MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

ST 9/ST 112 OVER EAST BRANCH OF WESTFIELD RIVER

(BRIDGE NO. C-21-002 (00J))

IN THE TOWN OF

CUMMINGTON

HAMPSHIRE COUNTY

FEDERAL AID PROJECT NO. HIP(NGB)-003S(828)

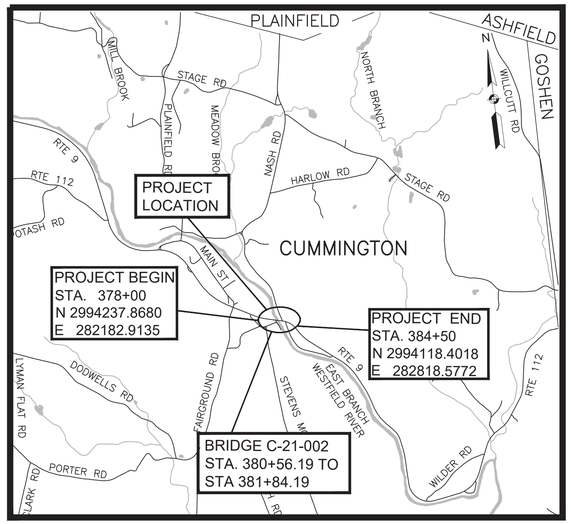
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	1	73
	PROJECT FILE NO. 612514		

TITLE SHEET & INDEX

THESE PLANS ARE SUPPLEMENTED BY THE LATEST EDITIONS OF THE FOLLOWING PUBLICATIONS, AS IDENTIFIED IN THE CONTRACT SPECIAL PROVISIONS: THE MASSDOT CONSTRUCTION STANDARD DETAILS, THE MASSDOT STANDARD DRAWINGS FOR SIGNS AN 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



0 700 1400 2100 2800

SCALE: 1" = 700'

LENGTH OF PROJECT = 650.00 FEET = 0.123 MILES

DESIGN DESIGNATION (ST 9/ ST 112)	
DESIGN SPEED	**45 MPH**
ADT (2022)	2,651
ADT (2032)	2,930
K	13%
D	58%
T (PEAK HOUR)	NA
T (AVERAGE DAY)	5.7%
DHV	342
DDHV	200
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL

NOTE: COUNT DATA FROM THE MASSDOT TRANSPORTATION DATA MANAGEMENT SYSTEM WEBSITE

DATE	DESCRIPTION	REV #

COMMONWEALTH OF MASSACHUSETTS
ASHLEY D. BOMELY
CIVIL
No. 55329
REGISTERED PROFESSIONAL ENGINEER

Ashley Bomely Digitally signed by Ashley Bomely Date: 2025.06.16 12:54:50 -04'00'

benesch
50 REDFIELD ST
SUITE 102
BOSTON, MA 02122

MassDOT Massachusetts Department of Transportation Highway Division

APPROVED

Carrie Lavallee, P.E. — Carrie Lavallee, P.E. 2025.06.18 12:59:43 -04'00' — 06/18/2025

CHIEF ENGINEER — **DATE**

GENERAL SYMBOLS

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

TRAFFIC SYMBOLS

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

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE (12" WIDE)
	CW	CROSSWALK (12" WIDE LINES)
	SWL	SOLID WHITE LINE (6" WIDE)
	SYL	SOLID YELLOW LINE (6" WIDE)
	BWL	BROKEN WHITE LINE (6" WIDE, 10' LINE, 30' GAP)
	BYL	BROKEN YELLOW LINE (6" WIDE, 10' LINE, 30' GAP)
	DWL	DOTTED WHITE LINE (6" WIDE, 3' LINE, 9' GAP)
	DYL	DOTTED YELLOW LINE (6" WIDE, 3' LINE, 9' GAP)
	DWLEx	DOTTED WHITE LINE EXTENSION (6" WIDE, 2' LINE, 6' GAP)
	DYLEx	DOTTED YELLOW LINE EXTENSION (6" WIDE, 2' LINE, 6' GAP)
	DBWL	DOUBLE WHITE LINE (6" WIDE LINES)
	DBYL	DOUBLE YELLOW LINE (6" WIDE LINES)

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
PCR	PEDESTRIAN CURB RAMP
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT

ABBREVIATIONS (cont.)

GENERAL

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

TRAFFIC SIGNAL ABBREVIATIONS

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

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	2	73
	PROJECT FILE NO. 612514		

LEGEND & ABBREVIATIONS

612514_HD02 (LEGEND & ABBREV.).DWG Plotted on 30-Jun-2025 10:41 AM

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	3	73
PROJECT FILE NO. 612514			

GENERAL NOTES

GENERAL NOTES

1. THIS BASE MAP IS COMPILED FROM AN ACTUAL-ON-THE-GROUND INSTRUMENT SURVEY PERFORMED BY DAWOOD ENGINEERING PERFORMED DURING OCTOBER 2022.
2. THE ELEVATIONS DEPICTED ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 (US FEET)
3. THE HORIZONTAL CONTROL DEPICTED ARE BASED ON MASSACHUSETTS COORDINATE SYSTEM, MAINLAND ZONE, NAD83 (2011) EPOCH 2010.00.
4. THE RIGHT OF WAY LINES SHOWN ON THIS BASE MAP ARE THE DIRECT RESULT OF AN INSTRUMENT SURVEY PERFORMED ON THE GROUND BY DAWOOD ENGINEERING AND FROM PLANS AND DEEDS OF RECORD. PRIVATE PROPERTY LINES HAVE NOT BEEN SURVEYED, THEY ARE COMPILED FROM GIS & RECORD PLAN INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
5. 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).
6. 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, UNLESS OTHERWISE PROVIDED FOR UNDER CONTRACT ITEMS.
7. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM BORROW PLACED AND SEEDED. THE LOAM BORROW SHALL HAVE A MINIMUM DEPTH OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE
8. CATCH BASINS DAMAGED OR FILLED WITH SEDIMENTATION DURING THE CONSTRUCTION PROCESS SHALL BE CLEANED, FLUSHED AND/OR REPLACED AT CONTRACTOR'S EXPENSE.
9. JOINTS IN HOT MIX ASPHALT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS FOR SECTION 450.
10. TOP OF CURB SHALL BE 6 INCHES ABOVE GUTTER GRADE UNLESS OTHERWISE NOTED.
11. BEFORE ANY DRAINAGE STRUCTURES ARE CONSTRUCTED OR CONNECTIONS ARE MADE THE CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES AND DRAINAGE INVERTS TO AVOID CONFLICTS WITH UTILITIES, UNLESS OTHERWISE NOTED ON THE CONSTRUCTION PLANS OR DIRECTED BY THE ENGINEER.
12. ANY ADJUSTMENTS MADE TO MUNICIPALLY OWNED SANITARY AND WATER MANHOLES, HYDRANTS, GATE BOXES, ETC... SHALL MEET APPLICABLE MUNICIPAL STANDARDS AND CRITERIA.
13. TREES AND SHRUBS NOT NOTED TO BE REMOVED, AND TREE AND SHRUBS NOTED "RET" ON THE DRAWINGS, SHALL BE PROTECTED BY THE CONTRACTOR DURING CONSTRUCTION OPERATIONS. TREES OR SHRUBS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN-KIND BY THE CONTRACTOR AT HIS OR HER OWN EXPENSE.
14. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ANY HIGHWAY BOUND OR PRIVATE PROPERTY PIN THAT MAY BE DAMAGED OR DESTROYED DURING CONSTRUCTION, TO ITS LOCATION JUST PRIOR TO CONSTRUCTION.

UTILITY NOTES:

1. ALL UNDERGROUND UTILITIES AS SHOWN WERE COMPILED USING FIELD SURVEY INFORMATION AND AVAILABLE RECORD INFORMATION.
2. RECORD UTILITY INFORMATION FROM THE VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES, ARE ONLY APPROXIMATE AND ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.
3. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE NOTIFIED, INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THESE PLANS, (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING OR REPAVING.
4. THE LOCATION OF EXISTING PIPES OR OTHER UNDERGROUND STRUCTURES OR PROPERTY LINES ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL CALL "DIG SAFE" (1-888-344-7233) 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO ANY EXCAVATION TO OBTAIN ACCURATE UTILITY LOCATIONS.
5. SUBSURFACE UTILITY LOCATIONS HAVE BEEN PLOTTED TO MEET UTILITY QUALITY LEVEL "C" AS DESCRIBED IN ASCE STANDARD 38-02. THE UNDERGROUND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS BASED ON ABOVE-GROUND FIELD OBSERVATION AND EXISTING RECORD INFORMATION RECEIVED FROM UTILITY STAKE-HOLDERS.
6. INVERTS SHOWN ON PLAN ARE NOT GUARANTEED TO BE ACCURATE. DUE TO THE LIMITATIONS OF FIELD OBSERVATION AND SURVEY TECHNIQUES THE INVERTS ARE SHOWN AS APPROXIMATE ONLY AND SHALL NOT BE WARRANTED TO BE CORRECT. ADDITIONAL FIELD INVESTIGATION IS NECESSARY WHERE ACCURATE MEASUREMENTS ARE REQUIRED FOR DESIGN OF CRITICAL AREAS.
7. THE EXISTING CONDITIONS PLAN IS TO BE USED FOR THE SPECIFIED PROJECT ONLY AND IS NOT WARRANTED TO BE COMPLETE FOR ANY OTHER FUTURE PROJECTS.
8. ALL PIPES LABELED AS (REC) ARE BASED ON RECORD INFORMATION ONLY AND NOT OBSERVED IN THE FIELD.
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. ALL EXISTING UTILITY GATE BOXES, MANHOLE FRAMES AND COVERS, CATCH BASIN FRAMES AND GRATES AND OTHER CASTINGS TO BE RETAINED SHALL BE ADJUSTED TO LINE AND/OR GRADE.
11. WORK REQUIRED ON ELECTRIC, GAS, CABLE T.V. OR TELEPHONE STRUCTURES AND LINES SHALL BE CARRIED OUT BY THE OWNER OF THAT UTILITY. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS TO COORDINATE THE ALTERATION AND ADJUSTMENT OF THESE AND ANY OTHER PRIVATE UTILITIES WITH THE UTILITY COMPANIES.
12. PRIOR WRITTEN NOTICE OF AT LEAST 48 HOURS SHALL BE GIVEN BY THE CONTRACTOR TO AFFECTED MUNICIPAL WATER AND FIRE DEPARTMENTS, WITH A COPY OF SUCH NOTICE SUBMITTED TO THE ENGINEER, BEFORE ANY WATER MAIN IS SHUT OFF AND IN NO CASE SHALL A GATE OR HYDRANT BE OPENED OR SHUT WITHOUT PROPER AUTHORIZATION.
13. THE CONTRACTOR SHALL COORDINATE ALL ARRANGEMENTS FOR THE ALTERATION AND/OR ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITY THROUGH THE MASSDOT HIGHWAY DIVISION UTILITY SECTION.
14. WITHIN AREAS OF RESURFACING OR RECONSTRUCTION, ALL EXISTING DRAINAGE MANHOLES, CATCH BASINS, SEWER MANHOLES, AND WATER GATES SHALL BE ADJUSTED TO PROPOSED LINE AND GRADE UNLESS OTHERWISE NOTED ON THE PLANS.
15. SHOP DRAWINGS OF ALL CASTINGS, PRECAST CONCRETE STRUCTURES, PIPE AND OTHER MANUFACTURED ITEMS SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER, IN CONFORMANCE WITH CONTRACT SPECIFICATIONS, AND SAID APPROVAL SHALL BE REQUIRED PRIOR TO INITIATING PROCUREMENT OF MATERIALS.
16. ALL DRAINAGE STRUCTURES TO BE ABANDONED SHALL BE FILLED WITH GRAVEL AND ALL CONNECTIONS SHALL BE PLUGGED AT THE PIPE LOCATIONS WITH A CEMENT CONCRETE MASONRY PLUG.
17. FINAL LOCATION OF TRAFFIC SIGNS AND SUPPORTS AS SHOWN IN THE PLANS SHALL BE FIELD-CONFIRMED BY THE ENGINEER PRIOR TO INSTALLATION.

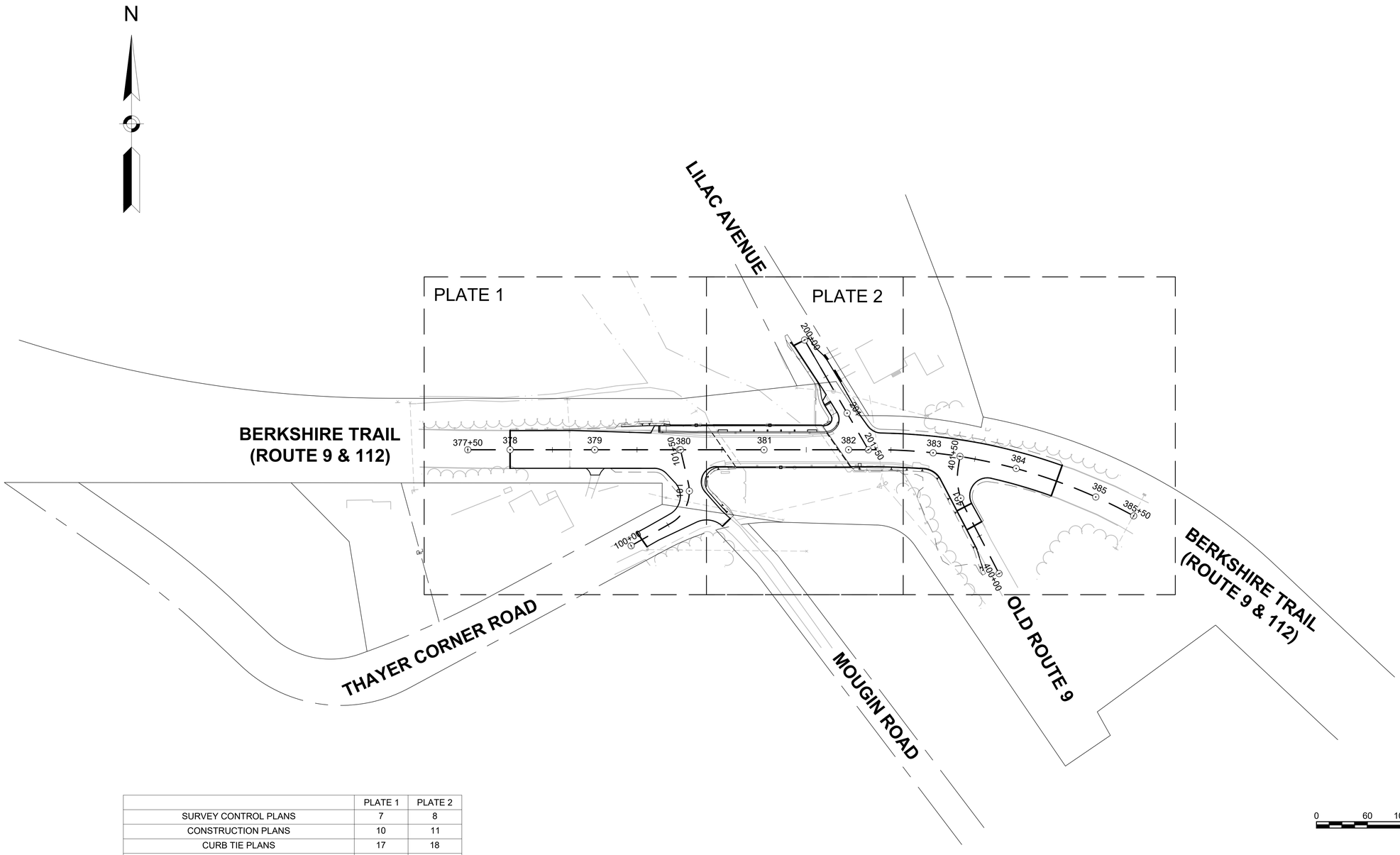
PEDESTRIAN CURB RAMP NOTES:

1. ALL PEDESTRIAN CURB RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (AAB), THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE LATEST MASSDOT HIGHWAY DIVISION PEDESTRIAN CURB RAMP STANDARDS.
2. THE LOCATIONS OF THE PROPOSED PEDESTRIAN CURB RAMPS ARE SHOWN ON THE CONSTRUCTION PLANS. ADDITIONAL TYPICAL DETAILS AND PEDESTRIAN CURB RAMP DATA TABLES ARE SHOWN ON THE PEDESTRIAN CURB RAMP DETAILS ON SHEET 32. THE EXACT LOCATION OF PROPOSED PEDESTRIAN CURB RAMPS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3. PROPOSED PEDESTRIAN CURB RAMP SLOPES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE POURING OF CONCRETE, AND ADJUSTED, IF NECESSARY, TO CONFORM TO THE LATEST ADAAG/PROWAG/MAAB STANDARDS, AS REQUIRED BY THE ENGINEER.
4. ALL PROPOSED CURB FOR PEDESTRIAN CURB RAMP TRANSITIONS SHALL BE CUT AND TRANSITIONED AS NECESSARY TO PROVIDE THE CORRECT TRANSITION LENGTHS FOR EACH PEDESTRIAN CURB RAMP, AS SHOWN ON THE DETAILS ON SHEET 32 OR AS REQUIRED BY THE ENGINEER. ANY EXISTING CURB INLETS IN AREAS OF NEW PEDESTRIAN CURB RAMP TRANSITIONS SHALL BE REMOVED AND REPLACED WITH APPROPRIATE TRANSITION CURB AS REQUIRED BY THE ENGINEER.
5. IN NO CASE, EXCEPT MAXIMUM LENGTH HIGH SIDE TRANSITIONS, SHALL ANY TRANSITION SLOPE OF ANY PEDESTRIAN CURB RAMP EXCEED 7.5%. PROPOSED PEDESTRIAN CURB RAMP SLOPES, ESPECIALLY HIGH SIDE TRANSITIONS, SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE POURING OF CONCRETE, AND ADJUSTED, IF NECESSARY, AS REQUIRED BY THE ENGINEER.
6. WHEN PLACEMENT OF THE PROPOSED PEDESTRIAN CURB RAMP IS SUCH THAT IT IS UNAVOIDABLE FOR EXISTING STRUCTURES, THAT CANNOT BE MOVED OR RESET, TO BE WITHIN THE PEDESTRIAN CURB RAMP, EXTREME CARE SHALL BE TAKEN SUCH THAT THE EXISTING STRUCTURE IS WITHIN THE RAMP TRANSITIONS ONLY. IF POSSIBLE, WHEN THE NEW PEDESTRIAN CURB RAMP IS PLACED, A FOUR FOOT WIDE (MIN) CLEAR PATH OF TRAVEL SHALL BE PROVIDED BETWEEN THE EXISTING STRUCTURE AND EITHER THE CURBLINE OR THE BACK OF SIDEWALK, AS REQUIRED BY THE ENGINEER.
7. IN RARE INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER EXISTING "SURFACE" TYPE STRUCTURE WHICH CANNOT BE REMOVED AND RESET, IS WITHIN THE ACTUAL PEDESTRIAN CURB RAMP PATH, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOP MOST OF THE STRUCTURE COVER SHALL BE FLUSH WITH THE NEW RAMP SURFACE AND SHALL MATCH THE SLOPE OF THE NEW PEDESTRIAN CURB RAMP EXACTLY, AS REQUIRED BY THE ENGINEER. VERTICAL SURFACE DISCONTINUITIES SHALL COMPLY WITH 521 CMR 22.
8. ALL PEDESTRIAN CURB RAMPS WITHIN THE PROJECT LIMITS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED IN ACCORDANCE WITH MASSDOT STANDARD DRAWING E107.6.5 AND IN ACCORDANCE WITH PROWAG R305.2 PLACEMENT. PAYMENT FOR DETECTABLE WARNING PANELS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION OF THE PEDESTRIAN CURB RAMPS OR SIDEWALKS IN WHICH THEY ARE BEING INSTALLED.
9. DETECTABLE WARNING PANELS SHALL REFLECT THE PLACEMENT AND ORIENTATION AS SHOWN IN THE CONTRACT PLANS AND DETAILS ON SHEET 32. THE CUTTING OF MULTIPLE PANELS PRIOR TO INSTALLATION MAY BE REQUIRED IN ORDER TO MATCH WHAT IS DEPICTED ON THE PLANS.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	4	73
PROJECT FILE NO.	612514		

KEY PLAN



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0 60 100 200 300

SCALE: 1" = 60'

612514_HD04 (KEY PLAN).DWG Plotted on 30-Jun-2025 10:42 AM

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	5	73
	PROJECT FILE NO. 612514		

BORING LOGS

BORING INFORMATION
LOCATION: See Plan
GROUND SURFACE EL. (ft): 994 **DATE START/END:** 10/11/2024 - 10/11/2024
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Seaboard Drilling, Inc.
TOTAL DEPTH (ft): 17.0 **DRILLER NAME:** M. Nitsch
LOGGED BY: L. Wang **RIG TYPE:** Mobile B-53

BORING
GEI-1
PAGE 1 of 1

DRILLING INFORMATION
HAMMER TYPE: Automatic **CASING I.D./O.D.:** NA / NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 2.25 inch / 5 inch **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not encountered

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Sample Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
990	0	S1	0 to 2	24/18	3-5-22-14	Possible cobble/boulder presence from 2 to 8 ft based on noise and bouncing action of the drill rig.	SAND AND GRAVEL	S1 (0-9"): Topsoil S1 (9-18"): Moist, dense, grayish brown, FINE TO COARSE SAND, some fine to medium gravel, trace inorganic silt, trace asphalt.
		S2	2 to 4	24/12	12-12-11-9			S2: Moist, medium dense, brown to grayish brown, FINE TO COARSE SAND, some fine to medium gravel.
	5	S3	4 to 6	24/6	18-8-15-30			S3: Dry, medium dense, brown, FINE SAND, some inorganic silt.
		S4	6 to 8	24/3	17-16-14-17			S4: Dry, dense, brown, FINE TO COARSE SAND, some fine to coarse gravel, some inorganic silt. <Grain Size Analysis performed>
985	10	S5	10 to 12	24/16	14-14-16-20			S5: Moist, dense, grayish brown, FINE TO COARSE SAND, some fine to medium gravel, trace orange oxidation stains.
980	15	S6	15 to 17	24/15	12-11-12-19			S6: Moist, medium dense, brown to grayish brown, FINE TO COARSE SAND, some fine gravel, some inorganic silt, trace more orange oxidation stains, wet at tip of the spoon.
975								The boring was terminated at 17 ft below ground surface and backfilled with cuttings.

NOTES: 1. Groundwater was not encountered but was likely controlled by water level of East Branch Westfield River, which was around El. 971 during the subsurface exploration.

PROJECT NAME: Dudley Manor Bridge BMP
CITY/STATE: Cummington, Massachusetts
GEI PROJECT NUMBER: 2407693

GEI Consultants

BORING INFORMATION
LOCATION: See Plan
GROUND SURFACE EL. (ft): 994 **DATE START/END:** 10/11/2024 - 10/11/2024
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Seaboard Drilling, Inc.
TOTAL DEPTH (ft): 8.0 **DRILLER NAME:** M. Nitsch
LOGGED BY: L. Wang **RIG TYPE:** Mobile B-53

BORING
GEI-1A
PAGE 1 of 1

DRILLING INFORMATION
HAMMER TYPE: Automatic **CASING I.D./O.D.:** NA / NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 2.25 inch / 5 inch **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not encountered

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Sample Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
990	0						SAND AND GRAVEL	NO SAMPLING FROM 0 TO 4 FT.
	5	S1	4 to 6	24/16	5-2-6-6			S1: Dry, loose, reddish brown to grayish brown, FINE TO COARSE SAND, some inorganic silt, trace roots.
		S2	6 to 8	24/17	9-8-12-14			S2: Dry, medium dense, reddish brown to grayish brown, FINE TO COARSE SAND, some inorganic silt, trace fine to medium gravel, trace orange oxidation stain at 6" from top of the sample. <Grain Size Analysis performed>
985	10							The boring was terminated at 8 ft below ground surface and backfilled with cuttings.
980	15							
975								

NOTES: 1. Groundwater was not encountered but was likely controlled by water level of East Branch Westfield River, which was around El. 971 during exploration
2. GEI-1A was offset 5 ft southeast from proposed GEI-1 location to obtain additional information.

PROJECT NAME: Dudley Manor Bridge BMP
CITY/STATE: Cummington, Massachusetts
GEI PROJECT NUMBER: 2407693

GEI Consultants

BORING INFORMATION
LOCATION: See Plan
GROUND SURFACE EL. (ft): 992 **DATE START/END:** 10/11/2024 - 10/11/2024
VERTICAL DATUM: NAVD 88 **DRILLING COMPANY:** Seaboard Drilling, Inc.
TOTAL DEPTH (ft): 14.0 **DRILLER NAME:** M. Nitsch
LOGGED BY: L. Wang **RIG TYPE:** Mobile B-53

BORING
GEI-2 (OW)
PAGE 1 of 1

DRILLING INFORMATION
HAMMER TYPE: Automatic **CASING I.D./O.D.:** NA / NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 4.25 inch / 8 inch **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not encountered

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Sample Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
990	0	S1	0 to 2	24/12	4-35-23-15	Possible cobble/boulder presence at 8.25 ft based on noise and bouncing action of the drill rig.	SAND AND GRAVEL/SAND AND SILT	S1 (0-6"): Topsoil S1 (6-12"): Dry, very dense, gray, FINE TO COARSE GRAVEL, some fine to medium sand.
		S2	2 to 4	24/13	10-8-9-7			S2 (0-4"): Similar to S1 (6-12"). S2 (9-13"): dry, medium dense, brown, FINE SAND, some inorganic silt, trace roots and wood pieces.
	5	S3	4 to 6	24/12	14-27-9-8			S3: Dry, dense, grayish brown to brown, INORGANIC SILT AND FINE TO COARSE SAND, trace fine gravel, trace orange oxidation stain at center of the sample. <Grain Size Analysis performed>
		S4	6 to 7.8	22/13	12-12-15-20/4"			S4: Dry, medium dense, gray, FINE TO COARSE SAND, trace inorganic silt, trace orange oxidation stain.
985	10	S5	8 to 10	24/12	19-18-19-25			S5: Moist, dense, brown and gray, FINE TO COARSE SAND, some fine gravel, some inorganic silt.
980	15	S6	14 to 14	0/0	50/0"	Auger refusal at 14 ft below ground surface. Spoon hard bouncing on the possible boulder/weather rock.		S6: No penetration or recovery . The boring was terminated at 14 ft below ground surface and completed as a groundwater observation well.
975								

NOTES: 1. Groundwater was not encountered but was likely controlled by water level of East Branch Westfield River.
2. Monitoring well was installed at GEI-2 (MW) and the detailed installation log is saved in Appendix ???

PROJECT NAME: Dudley Manor Bridge BMP
CITY/STATE: Cummington, Massachusetts
GEI PROJECT NUMBER: 2407693

GEI Consultants

BORING NOTES:

1. LOCATION OF BORINGS SHOWN ON THE PLANS THUS: GEI-X
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOWN 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 2" O.D. SPLIT SPOON SAMPLER 6" WITH A 140 POUND WEIGHT FALLING 30".
5. BORINGS GEI-1 THROUGH GEI-3A WERE MADE IN OCTOBER 2024.
6. BORINGS WERE MADE BY SEABOARD DRILLING, INC, 154 HILDRETH STREET NORTH, BANGOR, ME 04401.
7. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	6	73
	PROJECT FILE NO. 612514		

BORING LOGS

BORING INFORMATION
LOCATION: See Plan
GROUND SURFACE EL. (ft): 991
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 17.0
LOGGED BY: L. Wang
DATE START/END: 10/11/2024 - 10/11/2024
DRILLING COMPANY: Seaboard Drilling, Inc.
DRILLER NAME: M. Nitsch
RIG TYPE: Mobile B-53

BORING
GEI-3
PAGE 1 of 1

DRILLING INFORMATION
HAMMER TYPE: Automatic
AUGER I.D./O.D.: 2.25 inch / 5 inch
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Not encountered
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE:
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Sample Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
990		S1	0 to 2	24/11	2-5-4-4			S1 (0-8"): Topsoil S1 (8-11"): Moist, loose, dark brown, FINE TO COARSE SAND, some fine gravel.
		S2	2 to 4	24/10	3-5-9-12			S2: Moist, medium dense, gray, FINE TO COARSE SAND, some inorganic silt.
	5	S3	4 to 6	24/14	7-16-30-22			S3 (0-7"): Similar to S2. S3 (7-14"): Dry, dense, grayish brown, FINE TO COARSE SAND, some fine to coarse gravel, some inorganic silt. <Grain Size Analysis performed>
985		S4	6 to 8	24/12	22-21-63-41			S4: Dry, very dense, grayish brown to brown, FINE TO COARSE SAND, some fine to medium gravel, trace rock fragments.
						Possible cobble/boulder presence from 7.5 to 9 ft based on noise and bouncing action of the drill rig.	SAND AND GRAVEL	
	10	S5	10 to 12	24/16	13-21-16-24			S5: Dry, dense, brownish gray, FINE TO MEDIUM GRAVEL, some fine to coarse sand, trace inorganic silt, rock fragment at tip of the spoon up to 1" in size.
980								
	15	S6	15 to 17	24/13	6-9-12-9			S6: Moist, medium dense, brownish gray to gray, FINE TO COARSE SAND, some fine to coarse gravel, some inorganic silt, wet at tip of the spoon.
975								The boring was terminated at 17 ft below ground surface and backfilled with cuttings.

NOTES: 1. Groundwater was not encountered but was likely controlled by water level of East Branch Westfield River, which was around El. 971 during subsurface exploration.

PROJECT NAME: Dudley Manor Bridge BMP
CITY/STATE: Cummington, Massachusetts
GEI PROJECT NUMBER: 2407693

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME 2407693- GINT LOGS.GPJ 11/8/24

BORING INFORMATION
LOCATION: See Plan
GROUND SURFACE EL. (ft): 991
VERTICAL DATUM: NAVD 88
TOTAL DEPTH (ft): 4.0
LOGGED BY: L. Wang
DATE START/END: 10/18/2024 - 10/18/2024
DRILLING COMPANY: GEI (Hand Auger)
DRILLER NAME: L. Wang
RIG TYPE: Hand Auger

BORING
GEI-3A
PAGE 1 of 1

DRILLING INFORMATION
HAMMER TYPE:
AUGER I.D./O.D.: NA / NA
DRILLING METHOD: N/A
WATER LEVEL DEPTHS (ft): Not Encountered
CASING I.D./O.D.: NA / NA
DRILL ROD O.D.: NM
CORE BARREL TYPE:
CORE BARREL I.D./O.D. NA / NA

ABBREVIATIONS:
Pen. = Penetration Length
Rec. = Recovery Length
RQD = Rock Quality Designation = Length of Sound Cores>4 in / Pen.,%
WOR = Weight of Rods
WOH = Weight of Hammer
S = Split Spoon Sample
C = Core Sample
U = Undisturbed Sample
SC = Sonic Core
DP = Direct Push Sample
HSA = Hollow-Stem Auger
Qp = Pocket Penetrometer Strength
Sv = Pocket Torvane Shear Strength
LL = Liquid Limit
PI = Plasticity Index
PID = Photoionization Detector
I.D./O.D. = Inside Diameter/Outside Diameter
NA, NM = Not Applicable, Not Measured
Blows per 6 in.: 140-lb hammer falling 30 inches to drive a 2-inch-O.D. split spoon sampler.

Elev. (ft)	Depth (ft)	Sample No.	Sample Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD	Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
990		S-1	0 to 4	48/48			SAND AND SILT	Moist, grayish brown, INORGANIC SILT AND FINE TO COARSE SAND
	5							The hand-auger hole was terminated at 4 ft below ground surface and backfilled with cuttings.
985								
	10							
980								
	15							
975								

NOTES:

PROJECT NAME: Dudley Manor Bridge BMP
CITY/STATE: Cummington, Massachusetts
GEI PROJECT NUMBER: 2407693

GEI Consultants

GEI WOBURN STD 1-LOCATION-LAYER NAME 2407693- GINT LOGS.GPJ 11/8/24

BORING NOTES:
1. FOR BORING NOTES, SEE SHEET 5.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	7	73
PROJECT FILE NO.	612514		

SURVEY CONTROL PLANS

612514_HDXX (SURVEY CONTROL).DWG Plotted on 30-Jun-2025 10:43 AM

N

WESTFIELD RIVER

LILAC AVENUE

TOWN SIDELINE

TOWN SIDELINE S19°30'06"E 161.23'

0 LILAC AVE
MAP 23D, LOT 23D-49-0
N/F
JACK E., JR. & SHANNON C. MORSE
BOOK 6869, PAGE 296

BENCHMARK: TBM 2
NAIL 0.5' UP IN UP#4/1J
EL=989.70'

2 LILAC AVE
MAP 23D, LOT 23D-51-0
N/F
MORSE, JR JACK E
BOOK 6869, PAGE 296

0 MAIN ST, OFF
MAP 23D, LOT 23D-28-0
N/F
TOWN OF CUMMINGTON

2
N: 2994242.958'
E: 282342.900'
EL: 993.938'
MON – GPS CONTROL POINT

136
N: 2994224.313'
E: 282426.069'
EL: 993.344'
MAG. NAIL SET

136
N: 2994212.418'
E: 282516.748'
EL: 993.490'
MAG. NAIL SET

123
N: 2994238.389'
E: 282554.403'
EL: 991.998'
SPIKE SET

N24°14'54"W 235.28'

200+00

N6°37'28"W 84.15'

N: 2994221.7870'
E: 282622.3290'
EL: 991.71'
CCB/LP

S82°35'28"E 344.59'

LOCATION LINE OF 1939 S.H.L.O. NO.3328

183.38'
N88°57'59"W

S25°40'28"E 48.17'

L4

201

N14°18'58"E 113.00'

T=60.23'
L=119.92'
R=520.00'
Δ=13°12'48"

LOCATION LINE OF 1939 S.H.L.O. NO.3328

N65°34'44"W 290.20'

S89°38'25"E 209.58'

PROP. CONSTRUCTION CENTERLINE

S49°28'54"E 46.55'

138.40'
N89°54'19"W

90.76'
N71°33'00"W

73.01'
N41°33'37"W

172.63'
N63°44'28"W

377+50

378

L1

379

380

101+50

381

382

201+50

PC +31.68

C1

383

401+50

N65°51'15"E 39.66'

BERKSHIRE TRAIL
(ROUTE 9 & 112)

N: 2994175.5900'
E: 282356.1060'
EL: 989.31'
CCB/FND

S66°55'36"E 65.13'

53.19'
N42°16'31"W

N78°03'47"E 51.42'

S63°12'13"E 74.83'

N73°08'43"E 41.35'

L6

PT +36.41

L3

PT +00.30

101

C2

64.76'
S15°09'42"W

S82°35'28"E 777.38'

LOCATION LINE OF 1939 S.H.L.O. NO.3328

CCB/FND

S30°55'06"E 98.25'

C3

PCM 88.70

199.05'
N57°20'56"W

SEE NOTE 1
BENCHMARK: BM11621
MAGS DISK
ON WING WALL
EL=994.90'

133
N: 2994173.063'
E: 282552.560'
EL: 993.346'
MAG. NAIL SET

N: 2994063.3307'
E: 282642.7790'
EL: 983.81'
SB

Δ=54°00'00"
R=56.71'
L=53.45'
T=28.90'

LINE OF DISCONTINUANCE
1940 S.H.L.O. NO. 3363

LOCATION LINE OF 1939 S.H.L.O. NO.3328

S87°15'24"E 10.81'

PC +54.03

N69°02'32"E 208.52'

100+00

L2

4 THAYER CORNER RD
MAP 23D, LOT 23D-40-0
N/F
NATE & EMILY L. LOUX
BOOK 12586, PAGE 135

TOWN SIDELINE
(DISCONTINUANCE 1940 S.H.L.O. NO. 3363)

THAYER CORNER ROAD

N69°02'32"E 345.40'

BENCHMARK: TBM 1
NAIL 1.5' UP IN UP#8/15
EL=991.86'

MOUGIN ROAD

0 BERKSHIRE TRAIL
MAP 23D, LOT 23D-32-0
N/F
COMMONWEALTH
OF MASSACHUSETTS

Δ=30°22'14"
R=270.10'
L=143.17'
T=73.31'

134
N: 2994187.189'
E: 282438.261'
EL: 993.360'
MAG. NAIL SET

132
N: 2994036.947'
E: 282489.923'
EL: 980.446'
SPIKE SET

1
N: 2994150.081'
E: 282669.632'
EL: 994.380'
PIN W/CAP
GPS STA1

2500
N: 2994125.099'
E: 282410.429'
EL: 990.382'
MAG. NAIL SET

0 THAYER CORNER RD
MAP 23D, LOT 23D-33-0
N/F
NATE & EMILY L. LOUX

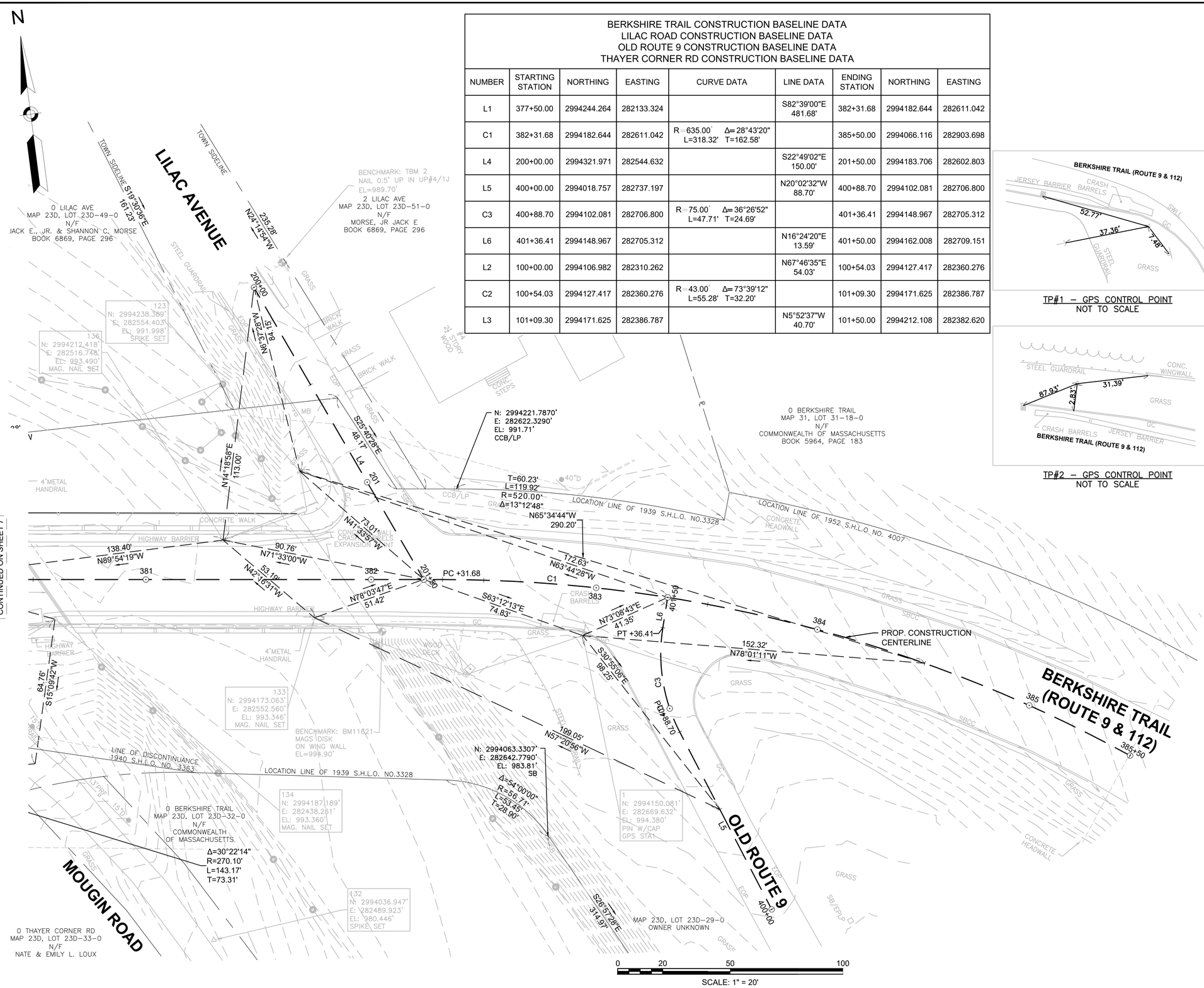
S26°57'28"E 314.97'

MAP 23D, LOT 23D-29-0
OWNER UNKNOWN

NOTE:
1. CONTRACTOR TO NOTIFY MASSDOT DISTRICT SURVEY ENGINEER AT LEAST 2 WEEKS PRIOR TO WORK ON WINGWALL
2. SEE LINE AND CURVE TABLE ON SHEET 8

0 20 50 100
SCALE: 1" = 20'

CONTINUED ON SHEET 8



BERKSHIRE TRAIL CONSTRUCTION BASELINE DATA
LILAC ROAD CONSTRUCTION BASELINE DATA
OLD ROUTE 9 CONSTRUCTION BASELINE DATA
THAYER CORNER RD CONSTRUCTION BASELINE DATA

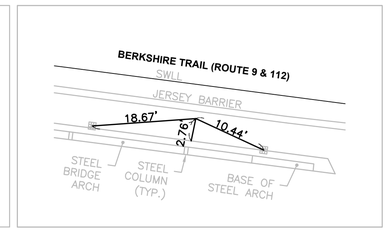
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	377+50.00	2994244.264	282133.324		S82°39'00"E 481.68'	382+31.68	2994182.644	282611.042
C1	382+31.68	2994182.644	282611.042	R=635.00' Δ=28°43'20" L=318.32' T=162.58'		385+50.00	2994066.116	282903.698
L4	200+00.00	2994321.971	282544.632		S22°49'02"E 150.00'	201+50.00	2994183.706	282602.803
L5	400+00.00	2994018.757	282737.197		N20°02'32"W 88.70'	400+88.70	2994102.081	282706.800
C3	400+88.70	2994102.081	282706.800	R=75.00' Δ=36°26'52" L=47.71' T=24.69'		401+36.41	2994148.967	282705.312
L6	401+36.41	2994148.967	282705.312		N16°24'20"E 13.59'	401+50.00	2994162.008	282709.151
L2	100+00.00	2994106.982	282310.262		N67°46'35"E 54.03'	100+54.03	2994127.417	282360.276
C2	100+54.03	2994127.417	282360.276	R=43.00' Δ=73°39'12" L=55.28' T=32.20'		101+09.30	2994171.625	282386.787
L3	101+09.30	2994171.625	282386.787		N5°52'37"W 40.70'	101+50.00	2994212.108	282382.620

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	8	73
PROJECT FILE NO.	612514		

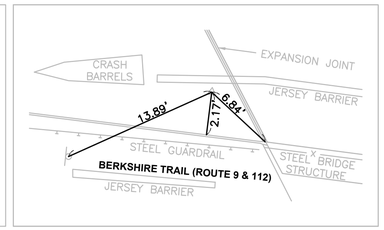
SURVEY CONTROL PLANS

TP#1 – GPS CONTROL POINT
NOT TO SCALE

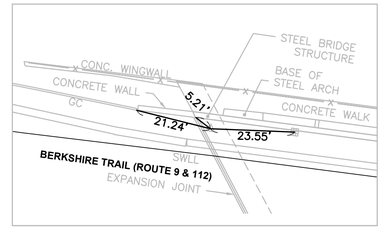


TP#133 – MAG. NAIL SET
NOT TO SCALE

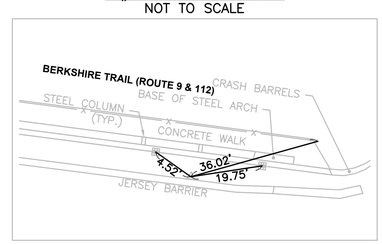
TP#2 – GPS CONTROL POINT
NOT TO SCALE



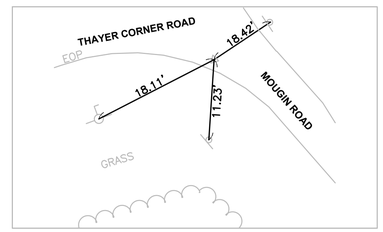
TP#134 – MAG. NAIL SET
NOT TO SCALE



TP#135 – MAG. NAIL SET
NOT TO SCALE



TP#136 – MAG. NAIL SET
NOT TO SCALE

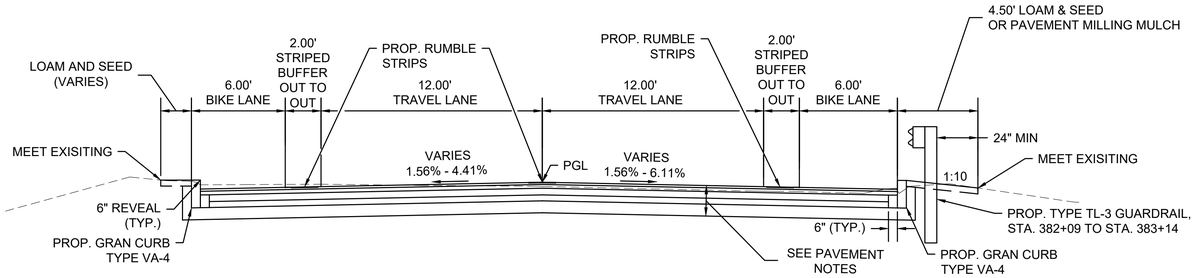


TP#2500 – MAG. NAIL SET
NOT TO SCALE

612514_HDXX (SURVEY CONTROL).DWG Plotted on 30-Jun-2025 10:43 AM

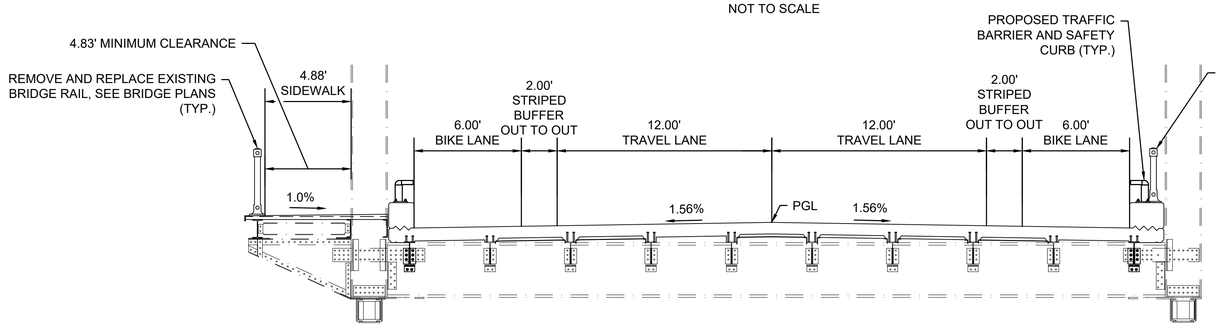
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	9	73
PROJECT FILE NO.	612514		

TYPICAL SECTIONS



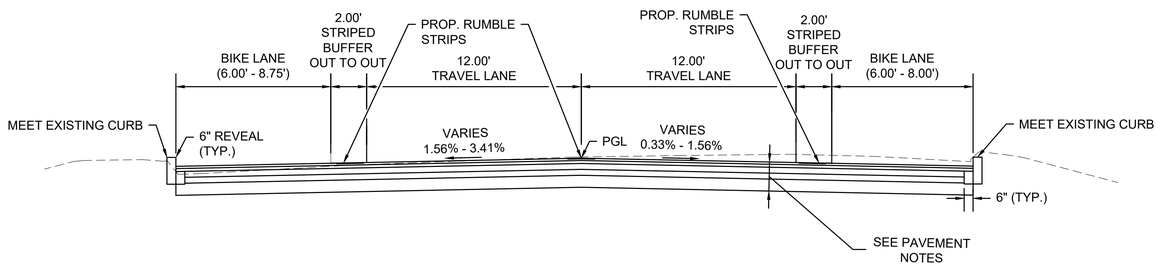
BERKSHIRE TRAIL TYPICAL SECTION - STA. 381+84 TO 384+50

NOT TO SCALE



BERKSHIRE TRAIL TYPICAL SECTION - STA. 380+56 TO 381+84

NOT TO SCALE



BERKSHIRE TRAIL TYPICAL SECTION - STA. 378+00 TO 379+59

NOT TO SCALE

PAVEMENT NOTES

GENERAL PAVEMENT NOTES:

1. ALL HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT AND HMA JOINT ADHESIVE SHALL BE IN ACCORDANCE WITH SECTION 450. ALL PERMANENT PAVEMENT REPAIRS TO THE MILLED SURFACE SHALL BE MADE PRIOR TO RESURFACING. ASPHALT EMULSION SHALL BE APPLIED OVER SMOOTH PAVEMENTS AND OVER MILLED SURFACES PRIOR TO PAVING. ALL JOINTS IN THE SURFACE COURSE SHALL BE SEALED WITH HMA JOINT ADHESIVE.

PROPOSED FULL DEPTH CONSTRUCTION WITH RECLAIMED BASE

1 1/2"	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P) OVER
2"	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER
4"	SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
VARIES (8" MIN.)	RECLAIMED PAVEMENT SUPPLEMENTED WITH GRAVEL BORROW (TYPE B) AS REQUIRED

PROPOSED FINE MILLING AND OVERLAY

1 1/2"	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P) OVER
1 1/2"	PAVEMENT FINE MILLING

PROPOSED CEMENT CONC. SIDEWALKS AND PEDESTRIAN CURB RAMPS

4"	(4000 PSI, $\frac{3}{4}$", 610) CEMENT CONC. POURED IN ONE COURSE
8"	GRAVEL BORROW (TYPE B)

PROPOSED HMA FOR PATCHING PERMANENT TRENCH PAVEMENT

(PRIOR TO FINE MILLING OPERATIONS)

NOTE: THE 1 1/2" SURFACE COURSE SHALL BE TEMPORARY UNTIL FINE MILLING OPERATIONS ARE PERFORMED.

