MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	1	45
	PROJECT FILE NO.	609187	

TITLE SHEET & INDEX

PLAN AND PROFILE OF

WILLIAMSVILLE ROAD

(BRIDGE NO. H-24-003)

IN THE TOWN OF

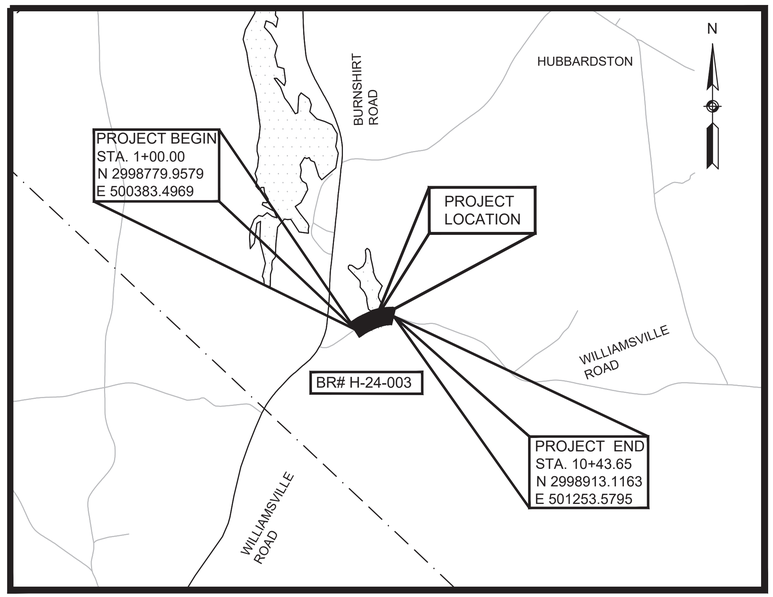
HUBBARDSTON

WORCESTER COUNTY

FEDERAL AID PROJECT NO. STP(BR-OFF)-003S(822)X

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



LENGTH OF PROJECT = 943.65 FEET = 0.179 MILES

DESIGN DESIGNATION (WILLIAMSVILLE ROAD)

DESIGN SPEED	40 MPH
ADT (2022)	560
ADT (2043)	644
K	15%
D	53%
T (PEAK HOUR)	4%
T (AVERAGE DAY)	4%
DHV	97
DDHV	52
FUNCTIONAL CLASSIFICATION	RURAL MINOR COLLECTOR

DATE	DESCRIPTION	REV #

MassDOT Massachusetts Department of Transportation Highway Division

APPROVED

Carrie Lavallee, P.E. — Carrie Lavallee, P.E. 2025.05.02 10:38:16 -04'00' — 05/02/2025

CHIEF ENGINEER — **DATE**

609187-HD(COV).DWG Plotted on 26-Mar-2025 5:16 PM

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
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		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
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		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
		TREE LINE
		SAWCUT LINE
	TOS BOS	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
		SELECTIVE CLEARING AND THINNING LIMITS

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION (2' LINE SEGMENT WITH 6' GAP)
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW 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
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
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
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
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

ABBREVIATIONS (cont.)

GENERAL

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

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	2	45
	PROJECT FILE NO. 609187		

LEGEND, ABBREVIATIONS, & NOTES

GENERAL NOTES

1. THIS PLAN IS BASED UPON AN ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY GCG ASSOCIATES BETWEEN SEPTEMBER 8, 2020 AND NOVEMBER 12, 2020.
2. NORTH IS BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD-83)(2011) EPOCH 2010.00, MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE. COORDINATES ARE BASED ON CONTROL AS PROVIDED BY MASSDOT SURVEY SECTION FOR STATIONS 2617 AND 2618. AN AVERAGE SCALE FACTOR OF 0.999941519512930 HAS BEEN CALCULATED FOR THIS SURVEY. "PLAN OF WILLIAMSVILLE-TEMPLETON ROAD AND WILLIAMSVILLE ROAD IN THE TOWN OF HUBBARDSTON, WORCESTER COUNTY ALTERED AND LAID OUT AS A COUNTY ROAD BY THE COUNTY COMMISSIONERS" DATED APRIL 25, 1995, SCALE: 40 FEET TO THE INCH. DECREE 3872, PLAN H-4556-R.
3. VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS PROVIDED BY MASSDOT SURVEY SECTION FOR STATIONS 2617 AND 2618.
4. "THE COMMONWEALTH OF MASSACHUSETTS COUNTY OF WORCESTER PLAN OF WILLIAMSVILLE-TEMPLETON ROAD IN THE TOWN OF HUBBARDSTON, LAID OUT BY THE COUNTY COMMISSIONERS" DATED SEPTEMBER 27, 1940, SCALE: 40 FEET TO THE INCH. DECREE 1228, PLAN H-2714-R.
5. PLANS OF RECORD: BK423/PL119, BK114/PL46, BK400/PL25, BK795/118. SAID PLANS RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.
6. OWNERSHIP AND DEED INFORMATION WAS OBTAINED FROM THE TOWN OF HUBBARDSTON ASSESSORS OFFICE AND THE WORCESTER COUNTY REGISTRY OF DEEDS. ALL INFORMATION WAS CURRENT AS OF THE DATE OF THIS SURVEY.
7. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE BASED UPON RECORD DEEDS, PLANS AND ASSESSORS INFORMATION.
8. SUBSURFACE UTILITY LINES, AS SHOWN HEREON, ARE APPROXIMATE AND WERE COMPILED FROM SURFACE EVIDENCE. GCG ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION.
9. WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
10. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
12. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE & RESET" (R&R).
13. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.
14. ALL PROPOSED PAVEMENT MARKINGS SHALL BE REFLECTORIZED (POLYUREA) (RECESSED).
15. ALL EXISTING STATE, COUNTY, CITY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
16. ALL TRANSVERSE JOINTS, AND ALL LONGITUDINAL JOINTS BETWEEN NEW SURFACE PAVEMENT AND EXISTING SURFACE PAVEMENT TO REMAIN SHALL BE COATED WITH A HOT POURED RUBBERIZED ASPHALT SEALANT MEETING THE REQUIREMENTS OF ITEM 453.
17. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE COMPOST BLANKET AND SEEDING UNLESS NOTED OTHERWISE ON THE PLANS. SEE SPECIFICATIONS REGARDING ALL RELATED ITEMS AND REQUIREMENTS FOR COMPOST BLANKET, SEED MIX, APPLICATION, SEEDING, ESTABLISHMENT, ACCEPTANCE, MEASUREMENTS, BASIS OF PAYMENT, ETC.
18. THE LIMIT OF WORK AREA SHALL BE THE STREET RIGHT OF WAY UNLESS SHOWN OTHERWISE.
19. ALL PROPERTY LINES BETWEEN ABUTTERS ARE APPROXIMATE ONLY.
20. PRIOR TO THE START OF ANY NEW UTILITY WORK, ALL ELEVATIONS OF EXISTING UTILITIES IN THOSE AREAS ARE TO BE VERIFIED. THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY SHOULD ANY DISCREPANCIES OCCUR.
21. ALL CASTINGS SHALL BE SET FLUSH WITH FINISHED GRADE.
22. ALL PUBLICLY OWNED GATE BOXES, SERVICE BOXES, MANHOLE FRAMES AND COVERS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR.
23. ALL NEW DRIVEWAY GRADES SHALL MATCH EXISTING GRADES AT LIMIT OF WORK UNLESS SHOWN OTHERWISE ON THE PLANS AND CROSS-SECTIONS.
24. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT ALL EXISTING TREES AND ROOTS THAT ARE NOT DESIGNATED FOR REMOVAL.
25. CONTRACTOR TO CONTACT ENGINEER PRIOR TO INSTALLATION OF BOUNDS FOR FINAL LOCATIONS.
26. ANY TREE TRIMMING PERFORMED WITHIN 10' OF THE ELECTRIC LINES NEEDS TO BE COMPLETED BY QUALIFIED LINE-CLEARANCE TREE TRIMMERS. PLEASE SEE OSHA WEBSITE FOR MORE INFORMATION: HTTPS://WWW.OSHA.GOV/ETOOLS/ELECTRIC-POWER/OVERHEAD-LINE-WORK/LINE-CLEARANCE-TREE-TRIMMING-OPERATIONS
27. SEDIMENT BARRIER LOCATIONS SHOWN ARE SCHEMATIC. BARRIER SHALL BE LOCATED WHERE NECESSARY TO PROVIDE EFFECTIVE WATER AND SEDIMENT MANAGEMENT.

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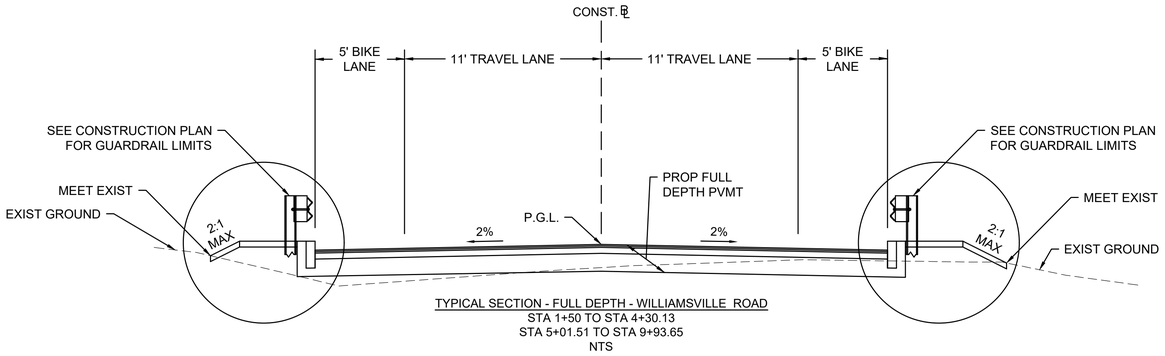
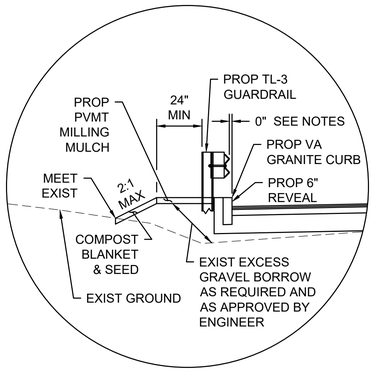


TYPICAL SECTION - FULL DEPTH - WILLIAMSVILLE ROAD
STA 1+50 TO STA 4+30.13
STA 5+01.51 TO STA 9+93.65
NTS

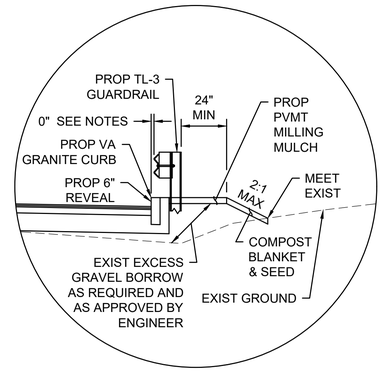


INSET FOR LEFT GUARDRAIL WITH VA CURB
NTS

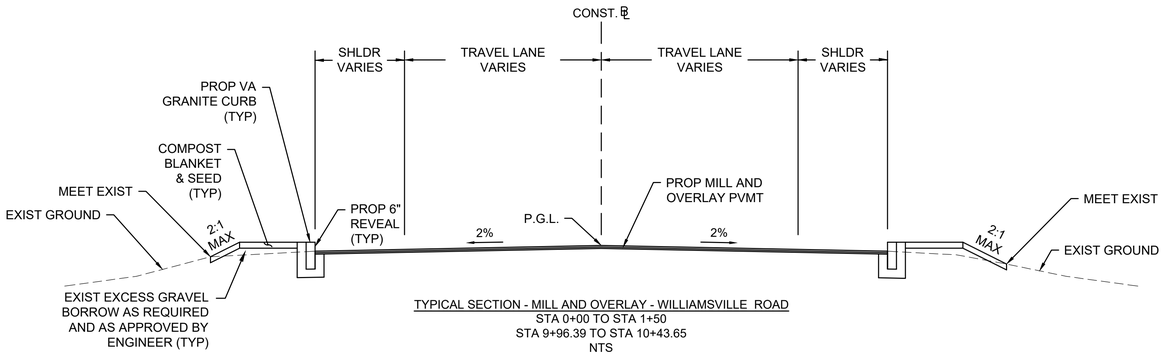
NOTES:

1. SINGLE FACED TL-3 GUARDRAIL SHALL BE USED UNLESS SHOWN OTHERWISE ON THE PLANS. SEE CONSTRUCTION STANDARD DRAWING 400.1.1.
2. GUARDRAIL SHALL NOT BE OFFSET FROM VERTICAL CURB UNLESS SHOWN OTHERWISE ON THE PLANS OR MASSDOT CONSTRUCTION STANDARDS.
3. IF PAVED SURFACE IS USED IN LIEU OF PAVEMENT MILLING MULCH, POST DESIGN SHALL CONFORM TO MASSDOT CONSTRUCTION STANDARD DRAWING 400.5.1.
4. VERTICAL CURB PER MASSDOT CONSTRUCTION STANDARD DRAWING E 106.3.0.
5. USE NEW WOOD OR PLASTIC OFFSET BLOCKS ON ALL NEW AND RESET GUARD RAIL.
6. ALL GUARD RAIL WILL REQUIRE DELINEATORS IN ACCORDANCE WITH ALL APPLICABLE SUBSECTIONS IN SECTION 828 OF THE STANDARD SPECIFICATIONS. DELINEATORS WILL BE INCIDENTAL TO THE COST OF THE GUARDRAIL, GUARDRAIL END TREATMENT OR GUARDRAIL TRAILING ANCHORAGE.
7. PROVIDE 4 INCHES OF PAVEMENT MILLING MULCH UNDER GUARD RAIL THAT CONFORMS TO ALL THE REQUIREMENTS OF ITEM 769.
8. FOR METHOD OF ROUNDING SLOPES, SEE STANDARD DRAWING E 103.1.0.

* TOLERANCE FOR CONSTRUCTION +/- 0.5%
** TOLERANCE FOR CONSTRUCTION PER BRIDGE SPECIFICATION



INSET FOR RIGHT GUARDRAIL WITH VA CURB
NTS



TYPICAL SECTION - MILL AND OVERLAY - WILLIAMSVILLE ROAD
STA 0+00 TO STA 1+50
STA 9+96.39 TO STA 10+43.65
NTS

NOTE:
UNLESS LABELED OTHERWISE, THE LIMIT OF WORK SHALL EXTEND TO THE END OF THE PROPOSED SLOPE LIMITS OR TO THE EDGE OF THE PROPOSED WORK AND AS DIRECTED BY THE ENGINEER.

PAVEMENT NOTES

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	3	45
PROJECT FILE NO.	609187		

TYPICAL SECTIONS

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P)
(BRIDGE SURFACE COURSE RECOMMENDED SO IT GETS PLACED IN ONE CONTINUOUS OPERATION TO MINIMIZE TRANSVERSE JOINTS AND IMPROVE RIDEABILITY)
OVER ASPHALT EMULSION FOR TACK COAT (RS-1H)

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

BASE: 4" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5)
MATERIAL PLACED IN ONE COURSE.

SUB-BASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE PLACED OVER
8" SPECIAL BORROW, FOR LEVELING AS REQUIRED OVER
COMPACTED SUB-GRADE MATERIAL.
NOTE: EXISTING GRAVEL BORROW MAY BE REUSED AS APPROVED BY THE ENGINEER AND BY THE TOWN.

PROPOSED FULL DEPTH PAVEMENT (LESS THAN 4' WIDE FOR GRANITE CURB PLACEMENT)

SURFACE: 1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P)
(BRIDGE SURFACE COURSE RECOMMENDED SO IT GETS PLACED IN ONE CONTINUOUS OPERATION TO MINIMIZE TRANSVERSE JOINTS AND IMPROVE RIDEABILITY)
OVER ASPHALT EMULSION FOR TACK COAT (RS-1H)

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

BASE: 6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE.

SUB-BASE: 8" GRAVEL BORROW, TYPE B OVER
COMPACTED SUB-GRADE MATERIAL.
NOTE: EXISTING GRAVEL BORROW MAY BE REUSED AS APPROVED BY THE ENGINEER AND BY THE TOWN.

PROPOSED BRIDGE PAVEMENT

SURFACE: 3" SUPERPAVE HOT MIX ASPHALT MATERIAL PLACE IN TWO COURSES:
1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P) OVER
ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
1.5" SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B-9.5-P) OVER
POLYMER MODIFIED TACK COAT OVER
SPRAY APPLIED BRIDGE MEMBRANE / WATERPROOFING.

PROPOSED MILLING & PAVEMENT OVERLAY

SURFACE: 1.5" SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P)
WITH VARIABLE DEPTH PAVEMENT FINE MILLING

PROPOSED PAVEMENT NOTES

1. QUALITY ASSURANCE AND SUPERPAVE HMA, HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT AND HMA JOINT ADHESIVE SHALL CONFORM WITH MASSDOT STANDARD SPECIFICATIONS SUBSECTION 450.
2. EXISTING GRAVEL IN FULL DEPTH AREAS DETERMINED TO BE SUITABLE FOR REUSE SHALL BE RETAINED.
3. PAVEMENT MILLING SHALL BE DONE TO ESTABLISH A 2% CROSS SLOPE ON NORMAL SECTIONS AND THE PROPOSED FULL DEPTH RECONSTRUCTION.

PROPOSED HMA DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

INTERMEDIATE: 2.5" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5)

BASE: 8" GRAVEL BORROW, TYPE B, OVER
GRAVEL BORROW, TYPE B, FOR LEVELING AS REQUIRED.

PROPOSED GRAVEL DRIVEWAY

SURFACE: COMPACTED THICKNESS OF 6" GRAVEL BORROW, TYPE B

BASE: COMPACTED THICKNESS OF 6" GRAVEL BORROW, TYPE B, OVER
COMPACTED GRAVEL BORROW, TYPE B, FOR LEVELING AS REQUIRED.

609187-HD(TYP).DWG Plotted on 27-Jan-2025 9:09 PM

HIGHWAY GUARD DETAILS

PROP TRANSITION TO BRIDGE RAIL STA 4+24.80 16' L
PROP GUARDRAIL TL-3 STA 3+91.05 16' L
PROP GUARDRAIL FLARED END TL-3 STA 3+60.25 16' L
PROP TRANSITION TO BRIDGE RAIL STA 4+10.05 16' R
PROP GUARDRAIL TL-3 STA 3+76.30 16' R
PROP GUARDRAIL FLARED END TL-3 STA 3+44.85 16' R
PROP TRANSITION TO BRIDGE RAIL STA 5+20.65 16' L
PROP GUARDRAIL TL-3 STA 5+54.40 16' L
PROP GUARDRAIL FLARED END TL-3 STA 7+00.00 16' L
PROP TRANSITION TO BRIDGE RAIL STA 5+06.30 16' R
PROP GUARDRAIL TL-3 STA 5+40.05 16' R
PROP GUARDRAIL FLARED END TL-3 STA 5+50.81 16' R

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

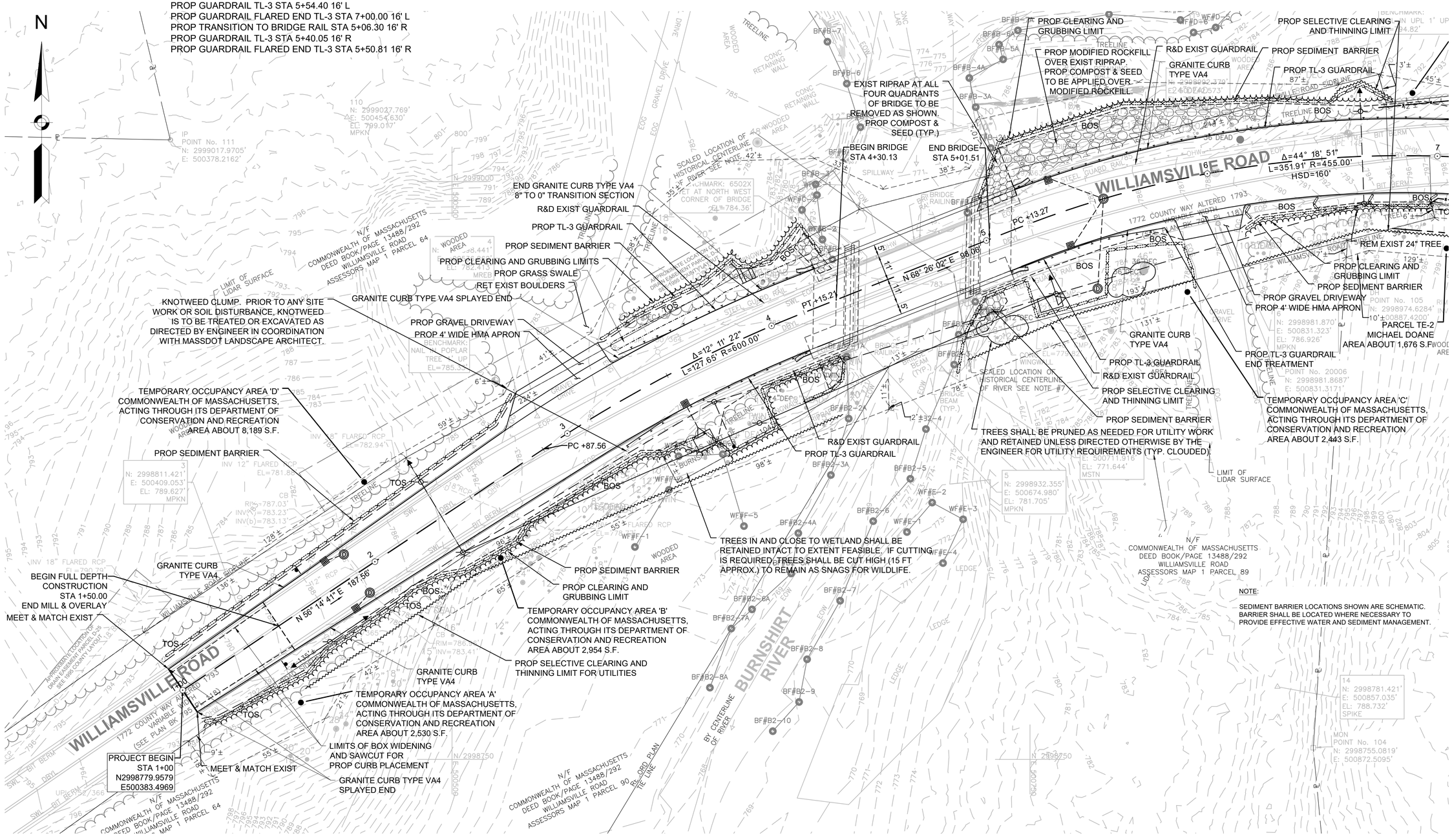
SEE UTILITY PLAN

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	4	45
PROJECT FILE NO.	609187		

CONSTRUCTION PLAN 1

609187_HD(PR).DWG Plotted on 26-Mar-2025 5:46 PM



CONTINUED ON SHEET NO. 5

NOTE:

ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE COMPOST BLANKET AND SEEDING UNLESS NOTED OTHERWISE ON THE PLANS. SEE SPECIFICATIONS REGARDING ALL RELATED ITEMS AND REQUIREMENTS.

NOTE:

SEDIMENT BARRIER LOCATIONS SHOWN ARE SCHEMATIC. BARRIER SHALL BE LOCATED WHERE NECESSARY TO PROVIDE EFFECTIVE WATER AND SEDIMENT MANAGEMENT.

NOTE:

PLEASE SEE LEGEND, ABBREVIATIONS, & NOTES SHEET FOR GENERAL CONSTRUCTION NOTES.

SEE SHEETS 6 & 7 FOR PROFILE

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	5	45
PROJECT FILE NO.	609187		

CONSTRUCTION PLAN - 2

HIGHWAY GUARD DETAILS

PROP TRANSITION TO BRIDGE RAIL STA 4+24.80 16' L
PROP GUARDRAIL TL-3 STA 3+91.05 16' L
PROP GUARDRAIL FLARED END TL-3 STA 3+60.25 16' L
PROP TRANSITION TO BRIDGE RAIL STA 4+10.05 16' R
PROP GUARDRAIL TL-3 STA 3+76.30 16' R
PROP GUARDRAIL FLARED END TL-3 STA 3+44.85 16' R
PROP TRANSITION TO BRIDGE RAIL STA 5+20.65 16' L
PROP GUARDRAIL TL-3 STA 5+54.40 16' L
PROP GUARDRAIL FLARED END TL-3 STA 7+00.00 16' L
PROP TRANSITION TO BRIDGE RAIL STA 5+06.30 16' R
PROP GUARDRAIL TL-3 STA 5+40.05 16' R
PROP GUARDRAIL FLARED END TL-3 STA 5+50.81 16' R

TRAFFIC SIGNAL CONDUIT

NONE

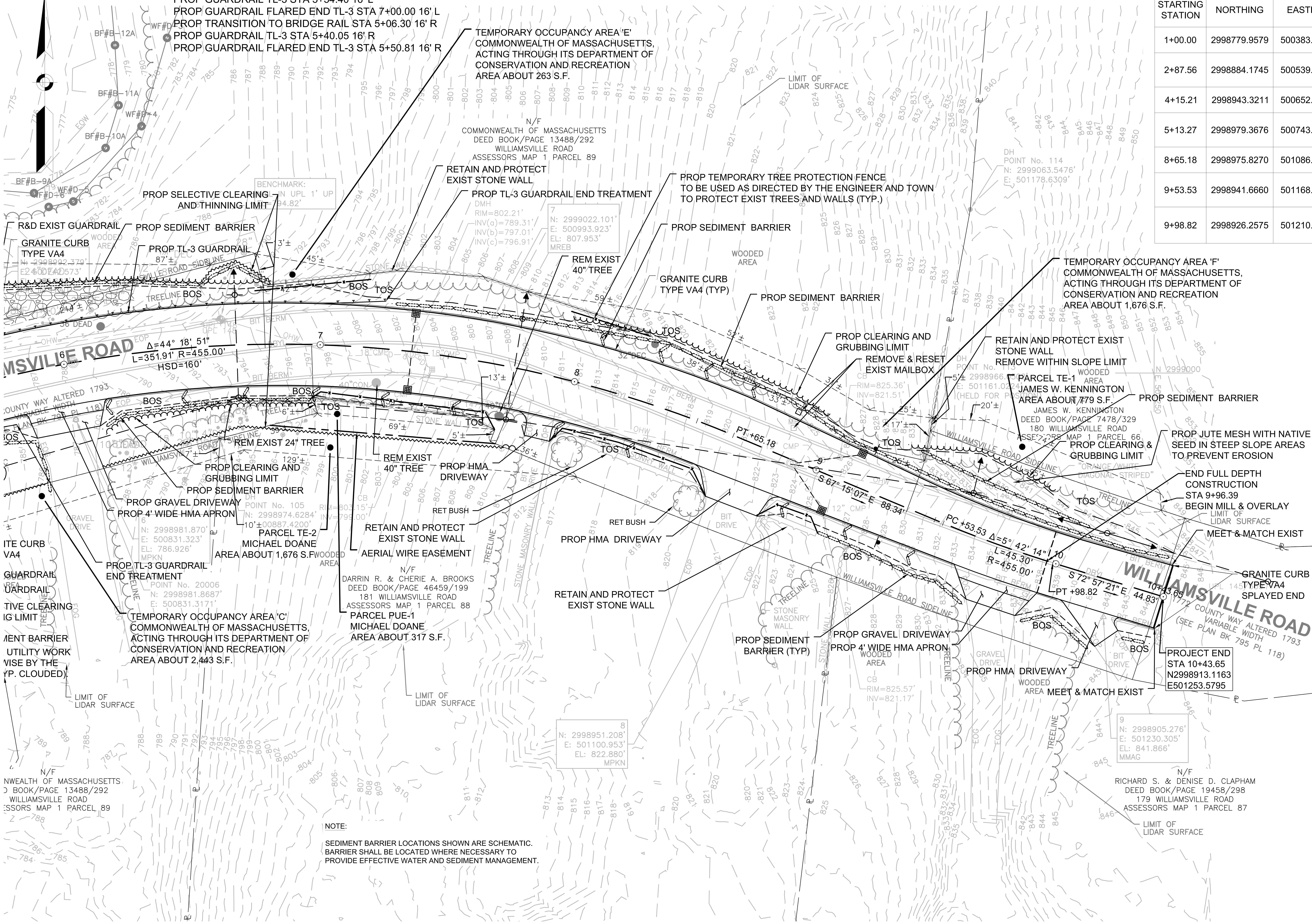
WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLAN

WILLIAMSVILLE ROAD CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
1+00.00	2998779.9579	500383.4969		N56°14'41"E 187.56	2+87.56	2998884.1745	500539.4363
2+87.56	2998884.1745	500539.4363	Δ=12°11'22" L=127.65 R=600.00		4+15.21	2998943.3211	500652.2820
4+15.21	2998943.3211	500652.2820		N68°26'02"E 98.06	5+13.27	2998979.3676	500743.4832
5+13.27	2998979.3676	500743.4832	Δ=44°18'51" L=351.91 R=450.00		8+65.18	2998975.8270	501086.6686
8+65.18	2998975.8270	501086.6686		S67°15'07"E 88.34	9+53.53	2998941.6660	501168.1407
9+53.53	2998941.6660	501168.1407	Δ=5°42'14" L=45.30 R=455.00		9+98.82	2998926.2575	501210.7152
9+98.82	2998926.2575	501210.7152		S72°57'21"E 44.83	10+43.65	2998913.1163	501253.5795



N
TEMPORARY OCCUPANCY AREA 'E' COMMONWEALTH OF MASSACHUSETTS, ACTING THROUGH ITS DEPARTMENT OF CONSERVATION AND RECREATION AREA ABOUT 263 S.F.
N/F COMMONWEALTH OF MASSACHUSETTS DEED BOOK/PAGE 13488/292 WILLIAMSVILLE ROAD ASSESSORS MAP 1 PARCEL 89
RETAIN AND PROTECT EXIST STONE WALL
PROP TL-3 GUARDRAIL END TREATMENT
PROP TEMPORARY TREE PROTECTION FENCE TO BE USED AS DIRECTED BY THE ENGINEER AND TOWN TO PROTECT EXIST TREES AND WALLS (TYP.)
PROP SELECTIVE CLEARING AND THINNING LIMIT
R&D EXIST GUARDRAIL
PROP SEDIMENT BARRIER
GRANITE CURB TYPE VA4
PROP TL-3 GUARDRAIL
REM EXIST 40" TREE
GRANITE CURB TYPE VA4 (TYP)
TEMPORARY OCCUPANCY AREA 'F' COMMONWEALTH OF MASSACHUSETTS, ACTING THROUGH ITS DEPARTMENT OF CONSERVATION AND RECREATION AREA ABOUT 1,676 S.F.
PROP CLEARING AND GRUBBING LIMIT
REMOVE & RESET EXIST MAILBOX
RETAIN AND PROTECT EXIST STONE WALL REMOVE WITHIN SLOPE LIMIT
PARCEL TE-1 JAMES W. KENNINGTON AREA ABOUT 779 S.F.
N/F JAMES W. KENNINGTON DEED BOOK/PAGE 7478/329 180 WILLIAMSVILLE ROAD ASSESSORS MAP 1 PARCEL 66
PROP JUTE MESH WITH NATIVE SEED IN STEEP SLOPE AREAS TO PREVENT EROSION
END FULL DEPTH CONSTRUCTION STA 9+96.39 BEGIN MILL & OVERLAY
MEET & MATCH EXIST
GRANITE CURB TYPE VA4 SPLAYED END
WILLIAMSVILLE ROAD
COUNTY WAY ALTERED 1793 VARIABLE WIDTH (SEE PLAN BK 795 PL 118)
PROJECT END STA 10+43.65 N2998913.1163 E501253.5795
Δ=44° 18' 51" L=351.91' R=455.00' HSD=160'
PT +65.18
S 67° 15' 07" E 88.34'
PC +53.53 Δ=5° 42' 14" L=45.30' R=455.00'
PT +98.82
S 72° 57' 21" E 44.83'
REM EXIST 24" TREE
REM EXIST 40" TREE
PROP HMA DRIVEWAY
PROP GRAVEL DRIVEWAY
PROP 4' WIDE HMA APRON
PARCEL TE-2 MICHAEL DOANE AREA ABOUT 1,676 S.F.
RETAIN AND PROTECT EXIST STONE WALL
AERIAL WIRE EASEMENT
N/F DARRIN R. & CHERIE A. BROOKS DEED BOOK/PAGE 46459/199 181 WILLIAMSVILLE ROAD ASSESSORS MAP 1 PARCEL 88
PARCEL PUE-1 MICHAEL DOANE AREA ABOUT 317 S.F.
TEMPORARY OCCUPANCY AREA 'C' COMMONWEALTH OF MASSACHUSETTS, ACTING THROUGH ITS DEPARTMENT OF CONSERVATION AND RECREATION AREA ABOUT 2,443 S.F.
PROP TL-3 GUARDRAIL END TREATMENT
PROP SEDIMENT BARRIER (TYP)
LIMIT OF LIDAR SURFACE
N/F RICHARD S. & DENISE D. CLAPHAM DEED BOOK/PAGE 19458/298 179 WILLIAMSVILLE ROAD ASSESSORS MAP 1 PARCEL 87
CONTINUED ON SHEET NO. 4

NOTE:

SEDIMENT BARRIER LOCATIONS SHOWN ARE SCHEMATIC. BARRIER SHALL BE LOCATED WHERE NECESSARY TO PROVIDE EFFECTIVE WATER AND SEDIMENT MANAGEMENT.

NOTE:

PLEASE SEE LEGEND, ABBREVIATIONS, & NOTES SHEET FOR GENERAL CONSTRUCTION NOTES.

0 20 50 100
SCALE: 1" = 20'

NOTE:

ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE COMPOST BLANKET AND SEEDING UNLESS NOTED OTHERWISE ON THE PLANS. SEE SPECIFICATIONS REGARDING ALL RELATED ITEMS AND REQUIREMENTS.

SEE SHEETS 6 & 7 FOR PROFILE

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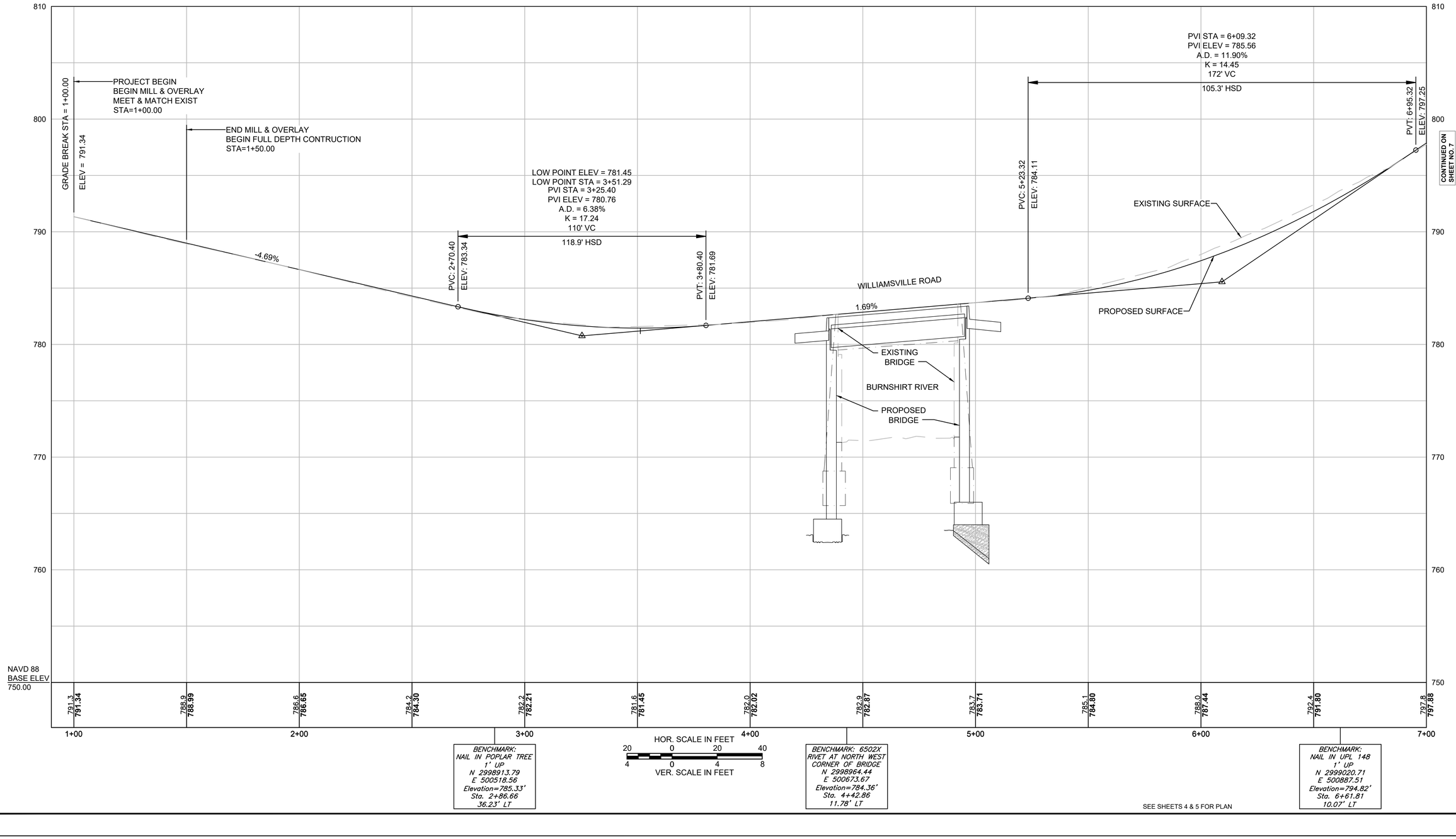
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	6	45
PROJECT FILE NO.	609187		

PROFILE 1

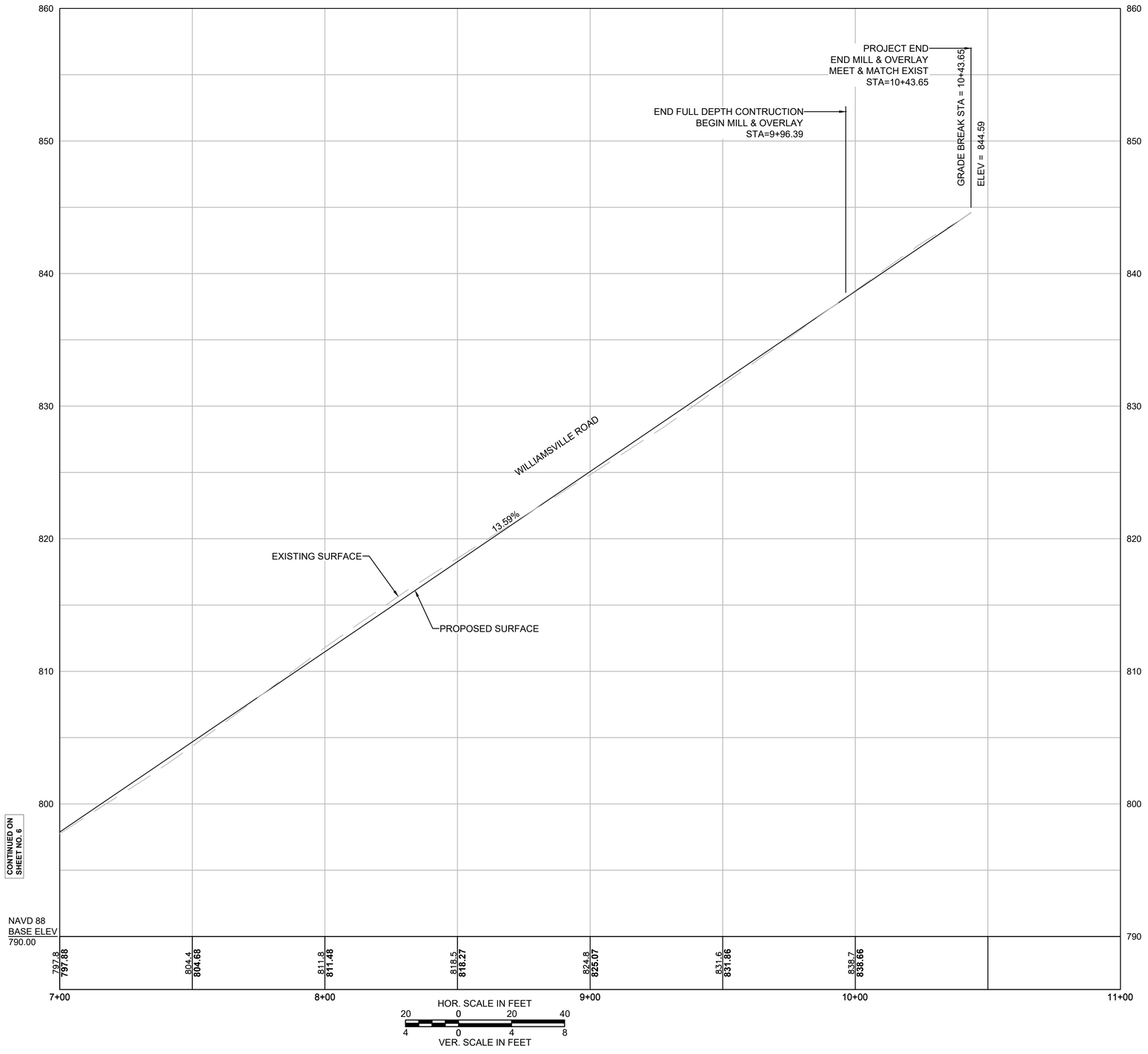


SEE SHEETS 4 & 5 FOR PLAN

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	7	45
PROJECT FILE NO.	609187		

