.30
	158.7	158.71
19+00	155.5	

STA 15+00.73 BODEN LANE CONST BL =
STA 1045+76.12 MBTA RR RECORD BL

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

FOR CONSTRUCTION PROFILE:
NO. 09-10

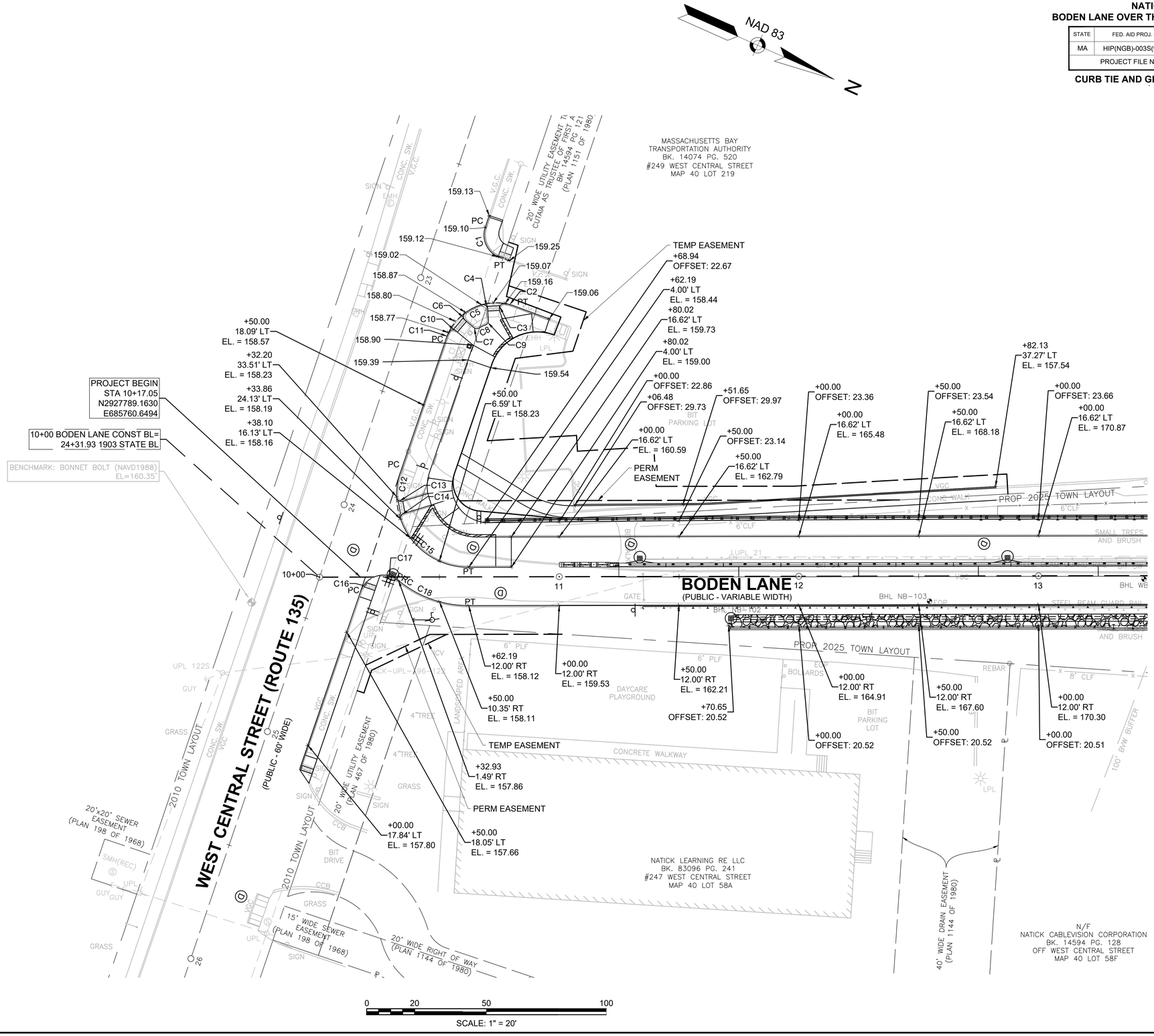
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NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	14	92
PROJECT FILE NO.	607420		

CURB TIE AND GRADING PLANS

Curve Table			
Curve #	Delta	Radius	Length
C1	83°43'08"	10.00	14.61
C2	10°32'52"	22.00	4.05
C3	101°45'39"	2.00	3.55
C4	102°20'01"	2.00	3.57
C5	19°25'53"	22.00	7.46
C6	103°27'20"	2.00	3.61
C7	72°31'40"	2.00	2.53
C8	11°44'54"	13.50	2.77
C9	73°59'49"	2.00	2.58
C10	103°51'26"	2.00	3.63
C11	6°52'11"	22.00	2.64
C12	19°55'45"	30.00	10.43
C13	105°59'34"	2.00	3.70
C14	86°08'41"	2.03	3.05
C15	70°47'46"	30.00	37.07
C16	26°31'31"	10.00	4.63
C17	47°15'48"	10.00	8.25
C18	39°30'17"	46.00	31.72
C19	2°58'46"	1991.37	103.56
C20	3°08'49"	532.61	29.25
C21	68°43'31"	20.00	23.99
C22	0°59'19"	501.00	8.65
C23	86°42'34"	2.00	3.03
C24	112°28'24"	2.00	3.93
C25	31°57'41"	21.00	11.71
C26	119°29'13"	2.00	4.17
C27	96°04'05"	5.00	8.38
C28	104°08'45"	2.00	3.64
C29	4°29'10"	21.00	1.64
C30	12°08'42"	30.00	6.36
C31	19°39'16"	30.00	10.29
C32	19°56'31"	30.00	10.44
C33	20°52'41"	30.00	10.93



CONTINUED ON SHEET NO. 15

607420_HD(CT&G).DWG Plotted on 15-Sep-2026 11:03 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	15	92
PROJECT FILE NO.	607420		

CURB TIE AND GRADING PLANS

607420_HDI(CT&G).DWG Plotted on 15-Sep-2026 11:03 AM

CONTINUED ON SHEET NO. 14

CONTINUED ON SHEET NO. 16

NAD 83

N

15+00.73 BODEN LANE CONST BL=
1045+76.12 MBTA RR RECORD BL

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 14074 PG. 520
#249 WEST CENTRAL STREET
MAP 40 LOT 219

5185
EL: 158.591'
REBAR-CAP KCI STAKE TH2-TH2A

5186
EL: 158.522'
STAKE-TH2 FM-TH2A EL

20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)

20' WIDE DRAIN EASEMENT TRUSTEE OF FIRST PARISH (PLAN 1151 OF 1980) and BK 14594 PG. 39

RAILROAD SIDELINE

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 12815 PG. 372

EDGE OF 220' CHAPTER 634 MASSDOT BRIDGE EASEMENT (PLAN 97 OF 1973)

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 3351A)

N/F
CHRISTINE M. THERRIEN AND
JESICA PAGANO-THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION
(SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

PROP. 2025 TOWN LAYOUT

2025 TOWN LAYOUT

+00.00 OFFSET: 23.36
+00.00 16.62' LT EL. = 165.48
+50.00 OFFSET: 23.54
+50.00 16.62' LT EL. = 168.18
+82.13 37.27' LT EL. = 157.54
+00.00 OFFSET: 23.66
+00.00 16.62' LT EL. = 170.87
+50.00 OFFSET: 23.73
+50.00 16.62' LT EL. = 173.57
+00.03 OFFSET: 23.75
+00.00 16.62' LT EL. = 176.26
+50.00 OFFSET: 23.75
+00.00 16.62' LT EL. = 180.15
+50.00 16.62' LT EL. = 178.89
+50.00 16.63' LT EL. = 179.51
+00.00 OFFSET: 23.75
+00.00 16.62' LT EL. = 176.98
+00.00 OFFSET: 24.16
+50.00 OFFSET: 23.79
+50.00 16.62' LT EL. = 173.39
+00.00 16.91' LT EL. = 169.81
+66.24 16.62' LT EL. = 172.23
+50.00 OFFSET: 24.92
+50.00 18.39' LT EL. = 166.25
+69.74 19.32' LT EL. = 164.86

+00.00 12.00' RT EL. = 164.91
+00.00 OFFSET: 20.52
+50.00 12.00' RT EL. = 167.60
+50.00 OFFSET: 20.52
+00.00 12.00' RT EL. = 170.30
+00.00 OFFSET: 20.51
+50.00 12.00' RT EL. = 173.00
+50.00 OFFSET: 20.52
+00.00 12.00' RT EL. = 175.69
+00.00 OFFSET: 20.51
+62.33 PC
+50.00 12.00' RT EL. = 178.32
+34.50 OFFSET: 20.51
+00.00 12.00' RT EL. = 179.59
+50.00 12.00' RT EL. = 178.94
+78.83 OFFSET: 19.42
+00.00 12.00' RT EL. = 176.41
+00.00 OFFSET: 19.42
+50.00 12.00' RT EL. = 172.82
+66.24 12.00' RT EL. = 171.66
+00.00 11.72' RT EL. = 169.24
+00.00 OFFSET: 19.42
+50.00 10.26' RT EL. = 165.68
+71.34 9.26' RT EL. = 164.17
+65.66 OFFSET: 19.42
+50.00 OFFSET: 19.42
+50.00 OFFSET: 19.42

C19 PC
C20 PRC

BHL NB-103
BHL WB-104
BHL WB-105
BHL WB-1106

12 13 14 15 16 17

N/F
NATICK CABLEVISION CORPORATION
BK. 14594 PG. 128
OFF WEST CENTRAL STREET
MAP 40 LOT 58F

N/F
TOWN OF NATICK
(TAX COLLECTION DEPT.)
LC CERT. 168145
LC DOC. 1781547
LC BK. 970 PG. 195
#46 BURNING TREE ROAD
MAP 40 LOT 136

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND
ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

5183
EL: 157.305'
BORING TH1-FM

5184
EL: 157.317'
STAKE KCI TH1

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

0 20 50 100
SCALE: 1" = 20'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	16	92
PROJECT FILE NO.	607420		

CURB TIE AND GRADING PLANS

607420_HD(CT&G).DWG Plotted on 15-Sep-2026 11:03 AM

CONTINUED ON SHEET NO. 15

NAD 83

N

BEAVER DAM BROOK

TAMARACK ROAD (PUBLIC - 50' WIDE)

BODEN LANE (PUBLIC - VARIABLE WIDTH)

BURNING TREE ROAD (PRIVATE - 50' WIDE)

BEAVER DAM BROOK

N/F CHRISTINE M. THERRIEN AND JESICA PAGANO–THERRIEN BK. 63213 PG. 555 #2 TAMARACK ROAD MAP 39 LOT 36K

N/F BENJAMIN ROSEN AND YELENA SHUSTER BK. 74981 PG. 112 #1 TAMARACK ROAD MAP 39 LOT 36ZA

N/F NATICK CONSERVATION COMMISSION BK. 67241 PG. 502 #0 TAMARACK ROAD MAP 39 LOT 36ZB

THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION (SUBJECT TO ARTICLE 97) BK. 23478 PG. 432 BK. 67241 PG. 502

N/F THE CHABAD CENTER OF NATICK IN BK. 27089 PG. 221 #159 BODEN LANE MAP 40 LOT 57

2021 FILOMENA LOFFA TRUST LC CERT. 278015 LC DOC. 1900248 LCBK. 1582 PG. 45 #52 BURNING TREE ROAD MAP 40 LOT 137

MICHAEL J. LEE AND ANNETTE WONG TRUST LC CERT. 281034 LC DOC. 1929018 LCBK. 1597 PG. 281034 #54 BURNING TREE ROAD MAP 40 LOT 138

SUAL AND ELANA F. BERELOWITZ LCBK. 1230 PG. 119 #47 BURNING TREE ROAD MAP 40 LOT 139

N/F BERNARD & GINETTE MACK LCBK. 1041 PG. 46 #45 BURNING TREE ROAD MAP 40 LOT 140

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 33514)

20' WIDE DRAIN EASEMENT (PLAN 1096 OF 1969)

BEAVER DAM BROOK EASEMENT (PLAN 1096 OF 1969)

24' UTILITY EASEMENT (PLAN 1096 OF 1969)

TEMP EASEMENT

LINE OF EASEMENT

1971 TOWN LAYOUT

1772 TOWN LAYOUT

2025 TOWN LAYOUT

PROJECT END
STA 19+20.80
N2928614.1167
E685391.5769

+00.00 OFFSET: 24.16
+50.00 OFFSET: 23.79
+50.00 16.62' LT EL. = 173.39
+00.00 16.91' LT EL. = 169.81
+66.24 16.62' LT EL. = 172.23
+50.00 OFFSET: 24.92
+50.00 18.39' LT EL. = 166.25
+69.74 19.32' LT EL. = 164.86
+00.00 OFFSET: 26.07
+00.84 OFFSET: 26.10
+00.00 7.41' LT EL. = 162.46
+29.09 7.41' LT EL. = 160.36
+39.09 7.41' LT EL. = 159.64
+41.64 7.41' LT EL. = 159.46
+67.87 40.52' LT EL. = 155.90
+66.60 36.72' LT EL. = 156.24
+63.08 27.36' LT EL. = 156.99
+60.27 20.15' LT EL. = 157.26
+50.00 9.24' LT EL. = 158.90
+11.39 44.02' LT EL. = 153.85
+11.87 40.64' LT EL. = 153.88
+15.09 30.76' LT EL. = 153.84
+17.80 26.56' LT EL. = 153.66
+25.89 19.29' LT EL. = 153.13
+00.00 11.72' RT EL. = 169.24
+00.00 OFFSET: 19.42
+50.00 12.00' RT EL. = 172.82
+66.24 12.00' RT EL. = 171.66
+50.00 OFFSET: 19.42
+50.00 10.26' RT EL. = 165.68
+50.00 OFFSET: 19.42
+71.34 9.26' RT EL. = 164.17
+65.66 OFFSET: 19.42
+00.00 8.59' RT EL. = 162.13
+27.20 9.45' RT EL. = 160.16
+41.85 11.53' RT EL. = 159.07
+50.00 17.55' RT EL. = 158.36
+54.61 33.89' RT EL. = 157.85
+54.32 35.51' RT EL. = 157.71
+04.15 14.32' RT EL. = 155.28
+96.60 21.25' RT EL. = 155.99
+91.52 31.33' RT EL. = 156.48
+89.94 36.88' RT EL. = 156.58
+93.90 25.44' RT EL. = 156.21

PC C19 PRC C20 PT C21 PT PC C22 PRC C23 PCC C24 C25 C26 PC C27 PCR C28 C29 PT C30 C31 PC C32 C33 PT

R-1 START R-2 R-3 R-4 R-5 END

17 18 19 20 20+10.28

BHL WB-106 BHL WB-107 BHL WB-108

0 20 50 100

SCALE: 1" = 20'

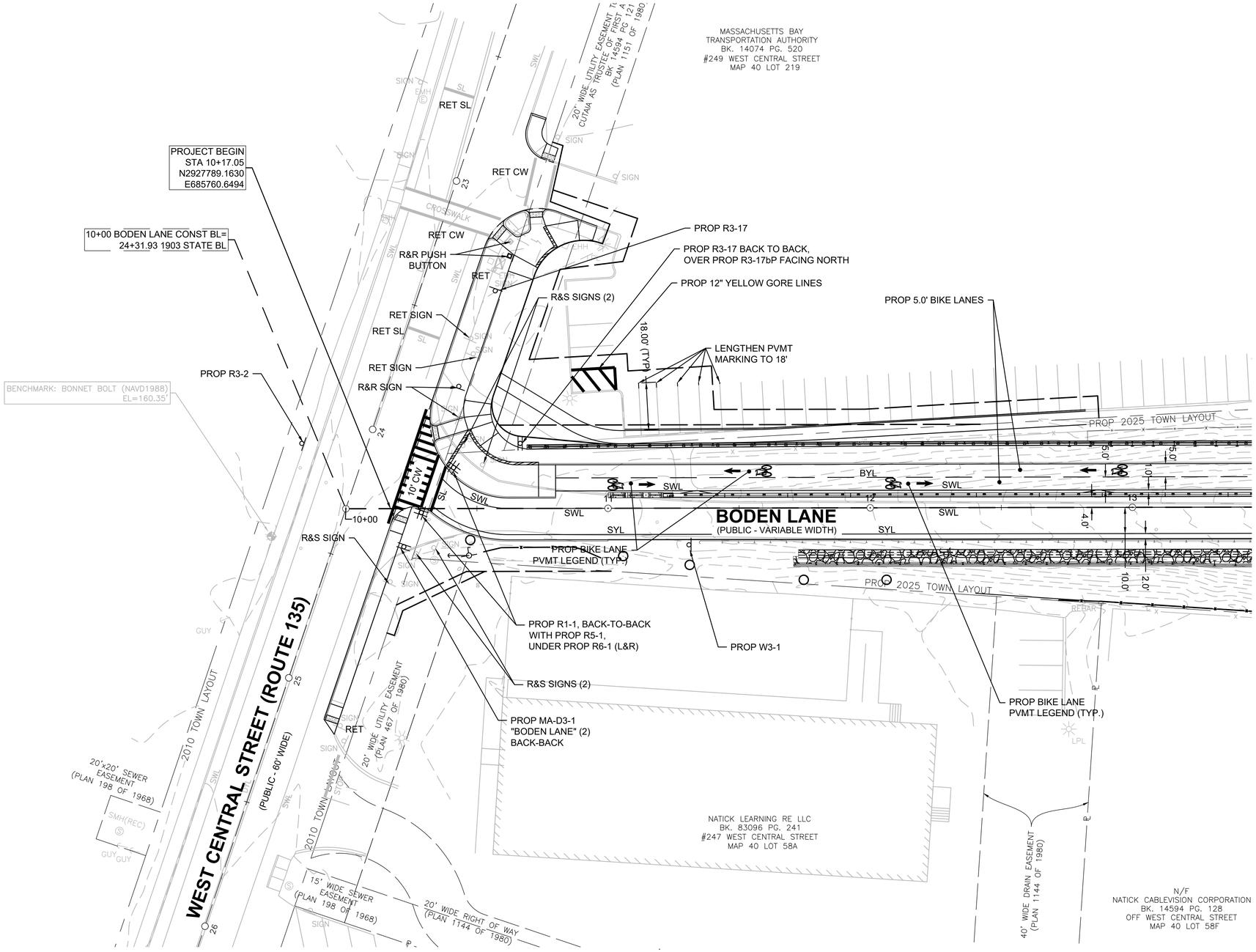
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	17	92
	PROJECT FILE NO. 607420		

TRAFFIC SIGN & PAVEMENT MARKINGS

NAD 83

N



0 20 50 100

SCALE: 1" = 20'

607420_HD(SIGN & PAVEMENT).DWG Plotted on 15-Sep-2026 11:03 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	18	92
	PROJECT FILE NO. 607420		

TRAFFIC SIGN & PAVEMENT MARKINGS

NAD 83

N

607420_HD(SIGN & PAVEMENT).DWG Plotted on 15-Sep-2026 11:03 AM

CONTINUED ON SHEET NO. 17

CONTINUED ON SHEET NO. 19

15+00.73 BODEN LANE CONST BL=
1045+76.12 MBTA RR RECORD BL

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 14074 PG. 520
#249 WEST CENTRAL STREET
MAP 40 LOT 219

20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)

20' WIDE DRAIN EASEMENT TO CHARLES A. CUTAIA TRUSTEE OF FIRST ATLANTIC REALTY TRUST BK. 14594 PG. 121 (PLAN 1151 OF 1980) and (PLAN 394 of 1982)

RAILROAD SIDELINE

MBTA CSX RAILROAD
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 12815 PG. 372

EDGE OF 220' CHAPTER 634 MASSDOT BRIDGE EASEMENT (PLAN 97 OF 1973)

20' WIDE MOC SEWER EASEMENT (L.C. PLAN 33514)

N/F
CHRISTINE M. THERRIEN AND JESICA PAGANO–THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION
(SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

PROP 5.0' BIKE LANES

PROP BIKE LANE PVMT LEGEND (TYP.)

PROP 2025 TOWN LAYOUT

2025 TOWN LAYOUT

BRIDGE NO. N-03-012

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

BYL SWL SYL R&D

+62.33 PC

1045

1044

1046

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

N/F
NATICK CABLEVISION CORPORATION
BK. 14594 PG. 128
OFF WEST CENTRAL STREET
MAP 40 LOT 58F

N/F
TOWN OF NATICK
(TAX COLLECTION DEPT.)
LC CERT. 168145
LC DOC. 1781547
LC BK. 970 PG. 195
#46 BURNING TREE ROAD
MAP 40 LOT 136

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

20' WIDE MOC SEWER EASEMENT (L.C. PLAN 33514)

20' WIDE MOC SEWER EASEMENT (L.C. PLAN 33514)

0 20 50 100

SCALE: 1" = 20'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	19	92
PROJECT FILE NO.	607420		

TRAFFIC SIGN & PAVEMENT MARKINGS

NAD 83

N

CONTINUED ON SHEET NO. 18

N/F
CHRISTINE M. THERRIEN AND
JESICA PAGANO-THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

20' WIDE MDC SEWER EASEMENT
(L.C. PLAN 3351A)

THE INHABITANTS OF THE TOWN OF NATICK,
UNDER THE CARE AND CUSTODY OF THE TOWN
OF NATICK CONSERVATION COMMISSION
(SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

TAMARACK ROAD
(PUBLIC - 50' WIDE)

1971 TOWN LAYOUT

20' WIDE DRAIN EASEMENT
(PLAN 1096 OF 1969)

N/F
BENJAMIN ROSEN AND
YELENA SHUSTER
BK. 74981 PG. 112
#1 TAMARACK ROAD
MAP 39 LOT 36ZA

LINE OF EASEMENT
BEAVER DAM BROOK EASEMENT
(PLAN 1096 OF 1969)

BEAVER DAM BROOK

LINE OF EASEMENT

PROJECT END
STA 19+20.80
N2928614.1167
E685391.5769

PROP BIKE LANE
PVMT LEGEND (TYP.)

PROP R3-17 BACK TO BACK,
OVER PROP R3-17bP
FACING SOUTH

PROP 5.0' BIKE LANES

200' RIVERFRONT

SBDH

R&S
SIGN

PROP SL

RET

10' CW

20' UTILITY EASEMENT
(PLAN 1096 OF 1969)

N/F
NATICK CONSERVATION COMMISSION
BK. 67241 PG. 502
#0 TAMARACK ROAD
MAP 39 LOT 36ZB

2025 TOWN LAYOUT

15.0'
11.0'
15.0'
BYL
SWL
SWL
SWL
SYL
4.0'
10.0'
2.0'

REM CW

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

1772 TOWN LAYOUT

RET SL
RET SWL
RET DYL
RET SWL

20+10.28

IROD

REM EX SL

PROP MA-D3-1
"BODEN LANE" (2)
BACK-BACK, UNDER
PROP R6-1 (L&R)

N/F
THE CHABAD CENTER
OF NATICK IN
BK. 27089 PG. 221
#159 BODEN LANE
MAP 40 LOT 57

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND
ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

BURNING TREE ROAD
(PRIVATE - 50' WIDE)

SUAL AND ELANA F. BERELOWITZ
LCBK. 1230 PG. 119
#47 BURNING TREE ROAD
MAP 40 LOT 139

BEAVER DAM BROOK EASEMENT
(L.C. PLAN 3351A)
(PLAN 1096 OF 1969)

LINE OF EASEMENT

BEAVER DAM BROOK

LINE OF EASEMENT

N/F
BERNARD & GINETTE MACK
LCBK. 1041 PG. 46
#45 BURNING TREE ROAD
MAP 40 LOT 140

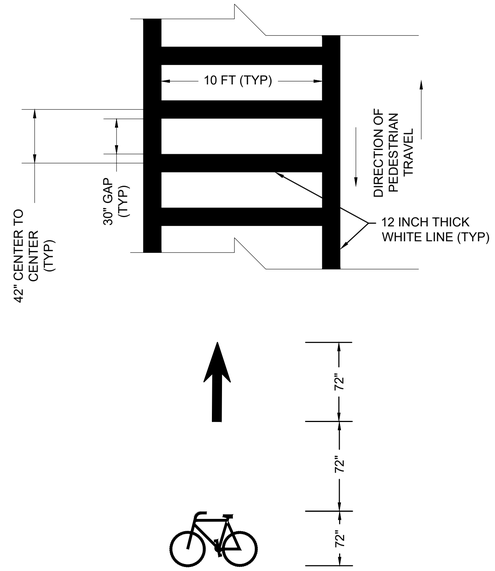
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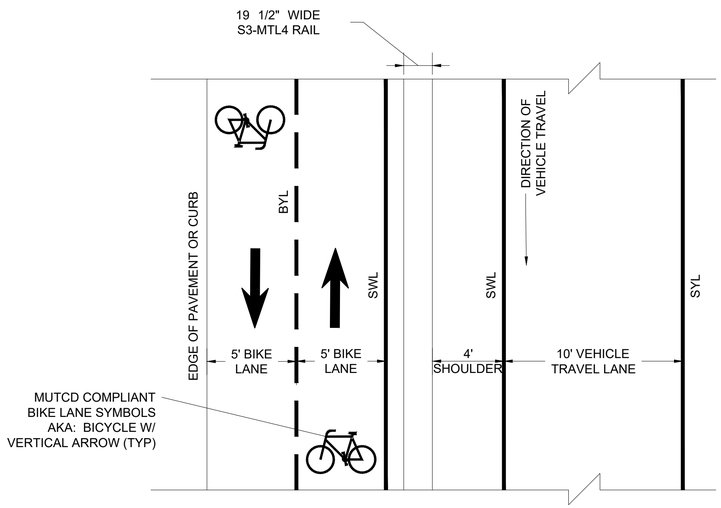
SCALE: 1" = 20'

607420_HD(SIGN & PAVEMENT).DWG Plotted on 15-Sep-2026 11:03 AM

LADDER STYLE MARKINGS FOR CROSSWALKS

SCALE: NONE





TWO-WAY BIKE LANE MARKINGS ADJACENT TO TRAVEL WAY

BIKE LANE PAVEMENT MARKINGS

SCALE: NONE

BIKE LANE PAVEMENT MARKINGS NOTES:

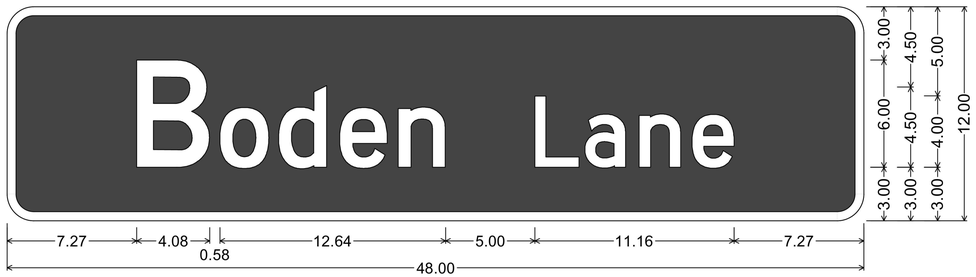
1. SEE TYPICAL SECTIONS AND SIGN AND PAVEMENT MARKINGS PLANS FOR TRAVEL LANE, SHOULDER, AND BIKE LANE WIDTHS.
2. MARK LEFT SIDE OF THE BIKE LANE THROUGH INTERSECTIONS WITH DOTTED WHITE LANE LINE EXTENSION PAVEMENT MARKINGS, 2 FT DASH, 6 FT GAP.
3. INSTALL BIKE LANE SYMBOL AND ARROW AT INTERSECTION APPROACHES, AT THE BEGINNING OF THE BIKE LANE, AND AT 1000 FT INTERVALS (MAX).

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
R1-1	30	30	STOP	MUTCD STND	MUTCD STND	MUTCD STND	2	RED	WHITE	WHITE	P5 (2)	6.25	12.50
R5-1	30	30	DO NOT ENTER				2	RED	WHITE	WHITE	MOUNT BACK OF R1-1	6.25	12.50
R6-1 (L)	36	12	ONE WAY				2	BLACK AND WHITE	BLACK	WHITE	MOUNT WITH R1-1	3.00	6.00
R6-1 (R)	36	12	ONE WAY				2	BLACK AND WHITE	BLACK	WHITE	MOUNT WITH R1-1	3.00	6.00
W3-1	30	30					1	YELLOW	RED AND BLACK	BLACK	P5 (1)	6.25	6.25
R3-17	30	24	BIKE LANE				5	WHITE	BLACK	BLACK	P5 (3)	5.00	25.00
R3-17bP	30	12	ENDS				2	WHITE	BLACK	BLACK	MOUNT W/ R3-17	2.50	5.00
R3-2	24	24					1	WHITE	BLACK	BLACK	P5(1)	4.00	4.00
MA-D3-1	48	12	Boden Lane	SEE DETAIL BELOW	SEE DETAIL BELOW	N/A	2	SEE DETAIL BELOW	SEE DETAIL BELOW	SEE DETAIL BELOW	P5(2)	4.00	8.00

PAYMENT FOR THESE SIGNS TO BE PAID UNDER ITEM 832.
PAYMENT FOR STREET NAME SIGN TO BE PAID UNDER ITEM 874.

TOTAL THIS SHEET =77.25 SF
(MINUS STREET NAME SIGN)



MA-D3-1;
Job Number : 607420;
Quantity : 2;
Supports : 2 P5 POSTS;
Mounting : BACK TO BACK;
1.50" Radius, 0.50" Border, White on Green;
"Boden", D 2K; "Lane", D 2K;

SIGNS – GENERAL NOTES:

1. ALL WARNING, REGULATORY AND ROUTE MARKERS SHALL BE FABRICATED WITH HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING (SEE SECTION M9.30.0) TYPE III OR IV.
2. ALL SIGNS NOTED AS "(R&R)" SHALL BE MOUNTED ON NEW P5 POSTS OR AS OTHERWISE INDICATED.
3. ALL P5 POSTS SHALL BE TELESCOPIC BREAKAWAY RECTANGULAR TYPE POSTS.
4. QUANTITIES OF SIGNS SHOWN ON THIS SHEET MAY DIFFER FROM THE PAVEMENT MARKING AND SIGNING PLANS. WHERE DIFFERENCES OCCUR, THE PAVEMENT MARKINGS AND SIGNING PLANS SHALL PREVAIL.
5. REFER TO MUTCD 11TH EDITION AS APPROPORIATE.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	20	92
PROJECT FILE NO.	607420		

TRAFFIC DETAILS & SIGN SUMMARY

607420_HD(SIGN & PAVEMENT).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:
1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 1:
1. INSTALL AND CONNECT THE TEMPORARY PTC RELOCATION.
2. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 1 WORK ZONE.
3. CONSTRUCT SOLDIER PILE WALL ON EAST SIDE OF BODEN LANE.
4. DRILL TES SOLDIER PILES FOR STAGE 3 SOUTH AND NORTH OF THE BRIDGE AS SHOWN.
5. INSTALL CAISSONS FOR PROPOSED UTILITY POLES. RELOCATE OVERHEAD UTILITIES FROM WEST SIDE TO EAST SIDE OF BODEN LANE (BO).
6. CONSTRUCT DRAINAGE CONNECTION ON WEST CENTRAL STREET AND TAMARACK ROAD USING ALTERNATING ONE WAY (TRAFFIC OFFICER) TRAFFIC CONTROL, CONSTRUCTION DETAIL 852.4.4.

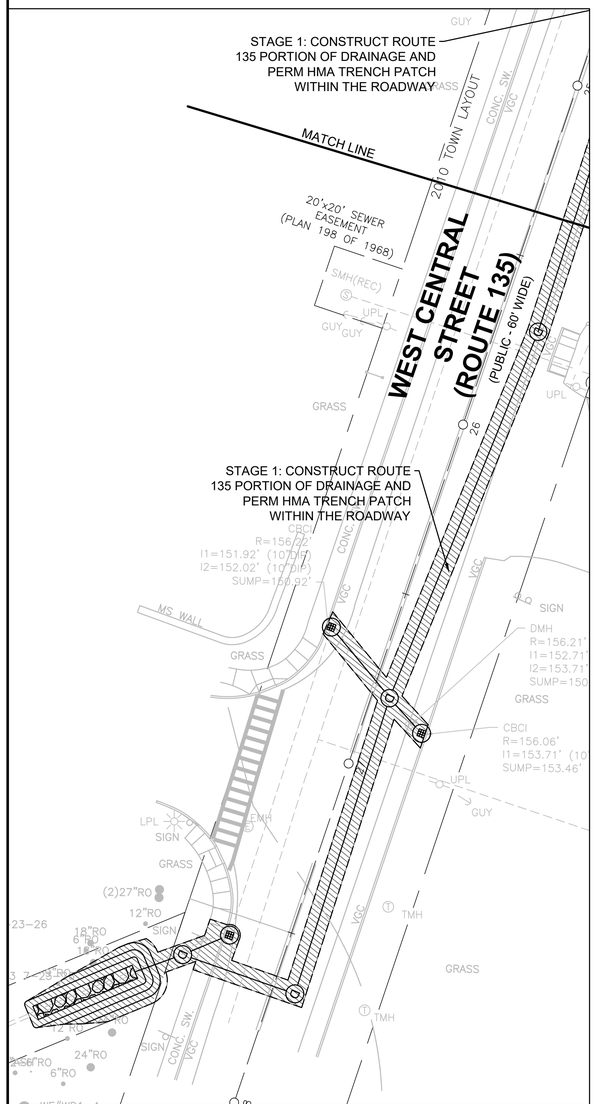
NAD 83

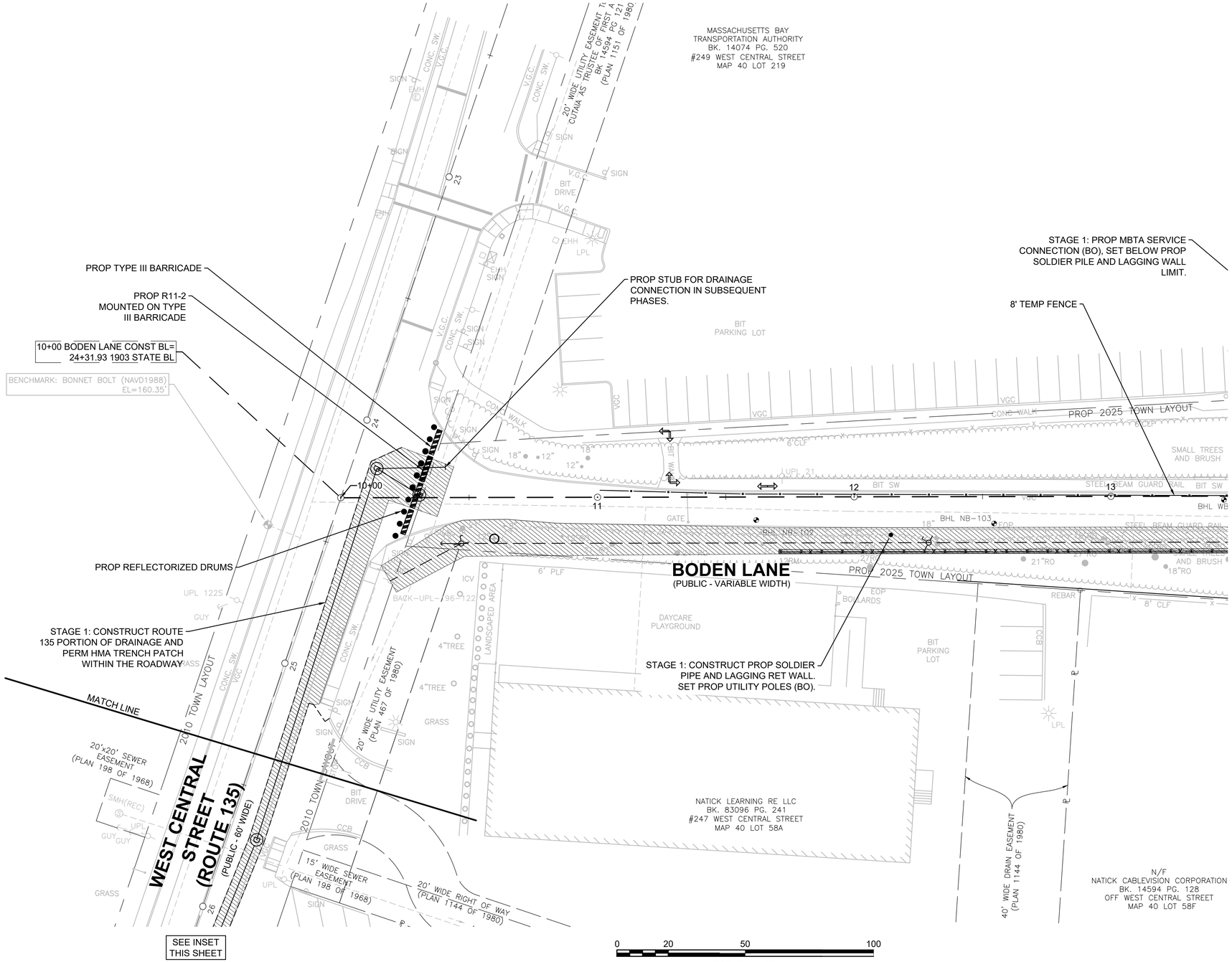
N

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	21	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 1





CONTINUED ON SHEET NO. 22

SEE INSET THIS SHEET

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

0 20 50 100
SCALE: 1" = 20'

607420_HDI(TTCP_STAGE 1).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:
1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 1:
1. INSTALL AND CONNECT THE TEMPORARY PTC RELOCATION.
2. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 1 WORK ZONE.
3. CONSTRUCT SOLDIER PILE WALL ON EAST SIDE OF BODEN LANE.
4. DRILL TES SOLDIER PILES FOR STAGE 3 SOUTH AND NORTH OF THE BRIDGE AS SHOWN.
5. INSTALL CAISSONS FOR PROPOSED UTILITY POLES. RELOCATE OVERHEAD UTILITIES FROM WEST SIDE TO EAST SIDE OF BODEN LANE (BO).
6. CONSTRUCT DRAINAGE CONNECTION ON WEST CENTRAL STREET AND TAMARACK ROAD USING ALTERNATING ONE WAY (TRAFFIC OFFICER) TRAFFIC CONTROL, CONSTRUCTION DETAIL 852.4.4.

NAD 83

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	22	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 1

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

15+00.73 BODEN LANE CONST BL=
1045+76.12 MBTA RR RECORD BL

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 14074 PG. 520 #249 WEST CENTRAL STREET MAP 40 LOT 219

MBTA CSX RAILROAD

RAILROAD SIDELINE

20' WIDE DRAIN EASEMENT TO CHARLES A. CUTAIA TRUSTEE OF FIRST ATLANTIC REALTY TRUST BK 14594 PG 121 (PLAN 1151 OF 1980) and (PLAN 394 of 1982)

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 12815 PG. 372

20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)

EDGE OF 220' CHAPTER 634 MASSDOT BRIDGE EASEMENT (PLAN 97 OF 1973)

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 335A)

N/F
CHRISTINE M. THERRIEN AND JESICA PAGANO-THERRIEN
BK. 63213 PG. 555
#2 TAMARACK ROAD
MAP 39 LOT 36K

THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION (SUBJECT TO ARTICLE 97)
BK. 23478 PG. 432
BK. 67241 PG. 502

R&R STORAGE CONTAINER BY MBTA

STAGE 1: PROP MBTA SERVICE CONNECTION (BO), SET BELOW PROP SOLDIER PILE AND LAGGING WALL LIMIT.

8' TEMP FENCE

PROP TEMP PTC RELOCATION

PROP TYPE III BARRICADE TO CLOSE PLATFORM BY MASSDOT

R&R FEATURES BY MBTA, FOR DURATION OF CONSTRUCTION

PROP TEMPORARY PCR

BRIDGE NO. N-03-012

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

INSTALL DRILLED SOLDIER PILES FOR STAGE 3 TEMPORARY EXCAVATION SUPPORT PRIOR TO RELOCATION OF UTILITY POLES

PROP TEMP PTC RELOCATION

STAGE 1: CONSTRUCT PROP SOLDIER PIPE AND LAGGING RET WALL. SET PROP UTILITY POLES (BO).

STAGE 1: CONSTRUCT PROP SOLDIER PIPE AND LAGGING RET WALL. SET PROP UTILITY POLES (BO).

N/F
NATICK CABLEVISION CORPORATION
BK. 14594 PG. 128
OFF WEST CENTRAL STREET
MAP 40 LOT 58F

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

N/F
TOWN OF NATICK
(TAX COLLECTION DEPT.)
LC CERT. 168145
LC DOC. 1781547
LC BK. 970 PG. 195
#46 BURNING TREE ROAD
MAP 40 LOT 136

2021 FILOMENA LOFFA TRUST
LC CERT. 278015
LC DOC. 1900248
LCBK. 1582 PG. 45
#52 BURNING TREE ROAD
MAP 40 LOT 137

MICHAEL J. LEE AND ANNETTE WONG TRUST
LC CERT. 281034
LC DOC. 1929018
LCBK. 1597 PG. 281034
#54 BURNING TREE ROAD
MAP 40 LOT 138

CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 23

0 20 50 100
SCALE: 1" = 20'

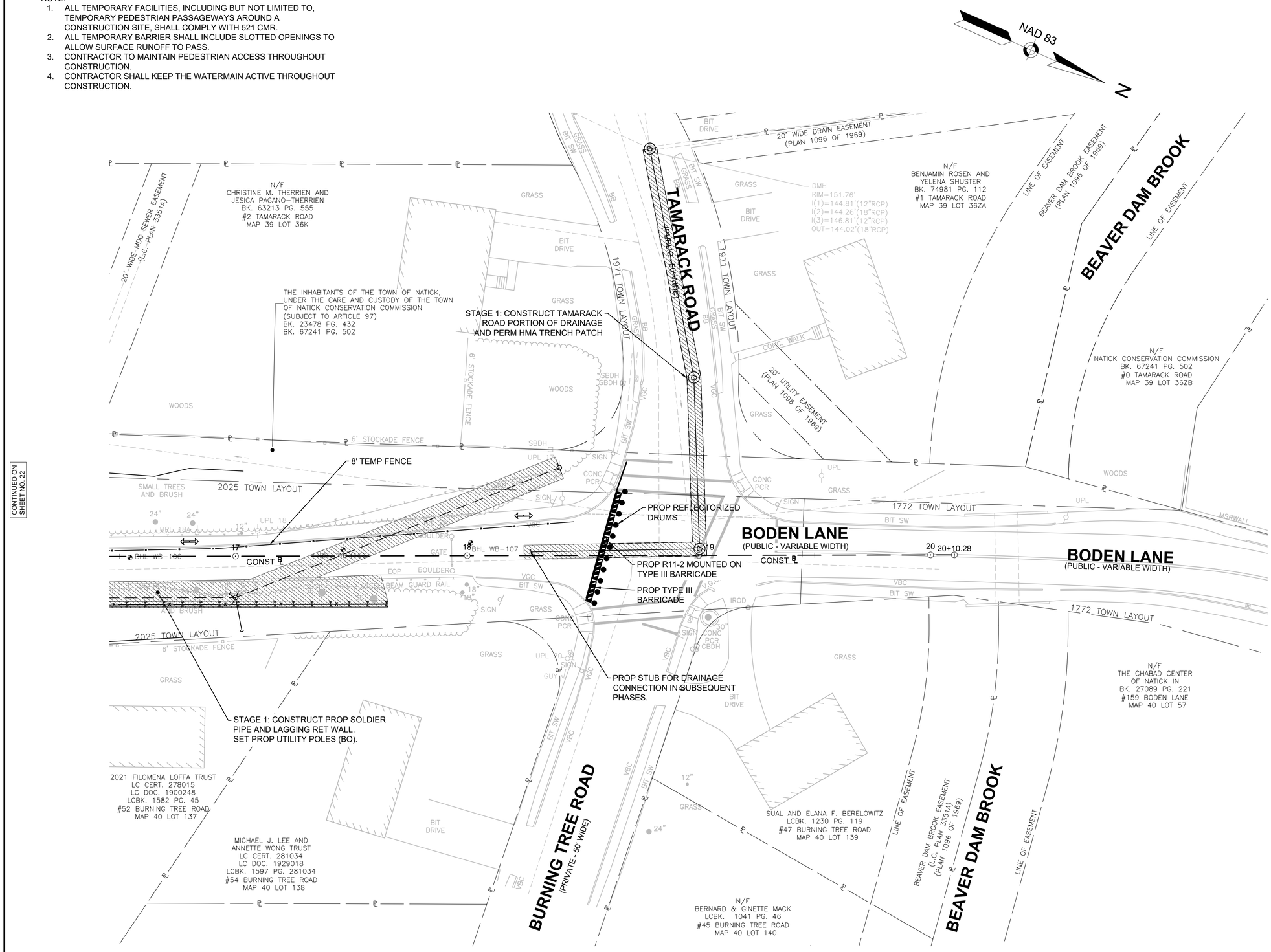
607420_HDI(TTCP_STAGE 1).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:
1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	23	92
PROJECT FILE NO.	607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 1



STAGING NOTES - STAGE 1:
1. INSTALL AND CONNECT THE TEMPORARY PTC RELOCATION.
2. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 1 WORK ZONE.
3. CONSTRUCT SOLDIER PILE WALL ON EAST SIDE OF BODEN LANE.
4. DRILL TES SOLDIER PILES FOR STAGE 3 SOUTH AND NORTH OF THE BRIDGE AS SHOWN.
5. INSTALL CAISSONS FOR PROPOSED UTILITY POLES. RELOCATE OVERHEAD UTILITIES FROM WEST SIDE TO EAST SIDE OF BODEN LANE (BO).
6. CONSTRUCT DRAINAGE CONNECTION ON WEST CENTRAL STREET AND TAMARACK ROAD USING ALTERNATING ONE WAY (TRAFFIC OFFICER) TRAFFIC CONTROL, CONSTRUCTION DETAIL 852.4.4.

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

607420_HDI(TTCP_STAGE 1).DWG Plotted on 15-Sep-2026 11:04 AM

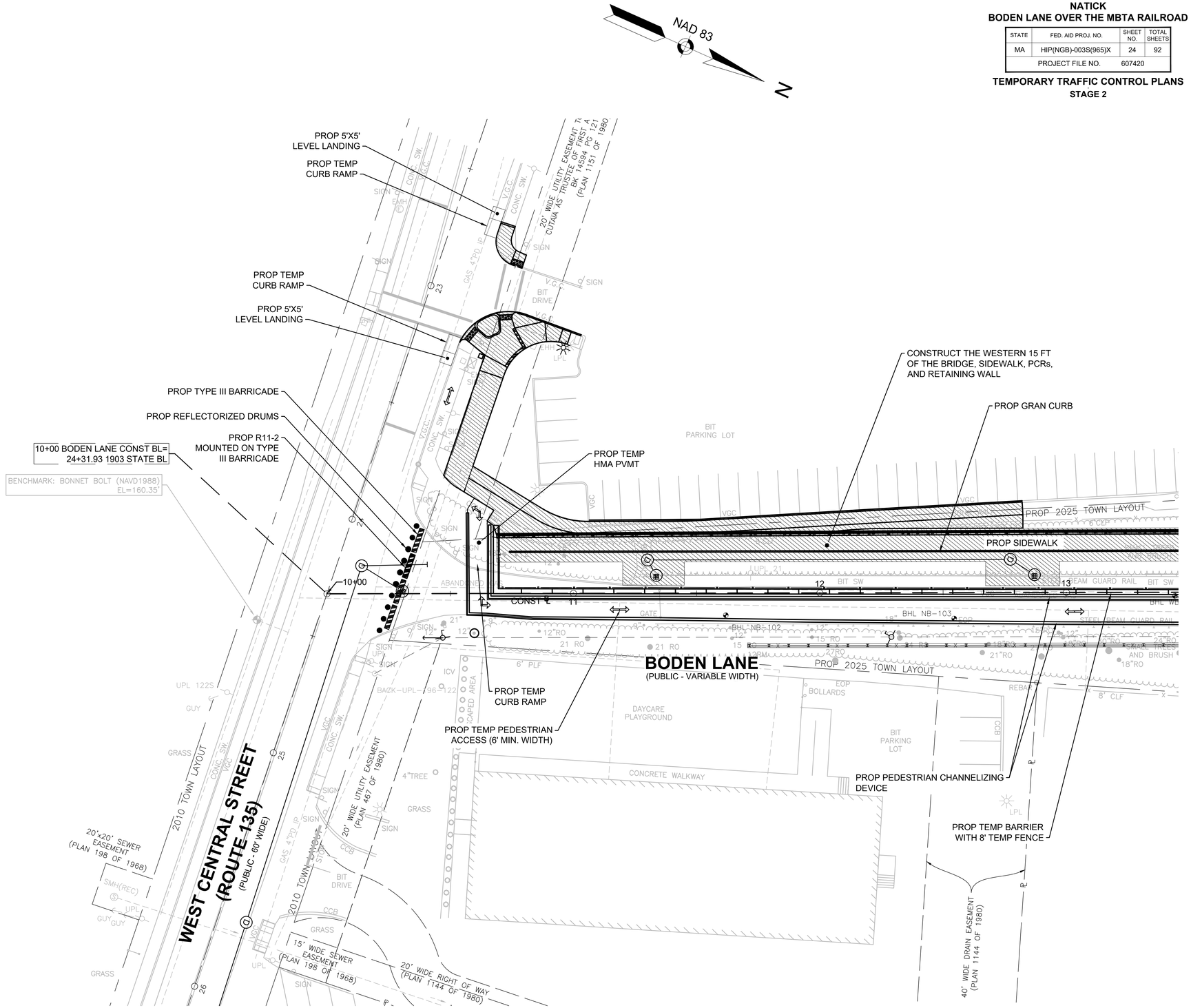
NOTE:
1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 2:
1. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 2 WORK ZONE.
2. CONSTRUCT SOLDIER PILE AND LAGGING RETAINING WALL ON THE WEST SIDE OF BODEN LANE.
3. INSTALL TEMPORARY EXCAVATION SUPPORT FOR STAGE 2 PROPOSED BRIDGE CONSTRUCTION AS SHOWN.
4. EXCAVATE WORK ZONE, DEMOLISH EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 2 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT STAGE 2 PORTION OF PROPOSED BRIDGE. INSTALL WATER MAIN AND GAS MAIN OF NEWLY CONSTRUCTED BRIDGE TO STAGE 2 WORK ZONE LIMITS. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
6. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL BENEATH THE STAGE 3 PEDESTRIAN ROUTE.
7. CONSTRUCT WEST SIDEWALK AND CONNECTIONS TO EXISTING WALKS, INSTALL TEMPORARY BARRIER AND 8' TEMPORARY FENCE. DIVERT PEDESTRIANS TO THE WEST SIDE OF BODEN LANE, SEE STAGE 3 TTCP.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	24	92
PROJECT FILE NO.	607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 2



LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

0 20 50 100
SCALE: 1" = 20'

607420_HDI(TTCP_STAGE 2).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:

1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 2:

1. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 2 WORK ZONE.
2. CONSTRUCT SOLDIER PILE AND LAGGING RETAINING WALL ON THE WEST SIDE OF BODEN LANE.
3. INSTALL TEMPORARY EXCAVATION SUPPORT FOR STAGE 2 PROPOSED BRIDGE CONSTRUCTION AS SHOWN.
4. EXCAVATE WORK ZONE, DEMOLISH EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 2 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT STAGE 2 PORTION OF PROPOSED BRIDGE. INSTALL WATER MAIN AND GAS MAIN OF NEWLY CONSTRUCTED BRIDGE TO STAGE 2 WORK ZONE LIMITS. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
6. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL BENEATH THE STAGE 3 PEDESTRIAN ROUTE.
7. CONSTRUCT WEST SIDEWALK AND CONNECTIONS TO EXISTING WALKS, INSTALL TEMPORARY BARRIER AND 8' TEMPORARY FENCE. DIVERT PEDESTRIANS TO THE WEST SIDE OF BODEN LANE, SEE STAGE 3 TTCP.

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

NAD 83

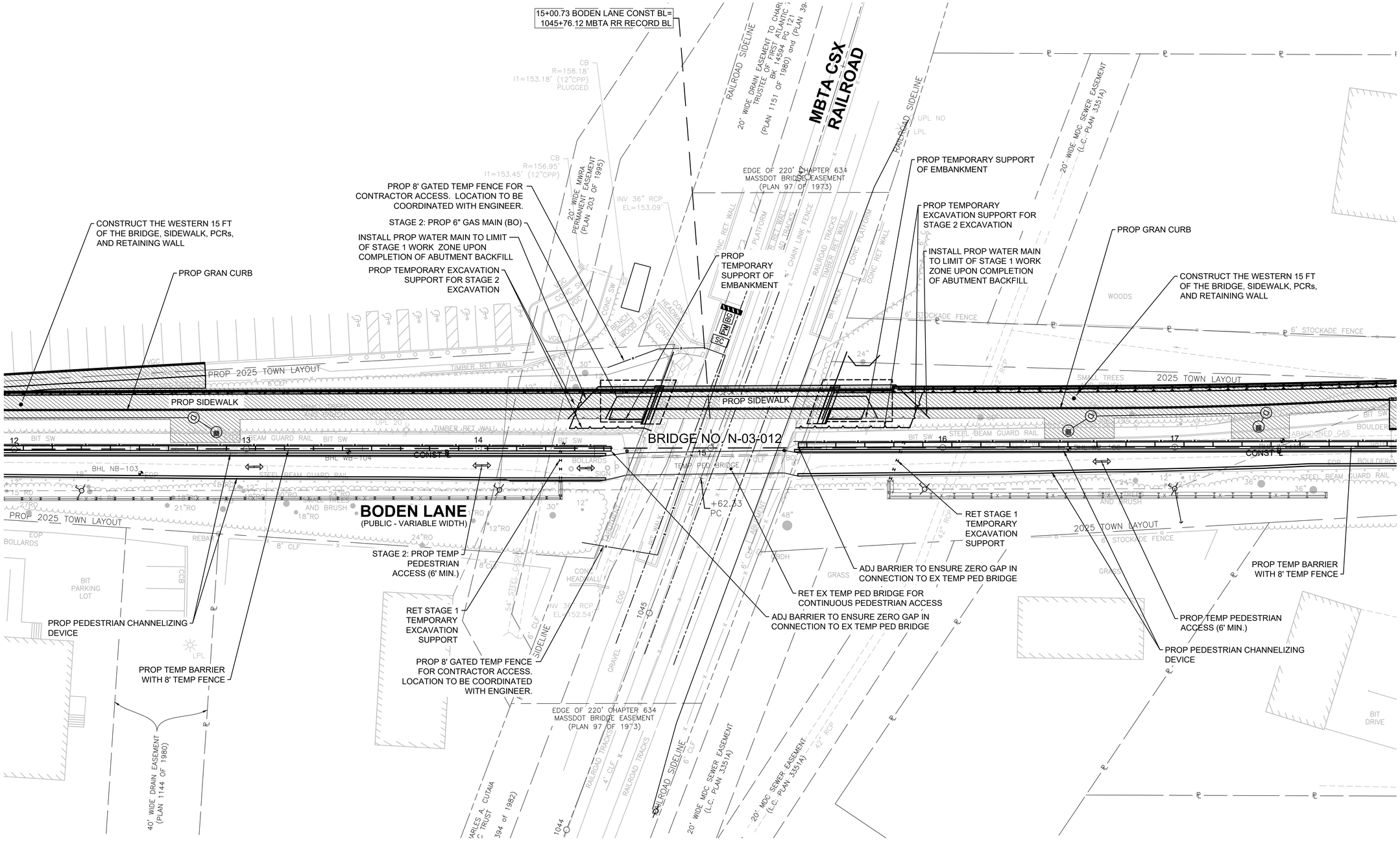
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NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	25	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 2

607420_HDI(TTCP_STAGE 2).DWG Plotted on 15-Sep-2026 11:04 AM



0 20 50 100

SCALE: 1" = 20'

NOTE:

1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 2:

1. EXCAVATE TEST PITS AND INSTALL VIBRATION MONITORING FOR MWRA SEWER MAINS FOR STAGE 2 WORK ZONE.
2. CONSTRUCT SOLDIER PILE AND LAGGING RETAINING WALL ON THE WEST SIDE OF BODEN LANE.
3. INSTALL TEMPORARY EXCAVATION SUPPORT FOR STAGE 2 PROPOSED BRIDGE CONSTRUCTION AS SHOWN.
4. EXCAVATE WORK ZONE, DEMOLISH EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 2 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT STAGE 2 PORTION OF PROPOSED BRIDGE. INSTALL WATER MAIN AND GAS MAIN OF NEWLY CONSTRUCTED BRIDGE TO STAGE 2 WORK ZONE LIMITS. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
6. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL BENEATH THE STAGE 3 PEDESTRIAN ROUTE.
7. CONSTRUCT WEST SIDEWALK AND CONNECTIONS TO EXISTING WALKS, INSTALL TEMPORARY BARRIER AND 8' TEMPORARY FENCE. DIVERT PEDESTRIANS TO THE WEST SIDE OF BODEN LANE, SEE STAGE 3 TTCP.

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

NAD 83

N

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	26	92
PROJECT FILE NO.	607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 2

CONTINUED ON SHEET NO. 25

TAMARACK ROAD (PUBLIC - 50' WIDE)

BODEN LANE (PUBLIC - VARIABLE WIDTH)

BURNING TREE ROAD (PRIVATE - 50' WIDE)

BEAVER DAM BROOK

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 3351A)

20' WIDE DRAIN EASEMENT (PLAN 1096 OF 1969)

BEAVER DAM BROOK EASEMENT (PLAN 1096 OF 1969)

20' UTILITY EASEMENT (PLAN 1096 OF 1969)

BEAVER DAM BROOK EASEMENT (L.C. PLAN 3351A) (PLAN 1096 OF 1969)

LINE OF EASEMENT

CONSTRUCT THE WESTERN 15 FT OF THE BRIDGE, SIDEWALK, PCRs, AND RETAINING WALL

STAGE 2: PROP 6" GAS MAIN (BO)

PROP GRAN CURB

PROP 5'X5' LEVEL LANDING

PROP TEMP CURB RAMP

PROP R9-11a

PROP TEMP BARRIER WITH 8' TEMP FENCE

PROP TEMP CURB RAMP

PROP 6'X6' LEVEL LANDING

PROP TEMP PEDESTRIAN ACCESS (6' MIN.)

PROP PEDESTRIAN CHANNELIZING DEVICE

CONST ℄

20+10.28

1772 TOWN LAYOUT

1971 TOWN LAYOUT

2025 TOWN LAYOUT

6' STOCKADE FENCE

STEEL BEAM GUARD RAIL

CONC WALK

MSRWALL

CB RIM=147.78

DMH RIM=151.76'

DMH RIM=151.81'

DMH RIM=151.76' I(1)=144.81'(12"RCP) I(2)=144.26'(18"RCP) I(3)=146.81'(12"RCP) OUT=144.02'(18"RCP)

0 20 50 100

SCALE: 1" = 20'

607420_HDI(TTCP_STAGE 2).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:

1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 3:

1. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL FOR STAGE 3 EXCAVATION FOR PROPOSED BRIDGE AND WALL CONSTRUCTION AS SHOWN.
2. CONNECT THE WATER MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE.
3. CONNECT THE GAS MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
4. REMOVE THE EXISTING PEDESTRIAN BRIDGE, WATER MAIN, AND DEMOLISH THE EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 3 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT THE STAGE 3 PORTION OF THE PROPOSED BRIDGE AND APPROACH ROADWAYS.
6. INSTALL AND CONNECT THE PERMANENT PTC RELOCATION
7. RESTORE MBTA PLATFORM AND FACILITIES TO PRE-CONSTRUCTION CONDITIONS.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	27	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 3

607420_HDI(TTCP_STAGE 3).DWG Plotted on 15-Sep-2026 11:04 AM

NAD 83

N

10+00 BODEN LANE CONST BL=
24+31.93 1903 STATE BL

BENCHMARK: BONNET BOLT (NAVD1988)
EL=160.35'

PROPOSED BODEN LANE SIDEWALK CONSTRUCTED IN STAGE 2 AND OPEN FOR USE BY PEDESTRIANS

PROP TEMP HMA WALK, 5' MIN WIDTH

PROP 8' GATED TEMPORARY FENCE FOR CONTRACTOR ACCESS. LOCATION TO BE COORDINATED WITH ENGINEER

PROP RET WALL AND PEDESTRIAN FENCE CONSTRUCTED IN STAGE 2

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

WEST CENTRAL STREET (ROUTE 135)
(PUBLIC - 60' WIDE)

COMPLETE REMAINING PORTION OF GAS MAIN (BO)

20' WIDE UTILITY EASEMENT TO CUTAIA AS TRUSTEE OF FIRST A BK 14594 PG 121 (PLAN 1151 OF 1980)

20'x20' SEWER EASEMENT (PLAN 198 OF 1968)

20' WIDE UTILITY EASEMENT (PLAN 467 OF 1980)

15' WIDE SEWER EASEMENT (PLAN 198 OF 1968)

20' WIDE RIGHT OF WAY (PLAN 1144 OF 1980)

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

2010 TOWN LAYOUT

PROP 2025 TOWN LAYOUT

DAYCARE PLAYGROUND

BIT PARKING LOT

CONCRETE WALKWAY

LANDSCAPED AREA

BIT DRIVE

BOLLARDS

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

0 20 50 100

SCALE: 1" = 20'

CONTINUED ON SHEET NO. 28

NOTES:

1. CONNECT WATER MAIN AND MAKE ACTIVE UPON COMPLETION OF STAGE 1 BRIDGE, CONTINUOUS SIDEWALK AND BACKFILL OF EXCAVATION. REMOVE SUPPORT OF EXCAVATION AS NEEDED TO INSTALL WATER MAIN ACROSS ROADWAY.
2. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
3. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
4. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
5. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 3:

1. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL FOR STAGE 3 EXCAVATION FOR PROPOSED BRIDGE AND WALL CONSTRUCTION AS SHOWN.
2. CONNECT THE WATER MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE.
3. CONNECT THE GAS MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
4. REMOVE THE EXISTING PEDESTRIAN BRIDGE, WATER MAIN, AND DEMOLISH THE EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 3 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT THE STAGE 3 PORTION OF THE PROPOSED BRIDGE AND APPROACH ROADWAYS.
6. INSTALL AND CONNECT THE PERMANENT PTC RELOCATION
7. RESTORE MBTA PLATFORM AND FACILITIES TO PRE-CONSTRUCTION CONDITIONS.

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

NAD 83

N

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	28	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 3

CONTINUED ON SHEET NO. 27

CONTINUED ON SHEET NO. 29

15+00.73 BODEN LANE CONST BL=
1045+76.12 MBTA RR RECORD BL

MBTA CSX RAILROAD

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

BRIDGE NO. N-03-012

PROP TEMPORARY EXCAVATION SUPPORT

CONNECT REMAINING PORTION OF PROP WATER MAIN AND MAKE ACTIVE PRIOR TO REMOVAL OF EXISTING MAIN

PROP 8' GATED TEMPORARY FENCE FOR CONTRACTOR ACCESS. LOCATION TO BE COORDINATED WITH ENGINEER

PROP RET WALL AND PEDESTRIAN FENCE CONSTRUCTED IN STAGE 2

PROPOSED BODEN LANE SIDEWALK CONSTRUCTED IN STAGE 2 AND OPEN FOR USE BY PEDESTRIANS

PROP PERM PTC RELOCATION

PROP TEMP BARRIER WITH 8' TEMP FENCE

PROP TEMPORARY EXCAVATION SUPPORT

PROPOSED BODEN LANE SIDEWALK CONSTRUCTED IN STAGE 2 AND OPEN FOR USE BY PEDESTRIANS

COMPLETE REMAINING PORTION OF GAS MAIN (BO)

CONNECT REMAINING PORTION OF PROP WATER MAIN AND MAKE ACTIVE PRIOR TO REMOVAL OF EXISTING MAIN

REM TEMP PED BRIDGE, CONSTRUCT REMAINING PORTION OF THE PROP BRIDGE AND ROADWAY

PROP PERM PTC RELOCATION

COMPLETE REMAINING PORTION OF GAS MAIN (BO)

COMPLETE REMAINING PORTION OF GAS MAIN (BO)

PROP 8' GATED TEMP FENCE FOR CONTRACTOR ACCESS. LOCATION TO BE COORDINATED WITH ENGINEER.