1 1/2"	TEMPORARY HMA (PAID UNDER ITEM 451.) OVER
2"	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER
4 1/2"	SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
	TRENCH BACKFILL AS REQUIRED (SEE PLAN DETAILS AND CONTRACT SPECIAL PROVISIONS)
VARIES	GRAVEL BORROW (TYPE B) TO SUPPLEMENT SUITABLE BACKFILL
	(REFER TO UTILITY TRENCH DETAILS)

PROPOSED HMA DRIVEWAYS

1 1/2"	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC-B-9.5-P) OVER
2 1/2"	SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER
8"	GRAVEL BORROW (TYPE B)

PROPOSED BRIDGE SURFACING

NOTE: THE PROPOSED DECK DOES NOT HAVE AN ASPHALT OVERLAY AND THEREFORE THE TOP DECK SURFACE SHALL RECEIVE A SURFACE TEXTURING IN ACCORDANCE WITH SECTION 901.66, PART H OF THE STANDARD SPECIFICATIONS

8 3/4"	5000 PSI HP CEMENT CONCRETE

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	10	73
	PROJECT FILE NO. 612514		

CONSTRUCTION PLANS

HIGHWAY GUARD DETAILS

LEFT SIDE:
- BERKSHIRE TRAIL STA. 379+31 TO STA. 379+51 NCHRP 350 TO GUARDRAIL
- BERKSHIRE TRAIL STA. 379+51 TO STA. 379+85 TRANSITION TO BRIDGE RAIL

RIGHT SIDE:
- THAYER CORNER ROAD STA. 100+87 TO STA. 101+17 GUARDRAIL TANGENT END TREATMENT, NCHRP 350 TO GUARDRAIL
- BERKSHIRE TRAIL STA. 380+29 TO STA. 380+63 TRANSITION TO BRIDGE RAIL
- BERKSHIRE TRAIL STA. 382+06 TO STA. 382+40 TRANSITION FROM BRIDGE RAIL
- BERKSHIRE TRAIL STA. 382+40 TO OLD ROUTE 9 STA. 400+03 GUARDRAIL
- OLD ROUTE 9 STA. 400+03 TO STA. 400+12 TRAILING ANCHORAGE
- LILAC AVENUE STA. 200+00 TO STA. 200+28 GUARDRAIL TANGENT END TREATMENT TO GUARDRAIL
- LILAC AVENUE STA. 200+28 TO STA. 200+65 (DEEP POST) TO GUARDRAIL
- LILAC AVENUE STA. 200+65 TO STA. 200+99 TRANSITION TO BRIDGE RAIL

TRAFFIC SIGNAL CONDUIT

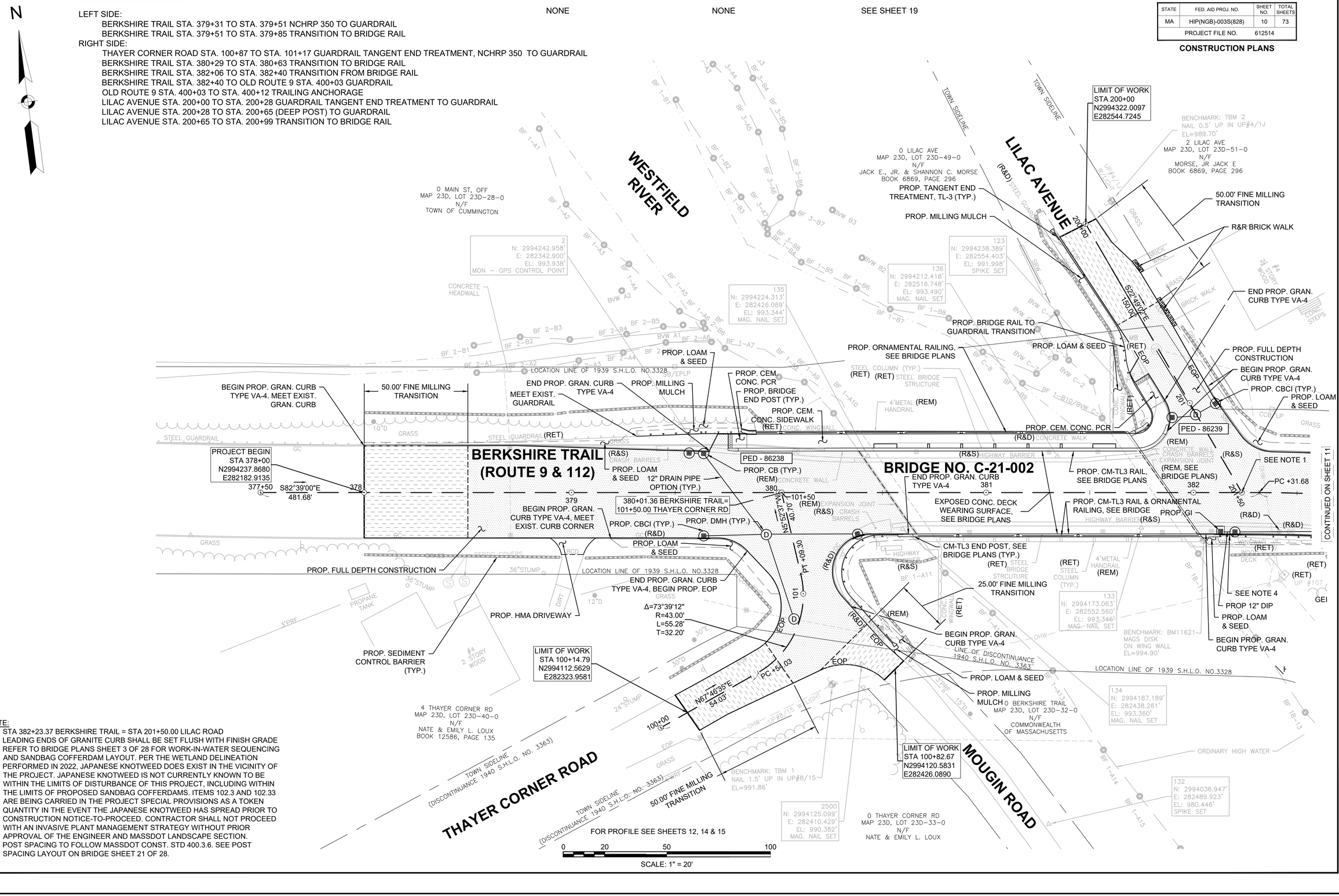
NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE SHEET 19



NOTE:
1. STA 382+23.37 BERKSHIRE TRAIL = STA 201+50.00 LILAC ROAD
2. LEADING ENDS OF GRANITE CURB SHALL BE SET FLUSH WITH FINISH GRADE
3. REFER TO BRIDGE PLANS SHEET 3 OF 28 FOR WORK-IN-WATER SEQUENCING AND SANDBAG COFFERDAM LAYOUT. PER THE WETLAND DELINEATION PERFORMED IN 2022, JAPANESE KNOTWEED DOES EXIST IN THE VICINITY OF THE PROJECT. JAPANESE KNOTWEED IS NOT CURRENTLY KNOWN TO BE WITHIN THE LIMITS OF DISTURBANCE OF THIS PROJECT, INCLUDING WITHIN THE LIMITS OF PROPOSED SANDBAG COFFERDAMS. ITEMS 102.3 AND 102.33 ARE BEING CARRIED IN THE PROJECT SPECIAL PROVISIONS AS A TOKEN QUANTITY IN THE EVENT THE JAPANESE KNOTWEED HAS SPREAD PRIOR TO CONSTRUCTION NOTICE-TO-PROCEED. CONTRACTOR SHALL NOT PROCEED WITH AN INVASIVE PLANT MANAGEMENT STRATEGY WITHOUT PRIOR APPROVAL OF THE ENGINEER AND MASSDOT LANDSCAPE SECTION.
4. POST SPACING TO FOLLOW MASSDOT CONST. STD 400.3.6. SEE POST SPACING LAYOUT ON BRIDGE SHEET 21 OF 28.

HIGHWAY GUARD DETAILS

SEE SHEET 10 FOR DETAILS

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

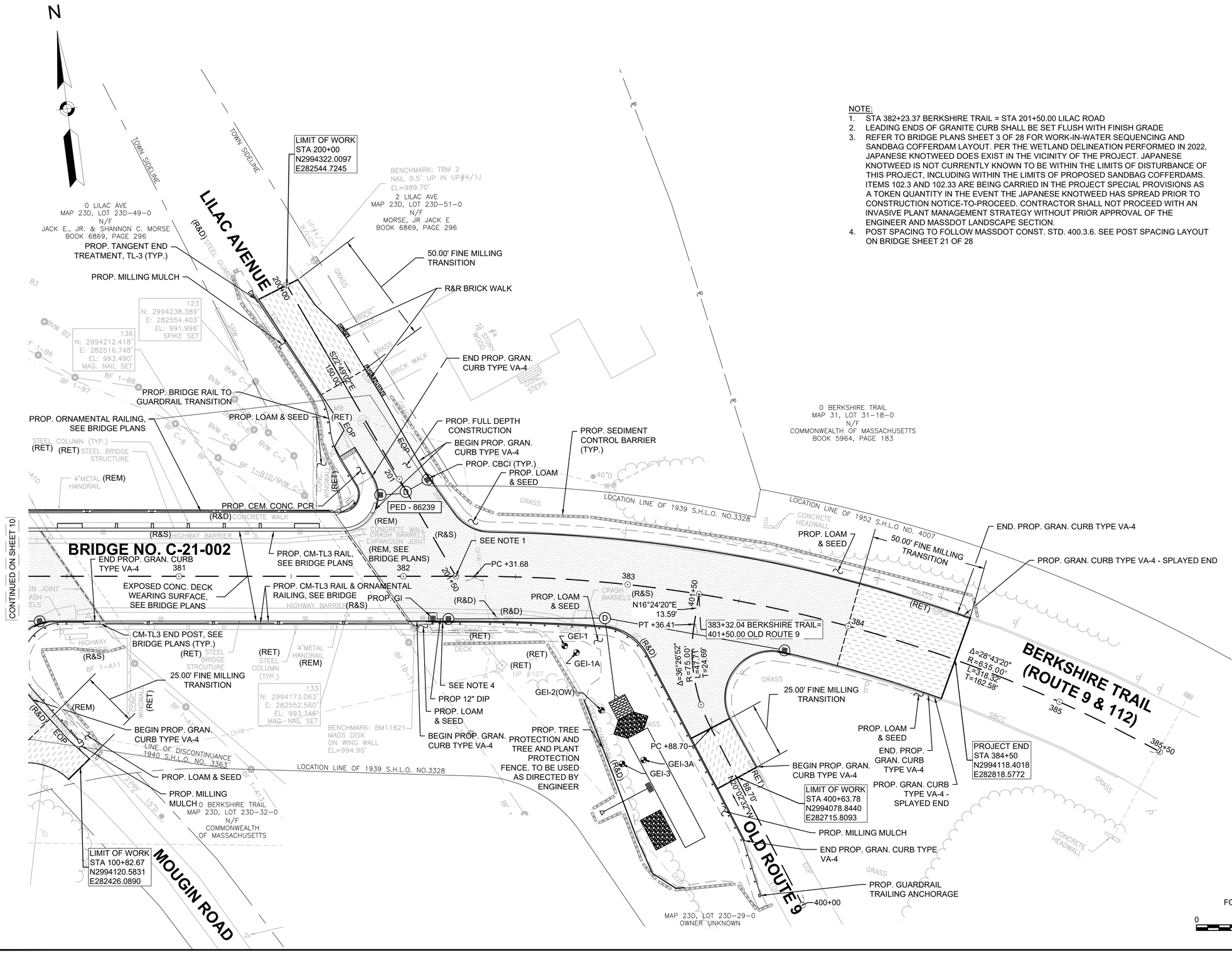
SEE SHEETS 20-21

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	11	73
	PROJECT FILE NO. 612514		

CONSTRUCTION PLANS

NOTE:
1. STA 382+23.37 BERKSHIRE TRAIL = STA 201+50.00 LILAC ROAD
2. LEADING ENDS OF GRANITE CURB SHALL BE SET FLUSH WITH FINISH GRADE
3. REFER TO BRIDGE PLANS SHEET 3 OF 28 FOR WORK-IN-WATER SEQUENCING AND SANDBAG COFFERDAM LAYOUT. PER THE WETLAND DELINEATION PERFORMED IN 2022, JAPANESE KNOTWEED DOES EXIST IN THE VICINITY OF THE PROJECT. JAPANESE KNOTWEED IS NOT CURRENTLY KNOWN TO BE WITHIN THE LIMITS OF DISTURBANCE OF THIS PROJECT, INCLUDING WITHIN THE LIMITS OF PROPOSED SANDBAG COFFERDAMS. ITEMS 102.3 AND 102.33 ARE BEING CARRIED IN THE PROJECT SPECIAL PROVISIONS AS A TOKEN QUANTITY IN THE EVENT THE JAPANESE KNOTWEED HAS SPREAD PRIOR TO CONSTRUCTION NOTICE-TO-PROCEED. CONTRACTOR SHALL NOT PROCEED WITH AN INVASIVE PLANT MANAGEMENT STRATEGY WITHOUT PRIOR APPROVAL OF THE ENGINEER AND MASSDOT LANDSCAPE SECTION.
4. POST SPACING TO FOLLOW MASSDOT CONST. STD. 400.3.6. SEE POST SPACING LAYOUT ON BRIDGE SHEET 21 OF 28

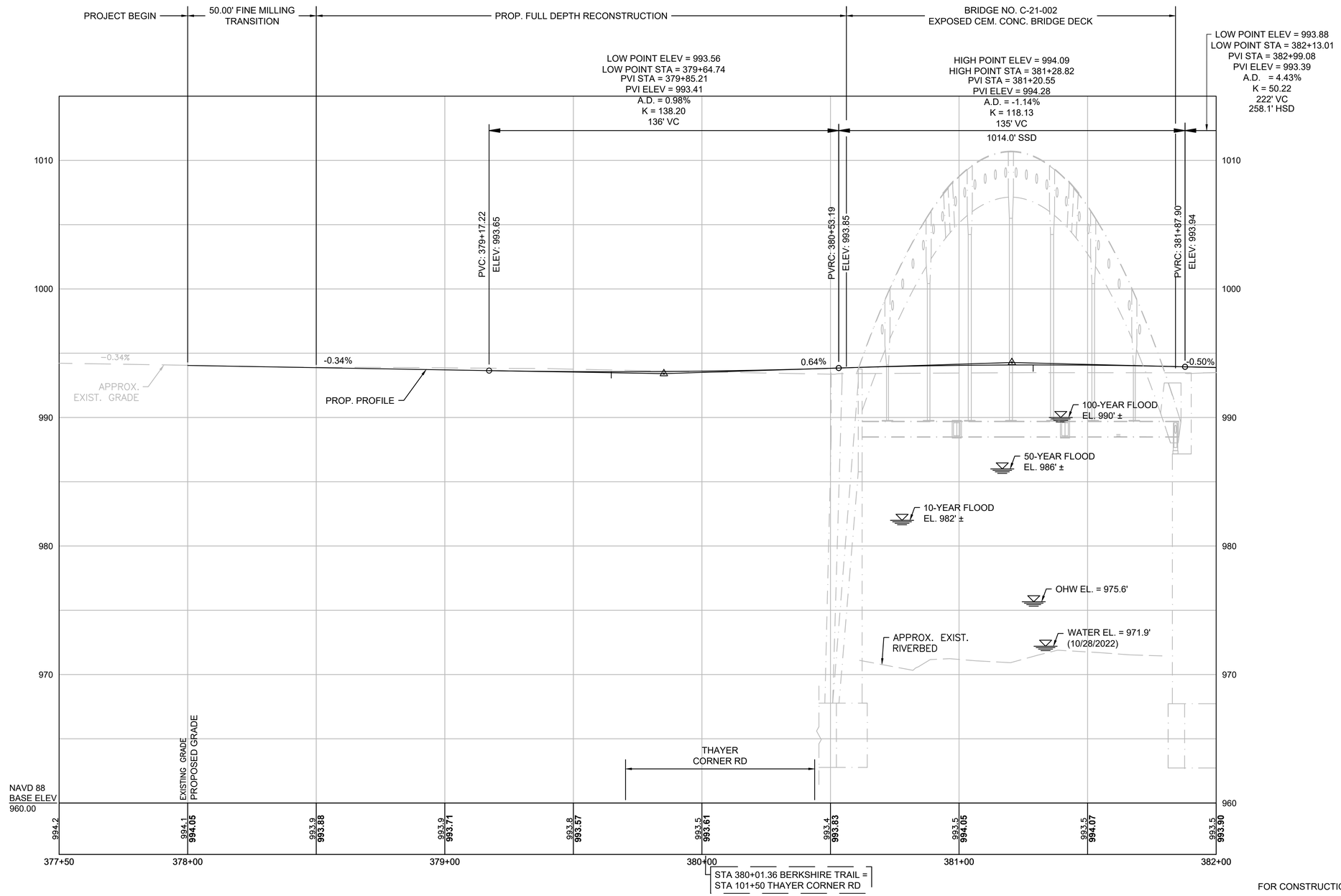


CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	12	73
PROJECT FILE NO.	612514		

PROFILES

BERKSHIRE TRAIL



FOR CONSTRUCTION PLANS SEE SHEET NO. 10

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

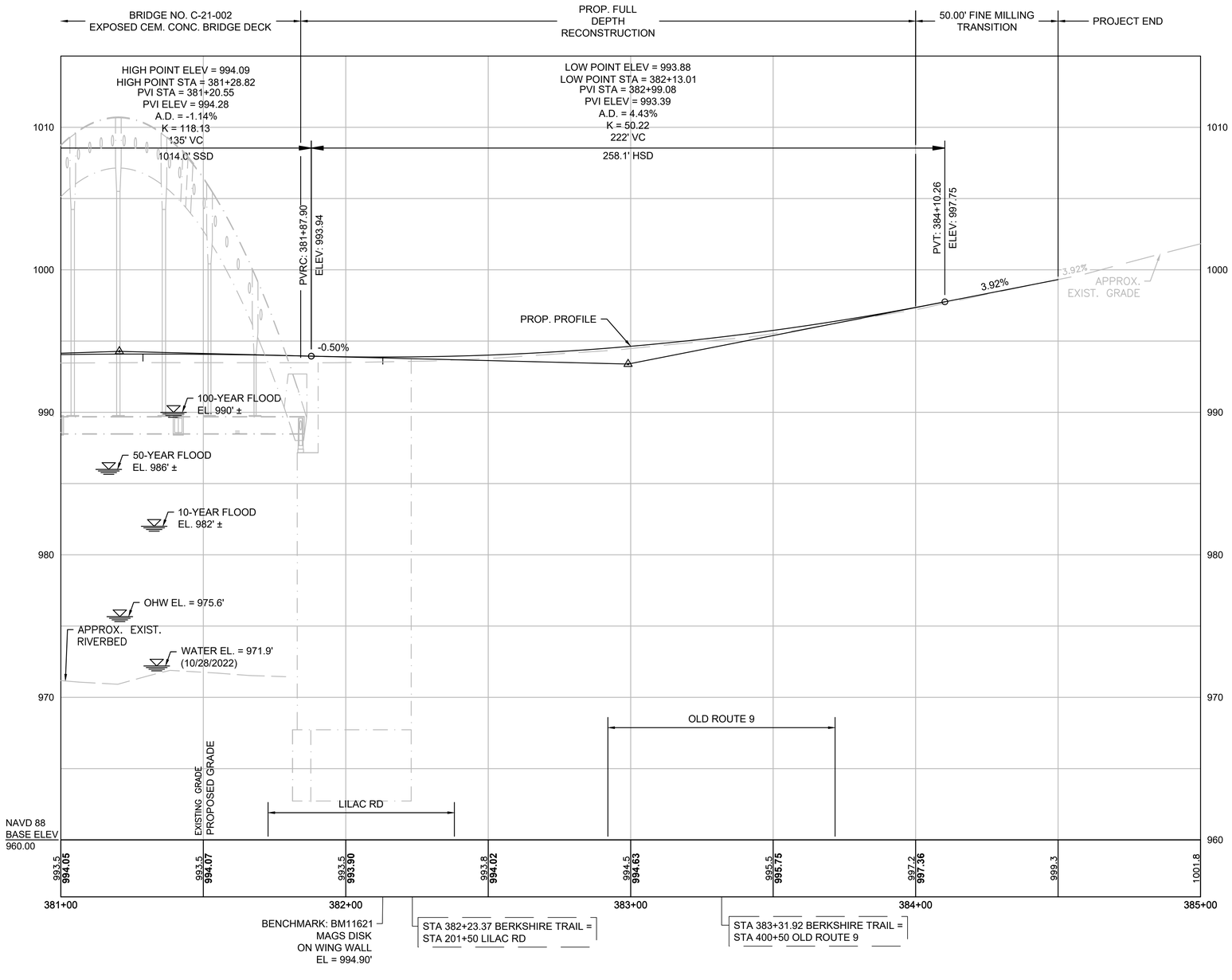
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	13	73
PROJECT FILE NO.	612514		

PROFILES

612514_HDXX (PROFILES).DWG Plotted on 30-Jun-2025 10:45 AM

BERKSHIRE TRAIL



FOR CONSTRUCTION PLANS SEE SHEET NO. 11

HOR. SCALE IN FEET
20 0 20 40

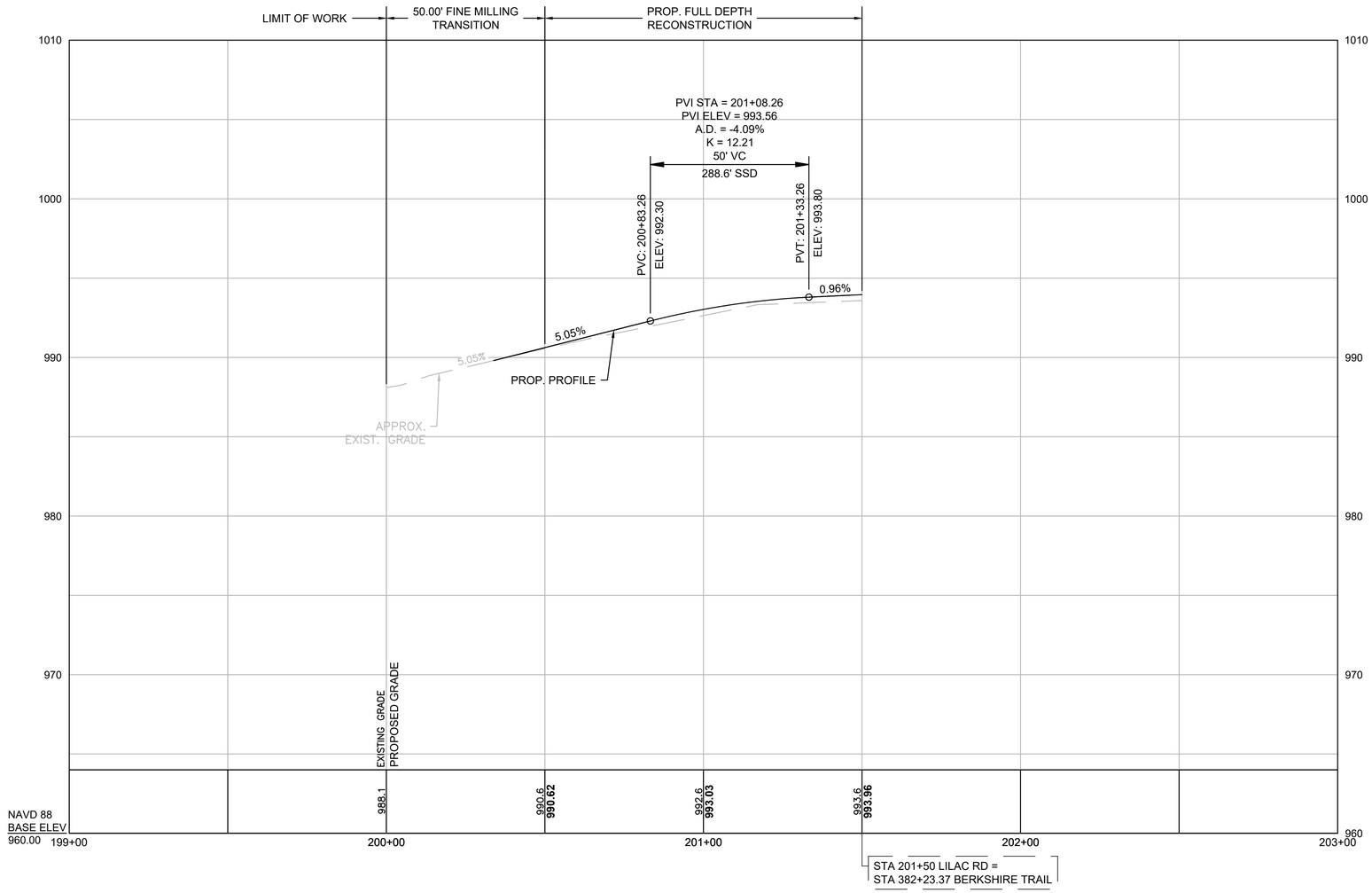
VER. SCALE IN FEET
4 0 4 8

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	14	73
PROJECT FILE NO.	612514		

PROFILES

LILAC ROAD



FOR CONSTRUCTION PLANS SEE SHEET NO. 10

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

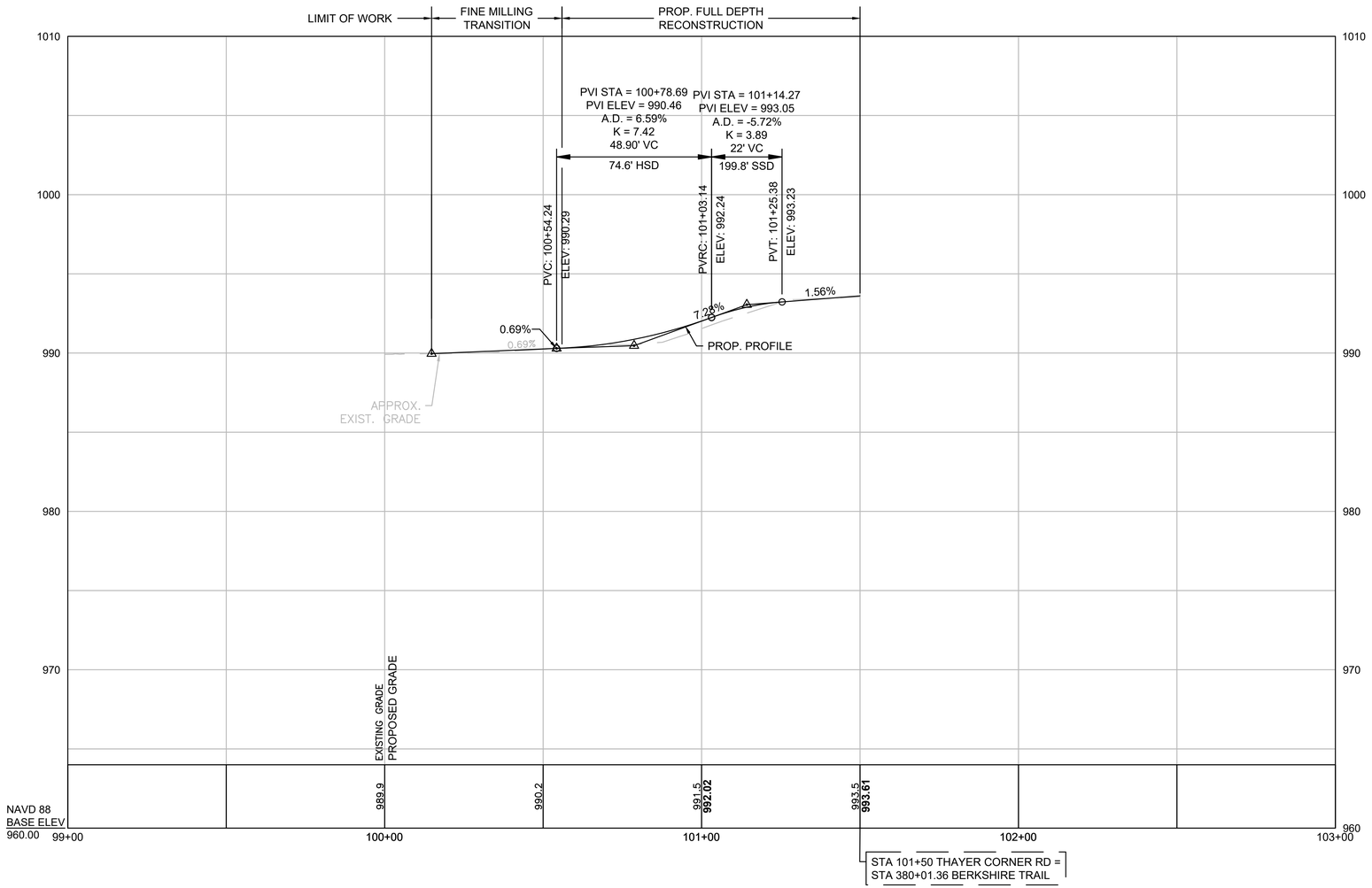
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	15	73
PROJECT FILE NO.	612514		

PROFILES

612514_HDXX (PROFILES).DWG Plotted on 30-Jun-2025 10:45 AM

THAYER CORNER ROAD



FOR CONSTRUCTION PLANS SEE SHEET NO. 10

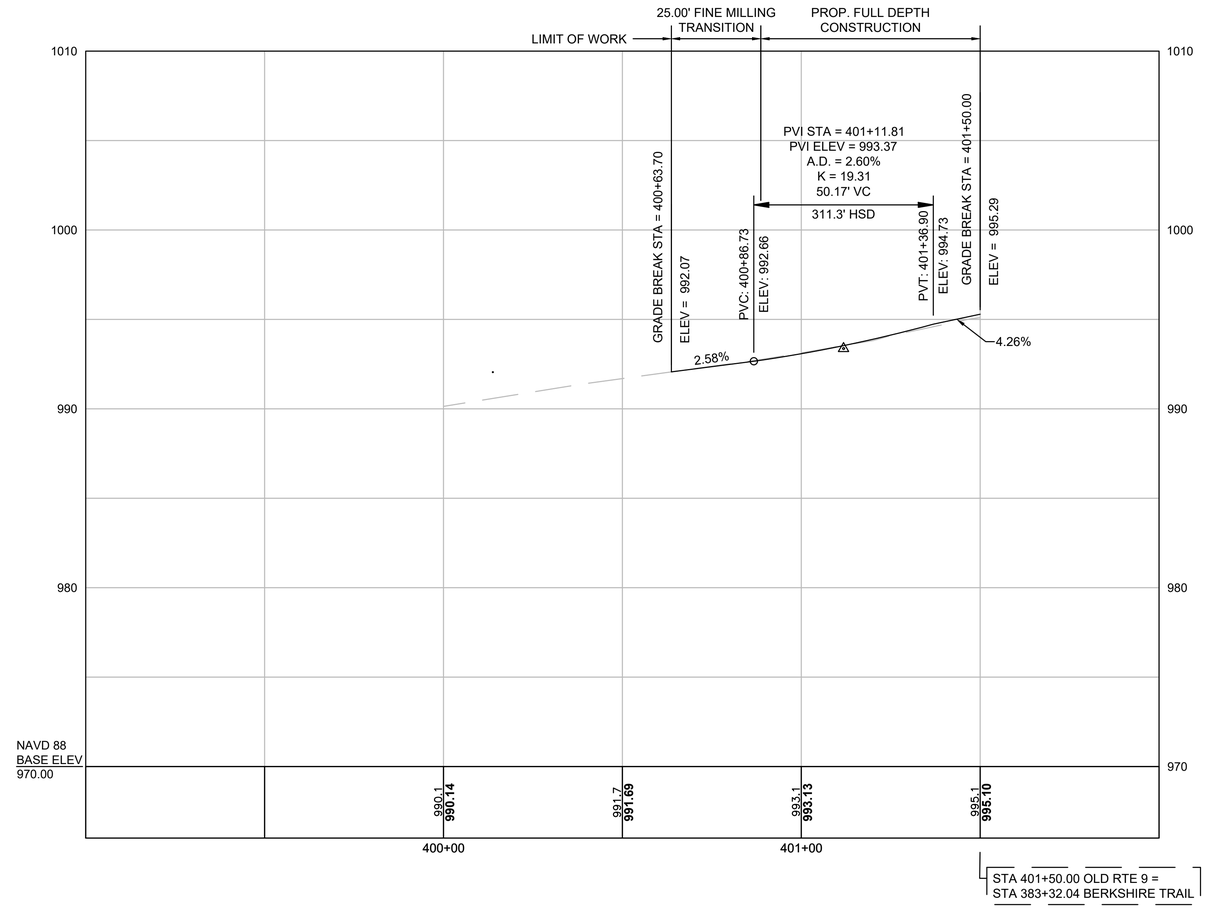
HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	16	73
PROJECT FILE NO.	612514		

PROFILES

OLD ROUTE 9



FOR CONSTRUCTION PLANS SEE SHEET NO. 11

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

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	17	73
	PROJECT FILE NO.	612514	

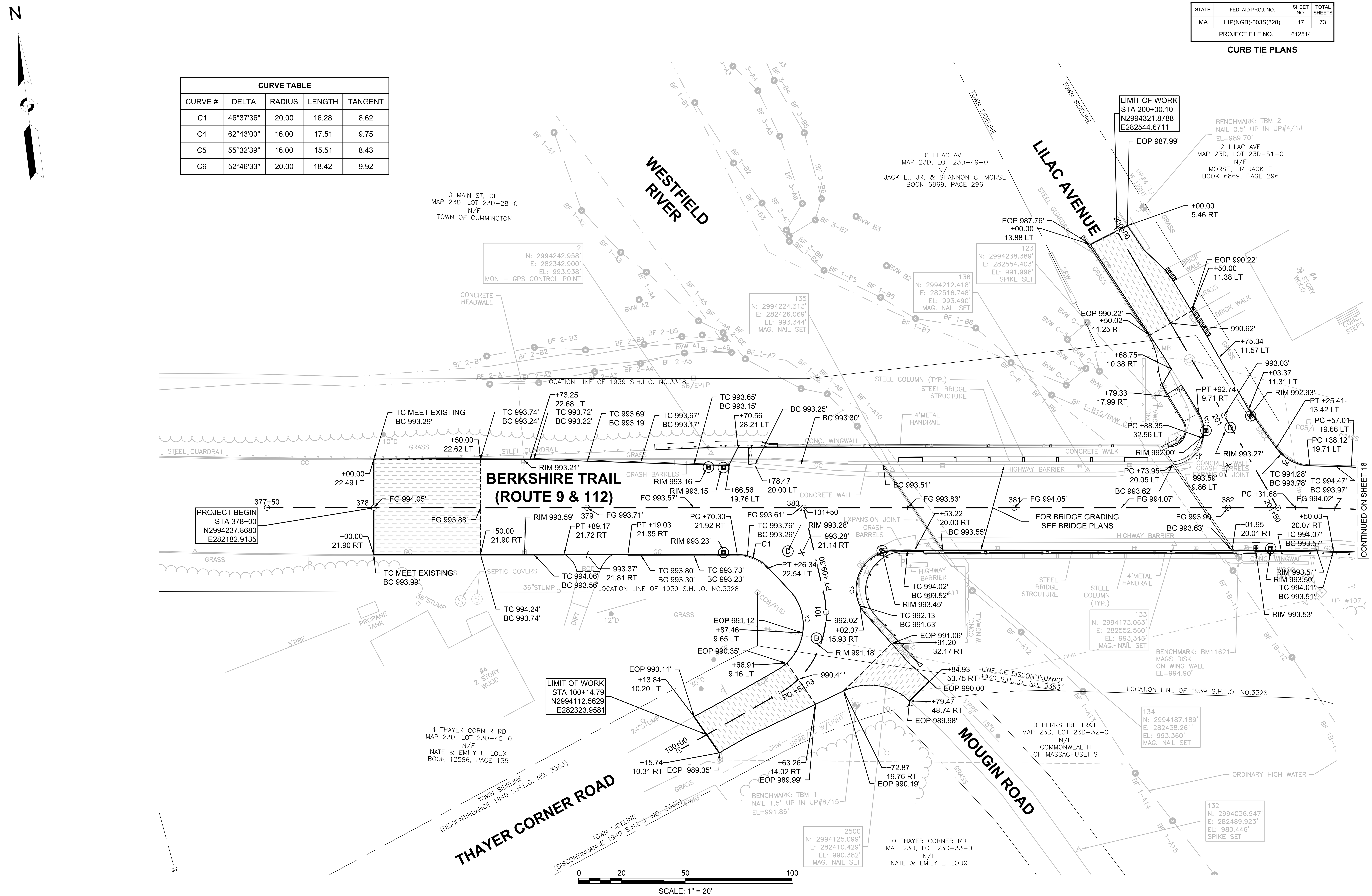
CURB TIE PLANS

Plotted on 30-Jun-2025 10:46 AM

612514_HDXX (CURB TIE).DWG

CURVE TABLE

CURVE #	DELTA	RADIUS	LENGTH	TANGENT
C1	46°37'36"	20.00	16.28	8.62
C4	62°43'00"	16.00	17.51	9.75
C5	55°32'39"	16.00	15.51	8.43
C6	52°46'33"	20.00	18.42	9.92



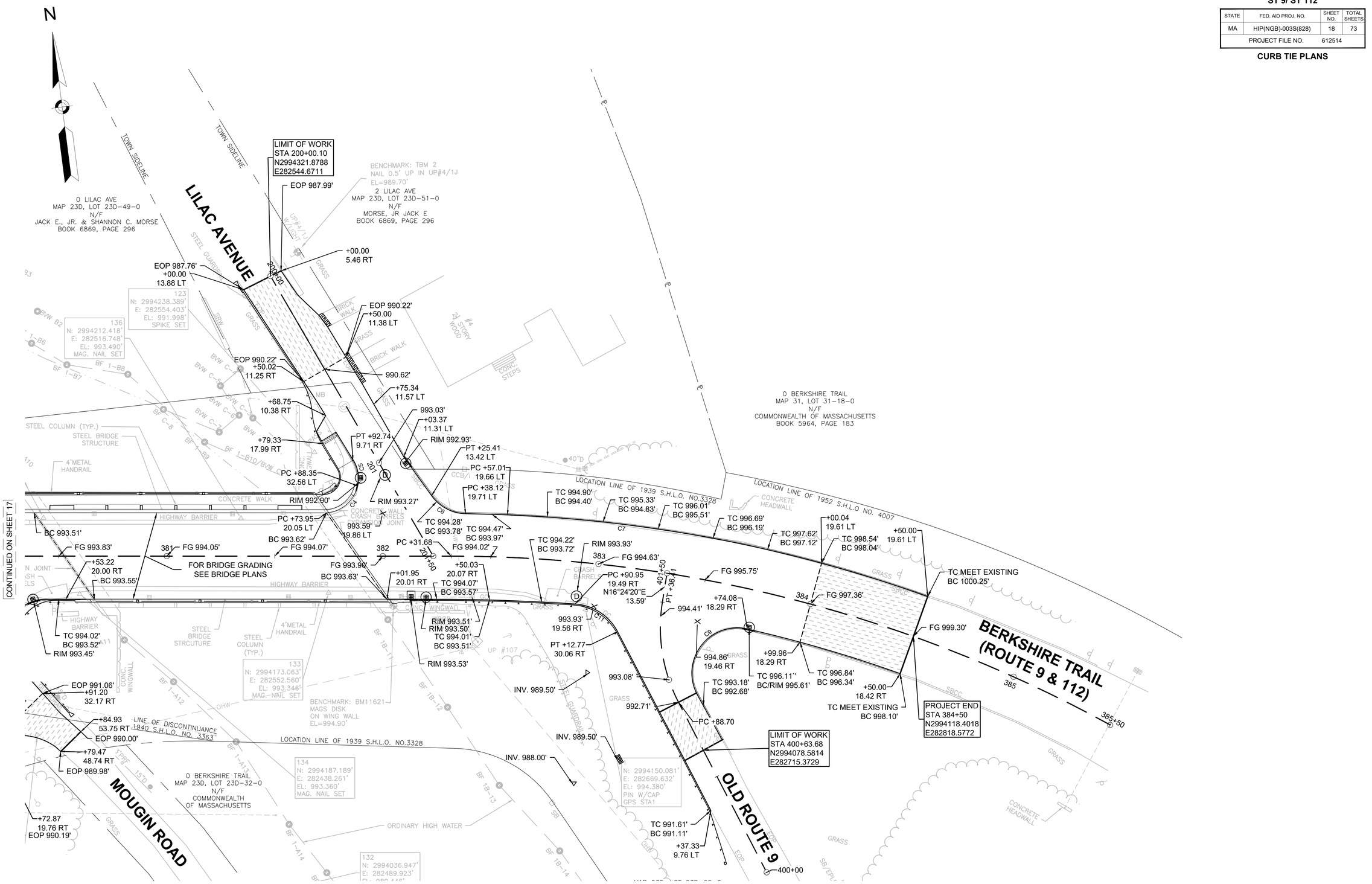
NOTE:
1. SEE SHEET 17 FOR CURVE TABLE

CUMMINGTON
ST 9/ ST 112

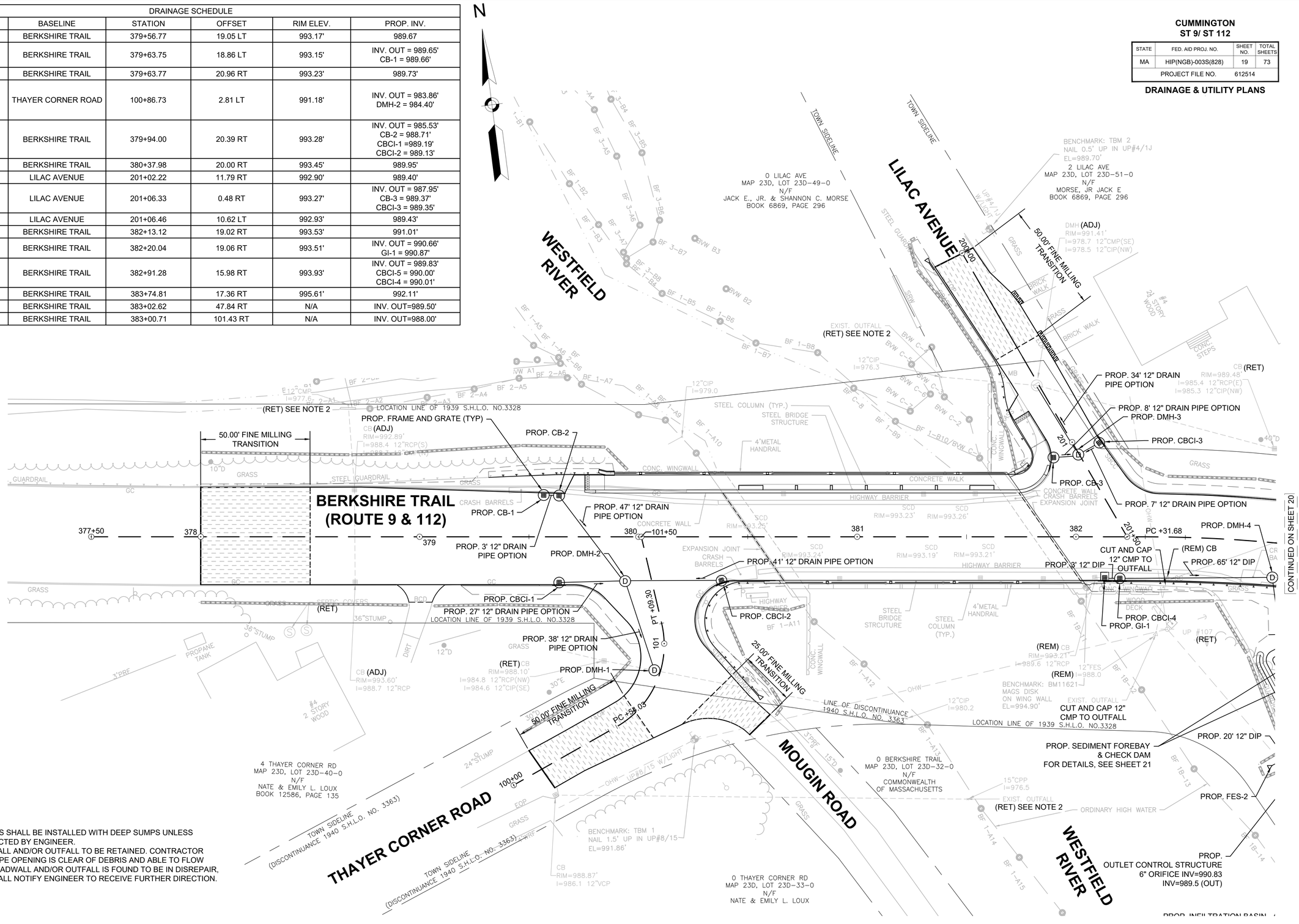
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	18	73
PROJECT FILE NO.	612514		

CURB TIE PLANS

612514_HDXX (CURB TIE).DWG Plotted on 30-Jun-2025 10:46 AM



DRAINAGE SCHEDULE					
STRUCTURE	BASELINE	STATION	OFFSET	RIM ELEV.	PROP. INV.
CB-1	BERKSHIRE TRAIL	379+56.77	19.05 LT	993.17'	989.67
CB-2	BERKSHIRE TRAIL	379+63.75	18.86 LT	993.15'	INV. OUT = 989.65' CB-1 = 989.66'
CBCI-1	BERKSHIRE TRAIL	379+63.77	20.96 RT	993.23'	989.73'
DMH-1	THAYER CORNER ROAD	100+86.73	2.81 LT	991.18'	INV. OUT = 983.86' DMH-2 = 984.40'
DMH-2	BERKSHIRE TRAIL	379+94.00	20.39 RT	993.28'	INV. OUT = 985.53' CB-2 = 988.71' CBCI-1 =989.19' CBCI-2 = 989.13'
CBCI-2	BERKSHIRE TRAIL	380+37.98	20.00 RT	993.45'	989.95'
CB-3	LILAC AVENUE	201+02.22	11.79 RT	992.90'	989.40'
DMH-3	LILAC AVENUE	201+06.33	0.48 RT	993.27'	INV. OUT = 987.95' CB-3 = 989.37' CBCI-3 = 989.35'
CBCI-3	LILAC AVENUE	201+06.46	10.62 LT	992.93'	989.43'
GI-1	BERKSHIRE TRAIL	382+13.12	19.02 RT	993.53'	991.01'
CBCI-4	BERKSHIRE TRAIL	382+20.04	19.06 RT	993.51'	INV. OUT = 990.66' GI-1 = 990.87'
DMH-4	BERKSHIRE TRAIL	382+91.28	15.98 RT	993.93'	INV. OUT = 989.83' CBCI-5 = 990.00' CBCI-4 = 990.01'
CBCI-5	BERKSHIRE TRAIL	383+74.81	17.36 RT	995.61'	992.11'
FES-1	BERKSHIRE TRAIL	383+02.62	47.84 RT	N/A	INV. OUT=989.50'
FES-2	BERKSHIRE TRAIL	383+00.71	101.43 RT	N/A	INV. OUT=988.00'



NOTE:
1. ALL CATCH BASINS SHALL BE INSTALLED WITH DEEP SUMPS UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. EXISTING HEADWALL AND/OR OUTFALL TO BE RETAINED. CONTRACTOR SHALL ENSURE PIPE OPENING IS CLEAR OF DEBRIS AND ABLE TO FLOW NATURALLY. IF HEADWALL AND/OR OUTFALL IS FOUND TO BE IN DISREPAIR, CONTRACTOR SHALL NOTIFY ENGINEER TO RECEIVE FURTHER DIRECTION.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	19	73
	PROJECT FILE NO. 612514		

DRAINAGE & UTILITY PLANS

6125214_HDXX (DRAINAGE & UTILITY PLANS).DWG Plotted on 30-Jun-2025 10:46 AM

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	20	73
PROJECT FILE NO.	612514		

DRAINAGE & UTILITY PLANS

6125214_HDXX (DRAINAGE & UTILITY PLANS).DWG Plotted on 30-Jun-2025 10:46 AM

N

TOWN SIDELINE

TOWN SIDELINE

0 LILAC AVE
MAP 23D, LOT 23D-49-0
N/F
JACK E., JR. & SHANNON C. MORSE
BOOK 6869, PAGE 296

LILAC AVENUE

BENCHMARK: TBM 2
NAIL 0.5' UP IN UP#4/1J
EL=989.70'

2 LILAC AVE
MAP 23D, LOT 23D-51-0
N/F
MORSE, JR JACK E
BOOK 6869, PAGE 296

UP#4/1J W/LIGHT

DMH (ADJ)
RIM=991.41'
I=978.7 12"CMP(SE)
I=978.5 12"CIP(NW)

200+00

50.00' FINE MILLING TRANSITION

STEEL GUARDRAIL

GRASS

BRICK WALK

GRASS

BRICK WALK

24' STORY WOOD #4

CONC. STEPS

CB (RET)
RIM=989.41'
I=987.2 4"PVC(NE)
I=987.0 4"PVC(NE)
I=985.4 12"RCP(W)

0 BERKSHIRE TRAIL
MAP 31, LOT 31-18-0
N/F
COMMONWEALTH OF MASSACHUSETTS
BOOK 5964, PAGE 183

BVW B3

BVW B2

BF 1-B5 BF 1-B6 BF 1-B7 BF 1-B8

EXIST. OUTFALL
(RET) SEE NOTE 2

BVW C-4 BVW C-5 BVW C-6 BVW C-7 BVW C-8 BVW C-9 BVW C-2

12"CIP
I=976.3

12"CIP
I=979.0

STEEL COLUMN (TYP.)

STEEL BRIDGE STRUCTURE

BF 1-A10

BF 1-B9 BF 1-B10/BVW C-3

4'METAL HANDRAIL

CONC. WINGWALL

MB

PROP. 34' 12" DRAIN PIPE OPTION

PROP. 8' 12" DRAIN PIPE OPTION

PROP. DMH-3

CB (RET)
RIM=989.48'
I=985.4 12"RCP(E)
I=985.3 12"CIP(NW)

201

PROP. CBCI-3

40'D

GRASS

LOCATION LINE OF 1939 S.H.L.O. NO.3328

LOCATION LINE OF 1952 S.H.L.O NO. 4007

CONCRETE HEADWALL

CONCRETE WALK

HIGHWAY BARRIER

CONCRETE WALK
CRASH BARRELS
EXPANSION JOINT

PROP. CB-3

PROP. 7' 12" DRAIN PIPE OPTION

SCD
RIM=993.23'

SCD
RIM=993.26'

381

382

201+50

PC +31.68

PROP. DMH-4

383

401+50

CB
RIM=993.30'
I=988.9 12"RCP(W)
I=988.4 12"CMP(SW)

CRASH BARRELS

EXPANSION JOINT
CRASH BARRELS

SCD
RIM=993.25'

SCD
RIM=993.19'

SCD
RIM=993.21'

HIGHWAY BARRIER

PROP. 41' 12" DRAIN PIPE OPTION

PROP. 3' 12" DIP

CUT AND CAP 12" CMP TO OUTFALL

(REM) CB

PROP. 65' 12" DIP

PT +36.41

PROP. 77' 12" DRAIN PIPE OPTION

384

PROP. CBCI-5

GRASS

SBGC

CONTINUED ON SHEET 19

HIGHWAY BARRIER

PROP. CBCI-2

BF 1-A11

STEEL BRIDGE STRCUTURE

STEEL COLUMN (TYP.)

4'METAL HANDRAIL

CONC. WINGWALL

WOOD DECK

PROP. CBCI-4

PROP. GI-1

BF 1B-11

PROP. 33' 12" DIP

PROP. FES-1

UP #107
(RET)

GRASS

PC +88.70

401

25.00' FINE MILLING TRANSITION

50.00' FINE MILLING TRANSITION

385

BERKSHIRE TRAIL
(ROUTE 9 & 112)

385+50

25.00' FINE MILLING TRANSITION

(REM) CB
RIM=993.21'
I=989.6 12"RCP

12"FES
I=988.0

BENCHMARK: BM11621
MAGS DISK
ON WING WALL
EL=994.90'

EXIST. OUTFALL
CUT AND CAP 12" CMP TO OUTFALL

12"CIP
I=980.2

LINE OF DISCONTINUANCE
1940 S.H.L.O. NO. 3363

LOCATION LINE OF 1939 S.H.L.O. NO.3328

PROP. 20' 12" DIP

PROP. SEDIMENT FOREBAY & CHECK DAM
FOR DETAILS, SEE SHEET 21

MOUGIN ROAD

0 BERKSHIRE TRAIL
MAP 23D, LOT 23D-32-0
N/F
COMMONWEALTH OF MASSACHUSETTS

3"PRF 15"D

15"CPP
I=976.5

EXIST. OUTFALL
(RET) SEE NOTE 2

ORDINARY HIGH WATER

PROP. FES-2

WESTFIELD RIVER

PROP.
OUTLET CONTROL STRUCTURE
6" ORIFICE INV=990.83
INV=989.5 (OUT)

PROP. INFILTRATION BASIN
& AUXILARY SPILLWAY
FOR DETAILS, SEE SHEET 21

OLD ROUTE 9

400+00

MAP 23D, LOT 23D-29-0
OWNER UNKNOWN

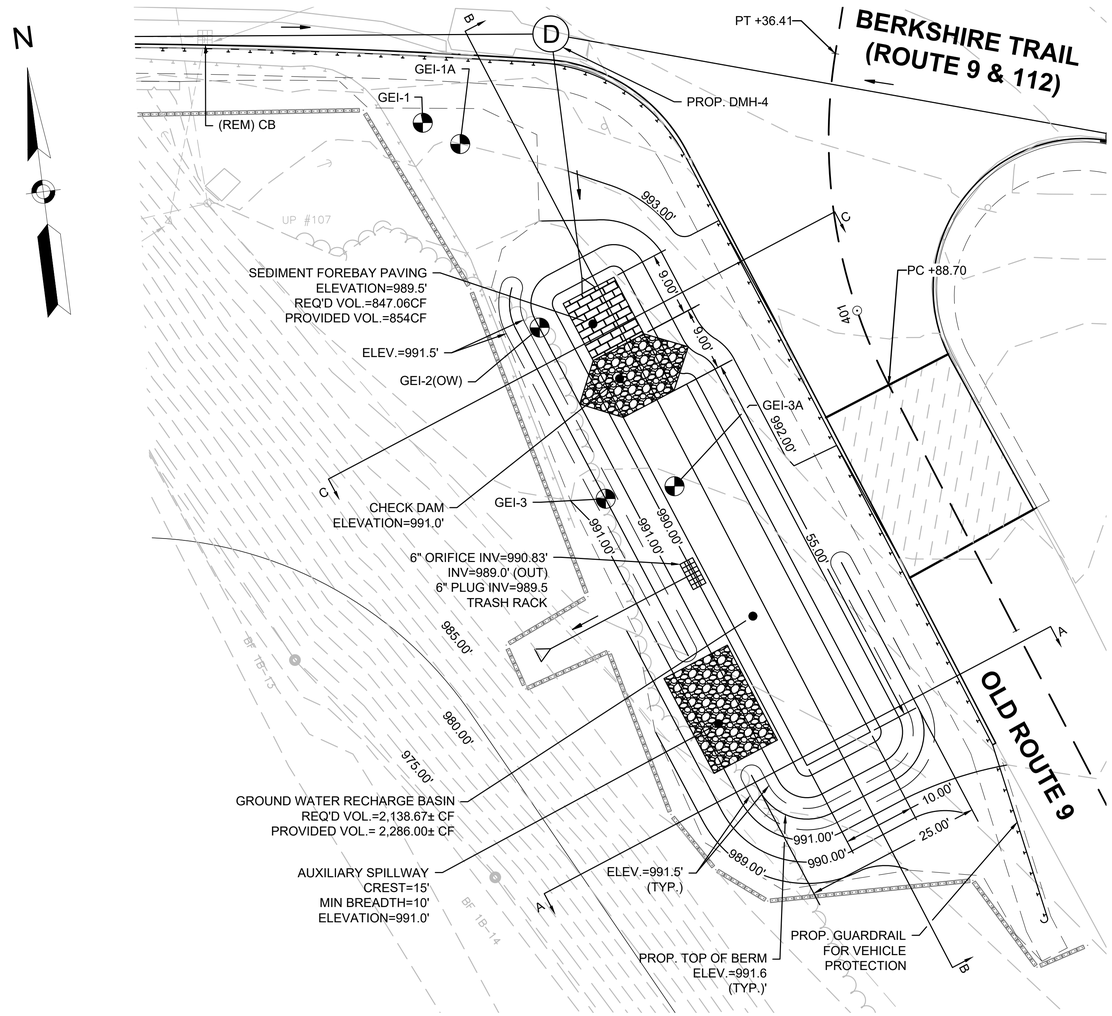
12"RCP
I=995.0

CONCRETE HEADWALL

0 THAYER CORNER RD
MAP 23D, LOT 23D-33-0
N/F
NATE & EMILY L. LOUX

NOTE:
1. ALL CATCH BASINS SHALL BE INSTALLED WITH DEEP SUMPS UNLESS OTHERWISE DIRECTED BY ENGINEER.
2. EXISTING HEADWALL AND/OR OUTFALL TO BE RETAINED. CONTRACTOR SHALL ENSURE PIPE OPENING IS CLEAR OF DEBRIS AND ABLE TO FLOW NATURALLY. IF HEADWALL AND/OR OUTFALL IS FOUND TO BE IN DISREPAIR, CONTRACTOR SHALL NOTIFY ENGINEER TO RECEIVE FURTHER DIRECTION.