PROFILE 2



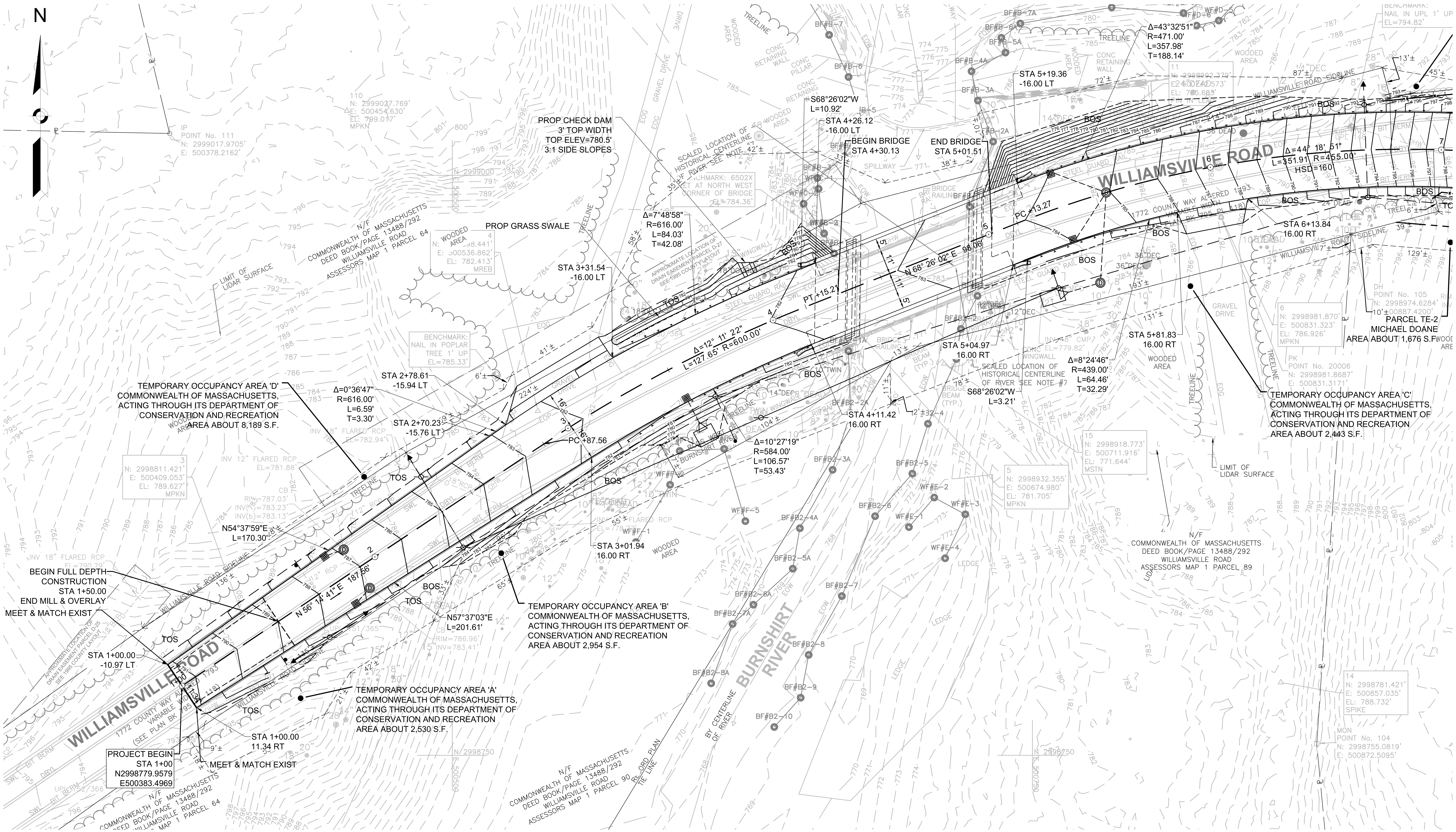
SEE SHEETS 4 & 5 FOR PLAN

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
SEE CONTRUCTION PLAN	NONE	NONE	SEE UTILITY PLAN

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	8	45
PROJECT FILE NO.		609187	

CURB TIE AND GRADING PLAN 1



0 20 50 100

SCALE: 1" = 20'

CONTINUED ON SHEET NO. 9

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HIGHWAY GUARD DETAILS

SEE CONTRUCTION PLAN

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLAN

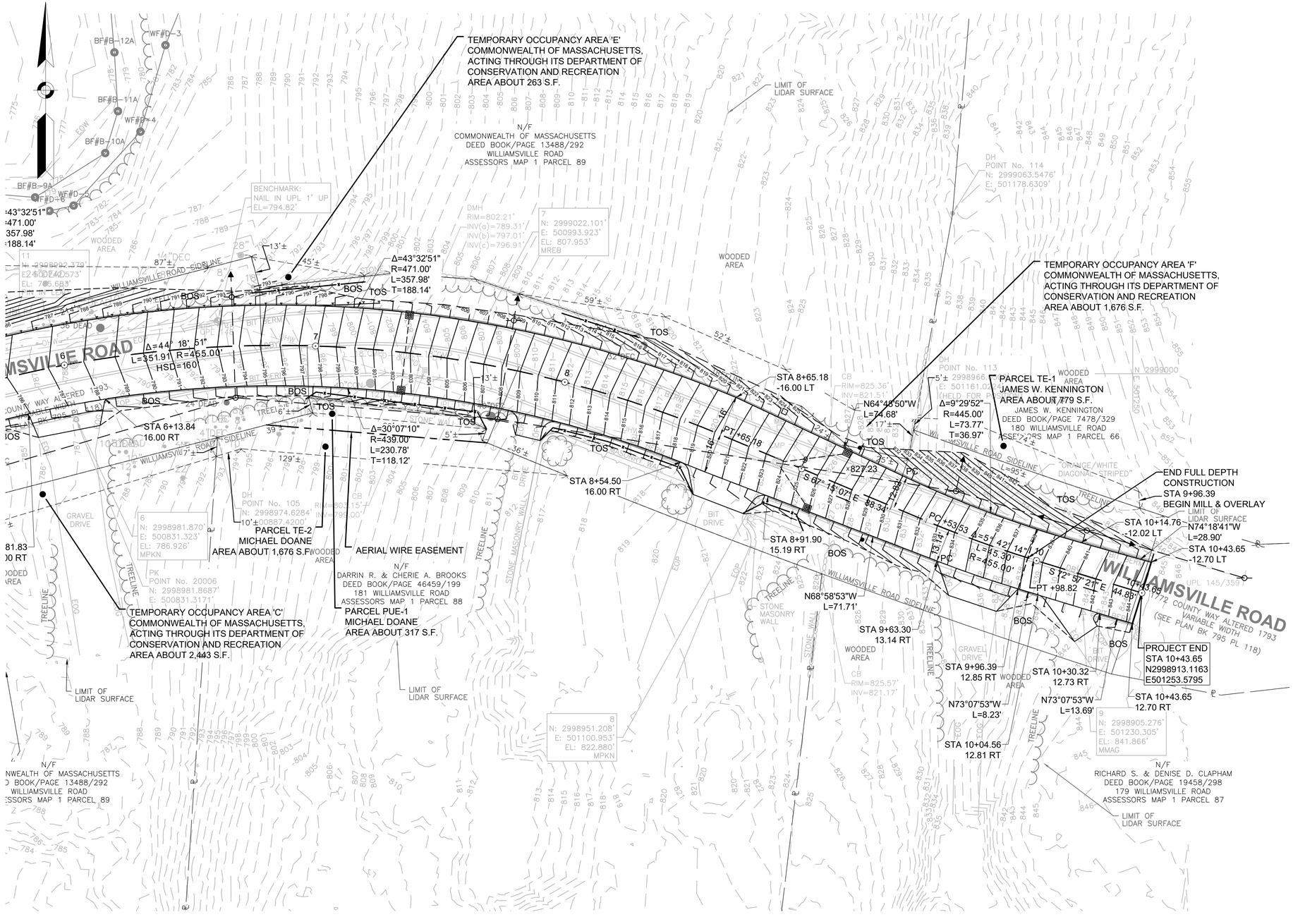
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	9	45
	PROJECT FILE NO. 609187		

CURB TIE AND GRADING PLAN - 2

609187_HD(PR).DWG Plotted on 26-Mar-2025 5:58 PM

CONTINUED ON SHEET NO. 8



HIGHWAY GUARD DETAILS

SEE CONTRUCTION PLAN

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

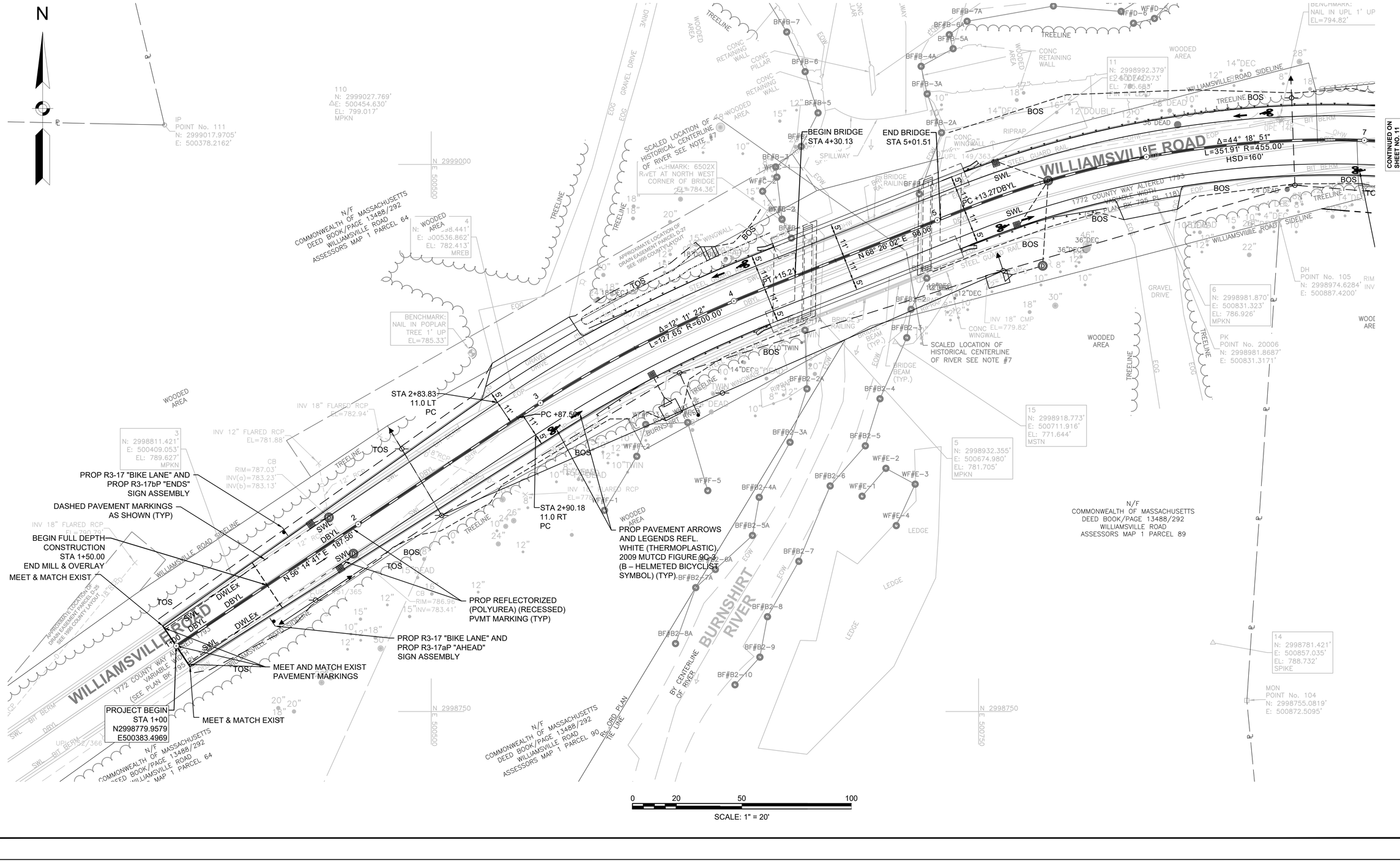
SEE UTILITY PLAN

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	10	45
	PROJECT FILE NO. 609187		

TRAFFIC SIGN & PAVEMENT MARKINGS PLAN 1

609187_HD(PR).DWG Plotted on 26-Mar-2025 6:02 PM



HIGHWAY GUARD DETAILS

SEE CONTRUCTION PLAN

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE UTILITY PLAN

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	11	45
	PROJECT FILE NO. 609187		

TRAFFIC SIGN & PAVEMENT MARKINGS PLAN 2

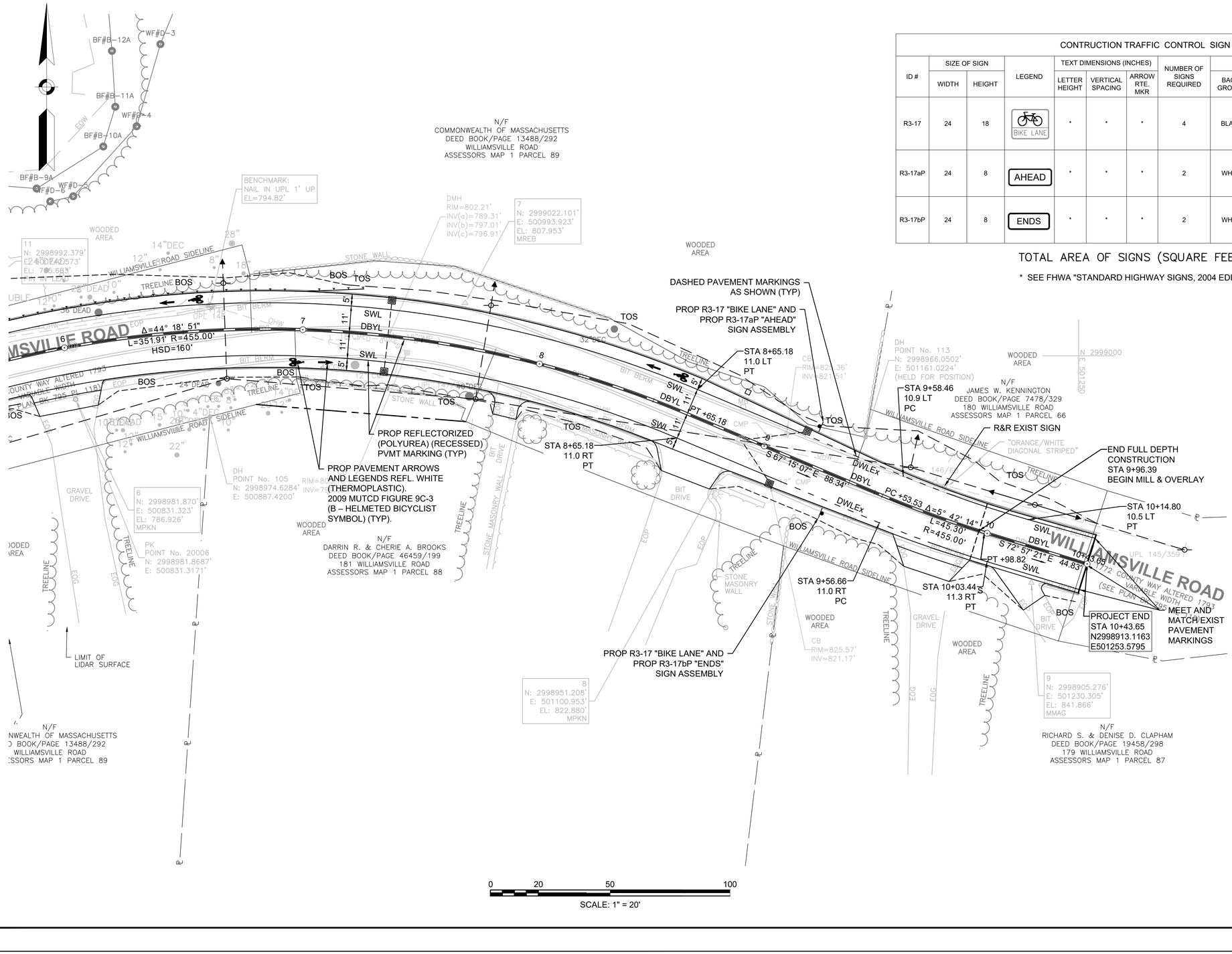
609187_HD(PR).DWG Plotted on 26-Mar-2025 6:02 PM

CONTRUCTION TRAFFIC CONTROL SIGN SUMMARY

ID #	SIZE OF SIGN		LEGEND	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	TOTAL AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR		BACK-GROUND	LEGEND	BORDER			
R3-17	24	18	BIKE LANE	*	*	*	4	BLACK	BLACK &WHITE	BLACK	4	3	12
R3-17aP	24	8	AHEAD	*	*	*	2	WHITE	BLACK	BLACK		1.5	3
R3-17bP	24	8	ENDS	*	*	*	2	WHITE	BLACK	BLACK		1.5	3

TOTAL AREA OF SIGNS (SQUARE FEET) 18 SF

* SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED



HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	12	45
	PROJECT FILE NO. 609187		

TEMPORARY TRAFFIC CONTROL PLANS 1
NOTES & DETAILS

TRAFFIC CONTROL NOTES

1. ALL TEMPORARY TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL MEASURES SHALL CONFORM TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), MASSDOT'S "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS", THE STANDARD SPECIFICATIONS, AND THE FOLLOWING NOTES.
2. THE TEMPORARY TRAFFIC CONTROL PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS IF APPLICABLE SHALL BE IN ACCORDANCE WITH THE REFERENCES LISTED IN NOTE NO. 1 AND AS APPROVED OR DIRECTED BY THE ENGINEER.
3. CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS. CONTRACTOR TO MAINTAIN DRIVEWAYS AND PARKING AREAS.
4. DISTANCES SHOWN ON THE TEMPORARY TRAFFIC CONTROL PLANS ARE A GUIDE ONLY, AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
5. ALL CONSTRUCTION SIGNS SHALL BE BLACK LEGEND ON A REFLECTORIZED ORANGE BACKGROUND UNLESS OTHERWISE NOTED.
6. CONSTRUCTION SIGNING SHOWN ON THE ADVANCE SIGNING PLAN SHALL REMAIN IN PLACE FOR THE ENTIRE PROJECT DURATION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
7. SIGNS AND SIGN SUPPORT LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN MASH. IF THEY DO NOT MEET THIS CRITERIA, THEY MUST BE REMOVED FROM THE PROJECT.

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS)

PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL CONFORM TO THE 2009 MUTCD AS AMENDED AND SHOULD BE PLACED ON THE SHOULDER OF THE ROADWAY OR IF PRACTICAL SET WELL AWAY FROM TRAVEL LANE, MESSAGE SIGNS SHOULD BE PROTECTED WITH RETROREFLECTIVE TEMPORARY TRAFFIC CONTROL DEVICES WHEN PLACED WITHIN THE AVAILABLE CLEAR ZONE OR SHIELDED WITH A BARRIER OR CRASH CUSHION. THE LOCATION AND USE OF THE PCMS SHALL BE DETERMINED DURING THE PRE-CONSTRUCTION MEETING. ALTERNATE MESSAGES MAY BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE SUGGESTED MESSAGE TWO WEEKS IN ADVANCE OF CONSTRUCTION SHOULD READ AS FOLLOWS:

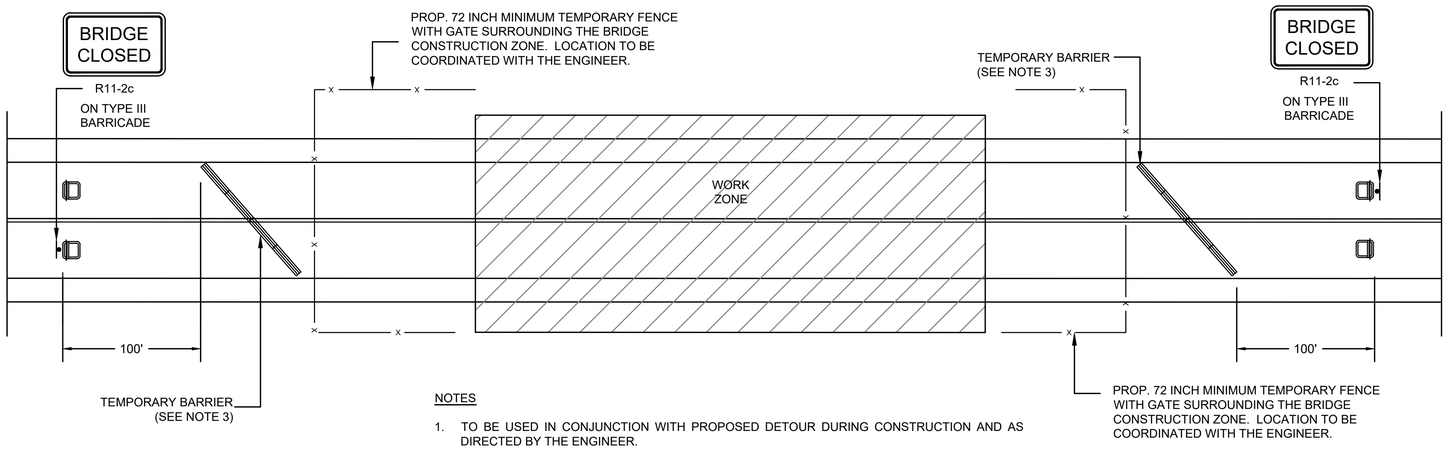
(MESSAGE 1)

W	I	L	L	I	A	M	S	
V	I	L	L	E		R	D	
	B	R	I	D	G	E		

(MESSAGE 2)

C	L	O	S	U	R	E		
	B	E	G	I	N	S		
M	M	M	M	M		D	D	

NOTE:
ALL TEMPORARY TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE LOCATED WITHIN EXISTING RIGHT OF WAY.



NOTES

1. TO BE USED IN CONJUNCTION WITH PROPOSED DETOUR DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
2. CONTRACTOR SHALL REMOVE SEGMENTS OF TEMPORARY CONCRETE BARRIER AS NECESSARY TO GAIN ACCESS TO THE SITE. CONTRACTOR SHALL REPLACE THE BARRIER AT THE END OF EACH WORKING DAY TO SECURE THE SITE. THE COST ASSOCIATED WITH REMOVING AND RESETTING THE TEMPORARY CONCRETE BARRIER SHALL BE CONSIDERED INCIDENTAL TO ITEM 853.2.
3. PROPOSED TEMPORARY BARRIER SHALL CONFORM TO MASH TEST LEVEL 2

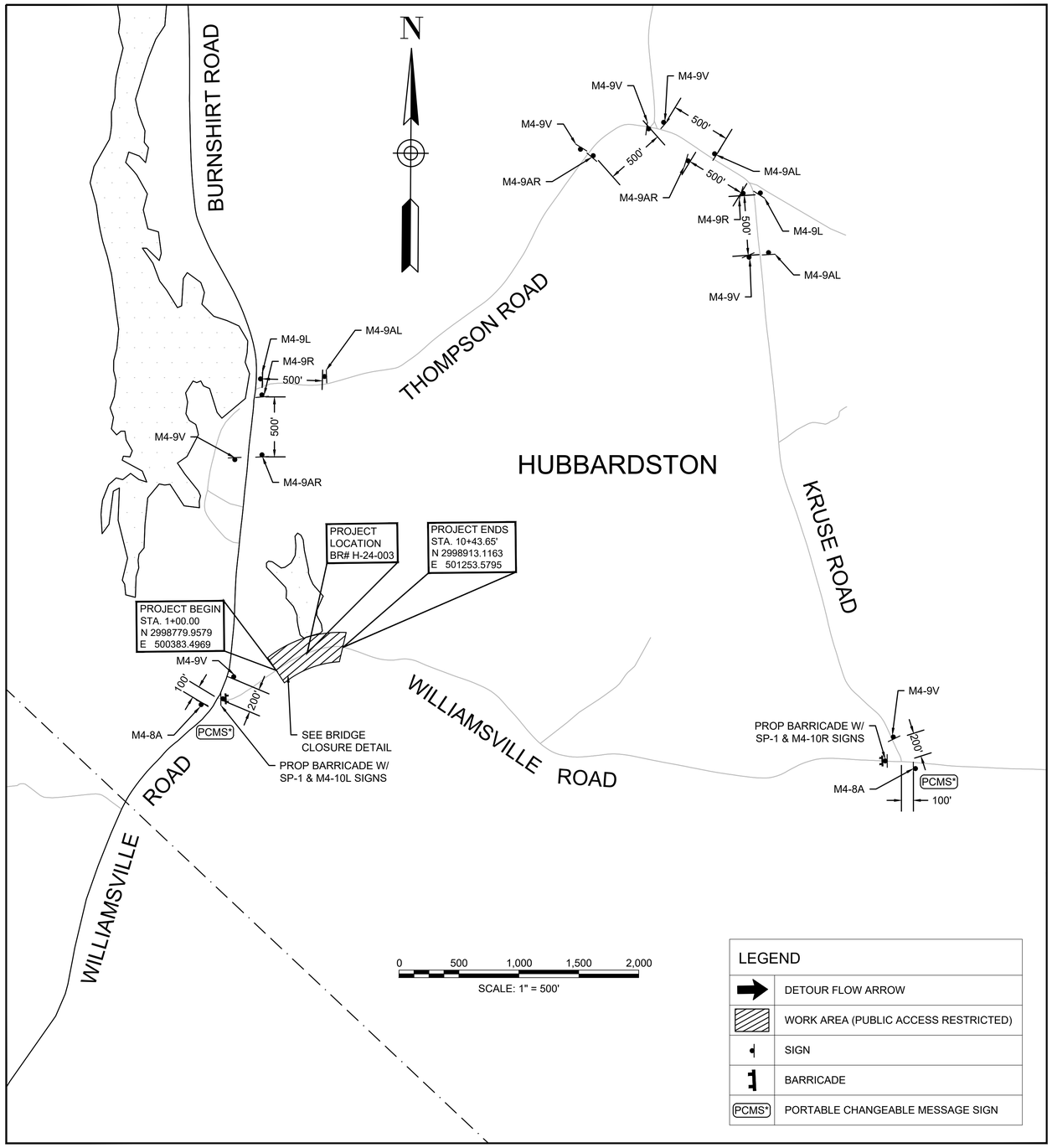
BRIDGE CLOSURE DETAIL
NOT TO SCALE

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	13	45
	PROJECT FILE NO. 609187		

TEMPORARY TRAFFIC CONTROL PLANS 2
DETOUR & SIGNS

DETOUR PLAN



DETOUR LENGTH = 3.4 MILES

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES) WIDTH	HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	LEGEND	BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
SP-1	6.5'	3.0'	WILLIAMSVILLE RD BRIDGE CLOSED LOCAL TRAFFIC ONLY	6.0 6.0 6.0	4.5 4.5 4.5 4.5		2	WHITE REFL. M9.30.0 TYIII	BLACK REFL. M9.30.0 TYIII	BLACK REFL. M9.30.0 TYIII	MOUNTED ON BARRICADE	19.5 SF	39 SF
R11-2c	48"	30"	BRIDGE CLOSED	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2	WHITE	BLACK	BLACK	MOUNTED ON BARRICADE	10 SF	20 SF
M4-8a	24"	18"	END DETOUR				2	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 6.5' 2 POSTS	3 SF	6 SF
M4-9AL	36"	24"	DETOUR				3	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 7' 2 POSTS	6 SF	18 SF
M4-9AR	36"	24"	DETOUR				3	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 7' 2 POSTS	6 SF	18 SF
M4-9L	36"	24"	DETOUR				2	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 7' 2 POSTS	6 SF	12 SF
M4-9R	36"	24"	DETOUR				2	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 7' 2 POSTS	6 SF	12 SF
M4-9V	36"	24"	DETOUR				7	FLUOR-ESCENT ORANGE	BLACK	BLACK	SIZE: 7' 5 POSTS	6 SF	42 SF
M10-9L	48"	18"	DETOUR				1	FLUOR-ESCENT ORANGE	BLACK	---	MOUNTED ON BARRICADE	6 SF	6 SF
M4-10R	48"	18"	DETOUR				1	FLUOR-ESCENT ORANGE	BLACK	---	MOUNTED ON BARRICADE	6 SF	6 SF
TOTAL AREA OF SIGNS (SQUARE FEET)													179 SF

609187-HD(TTCP).DWG Plotted on 12-Feb-2025 1:11 PM

HIGHWAY GUARD DETAILS

SEE CONTRUCTION PLAN

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

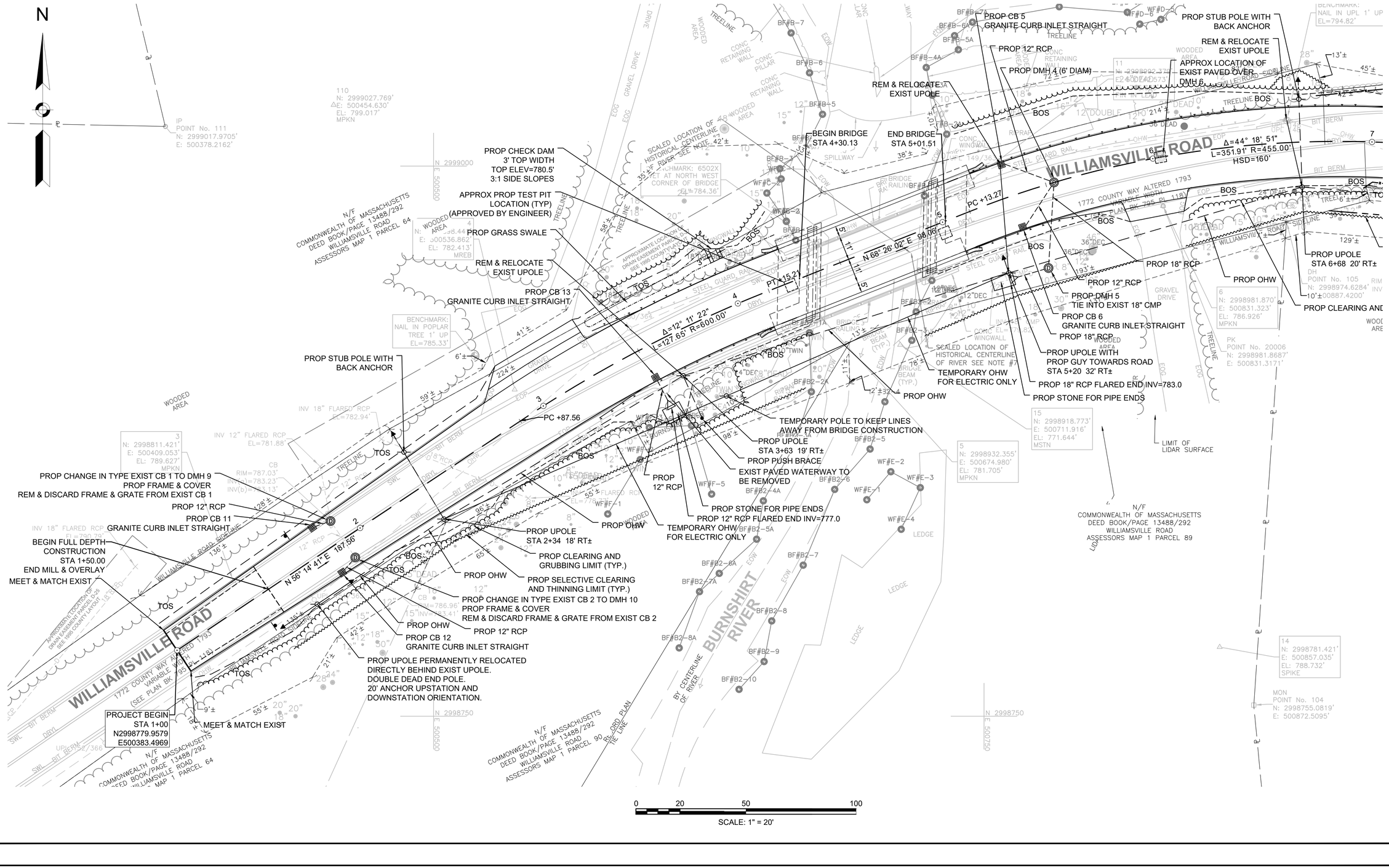
SEE BELOW

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	14	45
PROJECT FILE NO.	609187		

UTILITY PLAN 1

609187_HD(PR).DWG Plotted on 26-Mar-2025 6:04 PM



HIGHWAY GUARD DETAILS

SEE CONTRUCTION PLAN

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE BELOW

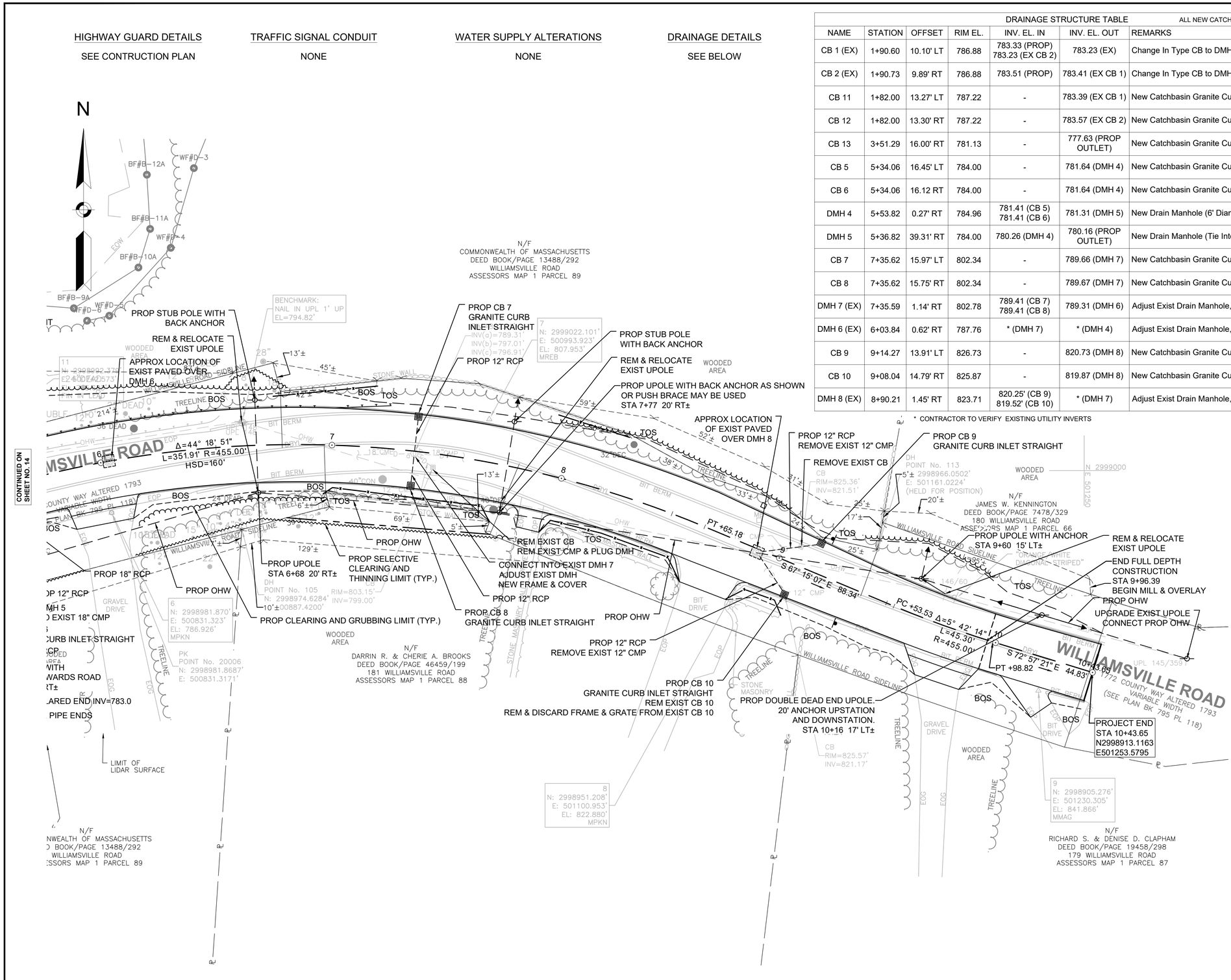
DRAINAGE STRUCTURE TABLE — ALL NEW CATCHBASINS TO HAVE 4' SUMPS						
NAME	STATION	OFFSET	RIM EL.	INV. EL. IN	INV. EL. OUT	REMARKS
CB 1 (EX)	1+90.60	10.10' LT	786.88	783.33 (PROP) 783.23 (EX CB 2)	783.23 (EX)	Change In Type CB to DMH; New Frame & Cover
CB 2 (EX)	1+90.73	9.89' RT	786.88	783.51 (PROP)	783.41 (EX CB 1)	Change In Type CB to DMH; New Frame & Cover
CB 11	1+82.00	13.27' LT	787.22	-	783.39 (EX CB 1)	New Catchbasin Granite Curb Inlet Straight
CB 12	1+82.00	13.30' RT	787.22	-	783.57 (EX CB 2)	New Catchbasin Granite Curb Inlet Straight
CB 13	3+51.29	16.00' RT	781.13	-	777.63 (PROP OUTLET)	New Catchbasin Granite Curb Inlet Straight
CB 5	5+34.06	16.45' LT	784.00	-	781.64 (DMH 4)	New Catchbasin Granite Curb Inlet Straight
CB 6	5+34.06	16.12 RT	784.00	-	781.64 (DMH 4)	New Catchbasin Granite Curb Inlet Straight
DMH 4	5+53.82	0.27' RT	784.96	781.41 (CB 5) 781.41 (CB 6)	781.31 (DMH 5)	New Drain Manhole (6' Diam)
DMH 5	5+36.82	39.31' RT	784.00	780.26 (DMH 4)	780.16 (PROP OUTLET)	New Drain Manhole (Tie Into Exist 18" CMP)
CB 7	7+35.62	15.97' LT	802.34	-	789.66 (DMH 7)	New Catchbasin Granite Curb Inlet Straight
CB 8	7+35.62	15.75' RT	802.34	-	789.67 (DMH 7)	New Catchbasin Granite Curb Inlet Straight
DMH 7 (EX)	7+35.59	1.14' RT	802.78	789.41 (CB 7) 789.41 (CB 8)	789.31 (DMH 6)	Adjust Exist Drain Manhole, New Frame and Cover
DMH 6 (EX)	6+03.84	0.62' RT	787.76	* (DMH 7)	* (DMH 4)	Adjust Exist Drain Manhole, New Frame and Cover
CB 9	9+14.27	13.91' LT	826.73	-	820.73 (DMH 8)	New Catchbasin Granite Curb Inlet Straight
CB 10	9+08.04	14.79' RT	825.87	-	819.87 (DMH 8)	New Catchbasin Granite Curb Inlet Straight
DMH 8 (EX)	8+90.21	1.45' RT	823.71	820.25' (CB 9) 819.52' (CB 10)	* (DMH 7)	Adjust Exist Drain Manhole, New Frame and Cover

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	15	45
PROJECT FILE NO. 609187			

UTILITY PLAN 2

609187_HD(PR).DWG Plotted on 26-Mar-2025 6:04 PM



0 20 50 100

SCALE: 1" = 20'

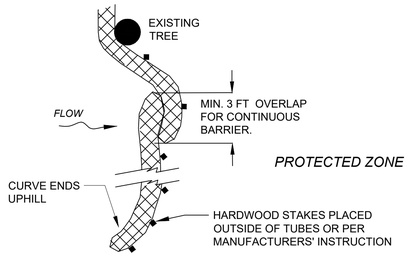
UTILITY NOTES:

1. THE CONTRACTOR SHALL NOTIFY MASSACHUSETTS DIG SAFE AND PROCURE A DIG SAFE NUMBER FOR EACH LOCATION PRIOR TO DISTURBING EXISTING GROUND IN ANY WAY.
2. THE ACCURACY AND COMPLETENESS OF UNDERGROUND UTILITIES AS SHOWN ON THE PLANS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT LOCATION, SIZE, TYPE ETC. OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE WORK. ALL TOWN-OWNED UTILITY STRUCTURES WITHIN AREAS AFFECTED BY THE WORK SHALL BE ADJUSTED TO NEW LINE AND GRADE AS REQUIRED BY THE ENGINEER. ANY UTILITY POLES AND/OR GUY POLES WITHIN AREAS AFFECTED BY THE WORK SHALL BE REMOVED AND RESET BY THE RESPECTIVE UTILITY COMPANY. ALTERATIONS TO UTILITIES NOT OWNED BY THE TOWN SHALL BE MADE BY THE RESPECTIVE UTILITY OWNERS.
3. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY BE IN CONFLICT WITH THE PROPOSED WORK.
4. ALL PROPOSED CATCHBASINS TO HAVE 4' SUMPS. DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY BE IN 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 OF THE DRAINAGE SYSTEM SHALL ANY OF THE STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION. THE CONTRACTOR SHALL CONFIRM EXISTING CMP IS STRUCTURALLY SOUND ENOUGH TO ACCEPT CONNECTIONS TO PROPOSED STRUCTURES AND RCP.
5. SIGNS, STREET LIGHTS, MAIL BOXES, TRASH CANS, ETC. THAT NEED TO BE RELOCATED SHALL BE RESET IN NEW LOCATIONS AS SHOWN ON THE PLANS OR AS REQUIRED BY THE ENGINEER. OWNERS SHALL BE CONSULTED PRIOR TO THE COMMENCEMENT OF THIS WORK.
6. PROPOSED ROW INFORMATION SHOWN FOR REFERENCE ONLY. SEE FINAL ROW PLANS FOR FURTHER INFORMATION.
7. PROPOSED BRIDGE STRUCTURE SHOWN FOR REFERENCE ONLY. SEE FINAL BRIDGE PLANS FOR FURTHER INFORMATION.
8. ANY TREE TRIMMING PERFORMED WITHIN 10' OF THE ELECTRIC LINES NEEDS TO BE COMPLETED BY QUALIFIED LINE-CLEARANCE TREE TRIMMERS. PLEASE SEE OSHA WEBSITE FOR MORE INFORMATION: HTTPS://WWW.OSHA.GOV/ETOOLS/ELECTRIC-POWER/OVERHEAD-LINE-WORK/LINE-CLEARANCE-TREE-TRIMMING-OPERATIONS
9. PLEASE SEE LEGEND, ABBREVIATIONS, & NOTES SHEET FOR GENERAL CONSTRUCTION NOTES.