PROP 2025 TOWN LAYOUT

2025 TOWN LAYOUT

CONST ℄

TEMP PED BRIDGE

BHL NB-103

EDGE OF 220' CHAPTER 634 MASSDOT BRIDGE EASEMENT (PLAN 97 OF 1973)

20' WIDE MWRA PERMANENT EASEMENT (PLAN 203 OF 1995)

20' WIDE DRAIN EASEMENT TO CHARLES A. CUTAIA TRUSTEE OF FIRST ATLANTIC TRUST BK 14594 PG 121 (PLAN 1151 OF 1980) and (PLAN 394 of 1982)

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 3351A)

40' WIDE DRAIN EASEMENT (PLAN 1144 OF 1980)

RAILROAD SIDELINE

0 20 50 100

SCALE: 1" = 20'

607420_HDI(TTCP_STAGE 3).DWG Plotted on 15-Sep-2026 11:04 AM

NOTE:
1. ALL TEMPORARY FACILITIES, INCLUDING BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.
2. ALL TEMPORARY BARRIER SHALL INCLUDE SLOTTED OPENINGS TO ALLOW SURFACE RUNOFF TO PASS.
3. CONTRACTOR TO MAINTAIN PEDESTRIAN ACCESS THROUGHOUT CONSTRUCTION.
4. CONTRACTOR SHALL KEEP THE WATERMAIN ACTIVE THROUGHOUT CONSTRUCTION.

STAGING NOTES - STAGE 3:
1. INSTALL TEMPORARY EXCAVATION SUPPORT TO SUPPORT BACKFILL FOR STAGE 3 EXCAVATION FOR PROPOSED BRIDGE AND WALL CONSTRUCTION AS SHOWN.
2. CONNECT THE WATER MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE.
3. CONNECT THE GAS MAIN FROM THE WEST SIDE OF BODEN LANE BRIDGE, CONSTRUCTED IN PHASE 2, TO THE EXISTING MAIN IN THE BODEN LANE ROADWAY AND MAKE ACTIVE. INSTALLATION OF GAS MAIN TO BE COORDINATED WITH EVERSOURCE GAS.
4. REMOVE THE EXISTING PEDESTRIAN BRIDGE, WATER MAIN, AND DEMOLISH THE EXISTING ABUTMENT WITHIN THE LIMITS OF THE STAGE 3 PORTION OF THE PROPOSED BRIDGE.
5. CONSTRUCT THE STAGE 3 PORTION OF THE PROPOSED BRIDGE AND APPROACH ROADWAYS.
6. INSTALL AND CONNECT THE PERMANENT PTC RELOCATION
7. RESTORE MBTA PLATFORM AND FACILITIES TO PRE-CONSTRUCTION CONDITIONS.

LEGEND

WORK ZONE

PROP PEDESTRIAN ACCESS WAY

NAD 83

N

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	29	92
	PROJECT FILE NO. 607420		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE 3

CONTINUED ON SHEET NO. 28

PROP 8' GATED TEMPORARY FENCE FOR CONTRACTOR ACCESS. LOCATION TO BE COORDINATED WITH ENGINEER

PROPOSED BODEN LANE SIDEWALK CONSTRUCTED IN STAGE 2 AND OPEN FOR USE BY PEDESTRIANS

COMPLETE REMAINING PORTION OF GAS MAIN (BO)

PROP TEMP CURB RAMP

PROP 5'X5' LEVEL LANDING

PROP TEMP CURB RAMP

PROP 5'X5' LEVEL LANDING

TAMARACK ROAD (PUBLIC - 50' WIDE)

BODEN LANE (PUBLIC - VARIABLE WIDTH) CONST ℄ 20+10.28

BODEN LANE (PUBLIC - VARIABLE WIDTH)

BURNING TREE ROAD (PRIVATE - 50' WIDE)

BEAVER DAM BROOK

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 33514)

20' WIDE DRAIN EASEMENT (PLAN 1096 OF 1969)

BEAVER DAM BROOK EASEMENT (L.C. PLAN 33514) (PLAN 1096 OF 1969)

20' UTILITY EASEMENT (PLAN 1096 OF 1969)

LINE OF EASEMENT

1971 TOWN LAYOUT

1772 TOWN LAYOUT

2025 TOWN LAYOUT

6' STOCKADE FENCE

DMH RIM=151.76'

DMH RIM=151.81'

DMH RIM=151.76' I(1)=144.81'(12"RCP) I(2)=144.26'(18"RCP) I(3)=146.81'(12"RCP) OUT=144.02'(18"RCP)

CB RIM=147.78'

0 20 50 100

SCALE: 1" = 20'

607420_HDI(TTCP_STAGE 3).DWG Plotted on 15-Sep-2026 11:04 AM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	30	92
PROJECT FILE NO.	607420		

TEMPORARY TRAFFIC CONTROL DETAILS

607420_HD(TTC DETAILS).DWG Plotted on 15-Sep-2026 11:04 AM

MASSDOT CONSTRUCTION STANDARD DETAILS **SUBSECTION 850:** **TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS**		
DETAIL NUMBER	DETAIL NAME	CURRENT VERSION
850.1.1	TEMPORARY CURB RAMP (1 OF 2)	JAN 2025
850.1.2	TEMPORARY CURB RAMP (2 OF 2)	JAN 2025
851.1.1	CONES & DRUMS	JAN 2025
851.2.1	TYPE III BARRICADE	JAN 2025
851.3.1	PEDESTRIAN CHANNELIZING DEVICE	JAN 2025
852.1.1	SIDEWALK DETOUR	JAN 2025
852.1.2	SIDEWALK DIVERSION	JAN 2025
852.4.4	ALTERNATING ONE-WAY (TRAFFIC OFFICER)	JAN 2025
853.2.1	TEMPORARY CONCRETE BARRIER MASH TL-2 (1 OF 3)	JUN 2025
853.2.2	TEMPORARY CONCRETE BARRIER MASH TL-2 (2 OF 3)	JUN 2025
853.2.3	TEMPORARY CONCRETE BARRIER MASH TL-2 (3 OF 3)	JUN 2025

NOTES:
1. ALL TEMPORARY FACILITIES, INCLUDED BUT NOT LIMITED TO, TEMPORARY PEDESTRIAN PASSAGEWAYS AROUND A CONSTRUCTION SITE, SHALL COMPLY WITH 521 CMR.

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH (IN)	SIZE OF SIGN HEIGHT (IN)	TEXT	TEXT DIMENSION (in) LETTER HEIGHT	TEXT DIMENSION (in) VERTICAL SPACING	TEXT DIMENSION (in) ARROW RTE MKR	NUMBER OF SIGNS REQ'D	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	UNIT AREA (sq. ft)	TOTAL AREA (sq. ft)
R11–2	48	30	ROAD CLOSED	MUTCD STD	MUTCD STD	MUTCD STD	2	WHITE	BLACK	BLACK	10.00	20.00
R9–8 (OPTIONAL)	36	18	PEDESTRIAN CROSSWALK				5	WHITE	BLACK	BLACK	4.50	22.50
R9–9	24	12	SIDEWALK CLOSED				5	WHITE	BLACK	BLACK	2.00	10.00
R9–10	24	12	SIDEWALK CLOSED ⟷ USE OTHER SIDE				5	WHITE	BLACK	BLACK	2.00	10.00
R9–11aL	24	12	SIDEWALK CLOSED ← CROSS HERE				5	WHITE	BLACK	BLACK	2.00	10.00
R9–11aR	24	12	SIDEWALK CLOSED → CROSS HERE				5	WHITE	BLACK	BLACK	2.00	10.00
W1–4R	36	36					2	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	18.00
W1–4L	36	36					2	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	18.00
W5–1	36	36	ROAD NARROWS				2	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	18.00
W8–1	36	36	BUMP				5	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W8–3	36	36	PAVEMENT ENDS				5	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W8–8	36	36	ROUGH ROAD				5	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W11–2	36	36					5	FLUO–RESCENT YELLOW GREEN	BLACK	BLACK	9.00	45.00
W16–9p	24	12	AHEAD				5	FLUO–RESCENT YELLOW GREEN	BLACK	BLACK	2.00	10.00
W16–7pL	24	12					5	FLUO–RESCENT YELLOW GREEN	BLACK	BLACK	2.00	10.00
MA–W20–7b OR W20–7	36	36	POLICE OFFICER AHEAD	MASS DOT STD	MASS DOT STD	MASS DOT STD	5	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
	36	36						FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W20–4	36	36	ONE LANE ROAD 1000 FT	MASS DOT STD	MASS DOT STD	MASS DOT STD	5	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W21–5a	36	36	RIGHT SHOULDER CLOSED	MUTCD STD	MUTCD STD	MUTCD STD	2	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	18.00
MA–R2–10a	48	36	WORK ZONE SPEEDING FINES DOUBLED	MASS DOT STD	MASS DOT STD	MASS DOT STD	5	FLUO–RESCENT ORANGE & WHITE	BLACK	BLACK	12.00	60.00
MA–R2–10e	36	48	END ROAD WORK / DOUBLE FINES END	MASS DOT STD	MASS DOT STD	MASS DOT STD	5	FLUO–RESCENT ORANGE & WHITE	BLACK	BLACK	12.00	60.00
W20–1a	36	36	ROAD WORK AHEAD	MUTCD STD	MUTCD STD	MUTCD STD	3	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	27.00
W20–1b	36	36	ROAD WORK BBB FT				5 WITH "500"	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
W20–1c	36	36	ROAD WORK CCC FT				5 WITH "1000"	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	45.00
R3–17	30	24	BIKE LANE				2	WHITE	BLACK	BLACK	5.00	10.00
R4–11	30	30	MAY USE FULL LANE				2	WHITE	BLACK	BLACK	6.25	12.50
W21–5bR	36	36	RIGHT SHOULDER CLOSED AHEAD				2	FLUO–RESCENT ORANGE	BLACK	BLACK	9.00	18.00
R11–2e	48	30	BIKE LANE CLOSED				2	WHITE	BLACK	BLACK	10.00	20.00
R11–2	48	30	ROAD CLOSED				2	WHITE	BLACK	BLACK	10.00	20.00
W13–1P	24	24	XX MPH				2	FLUO–RESCENT ORANGE	BLACK	BLACK	2.25	4.50

TOTAL AREA = 811.50 SQ. FT.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	31	92
PROJECT FILE NO.	607420		

TEMPORARY TRAFFIC CONTROL DETAILS

607420_HD(TTC DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	32	92
PROJECT FILE NO.	607420		

UTILITY PLANS

607420_HD(UTILITY PLANS).DWG Plotted on 30-Sep-2026 3:33 PM

DMH-1
R=157.23
INV(in)=154.70 (DMH-2)
INV(out)=154.60 (DMH-13)

RET UP

PROP 107 LF - 12" RCP
S=0.005 FT/FT

CB-7
STA:26+65.40 OFF:16.76RT
R=156.35
I(out)=154.25 (DMH-13)

SAWCUT, PROP PERM TRENCH PATCH

DMH-13
STA:26+79.04 OFF:5.00LT
R=156.49
I(in)=154.10 (CB-7)
I(in)=154.10 (CB-8)
I(in)=154.10 (DMH-1)
I(out)=154.00 (DMH-14)

CB-9
STA:27+56.09 OFF:16.20RT
R=156.44
I(out)=153.50 (DMH-15)

PROP 22 LF - 12" RCP
S=0.006 FT/FT

PROP 10 LF - 12" RCP
S=0.008 FT/FT

REM EX DMH

RET WG (2)

RET WG

CB-8
STA:26+85.49 OFF:16.60LT
R=156.63
I(out)=154.20 (DMH-13)

PROP 10 LF - 12" RCP
S=0.007 FT/FT

ABAN EX 12" RCP

PROP 83 LF - 18" RCP
S=0.005 FT/FT

SAWCUT, PROP PERM TRENCH PATCH

PROP GRAN CURB & CEM CONC SW PATCH

PROP 29 LF - 18" RCP
S=0.005 FT/FT

DMH-14
STA:27+65.80 OFF:6.33LT
R=156.55
I(in)=153.60 (DMH-13)
I(out)=153.55 (DMH-15)

DMH-15
STA:27+65.46 OFF:26.87RT
R=157.12
I(in)=153.40 (CB-9)
I(in)=153.40 (DMH-14)
I(out)=153.30 ()

PROP MOD ROCK ON CHANNEL BOTTOM

PROP GRADING FOR OUTFALL DISCHARGE

PROP 12 LF - 18" RCP
S=0.007 FT/FT

END INVERT= 153.2'

GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED, CATCH BASINS SHALL BE PROVIDED WITH DEEP SUMPS (4 FT MIN) AND HOODS. CATCH BASIN'S FRAME AND GATE SHALL BE OF CASCADE TYPE TO BETTER ACCOMMODATE CYCLISTS.
2. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5 FT SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FT WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
3. MANHOLE STEPS SHALL BE INSTALLED IN ALL PROPOSED MANHOLES.
4. IN INSTANCES WHERE AN EXISTING OR PROPOSED FRAME AND COVER ARE LOCATED IN AN ADA ACCESSIBLE SURFACE, THE FRAME SHALL BE CAREFULLY ADJUSTED SUCH THAT THE COVER IS FLUSH WITH THE SURFACE.
5. RELOCATION OF THE UTILITY POLES SHOULD BE CAREFULLY EVALUATED COMPARED TO DRAINAGE AND SLOPE REVETMENT NEEDS. ANY POLE HOLDS REQUIRED FOR THE INSTALLATION OR REMOVAL OF UNDERGROUND UTILITIES OR BUILDING OF SLOPES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND THERE WILL BE NO COMPENSATION OR TIME EXTENSION FOR WORK RELATED TO POLE HOLDS.
6. CONTRACTOR SHALL PROVIDE ACCESS AND ROUGH GRADE THE SLOPE FOR UTILITY POLE INSTALLATION.

0 20 50 100

SCALE: 1" = 20'

PROP 62 LF - 12" RCP
S=0.005 FT/FT

DMH-3
R=159.11
INV(in)=155.75 (DMH-5)
INV(in)=154.75 (DMH-4)
INV(out)=155.65 (DMH-2)

PROP 46 LF - 12" RCP
S=0.004 FT/FT

CB-1
R=157.89
INV(out)=155.60 (DMH-2)

PROP 16 LF - 12" RCP
S=0.008 FT/FT

CONNECT TO EXIST 4" GAS (BO)

DMH-2
R=158.08
INV(in)=155.45 (DMH-3)
INV(in)=155.45 (CB-1)
INV(out)=155.35 (DMH-1)

PROJECT BEGIN
STA 10+17.05
N2927789.1630
E685760.6494

10+00 BODEN LANE CONST BL=
24+31.93 1903 STATE BL

(NAVD1988)
EL=160.35'

10+00

ADJ GG (BO)

ADJ WG

RET HYD

RET UPL#122S

RET WG (2)

WEST CENTRAL STREET (ROUTE 135)
(PUBLIC - 60' WIDE)

PROP 148 LF - REINFORCED CONCRETE PIPE CLASS V

20' WIDE UTILITY EASEMENT (PLAN 467 OF 1980)

2010 TOWN LAYOUT

20'x20' SEWER EASEMENT (PLAN 198 OF 1968)

DMH-1
R=157.23
NV(in)=154.70 (DMH-2)
'(out)=154.60 (DMH-13)

RET UP

PROP 107 LF - 12" RCP
S=0.005 FT/FT

CB-7
STA:26+65.40 OFF:16.76RT
R=156.35
I(out)=154.25 (DMH-13)

SAWCUT, PROP PERM TRENCH PATCH

SEE INSET THIS SHEET

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
BK. 14074 PG. 520
#249 WEST CENTRAL STREET
MAP 40 LOT 219

20' WIDE UTILITY EASEMENT TO CHARLES A. CUTAIA AS TRUSTEE OF FIRST ATLANTIC TRUST BK 14594 PG 121 (PLAN 1151 OF 1980)

PROP TOWN LAYOUT ALTERATION

TEMP EASEMENT

RET LP

DMH-5
R=161.65
INV(in)=156.20 (DMH-6)
INV(in)=156.20 (CB-2)
INV(out)=156.10 (DMH-3)

PROP 3 LF - 12" RCP
S=0.046 FT/FT

CB-2
R=161.73
INV(out)=156.50 (DMH-5)

RET UP

PROP 4" GAS (BO)
PERM EASEMENT

RET LP

PROP GUTTER, SEE CONST DETAILS

PROP 144 LF - 12" RCP
S=0.060 FT/FT

PROP 4" GAS (BO)

ABAN EXIST GAS

DMH-6
R=169.59
INV(in)=165.10 (CB-3)
INV(out)=165.00 (DMH-5)

PROP 7 LF - 12" RCP
S=0.081 FT/FT

CB-3
R=170.01
INV(out)=166.00 (DMH-6)

PROP GUTTER, SEE CONST DETAILS

REM UPL #21 (BO)

PROP 2025 TOWN LAYOUT

BODEN LANE
(PUBLIC - VARIABLE WIDTH)

ADJ WG

RET 4" PVC

PROP 93 LF - 12" RCP
S=0.031 FT/FT

PROP 18 LF - 12" RCP
S=0.007 FT/FT

PROP 2 LF V-NOTCH SWALE TO AVOID UPL

PROP UPL AND GUY (BO), PROP HIGHWAY LIGHTING LUMINAIRE

PROP UPL (BO), PROP HIGHWAY LIGHTING LUMINAIRE

RET LP

TEMP EASEMENT

PROP SLACK SPAN OHW (BO)

PERM EASEMENT

RET UPL#196

PROP 148 LF - 12" RCP
S=0.004 FT/FT

DMH-4
R=158.62
INV(in)=155.00 (DI-1)
INV(out)=154.90 (DMH-3)

DI-1
R=163.04
INV(out)=158.00 (DMH-4)

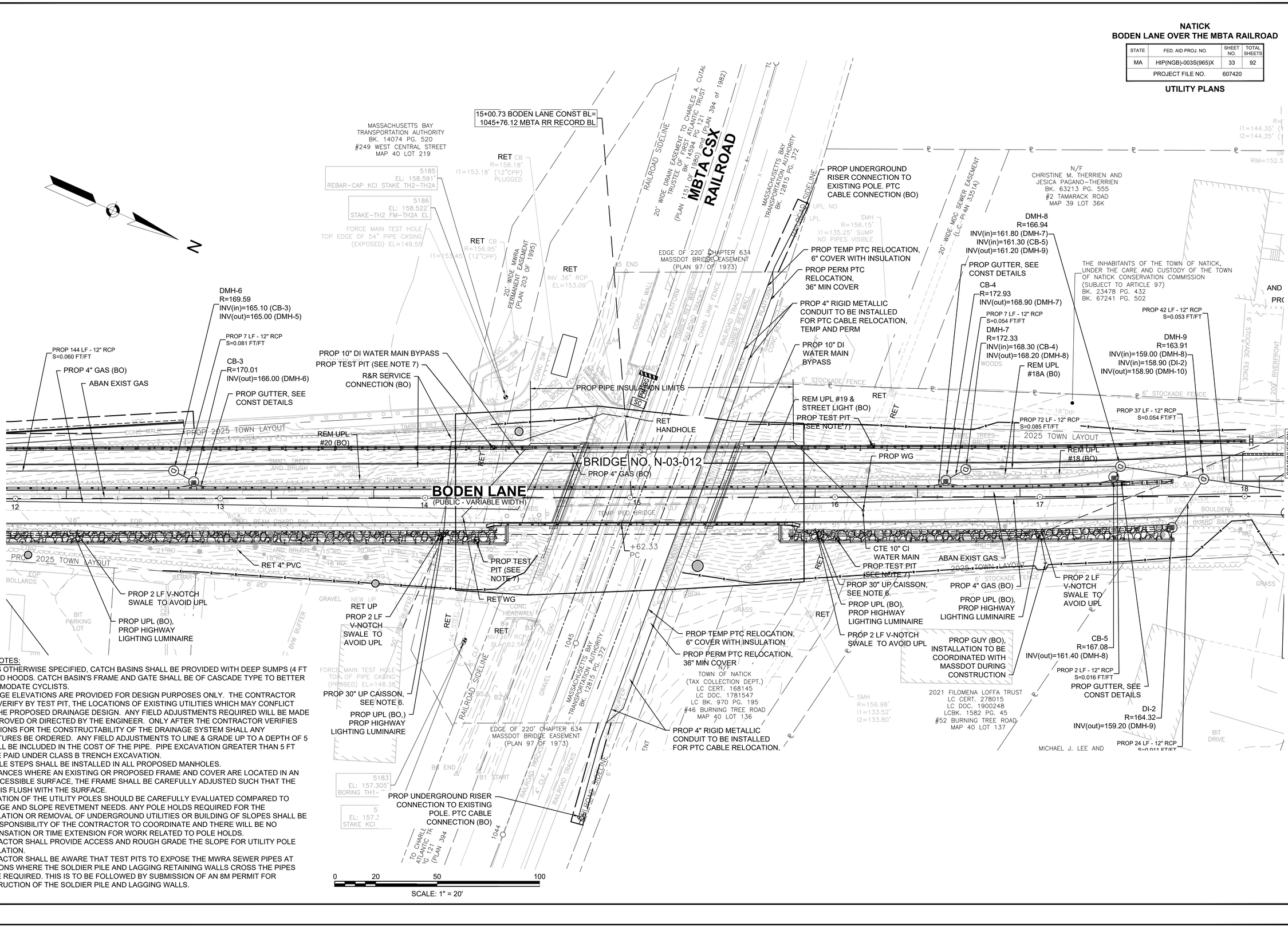
CONTINUED ON SHEET NO. 33

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	33	92
	PROJECT FILE NO. 607420		

UTILITY PLANS

607420_HDU(UTILITY PLANS).DWG Plotted on 30-Sep-2026 3:33 PM



GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED, CATCH BASINS SHALL BE PROVIDED WITH DEEP SUMPS (4 FT MIN) AND HOODS. CATCH BASIN'S FRAME AND GATE SHALL BE OF CASCADE TYPE TO BETTER ACCOMMODATE CYCLISTS.
2. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5 FT SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FT WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
3. MANHOLE STEPS SHALL BE INSTALLED IN ALL PROPOSED MANHOLES.
4. IN INSTANCES WHERE AN EXISTING OR PROPOSED FRAME AND COVER ARE LOCATED IN AN ADA ACCESSIBLE SURFACE, THE FRAME SHALL BE CAREFULLY ADJUSTED SUCH THAT THE COVER IS FLUSH WITH THE SURFACE.
5. RELOCATION OF THE UTILITY POLES SHOULD BE CAREFULLY EVALUATED COMPARED TO DRAINAGE AND SLOPE REVETMENT NEEDS. ANY POLE HOLDS REQUIRED FOR THE INSTALLATION OR REMOVAL OF UNDERGROUND UTILITIES OR BUILDING OF SLOPES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND THERE WILL BE NO COMPENSATION OR TIME EXTENSION FOR WORK RELATED TO POLE HOLDS.
6. CONTRACTOR SHALL PROVIDE ACCESS AND ROUGH GRADE THE SLOPE FOR UTILITY POLE INSTALLATION.
7. CONTRACTOR SHALL BE AWARE THAT TEST PITS TO EXPOSE THE MWRA SEWER PIPES AT LOCATIONS WHERE THE SOLDIER PILE AND LAGGING RETAINING WALLS CROSS THE PIPES WILL BE REQUIRED. THIS IS TO BE FOLLOWED BY SUBMISSION OF AN 8M PERMIT FOR CONSTRUCTION OF THE SOLDIER PILE AND LAGGING WALLS.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	34	92
PROJECT FILE NO.	607420		

UTILITY PLANS

607420_HD(UTILITY PLANS).DWG Plotted on 30-Sep-2026 3:33 PM

CONTINUED ON SHEET NO. 33

N

TAMARACK ROAD (PUBLIC - 50' WIDE)

BEAVER DAM BROOK

BODEN LANE (PUBLIC - VARIABLE WIDTH)

BURNING TREE ROAD (PRIVATE - 50' WIDE)

N/F CHRISTINE M. THERRIEN AND JESICA PAGANO-THERRIEN BK. 63213 PG. 555 #2 TAMARACK ROAD MAP 39 LOT 36K

N/F BENJAMIN ROSEN AND YELENA SHUSTER BK. 74981 PG. 112 #1 TAMARACK ROAD MAP 39 LOT 36ZA

N/F NATICK CONSERVATION COMMISSION BK. 67241 PG. 502 #0 TAMARACK ROAD MAP 39 LOT 36ZB

N/F INHABITANTS OF THE TOWN OF NATICK BODEN LANE CEMETERY BK. N/A PG. N/A #56 BODEN LANE MAP 39 LOT 38

THE INHABITANTS OF THE TOWN OF NATICK, UNDER THE CARE AND CUSTODY OF THE TOWN OF NATICK CONSERVATION COMMISSION (SUBJECT TO ARTICLE 97) BK. 23478 PG. 432 BK. 67241 PG. 502

2021 FILOMENA LOFFA TRUST LC CERT. 278015 LC DOC. 1900248 LCBK. 1582 PG. 45 #52 BURNING TREE ROAD MAP 40 LOT 137

MICHAEL J. LEE AND ANNETTE WONG TRUST LC CERT. 281034 LC DOC. 1929018 LCBK. 1597 PG. 281034 #54 BURNING TREE ROAD MAP 40 LOT 138

SUAL AND ELANA F. BERELOWITZ LCBK. 1230 PG. 119 #47 BURNING TREE ROAD MAP 40 LOT 139

RET EX DMH, CTE DMH
EX-DHM-2
R=151.81
INV(in)=145.00 (DMH-12)

PROP 97 LF - 12" RCP
S=0.039 FT/FT

DMH-12
R=153.55
INV(in)=149.00 (DMH-11)
INV(out)=148.90 (EX-DHM-2)

PROP 70 LF - 12" RCP
S=0.028 FT/FT

PROJECT END
STA 19+20.80
N2928614.1167
E685391.5769

DMH-11
R=155.45
INV(in)=151.20 (DMH-10)
INV(out)=151.10 (DMH-12)

PROP 71 LF - 12" RCP
S=0.069 FT/FT

DMH-10
R=160.53
INV(in)=156.50 (DMH-9)
INV(in)=156.50 (CB-6)
INV(out)=156.40 (DMH-11)

PROP 7 LF - 12" RCP
S=0.009 FT/FT

DMH-8
R=166.94
INV(in)=161.80 (DMH-7)
INV(in)=161.30 (CB-5)
INV(out)=161.20 (DMH-9)

PROP GUTTER, SEE CONST DETAILS

CB-4
R=172.93
INV(out)=168.90 (DMH-7)

PROP 7 LF - 12" RCP
S=0.054 FT/FT

DMH-7
R=172.33
INV(in)=168.30 (CB-4)
INV(out)=168.20 (DMH-8)

REM UPL #18A (B0)

PROP 72 LF - 12" RCP
S=0.085 FT/FT

2025 TOWN LAYOUT

REM UPL #18 (B0)

ABAN EXIST GAS

PROP 4" GAS (BO)

PROP UPL (BO), PROP HIGHWAY LIGHTING LUMINAIRE

PROP GUY (BO), INSTALLATION TO BE COORDINATED WITH MASSDOT DURING CONSTRUCTION

PROP 2 LF V-NOTCH SWALE TO AVOID UPL

CB-5
R=167.08
INV(out)=161.40 (DMH-8)

PROP 2 LF - 12" RCP
S=0.016 FT/FT

PROP GUTTER, SEE CONST DETAILS

DI-2
R=164.32
INV(out)=159.20 (DMH-9)

PROP 24 LF - 12" RCP
S=0.011 FT/FT

PROP 42 LF - 12" RCP
S=0.053 FT/FT

DMH-9
R=163.91
INV(in)=159.00 (DMH-8)
INV(in)=158.90 (DI-2)
INV(out)=158.90 (DMH-10)

PROP 37 LF - 12" RCP
S=0.054 FT/FT

CONNECT TO EXIST 4" GAS (BO)

REM UPL #17 (BO) AND RET PUSH BRACE

PROP 45' UP (BO)

RET UPL #20 & GUY

RET WG

RET

RET GG (3)

RET GG

RET WG (4)

RET GG (2)

RET WG

RET UP

CB
RIM=151.31'

SMH
R=152.55'
I1=144.35' (10"PVC)
I2=144.35' (10"PVC)

SMH
RIM=152.51'

DMH
RIM=151.76'

DMH
RIM=151.81'

SMH
R=155.44'
I1=136.84' (18"DIP)
I2=144.94' (10"PVC)
I3=136.84' (12"DIP)

SMH
R=149.31'
I1=136.81' (18"DIP)
I2=136.91' (18"DIP)

20' WIDE DRAIN EASEMENT (PLAN 1096 OF 1969)

20' UTILITY EASEMENT (PLAN 1096 OF 1969)

BEAVER DAM BROOK EASEMENT (PLAN 1096 OF 1969)

20' WIDE MDC SEWER EASEMENT (L.C. PLAN 3351A)

6' STOCKADE FENCE

200' RIVERFRONT

1971 TOWN LAYOUT

1772 TOWN LAYOUT

R-1 START

R-2

R-3

R-4

R-5 END

17

18

19

20

20+10.28

0 20 50 100

SCALE: 1" = 20'

GENERAL NOTES:

1. UNLESS OTHERWISE SPECIFIED, CATCH BASINS SHALL BE PROVIDED WITH DEEP SUMPS (4 FT MIN) AND HOODS. CATCH BASIN'S FRAME AND GATE SHALL BE OF CASCADE TYPE TO BETTER ACCOMMODATE CYCLISTS.
2. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5 FT SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FT WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
3. MANHOLE STEPS SHALL BE INSTALLED IN ALL PROPOSED MANHOLES.
4. IN INSTANCES WHERE AN EXISTING OR PROPOSED FRAME AND COVER ARE LOCATED IN AN ADA ACCESSIBLE SURFACE, THE FRAME SHALL BE CAREFULLY ADJUSTED SUCH THAT THE COVER IS FLUSH WITH THE SURFACE.
5. RELOCATION OF THE UTILITY POLES SHOULD BE CAREFULLY EVALUATED COMPARED TO DRAINAGE AND SLOPE REVETMENT NEEDS. ANY POLE HOLDS REQUIRED FOR THE INSTALLATION OR REMOVAL OF UNDERGROUND UTILITIES OR BUILDING OF SLOPES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND THERE WILL BE NO COMPENSATION OR TIME EXTENSION FOR WORK RELATED TO POLE HOLDS.
6. CONTRACTOR SHALL PROVIDE ACCESS AND ROUGH GRADE THE SLOPE FOR UTILITY POLE INSTALLATION.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	35	92
PROJECT FILE NO.	607420		

UTILITY TABLES

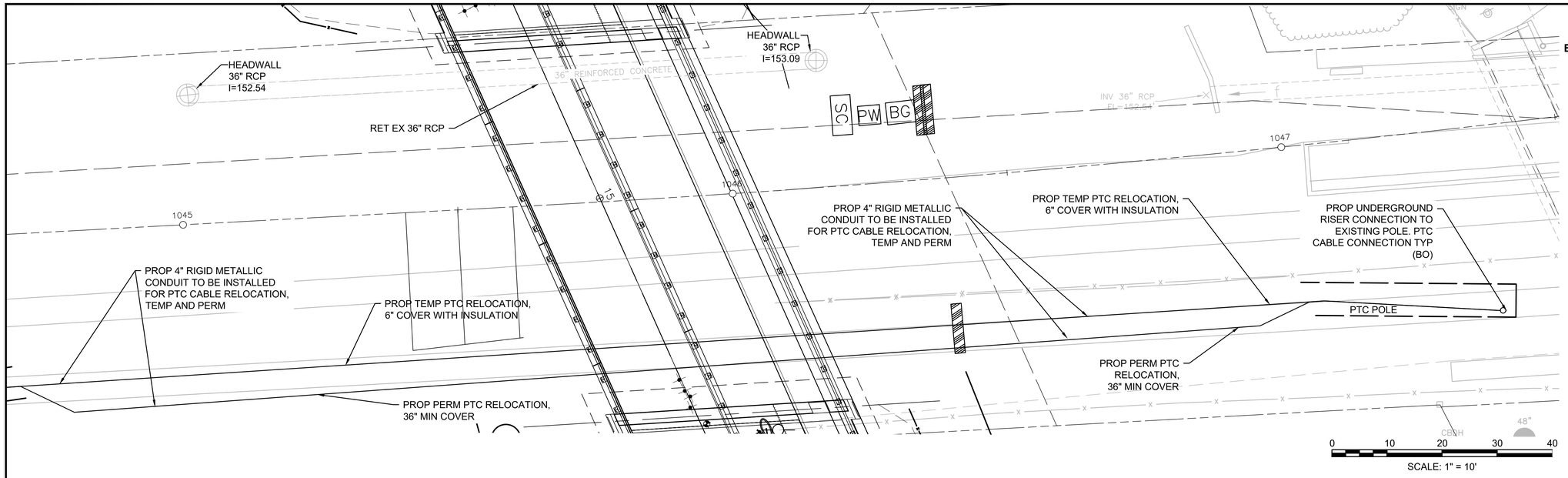
DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-1	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	10+30.6 -1.0' LT	157.89		I=155.60' (DMH-2)	
CB-2	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	11+33.6 -8.1' LT	161.73		I=156.50' (DMH-5)	
CB-3	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	12+87.1 -8.1' LT	170.01		I=166.00' (DMH-6)	
CB-4	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	16+54.1 -8.1' LT	172.93		I=168.90' (DMH-7)	
CB-5	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	17+36.1 -9.6' LT	167.08		I=161.40' (DMH-8)	
CB-6	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	18+20.3 8.0' RT	160.68		I=156.60' (DMH-10)	
CB-7	CATCH BASIN, PRECAST CONCRETE	26+65.4 16.8' RT	156.35		I=154.25' (DMH-13)	
CB-8	CATCH BASIN, PRECAST CONCRETE	26+85.5 -16.6' LT	156.63		I=154.20' (DMH-13)	
CB-9	CATCH BASIN, PRECAST CONCRETE	27+56.1 16.2' RT	156.44		I=153.50' (DMH-15)	
DI-1	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	11+71.6 17.5' RT	163.04		I=158.00' (DMH-4)	
DI-2	DEEP SUMP CATCH BASIN, PRECAST CONCRETE	17+64.5 15.1' RT	164.32		I=159.20' (DMH-9)	
DMH-1	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	25+68.7 -11.6' LT	157.23	I=154.70' (DMH-2)	I=154.60' (DMH-13)	
DMH-2	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	10+14.1 -11.3' LT	158.08	I=155.45' (DMH-3) I=155.45' (CB-1)	I=155.35' (DMH-1)	
DMH-3	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	10+64.1 -12.3' LT	159.11	I=155.75' (DMH-5) I=154.75' (DMH-4)	I=155.65' (DMH-2)	
DMH-4	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	10+75.5 6.8' RT	158.62	I=155.00' (DI-1)	I=154.90' (DMH-3)	
DMH-5	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	11+30 -13.5' LT	161.65	I=156.20' (DMH-6) I=156.20' (CB-2)	I=156.10' (DMH-3)	
DMH-6	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	12+77.3 -13.5' LT	169.59	I=165.10' (CB-3)	I=165.00' (DMH-5)	
DMH-7	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	16+63.9 -13.4' LT	172.33	I=168.30' (CB-4)	I=168.20' (DMH-8)	
DMH-8	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	17+39.4 -14.7' LT	166.94	I=161.80' (DMH-7) I=161.30' (CB-5)	I=161.20' (DMH-9)	
DMH-9	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	17+80 -8.5' LT	163.91	I=159.00' (DMH-8) I=158.90' (DI-2)	I=158.90' (DMH-10)	

DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-10	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	18+25.1 -1.6' LT	160.53	I=156.50' (DMH-9) I=156.50' (CB-6)	I=156.40' (DMH-11)	
DMH-11	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	19+00.3 -2.8' LT	155.45	I=151.20' (DMH-10)	I=151.10' (DMH-12)	
DMH-12	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	18+98 -76.8' LT	153.55	I=149.00' (DMH-11)	I=148.90' (EX-DHM-2)	
DMH-13	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	26+79 -5.0' LT	156.49	I=154.10' (CB-7) I=154.10' (CB-8) I=154.10' (DMH-1)	I=154.00' (DMH-14)	
DMH-14	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	27+65.8 -6.3' LT	156.55	I=153.60' (DMH-13)	I=153.55' (DMH-15)	
DMH-15	MANHOLE (9 FOOT MAX. DEPTH), PRECAST CONCRETE	27+65.5 26.9' RT	157.12	I=153.40' (CB-9) I=153.40' (DMH-14)	I=153.30' ()	
EX-DHM-2	DMH	18+79.1 -175.7' LT	151.81	I=145.00' (DMH-12)		

607420_HD(UTILITY PLANS).DWG Plotted on 30-Sep-2026 3:33 PM



NATICK
BODEN LANE OVER THE MBTA RAILROAD

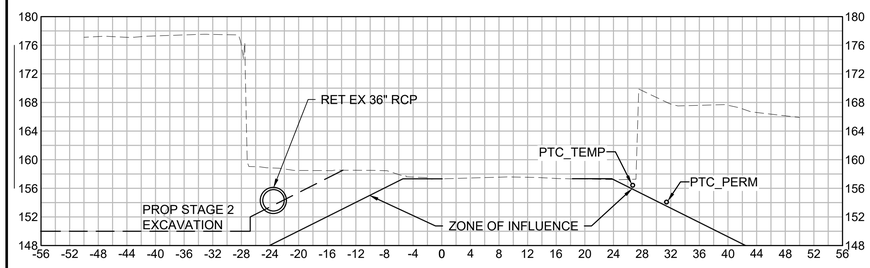
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	36	92
	PROJECT FILE NO. 607420		

PROPOSED MBTA PTC RELOCATION

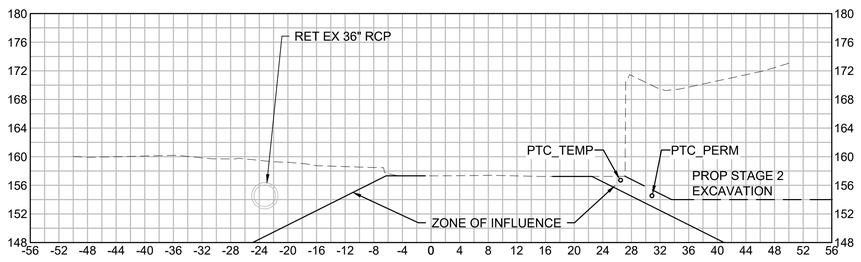
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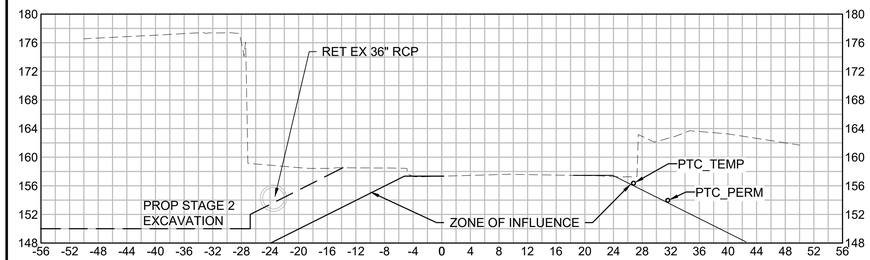
NOTES:
1. AT THE CONCLUSION OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE PLATFORM AND OTHER FACILITIES TO PRE CONSTRUCTION CONDITIONS.



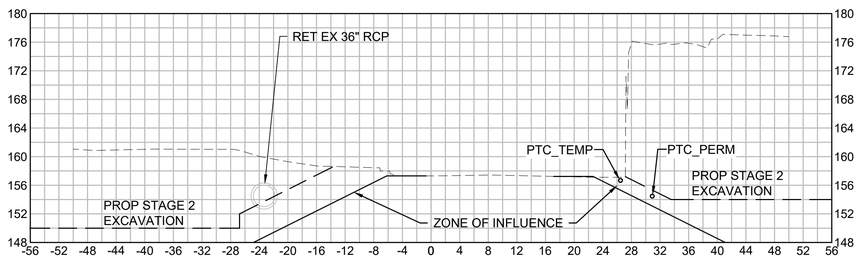
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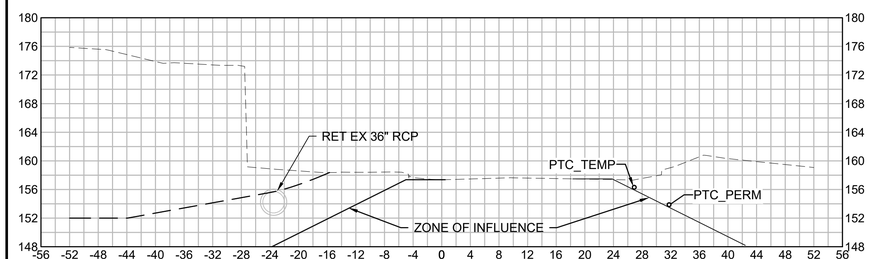
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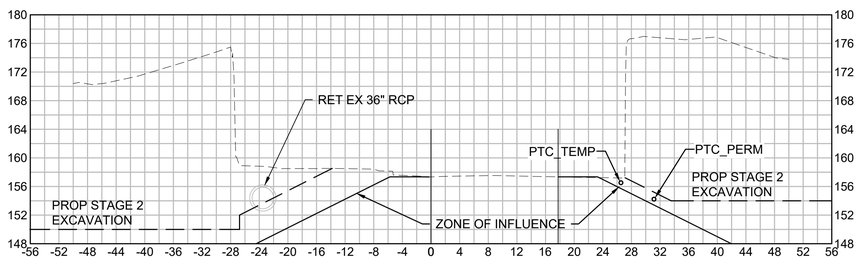
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1045+98.54

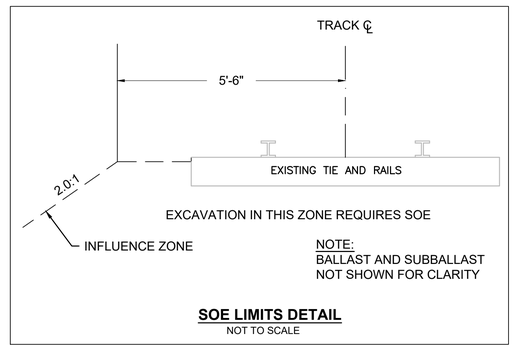


1045+40.48



1045+74.75

0 10 20 30 40
SCALE: 1" = 10'



SOE LIMITS DETAIL
NOT TO SCALE

607420_HD(MBTA DRAINAGE PLAN).DWG Plotted on 15-Sep-2026 11:05 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	37	92
PROJECT FILE NO.	607420		

LANDSCAPE PLANS

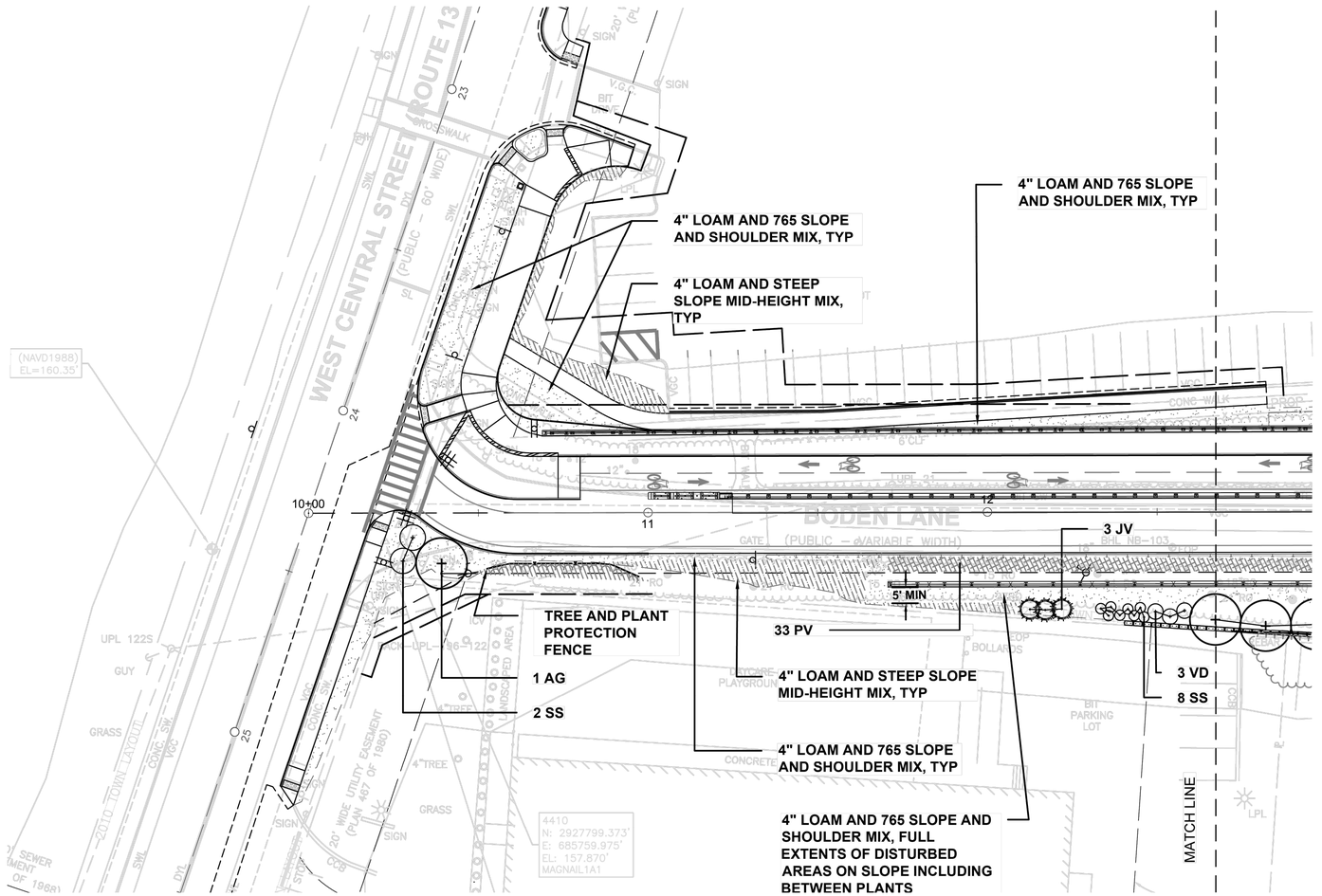
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CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTBALL	COMMENTS
DECIDUOUS TREES						
AG	1	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	5'-6' HT	B&B, MIN DIAMETER 22"	MULTI-STEM
EVERGREEN TREES						
JV	3	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Eastern Red Cedar	5'-6' HT	B&B, MIN DIAMETER 22"	COLUMNAR
DECIDUOUS SHRUBS						
SS	10	Swida sericea 'Arctic Fire'	Arctic Fire Red Osier Dogwood	2'-3' HT	#3 CONT	MIN 4 CANES
VD	3	Viburnum dentatum	Arrowwood Viburnum	2'-3' HT	#3 CONT	MIN 5 CANES
ORNAMENTAL GRASSES						
PV	33	Panicum virgatum 'Thundercloud'	Thundercloud Switchgrass		#1 CONT	SPACING 42" OC, LINEAR

PLANTING LEGEND	
+	PROPOSED DECIDUOUS TREE
	PROPOSED EVERGREEN TREE
	PROPOSED DECIDUOUS SHRUBS
	PROPOSED EVERGREEN SHRUBS
	STEEP SLOPE MID-HEIGHT MIX
	765 SLOPE AND SHOULDER MIX
	ORNAMENTAL GRASS PLANTING
	TREE AND PLANT PROTECTION FENCE
	TREE AND PLANT PROTECTION ZONE (TTPZ)
	EXISTING TREE LINE

PLANTING NOTES

1. LOCATION OF TEMPORARY TREE PROTECTION FENCING TO BE VERIFIED IN THE FIELD AND APPROVED BY ENGINEER.
2. COMPACTION OF SOIL BENEATH EXISTING TREES WITHIN OR ADJACENT TO THE PROJECT LIMITS IS TO BE AVOIDED.
3. ALL PROPOSED TREE AND SHRUB LOCATIONS SHALL BE STAKED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
4. REFER TO CONSTRUCTION PLANS FOR SURFACE MATERIALS AND LAYOUT OF PROPOSED ELEMENTS.
5. ALL DISTURBED AREAS SHALL RECEIVE 4" LOAM AND SLOPE AND SHOULDER SEED MIX UNLESS OTHERWISE NOTED.
6. SEE CONSTRUCTION PLANS FOR EROSION AND SEDIMENTATION CONTROL



0 20 50 100

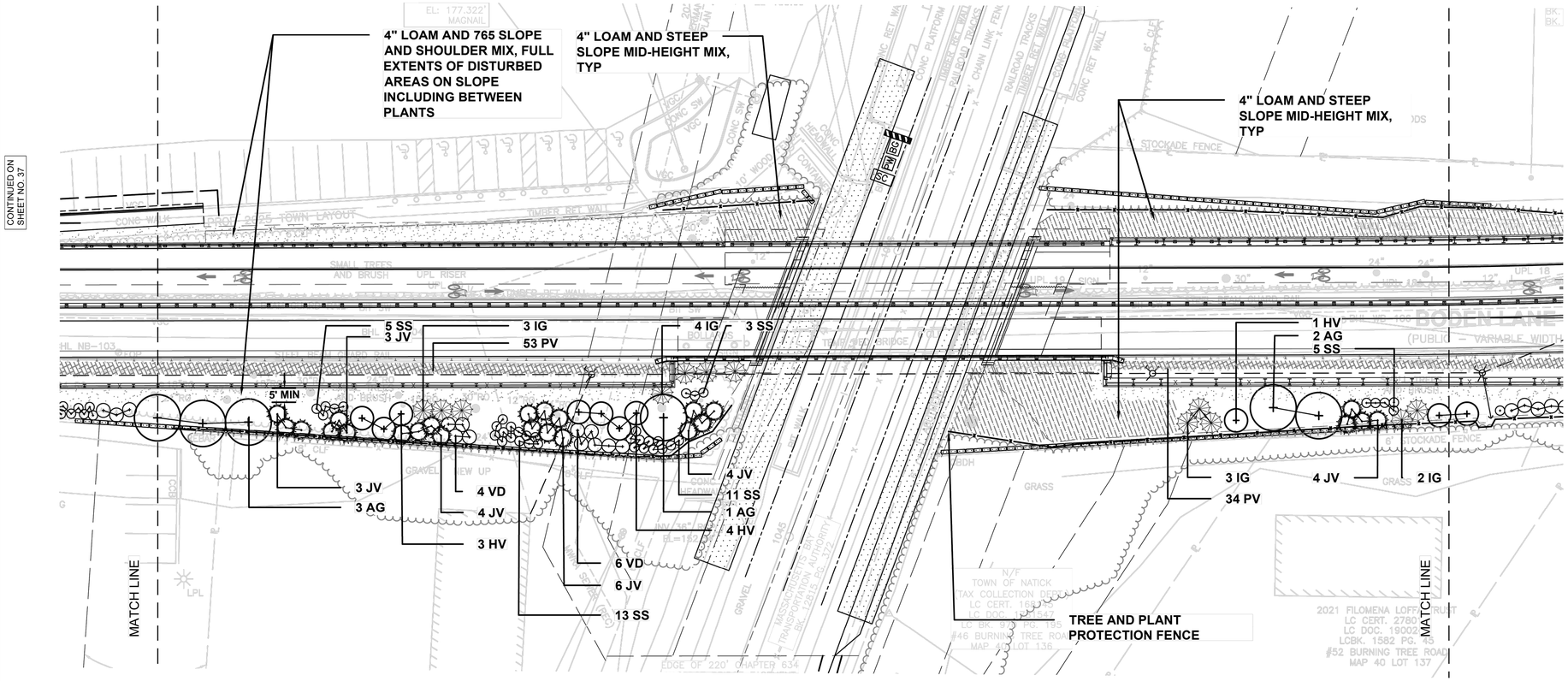
SCALE: 1" = 20'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	38	92
	PROJECT FILE NO. 607420		

LANDSCAPE PLANS

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTBALL	COMMENTS
DECIDUOUS TREES						
AG	6	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	5'-6' HT	B&B, MIN DIAMETER 22"	MULTI-STEM
EVERGREEN TREES						
JV	24	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Eastern Red Cedar	5'-6' HT	B&B, MIN DIAMETER 22"	COLUMNAR
DECIDUOUS SHRUBS						
HV	8	Hamamelis virginiana	Witch Hazel	2'-3' HT	B&B, MIN DIAMETER 30"	YELLOW FLOWERS, MIN 7 CANES
SS	37	Swida sericea 'Arctic Fire'	Arctic Fire Red Osier Dogwood	2'-3' HT	#3 CONT	MIN 4 CANES
VD	10	Viburnum dentatum	Arrowwood Viburnum	2'-3' HT	#3 CONT	MIN 5 CANES
EVERGREEN SHRUBS						
IG	12	Ilex glabra	Inkberry	30"-36" SPRD	#5 CONT	
ORNAMENTAL GRASSES						
PV	87	Panicum virgatum 'Thundercloud'	Thundercloud Switchgrass		#1 CONT	SPACING 42" OC, LINEAR



0 20 50 100

SCALE: 1" = 20'

PLANTING LEGEND	
+	PROPOSED DECIDUOUS TREE
	PROPOSED EVERGREEN TREE
	PROPOSED DECIDUOUS SHRUBS
	PROPOSED EVERGREEN SHRUBS
	STEEP SLOPE MID-HEIGHT MIX
	765 SLOPE AND SHOULDER MIX
	ORNAMENTAL GRASS PLANTING
	TREE AND PLANT PROTECTION FENCE
	TREE AND PLANT PROTECTION ZONE (TTPZ)
	EXISTING TREE LINE

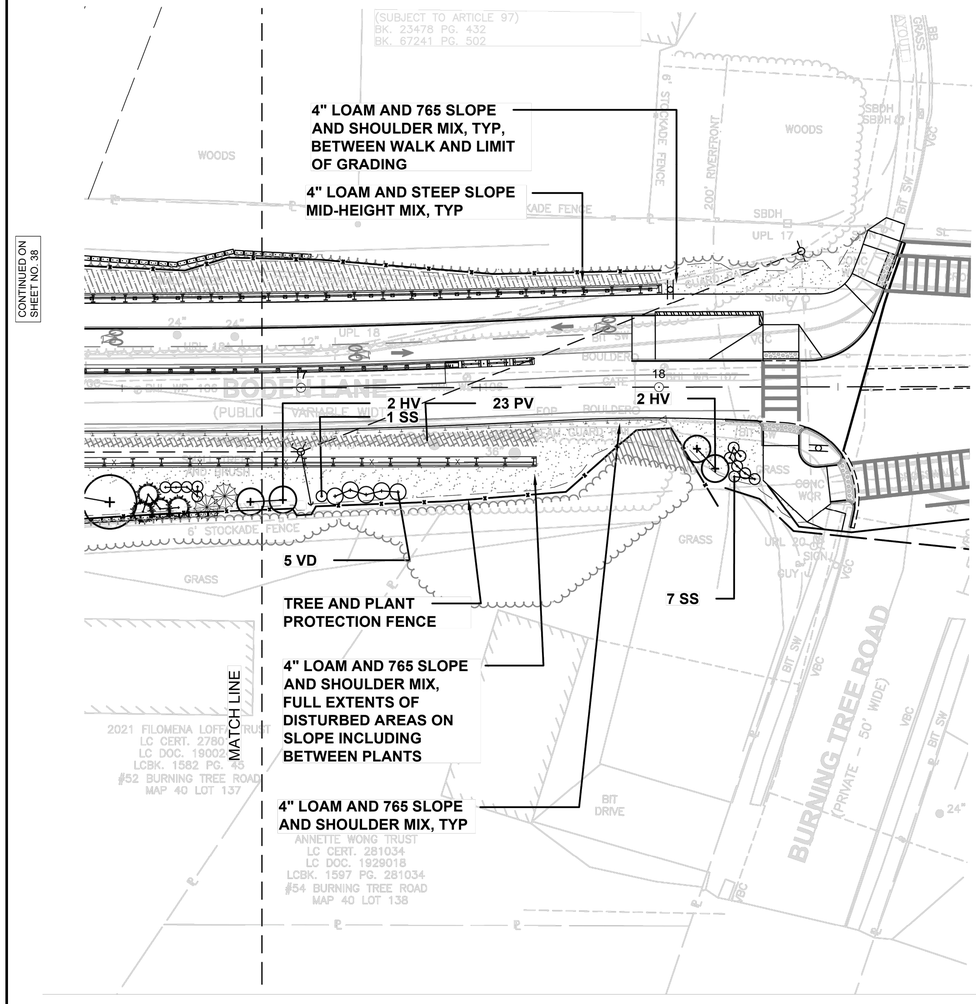
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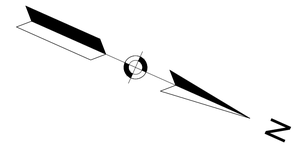
PLANTING NOTES

1. LOCATION OF TEMPORARY TREE PROTECTION FENCING TO BE VERIFIED IN THE FIELD AND APPROVED BY ENGINEER.
2. COMPACTION OF SOIL BENEATH EXISTING TREES WITHIN OR ADJACENT TO THE PROJECT LIMITS IS TO BE AVOIDED.
3. ALL PROPOSED TREE AND SHRUB LOCATIONS SHALL BE STAKED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
4. REFER TO CONSTRUCTION PLANS FOR SURFACE MATERIALS AND LAYOUT OF PROPOSED ELEMENTS.
5. ALL DISTURBED AREAS SHALL RECEIVE 4" LOAM AND SLOPE AND SHOULDER SEED MIX UNLESS OTHERWISE NOTED.
6. SEE CONSTRUCTION PLANS FOR EROSION AND SEDIMENTATION CONTROL.

607420_HD(LANDSCAPE PLANS).DWG Plotted on 15-Sep-2026 11:06 AM

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTBALL	COMMENTS
DECIDUOUS SHRUBS						
HV	4	Hamamelis virginiana	Witch Hazel	2'-3' HT	B&B, MIN DIAMETER 30"	YELLOW FLOWERS, MIN 7 CANES
SS	8	Swida sericea 'Arctic Fire'	Arctic Fire Red Osier Dogwood	2'-3' HT	#3 CONT	MIN 4 CANES
VD	5	Viburnum dentatum	Arrowwood Viburnum	2'-3' HT	#3 CONT	MIN 5 CANES
ORNAMENTAL GRASSES						
PV	23	Panicum virgatum 'Thundercloud'	Thundercloud Switchgrass		#1 CONT	SPACING 42" OC, LINEAR





0 20 50 100

SCALE: 1" = 20'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	39	92
	PROJECT FILE NO. 607420		

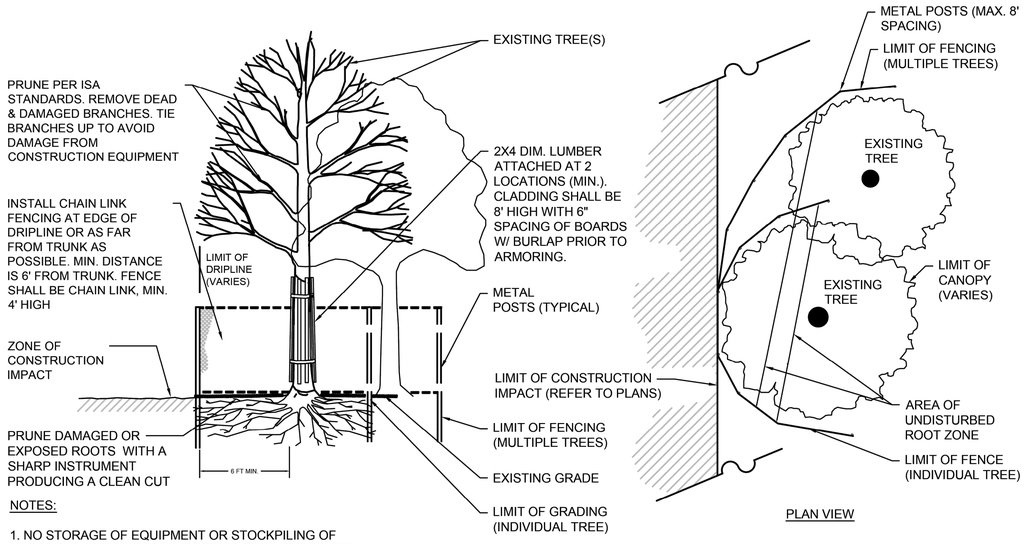
LANDSCAPE PLANS

PLANTING LEGEND	
+	PROPOSED DECIDUOUS TREE
	PROPOSED EVERGREEN TREE
	PROPOSED DECIDUOUS SHRUBS
	PROPOSED EVERGREEN SHRUBS
	STEEP SLOPE MID-HEIGHT MIX
	765 SLOPE AND SHOULDER MIX
	ORNAMENTAL GRASS PLANTING
	TREE AND PLANT PROTECTION FENCE
	TREE AND PLANT PROTECTION ZONE (TTPZ)
	EXISTING TREE LINE

PLANTING NOTES

1. LOCATION OF TEMPORARY TREE PROTECTION FENCING TO BE VERIFIED IN THE FIELD AND APPROVED BY ENGINEER.
2. COMPACTION OF SOIL BENEATH EXISTING TREES WITHIN OR ADJACENT TO THE PROJECT LIMITS IS TO BE AVOIDED.
3. ALL PROPOSED TREE AND SHRUB LOCATIONS SHALL BE STAKED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO PLANTING.
4. REFER TO CONSTRUCTION PLANS FOR SURFACE MATERIALS AND LAYOUT OF PROPOSED ELEMENTS.
5. ALL DISTURBED AREAS SHALL RECEIVE 4" LOAM AND SLOPE AND SHOULDER SEED MIX UNLESS OTHERWISE NOTED.
6. SEE CONSTRUCTION PLANS FOR EROSION AND SEDIMENTATION CONTROL.