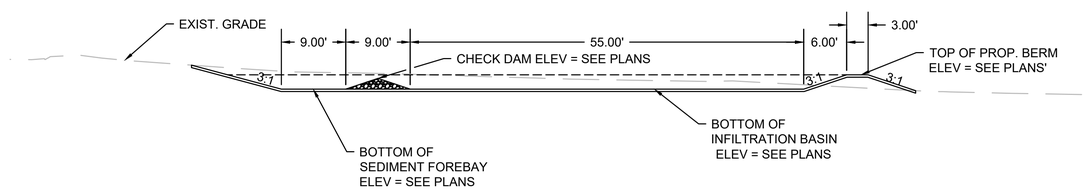
0 20 50 100
SCALE: 1" = 20'



BASIN DETAILS

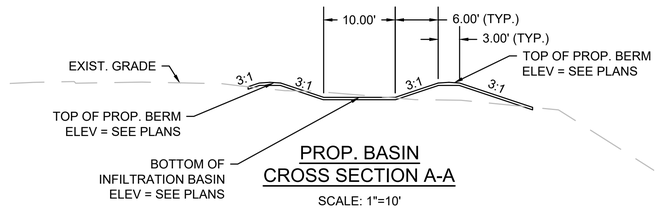
0 10 20 30 40

SCALE: 1" = 10'



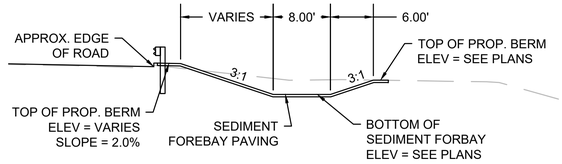
PROP. BASIN
CROSS SECTION B-B

SCALE: 1"=10'



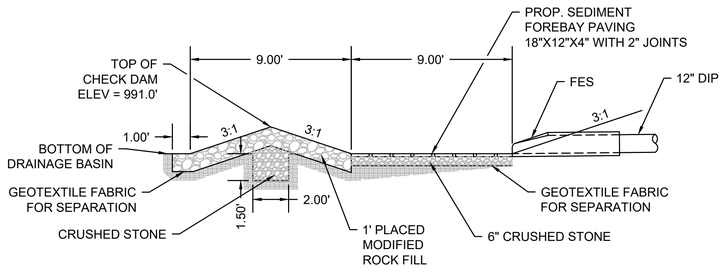
PROP. BASIN
CROSS SECTION A-A

SCALE: 1"=10'



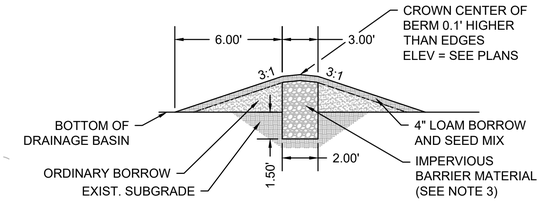
PROP. FOREBAY
CROSS SECTION C-C

SCALE: 1"=10'



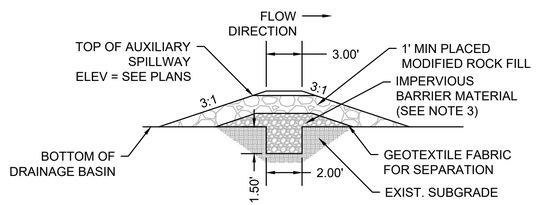
PROP. SEDIMENT FOREBAY AND CHECK DAM
DETAIL

SCALE: 1"=4'



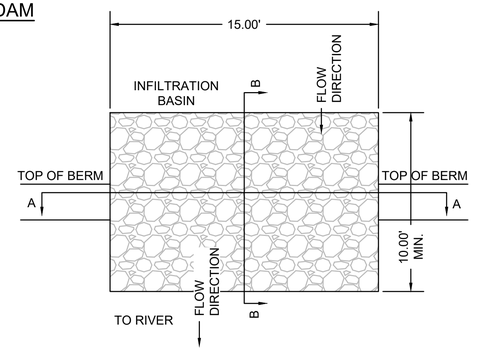
PROP. BASIN BERM
SECTION DETAIL

SCALE: NTS



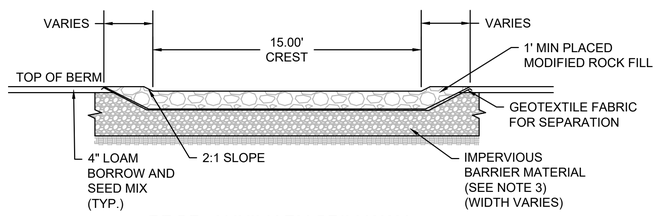
PROP. AUXILIARY SPILLWAY
SECTION B-B

SCALE: NTS



PROP. AUXILIARY SPILLWAY
PLAN

SCALE: 1"=4'



PROP. AUXILIARY SPILLWAY
SECTION A-A

SCALE: 1"=4'

NOTES:

1. SIDES OF BASIN SHALL BE SEEDED.
2. BOTTOM OF BASIN ARE TO BE SEEDED WITH INFILTRATION BASIN BOTTOM/SWALE SEED MIX.
3. IMPERVIOUS BARRIER MATERIAL:

SQUARE MESH SIEVE	% PASSING BY WEIGHT
3"	100%
1/4"	100%
#4	90-100%
#40	65-90%
#100	50-75%
#200	35-50%

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	21	73
	PROJECT FILE NO. 612514		

DRAINAGE & UTILITY PLANS

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	22	73
	PROJECT FILE NO. 612514		

PAVEMENT MARKING & SIGNAGE PLANS

612514_HDXX (PM & SIGNS).DWG Plotted on 30-Jun-2025 10:47 AM

N

0 MAIN ST, OFF
MAP 23D, LOT 23D-28-0
N/F
TOWN OF CUMMINGTON

0 LILAC AVE
MAP 23D, LOT 23D-49-0
N/F
JACK E., JR. & SHANNON C. MORSE
BOOK 6869, PAGE 296

2 LILAC AVE
MAP 23D, LOT 23D-51-0
N/F
MORSE, JR JACK E
BOOK 6869, PAGE 296

TOWN SIDELINE

TOWN SIDELINE

LILAC AVENUE

200+00

LOCATION LINE OF 1939 S.H.L.O. NO.3328

2.00' OUT-TO-OUT BUFFER
SEE DETAIL SHEET 32 (TYP.)

PROP. MILLED
RUMBLE STRIP
(TYPE B)

6.00' MIN.
BIKE LANE

10"D

GC

SWLL

DYLL

377+50

378 DBYL

379

380

101+50

381

382 201+50

PC +31.68

9.86'

11.90'

11.80'

10.10'

12.00'

12.00'

12.00'

12.00'

W1-10e
(RET)

R3-17

6.00' MIN
BIKE LANE

SEPTIC COVERS

36"STUMP

36"STUMP

LOCATION LINE OF 1939 S.H.L.O. NO.3328

PROP. MILLED RUMBLE
STRIP (TYPE C). SEE
NOTE 1

PROP. MILLED
RUMBLE STRIP
(TYPE B)

ONE WAY BICYCLE
CROSSING (TYP). FOR
DETAIL SEE SHEET 32

PT +09.30

DBYL

12" SWL

13.30'

15.72'

101'

R1-1

BERKSHIRE TRAIL
(ROUTE 9 & 112)

SWL

DBYL

6.00' BIKE LANE

45° SWL @ 40' O.C.
SPACING (TYP.)

PROP. MILLED
RUMBLE STRIP
(TYPE B)

CONTINUED ON SHEET 23

(R&R) D3-1 (LILAC AVE)
(R&R)

(R&R) NATIONAL WILD AND
SCENIC RIVERS
SYSTEM EAST BRANCH
WESTFIELD RIVER

CONC. WINGWALL

MB

10.63

11.04'

DBYL

201

ONE WAY BICYCLE
CROSSING (TYP) FOR
DETAIL SEE SHEET 32

6.00' BIKE LANE

12" SWL

SWL

NATIONAL WILD AND
SCENIC RIVERS
SYSTEM EAST BRANCH
WESTFIELD RIVER
(R&R)

D3-1 (THAYER
CORNER ROAD)
(R&R ABOVE R1-1)

CONC. WINGWALL

LINE OF DISCONTINUANCE
1940 S.H.L.O. NO. 3363

LOCATION LINE OF 1939 S.H.L.O. NO.3328

30"E

30"D

SLOW CHILDREN
AT PLAY

(RET)

24"STUMP

PC +54.03

100+00

(RET) D3-1
(MOUGIN RD)

4 THAYER CORNER RD
MAP 23D, LOT 23D-40-0
N/F
NATE & EMILY L. LOUX
BOOK 12586, PAGE 135

TOWN SIDELINE
(DISCONTINUANCE 1940 S.H.L.O. NO. 3363)

THAYER CORNER ROAD

TOWN SIDELINE
(DISCONTINUANCE 1940 S.H.L.O. NO. 3363)

0 BERKSHIRE TRAIL
MAP 23D, LOT 23D-32-0
N/F
COMMONWEALTH
OF MASSACHUSETTS

ORDINARY HIGH WATER

0 THAYER CORNER RD
MAP 23D, LOT 23D-33-0
N/F
NATE & EMILY L. LOUX

MOUGIN ROAD

NOTE:
1. NO CENTERLINE RUMBLE STRIPS SHALL BE CONSTRUCTED ON BRIDGE DECK

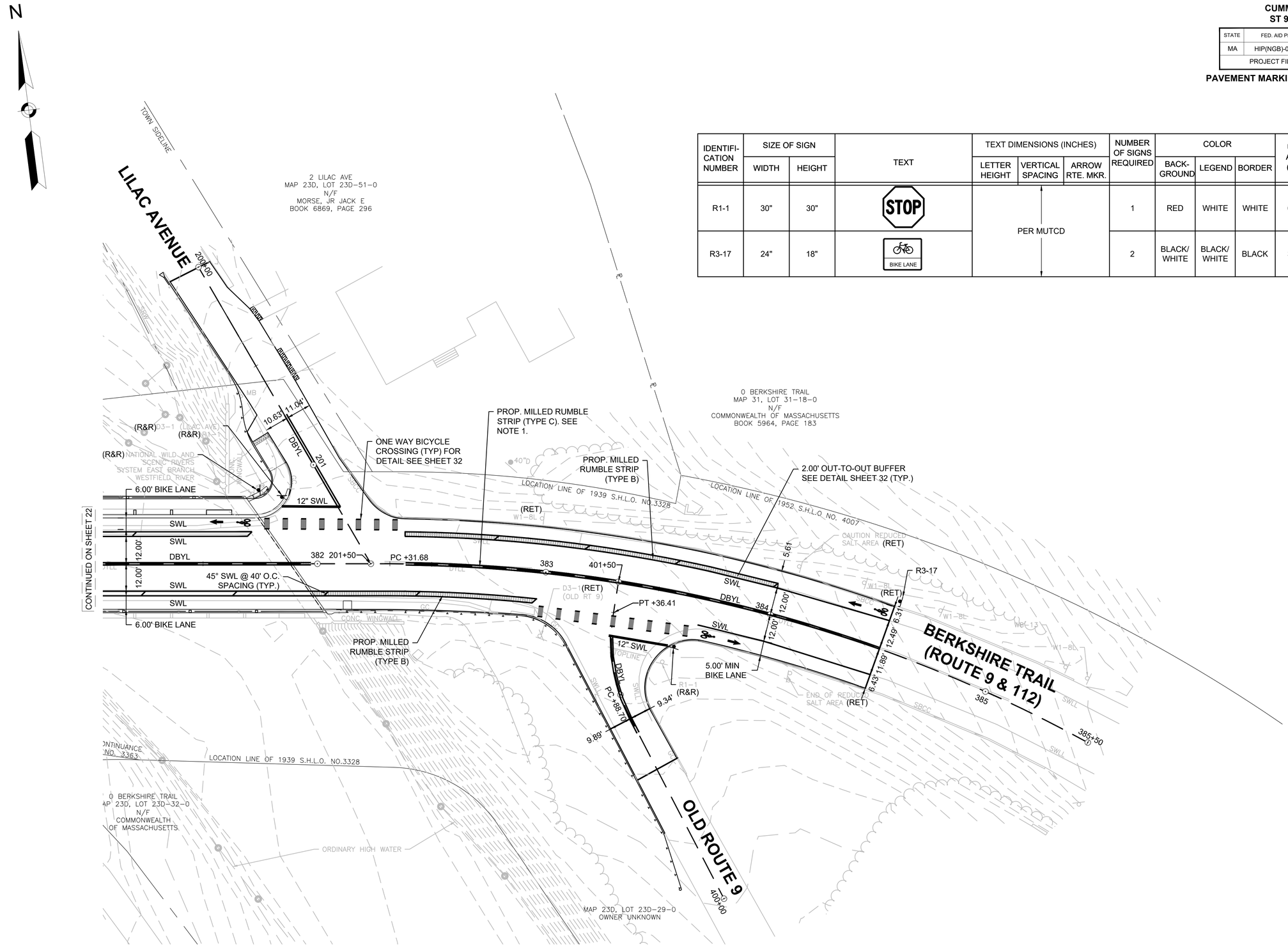
0 20 50 100
SCALE: 1" = 20'

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	23	73
	PROJECT FILE NO. 612514		

PAVEMENT MARKING & SIGNAGE PLANS

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER		
R1-1	30"	30"	STOP	PER MUTCD			1	RED	WHITE	WHITE	6.25	6.25
R3-17	24"	18"	BIKE LANE				2	BLACK/ WHITE	BLACK/ WHITE	BLACK	3.00	6.00



NOTE:
1. NO CENTERLINE RUMBLE STRIPS SHALL BE CONSTRUCTED ON BRIDGE DECK

0 20 50 100
SCALE: 1" = 20'

612514_HDXX (PM & SIGNS).DWG Plotted on 30-Jun-2025 10:47 AM

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	24	73
	PROJECT FILE NO. 612514		

TEMPORARY TRAFFIC CONTROL PLANS

NOTES:

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

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350	350	350
MOST OTHER ROADWAYS*	500	500	500
FREEWAYS AND EXPRESSWAYS*	1,000	1,500	2,640

BERKSHIRE TRAIL

* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

** DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCP SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

MA-R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

MA-R2-10a, MA-R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

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

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

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

WHERE: L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

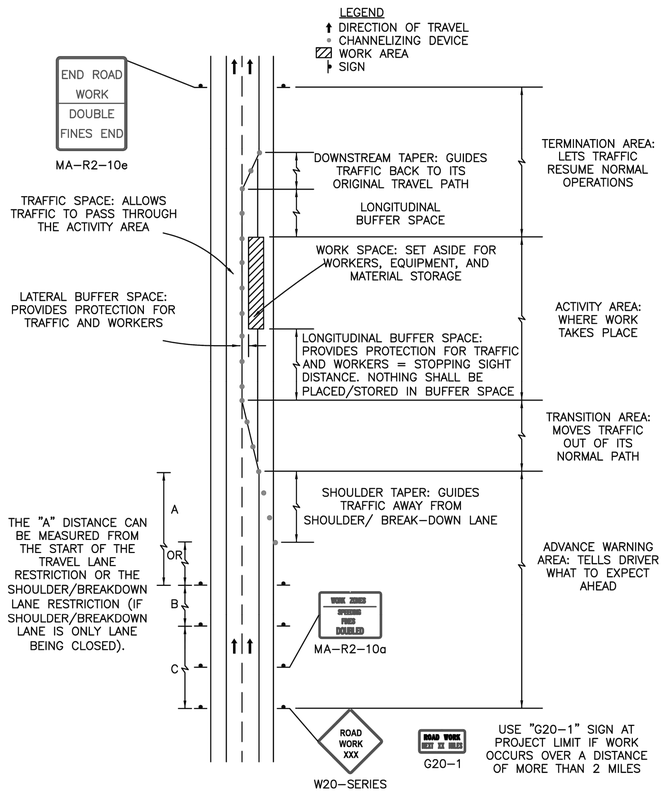
S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICAPATED OPERATING SPEED IN MPH

Source: Table 6C-4 MUTCD LATEST EDITION

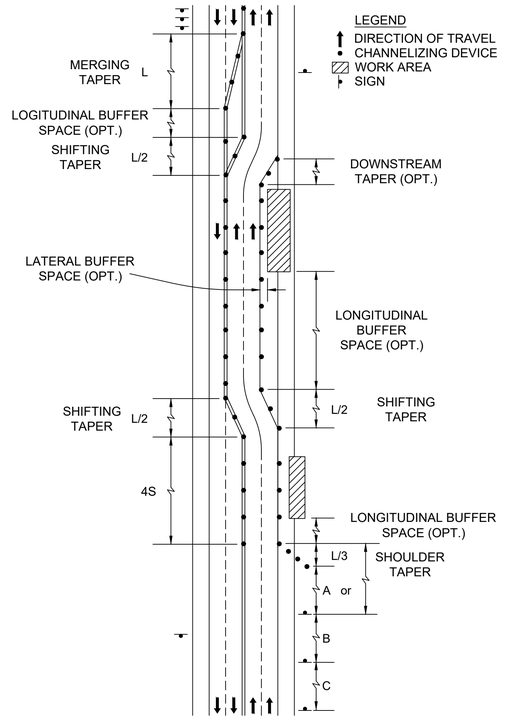
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	25	73
	PROJECT FILE NO. 612514		

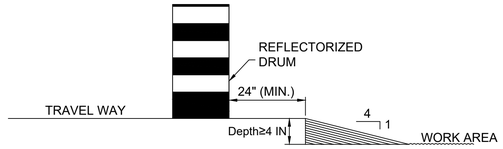
TEMPORARY TRAFFIC CONTROL PLANS



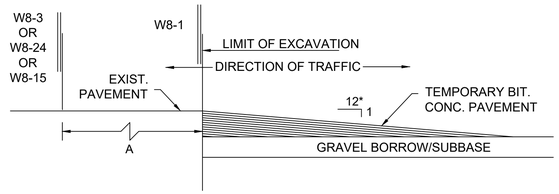
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE



TYPES OF TAPERS AND BUFFER SPACES



LATERAL DROP-OFF DETAIL
NOT TO SCALE



LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE

* - INCREASE SLOPE RATIO
FOR HIGHER SPEEDS

LATERAL AND LONGITUDINAL
DROP-OFF DETAILS

NOTES:

1. BARRIERS, CHANNELIZING DEVICES, BARRICADES, AND SIGN SHALL BE PLACED NORTH OF DRIVEWAY FOR #29 ROUTE 9. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER. SETUP SHALL NOT PRECLUDE ACCESS TO ANY RESIDENCES ON OLD ROUTE 9.

2. SIGN SHALL BE PLACED AT THE SOUTHERN END OF OLD ROUTE 9 AT THE INTERSECTION WITH BERKSHIRE TRAIL. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

3. SIGN SHALL BE PLACED AT THE INTERSECTION OF LILAC AVENUE AND NASH ROAD. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

4. ALL EXISTING PAVEMENT MARKINGS (DBYL AND SWL SHOULDER LINES) SHALL BE ERADICATED BETWEEN TEMPORARY STOP LINES.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	26	73
	PROJECT FILE NO. 612514		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE I

MAJOR ITEMS REQUIRED		
PAY ITEM	**QUANTITY**	**ITEM**
816.81	2 EA	TEMPORARY SIGNAL UNIT TRAILERS
	4 EA	1 WAY - 3 SECTION HOUSING (12" LENSES); A, B, C, D
	2 EA	VIDEO DETECTION CAMERA
		NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS
		MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION

612514_HDXX (TTCP STAGE 1).DWG Plotted on 30-Jun-2025 10:48 AM

NOTES:

1. BARRIERS, CHANNELIZING DEVICES, BARRICADES, AND SIGN SHALL BE PLACED NORTH OF DRIVEWAY FOR #29 ROUTE 9. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER. SETUP SHALL NOT PRECLUDE ACCESS TO ANY RESIDENCES ON OLD ROUTE 9.

2. SIGN SHALL BE PLACED AT THE SOUTHERN END OF OLD ROUTE 9 AT THE INTERSECTION WITH BERKSHIRE TRAIL. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

3. SIGN SHALL BE PLACED AT THE INTERSECTION OF LILAC AVENUE AND NASH ROAD. EXACT LOCATION TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

4. ALL EXISTING PAVEMENT MARKINGS (DBYL AND SWL SHOULDER LINES) SHALL BE ERADICATED BETWEEN TEMPORARY STOP LINES.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	27	73
	PROJECT FILE NO. 612514		

TEMPORARY TRAFFIC CONTROL PLANS
STAGE II

MAJOR ITEMS REQUIRED		
PAY ITEM	**QUANTITY**	**ITEM**
816.81	2 EA	TEMPORARY SIGNAL UNIT TRAILERS
	4 EA	1 WAY - 3 SECTION HOUSING (12" LENSES); A, B, C, D
	2 EA	VIDEO DETECTION CAMERA
		NECESSARY DUCT, CABLE, FOUNDATIONS, LABOR, MISCELLANEOUS
		MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION

612514_HDXX (TTCP).DWG Plotted on 30-Jun-2025 10:49 AM

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	28	73
	PROJECT FILE NO. 612514		

TEMPORARY TRAFFIC CONTROL PLANS
TEMPORARY SIGNAL PLAN

			PHASE 1			PHASE 2			PHASE 3			PHASE 4			EMERGENCY FLASH OPERATION
STREET	DIR.	FACE	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	R/W	CL1	CL2	
BERKSHIRE TRAIL	EB	A,B	G	Y	R				R	R	R				FR
BERKSHIRE TRAIL	WB	C,D	R	R	R				G	Y	R				FR
TIMING IN SECONDS															
MINIMUM GREEN			7						7						
VEHICLE INTERVAL			2						2						
MAXIMUM GREEN I			40						40						
MAXIMUM GREEN II			40						40						
YELLOW CLEAR				3.0						3.0					
ALL RED CLEAR					16						16				
DETECTOR			NON-LOCK			OFF			NON-LOCK			OFF			
RECALL TO MINIMUM			ON			OFF			ON			OFF			

TEMPORARY SIGNAL PHASING - STAGE 1 & STAGE 2

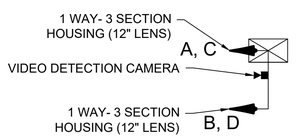
VIDEO DETECTION ZONE DATA

DETECTOR NUMBER	VIDEO CAMERA	SIZE*	OPERATION	Ø CALLED	DELAY TIME	Ø EXTENDED
1	V1	6' X 20'	PRESENCE	1	0	1
2	V2	6' X 20'	PRESENCE	3	0	3

SIGNAL DISPLAY

A, B, C, D

NOTES:
1. ALL VEHICLE INDICATIONS TO BE EQUIPPED WITH TUNNEL VISORS.



TEMP. TRAFFIC SIGNAL DETAIL
NOT TO SCALE

CONSTRUCTION NOTES:

1. ALL SIGNAL EQUIPMENT IS NEW EXCEPT AS NOTED.
2. SEE SEPARATE PLAN FOR PAVEMENT MARKING AND SIGNING LAYOUT
3. VIDEO DETECTION ZONES ARE TO BE FIELD ADJUSTED AND ARE SUBJECT TO APPROVAL BY THE ENGINEER.
4. VIDEO EQUIPMENT LOCATIONS SHOWN ON THE PLANS ARE SUGGESTED ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY THE BEST LOCATION IN THE FIELD, AS APPROVED BY THE ENGINEER
5. IN EMERGENCY SITUATIONS, FLASHING RED LIGHT SHOULD BE UTILIZED.
6. FOR CONSTRUCTION SIGN SUMMARY, SEE SHEET 30.

GENERAL NOTES:

1. PORTABLE SOLAR POWERED TRAFFIC SIGNALS SHALL MEET THE SPECIFICATIONS PROVIDED FOR ITEM NO.816.71
2. TRAFFIC SIGNAL TO REST IN RED AND FLASH RED DURING MALFUNCTION.
3. DETECTION ZONES TO EXTEND FROM 5 FEET IN FRONT OF THE STOP LINES TO 15 FEET BEHIND THE STOP LINES.
4. TRAFFIC SIGNAL NOT TO BE PLACED IN PROGRAMMED FLASH.

N

PLAINFIELD RD

W16-8p "BERKSHIRE TRAIL" M4-9L

W16-8p "BERKSHIRE TRAIL" M4-9aL

W16-8p "BERKSHIRE TRAIL" M4-9V

W16-8p "LILAC AVE" M4-9V

NASH ROAD

W16-8p "BERKSHIRE TRAIL" M4-9aR

W16-8p "BERKSHIRE TRAIL" M4-9R

W16-8p "BERKSHIRE TRAIL" M4-9aL

W16-8p "LILAC AVE" M4-9R

W16-8p "LILAC AVE" M4-9aR

W16-8p "LILAC AVE" M4-9aR

W16-8p "LILAC AVE" M4-9R

W16-8p "BERKSHIRE TRAIL" M4-9L

W16-8p "BERKSHIRE TRAIL" M4-9L

MAIN ST

W16-8p "LILAC AVE" M4-9aL

W16-8p "LILAC AVE" M4-9L

W16-8p "LILAC AVE" M4-9R

W16-8p "LILAC AVE" M4-9aR

W16-8p "LILAC AVE" M4-9L

W16-8p "LILAC AVE" M4-9aR

W16-8p "BERKSHIRE TRAIL" M4-9V

W16-8p "LILAC AVE" M4-9aL

W16-8p "LILAC AVE" W20-2 (AHEAD)

BERKSHIRE TRAIL

MEADOW BROOK

LILAC AVE

W16-8p "BERKSHIRE TRAIL" M4-9V

W16-8p "LILAC AVE" M4-9V

W16-8p "BERKSHIRE TRAIL" M4-9V

W16-8p "LILAC AVE" M4-9V

MAIN ST

W16-8p "LILAC AVE" M4-9V

W16-8p "THAYER CORNER RD" M4-9L

W16-8p "LILAC AVE" M4-9V

W16-8p "THAYER CORNER RD" M4-9aL

FAIRGROUND RD

BERKSHIRE TRAIL

THAYER CORNER RD

W16-8p "BERKSHIRE TRAIL" M4-9V

W16-8p "BERKSHIRE TRAIL" M4-9V

M4-9R

W16-8p "BERKSHIRE TRAIL" M4-8a

M4-9R

M4-9aR

R11-2 M4-10R

R11-2 M4-10L

R11-2

R11-2 M4-10L

BERKSHIRE TRAIL

W20-2 (AHEAD)

W16-8p "THAYER CORNER RD" M4-9aL M4-9aR

THAYER CORNER RD

OLD ROUTE 9

R11-2 M4-10L

FLAT IRON RD

MOUGIN RD

R11-2

BATES RD

W16-8p "THAYER CORNER RD" M4-9L

W16-8p "THAYER CORNER RD" M4-8a

0 200 400 600 800

SCALE: 1" = 200'

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	29	73
PROJECT FILE NO.	612514		

TEMPORARY TRAFFIC CONTROL PLANS
DETOUR PLAN

612514_HDXX (TTCP).DWG Plotted on 30-Jun-2025 10:49 AM

CUMMINGTON
ST 9/ ST 112

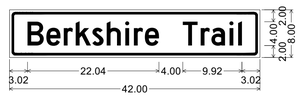
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	30	73
	PROJECT FILE NO. 612514		

CONSTRUCTION SIGN SUMMARY

CONSTRUCTION SIGN SUMMARY

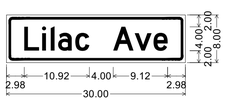
IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	UNIT AREA (S.F.)	AREA IN SQUARE FEET
MA-R2-10a	60"	48"	WORK ZONES / SPEEDING FINES DOUBLED	PER MASSDOT STANDARDS			2	FLUOR. ORANGE/ WHITE			20.00	40.00
MA-R2-10e	48"	60"	END ROAD WORK / DOUBLE FINES END				2	FLUOR. ORANGE/ WHITE			20.00	40.00
W16-8p (BERKSHIRE TRAIL)	42"	8"	Berkshire Trail				16				2.33	37.33
W16-8p (LILAC AVE)	30"	8"	Lilac Ave				19				1.67	31.67
W16-8p (THAYER CORNER)	42"	8"	Thayer Corner Rd				5				2.33	11.67
M4-8a	24"	18"	END DETOUR				3				3.00	9.00
M4-9V	30"	24"	DETOUR ↑				14				5.00	70.00
M4-9L	30"	24"	DETOUR ←	PER MUTCD			7	FLUOR. ORANGE	BLACK	BLACK	5.00	35.00
M4-9aL	30"	24"	DETOUR ↰				7				5.00	35.00
M4-9R	30"	24"	DETOUR →				6				5.00	30.00
M4-9aR	30"	24"	DETOUR ↱				6				5.00	30.00
M4-10L	48"	18"	← DETOUR				3				6.00	18.00
M4-10R	48"	18"	DETOUR →				1				6.00	6.00
R9-9	24"	12"	SIDEWALK CLOSED				2				2.00	4.00
R10-6	24"	36"	STOP HERE ON RED ↙				2	WHITE			6.00	12.00
R11-2	48"	30"	ROAD CLOSED				6				10.00	60.00
R11-3A	60"	30"	ROAD CLOSED ½ MILE AHEAD / LOCAL TRAFFIC ONLY				1				12.50	12.50
R11-3A	60"	30"	ROAD CLOSED ¼ MILE AHEAD / LOCAL TRAFFIC ONLY	PER MUTCD			1	WHITE	BLACK	BLACK	12.50	12.50
W1-4R	36"	36"					1	FLUOR. ORANGE	BLACK		9.00	9.00
W3-3	36"	36"					2	FLUOR. ORANGE	BLACK/ RED/ YELLOW/ GREEN		9.00	18.00
W8-1	30"	30"	BUMP				2		BLACK		6.25	12.5
W8-3	36"	36"	PAVEMENT ENDS				2			BLACK	9.00	18.00
W13-1p	18"	18"	20 M.P.H.				2				2.25	4.50
W20-SERIES	48"	48"	ROAD WORK XXX				2				16.00	16.00
W20-2 (AHEAD)	48"	48"	DETOUR AHEAD				2				16.00	32.00
W20-4	36"	36"	ONE LANE ROAD XXX				2				9.00	18.00

TOTAL = 622.67 SF
TO BE PAID FOR UNDER ITEM 852.



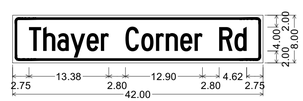
1.00" Radius, 0.38" Border, 0.38" Indent, Black on Orange;
"Berkshire Trail", D 2K;

SIGN W16-8p (BERKSHIRE TRAIL)
SCALE: NOT TO SCALE



1.00" Radius, 0.38" Border, 0.38" Indent, Black on Orange;
"Lilac Ave", D 2K;

SIGN W16-8p (LILAC AVE)
SCALE: NOT TO SCALE



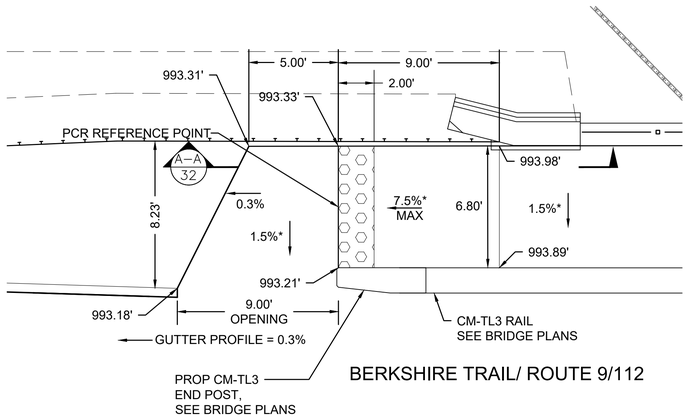
1.00" Radius, 0.38" Border, 0.38" Indent, Black on Orange;
"Thayer Corner Rd", C 2K 70% spacing;

SIGN W16-8p (THAYER CORNER RD)
SCALE: NOT TO SCALE

CUMMINGTON
ST 9/ ST 112

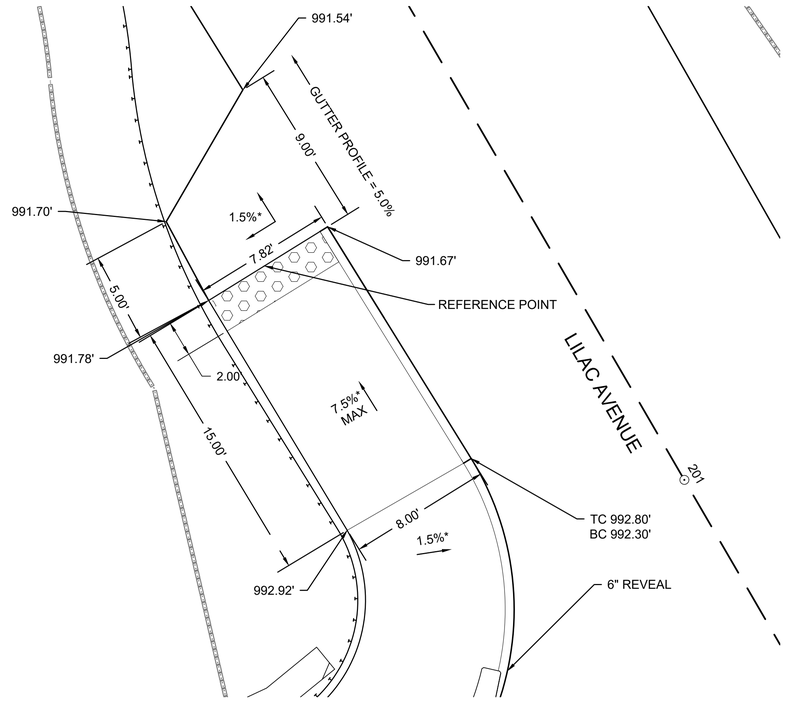
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	31	73
	PROJECT FILE NO. 612514		

MISCELLANEOUS DETAILS



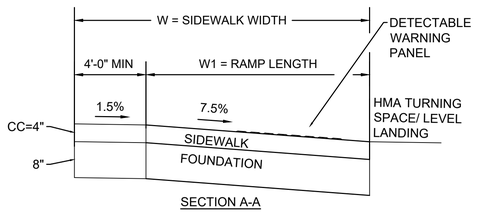
PEDESTRIAN CURB RAMP 1
SCALE: 1" = 4'

PCR REFERENCE POINT: STA 379+75.56 - OFFSET 24.82' LT
WIDTH OF CURB = NA
* CONSTRUCTION TOLERANCE +/- 0.5%



PEDESTRIAN CURB RAMP 2
SCALE: 1" = 4'

PCR REFERENCE POINT: STA 200+77.86 - OFFSET 14.29' RT
WIDTH OF CURB = 0.5'
* CONSTRUCTION TOLERANCE +/- 0.5%



SECTION A-A

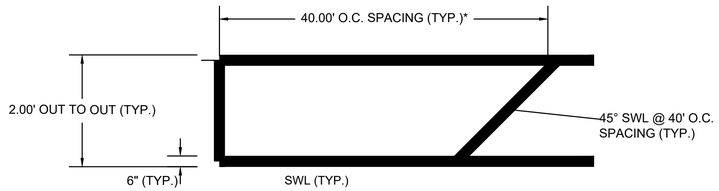
0 4 8 12 16
SCALE: 1" = 4'

NOTE:
1. THE PERPENDICULAR DIMENSIONS TO THE CURB ALONG THE SIDEWALK INCLUDE 0.5' FOR THE WIDTH OF THE CURB WHERE APPLICABLE.
2. PEDESTRIAN CURB RAMP REFERENCE POINTS ARE TAKEN FROM THE BERKSHIRE TRAIL BASELINE TO THE GUTTER LINE AT THE CENTER OF RAMP OPENING.
3. DETECTABLE WARNING PANELS ARE REQUIRED ON ON ALL THE PROPOSED PEDESTRIAN CURB RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD 107.6.5.

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	32	73
	PROJECT FILE NO. 612514		

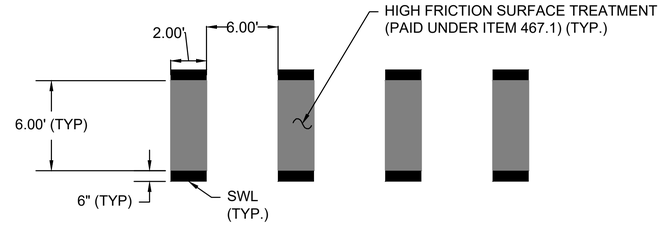
MISCELLANEOUS DETAILS



PAINTED BIKE LANE BUFFER

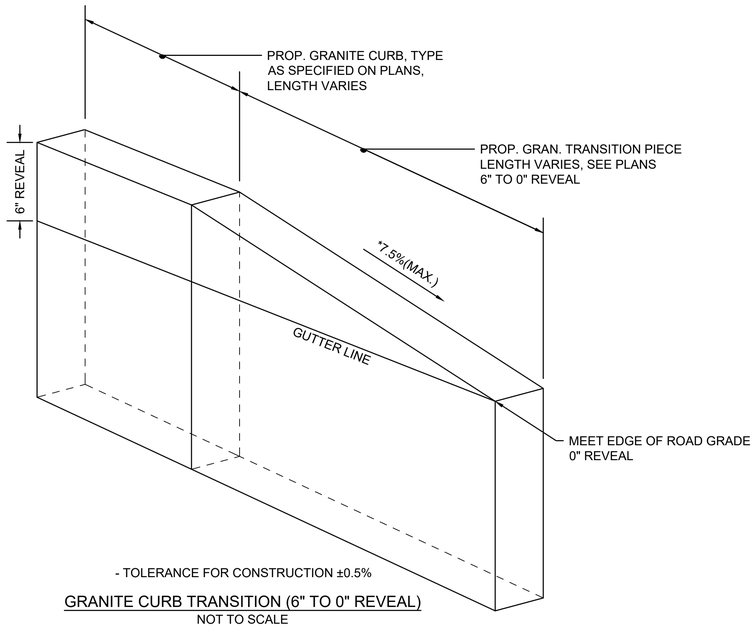
NOT TO SCALE

* O.C TO BE MEASURED PERPENDICULARLY BETWEEN GORE LINES



ONE-WAY BICYCLE CROSSING

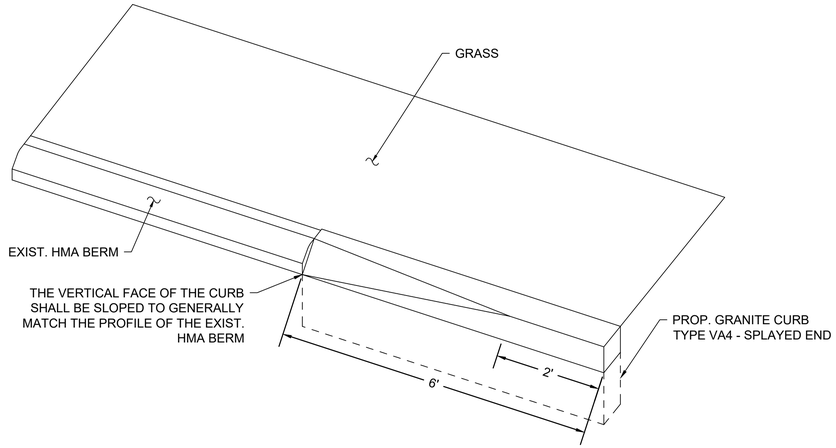
NOT TO SCALE



- TOLERANCE FOR CONSTRUCTION ±0.5%

GRANITE CURB TRANSITION (6" TO 0" REVEAL)

NOT TO SCALE



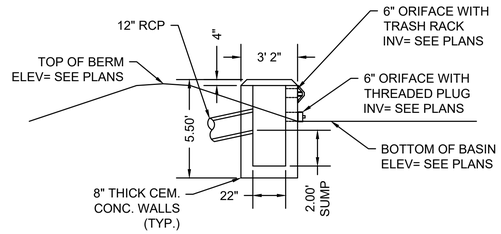
6' GRANITE CURB TYPE VA4 - SPLAYED END

NOT TO SCALE

CUMMINGTON
ST 9/ ST 112

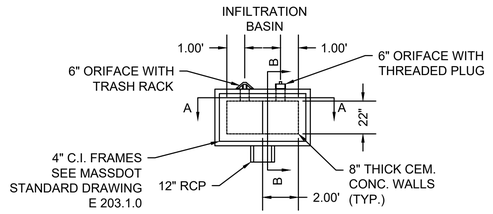
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	33	73
	PROJECT FILE NO. 612514		

MISCELLANEOUS DETAILS



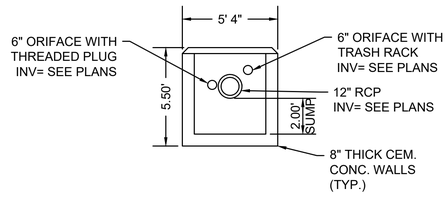
PROP. OUTLET CONTROL STRUCTURE
SECTION B-B

SCALE: 1"=4'



PROP. OUTLET CONTROL STRUCTURE
PLAN

SCALE: 1"=4'



PROP. OUTLET CONTROL STRUCTURE
SECTION A-A

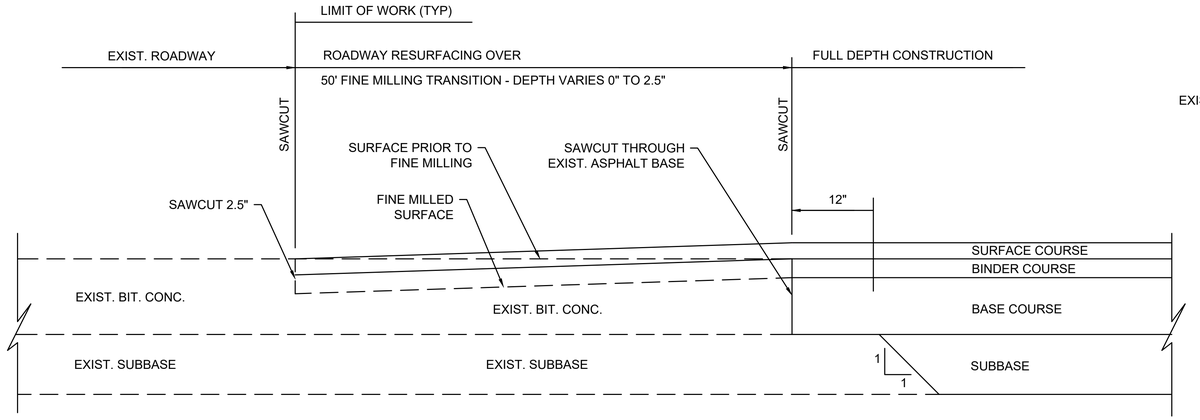
SCALE: 1"=4'

NOTE:
1. REFER TO MASSDOT STANDARD DRAWING E 203.1.0 FOR MORE INFORMATION

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	34	73
	PROJECT FILE NO. 612514		

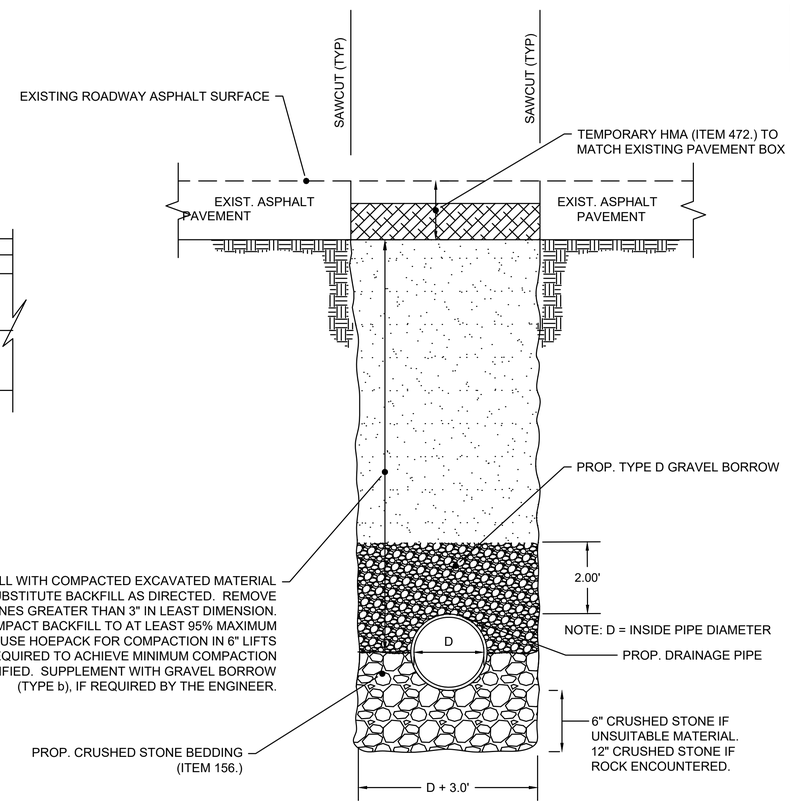
MISCELLANEOUS DETAILS



LONGITUDINAL PAVEMENT TRANSITION DETAIL

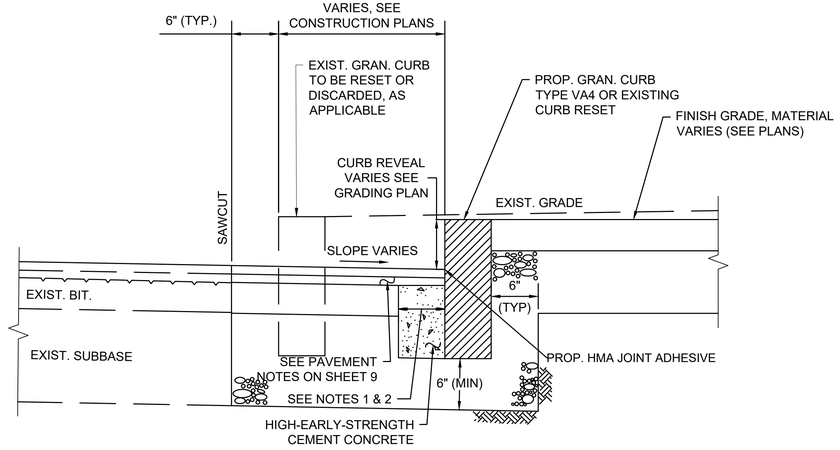
TWO LIFT TO ONE LIFT TRANSITION AT LIMITS OF WORK

NOT TO SCALE



DRAINAGE TRENCH DETAIL IN EXISTING ROADWAY AREAS

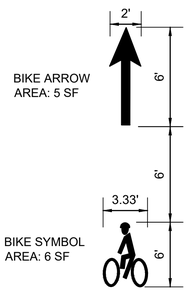
NOT TO SCALE



NOTES:
1. IN AREAS OF FULL DEPTH CONSTRUCTION WHERE THE PROPOSED CURBLINE IS TO BE RESET BEYOND THE EXISTING CURBLINE, 6" (MIN.) OF HIGH-EARLY-STRENGTH CEMENT CONCRETE IS TO BE USED. ALL CEMENT CONCRETE USED IS TO BE CONSIDERED INCIDENTAL TO SETTING THE PROPOSED CURB.
2. IN AREAS OF FINE MILLING WHERE THE PROPOSED CURBLINE IS TO BE RESET BEYOND THE EXISTING CURBLINE, HIGH-EARLY-STRENGTH CEMENT CONCRETE IS TO BE USED FULL WIDTH FROM THE SAWCUT TO THE PROPOSED CURBLINE WITH TWO LIFTS OF PAVEMENT AS SHOWN ON THE PAVEMENT NOTES ON SHEET 9.

GRANITE CURB INSTALLATION DETAIL

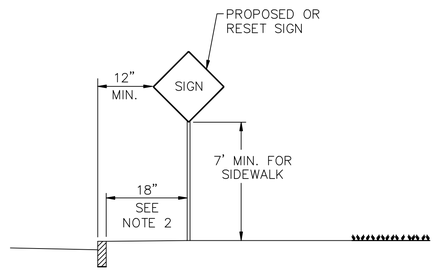
NOT TO SCALE



NOTES:
1. SEE MUTCD FIGURE 9C-3 FOR MORE INFO
2. BIKE LANE MARKINGS SHALL BE REFLECTORIZED PRE-FORMED THERMOPLASTIC

BIKE LANE PAVEMENT MARKINGS

NOT TO SCALE



NOTES:

1. MIN. POST EMBEDMENT TO BE 4'
2. OFFSET FROM ROADWAY EDGE MAY VARY BASED ON ACTUAL SITE CONDITIONS. EXACT SIGN LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

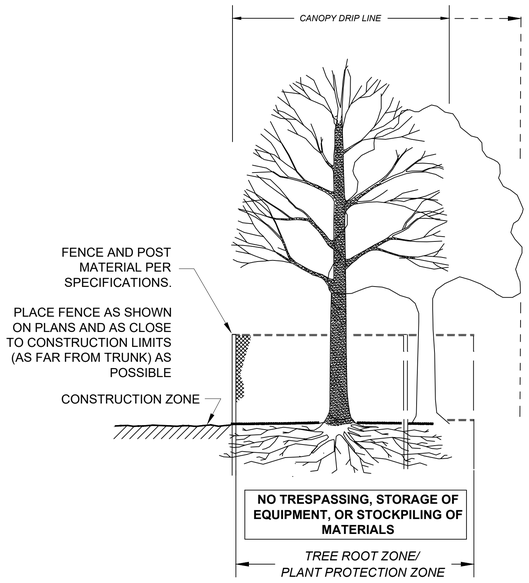
TYPICAL SIGN INSTALLATION

NOT TO SCALE

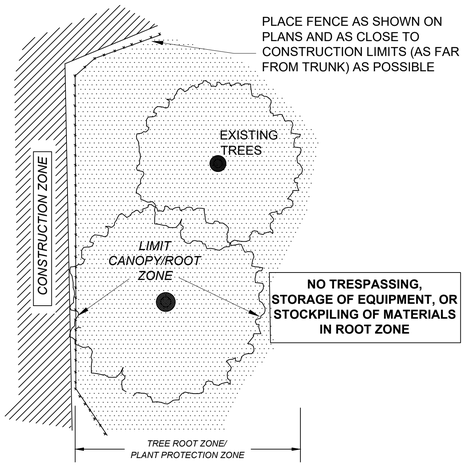
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	35	73
	PROJECT FILE NO. 612514		

SITE PROTECTION DETAILS



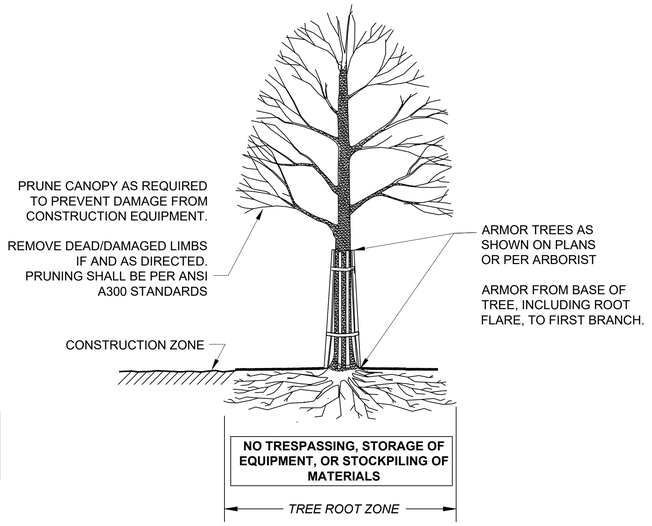
SECTION - FENCE PROTECTION OF ROOT ZONE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

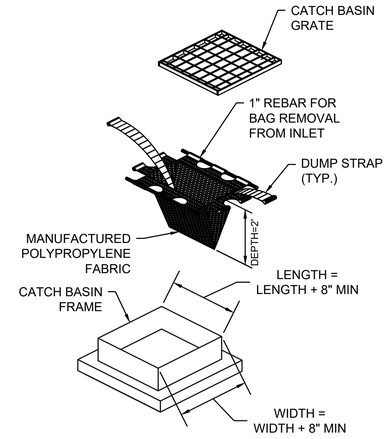
TREE PROTECTION - ROOT ZONE

NOT TO SCALE



SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION - TRUNK

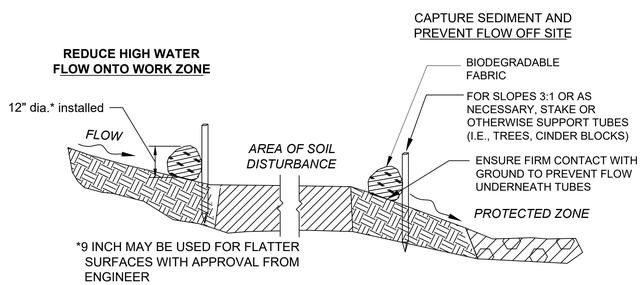


NOTES:

1. ALL SILT SACK MATERIALS, INSTALLATION, MAINTENANCE AND REMOVAL SHALL BE INCIDENTAL TO ITEM 697.1
2. LENGTH AND WIDTH OF POLYPROPYLENE FABRIC MUST EXCEED EXISTING CATCH BASIN FRAME DIMENSIONS BY A MINIMUM OF 8"
3. REMOVE CATCH BASIN GRATE AND INSTALL POLYPROPYLENE FABRIC OVER CATCH BASIN FRAME. RESET CATCH BASIN GRATE TO SECURE POLYPROPYLENE FABRIC IN PLACE
4. POLYPROPYLENE FABRIC SHALL BE CLEANED OUT AND MAINTAINED IN GOOD WORKING ORDER PER MANUFACTURES RECOMMENDATIONS.