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	16	45
	PROJECT FILE NO. 609187		

LANDSCAPING DETAILS 1

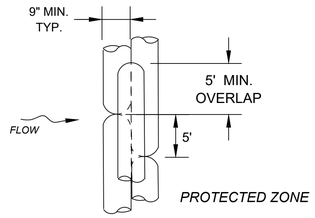


PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

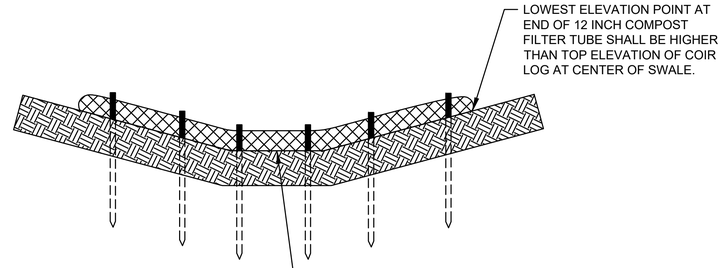
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

WHERE SPECIFIED ON CONSTRUCTION PLANS OR AS REQUIRED



PLAN VIEW



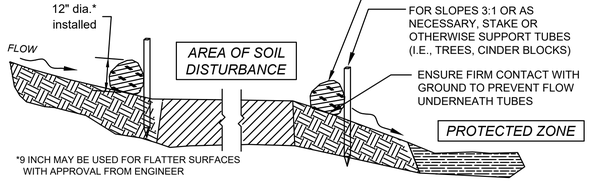
SECTION

12 INCH COMPOST FILTER TUBE AS CHECK DAM

NOT TO SCALE

CAPTURE SEDIMENT AND PREVENT FLOW OFF SITE

REDUCE HIGH WATER FLOW ONTO WORK ZONE

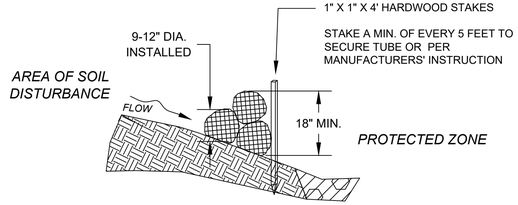


*9 INCH MAY BE USED FOR FLATTER SURFACES WITH APPROVAL FROM ENGINEER

SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBE

NOT TO SCALE



SECTION

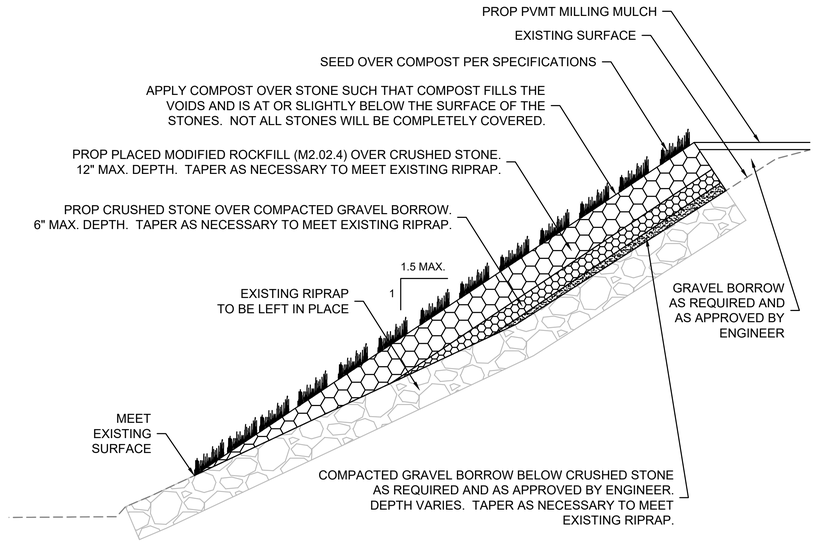
COMPOST FILTER TUBES STACKED

NOT TO SCALE

HUBBARDSTON
WILLIAMSVILLE ROAD

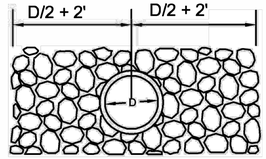
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	17	45
PROJECT FILE NO.	609187		

LANDSCAPING DETAILS 2

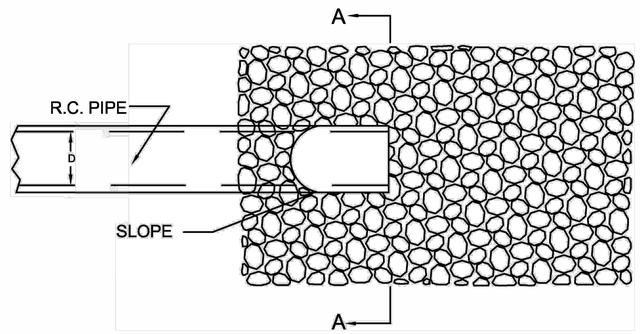


COMPOST AND SEED OVER MODIFIED ROCKFILL OVER EXISTING RIPRAP

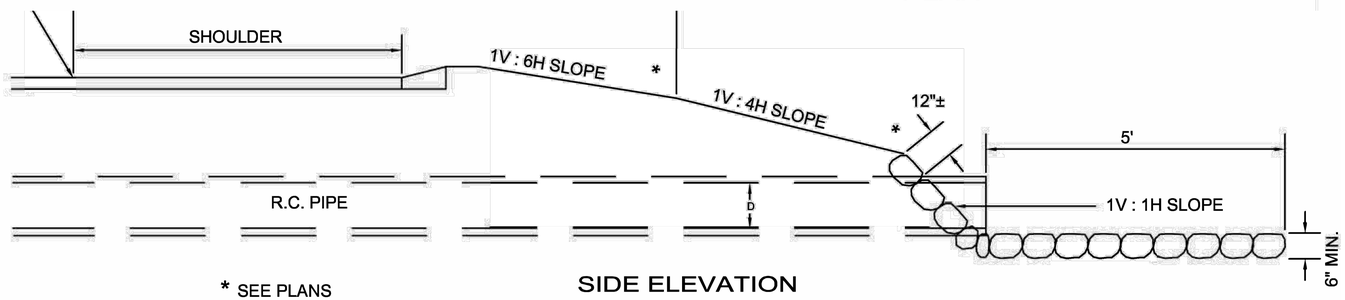
NOT TO SCALE



SECTION A-A



PLAN



* SEE PLANS

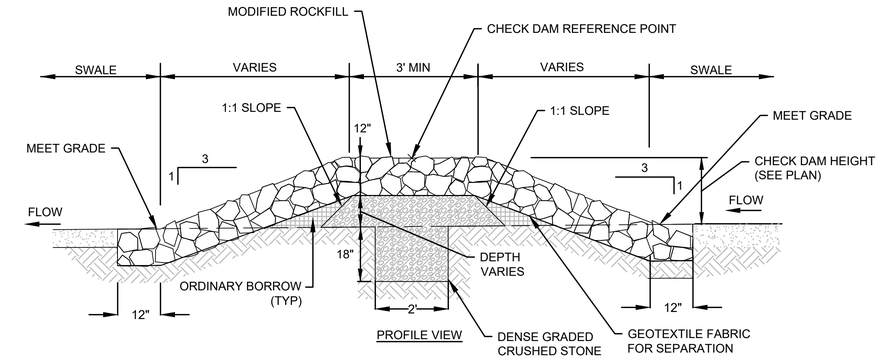
SIDE ELEVATION

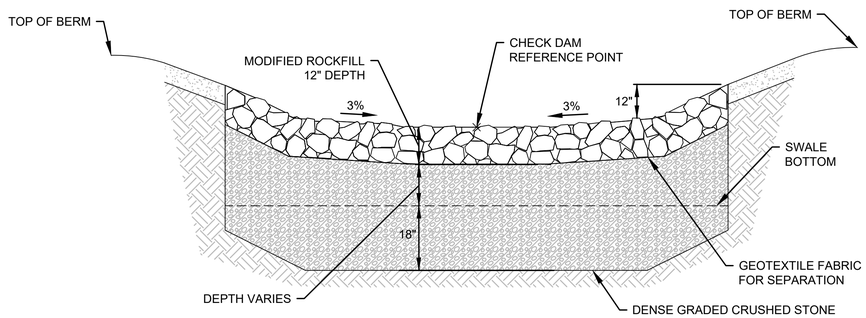
NOTES:

1. STONE TREATMENT OF PIPE ENDS SHALL NOT BE USED IN THE VEHICLE RECOVERY AREA.
2. MINIMUM MASS PER STONE = 50 LBS; MAXIMUM MASS PER STONE = 125 LBS.
3. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHODS, SEE STANDARD SPECIFICATIONS.

STONE PIPE ENDS

NOT TO SCALE





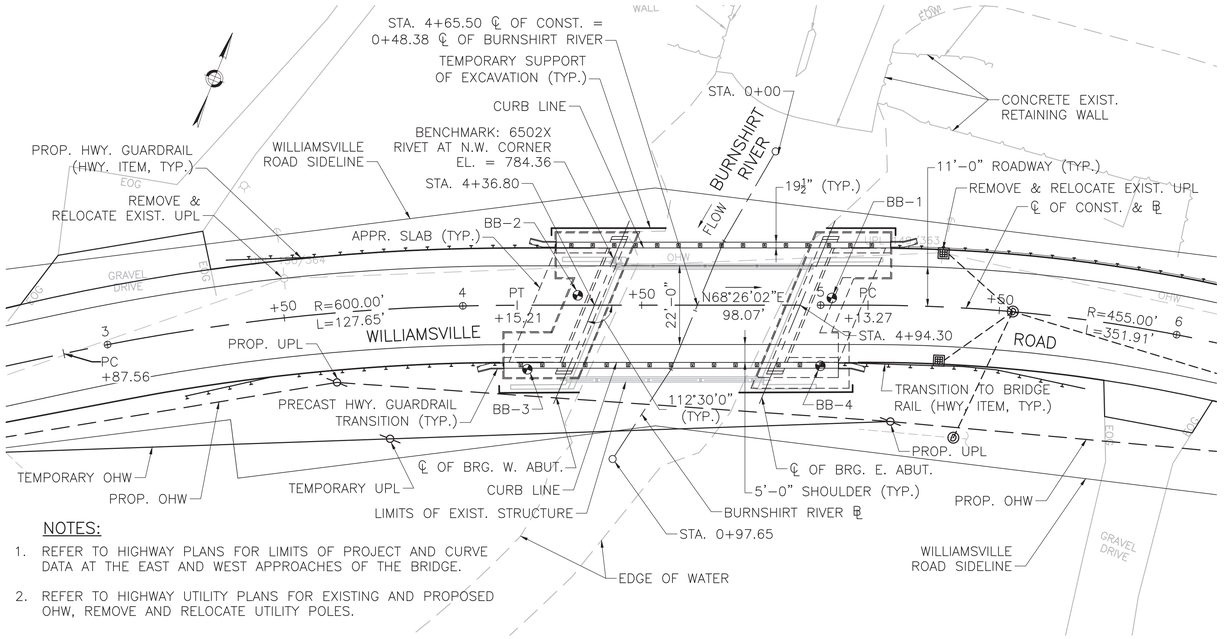
BREADTH SECTION VIEW

NOTE:

1. CONTRACTOR SHALL FIELD VERIFY THAT THE DIFFERENCE BETWEEN CHECK DAM REFERENCE POINT ELEVATION AND ADJACENT ROADWAY ELEVATION IS NOT LESS THAN 1-FOOT. IF FIELD CONDITIONS DO NOT RESULT IN 1-FOOT ELEVATION DIFFERENCE BETWEEN PROVIDED CHECK DAM REFERENCE POINT AND ADJACENT ROADWAY ELEVATION AT EDGE OF PAVEMENT, CONTRACTOR SHALL NOTIFY ENGINEER.

CHECK DAM DETAIL

NTS

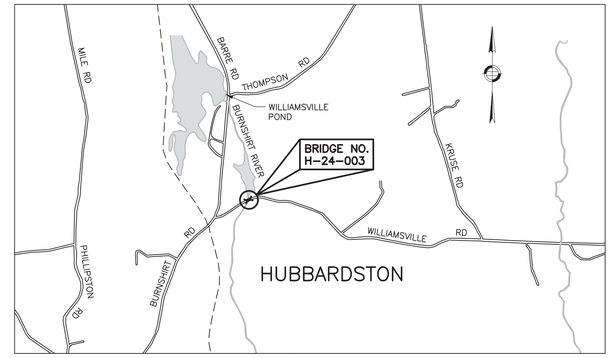


NOTES:

1. REFER TO HIGHWAY PLANS FOR LIMITS OF PROJECT AND CURVE DATA AT THE EAST AND WEST APPROACHES OF THE BRIDGE.
2. REFER TO HIGHWAY UTILITY PLANS FOR EXISTING AND PROPOSED OHW, REMOVE AND RELOCATE UTILITY POLES.

KEY PLAN

SCALE: 1" = 20'



LOCUS

SCALE: 1" = 1000'

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	18	45
PROJECT FILE NO.	609187		

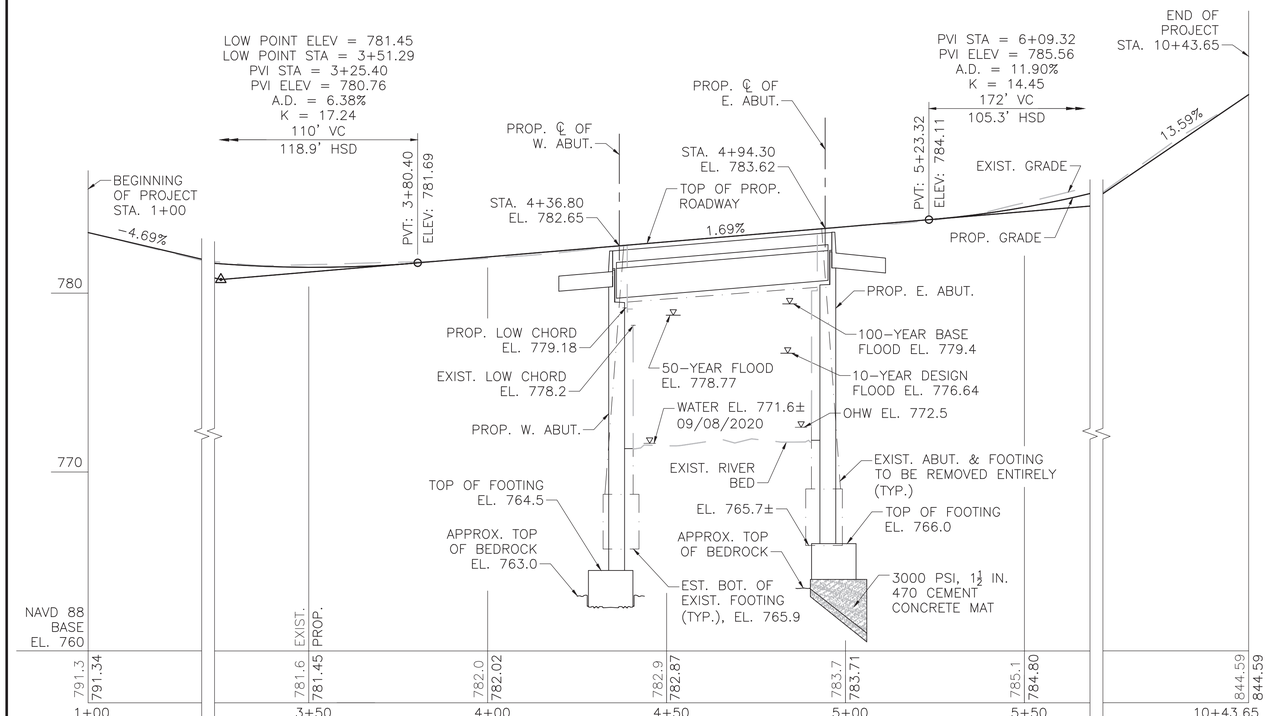
KEY PLAN, PROFILE, LOCUS & ESTIMATED QUANTITIES

ESTIMATED QUANTITIES

(NOT GUARANTEED)

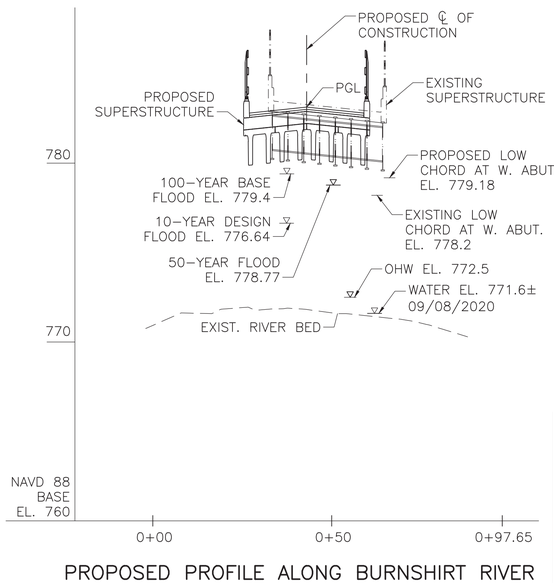
ITEM	QTY.	UNIT
DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. H-24-003	1	LS
CONCRETE EXCAVATION	300	CY
REINFORCED CONCRETE EXCAVATION	13	CY
BRIDGE EXCAVATION	751	CY
CHANNEL EXCAVATION	352	CY
CLASS B ROCK EXCAVATION	311	CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	550	CY
SUPERPAVE BRIDGE SURFACE COURSE-9.5 POLYMER (SSC-B-9.5-P)	20	TON
SUPERPAVE BRIDGE PROTECTIVE COURSE-9.5 POLYMER (SPC-B-9.5-P)	20	TON
ASPHALT EMULSION FOR TACK COAT	16	GAL
3000 PSI, 1.5 IN., 470 CEMENT CONCRETE	64	CY
TEMPORARY EXCAVATION SUPPORT SYSTEM	174	SY
CONTROL OF WATER - STRUCTURE NO. H-24-003	1	LS
TEMPORARY PROTECTIVE SHIELDING	2000	SF
BRIDGE STRUCTURE, BRIDGE NO. H-24-003	1	LS

INDEX TO DRAWINGS:



PROPOSED PROFILE ALONG WILLIAMSVILLE ROAD

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"



PROPOSED PROFILE ALONG BURNSHIRT RIVER

HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 4'-0"

DESIGNED BY: APB, HLJ, JA, VP	5/24/2025 — ISSUED FOR CONSTRUCTION
DRAWN BY: V. PHAN	MassDOT Massachusetts Department of Transportation Highway Division
CHECKED BY: A. BRUNDIGE, S. TAN	PROPOSED BRIDGE **HUBBARDSTON** WILLIAMSVILLE ROAD OVER BURNSHIRT RIVER
SPECS BY: BB, JA	MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION 10 PARK PLAZA BOSTON, MASS
APPROVED FOR DESIGN BY: S. TAN	Alexander K. Bardow, P.E. — Digitally signed by Alexander K. Bardow, P.E. Date: 2025.05.22 12:55:22 -04'00' — STATE BRIDGE ENGINEER Carrie Lavallee, P.E. — Carrie Lavallee, P.E. 2025.05.23 10:48:04 -04'00' — CHIEF ENGINEER

SHEET 1 OF 18 SHEETS BRIDGE NO. H-24-003 (CEE)

609187_BR1(H24003) 2024-08-21.DWG Plotted on 22-May-2025 10:29 AM

609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	19	45
PROJECT FILE NO.	609187		

GENERAL NOTES, TRAFFIC DATA, SEISMIC DESIGN CRITERIA, AND HYDRAULIC DESIGN DATA

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECICIFICATIONS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 2020, FOR HL–93 LOADING.

MASSDOT BENCH MARK:

6502X RIVET AT N.W. CORNER OF BRIDGE
NORTHING: 2998964.44
EASTING: 500673.67
ELEVATION: 784.36
ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE N.E. AND S.W. 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:

ELECTRONIC SURVEY WAS USED. THE COPIES OF ELECTRONIC SURVEY FILES MAY BE OBTAINED FROM MASSDOT. SURVEY BOOK NO. 41302.

SCALES:

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

FOUNDATIONS:

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

UNSUITABLE MATERIAL:

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

CONCRETE:

ALL CONCRETE SHALL BE 5000 PSI, HP CEMENT CONCRETE, EXCEPT AS NOTED ON DETAILS.

REINFORCEMENT:

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

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

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

MEMBRANE WATERPROOFING:

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

TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2043	N/A
AVERAGE DAILY TRAFFIC – PRESENT	560	N/A
AVERAGE DAILY TRAFFIC – DESIGN YEAR	644	N/A
DESIGN HOURLY VOLUME	97	N/A
DIRECTIONAL DISTRIBUTION	50%	N/A
TRUCK PERCENTAGE – AVERAGE DAY	4%	N/A
TRUCK PERCENTAGE – PEAK HOUR	4%	N/A
DESIGN SPEED	40 MPH	N/A
DIRECTIONAL DESIGN HOURLY VOLUME	52	N/A

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000–yr
DESIGN SPECTRA	
As	0.076
SDs	0.166
SD1	0.068
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	12.5
DESIGN FLOOD DISCHARGE (C.F.S.)	1552
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S.)	8.06
DESIGN FLOOD ELEVATION (FEET, NAVD)	776.64
BASE (100–YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	3873
BASE FLOOD ELEVATION (FEET, NAVD)	779.4
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	6.96
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	N/A
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	7.9
CHECK FLOOD PIER SCOUR DEPTH (FEET)	N/A
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	03/1936
HISTORY OF ICE FLOES	NONE
EVIDENCE OF SCOUR AND EROSION	NONE

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	1006
DESIGN FLOOD FREQUENCY (YEARS)	5
DESIGN FLOOD VELOCITY (F.P.S.)	2.66
DESIGN FLOOD ELEVATION (FEET, NAVD)	777.62

DATE	DESCRIPTION
5/24/2025	ISSUED FOR CONSTRUCTION

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

609187_BR2(H24003) 2024-05-18.DWG Plotted on 22-May-2025 10:50 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	20	45
	PROJECT FILE NO. 609187		

BORING LOGS - 1 OF 2

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Massachusetts DOT – Bridge No. H-24-003
Williamsville Road over Burnshirt River
Hubbardston, Massachusetts

BORING NO.: BB-1
SHEET: 1 of 1
PROJECT NO: 01.0175073.00
REVIEWED BY: JBH

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley Jr.
Logged By: Ernesto Pena

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Drive & Wash

Boring Location: See Coordinates 2998977.5 500733.3
Ground Surface Elev. (ft.): 783.7
Final Boring Depth (ft.): 30
Date Start – Finish: 4/27/2021 – 4/27/2021

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing
I.D/O.D.(in): 4"
Hammer Weight (lb.): 140/300
Hammer Fall (in.): 30
Other:

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
4/27/21	1405	7	19	10 min.

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	Stratum Elev. (ft.)
		S-1	0–2	24	11	74 34 25 23	59	S-1A: (Top 5") Dark brown/black, fine to coarse SAND, some Gravel, trace Silt. (ASPHALT and SUBBASE)	1		0.4'	ASPHALT AND SUBBASE	783.3'
		S-2	2–4	24	12	19 15 13 16	28	S-1B: (Bottom 6") brown/tan, fine to coarse SAND, some (–) Gravel, little Silt.					
		S-3	4–6	24	2	13 20 17 17	37	S-2: Medium dense, brown, fine to coarse SAND, some Gravel, little Silt, moist.					
5		S-4	6–8	24	4	22 24 8 7	32	S-3: Dense, brown, fine to coarse SAND and GRAVEL, little Silt, moist. Gravel in tip of spoon.					
		S-5	8–10	24	6	45 40 52 9	92	S-4: Dense, brown, fine to coarse GRAVEL and SAND, little Silt, moist. Gravel in tip of spoon.				FILL	
		S-6	10–12	24	6	25 10 10 10	20	S-5: Very dense, brown, fine to coarse GRAVEL and SAND, little Silt, moist. Gravel in tip of spoon.	2				
10		S-7	12–14	24	0	9 6 5 4	11	S-6: Medium dense, brown/gray, fine to coarse SAND and GRAVEL, little Silt, wet.					
								S-7: No recovery.	3		14'		769.7'
		S-8	14–16	24	4	6 31 17 18	48	S-8: Dense, gray, fine to coarse SAND and GRAVEL, little Silt, wet.				SAND	
15		S-9	16–18	24	13	13 27 12 20	39	S-9: Dense, gray/brown, fine to coarse SAND and GRAVEL, little (+) Silt, wet.			18'		765.7'
	(min/ft)	S-10	18–	4	4	100/4"	R	S-10: Very dense, dark gray, fine to coarse GRAVEL, some fine to coarse Sand, trace Silt.			18.5'	WEATHERED ROCK	765.2'
	7:45	C-1	18.33 19–21	24	22			C-1: Hard, gray. slightly to moderately weathered, fine to medium grained, highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 91%, RQD 0%)	4				
20	10:45 8:00	C-2	21–26	60	60			C-2: Hard, gray, slightly weathered, fine to medium grained, highly fractured SCHIST. Subhorizontal to subvertical foliation. (Recovery 100%, RQD 15%)					
	8:15 8-00												
	8-00 8:15												
25	8:30 9:00	C-3	26–30	48	46			C-3: Hard, gray, slightly weathered, fine to medium grained, highly fractured SCHIST. Subhorizontal to subvertical foliation. (Recovery 95%, RQD 19%)				BEDROCK	
	7:30 7:30								5		30'		753.7'
30								Bottom of boring at 30 feet.					

REMARKS

1. Ground surface elevation was estimated using a plan entitled "Massachusetts Department of Transportation Plan of Topographic Survey of Williamsville Road Over Burnshirt River", dated 12/4/2020, prepared by GCG Associates of Wilmington, MA.
2. Drilling action indicated possible cobbles/boulders at a depth of approximately 8 feet below ground surface (bgs).
3. No sample was recovered in sample S-7. Sampling was attempted using both the 2-inch and 3-inch diameter split spoon samplers.
4. Advanced boring to 19 feet bgs using a roller bit and seated casing into the top of bedrock prior to the start of coring.
5. Boring was terminated at 30 feet bgs and grouted upon completion. Top 6 inches of the boring was backfilled with cuttings and repaired with asphalt cold patch at the 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.: BB-1

ELEVATION (FT)
785.0
780.0
775.0
770.0
765.0
760.0
755.0
750.0

EL. 776.7± 04/27/2021

TOP OF PROP. E. ABUT. FOOTING EL. 766.0

175073.00 WILLIAMSVILLE RD OVER BURNSHIRT RIVER.GPJ; STRATUM ONLY NORWOOD; 9/1/2022

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Massachusetts DOT – Bridge No. H-24-003
Williamsville Road over Burnshirt River
Hubbardston, Massachusetts

BORING NO.: BB-2
SHEET: 1 of 1
PROJECT NO: 01.0175073.00
REVIEWED BY: JBH

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley Jr.
Logged By: Ernesto Pena

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Drive & Wash

Boring Location: See Coordinates 2998952.1 500667
Ground Surface Elev. (ft.): 782.6
Final Boring Depth (ft.): 29
Date Start – Finish: 4/21/2021 – 4/22/2021

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing
I.D/O.D.(in): 4"
Hammer Weight (lb.): 140/300
Hammer Fall (in.): 30
Other:

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
4/21/21	1221	10	19	10 min.

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	Stratum Elev. (ft.)
		S-1	0–2	24	9	81 18 13 21	31	S-1A (Top 6"): Dark brown/black, fine to coarse SAND, some Gravel, trace Silt. (ASPHALT and SUBBASE)	1		0.5'	ASPHALT AND SUBBASE	782.1'
		S-2	2–4	24	3	14 10 7 19	17	S-1B (Bottom 3"): Tan, fine to coarse SAND, little Silt, trace Gravel, moist.					
		S-3	4–6	24	2	14 30 11 11	41	S-2: Medium dense, tan, fine to coarse SAND, some Gravel, little Silt, moist.					
5		S-4	6–8	24	3	11 10 7 8	17	S-3: Dense, tan, fine GRAVEL, little (+) fine to coarse Sand, trace Silt, moist. Gravel in tip of spoon.	2				
		S-5	8–10	24	5	39 22 7 7	29	S-4: Medium dense, tan, fine to coarse SAND, little Gravel, little (–) Silt, moist. Gravel in tip of spoon.				FILL	
		S-6	10–12	24	5	3 WOH WOH 1	0	S-5: Medium dense, brown, fine to coarse SAND and GRAVEL, trace Silt, wet.	3				
10		S-7	12–14	24	3	1 3 6 3	9	S-6: Very loose, fine to coarse SAND and GRAVEL, trace Silt, wet. Wood fragments observed in sample.					
		S-8	14–16	24	4	12 2 4 4	6	S-7: Loose, black, fine to coarse SAND, some Silt, trace Gravel, wet. Slight hydrogen sulfide odor.			14'		768.6'
		S-9	16–	18	16	16 29	R	S-8: Loose, dark gray/black, fine to coarse SAND, some Gravel, little Silt, wet.				SAND	
15			17.5			106/6"		S-9A (Top 4"): Dark gray/black, fine to coarse SAND, little Gravel, little Silt. Trace wood fibers.			16.5'		766.1'
	(min/ft)							S-9B (Bottom 12"): Gray, fine to coarse SAND and GRAVEL, little (–) Silt.			18'	WEATHERED ROCK	764.6'
	8:00	C-1	19–24	60	57			C-1: Hard, slightly weathered, fine to medium grained, moderately to highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 95%, RQD 20%)	4				
20	9:30 7:00												
	8:00 7:30												
25	9:45 7:00	C-2	24–29	60	58			C-2: Hard, slightly weathered, fine to medium grained, moderately to highly fractured SCHIST. Subhorizontal to subvertical foliation. (Recovery 96%, RQD 40%)				BEDROCK	
	8:00 10:30												
	15:00								5		29'		753.6'
30								Bottom of boring at 29 feet.					

REMARKS

1. Ground surface elevation was estimated using a plan entitled "Massachusetts Department of Transportation Plan of Topographic Survey of Williamsville Road Over Burnshirt River", dated 12/4/2020, prepared by GCG Associates of Wilmington, MA.
2. Drilling action indicated possible cobbles/boulders at a depth of approximately 5 feet below ground surface (bgs).
3. Due to low sample recovery, additional sample was retrieved from 8 to 10 feet bgs using a 3-inch diameter split spoon.
4. Advanced boring to 19 feet bgs using a roller bit and seated casing into the top of bedrock prior to the start of coring.
5. Boring was terminated at 29 feet bgs and grouted upon completion. Top 6 inches of the boring was backfilled with cuttings and repaired with asphalt cold patch at the 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.: BB-2

ELEVATION (FT)
785.0
780.0
775.0
770.0
765.0
760.0
755.0
750.0

EL. 772.6± 04/21/2021

TOP OF PROP. W. ABUT. FOOTING EL. 764.5

175073.00 WILLIAMSVILLE RD OVER BURNSHIRT RIVER.GPJ; STRATUM ONLY NORWOOD; 9/1/2022

BORING NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLAN THUS: ◔
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
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 LAWRENCE, 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 IN APRIL, 2021.
7. BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTORS, 40 FORDWAY STREET, DERRY, NH 03038.
8. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	21	45
PROJECT FILE NO.	609187		

BORING LOGS - 2 OF 2

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Massachusetts DOT – Bridge No. H-24-003
Williamsville Road over Burnshirt River
Hubbardston, Massachusetts

BORING NO.: BB-3
SHEET: 1 of 1
PROJECT NO: 01.0175073.00
REVIEWED BY: JBH

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley Jr.
Logged By: Ernesto Pena

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Drive & Wash

Boring Location: See Coordinates 2998927.7 500661.5
Ground Surface Elev. (ft.): 782.0
Final Boring Depth (ft.): 29
Date Start – Finish: 4/29/2021 – 4/29/2021

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing
I.D/O.D.(in): 4"
Hammer Weight (lb.): 140/300
Hammer Fall (in.): 30
Other:

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.)

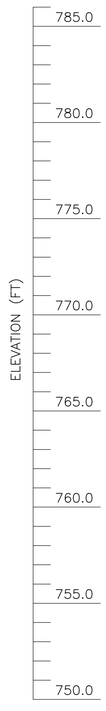
Date	Time	Water Depth	Casing	Stab. Time
4/29/21	1300	8	19	10 min.

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	Stratum Elev. (ft.)
		S-1	0-2	24	19	50 41 34 25	75	S-1A (Top 6"): Black/gray, fine GRAVEL, some fine to coarse Sand, trace Silt. (ASPHALT and SUBBASE) S-1B (Bottom 13"): Tan, fine to coarse SAND, little Gravel, trace Silt.	1		0.5'	ASPHALT AND SUBBASE	781.5'
		S-2	2-4	24	11	18 12 16 15	28	S-2: Medium dense, tan, fine to coarse GRAVEL, some SAND, trace Silt.					
5		S-3	4-6	24	8	9 11 12 16	23	S-3: Medium dense, tan, fine to coarse GRAVEL and SAND, little Silt, wet.					
		S-4	6-8	24	9	12 11 18 14	29	S-4: Medium dense, tan, fine to coarse GRAVEL and SAND, little Silt, wet.				FILL	
		S-5	8-10	24	8	13 13 13 21	26	S-5: Medium dense, tan, fine to coarse SAND and GRAVEL, little Silt, wet.					
10		S-6	10-12	24	2	10 11 8 3	19	S-6: Medium dense, tan/gray, fine GRAVEL, some (–) fine to coarse Sand, little Silt, wet. Gravel in tip of spoon.			12'		770.0'
		S-7	12-14	24	6	11 8 7 4	15	S-7: Medium dense, gray, fine to coarse SAND and GRAVEL, little Silt, wet. Gravel in tip of spoon.				SAND	
15		S-8	14-16	24	10	10 11 6 13	17	S-8: Medium dense, gray/brown, fine to coarse SAND and GRAVEL, little Silt, wet. Gravel in tip of spoon.					
		S-9	16-18	14	12	45 96 50/2"	R	S-9: Very dense, gray, fine to coarse GRAVEL and SAND, little (–) Silt. (Weathered Rock)			16.5'		765.5'
												WEATHERED ROCK	
	(min/ft)	S-10	18–	5	4	110/5"	R	S-10: Very dense, gray, fine to coarse GRAVEL and SAND, little (–) Silt. (Weathered Rock)			19'		763.0'
	6:00	C-1	18.5 19-24	60	52			C-1: Hard, gray, slightly weathered, fine to medium grained, moderate to highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 86%, RQD 39%)	2				
20	4:30												
	7:00												
	7:45												
	8:30												
	12:00	C-2	24-29	60	58			C-2: Hard, gray, slightly weathered, fine to medium grained, moderate to highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 96%, RQD 43%)				BEDROCK	
25	8:00												
	7:00												
	7:30												
	7:00										29'		753.0'
30								Bottom of boring at 29 feet.	3				

REMARKS:
1. Ground surface elevation was estimated using a plan entitled "Massachusetts Department of Transportation Plan of Topographic Survey of Williamsville Road Over Burnshirt River", dated 12/4/2020, prepared by GCG Associates of Wilmington, MA.
2. Advanced boring to 19 feet below ground surface (bgs) using a roller bit and seated casing into the top of bedrock prior to the start of coring.
3. Boring was terminated at 29 feet bgs and grouted upon completion. Top 6 inches of the boring was backfilled with cuttings and repaired with asphalt cold patch at the 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.: BB-3



EL. 774.0±
04/29/2021

TOP OF PROP. W.
ABUT. FOOTING
EL. 764.5

175073.00 WILLIAMSVILLE RD OVER BURNSHIRT RIVER.GPJ; STRATUM ONLY NORWOOD; 9/1/2022

TEST BORING LOG

GZA GeoEnvironmental, Inc. *Engineers and Scientists*

Massachusetts DOT – Bridge No. H-24-003
Williamsville Road over Burnshirt River
Hubbardston, Massachusetts

BORING NO.: BB-4
SHEET: 1 of 2
PROJECT NO: 01.0175073.00
REVIEWED BY: JBH

Drilling Co.: New England Boring Contractors
Foreman: Gary Twombley Jr.
Logged By: Ernesto Pena

Type of Rig: Truck
Rig Model: CME 75
Drilling Method: Drive & Wash

Boring Location: See Coordinates 2998958.7 500737.3
Ground Surface Elev. (ft.): 783.0
Final Boring Depth (ft.): 32
Date Start – Finish: 4/28/2021 – 4/28/2021

H. Datum: NAD83
V. Datum: NAVD88

Auger/Casing Type: Casing
I.D/O.D.(in): 4"
Hammer Weight (lb.): 140/300
Hammer Fall (in.): 30
Other:

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
4/28/21	1330	9	22	15 min.

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	Stratum Elev. (ft.)
		S-1	0-2	24	22	32 20 19 30	39	S-1A (Top 8"): Black, fine to coarse SAND, little Gravel, little Silt. S-1B (Bottom 14"): Tan, fine to coarse SAND, some (–) Gravel, little (–) Silt.	1		0.5'	ASPHALT AND SUBBASE	782.5'
		S-2	2-4	24	11	32 13 10 15	23	S-2: Medium dense, tan, fine to coarse SAND, some Gravel, little Silt.					
5		S-3	4-6	24	6	21 10 12 12	22	S-3: Medium dense, tan/brown, fine GRAVEL, some fine to coarse Sand, trace Silt.				FILL	
		S-4	6-8	24	10	20 15 14 15	29	S-4: Medium dense, tan/brown, fine to coarse SAND and GRAVEL, little Silt.					
		S-5	8-10	24	3	11 5 4 7	9	S-5: Loose, tan/brown, fine GRAVEL, some Sand, trace Silt.					
10		S-6	10-12	24	10	11 22 20 5	42	S-6: Dense, tan/brown, fine to coarse SAND and GRAVEL, little Silt.			10'		773.0'
		S-7	12-14	24	5	18 34 60 19	94	S-7: Very dense, tan/gray, fine to coarse SAND and GRAVEL, little (+) Silt.				SAND	
15		S-8	14-16	24	17	21 106 55 53	R	S-8: Very dense, tan/gray, fine to coarse SAND and GRAVEL, little (+) Silt.					
		S-9	16-18	24	22	43 27 60 69	87	S-9: Very dense, gray, fine to coarse SAND, some Silt, little (–) Gravel.					
	(min/ft)	S-10	19-20	11	8	48 114/5"	R	S-10: Very dense, gray, fine to coarse SAND and GRAVEL, little (–) Silt. (Weathered Rock)			19'		764.0'
	7:00	C-1	22-27	60	60			C-1: Hard, gray, slightly weathered, fine to medium grained, moderate to highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 100%, RQD 31%)	2			WEATHERED ROCK	
20	7:45										22'		761.0'
	9:00												
	7:45												
	7:30											BEDROCK	
25	8:30	C-2	27-32	60	57			C-2: Hard, gray, slightly weathered, fine to medium grained, moderate to highly fractured SCHIST. Subhorizontal to Subvertical foliation. (Recovery 95%, RQD 38%)					
	9:30												
	10:00												
30													

REMARKS:
1. Ground surface elevation was estimated using a plan entitled "Massachusetts Department of Transportation Plan of Topographic Survey of Williamsville Road Over Burnshirt River", dated 12/4/2020, prepared by GCG Associates of Wilmington, MA.
2. Advanced boring through weathered rock from 20 to 22 feet below ground surface (bgs) using a roller bit and seated casing into the top of bedrock prior to the start of coring at 22 feet bgs.

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.: BB-4

EL. 774.0±
04/28/2021

TOP OF PROP. E.
ABUT. FOOTING
EL. 766.0

175073.00 WILLIAMSVILLE RD OVER BURNSHIRT RIVER.GPJ; STRATUM ONLY NORWOOD; 9/1/2022

DATE	DESCRIPTION
5/24/2025	ISSUED FOR CONSTRUCTION

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

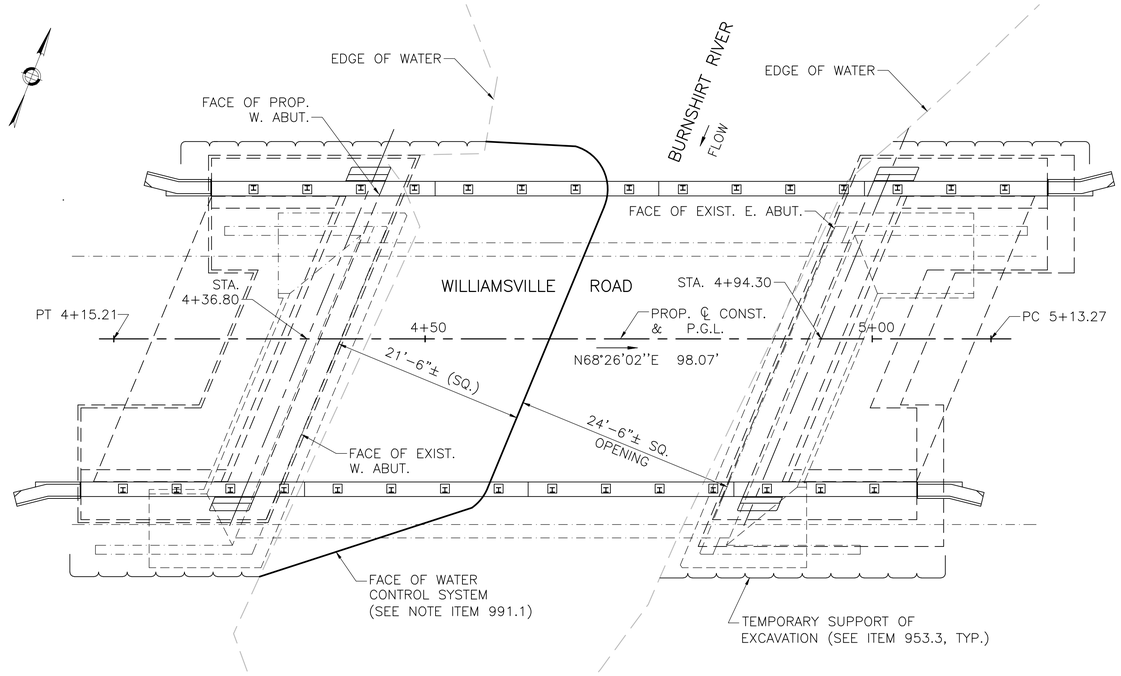
609187_BR4(H24003) 2024-05-18.DWG Plotted on 22-May-2025 10:52 AM

609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	22	45
	PROJECT FILE NO. 609187		

WATER CONTROL AND CONSTRUCTION STAGES

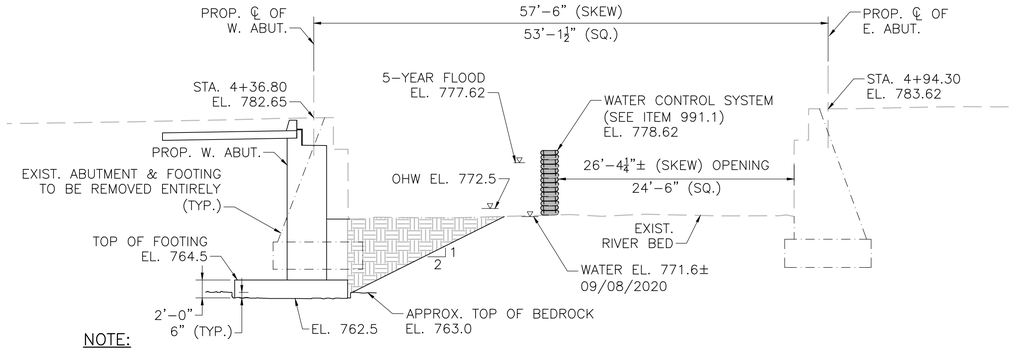


NOTE:

STAGE I WATER CONTROL SHOWN–STAGE II SIMILAR. SEE NOTES THIS SHEET.

WATER CONTROL PLAN – STAGE I

SCALE: $\frac{1}{8}$" = 1'–0"



NOTE:

STAGE I WATER CONTROL SHOWN–STAGE II SIMILAR. SEE NOTES THIS SHEET.