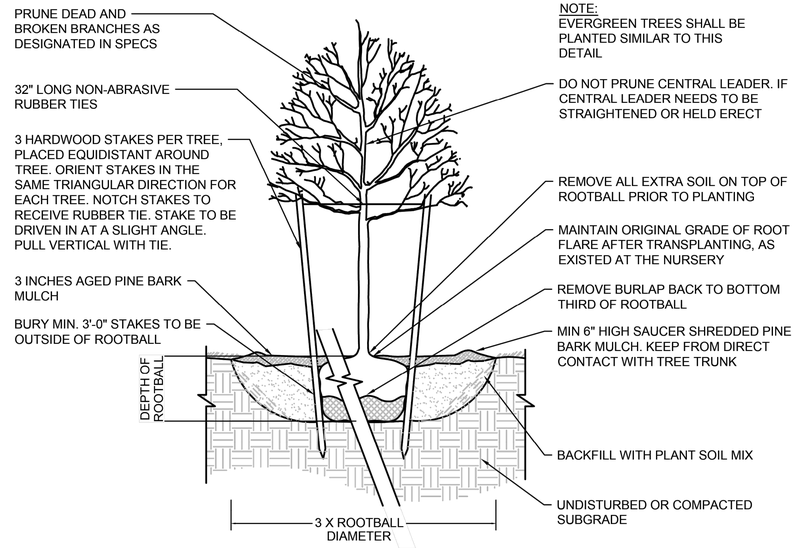
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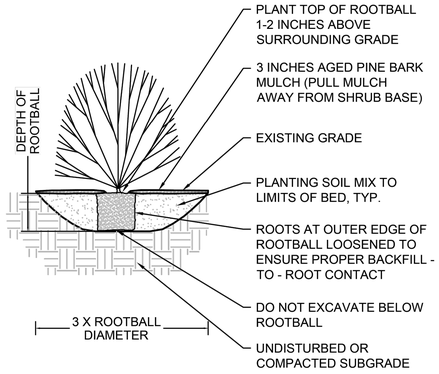
NOTES:

1. NO STORAGE OF EQUIPMENT OR STOCKPILING OF MATERIALS WITHIN DRIPLINE OF THE TREE IS ALLOWED.

TREE PROTECTION
NOT TO SCALE

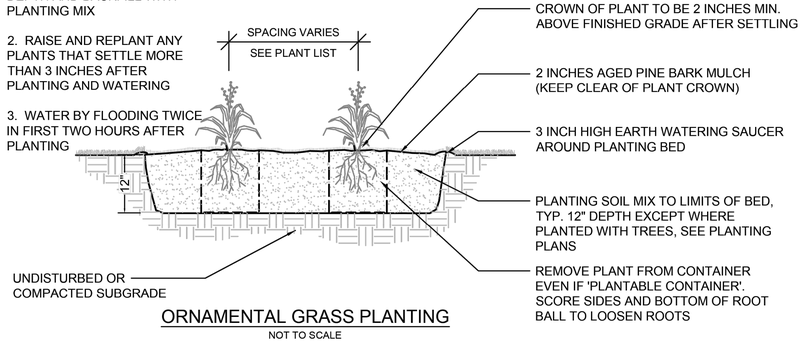


TREE PLANTING
NOT TO SCALE



SHRUB PLANTING
NOT TO SCALE

NOTES:
1. EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX
2. RAISE AND REPLANT ANY PLANTS THAT SETTLE MORE THAN 3 INCHES AFTER PLANTING AND WATERING
3. WATER BY FLOODING TWICE IN FIRST TWO HOURS AFTER PLANTING



ORNAMENTAL GRASS PLANTING
NOT TO SCALE

TOTAL PLANT QUANTITIES

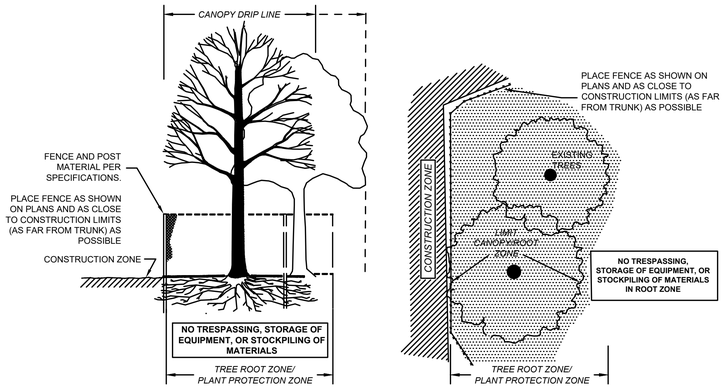
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOTBALL	COMMENTS
DECIDUOUS TREES						
AG	7	Amelanchier x grandiflora 'Autumn Brilliance'	Autumn Brilliance Serviceberry	5'-6' HT	B&B, MIN DIAMETER 22"	MULTI-STEM
EVERGREEN TREES						
JV	27	Juniperus virginiana 'Emerald Sentinel'	Emerald Sentinel Eastern Red Cedar	5'6' HT	B&B, MIN DIAMETER 22"	COLUMNAR
DECIDUOUS SHRUBS						
HV	12	Hamamelis virginiana	Witch Hazel	2'-3' HT	B&B, MIN DIAMETER 30"	YELLOW FLOWERS, MIN 7 CANES
SS	55	Swida sericea 'Arctic Fire'	Arctic Fire Red Osier Dogwood	2'-3' HT	#3 CONT	MIN 4 CANES
VD	18	Viburnum dentatum	Arrowwood Viburnum	2'-3' HT	#3 CONT	MIN 5 CANES
EVERGREEN SHRUBS						
IG	12	Ilex glabra	Inkberry	30"-36" SPRD	#5 CONT	
ORNAMENTAL GRASSES						
PV	143	Panicum virgatum 'Thundercloud'	Thundercloud Switchgrass		#1 CONT	SPACING 42" OC, LINEAR

607420_HD(LANDSCAPE PLANS).DWG Plotted on 15-Sep-2026 11:06 AM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	41	92
	PROJECT FILE NO. 607420		

CONSTRUCTION DETAILS
SHEET 01 OF 02

607420_HD(CONSTRUCTION DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM

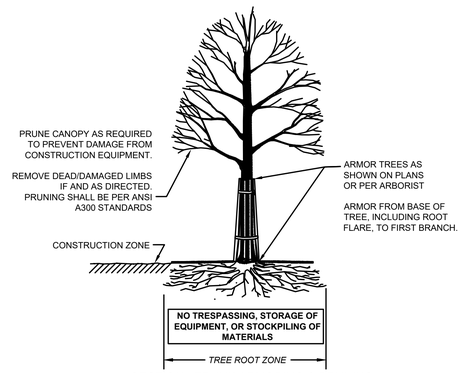


SECTION - FENCE PROTECTION OF ROOT ZONE

PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

TREE PROTECTION - ROOT ZONE

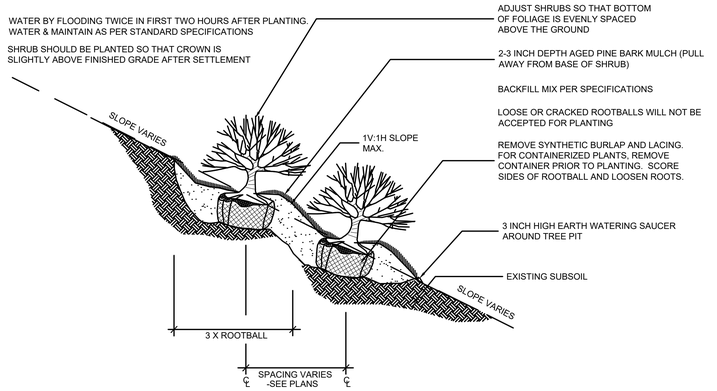
NOT TO SCALE



SECTION - TRUNK ARMORING & PRUNING

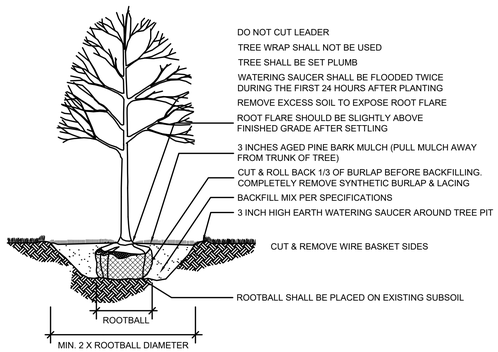
TREE PROTECTION - TRUNK

NOT TO SCALE



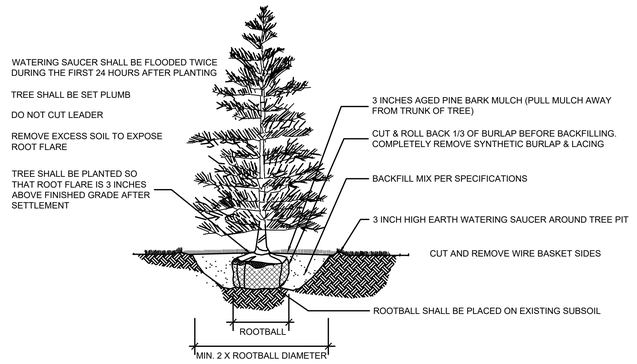
CONTAINERIZED SHRUB PLANTING (SLOPE) DETAIL

NOT TO SCALE



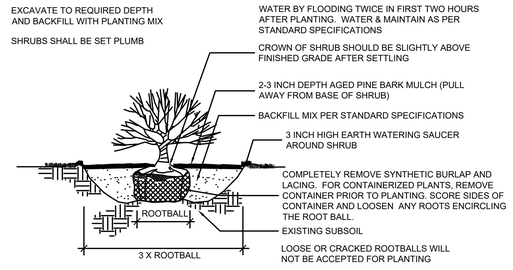
DECIDUOUS TREE PLANTING

NOT TO SCALE



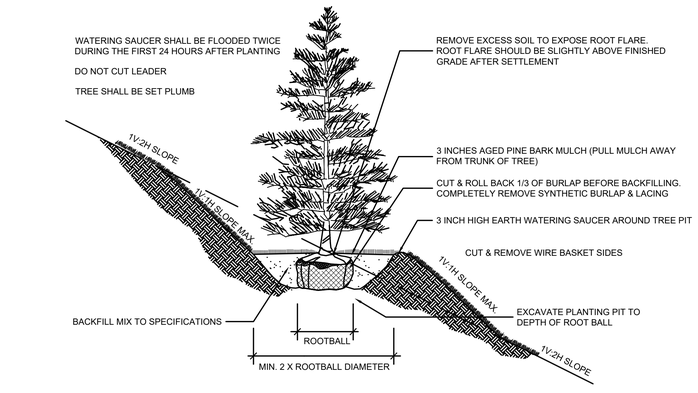
EVERGREEN TREE PLANTING

NOT TO SCALE



SHRUB PLANTING

NOT TO SCALE

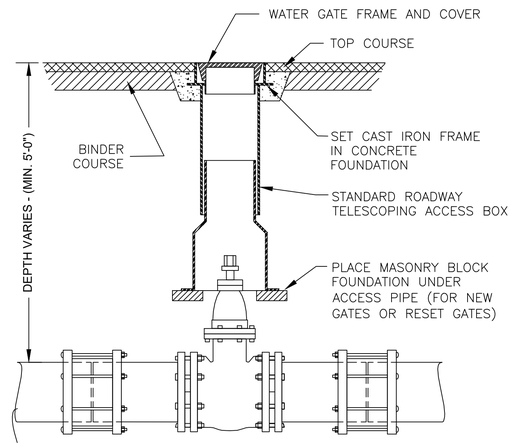


EVERGREEN TREE PLANTING (SLOPE)

NOT TO SCALE

DECIDUOUS TREE PLANTING (SLOPE)

NOT TO SCALE



GATE VALVE DETAIL NOTES:

1. THIS DETAIL IS APPLICABLE TO NEW INSTALLATIONS, RESETS, OR RIM ADJUSTMENTS.
2. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE TOWN OF NATICK WATER DEPARTMENT RULES AND REGULATIONS.
3. ALL EXCAVATION, BACKFILLING AND PAVING SHALL BE IN ACCORDANCE WITH THE TOWN/CITY REQUIREMENTS.
4. USE 3000 PSI, 1/2 INCH, 470 CEMENT CONCRETE.

GATE VALVE DETAIL

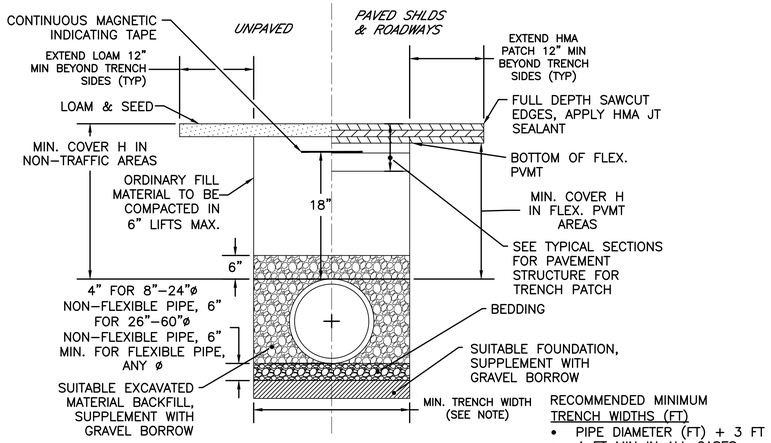
NOT TO SCALE.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	42	92
PROJECT FILE NO.	607420		

CONSTRUCTION DETAILS
SHEET 02 OF 02

607420_HD(CONSTRUCTION DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM

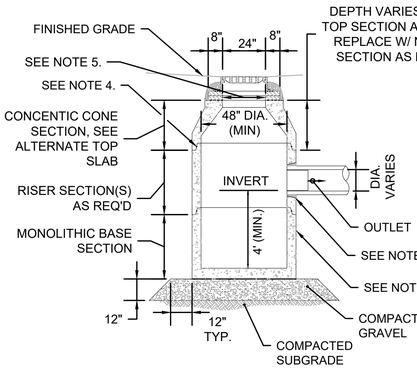


RECOMMENDED MINIMUM TRENCH WIDTHS (FT)
- PIPE DIAMETER (FT) + 3 FT
- 4 FT MIN IN ALL CASES

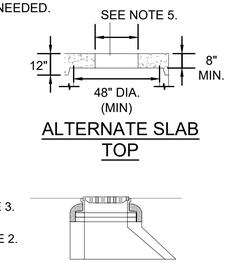
TYPICAL PIPE TRENCH DETAIL NOTES:

1. FOR TRAFFIC SIGNAL CONDUIT, SEE TRAFFIC SIGNAL CONDUIT TRENCH DETAIL ON THIS SHEET.
2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.
3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.
4. BEDDING: USE 3/4 INCH CRUSHED STONE, MASSDOT M2.01.4. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" FOR 12"-24" DIAMETER NON-FLEXIBLE PIPE; 6" FOR 26"-60" DIAMETER NON-FLEXIBLE PIPE, AND 6" FOR FLEXIBLE PIPE, ANY DIAMETER. FLEXIBLE PIPE MATERIALS INCLUDE PVC, HDPE, NM, THIN STEEL, THIN ALUMINUM.
5. INITIAL BACKFILL: USE SUITABLE EXCAVATED BACKFILL MATERIAL WHEN POSSIBLE, IF EXCAVATED BACKFILL IS DEEMED UNSUITABLE BY THE ENGINEER, USE MASSDOT GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN MASSDOT STANDARD SPECIFICATIONS, LATEST EDITION.
6. MINIMUM COVER: UNLESS OTHERWISE SHOWN OR SPECIFIED, MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 24" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, UNLESS OTHERWISE SHOWN OR SPECIFIED, MINIMUM COVER, H, IS 36" MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. WHERE TRENCH TRAVERSES A MILL & PAVE AREA, BACKFILL TO BOTTOM OF SUBBASE.
7. PAVEMENT SUBBASE: FOR SHALLOW PIPES IN TRENCHES 4 FT OR WIDER, IF A MINIMUM OF 8 INCHES OF GRAVEL BORROW CANNOT BE PLACED UNDER THE DENSE GRADED CRUSHED STONE FOR THE PAVEMENT SUBBASE, THEN OMIT GRAVEL BORROW AND BACKFILL TO THE THE BOTTOM OF THE FLEXIBLE PAVEMENT WITH DENSE GRADED CRUSHED STONE FOR SUBBASE AND COMPACT. FOR SHALLOW PIPES IN TRENCHES LESS THEN 4 FT WIDE, IF A MINIMUM OF 8 INCHES OF GRAVEL CANNOT BE PLACED, NOTIFY THE ENGINEER.
8. FOR NON-METAL PIPES, PLACE CONTINUOUS MAGNETIC INDICATING TAPE BETWEEN LIFTS OF BACKFILL. PROVIDE A MINIMUM OF 18" OF BACKFILL ON TOP OF THE TAPE. DO NOT PLACE RIGID OR FLEXIBLE PAVEMENT COURSES DIRECTLY OVER TAPE.

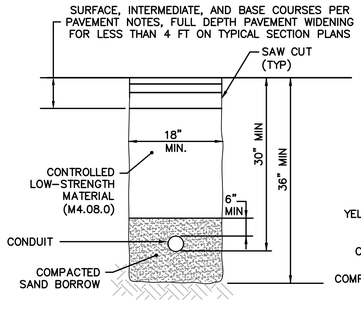
TYPICAL PIPE TRENCH DETAIL
SCALE: NONE



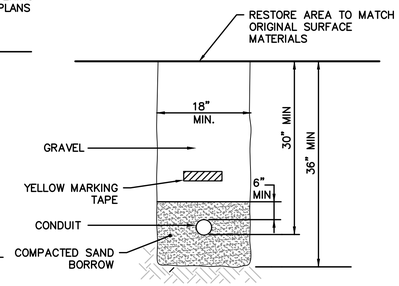
CATCH BASIN
SCALE: NONE



CATCH BASIN NOTES:
1. ALL SECTIONS SHALL BE DESIGNED FOR HS-20 LOADING.
2. PROVIDE "V" KNOCKOUTS FOR PIPES WITH 2" MAX. CLEARANCE TO OUTSIDE OF PIPE. MORTAR ALL PIPE CONNECTIONS.
3. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
4. CATCH BASIN FRAME AND GRATE SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH CLAY BRICK AND MORTAR (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
5. OPENING IN TOP SLAB SHALL BE 24"x27" FOR CATCH BASINS WITH CURB INLETS. OPENING SHALL BE 24"x24" AT ALL OTHER LOCATIONS.



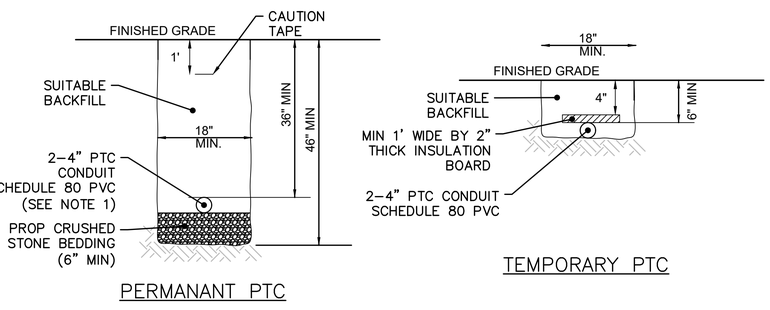
CONDUIT UNDER ROADWAY



CONDUIT UNDER GRASS

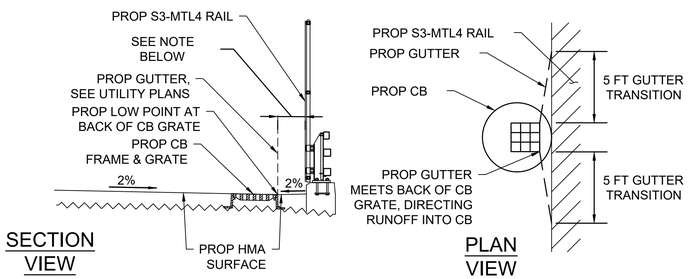
CONDUIT NOTES:
1. EXISTING MATERIAL OBTAINED FROM EXCAVATION THAT IS DETERMINED TO BE SUITABLE AND APPROVED BY THE ENGINEER SHALL BE USED.
2. BACKFILL SHALL BE PLACED IN LAYERS, NO MORE THAN 6" IN DEPTH AND THOROUGHLY COMPACTED.
3. BACKFILLING TO A POINT 24" OVER THE PIPE SHALL CONTAIN NO STONES GREATER THAN 3 INCHES.
4. USE MASSDOT MATERIAL M.1.04.0 TYPE b (⅜ INCH) FOR SAND BORROW.

TRAFFIC SIGNAL CONDUIT TRENCH DETAIL
SCALE: NONE



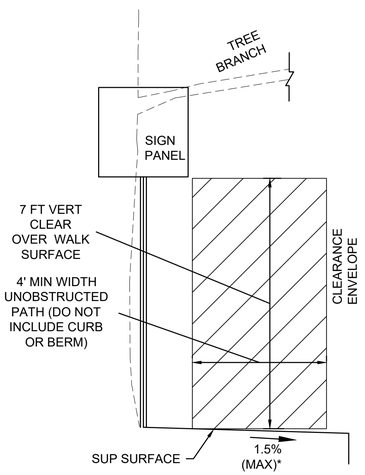
PTC RELOCATION
SCALE: NONE

NOTES:
1. MIN. DEPTH OF CONDUIT IS 30" BELOW THE RAILROAD TIE. PTC CONDUITS ARE TO BE INSTALLED ABOVE THE SOE LIMIT UNLESS ADJACENT TO ELECTRIC MANHOLES.



CATCH BASIN ADJACENT TO S3-MTL4
SCALE: NONE

NOTES:
1. TO MINIMIZE THE WIDTH, ADJUST CATCH BASIN FRAME AND GRATE AS CLOSE TO THE S3-MTL4 RAIL AS POSSIBLE.



VERTICAL CLEARANCES
SCALE: NONE

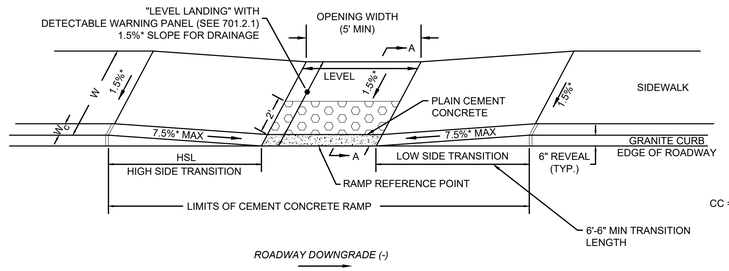
NATICK
BODEN LANE OVER THE MBTA RAILROAD

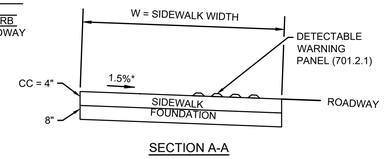
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	43	92
	PROJECT FILE NO. 607420		

PEDESTRIAN CURB RAMP DETAILS
SHEET 01 OF 02

607420_HD(PCR DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM

LEGEND	
HSL	HIGH SIDE TRANSITION LENGTH (SEE E107.9.0)
W	SIDEWALK WIDTH = DEPTH FROM GUTTER TO BACK OF WALK
Wc	WIDTH OF CURB
CC	CEMENT CONCRETE
HMA	HOT MIX ASPHALT



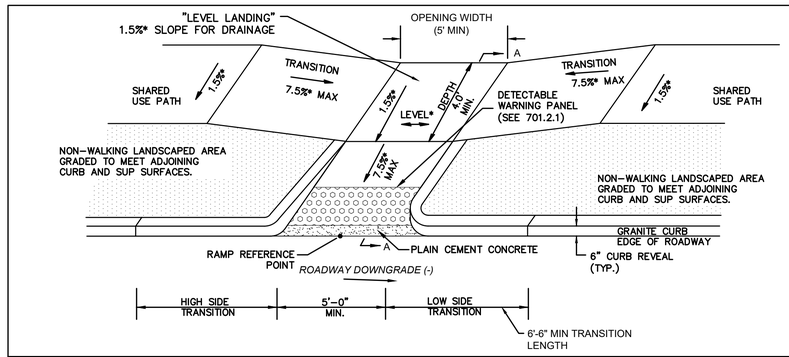


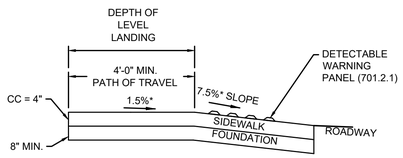
SECTION A-A

* ± 0.5% FOR CONSTRUCTION TOLERANCE

PEDESTRIAN CURB RAMP IN CONSTRAINED CONDITION WITH DETECTABLE WARNING PANELS (SEE 701.2.2)

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	TOTAL WIDTH OF SIDEWALK (FT)	COMMENT
1	WEST CENTRAL ST	22+81.48	30.18 LT	5.00	+1.71	9.00 LT	--	5.85	5.85	9.00' HSL PROVIDED AT BACK OF SIDEWALK - NO RIGHT SIDE TRANSITION
9	BODEN LANE	18+95.16	23.29 RT	5.00	+5.52	7.50 RT	6.50 LT	5.73	5.73	3" REVEAL AT HSL
11	BODEN LANE	18+64.90	32.02 LT	5.00	-0.83	7.67 LT	6.50 RT	5.50	5.50	
12	BODEN LANE	19+16.36	28.61 LT	5.0000	-1.93	9.00 LT	6.50 RT	5.50	5.50	

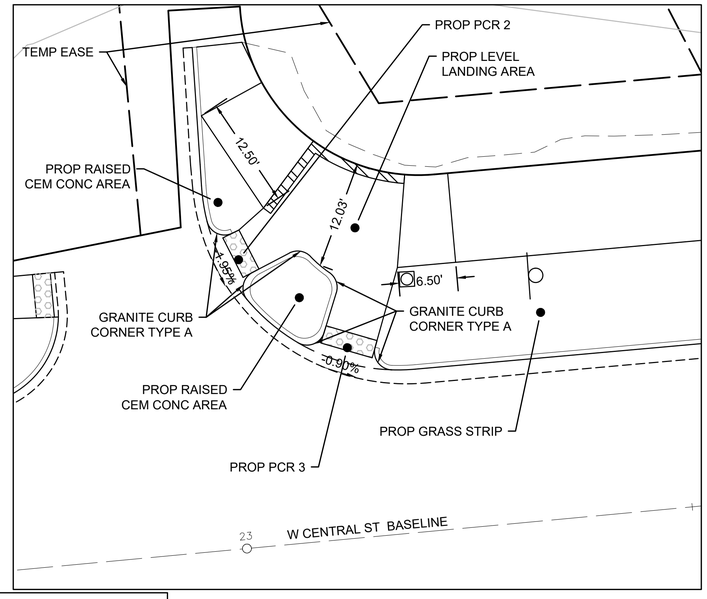




SECTION A-A

PEDESTRIAN CURB RAMP WITH WIDTH LESS THAN 12'-4" (SEE 701.2.7)

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	DEPTH OF LEVEL LANDING FROM FRONT OF WALK TO BACK OF WALK (FT)	COMMENT
4	BODEN LANE	10+35.71	36.70 LT	10.00	+0.75	7.67 R	6.50 L	19.84	10.16	



HOR. SCALE IN FEET
8 0 8 16
8 0 8 16
VER. SCALE IN FEET

PEDESTRIAN CURB RAMPS 2 & 3

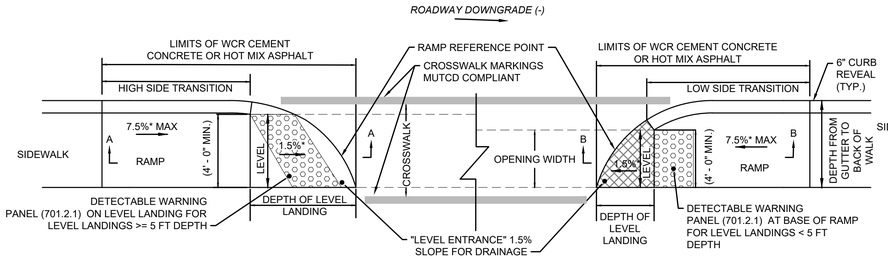
PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	DEPTH OF LEVEL LANDING FROM FRONT OF WALK TO BACK OF WALK (FT)	COMMENT
3	W CENTRAL ST	23+12.65	19.75 LT	8.40	-0.90	12.5 L	6.50 R	17.86	12.03	DOUBLE PCRs WITH SAME LEVEL LANDING AREA.
2	W CENTRAL ST	23+00.28	32.06 LT	7.33	-1.95			21.83		

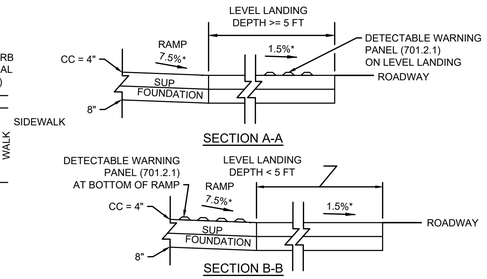
NATICK
BODEN LANE OVER THE MBTA RAILROAD

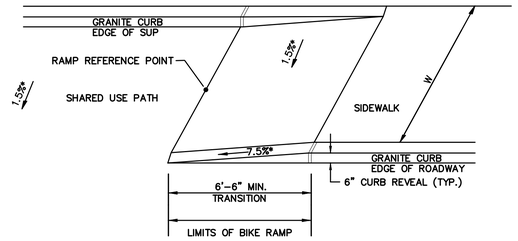
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	44	92
	PROJECT FILE NO. 607420		

PEDESTRIAN CURB RAMP DETAILS
SHEET 02 OF 02

607420_HD(PCR DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM

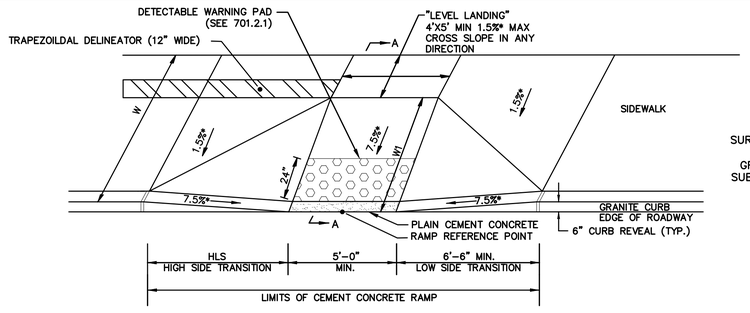


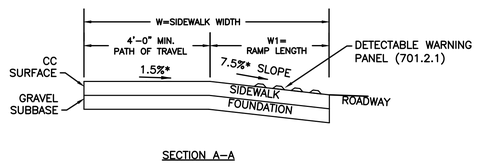




PEDESTRIAN CURB RAMP FOR ONE CONTINIOUS DIRECTION OF PEDESTRIAN TRAVEL (SEE 701.2.5)

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	DEPTH OF LEVEL LANDING FROM GUTTER (FT)	COMMENT
5	BODEN LANE	10+22.58	0.04 RT	4.00	-0.67	--	6.50 RT	5.50	4.69	
6	WEST CENTRAL STREET	25+09.72	18.30 LT	5.00	0.78	7.67LT	--	5.50	2.08	



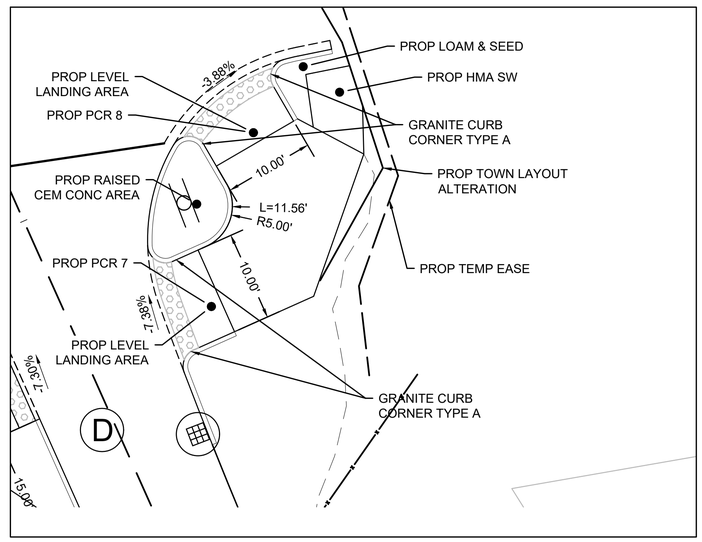


BIKE RAMP 1 & 2

BIKE RAMP NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	TRANS LENGTH (FT)	COMMENT
1	BODEN LANE	10+80.02	10.56 LT	12.125	3.30	6.50 LT	LOW SIDE TRANS
2	BODEN LANE	17+92.49	13.97 LT	12.125	-7.30	6.50 RT	LOW SIDE TRANS

PEDESTRIAN CURB RAMP GREATER THAN 12'-4" SIDEWALK (SEE 701.2.4)

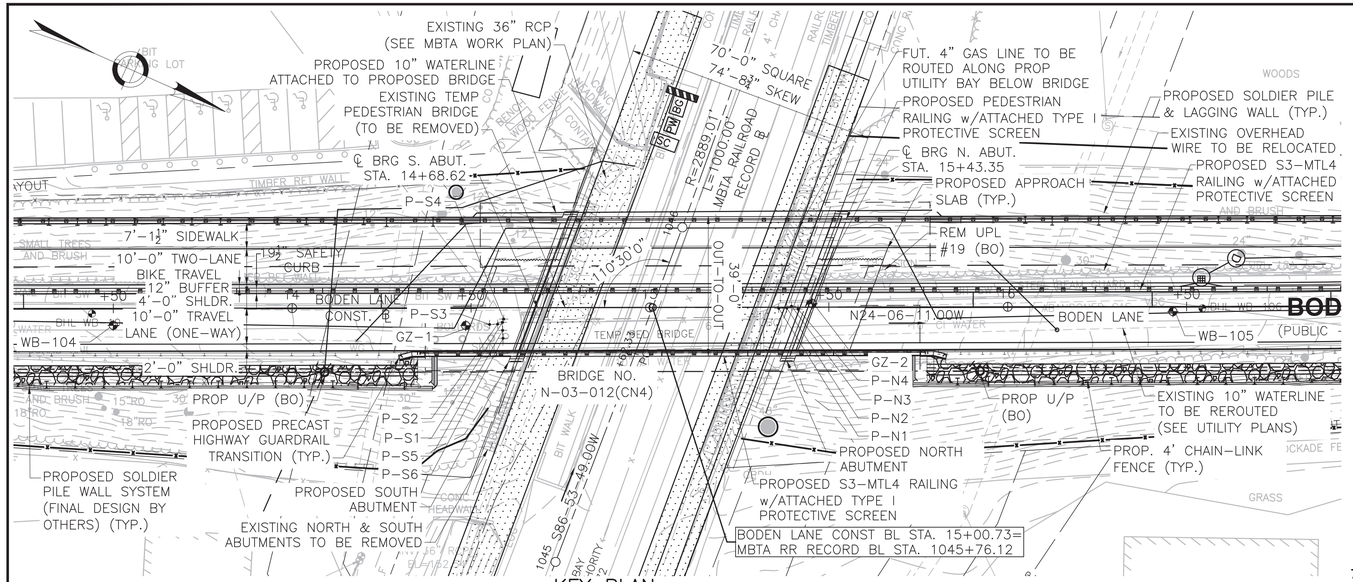
PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT) SIDEWALK WIDTH (W)	DEPTH OF RAMP (FT) RAMP LENGTH (W1)	COMMENT
10	BODEN LANE	18+34.09	7.41' LT	10.00	-7.30	15.00 LT	6.50 RT	18.62	10.00	



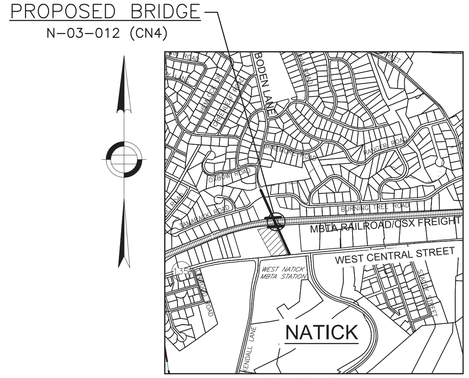
PEDESTRIAN CURB RAMP 7 & 8

PCR NO	BASELINE	STA AT CENTER OF OPENING	OFFSET	OPENING WIDTH (FT)	GUTTER PROFILE SLOPE (%) AT REF. PT	HIGH TRANS LENGTH (FT)	LOW TRANS LENGTH (FT)	DEPTH FROM GUTTER TO BACK OF WALK (FT)	DEPTH OF LEVEL LANDING FROM FRONT OF WALK TO BACK OF WALK (FT)	COMMENT
7	BODEN LANE	18+33.56	9.91 RT	10.00	-7.38	--	11.56	21.61	5.00	
8	BODEN LANE	18+54.31	25.84 RT	10.00	-3.88	11.56	--	21.99	5.00	

HOR. SCALE IN FEET
8 0 8 16
8 0 8 16
VER. SCALE IN FEET



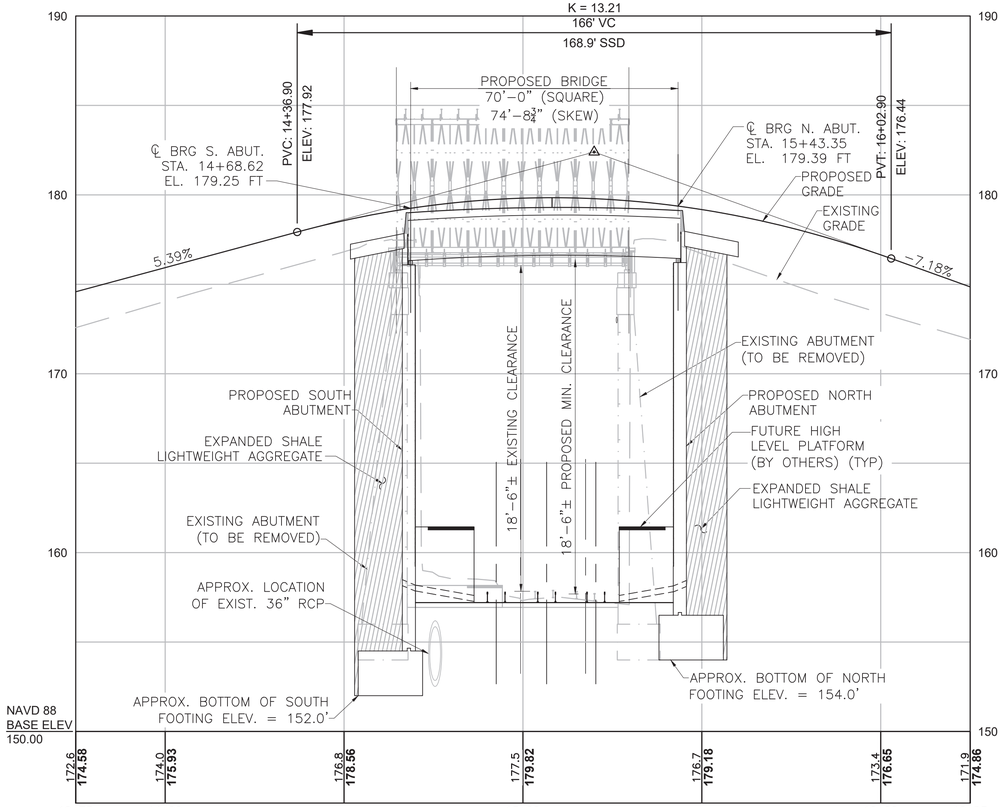
KEY PLAN
SCALE: 1" = 20'



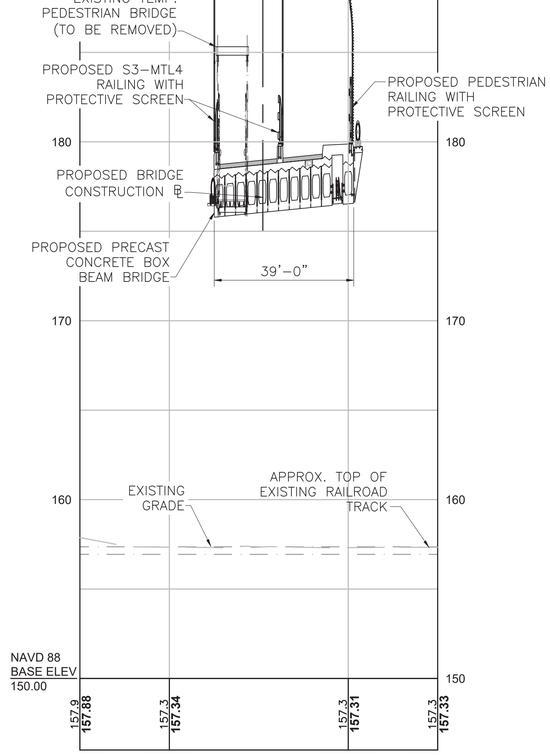
LOCUS PLAN
SCALE: 1" = 1000'

NOTE:
SEE GENERAL PLAN (SHEETS 11–14) FOR PROPOSED MEDIAN, RETAINING WALL INFORMATION, AND BORING LOCATIONS NOT DETAILED ON THIS SHEET.

HIGH POINT ELEV = 179.84
HIGH POINT STA = 15+08.12
PVI STA = 15+19.90
PVI ELEV = 182.40
A.D. = -12.57%
K = 13.21
166' VC
168.9' SSD



PROFILE BODEN LANE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



PROFILE ALONG MBTA/CSX RAILROAD
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	45	92
	PROJECT FILE NO. 607420		

KEY PLAN, PROFILES, AND LOCUS MAP

SHEET INDEX

1. KEY PLAN, PROFILES, AND LOCUS MAP
2. GENERAL NOTES AND ESTIMATED QUANTITIES
3. BORING LOGS (SHEET 1 OF 8)
4. BORING LOGS (SHEET 2 OF 8)
5. BORING LOGS (SHEET 3 OF 8)
6. BORING LOGS (SHEET 4 OF 8)
7. BORING LOGS (SHEET 5 OF 8)
8. BORING LOGS (SHEET 6 OF 8)
9. BORING LOGS (SHEET 7 OF 8)
10. BORING LOGS (SHEET 8 OF 8)
11. GENERAL PLAN & ELEVATION (SHEET 1 OF 4)
12. GENERAL PLAN & ELEVATION (SHEET 2 OF 4)
13. GENERAL PLAN & ELEVATION (SHEET 3 OF 4)
14. GENERAL PLAN & ELEVATION (SHEET 4 OF 4)
15. PROPOSED CONSTRUCTION STAGING AT MBTA FACILITIES
16. STAGING
17. SOUTH ABUTMENT PLAN AND ELEVATION
18. NORTH ABUTMENT PLAN AND ELEVATION
19. ABUTMENT, WINGWALL, AND RETAINING WALL SECTIONS
20. ABUTMENT DETAILS (SHEET 1 OF 2)
21. ABUTMENT DETAILS (SHEET 2 OF 2)
22. RETAINING WALL DETAILS (SHEET 1 OF 3)
23. RETAINING WALL DETAILS (SHEET 2 OF 3)
24. RETAINING WALL DETAILS (SHEET 3 OF 3)
25. SOLDIER PILE TABLES
26. HIGHWAY GUARDRAIL TRANSITION DETAILS
27. APPROACH SLAB PLAN AND DETAILS
28. FRAMING PLAN
29. BOX BEAM DETAILS (1 OF 3)
30. BOX BEAM DETAILS (2 OF 3)
31. BOX BEAM DETAILS (3 OF 3)
32. DECK DETAILS (1 OF 2)
33. DECK DETAILS (2 OF 2)
34. S3-MTL4 BRIDGE RAILING
35. S3-MTL4 HIGHWAY GUARDRAIL TRANSITION
36. PEDESTRIAN BRIDGE RAILING
37. TYPE I PROTECTIVE SCREEN DETAILS
38. TYPE I PROTECTIVE SCREEN DETAILS (PEDESTRIAN RAILING)
39. CUSTOM MEDIAN TERMINUS DETAILS

Laura Ingelido, Civil ENGINEER, NO. 52312, REGISTERED PROFESSIONAL
Laura Ingelido Digitally signed by Laura Ingelido Date: 2026.08.31 19:02:02 -04'00'

CHAPPELL ENGINEERING ASSOCIATES, LLC
Civil · Structural · Land Surveying
R.K. EXECUTIVE CENTRE
201 BOSTON POST ROAD WEST
SUITE 101
MARLBOROUGH, MA 01752

Sept 5, 2026 | ISSUED FOR CONSTRUCTION

MassDOT Massachusetts Department of Transportation Highway Division

PROPOSED BRIDGE
NATICK
BODEN LANE
OVER MBTA RAILROAD

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: 2026.09.17 11:40:36 -04'00'
STATE BRIDGE ENGINEER

Carrie Lavallee Digitally signed by Carrie Lavallee, P.E. Date: 2026.09.30 10:59:29 -04'00'
CHIEF ENGINEER

SHEET 1 OF 39 SHEETS BRIDGE NO. N-03-012 (CN4)

607420_BR1-2 (FIRST SHEETS).DWG Plotted on 28-Aug-2026 2:52 PM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	46	92
	PROJECT FILE NO. 607420		

GENERAL NOTES AND ESTIMATED QUANTITIES

GENERAL NOTES:

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS, 10TH EDITION, 2024, FOR HL–93 LOADING.

MASSDOT BENCH MARK:

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

BENCH MARK:
HYDRANT BONNET BOLT ON THE SIDE OF WEST CENTRAL STREET
NAVD88 ELEVATION = 160.35'
N 2927751.99 E 685788.80

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE SOUTHEAST AND NORTHWEST 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 NOTEBOOKS:

COPIES OF ELECTRONIC SURVEY FILES MAY BE OBTAINED FROM THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION–HIGHWAY DIVISION, 10 PARK PLAZA, BOSTON, MA 02116

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.

ANCHOR BOLTS:

ALL ANCHOR BOLTS SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

REINFORCEMENT:

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

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS	#7 BARS	#8 BARS
1. NONE	16"	17"	21"	33"	37"
2. 12" OF CONCRETE BELOW BAR	18"	22"	27"	43"	49"
3. COATED BARS, COVER < 3db, OR CLEAR SPACING < 6db	21"	26"	31"	49"	56"
4. COATED BARS, ALL OTHER CASES	17"	21"	25"	39"	45"
5. CONDITION 2. AND 3.	23"	29"	35"	56"	64"
6. CONDITION 2. AND 4.	21"	27"	32"	51"	58"

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

REINFORCING STEEL FOR BEAM SEATS, BACKWALLS, CURTAIN WALLS, SAFETY CURBS, DECK, STEMS, AND FOOTING OF ABUTMENTS, WINGWALLS AND TRANSITION BLOCKS SHALL BE EPOXY COATED.

REINFORCING STEEL FOR THE APPROACH SLABS SHALL BE BLACK.

CONCRETE:

ALL CONCRETE SHALL BE 5000 PSI HP CONCRETE, EXCEPT CONCRETE IN DRILLED SHAFTS SHALL BE 4000PSI 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

UTILITIES:

THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH THE RESPECTIVE UTILITY OWNERS FOR ALL UTILITIES TO BE TEMPORARILY OR PERMANENTLY RELOCATED FOR BRIDGE REPLACEMENT WORK.

TRAFFIC:

THE BRIDGE WILL REMAIN CLOSED TO VEHICULAR TRAFFIC THROUGHOUT THE DURATION OF THE PROJECT. THE BRIDGE WILL BE OPEN TO PEDESTRIAN TRAFFIC THROUGH ALL STAGES OF CONSTRUCTION.

MEMBRANE WATERPROOFING:

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

NOTE TO CONTRACTOR:

THE CONTRACTOR SHALL BE AWARE THAT THERE ARE TWO SEWER PIPES OWNED BY THE MWRA CROSSING BODEN LANE AND THIS PROJECT REQUIRES AN 8M PERMIT FROM THE MWRA FOR THE CONSTRUCTION OF THE PERMANENT SOLDIER PILE AND LAGGING RETAINING WALLS TO BE INSTALLED ACROSS THE PIPES. AS PART OF THIS PROCESS, THE CONTRACTOR SHALL BE REQUIRED TO PERFORM TEST PITS AT LOCATIONS SHOWN ON THE PLANS TO EXPOSE THE PIPES, LOG THEIR LOCATIONS AND INSTALL VIBRATION MONITORING DEVICES ON THE PIPES. A REPRESENTATIVE FROM THE MWRA WILL BE PRESENT TO WITNESS THE TEST PIT OPERATION AND THE EXPOSED LOCATION OF THE PIPES. UPON EXPOSURE OF THE PIPES AND INSTALLATION OF THE MONITORING DEVICES AND AT THE APPROVAL OF THE MWRA, THE TEST PITS WILL BE BACKFILLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORT OF EXCAVATION AS NEEDED FOR THE TEST PITS AND INSTALLATION OF MONITORING DEVICES. REFER TO 8M PERMIT FOR EXPLORATORY TEST PIT CONDITIONS AND PRIOR APPROVAL. PAYMENT FOR THE TEST PITS TO EXPOSE THE MWRA PIPES IS TO BE MADE UNDER ITEM 191.6 TEST PIT (EA). INSTALLATION OF MONITORING EQUIPMENT WILL BE PAID UNDER ITEM 997. VIBRATION MONITORING (LS).

THE DESIGN ENGINEER WILL THEN PREPARE FINAL DESIGN PLANS FOR THE CONSTRUCTION OF THE PERMANENT SOLDIER PILE AND LAGGING RETAINING WALLS AND SUBMIT THE PERMIT DOCUMENTS AND CALCULATIONS WITH THE 8M PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE MWRA.

STEEL AND WELDING:

STRUCTURAL STEEL FOR UTILITY SUPPORT SHALL CONFORM TO THE REQUIREMENTS OF COATED AASHTO M270 (ASM A709) GRADE 50. ALL SUPPORT ANGLES AND MECHANICAL REINFORCING BAR SPLICERS AND COUPLERS SHALL BE HOT DIP GALVANIZED GRADE 50, EXPECT AS NOTED. WELDED FABRICATION SHALL BE IN ACCORDANCE WITH THE BRIDGE WELDING CODE; ANSI/AASHTO/AWS D1.5; AND ACCORDANCE WITH INTERIM PUBLISHED BY AASHTO AS OF THE BID OPENING DATE.

TRAFFIC DATA

	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2028	NA
AVERAGE DAILY TRAFFIC – PRESENT	4,387	NA
AVERAGE DAILY TRAFFIC – DESIGN YEAR	4,736	NA
DESIGN HOURLY VOLUME	426	NA
DIRECTIONAL DISTRIBUTION	100% SB	NA
TRUCK PERCENTAGE – AVERAGE DAY	--	NA
TRUCK PERCENTAGE – PEAK HOUR	--	NA
DESIGN SPEED	25MPH	NA
DIRECTIONAL DESIGN HOURLY VOLUME	426	NA

SEISMIC DESIGN CRITERIA

DESIGN RETURN PERIOD:	1000
DESIGN SPECTRA	
As	0.109g
SDs	0.227g
SD1	0.091g
SITE CLASS	D
SEISMIC DESIGN CATEGORY (SDC)	A

ESTIMATED QUANTITIES

ITEM	DESCRIPTION	QUANTITY	UNITS
114.1	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE N–03–012(29L)	1	LS
127.2	SUBSTRUCTURE REMOVAL	450	CY
140	BRIDGE EXCAVATION	2700	CY
402	DENSE GRADED CRUSHED STONE FOR SUB–BASE	160	CY
450.601	SUPERPAVE BRIDGE SURFACE COURSE – 9.5 POLYMER (SSC–B–9.5–P)	22	TON
450.701	SUPERPAVE BRIDGE PROTECTIVE COURSE – 9.5 POLYMER (SPC–B–9.5–P)	22	TON
458.71	EXPANDED SHALE LIGHTWEIGHT AGGREGATE	7160	CY
904.3	5000 PSI, ¾ IN, 685 HP CEMENT CONCRETE	160	CY
910.1	STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED	68615	LB
950.2	TEMPORARY EXCAVATION SUPPORT	1	LS
975.1	METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3–MTL4)	540	FT
975.12	PEDESTRIAN RAILING	735	FT
975.3	PROTECTIVE SCREEN TYPE I	540	FT
991.1	CONTROL OF WATER – STRUCTURE NO. N–03–012	1	LS
994.01	TEMPORARY PROTECTIVE SHIELDING, BRIDGE NO. N–03–012(CN4)	1	LS
995.01	BRIDGE STRUCTURE, BRIDGE NO. N–03–012(CN4)	1	LS
996.4	SOLDIER PILE AND LAGGING RETAINING WALLS	1	LS

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

607420_BR1-2 (FIRST SHEETS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. LOCATION OF BORINGS ARE SHOWN THUS: ⊕
   LOCATION OF PROBES ARE SHOWN THUS: +
2. BORING ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A $1\frac{3}{8}$"I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30"
5. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWERENCE MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON MA.
6. ALL BORINGS WERE MADE BETWEEN SEPTEMBER 20–24, 2021 AND BETWEEN APRIL 30–MAY 3, 2024
7. BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTORS (NEBC) OF BROCKTON, MA
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	47	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 1 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: GZ-1
SHEET: 1 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Drive & Wash
Boring Location: N2928185 - E685589
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 68.3
Date Start - Finish: 9/22/2021 - 9/24/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing 4"/4.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D/O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other: Auto Hammer

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
9/23/21	0745	NE	16	13 hrs.
9/24/21	0700	24	43	14 hrs.
9/24/21	1500	27	53	10 min.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	20	99 12 7 7	19	S-1: (Top 7") ASPHALT. S-1: (Bottom 13") Medium dense, light brown/gray, fine to medium SAND, trace fine Gravel, trace Silt.	1 2		0.6'	ASPHALT	176.4'
		S-2	2-4	24	17	5 4 2 3	6	S-2: Loose, light brown, fine to medium SAND, trace Silt, trace Gravel.	3				
5		S-3	4-6	24	18	3 3 3 3	6	S-3: Loose, light brown, fine to medium SAND, trace fine Gravel, trace (+) Silt.					
		S-4	6-8	24	16	3 2 2 3	4	S-4: Loose, light brown, fine to medium SAND, trace fine Gravel, trace Silt.					
		S-5	8-10	24	8	8 4 2 4	6	S-5: Loose, light brown, fine to medium SAND, trace fine Gravel, trace (+) Silt.					
10		S-6	10-12	24	9	2 2 4 4	6	S-6: Loose, light brown, fine to medium SAND, trace fine Gravel, trace (+) Silt.					
		S-7	12-14	24	10	3 3 3 3	6	S-7: Loose, light brown, fine to medium SAND, little Silt, trace fine Gravel.					
		S-8	14-16	24	10	4 4 6 6	10	S-8: Loose, light brown/brown, fine to medium SAND, trace fine Gravel, trace (+) Silt.					
15		S-9	16-18	24	6	5 2 2 2	4	S-9: Very loose, light brown, fine to coarse SAND, little Silt, trace fine Gravel.					
		S-10	18-20	24	11	3 2 5 7	7	S-10 (Top 6") Loose, light brown, fine SAND, trace Silt, trace fine Gravel.					
		S-11	20-22	24	13	6 3 5 6	8	S-10: (Middle 2") Loose, dark brown, fine to medium SAND, some (-) Silt, trace fine Gravel.	4				
20		S-12	22-24	24	12	9 10 11 14	21	S-10: (Bottom 3") Loose, brown, fine to medium SAND, little fine Gravel, little Silt.	5		22'	FILL	155.0'
		S-13	24-26	24	15	14 10 10 8	20	S-11: (Top 5") Loose, dark brown, fine to coarse SAND, some Silt, little fine Gravel.			24'	SAND	153.0'
		S-14	26-28	24	10	12 8 5 6	13	S-11: (Bottom 8") Loose, light brown, fine to medium SAND, little (+) Silt, trace fine Gravel.			26'	SILT	151.0'
		S-15	28-30	24	17	9 4 4 6	8	S-12: Medium dense, light brown, fine to medium SAND, little (-) Silt, trace fine Gravel.					
30								S-13: Medium dense, gray, SILT, little (+) fine to medium Sand.				CLAYEY SILT	
								S-14: Medium dense, gray, Clayey SILT, little fine to medium Sand, trace fine Gravel.	6		31.5'	GLACIAL TILL	145.5'
		S-16	33-35	24	11	38 56 43 40	99	S-15: Loose, gray, Clayey SILT, little fine to medium Sand, trace fine to medium Gravel. S-16: Very dense, gray, fine to coarse GRAVEL, little fine					
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location: 16 feet south of the northern face of the south abutment and 11 feet east of the western guardrail.
3. Borehole was advanced using 4-inch casing from ground surface to approximately 58.5 feet below ground surface (bgs).
4. Encountered natural soil at approximately 21 feet bgs based on blow counts and color of soil.
5. Observed an inch layer of oxidation, 3 inches from bottom of spoon of sample S-11.
6. Resistance in advancing casing at approximately 30 feet bgs. Driller began using 300 lb. hammer to advance casing.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-1

EL.=±153'
OBSERVED WATER ELEVATION
EL.=±152'
APPROX. PROP. BOT. OF SOUTH FOOTING

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: GZ-1
SHEET: 2 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
								to coarse Sand, little Silt.					
40		S-17	38-40	24	7	53 33 40 32	73	S-17: Very dense, gray/light brown, fine to coarse GRAVEL and SAND, little (+) Silt.					
45		S-18	43-44	12	6	37 100 R R		S-18: Very dense, gray/light brown, fine to coarse GRAVEL and SAND, little (-) Silt.				GLACIAL TILL	
50		S-19	48-50	24	13	65 40 28 34	68	S-19: Very dense, gray, fine to coarse SAND and GRAVEL, some Silt.					
55		S-20	53-55	24	13	20 17 25 42	42	S-20: Dense, gray, fine to coarse SAND and GRAVEL, some Silt.					
60		S-21 C-1	58-58.5 58.5-63.5	5 60	0 53.5	50/5"	R	S-21: No recovery. C-1: Very hard, fresh to slightly weathered, medium grained, gray, Biotite GRANITE, moderately fractured, close to moderately close, sub-vertical to horizontal, joints/fractures. RQD=82%		7	58.5'	BEDROCK	118.5'
65		C-2	63.5-68.5	60	58			C-2: Very hard, fresh to slightly weathered, medium grained, gray, Biotite GRANITE, moderately fractured, close to moderately close, vertical to horizontal, joints/fractures. RQD=72%		8			
70								Bottom of Boring at 68.3 feet.		9	68.3'		108.7'
75													

REMARKS

7. Sub-vertical fracture noted from approximately 3.8 to 4.1 feet on core run C-1.
8. Vertical fracture noted from approximately 0.3 to 1.2 feet on core run C-2.
9. Upon completion, borehole backfilled with soil cuttings to existing grade. Asphalt patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-1

TEST BORING LOG

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S1
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928194 - E685584
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 15.3
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D/O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
									1				
									2				
								No soil sampling.	3				
5													
10													
15													
						104/4"		Auger refusal at 15.3 feet.					
20													
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Boring location is approximately 6.5 feet south of the northern face of the abutment and 11 feet east of the western guardrail.
3. Driller advanced probe with a 140 lb. hammer to approximately 15.3 feet below ground surface. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S1

BORING LOGS GZ–1
SHEET 1 OF 2
SCALE: $\frac{3}{16}$" = 1'–0"

BORING LOGS GZ–1
SHEET 2 OF 2
SCALE: $\frac{3}{16}$" = 1'–0"

BORING LOGS P–S1
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

Sept 5, 2026	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 39 SHEETS BRIDGE NO. N–03–012 (CN4)

175061.00 BODEN LANE MBTA BRIDGE.GPJ; STRATUM ONLY W/O SMPL VWNE: 7/31/2026
607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	48	92
PROJECT FILE NO. 607420			

BORING LOGS
SHEET 2 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S2
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928193 - E685585
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 20.6
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
0									1				
	45								2				
	12							No soil sampling.	3				
5	5												
	23												
	24												
	6												
	6												
	5												
	5												
10	5												
	8												
	8												
	7												
	6												
15	5												
	8												
	4												
	6												
	65												
20	62												
	100/7"							Auger refusal at 20.6 feet.					
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location is approximately 9.5 feet south of the northern face of the south abutment and 11 feet east of the western guardrail.
3. Driller advanced probe with a 140 lb. hammer to approximately 20.6 feet below ground surface. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S2

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY WO SMPL VWNE: 3/26/2024

BORING LOGS P–S2
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S3
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928191 - E685586
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 34.5
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
0									1				
	57								2				
	8							No soil sampling.	3				
	4												
5	6												
	1												
	2												
	1												
	1												
10	4												
	6												
	7												
	7												
	8												
15	8												
	9												
	12												
	9												
	7												
20	8												
	13												
	7												
	7												
	10												
25	18												
	17												
	16												
	16												
	30												
30	18												
	17												
	25												
	87												
35	100/6"							Auger refusal at 34.5 feet.					

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location is approximately 2 feet south of P-2S and 11.5 feet south of the northern face of the south abutment and approximately 15 feet east of the western guardrail.
3. Driller advanced the probe to approximately 34.5 feet below ground surface with a 140 lb. auto hammer. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S3

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY WO SMPL VWNE: 3/26/2024

BORING LOGS P–S3
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S4
SHEET: 1 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928194 - E685586
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 36.25
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Elev. (ft.)
0									1				
	125								2				
	13							No soil sampling.	3				
	7												
5	5												
	4												
	5												
	3												
	5												
10	6												
	7												
	8												
	9												
	8												
15	9												
	10												
	9												
	12												
	13												
20	11												
	11												
	26												
	9												
	19												
25	20												
	23												
	25												
	21												
	20												
30	18												
	18												
	25												
	75												
	108												
35	70												

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location is approximately 13.5 feet south of the northern face of the south abutment and approximately 11 feet east of the western guardrail.
3. Driller advanced the probe approximately 36.25 feet below ground surface with a 140 lb. auto hammer. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S4

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY WO SMPL VWNE: 3/26/2024

BORING LOGS P–S4
SHEET 1 OF 2
SCALE: $\frac{3}{16}$" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	49	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 3 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. — *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S4
SHEET: 2 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
40	75 80 73/3"							Auger refusal at 36.25 feet.					
45													
50													
55													
60													
65													
70													
75													

REMARKS

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S4

175061.00 BODEN LANE MBTA BRIDGE.GPJ; STRATUM ONLY W/O SMPL VsNE; 3/26/2024

BORING LOGS P–S4
SHEET 2 OF 2
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. — *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S5
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928195 - E685586
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 19.8
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88
Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
5	25 6 2 2 15 5 3 2							No soil sampling.					
10	3 2 3 2 6 6 8 7												
15	8 8 5 4 5												
20	100/10"							Auger refusal at 19.8 feet.					
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S5

175061.00 BODEN LANE MBTA BRIDGE.GPJ; STRATUM ONLY W/O SMPL VsNE; 3/26/2024

BORING LOGS P–S5
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. — *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-S6
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928196 - E685588
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 32.8
Date Start - Finish: 9/22/2021 - 9/22/2021
H. Datum: NAD83
V. Datum: NAVD88
Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
5	12 1 1 1 2 9 7 5							No soil sampling.	1 2 3				
10	5 6 7 8 10 12 8 7												
15	9 6 5 12 18 5 4 7												
20	16 22 18 14 17 18 17 18												
25													
30													
35	101/10"							Auger refusal at 32.8 feet.					

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Offset 5 feet east of P-25; boring location is approximately 9.5 feet south of the northern face of the south abutment and 16 feet east of the face of the western guardrail.
3. Driller advanced the probe to approximately 32.8 feet below ground surface with a 140 lb. auto hammer. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-S6

175061.00 BODEN LANE MBTA BRIDGE.GPJ; STRATUM ONLY W/O SMPL VsNE; 3/26/2024

BORING LOGS P–S6
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	50	92
PROJECT FILE NO. 607420			

BORING LOGS
SHEET 4 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: GZ-2
SHEET: 1 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Drive & Wash
Boring Location: N2928271 - E685544
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 72.5
Date Start - Finish: 9/20/2021 - 9/21/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing 4"/4.5"
I.D/O.D.(in):
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D/O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
9/21/21	0810	30.0	43	16 hrs.
9/21/21	1351	30.3		15 min.