TYPICAL CATCH BASIN SILT SACK EROSION CONTROL PROTECTION

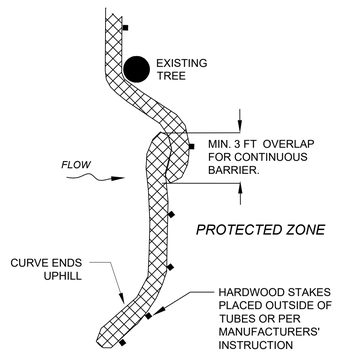
NOT TO SCALE



SECTION

SEDIMENT BARRIER - COMPOST FILTER TUBES

NOT TO SCALE



PLACE TUBE ALONG CONTOURS AND PERPENDICULAR TO FLOW.

PLACE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE

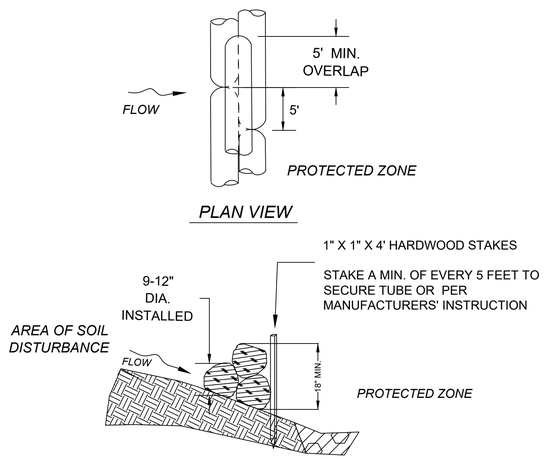
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLACE STAKES AS NEEDED TO SECURE TUBES IN PLACE.

PLAN VIEW

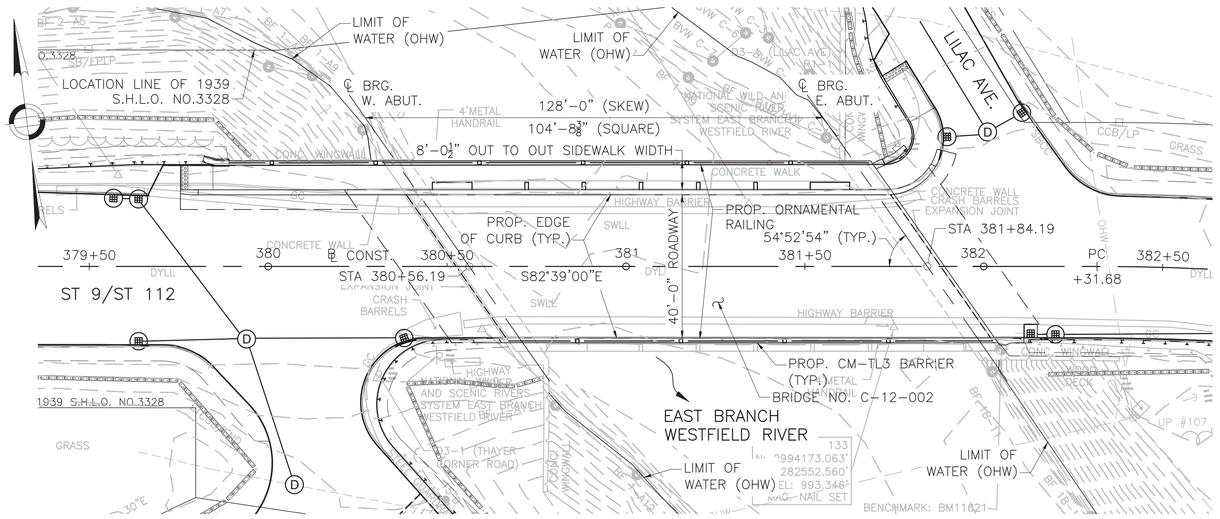
COMPOST FILTER TUBE

NOT TO SCALE



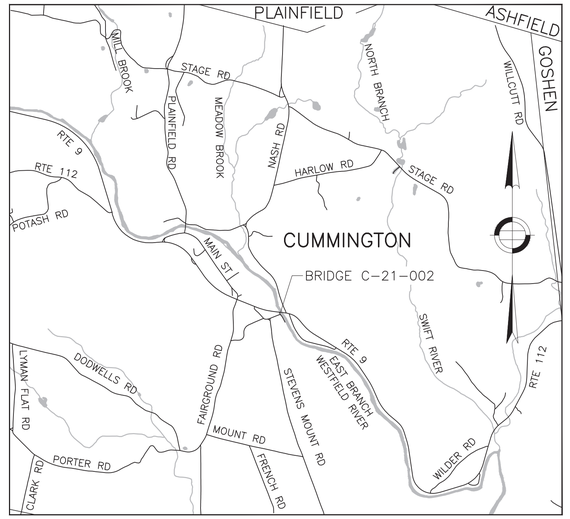
COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)

NOT TO SCALE



KEY PLAN

SCALE: 1"=20'



LOCUS MAP

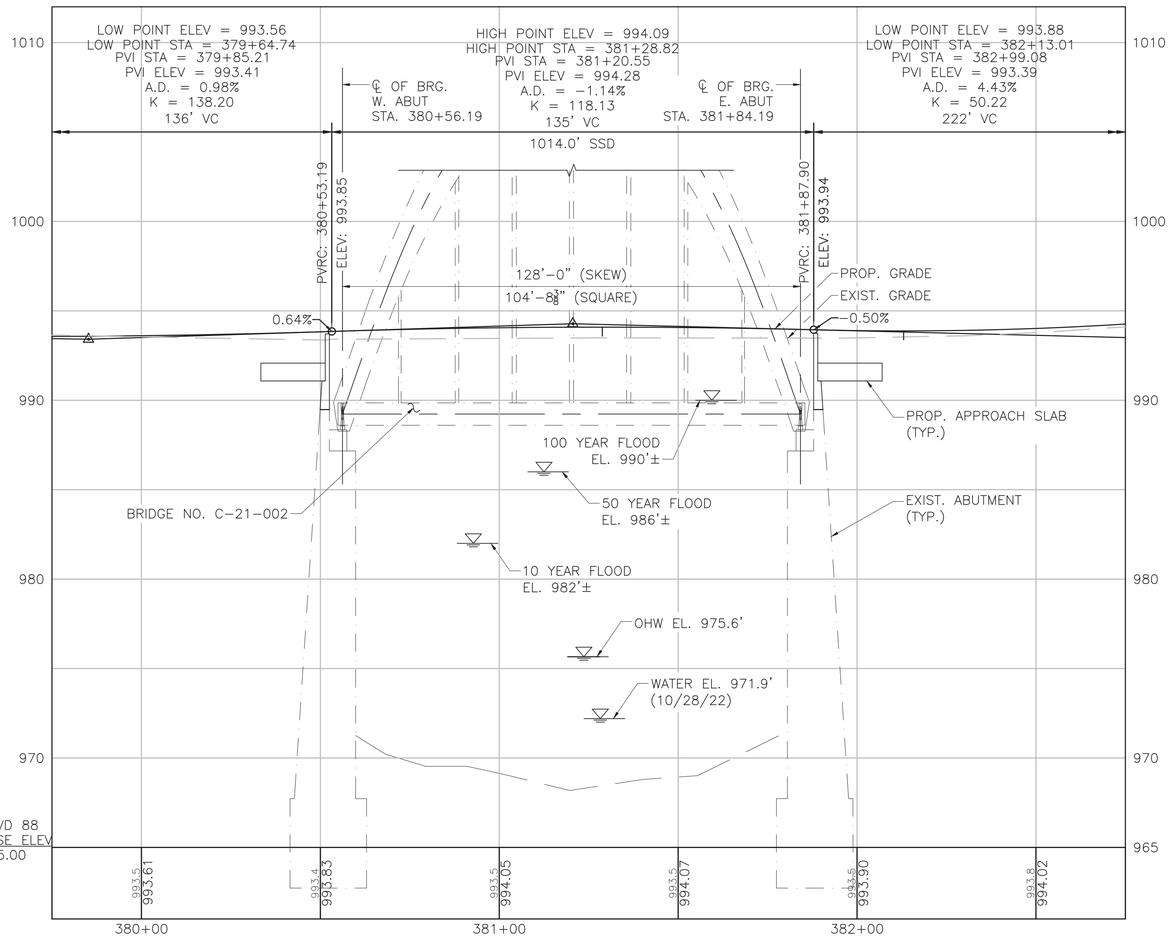
SCALE: 1"=700'

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	36	73
	PROJECT FILE NO. 612514		

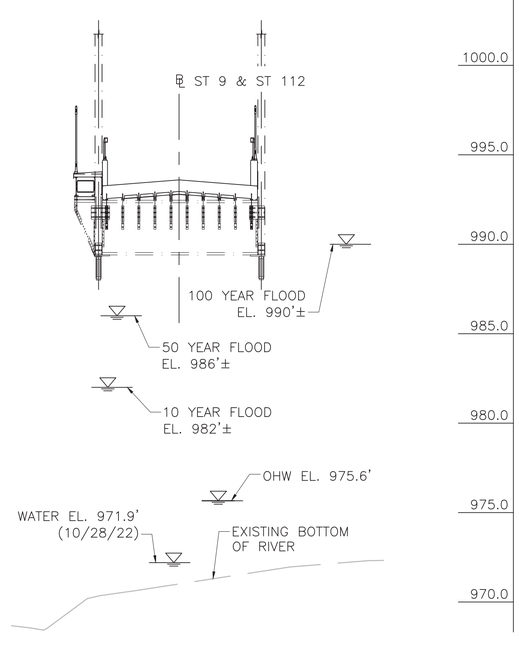
KEY PLAN, PROFILE & INDEX

DRAWING LIST	
SHEET NUMBER	SHEET TITLE
1	KEY PLAN, PROFILE & INDEX
2	GENERAL NOTES
3	PLAN AND ELEVATION
4	SEQUENCE OF CONSTRUCTION
5	WEST ABUTMENT PLAN AND ELEVATION
6	EAST ABUTMENT PLAN AND ELEVATION
7	ABUTMENT DETAILS I
8	ABUTMENT DETAILS II
9	FRAMING PLAN
10	ARCH ELEVATION
11	STEEL DETAILS I
12	STEEL DETAILS II
13	STEEL DETAILS III
14	STEEL DETAILS IV
15	TYPICAL CROSS SECTION
16	DECK DETAILS I
17	DECK DETAILS II
18	JOINT DETAILS I
19	JOINT DETAILS II
20	MISCELLANEOUS DETAILS I
21	MISCELLANEOUS DETAILS II
22	MISCELLANEOUS DETAILS III
23	CM–TL3 BRIDGE RAIL DETAILS I
24	CM–TL3 BRIDGE RAIL DETAILS II
25	ORNAMENTAL RAIL DETAILS
26	GUARDRAIL TRANSITION DETAILS I
27	GUARDRAIL TRANSITION DETAILS II
28	GUARDRAIL TRANSITION DETAIL III



PROFILE – ST 9/ST 112

HORIZONTAL: 1"=20'
VERTICAL: 1"=4'–0"



PROFILE – EAST BRANCH WESTFIELD RIVER

HORIZONTAL: 1"=20'
VERTICAL: 1"=4'–0"

COMMONWEALTH OF MASSACHUSETTS
PEEYUSH ROHELA
CIVIL
No. 52442
REGISTERED PROFESSIONAL ENGINEER

Peeyush Rohela Digitally signed by Peeyush Rohela Date: 2025.06.24 12:59:28 -04'00'

benesch
50 REDFIELD STREET
BOSTON, MA 02122

JUNE 28, 2025 | ISSUED FOR CONSTRUCTION

MassDOT Massachusetts Department of Transportation Highway Division

PROPOSED BRIDGE PRESERVATION

CUMMINGTON

ST 9/ST 112

OVER EAST BRANCH WESTFIELD RIVER

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

Alexander K. Bardow, P.E. — Digitally signed by Alexander K. Bardow, P.E. Date: 2025.06.27 09:15:46 -04'00'
STATE BRIDGE ENGINEER

Carrie Lavallee, P.E. — 2025.06.27 10:09:56 -04'00'
CHIEF ENGINEER

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	37	73
	PROJECT FILE NO. 612514		

GENERAL NOTES

GENERAL NOTES:

DESIGN:
IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, 17TH EDITION, AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), INCLUDING CURRENT INTERIMS FOR HS20 LOADING.

EXISTING BRIDGE PLANS:
PLANS FOR THE EXISTING BRIDGE ARE AVAILABLE AND MAY BE OBTAINED FROM THE MASSDOT PLANS AND RECORDS DEPARTMENT VIA BIDX OR THROUGH ELECTRONIC TRANSMISSION.

MASSDOT SURVEY NOTEBOOKS:
FIELD SURVEY WAS PERFORMED BY DAWOOD ENGINEERING AND WAS ELECTRONICALLY RECORDED. COPIES OF FILES MAY BE OBTAINED FROM MASSDOT.

MASSDOT BENCH MARK AND ELEVATIONS:
BENCH MARK BM 11621, MAGS DISK ON SOUTHEAST WINGWALL.
EL = 994.90
NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

DATE:
TO BE PLACED ON THE INSIDE FACE OF THE NORTHEAST AND SOUTHWEST HIGHWAY GUARDRAIL TRANSITIONS AND NORTHEAST CM–TL3 TERMINUS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE ORIGINAL CONSTRUCTION OF THE BRIDGE. THE NORTHEAST AND SOUTHWEST GUARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.

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

TRAFFIC:
ONE LANE OF TRAFFIC SHALL BE OPEN TO BI–DIRECTIONAL TRAFFIC DURING CONSTRUCTION AS SHOWN ON THE TEMPORARY TRAFFIC CONTROL PLANS.

DIMENSIONS:
DIMENSIONS, ANGLES, AND ELEVATIONS GIVEN FOR STRUCTURE ARE BASED ON THE BEST AVAILABLE INFORMATION SUPPLEMENTED BY LIMITED FIELD MEASUREMENTS AND ARE NOT GUARANTEED TO BE CORRECT. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS, ANGLES, AND ELEVATIONS. NECESSARY FOR THE COMPLETION OF ALL WORK, BY FIELD MEASUREMENTS AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING EXISTING FIELD CONDITIONS (I.E. MEMBER SIZE, PLATE SIZES, AND MEMBER CONFIGURATION) BY FIELD MEASUREMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE HAVE BEEN MADE AND SUBMITTED SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER. SHOP DRAWINGS SHALL STATE THE EXISTING DIMENSIONS, ANGLES, ELEVATIONS, AND CONDITIONS HAVE BEEN FIELD VERIFIED BY THE CONTRACTOR.

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

REINFORCEMENT:
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31, 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. EXPOXY COATED BARS, COVER $<3d_b$, OR CLEAR SPACING $<6d_b$	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"

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

EPOXY COATED BARS:
ALL REINFORCING BARS AND SUPPORTING DEVICES SHALL BE EPOXY COATED UNLESS NOTED OTHERWISE.

CAST–IN–PLACE CONCRETE:
ALL CAST–IN–PLACE CONCRETE SHALL BE 5000 PSI HP CEMENT CONCRETE UNLESS NOTED OTHERWISE.

PRECAST CONCRETE:
PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI HP CEMENT CONCRETE.

STRUCTURAL STEEL:
ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO DESIGNATION M270 (ASTM A709) GRADE 50 EXCEPT AS OTHERWISE NOTED. STRUCTURAL STEEL USED AS MAIN LOAD CARRYING MEMBERS SHALL MEET THE LONGITUDINAL REQUIRED V–NOTCH TESTING.

ALL PERMANENT STRUCTURAL STEEL SHALL BE CLEANED AND PAINTED. THE FINISH COAT SHALL BE FEDERAL STANDARD COLOR #14223, GREEN.

AFTER STEEL CLEANING HAS BEEN COMPLETED AND REINFORCED CONCRETE DECK HAS BEEN REMOVED, STEEL SHALL BE RE–EVALUATED AND ADDITIONAL STEEL REPAIRS SHALL BE DEVELOPED AS DIRECTED BY THE ENGINEER AS NECESSARY.

STRUCTURAL STEEL CLEANING AND PAINTING:
ALL STRINGERS, FLOORBEAMS, ARCH RIBS, PLATES, AND ALL OTHER STEEL COMPONENTS SHALL BE CLEANED (FULL REMOVAL) AND PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

WELDING:
ALL WELDING AND THE PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES, THE BRIDGE WELDING CODE (AASHTO/AWS D1.5) AND ALL INTERIM REVISIONS PUBLISHED BY AASHTO AS OF BID OPENING DATE.

BOLTS:
ALL BOLTS SHALL BE $\frac{7}{8}$" DIAMETER AND SHALL CONFORM TO ASTM F3125 GRADE A325, THREADS EXCLUDED FROM SHEAR PLANE. HARDENED WASHERS SHALL BE PLACED UNDER THE TURNED ELEMENT. NUTS SHALL BE AS LISTED IN ASTM F3125 AS RECOMMENDED OR SUITABLE FOR THE BOLT. ALL BOLTS SHALL BE MECHANICALLY GALVANIZED. ALL CONNECTIONS SHALL BE CONSIDERED SLIP–CRITICAL WITH CLASS B FAYING SURFACES.

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

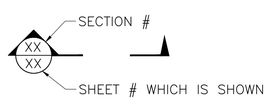
THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF ALL EXISTING MATERIALS WHICH ARE TO BE REMOVED FROM THE STRUCTURE AS SHOWN ON THE PLANS. THE BID PRICE FOR EACH REPAIR SHALL INCLUDE THE COMPLETE COST OF REMOVAL, HANDLING AND LEGAL DISPOSAL OF SUCH MATERIALS.

UTILITIES:
ALL EXISTING UTILITIES SHALL BE LOCATED AND PROTECTED BY THE CONTRACTOR.

CONSTRUCTION NOTES:
NO DEBRIS OR CONSTRUCTION MATERIAL SHALL BE SPILLED OR DUMPED INTO THE EAST BRANCH WESTFIELD RIVER DURING CONSTRUCTION.

ESTIMATE OF QUANTITIES
(NOT GUARANTEED)

STRUCTURAL STEEL REPAIR – ROADWAY STRINGER REPLACEMENT	15,000	LB
STRUCTURAL STEEL REPAIR – STRINGER STUB REPLACEMENT	2,500	LB
STRUCTURAL STEEL REPAIR – SIDEWALK STRINGER SW1	4,800	LB
STRUCTURAL STEEL REPAIR – SIDEWALK STRINGER SW2	3,500	LB
STRUCTURAL STEEL REPAIR – SIDEWALK STRINGER SW3	3,600	LB
STRUCTURAL STEEL – REPAIRS	26,500	LB
RIVET REPLACEMENT WITH HIGH STRENGTH BOLT	75	EA
DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. C–21–002	1	LS
SUBSTUCTURE REINFORCED CONCRETE EXCAVATION FOR REPAIRS	8	CY
BRIDGE EXCAVATION	170	CY
4000 PSI, $\frac{3}{8}$ INCH, 660 CEMENT CONCRETE	8	CY
CEMENTITIOUS MORTAR FOR PATCHING	100	SF
DRILLED AND GROUTED #5 DOWELS	500	EA
CLEAN (FULL REMOVAL) AND PAINT STEEL BRIDGE NO. C–21–002	1	LS
CONTROL OF WATER – STRUCTURE NO. C–21–002	1	LS
ALTERATION TO BRIDGE STRUCTURE NO. C–21–002	1	LS

SECTION MARK:


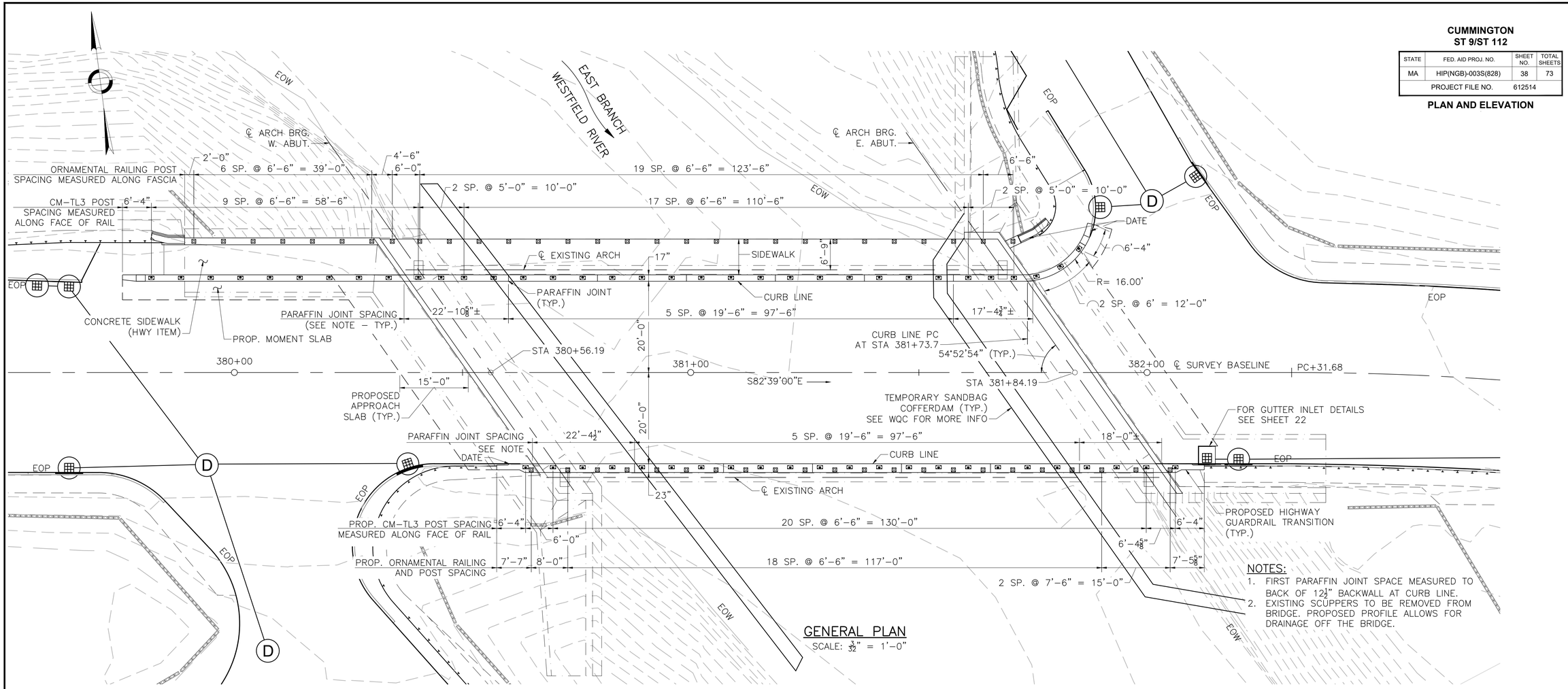
JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

CUMMINGTON
ST 9/ST 112

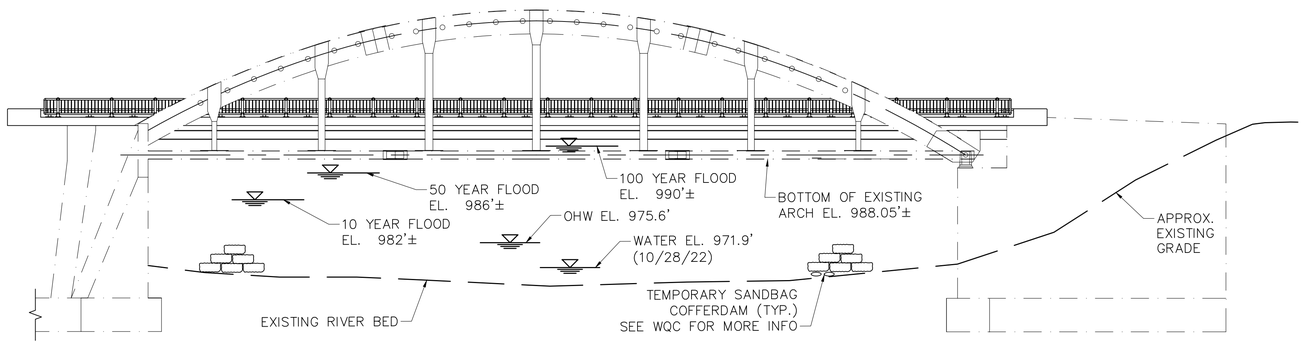
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	38	73
	PROJECT FILE NO. 612514		

PLAN AND ELEVATION



GENERAL PLAN
SCALE: $\frac{3}{32}$" = 1'–0"

NOTES:
1. FIRST PARAFFIN JOINT SPACE MEASURED TO BACK OF 12½" BACKWALL AT CURB LINE.
2. EXISTING SCUPPERS TO BE REMOVED FROM BRIDGE. PROPOSED PROFILE ALLOWS FOR DRAINAGE OFF THE BRIDGE.



SOUTHERLY ELEVATION
SCALE: $\frac{3}{32}$" = 1'–0"

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
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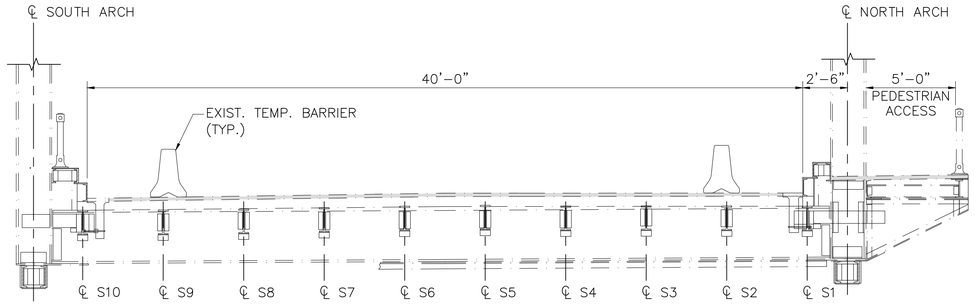
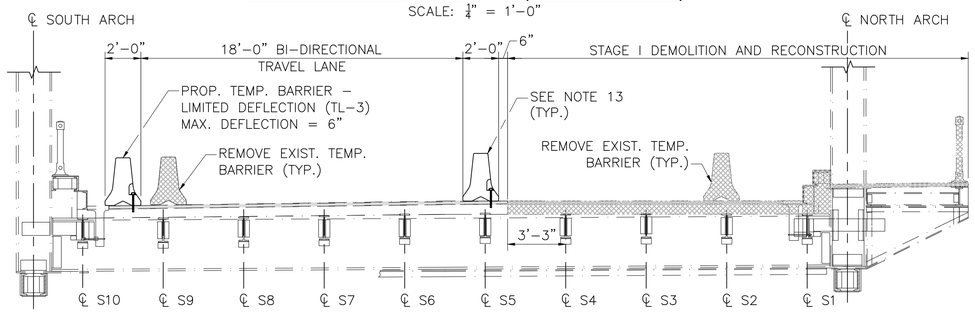


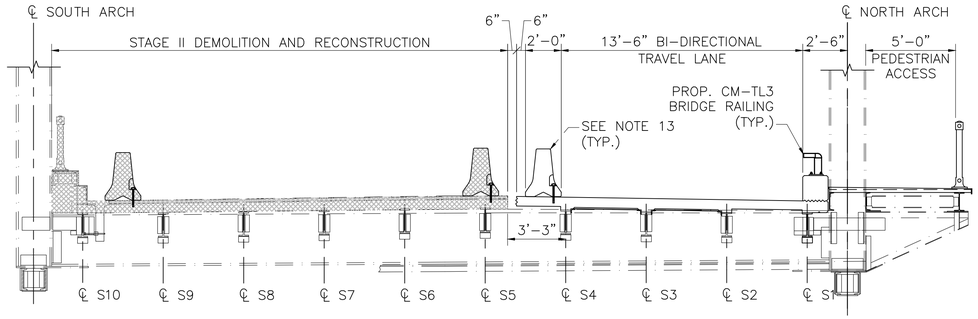
EXISTING CROSS SECTION (LOOKING WEST)

SCALE: $\frac{1}{4}$" = 1'–0"



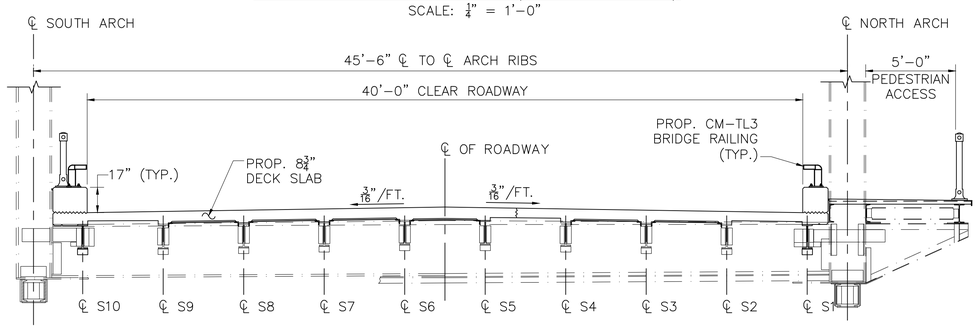
STAGE I CONSTRUCTION (LOOKING WEST)

SCALE: $\frac{1}{4}$" = 1'–0"



STAGE II CONSTRUCTION (LOOKING WEST)

SCALE: $\frac{1}{4}$" = 1'–0"



PROPOSED CROSS SECTION (LOOKING WEST)

SCALE: $\frac{1}{4}$" = 1'–0"

SEQUENCE OF CONSTRUCTION NOTES

1. CLEAN (FULL REMOVAL) AND PRIME STRUCTURAL STEEL (MAY BE DONE PRIOR TO OR DURING STAGE I TTCP).

STAGE I

2. INSTALL TEMPORARY TRAFFIC SIGNAL SYSTEM AND STAGE I TRAFFIC MANAGEMENT CONTROLS. TRANSFER TRAFFIC TO STAGE II DECK AND RELOCATED PEDESTRIAN CROSSING.
3. REPAIR FLOORBEAM FB4. THE CONTRACTOR IS NOT PERMITTED TO LOAD BRIDGE WITH ANY EQUIPMENT PRIOR TO FLOORBEAM FB4 REPAIR, SEE SHEET 13 FOR DETAILS.
4. DEMOLISH STAGE I DECK, SIDEWALK, AND ABUTMENT BACKWALL.
5. PERFORM STAGE I STEEL REPAIRS AND ABUTMENT MODIFICATIONS.
6. RECONSTRUCT STAGE I DECK AND SIDEWALK.
7. COMPLETE STAGE I ROADWAY APPROACH WORK.

STAGE II

8. INSTALL STAGE II TRAFFIC MANAGEMENT CONTROLS AND TRANSFER TRAFFIC TO NEWLY CONSTRUCTED STAGE I DECK AND SIDEWALK.
9. DEMOLISH STAGE II DECK AND ABUTMENT BACKWALL.
10. PERFORM STAGE II STEEL REPAIRS AND ABUTMENT MODIFICATIONS.
11. RECONSTRUCT STAGE II DECK.
12. COMPLETE STAGE II ROADWAY APPROACH WORK.

POST–STAGE II

13. PAINT INTERMEDIATE AND FINAL COATS ON STRUCTURAL STEEL (MAY BE DONE PRIOR TO REMOVAL OF STAGE II TTCP OR AFTER).

ADDITIONAL NOTES

14. ON BRIDGE DECK PROVIDE 6" TEMPORARY LIMITED DEFLECTION BARRIER. OFF BRIDGE PROVIDE 6" TEMPORARY LIMITED DEFLECTION BARRIER.

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	39	73
PROJECT FILE NO.	612514		

SEQUENCE OF CONSTRUCTION

JUNE 28, 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

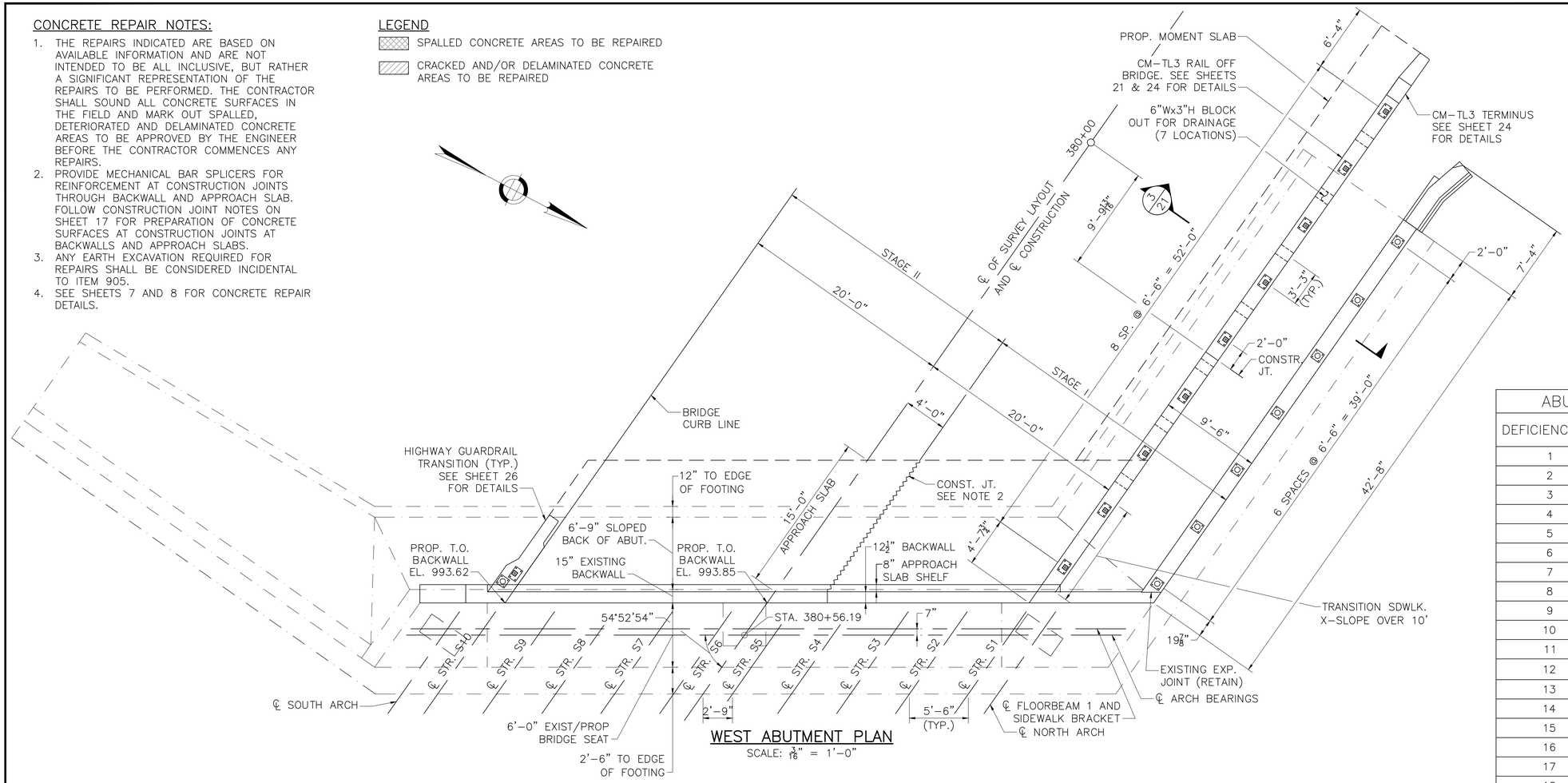
CONCRETE REPAIR NOTES:

1. THE REPAIRS INDICATED ARE BASED ON AVAILABLE INFORMATION AND ARE NOT INTENDED TO BE ALL INCLUSIVE, BUT RATHER A SIGNIFICANT REPRESENTATION OF THE REPAIRS TO BE PERFORMED. THE CONTRACTOR SHALL SOUND ALL CONCRETE SURFACES IN THE FIELD AND MARK OUT SPALLED, DETERIORATED AND DELAMINATED CONCRETE AREAS TO BE APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR COMMENCES ANY REPAIRS.
2. PROVIDE MECHANICAL BAR SPLICERS FOR REINFORCEMENT AT CONSTRUCTION JOINTS THROUGH BACKWALL AND APPROACH SLAB. FOLLOW CONSTRUCTION JOINT NOTES ON SHEET 17 FOR PREPARATION OF CONCRETE SURFACES AT CONSTRUCTION JOINTS AT BACKWALLS AND APPROACH SLABS.
3. ANY EARTH EXCAVATION REQUIRED FOR REPAIRS SHALL BE CONSIDERED INCIDENTAL TO ITEM 905.
4. SEE SHEETS 7 AND 8 FOR CONCRETE REPAIR DETAILS.

LEGEND

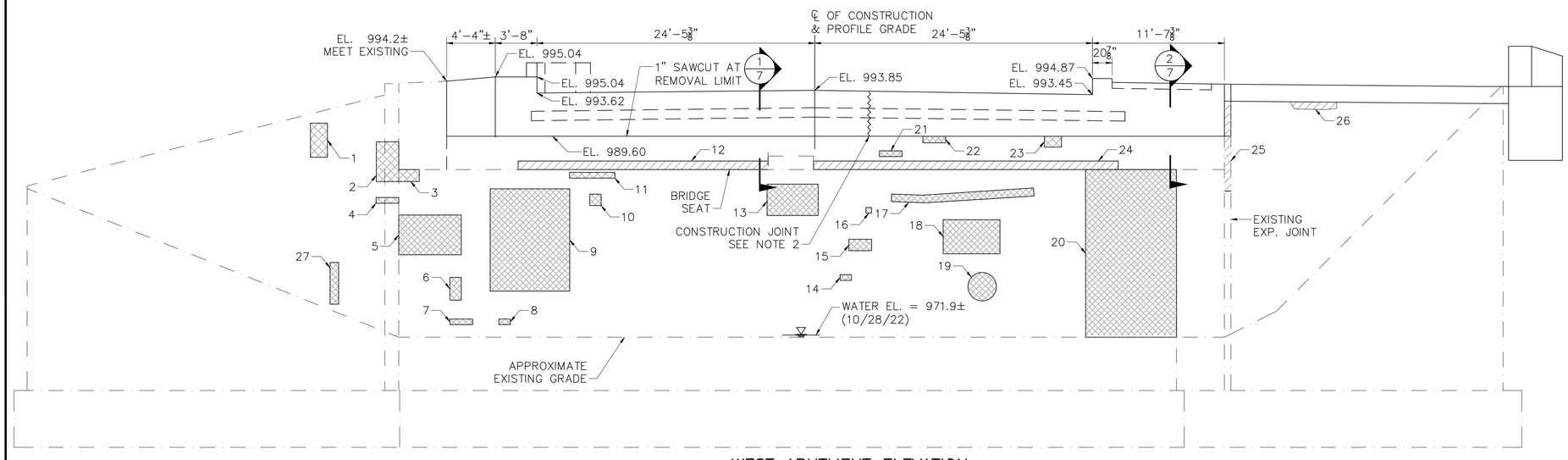
SPALLED CONCRETE AREAS TO BE REPAIRED

CRACKED AND/OR DELAMINATED CONCRETE AREAS TO BE REPAIRED



WEST ABUTMENT PLAN

SCALE: 3/16" = 1'-0"



WEST ABUTMENT ELEVATION

SCALE: 3/16" = 1'-0"

ABUTMENT CONCRETE DEFICIENCIES

DEFICIENCY ID	DEFICIENCY TYPE	APPROX. DIMS.
1	SPALL	18"W X 3'-6"H
2	SPALL	2'-0"W X 3'-6"H
3	SPALL	3'-0"W X 18"H
4	SPALL	4'-0"W X 6"H
5	SPALL	6'-6"W X 4'-0"H
6	SPALL	12"W X 2'-0"H
7	SPALL	3'-0"W X 8"H
8	SPALL	12"W X 6"H
9	SPALL	8'-0"W X 9'-0"H
10	SPALL	12"W X 12"H
11	SPALL	4'-0"W X 6"H
12	CRACK/DELAMINATION	22'-0"W X 9"H
13	SPALL	8'-6"W X 3'-0"H
14	SPALL	12"W X 6"H
15	SPALL	12"W X 2'-0"H
16	SPALL	6"W X 6"H
17	SPALL	12'-6"W X 8"H
18	SPALL	5'-0"W X 3'-0"H
19	SPALL	4'-6"W X 2'-6"H
20	SPALL	8'-0"W X 14'-9"H
21	SPALL	2'-0"W X 6"H
22	SPALL	2'-0"W X 7"H
23	SPALL	18"W X 12"H
24	CRACK/DELAMINATION	26'-10"W X 9"H
25	CRACK/DELAMINATION	7"W X 7'-11"H
26	CRACK/DELAMINATION	4'-1"W X 8"H
27	SPALL	9"W X 3'-8"H

NOTE: DEFICIENCY DIMENSIONS ARE APPROXIMATE, TO BE VERIFIED BY CONTRACTOR IN FIELD.

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	40	73
PROJECT FILE NO.	612514		

WEST ABUTMENT PLAN AND ELEVATION

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
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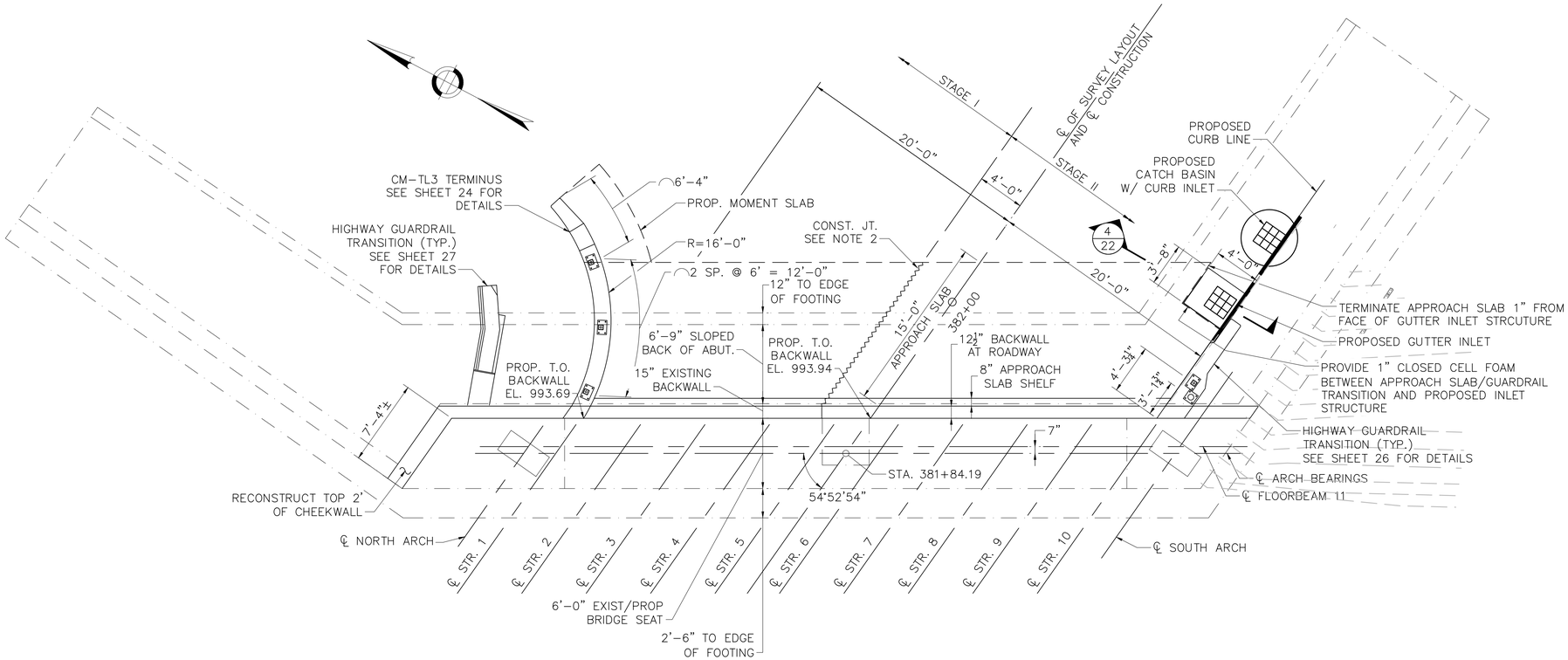
CUMMINGTON
ST 9/ST 112

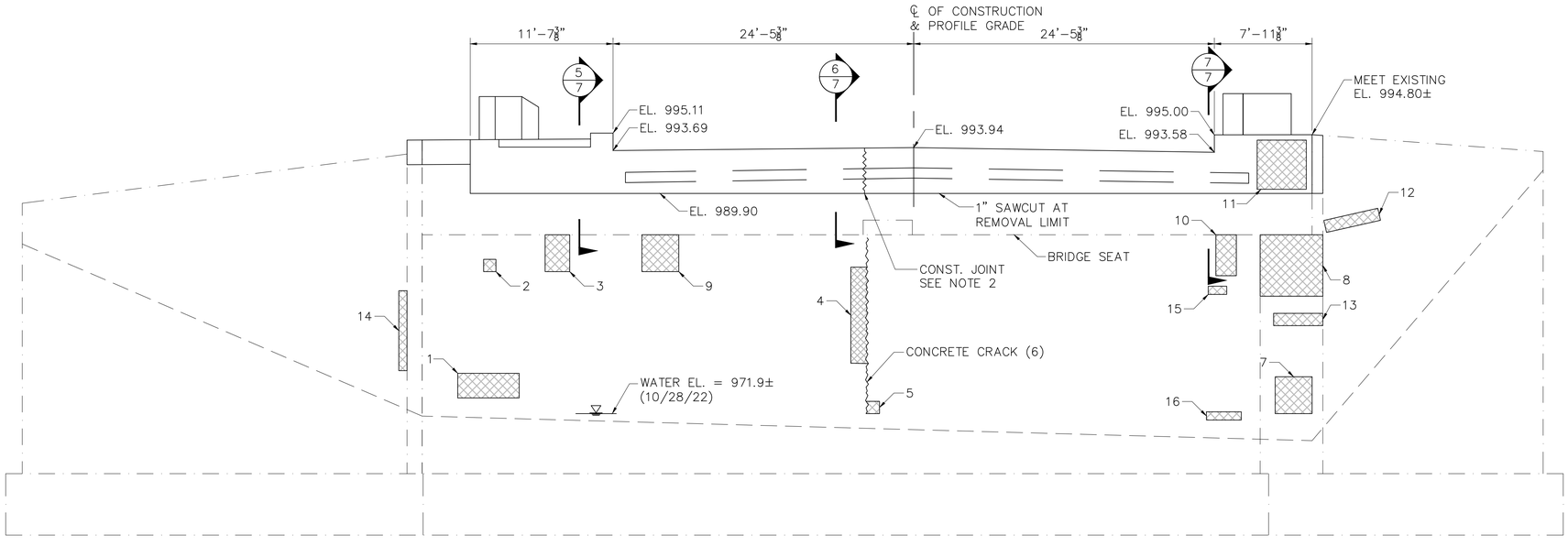
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	41	73
	PROJECT FILE NO. 612514		

EAST ABUTMENT PLAN AND ELEVATION



EAST ABUTMENT PLAN

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



EAST ABUTMENT ELEVATION

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

CONCRETE REPAIR NOTES:

1. THE REPAIRS INDICATED ARE BASED ON AVAILABLE INFORMATION AND ARE NOT INTENDED TO BE ALL INCLUSIVE, BUT RATHER A SIGNIFICANT REPRESENTATION OF THE REPAIRS TO BE PERFORMED. THE CONTRACTOR SHALL SOUND ALL CONCRETE SURFACES IN THE FIELD AND MARK OUT SPALLED, DETERIORATED AND DELAMINATED CONCRETE AREAS TO BE APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR COMMENCES ANY REPAIRS.
2. PROVIDE MECHANICAL BAR SPLICERS FOR REINFORCEMENT AT CONSTRUCTION JOINTS THROUGH BACKWALL AND APPROACH SLAB. FOLLOW CONSTRUCTION JOINT NOTES ON SHEET 17 FOR PREPARATION OF CONCRETE SURFACES AT CONSTRUCTION JOINTS AT BACKWALLS AND APPROACH SLABS.
3. ANY EARTH EXCAVATION REQUIRED FOR REPAIRS SHALL BE CONSIDERED INCIDENTAL TO ITEM 905.
4. SEE SHEETS 7 AND 8 FOR CONCRETE REPAIR DETAILS.

LEGEND

- SPALLED CONCRETE AREAS TO BE REPAIRED
- CRACKED AND/OR DELAMINATED CONCRETE AREAS TO BE REPAIRED
- CONCRETE CRACK

ABUTMENT CONCRETE DEFICIENCIES		
DEFICIENCY ID	DEFICIENCY TYPE	APPROX. DIMS.
1	SPALL	5'-0"W X 2'-0"H
2	SPALL	2'-0"W X 12"H
3	SPALL	3'-0"W X 2'-0"H
4	SPALL	18"W X 10'-4"H
5	SPALL	13"W X 12"H
6	CRACK	1"W X 14'-6"H
7	SPALL	4'-0"W X 3'-0"H
8	SPALL	10'-0"W X 5'-0"H
9	SPALL	3'-0"W X 3'-0"H
10	SPALL	1'-8"W X 3'-4"H
11	SPALL	4'-0"W X 4'-0"H
12	SPALL	4'-6"W X 12"H
13	SPALL	4'-0"W X 12"H
14	SPALL	8"W X 6'-6"H
15	SPALL	18"W X 8"H
16	SPALL	2'-10" X 8"H

NOTE: DEFICIENCY DIMENSIONS ARE APPROXIMATE, TO BE VERIFIED BY CONTRACTOR IN FIELD.