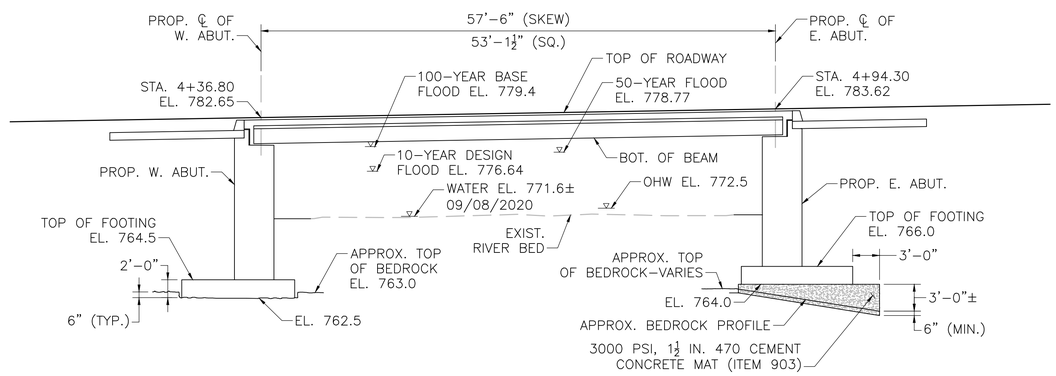
DENOTES LIMITS OF CHANNEL EXCAVATION.

PROPOSED LONGITUDINAL SECTION AT CL OF CONST. – STAGE I

SCALE: $\frac{1}{8}$" = 1'–0"

WATER CONTROL AND SUGGESTED CONSTRUCTION PROCEDURE

1. SAND BAGS, OR OTHER APPROVED ALTERNATE SYSTEM, SHALL BE USED FOR WATER CONTROL OF THE PROJECT.
2. DEMOLISH EXISTING SUPERSTRUCTURE IN STAGE I. INSTALL WATER CONTROL SYSTEM AS SHOWN IN "WATER CONTROL PLAN–STAGE I AND PROPOSED LONGITUDINAL SECTION AT CENTERLINE CONSTRUCTION–STAGE I".
3. DEWATER THE AREA BY PUMPING THE DISCHARGE WATER INTO A SETTLING TANK AND DIVERTING THE FLOW INTO THE EASTERLY SIDE.
4. INSTALL TEMPORARY EARTH SUPPORT SYSTEM AT SIDE SLOPES OF WEST ABUTMENT WHERE NECESSARY. EXCAVATE AT 2:1 SLOPE IN RIVERBED TO EXISTING BOTTOM OF FOOTING AT WEST ABUTMENT AS SHOWN IN SECTION VIEW.
5. DEMOLISH THE EXISTING WEST ABUTMENT, WINGWALLS, AND FOOTINGS. EXCAVATE AT 2:1 SLOPE TO PROPOSED TOP OF BEDROCK APPROX. EL. 763 AND REMOVE 6 INCH DEPTH OF BEDROCK TO PROPOSED BOTTOM OF FOOTING ELEVATION. CONSTRUCT THE PROPOSED WEST ABUTMENT, WINGWALLS, AND FOOTINGS IN THE DRY. EXCAVATED AREA SHALL CONTINUE TO BE DEWATERED UNTIL THE WEST ABUTMENT AND WINGWALLS ARE CONSTRUCTED.
6. WATER CONTROL SYSTEM WILL BE ADJUSTED AT THE ENDS TO DIVERT THE FLOW INTO THE WESTERLY SIDE. HYDRAULIC OPENING WILL BE APPROX. 24'–6" (SQ.) FOR STAGE I.
7. REPEAT STEPS 3 THRU 5 FOR THE EAST ABUTMENT AND WINGWALLS EXCAVATING TO PROPOSED TOP OF BEDROCK APPROX. EL. 764.5 AND REMOVE 6 INCH DEPTH OF BEDROCK FOR KEY. A 3000 PSI CONCRETE MAT WILL REPLACE ERODIBLE WEATHERING ROCK WHERE FOUND ALONG THE LENGTH OF EAST ABUTMENT FROM EL. 764.0 TO EL. 760.5.
8. REMOVE THE ENTIRE WATER CONTROL SYSTEM STRUCTURE AFTER THE COMPLETION OF THE PROJECT.
9. TEMPORARY EARTH EXCAVATION SUPPORT SYSTEM SHALL BE LEFT IN PLACE AND CUT DOWN TO APPROXIMATE GROUND LEVEL WHEN IN CLOSE PROXIMITY TO PROPOSED SUBSTRUCTURE AS DEFINED IN BRIDGE MANUAL PART I 3.2.5.8.
10. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITION PRIOR TO START OF WORK. INFORMATION SHOWN IS NOT GUARANTEED.



PROPOSED LONGITUDINAL SECTION AT CL OF CONST. – FINAL STAGE

SCALE: $\frac{1}{8}$" = 1'–0"

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

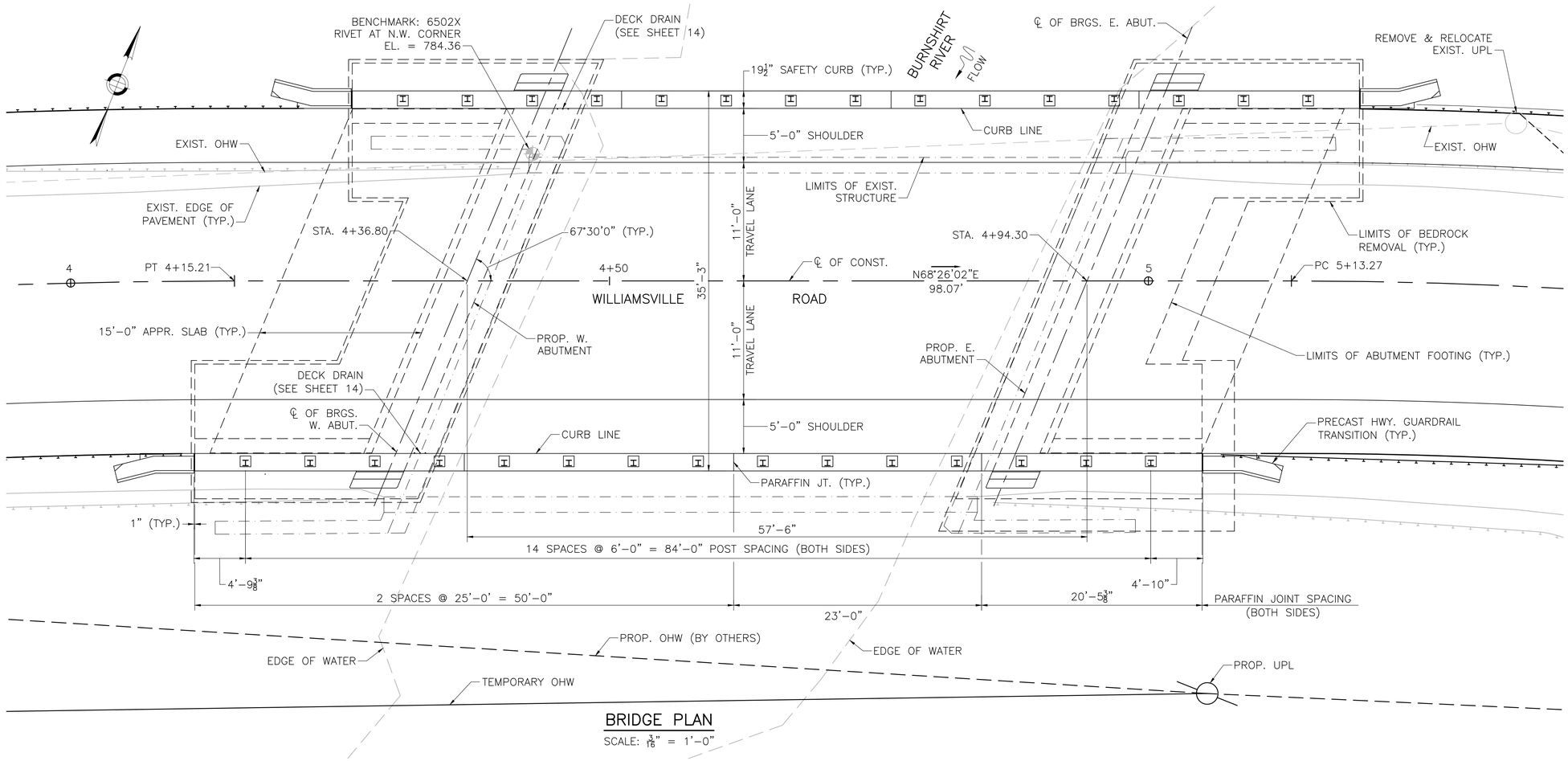
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

HUBBARDSTON
WILLIAMSVILLE ROAD

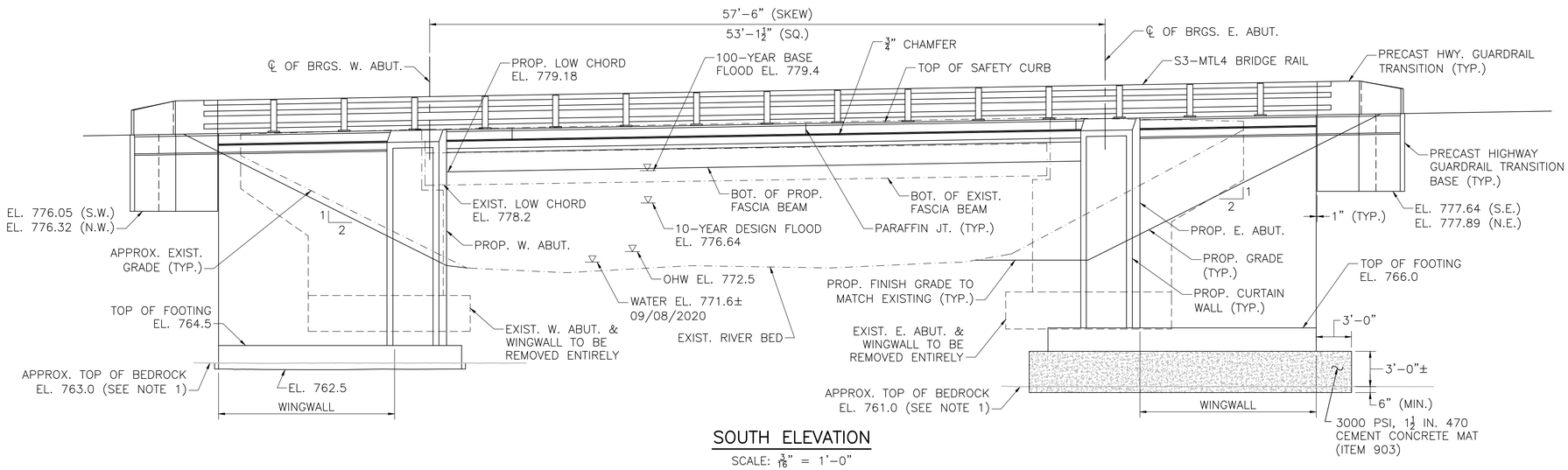
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	23	45
PROJECT FILE NO.	609187		

BRIDGE PLAN & ELEVATION



BRIDGE PLAN

SCALE: 3/16" = 1'–0"



SOUTH ELEVATION

SCALE: 3/16" = 1'–0"

NOTE:

1. REMOVE WEATHERED ROCK AT BOTH WEST AND EAST ABUTMENTS AND FOUR WINGWALLS FOR CONSTRUCTION OF NEW FOOTINGS.
2. WINGWALL STRIATIONS ARE OMITTED FOR CLARITY.

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

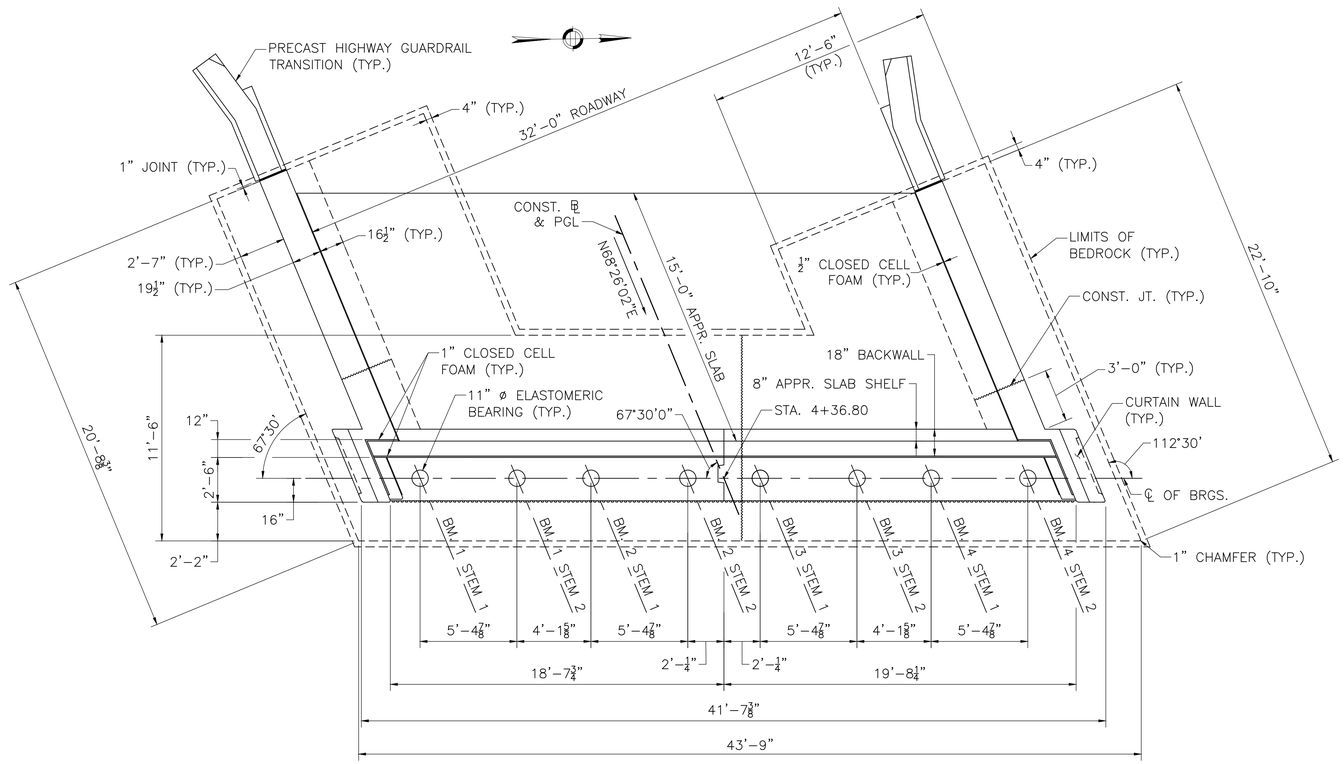
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

609187_BR6(H24003) 2024-07-01.DWG Plotted on 22-May-2025 10:54 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

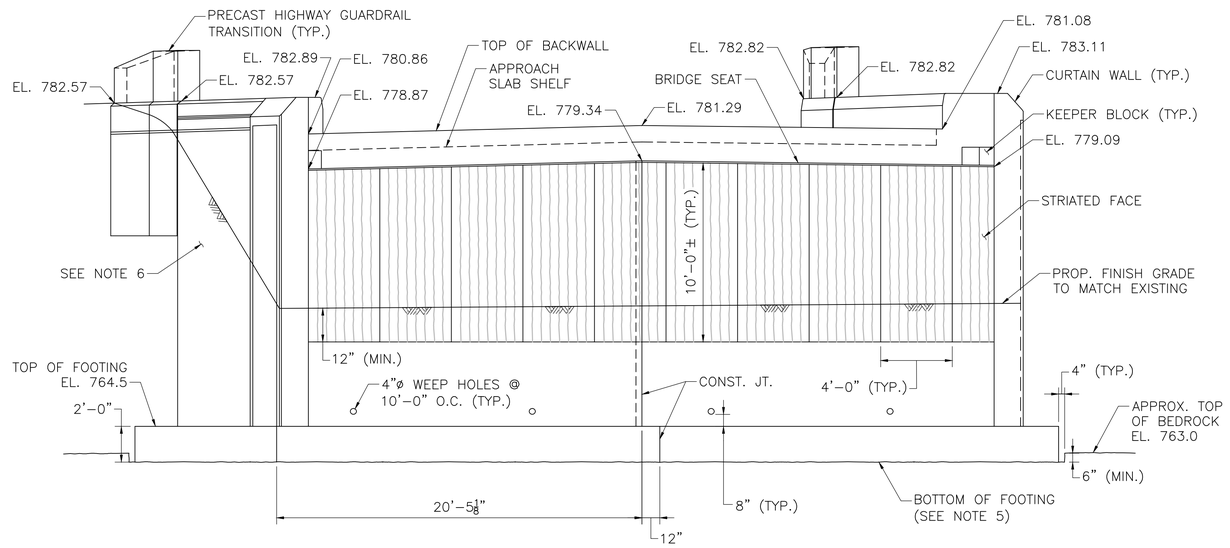
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	24	45
PROJECT FILE NO.	609187		

WEST ABUTMENT PLAN AND ELEVATION



WEST ABUTMENT PLAN

SCALE: ¼" = 1'-0"



WEST ABUTMENT ELEVATION

SCALE: ¼" = 1'-0"

BRIDGE SEAT ELEVATION WEST ABUTMENT	
BM. #1	STEM 1 EL. = 778.91
	STEM 2 EL. = 779.05
BM. #2	STEM 1 EL. = 779.15
	STEM 2 EL. = 779.29
BM. #3	STEM 1 EL. = 779.31
	STEM 2 EL. = 779.25
BM. #4	STEM 1 EL. = 779.20
	STEM 2 EL. = 779.13

NOTES:

1. FOR ABUTMENT SECTIONS DETAILS, SEE SHEET 9.
2. DETAILS ABOVE DECK LEVEL ARE OMITTED FOR CLARITY.
3. BACKWALL ELEVATIONS SHOWN AT THE FACE OF BACKWALL.
4. BRIDGE SEAT ELEVATIONS SHOWN AT CENTERLINE OF BEARINGS.
5. WHERE COMPETENT BEDROCK IS NOT FOUND AT THE BOTTOM OF FOOTING, 3000 PSI, 1½ IN. 470 CEMENT CONCRETE MAT SHALL BE INSTALLED AT A MINIMUM OF 6 INCHES AS NECESSARY TO THE ELEVATION OF SOUND BEDROCK.
6. WINGWALL STRIATIONS ARE OMITTED FOR CLARITY.

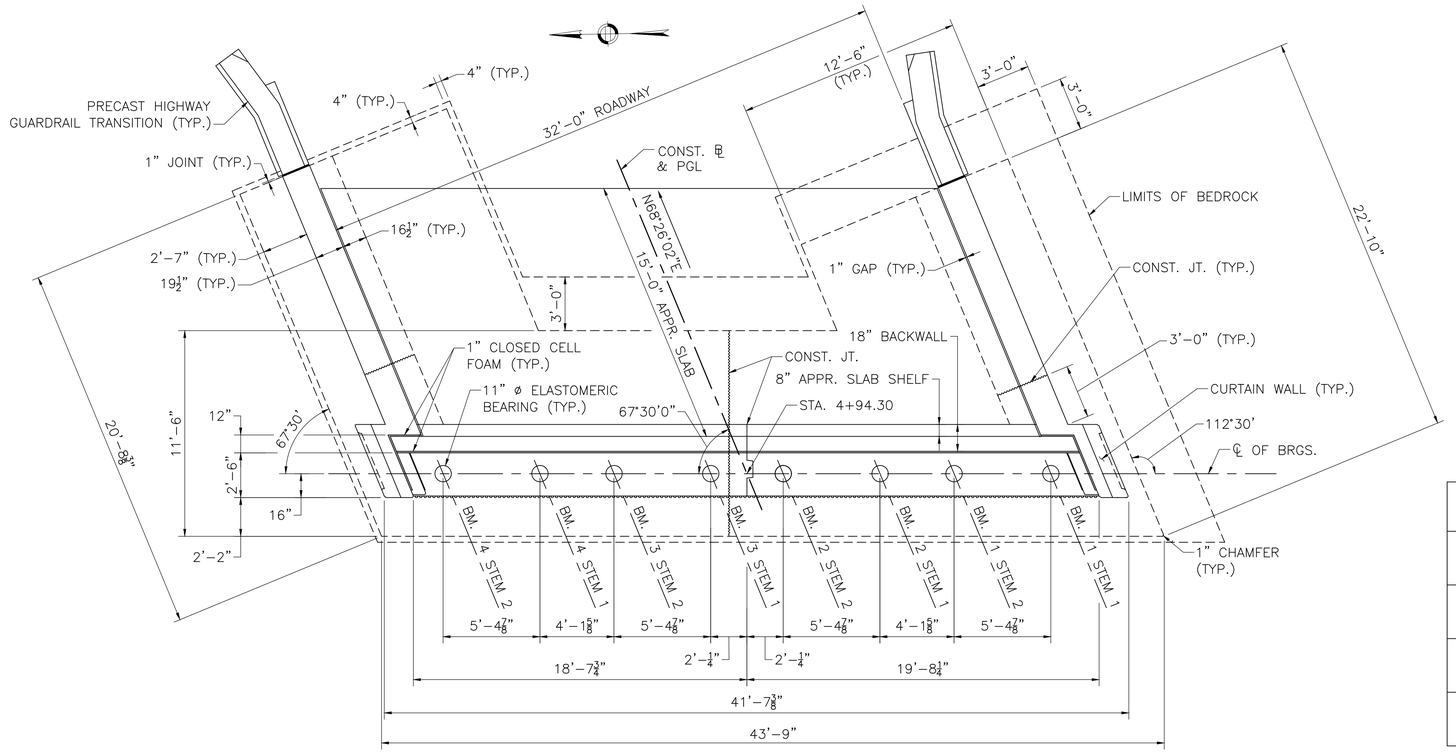
DATE	DESCRIPTION
5/24/2025	ISSUED FOR CONSTRUCTION

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

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	25	45
PROJECT FILE NO.	609187		

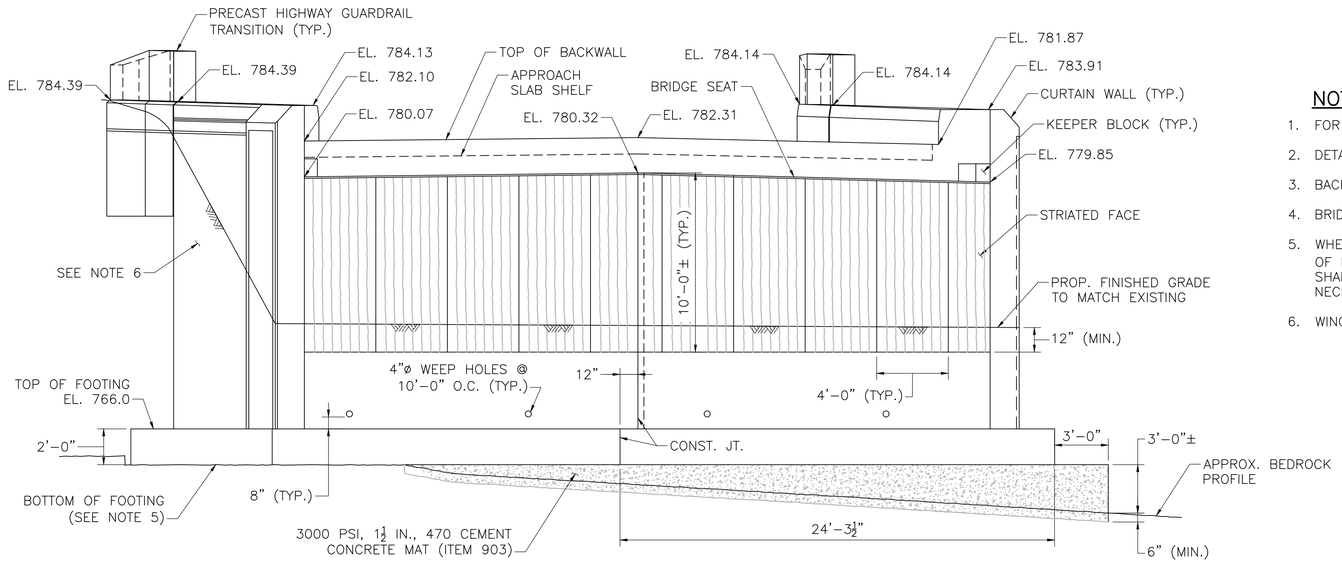
EAST ABUTMENT PLAN AND ELEVATION



EAST ABUTMENT PLAN VIEW

SCALE: ¼" = 1'-0"

BRIDGE SEAT ELEVATION EAST ABUTMENT	
BM. #1	STEM 1 EL. = 779.89
	STEM 2 EL. = 780.02
BM. #2	STEM 1 EL. = 780.13
	STEM 2 EL. = 780.26
BM. #3	STEM 1 EL. = 780.29
	STEM 2 EL. = 780.22
BM. #4	STEM 1 EL. = 780.17
	STEM 2 EL. = 780.11



EAST ABUTMENT ELEVATION VIEW

SCALE: ¼" = 1'-0"

NOTES:

1. FOR ABUTMENT SECTIONS DETAILS, SEE SHEET 9.
2. DETAILS ABOVE DECK LEVEL ARE OMITTED FOR CLARITY.
3. BACKWALL ELEVATIONS SHOWN AT THE FACE OF BACKWALL.
4. BRIDGE SEAT ELEVATIONS SHOWN AT CENTERLINE OF BEARINGS.
5. WHERE COMPETENT BEDROCK IS NOT FOUND AT THE BOTTOM OF FOOTING, 3000 PSI, 1½ IN. 470 CEMENT CONCRETE MAT SHALL BE INSTALLED AT A MINIMUM OF 6 INCHES AS NECESSARY TO THE ELEVATION OF COMPETENT BEDROCK.
6. WINGWALL STRIATIONS ARE OMITTED FOR CLARITY.

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
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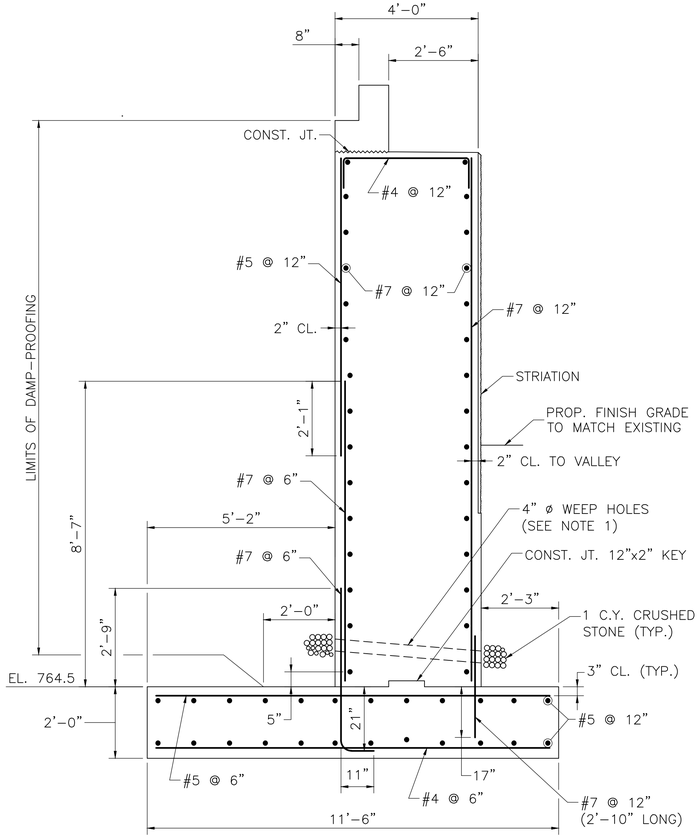
609187_BR(H24003) 2024-05-18.DWG Plotted on 22-May-2025 10:58 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

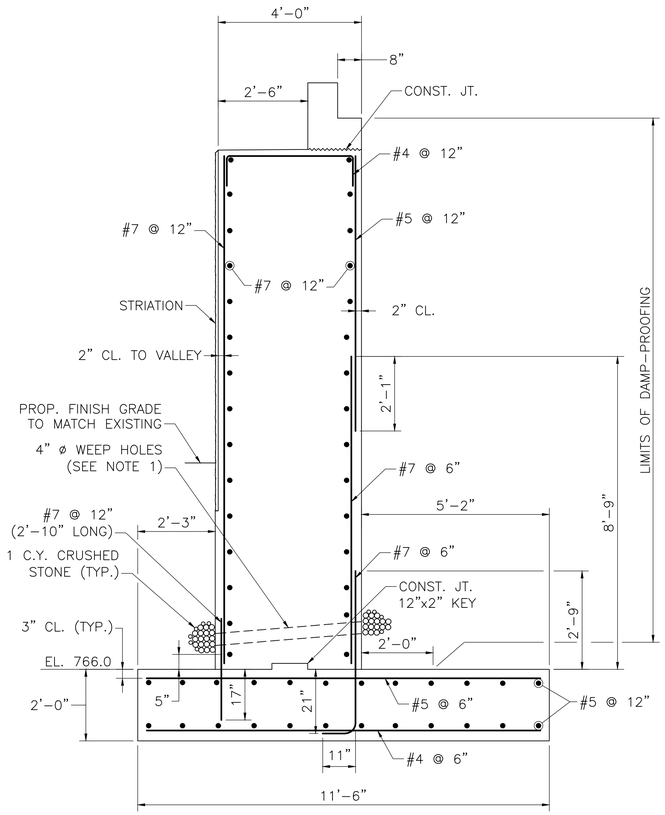
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	26	45
PROJECT FILE NO. 609187			

ABUTMENT DETAILS - 1 OF 2



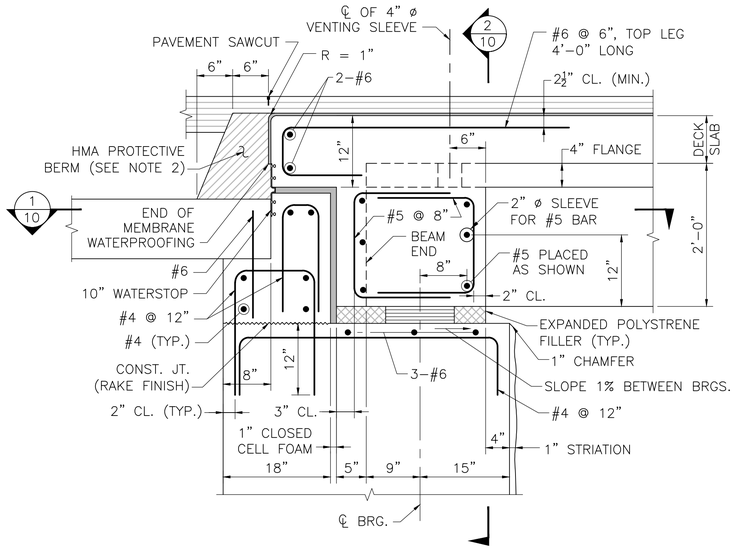
WEST ABUTMENT SECTION

SCALE: ½" = 1'–0"



EAST ABUTMENT SECTION

SCALE: ½" = 1'–0"

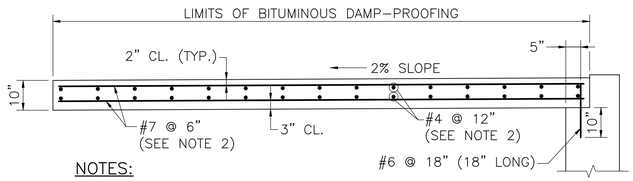


ROADWAY SECTION AT ABUTMENT

SCALE: 1" = 1'–0"

ABUTMENT SECTION 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. FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
   - STRENGTH I LIMIT STATE
     FACTORED BEARING PRESSURE = 11.20 KSF.
3. FACTORED BEARING RESISTANCE = 26.0 KSF FOR THE STRENGTH I LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 57.8 KSF AND A RESISTANCE FACTOR OF 0.45.



NOTES:

1. APPROACH SLAB TO BE 5000 PSI, ¾ IN., 685 HP CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO ℄ OF CONSTRUCTION. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.
3. APPROACH SLAB REINFORCEMENT SHALL BE UNCOATED.

APPROACH SLAB DETAILS

SCALE: ½" = 1'–0"

ROADWAY SECTION NOTES:

1. ALL REINFORCEMENT SHALL BE EPOXY COATED.
2. HMA PROTECTIVE BERM TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC–B–12.5–P), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND–GUIDED TAMPER.
3. THE BACKWALL, KEEPER BLOCKS AND CURTAIN WALL CONCRETE MUST BE PLACED AND SUFFICIENTLY CURED PRIOR TO PLACING THE END DIAPHRAGM CONCRETE.
4. PRIOR TO PLACING END DIAPHRAGM CONCRETE, CLOSED CELL FOAM OF THE SPECIFIED THICKNESS SHALL BE ATTACHED WITH ADHESIVE TO ALL SURFACES OF THE BACKWALL, KEEPER BLOCKS, AND CURTAIN WALLS AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE BOTTOM OF THE END DIAPHRAGM SHALL BE FORMED BY PLACING EXPANDED POLYSTYRENE FILLER OF THE REQUIRED THICKNESS ON THE BRIDGE SEAT AND TUCKING IT UNDER THE BEAM BOTTOM FLANGES. THE CONTRACTOR SHALL MAKE SURE THAT THE CLOSED CELL FOAM AND EXPANDED POLYSTYRENE FILLER HAVE BEEN PROPERLY AND SECURELY INSTALLED SO THAT THE END DIAPHRAGM CONCRETE SHALL NOT COME IN DIRECT CONTACT WITH THE ABUTMENT CONCRETE.
5. DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

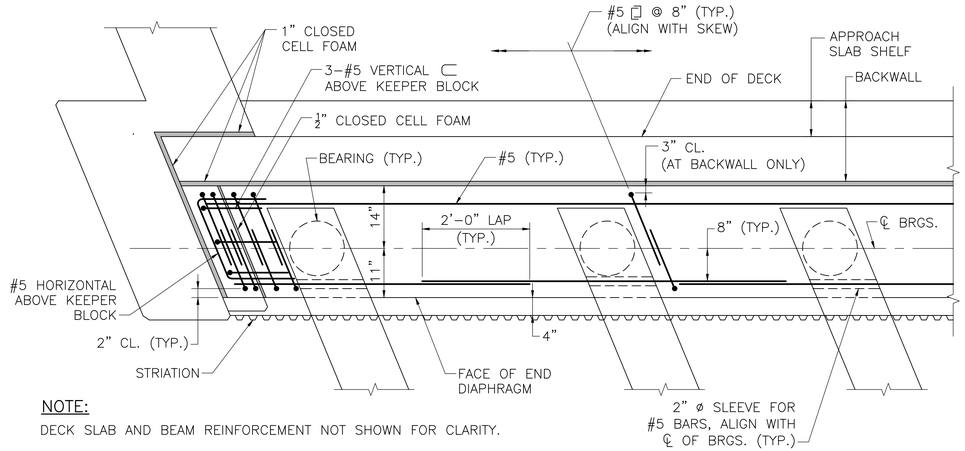
USE ONLY PRINTS OF LATEST DATE

609187_BR(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:00 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

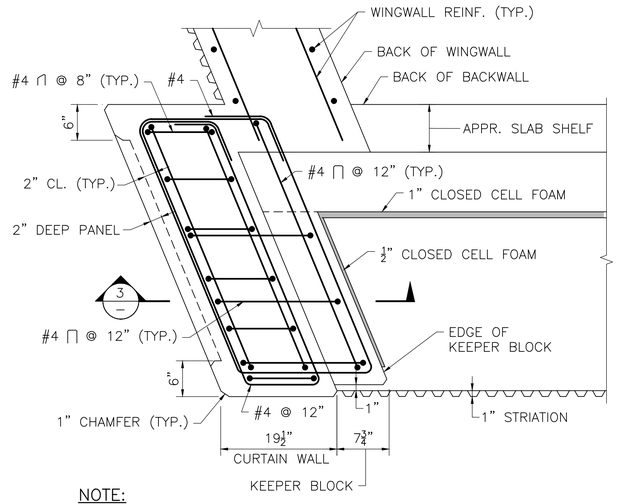
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	27	45
	PROJECT FILE NO. 609187		

ABUTMENT DETAILS - 2 OF 2



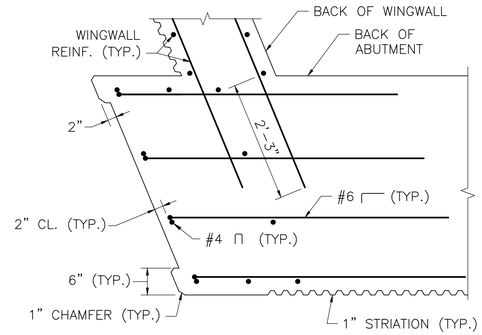
NOTE:
DECK SLAB AND BEAM REINFORCEMENT NOT SHOWN FOR CLARITY.

SECTION 1/9
SCALE: ¾" = 1'-0"



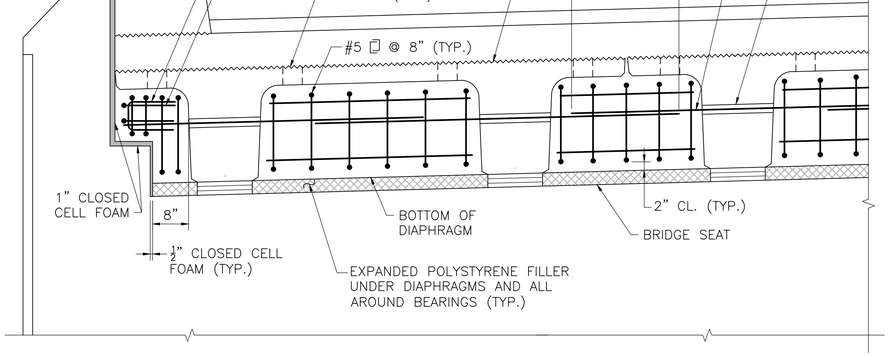
NOTE:
BACKWALL REINFORCEMENT NOT SHOWN FOR CLARITY.

TYP. CURTAIN WALL PLAN VIEW
SCALE: 1" = 1'-0"



NOTE:
ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT HAS BEEN OMITTED FOR CLARITY.

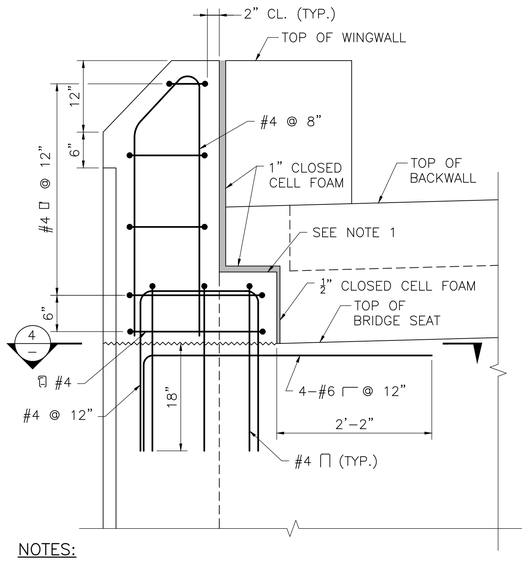
SECTION 4/–
SCALE: ¾" = 1'-0"



SECTION 2/9
SCALE: ¾" = 1'-0"

NOTES:

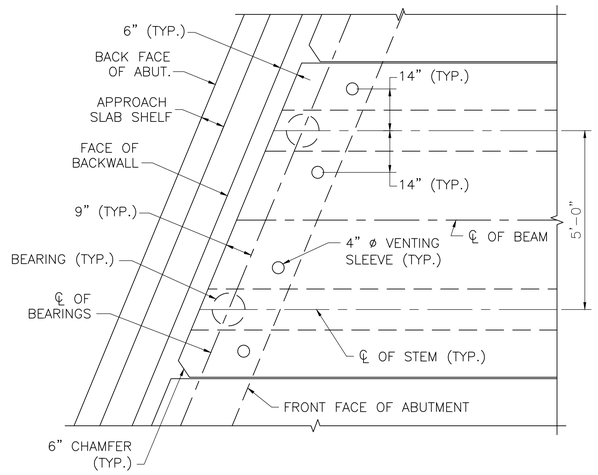
1. ALL REINFORCEMENT SHALL BE EPOXY COATED.
2. HMA PROTECTIVE BERM TO BE SUPERPAVE BRIDGE PROTECTIVE COURSE (SPC-B-12.5-P), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER.
3. THE BACKWALL, KEEPER BLOCKS AND CURTAIN WALL CONCRETE MUST BE PLACED AND SUFFICIENTLY CURED PRIOR TO PLACING THE END DIAPHRAGM CONCRETE.
4. PRIOR TO PLACING END DIAPHRAGM CONCRETE, CLOSED CELL FOAM OF THE SPECIFIED THICKNESS SHALL BE ATTACHED WITH ADHESIVE TO ALL SURFACES OF THE BACKWALL, KEEPER BLOCKS, AND CURTAIN WALLS AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE BOTTOM OF THE END DIAPHRAGM SHALL BE FORMED BY PLACING EXPANDED POLYSTYRENE FILLER OF THE REQUIRED THICKNESS ON THE BRIDGE SEAT AND TUCKING IT UNDER THE BEAM BOTTOM FLANGES. THE CONTRACTOR SHALL MAKE SURE THAT THE CLOSED CELL FOAM AND EXPANDED POLYSTYRENE FILLER HAVE BEEN PROPERLY AND SECURELY INSTALLED SO THAT THE END DIAPHRAGM CONCRETE SHALL NOT COME IN DIRECT CONTACT WITH THE ABUTMENT CONCRETE.
5. DECK SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.



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.