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	16	63 10 8 6	18	S-1: (Top 6") ASPHALT. S-1: (Bottom 10") Medium dense, light brown, fine to coarse SAND, trace fine to coarse Gravel, trace Silt.	1 2 3		0.5'	ASPHALT	176.5'
		S-2	2-4	24	10	5 5 7 4	12	S-2: Medium dense, light brown, fine to medium SAND, trace fine to coarse Gravel, trace Silt.					
5		S-3	4-6	24	20	5 6 6 6	12	S-3: Medium dense, light brown, fine to medium SAND, trace Silt, trace Gravel.					
		S-4	6-8	24	14	5 6 5 6	11	S-4: Medium dense, light brown/brown, fine to medium SAND, trace fine Gravel, trace Silt.					
		S-5	8-10	24	7	5 4 3 4	7	S-5: Loose, light brown/brown, fine to medium SAND, little (-) Silt, trace fine Gravel.					
10		S-6	10-12	24	11	3 5 5 5	10	S-6: Medium dense, light brown, fine to coarse SAND, trace fine Gravel, trace (+) Silt.					
		S-7	12-14	24	12	6 4 7 5	11	S-7: Medium dense, light brown, fine to coarse SAND, trace fine Gravel, trace (+) Silt.					
		S-8	14-16	24	9	3 4 4 5	8	S-8: Loose, light brown, fine to coarse SAND, trace fine Gravel, trace Silt.					
15		S-9	16-18	24	14	9 6 6 5	12	S-9: Medium dense, light brown, fine to coarse SAND, trace fine Gravel, trace (+) Silt.					
		S-10	18-20	24	8	6 3 4 6	7	S-10: Loose, light brown, fine to coarse SAND, trace fine to coarse Gravel, trace (+) Silt.					
		S-11	20-22	24	12	5 5 6 8	11	S-11: (Top 4") Medium dense, dark brown, SILT, some fine to medium Sand, trace Roots (Organics). S-11: (Bottom 8") Medium dense, light brown, fine to medium SAND and SILT, trace Roots (Natural).	4		22'	FILL	155.0'
20		S-12	22-24	24	14	11 9 9 13	18	S-12: Medium dense, light brown, fine to medium SAND, little Silt.					
		S-13	24-26	24	12	10 13 14 14	27	S-13: Medium dense, light brown, fine to medium SAND, little Silt.			26'	SAND	151.0'
		S-14	26-28	24	16	10 10 9 9	19	S-14: Very stiff, gray/light brown, Clayey SILT, little (+) fine Sand.					
25		S-15	28-30	24	17	10 7 5 3	12	S-15: Stiff, gray, Clayey SILT, trace fine Sand.					
												CLAYEY SILT	
30													
		S-16	33-35	24	19	5 3 3 5	6	S-16: Loose, brown, SILT.					
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location approximately 15 feet from face of retaining wall and 7 feet west from face of guardrail.
3. Borehole was advanced using 4-inch casing from ground surface to approximately 62.5 feet below ground surface (bgs).
4. Buried organics encountered at approximately 20 feet bgs. (Tip of spoon of sample S-10.)

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-2

▽EL.=±154'
APPROX. PROP. BOT. OF NORTH FOOTING

▽EL.=±147'
OBSERVED WATER ELEVATION

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY W/O SMPL VWNE, 3/26/2024

BORING LOGS GZ-2
SHEET 1 OF 2
SCALE: 3/16" = 1'-0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: GZ-2
SHEET: 2 of 2
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
											36.5'	CLAYEY SILT	140.5'
40		S-17	38-40	24	12	25 12 12 17	24	S-17: Medium dense, gray, fine to coarse GRAVEL and SAND, some (-) Clayey Silt.	5			GLACIAL OUTWASH	
45		S-18	43-45	24	10	31 21 19 22	40	S-18: Dense, gray, fine to coarse GRAVEL, some fine to coarse Sand, little (-) Clayey Silt.			41.5'		135.5'
50		S-19	48-50	24	10	24 21 14 16	35	S-19: Dense, gray, fine to coarse SAND and (-) GRAVEL, some (-) Silt.				GLACIAL TILL	
55		S-20	53-55	24	12	23 15 18 31	33	S-20: Dense, gray, fine to coarse GRAVEL and SAND, some (-) Silt.					
60		S-21	58-60	24	10	25 16 47 97	63	S-21: Very dense, gray, fine to coarse GRAVEL, some (+) fine to coarse Sand, some Silt.	6 7 8 9		61'		116.0'
		S-22 C-1	62.2- 62.5 62.5- 67.5	1 60	1 53.5	105/1"	R	S-22: Very dense, fine to coarse GRAVEL, little fine to coarse Sand, little (-) Silt. C-1: Very hard, fresh to slightly weathered, medium grained, gray, Biotite GRANITE, moderately fractured, moderately close, horizontal to moderately dipping, joints/fractures. RQD=96%	10 11 12 13 14			BEDROCK	
65		C-2	67.5- 72.5	60	60			C-2: Very hard, fresh to slightly weathered, medium grained, gray, Biotite GRANITE, moderately fractured, very close to close, horizontal to sub-vertical, joints/fractures. RQD=80%			72.5'		104.5'
70								Auger refusal at 72.5 feet.	15				
75													

REMARKS

5. Rig chatter at approximately 38 feet bgs.
6. During sampling of S-21, driller had to break through possible boulder.
7. Attempted to go open hole at approximately 58 feet bgs, but water loss observed. Driller continued advancing casing.
8. Sample located within tip of spoon.
9. Driller mentioned increase of down pressure to 400 psi at approximately 61 feet bgs.
10. Rig chatter at approximately 61 feet bgs. Driller mentioned possible bedrock. Driller continued to roller bit down to 62.5 feet bgs.
11. Driller used 300 lb. hammer to advance casing from approximately 58 to 62.3 feet bgs.
12. Driller mentioned refusal with casing at approximately 62.3 feet bgs.
13. Approximately 400 to 500 psi of down pressure throughout the rock core.
14. Through Massuis, bedrock appears to be Biotite Granite.
15. Upon completion, borehole was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: GZ-2

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY W/O SMPL VWNE, 3/26/2024

BORING LOGS GZ-2
SHEET 2 OF 2
SCALE: 3/16" = 1'-0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-N1
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Jerry Voight
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928263 - E685549
Ground Surface Elev. (ft.): 178
Final Boring Depth (ft.): 11.5
Date Start - Finish: 9/20/2021 - 9/20/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D/O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
No readings	obtained			

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
									1 2 3				
								No soil sampling.					
5													
10								Auger refusal at 11.5 feet.	4				
15													
20													
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Probe located approximately 6 feet north of the southern face of the north abutment and approximately 7 feet east of the guardrail location on the western side.
3. Advanced steel probe using 140 lb. auto hammer. Casing blow counts not obtained at this location.
4. Refusal at approximately 11.5 feet below ground surface. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-N1

175061.00 BODEN LANE MBTA BRIDGE.GPJ, STRATUM ONLY W/O SMPL VWNE, 3/26/2024

BORING LOGS P-N1
SHEET 1 OF 1
SCALE: 3/16" = 1'-0"

Sept 5, 2026	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 6 OF 39 SHEETS BRIDGE NO. N-03-012 (CN4)

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	51	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 5 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-N2
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Jerry Voight
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928265 - E685548
Ground Surface Elev. (ft.): 178
Final Boring Depth (ft.): 14.2
Date Start - Finish: 9/20/2021 - 9/20/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Elev. (ft.)
0						57			1				
						10			2				
						7		No soil sampling.	3				
5						8			4				
						8							
						3							
						3							
						4							
10						5							
						5							
						4							
						42							
15	100/8"							Auger refusal at 14.2 feet.	5				
20													
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Location: 8 feet north of the southern face of the north abutment and approximately 7 feet east of the western guardrail
3. Offset approximately 2 feet north of P-1N.
4. Advanced steel probe using 140 lb. autohammer.
5. Encountered refusal at approximately 14.2 feet below ground surface. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-N2

175061.00 BODEN LANE MBTA BRIDGE GPJ; STRATUM ONLY W/O SMPL WINE; 3/26/2024

BORING LOGS P–N2
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-N3
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928266 - E685547
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 13.9
Date Start - Finish: 9/20/2021 - 9/20/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Elev. (ft.)
0						48			1				
						9			2				
						10		No soil sampling.	3				
5						11							
						13							
						8							
						6							
						6							
10						7							
						11							
						6							
						7							
						8							
15	100/5"							Auger refusal at 13.9 feet.	4				
20													
25													
30													
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Offset approximately 2 feet north of P-2N and 7 feet east of guardrail.
3. Driller advanced steel probe to approximately 13.9 feet below ground surface (bgs).
4. Refusal encountered at approximately 13.9 feet bgs. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-N3

175061.00 BODEN LANE MBTA BRIDGE GPJ; STRATUM ONLY W/O SMPL WINE; 3/26/2024

BORING LOGS P–N3
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Boden Lane MBTA Bridge
Natick/Framingham, Massachusetts

BORING NO.: P-N4
SHEET: 1 of 1
PROJECT NO: 01.0175061.00
REVIEWED BY: BPG

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley
Logged By: Ernesto Pena
Type of Rig: Truck
Rig Model: Mobile B-53
Drilling Method: Geoprobe
Boring Location: N2928268 - E685547
Ground Surface Elev. (ft.): 177
Final Boring Depth (ft.): 30
Date Start - Finish: 9/20/2021 - 9/20/2021
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Probe
I.D/O.D.(in): 2.5"
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Auto Hammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1.375"/2"
Sampler Hmr Wt (lb): 140
Sampler Hmr Fall (in): 30
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Blows (per 6 in.)	SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft)	Stratum Description	Elev. (ft.)
0						83			1				
						15			2				
						10		No soil sampling.	3				
5						9							
						7							
						11							
						9							
						9							
10						8							
						9							
						8							
						7							
						9							
15						9							
						9							
						11							
						7							
						8							
20						9							
						8							
						11							
						13							
						2							
25						6							
						17							
						16							
						22							
						20							
30						21							
						23							
						20		Auger refusal at 30 feet.					
35													

REMARKS

1. Ground surface elevation estimated from a plan entitled "607420-SV (Basemap)", prepared by Chappell Engineering Associates, LLC, and received on June 22, 2021.
2. Offset approximately 2 feet north from P-3N and 7 feet east of guardrail.
3. Driller advanced steel probe with 140 lb. autohammer to approximately 30 feet below ground surface. Upon completion, probe was backfilled with soil cuttings to existing grade. Asphalt cold patch was placed to restore ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: P-N4

175061.00 BODEN LANE MBTA BRIDGE GPJ; STRATUM ONLY W/O SMPL WINE; 3/26/2024

BORING LOGS P–N4
SHEET 1 OF 1
SCALE: $\frac{3}{16}$" = 1'–0"

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

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

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	52	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 6 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-101
SHEET: 1 of 1
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2927842 - E685731
Ground Surface Elev. (ft.): 159
Final Boring Depth (ft.): 15
Date Start - Finish: 5/1/2024 - 5/1/2024
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: HW
I.D/O.D.(in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
5/1/24	1345	4.5	8.5	15m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	10	10 12 11 11	23	S-1: Medium dense, brown, fine to coarse SAND, some Gravel, some Silt.	1		0.3'	ASPHALT	158.7'
		S-2	2-4	24	3	7 15 7 4	22	S-2: Medium dense, dark brown, fine to coarse SAND, little (+) Gravel, little (-) Silt.	2			FILL	
5		S-3	4-6	24	18	3 13 12 10	25	S-3A: (Top 6") Olive-brown, fine to coarse SAND, trace Silt.			6.2'		152.8'
		S-4	6-8	24	12	12 17 17 16	34	S-3B: (Middle 8") Dark brown, fine to medium SAND, little Silt.	3			SILT	
		S-5	8-10	24	15	9 9 7 8	16	S-3C: (Bottom 4") Brown, fine to medium SAND, trace Silt.	4		8'		151.0'
10								S-4A: (Top 1") Brown, fine to medium SAND, little Silt.					
								S-4B: (Bottom 11") Orange-gray, SILT, little fine to medium Sand.	5				
								S-5: Very stiff, gray, Clayey SILT, trace fine Sand. PP=1-3.5 tsf	6			CLAYEY SILT	
		S-6	13-15	24	15	4 7 5 9	12	S-6: Stiff, gray, Clayey SILT, trace fine to coarse Sand. PP=0.8-2.25 tsf			15'		144.0'
15								Auger refusal at 15 feet.	7				
20													
25													
30													
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-1 had 1-inch dark brown sand seam.
3. Sample S-4B had orange mottling.
4. Casing refusal at 3 feet below ground surface (bgs) on possible abandoned utility.
5. Mottling observed in sample S-5.
6. Pocket penetrometer (PP) readings taken at samples S-5 and S-6 to provide an estimate of relative strength of cohesive soils.
7. Bottom of borehole at 15 feet bgs. Borehole backfilled with drill cuttings, grout, and patched.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-101

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WIWE, 8/29/2024

BORING LOGS WB–101
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-102
SHEET: 1 of 2
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2927912 - E685715
Ground Surface Elev. (ft.): 161
Final Boring Depth (ft.): 40
Date Start - Finish: 5/2/2024 - 5/2/2024
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: HW
I.D/O.D.(in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
5/2/24	1030	8.2	34	15m
5/3/24	0715	8.0	34	21h

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	10	8 5 5 5	10	S-1A: (Top 3") Gray-brown, fine to coarse SAND and GRAVEL, little Silt.	1		0.2'	ASPHALT	160.8'
		S-2	2-4	24	9	5 5 6 6	11	S-1B: (Bottom 7") Brown-orange, fine to coarse SAND, little (-) Silt, trace Gravel.	2			FILL	
5		S-3	4-6	24	12	6 4 4 4	8	S-2A: (Top 4") Brown, fine to coarse SAND, little Silt.	3				
		S-4	6-8	24	22	7 8 10 10	18	S-2B: (Bottom 5") Dark brown-orange, fine to coarse SAND, some Silt, trace Gravel.			6'		155.0'
		S-5	8-10	24	14	8 6 8 10	14	S-3A: (Top 9") Dark brown-orange, fine to coarse SAND, little Silt, trace Gravel.				SAND	
10								S-3B: (Bottom 3") Dark brown, fine to medium SAND, some Silt, trace Gravel.			8.2'		152.8'
								S-4: Medium dense, brown, fine to coarse SAND, trace Silt.				SILT	
								S-5A: (Top 3") Brown, fine to coarse SAND, trace Silt.			11.5'		149.5'
								S-5B: (Bottom 11") Light brown, SILT, little fine Sand.					
		S-6	13-15	24	15	8 9 5 6	14	S-6: Stiff, gray, Clayey SILT, little fine Sand.				CLAYEY SILT	
15											16'		145.0'
		S-7	18-20	24	17	4 5 3 4	8	S-7: Medium stiff, gray, SILT & CLAY, trace fine to coarse Sand. PP=0.5-1 tsf	4				
20													
		S-8	23-25	24	17	4 5 4 7	9	S-8: Stiff, gray, SILT & CLAY, trace fine to coarse Sand. PP=1-2.5 tsf				SILT AND CLAY	
25													
		S-9	28-30	24	14	5 5 4 8	9	S-9: Stiff, gray, SILT & CLAY, trace (-) fine to coarse Sand. PP=1.5-2.3 tsf					
30													
		S-10	33-35	24	17	5 6 6 11	12	S-10: Stiff, gray, SILT & CLAY, trace (-) fine Sand. PP=1-2 tsf					
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-1B stratified with dark brown silt seams and light brown sand seams.
3. Sample S-3A stratified with dark brown silt seams and light brown sand seams.
4. Pocket penetrometer (PP) readings taken at samples S-7, S-8, S-9 and S-10 to provide an estimate of relative strength of cohesive soils.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-102

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WIWE, 8/29/2024

BORING LOGS WB–102
SHEET 1 OF 2
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-102
SHEET: 2 of 2
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
												SILT AND CLAY	
											5		37.8' 123.2'
40		S-11	38-40	24	4	18 25 36 31	61	S-11: Very dense, gray, fine to coarse SAND and GRAVEL, some Silt.			6	GLACIAL TILL	
								Auger refusal at 40 feet.					40' 121.0'
45													
50													
55													
60													
65													
70													
75													

REMARKS

5. Rig chatter during wash at approximately 37.8 feet bgs prior to sampling S-11.
6. Bottom of borehole at 40 feet below ground surface. Borehole backfilled with drill cuttings, grout, and patched with asphalt.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-102

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WIWE, 8/29/2024

BORING LOGS WB–102
SHEET 2 OF 2
SCALE: 3/16" = 1'–0"

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

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

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	53	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 7 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-103
SHEET: 1 of 1
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2928005 - E685674
Ground Surface Elev. (ft.): 166
Final Boring Depth (ft.): 25
Date Start - Finish: 5/3/2024 - 5/3/2024
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: HW
I.D/O.D.(in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
5/3/24	0950	6.9	21.5	5m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	9	5 4 3 5	7	S-1: Loose, brown, fine to coarse SAND, little Silt, trace Gravel.	1		0.3'	ASPHALT	165.7'
		S-2	2-4	24	8	4 4 5 4	9	S-2: Loose, brown-orange, fine to medium SAND, little Silt.	2				
5		S-3	4-6	24	8	5 4 7 4	11	S-3: Medium dense, brown, fine to medium SAND, little Silt, trace Gravel.	3			FILL	
		S-4	6-8	24	12	4 5 8 7	13	S-4: Medium dense, brown-orange, fine to medium SAND, little Silt.	4				
		S-5	8-10	24	9	4 4 4 4	8	S-5: Loose, brown, fine to coarse SAND, little Silt.	5				
10											10'		156.0'
		S-6	10-12	24	11	3 6 6 8	12	S-6A: (Top 7") Orange-brown, fine to medium SAND, little (+) Silt.				SAND	
		S-7	12-14	24	12	4 6 10 13	16	S-6B: (Bottom 4") Brown, fine to coarse SAND, trace (+) Silt.			12.8'		153.2'
								S-7A: (Top 4") Brown, fine to coarse SAND, trace (+) Silt.				SILT	
15								S-7B: (Bottom 8") Light brown-gray, SILT, trace (-) fine Sand.			16'		150.0'
		S-8	18-20	24	16	4 3 2 6	5	S-8: Medium stiff, gray, SILT & CLAY, trace fine to medium Sand. PP=0.5-0.8 tsf	6			SILT AND CLAY	
20													
		S-9	23-25	24	16	4 6 4 7	10	S-9: Stiff, gray, SILT & CLAY, trace fine to medium Sand. PP=0.5-1.3 tsf					
25											25'		141.0'
								Auger refusal at 25 feet.	7				
30													
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-2 had a 2" dark brown silt seam.
3. Sample S-3 stratified with dark brown silt seams.
4. Sample S-4 had a 2" light brown sand seam.
5. Sample S-5 is stratified with dark brown and orange sand seams.
6. Pocket penetrometer (PP) readings taken at samples S-8 and S-9 to provide an estimate of relative strength of cohesive soils.
7. Bottom of borehole at 25 feet below ground surface. Borehole backfilled with drill cuttings, grout, and an asphalt cold patch.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-103

BORING LOGS WB–103
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-104
SHEET: 1 of 1
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2928095 - E685629
Ground Surface Elev. (ft.): 171
Final Boring Depth (ft.): 30
Date Start - Finish: 5/3/2024 - 5/3/2024
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: HW
I.D/O.D.(in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
5/3/24	1225	8.2	18	15m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	10	8 7 6 6	13	S-1: Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt.	1		0.4'	ASPHALT	170.6'
		S-2	2-4	24	11	5 5 6 6	11	S-2: Medium dense, brown, fine to medium SAND, trace (+) Silt.	2				
5		S-3	4-6	24	14	3 4 3 3	7	S-3: Loose, brown-orange, fine to medium SAND, little (-) Silt, trace (-) Gravel.	3				
		S-4	6-8	24	18	3 2 2 2	4	S-4: Loose, brown, fine to coarse SAND, little Silt.				FILL	
		S-5	8-10	24	7	1 3 2 3	5	S-5: Loose, brown, fine to coarse SAND, trace Silt.					
10		S-6	10-12	24	10	2 2 3 4	5	S-6: Loose, brown, fine to coarse SAND, trace Silt, trace Gravel.					
		S-7	12-14	24	11	3 4 10 25	14	S-7A: (Top 9") Brown, fine to coarse SAND, trace Silt. S-7B: (Bottom 2") Dark brown, fine to medium SAND, some Gravel, little Silt.	4				
15											16'		155.0'
		S-8	18-20	24	15	8 10 9 10	19	S-8: Medium dense, light brown, SILT, little (-) fine Sand.				SILT	
20											21'		150.0'
		S-9	23-25	24	13	6 5 4 5	9	S-9: Stiff, gray, Clayey SILT, trace fine Sand.				CLAYEY SILT	
25		UT-1	25-27	24	0			UT-1: No recovery.	5				
											27'		144.0'
		S-10	28-30	24	15	4 6 6 10	12	S-10: Stiff, gray, CLAY & SILT, trace (-) fine Sand. PP=1-2.75 tsf	6			SILT AND CLAY	
30											30'		141.0'
								Auger refusal at 30 feet.	7				
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-1 is stratified with light brown sand seams and dark brown silt seams.
3. Sample S-3 is stratified with dark brown silt seams and light brown sand seams.
4. Casing advanced minimally with each autohammer strike.
5. No recovery from Shelby tube sample.
6. Pocket penetrometer (PP) readings taken at sample S-10 to provide an estimate of relative strength of cohesive soils.
7. Bottom of borehole at 30 feet bgs. Borehole backfilled with drill cuttings, grout, and patched with asphalt.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-104

BORING LOGS WB–104
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-105
SHEET: 1 of 2
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2928364 - E685505
Ground Surface Elev. (ft.): 171
Final Boring Depth (ft.): 45
Date Start - Finish: 4/30/2024 - 5/1/2024
H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: HW
I.D/O.D.(in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
5/1/24	1000	14.7	27	15m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
		S-1	0-2	24	10	8 7 6 5	13	S-1: Medium dense, brown, fine to coarse SAND, little Silt, trace (-) Gravel.	1		0.4'	ASPHALT	170.6'
		S-2	2-4	24	9	5 7 7 7	14	S-2: Medium dense, orange-brown, fine to medium SAND, little Silt.	2				
5		S-3	4-6	24	7	7 8 5 7	13	S-3: Medium dense, brown, fine to medium SAND, little Silt.	3				
		S-4	6-8	24	18	4 4 6 7	10	S-4: Loose, brown, fine to coarse SAND, trace Silt.				FILL	
		S-5	8-10	24	9	6 5 5 8	10	S-5: Loose, gray-brown, fine to coarse SAND, little Gravel, trace Silt.					
10		S-6	10-12	24	13	7 7 5 6	12	S-6: Medium dense, brown, fine to coarse SAND, trace Silt, trace Gravel.					
		S-7	12-14	24	18	5 4 3 5	7	S-7A: (Top 6") Dark brown, fine to medium SAND and SILT.					
		S-8	14-16	24	11	2 4 4 4	8	S-7B: (Bottom 12") Brown, fine to coarse SAND, trace (+) Silt.					
15		S-9	16-18	24	15	8 11 14 16	25	S-8: Loose, brown, fine to coarse SAND, trace (+) Silt, trace Gravel.	4		16'		155.0'
		S-10	18-20	24	16	7 10 11 13	21	S-9: Medium dense, brown, fine to coarse SAND, trace Silt, trace (-) Gravel. S-10: Very stiff, light brown, Clayey SILT, trace fine to medium Sand.			18'	SAND	153.0'
20												CLAYEY SILT	
		S-11	23-25	24	15	4 4 2 3	6	S-11: Medium stiff, gray, Clayey SILT, trace fine to coarse Sand. PP=0.5-0.8 tsf	5		26'		145.0'
25													
		S-12	28-30	24	15	4 6 5 6	11	S-12: Stiff, gray, SILT & CLAY, trace fine to coarse Sand. PP=0.5-1.3 tsf				SILT AND CLAY	
30													
		S-13	33-35	24	13	5 7 8 10	15	S-13: Stiff, gray, Clayey SILT, trace fine to coarse Sand. PP=0.8-1 tsf					
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-1 stratified with dark brown silt seams.
3. Sample S-3 had 1" dark brown silt seam.
4. Sample S-9 appeared mottled with orange sand seams.
5. Pocket penetrometer (PP) readings taken at samples S-11, S-12, S-13 and S-14 to provide an estimate of relative strength of cohesive soils.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-105

BORING LOGS WB–105
SHEET 1 OF 2
SCALE: 3/16" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM
175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ; STRATUM ONLY WO SMPL WHVE; 8/28/2024
607420 Final Structural Submittal (SF) 28-Aug-2026

EXPLORATION	NORTHING (FEET)	EASTING (FEET)	PROBE DEPTH (FEET)
GZ-1	2928185	685589	-
GZ-2	2928271	685544	-
P-N1	2928263	685549	11.5
P-N2	2928265	685548	14.2
P-N3	2928266	685547	13.9
P-N4	2928268	685547	30.0
P-S1	2928194	685564	15.3
P-S2	2928193	685585	20.6
P-S3	2928191	685586	34.5
P-S4	2928194	685586	36.25
P-S5	2928195	685586	19.8
P-S6	2928196	685588	32.8
WB-101	2927842	685731	-
WB-102	2927912	685715	-
WB-103	2928005	685674	-
WB-104	2928095	685629	-
WB-105	2928364	685505	-
WB-106	2928455	685463	-
WB-107	2928497	685434	-

NOTES:

1. FOR BORING NOTES, SHEET 3

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	54	92
PROJECT FILE NO.	607420		

BORING LOGS
SHEET 8 OF 8

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-105
SHEET: 2 of 2
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
40		S-14	38-40	24	15	6 7 9 8	16	S-14: Very stiff, gray, SILT & CLAY, trace fine to medium Sand. PP=1.5-1.8 tsf				SILT AND CLAY	
											42'		129.0'
45		S-15	43-45	24	11	42 34 26 35	60	S-15A: (Top 5") Gray, fine to coarse SAND and GRAVEL, little Silt. S-15B: (Bottom 6") Light brown, fine to coarse SAND and SILT, some (-) Gravel.	6			GLACIAL TILL	
								Auger refusal at 45 feet.			45'		126.0'
50													
55													
60													
65													
70													
75													

REMARKS

6. Bottom of borehole at 45 feet below ground surface. Borehole backfilled with drill cuttings, grout, and patched with asphalt.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-105

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WINE, 8/28/2024

BORING LOGS WB–105
SHEET 2 OF 2
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-106
SHEET: 1 of 1
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2928455 - E685463
Ground Surface Elev. (ft.): 165
Final Boring Depth (ft.): 25
Date Start - Finish: 4/30/2024 - 4/30/2024
H. Datum: NAD83
V. Datum: NAVD88
Auger/Casing Type: HW
I.D/O.D. (in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
4/30/24	1300	6.5	7	15m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
5		S-1	0-2	24	13	8 9 5 5	14	S-1A: (Top 4") Brown, fine to coarse SAND, little Silt, trace Gravel. S-1B: (Bottom 9") Orange-brown, fine to coarse SAND, little (-) Silt.	1		0.3'	ASPHALT	164.7'
		S-2	2-4	24	12	4 6 6 8	12	S-2A: (Top 4") Orange-brown, fine to coarse SAND, trace Silt. S-2B: (Bottom 8") Brown, fine to coarse SAND, trace Silt.				FILL	
		S-3	4-6	24	11	4 6 5 7	11	S-3: Medium dense, brown, fine to coarse SAND, trace Silt.	2				
		S-4	6-8	24	17	5 6 8 5	14	S-4: Medium dense, brown to orange-brown, fine to coarse SAND, little Silt.			10'		155.0'
10		S-5	8-10	24	6	4 2 2 3	4	S-5A: (Top 4") Brown, fine to coarse SAND, trace Silt. S-5B: (Bottom 2") Dark brown to brown, fine to coarse SAND, some Silt.				SAND	
		S-6	10-12	24	12	3 6 8 12	14	S-6: Medium dense, brown, fine to coarse SAND, trace Silt, trace Gravel.	3		12.5'		152.5'
15		S-7	12-14	24	12	6 9 8 9	17	S-7A: (Top 3") Brown, fine to coarse SAND, trace Silt. S-7B: (Bottom 9") Light brown, SILT, trace fine Sand.			14'	SILT	151.0'
												CLAYEY SILT	
20		S-8	18-20	24	19	2 3 5 6	8	S-8: Medium stiff, gray, Clayey SILT, trace fine Sand.			21.5'		143.5'
		S-9	23-25	24	17	5 5 7 10	12	S-9: Stiff, gray, SILT & CLAY, trace fine to medium Sand. PP=0.8-1 tsf	4			SILT AND CLAY	
25								Auger refusal at 25 feet.	5		25'		140.0'
30													
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Sample S-4 had stratifications of copper-brown silt.
3. Sample S-6 had 1-inch thick orange sand mottling.
4. Pocket penetrometer (PP) readings taken at sample S-9 to provide an estimate of relative strength of cohesive soils.
5. Bottom of borehole at 25 feet below ground surface. Borehole backfilled with drill cuttings, grout, and patched with asphalt.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-106

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WINE, 8/28/2024

BORING LOGS WB–106
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Chappell Engineering Associates, LLC
Boden Lane Bridge Replacement
Boden Lane
Natick, MA

BORING NO.: WB-107
SHEET: 1 of 1
PROJECT NO: 01.0175061.10
REVIEWED BY: HA

Drilling Co.: New England Boring Contractors
Foreman: Norman Studdard
Logged By: Hayley McLeod
Type of Rig: Truck
Rig Model: Acterra
Drilling Method: Drive & Wash
Boring Location: N2928497 - E685434
Ground Surface Elev. (ft.): 162
Final Boring Depth (ft.): 22
Date Start - Finish: 4/30/2024 - 4/30/2024
H. Datum: NAD83
V. Datum: NAVD88
Auger/Casing Type: HW
I.D/O.D. (in): 4/4.5
Hammer Weight (lb.): 140
Hammer Fall (in.): 30
Other: Autohammer
Sampler Type: Split Spoon
I.D./O.D. (in.): 1-3/8"/2"
Sampler Hmr Wt (lb): 140 lbs
Sampler Hmr Fall (in): 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
4/30/24	1015	7.9	2	15m

Depth (ft)	Casing Blows/ Core Rate	Sample No.	Sample Depth (ft.)	Sample Pen. (in)	Sample Rec. (in)	Sample Blows (per 6 in.)	Sample SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Stratum Depth (ft.)	Stratum Description	Stratum Elev. (ft.)
5		S-1	0-2	24	10	8 8 6 5	14	S-1A: (Top 4") Brown, fine to coarse SAND, trace Gravel, trace Silt.	1		0.4'	ASPHALT	161.6'
		S-2	2-4	24	7	5 3 6 4	9	S-1B: (Middle 1") Dark brown, fine to coarse SAND and GRAVEL, trace Silt. S-1C: (Bottom 5") Brown, fine to medium SAND, trace (-) Silt, trace Gravel.	2			FILL	
		S-3	4-6	24	7	5 6 5 3	11	S-2: Loose, brown, fine to medium SAND, trace Gravel, trace Silt.			8'		154.0'
		S-4	6-7	24	9	6 5 5 5	10	S-3: Medium dense, brown, fine to medium SAND, trace Silt.	3			SAND	
10		S-5	8-10	24	9	6 10 10 10	20	S-4A: (Top 4") Brown-orange, fine SAND, some Silt. S-4B: (Bottom 5") Brown, fine to medium SAND, trace Silt.			10.3'		151.7'
		S-6	10-12	24	17	9 10 11 11	21	S-5: Medium dense, brown, fine to coarse SAND, trace Silt. S-6A: (Top 3") Brown, fine to coarse SAND, trace Silt, trace Gravel.				SILT	
15								S-6B: (Bottom 14") Light brown, SILT, some fine Sand.			14'		148.0'
		S-7	15-17	24	15	2 2 3 2	5	S-7: Medium stiff, light brown, Clayey SILT, trace fine to medium Sand.				CLAYEY SILT	
											18'		144.0'
20		S-8	20-22	24	16	3 4 6 6	10	S-8: Stiff, gray, SILT & CLAY, trace fine Sand. PP=0.75-1 tsf	4			SILT AND CLAY	
								Auger refusal at 22 feet.	5		22'		140.0'
25													
30													
35													

REMARKS

1. Ground surface elevation estimated using electronic files provided by Chappell Engineering Associates, LLC entitled "607420-SV(Basemap).DWG."
2. Casing refusal at 4 feet below ground surface (bgs). Drillers using roller bit to advance to next sample depth.
3. Wash at 8 feet bgs consisted of brown, fine to coarse SAND.
4. Pocket penetrometer (PP) readings taken at sample S-8 to provide an estimate of relative strength of cohesive soils.
5. Bottom of borehole at 22 feet bgs. Borehole backfilled with drill cuttings, grout, and patched with asphalt.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.: WB-107

175061.10 BODEN LN BRIDGE REPLACEMENT.GPJ, STRATUM ONLY WO SMPL WINE, 8/28/2024

BORING LOGS WB–107
SHEET 1 OF 1
SCALE: 3/16" = 1'–0"

Sept 5, 2026	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 10 OF 39 SHEETS BRIDGE NO. N–03–012 (CN4)

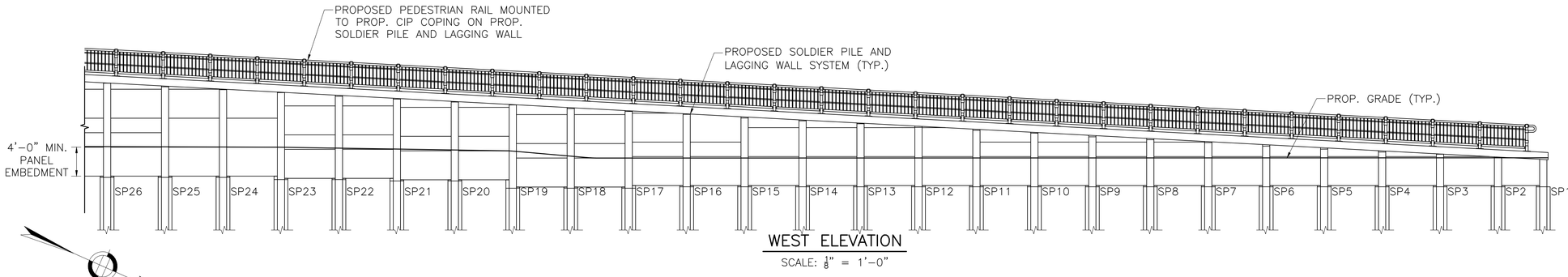
607420_BR3-10 (BORING LOGS).DWG Plotted on 15-Sep-2026 11:07 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

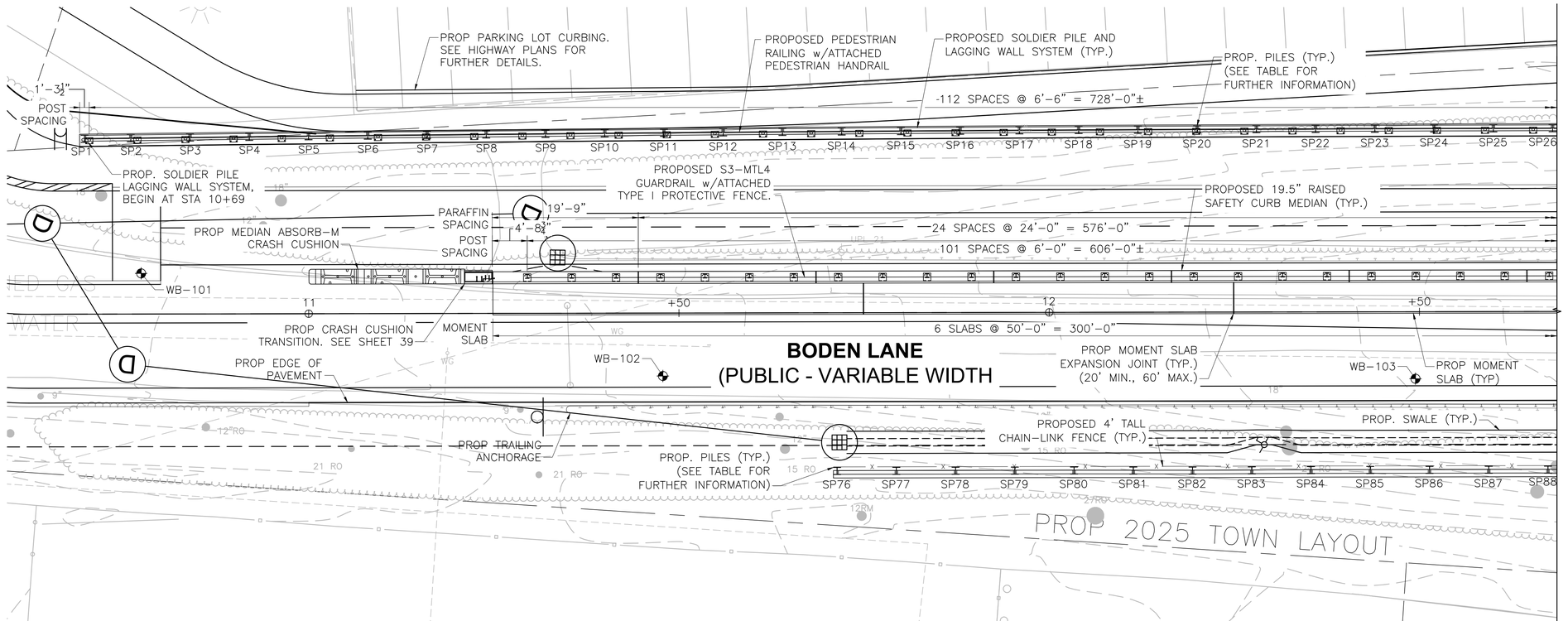
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	55	92
PROJECT FILE NO.	607420		

GENERAL PLAN & ELEVATIONS
SHEET 1 OF 4



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



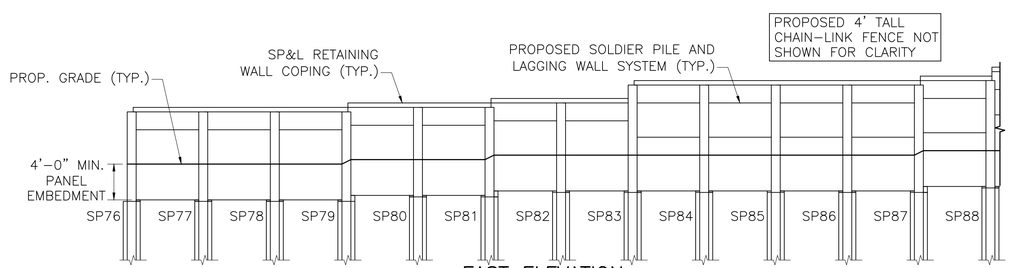
GENERAL PLAN
SCALE: $\frac{1}{8}$" = 1'-0"

PARAFFIN NOTES:

1. FOR PARAFFIN JOINT DETAILS SEE SHEET 32
2. RAIL POST AND PARAFFIN JOINT SPACING DIMENSIONS ARE MEASURED ALONG THE CENTERLINE OF BASE PLATES FROM FACE OF GUARD RAIL TRANSITION

SOLDIER PILE & LAGGING WALL NOTE:

SOLDIER PILES TO BE SPACED A MINIMUM OF 6' O.C WITH A MAX SPACING OF 14' O.C. SEE SHEET 25 FOR PILE LOCATIONS AND PILE HEIGHT ELEVATIONS. REMAINING SOLDIER PILE AND LAGGING WALL DETAILS CAN BE FOUND ON SHEETS 22-25. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE



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

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

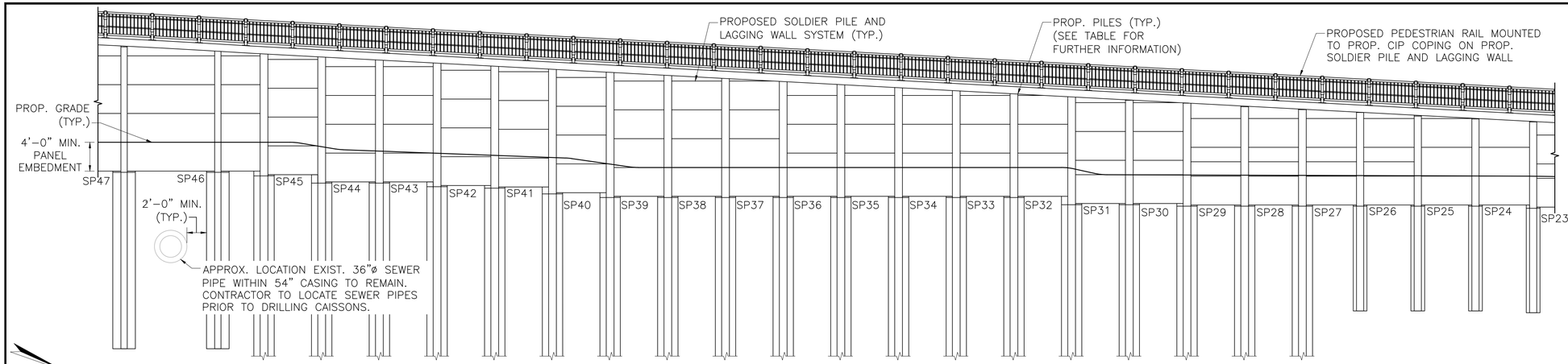
USE ONLY PRINTS OF LATEST DATE

607420_BR13-15 (EXTENDED PLAN VIEW).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

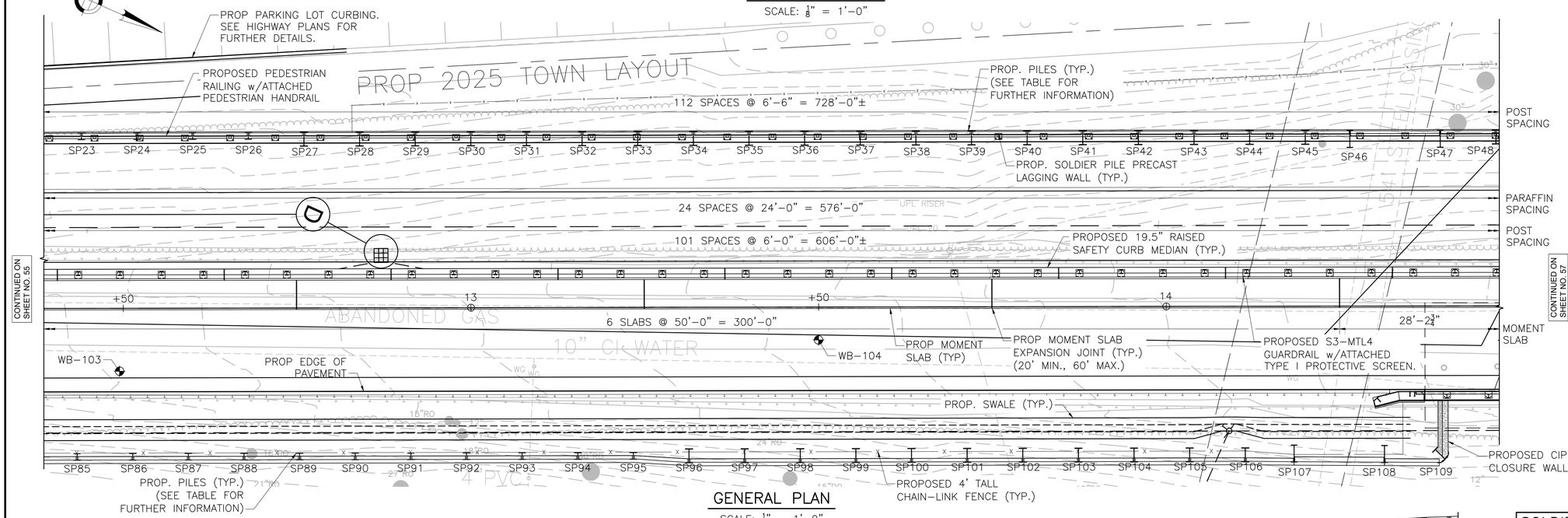
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	56	92
PROJECT FILE NO.	607420		

GENERAL PLAN & ELEVATIONS
SHEET 2 OF 4



WEST ELEVATION

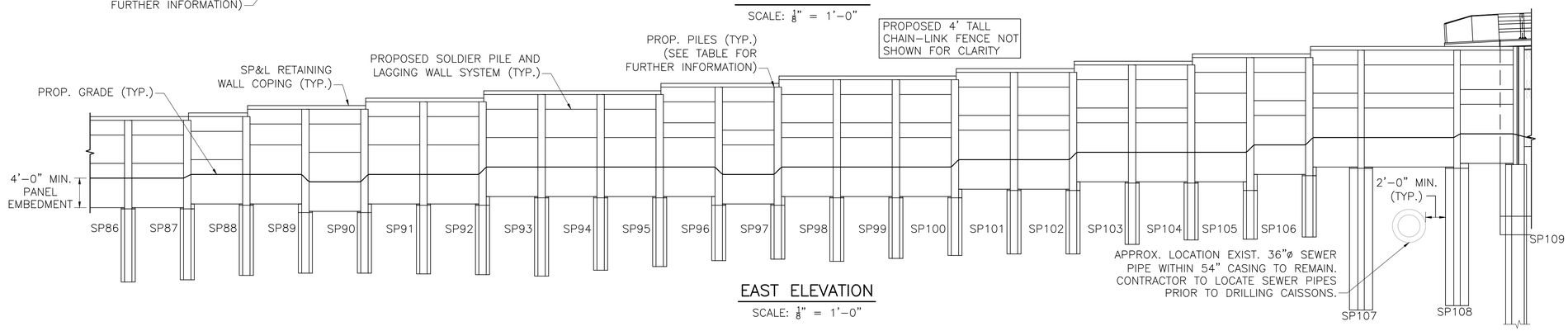
SCALE: $\frac{1}{8}$" = 1'–0"



GENERAL PLAN

SCALE: $\frac{1}{8}$" = 1'–0"

PROPOSED 4' TALL CHAIN–LINK FENCE NOT SHOWN FOR CLARITY



EAST ELEVATION

SCALE: $\frac{1}{8}$" = 1'–0"

PARAFFIN NOTES:

1. FOR PARAFFIN JOINT DETAILS SEE SHEET 32
2. RAIL POST AND PARAFFIN JOINT SPACING DIMENSIONS ARE MEASURED ALONG THE CENTERLINE OF BASE PLATES FROM FACE OF GUARD RAIL TRANSITION

SOLDIER PILE & LAGGING WALL NOTE:

SOLDIER PILES TO BE SPACED A MINIMUM OF 6' O.C WITH A MAX SPACING OF 14' O.C. SEE SHEET 25 FOR PILE LOCATIONS AND PILE HEIGHT ELEVATIONS. REMAINING SOLDIER PILE AND LAGGING WALL DETAILS CAN BE FOUND ON SHEETS 22–25. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

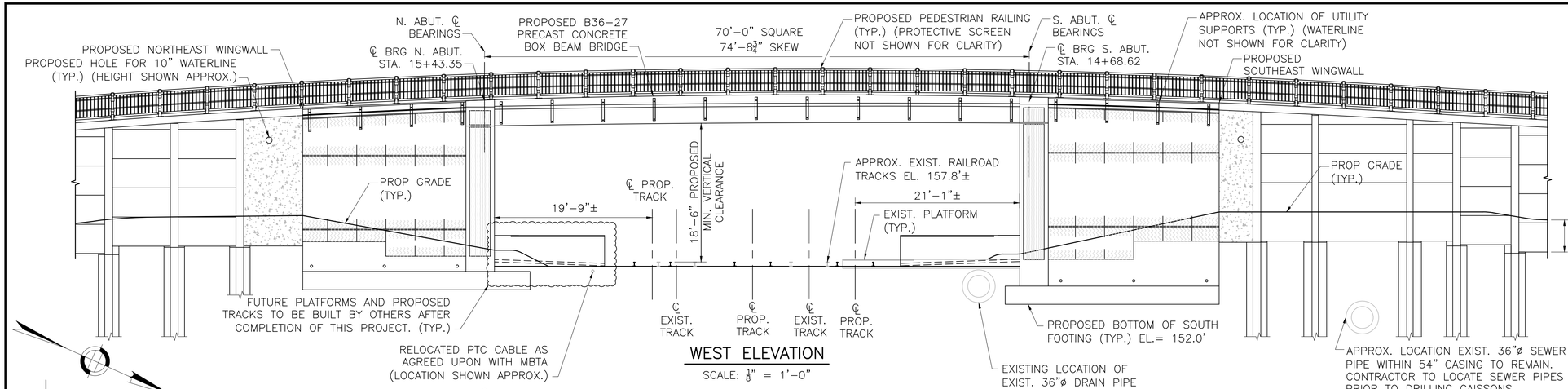
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR13-15 (EXTENDED PLAN VIEW).DWG Plotted on 15-Sep-2026 11:08 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

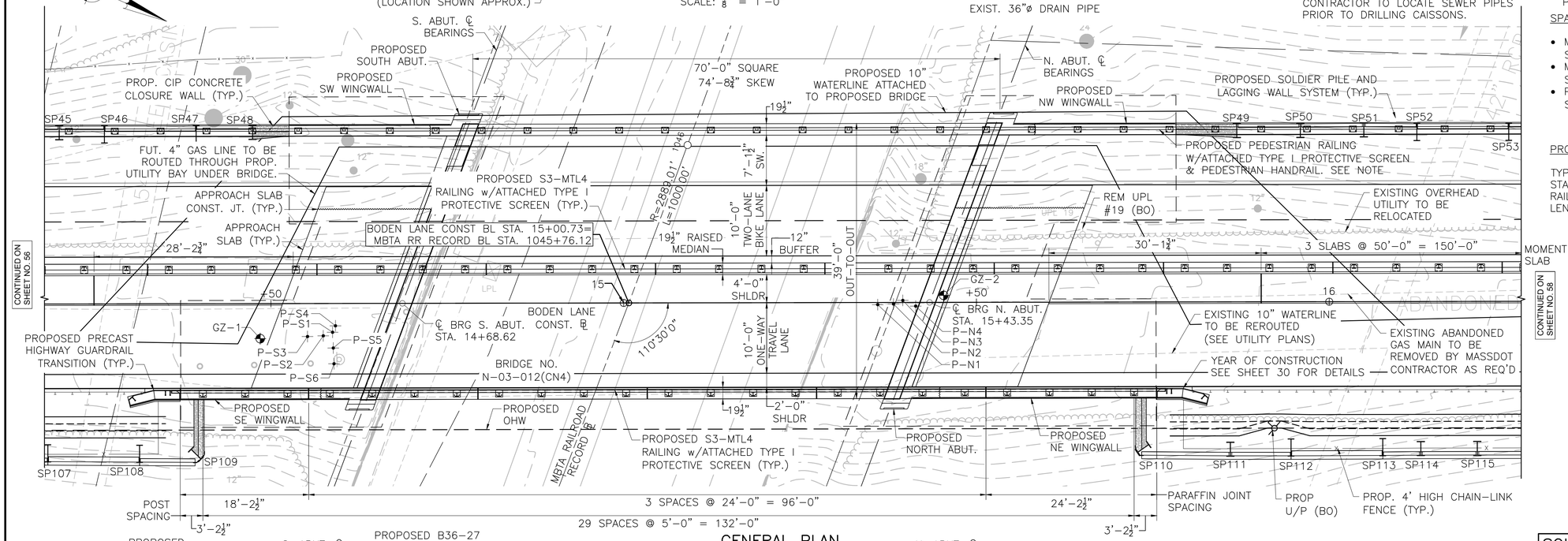
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	57	92
PROJECT FILE NO.	607420		

GENERAL PLAN & ELEVATIONS
SHEET 3 OF 4



WEST ELEVATION
SCALE: ⅛" = 1'-0"



GENERAL PLAN
SCALE: ⅛" = 1'-0"

PARAFFIN NOTES:

1. FOR PARAFFIN JOINT DETAILS SEE SHEET 32
2. RAIL POST AND PARAFFIN JOINT SPACING DIMENSIONS ARE MEASURED ALONG THE CENTERLINE OF BASE PLATES FROM FACE OF GUARD RAIL TRANSITION

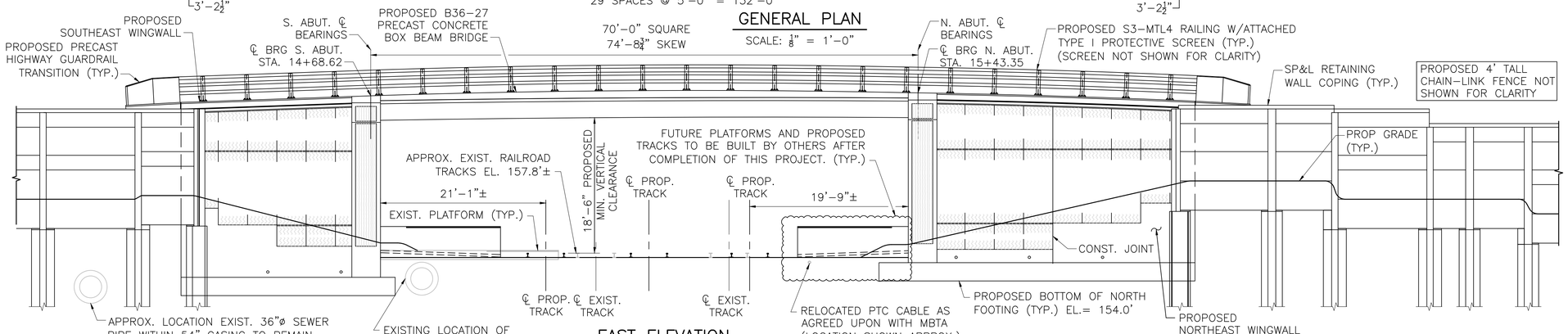
SPACING NOTE:

- MEDIAN PARAFFIN SPACING TO CONTINUE AT A SPACING OF 24 SPACES @ 24'-0" = 576'-0".
- MEDIAN POST SPACING TO CONTINUE AT A SPACING OF 101 SPACES @ 6'-0" = 606'-0"
- PEDESTRIAN RAIL POST SPACING TO CONTINUE AT A SPACING OF 112 SPACES @ 6'-6" = 728'-0"

(DIMENSION NOT SHOWN FOR CLARITY)

PROTECTIVE SCREEN NOTE:

TYPE 1 PROTECTIVE SCREEN TO RUN FROM STA.14+73.40 TO STA.15+51.40 FOR THE PEDESTRIAN RAILING. TYPE 1 PROTECTIVE SCREEN TO RUN FULL LENGTH OF RAILING FOR BOTH S3-MTL4 RAILINGS



EAST ELEVATION
SCALE: ⅛" = 1'-0"

SOLDIER PILE & LAGGING WALL NOTE:

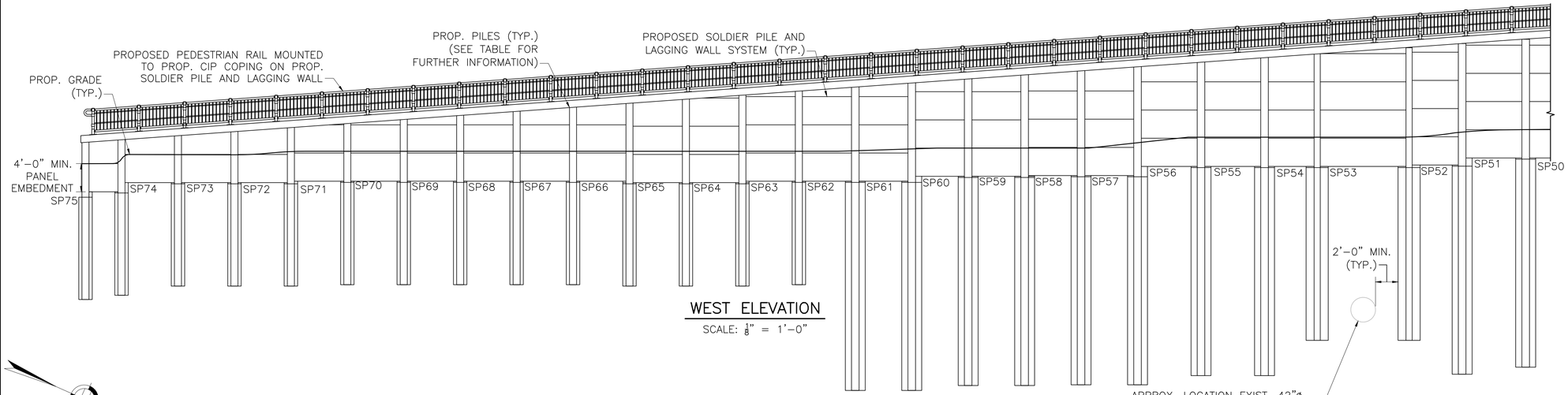
SOLDIER PILES TO BE SPACED A MINIMUM OF 6' O.C WITH A MAX SPACING OF 14' O.C. SEE SHEET 25 FOR PILE LOCATIONS AND PILE HEIGHT ELEVATIONS. REMAINING SOLDIER PILE AND LAGGING WALL DETAILS CAN BE FOUND ON SHEETS 22-25. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

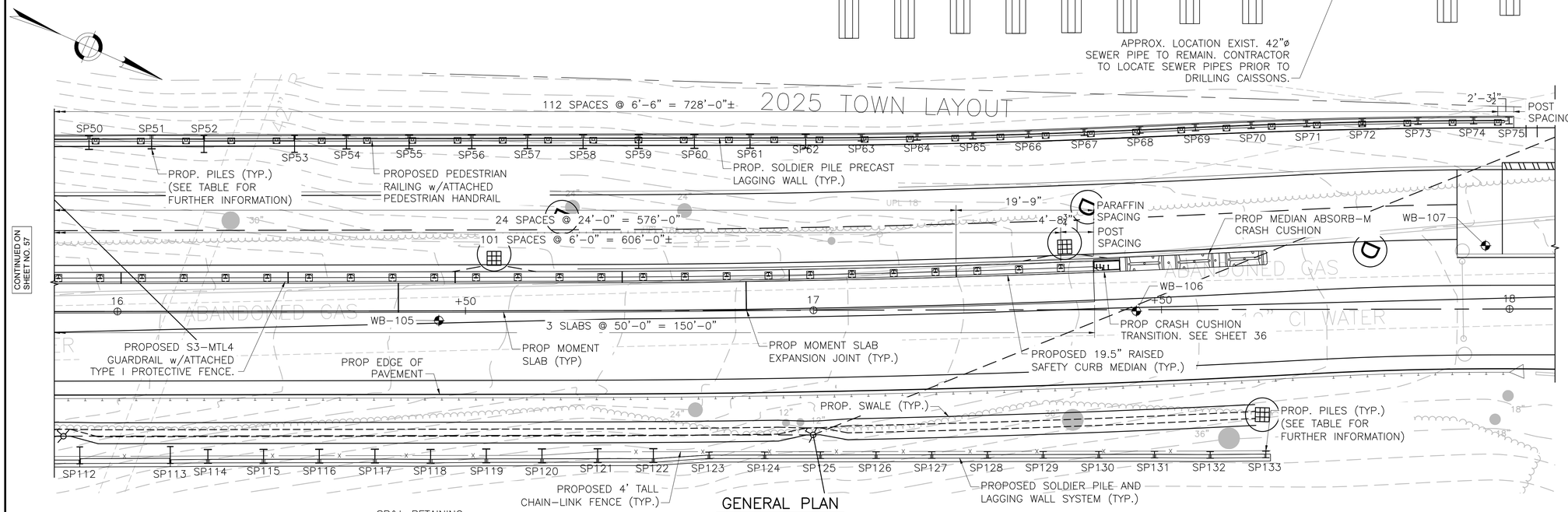
USE ONLY PRINTS OF LATEST DATE

607420_BR13-15 (EXTENDED PLAN VIEW).DWG Plotted on 15-Sep-2026 11:08 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



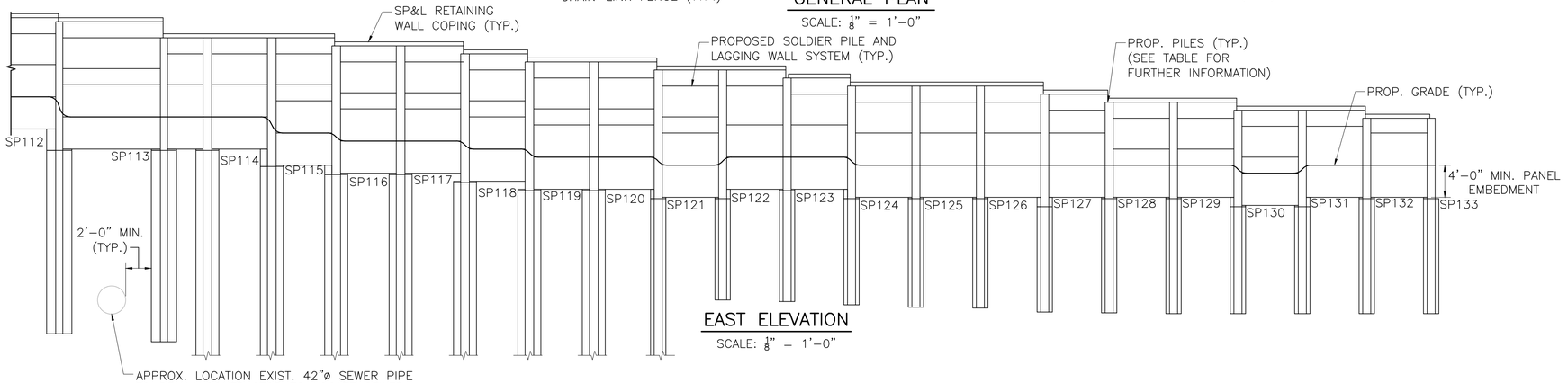
WEST ELEVATION

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



GENERAL PLAN

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



EAST ELEVATION

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

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	58	92
PROJECT FILE NO.	607420		

GENERAL PLAN & ELEVATIONS
SHEET 4 OF 4

PARAFFIN NOTES:

1. FOR PARAFFIN JOINT DETAILS SEE SHEET 32
2. RAIL POST AND PARAFFIN JOINT SPACING DIMENSIONS ARE MEASURED ALONG THE CENTERLINE OF BASE PLATES FROM FACE OF GUARD RAIL TRANSITION

SOLDIER PILE & LAGGING WALL NOTE:

SOLDIER PILES TO BE SPACED A MINIMUM OF 6' O.C WITH A MAX SPACING OF 14' O.C. SEE SHEET 25 FOR PILE LOCATIONS AND PILE HEIGHT ELEVATIONS. REMAINING SOLDIER PILE AND LAGGING WALL DETAILS CAN BE FOUND ON SHEETS 22-25. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

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

607420_BR13-15 (EXTENDED PLAN VIEW).DWG Plotted on 15-Sep-2026 11:08 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

STAGED CONSTRUCTION NOTE:

STAGE CONSTRUCTION PLANS CAN BE FOUND ON THE TEMPORARY TRAFFIC CONTROL PLANS WITHIN THE HIGHWAY PLANS. SEE SHEETS 21–29 FOR FURTHER DETAILS.