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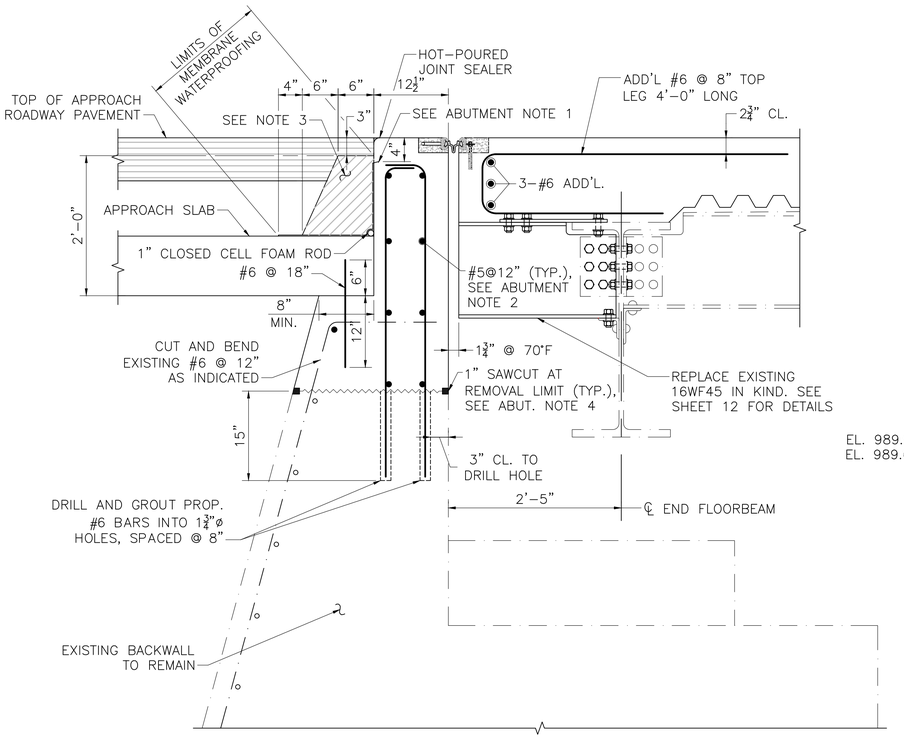
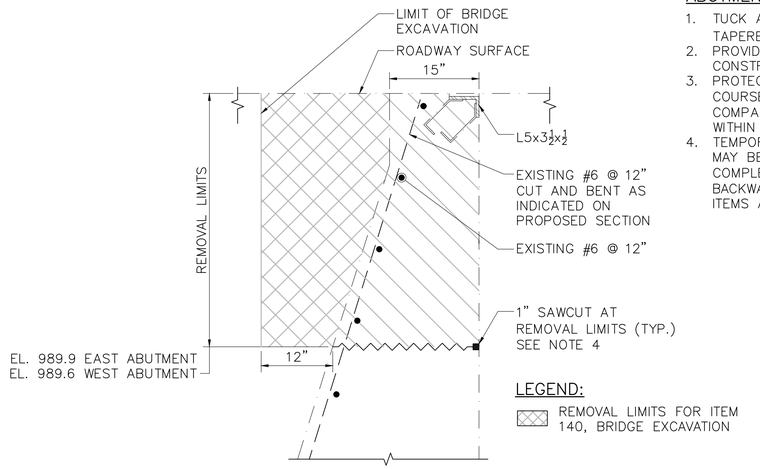


DETAILS AT ABUTMENT – ROADWAY SECTION (1/5, 6/6)

SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT – EXISTING ROADWAY SECTION (1/5, 6/6)

SCALE: 1" = 1'-0"

ABUTMENT NOTES:

1. TUCK AND NAIL END OF MEMBRANE WATERPROOFING INTO A TAPERED ½" DEEP x 2" HIGH POCKET WITH JOINT SEALER.
2. PROVIDE MECHANICAL BAR SPLICES FOR REINFORCEMENT AT CONSTRUCTION JOINT BETWEEN STAGES.
3. PROTECTIVE COURSE TO BE HOT MIX ASPHALT DENSE BINDER COURSE FOR BRIDGES, PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.
4. TEMPORARY REMOVAL OF FLOORBEAMS OR STRINGERS THAT MAY BE REQUIRED TO PROVIDE ACCESS TO THE BACKWALL TO COMPLETE THE 1" SAWCUT AND CONCRETE REMOVAL OF THE BACKWALL WILL BE CONSIDERED INCIDENTAL TO DEMOLITION ITEMS AND WILL NOT BE PAID FOR SEPARATELY.

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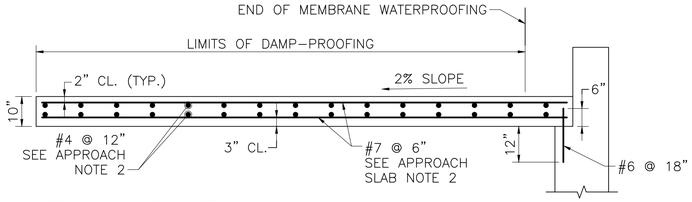
ABUTMENT DETAILS I

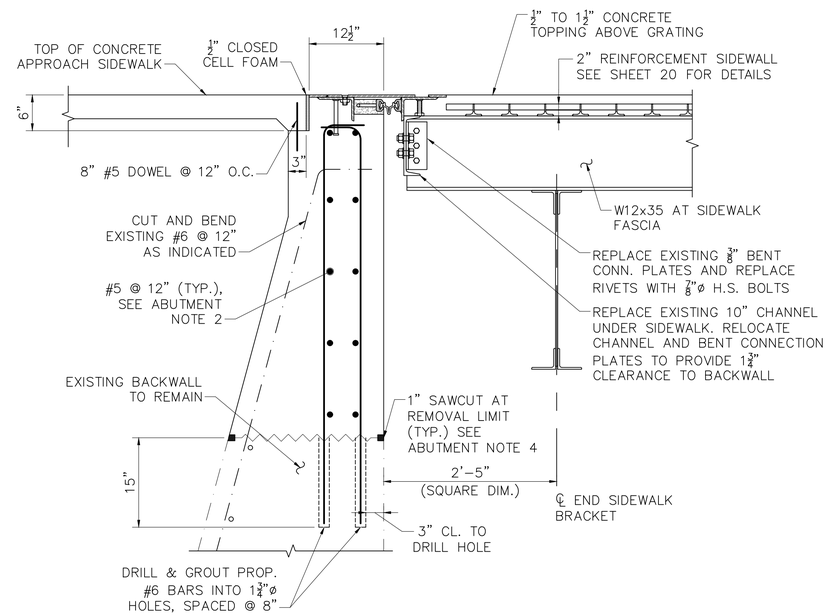


APPROACH SLAB NOTES:

1. APPROACH SLAB TO BE 5000 PSI HP CEMENT CONCRETE.
2. PLACE LONGITUDINAL REINFORCEMENT PARALLEL TO CENTERLINE OF CONSTRUCTION. PLACE TRANSVERSE REINFORCEMENT PARALLEL TO ABUTMENT.

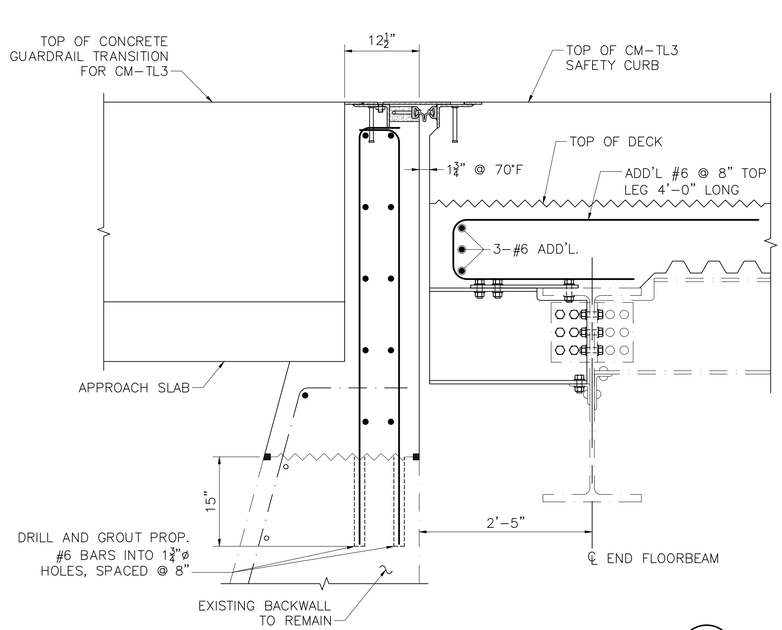
APPROACH SLAB DETAILS

SCALE: ½" =1'-0"



DETAILS AT ABUTMENT – SIDEWALK SECTION (2/5, 5/6)

SCALE: 1" = 1'-0"



DETAILS AT ABUTMENT – SAFETY CURB SECTION (7/6)

SCALE: 1" = 1'-0"

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MA	HIP(NGB)-003S(828)	43	73
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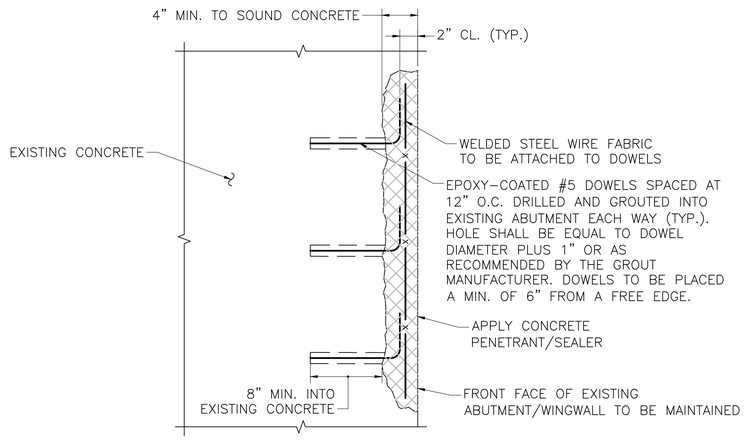
ABUTMENT DETAILS II

EXCAVATION AND SURFACE REPAIR NOTES:

1. THE CONTRACTOR SHALL EXERCISE CARE WHEN REMOVING CONCRETE TO ONLY REMOVE DETERIORATED CONCRETE AND TO LIMIT THE SOUND CONCRETE REMOVED TO THE MINIMUM NECESSARY TO EFFECT A GOOD REPAIR.
2. THE CONTRACTOR SHALL ESTABLISH LIMITS OF VARIOUS REPAIRS AS SHOWN ON THE PLANS AND AT THE DIRECTION OF THE ENGINEER. THE LOCATIONS SHOWN ON THE PLANS ARE BASED UPON RECORDS OF BRIDGE INSPECTIONS AND ARE NOT GUARANTEED. THE LOCATION AND EXTENT OF ALL CONCRETE REPAIRS ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREAS. REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARE CORNERS.
3. THE LIMITS OF THE REPAIRS SHALL BE SAWCUT ALONG NEAT LINES TO A DEPTH OF $\frac{3}{4}$" TO PRODUCE A CLEAN EDGE.
4. REMOVE DETERIORATED AND UNSOUND CONCRETE AS WELL AS SOUND CONCRETE WHERE NECESSARY TO A MINIMUM OF 4" BEYOND SURFACE OF ABUTMENT/WINGWALL.
5. AFTER REMOVAL AND EDGE PREPARATION ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASION BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO ENSURE THAT THE SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
6. 4000 PSI, $\frac{3}{8}$ INCH, 660 CEMENT CONCRETE SHALL BE USED TO PERFORM THE REPAIRS.
7. PRESOAK CONCRETE SUBSTRATE WITH A WATER HOSE FOR 24 HOURS OR AS LONG AS SITE CONSTRAINTS PERMIT. AT TIME OF REPAIR CONCRETE PLACEMENT, SUBSTRATE SHALL BE SATURATED SURFACE DRY WITH NO STANDING WATER.
8. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES.
9. IF AN EPOXY BONDING COMPOUND IS USED (AS DIRECTED BY THE ENGINEER), THE MATERIALS SHALL MEET AASHTO M235 TYPE V. GRADE AND CLASS SHALL BE SPECIFIED FOR EACH INDIVIDUAL APPLICATION. THE EPOXY COMPOUND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IN NO CASE WILL THE EPOXY BONDING COMPOUND BE ALLOWED TO CURE TO A HARDENED STATE PRIOR TO CONCRETE PLACEMENT. IF THIS DOES OCCUR IT MUST BE COMPLETELY REMOVED. EPOXY BONDING COMPOUND USED MUST BE ON THE MASSDOT QUALIFIED CONSTRUCTION MATERIALS LIST.
10. FRONT FACE OF EXISTING ABUTMENT/WINGWALL TO BE MAINTAINED.
11. CONTRACTOR SHALL LIMIT THEIR EXCAVATION TO 2" BEYOND THE DEPTH OF DETERIORATED CONCRETE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF THE EXISTING CONCRETE IS DETERIORATED BEYOND 6" FROM THE FACE OF THE ABUTMENT/WINGWALL FOR DETERMINATION OF HOW MUCH ADDITIONAL EXCAVATION IS ALLOWED.



ABUTMENT/WINGWALL PARTIAL DEPTH REPAIR

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

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MA	HIP(NGB)-003S(828)	44	73
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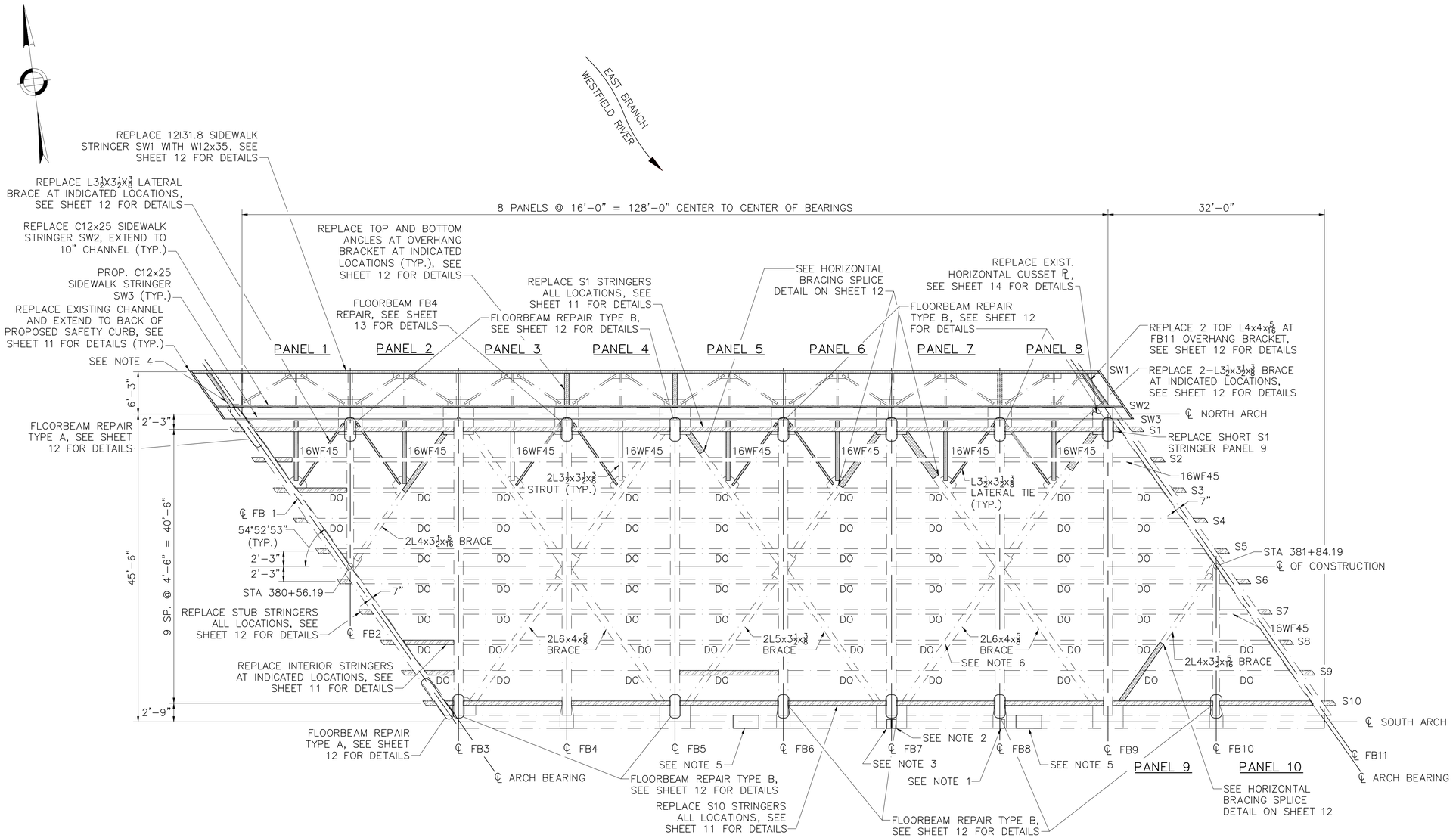
FRAMING PLAN



EXISTING FRAMING PLAN WITH PROPOSED STEEL REPAIRS

SCALE: ⅛" = 1'–0"

LEGEND:

- EXISTING STRINGER OR STRINGER STUB TO BE REPLACED WITH W16x45
- EXISTING SIDEWALK STRINGER SW1 TO BE REPLACED WITH W12x35
- EXISTING SIDEWALK STRINGER SW2 TO BE REPLACED WITH C12x25
- SIDEWALK BRACKET TOP 2L4X4X5/16 AND BOTTOM 2L4x3½x5/16 REPLACED IN–KIND
- EXISTING 2L BRACING TO BE REPLACED IN–KIND
- EXISTING L3½x3½x⅜ LATERAL TIE TO BE REPLACED IN–KIND
- EXISTING 2L3½x3½x⅜ STRUT TO BE REPLACED IN–KIND
- EXISTING 10C20 TO BE REPLACED WITH C10x20

STEEL REPAIR NOTES:

1. AT FB8, SOUTH END, EAST SIDE – REPLACE RIVETS CONNECTING BOTTOM HORIZONTAL CONNECTION ANGLE TO BOTTOM HORIZONTAL CONNECTION PLATE. REPLACE RIVETS CONNECTING BOTTOM HORIZONTAL CONNECTION ANGLE TO W24 HANGER.
2. AT FB7, SOUTH END – REPLACE TIE BEAM BOTTOM ½" TIE PLATE UNDER W24 HANGER (ESTIMATE 16"W x 30"L ±).
3. AT FB7, SOUTH END, WEST SIDE – REPLACE RIVETS CONNECTING BOTTOM HORIZONTAL CONNECTION ANGLE TO BOTTOM HORIZONTAL GUSSET.
4. CUT EXISTING TOP 2L4x4 ANGLES OF SIDEWALK OVERHANG BRACKET BACK TO 9" BEYOND END OF FB1 AND PROVIDE 2L6x6x5/16 ANGLES TO CONNECT END OF BRACKET TO FLOORBEAM. SEE STEEL REPAIR AT FB11, SHEET 12 FOR SIMILAR DETAILS.
5. REPLACE TIE BEAM TOP AND BOTTOM SPLICE PLATE WITH 3'–7¾"x16"x½" PLATE. CONNECT TO EACH EXISTING CHANNEL WITH 6 H.S. BOLTS EACH SIDE OF SPLICE IN EXISTING HOLES, SEE TIE BEAM SPLICE PLATE REPAIR, SHEET 14.
6. AT MIDSPAN OF STRINGER 8 IN PANEL 7 ADD CONNECTION FOR BRACING MEMBERS BY UTILIZING EXISTING UNFILLED RIVET HOLES, SEE SHEET 11 FOR DETAILS.
7. UNLESS NOTED OTHERWISE, PROPOSED BOLTS SHALL BE ⅞"ø H.S. BOLTS CONFORMING TO AASHTO M164, IN 15/16"ø HOLES.

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MA	HIP(NGB)-003S(828)	45	73
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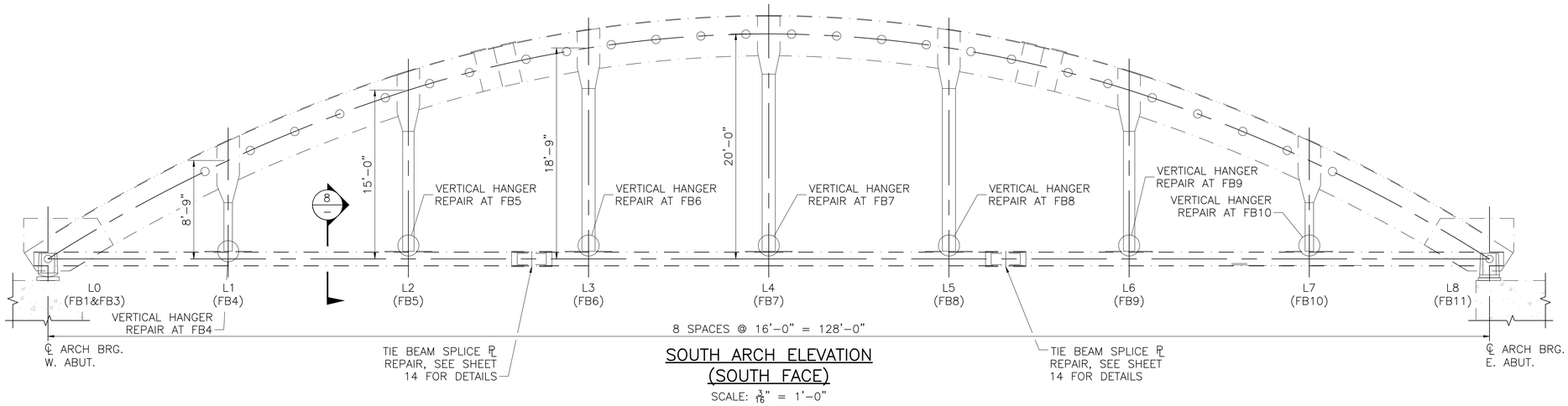
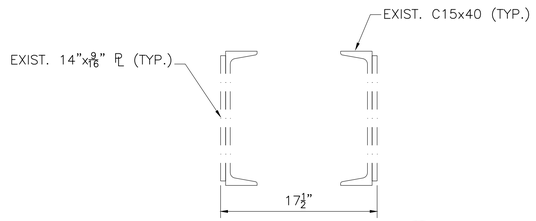
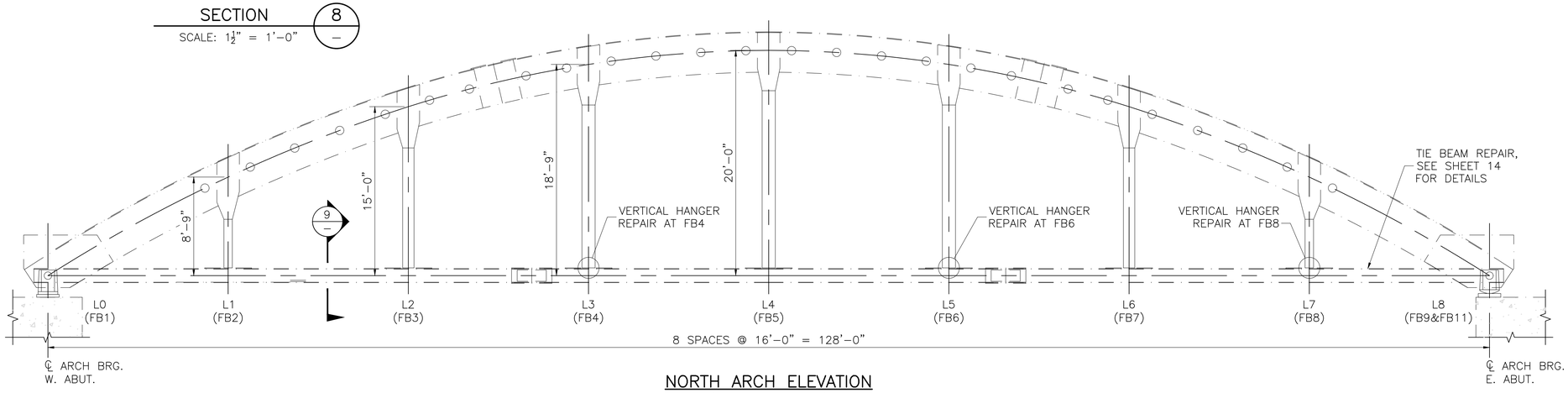
ARCH ELEVATION



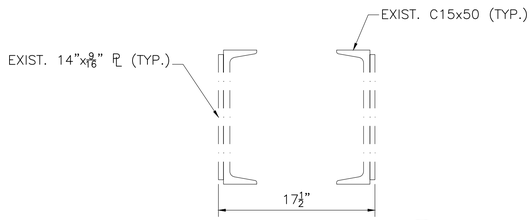
SOUTH ARCH ELEVATION
(SOUTH FACE)
SCALE: $\frac{3}{16}$" = 1'-0"



SECTION 8
SCALE: 1$\frac{1}{2}$" = 1'-0"



NORTH ARCH ELEVATION
(SOUTH FACE)
SCALE: $\frac{3}{16}$" = 1'-0"



SECTION 9
SCALE: 1$\frac{1}{2}$" = 1'-0"

NOTE:
1. REFER TO SHEET 14 FOR VERTICAL HANGER REPAIR DETAILS.
2. REFER TO SHEET 14 FOR TIE BEAM REPAIR DETAILS.

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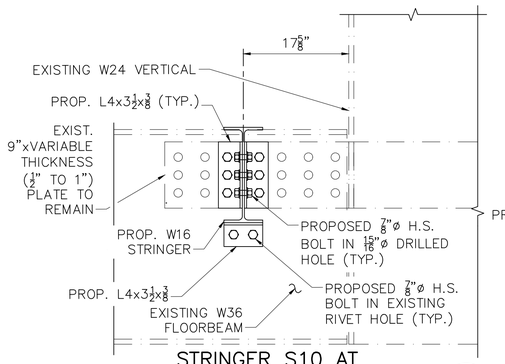
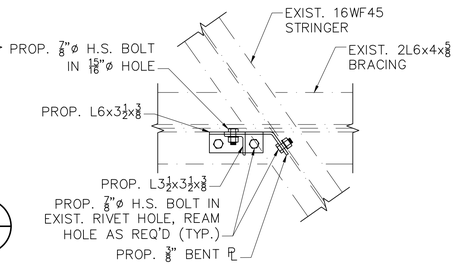


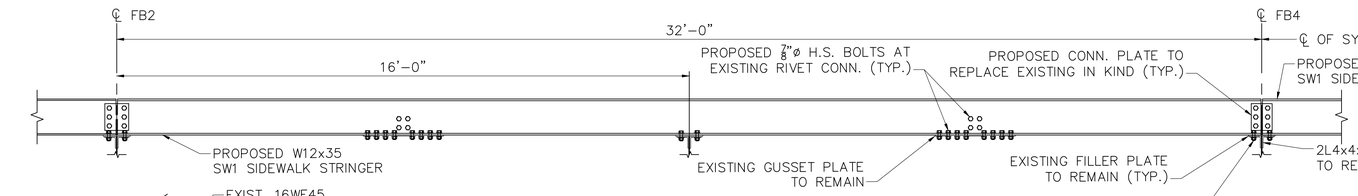
STRINGER S10 AT FLOORBEAMS 3–10 – SECTION 10/–

SCALE: 1" = 1'–0"



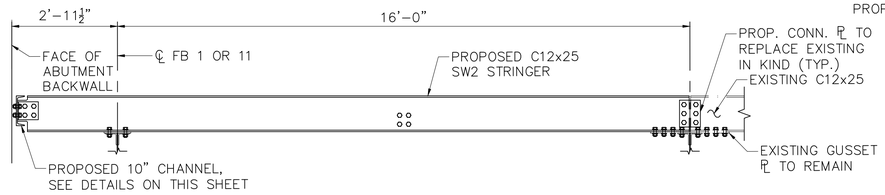
BRACING CONNECTION REPLACEMENT AT STRINGER 8 PANEL 7 PLAN

SCALE: 1" = 1'–0"



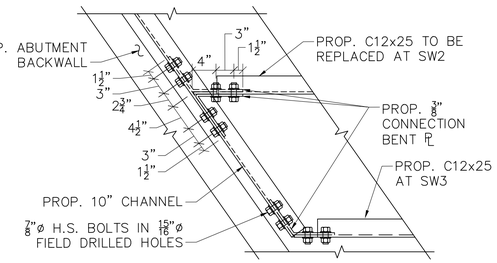
PROPOSED SW1 STRINGER REPLACEMENT

SCALE: ½" = 1'–0"



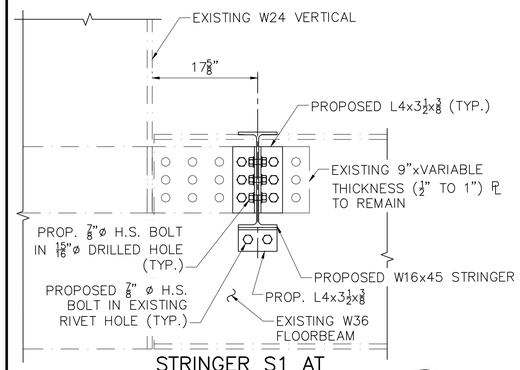
PROPOSED SW2 STRINGER REPLACEMENT

SCALE: ½" = 1'–0"



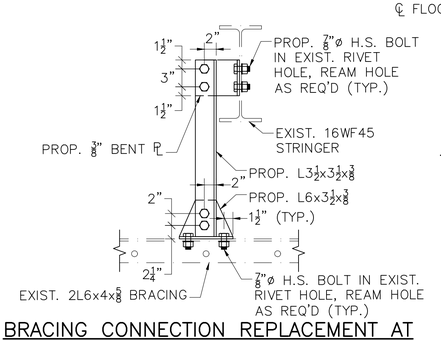
PLAN AT PROPOSED CHANNEL SW3 END CONNECTION

SCALE: 1" = 1'–0"



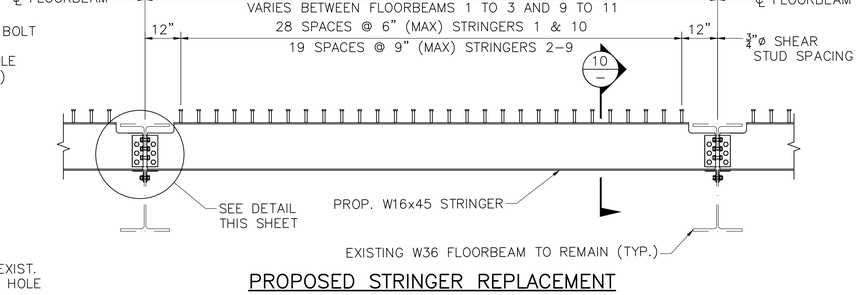
STRINGER S1 AT FLOORBEAMS 2–9 – SECTION 10/–

SCALE: 1" = 1'–0"



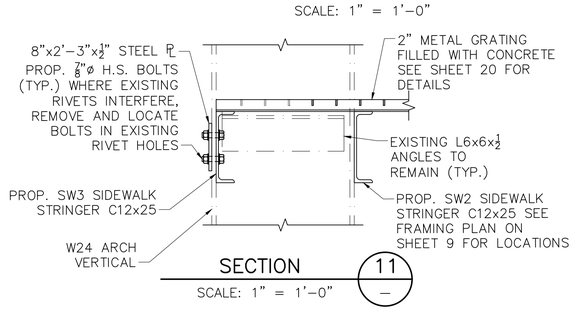
BRACING CONNECTION REPLACEMENT AT STRINGER 8 PANEL 7 ELEVATION

SCALE: 1" = 1'–0"



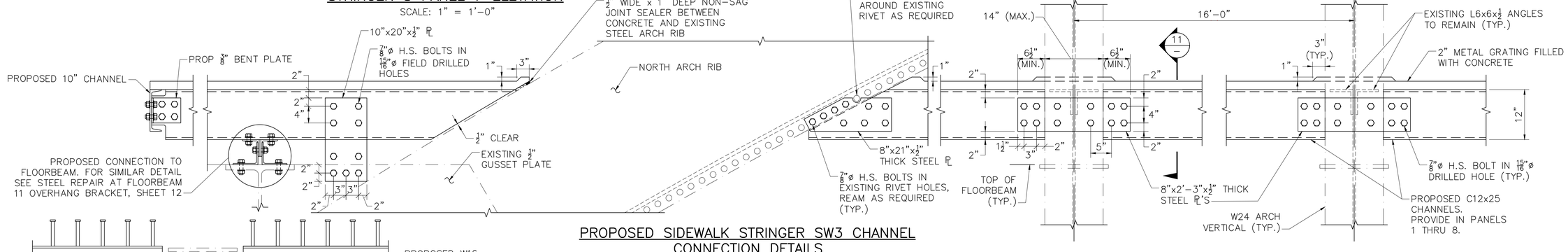
PROPOSED STRINGER REPLACEMENT

SCALE: ½" = 1'–0"



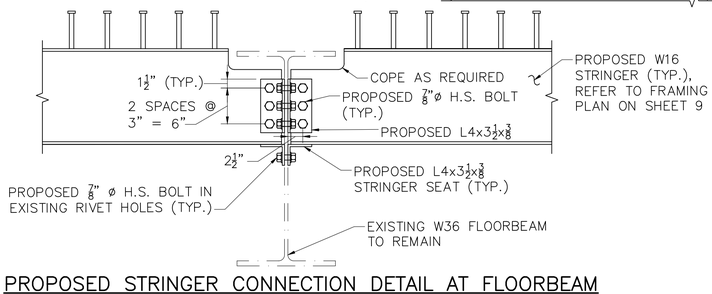
SECTION 11/–

SCALE: 1" = 1'–0"



PROPOSED SIDEWALK STRINGER SW3 CHANNEL CONNECTION DETAILS

SCALE: 1" = 1'–0"



PROPOSED STRINGER CONNECTION DETAIL AT FLOORBEAM

SCALE: 1" = 1'–0"

PROPOSED STRINGER REPLACEMENT NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS OF PROPOSED REPLACEMENT ANGLES AND ROLLED SECTIONS, AND ALL PROPOSED BOLT LOCATIONS PRIOR TO FABRICATION OF THE PROPOSED REPLACEMENT ELEMENTS. CHANGES BROUGHT TO THE ENGINEER'S ATTENTION AFTER FABRICATION OF THE PROPOSED REPLACEMENT ELEMENTS, DUE TO DISCREPANCIES PERTAINING TO THE SIZE OR BOLT LOCATIONS OF THE PROPOSED REPLACEMENT ELEMENTS AND THE AREA OR LOCATION OF THE EXISTING MEMBER DETERIORATION SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.
2. PRE–DRILL ALL FILL PLATE AND CONNECTION PLATE BOLT HOLES.
3. REFER TO FRAMING PLAN ON SHEET 9 FOR LOCATIONS.
4. CONTRACTOR SHALL DRILL AND REAM EXISTING RIVET HOLES AS REQUIRED.

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STEEL DETAILS I

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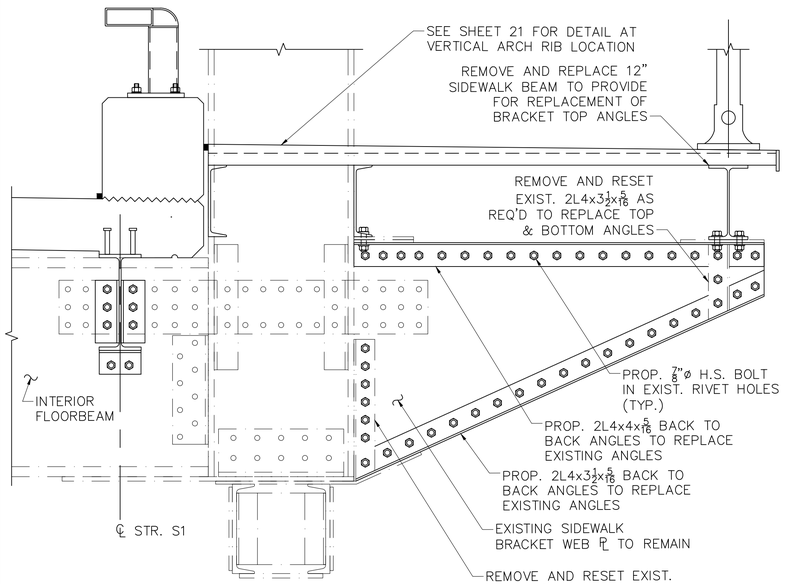
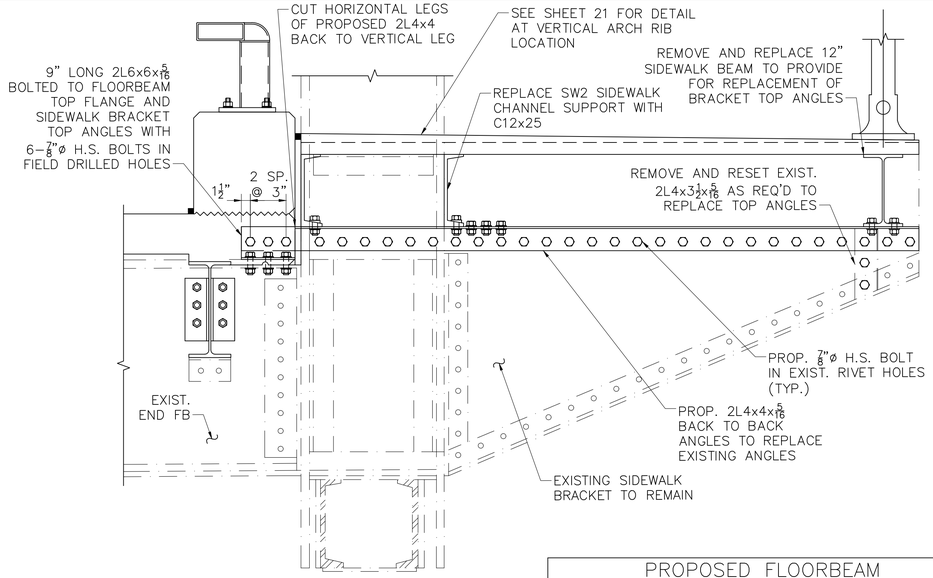


OVERHANG BRACKET STEEL REPAIR AT FLOORBEAMS 4, 5, & 8

SCALE: 1" = 1'–0"



OVERHANG BRACKET STEEL REPAIR AT END FLOORBEAMS 1 & 11

SCALE: 1" = 1'–0"

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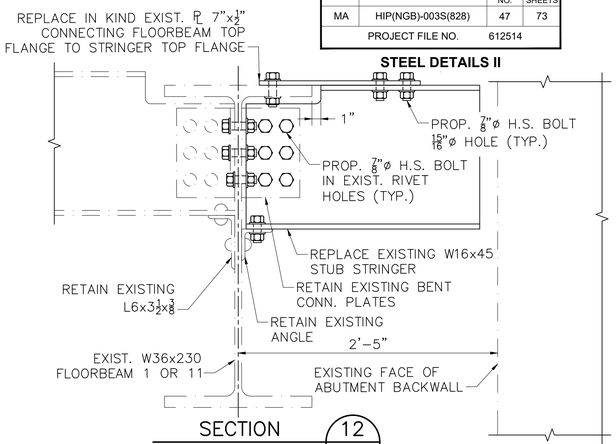
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	47	73
	PROJECT FILE NO. 612514		

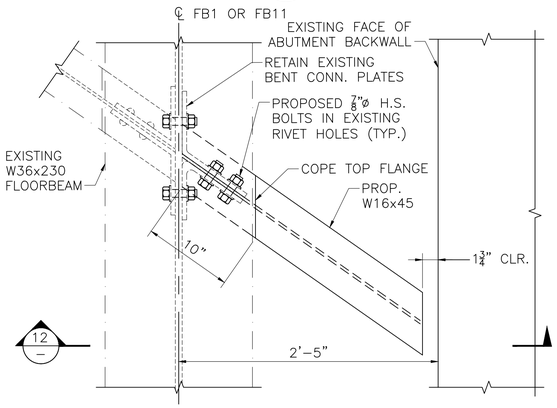
STEEL DETAILS II



SECTION 12/–

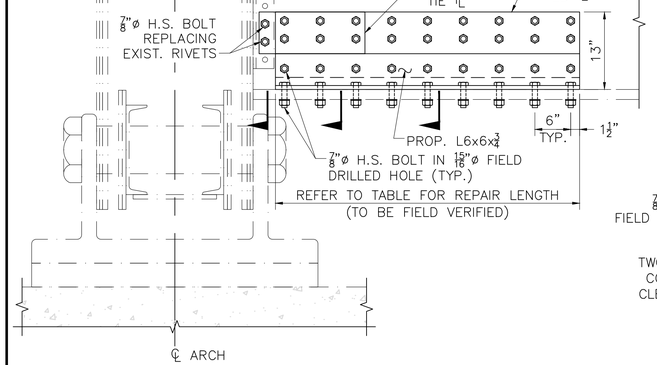
SCALE: 1½" = 1'–0"

PROPOSED FLOORBEAM END REPAIR SCHEDULE			
FLOORBEAM	LOCATION	REPAIR TYPE	REPAIR LENGTH
FB1	NORTH END	TYPE A	14'–0"
FB1	SOUTH END	TYPE A	12'–0"
FB2	NORTH END	TYPE B	8'–0"
FB3	SOUTH END	TYPE B	16'–0"
FB5	NORTH END	TYPE B	6'–0"
FB5	SOUTH END	TYPE B	8'–0"
FB6	NORTH END	TYPE B	6'–0"
FB6	SOUTH END	TYPE B	12'–0"
FB7	NORTH END	TYPE B	6'–0"
FB7	SOUTH END	TYPE B	4'–0"
FB8	NORTH END	TYPE B	6'–0"
FB8	SOUTH END	TYPE B	5'–0"
FB9	NORTH END	TYPE B	8'–0"
FB10	SOUTH END	TYPE B	8'–0"



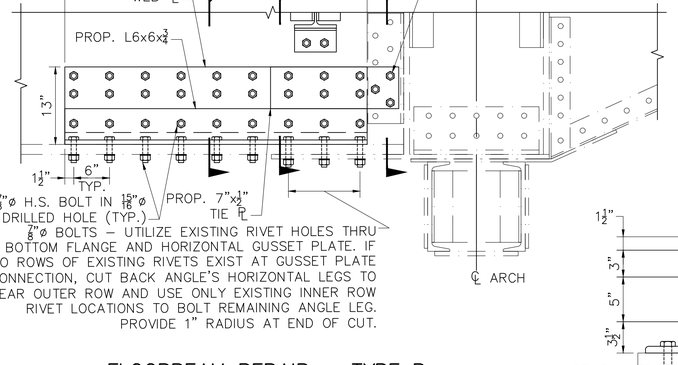
STUB STRINGER REPLACEMENT PLAN

SCALE: 1½" = 1'–0"



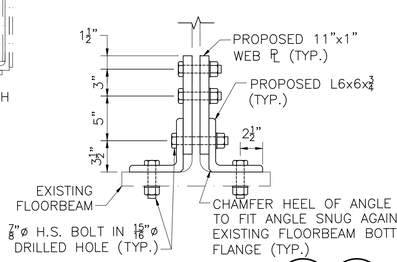
FLOORBEAM REPAIR– TYPE A (SOUTH ARCH SHOWN NORTH ARCH SIMILAR)

SCALE: 1" = 1'–0"



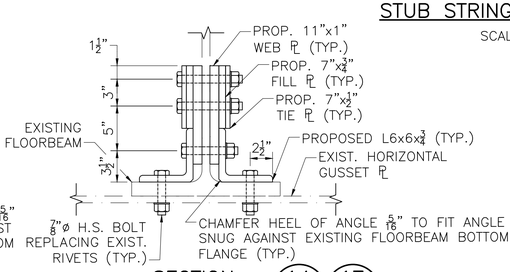
FLOORBEAM REPAIR – TYPE B (NORTH ARCH SHOWN, SOUTH ARCH SIMILAR)

SCALE: 1" = 1'–0"



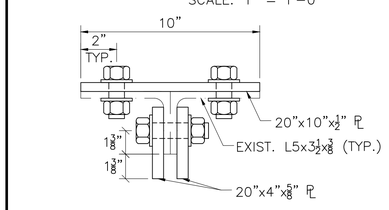
SECTION 13/– 18/–

SCALE: 1½" = 1'–0"

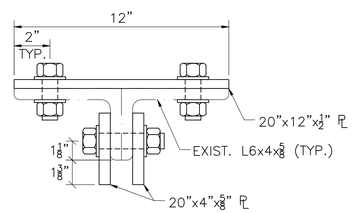


SECTION 14/– 17/–

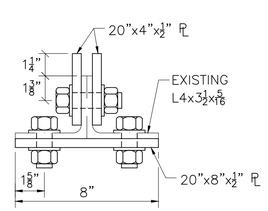
SCALE: 1½" = 1'–0"



2L5x3½x⅜ AT FLOORBEAM 5 & 7



2L6x4x⅝ AT FLOORBEAM 7 & 9

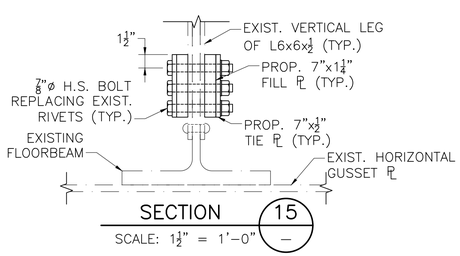


2L4x3½x5/16 AT FLOORBEAMS 3 & 9

BRACING SPLICE NOTES:
3–7/8"ø H.S. BOLTS EACH SIDE OF SPLICE (6 PER ROW) SPACED LONGITUDINALLY BETWEEN BOLTS ALONG BRACE @ 3" O.C.

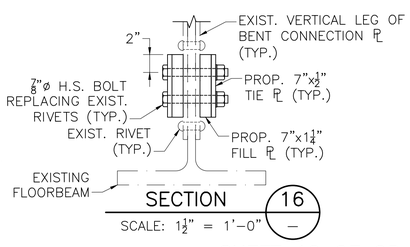
HORIZONTAL BRACING SPLICE DETAIL

SCALE: 3" = 1'–0"



SECTION 15/–

SCALE: 1½" = 1'–0"



SECTION 16/–

SCALE: 1½" = 1'–0"

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
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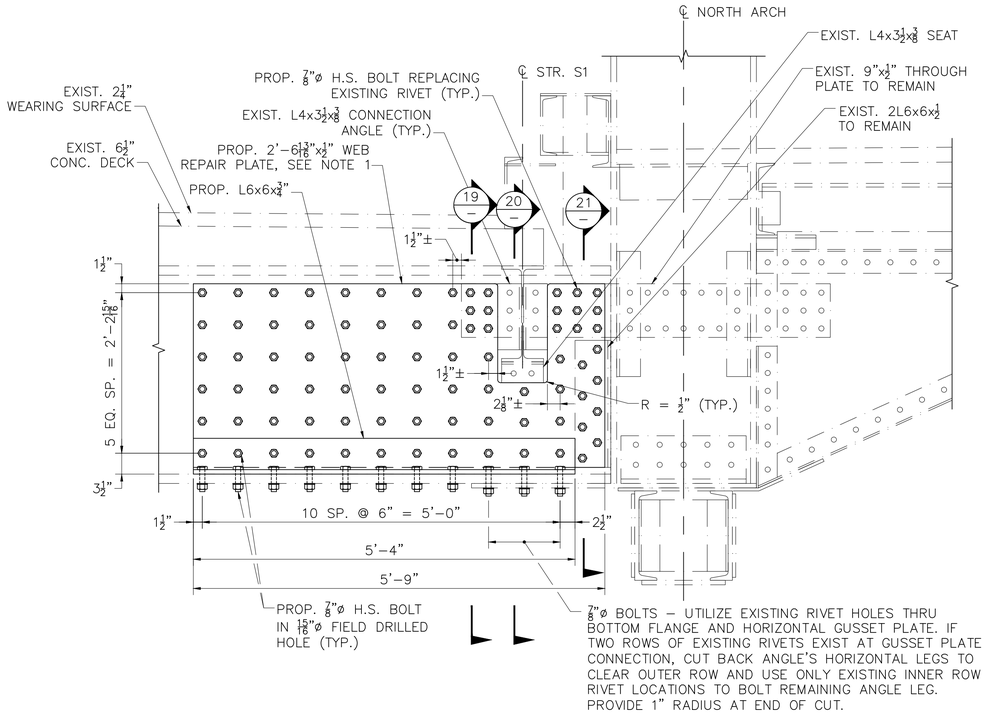
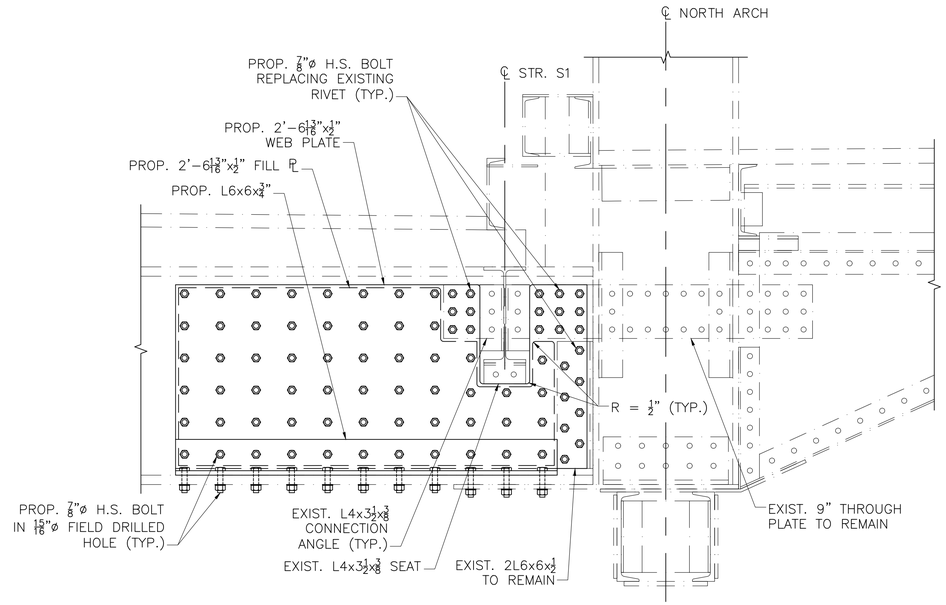


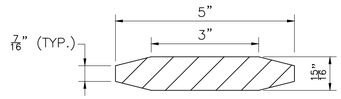
FLOORBEAM FB4 REPAIR

SCALE: 1" = 1'-0"



FLOORBEAM FB4 REPAIR FILL PLATE DETAIL

SCALE: 1" = 1'-0"



DIMENSIONS OF TAPERED PIN ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL DIMENSIONS OF PINS CAN VARY AS LONG AS THE FOLLOWING CRITERIA ARE MET.

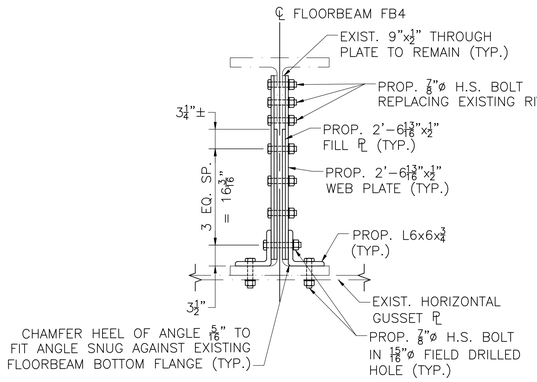
1. THE DIAMETER OF THE MAIN BODY COMPLETELY FILLS THE EXISTING HOLE AND PROVIDE FULL BEARING ON CONNECTED PARTS. IF NECESSARY, REAM EXISTING HOLE TO ENSURE GOOD FIT.
2. THE LEADING EDGE TAPER IS SUFFICIENT TO ALLOW FOR REASONABLE DRIVING OF PIN INTO PLACE.
3. THE BACK END IS TURNED TO A DIMENSION WHICH ALLOWS THE NEW PLATE TO BE PLACED OVER IT.
4. THE PIN SHALL BE TURNED FROM A 1"ø H.S. BOLT.

DETAIL A – TAPERED PIN

SCALE: 6" = 1'-0"

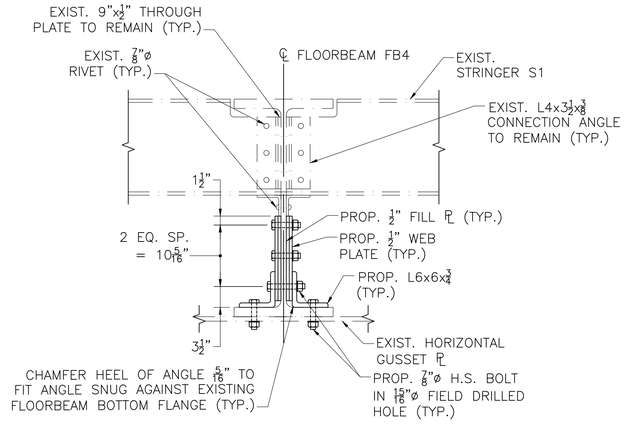
NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING L4x3½x⅜ CONNECTION ANGLE, L4x3½x⅜ SEAT AND 9" THROUGH PLATE TO ENSURE PROPOSED WEB REPAIR PLATE IS FLUSH WITH EXISTING PLATES AND ANGLES. ADJUST DIMENSIONS OF WEB REPAIR PLATES AS NECESSARY.
2. FLOORBEAM FB4 REPAIR TO BE PERFORMED AFTER TEMPORARY TRAFFIC CONTROL PLAN STAGE I IS INSTALLED AND PRIOR TO DECK AND WEARING SURFACE REMOVAL. SIDEWALK SHALL BE CLOSED DURING REPAIR. CONTRACTOR IS NOT PERMITTED TO LOAD BRIDGE WITH ANY EQUIPMENT PRIOR TO FLOORBEAM FB4 REPAIR.
3. IN LOCATIONS WHERE THERE ARE EXISTING RIVETS, NO MORE THAN ONE (1) RIVET AT ANY ONE TIME MAY BE REMOVED. THE HOLES SHALL BE REAMED TO FULL SIZE, 15/16"ø, AND A ⅞"ø H.S. BOLT INSTALLED. THE REMOVAL OF THE RIVET SHALL BE ACCOMPLISHED BY PUNCHING THE BODY OF THE SHANK OUT. IF THE RIVET CAN NOT BE REMOVED IN THIS MANNER IT SHALL BE REMOVED BY DRILLING AN 1/16"ø HOLE. CUTTING AND BURNING WILL NOT BE ALLOWED.
4. AFTER AN EXISTING RIVET HAS BEEN REMOVED AND THE HOLE HAS BEEN REAMED, FILL THE HOLE WITH A TAPERED PIN. FOR TAPERED PIN DETAILS, SEE DETAIL A, THIS SHEET.
5. TAPERED PINS SHALL REMAIN IN PLACE UNTIL ALL REPAIR PLATES ARE IN PLACE. ONCE THE REPAIR PLATES ARE IN PLACE, THE PINS MAY BE REMOVED AND REPLACED WITH THE PROPOSED ⅞"ø H.S. BOLTS ONE AT TIME.
6. ½" WEB FILL PLATE NOT SHOWN FOR CLARITY, SEE THIS SHEET FOR FILL PLATE DETAIL.