SECTION 3/–
SCALE: 1" = 1'-0"



END OF BEAM PLAN AT ABUTMENT
SCALE: ½" = 1'-0"

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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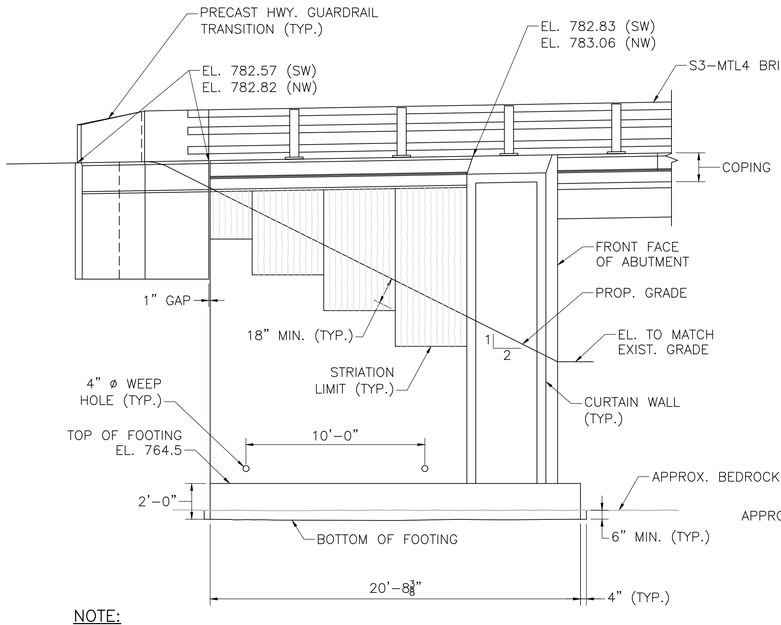
609187_BR10(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:01 AM
609187 (Structural Submittal (SF)) 13-SEPTEMBER-2024

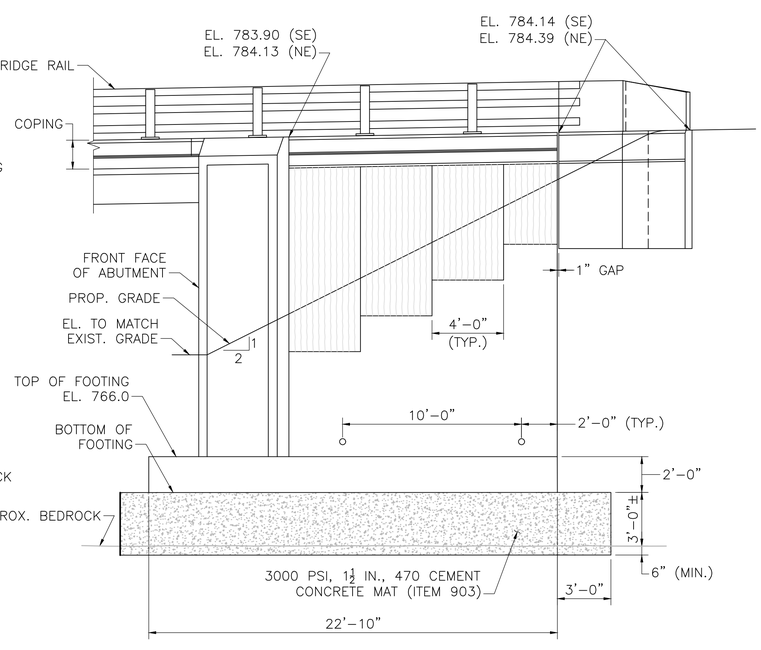


NOTE:

S.W. AND S.E. WINGWALL ELEVATIONS SHOWN. N.W. AND N.E. WINGWALL ELEVATIONS ARE SIMILAR.

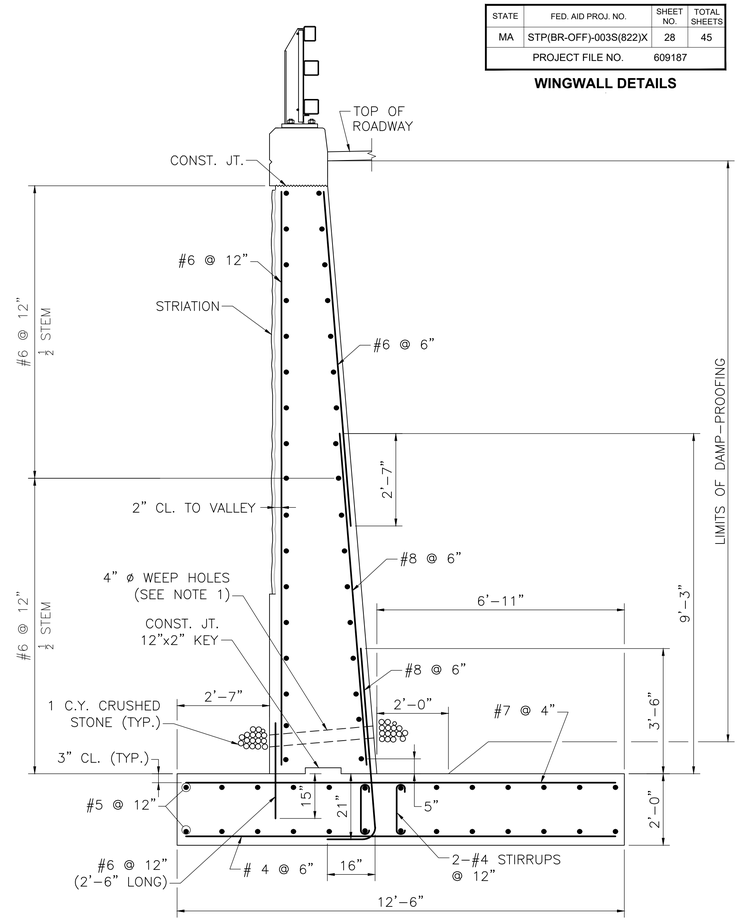
S.W. WINGWALL ELEVATION

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



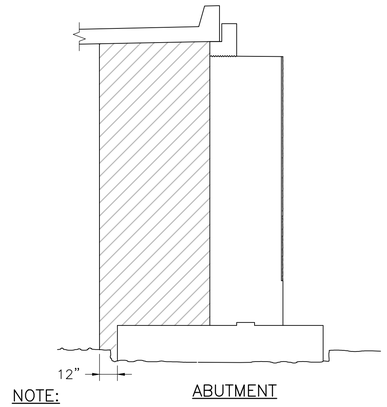
S.E. WINGWALL ELEVATION

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



TYP. WINGWALL SECTION

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



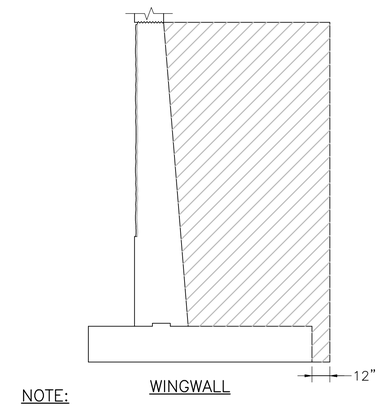
NOTE:

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

ABUTMENT

LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES

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



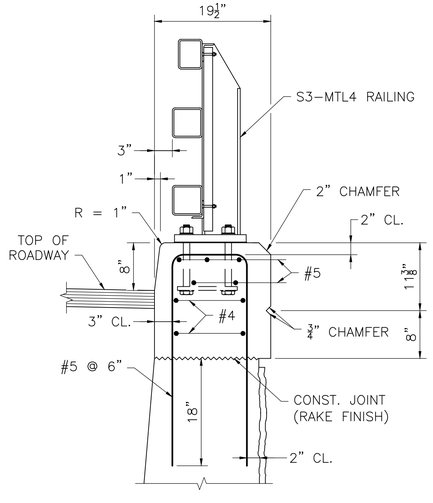
NOTE:

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

WINGWALL

LIMITS OF GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES

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



TOP OF U-WINGWALL DETAILS AT SAFETY CURB

SCALE: 1" = 1'-0"

WINGWALL SECTION 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. FACTORED BEARING PRESSURE PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.
   - STRENGTH I LIMIT STATE
     FACTORED BEARING PRESSURE = 5.91 KSF.
3. FACTORED BEARING RESISTANCE = 42.0 KSF FOR THE STRENGTH I LIMIT STATE AND IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE OF 76.4 KSF AND A RESISTANCE FACTOR OF 0.55.

DATE	DESCRIPTION
5/24/2025	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
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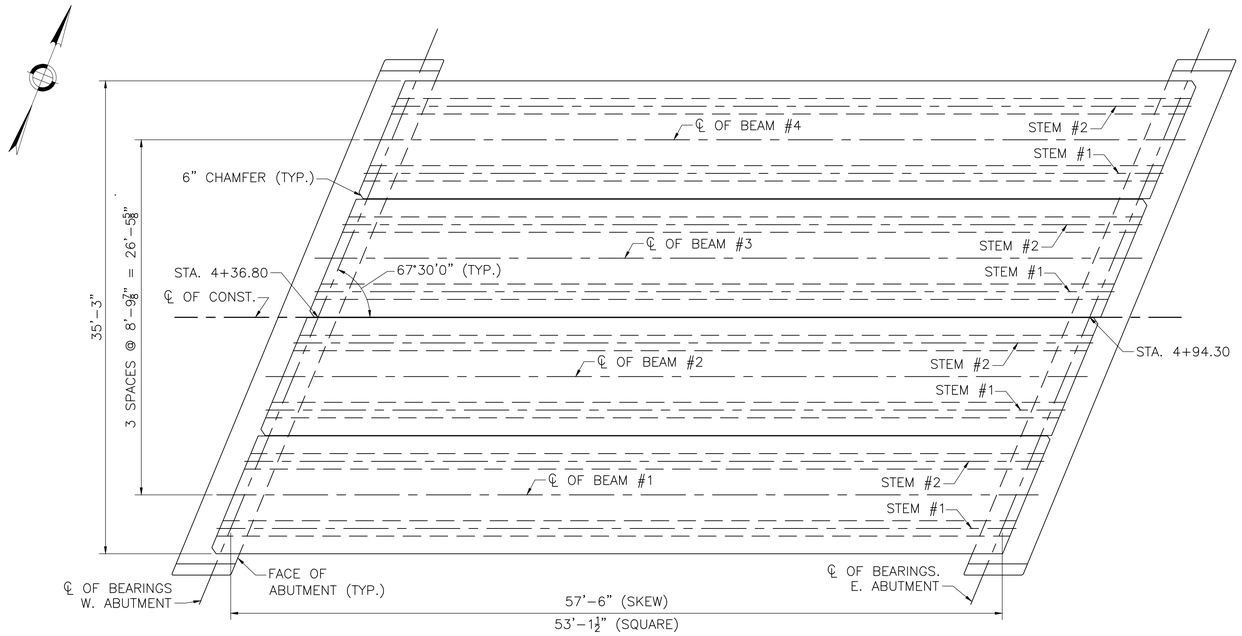
609187_BR11(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:03 AM
609187 (Structural Submittal (SF)) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

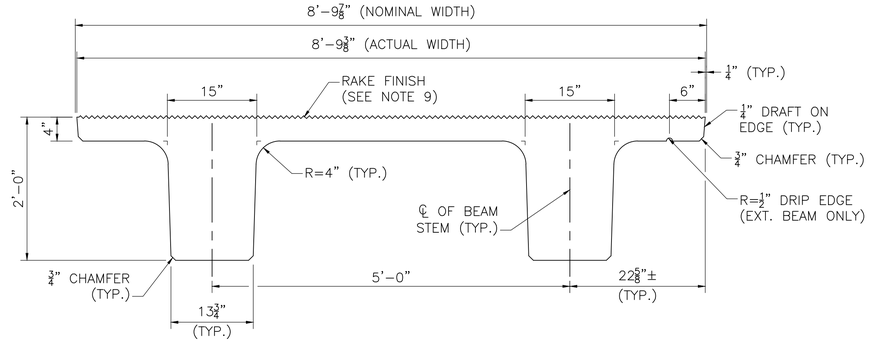
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	29	45
PROJECT FILE NO.	609187		

FRAMING PLAN AND BEAM SECTIONS



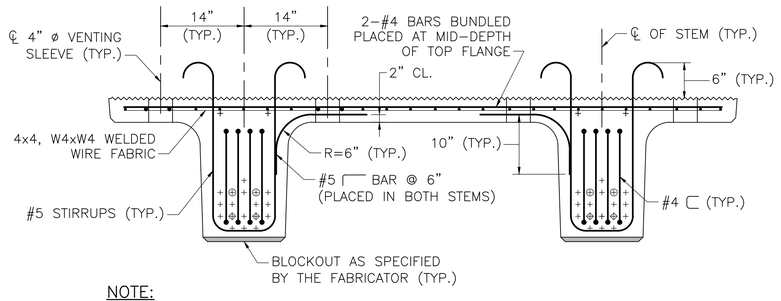
FRAMING PLAN

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



TYPICAL BEAM SECTION

SCALE: 1" = 1'-0"

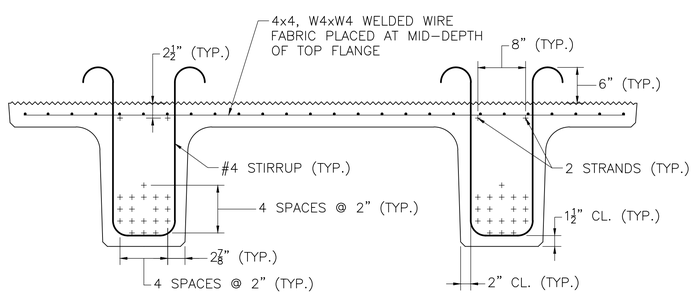


NOTE:

SEE MIDSPAN SECTION FOR DETAILS AND INFORMATION NOT SHOWN ABOVE.

TYPICAL END SECTION

SCALE: 1" = 1'-0"



TYPICAL MIDDLE SECTION

SCALE: 1" = 1'-0"

NOTES:

1. + DENOTES STRAIGHT STRANDS.
2. ⊕ DENOTES DEBONDED STRANDS 7'-0" FROM END OF BEAM.
3. ✥ DENOTES DEBONDED STRANDS 10'-0" FROM END OF BEAM.
4. ALL PRETENSIONING ELEMENTS SHALL BE 0.6" ø, UNCOATED, SEVEN-WIRE, LOW RELAXATION STEEL STRANDS AND SHALL CONFORM TO AASHTO M 203.
5. THE NOMINAL TENSILE STRENGTH OF THE PRETENSIONING STRANDS SHALL BE 270 KSI.
6. THE INITIAL TENSION PER 0.6" ø STRAND SHALL BE 44 KIPS.
7. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH SHALL BE 10000 PSI.
8. NO PRESTRESS SHALL BE TRANSFERRED TO THE CONCRETE UNTIL IT HAS ATTAINED A COMPRESSIVE STRENGTH, AS SHOWN BY A CYLINDER TEST, OF AT LEAST 8000 PSI.
9. THE TOP OF ALL BEAMS SHALL BE GIVEN A RAKED FINISH (¼" AMPLITUDE) ACROSS THE WIDTH PERPENDICULAR TO THE BEAM'S AXIS.
10. THE FABRICATOR IS FULLY RESPONSIBLE FOR THE DESIGN OF THE LIFTING DEVICES AND BEAM STRESSES DURING LIFTING AND HANDLING WHICH SHALL BE ADEQUATE FOR THE SAFETY FACTORS REQUIRED BY THE ERECTION PROCEDURE.
11. 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.

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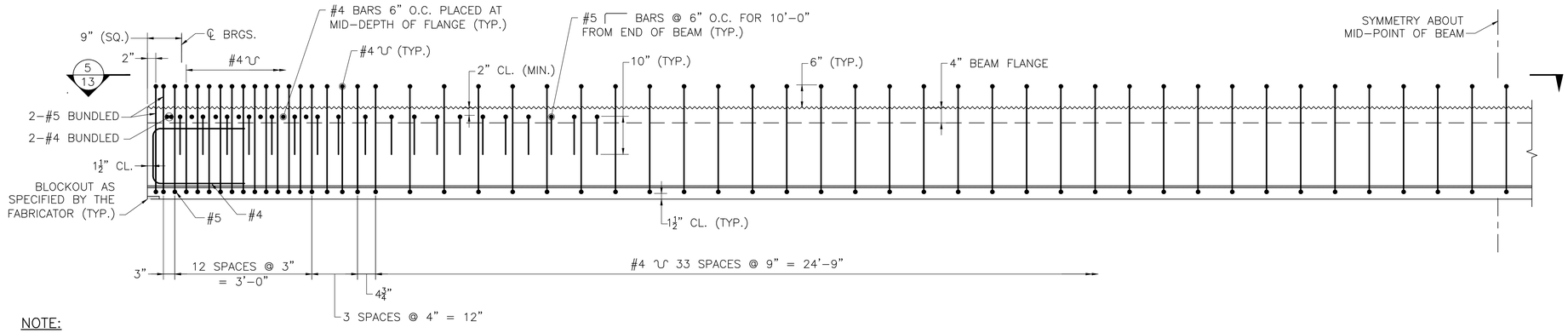
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	30	45
PROJECT FILE NO.	609187		

BEAM LONGITUDINAL SECTIONS

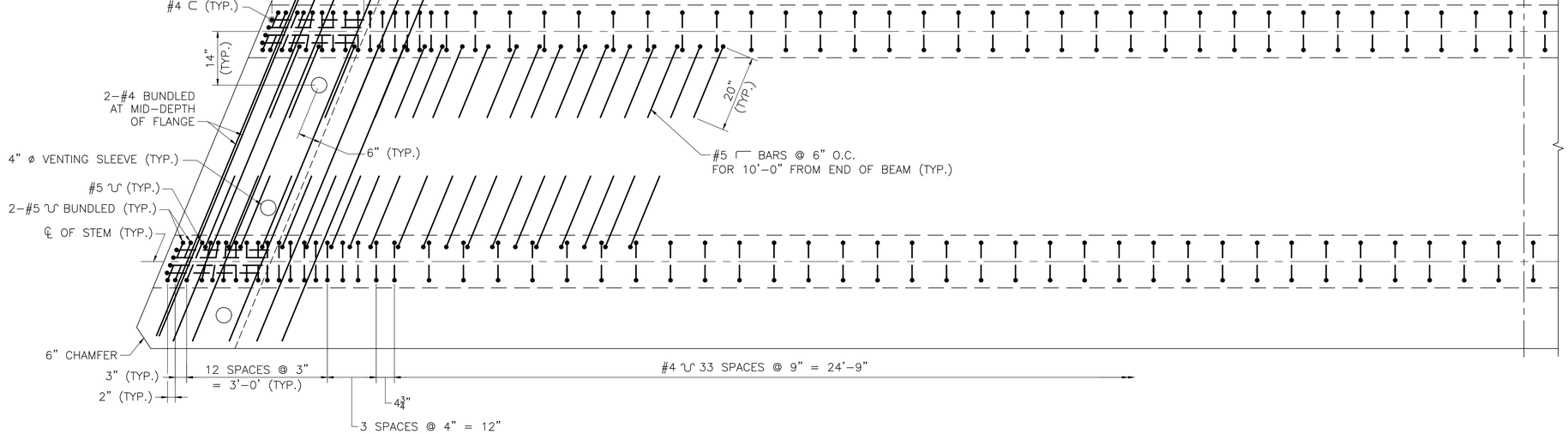


NOTE:

WELDED WIRE FABRIC AND THE REMAINDER OF THE PRESTRESSING STRANDS NOT SHOWN FOR CLARITY.

BEAM LONGITUDINAL SECTION

SCALE: ¾" = 1'-0"



NOTES:

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

SECTION 5/–

SCALE: ¾" = 1'-0"

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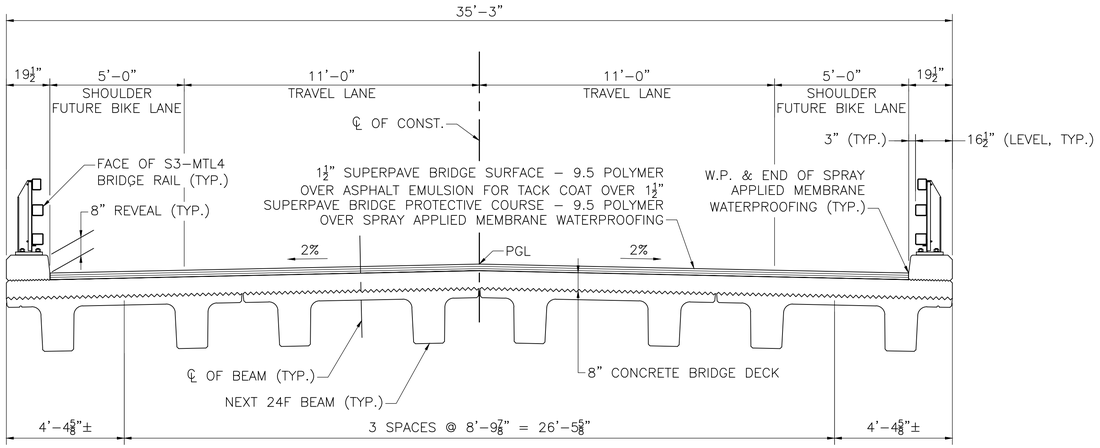
USE ONLY PRINTS OF LATEST DATE

TRANSVERSE SECTION AND DECK DETAILS



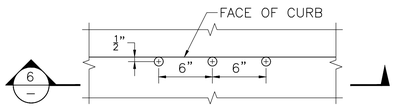
PROPOSED TRANSVERSE SECTION

SCALE: ⅜" = 1'–0"

THEORETICAL DECK SLAB THICKNESS ALONG THE SPAN LENGTH											
LOCATION	INCREASING STATIONS →										
	℄ BRG.	0.1L	0.2L	0.3L	0.4L	0.5L	0.6L	0.7L	0.8L	0.9L	℄ BRG.
LEFT EDGE OF DECK	9⅞"	9⅛"	8⅝"	8¼"	8 1/16"	8	8 1/16"	8¼"	8⅝"	9⅛"	9⅞"
CROWN	9⅞"	9⅛"	8⅝"	8¼"	8 1/16"	8	8 1/16"	8¼"	8⅝"	9⅛"	9⅞"
RIGHT EDGE OF DECK	9⅞"	9⅛"	8⅝"	8¼"	8 1/16"	8	8 1/16"	8¼"	8⅝"	9⅛"	9⅞"

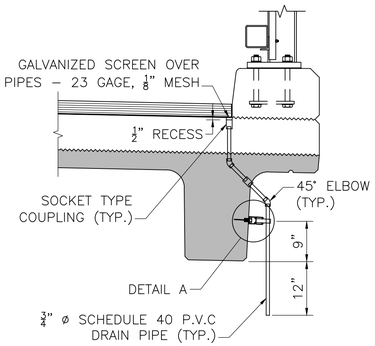
NOTES:

1. REFERENCE FOR LEFT EDGE OF DECK SLAB, CROWN, AND RIGHT EDGE OF DECK SLAB LOOKING UP STATION.
2. THIS TABLE INDICATES THE THEORETICAL THICKNESS OF THE DECK SLAB IN INCHES BASED UPON ASSUMED BEAM CAMBERS AT ERECTION.
3. TABLE IS PROVIDED TO ASSIST IN ESTIMATING THE REQUIRED CONCRETE VOLUME.
4. THE ACTUAL DECK THICKNESS WILL BE AS REQUIRED TO MEET THE PROFILE GRADES.



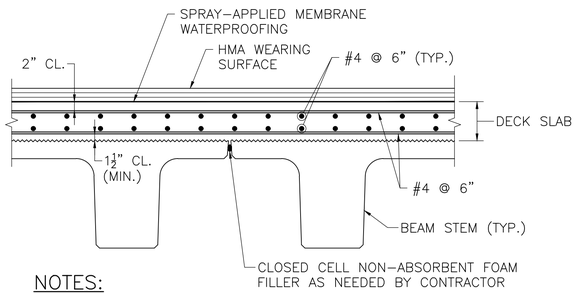
DECK DRAIN PLAN

SCALE: 1½" = 1'–0"



DECK DRAIN DETAILS

SCALE: ¾" = 1'–0"

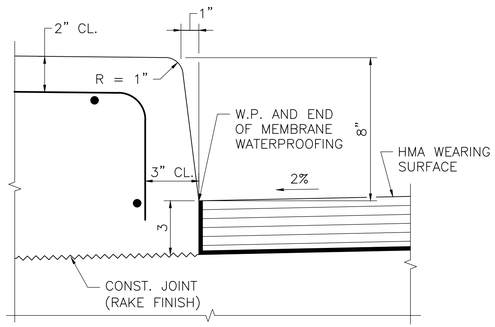


NOTES:

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 EPOXY COATED.
3. THE FINISHED SURFACE OF BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.

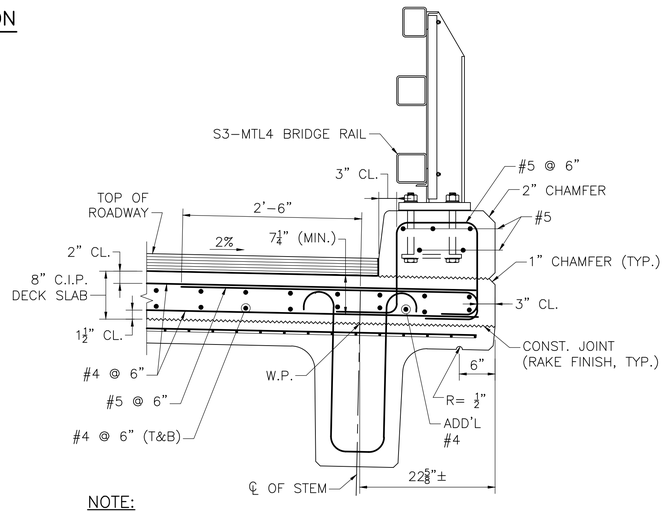
TYPICAL DECK REINFORCEMENT

SCALE: ¾" = 1'–0"



FACE OF SAFETY CURB DETAILS

SCALE: 3" = 1'–0"

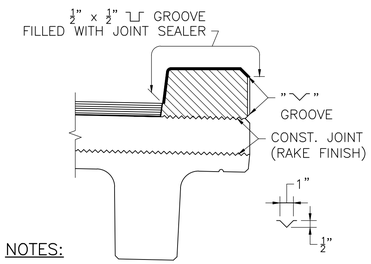


NOTE:

PRESTRESSING STRANDS IN THE BEAM ARE NOT SHOWN FOR CLARITY.

SECTION THRU SAFETY CURB

SCALE: 1" = 1'–0"

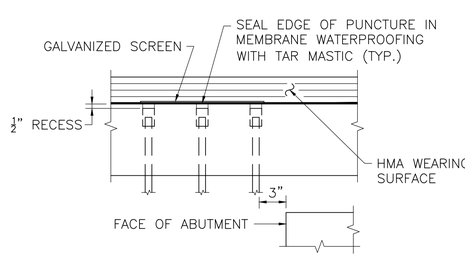


NOTES:

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.

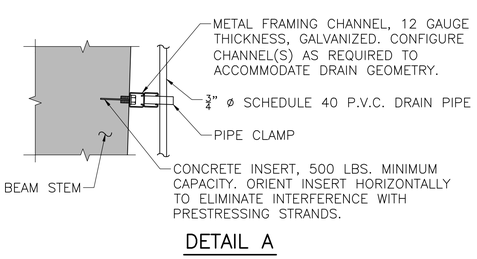
PARAFFIN JOINT DETAILS

SCALE: ¾" = 1'–0"



SECTION 6 –

SCALE: 1½" = 1'–0"



DETAIL A

SCALE: 1½" = 1'–0"

ESTIMATED CAMBER AND DEFLECTIONS AT MIDSPAN (IN.)			
STATE OF BEAM	DIRECTION	BEAMS 1 & 4 (2)	BEAMS 2 & 3 (2)
CAMBER AT TRANSFER (2)	UP	1.60	1.60
CAMBER AT ERECTION	UP	2.84	2.84
FINAL NCDL DEFLECTION (3)	DOWN	–0.81	–0.81
FINAL CDL DEFLECTION (3)	DOWN	–0.17	–0.16

NOTES:

1. CAMBER AND DEFLECTIONS IN THE TABLE ARE NOT GUARANTEED AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL MEASURE THE ACTUAL CAMBER OF EACH BEAM AT MIDSPAN AFTER FABRICATION AND CONTACT THE ENGINEER PRIOR TO DECK PLACEMENT AND SETTING FINAL BRIDGE SEAT ELEVATIONS.
2. THE BEAM CONCRETE MODULUS OF ELASTICITY AT TRANSFER USED IN THE ABOVE BEAM CAMBER IS ASSUMED TO BE 5,011,145 PSI.
3. THE BEAM CONCRETE MODULUS OF ELASTICITY USED IN THE ABOVE BEAM DEFLECTION IS ASSUMED TO BE 5,394,078 PSI (AT 28 DAYS).

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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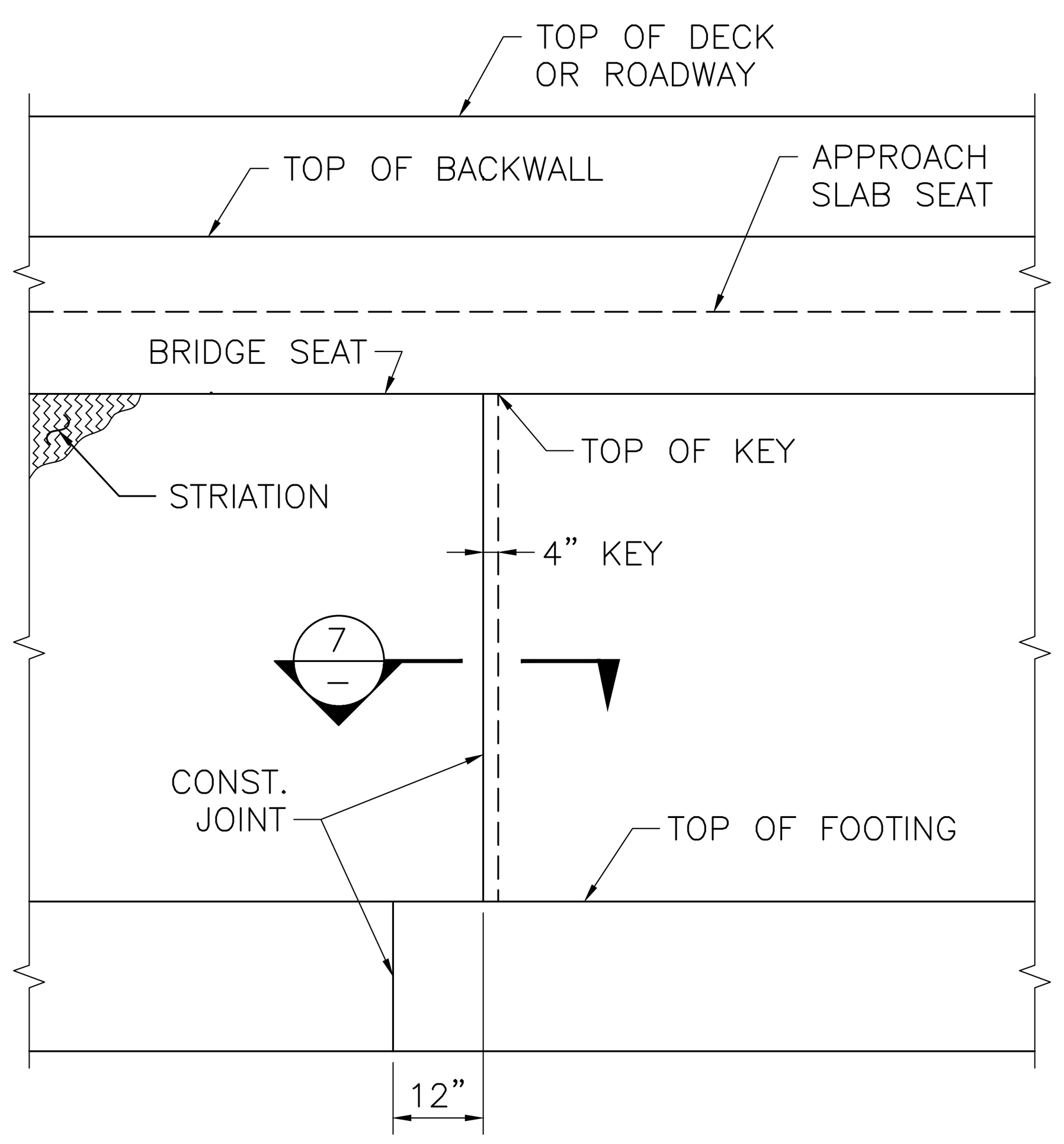
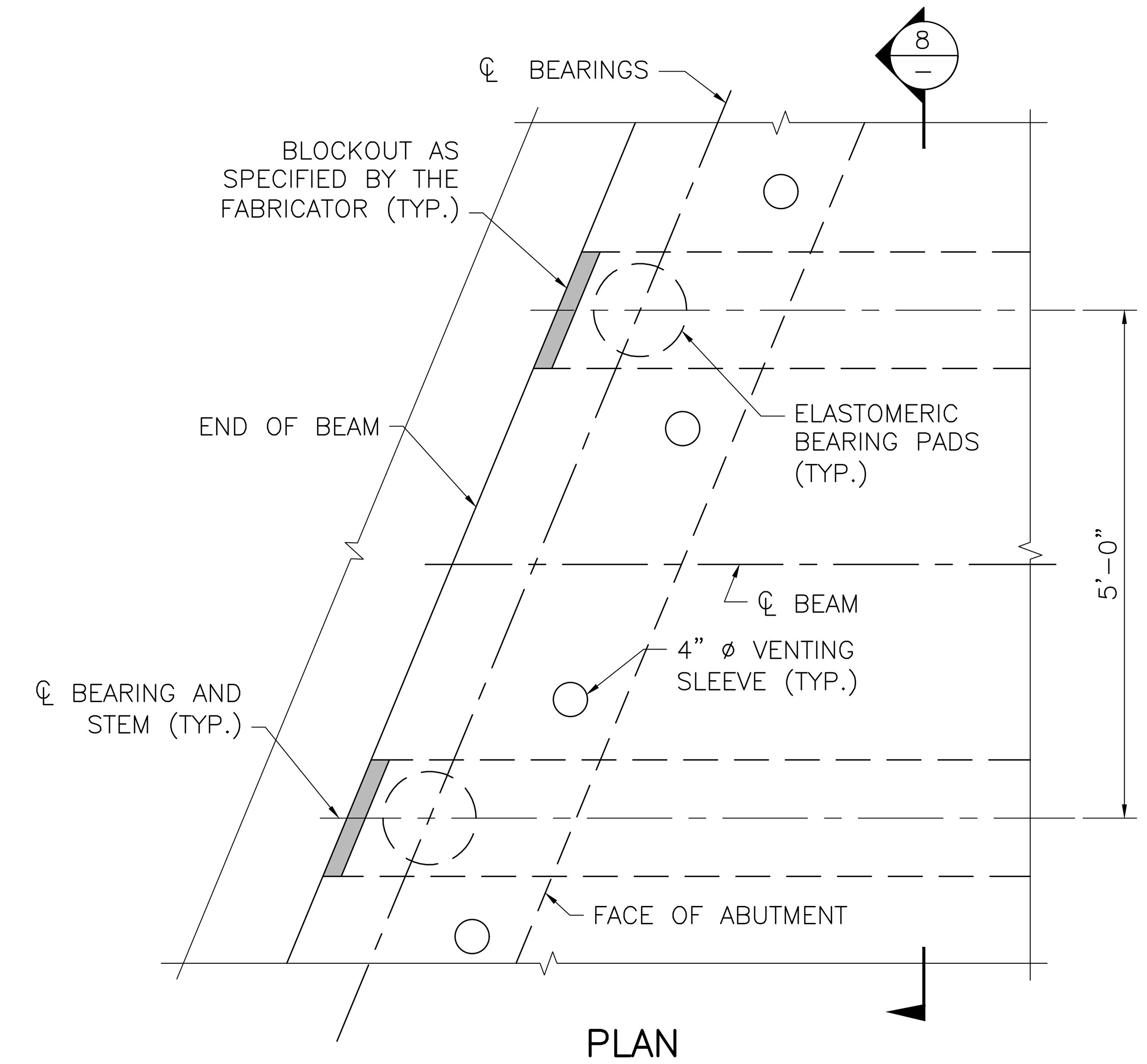
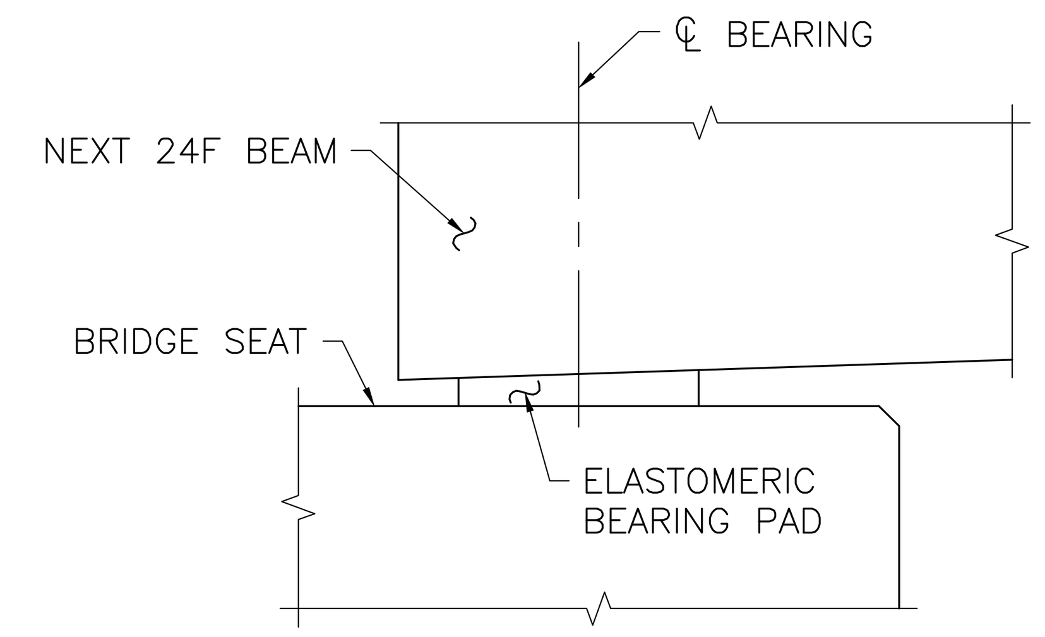
609187_BR14(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:05 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024



ELEVATION OF ABUTMENT
SCALE: ½" = 1'-0"



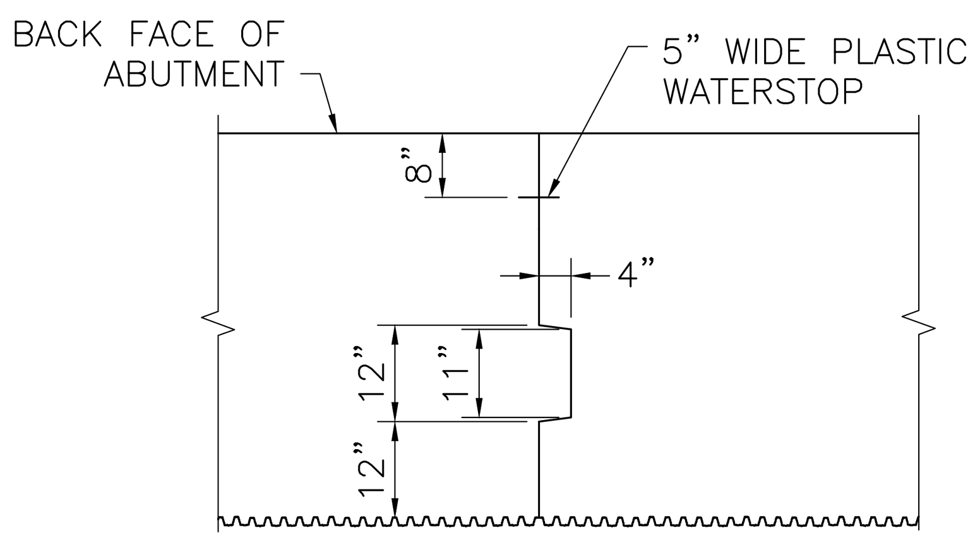
PLAN
SCALE: ¾" = 1'-0"



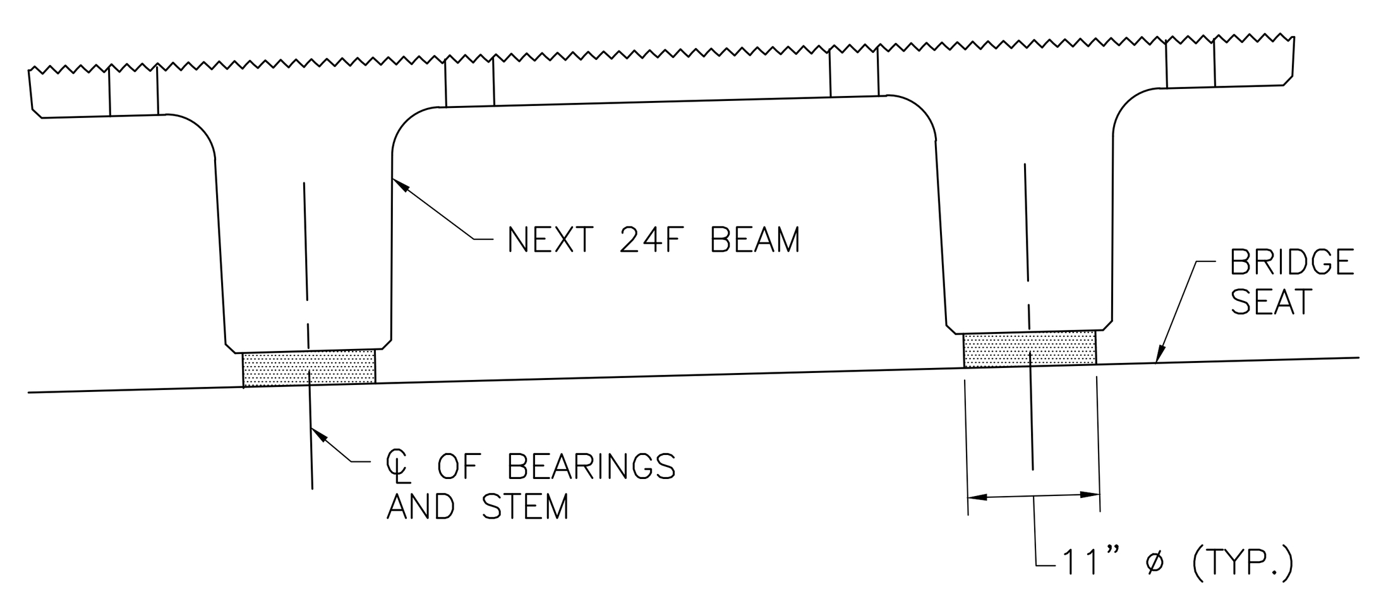
ELEVATION
SCALE: 1" = 1'-0"

NOTES:

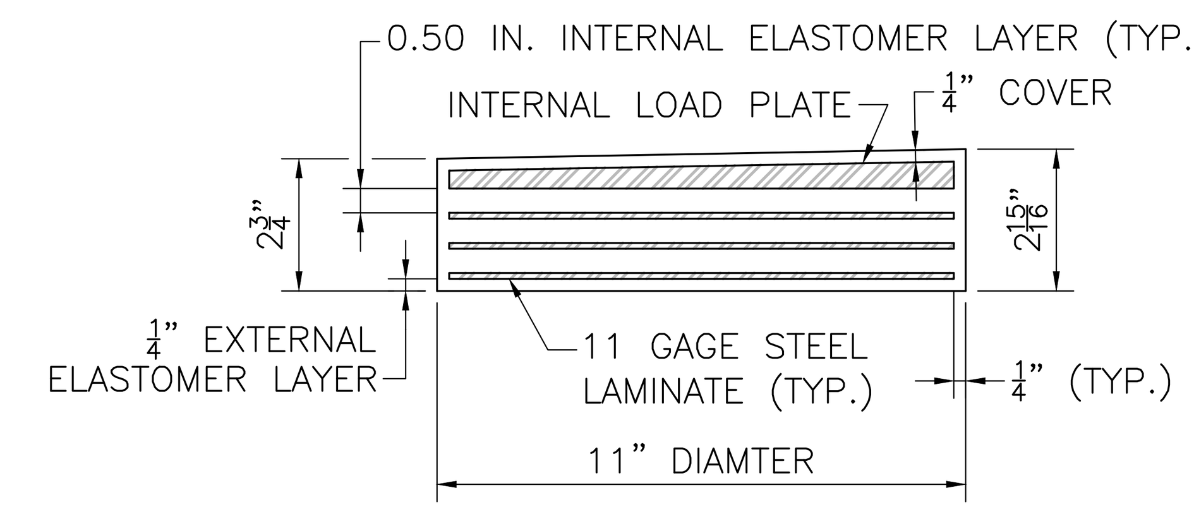
1. BEARING IS DESIGNED USING AASHTO METHOD B.
2. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
3. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36 OR HIGHER. ALL EDGES OF STEEL LAMINATES SHALL BE GROUND SMOOTH.
4. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 85.3 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO 0.90 KSI.
5. THE 25 YEAR CREEP STRAIN SHALL BE LIMITED TO 35%.
6. TAPERED INTERNAL LOAD PLATE SHALL CONFORM TO AASHTO M 270 GRADE 36 OR GRADE 50. ALL EDGES OF TAPERED INTERNAL LOAD PLATE SHALL BE GROUND SMOOTH.
7. ALL BEARINGS SHALL BE MARKED PRIOR TO SHIPPING. THE MARKS SHALL INCLUDE THE BEARING LOCATION ON THE BRIDGE, AND A 1/32" DEEP DIRECTION ARROW THAT POINTS UP-STATION. ALL MARKS SHALL BE PERMANENT AND BE VISIBLE AFTER BEARING IS INSTALLED.
8. BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 30 °F AND 75 °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.