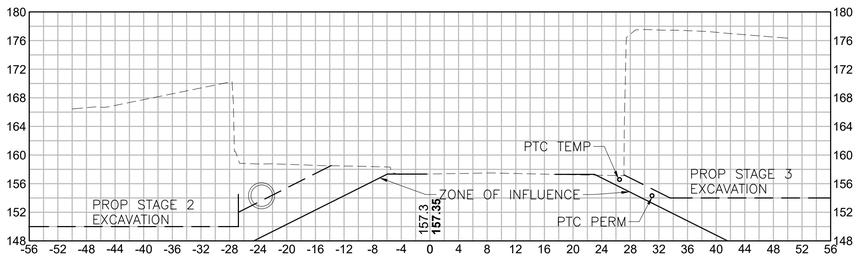
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	59	92
PROJECT FILE NO.	607420		

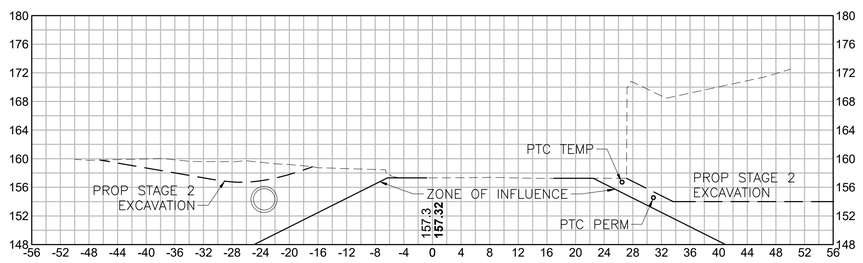
PROPOSED CONSTRUCTION STAGING AT MBTA FACILITIES

EXISTING GROUND
PROP SOE STAGE 2
PROP SOE STAGE 3
R&R STORAGE CONTAINER (BO)
PROP GRADING FOR STAGE 3 ABUTMENT AND WINGWALL CONSTRUCTION. SEE NOTE 4.
EXISTING 36" RCP
PROP TYPE III BARRICADE TO CLOSE PLATFORM
EXISTING 36" RCP
PROP TEMP CHAIN LINK FENCE TO CLOSE OFF WORK AREA
PROP GRADING FOR STAGE 3 ABUTMENT AND WINGWALL CONSTRUCTION. SEE NOTE 4.
R&R CONTAINER (3) (BO)
MBTA RAILROAD RECORD ℄
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY BK. 12815 PG. 372
PROP GRADING FOR STAGE 3 ABUTMENT AND WINGWALL CONSTRUCTION. SEE NOTE 4.
PROP UNDERGROUND RISER CONNECTION TO EXISTING POLE. PTC CABLE CONNECTION (BO). SEE NOTE 1.
PROP TEMP PTC RELOCATION, 6" COVER WITH INSULATION
PTC POLE
PROP 4" RIGID METALLIC CONDUIT TO BE INSTALLED FOR PTC CABLE RELOCATION, TEMP AND PERM. R&R OVERHEAD PTC CABLE INTO CONDUIT (BO)
PROP PERM PTC RELOCATION, 36" MIN COVER
PROP SOE STAGE 3
PROP TEMP PTC RELOCATION, 6" COVER WITH INSULATION
PROP TYPE III BARRICADE TO CLOSE PLATFORM
PROP PERM PTC RELOCATION, 36" MIN COVER
PROP GRADING FOR STAGE 2 ABUTMENT AND WINGWALL CONSTRUCTION. SEE NOTE 4.
PTC POLE
PROP UNDERGROUND RISER CONNECTION TO EXISTING POLE. PTC CABLE CONNECTION (BO). SEE NOTE 1.
PROP 4" RIGID METALLIC CONDUIT TO BE INSTALLED FOR PTC CABLE RELOCATION, TEMP AND PERM. R&R OVERHEAD PTC CABLE INTO CONDUIT (BO)

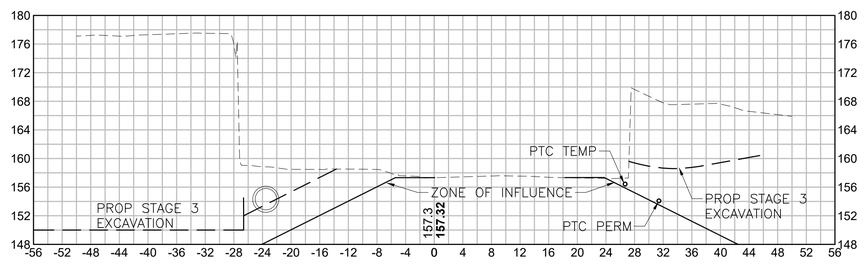
0 10 20 30 40
SCALE: 1" = 10'



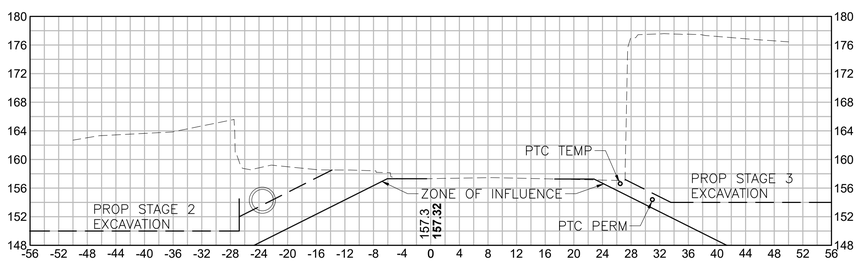
1045+84



1046+07

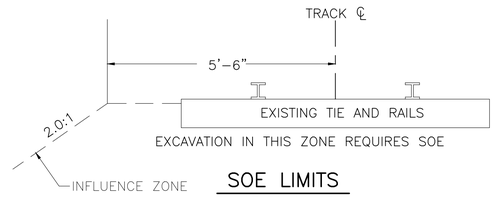


1045+60



1045+91

NOTES:
1. PTC CONDUITS TO BE INSTALLED ABOVE THE SOE LIMIT.
2. AT THE CONCLUSION OF CONSTRUCTION THE CONTRACTOR SHALL RESTORE THE PLATFORM AND OTHER FACILITIES TO PRE CONSTRUCTION CONDITIONS.
3. BALLAST AND SUBBALLAST NOT SHOWN FOR CLARITY
4. SOLID CONTOUR LINES REPRESENT TEMPORARY GRADING FOR STAGE 2 CONSTRUCTION AND DASHED CONTOUR LINES REPRESENT TEMPORARY GRADING FOR STAGE 3 CONSTRUCTION.

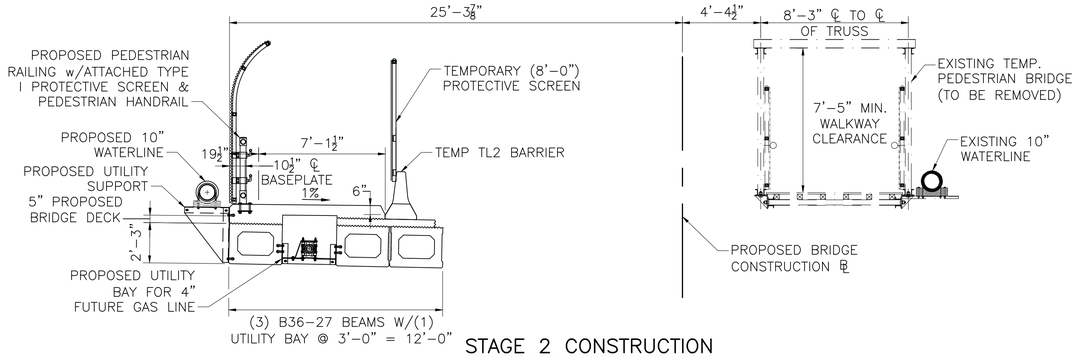


SOE LIMITS
NOT TO SCALE

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

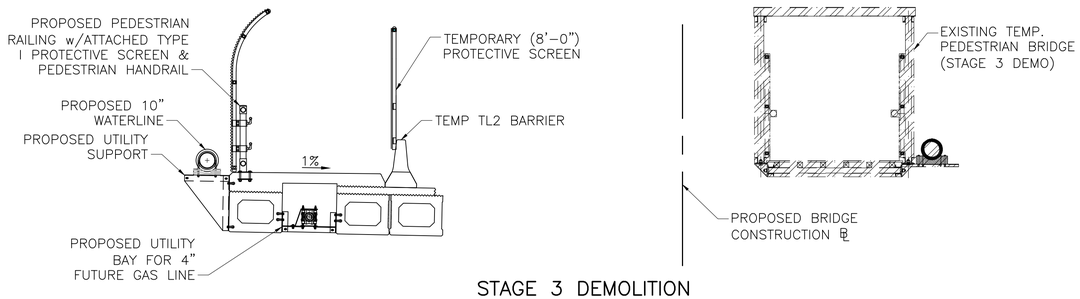
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR16(MBTA WORK PLAN).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



STAGE 2 CONSTRUCTION

SCALE: ¼" = 1'-0"



STAGE 3 DEMOLITION

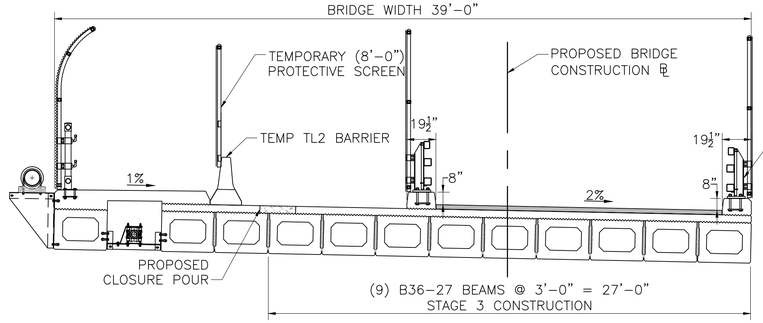
SCALE: ¼" = 1'-0"

STAGED CONSTRUCTION NOTE:

STAGE CONSTRUCTION PLANS CAN BE FOUND ON THE TEMPORARY TRAFFIC CONTROL PLANS WITHIN THE HIGHWAY PLANS. SEE SHEET 21-29 FOR FURTHER DETAILS.

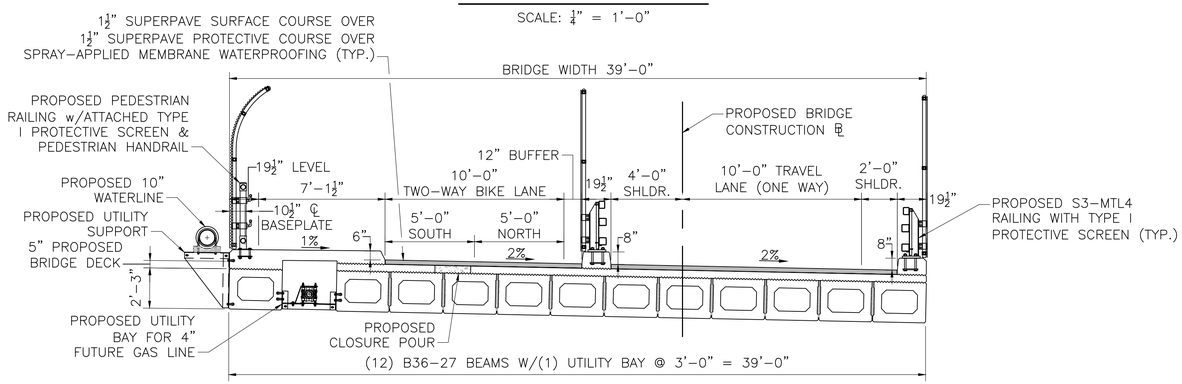
CONTRACTOR NOTE:

CONTRACTOR SHALL SUBMIT FOR APPROVAL A DEMOLITION PLAN IN ACCORDANCE WITH THE PROJECT SPECIAL PROVISIONS. EXISTING TEMPORARY PEDESTRIAN BRIDGE AND ALL OF ITS COMPONENTS SHALL BE RETURNED TO MASSDOT. THIS SHALL BE DONE BE CAREFULLY REMOVING, DISSEMBLING THE BRIDGE IN A CAREFUL MANNER AS NECESSARY FOR REUSE. WHEN REMOVED THE BRIDGE SHALL BE RETURNED TO MASSDOT MAINTENANCE FACILITY. WORK SHALL BE INCLUDED AND CONSIDERED INCIDENTAL TO ITEM 114.1, NO ADDITIONAL COMPENSATION WILL BE PROVIDED. SEE SPECIAL PROVISION ITEM 114.1 FOR ADDITIONAL REQUIREMENTS NOT OUTLINED HERE.



STAGE 3 CONSTRUCTION

SCALE: ¼" = 1'-0"



PROPOSED CROSS SECTION

SCALE: ¼" = 1'-0"

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	60	92
PROJECT FILE NO.	607420		

STAGING

STAGE 1 CONSTRUCTION NOTES:

1. PERFORM TEST PITS FOR STAGE 1 SOLDIER PILE & LAGGING WALL CROSSINGS AT MWRA SEWER PIPES
2. CONSTRUCT SOLDIER PILE WALL ON EAST SIDE OF BODEN LANE.
3. UTILITIES COMPLETE RELOCATION OF OVERHEAD WIRES.
4. DRILL TEST SOLDIER PILES FOR STAGE 3 SOUTH AND NORTH OF THE BRIDGE AS SHOWN.

STAGE 2 CONSTRUCTION NOTES:

1. PERFORM TEST PITS FOR STAGE 3 SOLDIER PILE & LAGGING WALL
2. CONSTRUCT SOLDIER PILE WALL ON WEST SIDE OF BODEN LANE.
3. RELOCATE PTC CABLE THAT IS ATTACHED TO THE EXISTING NORTH ABUTMENT PRIOR TO ANY DEMOLITION.
4. DEMOLISH WEST PORTION OF BOTH EXISTING ABUTMENTS. INSTALL TEMPORARY SUPPORT OF EXCAVATION. EXCAVATE AND CONSTRUCT WEST PORTION OF BOTH PROPOSED ABUTMENTS, U-WINGWALLS AND CIP RETAINING WALLS.
5. INSTALL FOUR (3) B36-27 PRECAST CONCRETE BOX BEAMS W/ONE (1) UTILITY BAY.
6. INSTALL STAGE 2 POST-TENSIONING STRANDS IN POST-TENSIONING DUCTS.
7. STRESS POST-TENSION STRANDS. SEE SHEET 24. MORTAR JOINTS BETWEEN BEAMS AND FILL POST-TENSIONING DUCTS.
8. INSTALL UTILITY SUPPORTS
9. INSTALL GAS AND WATER CONDUITS ON BRIDGE.
10. CAST-IN-PLACE DECK.
11. CAST-IN-PLACE SIDEWALK SLAB INCLUDING PEDESTRIAN RAIL INSERTS.
12. INSTALL PEDESTRIAN RAIL WITH PROTECTIVE SCREEN TYPE I AND PEDESTRIAN HANDRAIL.
13. INSTALL TEMPORARY BARRIER. THE DEPTH OF PENETRATION OF ANCHOR BOLTS INTO THE BEAM SHALL NOT EXCEED 2 INCHES. ENSURE THAT ANY ANCHOR BOLTS ARE LOCATED A MINIMUM OF 3 INCHES AWAY FROM PRESTRESSING STRANDS.
14. RELOCATE PEDESTRIAN TRAFFIC TO THE SIDEWALK.

STAGE 3 CONSTRUCTION NOTES:

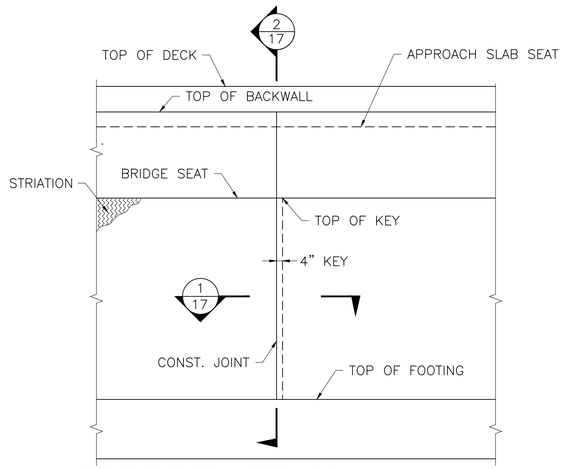
1. CONNECT AND ACTIVATE NEWLY CONSTRUCTED WATER LINE. REMOVE EXISTING WATER FROM SERVICE
2. UPON APPROVAL OF THE DEMOLITION PLAN (PER SPECIAL PROVISIONS 114.1 AND 127.1), EXCAVATE AND DEMOLISH EXISTING SUBSTRUCTURE AND SUPERSTRUCTURE
3. CONSTRUCT THE REMAINING PORTIONS OF THE ABUTMENTS AND U-WINGWALLS.
4. INSTALL EIGHT (9) B36-27 PRECAST CONCRETE BOX BEAMS
5. INSTALL POST-TENSIONING STRANDS IN POST-TENSIONING DUCTS.
6. STRESS POST-TENSION STRANDS ACCORDING TO SHEET 25. MORTAR JOINTS BETWEEN BEAMS AND FILL POST TENSIONING DUCTS.
7. CAST-IN-PLACE DECK.
8. CAST-IN-PLACE SAFETY CURBS INCLUDING S3-MTL4 BRIDGE RAIL INSERTS.
9. INSTALL S3-MTL4 RAILS WITH PROTECTIVE SCREEN TYPE I. CONSTRUCT CLOSURE POURS.
10. INSTALL PAVEMENT.

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

607420_BR17 (STAGING).DWG Plotted on 15-Sep-2026 11:08 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

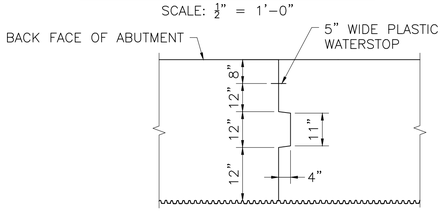
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	61	92
PROJECT FILE NO.	607420		

SOUTH ABUTMENT PLAN AND ELEVATION



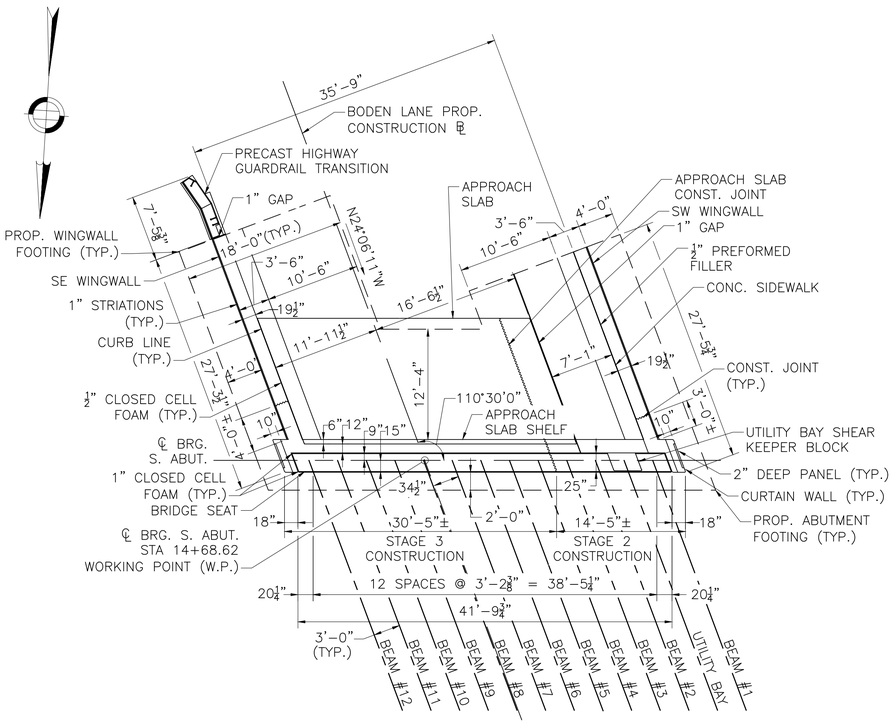
CONSTRUCTION JOINT DETAIL

SCALE: $\frac{1}{2}$" = 1'–0"



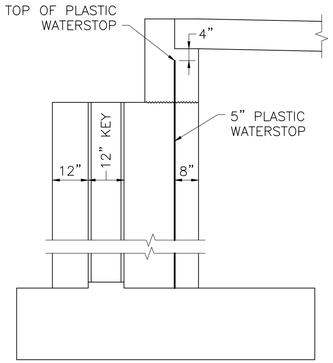
SECTION 1/17

SCALE: $\frac{1}{2}$" = 1'–0"



PROPOSED SOUTH ABUTMENT PLAN

SCALE: $\frac{1}{8}$" = 1'–0"

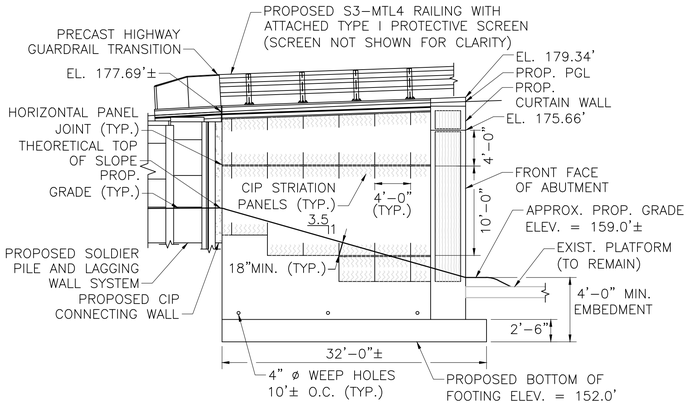


NOTE:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

SECTION 2/17

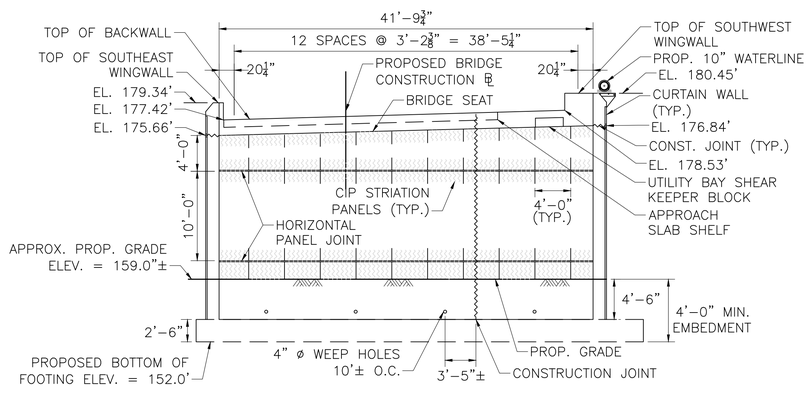
SCALE: $\frac{1}{2}$" = 1'–0"

BEAM SEAT ELEVATIONS AT ℄ OF BRG. S. ABUTMENT		
BEAM	ELEVATION AT WEST BEARING	ELEVATION AT EAST BEARING
1	176.84	176.80
2	176.67	176.62
3	176.58	176.53
4	176.49	176.44
5	176.40	176.35
6	176.31	176.26
7	176.22	176.17
8	176.12	176.08
9	176.03	175.98
10	175.93	175.89
11	175.84	175.79
12	175.74	175.69



PROPOSED SOUTHEAST WINGWALL ELEVATION

SCALE: $\frac{1}{8}$" = 1'–0"

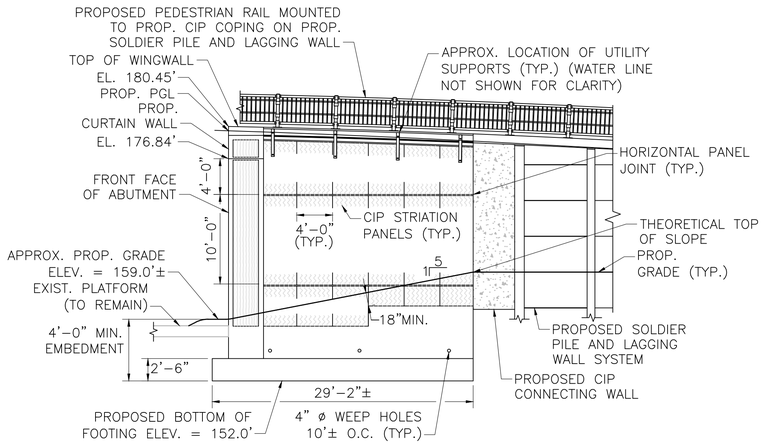


NOTE:

1. THE NOMINAL SIZE OF A TYPICAL STRIATION FORM LINER PANEL IS 4'–0" W X 10'–0" H.
2. HORIZONTAL PANEL JOINTS SHALL BE LEVEL.

PROPOSED SOUTH ABUTMENT SECTION

SCALE: $\frac{1}{8}$" = 1'–0"



PROPOSED SOUTHWEST WINGWALL ELEVATION

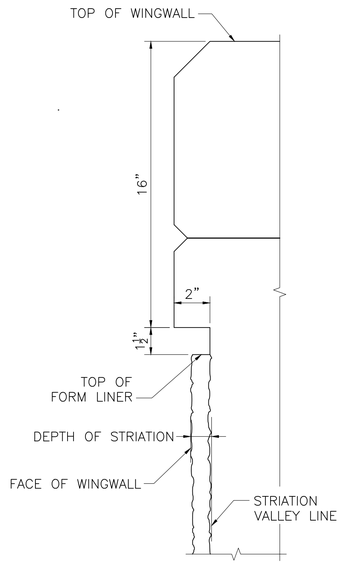
SCALE: $\frac{1}{8}$" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

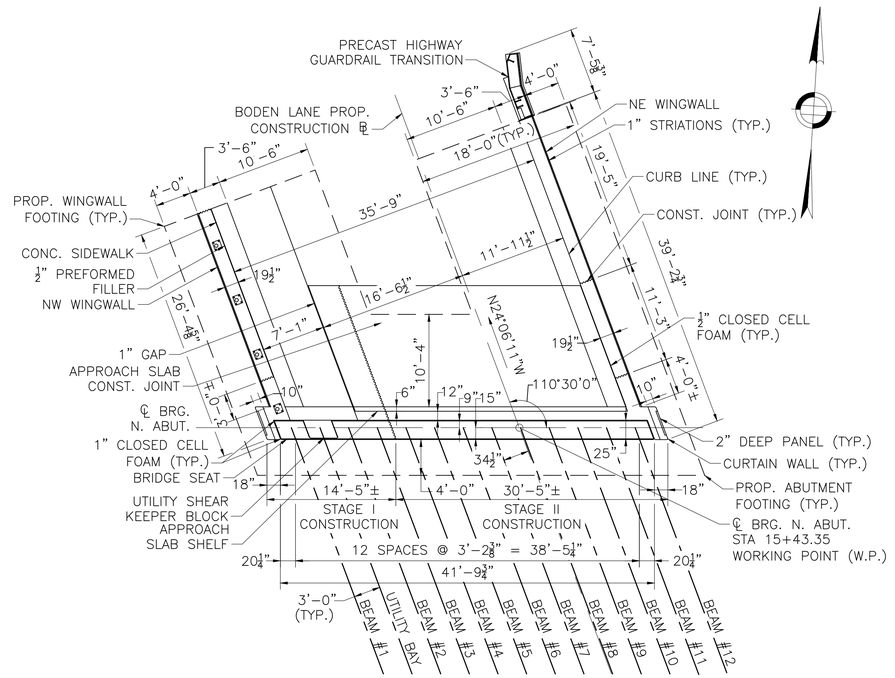
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

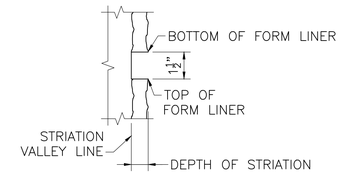
607420_BR18 (SOUTH ABUTMENT).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



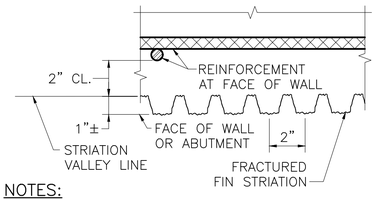
DETAIL AT TOP OF WINGWALL
SCALE: 3"=1'-0"



PROPOSED NORTH ABUTMENT PLAN
SCALE: ⅛" = 1'-0"



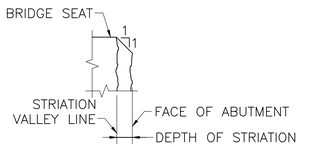
HORIZONTAL PANEL JOINT
SCALE: 3"=1'-0"



NOTES:

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

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



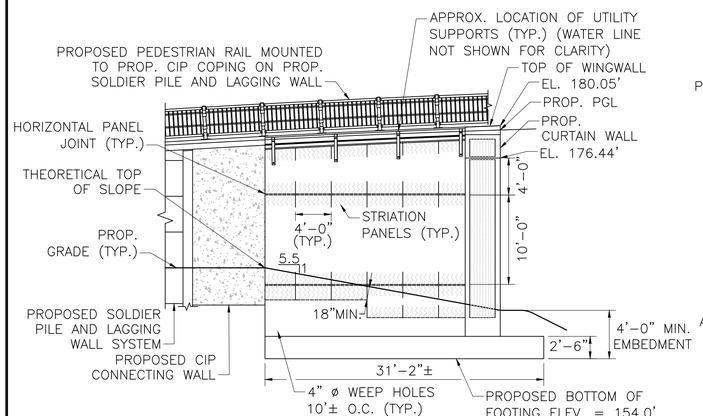
DETAIL AT BRIDGE SEAT
SCALE: 3"=1'-0"

NATICK
BODEN LANE OVER THE MBTA RAILROAD

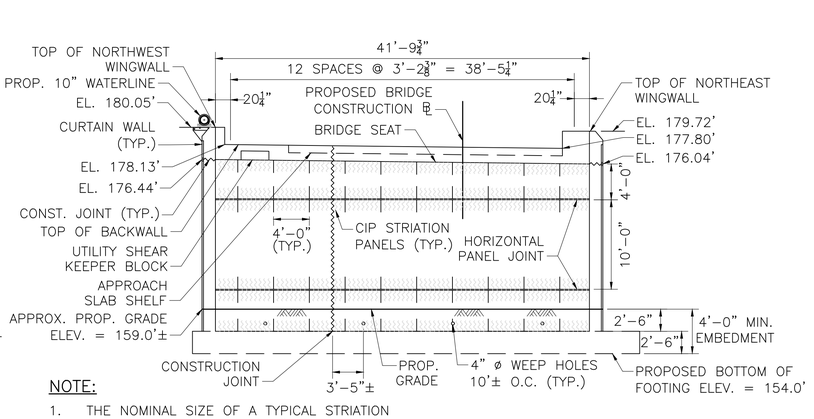
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	62	92
PROJECT FILE NO. 607420			

NORTH ABUTMENT PLAN AND ELEVATION

BEAM SEAT ELEVATIONS AT ℄ OF BRG. N. ABUTMENT		
BEAM	ELEVATION AT WEST BEARING	ELEVATION AT EAST BEARING
1	176.44	176.42
2	176.39	176.38
3	176.37	176.35
4	176.34	176.33
5	176.31	176.30
6	176.29	176.27
7	176.26	176.24
8	176.23	176.21
9	176.20	176.18
10	176.17	176.15
11	176.13	176.12
12	176.10	176.08



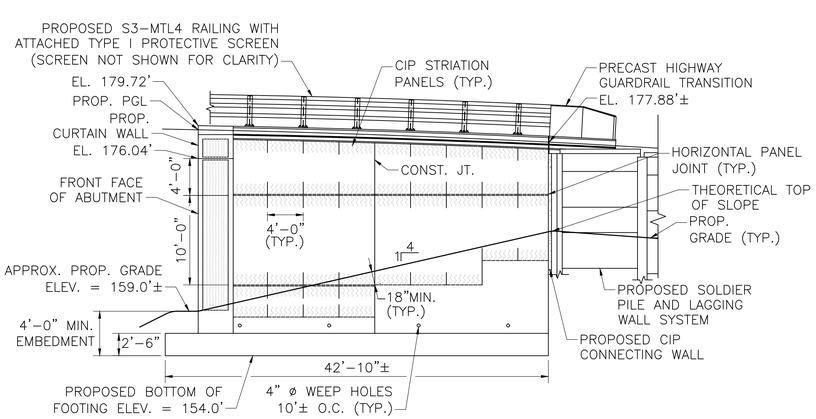
PROPOSED NORTHWEST WINGWALL ELEVATION
SCALE: ⅛" = 1'-0"



NOTE:

1. THE NOMINAL SIZE OF A TYPICAL STRIATION FORM LINER PANEL IS 4'-0" W X 10'-0" H.
2. HORIZONTAL PANEL JOINTS SHALL BE LEVEL.

PROPOSED NORTH ABUTMENT SECTION
SCALE: ⅛" = 1'-0"

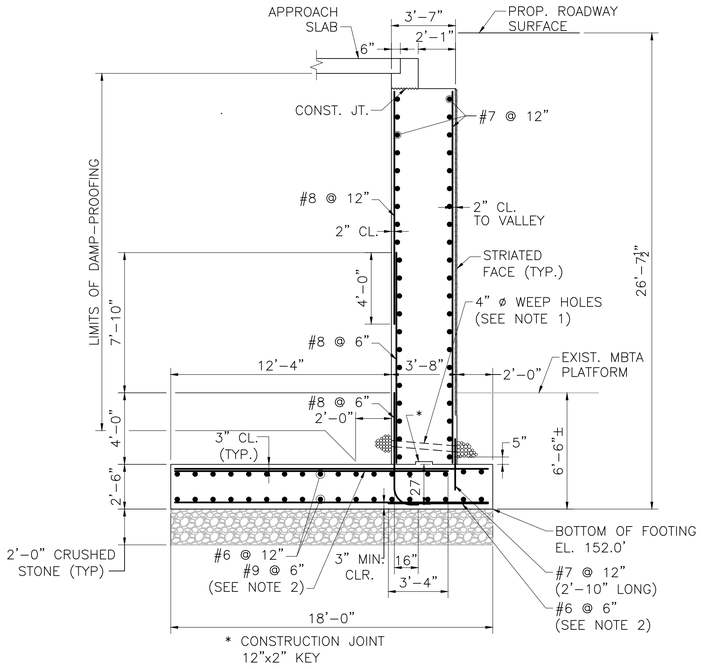


PROPOSED NORTHEAST WINGWALL ELEVATION
SCALE: ⅛" = 1'-0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

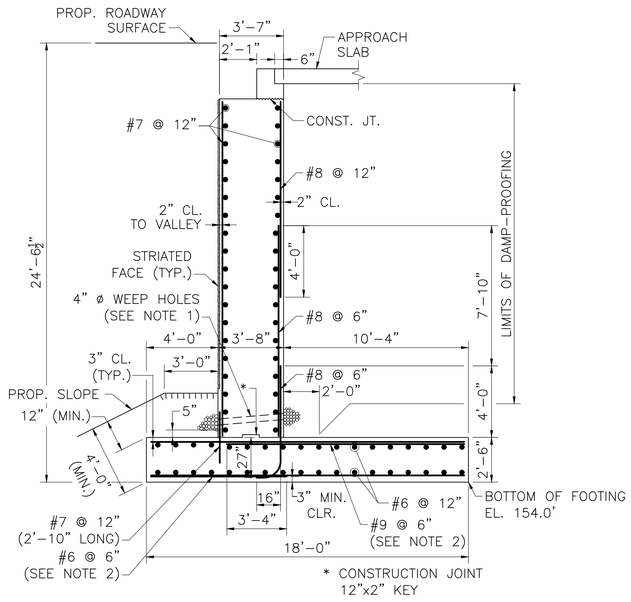
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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607420_BR19 (NORTH ABUTMENT).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



SOUTH ABUTMENT SECTION

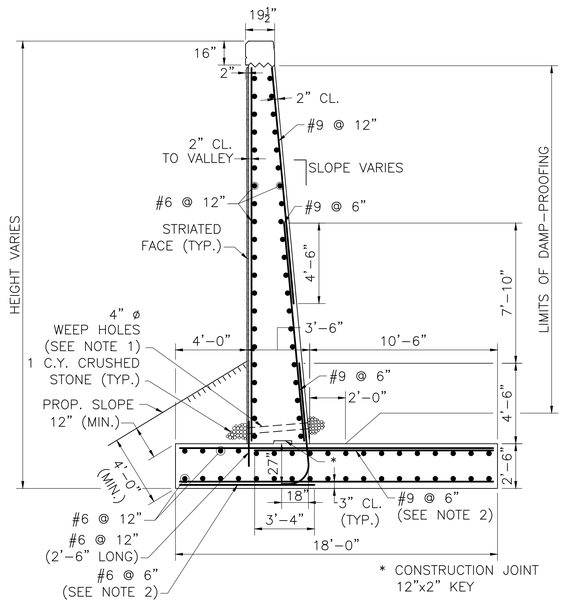
SCALE: ¼" = 1'-0"



NORTH ABUTMENT SECTION

SCALE: ¼" = 1'-0"

ALL SECTION COMPONENTS SHOWN ON THIS SHEET TO BE CAST IN PLACE



TYPICAL WINGWALL SECTION

SCALE: ¼" = 1'-0"

WINGWALL NOTES:

1. 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.
2. EXTEND EVERY OTHER BAR FULL LENGTH AS SHOWN.
3. FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
   - STRENGTH I LIMIT STATE
     FACTORED BEARING PRESSURE (NORTH WINGWALLS) = 2.73 KSF.
     FACTORED BEARING PRESSURE (SOUTH WINGWALLS) = 3.17 KSF.
4. FACTORED BEARING RESISTANCE (NORTH WINGWALLS) = 10.0 KSF FOR THE STRENGTH LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 18.1 KSF AND A RESISTANCE FACTOR OF 0.55.
   FACTORED BEARING RESISTANCE (SOUTH WINGWALLS) = 8.5 KSF FOR THE STRENGTH LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 15.5 KSF AND A RESISTANCE FACTOR OF 0.55.
5. LIGHTWEIGHT FILL SHALL BE USED BEHIND THE ABUTMENTS AND WINGWALLS. GEOTEXTILE FABRIC FOR SEPARATION IS TO BE PLACED WHEREVER LIGHTWEIGHT FILL COMES IN CONTACT WITH OTHER SOIL, FILL OR LOAM. CONCRETE CAN BE PLACED DIRECTLY ON THE LIGHTWEIGHT FILL.

ABUTMENT NOTES:

1. 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.
2. EXTEND EVERY OTHER BAR FULL LENGTH AS SHOWN.
3. FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
   - STRENGTH I LIMIT STATE
     FACTORED BEARING PRESSURE (NORTH ABUTMENT) = 4.93 KSF.
     FACTORED BEARING PRESSURE (SOUTH ABUTMENT) = 6.90 KSF.
4. FACTORED BEARING RESISTANCE (NORTH ABUTMENT) = 9.0 KSF FOR THE STRENGTH LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 20.0 KSF AND A RESISTANCE FACTOR OF 0.45.
   FACTORED BEARING RESISTANCE (SOUTH ABUTMENT) = 8.1 KSF FOR THE STRENGTH LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 18.0 KSF AND A RESISTANCE FACTOR OF 0.45.
5. FOLLOWING EXCAVATION DOWN TO THE PROPOSED BEARING SUBGRADE, REMOVE ANY DISTURBED SOILS LOCATED WITHIN THE BEARING ZONE OF NEW FOUNDATIONS. THE BEARING INFLUENCE ZONE IS DEFINED BY A 1H:1V LINE SLOPING DOWN FROM ONE FOOT BEYOND THE EXTERIOR BOTTOM EDGE OF THE REINFORCED SOIL MASS. THE SUBGRADE AT THE PROPOSED BOTTOM OF FOOTING ELEVATION IS ANTICIPATED TO CONSIST OF NATURAL GRANULAR SOILS. IF THE CLAYEY SILT IS PRESENT AT FOUNDATION BEARING ELEVATION, SUCH AS AT THE SOUTH ABUTMENT, IT SHOULD BE REMOVED TO AT LEAST 2 FEET BELOW BOTTOM OF FOUNDATION AND REPLACED WITH DENSE GRADED CRUSHED STONE (M2.01.7) OR SIMILAR MATERIAL. PRIOR TO COMMENCEMENT OF FOUNDATION CONSTRUCTION IN RELATIVELY DRY AREAS, PROOF-COMPACT EXPOSED GRANULAR SUBGRADES WITH A MINIMUM OF 6 PASSES OF A WALK-BEHIND VIBRATORY PLATE OR DRUM COMPACTOR. WHERE SUBGRADES ARE AT OR NEAR THE GROUNDWATER LEVEL, STATIC PROOF-COMPACTION METHODS SHOULD BE USED IN LIEU OF VIBRATORY METHODS AND AT THE ACCEPTANCE OF THE GEOTECHNICAL ENGINEER. LOOSE OR SOFT ZONES OBSERVED DURING PROOF-COMPACTION SHOULD BE OVER EXCAVATED TO FIRM AND STABLE GROUND AND REPLACED WITH COMPACTED GRAVEL BORROW OR CRUSHED STONE WRAPPED ALL AROUND IN CLASS 3 NON-WOVEN GEOTEXTILE FABRIC FOR SEPARATION. IT SHOULD BE NOTED THAT THE NATURAL SOIL SUBGRADES ARE ANTICIPATED TO CONTAIN UP TO ABOUT 20 PERCENT SILT AND MAY BE SUSCEPTIBLE TO DISTURBANCE WHEN WET. EXPOSED FOOTING SUBGRADES SHOULD BE PROTECTED FROM DISTURBANCE. FILL SHOULD NOT BE PLACED OVER FROZEN SOIL. SOIL SUBGRADES SHOULD BE PROTECTED AGAINST FROST BOTH DURING AND AFTER CONSTRUCTION. A QUALIFIED GEOTECHNICAL ENGINEER WILL EVALUATE FOUNDATION SUBGRADES AND OBSERVE FILL PLACEMENT AT THE DIRECTION OF THE ENGINEER. RECOMMEND THAT A QUALIFIED GEOTECHNICAL ENGINEER EVALUATE FOUNDATION SUBGRADES AND OBSERVE FILL PLACEMENT.
6. LIGHTWEIGHT FILL SHALL BE USE BEHIND THE ABUTMENTS. GEOTEXTILE FABRIC FOR SEPARATION IS TO BE PLACED WHEREVER LIGHTWEIGHT FILL COMES IN CONTACT WITH OTHER SOIL, FILL OR LOAM. CONCRETE MAY BE PLACED DIRECTLY ON THE LIGHTWEIGHT FILL.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	63	92
PROJECT FILE NO.	607420		

ABUTMENT, WINGWALL, AND RETAINING WALL SECTIONS

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

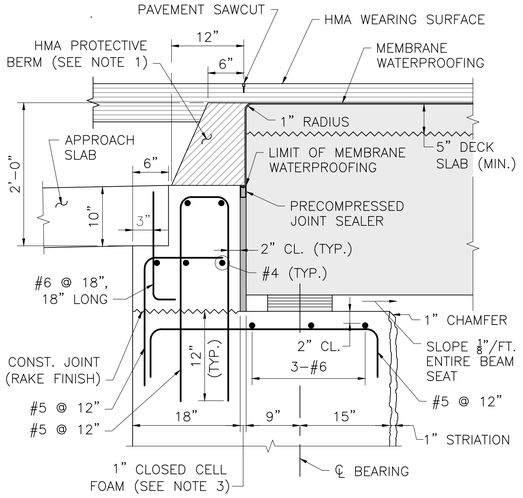
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR20 (SECTIONS).DWG Plotted on 15-Sep-2026 11:08 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

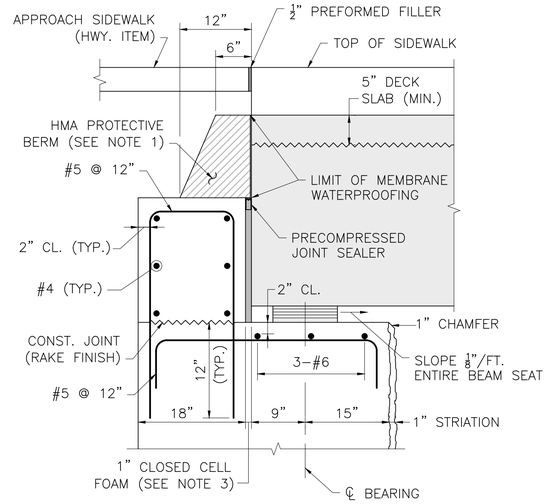
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	64	92
PROJECT FILE NO.	607420		

ABUTMENT DETAILS
SHEET 1 OF 2



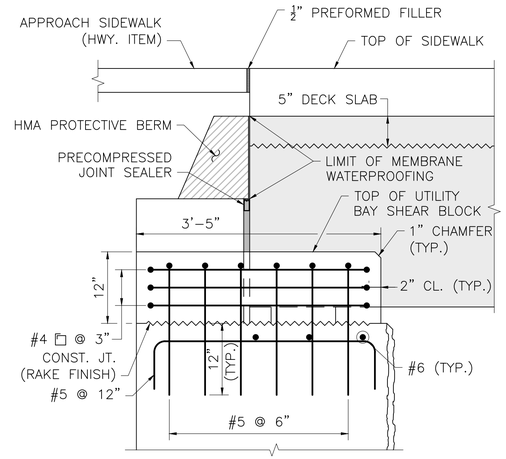
DETAILS AT ABUTMENT – ROADWAY AND BIKEWAY SECTION

SCALE: 1" = 1'-0"



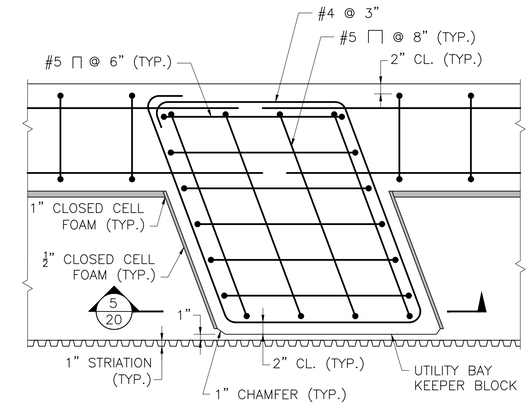
DETAILS AT ABUTMENT – SIDEWALK SECTION

SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT – UTILITY BAY SECTION

SCALE: 1" = 1'-0"



NOTE:

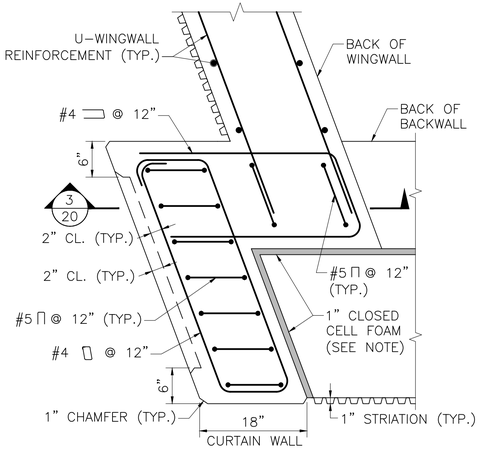
ATTACH CLOSED CELL FOAM AS REQUIRED TO ALL THE BEAMS PRIOR TO PLACING THE CONCRETE FOR THE BACKWALL AND CURTAIN WALL.

HORIZONTAL SECTION AT KEEPER BLOCK

SCALE: 1" = 1'-0"

UTILITY BAY KEEPER BLOCK NOTES:

1. HMA PROTECTIVE BERM TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC-B-12.5), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER.
2. ALL REINFORCING SHOWN IN THIS DETAIL SHALL BE COATED BARS.
3. ATTACH CLOSED CELL FOAM TO BACK OF PRECAST BEAM WITH ADHESIVE.
4. ALL KEEPER BLOCK AND BACKWALL CONCRETE SHALL BE PLACED AFTER ALL BEAMS HAVE BEEN ERECTED.
5. INSTALL STEEL SLEEVE WITH END CASING SEALS, TO BE USED AT ABUTMENT INSTEAD OF BRICK AND MORTAR, AFTER BEAMS ARE IN PLACE AND AFTER THE BACKWALL AND THE UTILITY BAY SHEAR BLOCK HAVE BEEN CONSTRUCTED.
6. UTILITIES ARE NOT SHOWN FOR CLARITY.

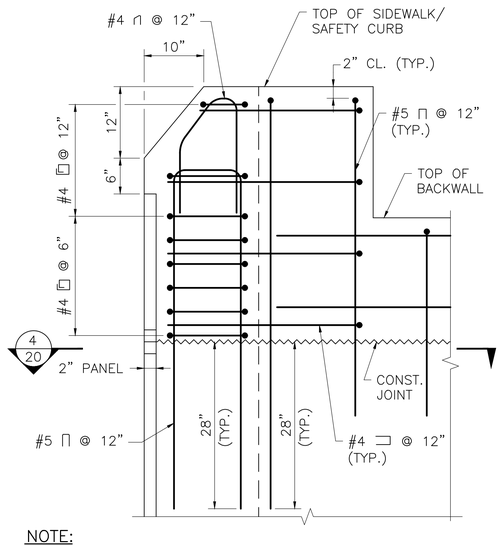


NOTE:

ATTACH CLOSED CELL FOAM AS REQUIRED TO ALL THE BEAMS PRIOR TO PLACING THE CONCRETE FOR THE BACKWALL AND CURTAIN WALL.

HORIZONTAL SECTION THROUGH U-WINGWALL

SCALE: 1" = 1'-0"

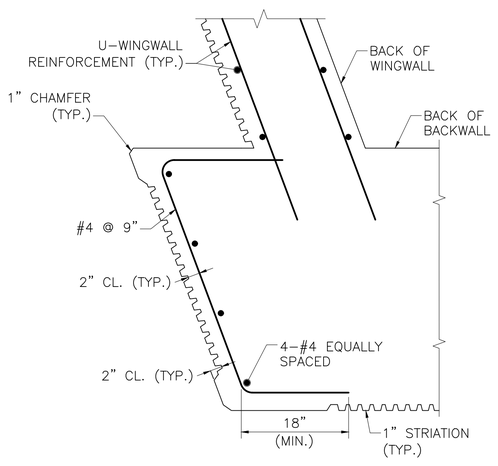


NOTE:

REINFORCEMENT BELOW CONSTRUCTION JOINT HAS BEEN OMITTED FOR CLARITY.

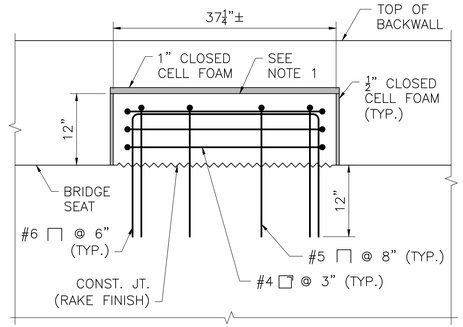
SECTION 3 / 20

SCALE: 1" = 1'-0"



SECTION 4 / 20

SCALE: 1" = 1'-0"



NOTES:

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

ABUTMENT NOTES:

1. HMA PROTECTIVE BERM TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC-B-12.5), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER.
2. ALL REINFORCING SHOWN IN THIS DETAIL SHALL BE COATED BARS.
3. ATTACH CLOSED CELL FOAM TO BACK OF PRECAST BEAM WITH ADHESIVE.
4. ALL BACKWALL CONCRETE SHALL BE PLACED AFTER ALL BEAMS HAVE BEEN ERECTED.

SECTION 5 / 20

SCALE: 1" = 1'-0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
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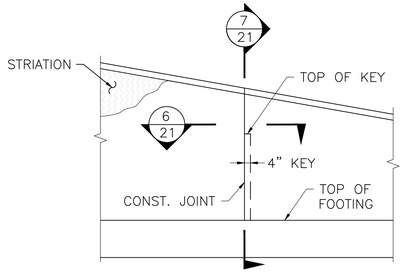
USE ONLY PRINTS OF LATEST DATE

607420_BR21-22 (ABUTMENT_DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

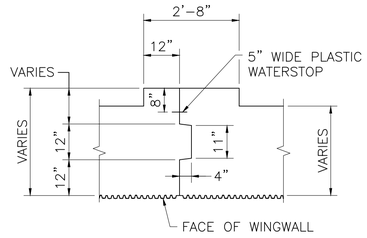
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	65	92
	PROJECT FILE NO. 607420		

ABUTMENT DETAILS
SHEET 2 OF 2



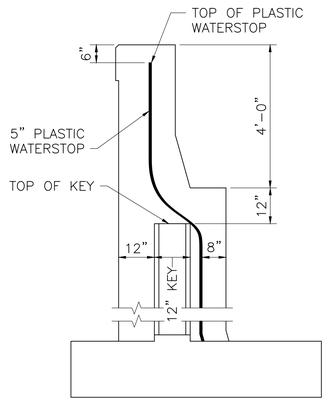
WINGWALL CONSTRUCTION JOINT ELEVATION

SCALE: $\frac{1}{2}$" = 1'–0"



SECTION 6/21

SCALE: $\frac{1}{2}$" = 1'–0"

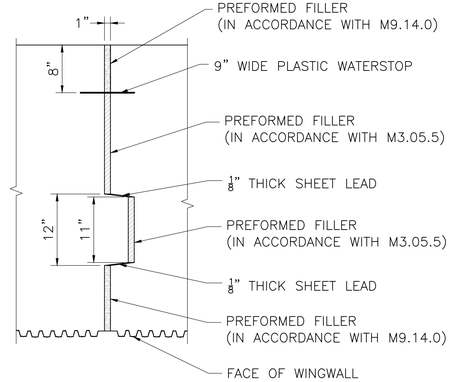


NOTE:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS.

SECTION 7/21

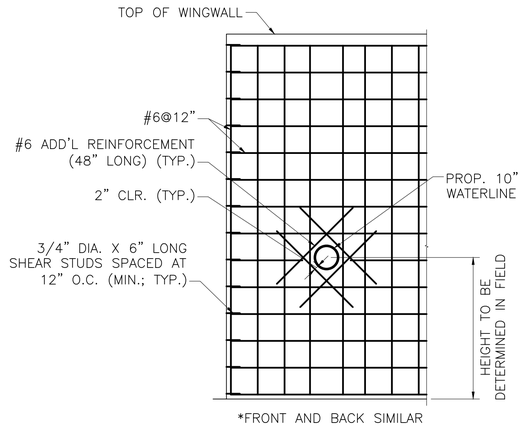
SCALE: 1" = 1'–0"

CONSTRUCTION JOINT DETAILS



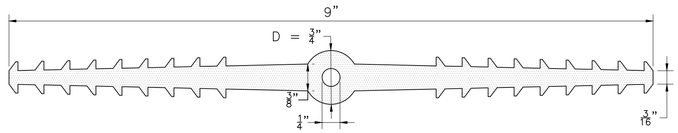
LIMITS OF PREFORMED FILLERS

SCALE: 1" = 1'–0"



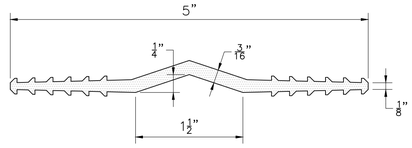
PIPE PENETRATION DETAIL

SCALE: $\frac{3}{8}$" = 1'–0"



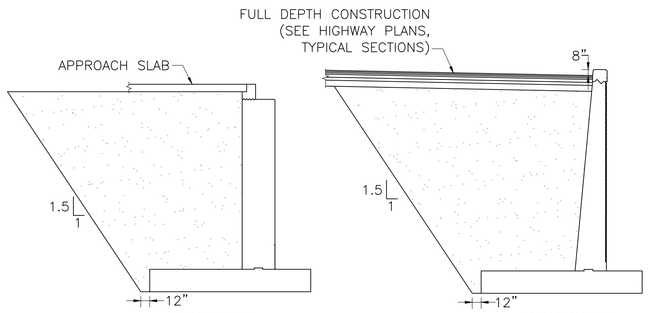
9" WATERSTOP

FULL SIZE



5" WATERSTOP

FULL SIZE

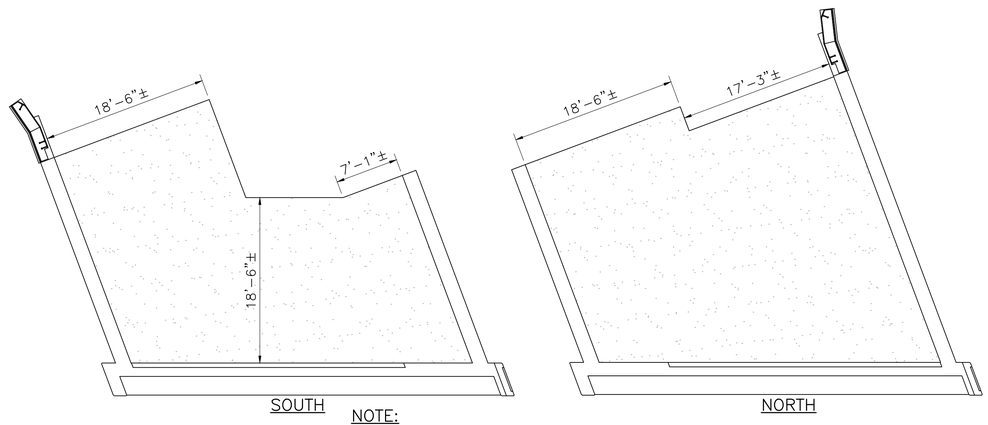


ABUTMENT WINGWALLS

NOTE:
HATCHED AREA INDICATES LIMITS OF LIGHTWEIGHT FILL. REFER TO EXPANDED SHALE LIGHTWEIGHT AGGREGATE SPECIAL PROVISIONS

LIMITS OF LIGHTWEIGHT FILL FOR BACKFILLING ABUTMENT AND WINGWALLS

SCALE: $\frac{1}{8}$" = 1'–0"



NOTE:
HATCHED AREA INDICATES LIMITS OF LIGHTWEIGHT FILL. REFER TO EXPANDED SHALE LIGHTWEIGHT AGGREGATE SPECIAL PROVISIONS.

PLAN LIMITS OF LIGHTWEIGHT FILL FOR BACKFILLING ABUTMENT AND WINGWALLS

SCALE: $\frac{1}{8}$" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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607420_BR21-22 (ABUTMENT_DETAILS).DWG Plotted on 15-Sep-2026 11:06 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	66	92
	PROJECT FILE NO. 607420		

RETAINING WALL DETAILS
SHEET 1 OF 3

GENERAL NOTES:

1. REFER TO APPLICABLE CONTRACT DOCUMENTS FOR STRUCTURE AND CONTRACT DESIGN ELEMENTS RELATED TO THE SOLDIER PILE RETAINING WALL.
2. ELEVATIONS SHOWN ON THESE DRAWINGS ARE BASED ON THE PROJECT ELEVATION DATUM WHICH IS REPORTED TO BE THE NORTH AMERICAN VERTICAL DATUM, 1988 (NAVD88).
3. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES.
4. CONFORM TO CONSTRUCTION SEQUENCE, NOTES, AND ALL OTHER REQUIREMENTS ON THESE DRAWINGS UNLESS OTHERWISE APPROVED BY GZA GEOENVIRONMENTAL, INC. (GZA). ANY DEVIATIONS FROM THE REQUIREMENTS SHOWN ON THE DRAWINGS MUST RECEIVE PRIOR WRITTEN APPROVAL BY GZA.
5. PROVIDE SAFETY RAIL AND/OR TRAFFIC BARRIER AROUND TOP OF RETAINING WALL IN ACCORDANCE WITH PROJECT AND OSHA REQUIREMENTS.
6. SUBSURFACE CONDITIONS SHOWN ON THESE DRAWINGS, AND USED IN THE DESIGN, HAVE BEEN BASED ON GEOTECHNICAL ENGINEERING REPORT ENTITLED "GEOTECHNICAL ENGINEERING REPORT, MASSDOT PROJECT INFO NO. 607420, REPLACEMENT OF BODEN LANE BRIDGE, BODEN LANE OVER CSX/MBTA (N-03-012)", DATED AUGUST, 2026, AND PREPARED BY GZA. REPORT ANY CHANGES IN CONTRACT DOCUMENTS AND CHANGED SUBSURFACE CONDITIONS TO GZA SO THAT THE EFFECT ON THE DESIGN CAN BE EVALUATED, AND THE DESIGN MODIFIED AS REQUIRED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THESE DRAWINGS IN ACCORDANCE WITH ALL PROJECT REQUIREMENTS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING LOCATIONS OF ALL EXISTING AND PROPOSED CONSTRUCTION INCLUDING STRUCTURES AND UTILITIES PRIOR TO EXCAVATION AND INSTALLATION OF RETAINING WALL. REFER TO CONTRACT DRAWINGS FOR EXISTING AND PROPOSED LOCATIONS.
9. ALL EXCAVATION, BACKFILLING AND GRADING SHALL BE IN GENERAL ACCORDANCE WITH CONTRACT DOCUMENTS AND SPECIFICATIONS.
10. ALL EXCAVATIONS SHALL CONFORM TO THE REQUIREMENTS OF THE FEDERAL REGISTER BY THE DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, 29 CFR PART 1926, FOR EXCAVATIONS. ALL ANCILLARY ITEMS SUCH AS HANDRAILS WHICH ARE REQUIRED BY OSHA BUT NOT SHOWN ON THE DRAWINGS SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR.
11. GROUNDWATER IS ASSUMED TO OCCUR BELOW PROPOSED BOTTOM OF WALL EXCAVATION (BOE) GRADE BASED ON THE NEARBY CONTRACT BORINGS. HOWEVER, GROUNDWATER SHALL BE MANAGED AND DEWATERED TO MAINTAIN GROUNDWATER 2'-0" BELOW BOE ELEVATION AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHOULD BE PREPARED TO DEWATER GROUNDWATER WITH LOCAL SUMPING AS A MINIMUM (OR OTHER MEANS) AS REQUIRED. ANY REQUIRED DEWATERING (METHODS AND DESIGN) WHICH MAY BE REQUIRED IS BY THE CONTRACTOR.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL OF SURFACE WATER DURING THE WORK. TEMPORARY WATER CONTROL MEASURES SHALL SATISFY BEST MANAGEMENT PRACTICES (BMP) WHICH INCLUDE PERIODIC INSPECTION, MAINTENANCE AND CLEANING OF CONTROL MEASURES. ALL TEMPORARY WATER CONTROL MEASURES SHALL BE IMPLEMENTED IN CONJUNCTION WITH APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES. THE CONTRACTOR SHALL REMOVE ALL CHANNELED, PUMPED, DIVERTED, OR SIPHONED SURFACE WATER AWAY FROM THE WORK AREA, AND PROVIDE SEDIMENTATION CONTROL AND RECHARGE IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES AND BMP FEATURES. TEMPORARY SURFACE WATER CONTROL MEASURES MAY INCLUDE USAGE OF SWALES, EROSION CONTROL BLANKETS, FILTER FABRIC, CRUSHED STONE, RIPRAP, DETENTION BASINS ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WATER CONTROL NECESSARY TO EXECUTE THE WORK. ALL GROUNDWATER COLLECTED FROM DEWATERING SHALL BE DISCHARGED IN ACCORDANCE WITH ALL APPLICABLE ENVIRONMENTAL REGULATIONS AND PERMITS REQUIRED ON THE PROJECT.
13. AN ASSUMED SURCHARGE FOR HS-20 VEHICULAR LOADING OF 250 PSF (22'-0" WIDE STRIP LOAD LOCATED 2'-0" (MIN.) FROM THE REAR FACE OF THE PERMANENT SOLDIER PILE AND LAGGING WALL) HAS BEEN CONSIDERED IN THE DESIGN.
    - 13.1. PROPOSED SURCHARGE LOADING OTHER THAN ABOVE MUST BE SUBMITTED TO GZA FOR EVALUATION AND WRITTEN APPROVAL PRIOR TO APPLICATION OF LOAD. CRANE LOADING MAY IMPOSE A HIGHER SURCHARGE PRESSURE. THE ACTUAL LOCATION AND TYPE OF EQUIPMENT PROPOSED BY THE CONTRACTOR IS UNKNOWN AT THIS TIME.
14. IN PREPARATION OF THESE DRAWINGS, GZA HAS NOT BEEN CONTRACTED NOR IS GZA RESPONSIBLE TO PROVIDE FIELD OBSERVATION OR VERIFICATION OF THE CONSTRUCTION. ON SITE INSPECTION TO VERIFY COMPLIANCE WITH THESE DRAWINGS SHALL BE PERFORMED BY A QUALIFIED ENGINEER IN ACCORDANCE WITH ALL PROJECT REQUIREMENTS.