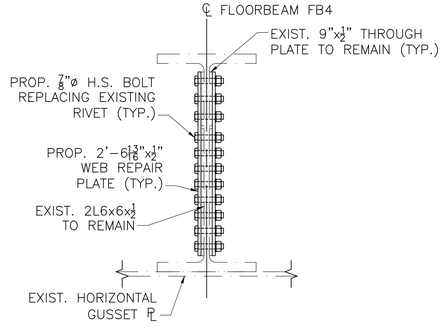
SECTION 19

SCALE: 1" = 1'-0"



SECTION 20

SCALE: 1" = 1'-0"



SECTION 21

SCALE: 1" = 1'-0"

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	48	73
PROJECT FILE NO.	612514		

STEEL DETAILS III

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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09-10_STEEL DETAILS.DWG Plotted on 30-Jun-2025 9:04 AM

10-APRIL-2025

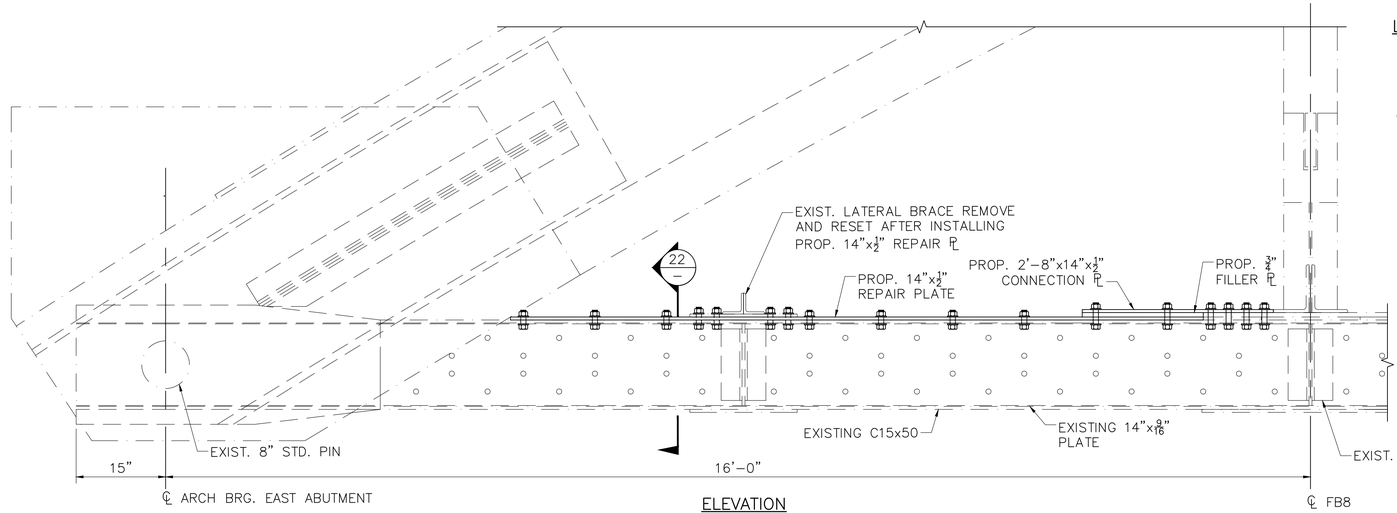
Final Structural Submittal (SF)

CUMMINGTON
ST 9/ST 112

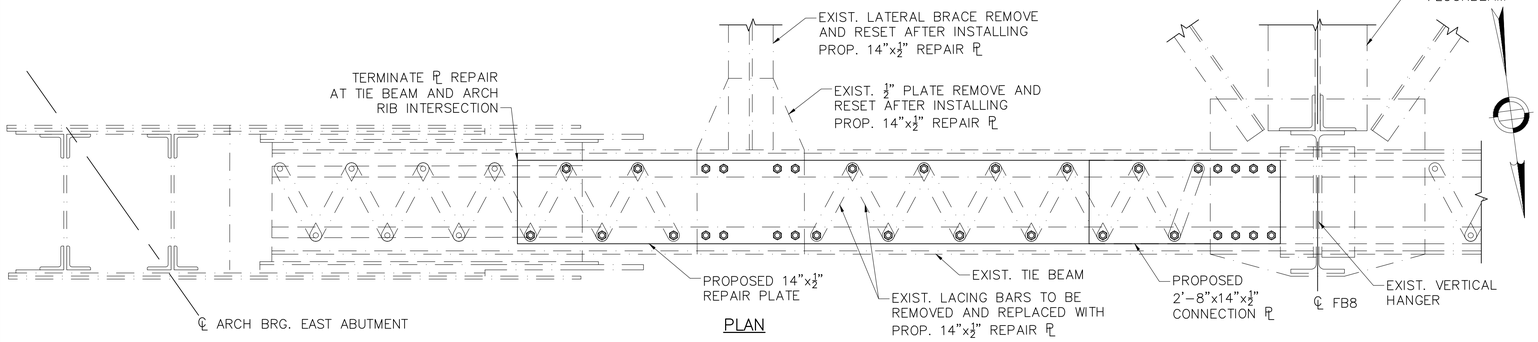
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	49	73
	PROJECT FILE NO. 612514		

STEEL DETAILS IV

LEGEND:
- EXIST. $\frac{7}{8}$"ø RIVET TO REMAIN
- PROP. $\frac{7}{8}$"ø H.S. BOLT IN $\frac{15}{16}$"ø FIELD DRILLED HOLE
- REMOVE EXIST $\frac{7}{8}$" RIVET AND REPLACE WITH $\frac{7}{8}$"ø H.S. BOLT IN $\frac{15}{16}$"ø HOLE (U.N.O)

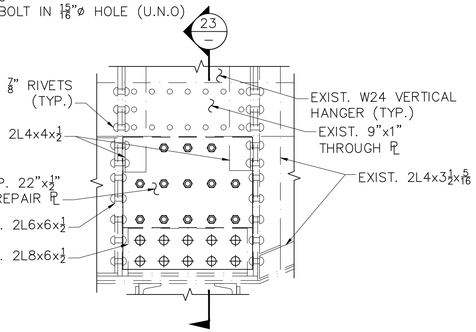


ELEVATION

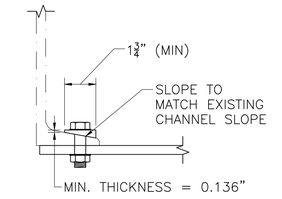


PLAN

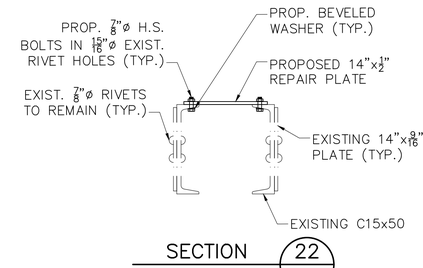
NORTH ARCH TIE REPAIR
SCALE: 1" = 1'-0"



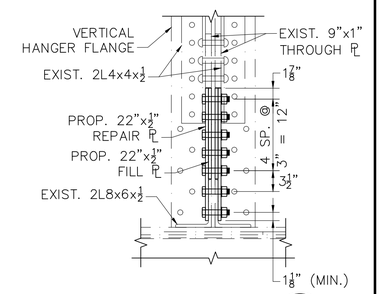
VERTICAL HANGER REPAIR
(NORTH ARCH SHOWN, SOUTH ARCH SIMILAR)
SCALE: 1" = 1'-0"



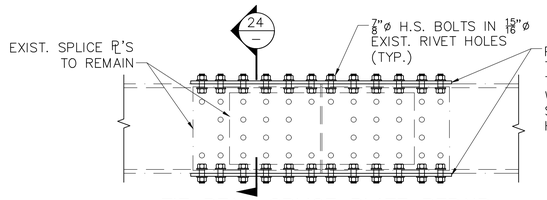
BEVELED WASHER DETAIL
SCALE: 3" = 1'-0"



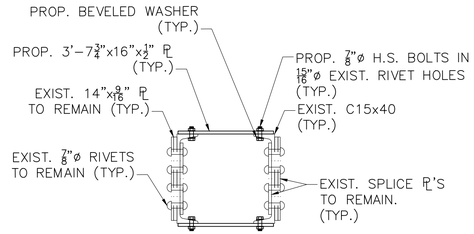
SECTION 22 (—)
SCALE: 1" = 1'-0"



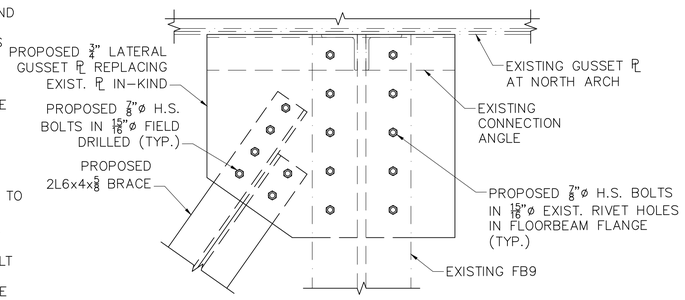
SECTION 23 (—)
SCALE: 1" = 1'-0"



TIE BEAM SPLICE PLATE REPAIR
SCALE: 1" = 1'-0"



SECTION 24 (—)
SCALE: 1" = 1'-0"



PROPOSED LATERAL GUSSET PLATE REPLACEMENT AT FB9 NORTH END
SCALE: 1" = 1'-0"

ARCH TIE BEAM REPAIR, ARCH TIE BEAM SPLICE REPAIR & VERTICAL HANGER STRENGTHENING NOTES:

1. FOR EACH ARCH THE WORK DETAILED ON THIS SHEET SHALL BE PERFORMED DURING THE PERIOD OF TIME THE DECK IS REMOVED FOR STAGED CONSTRUCTION ON THAT SIDE AND SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF THE NEW DECK.
2. ALL NEW STEEL SHALL BE AASHTO DESIGNATION M270 (ASTM A709) GRADE 50.
3. SHOP DRAWINGS FOR THE EXISTING STRUCTURE WERE NOT MADE AVAILABLE THEREFORE THE DETAILS DEPICTED HERE WITHIN ARE BASED UPON THE ORIGINAL PLANS, SOME FIELD MEASUREMENTS AND OTHER ENGINEERING ASSUMPTIONS AND ARE DEEMED ADEQUATE FOR BIDDING PURPOSES. THE CONTRACTOR HOWEVER SHALL WILL BE REQUIRED TO CONDUCT A FIELD SURVEY TAKING ALL NECESSARY MEASUREMENTS AND IDENTIFYING ALL DETAILS REQUIRED FOR THE COMPLETION OF THE WORK PRIOR TO THE PREPARATION OF SHOP DRAWINGS.
4. ALL NEW STRUCTURAL STEEL SHALL BE SHIPPED TO THE JOB SITE WITH PRIME COAT OF PAINT APPLIED.
5. PRIOR TO THE INSTALLATION OF ANY NEW STEEL THE EXISTING STEEL SHALL BE THOROUGHLY CLEANED TO SSPC-SP10 CONDITION AND A PRIME COAT OF PAINT SHALL BE APPLIED.
6. ALL EXISTING RIVETS ARE ASSUMED TO BE $\frac{7}{8}$"ø IN $\frac{15}{16}$"ø HOLES.
7. ALL NEW BOLTS SHALL BE $\frac{7}{8}$"ø HIGH STRENGTH BOLTS IN $\frac{15}{16}$"ø HOLES AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 TYPE 1.
8. THE EXISTING PITCH AND GAGE OF THE RIVETS ARE NOT GUARANTEED, THEY ARE BASED UPON VISUAL OBSERVATION, FIELD MEASUREMENTS AND STANDARD PRACTICE.
9. AT ALL LOCATIONS WHERE EXISTING RIVETS ARE BEING REPLACED WITH NEW HIGH STRENGTH BOLTS THE CONTRACTOR SHALL MAKE TEMPLATES OF THE EXACT BOLT SPACING.
10. ALL HOLES IN THE NEW STEEL SHALL BE SUB DRILLED TO $\frac{11}{16}$"ø.
11. ONCE ALL PROPOSED STEEL, FOR A PARTICULAR MEMBER, IS ON HAND AND THE CONTRACTOR IS READY FOR INSTALLATION. THE CONTRACTOR SHALL CAREFULLY REMOVE THE RIVET HEADS WHICH INTERFERE WITH THE INSTALLATION OF THE NEW PLATES. IT IS INTENDED TO MAINTAIN THE REMAINING PORTION OF THE RIVETS (SHANK AND FAR SIDE HEAD). ANY RIVETS WHICH ARE FOUND TO BE LOOSE SHALL HAVE A FULL BODY TAPERED PIN INSTALLED.
12. RIVET HEAD REMOVAL SHALL UTILIZE A LIGHT CHIPPING HAMMER WITH AN APPROPRIATE ATTACHMENT OR GRINDING, BURNING WILL NOT BE ALLOWED. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE THE EXISTING STEEL. ANY DAMAGE SHALL BE REPAIRED USING A PROCEDURE APPROVED BY THE ENGINEER.
13. ALL NEW HOLES IN THE EXISTING STEEL SHALL BE LOCATED USING A TEMPLATE MADE FROM THE PROPOSED STEEL AND HOLES SUB DRILLED TO $\frac{11}{16}$"ø.
14. THE PROPOSED STEEL SHALL BE PROPERLY POSITIONED AND SECURED IN PLACE WITH CLAMPS OR OTHER MECHANICAL MEANS. WELDING WILL NOT BE ALLOWED.
15. IN LOCATIONS WHERE THERE IS NO EXISTING RIVET THE SUB DRILLED HOLES SHALL BE REAMED TO $\frac{15}{16}$"ø, TO FULL SIZE, AND A $\frac{7}{8}$"ø H.S. BOLT INSTALLED.
16. IN LOCATIONS WHERE THERE IS AN EXISTING RIVET NO MORE THAN ONE (1) RIVET AT ANY ONE TIME MAY BE REMOVED. THE HOLES SHALL BE REAMED TO FULL SIZE, $\frac{15}{16}$"ø, AND A $\frac{7}{8}$"ø H.S. BOLT INSTALLED. THE REMOVAL OF THE RIVET SHALL BE ACCOMPLISHED BY PUNCHING THE BODY OF THE SHANK OUT. IF THE RIVET CAN NOT BE REMOVED IN THIS MANNER IT SHALL BE REMOVED BY DRILLING AN $\frac{11}{16}$"ø HOLE. CUTTING AND BURNING WILL NOT BE ALLOWED.
17. WHERE VERTICAL HANGER REPAIRS ARE PROPOSED, REPAIRS SHALL BE PERFORMED ON ONLY ONE LOCATION AT A TIME.
18. BOLTING SHALL BEGIN AT THE CENTERLINE OF EACH PL AND SHALL PROCEED OUTWARD TOWARDS THE ENDS.

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
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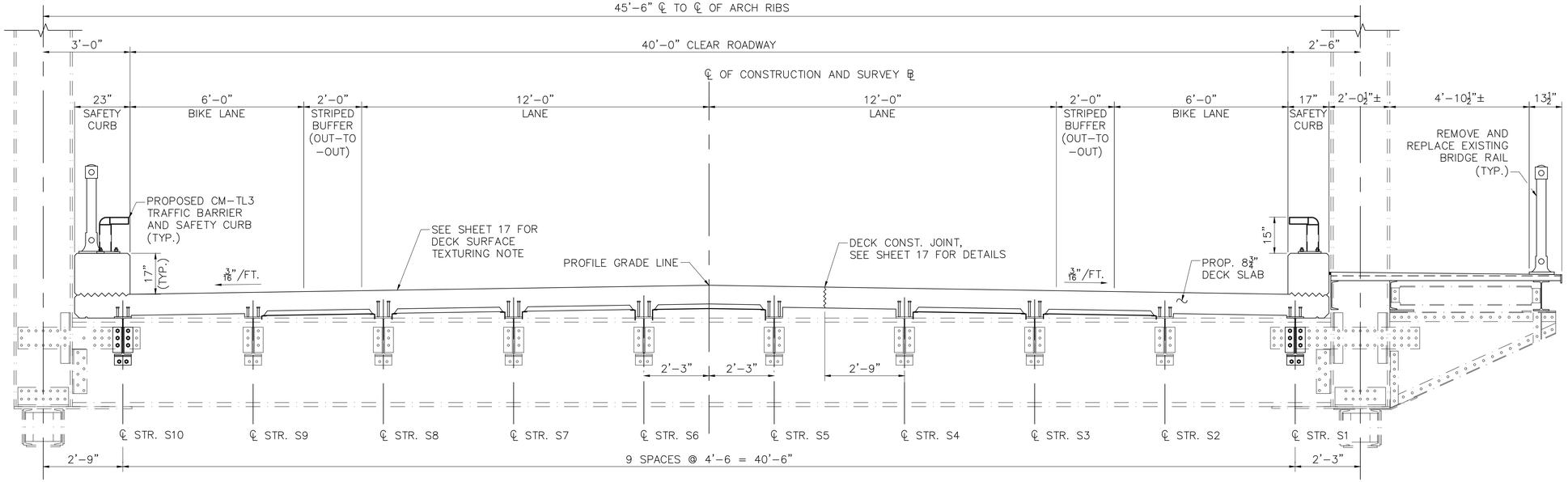
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	50	73
	PROJECT FILE NO. 612514		

TYPICAL CROSS SECTION



PROPOSED CROSS SECTION (LOOKING WEST)

SCALE: ½" = 1'–0"

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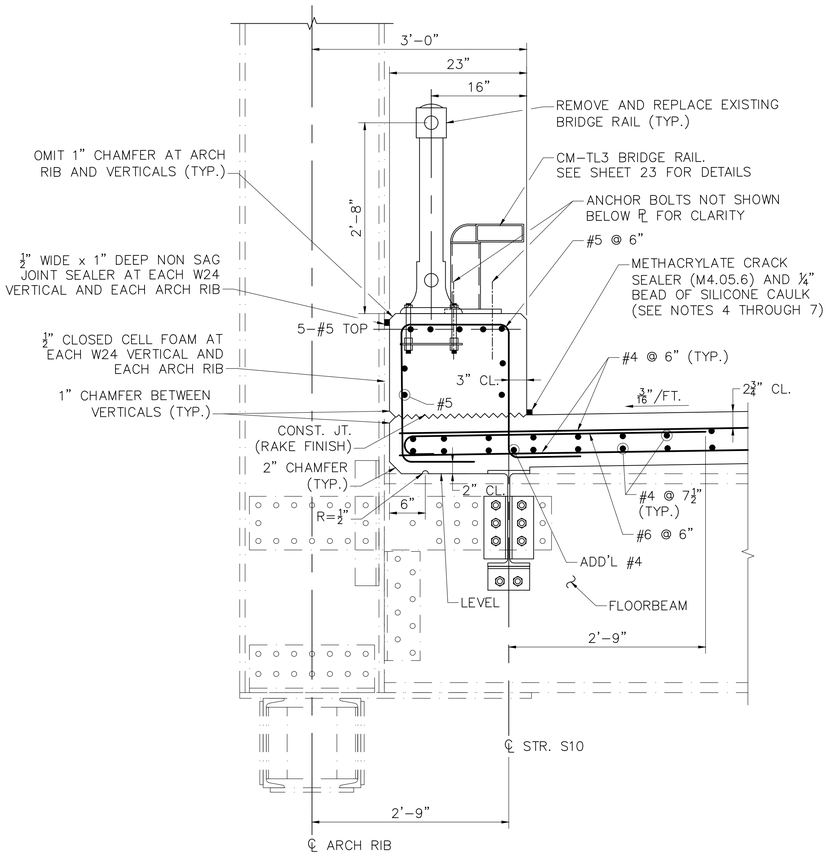
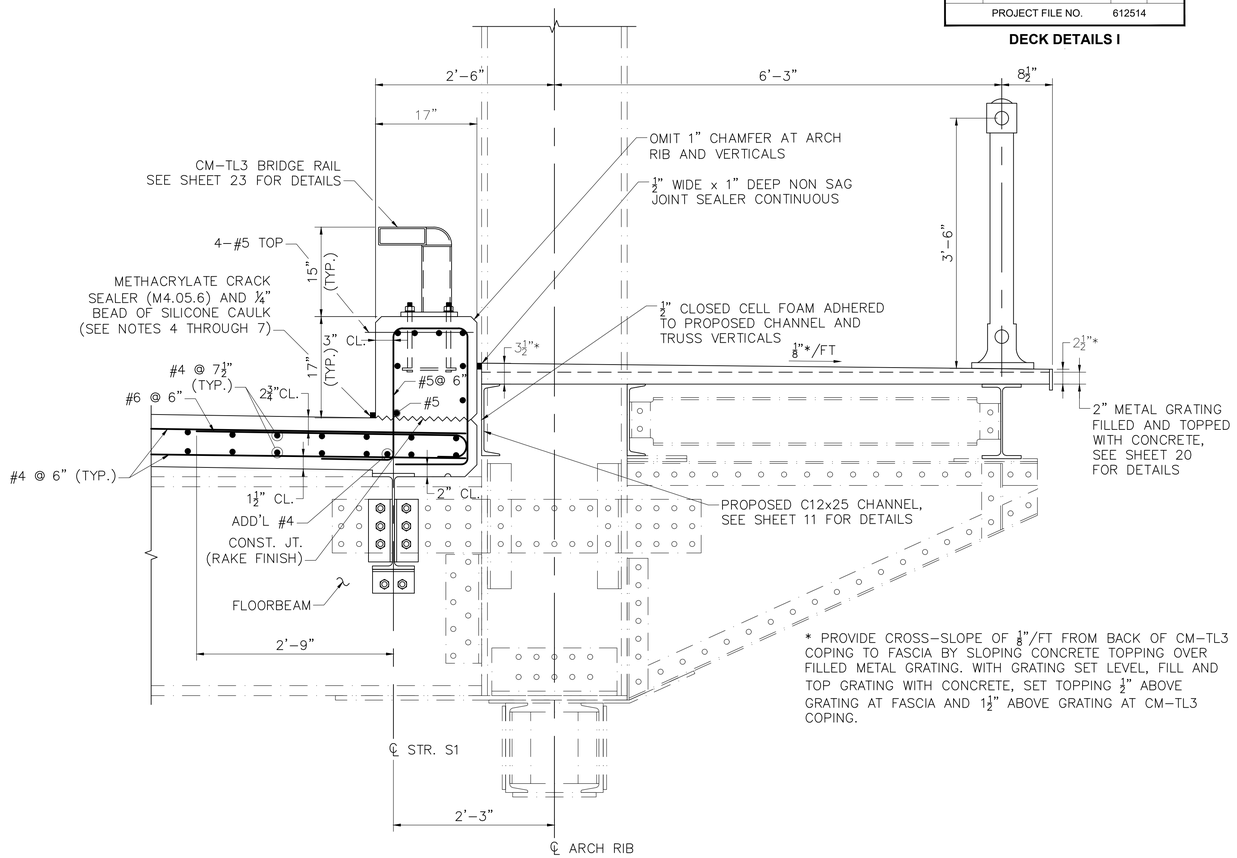
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	51	73
	PROJECT FILE NO. 612514		

DECK DETAILS I



TYPICAL DECK SECTION AT SAFETY CURB

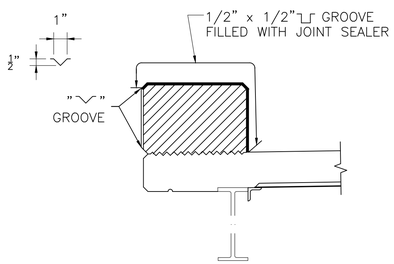
SCALE: 1" = 1'-0"



TYPICAL DECK SECTION AT SIDEWALK

SCALE: 1" = 1'-0"

* PROVIDE CROSS-SLOPE OF ⅛"/FT FROM BACK OF CM-TL3 COPING TO FASCIA BY SLOPING CONCRETE TOPPING OVER FILLED METAL GRATING. WITH GRATING SET LEVEL, FILL AND TOP GRATING WITH CONCRETE, SET TOPPING ½" ABOVE GRATING AT FASCIA AND 1½" ABOVE GRATING AT CM-TL3 COPING.

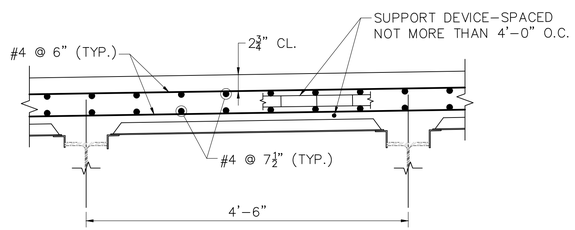


PARAFFIN JOINT DETAILS AT SAFETY CURB

SCALE: ¾" = 1'-0"

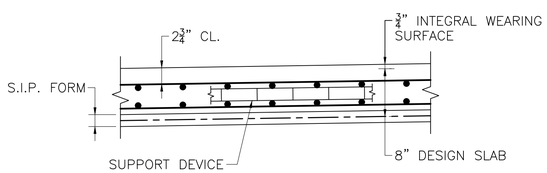
PARAFFIN JOINT NOTES:

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.



TYPICAL DECK REINFORCEMENT

SCALE: 1" = 1'-0"



EXPOSED DECK WEARING SURFACE DETAIL

SCALE: 1" = 1'-0"

NOTES:

1. ROADWAY DECK SLAB AND SAFETY CURBS SHALL BE 5000 PSI HP CEMENT CONCRETE.
2. #4 LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE ℄ OF CONSTRUCTION. #4 MAIN REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO ℄ OF CONSTRUCTION.
3. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE EPOXY COATED.
4. METHACRYLATE CRACK SEALER SHALL BE APPLIED AFTER SIDEWALK OR SAFETY CURB/BARRIER CURING PERIOD IS COMPLETE AND IN ACCORDANCE WITH REQUIREMENTS OF MANUFACTURER AND THE STANDARD SPECIFICATIONS.
5. BEFORE SEALING, THE CONCRETE AT THE INTERFACE OF DECK AND CURB SHALL BE SWEPT CLEAN AND BLOWN OFF USING OIL FREE COMPRESSED AIR IMMEDIATELY PRIOR TO APPLYING THE SEALER.
6. APPLY ¼" HIGH BEAD OF SILICONE CAULKING COMPOUND ABOUT ¼" FROM THE FACE OF CURB.
7. METHACRYLATE SHALL THEN BE POURED INTO ¼" WIDE GAP BETWEEN THE FACE OF CURB AND BEAD OF CAULK.

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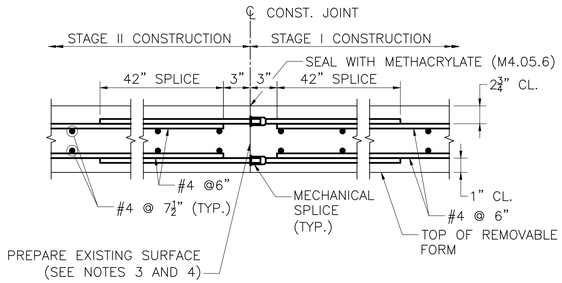
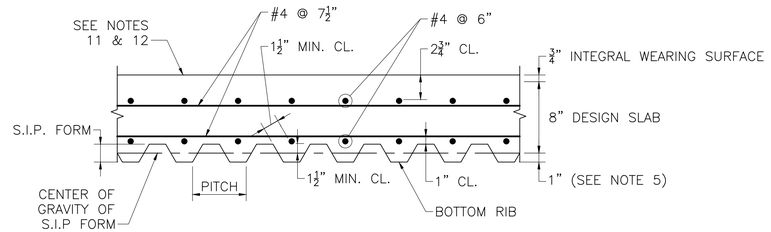
TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE																			
STRINGER NO.	INCREASING STATIONS →																		
	FB1	FB2	½ PT.	FB3	½ PT.	FB4	½ PT.	FB5	½ PT.	FB6	½ PT.	FB7	½ PT.	FB8	½ PT.	FB9	½ PT.	FB10	FB11
S1	992.74	992.84	992.91	992.96	993.02	993.06	993.09	993.12	993.13	993.14	993.14	993.12	993.10	993.07	993.03	992.99	–	–	992.97
S2	992.83	992.91	992.98	993.04	993.09	993.13	993.17	993.19	993.21	993.21	993.22	993.20	993.18	993.15	993.12	993.07	–	–	993.03
S3	992.91	992.98	993.05	993.11	993.17	993.21	993.25	993.27	993.29	993.29	993.29	993.28	993.26	993.23	993.20	993.15	–	–	993.09
S4	993.00	993.05	993.12	993.18	993.24	993.28	993.32	993.34	993.36	993.36	993.37	993.36	993.34	993.31	993.28	993.23	–	–	993.15
S5	993.09	993.12	993.19	993.25	993.31	993.35	993.39	993.42	993.43	993.43	993.44	993.43	993.42	993.39	993.36	993.31	–	–	993.20
S6	993.11	–	–	993.25	993.30	993.34	993.39	993.41	993.43	993.43	993.44	993.43	993.42	993.39	993.36	993.31	993.27	993.21	993.19
S7	993.06	–	–	993.17	993.22	993.27	993.31	993.34	993.35	993.36	993.37	993.36	993.35	993.32	993.29	993.24	993.20	993.14	993.10
S8	993.01	–	–	993.09	993.14	993.19	993.23	993.26	993.28	993.28	993.29	993.29	993.27	993.24	993.22	993.17	993.13	993.07	993.01
S9	992.95	–	–	993.00	993.06	993.11	993.15	993.18	993.20	993.21	993.21	993.21	993.20	993.17	993.14	993.10	993.06	993.00	992.93
S10	992.90	–	–	992.92	992.98	993.02	993.07	993.09	993.12	993.13	993.14	993.13	993.12	993.09	993.06	993.02	992.98	992.93	992.85



LONGITUDINAL CONSTRUCTION JOINT DETAIL IN DECK SLAB

NOT TO SCALE



STAY–IN–PLACE FORMS DETAILS – SECTION 25 –

SCALE: 1½" = 1'–0"

DECK REPLACEMENT NOTES:

TOP OF FORM ELEVATIONS NOTE:

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

LONGITUDINAL CONSTRUCTION JOINT NOTES:

2. BRIDGE DECK SLAB SHALL BE PLACED IN ACCORDANCE WITH THE SEQUENCE OF CONSTRUCTION SHOWN ON SHEET 4.
3. THE SURFACE OF THE PREVIOUSLY CAST CONCRETE SHALL BE BLAST CLEANED, ROUGHENED, WETTED WITH CLEAN WATER, AND THEN FLUSHED WITH A MORTAR COMPOSED OF EQUAL PARTS OF THE CEMENT AND SAND SPECIFIED FOR THE NEW CONCRETE, BEFORE NEW CONCRETE IS PLACED ADJACENT THERETO. NEW CONCRETE SHALL BE PLACED BEFORE MORTAR HAS TAKEN INITIAL SET.
4. IN LIEU OF THE MORTAR, AN EPOXY ADHESIVE SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS MAY BE USED. THE EPOXY ADHESIVE SHALL CONFORM TO AASHTO M 235 TYPE V AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

STAY IN PLACE FORM NOTES:

5. FOR 2" S.I.P. FORM, SET BOTTOM OF FORM 1" BELOW ELEVATIONS GIVEN IN TABLE. FOR 3" S.I.P. FORM, SET BOTTOM OF FORM 1½" BELOW THE TABLE ELEVATIONS.
6. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSURE PIECES WILL NOT BE ALLOWED.
7. SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
8. ALL MAIN REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE S.I.P. FORM.
9. CONTRACTOR SHALL DESIGN AND DETAIL ALL ELEMENTS OF THE FORMING SYSTEM AND SHALL SUBMIT TO THE ENGINEER FOR APPROVAL.
10. IN CASES WHERE STANDARD 2" OR 3" DEEP S.I.P. FORMS DO NOT SATISFY DESIGN REQUIREMENTS AN ALTERNATIVE FORMING SYSTEM CONSISTING OF DEEPER S.I.P. FORMS OR REMOVABLE FORMS SHALL BE DESIGNED AND DETAILED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. THE DESIGN THICKNESS OF THE SLAB SHALL NOT BE REDUCED.

DECK SURFACE TEXTURING NOTES:

11. THE PROPOSED DECK DOES NOT HAVE AN ASPHALT OVERLAY AND THEREFORE THE TOP DECK SURFACE SHALL RECEIVE A SURFACE TEXTURING IN ACCORDANCE WITH SECTION 901.66, PART H OF THE STANDARD SPECIFICATIONS.
12. BRIDGE DECK SHALL BE GROOVED TRANSVERSELY USING MULTI–BLADED SELF–PROPELLED SAWCUTTING EQUIPMENT.

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MA	HIP(NGB)-003S(828)	52	73
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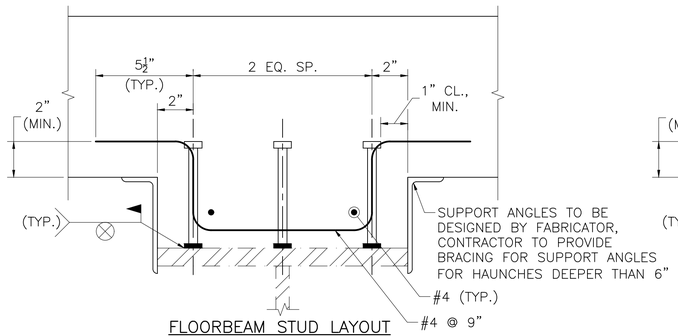
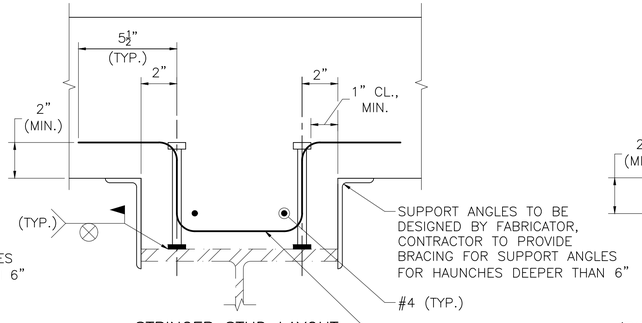
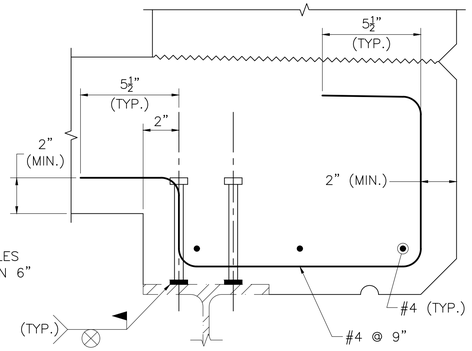
DECK DETAILS II



FLOORBEAM STUD LAYOUT



STRINGER STUD LAYOUT



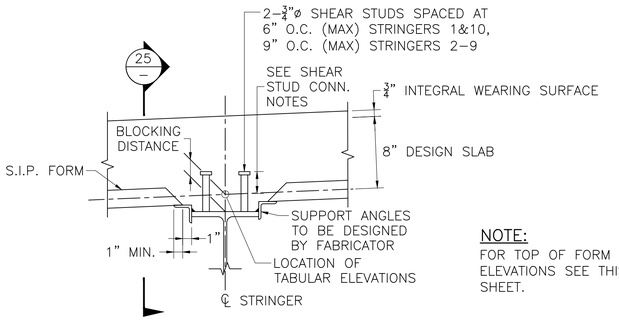
EXTERIOR STRINGER STUD LAYOUT

DEEP HAUNCH SHEAR STUD CONNECTORS DETAILS

NOT TO SCALE

SHEAR STUD CONNECTORS NOTES:

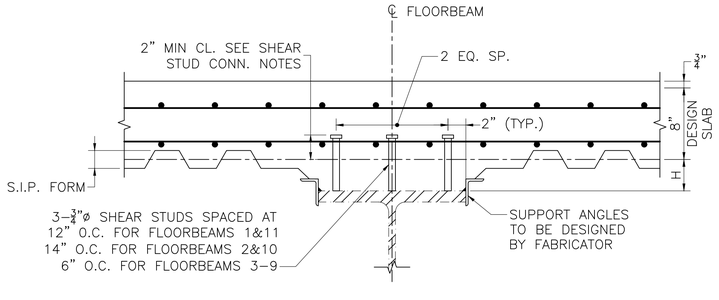
1. ⅞"ø STUDS MAY BE SUBSTITUTED FOR ¾"ø STUDS BY ADJUSTING THE PITCH TO PROVIDE AN EQUIVALENT CROSS–SECTIONAL AREA PER FOOT.
2. 5" MIN. STUD LENGTH (TYP.). WHEN BLOCKING HEIGHT EXCEEDS 3", STUD HEIGHT SHALL BE INCREASED TO BE BLOCKING DISTANCE +2", ROUNDED UP TO THE NEAREST INCH.
3. WHERE BLOCKING DISTANCES EXCEEDS 6", ADDITIONAL REINFORCING SHALL BE PROVIDED AS SHOWN IN DEEP HAUNCH SHEAR STUD CONNECTOR DETAILS.
4. SEE TOP OF FORMS ELEVATION NOTE 1 FOR REQUIREMENTS ON DETERMINING THE BLOCKING DISTANCE.



HAUNCH DETAIL AT STRINGER FLANGE

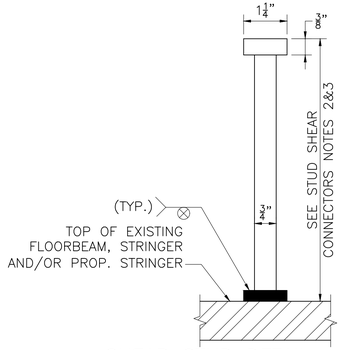
SCALE: 1½"= 1'–0"

NOTE:
FOR TOP OF FORM ELEVATIONS SEE THIS SHEET.



TYPICAL FLOORBEAM HAUNCH DETAIL

SCALE: 1½"= 1'–0"



SHEAR STUD DETAIL

NOT TO SCALE

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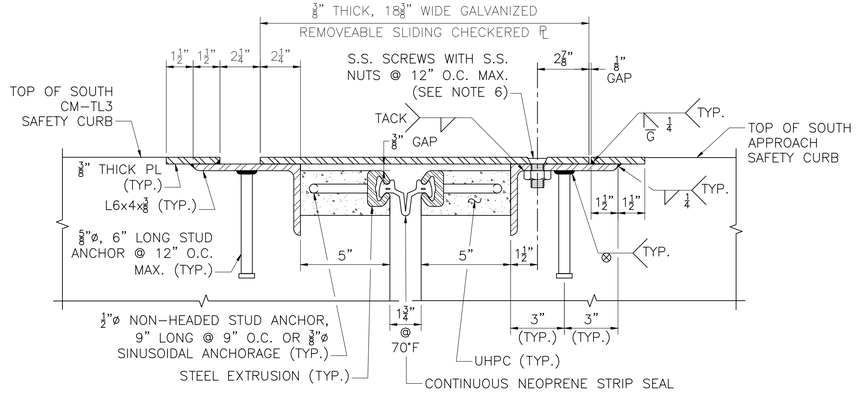
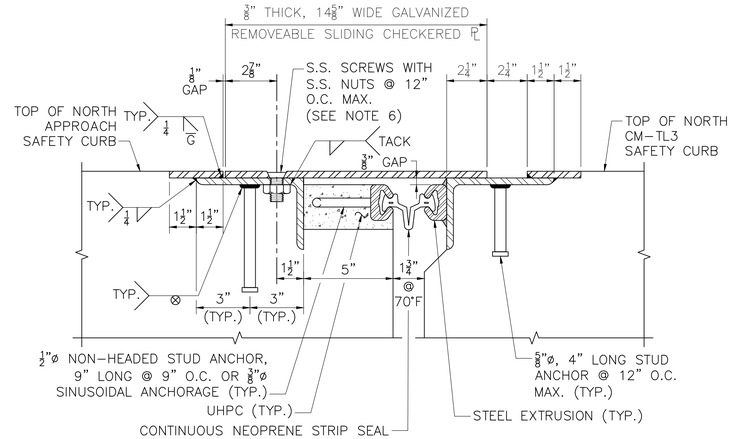
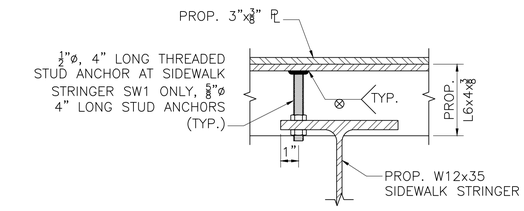


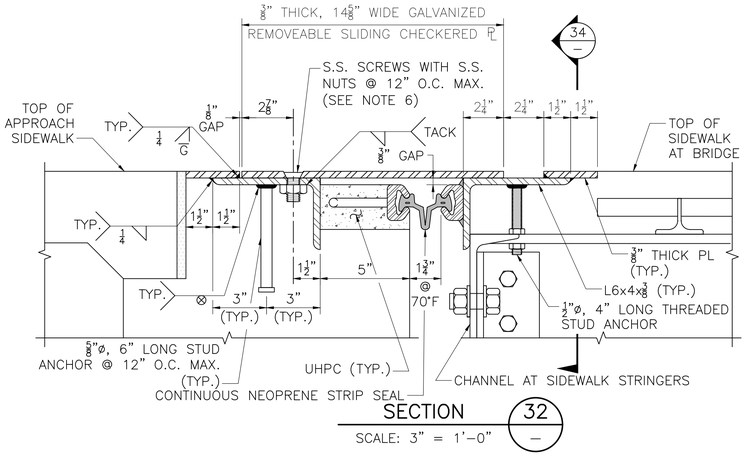
SECTION 26 —
SCALE: 3" = 1'–0"



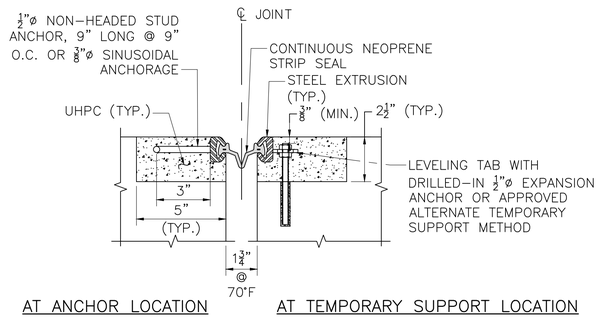
SECTION 31 —
SCALE: 3" = 1'–0"



SECTION 34 —
SCALE: 3" = 1'–0"



SECTION 32 —
SCALE: 3" = 1'–0"



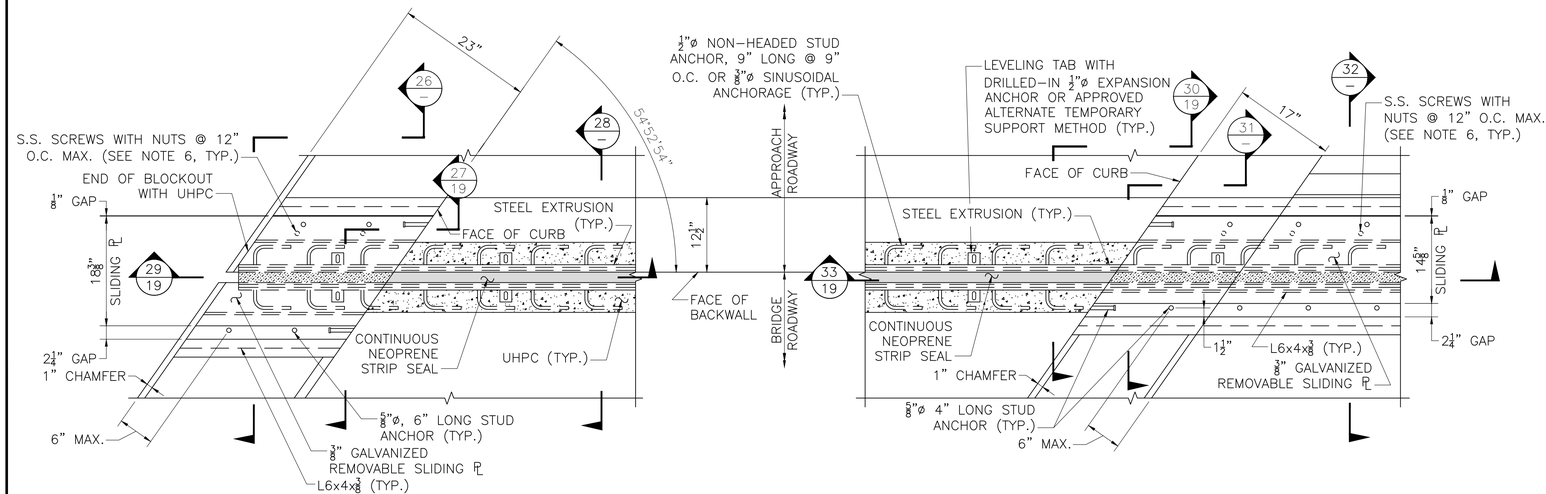
AT ANCHOR LOCATION AT TEMPORARY SUPPORT LOCATION

SECTION 28 —
SCALE: 3" = 1'–0"

ACCEPTABLE STRIP SEAL JOINTS			
MANUFACTURER	STEEL EXTRUSION MODEL	NEOPRENE STRIP SEAL MODEL	JOINT OPENING @ 70°F
WATSON BOWMAN ACME	TYPE A	SE–400	1¾"
D.S. BROWN	TYPE SSA2	A2R–400	1¾"

STRIP SEAL JOINT NOTES:

1. THE DETAILS SHOWN HERE ARE INTENDED AS A GENERAL GUIDE FOR A TYPICAL GLANDULAR TYPE STRIP SEAL JOINT SYSTEM. SHOP DRAWINGS WHICH INCLUDE DETAILS OF THE GLAND SHAPE, STEEL EXTRUSION SHAPE, WELDING PROCEDURE SPECIFICATIONS, ANCHOR ARRANGEMENT, TEMPERATURE CORRECTION REQUIREMENTS, AND TEMPORARY SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER ACCORDING TO THE STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER THE COMPLETION OF ALL WELDING OPERATIONS STEEL PLATE ASSEMBLES SHALL BE HOT–DIP GALVANIZED.
3. UHPC BLOCKOUT SHALL BE ABRASIVE BLASTED, CLEANED WITH COMPRESSED OIL LESS AIR, AND PRIMED WITH BONDING COMPOUND PRIOR TO CASTING UHPC.
4. NEOPRENE STRIP SEAL SHALL BE BONDED TO STEEL EXTRUSION WITH APPROVED ADHESIVE.
5. INSTALL CONTINUOUS NEOPRENE STRIP SEAL IN THE FIELD. SPLICING OF SEAL IS NOT PERMITTED. TEMPORARY SEAL SHALL BE REQUIRED ON STAGE CONSTRUCTION PROJECTS.
6. ¾"ø STAINLESS STEEL FLAT HEAD MACHINE SCREWS STAINLESS STEEL NUTS. RECESS 1/16" BELOW PLATE SURFACE. PRIOR TO PLACEMENT OF SIDEWALK/SAFETY CURB CONCRETE, LUBRICATE STAINLESS STEEL SCREWS TO BE TEMPORARILY REMOVED AFTER CONCRETE HAS ATTAINED FINAL SET.
7. NO WELDING OF PORTIONS OF STEEL EXTRUSIONS IN DIRECT CONTACT WITH NEOPRENE SEAL SHALL BE PERMITTED.