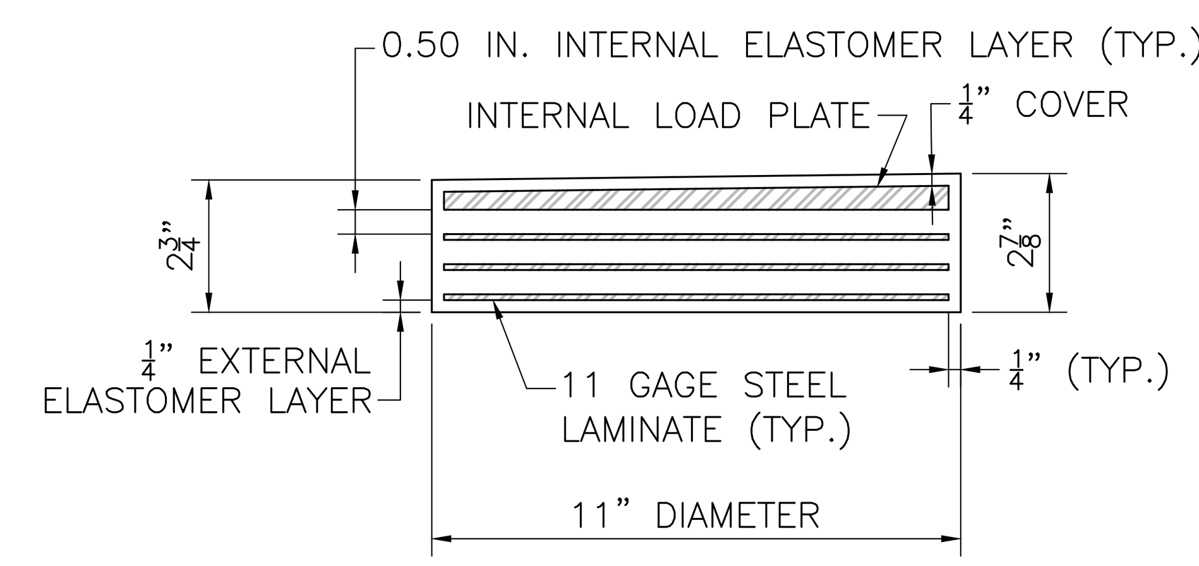
SECTION 7
SCALE: ½" = 1'-0"



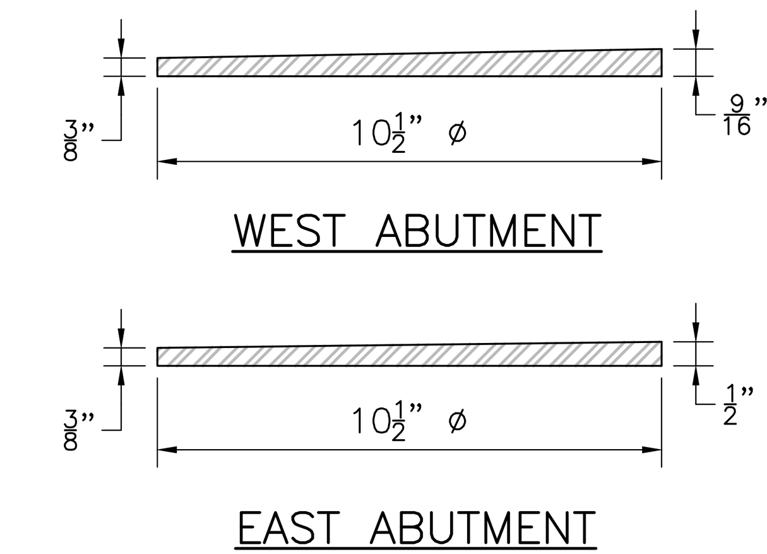
SECTION 8
SCALE: ¾" = 1'-0"



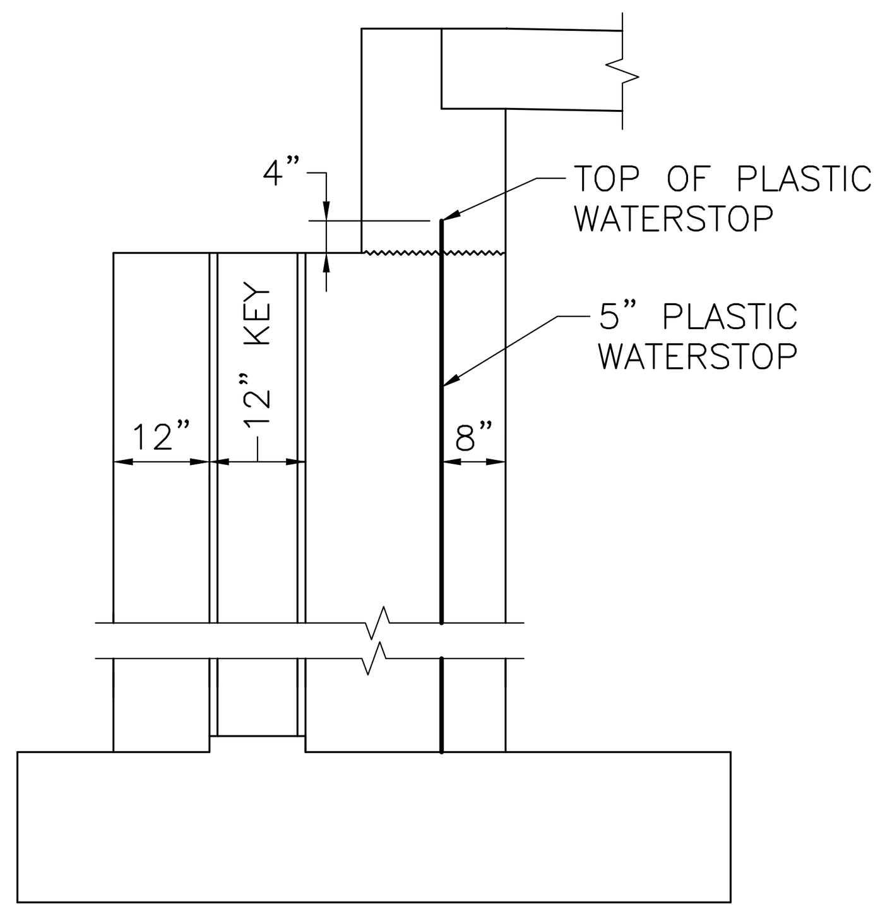
ELASTOMERIC BEARING PAD
WEST ABUTMENT
SCALE: 3" = 1'-0"



ELASTOMERIC BEARING PAD
EAST ABUTMENT
SCALE: 3" = 1'-0"

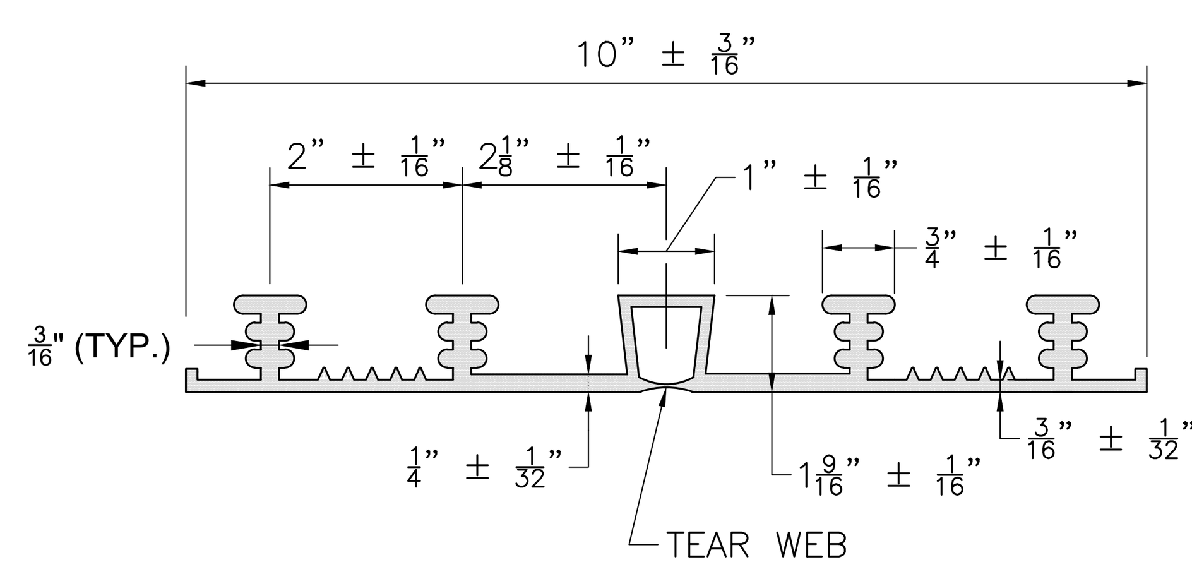


INTERNAL LOAD PLATE DETAILS
SCALE: 3" = 1'-0"

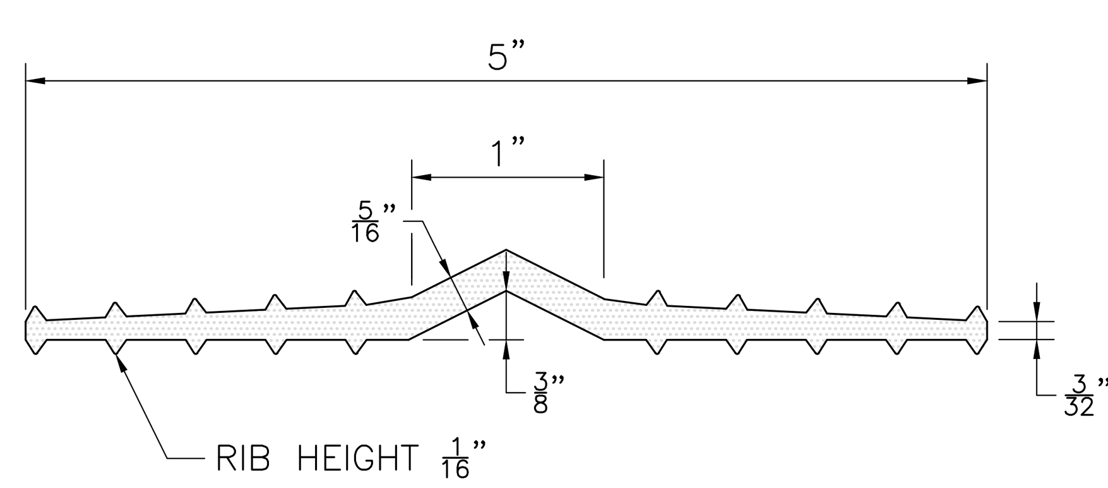


NOTE:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINT.

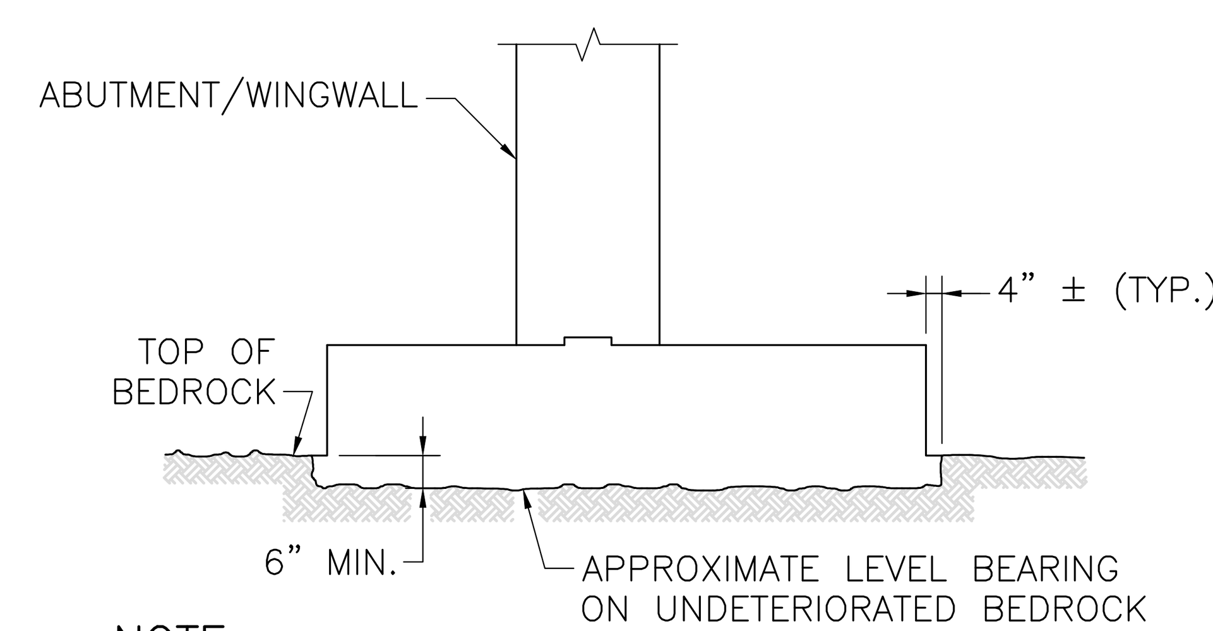
VERTICAL SECTION THRU
CONSTRUCTION JOINT
SCALE: ½" = 1'-0"



10" WATERSTOP
NOT TO SCALE

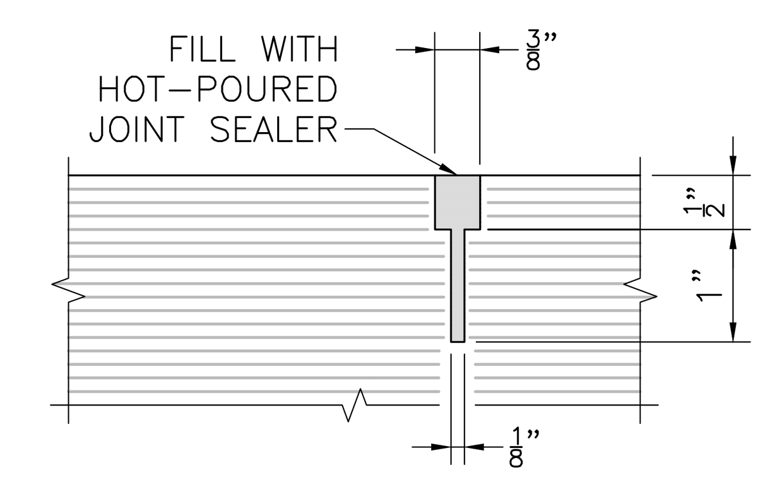


5" WATERSTOP
NOT TO SCALE



NOTE:
ABUTMENT, WINGWALL AND FOOTING REINFORCEMENTS ARE NOT SHOWN FOR CLARITY.

MODIFICATIONS FOR FOOTING ON BEDROCK
NOT TO SCALE



PAYMENT SAWCUT DETAIL
NOT TO SCALE

DATE	DESCRIPTION
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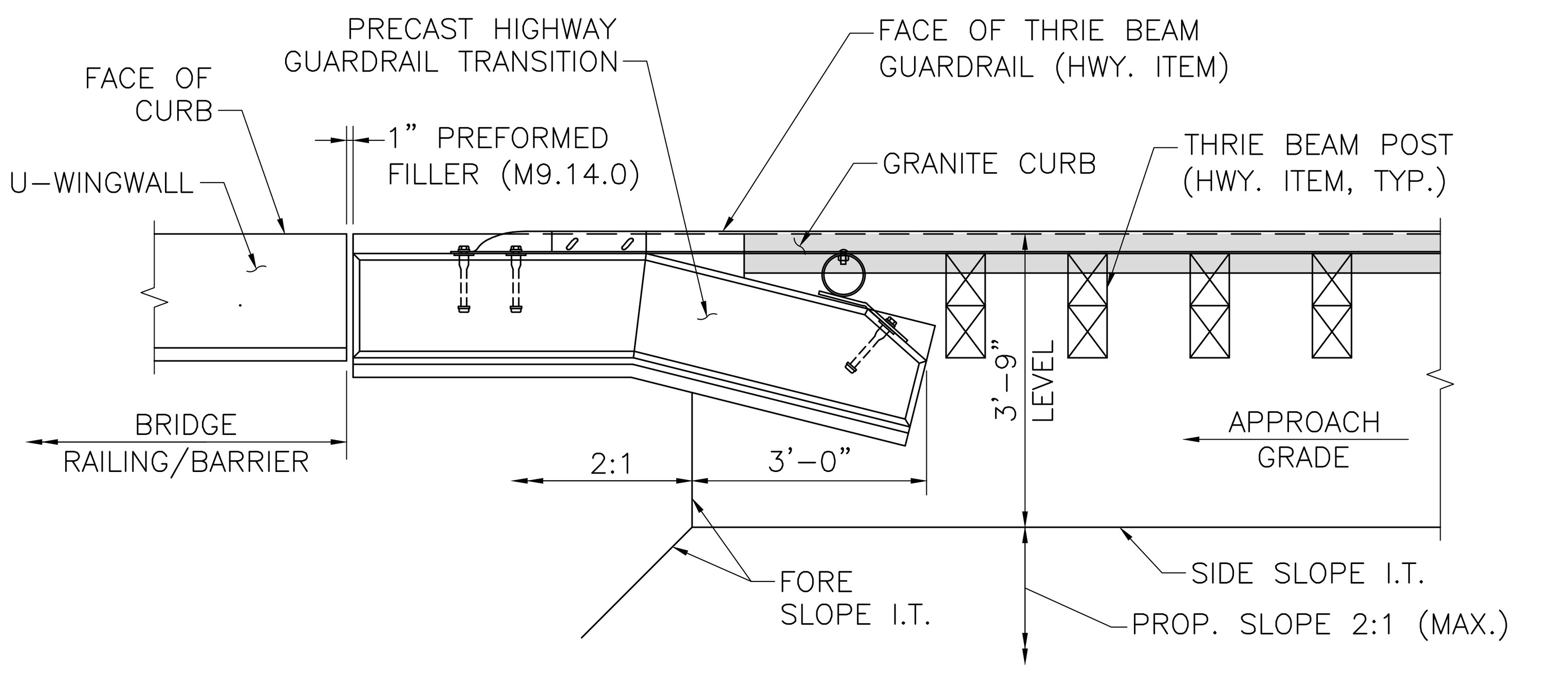
609187_BR15(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:06 AM
609187 (Structural Submittal (SF) 13-SEPTEMBER-2024

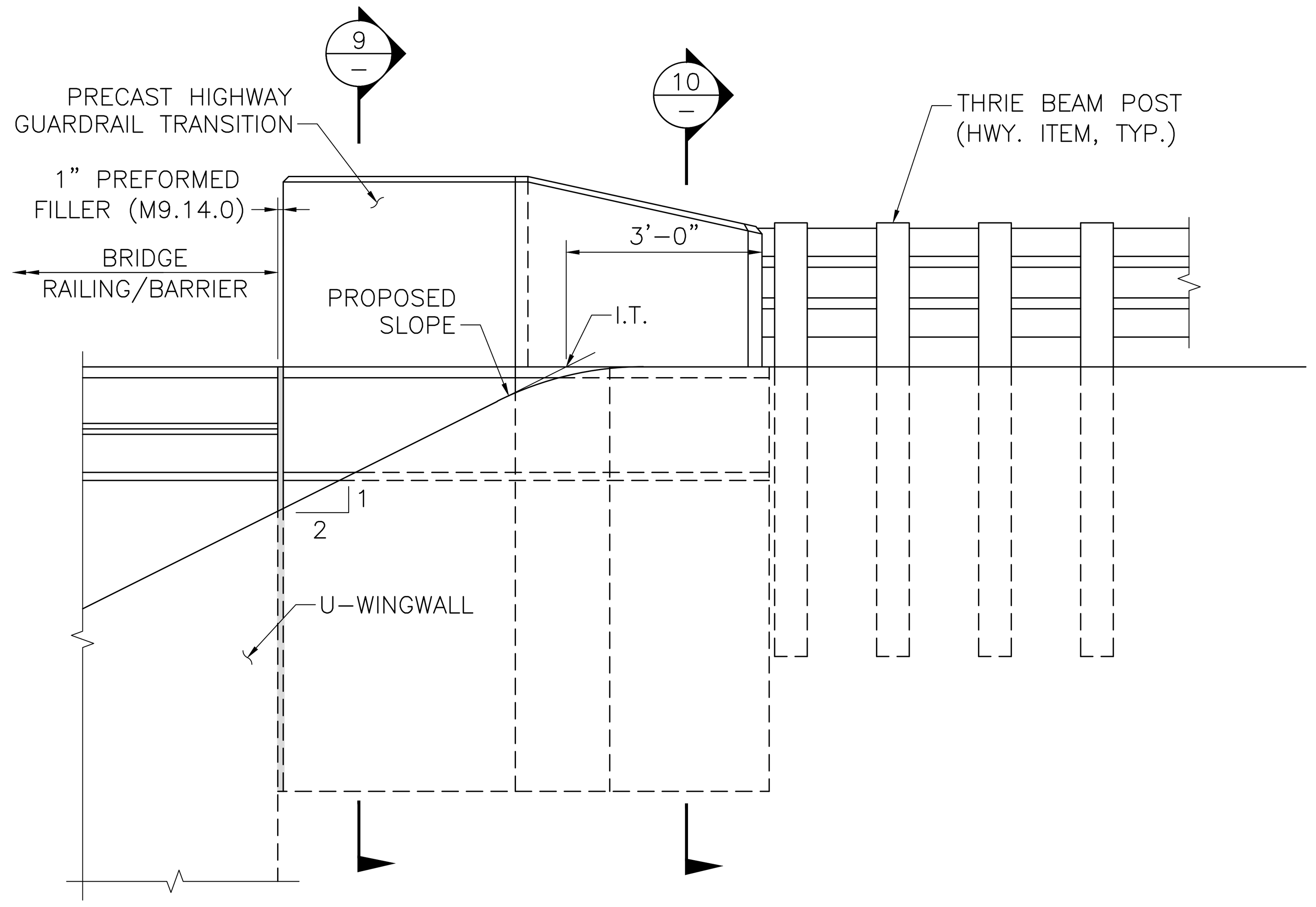
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	33	45
	PROJECT FILE NO.	609187	

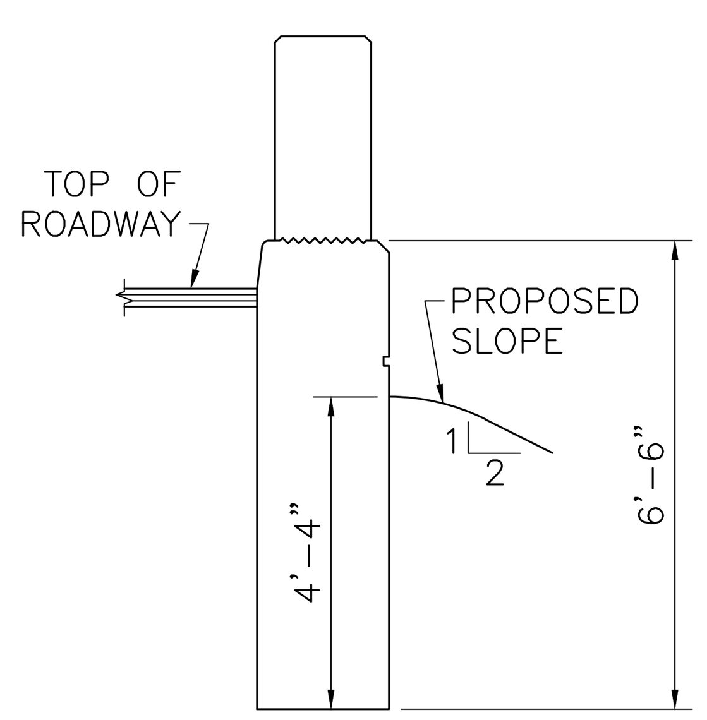
GRADING REQUIREMENT DETAILS AND PRECAST HIGHWAY GUARDRAIL TRANSITION



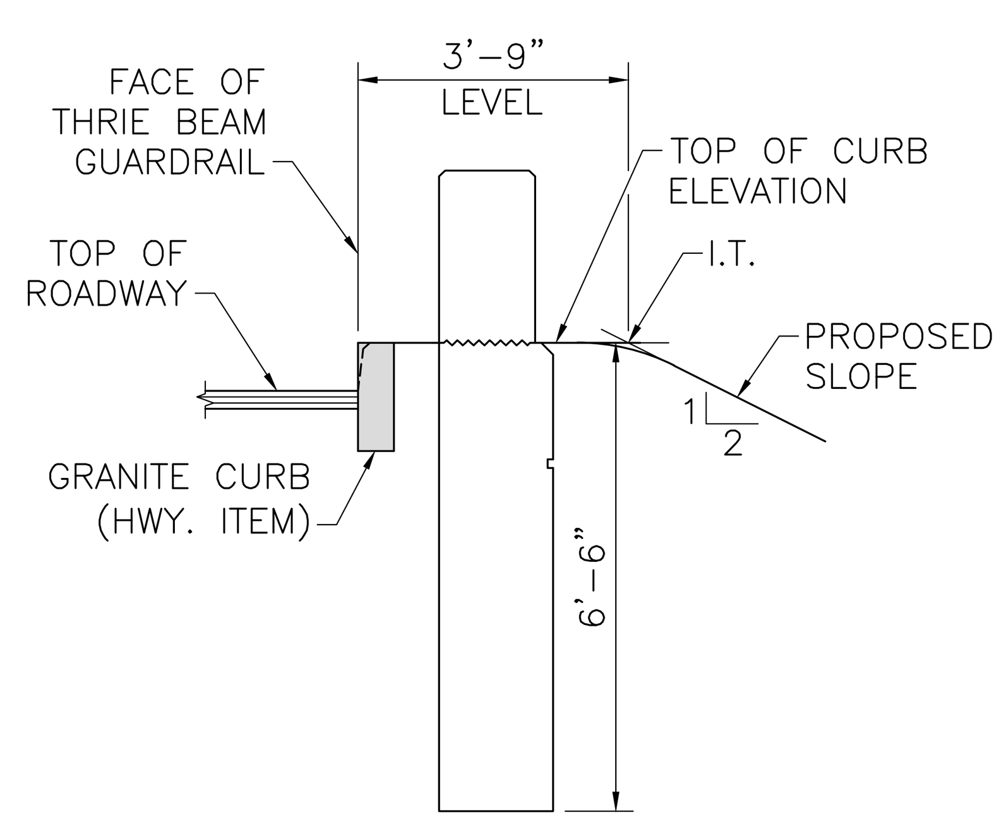
GRADING REQUIREMENTS PLAN
SCALE: 1/2" = 1'-0"



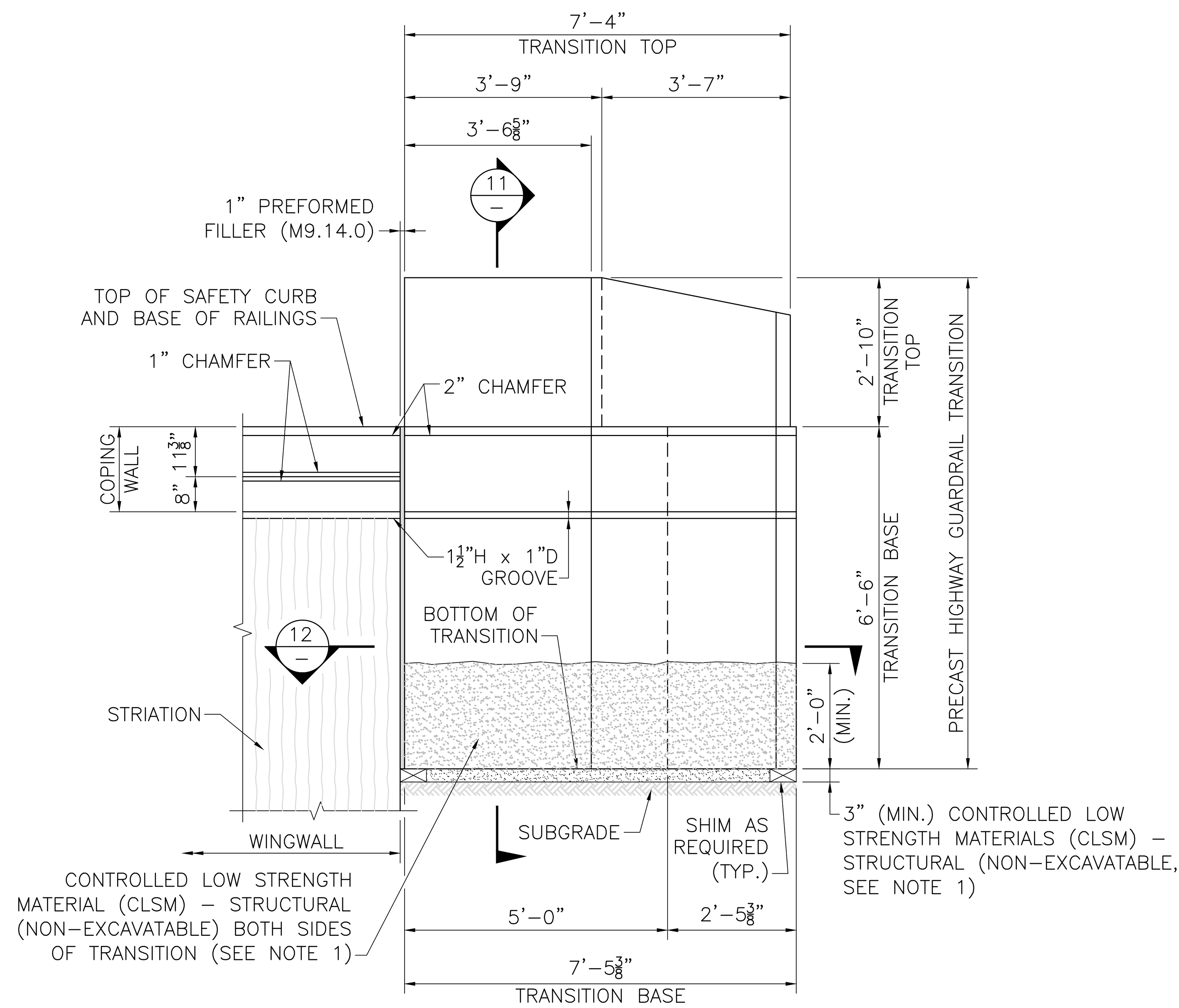
GRADING REQUIREMENTS ELEVATION
SCALE: 1/2" = 1'-0"



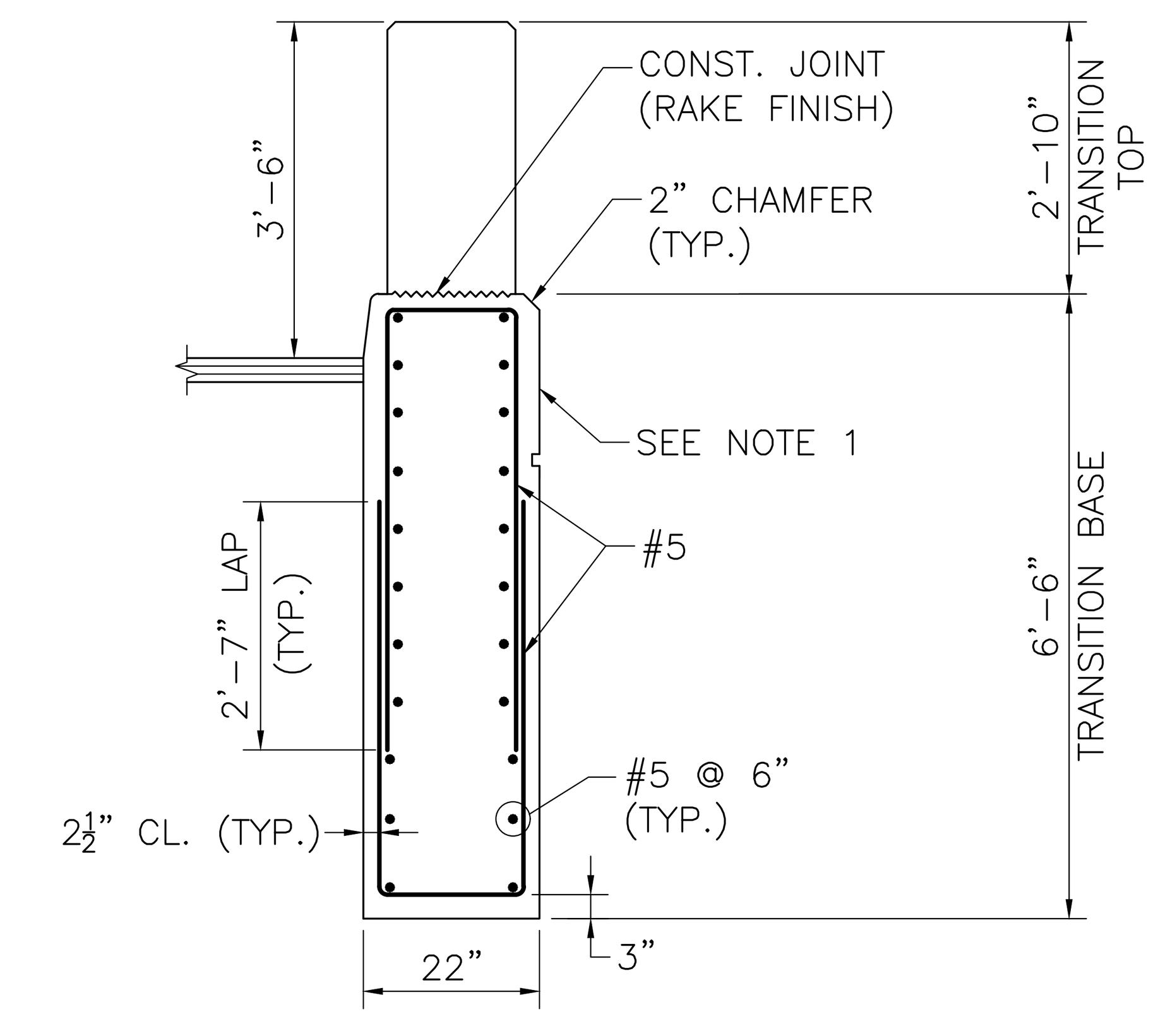
SECTION 9
SCALE: 3/8" = 1'-0"



SECTION 10
SCALE: 3/8" = 1'-0"



PRECAST HIGHWAY GUARDRAIL TRANSITION
ELEVATION AT U-WINGWALL
SCALE: 1/2" = 1'-0"



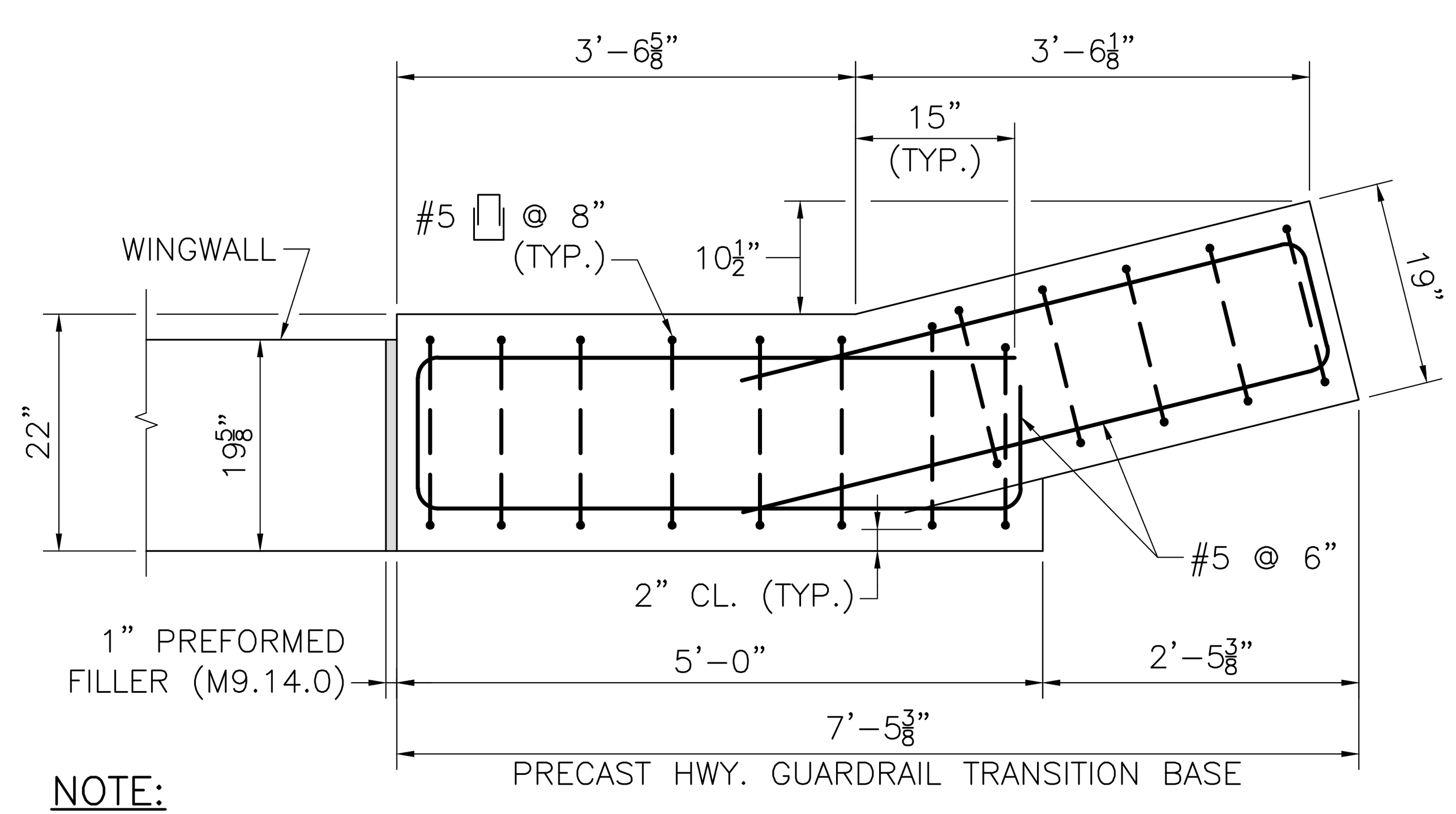
NOTES:

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

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

NOTES:

1. THE SOIL SHALL BE EXCAVATED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
2. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED LOW STRENGTH MATERIALS (CLSM) – STRUCTURAL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.
3. BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.
4. THE REST OF REINFORCEMENT IS NOT SHOWN FOR CLARITY.



NOTE:
WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

SECTION 12
SCALE: 3/4" = 1'-0"

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
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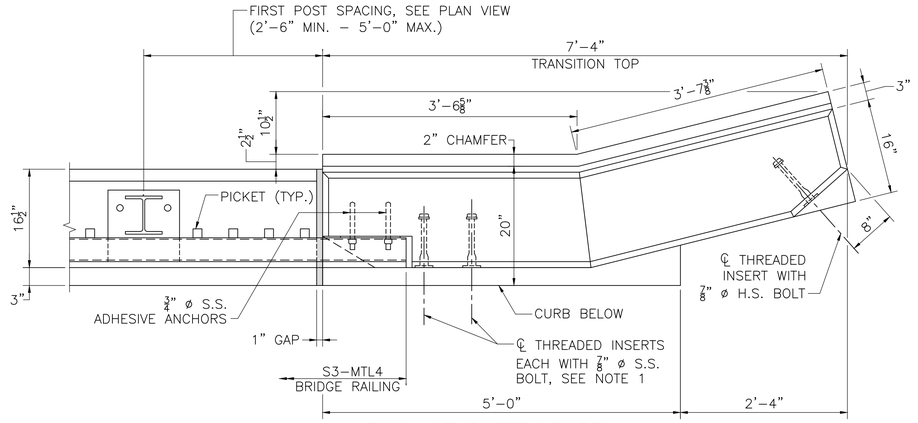
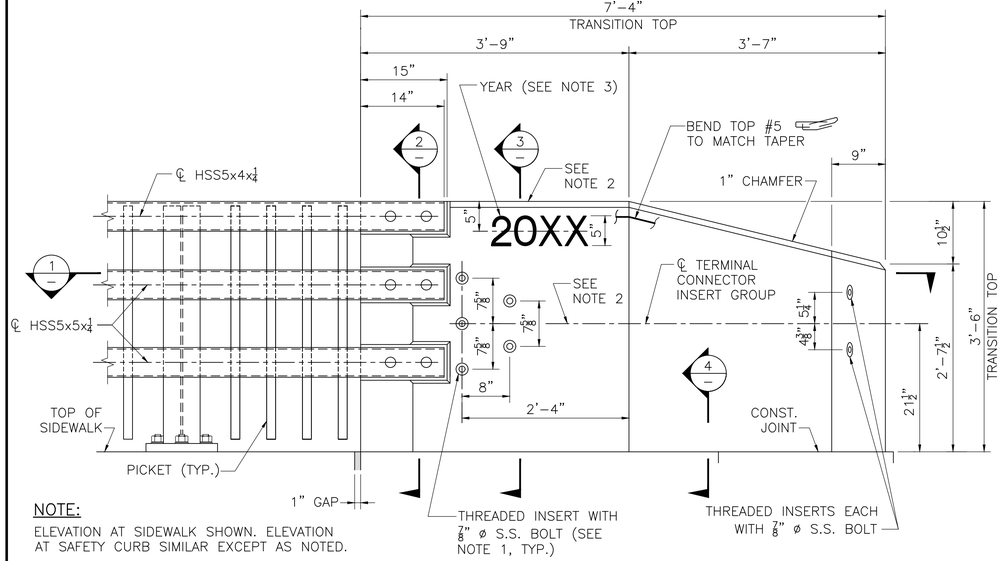
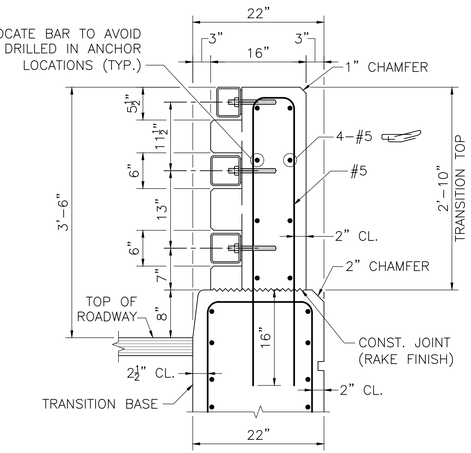


PLAN AT SAFETY CURB
SCALE: 1" = 1'-0"

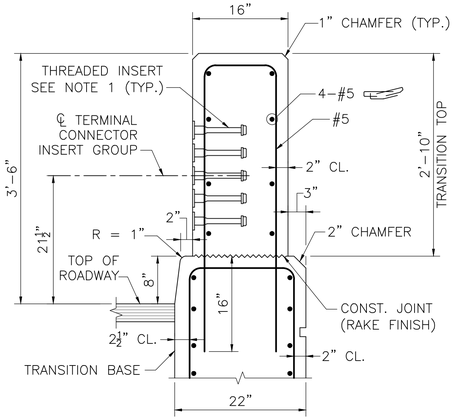


NOTE:
ELEVATION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR EXCEPT AS NOTED.