PERMANENT SOLDIER PILE AND LAGGING CONSTRUCTION SEQUENCE:

1. FIELD LOCATE ALL UTILITIES AND EXISTING STRUCTURES WHICH MAY INTERFERE WITH PROPOSED CONSTRUCTION, AND SUPPORT OR RELOCATE AS REQUIRED. THE CONTRACTOR SHALL LOCATE MWRA UTILITIES IN CONFORMANCE WITH THE MWRA PERMIT FOR CONSTRUCTION, AND EXCAVATE TEST PITS (AS REQ.) BY MEANS OF "SOFT DIG" TECHNIQUES TO VERIFY DEPTH, SIZE, AND LOCATIONS OF EXISTING UTILITIES IN FIELD. NOTIFY GZA IF SIZES, LOCATIONS, AND DEPTHS ARE DIFFERENT FROM WHAT IS ASSUMED AND SHOWN ON PLANS, SO THAT THE AFFECTS ON THE DESIGN MAY BE EVALUATED, AND MODIFIED AS REQUIRED. NOTIFY GZA IF DESIGN OF ADDITIONAL TEMPORARY SUPPORT OF EXISTING UTILITIES IS REQUIRED.
2. SOLDIER PILES SHALL BE INSTALLED IN PRE-DRILLED HOLES (DRILLED SHAFTS) AT THE LOCATIONS SHOWN ON THE DRAWINGS. THE MINIMUM DIAMETER OF THE DRILLED SHAFTS SHALL BE AT LEAST EQUAL TO THE DIAMETER SHOWN ON THE DRAWINGS AND SHALL BE AT LEAST THREE INCHES (3") LARGER THAN THE MAXIMUM DIAGONAL DIMENSION OF THE PILE SECTIONS. THE DRILLER MAY ELECT TO USE LARGER DIAMETER HOLES, IF REQUIRED, TO COMPLY WITH THE SPECIFIED INSTALLATION TOLERANCES HEREIN. SOLDIER PILES SHALL NOT BE DRIVEN OR VIBRATED INTO PLACE TO LIMIT VIBRATIONS INDUCED DURING CONSTRUCTION.
3. DRILL HOLES (DRILLED SHAFTS) FOR SOLDIER PILES SHALL BE INSTALLED THROUGH ALL MATERIAL ENCOUNTERED TO THE SPECIFIED DEPTH. INSTALLATION EQUIPMENT SHALL BE CAPABLE OF DRILLING THROUGH OVERBURDEN SOILS, BEDROCK, BOULDERS, AND ANY OTHER OBSTRUCTIONS ENCOUNTERED DURING INSTALLATION.
4. PRIOR TO INSTALLATION OF THE STEEL SOLDIER PILES, ALL DAMAGE (I.E. SCRATCHES, NICKS, CRACKS), ON THE HOT-DIP GALVANIZED STEEL SHALL BE REPAIRED IN ACCORDANCE WITH ASTM A780 ANNEX A2 "REPAIR USING ZINC-RICH PAINTS."
5. CONCRETE SPACERS OR OTHER APPROVED NON-CORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS TO ENSURE PROPER VERTICAL ALIGNMENT AND CONCRETE COVER OF THE SOLDIER PILES.
6. USE TIMBER LAGGING AS NEEDED TO MAINTAIN THE FACE OF THE EXCAVATION. PRECAST CONCRETE PANELS SHALL BE INSTALLED BEHIND THE FRONT FLANGE OF THE SOLDIER PILES BETWEEN ADJACENT SOLDIER PILES TO SERVE AS THE PERMANENT RETAINING WALL. CRUSHED STONE (M2.01.06) SHALL BE USED TO FILL THE VOID BETWEEN THE PANELS AND TIMBER LAGGING AND/OR SOLDIER PILES. PRIOR TO FILLING VOID WITH CRUSHED STONE, PROVIDE A MIRAFI G100W DRAINAGE COMPOSITE (OR SIMILAR) BEHIND THE PRECAST CONCRETE PANEL.
7. BACKFILL AND COMPACT BEHIND THE PERMANENT SOLDIER PILE AND LAGGING WALL UP TO THE PROPOSED GRADE ELEVATION WITH LIGHTWEIGHT FILL AS REQUIRED PER THE CONTRACT DOCUMENTS.
8. SEE SPECIAL PROVISION ITEM 996.4 FOR ADDITIONAL WALL REQUIREMENTS REGARDING TOLERANCES, STEEL PLACEMENT, AND DEFLECTION MONITORING.

SURVEY & MONITORING NOTES:

1. AFTER INSTALLATION OF SOLDIER PILES AND PRIOR TO THE START OF EXCAVATION AND/OR BACKFILLING, THE POSITION OF THE TOP OF EACH SOLDIER PILE SHALL BE SURVEYED IN THREE DIRECTIONS (VERTICAL, INTO EXCAVATION, AND OUT OF EXCAVATION). PILES SHALL BE SURVEYED AT LEAST THREE TIMES PRIOR TO EXCAVATION AND/OR BACKFILLING TO ESTABLISH A BASELINE.
2. MONITORING OF SOLDIER PILES SHALL BE PERFORMED DAILY FROM THE START OF EXCAVATION UNTIL EXCAVATION IS COMPLETE. UPON COMPLETION OF EXCAVATION, THE CONTRACTOR SHALL MONITOR SOLDIER PILES ONCE PER WEEK UNTIL EXCAVATION HAS BEEN BACKFILLED, UNLESS OTHERWISE DIRECTED BY MASSDOT.
3. STOP WORK IMMEDIATELY, NOTIFY MASSDOT, CHAPPELL ENGINEERING AND GZA GEOENVIRONMENTAL, INC., AND TAKE IMMEDIATE REMEDIAL ACTION IF EITHER OR BOTH VERTICAL OR LATERAL MOVEMENT OF THE EARTH SUPPORT SYSTEM EXCEEDS THRESHOLD AND LIMITING VALUES IN ITEM 950.2.
4. THE MONITORING SCHEDULE PROVIDED ABOVE IS THE MINIMUM REQUIRED FREQUENCY. THE CONTRACTOR MAY ELECT TO PERFORM MORE FREQUENT MONITORING IF, IN HIS OPINION, IT IS REQUIRED FOR SAFE CONSTRUCTION OF THE EARTH SUPPORT SYSTEM AND NEW ABUTMENT CONSTRUCTION.

MATERIAL NOTES:

1. ALL STRUCTURAL STEEL SOLDIER PILES SHALL BE SIZED AS NOTED AND SHALL CONFORM TO ASTM A572, GR. 50, MIN.
    - 1.1. ALL STRUCTURAL STEEL SHALL BE HOT-DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
    - 1.2. IF GALVANIZED COATING IS DAMAGED. GALVANIZED STEEL SHALL BE APPROPRIATELY RE-COATED WITH ZINC-RICH GALVANIZING PAINT TO SATISFY THE INTENT OF THE ORIGINAL GALVANIZING PROCESS. A MINIMUM OF 1.5 TIMES THE AFFECTED AREA SHALL BE RE-COATED WITH APPROXIMATE CENTROID OF THE RE-COATED AREA COINCIDENTAL WITH THE APPROXIMATE CENTROID OF THE AFFECTED AREA. THE ZINC-RICH PAINT SHALL CONFORM TO FEDERAL SPECIFICATION TT-P-641 TYPE 1 AND SHALL BE SPRAY APPLIED WITH A DRY FILM THICKNESS OF 4 TO 6 MILS.
2. AISC SPECIFICATION FOR "DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL", 15TH EDITION (ASD) AND AASHTO LRFD BRIDGE DESIGN MANUAL, DATED 2020. SHALL APPLY, EXCEPT AS MODIFIED BY THE DRAWINGS AND SPECIFICATIONS.
3. TORCH CUTTING SHALL NOT BE PERMITTED IN THE FIELD WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
4. REINFORCING BARS FOR PRECAST CONCRETE PANELS AND ASSOCIATED WORK SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615, GRADE 60 AND SHALL BE UNCOATED, UNLESS NOTED OTHERWISE. IF, WITH PRIOR APPROVAL OF THE ENGINEER, PANELS ARE CUT IN THE FIELD AND EXPOSE REBAR, PAINT ENDS OF EXPOSED REBAR WITH SAME PAINT, THICKNESS, AND PROCEDURE AS INDICATED HEREIN FOR GALVANIZED STEEL SOLDIER PILES.
5. ALL PRECAST CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH NOT LESS THAN 5,000 PSI (MIN.) AND CAST-IN-PLACE CONCRETE SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH NOT LESS THAN 4,000 PSI (MIN.) UNLESS NOTED OTHERWISE. ALL CONCRETE SHALL BE NORMAL WEIGHT (150 PCF). AGGREGATE SIZE SHALL NOT BE LARGER THAN AS NOTED IN SPECIFICATIONS. FOR ADDITIONAL REQUIREMENTS, REFER TO APPROPRIATE SPECIFICATIONS. LEVELING NON-SHRINK GROUT SHALL HAVE A 28-DAY COMPRESSIVE STRENGTH NOT LESS THAN 3,000 PSI (MIN.)
    - 5.1. PRECAST MANUFACTURER, ON BEHALF OF CONTRACTOR, TO DESIGN AND SUPPLY ALL DOWELS, ANGLES, BRACES, PLATES AND MISCELLANEOUS METALS TO SUPPORT PRECAST ON STRUCTURAL STEEL, CONCRETE, OR OTHER PRECAST CONCRETE.
    - 5.2. ALL BOLTS, INSERTS, PLATES AND STEEL PIECES, WHICH ARE EXPOSED TO WEATHER, SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED ON THE CONTRACT DRAWINGS.
6. UNLESS OTHERWISE NOTED, ANY SUBSTITUTIONS OF STRUCTURAL SHAPES, ELEMENTS, CONNECTIONS, OR DETAILS SHALL BE APPROVED BY GZA IN WRITING PRIOR TO USE.
7. THE USE OF PRESSURE-TREATED TIMBER LAGGING, STARTING FROM THE TOP AND PROGRESSING TO THE BOTTOM OF THE WALL., WILL BE NEEDED FOR THE EXCAVATION TO REMAIN STABLE. A FILTER FABRIC SHALL BE ATTACHED TO THE BACK OF THE LAGGING TO PREVENT SOIL RAVELING BETWEEN LAGGING BOARDS. EXCAVATION LIFT HEIGHTS PRIOR TO LAGGING PLACEMENT SHALL BE LIMITED TO 3 FEET, OR TO A LOWER AMOUNT REQUIRED TO MAINTAIN FACE STABILITY AND PREVENT SOIL RAVELING FROM THE EXCAVATION FACE.
8. DAMPROOFING SHALL BE PLACED TO THE BACKSIDE OF EACH PRECAST PANEL SECTION. THE DRAINAGE MAT SHALL MEET THE REQUIREMENTS IN ITEM 996.4.
9. MECHANICAL ANCHOR SHALL BE MADE OF STAINLESS STEEL, SUITABLE AND RATED FOR USE OUTDOORS, IN UNCRACKED CONCRETE/ROCK, MEETING THE MINIMUM SIZE AND GRADE SHOWN HEREIN.

SOLDIER PILE & LAGGING WALL NOTE:

SEE GENERAL PLAN AND ELEVATION FOR WALL LOCATIONS. AT A MINIMUM OF 6' O.C WITH A MAX SPACING OF 14' O.C. AS SHOWN ON THE GENERAL PLAN AND ELEVATION SHEETS. PROPOSED GRADE SHOWN SCHEMATICALLY. SEE SOLDIER PILE TABLES FOR FURTHER DETAILS. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE.

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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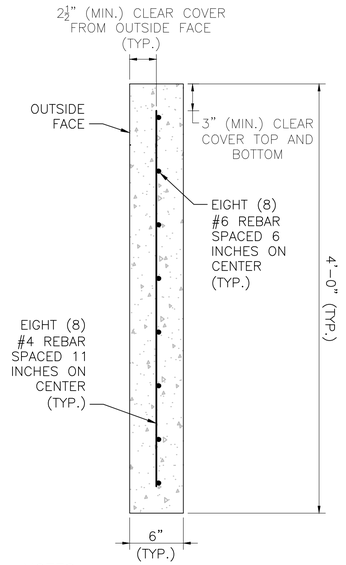
USE ONLY PRINTS OF LATEST DATE

607420_GZA(RET_WALL).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	67	92
	PROJECT FILE NO. 607420		

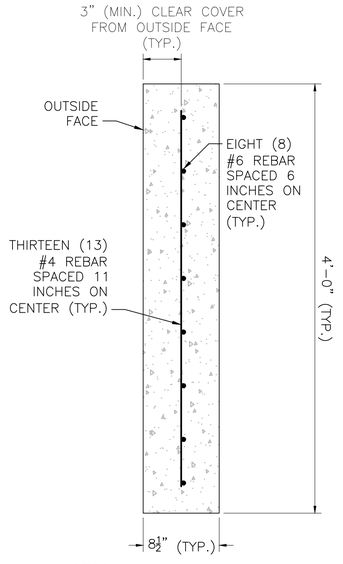
RETAINING WALL DETAILS
SHEET 2 OF 3



NOTES:
1. SEE ITEM 996.4 OF SPECIAL PROVISIONS FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

4'–0" TALL WALL 8'–0" SPACING, 6" THICK PANEL TYPICAL SECTION

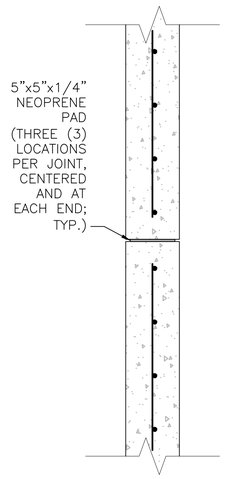
SCALE: 1½" = 1'–0"



NOTES:
1. SEE ITEM 996.4 OF SPECIAL PROVISIONS FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

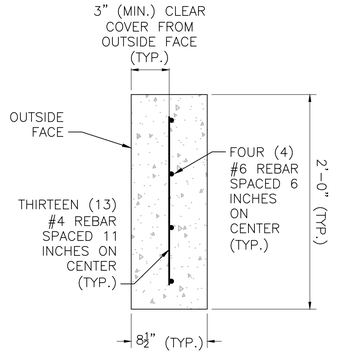
4'–0" TALL WALL 13'–0" SPACING, 8–1/2" THICK PANEL TYPICAL SECTION

SCALE: 1½" = 1'–0"



PANEL JOINT DETAIL

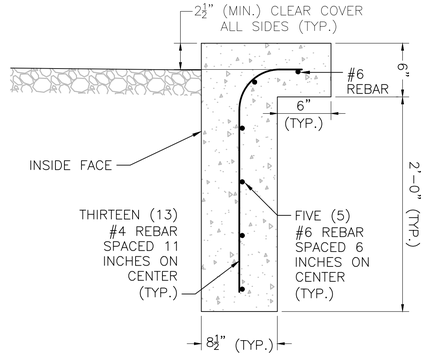
SCALE: 1½" = 1'–0"



NOTES:
1. SEE ITEM 996.4 OF SPECIAL PROVISIONS FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

2'–0" TALL WALL 13'–0" SPACING, 8–1/2" THICK PANEL TYPICAL SECTION

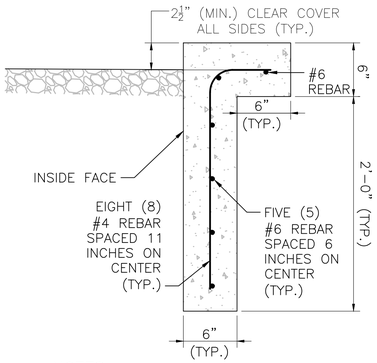
SCALE: 1½" = 1'–0"



NOTES:
1. SEE ITEM 996.4 FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

EASTSIDE 13'–0" SPACING COPING DETAIL

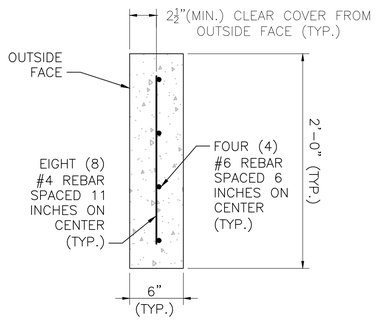
SCALE: 1½" = 1'–0"



NOTES:
1. SEE ITEM 996.4 FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

EASTSIDE 8'–0" SPACING COPING DETAIL

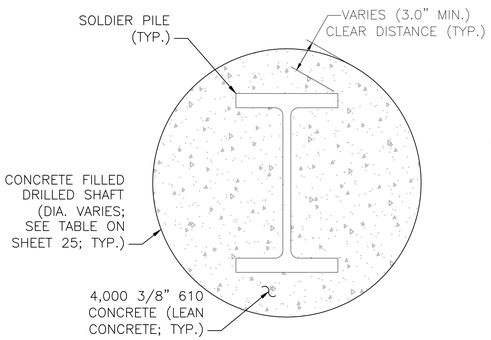
SCALE: 1½" = 1'–0"



NOTES:
1. SEE ITEM 996.4 FOR LINER FINISH.
2. TYPICAL MASSDOT FINISH NOT SHOWN FOR CLARITY. PANEL THICKNESS IS FROM THE VALLEY OF THE FORM LINER.

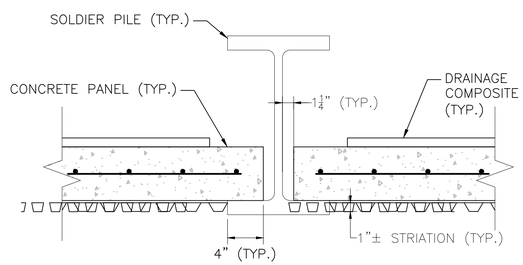
2'–0" TALL WALL 8'–0" SPACING, 6" THICK PANEL TYPICAL SECTION

SCALE: 1½" = 1'–0"



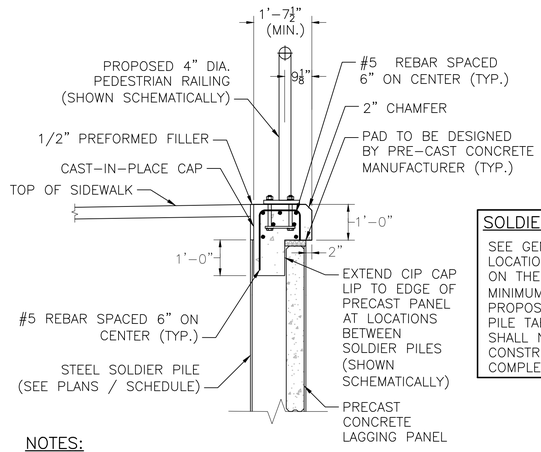
DRILLED SHAFT TYPICAL SECTION

SCALE: 1½" = 1'–0"



CONCRETE PANEL SOLDIER PILE OVERLAP DETAIL

SCALE: 1½" = 1'–0"



NOTES:
1. WALL PANEL HEIGHT TO BE CUT TO ELEVATION ONSITE.

COPING WITH PEDESTRIAN RAILING

SCALE: ½" = 1'–0"

SOLDIER PILE & LAGGING WALL NOTE:

SEE GENERAL PLAN AND ELEVATION FOR WALL LOCATIONS. SOLDIER PILES TO BE SPACED AS SHOWN ON THE GENERAL PLAN AND ELEVATION SHEETS, AT A MINIMUM OF 6' O.C. WITH A MAX SPACING OF 14' O.C. PROPOSED GRADE SHOWN SCHEMATICALLY. SEE SOLDIER PILE TABLES FOR FURTHER DETAILS. THE CONTRACTOR SHALL NOT ORDER MATERIALS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE.

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

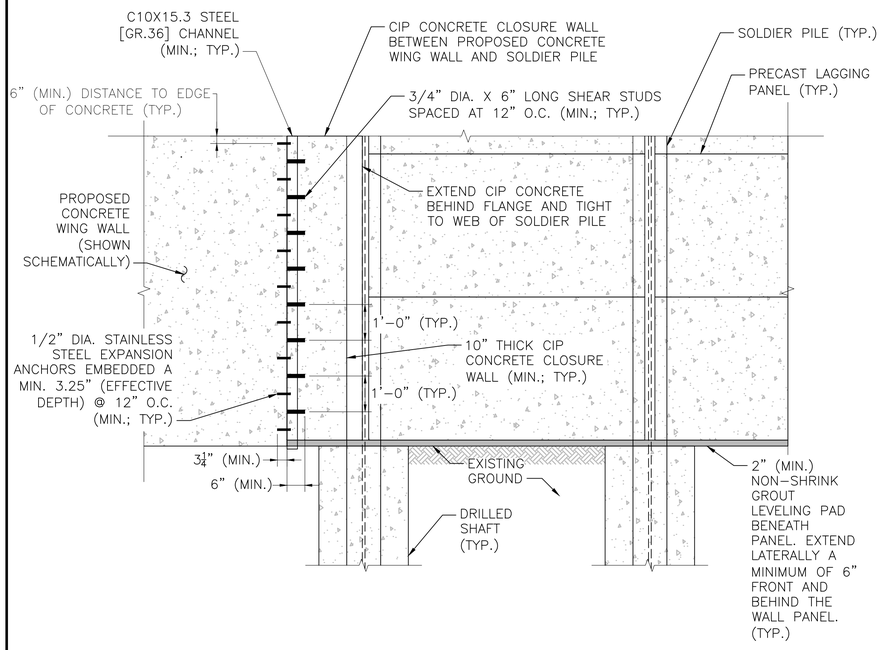
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_GZA(RET_WALL).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

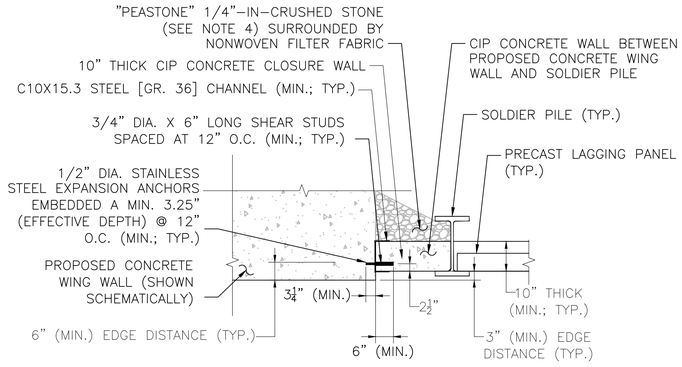
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	68	92
	PROJECT FILE NO. 607420		

RETAINING WALL DETAILS
SHEET 3 OF 3



CONNECTION DETAIL – CAST-IN-PLACE CLOSURE WALL AND ANCHORS AT PROPOSED WING WALL (ELEVATION)

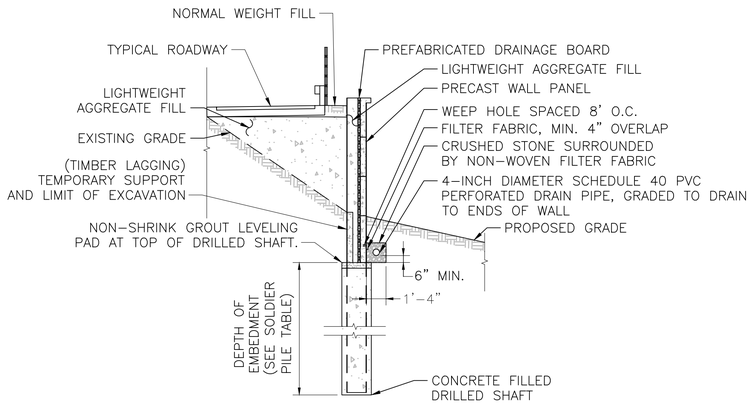
SCALE: 1/2" = 1'-0"



NOTES:
1. PRECAST PANEL REINFORCING NOT SHOWN FOR CLARITY.
2. CIP CONCRETE CLOSURE WALL REBAR SHALL CONSIST OF #5 BAR SPACED AT 8" O.C. HORIZONTALLY AND #4 BAR SPACED AT 12" VERTICALLY. PROVIDE 3" (MIN.) CLEAR COVER ON ALL SIDES AND 2.5" (MIN.) COVER TO FRONT AND REAR FACES.
3. ALLOW FOR 6" CLEARANCE BETWEEN WINGWALL AND SOLDIER PILE.
4. REFER TO SPECIAL PROVISIONS ITEM 996.4 FOR MATERIALS SPECIFICATIONS.

CONNECTION DETAIL – CAST-IN-PLACE CLOSURE WALL AND ANCHORS AT PROPOSED WING WALL (PLAN)

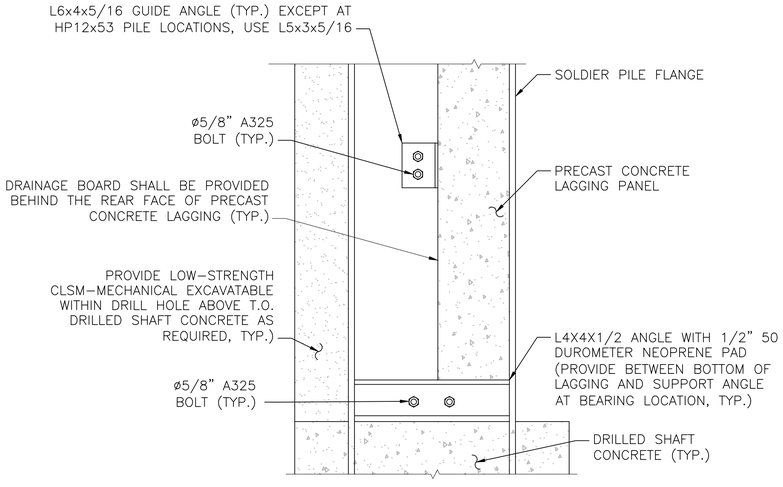
SCALE: 1/2" = 1'-0"



NOTES:
1. CONNECT PREFABRICATED DRAIN TO THE DRAINPIPE USING FITTINGS PROVIDED BY MANUFACTURER.
2. DAYLIGHT DRAIN PIPE AT NORTH AND SOUTH ENDS OF EMBANKMENT.
3. DRAINAGE BOARD AT BACK OF PRECAST PANELS CONVEYS WATER TO DRAIN PIPE. PROVIDE NOMINAL SLOPE IN DRAINPIPE TOWARDS OUTLETS TO ALLOW POSITIVE DRAINAGE.

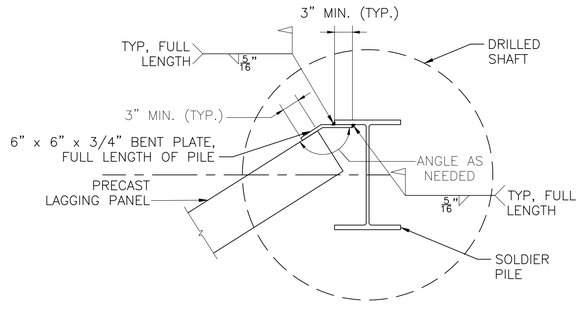
TYPICAL SOLDIER PILE AND LAGGING WALL

NOT TO SCALE



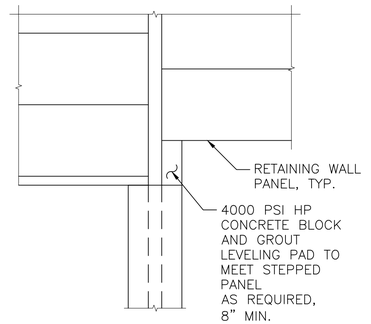
TYPICAL PRECAST CONCRETE LAGGING PANEL CONNECTION OVER MWRA UTILITY DETAIL

NOT TO SCALE



CORNER CLOSURE DETAIL

NOT TO SCALE



NOTES:
1. ARCHITECTURAL PRECAST PANEL FINISH NOT SHOWN FOR CLARITY.

RETAINING WALL STEP DETAIL

NOT TO SCALE

SOLDIER PILE & LAGGING WALL NOTE:

SEE GENERAL PLAN AND ELEVATION FOR WALL LOCATIONS. SOLDIER PILES TO BE SPACED AS SHOWN ON THE GENERAL PLAN AND ELEVATION SHEETS, AT A MINIMUM OF 6' O.C. WITH A MAX SPACING OF 14' O.C. PROPOSED GRADE SHOWN SCHEMATICALLY. SEE SOLDIER PILE TABLES FOR FURTHER DETAILS. THE CONTRACTOR SHALL NOT ORDER MATERIALS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DESIGN IS COMPLETE.

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

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

607420_GZA(RET_WALL).DWG Plotted on 15-Sep-2026 11:09 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

SOLDIER PILE TABLE – SOUTHWEST WALL

PILE NO.	TYPE	NORTHING	EASTING	TOP OF PILE EL.	PILE TIP EL.	DRILLED SHAFT TOP EL.	DRILLED SHAFT DIAMETER (FT)
SP1	HP12X53	2927827.626	685717.506	158.5	140	154.5	2
SP2	HP12X53	2927833.302	685714.896	158.5	140	154.5	2
SP3	HP12X53	2927840.572	685711.557	159.1	140	154.5	2
SP4	HP12X53	2927847.843	685708.220	159.4	140	154.5	2
SP5	HP12X53	2927855.116	685704.886	159.8	140	154.5	2
SP6	HP12X53	2927862.390	685701.553	160.2	140	154.5	2
SP7	HP12X53	2927869.665	685698.228	160.7	140	154.5	2
SP8	HP12X53	2927876.942	685694.903	161.1	140	154.5	2
SP9	HP12X53	2927884.221	685691.583	161.5	140	154.5	2
SP10	HP12X53	2927891.500	685688.263	162	140	154.5	2
SP11	HP12X53	2927898.780	685684.947	162.4	140	154.5	2
SP12	HP12X53	2927906.063	685681.634	162.8	140	154.5	2
SP13	HP12X53	2927913.346	685678.324	163.3	140	154.5	2
SP14	HP12X53	2927920.631	685675.017	163.7	140	154.5	2
SP15	HP12X53	2927927.917	685671.713	164.1	140	154.5	2
SP16	HP12X53	2927935.205	685668.412	164.6	140	154.5	2
SP17	HP12X53	2927942.493	685665.114	165	139.75	154.3	2
SP18	HP12X53	2927949.784	685661.819	165.4	139.75	154.3	2
SP19	HP12X53	2927957.076	685658.527	165.9	139.75	154.3	2
SP20	HP12X53	2927964.369	685655.237	166.3	140.75	155.3	2
SP21	HP12X53	2927971.663	685651.951	166.7	140.75	155.3	2
SP22	HP12X53	2927978.959	685648.668	167.1	141	155.5	2
SP23	HP12X53	2927986.254	685645.388	167.6	141	155.5	2
SP24	HP12X53	2927993.552	685642.111	168	141.25	155.8	2
SP25	HP12X53	2928000.852	685638.836	168.4	141.25	155.8	2
SP26	HP12X53	2928008.153	685635.565	168.9	141.25	155.8	2
SP27	W24X146	2928015.652	685632.737	169.3	126.25	155.8	3
SP28	W24X146	2928022.955	685629.470	169.7	126.25	155.8	3
SP29	W24X146	2928030.257	685626.203	170.2	126.25	155.8	3
SP30	W24X146	2928037.560	685622.936	170.6	126.5	156.0	3
SP31	W24X146	2928044.863	685619.669	171	126.50	156.0	3
SP32	W24X146	2928052.166	685616.402	171.5	127.50	157.0	3
SP33	W24X146	2928059.468	685613.135	171.9	127.50	157.0	3
SP34	W24X146	2928066.771	685609.868	172.3	127.50	157.0	3
SP35	W24X146	2928074.074	685606.600	172.8	127.50	157.0	3
SP36	W24X146	2928081.376	685603.333	173.2	127.50	157.0	3
SP37	W24X146	2928088.679	685600.066	173.6	127.50	157.0	3
SP38	W24X146	2928095.982	685596.799	174.0	127.50	157.0	3
SP39	W24X146	2928103.284	685593.532	174.4	127.50	157.0	3
SP40	W24X146	2928110.587	685590.265	174.9	128.00	157.5	3
SP41	W24X146	2928117.890	685586.998	175.3	128.80	158.3	3
SP42	W24X146	2928125.192	685583.731	175.8	129.00	158.5	3
SP43	W24X146	2928132.495	685580.464	176.2	129.50	159.0	3
SP44	W24X146	2928139.797	685577.196	176.6	129.50	159.0	3
SP45	W24X146	2928147.100	685573.929	177.1	130.50	160.0	3
SP46	W36X160	2928153.045	685571.532	177.4	136.00	160.5	3
SP47	W36X160	2928164.912	685566.224	177.9	136.00	160.5	3
SP48	W24X146	2928172.116	685562.738	178.3	131.00	160.5	3

NOTES:

1. FLANGES TO BE ALIGNED WITH WALL ALIGNMENT, EXCEPT FOR SP X AND Y WHICH ARE TO BE ROTATED 45 DEGREES.

SOLDIER PILE & LAGGING WALL NOTE:

SOLDIER PILES TO BE SPACED A MINIMUM OF 6' O.C. WITH A MAX SPACING OF 14' O.C. THE CONTRACTOR SHALL NOT ORDER PRECAST PANELS UNTIL 8M PERMIT FOR CONSTRUCTION APPROVAL AND FINAL DEISGN IS COMPLETE.

SOLDIER PILE TABLE – NORTHWEST WALL

PILE NO.	TYPE	NORTHING	EASTING	TOP OF PILE EL.	PILE TIP EL.	DRILLED SHAFT TOP EL.	DRILLED SHAFT DIAMETER (FT)
SP49	W24X146	2928299.467	685505.757	177.30	129.80	159.3	3
SP50	W24X146	2928307.682	685502.081	176.80	130.30	159.8	3
SP51	W24X146	2928315.867	685498.337	176.2	129.30	158.8	3
SP52	W36X160	2928322.855	685495.555	175.6	134.1	158.6	3
SP53	W36X160	2928334.742	685490.236	175	134.1	158.6	3
SP54	W24X146	2928341.454	685486.970	174.5	129.1	158.6	3
SP55	W24X146	2928349.666	685483.296	173.9	129.1	158.6	3
SP56	W24X146	2928357.878	685479.621	173.3	127.8	157.3	3
SP57	W24X146	2928365.178	685476.355	172.8	127.8	157.3	3
SP58	W24X146	2928372.477	685473.089	172.2	127.7	157.2	3
SP59	W24X146	2928379.777	685469.823	171.6	127.7	157.2	3
SP60	W24X146	2928387.076	685466.557	171	127	156.5	3
SP61	W24X146	2928394.376	685463.292	170.5	127	156.5	3
SP62	W24X146	2928401.675	685460.025	169.9	127	156.5	3
SP63	HP12X53	2928408.774	685456.296	169.3	141.8	156.3	2
SP64	HP12X53	2928416.044	685452.950	168.8	141.8	156.3	2
SP65	HP12X53	2928423.288	685449.546	168.2	141.8	156.3	2
SP66	HP12X53	2928430.504	685446.084	167.6	142	156.5	2
SP67	HP12X53	2928437.693	685442.569	167	142	156.5	2
SP68	HP12X53	2928444.865	685439.020	166.5	142	156.5	2
SP69	HP12X53	2928452.023	685435.445	165.9	142	156.5	2
SP70	HP12X53	2928459.190	685431.898	165.3	142	156.5	2
SP71	HP12X53	2928466.384	685428.407	164.8	141.8	156.3	2
SP72	HP12X53	2928473.606	685424.974	164.2	141.8	156.3	2
SP73	HP12X53	2928480.855	685421.599	163.6	141.8	156.3	2
SP74	HP12X53	2928488.131	685418.282	163	140.5	155	2
SP75	HP12X53	2928492.784	685416.196	162.4	139.9	154.4	2

SOLDIER PILE TABLE – SOUTHEAST WALL

PILE NO.	TYPE	NORTHING	EASTING	TOP OF PILE EL.	PILE TIP EL.	DRILLED SHAFT TOP EL.	DRILLED SHAFT DIAMETER (FT)
SP76	HP12X53	2927938.706	685717.139	164.5	140.0	154.5	2
SP77	HP12X53	2927946.009	685713.872	164.5	140.0	154.5	2
SP78	HP12X53	2927953.311	685710.605	164.5	140.0	154.5	2
SP79	HP12X53	2927960.613	685707.337	164.5	140.0	154.5	2
SP80	HP12X53	2927967.916	685704.070	165.0	140.5	155.0	2
SP81	HP12X53	2927975.227	685700.822	165.0	140.5	155.0	2
SP82	HP12X53	2927982.538	685697.574	165.5	141.0	155.5	2
SP83	HP12X53	2927989.831	685694.287	167.5	141.0	155.5	2
SP84	HP12X53	2927997.125	685691.000	167.5	141.0	155.5	2
SP85	HP12X53	2928004.427	685687.733	167.5	141.0	155.5	2
SP86	HP12X53	2928011.730	685684.466	167.5	141.0	155.5	2
SP87	HP12X53	2928019.032	685681.198	167.5	141.0	155.5	2
SP88	HP12X53	2928026.334	685677.931	168.0	141.5	156.0	2
SP89	HP12X53	2928033.637	685674.663	169.0	140.5	155.0	2
SP90	HP12X53	2928040.939	685671.396	169.0	140.5	155.0	2
SP91	HP12X53	2928048.241	685668.129	170.0	141.5	156.0	2
SP92	HP12X53	2928055.544	685664.861	170.0	141.5	156.0	2
SP93	HP12X53	2928062.846	685661.594	171.0	142.5	157.0	2
SP94	HP12X53	2928070.148	685658.326	171.0	142.5	157.0	2
SP95	HP12X53	2928077.451	685655.059	171.0	142.5	157.0	2
SP96	W24X146	2928084.753	685651.792	172.0	126.5	156.0	3
SP97	W24X146	2928092.055	685648.524	172.0	126.5	156.0	3
SP98	W24X146	2928099.358	685645.257	173.0	127.5	157.0	3
SP99	W24X146	2928106.660	685641.990	173.0	127.5	157.0	3
SP100	W24X146	2928113.962	685638.722	173.0	127.5	157.0	3
SP101	W24X146	2928121.265	685635.455	174.0	128.5	158.0	3
SP102	W24X146	2928128.567	685632.187	174.0	128.5	158.0	3
SP103	W24X146	2928135.869	685628.920	175.0	129.5	159.0	3
SP104	W24X146	2928143.172	685625.653	175.0	129.5	159.0	3
SP105	W24X146	2928150.474	685622.385	176.0	128.5	158.0	3
SP106	W24X146	2928157.776	685619.118	176.0	130.5	160.0	3
SP107	W36X160	2928164.115	685616.098	177.0	136.5	161.0	3
SP108	W36X160	2928176.018	685610.869	177.0	136.5	161.0	3
SP109	W24X146	2928183.35	685607.67	177.5	132.0	161.5	3

SOLDIER PILE TABLE – NORTHEAST WALL

PILE NO.	TYPE	NORTHING	EASTING	TOP OF PILE EL.	PILE TIP EL.	DRILLED SHAFT TOP EL.	DRILLED SHAFT DIAMETER (FT)
SP110	W36X160	2928305.66	685552.34	177.5	139.0	163.5	3
SP111	W24X146	2928317.000	685547.389	177.5	134.0	163.5	3
SP112	W36X160	2928324.756	685543.669	177.0	131.5	161.0	3
SP113	W36X160	2928336.612	685538.337	175.0	131.5	161.0	3
SP114	W24X146	2928341.625	685536.316	175.0	131.5	161.0	3
SP115	W24X146	2928348.927	685533.049	175.0	129.5	159.0	3
SP116	W24X146	2928356.230	685529.782	174.0	128.5	158.0	3
SP117	W24X146	2928363.532	685526.515	174.0	128.5	158.0	3
SP118	W24X146	2928370.856	685523.295	173.0	127.5	157.0	3
SP119	W24X146	2928378.137	685519.981	172.0	126.5	156.0	3
SP120	W24X146	2928385.440	685516.714	172.0	126.5	156.0	3
SP121	W24X146	2928392.742	685513.447	171.0	125.5	155.0	3
SP122	W24X146	2928400.045	685510.180	171.0	125.5	155.0	3
SP123	HP12X53	2928407.347	685506.913	170.0	141.5	156.0	2
SP124	HP12X53	2928414.650	685503.646	169.0	140.5	155.0	2
SP125	HP12X53	2928421.952	685500.379	169.0	140.5	155.0	2
SP126	HP12X53	2928429.255	685497.112	169.0	140.5	155.0	2
SP127	HP12X53	2928436.557	685493.845	168.0	139.5	154.0	2
SP128	HP12X53	2928443.860	685490.578	167.0	140.5	155.0	2
SP129	HP12X53	2928451.162	685487.311	167.0	140.5	155.0	2
SP130	HP12X53	2928458.465	685484.044	166.0	139.5	154.0	2
SP131	HP12X53	2928465.767	685480.777	166.0	139.5	154.0	2
SP132	HP12X53	2928473.090	685477.556	165.0	140.5	155.0	2
SP133	HP12X53	2928480.372	685474.243	165.0	140.5	155.0	2

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	69	92
	PROJECT FILE NO. 607420		

SOLDIER PILE TABLES

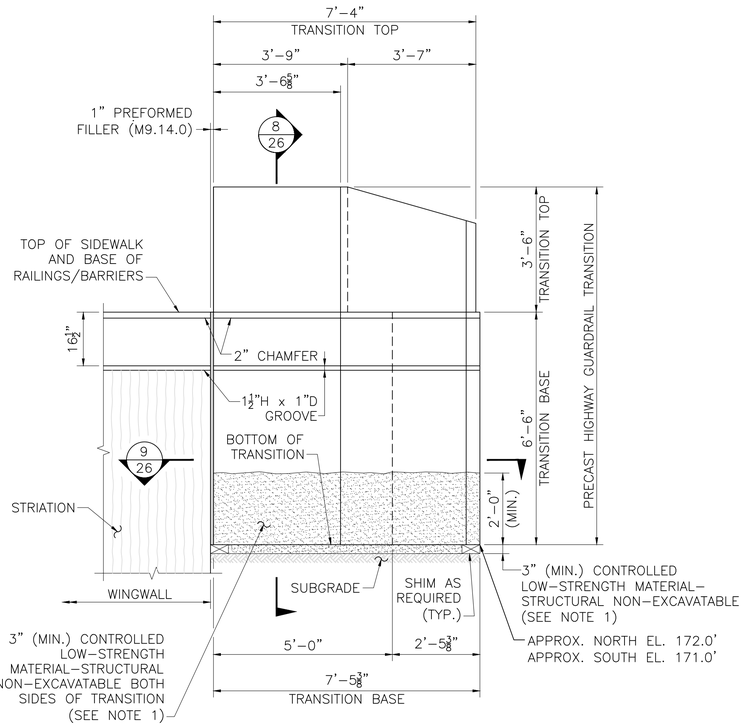
Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

607420_GZA(RET_WALL).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

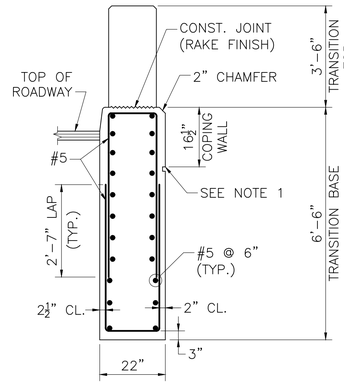
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	70	92
PROJECT FILE NO.	607420		

HIGHWAY GUARDRAIL TRANSITION DETAILS



PRECAST GUARDRAIL TRANSITION ELEVATION AT U–WINGWALL

SCALE: ½" = 1'–0"



NOTES:

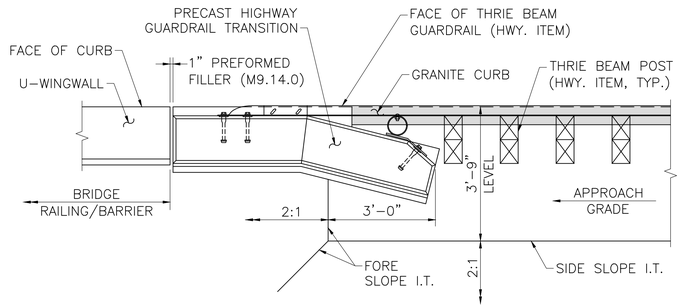
1. 1½" H x 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION 8 / 26

SCALE: ½" = 1'–0"

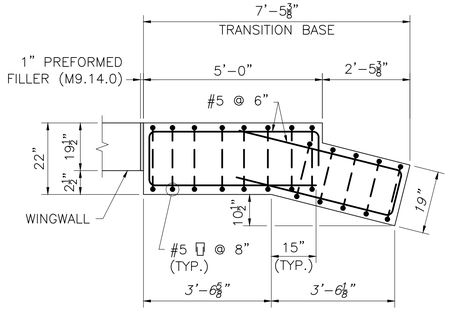
NOTES:

1. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'–0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
2. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL GUARDRAIL TRANSITION WITH CONTROLLED LOW–STRENGTH MATERIAL–NON–EXCAVATABLE TO THE ELEVATION SHOWN.
3. BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.



GRADING REQUIREMENTS PLAN

SCALE: ½" = 1'–0"

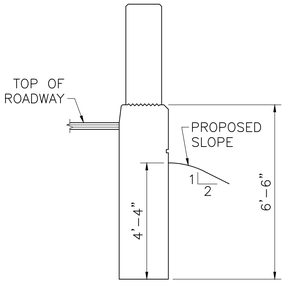


NOTE:

WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

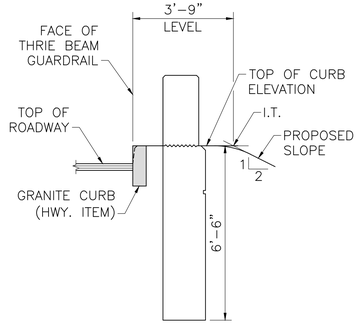
SECTION 9 / 26

SCALE: ½" = 1'–0"



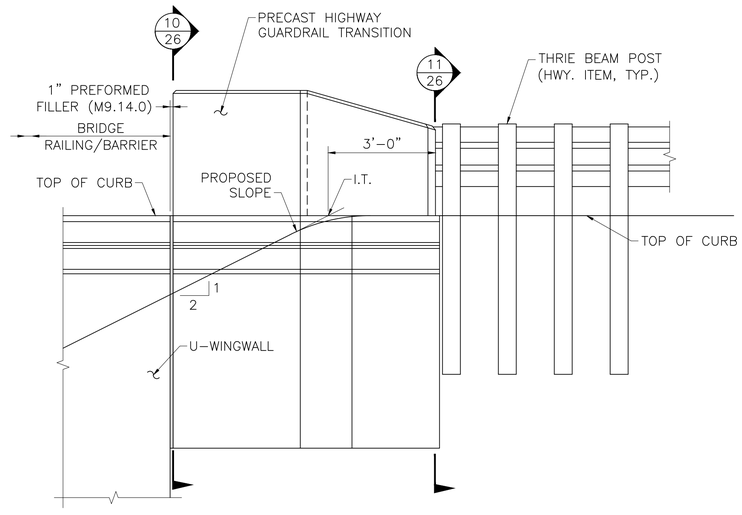
SECTION 10 / 26

SCALE: ⅜" = 1'–0"



SECTION 11 / 26

SCALE: ⅜" = 1'–0"



GRADING REQUIREMENTS ELEVATION

SCALE: ½" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

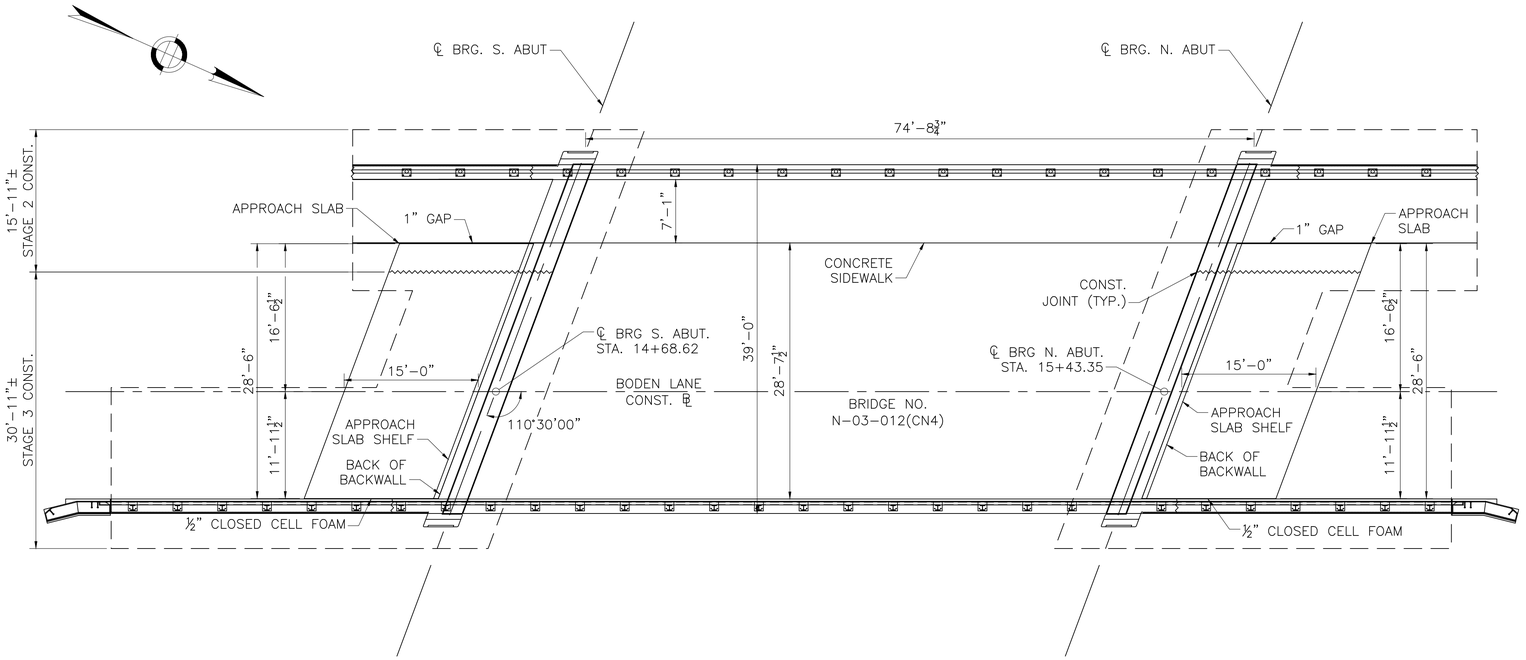
USE ONLY PRINTS OF LATEST DATE

607420_BR23 (PRECASTHGT).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

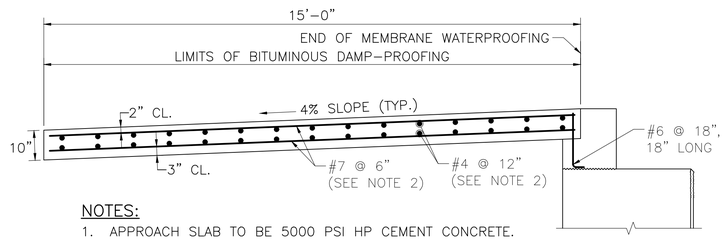
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	71	92
PROJECT FILE NO.	607420		

APPROACH SLAB PLAN AND DETAILS



TYPE I APPROACH SLAB PLAN

SCALE: ⅛" = 1'–0"

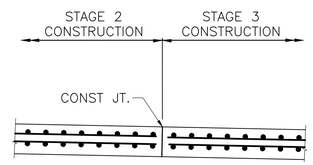


NOTES:

1. APPROACH SLAB TO BE 5000 PSI HP CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO BASELINE CONSTRUCTION BODEN LANE. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.
3. APPROACH SLAB REINFORCEMENT SHALL NOT BE EPOXY COATED

TYPE I APPROACH SLAB SECTION

SCALE: ½" = 1'–0"



CONSTRUCTION JOINT DETAIL IN APPROACH SLAB

SCALE: ½" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

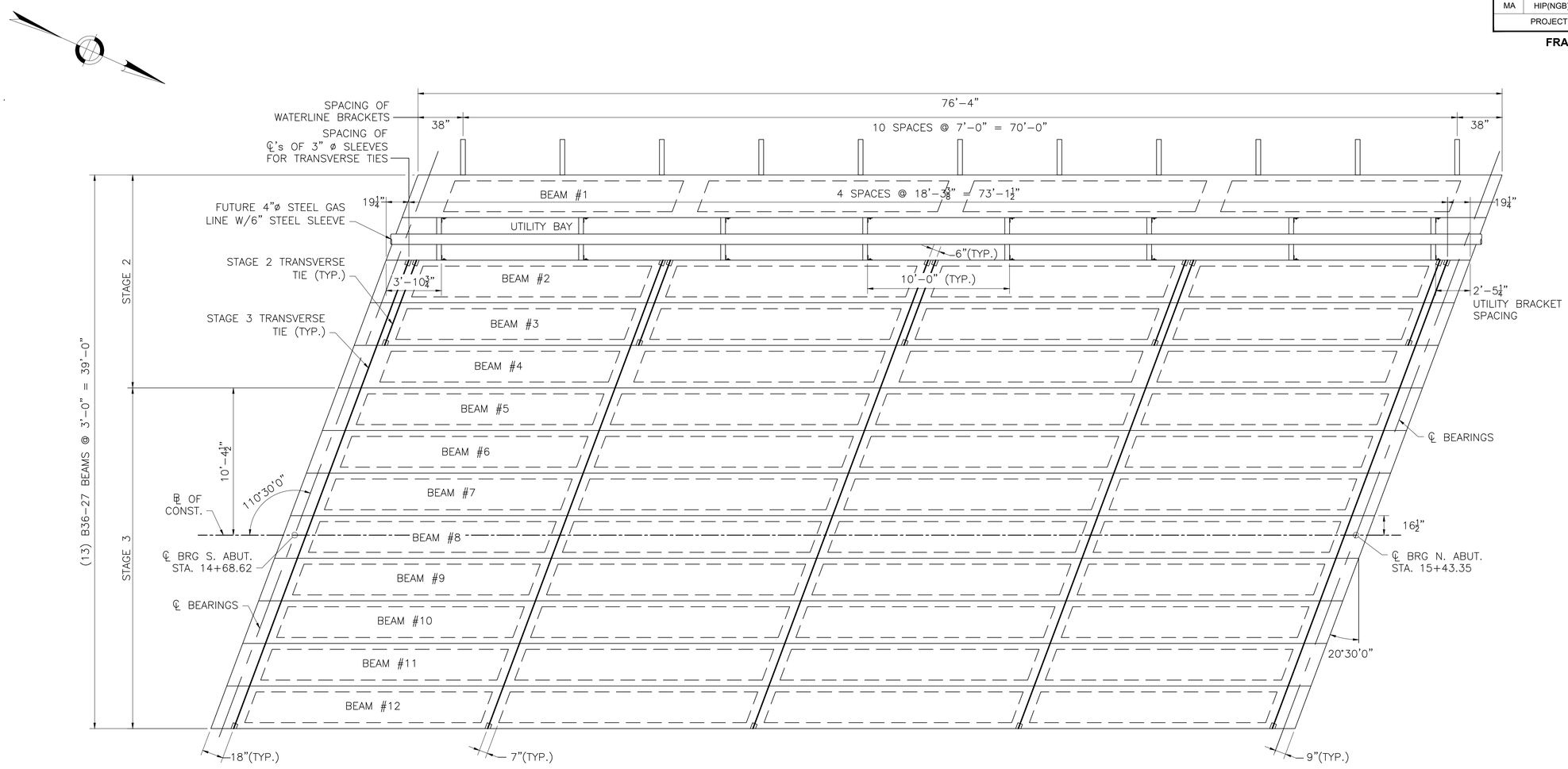
USE ONLY PRINTS OF LATEST DATE

607420_BR24 (APPROACH SLAB).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	72	92
PROJECT FILE NO.	607420		

FRAMING PLAN



NOTES:

1. STAGE 2: AFTER ERECTING STAGE 2 BEAMS, INSTALL AND TENSION TRANSVERSE TIES IN STAGE 2 SLEEVES.
2. STAGE 3: AFTER ERECTING STAGE 3 BEAMS, INSTALL AND TENSION TRANSVERSE TIES IN STAGE 3 SLEEVES FULL WIDTH OF BRIDGE.

FRAMING PLAN
SCALE: ¼" = 1'–0"

ESTIMATED CAMBER AND DEFLECTIONS AT MIDSPAN (INCHES)

STATE OF BEAM	DIRECTION	BEAMS #1	BEAMS #2	BEAMS #3,4,9,10,11	BEAMS #5,8	BEAMS #6,7	BEAMS #12
CAMBER AT TRANSFER (2)	UP	2.518	2.473	2.473	2.473	2.473	2.473
CAMBER AT ERECTION	UP	4.446	4.364	4.364	4.364	4.364	4.364
FINAL NCDL DEFLECTION (3)	DOWN	2.865	2.123	1.515	1.515	1.515	1.515
FINAL CDL DEFLECTION (3)	DOWN	1.433	0.725	0.690	0.840	0.860	0.901

NOTES:

1. CAMBER AND DEFLECTIONS IN THE TABLE ARE NOT GUARANTEED AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
2. THE BEAM CONCRETE MODULUS OF ELASTICITY AT TRANSFER USED IN THE ABOVE BEAM CAMBER IS ASSUMED TO BE 4982 PSI.
3. THE BEAM CONCRETE MODULUS OF ELASTICITY USED IN THE ABOVE BEAM DEFLECTION IS ASSUMED TO BE 5362 PSI (AT 28 DAYS).

DATE	DESCRIPTION
Sept 5, 2026	ISSUED FOR CONSTRUCTION

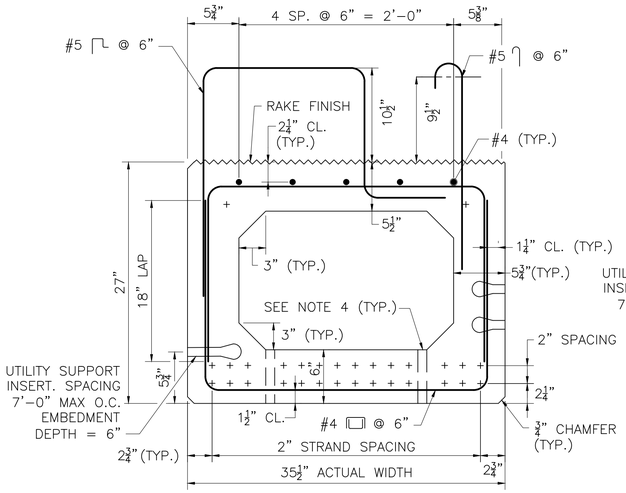
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR25 (FRAMING).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

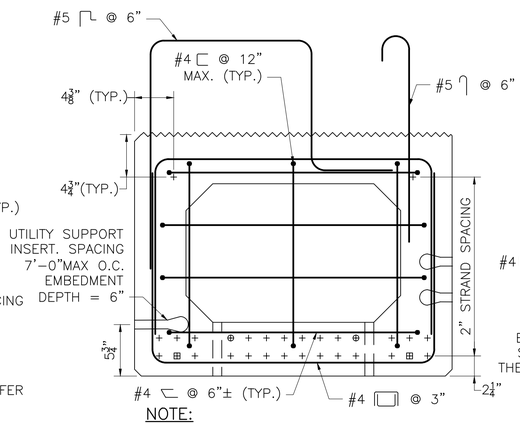
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	73	92
	PROJECT FILE NO. 607420		

BOX BEAM DETAILS
SHEET 1 OF 3



BEAM 1 MIDSPAN SECTION

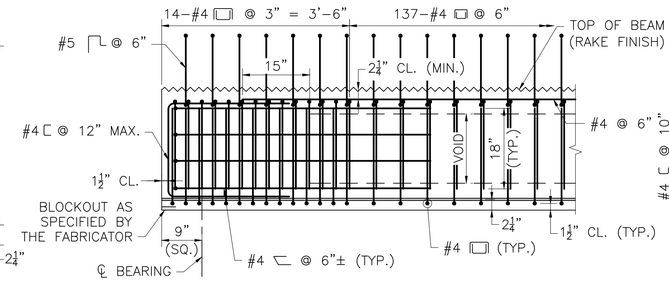
SCALE: 1½" = 1'-0"



NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

BEAM 1 END SECTION

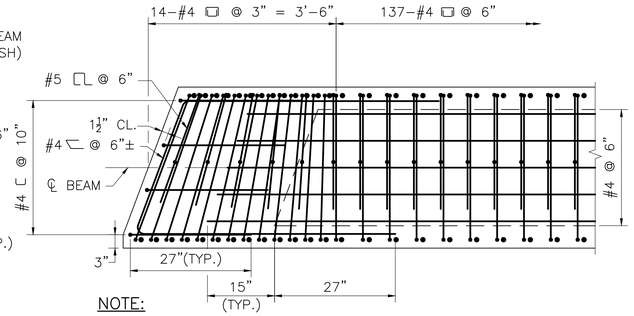
SCALE: 1½" = 1'-0"



NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

BEAM 1 LONGITUDINAL SECTION

SCALE: ¾" = 1'-0"



NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

BEAM 1 END OF BEAM PLAN

SCALE: ¾" = 1'-0"

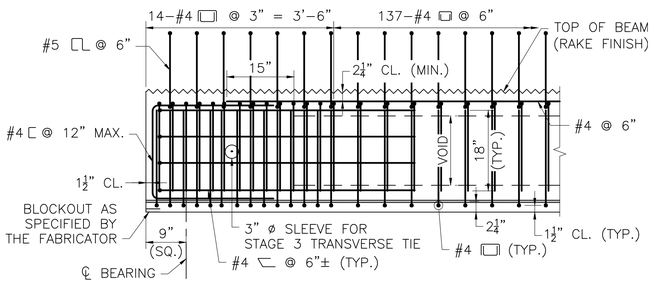
BEAM 12 MIDSPAN SECTION

SCALE: 1½" = 1'-0"

NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

BEAM 12 END SECTION

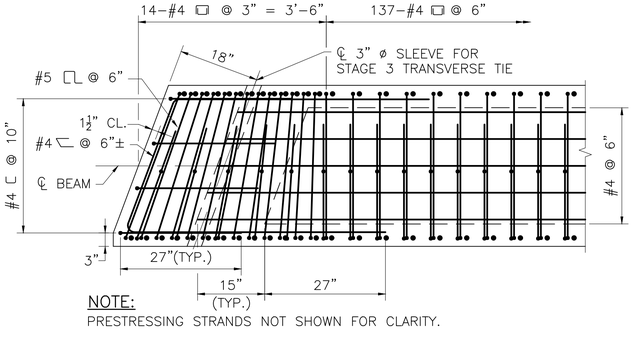
SCALE: 1½" = 1'-0"



NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

BEAM 12 LONGITUDINAL SECTION

SCALE: ¾" = 1'-0"



NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

BEAM 12 END OF BEAM PLAN

SCALE: ¾" = 1'-0"

STAGE CONSTRUCTION NOTES:

1. AFTER ALL STAGE 2 BEAMS HAVE BEEN ERECTED, TENSION EACH STAGE 2 TRANSVERSE TIE TO 5 KIPS.
2. FILL ALL KEYWAYS BETWEEN STAGE 2 BEAMS WITH MORTAR (M4.04.5). IF THE KEYWAYS ARE NOT FILLED WITHIN FIVE (5) DAYS AFTER THE BEAMS HAVE BEEN ERECTED, THE CONTRACTOR SHALL COVER AND PROTECT THE KEYWAYS FROM WEATHER AND DEBRIS UNTIL THEY ARE FILLED.
3. AFTER THE MORTAR HAS CURED (24 HOURS MINIMUM), TENSION EACH TRANSVERSE TIE TO 44 KIPS.
4. CONCRETE FOR STAGE 2 DECK SLAB SHALL BE PLACED AFTER THE STAGE 2 TRANSVERSE TIES HAVE BEEN FULLY TENSIONED.
5. AFTER STAGE 3 BEAMS HAVE BEEN ERECTED. REPEAT STEPS 1–4 TO TIE TOGETHER ALL BEAMS
6. FILL CLOSURE KEYWAY BETWEEN STAGE 2 AND STAGE 3 BEAMS WITH MORTAR (M4.04.5).
7. VERTICAL SURFACES OF PREVIOUSLY CAST DECK SLAB CONCRETE SHALL BE PRE–WETTED FOR 24 HOURS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
8. IMMEDIATELY PLACE AND CURE CLOSURE POUR.

BOX BEAM NOTES:

1. + DENOTES STRAIGHT STRANDS.
2. ⊞ DENOTES DEBONDED STRANDS (12'–0").
3. ⊕ DENOTES DEBONDED STRANDS. (6'–0")
4. 1" ø DRAINS PLACED AT BOTH ENDS OF EACH VOID.
5. ALL PRETENSIONING ELEMENTS SHALL BE 0.6" ø, UNCOATED, SEVEN–WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M 203.
6. THE NOMINAL TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270 KSI.
7. THE INITIAL TENSION PER 0.6" ø STRAND SHALL BE 44 KIPS.
8. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 8000 PSI.
9. NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY A CYLINDER TEST, OF AT LEAST 6400 PSI.
10. THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKED FINISH (¼" AMPLITUDE) ACROSS THE WIDTH (PERPENDICULAR TO THE BEAM'S AXIS).
11. THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
12. TO CONTROL CRACKING AT THE END OF THE BEAM, THE FABRICATOR SHALL DEBOND APPROXIMATELY 50% OF THE STRANDS FOR THE FIRST 6" FROM THE END OF THE BEAM.