SOUTH SAFETY CURB NORTH SAFETY CURB

PLAN – STRIP SEAL JOINT AT ABUTMENTS
SCALE: 1" = 1'–0

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MA	HIP(NGB)-003S(828)	53	73
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JOINT DETAILS I

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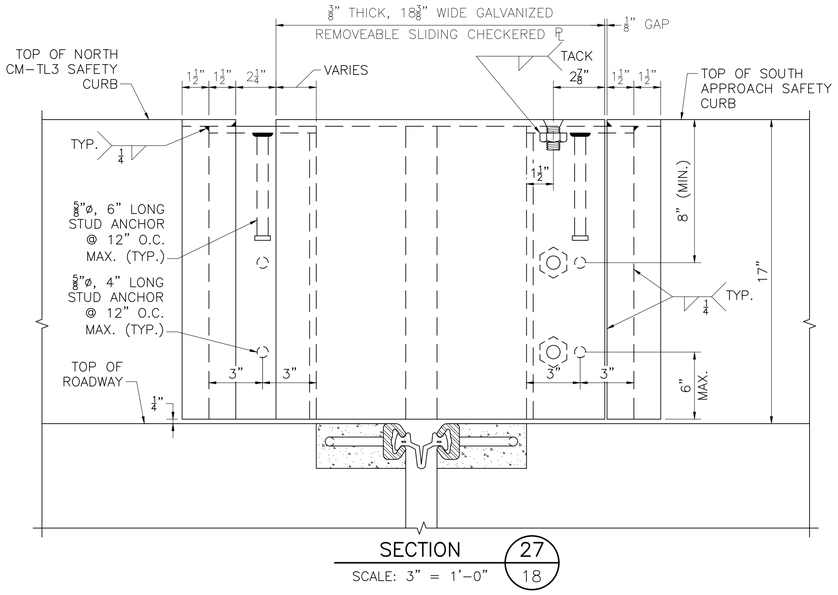
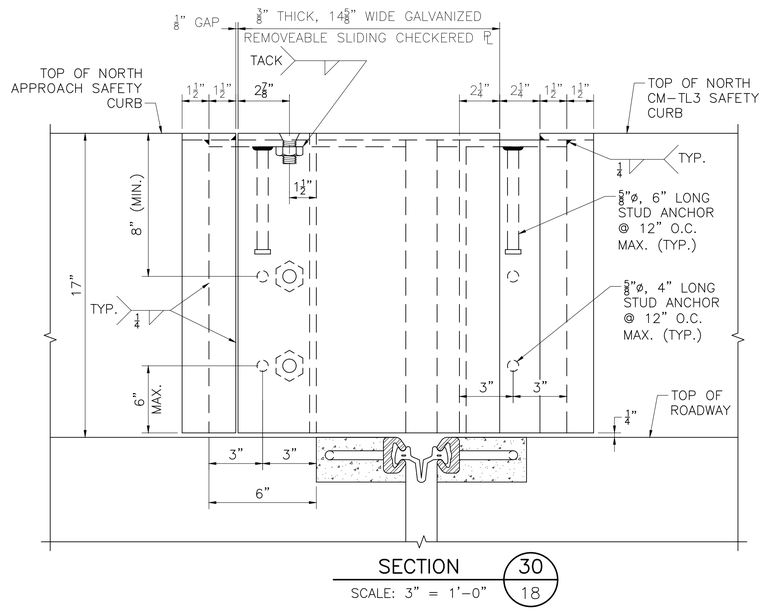
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	54	73
	PROJECT FILE NO. 612514		

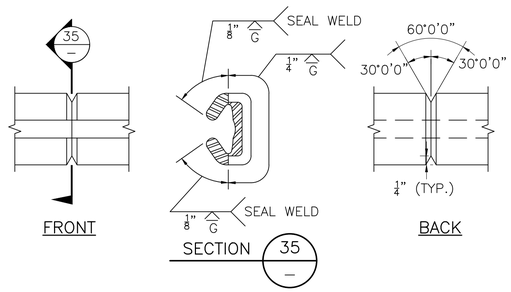
JOINT DETAILS II



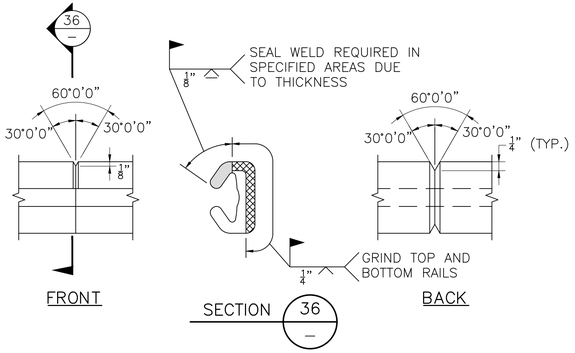
SECTION 27 / 18
SCALE: 3" = 1'–0"



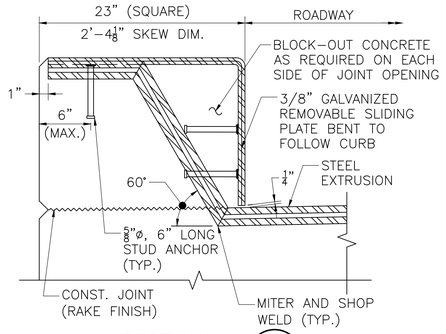
SECTION 30 / 18
SCALE: 3" = 1'–0"



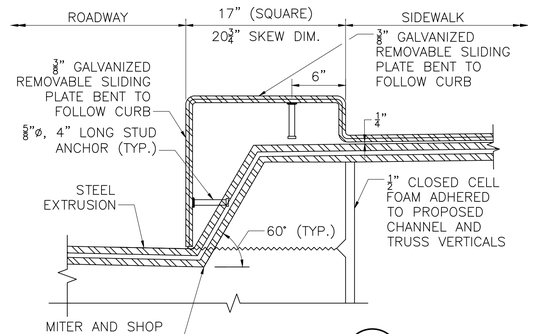
STEEL EXTRUSION SHOP SPLICE DETAIL
SCALE 1" = 2'–0"



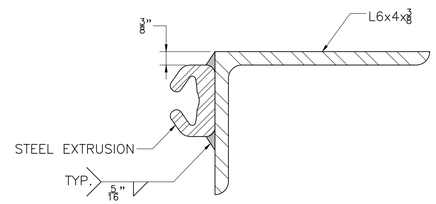
STEEL EXTRUSION FIELD SPLICE DETAIL
SCALE 1" = 2'–0"



SECTION 29 / 18
SCALE: 1$\frac{1}{2}$" = 1'–0"



SECTION 33 / 18
SCALE: 1$\frac{1}{2}$" = 1'–0"



STEEL EXTRUSION CONNECTION DETAIL AT SIDWALK JOINT
SCALE: 6" = 1'–0"

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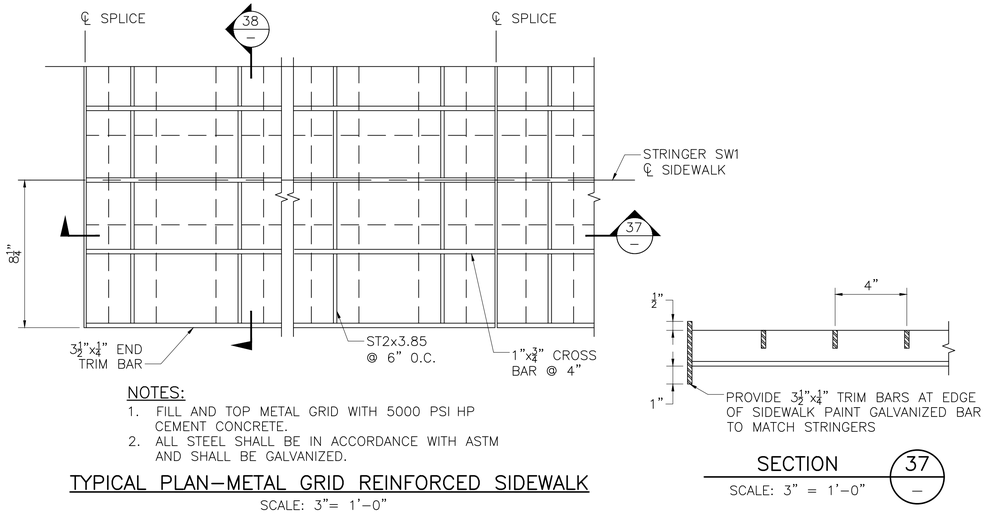
MA	HIP(NGB)-003S(828)	55	73
	PROJECT FILE NO. 612514		

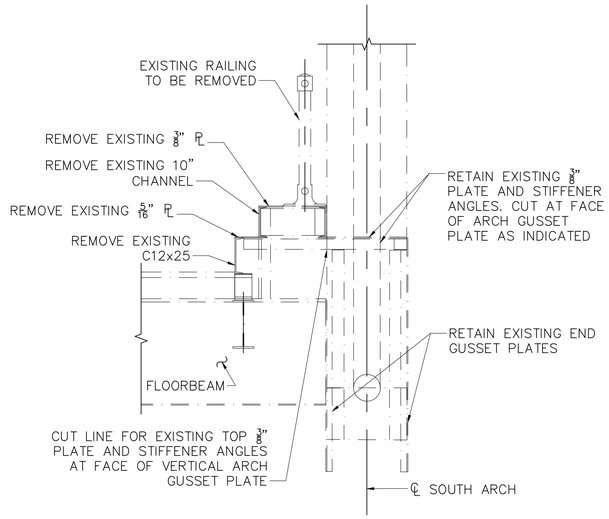
MISCELLANEOUS DETAILS I



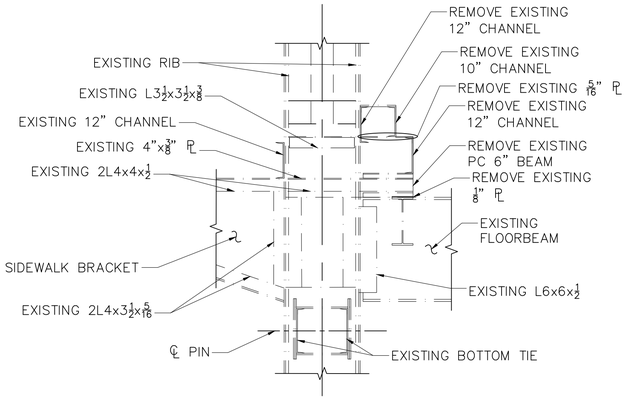
NOTES:
1. FILL AND TOP METAL GRID WITH 5000 PSI HP CEMENT CONCRETE.
2. ALL STEEL SHALL BE IN ACCORDANCE WITH ASTM AND SHALL BE GALVANIZED.

TYPICAL PLAN–METAL GRID REINFORCED SIDEWALK
SCALE: 3"= 1'–0"

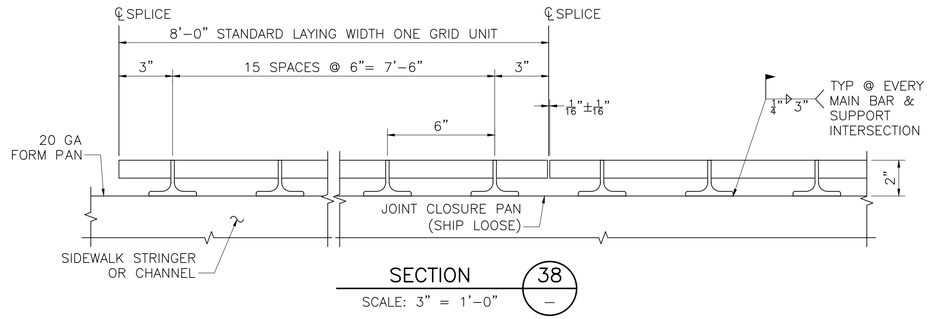
SECTION 37
SCALE: 3" = 1'–0"



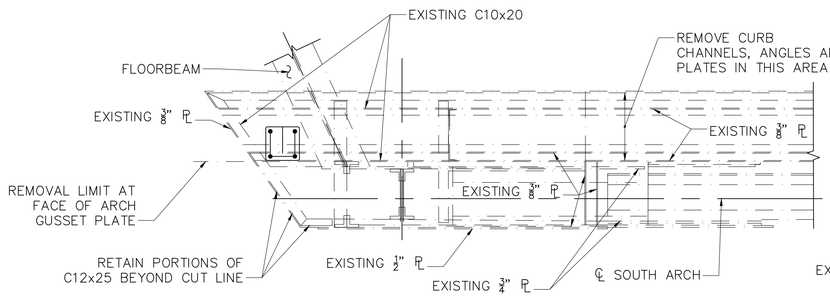
EXISTING SECTION AT ENDS OF SOUTH ARCH
SCALE: ½" = 1'–0"



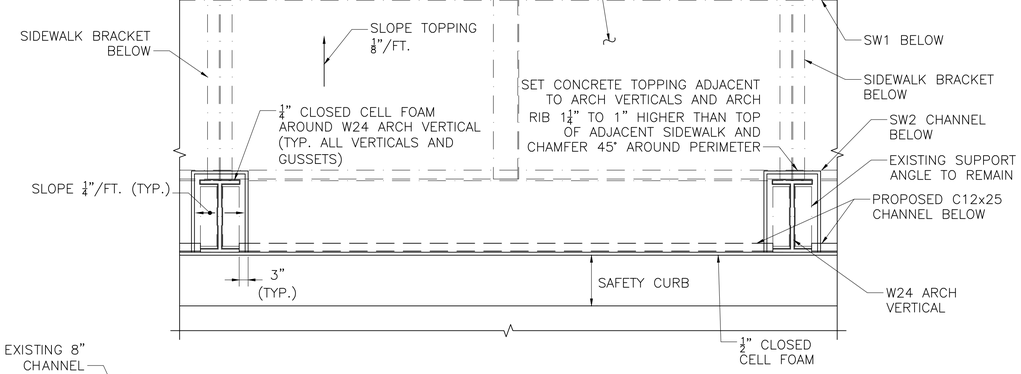
EXISTING SECTION AT ENDS OF NORTH ARCH
SCALE: ½" = 1'–0"



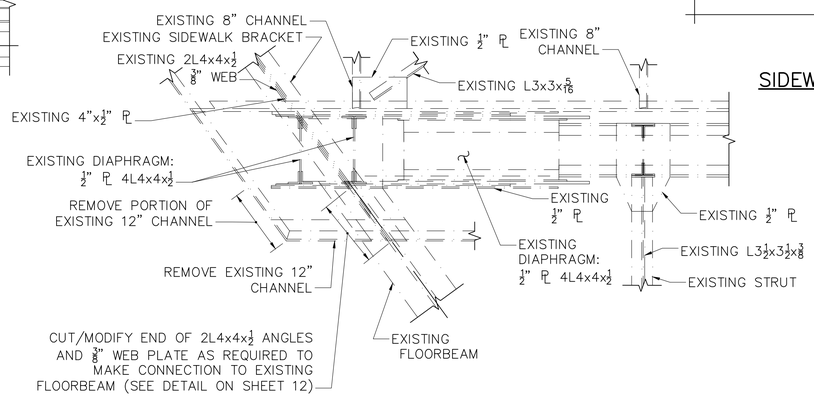
SECTION 38
SCALE: 3" = 1'–0"



EXISTING PLAN AT ENDS OF SOUTH ARCH
SCALE: ½" = 1'–0"



SIDEWALK GRATE OPENING DETAIL AT ARCH VERTICALS
SCALE: ½" = 1'–0"



EXISTING PLAN AT ENDS OF NORTH ARCH
SCALE: ½" = 1'–0"

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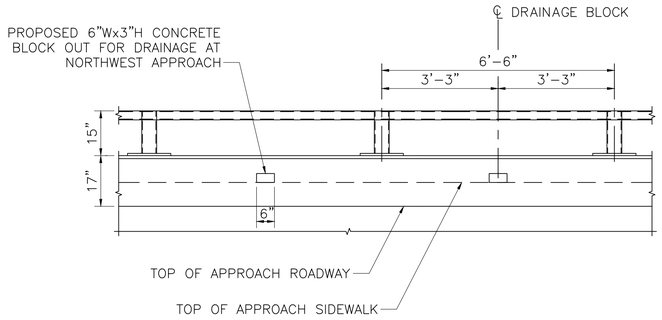
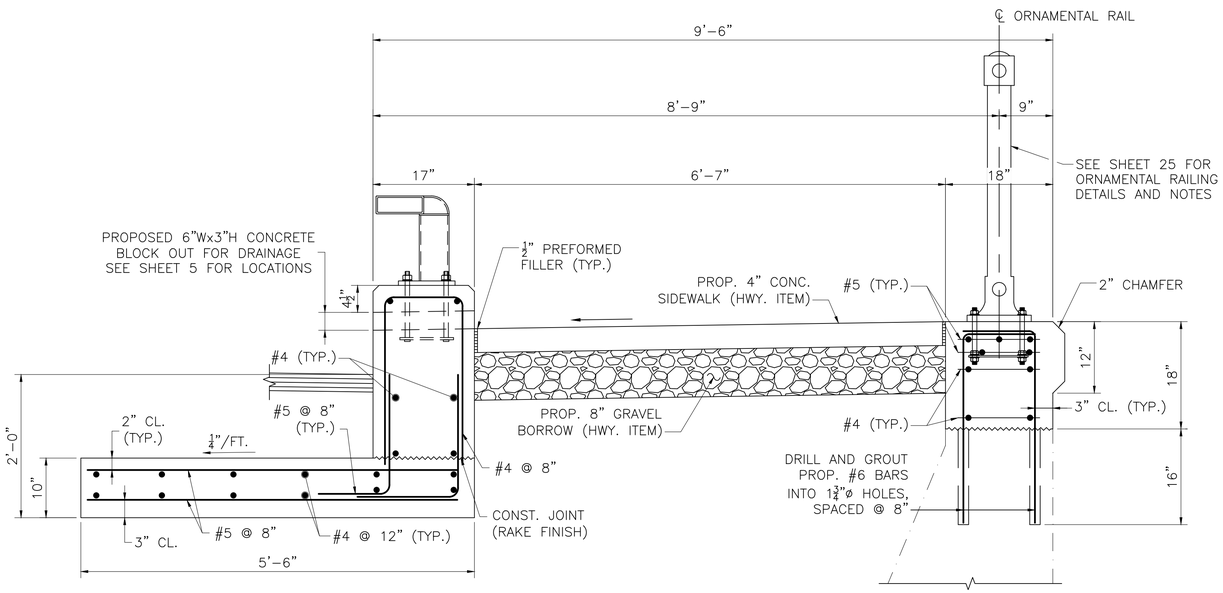
MA	HIP(NGB)-003S(828)	56	73
	PROJECT FILE NO. 612514		

MISCELLANEOUS DETAILS II



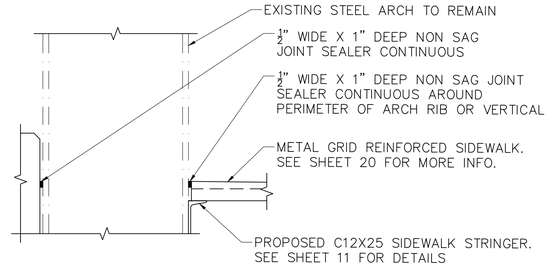
ELEVATION OF CM–TL3 RAIL AT NORTHWEST APPROACH AT DRAINAGE BLOCKOUTS

SCALE: ½" = 1'–0"



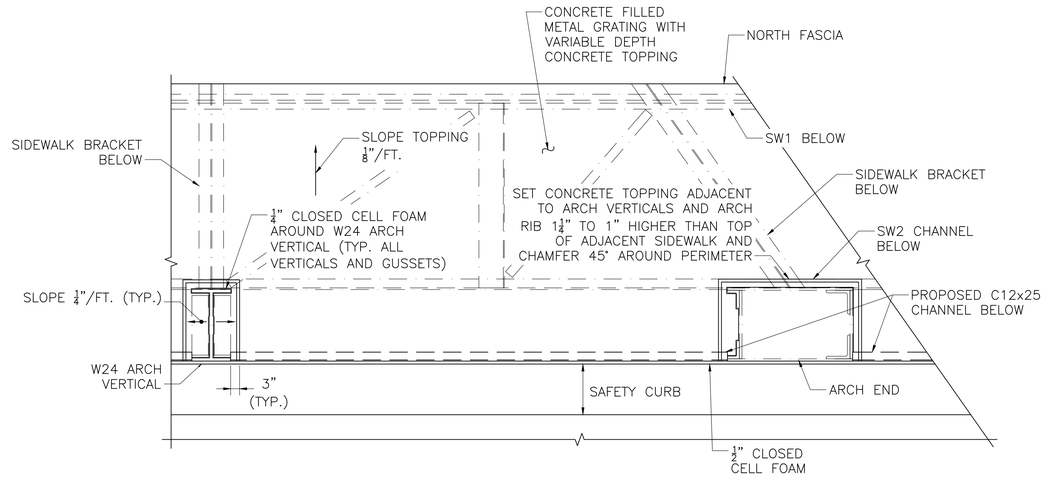
MOMENT SLAB AT NORTHWEST APPROACH – SECTION 3/5

SCALE: 1" = 1'–0"



TERMINATING SIDEWALK AT STEEL ARCH LOCATION DETAIL

SCALE: 1" = 1'–0"



SIDEWALK GRATE OPENING DETAIL AT ARCH END

SCALE: ½" = 1'–0"

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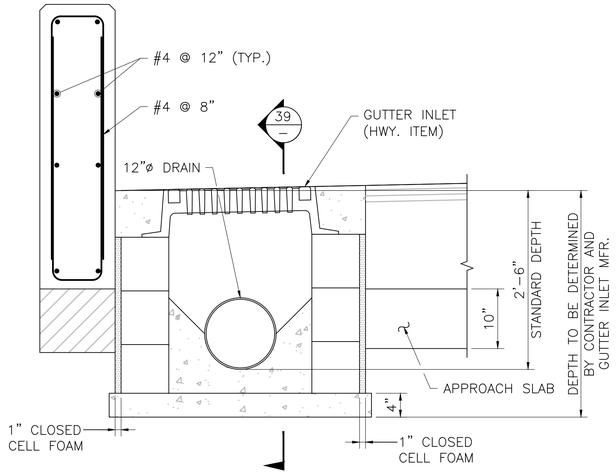
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	57	73
	PROJECT FILE NO. 612514		

MISCELLANEOUS DETAILS III

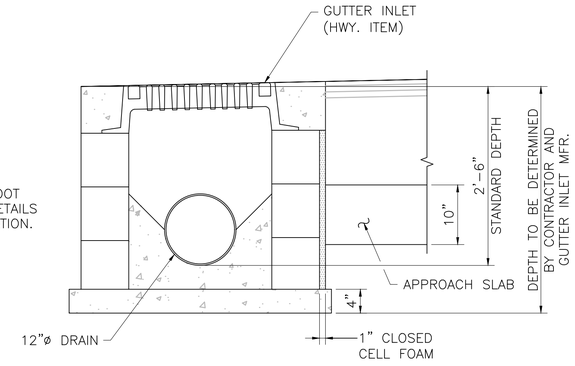


GUTTER INLET AT SOUTHEAST GUARDRAIL TRANSITION – SECTION 4/6

SCALE: 1" = 1'–0"

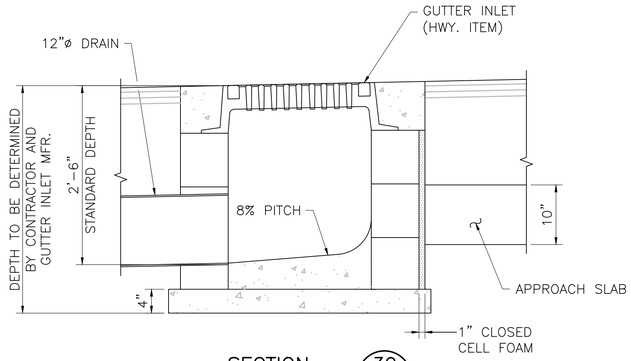
NOTE:

SEE E204.2.0 IN THE MASSDOT CONSTRUCTION STANDARD DETAILS MANUAL FOR MORE INFORMATION.



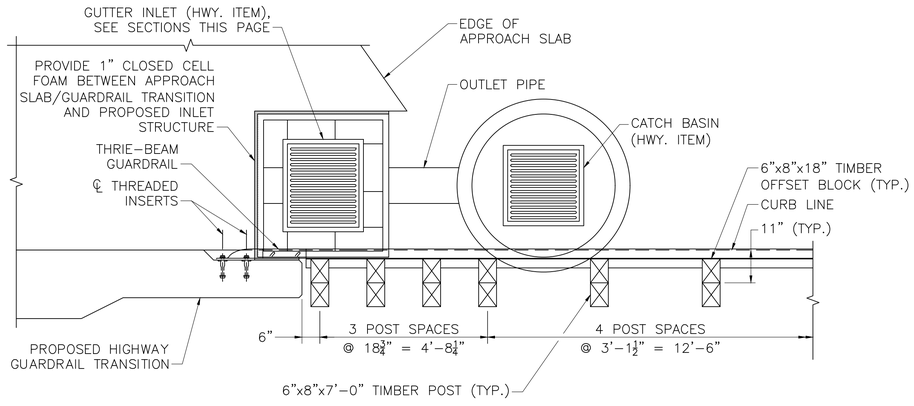
SECTION AT END OF APPROACH SLAB

SCALE: 1" – 1'–0"



SECTION 39/–

SCALE: 1" = 1'–0"



GUTTER INLET AT SOUTHEAST
GUARDRAIL TRANSITION – PLAN VIEW

SCALE: ½" – 1'–0"

DATE	DESCRIPTION
JUNE 28, 2025	ISSUED FOR CONSTRUCTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

CUMMINGTON
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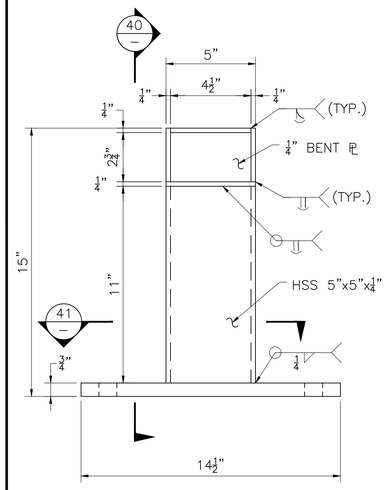
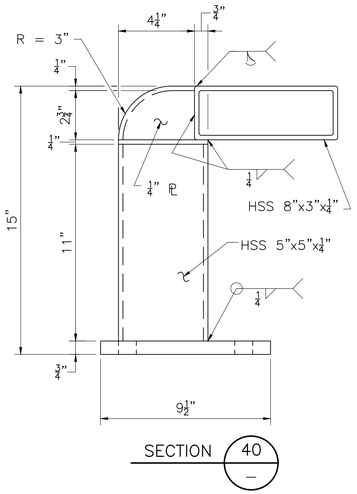
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	58	73
	PROJECT FILE NO. 612514		

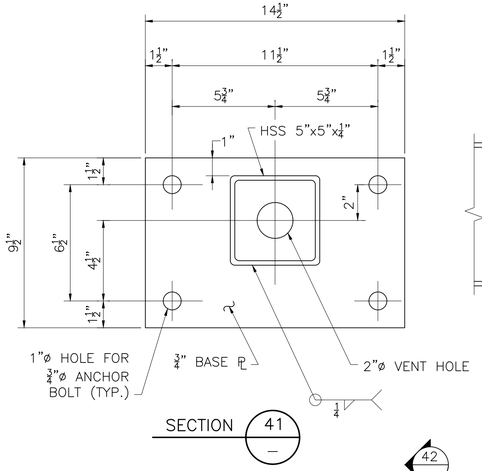
CM-TL3 BRIDGE RAIL DETAILS I



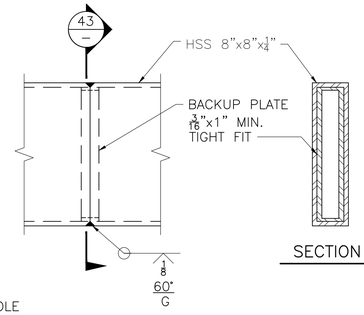
ELEVATION



SECTION 40



SECTION 41



SECTION 43

TUBE-WELDED SPLICE
SCALE: 3" = 1'-0"

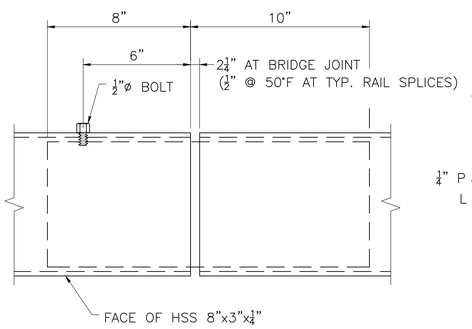
RAIL POST DETAILS
SCALE: 3" = 1'-0"

MATERIALS:

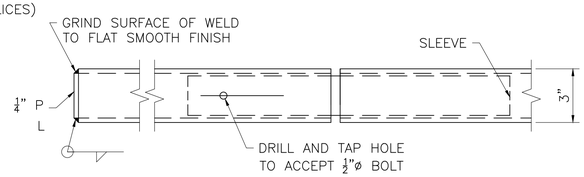
STRUCTURAL STEEL TUBING	ASTM A 500 GARDE B GALVANIZED
POST AND BASE PLATE	AASHTO M 270 GRADE 36 GALVANIZED
ANCHOR BOLTS	ASTM A 449 GALVAINIZED
NUTS, BOLTS, AND WASHER	ASTM A 325 GALVANIZED

GENERAL NOTES:

1. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR POSTS, IF POSSIBLE. IF NEED, HSS 8x3x¼ RAILS MAY BE CONNECTED IN THE SHOP BY USING TUBE-WELDED SPLICES, AS SHOWN IN THE PROVIDED DETAILS.
2. RAILS SHALL HAVE A TUBE SPLICE IN THE PANEL OVER A BRIDGE EXPANSION JOINT.
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 A ADDITIONAL ⅛ TURN AFTER STEEL IS IN PLACE.
4. 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.
5. WELDING SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AASHTO/AWS D.1.5, EXCEPT THAT WELDING OF THE TUBE-WELDED SPLICE SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D.1.1.
6. ALL STEEL (EXCEPT THE ANCHOR PLATE AND FASTENERS) SHALL BE GALVANIZED AND PAINTED GREEN (FEDERAL STD. COLOR 14223). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF BOLTS SHALL BE PAINTED TO MATCH RAIL.

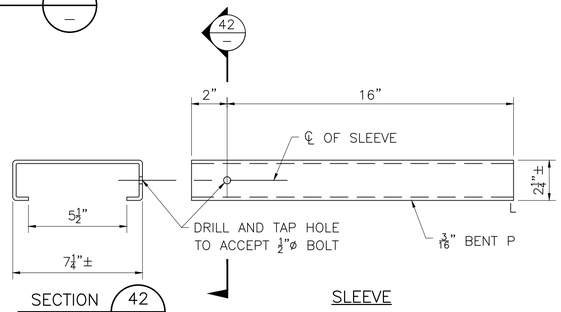


PLAN



RAIL CAP

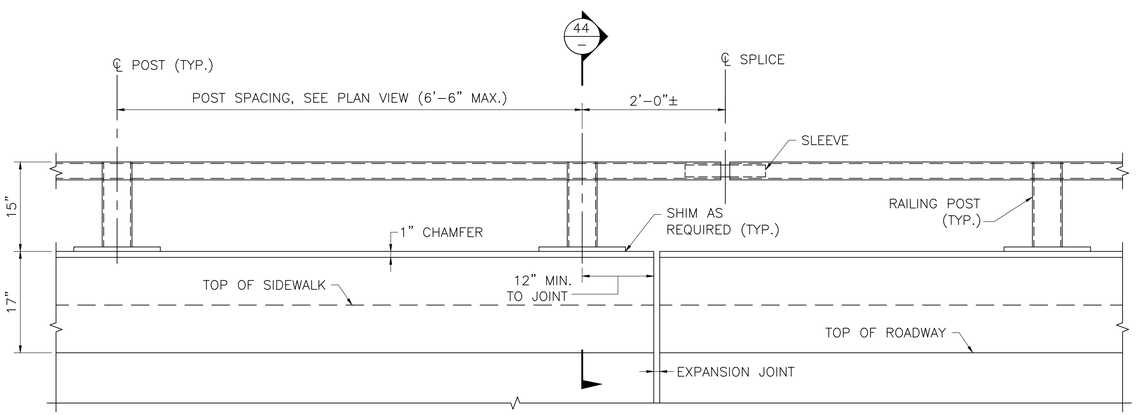
REAR ELEVATION



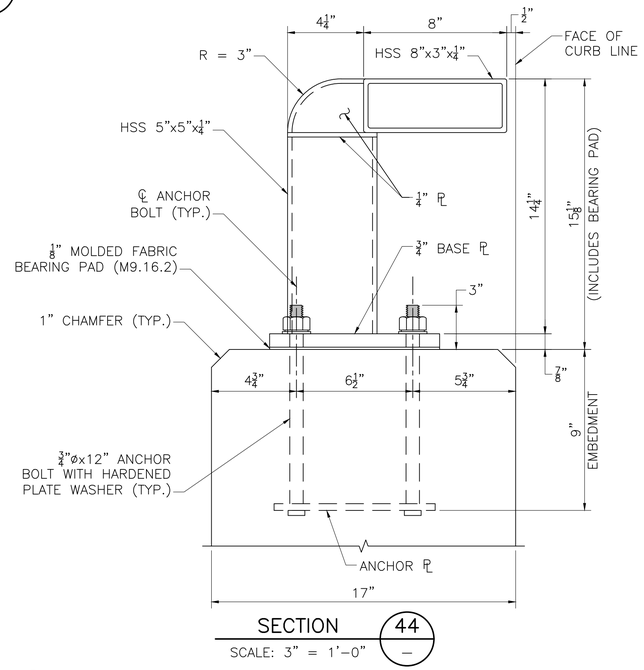
SECTION 42

SLEEVE

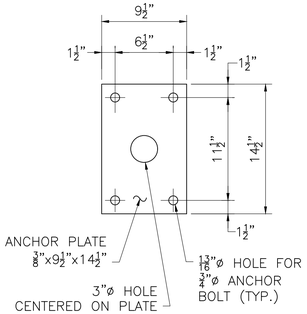
TYPICAL SPLICE DETAILS
SCALE: 3" = 1'-0"



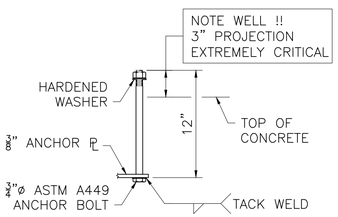
ELEVATION
SCALE: 1" = 1'-0"



SECTION 44
SCALE: 3" = 1'-0"



ANCHOR PLATE
SCALE 1½" = 1'-0"



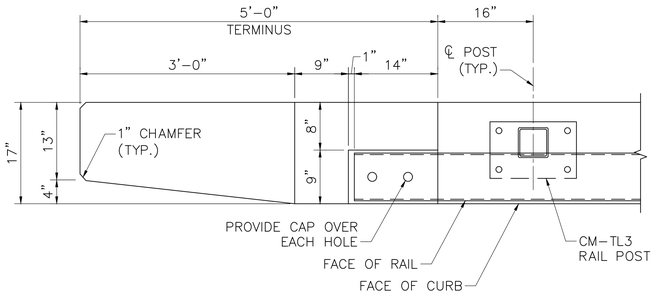
ANCHOR BOLT
SCALE 1½" = 1'-0"

CM-TL3 BRIDGE RAILING

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

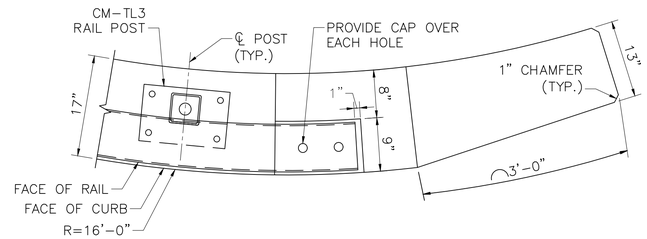
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE



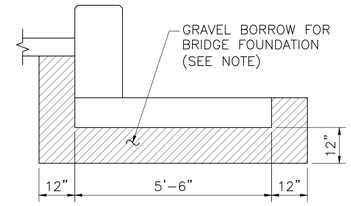
PLAN AT SAFETY CURB AT NORTHWEST CORNER

SCALE: 1" = 1'-0"



PLAN AT SAFETY CURB AT NORTHEAST CORNER

SCALE: 1" = 1'-0"



NOTE:

GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF THE BOTTOM OF THE SLAB.

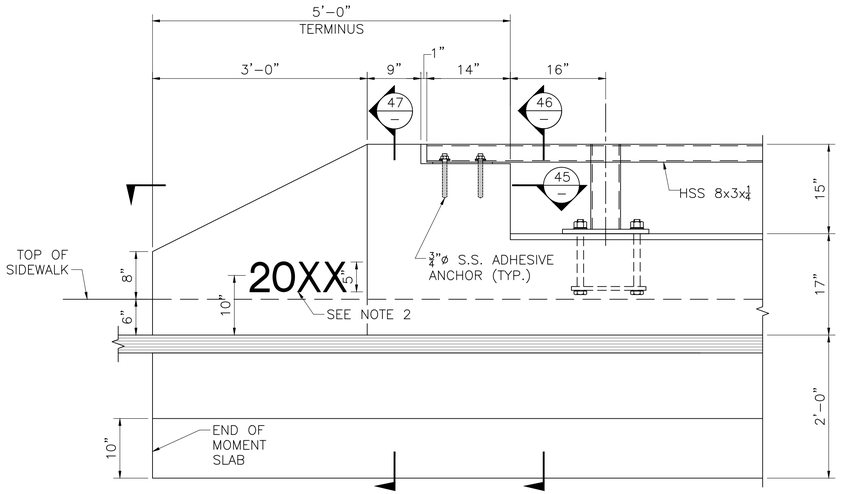
CM-TL3 RAILING BACKFILL

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

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	59	73
	PROJECT FILE NO. 612514		

CM-TL3 BRIDGE RAIL DETAILS II

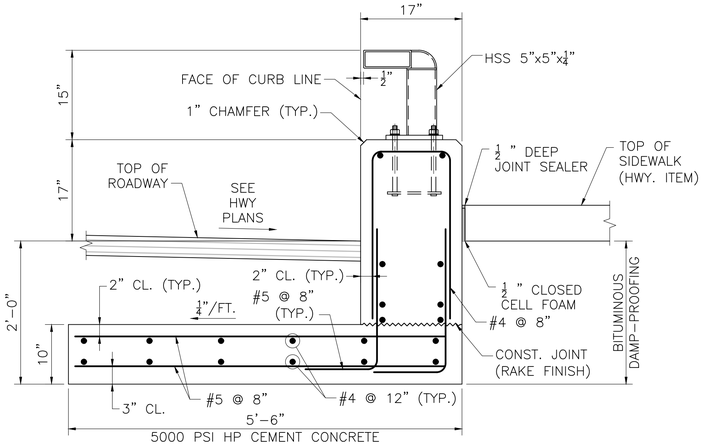


ELEVATION AT CM-TL3 NORTHWEST CORNER (NORTHEAST SIMILAR)

SCALE: 1" = 1'-0"

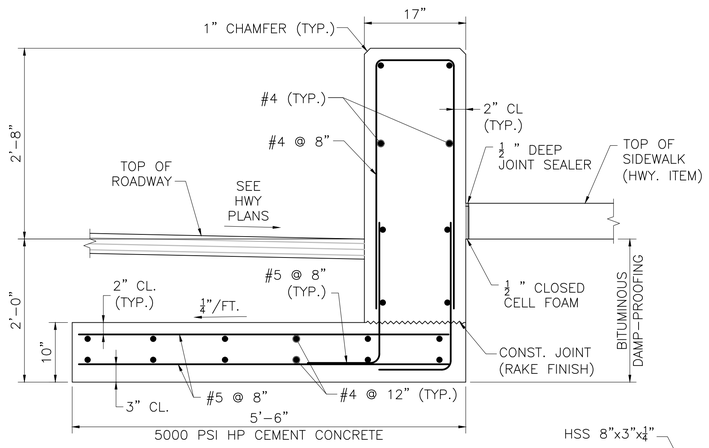
NOTES:

1. ALL CONCRETE FOR THE CM-TL3 RAILING AND TERMINUS SHALL BE 5000 PSI HP CEMENT CONCRETE.
2. THE DATE USED SHALL BE THE ORIGINAL CONSTRUCTION OF THE BRIDGE. DATE TO BE PLACED ON THE NORTHEAST CM-TL3 TERMINUS.



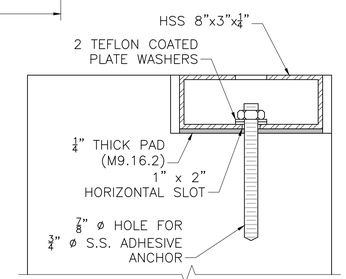
SECTION 46

SCALE: 1" = 1'-0"



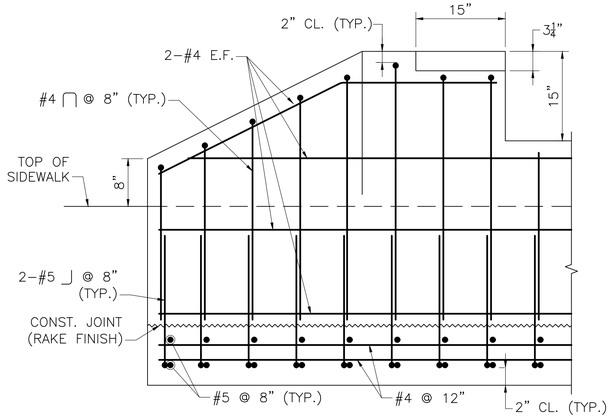
SECTION 47

SCALE: 1" = 1'-0"



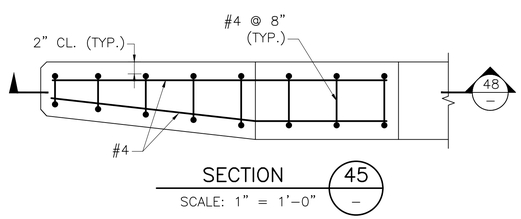
SECTION 49

SCALE: 3" = 1'-0"



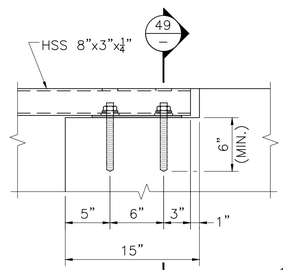
SECTION 48

SCALE: 1" = 1'-0"

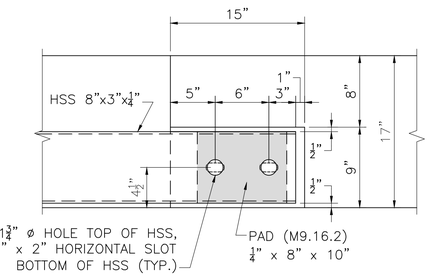


SECTION 45

SCALE: 1" = 1'-0"



ELEVATION



PLAN

RAIL ATTACHMENT

SCALE: 1½" = 1'-0"

TERMINUS FOR CM-TL3 BRIDGE RAILING

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

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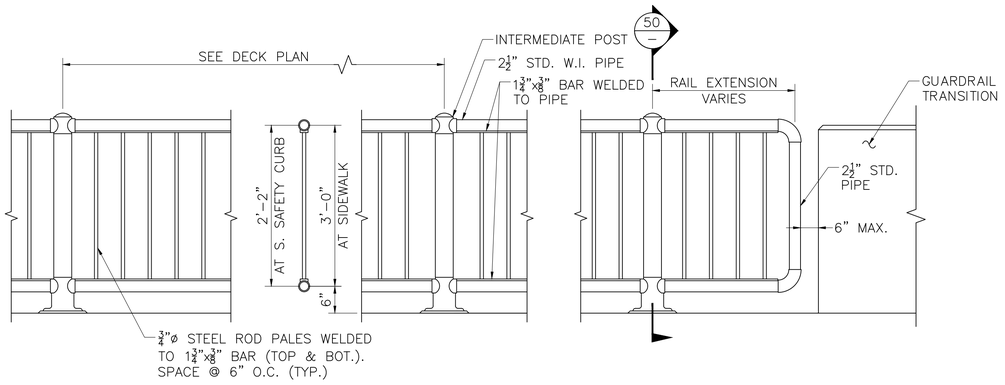
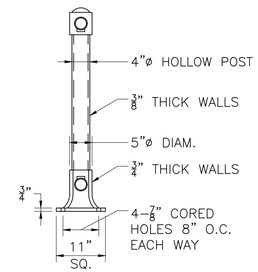
CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	60	73
	PROJECT FILE NO. 612514		

ORNAMENTAL RAIL DETAILS



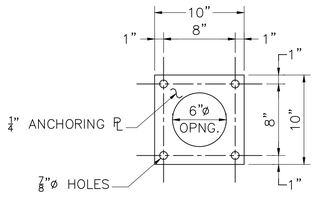
DETAIL OF ORNAMENTAL RAILING
SCALE: ¾" = 1'-0"



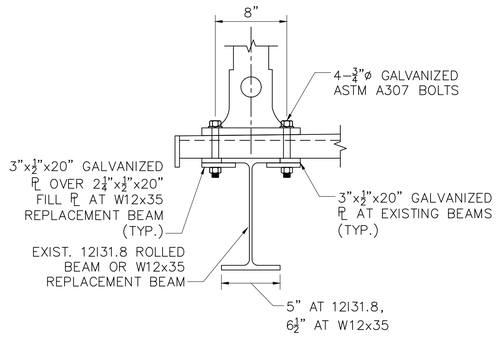
SECTION 50/—
SCALE: ¾" = 1'-0"

NOTES:

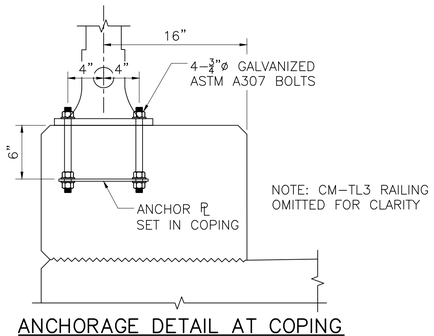
1. THE EXISTING RAILING IS TO BE EITHER REMOVED AND REPLACED ENTIRELY OR REFURBISHED AND RESET WITH PARTIAL REPLACEMENT.
2. NEW ANCHOR PLATES AND ANCHOR RODS ARE REQUIRED AT ALL POSTS.
3. REPLACEMENT ORNAMENTAL RAILING POSTS SHALL BE GRAY IRON CASTINGS CONFORMING TO ASTM A48 CLASS NO. 30.
4. REPLACEMENT STEEL PIPE FOR RAILS SHALL CONFORM TO ASTM A53 GRADE B.
5. REPLACEMENT FLAT BARS AND ¾"ø PALES SHALL CONFORM TO ASTM A36.
6. ANCHOR PLATES SHALL CONFORM TO ASTM 240.
7. REFURBISHED AND REPLACEMENT RAILING TO BE GALVANIZED AND PAINTED WITH A FINISH COAT FEDERAL STANDARD COLOR #14223 GREEN.
8. SEE SHEET 26 FOR RAILING EXPANSION SLEEVE DETAILS.



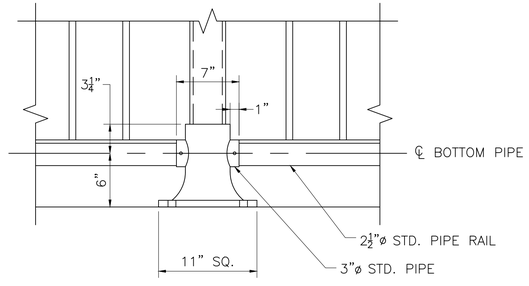
ANCHOR PLATE DETAIL AT SOUTH CURB
SCALE: 1½" = 1'-0"



ANCHORAGE DETAIL AT SIDEWALK
SCALE: 1½" = 1'-0"



ANCHORAGE DETAIL AT COPING
SCALE: 1½" = 1'-0"



PIPE RAIL DETAIL AT POST BASE
SCALE: 1½" = 1'-0"

JUNE 28, 2025	ISSUED FOR CONSTRUCTION
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THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

CUMMINGTON
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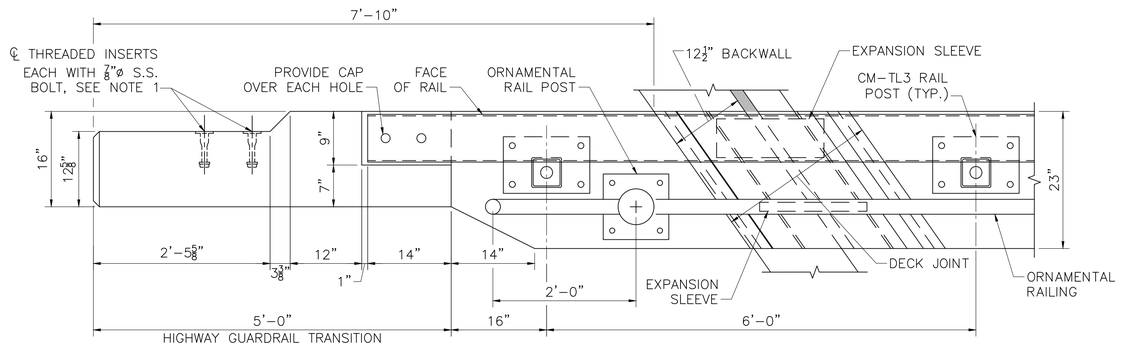
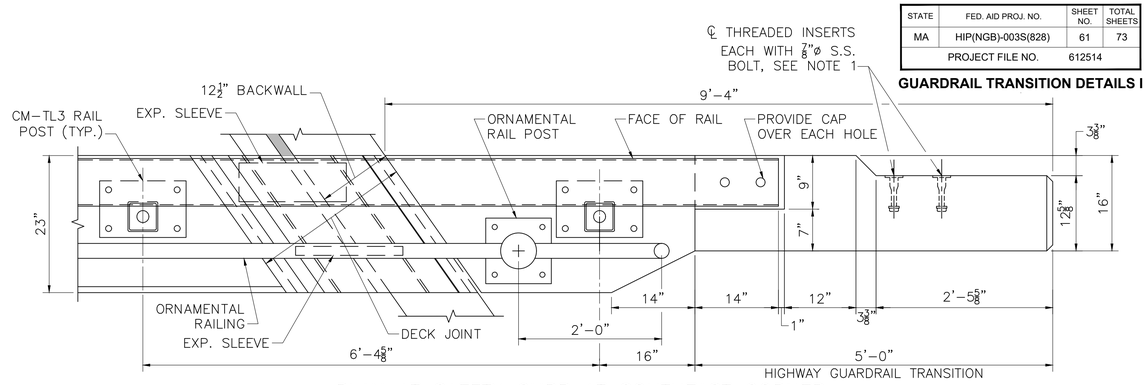
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	61	73
	PROJECT FILE NO. 612514		

GUARDRAIL TRANSITION DETAILS I

NOTES:

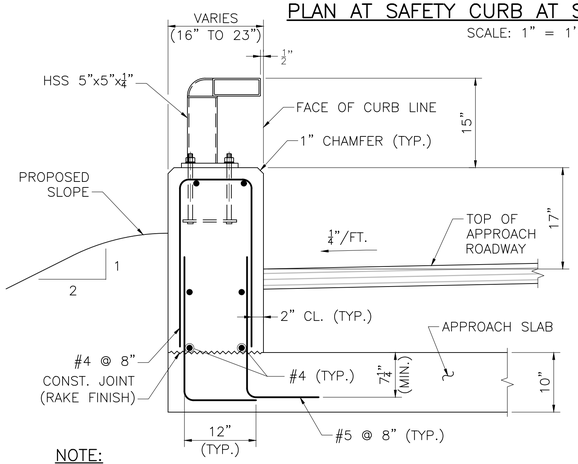
1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 20 KIPS PER $\frac{7}{8}$"ø S.S. BOLT. S.S. BOLTS SHALL BE $\frac{7}{8}$"ø×1$\frac{1}{2}$" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR $\frac{7}{8}$"ø S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION, TERMINAL CONNECTOR INSERT GROUP, AND RAIL POCKETS SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. THE DATE USED SHALL BE THE ORIGINAL CONSTRUCTION OF THE BRIDGE. THE DATE SHALL BE PLACED ON THE INSIDE FACE OF THE NORTHEAST AND SOUTHWEST GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI HP CEMENT CONCRETE.