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



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



SECTION 3 AT SAFETY CURB
SCALE: 1" = 1'-0"

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

NOTES:

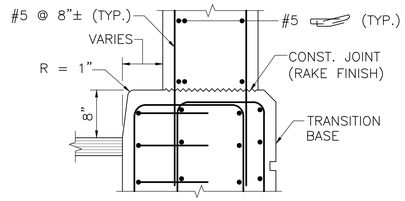
1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. 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.

   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.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾", 685 HP CEMENT CONCRETE.
5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 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.

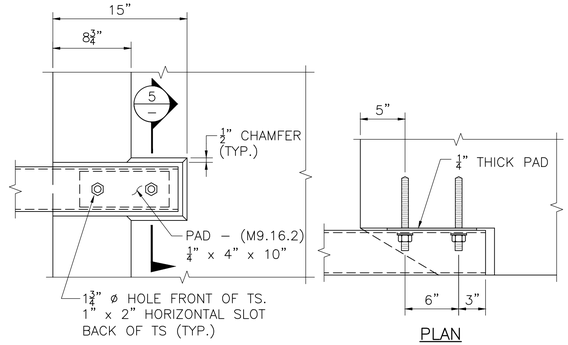
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	34	45
PROJECT FILE NO.	609187		

TOP OF PRECAST HIGHWAY GUARDRAIL TRANSITION FOR S3-MTL4 RAILING



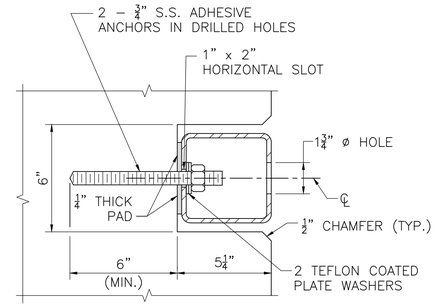
SECTION 4 AT SAFETY CURB
SCALE: 1" = 1'-0"



ELEVATION

PLAN

RAIL ATTACHMENT
SCALE: 1½" = 1'-0"



SECTION 5
SCALE: 3" = 1'-0"

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

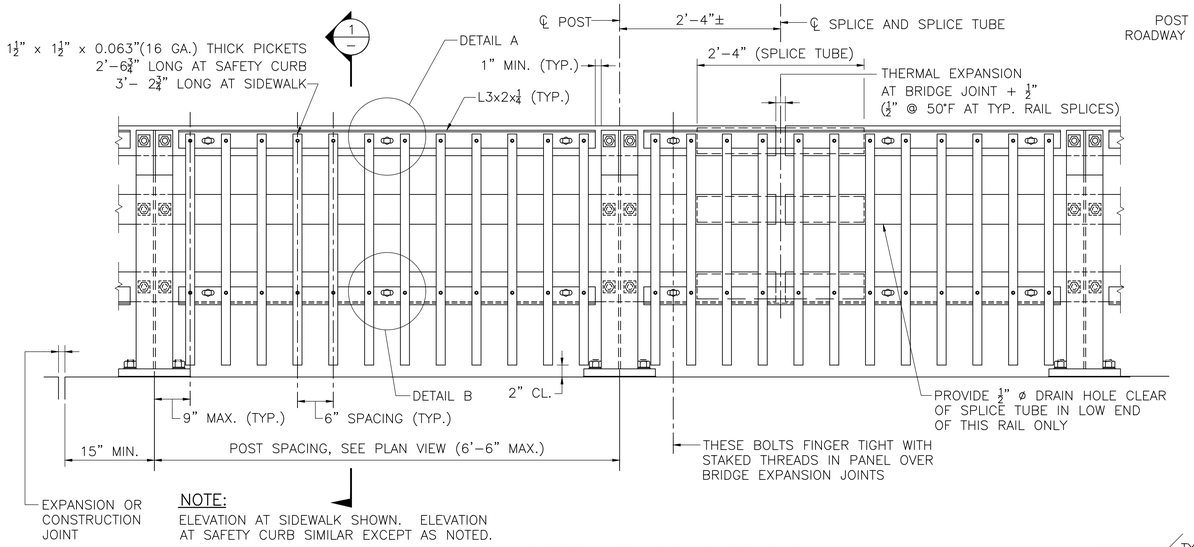
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

TOP OF PRECAST HIGHWAY GUARDRAIL TRANSITION FOR S3-MTL4 RAILING

SHEET 17 OF 18 SHEETS BRIDGE NO. H-24-003 (CEE)

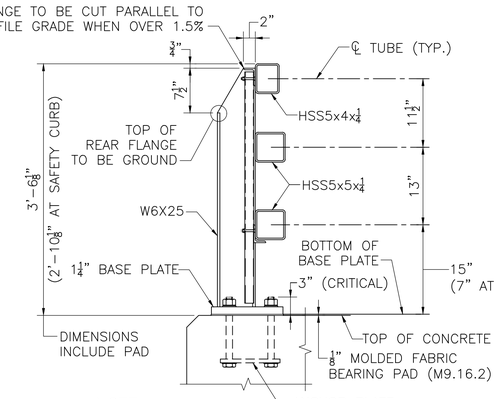
609187_BR17(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:08 AM

609187 Structural Submittal (SF) 13-SEPTEMBER-2024



NOTE:
ELEVATION AT SIDEWALK SHOWN. ELEVATION AT SAFETY CURB SIMILAR EXCEPT AS NOTED.

BRIDGE RAILING ELEVATION
SCALE: 1" = 1'–0"



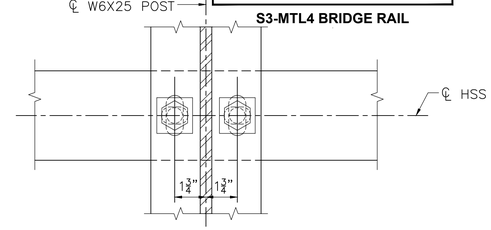
NOTE:
SECTION AT SIDEWALK SHOWN. SECTION AT SAFETY CURB SIMILAR, EXCEPT AS NOTED.

SECTION 1
SCALE: 1" = 1'–0"

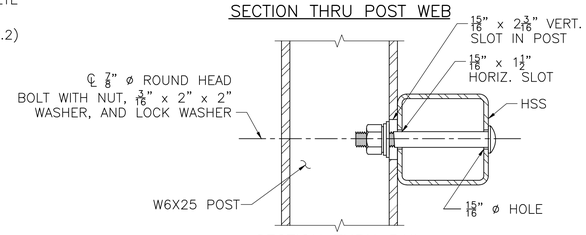
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	35	45
PROJECT FILE NO. 609187			

S3-MTL4 BRIDGE RAIL



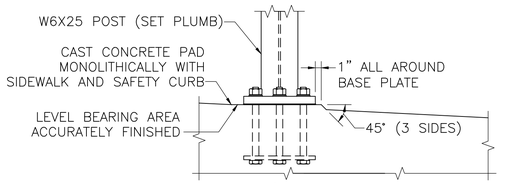
SECTION THRU POST WEB



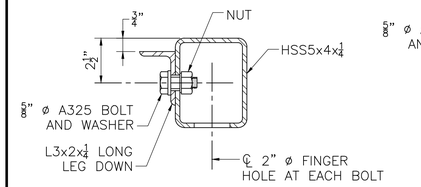
SECTION THRU RAIL

NOTE:
CONNECTIONS AT LOWER RAILS SHOWN.
CONNECTIONS AT TOP RAIL SIMILAR.

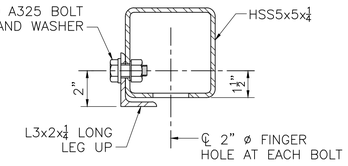
TYPICAL RAIL TO POST CONNECTIONS
SCALE: 1" = 1'–0"



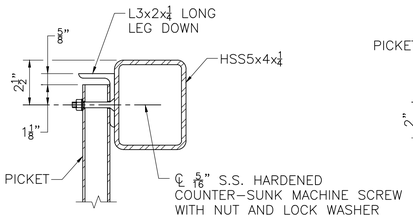
SETTING OF POSTS (PROFILE GRADE OVER 1.5%)
SCALE: 1" = 1'–0"



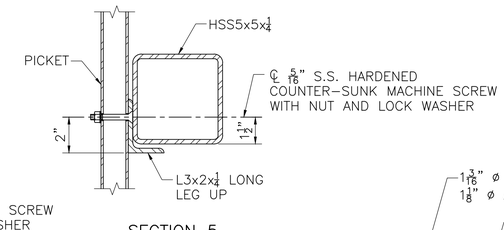
SECTION 2



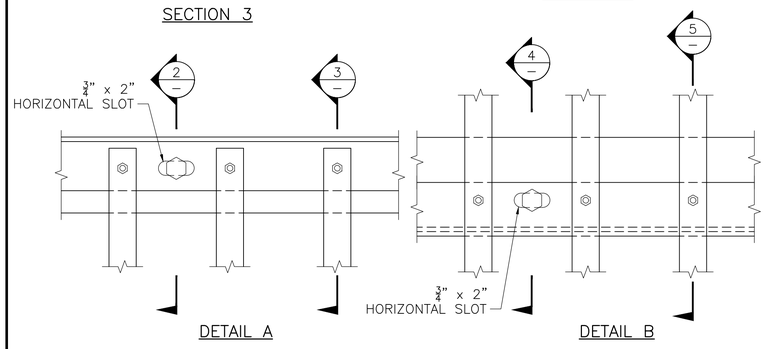
SECTION 4



SECTION 3



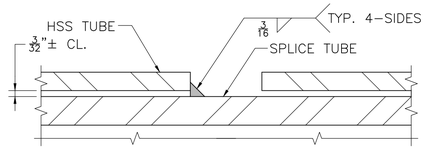
SECTION 5



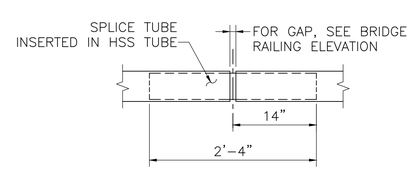
DETAIL A

DETAIL B

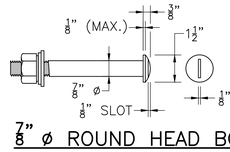
TYPICAL PICKET TO RAIL DETAILS
SCALE: 3" = 1'–0"



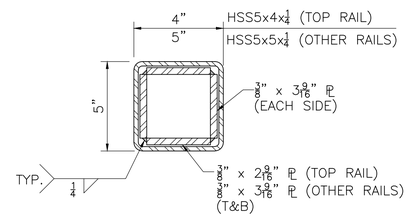
SPLICE DETAIL
FULL SIZE



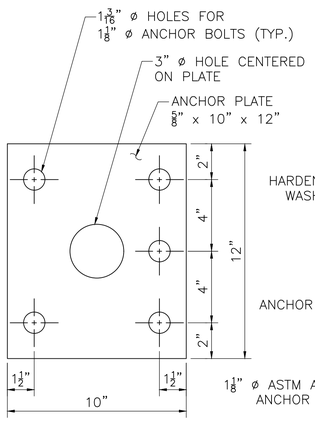
TYPICAL SPLICE
SCALE: 1" = 1'–0"



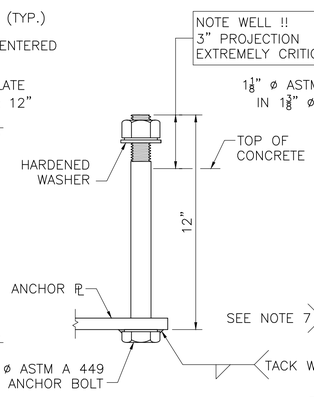
⅞" ø ROUND HEAD BOLT
SCALE: 3" = 1'–0"



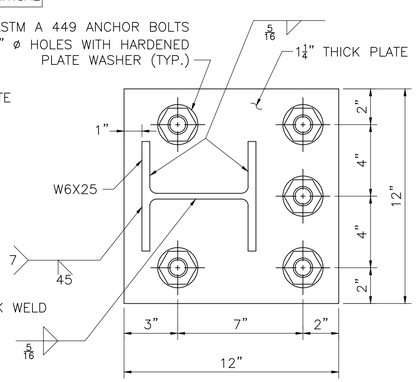
SPLICE TUBE DETAILS
SCALE: 3" = 1'–0"



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 ⅜" 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. RAILS SHALL BE SPLICED IN THE PANELS OVER EXPANSION JOINT.
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 FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. WELD SHALL BE BACK–GOUGED ON BACK SIDE EXCEPT AT WEB. WELD IS THE SAME ON BOTH FLANGES.
8. ⅞" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF AASHTO M 164.

5/24/2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

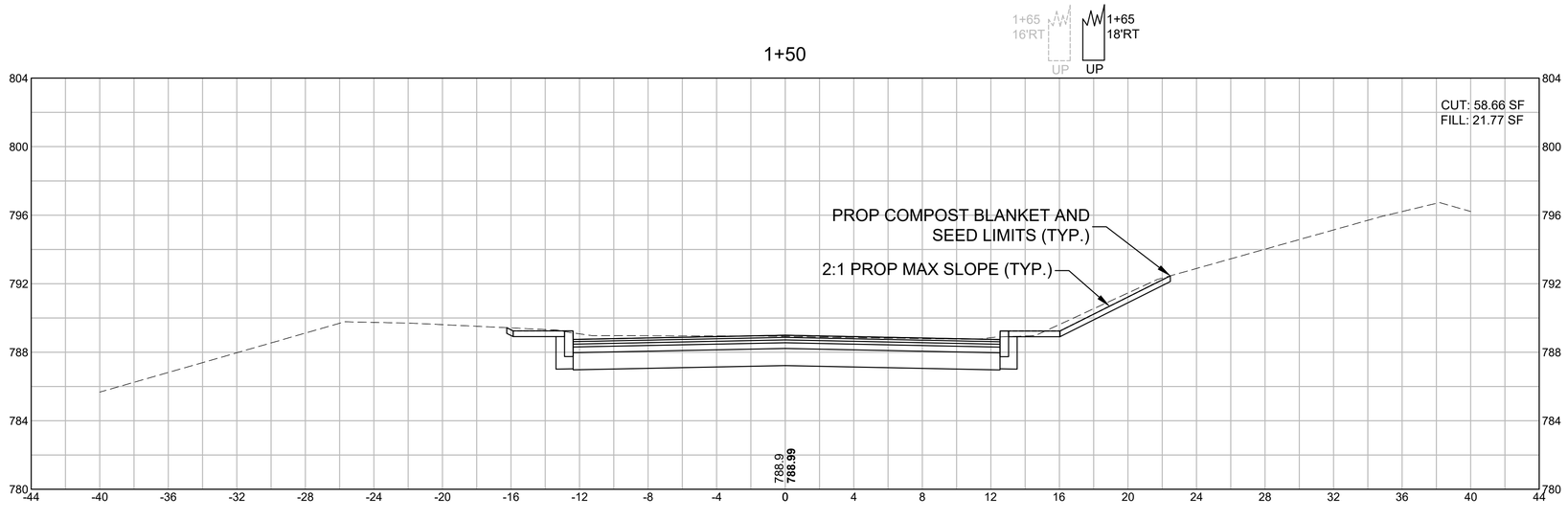
S3–MTL4 BRIDGE RAILING

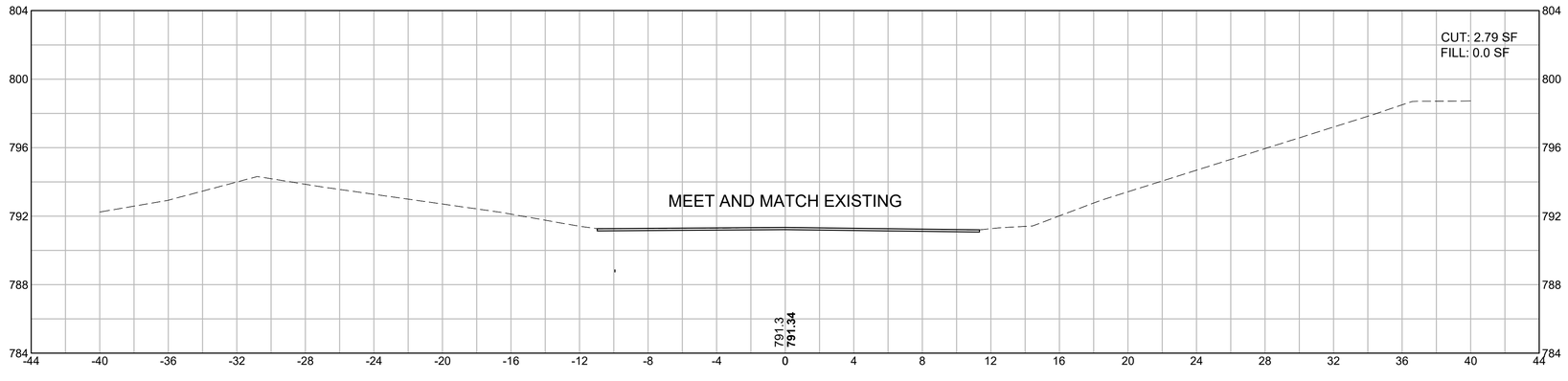
609187_BR18(H24003) 2024-05-18.DWG Plotted on 22-May-2025 11:09 AM
609187 Structural Submittal (SF) 13-SEPTEMBER-2024

HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	36	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 1





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

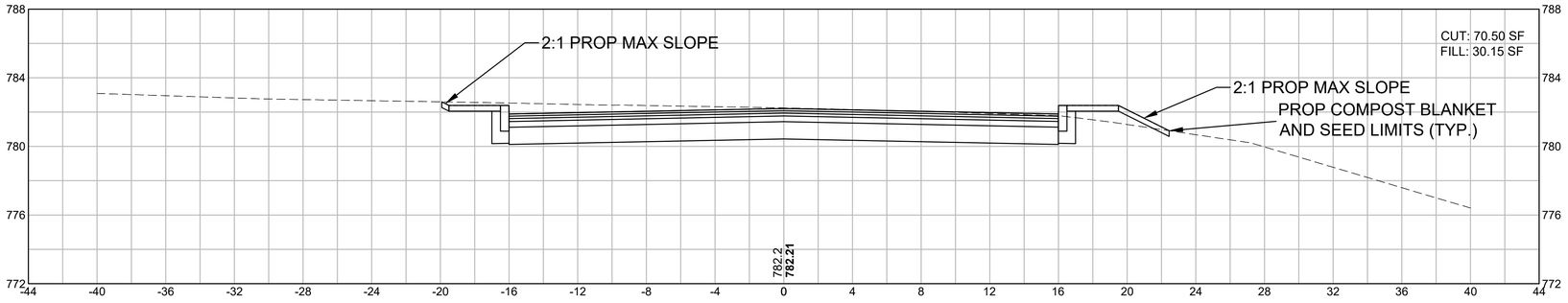
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	37	45
	PROJECT FILE NO. 609187		

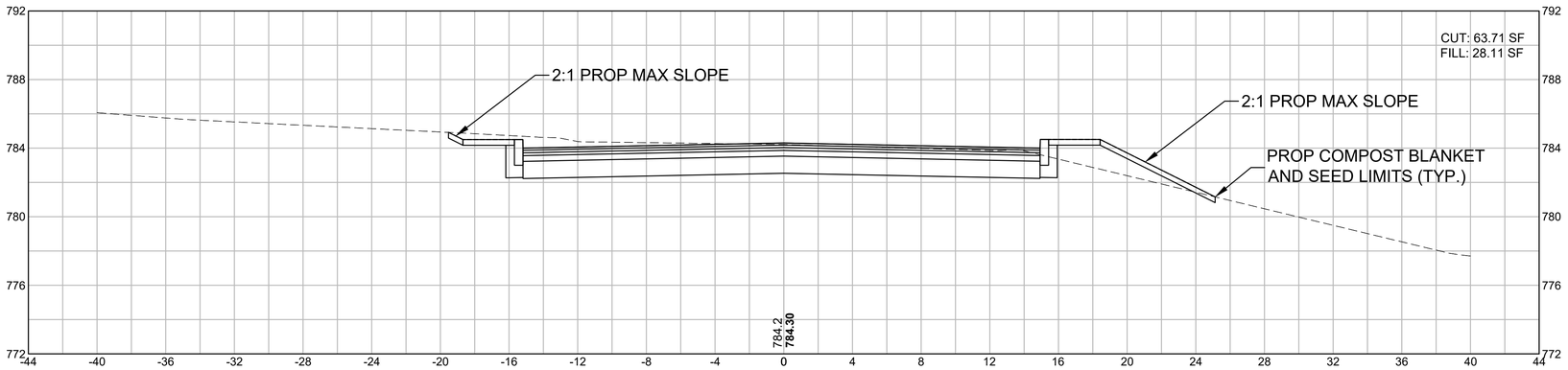
CROSS SECTIONS 2

609187_HD(PR).DWG Plotted on 27-Jan-2025 9:51 PM

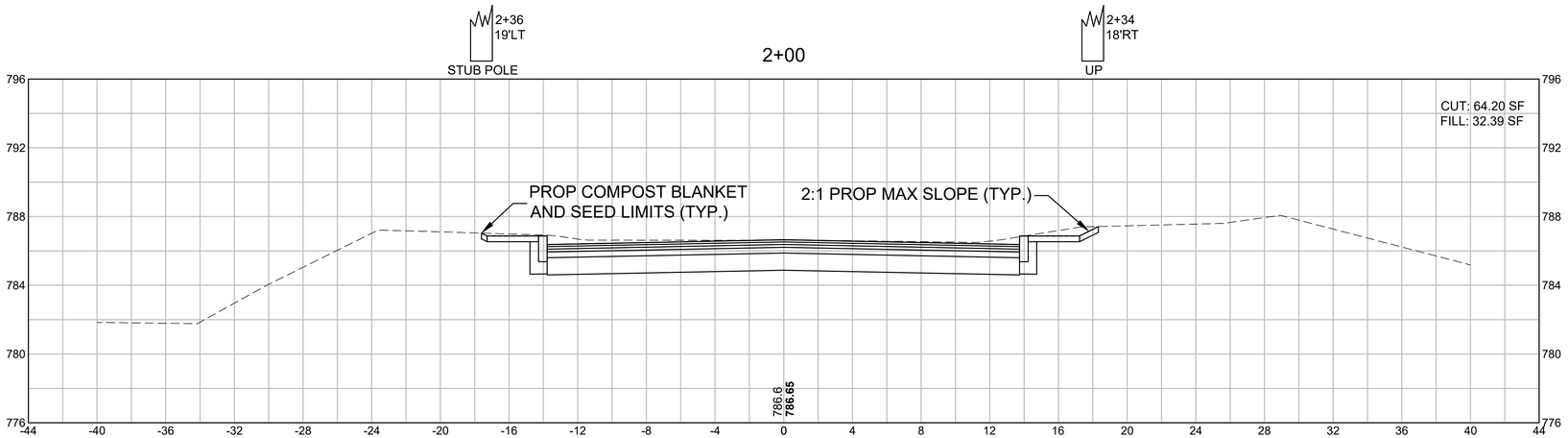
3+00



2+50



2+00



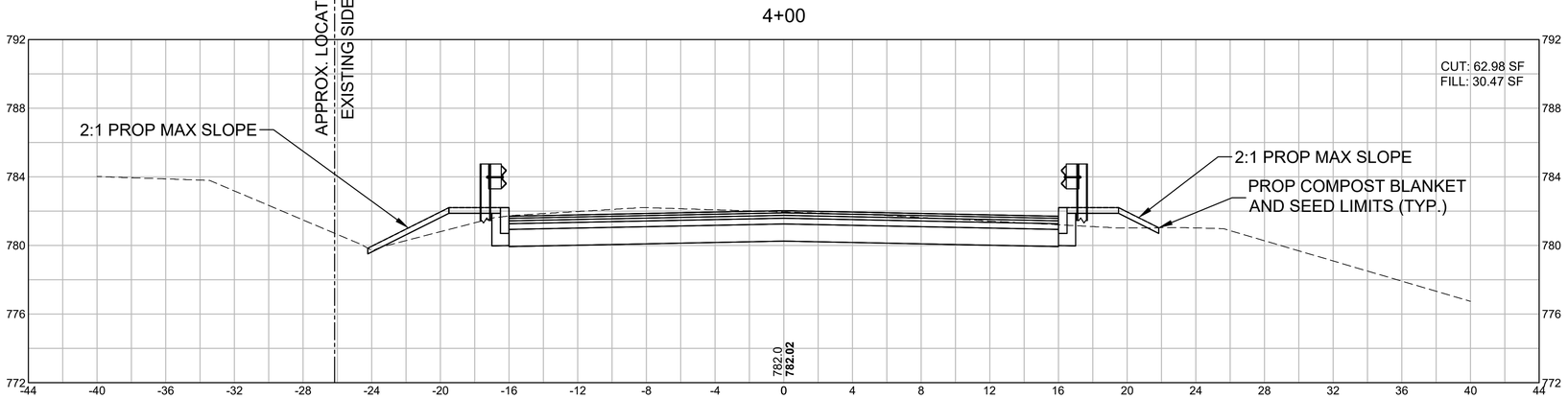
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

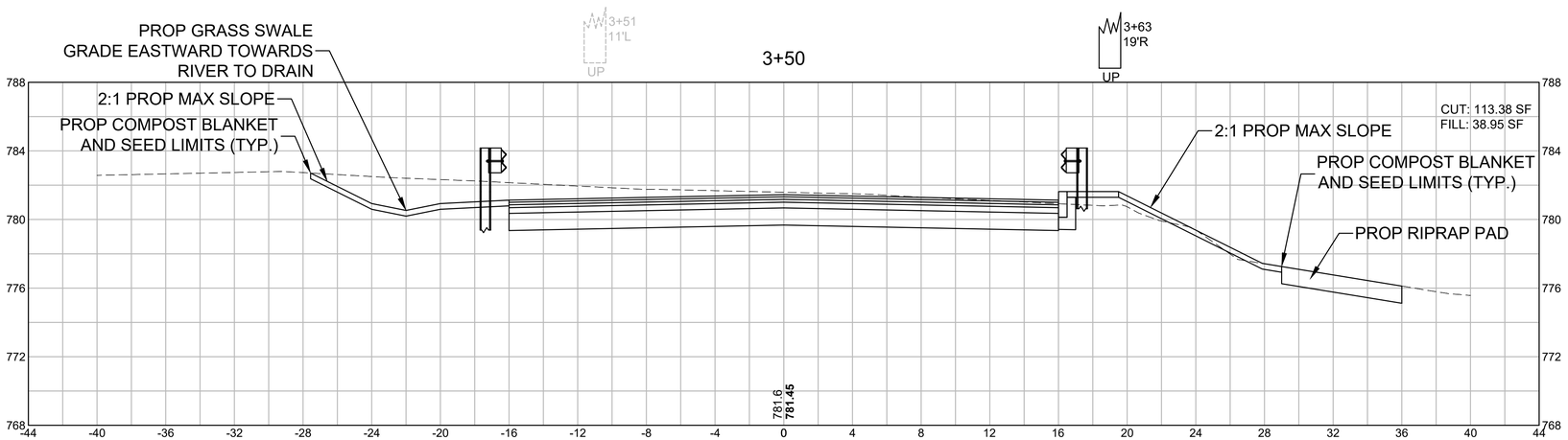
HUBBARDSTON
WILLIAMSVILLE ROAD

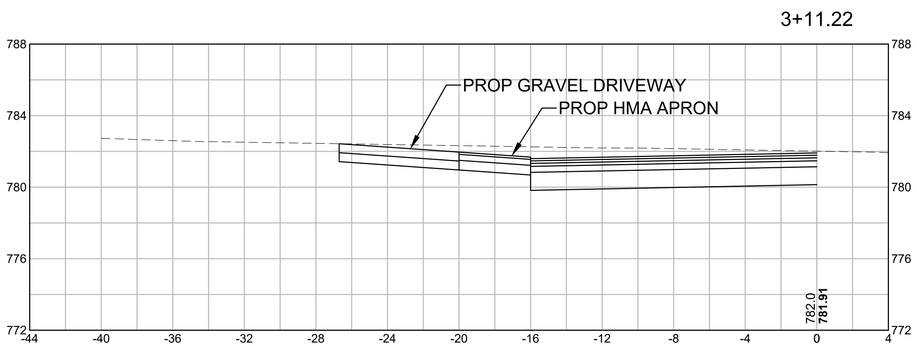
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	38	45
	PROJECT FILE NO. 609187		

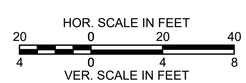
CROSS SECTIONS 3

609187_HD(PR).DWG Plotted on 18-Mar-2025 5:01 PM





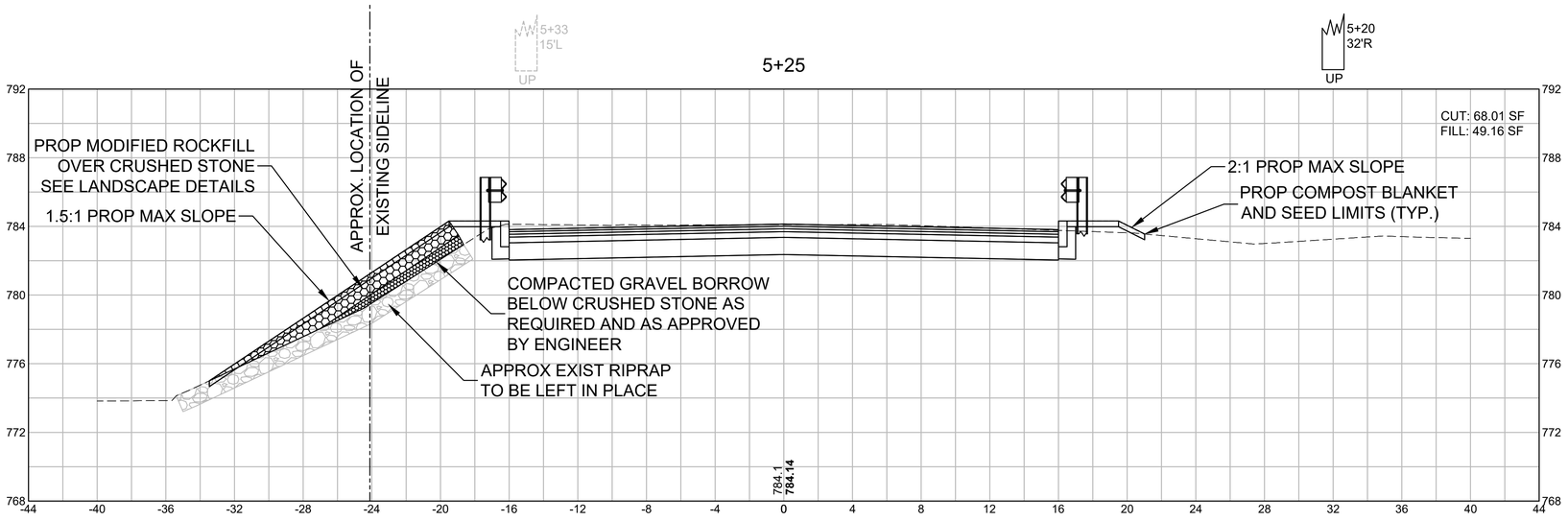


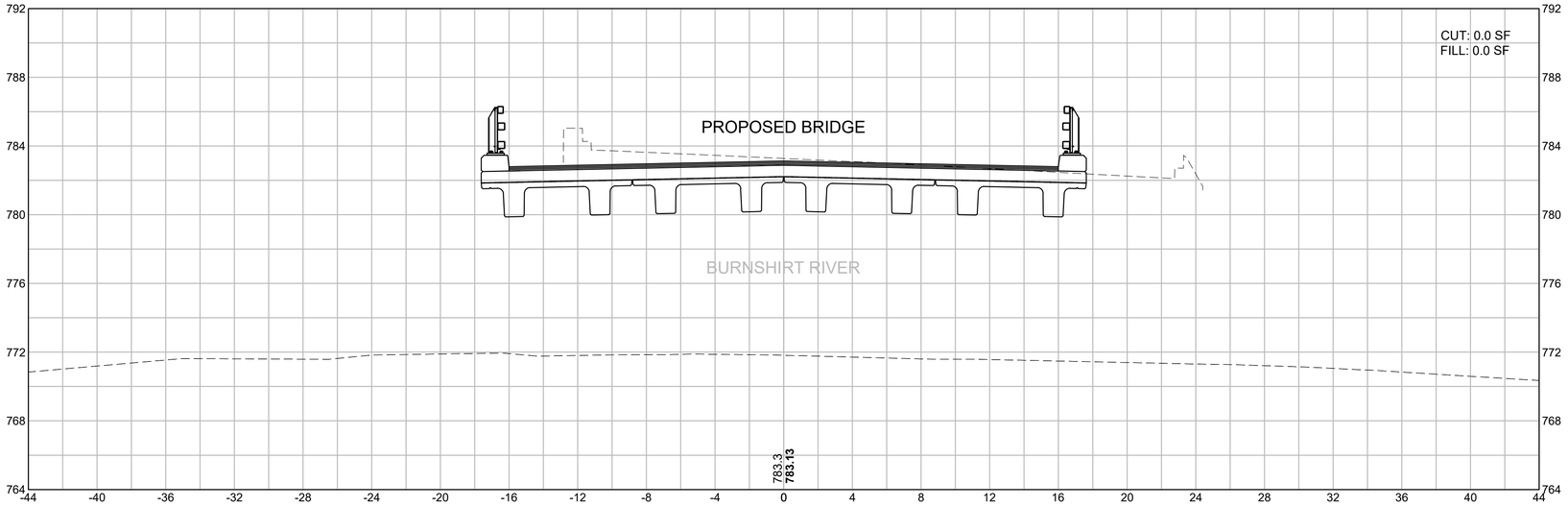


HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	39	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 4





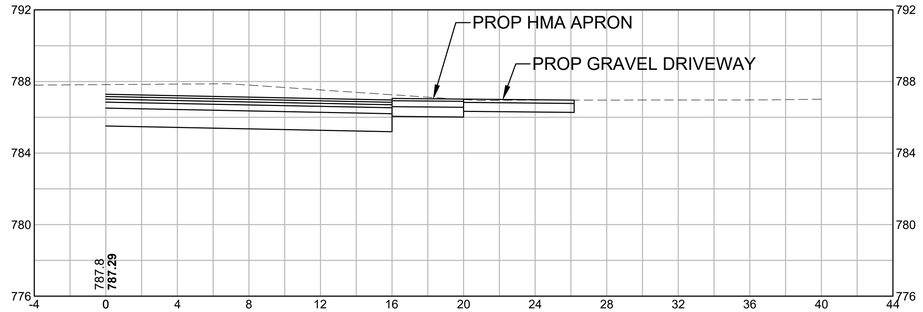
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

HUBBARDSTON
WILLIAMSVILLE ROAD

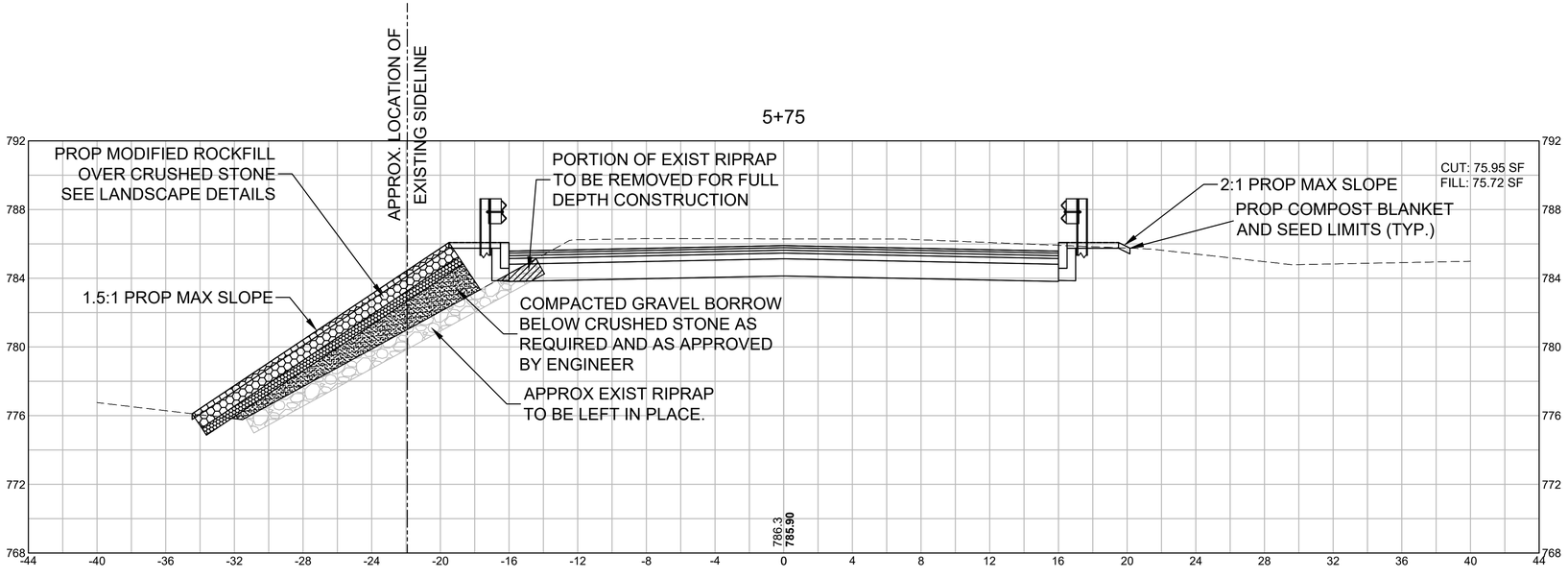
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	40	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 5

5+97.84



5+75

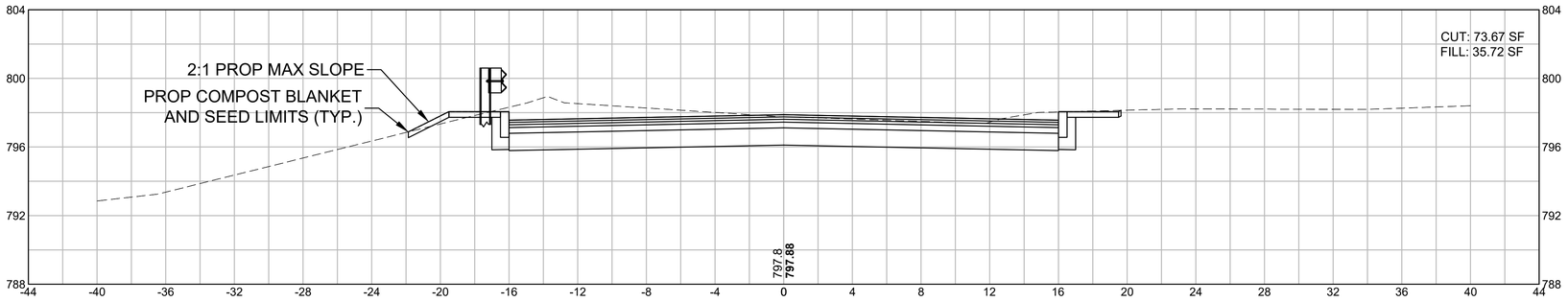


HUBBARDSTON
WILLIAMSVILLE ROAD

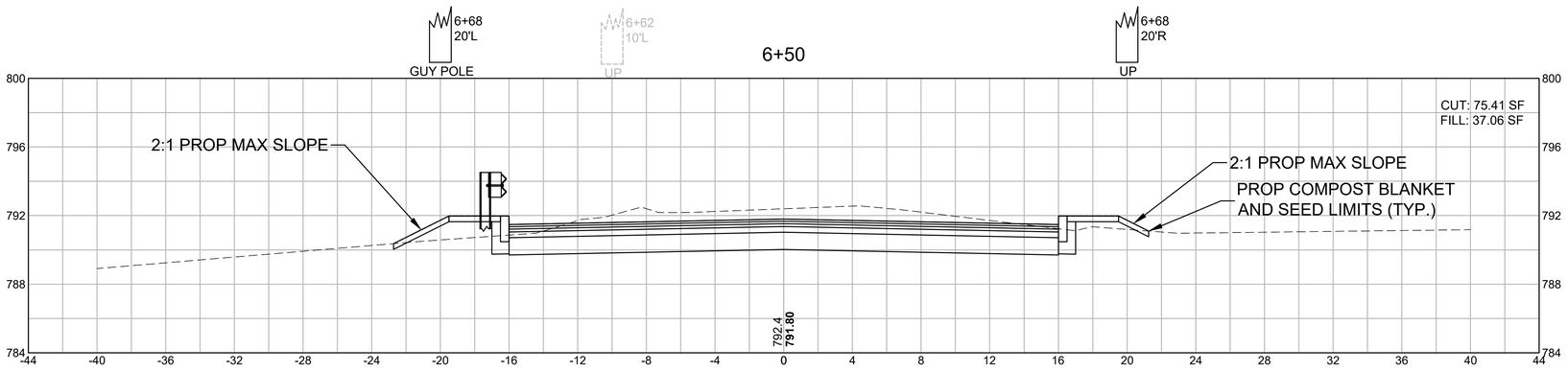
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	41	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 6