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

607420_BR26-30 (DECK DETAILS).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

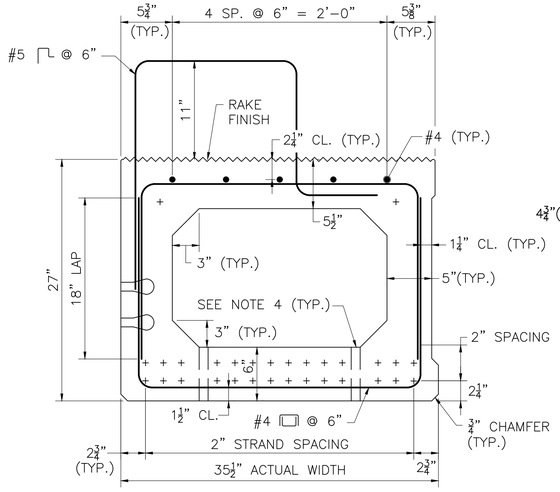
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	74	92
PROJECT FILE NO. 607420			

BOX BEAM DETAILS
SHEET 2 OF 3

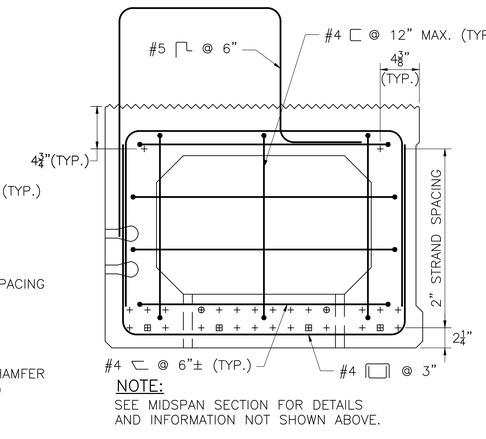
BOX BEAM NOTES:

1. + DENOTES STRAIGHT STRANDS.
2. ⊞ DENOTES DEBONDED STRANDS (12'–0").
3. ⊕ DENOTES DEBONDED STRANDS. (6'–0")
4. 1" ø DRAINS PLACED AT BOTH ENDS OF EACH VOID.



BEAM 2 MIDSPAN SECTION

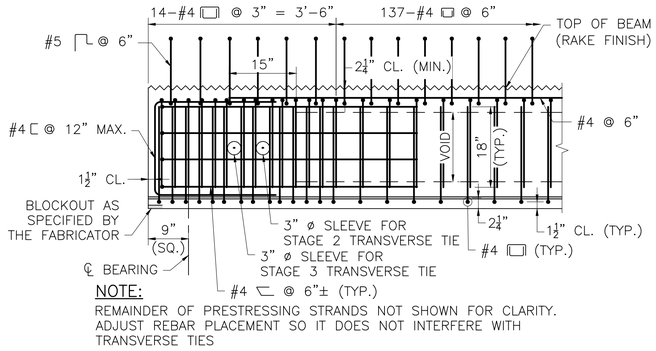
SCALE: 1½" = 1'–0"



NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

BEAM 2 END SECTION

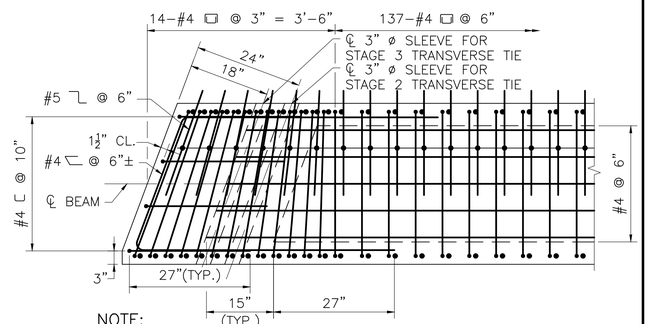
SCALE: 1½" = 1'–0"



NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

BEAM 2 LONGITUDINAL SECTION

SCALE: ¾" = 1'–0"



NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

BEAM 2 END OF BEAM PLAN

SCALE: ¾" = 1'–0"

TYPICAL MIDSPAN SECTION
BEAMS 3,4,5,8,9,10,11

SCALE: 1½" = 1'–0"

NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

TYPICAL END SECTION
BEAMS 3,4,5,8,9,10,11

SCALE: 1½" = 1'–0"

NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

TYPICAL LONGITUDINAL SECTION
BEAMS 3,4

SCALE: ¾" = 1'–0"

NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

TYPICAL END OF BEAM PLAN
BEAMS 3,4

SCALE: ¾" = 1'–0"

NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

TYPICAL LONGITUDINAL SECTION
BEAMS 5,8,9,10,11

SCALE: ¾" = 1'–0"

NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

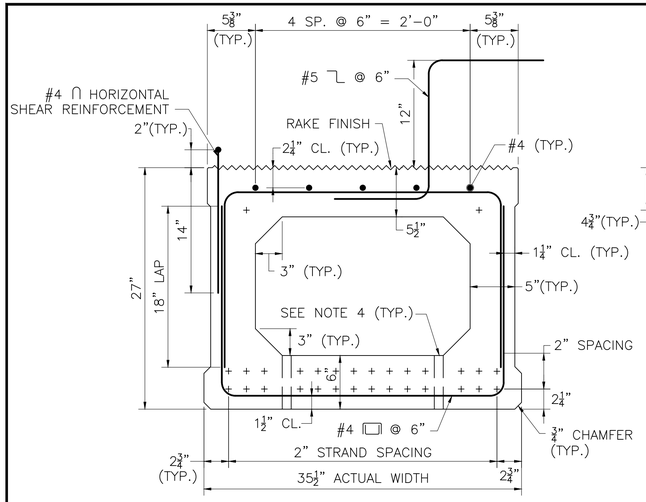
TYPICAL END OF BEAM PLAN
BEAMS 5,8,9,10,11

SCALE: ¾" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

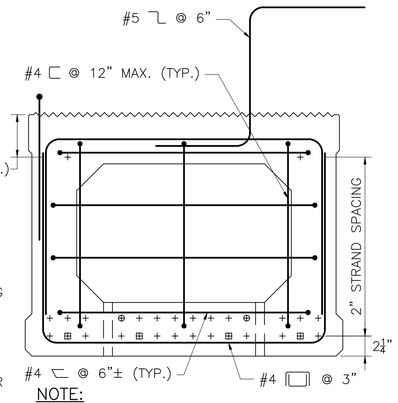
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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607420_BR26-30 (DECK DETAILS).DWG Plotted on 15-Sep-2026 11:09 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



BEAM 6 MIDSPAN SECTION

SCALE: 1½" = 1'-0"



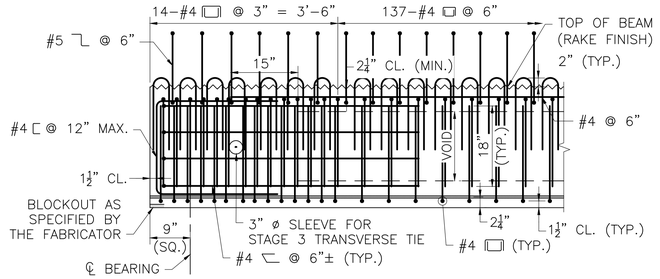
NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

BEAM 6 END SECTION

SCALE: 1½" = 1'-0"

BOX BEAM NOTES:

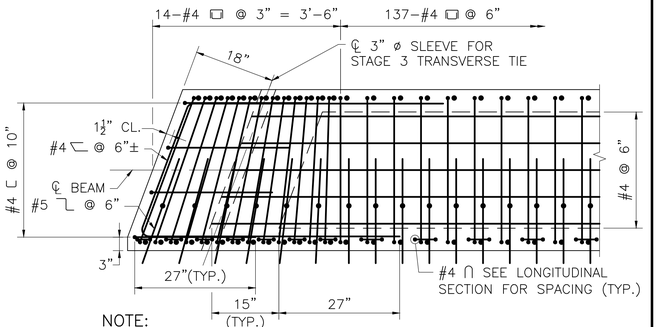
1. + DENOTES STRAIGHT STRANDS.
2. ⊞ DENOTES DEBONDED STRANDS (12'-0").
3. ⊕ DENOTES DEBONDED STRANDS. (6'-0")
4. 1" ø DRAINS PLACED AT BOTH ENDS OF EACH VOID.



NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

BEAM 6 LONGITUDINAL SECTION

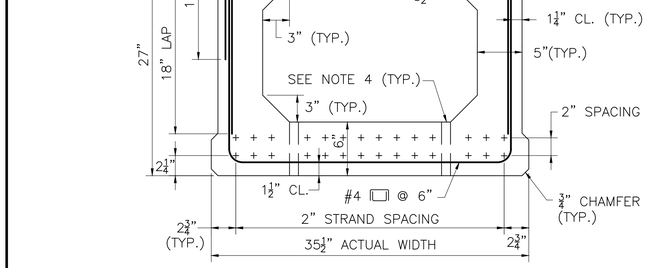
SCALE: ¾" = 1'-0"



NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

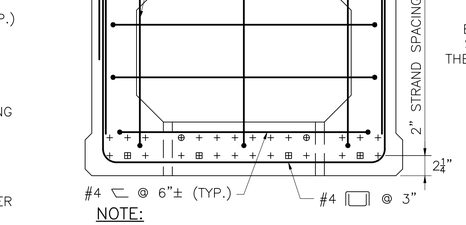
BEAM 6 END OF BEAM PLAN

SCALE: ¾" = 1'-0"



BEAM 7 MIDSPAN SECTION

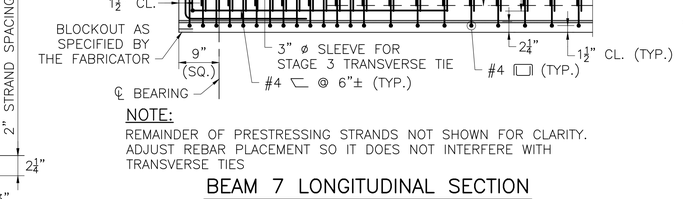
SCALE: 1½" = 1'-0"



NOTE:
SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

BEAM 7 END SECTION

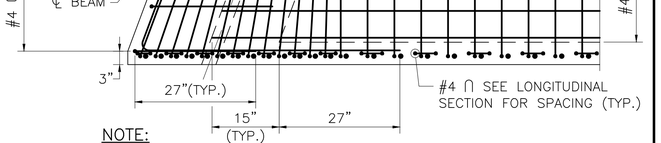
SCALE: 1½" = 1'-0"



NOTE:
REMAINDER OF PRESTRESSING STRANDS NOT SHOWN FOR CLARITY. ADJUST REBAR PLACEMENT SO IT DOES NOT INTERFERE WITH TRANSVERSE TIES

BEAM 7 LONGITUDINAL SECTION

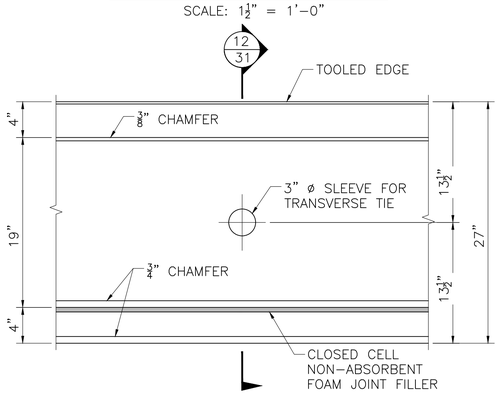
SCALE: ¾" = 1'-0"



NOTE:
PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

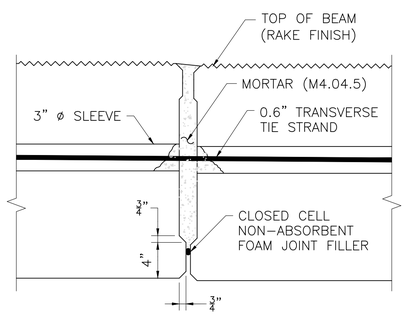
BEAM 7 END OF BEAM PLAN

SCALE: ¾" = 1'-0"



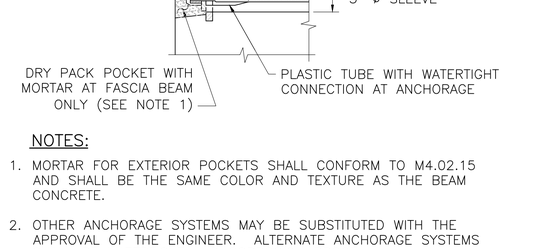
TYPICAL BEAM ELEVATION AT TRANSVERSE TIE LOCATIONS

SCALE: 1½" = 1'-0"



SECTION 12/31

SCALE: 1½" = 1'-0"



NOTES:

1. MORTAR FOR EXTERIOR POCKETS SHALL CONFORM TO M4.02.15 AND SHALL BE THE SAME COLOR AND TEXTURE AS THE BEAM CONCRETE.
2. OTHER ANCHORAGE SYSTEMS MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER. ALTERNATE ANCHORAGE SYSTEMS SHALL BE WATERTIGHT AND CORROSION PROOF.
3. TRANSVERSE TIES SHALL BE COVERED BY A SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITING GREASE BETWEEN THE STRAND AND SHEATH) FOR THE FULL LENGTH OF THE STRAND, EXCEPT AT THE ANCHORAGE LOCATION.

TRANSVERSE TIE ANCHORAGE

SCALE: 1½" = 1'-0"

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	75	92
PROJECT FILE NO. 607420			

BOX BEAM DETAILS
SHEET 3 OF 3

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

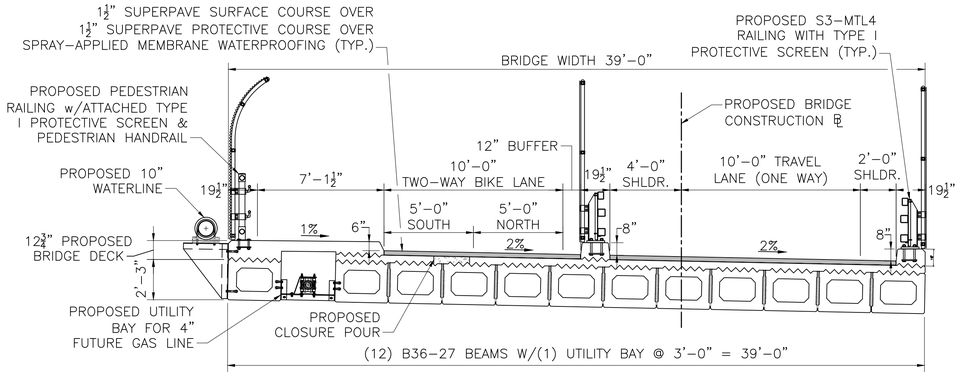
607420_BR26-30 (DECK DETAILS).DWG Plotted on 15-Sep-2026 11:09 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

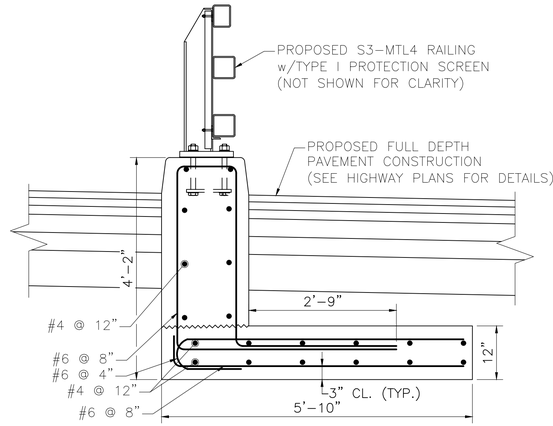
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	76	92
PROJECT FILE NO.	607420		

DECK DETAILS
SHEET 1 OF 2



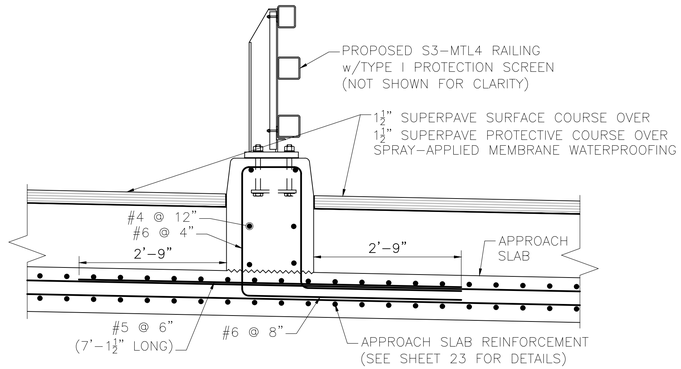
TYPICAL TRANSVERSE SECTION

SCALE: ¼" = 1'–0"



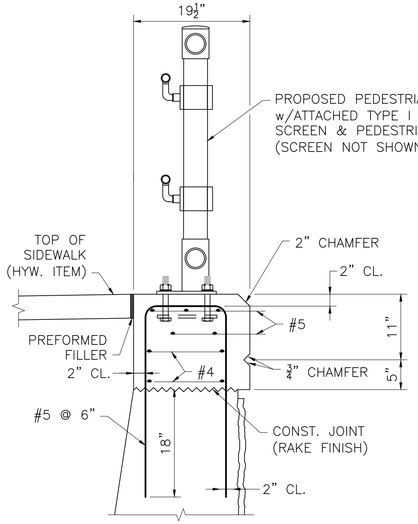
TYPICAL MEDIAN SECTION @ MOMENT SLAB

SCALE: ¾" = 1'–0"



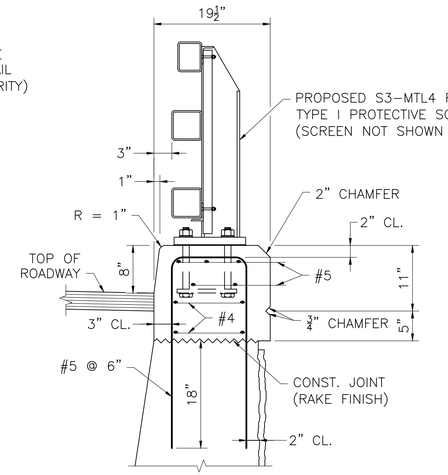
TYPICAL MEDIAN SECTION @ APPROACH SLAB

SCALE: ¾" = 1'–0"



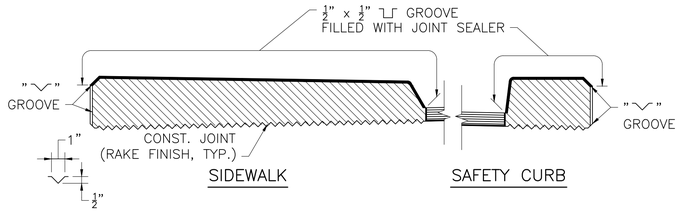
TOP OF U–WINGWALL DETAILS AT SIDEWALK

SCALE: 1" = 1'–0"



TOP OF U–WINGWALL DETAILS AT SAFETY CURB

SCALE: 1" = 1'–0"

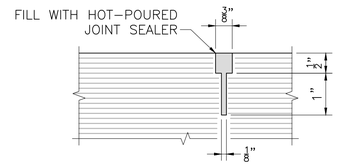


PARAFFIN NOTES:

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

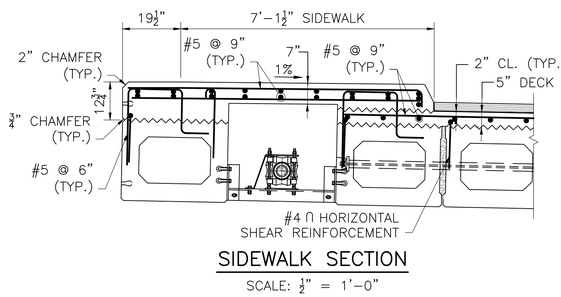
PARAFFIN JOINT DETAILS

SCALE: ¾" = 1'–0"



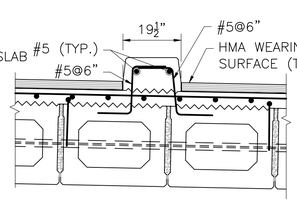
PAVEMENT SAWCUT DETAIL

NOT TO SCALE



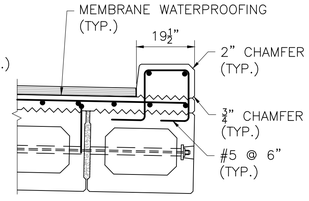
SIDEWALK SECTION

SCALE: ½" = 1'–0"



MEDIAN SECTION

SCALE: ½" = 1'–0"

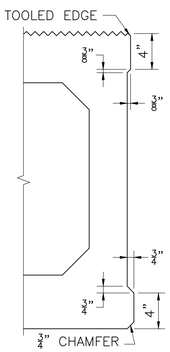


SAFETY CURB SECTION

SCALE: ½" = 1'–0"

DECK REINFORCEMENT NOTES:

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



SHEAR KEY DETAIL

SCALE: 1½" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

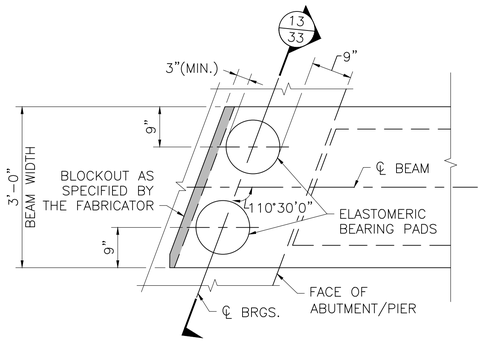
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

607420_BR26-30 (DECK DETAILS).DWG Plotted on 15-Sep-2026 11:10 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

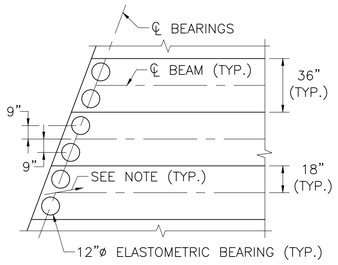
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	77	92
PROJECT FILE NO.	607420		

DECK DETAILS
SHEET 2 OF 2



PLAN

SCALE: $\frac{3}{4}$" = 1'–0"



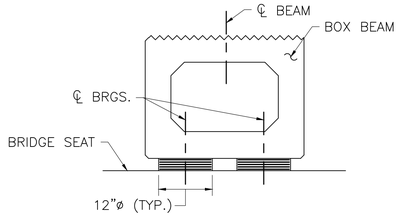
NOTE:
SLOPE BEAM SEAT 1%.

LAYOUT OF BEARINGS

SCALE: $\frac{1}{4}$" = 1'–0"

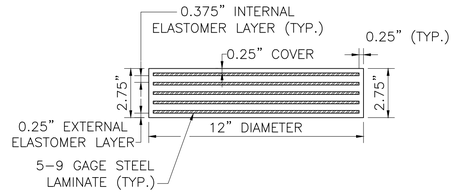
BEARING PAD NOTES:

1. BEARING IS DESIGNED USING AASHTO METHOD B.
2. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
3. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36 OR HIGHER. ALL EDGES OF STEEL LAMINATES SHALL BE GROUND SMOOTH.
4. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 51 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.29 KSI.
5. THE 25 YEAR CREEP STRAIN SHALL BE LIMITED TO 35%.
6. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A $\frac{1}{32}$" DEEP DIRECTION ARROW THAT POINTS UP–STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER BEARING IS INSTALLED.
7. 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.



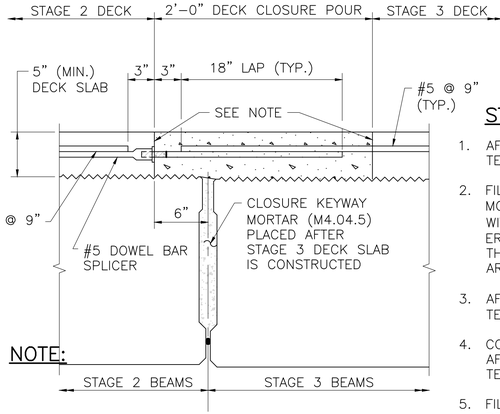
SECTION 13/33

SCALE: $\frac{3}{4}$" = 1'–0"



ELASTOMERIC BEARING PAD

SCALE: 3" = 1'–0"



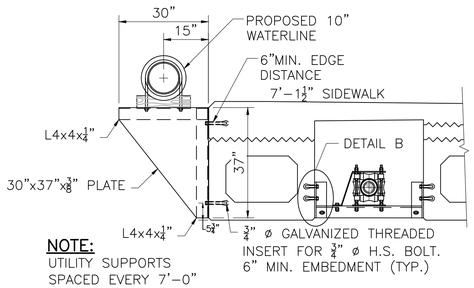
1. VERTICAL SURFACES OF PREVIOUSLY CAST DECK SLAB CONCRETE SHALL BE PRE–WETTED FOR 24 HOURS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

STAGE CONSTRUCTION DETAIL

SCALE: $1\frac{1}{2}$" = 1'–0"

STAGE CONSTRUCTION NOTES:

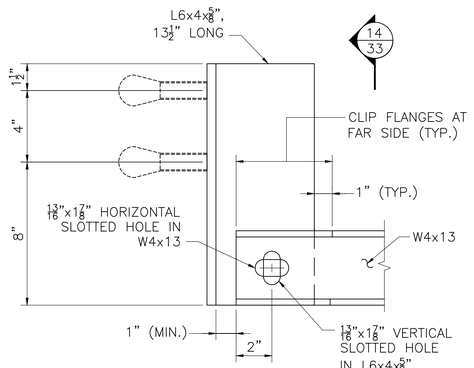
1. AFTER ALL STAGE 3 BEAMS HAVE BEEN ERECTED, TENSION EACH STAGE 3 TRANSVERSE TIE TO 5 KIPS.
2. FILL ALL KEYWAYS BETWEEN STAGE 3 BEAMS WITH MORTAR (M4.04.5). IF THE KEYWAYS ARE NOT FILLED WITHIN FIVE (5) DAYS AFTER THE BEAMS HAVE BEEN ERECTED, THE CONTRACTOR SHALL COVER AND PROTECT THE KEYWAYS FROM WEATHER AND DEBRIS UNTIL THEY ARE FILLED.
3. AFTER THE MORTAR HAS CURED (24 HOURS MINIMUM), TENSION EACH TRANSVERSE TIE TO 44 KIPS.
4. CONCRETE FOR STAGE 3 DECK SLAB SHALL BE PLACED AFTER THE STAGE 3 TRANSVERSE TIES HAVE BEEN FULLY TENSIONED.
5. FILL CLOSURE KEYWAY BETWEEN STAGE 2 AND STAGE 3 BEAMS WITH MORTAR (M4.04.5).
6. VERTICAL SURFACES OF PREVIOUSLY CAST DECK SLAB CONCRETE SHALL BE PRE–WETTED FOR 24 HOURS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
7. IMMEDIATELY PLACE AND CURE CLOSURE POUR.



NOTE:
UTILITY SUPPORTS SPACED EVERY 7'–0"

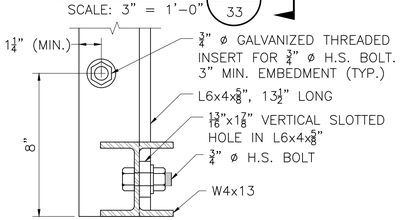
EXTERIOR UTILITY SUPPORTS

SCALE: $\frac{1}{2}$" = 1'–0"



DETAIL B

SCALE: 3" = 1'–0" — B/33

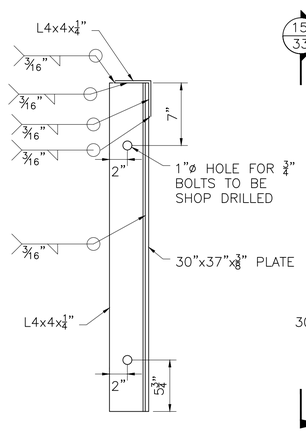


SECTION 14/33

SCALE: 3" = 1'–0"

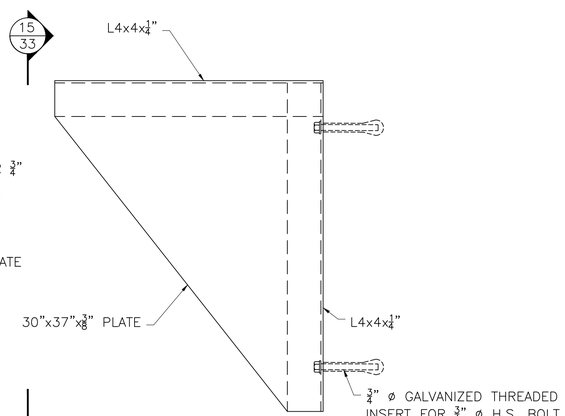
UTILITY SUPPORT NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M 270 GRADE 50.
2. ALL STRUCTURAL STEEL AND FASTENERS SHALL BE GALVANIZED.
3. THE ¾" ø GALVANIZED THREADED INSERTS FOR ¾" ø BOLTS SHALL BE CAST INTO THE PRECAST BEAMS BY THE FABRICATOR. THEY SHALL PROVIDE A MINIMUM NOMINAL TENSILE RESISTANCE OF 4.0 KIPS AND A MINIMUM NOMINAL SHEAR RESISTANCE OF 4.0 KIPS IN 3000 PSI CONCRETE.



SECTION 15/33

SCALE: $1\frac{1}{2}$" = 1'–0"



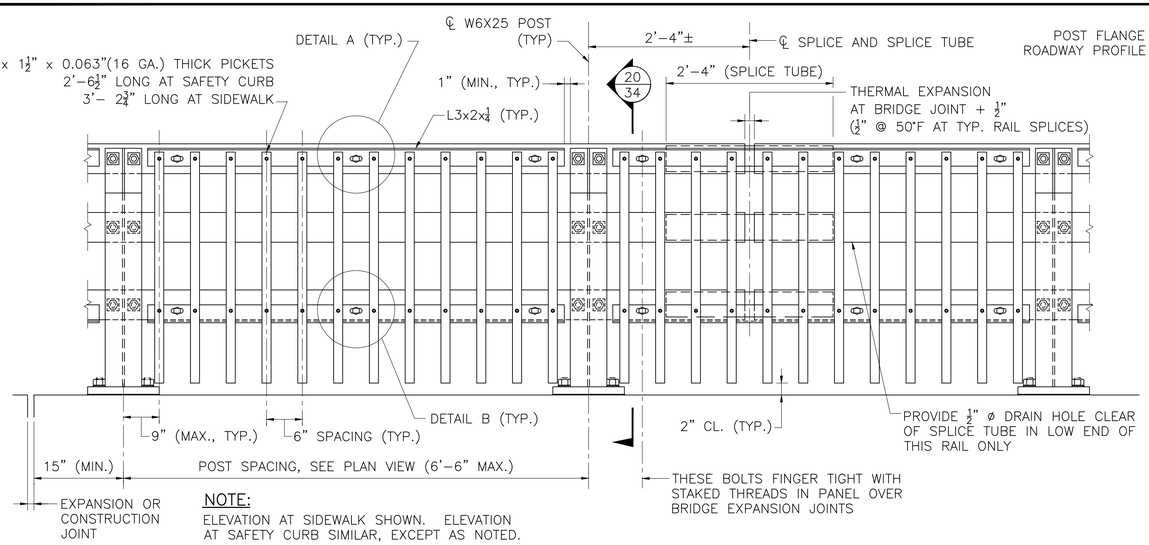
SIDE MOUNTED UTILITY BRACKET DETAIL

SCALE: $1\frac{1}{2}$" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

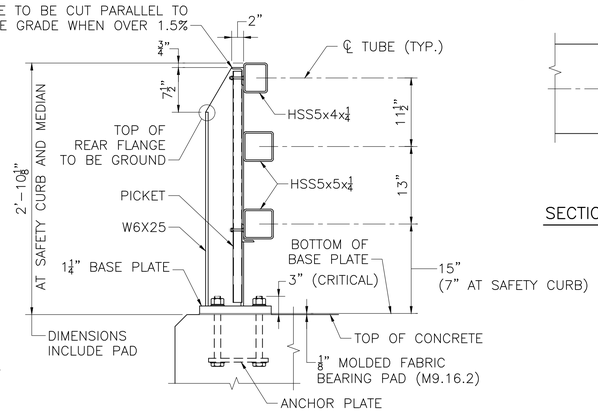
607420_BR26-30 (DECK DETAILS).DWG Plotted on 15-Sep-2026 11:10 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

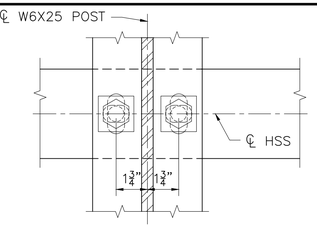


NOTE:
ELEVATION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

BRIDGE RAILING ELEVATION

SCALE: 1" = 1'-0"

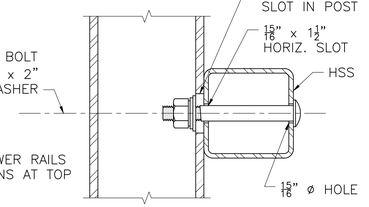




SECTION THRU POST WEB

℄ ⅞" ø ROUND HEAD BOLT WITH NUT, ¾" x 2" x 2" WASHER, AND LOCK WASHER

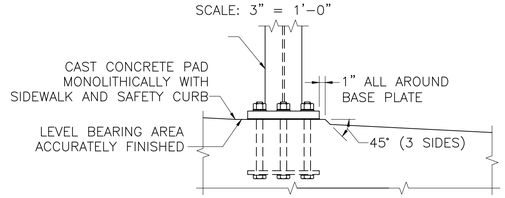
NOTE:
CONNECTIONS AT LOWER RAILS SHOWN. CONNECTIONS AT TOP RAIL SIMILAR.



SECTION THRU RAIL

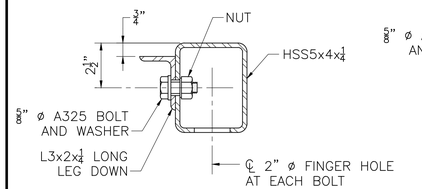
TYPICAL RAIL TO POST CONNECTIONS

SCALE: 3" = 1'-0"

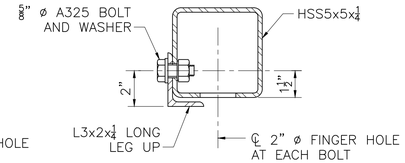


SETTING OF POSTS (PROFILE GRADE OVER 1.5%)

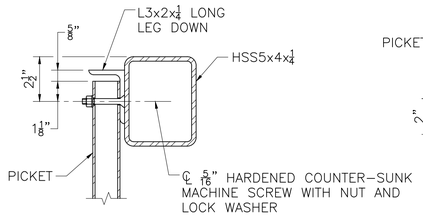
SCALE: 1" = 1'-0"



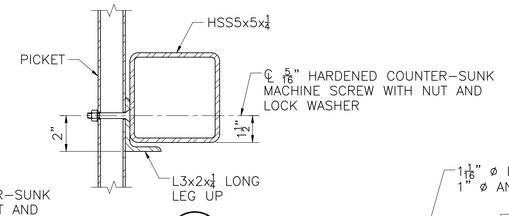
SECTION 16/34



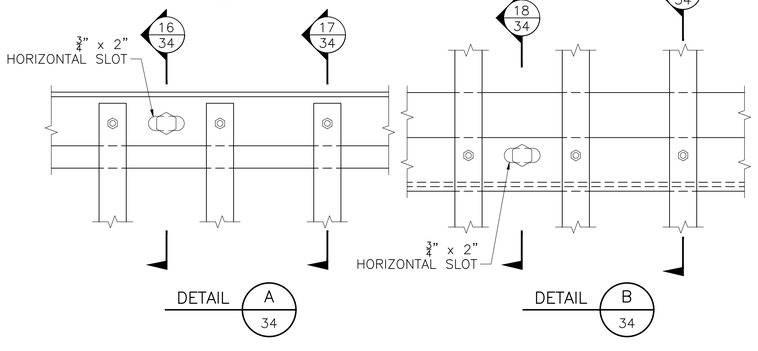
SECTION 17/34



SECTION 18/34



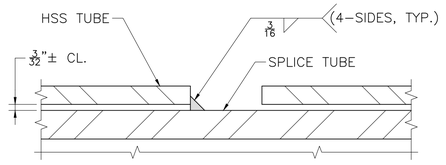
SECTION 19/34



DETAIL A 34 DETAIL B 34

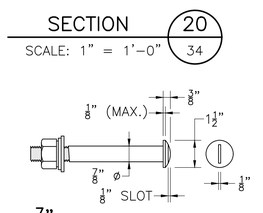
TYPICAL PICKET TO RAIL DETAILS

SCALE: 3" = 1'-0"



SPLICE DETAIL

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

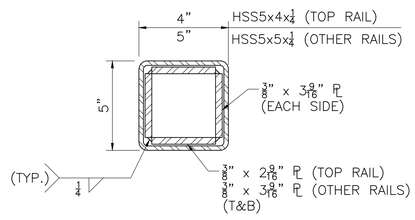


⅞" ø ROUND HEAD BOLT

SCALE: 3" = 1'-0"

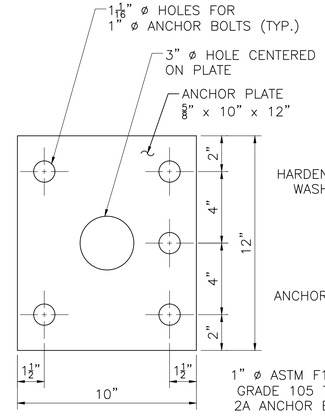
TYPICAL SPLICE

SCALE: 1" = 1'-0"



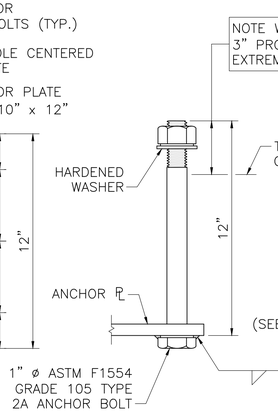
SPLICE TUBE DETAILS

SCALE: 3" = 1'-0"



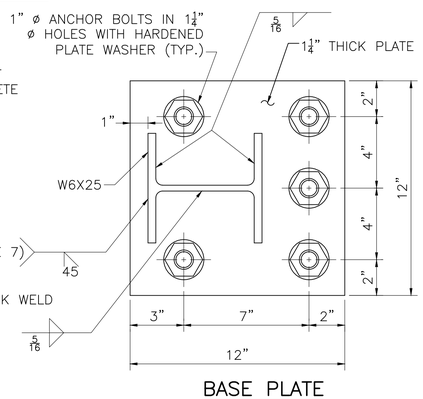
ANCHOR PLATE

SCALE: 3" = 1'-0"



ANCHOR BOLT

SCALE: 3" = 1'-0"



BASE PLATE

SCALE: 3" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADII OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
2. ALL STEEL (EXCEPT THE ⅝" ANCHOR PLATE AND FASTENERS) SHALL BE GALVANIZED AND PAINTED DARK BRONZE (FEDERAL STD. 595B COLOR NO. 10045). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF ⅞" ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. IN ADDITION SPLICES SHALL ALSO BE LOCATED IN RAILS OVER BRIDGE EXPANSION JOINTS.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5%, POSTS SHALL BE SET PERPENDICULAR TO GRADE.
7. POST TO FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. BEVEL OUTSIDE FLANGES OF POST. FIT POST TO BASE PLATE. WELD 5/16" FILLET ON INSIDE OF FLANGE AND WEB. BACKGOUGE OUTSIDE OF FLANGE TO SOUND METAL. COMPLETE GROOVE WELD WITH MINIMUM OF ⅛" REINFORCEMENT. WELD IS THE SAME ON BOTH FLANGES.
8. ⅞" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF ASTM F3125 GRADE 325 TYPE 1 GALVANIZED.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	78	92
	PROJECT FILE NO. 607420		

S3-MTL4 BRIDGE RAILING

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

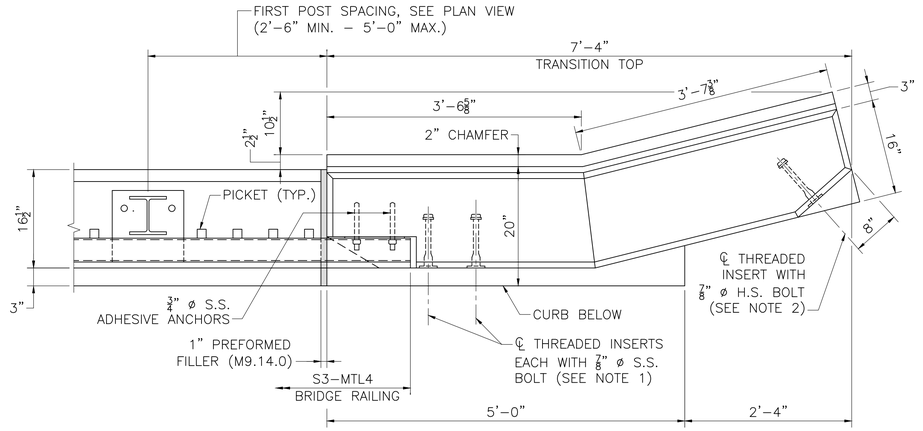
607420_BR31 (S3MTL4 RAIL).DWG Plotted on 15-Sep-2026 11:10 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

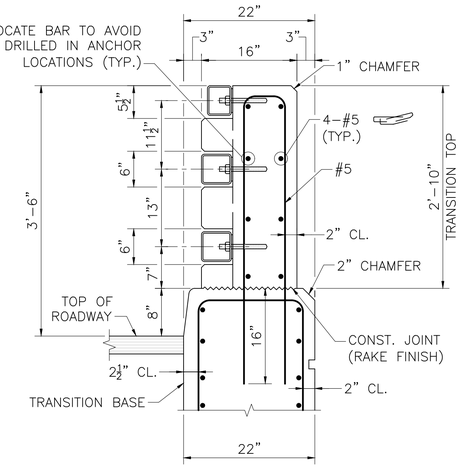
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	79	92
	PROJECT FILE NO. 607420		

S3-MTL4 HIGHWAY GUARDRAIL TRANSITION



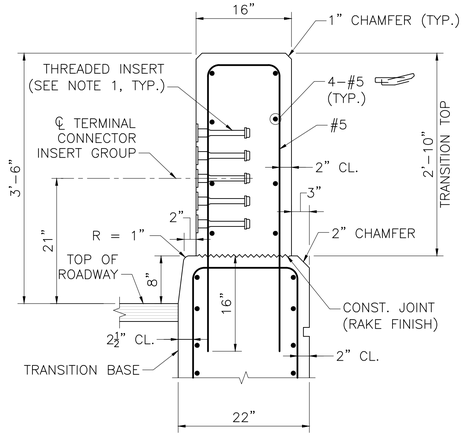
PLAN AT SAFETY CURB

SCALE: 1" = 1'-0"



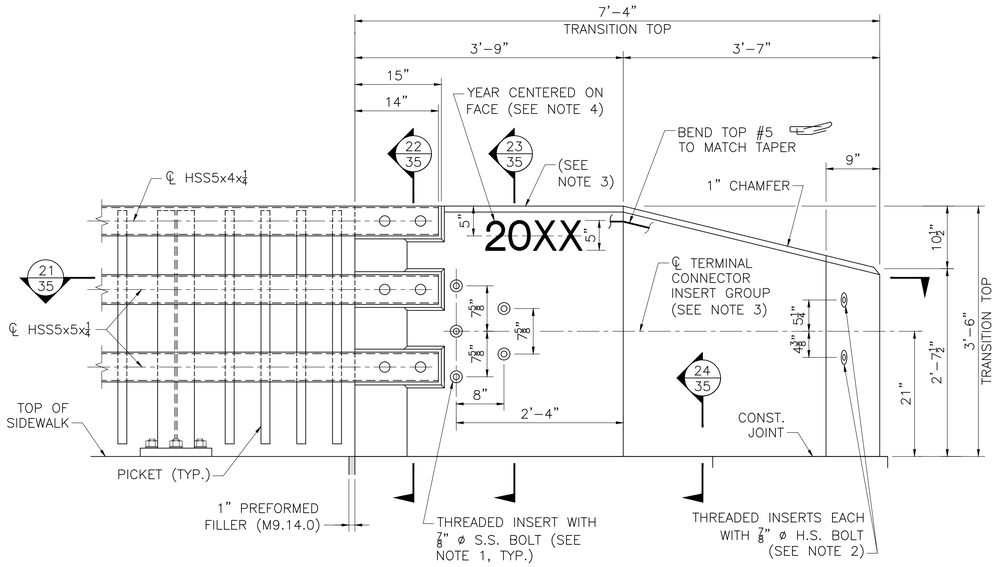
SECTION AT SAFETY CURB

SECTION 22 / 35
SCALE: 1" = 1'-0"



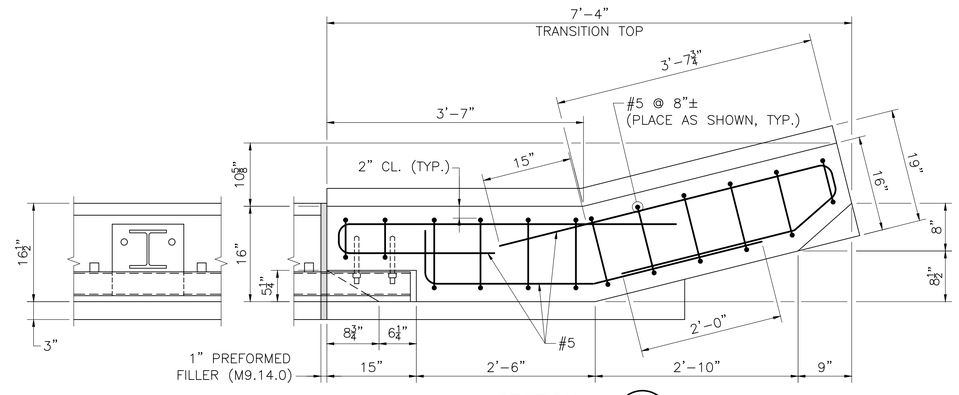
SECTION AT SAFETY CURB

SECTION 23 / 35
SCALE: 1" = 1'-0"



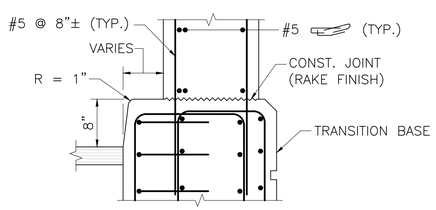
ELEVATION AT SIDEWALK

SCALE: 1" = 1'-0"



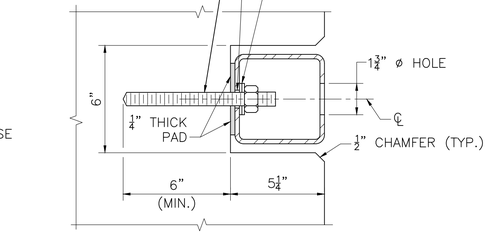
SECTION

SECTION 21 / 35
SCALE: 1" = 1'-0"



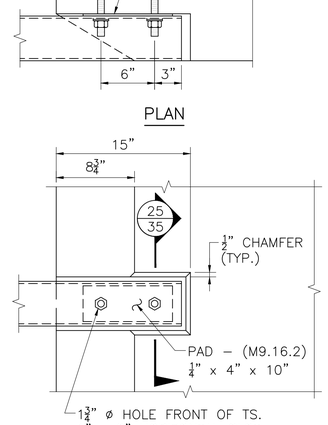
SECTION AT SAFETY CURB

SECTION 24 / 35
SCALE: 1" = 1'-0"



SECTION

SECTION 25 / 35
SCALE: 3" = 1'-0"



RAIL ATTACHMENT

SCALE: 1½" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. (STAINLESS STEEL) BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED CONFORMING TO ASTM F593D WITH AISI TYPE 304N S.S. WASHERS. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. ⅞" ø HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 AND BE 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 CURB 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.

   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 1½" 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.

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

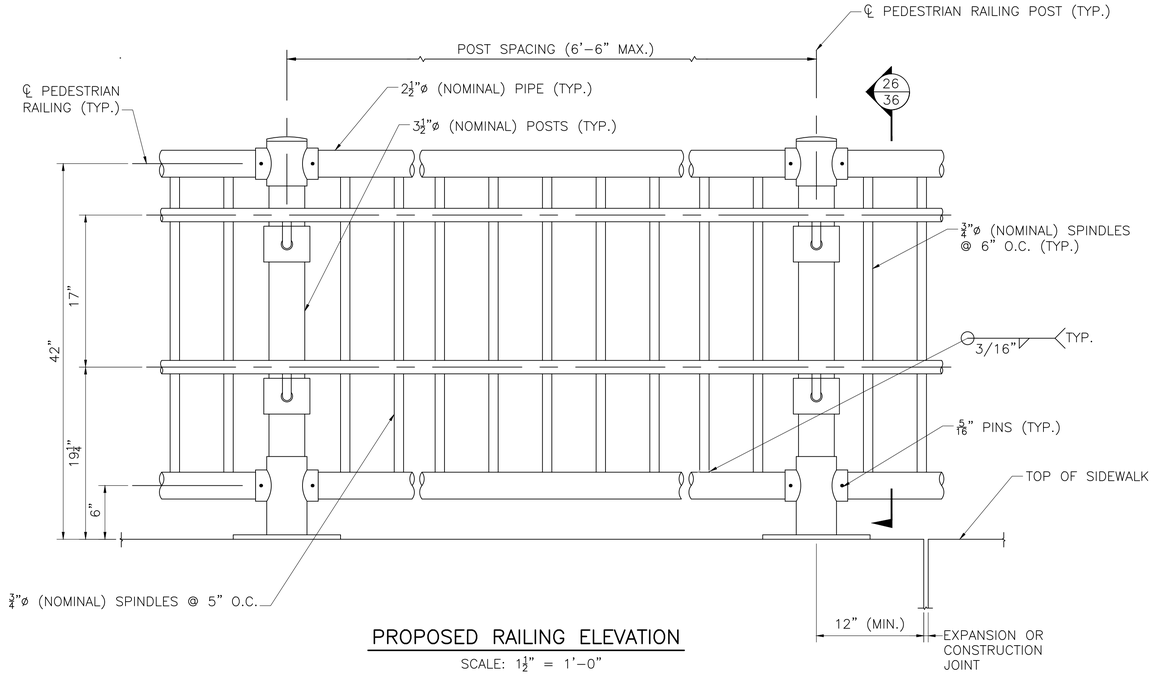
USE ONLY PRINTS OF LATEST DATE

607420_BR32 (HGT_S3MTL4).DWG Plotted on 4-Sep-2026 2:38 PM
607420 Final Structural Submittal (SF) 28-Aug-2026

NATICK
BODEN LANE OVER THE MBTA RAILROAD

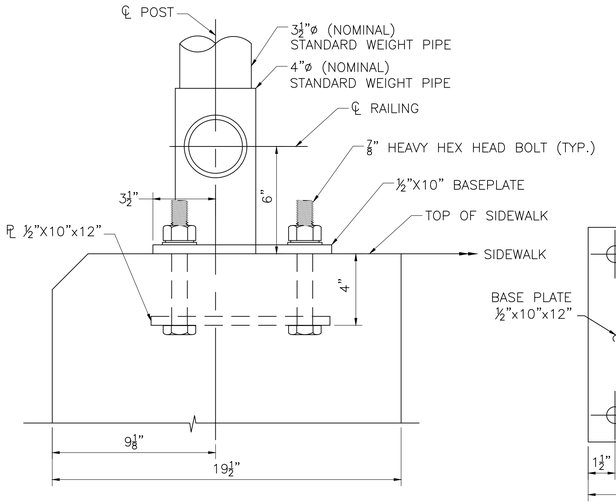
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	80	92
	PROJECT FILE NO. 607420		

PEDESTRIAN BRIDGE RAILING



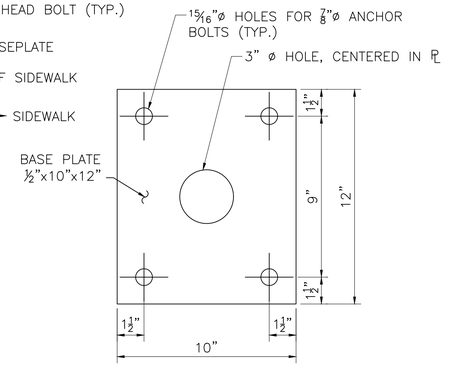
PROPOSED RAILING ELEVATION

SCALE: 1½" = 1'–0"



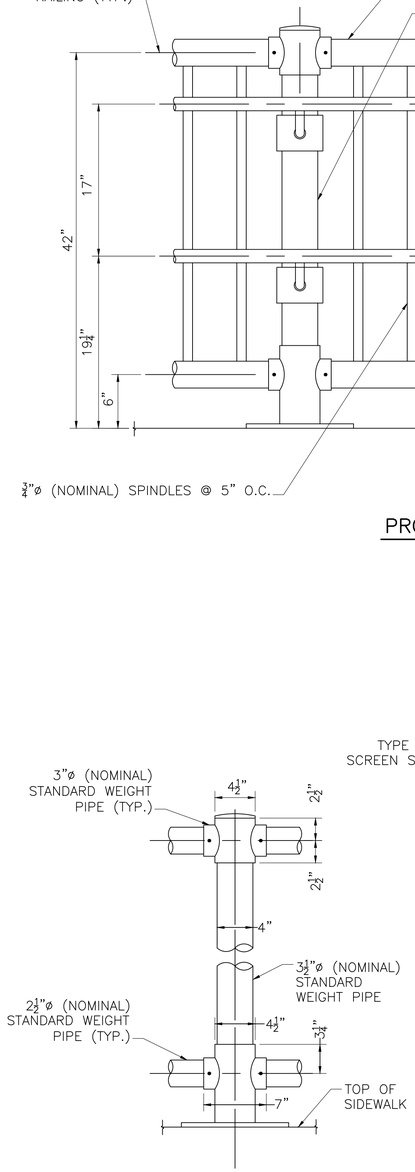
BASE PLATE DETAIL

SCALE: 3" = 1'–0"



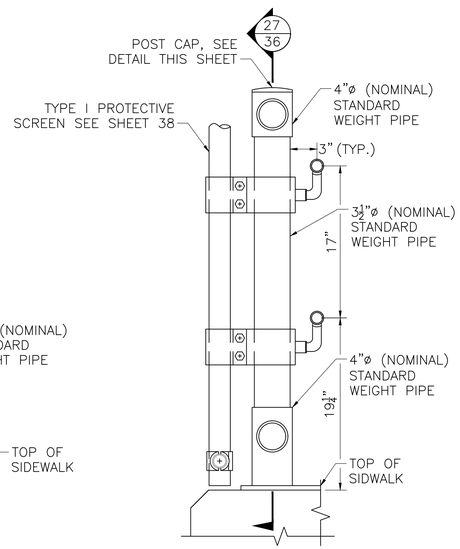
ANCHOR PLATE

SCALE: 3" = 1'–0"



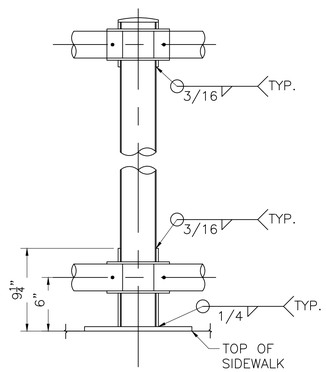
POST ELEVATION

SCALE: 1½" = 1'–0"



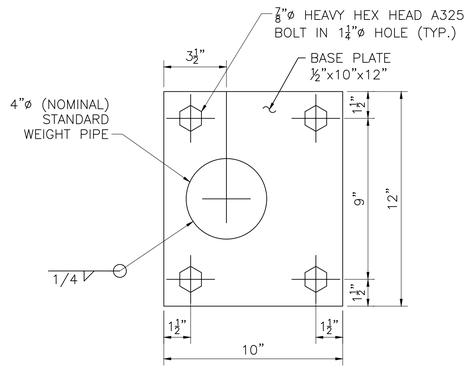
SECTION 26/36

SCALE: 1½" = 1'–0"



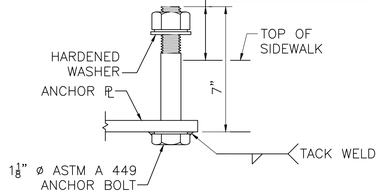
SECTION 27/36

SCALE: 1½" = 1'–0"



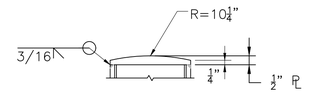
BASE PLATE

SCALE: 3" = 1'–0"



ANCHOR BOLT

SCALE: 3" = 1'–0"



POST CAP DETAIL

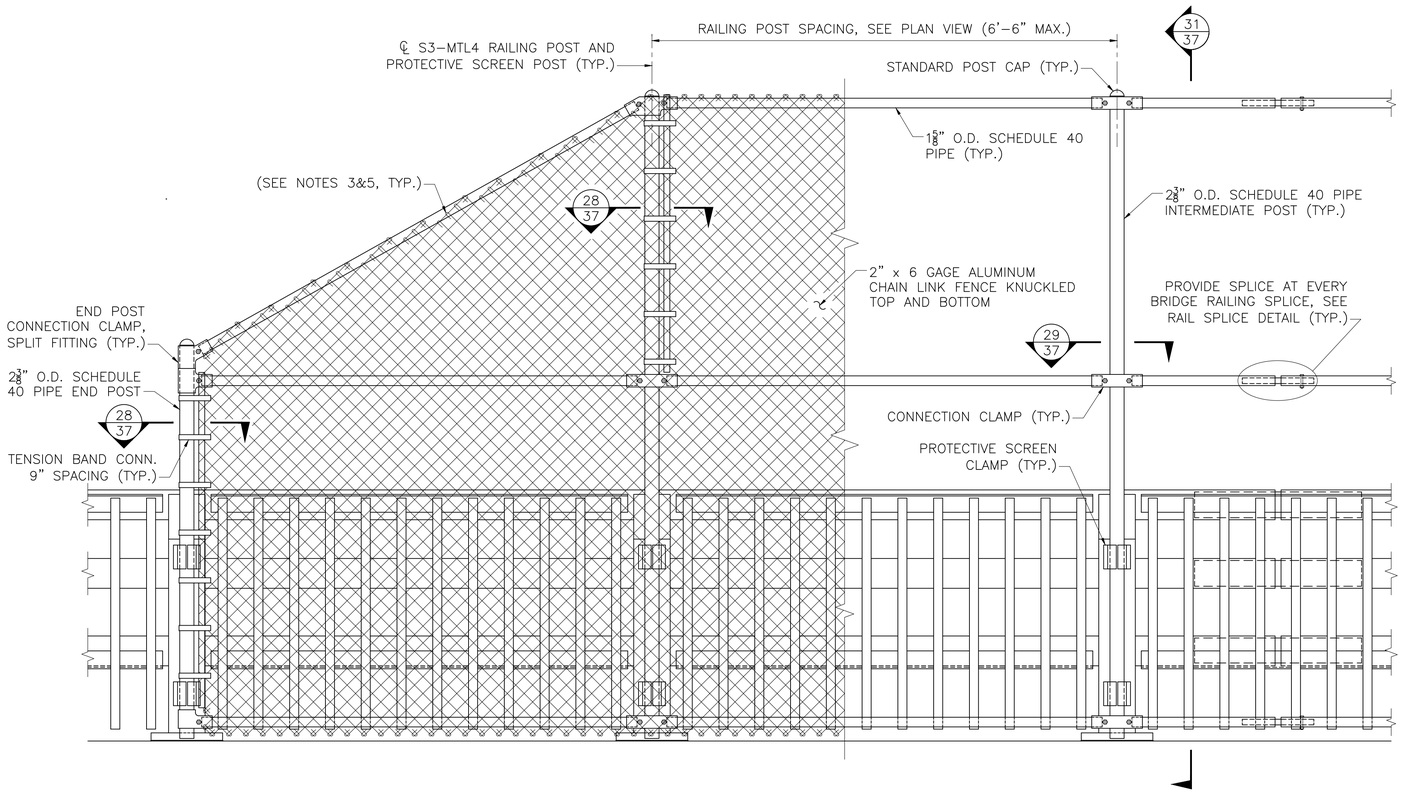
SCALE: 3" = 1'–0"

NOTES

1. ALL MATERIAL FOR PROPOSED RAILING AND BASE PLATES SHALL BE 6063–T6 ANODIZED ALUMINUM SCHEDULE 40 PIPE, UNLESS NOTED. SPINDLES SHALL BE 6063–T5 ANODIZED ALUMINUM. COLOR SHALL BE DARK BRONZE (FEDERAL STANDARD 595B COLOR NO. 10045).
2. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ⅛ TURN AFTER RAIL IS SET.
3. ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5% POSTS SHALL BE SET PERPENDICULAR TO GRADE.

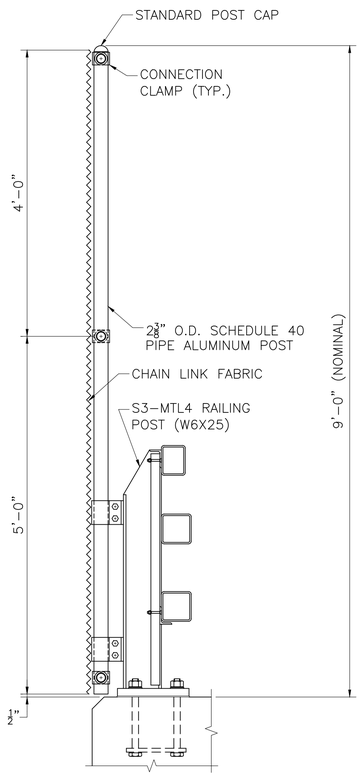
Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

607420_BR33 (PEDRAIL).DWG Plotted on 15-Sep-2026 11:10 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



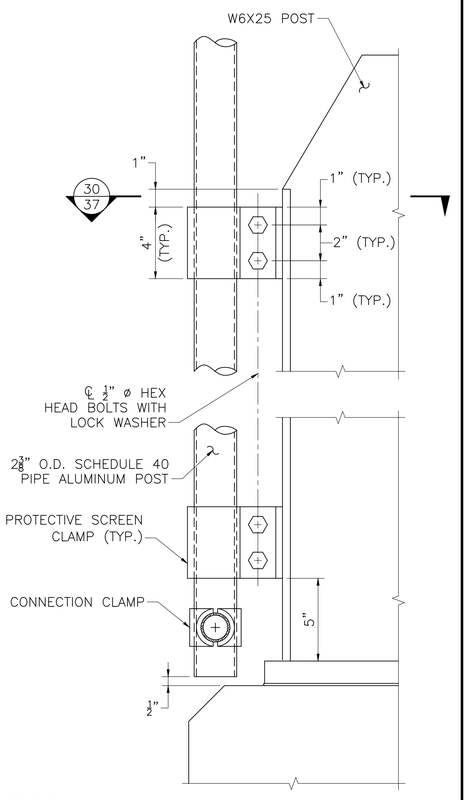
ELEVATION

SCALE: 1" = 1'–0"



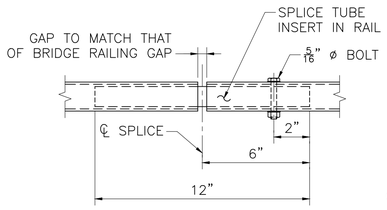
SECTION 31/37

SCALE: 1" = 1'–0"



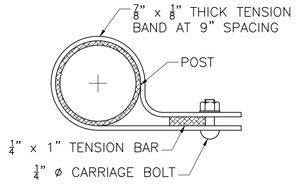
ELEVATION PROTECTIVE SCREEN CLAMPS

SCALE: 3" = 1'–0"



RAIL SPLICE

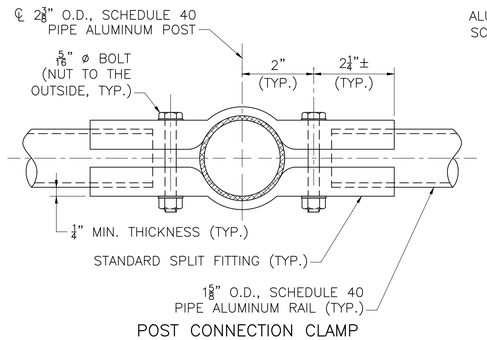
SCALE: 3" = 1'–0"



TENSION BAND CONNECTION

SECTION 28/37

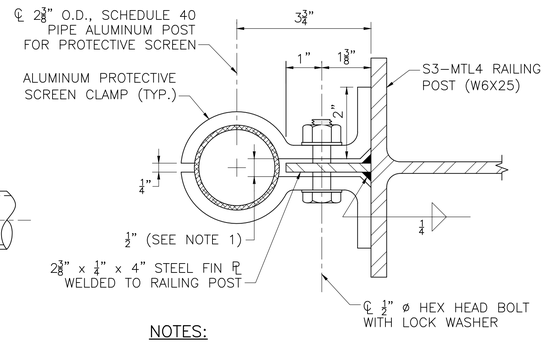
SCALE: 6" = 1'–0"



POST CONNECTION CLAMP

SECTION 29/37

SCALE: 6" = 1'–0"



NOTES:

1. DRAW FOR FABRICATION TO ENSURE CLAMPING ACTION.
2. SLIGHT VARIATIONS IN EXTRUSION DIMENSIONS MAY BE SUBMITTED FOR APPROVAL.