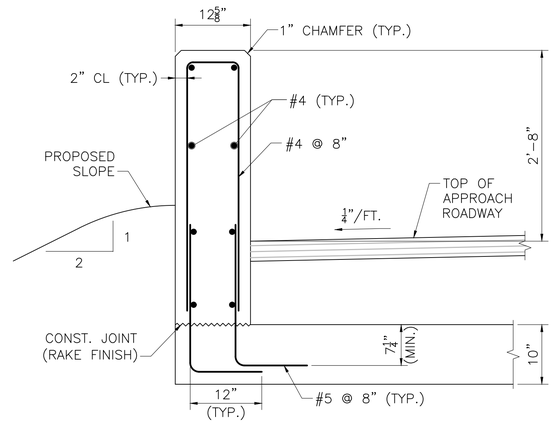
PLAN AT SAFETY CURB AT SOUTHWEST CORNER

SCALE: 1" = 1'-0"



NOTE:
APPROACH SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

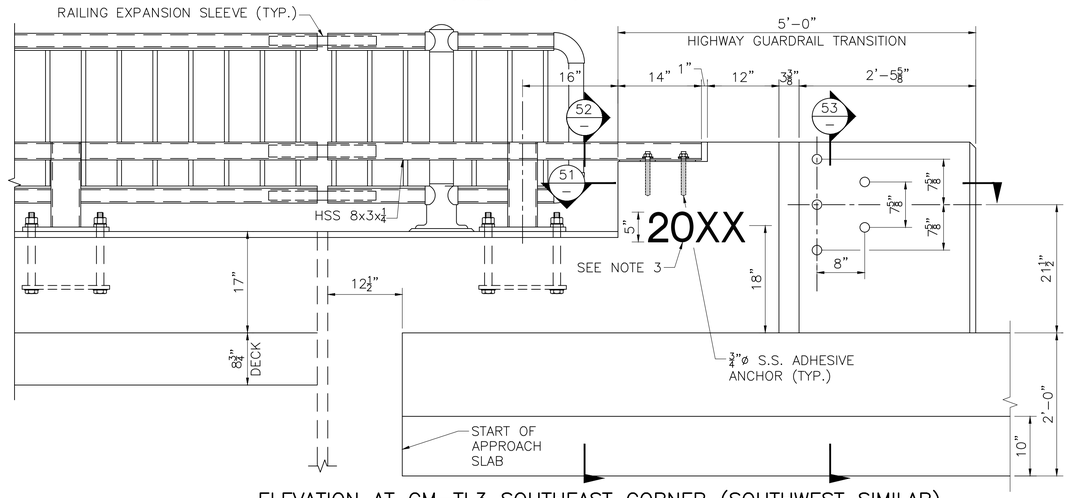
SECTION 52
SCALE: 1" = 1'-0"



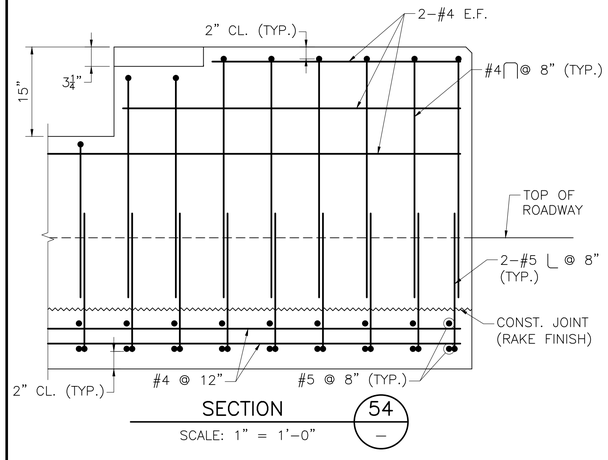
SECTION 53
SCALE: 1" = 1'-0"

PLAN AT SAFETY CURB AT SOUTHEAST CORNER

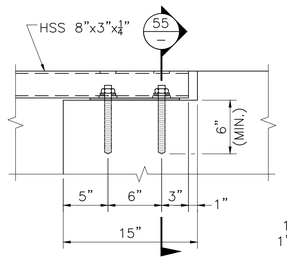
SCALE: 1" = 1'-0"



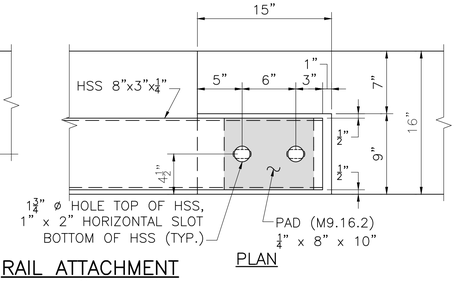
ELEVATION AT CM-TL3 SOUTHEAST CORNER (SOUTHWEST SIMILAR)
SCALE: 1" = 1'-0"



SECTION 54
SCALE: 1" = 1'-0"

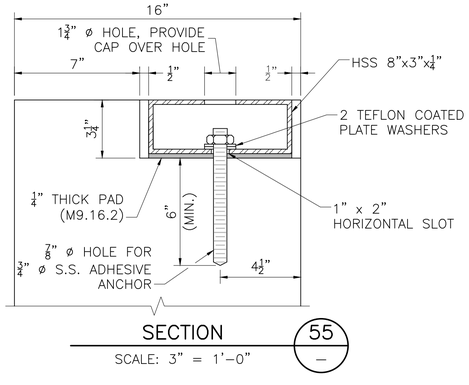


ELEVATION

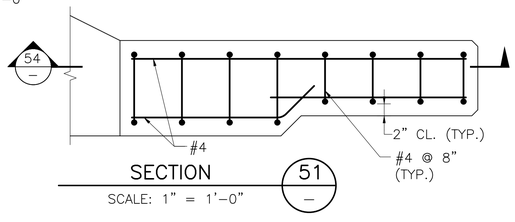


RAIL ATTACHMENT
SCALE: 1½" = 1'-0"

PLAN



SECTION 55
SCALE: 3" = 1'-0"



SECTION 51
SCALE: 1" = 1'-0"

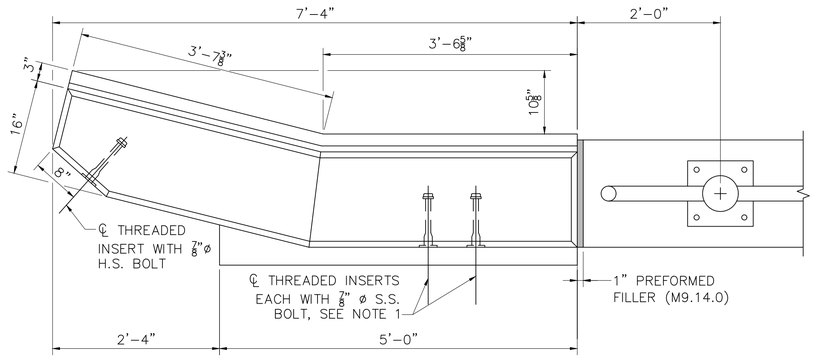
JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT AUTHORIZED SIGNATORY:	STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE	

HIGHWAY GUARDRAIL TRANSITION FOR CM-TL3 RAILING

CUMMINGTON
ST 9/ST 112

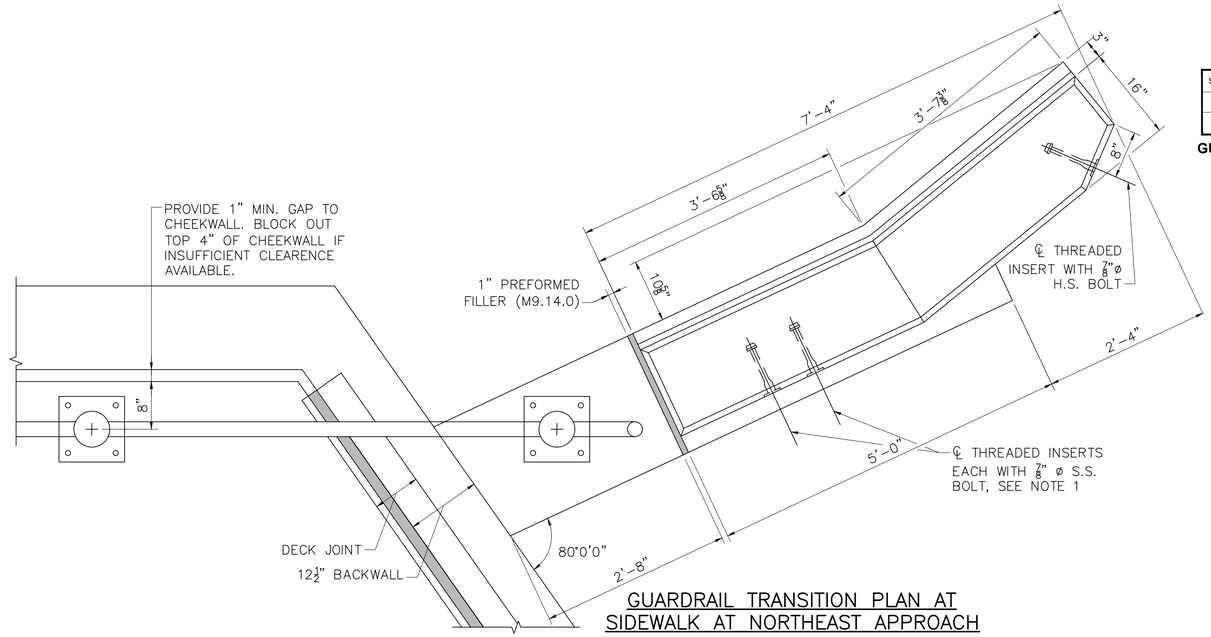
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	62	73
	PROJECT FILE NO. 612514		

GUARDRAIL TRANSITION DETAILS II



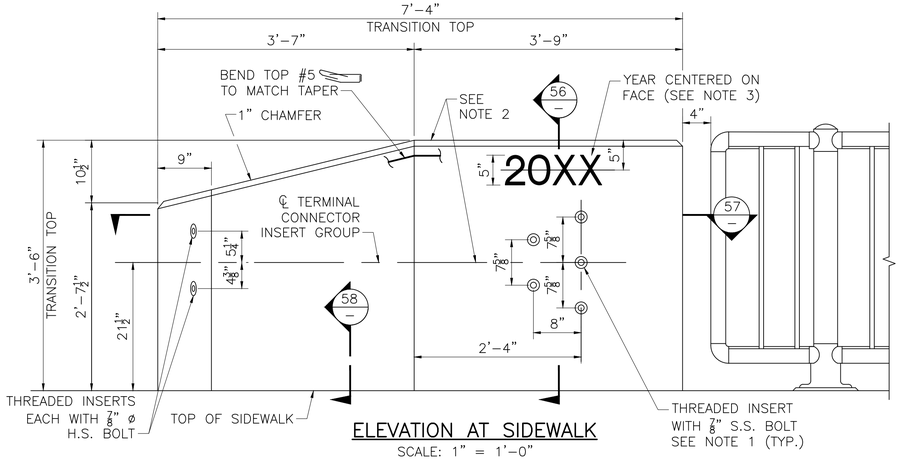
PRECAST GUARDRAIL TRANSITION PLAN AT SIDEWALK AT NORTHWEST APPROACH

SCALE: 1" = 1'-0"



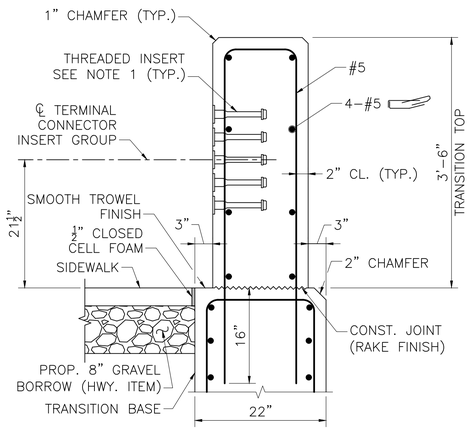
GUARDRAIL TRANSITION PLAN AT SIDEWALK AT NORTHEAST APPROACH

SCALE: 1" = 1'-0"



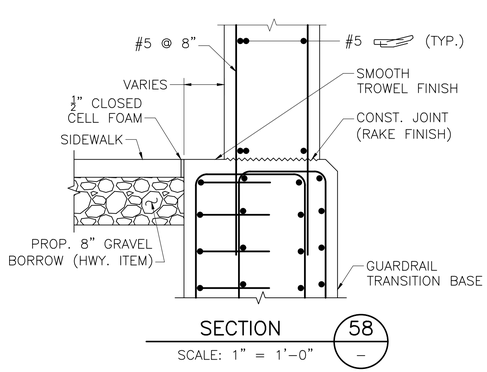
ELEVATION AT SIDEWALK

SCALE: 1" = 1'-0"



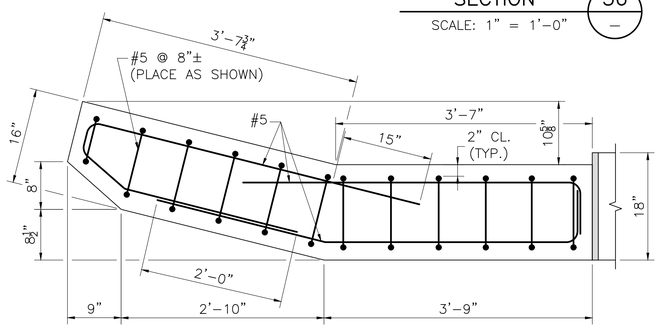
SECTION 56

SCALE: 1" = 1'-0"



SECTION 58

SCALE: 1" = 1'-0"



SECTION 57

SCALE: 1" = 1'-0"

HIGHWAY GUARDRAIL TRANSITION

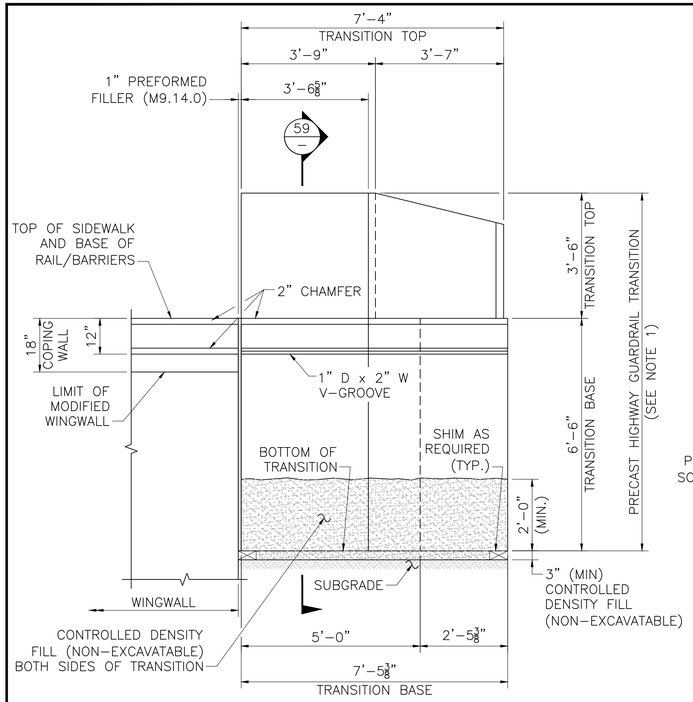
NOTES:

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

JUNE 28, 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

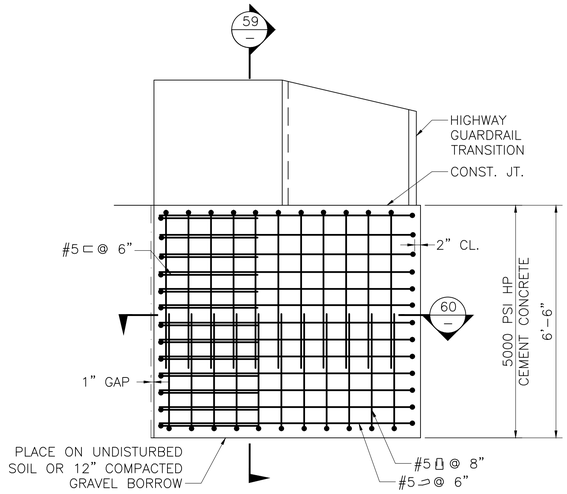


PRECAST GUARDRAIL TRANSITION ELEVATION AT WINGWALL

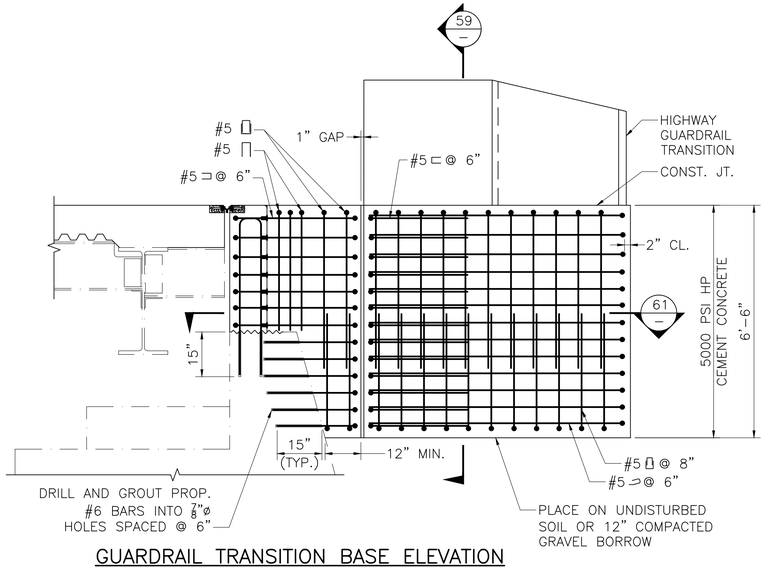
SCALE: 1/2" = 1'-0"

NOTES:

1. PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI HP CEMENT CONCRETE.
2. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
3. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON-EXCAVATABLE) TO THE ELEVATION SHOWN.

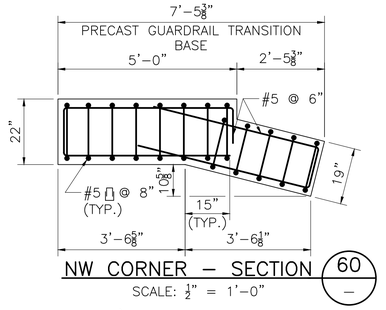


GUARDRAIL TRANSITION BASE ELEVATION AT NW CORNER



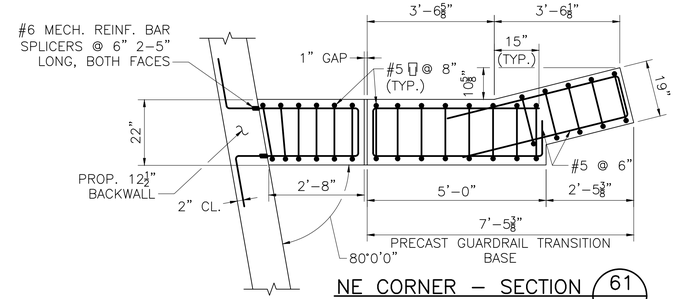
GUARDRAIL TRANSITION BASE ELEVATION AT NE CORNER

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



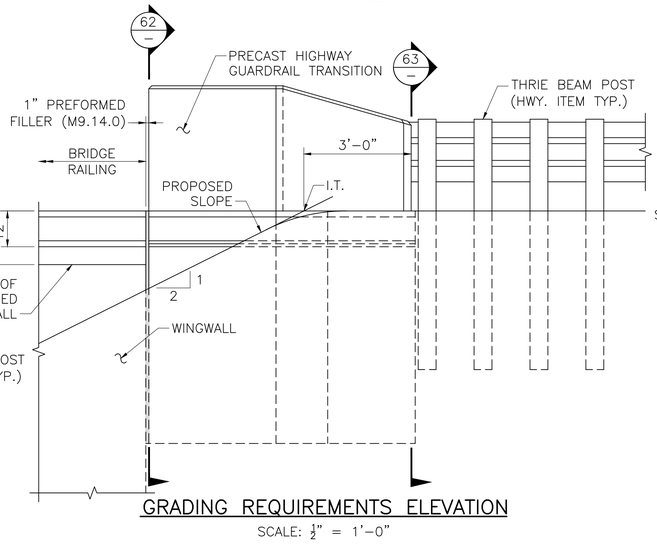
NW CORNER – SECTION

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



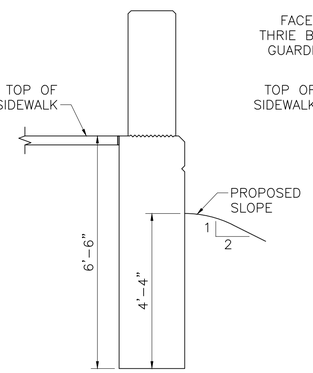
NE CORNER – SECTION

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



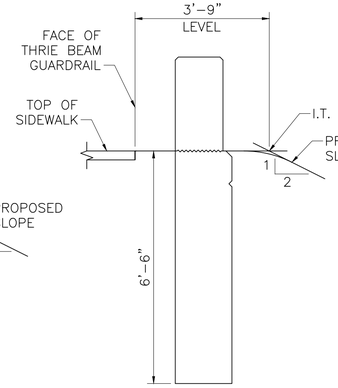
GRADING REQUIREMENTS ELEVATION

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



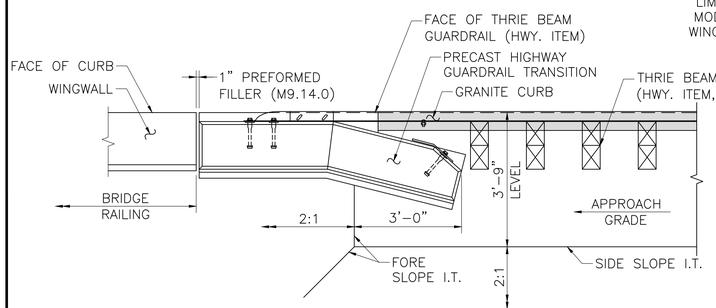
SECTION 62

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



SECTION 63

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



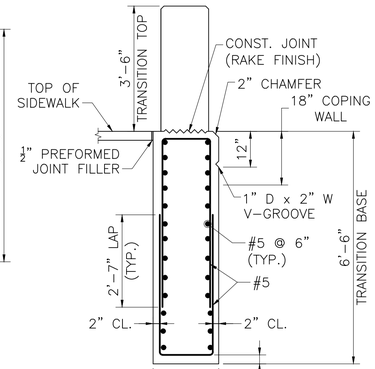
GRADING REQUIREMENTS PLAN (NORTHWEST CORNER SHOWN)

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

CUMMINGTON
ST 9/ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	63	73
	PROJECT FILE NO. 612514		

GUARDRAIL TRANSITION DETAIL III



SECTION 59

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

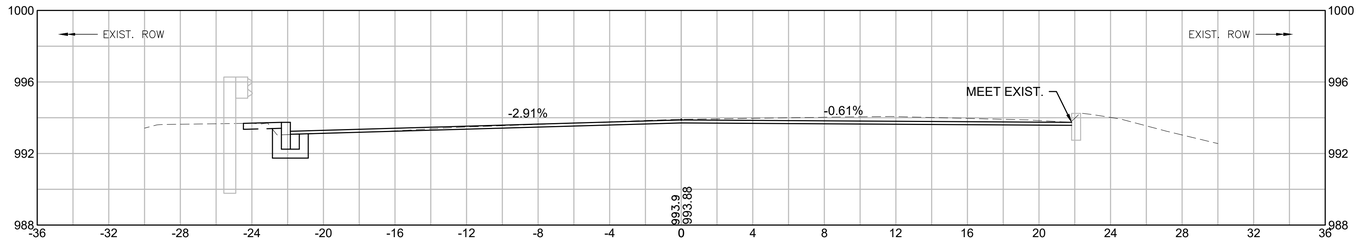
JUNE 28, 2025	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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

CUMMINGTON
ST 9/ ST 112

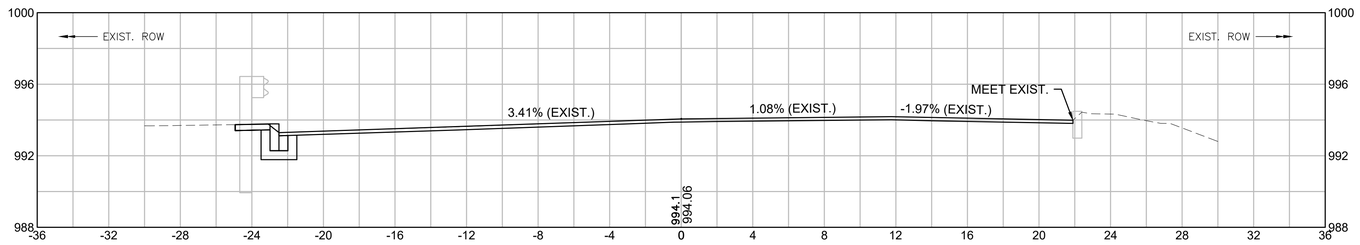
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	64	73
PROJECT FILE NO.	612514		

CROSS SECTIONS
BERKSHIRE TRAIL



378+50

CUT = 13.07 SF
FILL = 0.00 SF



378+00

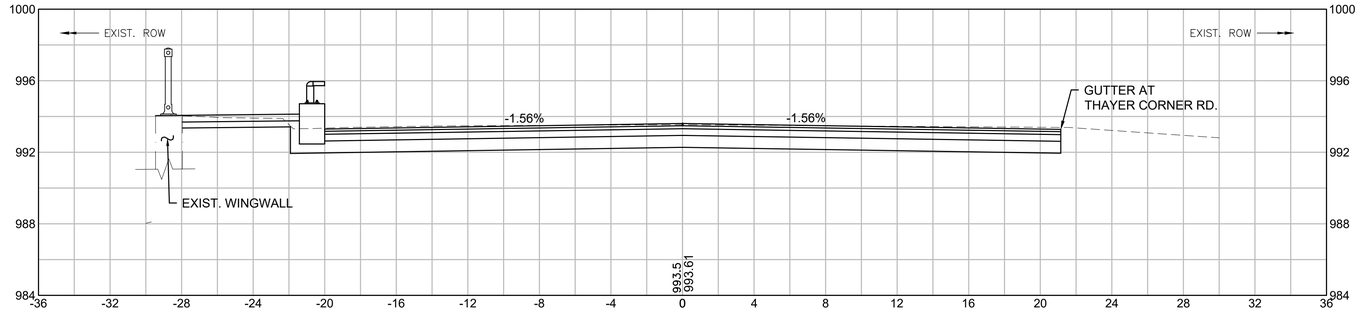
CUT = 11.92 SF
FILL = 0.00 SF

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

CUMMINGTON
ST 9/ ST 112

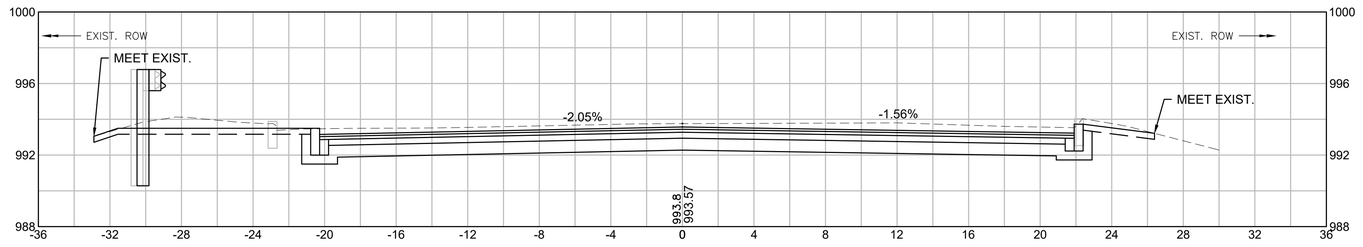
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	65	73
PROJECT FILE NO.	612514		

CROSS SECTIONS
BERKSHIRE TRAIL



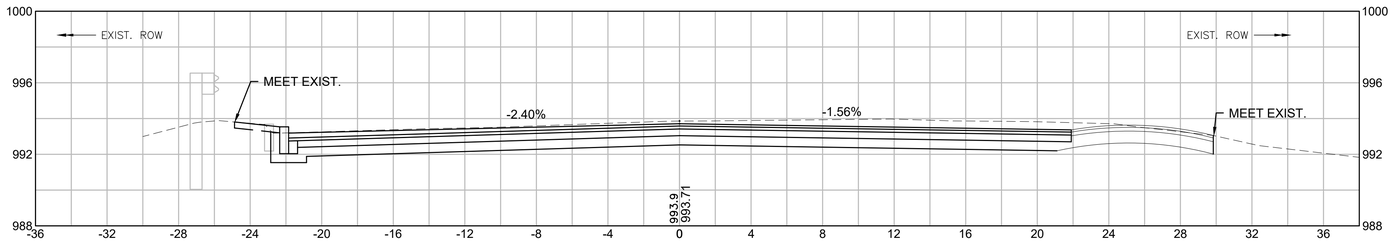
380+00

CUT = 61.75 SF
FILL = 0.00 SF



379+50

CUT = 80.73 SF
FILL = 0.00 SF



379+00

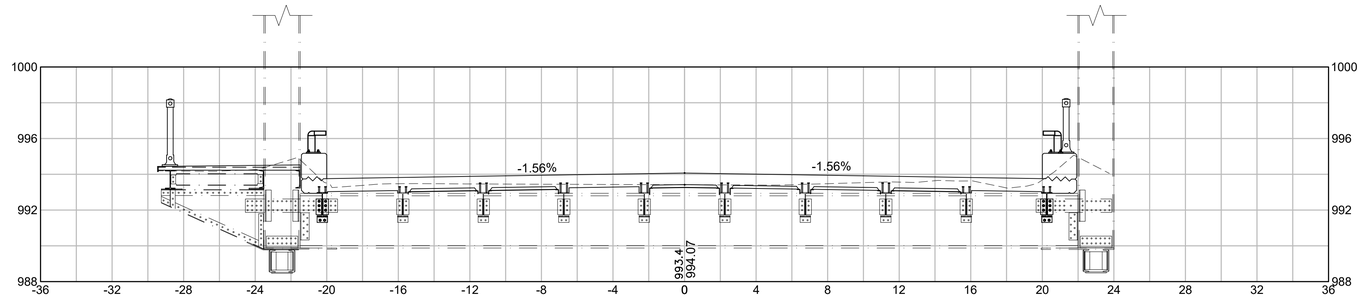
CUT = 73.85 SF
FILL = 0.00 SF

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

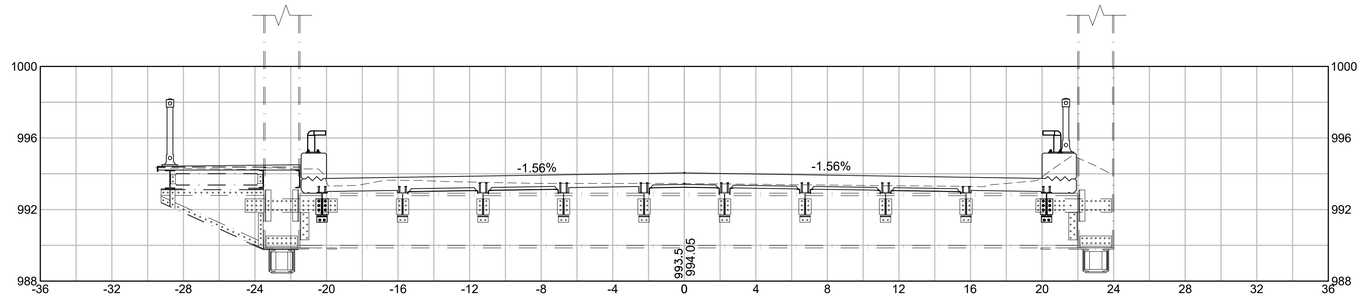
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	66	73
PROJECT FILE NO.	612514		

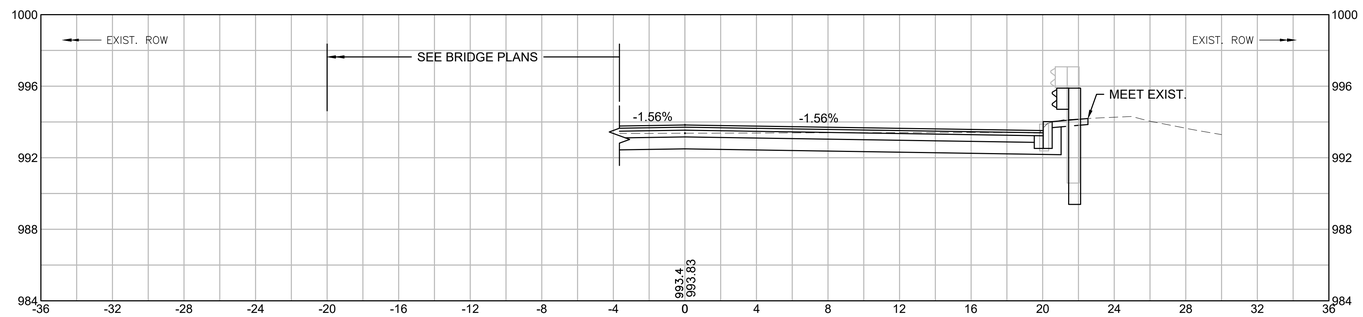
CROSS SECTIONS
BERKSHIRE TRAIL



381+50
(SEE BRIDGE PLANS)



381+00
(SEE BRIDGE PLANS)



380+50

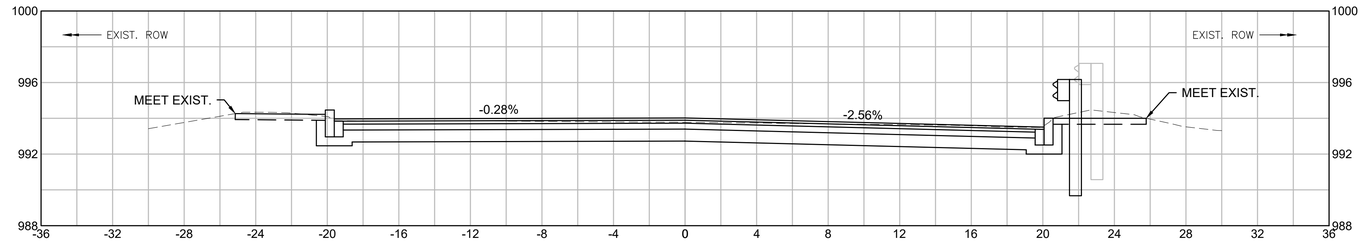
CUT = 26.74 SF
FILL = 0.00 SF

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

CUMMINGTON
ST 9/ ST 112

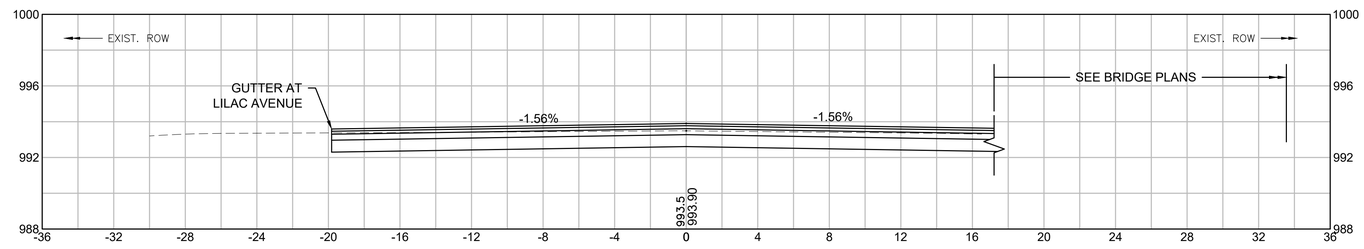
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	67	73
PROJECT FILE NO.	612514		

CROSS SECTIONS
BERKSHIRE TRAIL



382+50

CUT = 54.57 SF
FILL = 0.00 SF



382+00

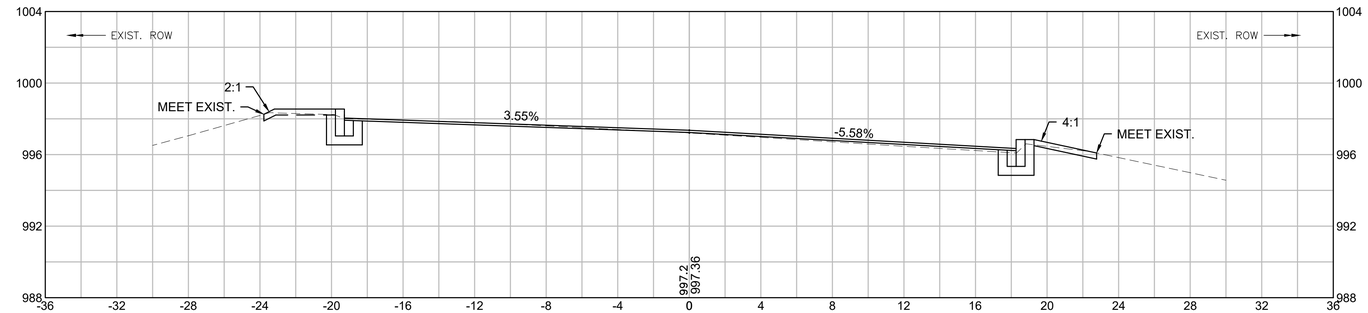
CUT = 35.30 SF
FILL = 0.00 SF

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

CUMMINGTON
ST 9/ ST 112

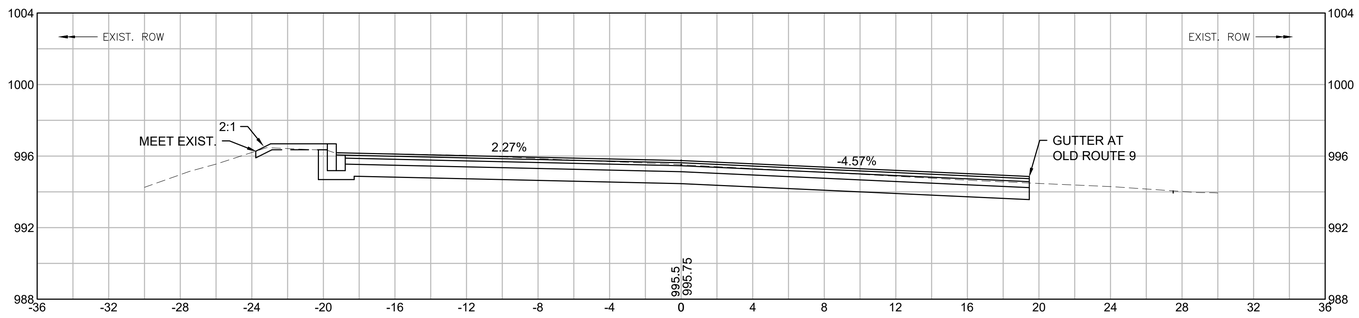
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	68	73
	PROJECT FILE NO. 612514		

CROSS SECTIONS
BERKSHIRE TRAIL



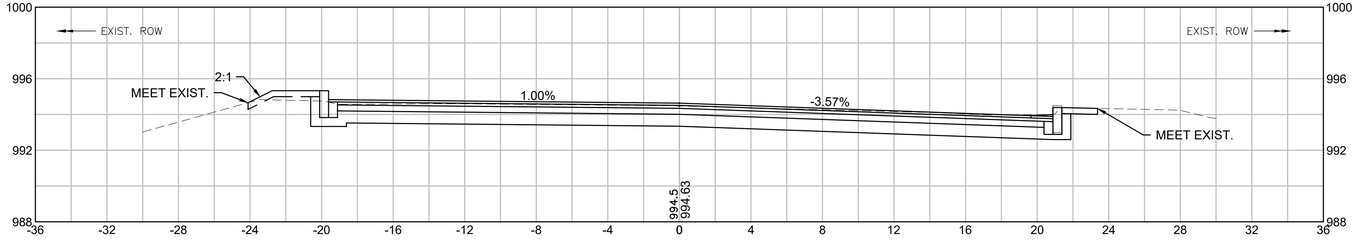
384+00

CUT = 7.84 SF
FILL = 1.38 SF



383+50

CUT = 45.09 SF
FILL = 0.00 SF



383+00

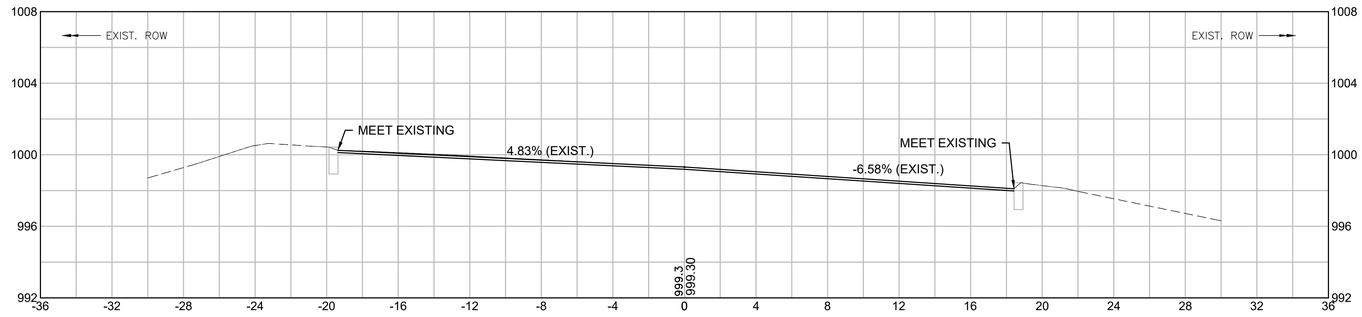
CUT = 49.44 SF
FILL = 0.46 SF

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

CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	69	73
PROJECT FILE NO.	612514		

CROSS SECTIONS
BERKSHIRE TRAIL



384+50

CUT = 5.17 SF
FILL = 0.00 SF

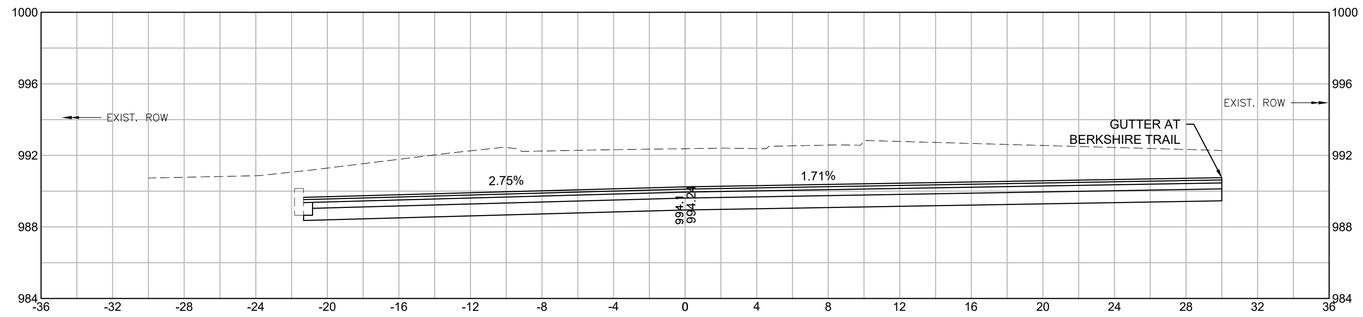
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

612514_HDXX (CROSS SECTIONS).DWG Plotted on 30-Jun-2025 10:50 AM

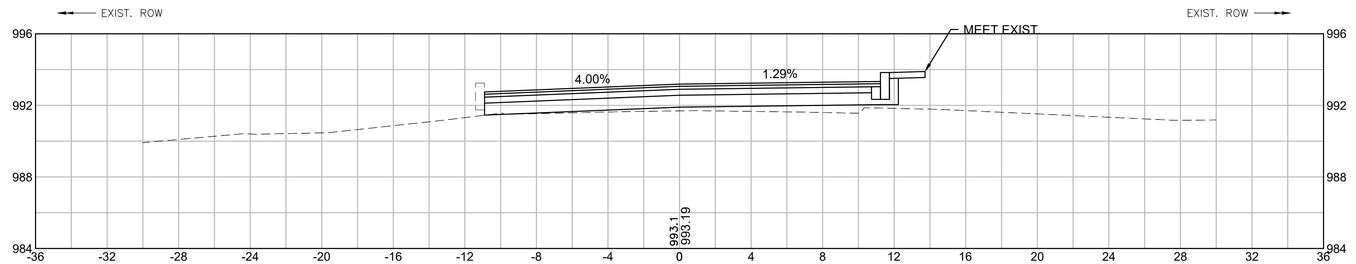
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	70	73
	PROJECT FILE NO. 612514		

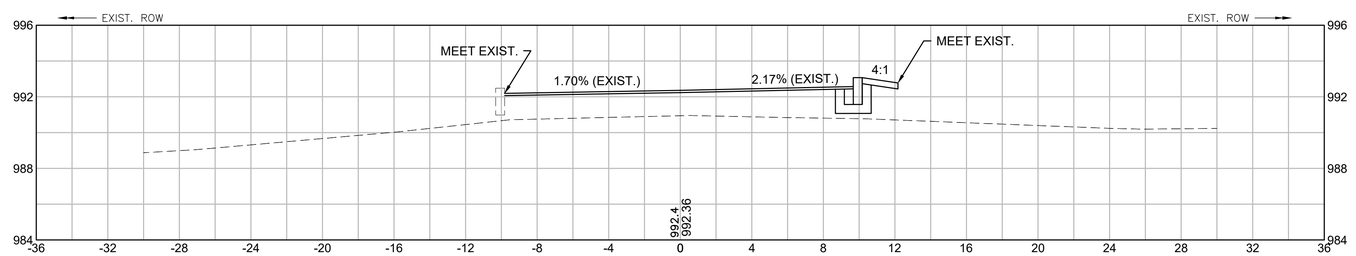
CROSS SECTIONS
OLD RTE 9



400+75



400+50



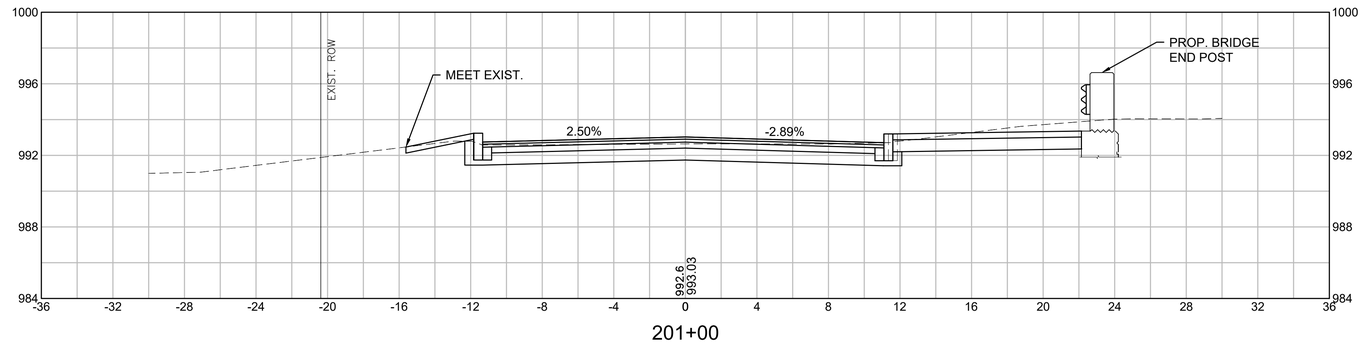
400+25

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

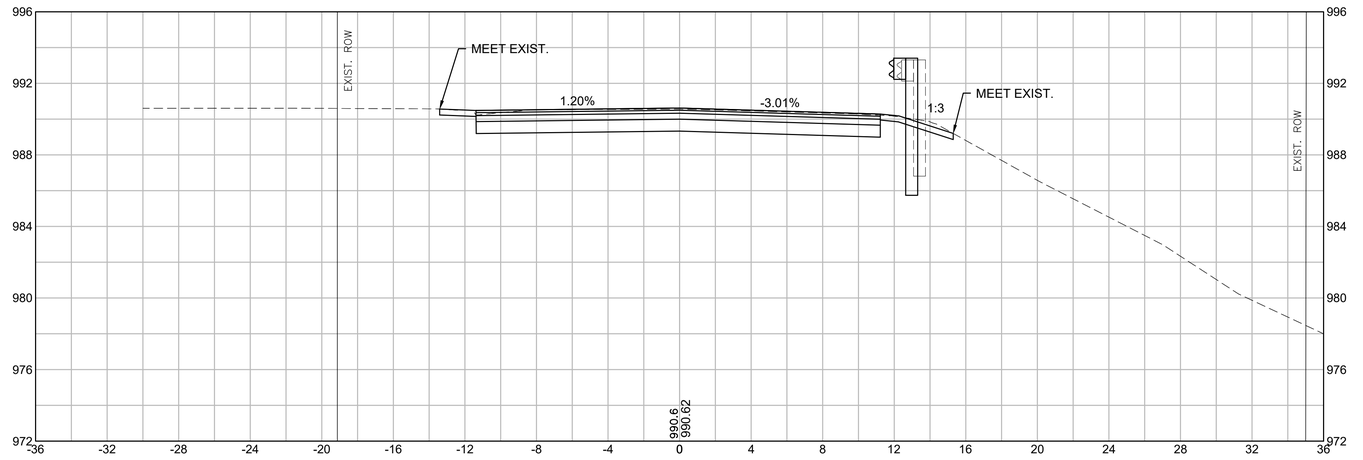
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	71	73
PROJECT FILE NO.	612514		

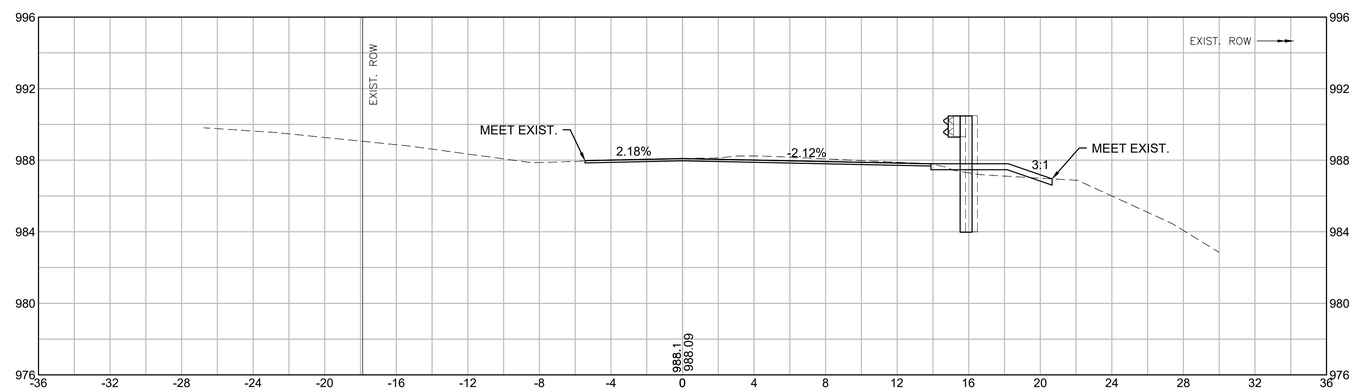
CROSS SECTIONS
LILAC AVENUE



201+00



200+50



200+00

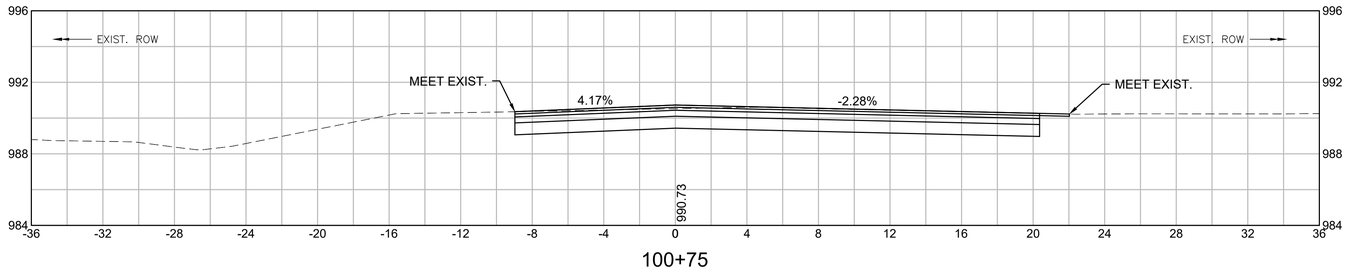
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

612514_HDXX (CROSS SECTIONS).DWG Plotted on 30-Jun-2025 10:50 AM

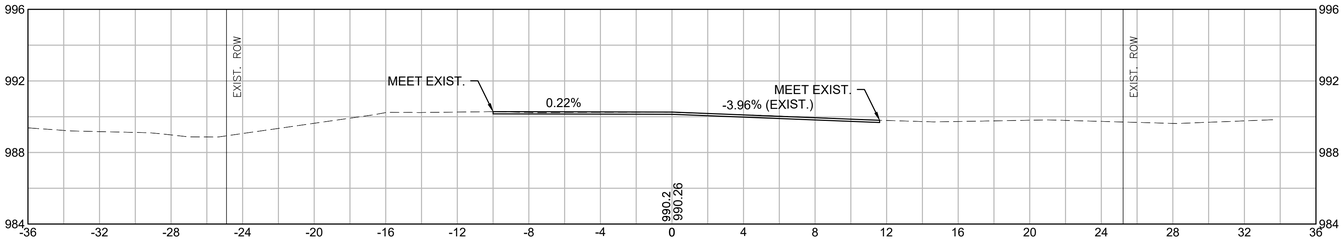
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	72	73
	PROJECT FILE NO. 612514		

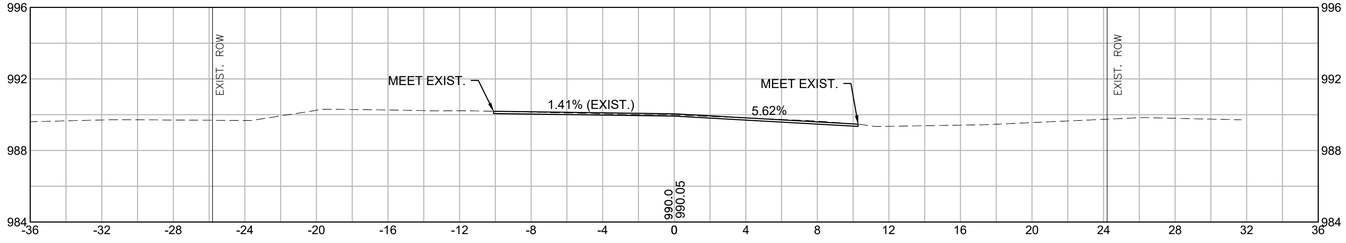
CROSS SECTIONS
THAYER CORNER ROAD



100+75



100+50



100+25

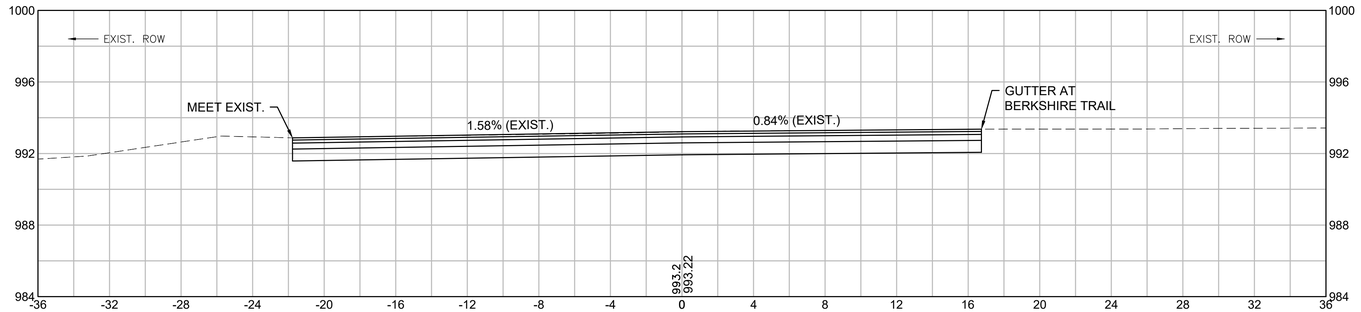
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

612514_HDXX (CROSS SECTIONS).DWG Plotted on 30-Jun-2025 10:50 AM

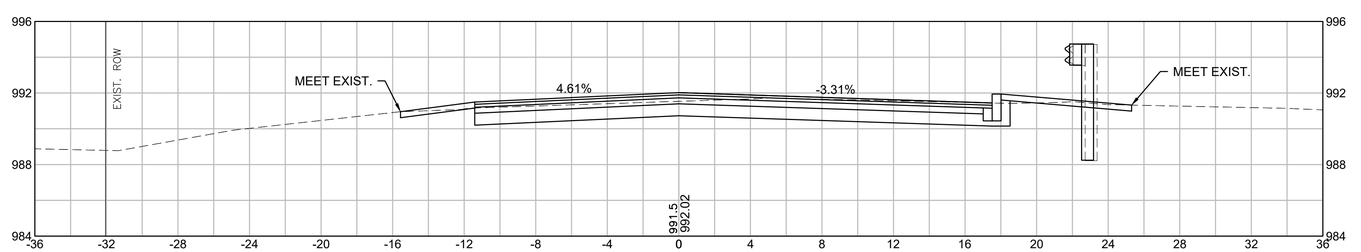
CUMMINGTON
ST 9/ ST 112

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	HIP(NGB)-003S(828)	73	73
	PROJECT FILE NO. 612514		

CROSS SECTIONS
THAYER CORNER ROAD



101+25



101+00

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

612514_HDXX (CROSS SECTIONS).DWG Plotted on 30-Jun-2025 10:51 AM