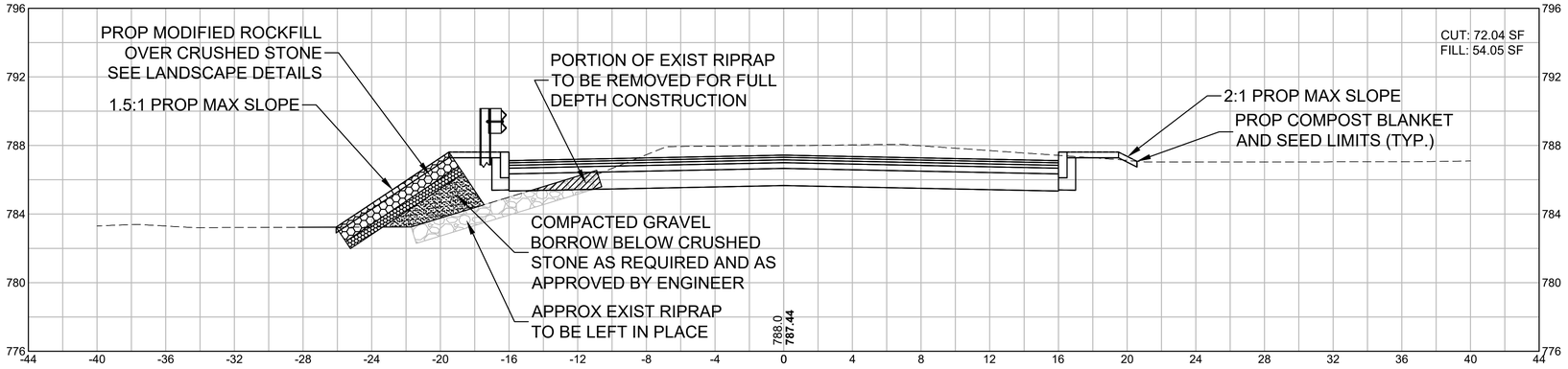
7+00



6+50



6+00



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

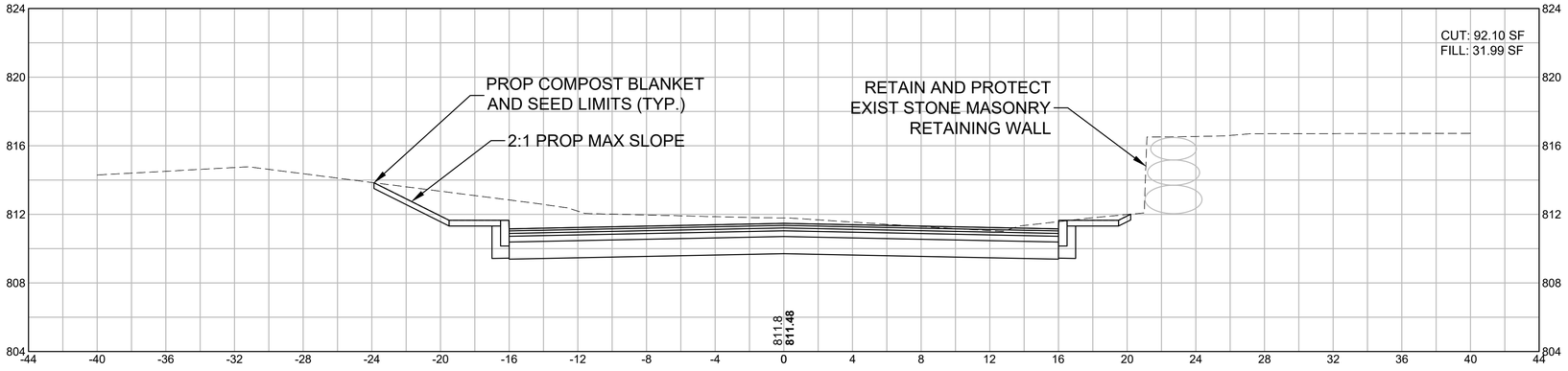
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	42	45
	PROJECT FILE NO. 609187		

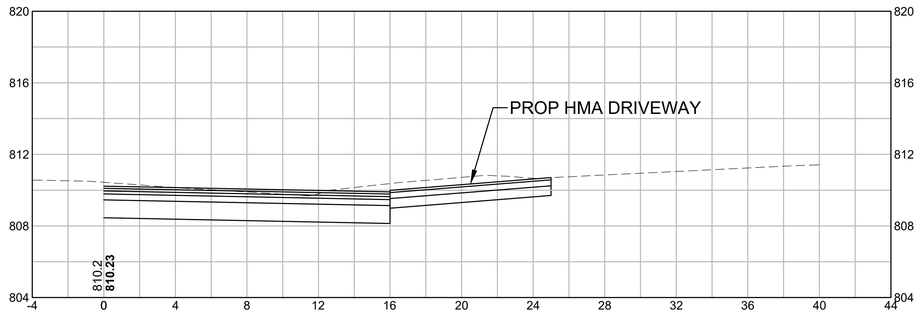
CROSS SECTIONS 7

609187_HD(PR).DWG Plotted on 27-Jan-2025 10:07 PM

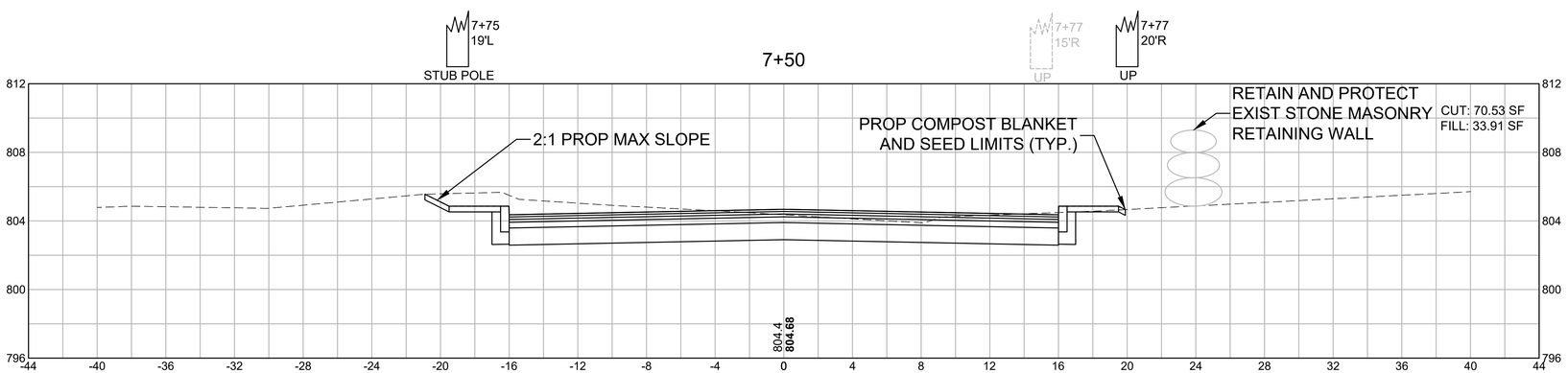
8+00



7+90.81



7+50



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

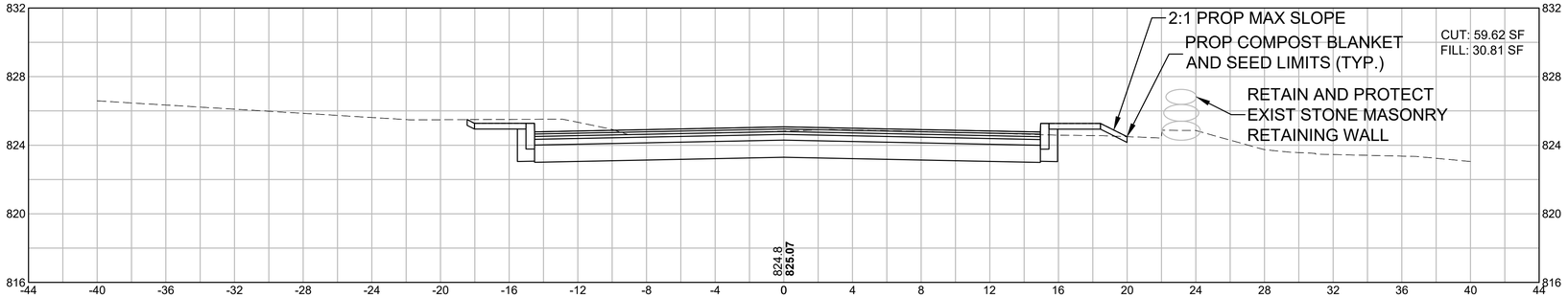
HUBBARDSTON
WILLIAMSVILLE ROAD

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	43	45
PROJECT FILE NO.	609187		

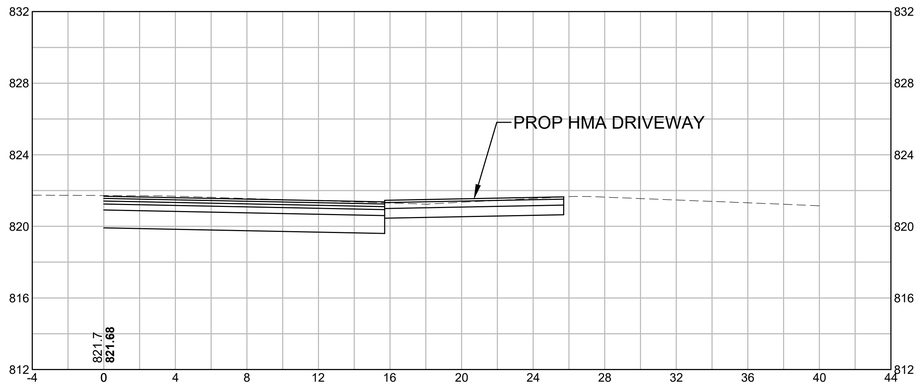
CROSS SECTIONS 8

609187_HD(PR).DWG Plotted on 27-Jan-2025 10:07 PM

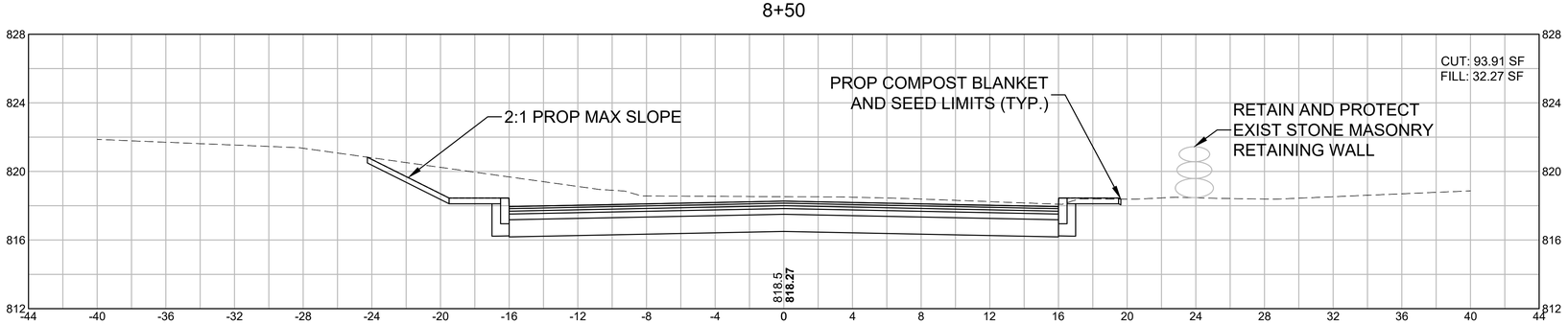
9+00



8+75.10



8+50



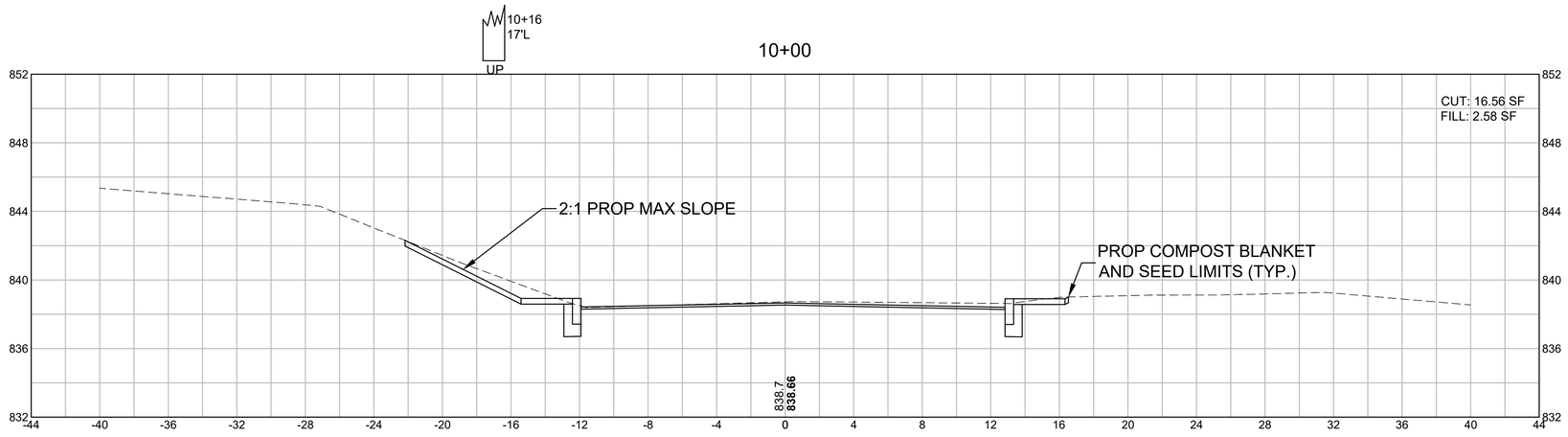
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

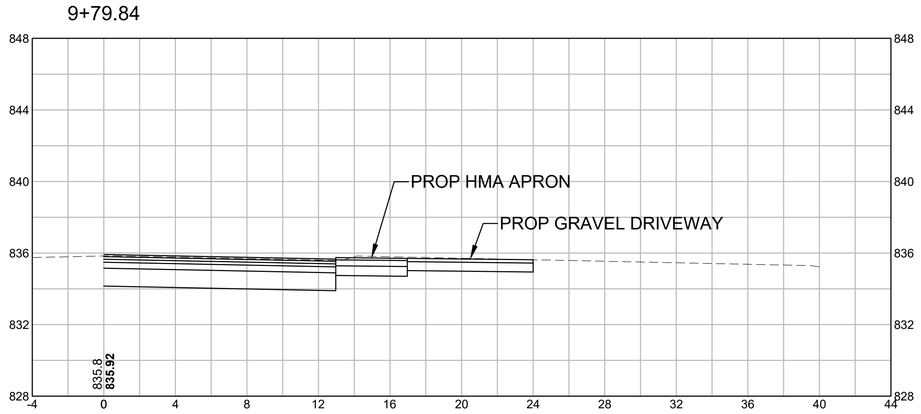
HUBBARDSTON
WILLIAMSVILLE ROAD

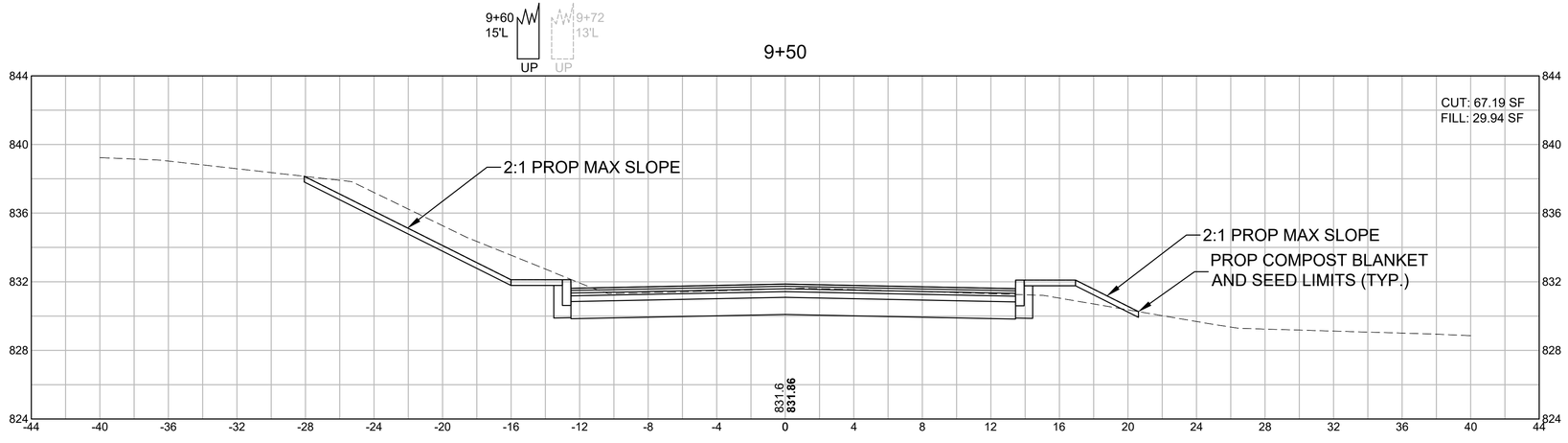
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	44	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 9

609187_HD(PR).DWG Plotted on 27-Jan-2025 10:08 PM







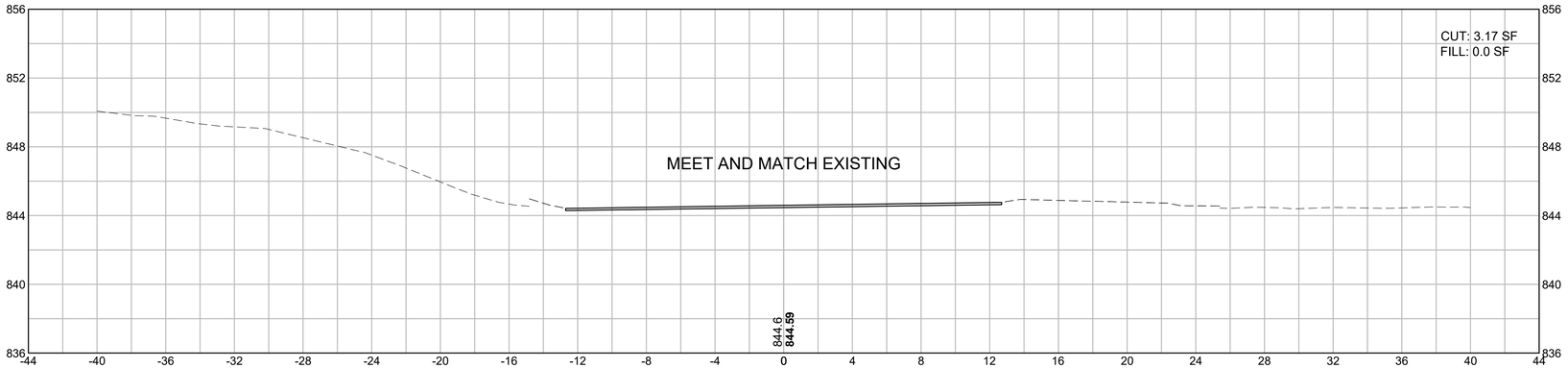
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

HUBBARDSTON
WILLIAMSVILLE ROAD

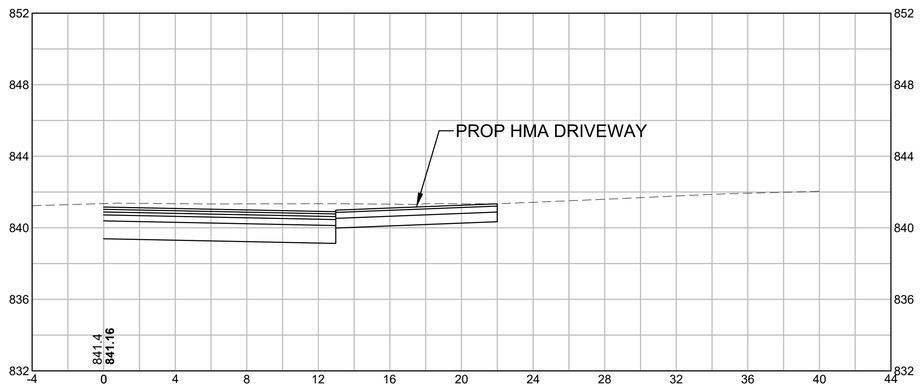
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(822)X	45	45
PROJECT FILE NO.	609187		

CROSS SECTIONS 10

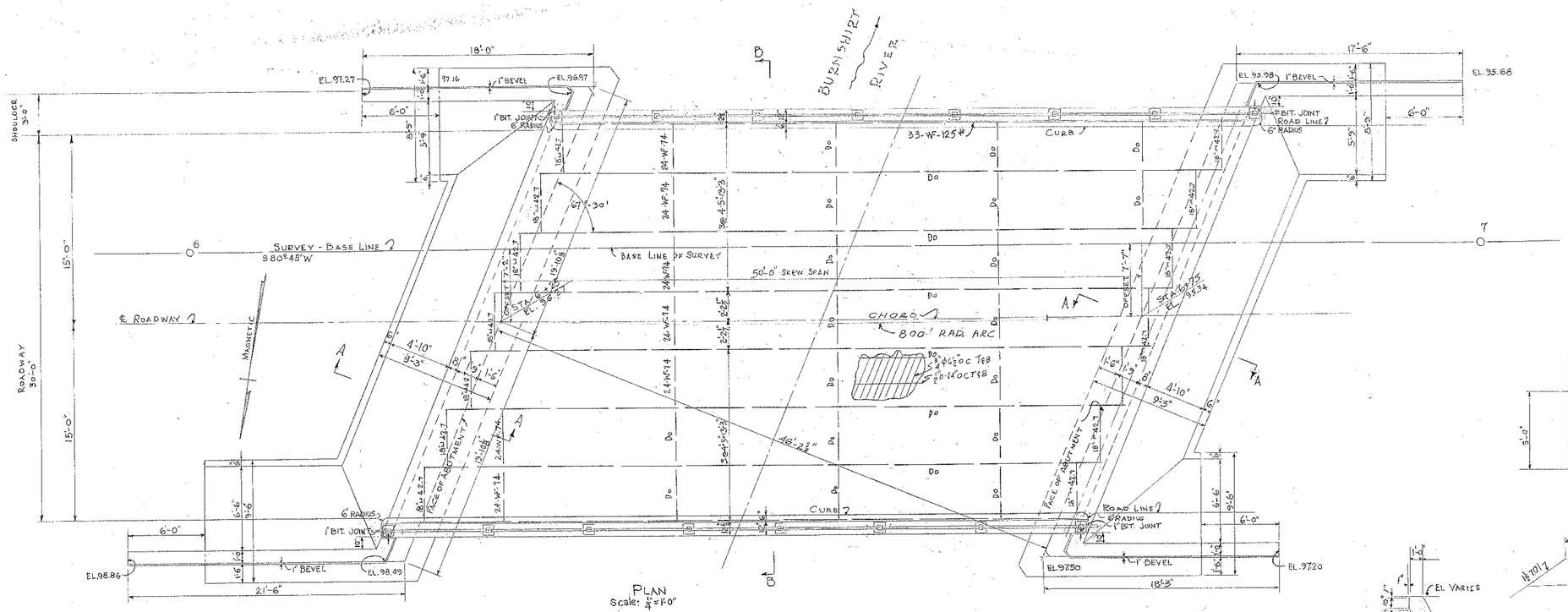
10+43.65



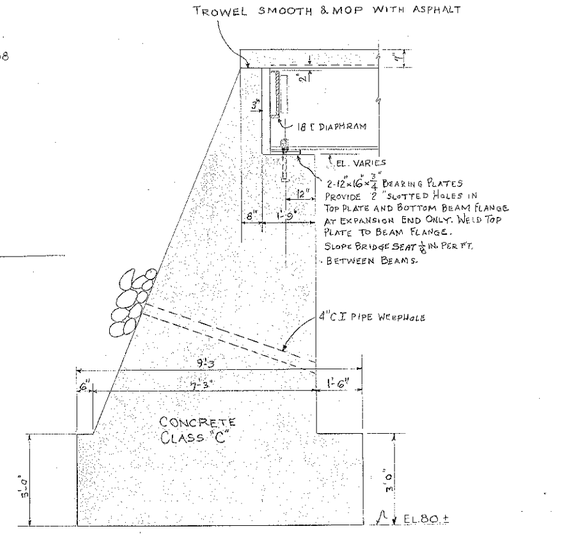
10+18.39



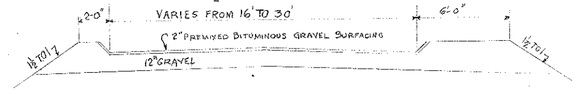
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET



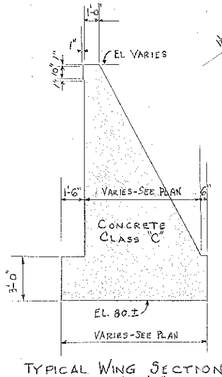
PLAN
Scale: $\frac{1}{4}$"=1'-0"



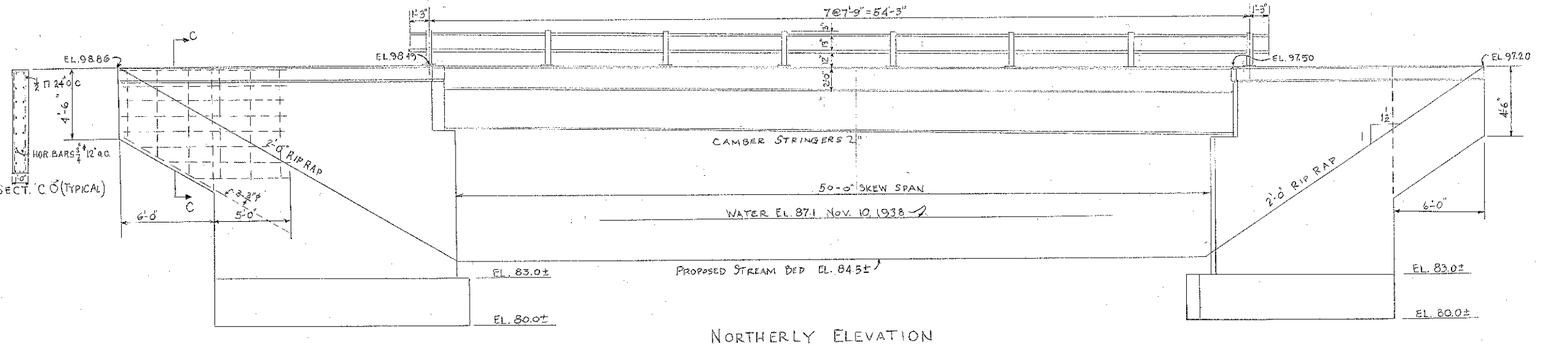
SECTION A-A
Scale: $\frac{1}{2}$"=1'-0"



TYPICAL ROAD SECTION
SCALE $\frac{1}{4}$"=1'-0"



TYPICAL WING SECTION
Scale: $\frac{1}{4}$"=1'-0"



NORTHERLY ELEVATION
Scale: $\frac{1}{4}$"=1'-0"

BRIDGE	OLD	NEW
SPAN	26'-0"	46'-10"
CLEARANCE	9'-0"	7'-4"
FLOW AREA	234 ft²	342 ft²
ROADWAY WIDTH	20'-0"	30'-0"
SIDEWALKS	NONE	NONE

DESIGNED BY
LEROY M. HERSUM
CONSULTING ENGINEER
6 BEACON ST. BOSTON MASS.
REVISIONS BY D.P.W. 10/39

DATE	SHEET NOS.	DESCRIPTION
LIST OF REVISIONS-USE ONLY PRINT OF LATEST DATE		

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
HUBBARDSTON
WILLIAMSVILLE ROAD BRIDGE · STA. 6+50
OVER BURNSHIRT RIVER
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA STREET - BOSTON
OCTOBER 1939

BRIDGE ENGINEER — CHIEF ENGINEER

DESIGNED BY: L.S.B. TRACED BY: CHECKED BY: W.A.S.

DATE OF ISSUE

PRELIMINARY	CONST. PLANS	ADV.	CONST.		
		10/21/39	11/1/39		

SHEET 1 OF 2 SHEETS BRIDGE No. H-24-3 (10a)

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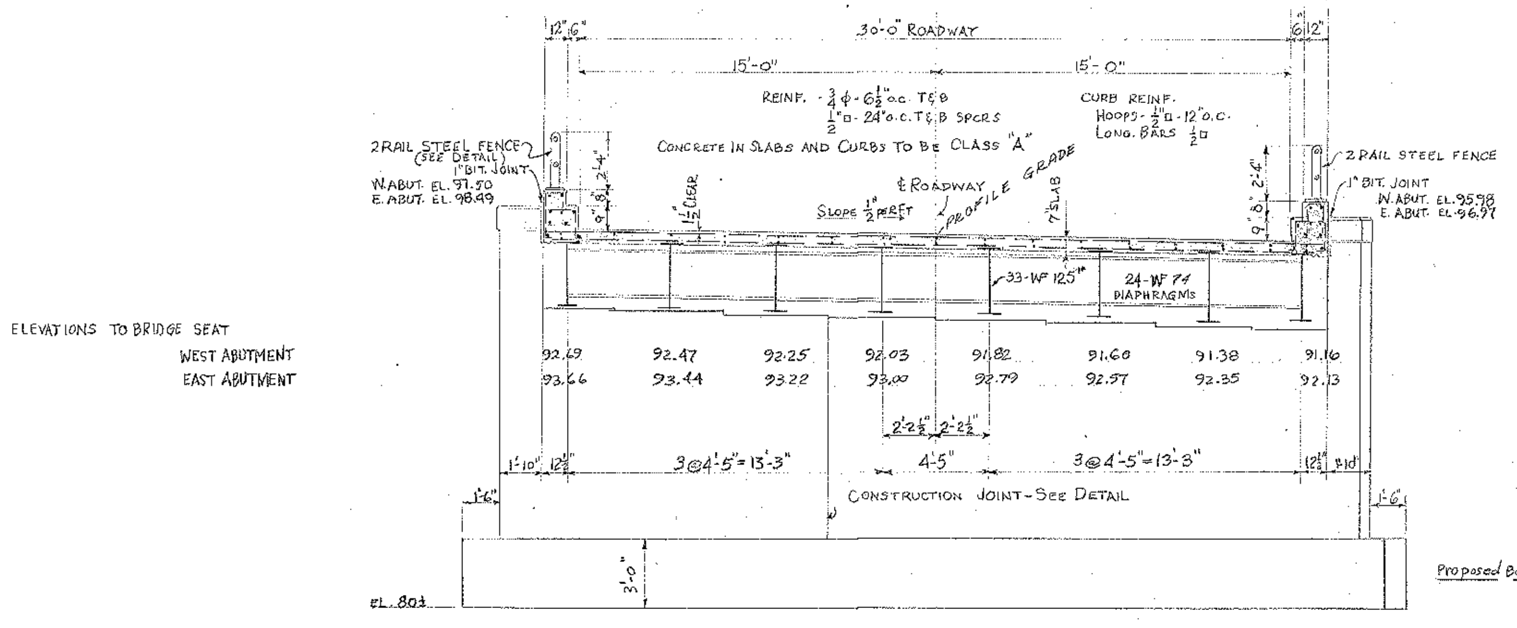
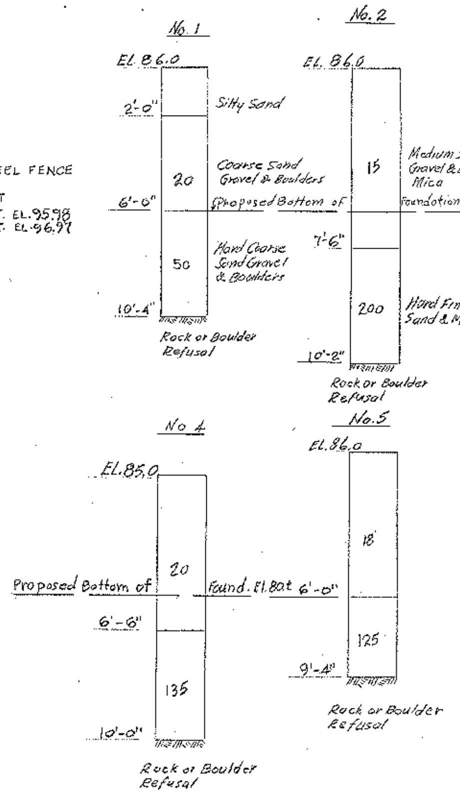
2/10/39

H-24-3



SECTION "B-B"
SCALE 1/4" = 1'-0"



BORING DATA

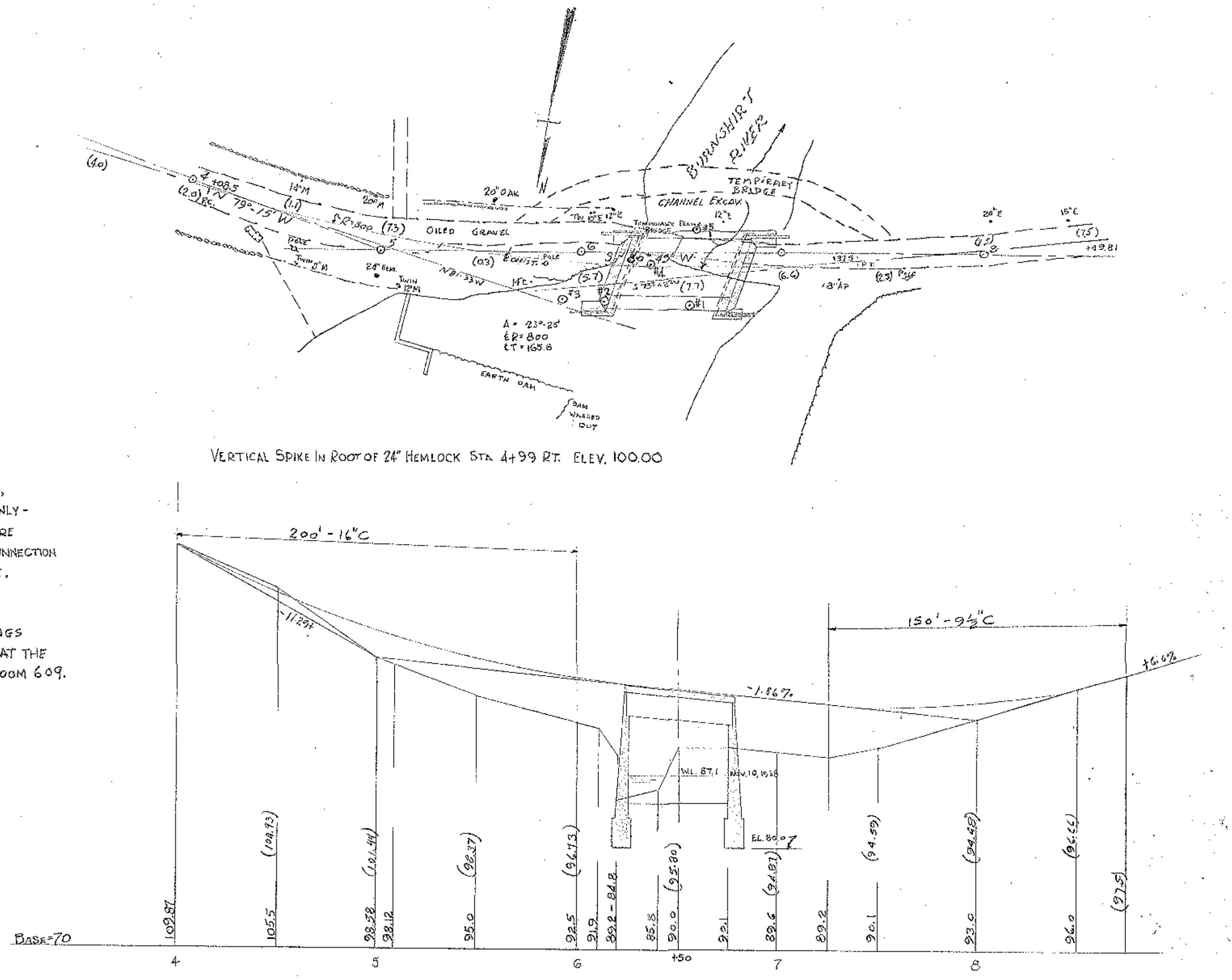
BORING NOTES

LOCATION OF BORINGS SHOWN ON KEY PLAN THUS ⊙

BORINGS ARE TAKEN FOR PURPOSES OF DESIGN, AND INDICATE CONDITIONS AT BORINGS ONLY - BUT DO NOT NECESSARILY SHOW NATURE OF MATERIAL TO BE ENCOUNTERED IN CONNECTION WITH THE CONSTRUCTION OF THE BRIDGE.

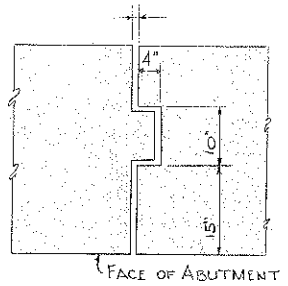
FIGURES IN COLUMNS INDICATE BLOWS PER FT. ON SPOON.

SAMPLES OBTAINED FROM TEST BORINGS ARE AVAILABLE AND MAY BE SEEN AT THE OFFICE OF THE BRIDGE ENGINEER, ROOM 609.

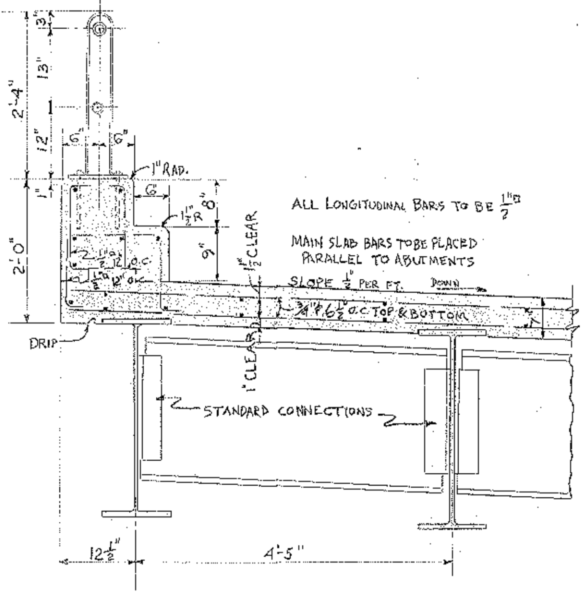


VERTICAL SPIKE IN ROOT OF 24" HEMLOCK STA. 4+99 RT. ELEV. 100.00

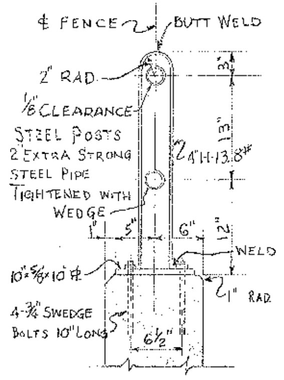
KEY PLAN & PROFILE
HORIZ. SCALE 1" = 40'-0"
VERTICAL SCALE 1" = 8'-0"



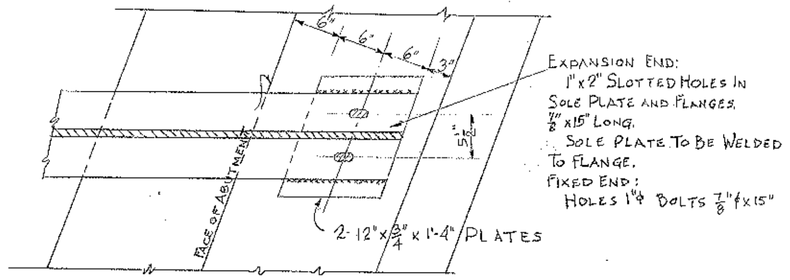
PLAN DETAIL OF CONSTRUCTION JOINT
SCALE 3/4" = 1'-0"



DETAIL OF SUPERSTRUCTURE
SCALE 3/4" = 1'-0"



DETAIL OF FENCE
SCALE 1" = 1'-0"



BEARING DETAIL
SCALE 1" = 1'-0"

ESTIMATED QUANTITIES
(NOT GUARANTEED)

EXCAVATION, BRIDGE	365.	CU. YDS.
EXCAVATION, LEDGE	35.	CU. YDS.
EXCAVATION, CHANNEL	800.	CU. YDS.
EXCAVATION, TRENCH LEDGE	30.	CU. YDS.
BORROW, GRAVEL	1000.	CU. YDS.
CONCRETE, CLASS "A"	46.	CU. YDS.
CONCRETE, CLASS "C"	334.	CU. YDS.
STRUCTURAL STEEL	67,500.	LBS.
REINFORCING STEEL	14000.	LBS.
2 RAIL STEEL FENCE	112.	L.F.
RIP RAP	130.	CU. YDS.
REMOVAL OF EXISTING SUPERSTRUCTURE		LUMP SUM
TEMPORARY BRIDGE		LUMP SUM
TREES REMOVED	5.	EACH
RDWY. EARTH EXCAVATION	20.	CU. YDS.
TRENCH EXCAVATION	5.	CU. YDS.
ORDINARY BORROW	4000.	CU. YDS.
STRIPPING GRAVEL PITS	100.	CU. YDS.
FINE GRADING	2000.	SQ. YDS.
HWY. GUARD TYPE W2C	400.	L.F.
2" PREMIX. BIT. GRAVEL SURF.	1300.	SQ. YDS.
PAVED GUTTER	20.	SQ. YDS.

GENERAL NOTES

ALL MATERIALS, WORKMANSHIP AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES OF THE COMMONWEALTH OF MASSACHUSETTS.

ALL EXPOSED CONCRETE SURFACES TO BE RUBBED WITH CORUNDUM BLOCK AND LEFT SMOOTH AND FREE OF FORM MARKS AND IMPERFECTIONS.

FOUNDATIONS MAY BE REVISED IF NECESSARY TO CONFORM TO CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

WEEP HOLES TO BE PLACED IN ABUTMENTS AND SLAB AS DIRECTED BY THE ENGINEER.

BEARING PLATES TO BE SET ON LAYERS OF DUCK AND RED LEAD.

ALL SUPERSTRUCTURE CONCRETE TO BE CLASS "A", ABUTMENTS AND WING WALLS TO BE CLASS "C".

STRUCTURAL STEEL TO BE PAINTED ONE SHOP COAT OF RED LEAD, TWO FIELD COATS OF RED LEAD, AND ONE COAT OF STRUCTURAL GREEN PAINT.

STRINGERS TO BE CAMBERED 1"

DESIGNED FOR H20 LOADING.

BENCH MARK. VERTICAL SPIKE IN ROOT OF 24" HEMLOCK STA. 4+99 RT. EL. 100.00

DARDELET RIVET BOLTS OR EQUAL MAY BE USED IN PLACE OF RIVETS ON DIAPHRAGM CONNECTIONS.

HUBBARDSTON - WILLIAMSVILLE
ROAD - BRIDGE

COPIED FROM ORIGINAL TRACINGS BY L. REDMOND NOV. 1966.

SHEET 2 OF 2 SHEETS BRIDGE No (10 a) H-24-3

H-24-3