SECTION 30/37

SCALE: 6" = 1'–0"

GENERAL NOTES:

1. USE 6 GAGE TIES AT 12" O.C. TO ALL POSTS AND TOP 2 RAILS OR 3 RAILS (CURVED TOP). SPACE TIES TO BOTTOM RAIL AT 6" O.C.
2. ALL ALUMINUM, INCLUDING HARDWARE AND FABRIC, SHALL RECEIVE A 4±1 MIL POLYESTER POWDER COAT FINISH. THE COLOR SHALL MATCH THE COLOR OF THE S3–MTL4 RAILING.
3. THE CHAIN LINK FABRIC SHALL BE SECURED BY KNUCKLING TOGETHER THE CUT ENDS OF THE FABRIC WIRE IN A MANNER SIMILAR TO THE ORIGINALLY MANUFACTURED END.
4. PICKETS ARE REQUIRED FOR CRASH SAFETY.
5. TYPE 1 PROTECTIVE SCREEN FOR MEDIAN TO TAPER AT EACH END POST

MATERIALS:

POST AND RAILS	ASTM B 221, ALLOY 6061–T6, SCHEDULE 40 PIPE
TENSION BARS, RAIL SPLICES, WASHERS, AND POST CONN. CLAMPS	ASTM B 221, ALLOY 6061–T6
FABRIC AND TIES	AASHTO M 181 TYPE III, ALLOY 6061–T89 OR T94; 6 GAGE
TENSION BANDS	ASTM B 221, ALLOY 6063–T5
BOLTS	ASTM B 316, ALLOY 2024–T4
NUTS	ASTM B 316, ALLOY 6061–T6
PROTECTIVE SCREEN CLAMPS	ASTM B 221, ALLOY 6061–T6

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	81	92
PROJECT FILE NO.	607420		

TYPE I PROTECTIVE SCREEN DETAILS

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

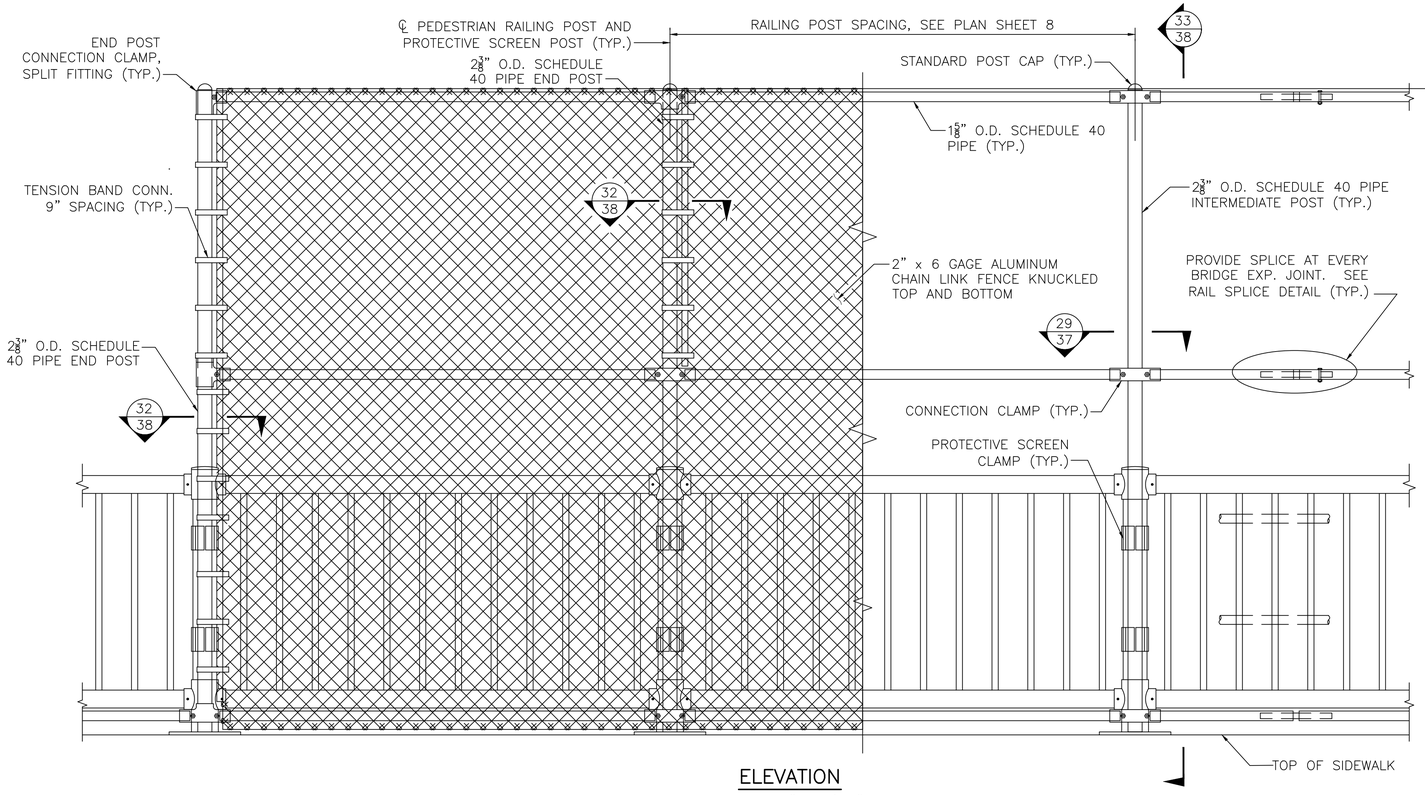
607420_BR34 (TYPEI PROT FENCE).DWG Plotted on 15-Sep-2026 11:10 AM

607420 Final Structural Submittal (SF) 28-Aug-2026

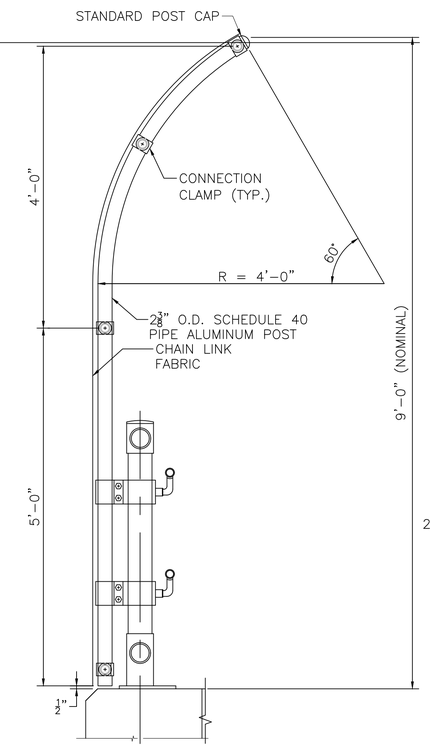
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	82	92
	PROJECT FILE NO. 607420		

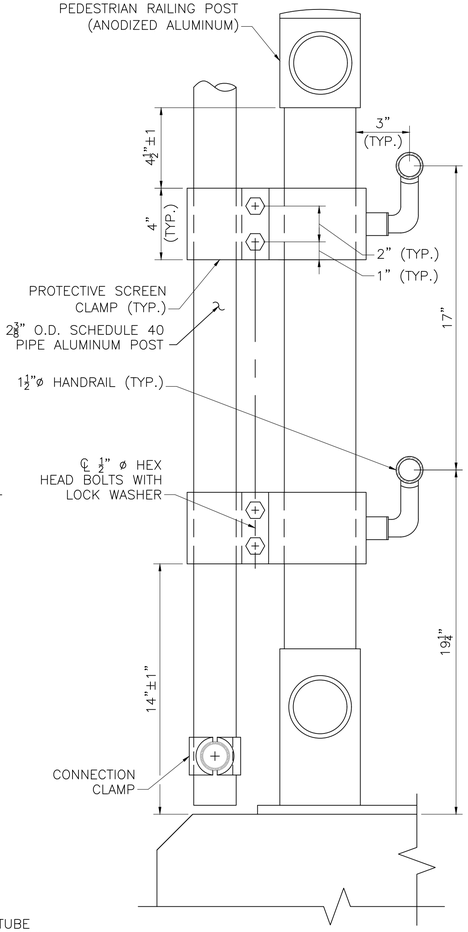
TYPE I PROTECTIVE SCREEN DETAILS (PEDESTRIAN RAILING)



ELEVATION
SCALE: 1" = 1'–0"



SECTION 33/38
SCALE: 1" = 1'–0"



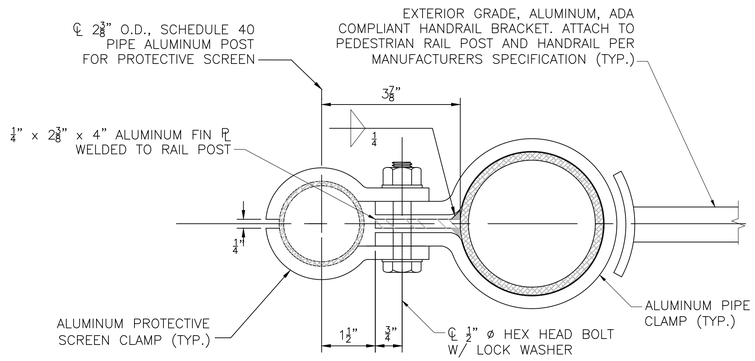
ELEVATION
PROTECTIVE SCREEN CLAMPS
SCALE: 3" = 1'–0"

GENERAL NOTES:

1. USE 6 GAGE TIES AT 12" O.C. TO ALL POSTS AND TOP 2 RAILS OR 3 RAILS (CURVED TOP). SPACE TIES TO BOTTOM RAIL AT 6" O.C.
2. ALL ALUMINUM, INCLUDING HARDWARE AND FABRIC, SHALL RECEIVE A 4±1 MIL POLYESTER POWDER COAT FINISH. THE COLOR SHALL MATCH THE COLOR OF THE PEDESTRIAN RAIL.
3. THE CHAIN LINK FABRIC SHALL BE SECURED BY KNUCKLING TOGETHER THE CUT ENDS OF THE FABRIC WIRE IN A MANNER SIMILAR TO THE ORIGINALLY MANUFACTURED END.

MATERIALS:

POST AND RAILS	ASTM B 221, ALLOY 6061–T6, SCHEDULE 40 PIPE
TENSION BARS, RAIL SPLICES, WASHERS, AND POST CONN. CLAMPS	ASTM B 221, ALLOY 6061–T6
FABRIC AND TIES	AASHTO M 181 TYPE III, ALLOY 6061–T89 OR T94; 9 GAGE
TENSION BANDS	ASTM B 221, ALLOY 6063–T5
BOLTS	ASTM B 316, ALLOY 2024–T4
NUTS	ASTM B 316, ALLOY 6061–T6
PROTECTIVE SCREEN CLAMPS	ASTM B 221, ALLOY 6061–T6
ALUMINUM FIN ℄	ASTM B 221, ALLOY 6061–T6

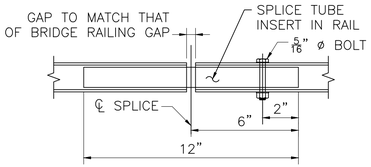


NOTES:

DRAW FOR FABRICATION TO ENSURE CLAMPING ACTION.

SLIGHT VARIATIONS IN EXTRUSION DIMENSIONS MAY BE SUBMITTED FOR APPROVAL.

SECTION 32/38
SCALE: 6" = 1'–0"

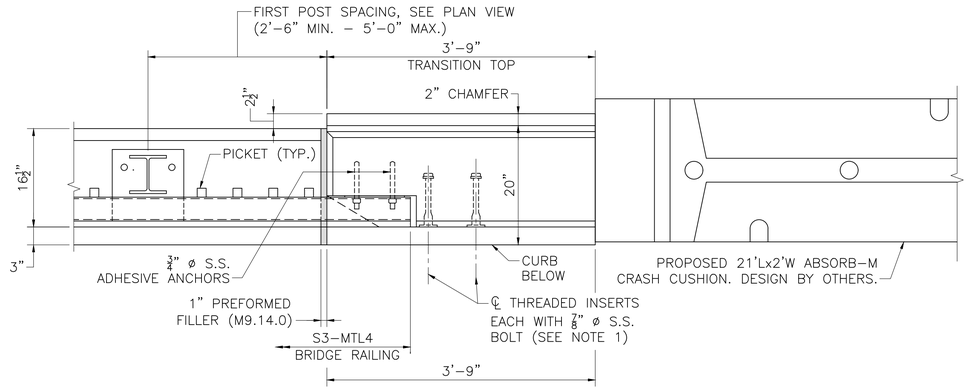


RAIL SPLICE
SCALE: 3" = 1'–0"

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

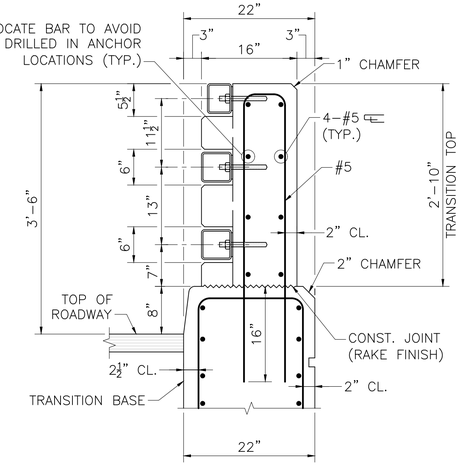
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR35 (PED PROTECTION FENCE).DWG Plotted on 15-Sep-2026 11:10 AM
607420 Final Structural Submittal (SF) 28-Aug-2026



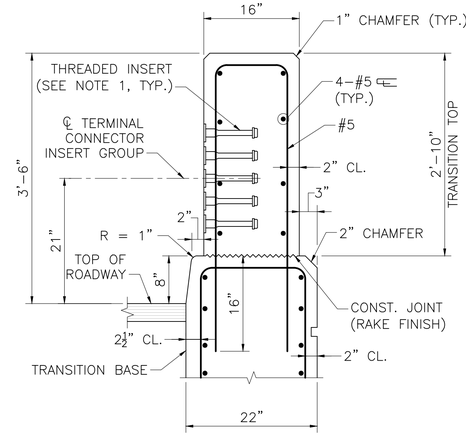
PLAN AT SAFETY CURB

SCALE: 1" = 1'-0"



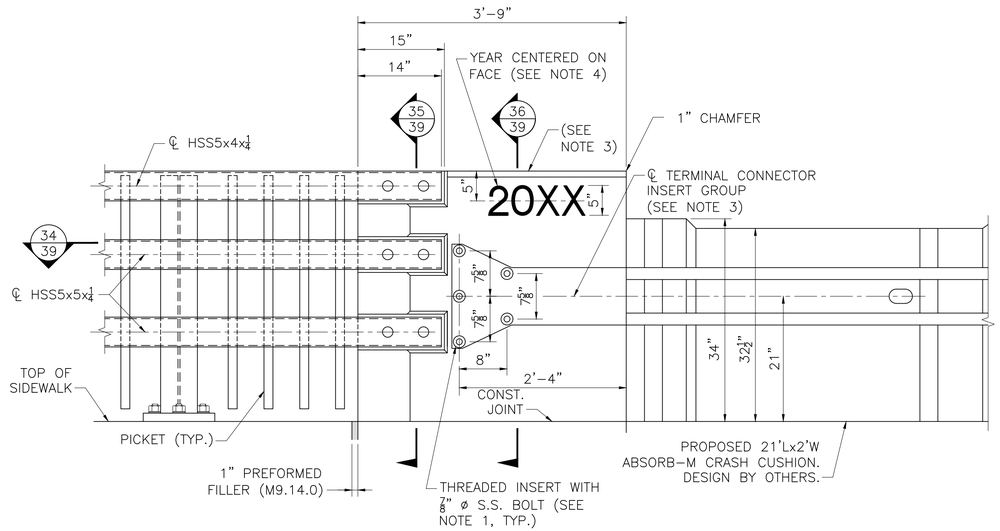
SECTION AT SAFETY CURB

SECTION 35 — SCALE: 1" = 1'-0" — 39



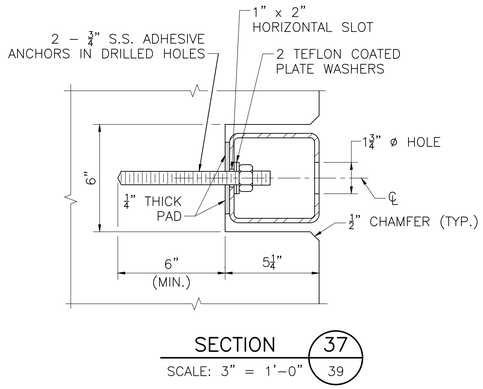
SECTION AT SAFETY CURB

SECTION 36 — SCALE: 1" = 1'-0" — 39

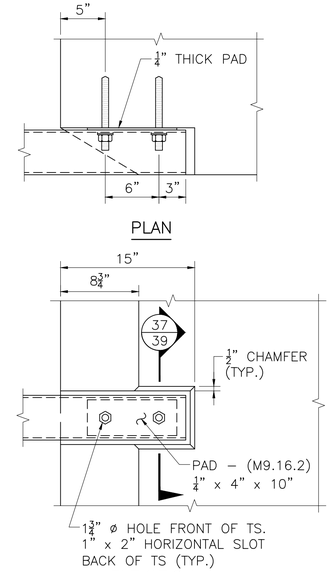


ELEVATION AT SIDEWALK

SCALE: 1" = 1'-0"

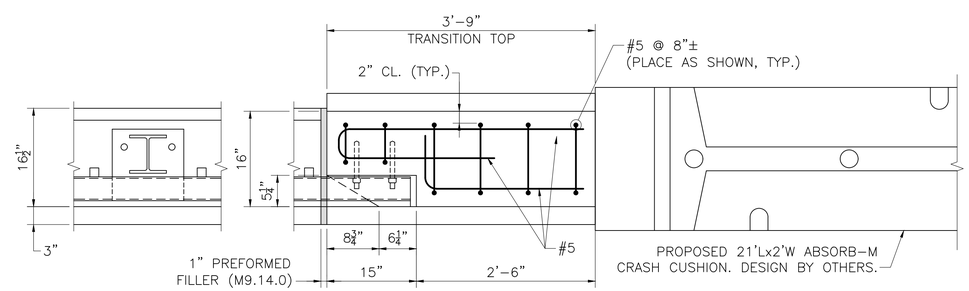


SECTION 37 — SCALE: 3" = 1'-0" — 39



RAIL ATTACHMENT

SCALE: 1½" = 1'-0"



SECTION

SECTION 34 — SCALE: 1" = 1'-0" — 39

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. (STAINLESS STEEL) BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED CONFORMING TO ASTM F593D WITH AISI TYPE 304N S.S. WASHERS. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. ⅞" ø HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 AND BE 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 CURB 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.

   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 1½" 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.

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	83	92
	PROJECT FILE NO. 607420		

CUSTOM MEDIAN TERMINUS DETAILS

Sept 5, 2026	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

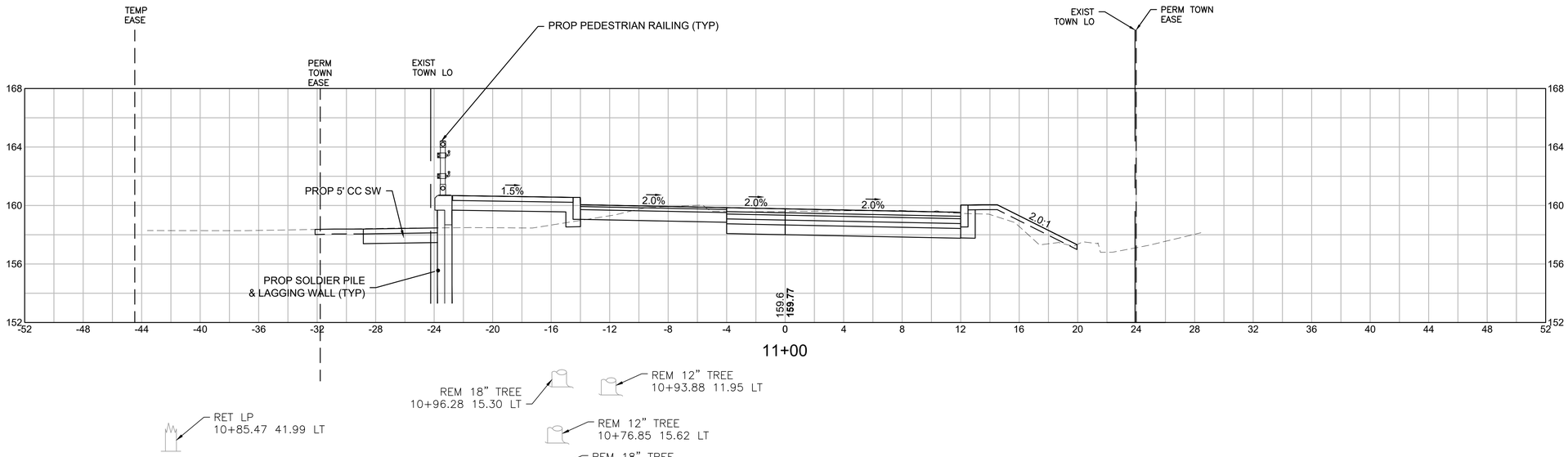
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

607420_BR36 (TERMINUS).DWG Plotted on 15-Sep-2026 11:10 AM
607420 Final Structural Submittal (SF) 28-Aug-2026

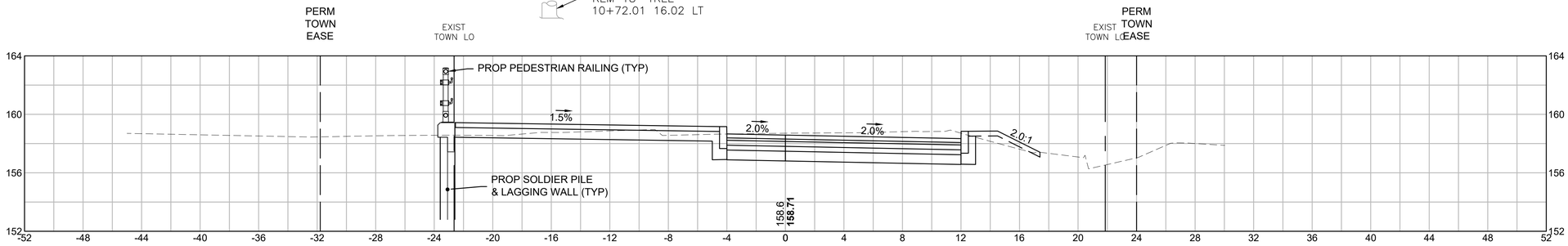
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	84	92
PROJECT FILE NO.	607420		

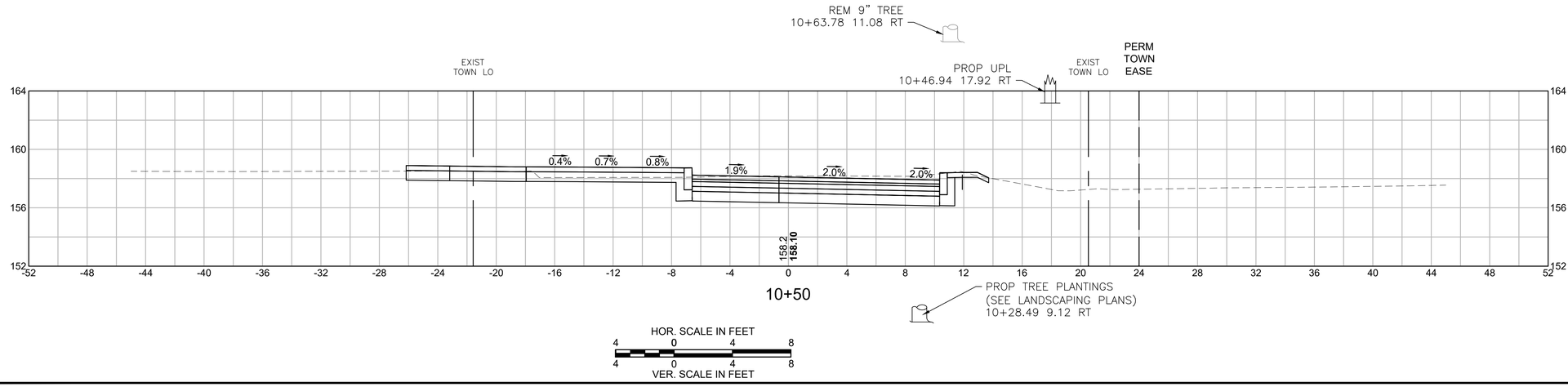
CROSS SECTIONS



CUT: 35.90 SF
FILL: 11.33 SF



CUT: 43.53 SF
FILL: 2.57 SF



CUT: 45.31 SF
FILL: 0.00 SF

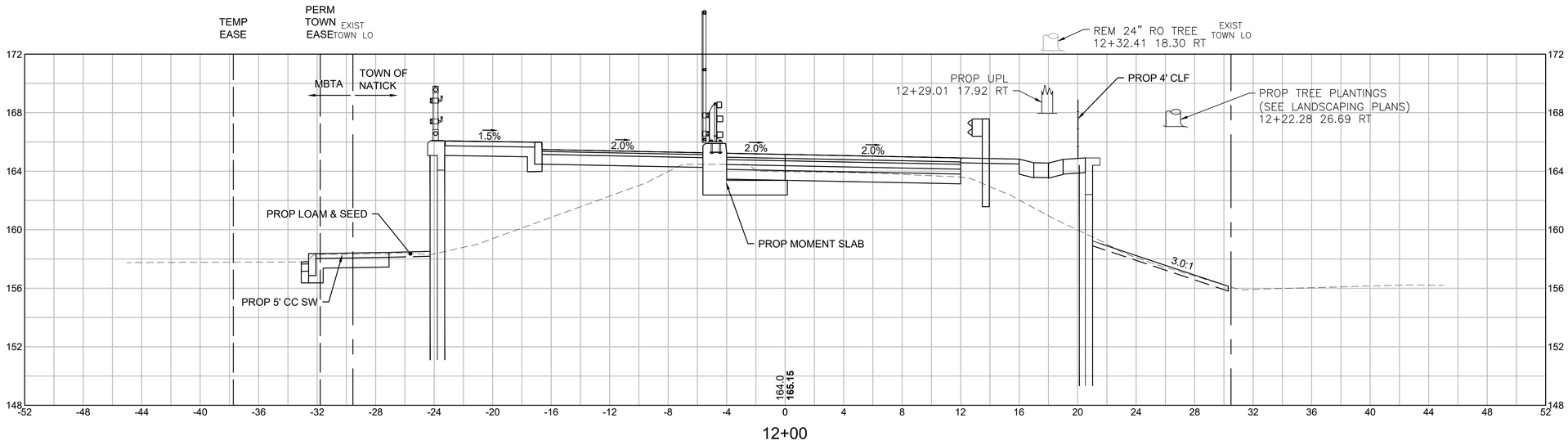
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:10 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	85	92
PROJECT FILE NO.	607420		

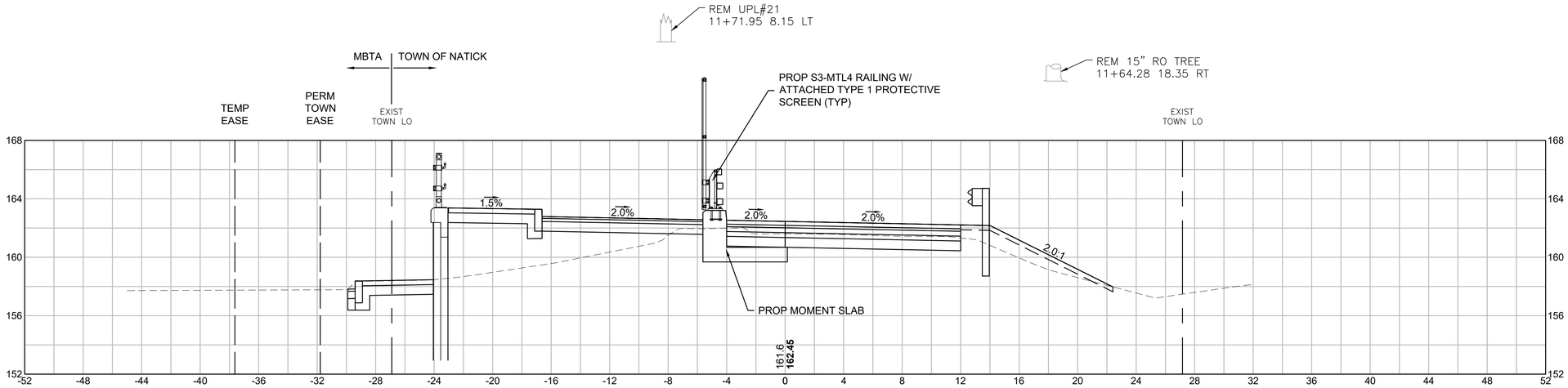
CROSS SECTIONS



12+00

CUT: 11.31 SF

FILL: 73.49 SF



11+50

CUT: 17.57 SF

FILL: 38.45 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

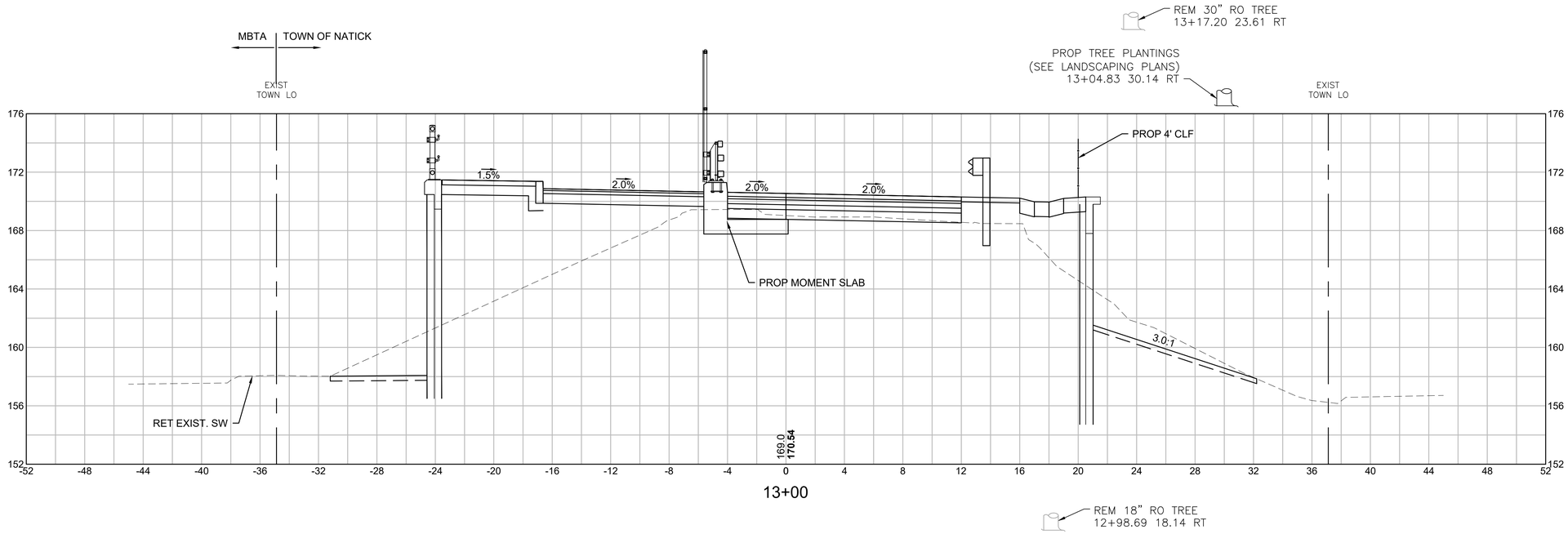
607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:10 AM

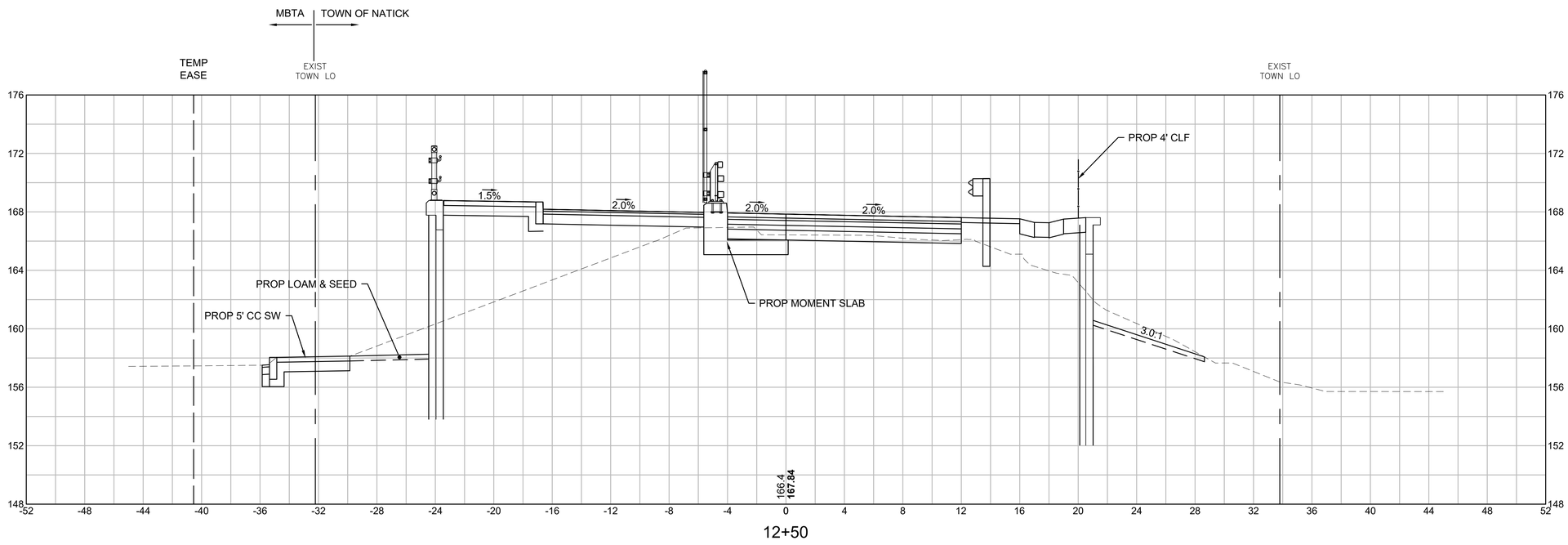
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	86	92
PROJECT FILE NO.	607420		

CROSS SECTIONS

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:10 AM

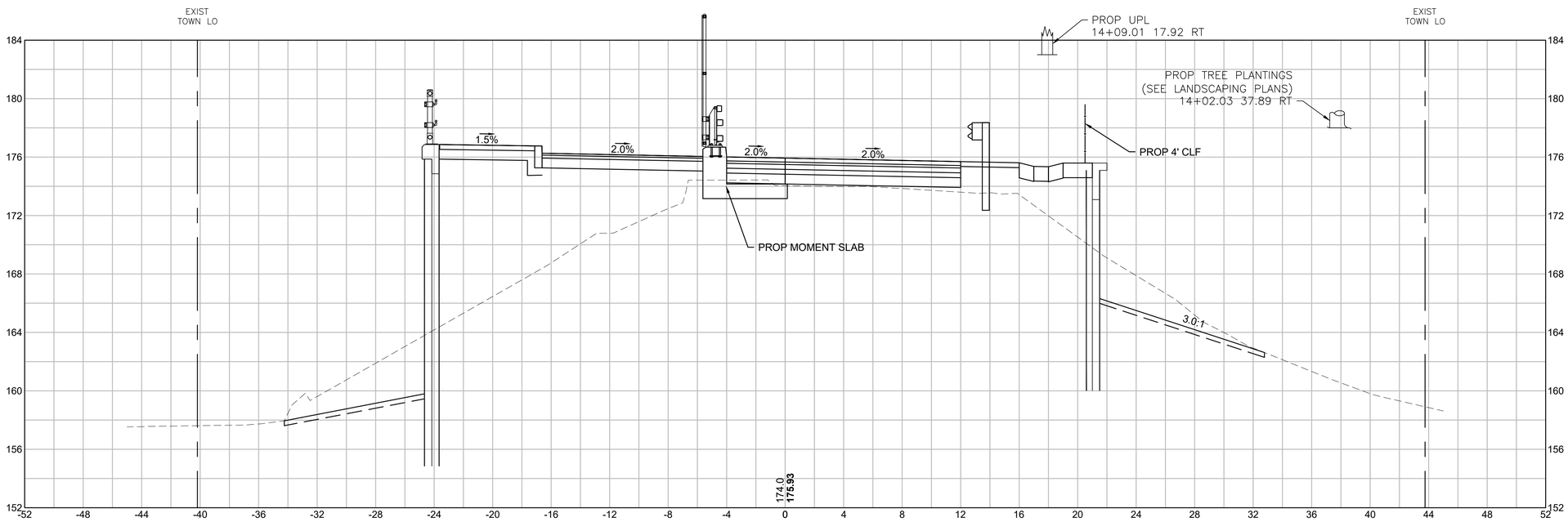




NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	87	92
	PROJECT FILE NO. 607420		

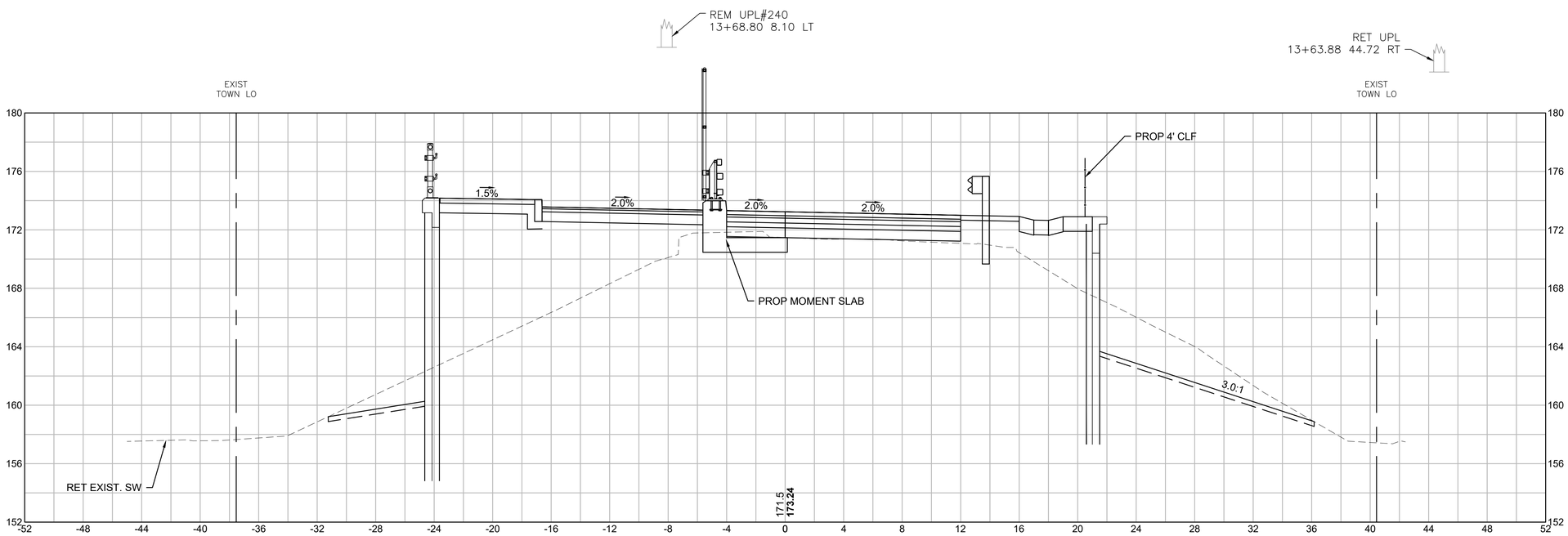
CROSS SECTIONS



14+00

CUT: 16.93 SF

FILL: 122.68 SF



13+50

CUT: 31.06 SF

FILL: 113.27 SF

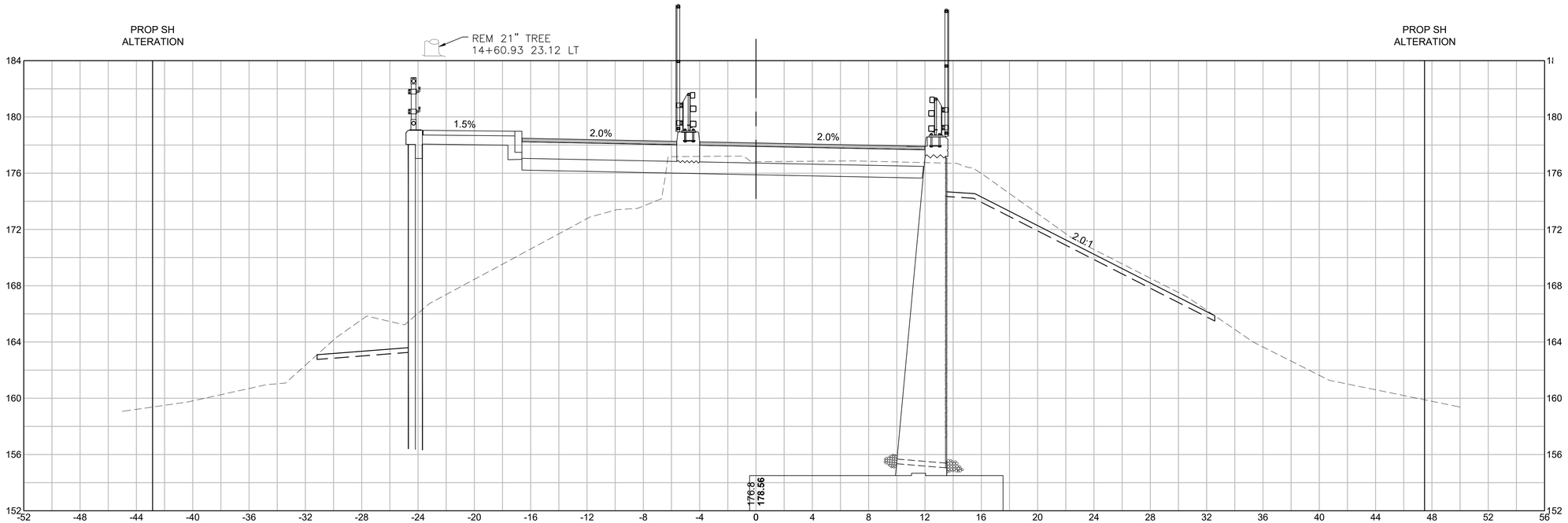
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

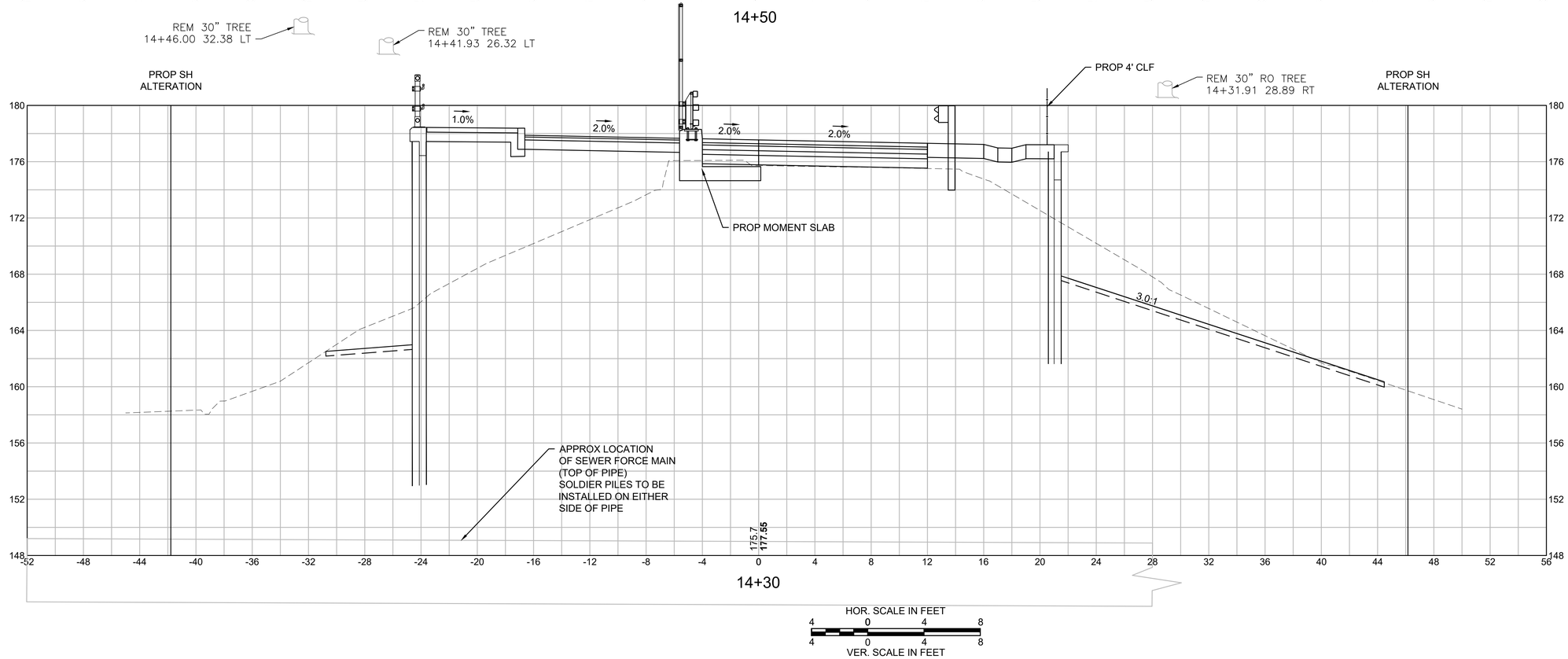
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	88	92
	PROJECT FILE NO. 607420		

CROSS SECTIONS



CUT: 18.33 SF

FILL: 136.83 SF



CUT: 1.33 SF

FILL: 123.97 SF

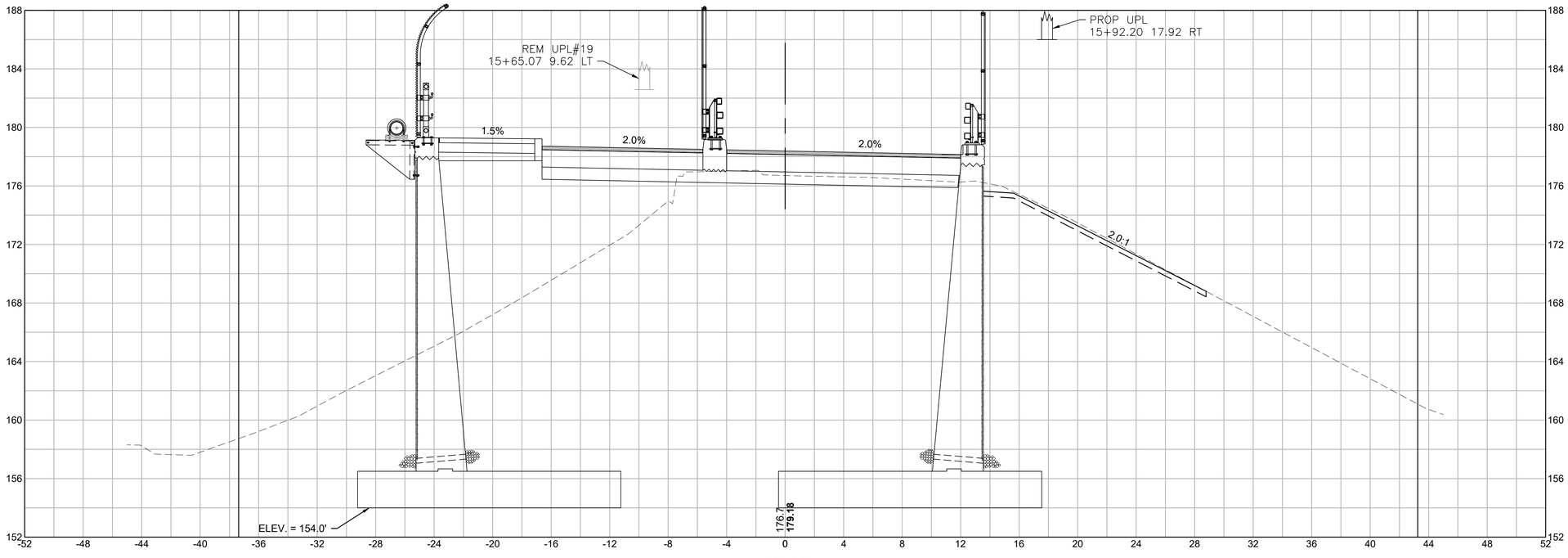
607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	89	92
	PROJECT FILE NO. 607420		

CROSS SECTIONS

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM



CUT: 0.00 SF
FILL: 173.56 SF

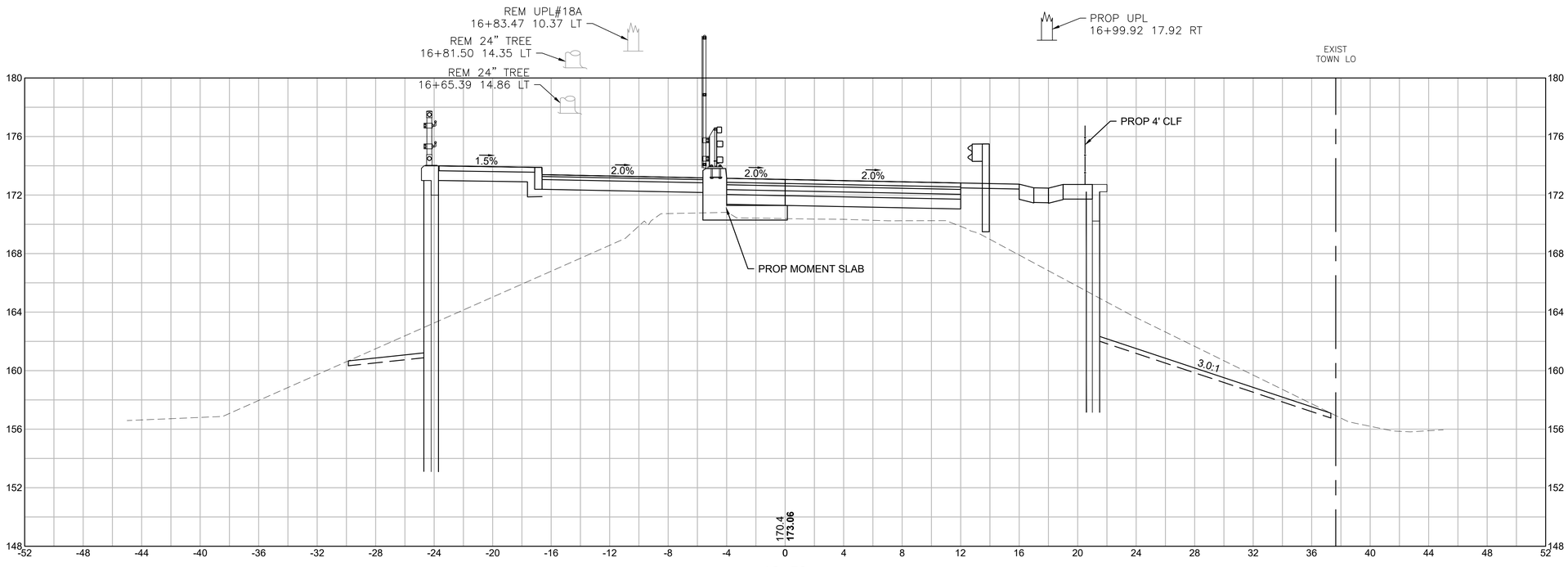
CUT: 0.00 SF
FILL: 0.00 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

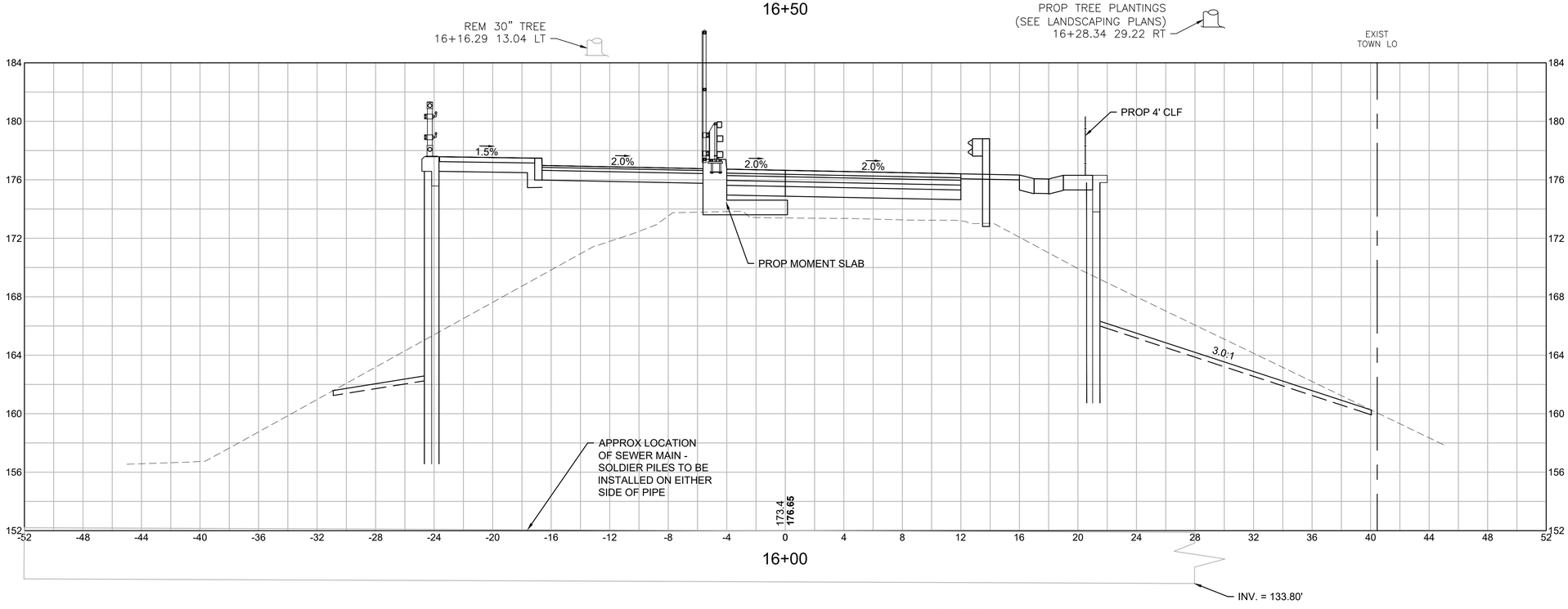
NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	90	92
PROJECT FILE NO.	607420		

CROSS SECTIONS



CUT: 19.92 SF
FILL: 131.15 SF



CUT: 26.60 SF
FILL: 151.51 SF

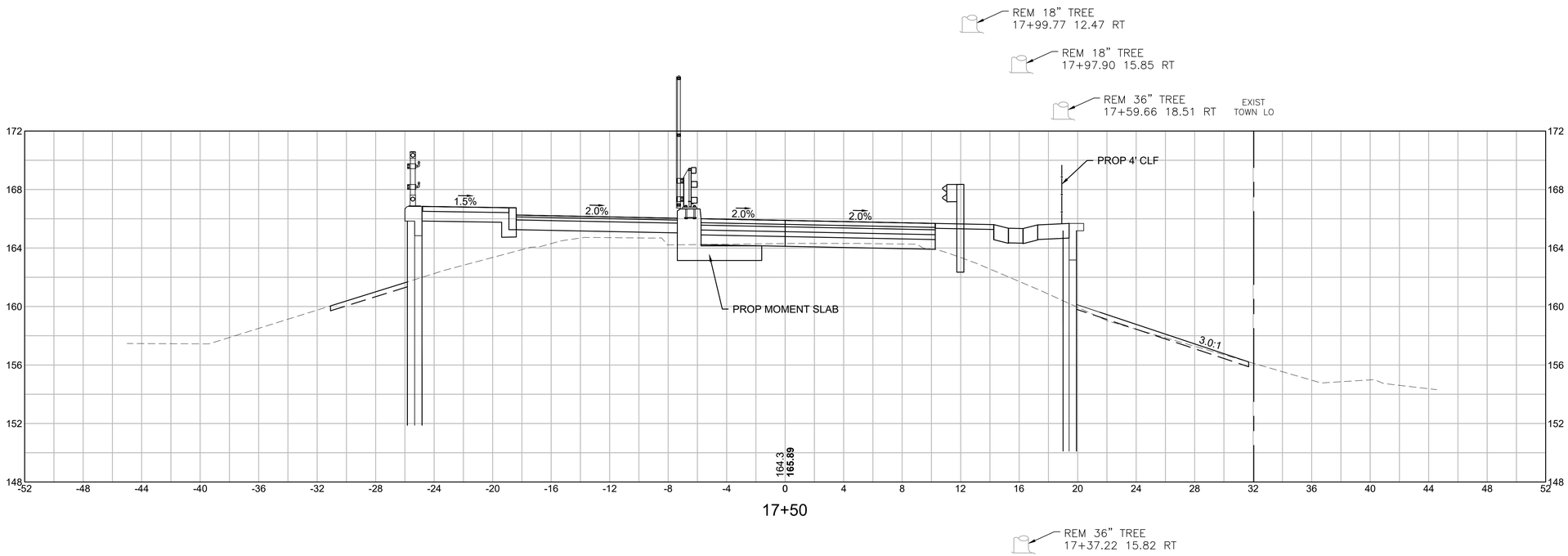
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	91	92
PROJECT FILE NO.	607420		

CROSS SECTIONS



CUT: 3.14 SF
FILL: 48.21 SF

CUT: 0.00 SF
FILL: 93.12 SF

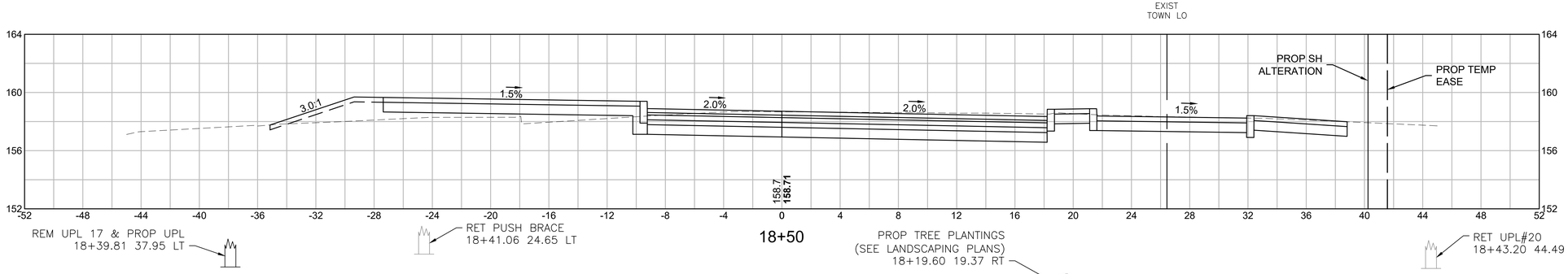
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM

NATICK
BODEN LANE OVER THE MBTA RAILROAD

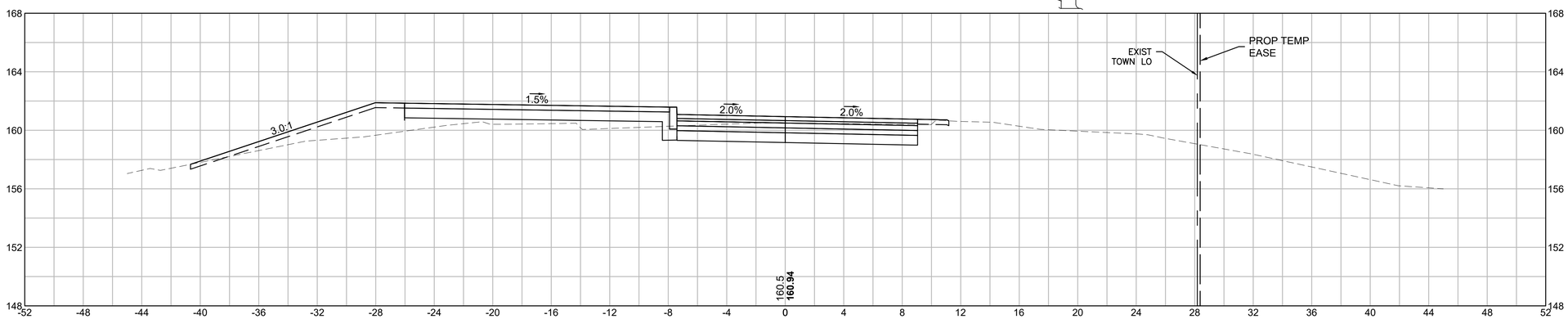
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(965)X	92	92
PROJECT FILE NO.	607420		

CROSS SECTIONS



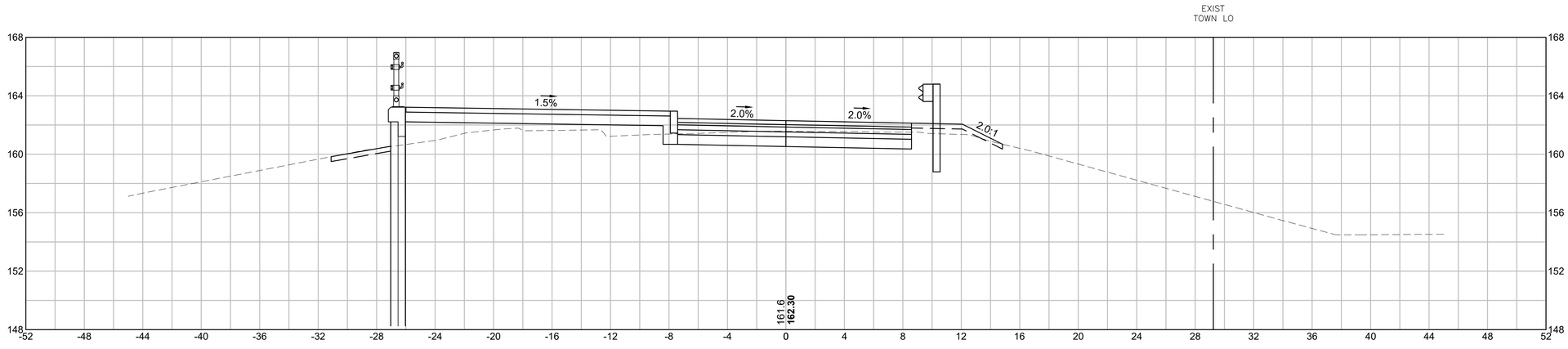
18+50

CUT: 70.39 SF
FILL: 12.07 SF



18+19

CUT: 22.91 SF
FILL: 19.07 SF



18+00

CUT: 17.00 SF
FILL: 13.27 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

607420_HD(CROSS SECTIONS).DWG Plotted on 15-Sep-2026 11:11 AM