

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		RETAINING WALL (TYPE AS NOTED)
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENTATION BARRIER
		TREE LINE or LIMIT OF CLEARING AND GRUBBING
		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
		HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
		BND
		TEST PIT
		BORING/PAVEMENT CORE
		EROSION CONTROL BARRIER/COMPOST FILTER TUBES
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		CONSTRUCTION BASELINE
		SURVEY LINE
		PEDESTRIAN CURB RAMP
		TREE (SIZE AND TYPE AS NOTED)

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED	DESCRIPTION
	CW CROSSWALK, 2 - 12" WHITE LINES (WIDTH VARIES)
	SL STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP)
	SWL SOLID WHITE LINE - 6"
	SWCHL SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
	SWGL SOLID WHITE GORE LINE 12" @ 45°, (SPACING NOTED)
	SWPL SOLID WHITE PARKING LINE - 6"
	BWL BROKEN WHITE LINE - 6" (10' LINE & 30' GAP)
	DWLEx DOTTED WHITE LANE EXTENSION LINE - 6" (2' LINE & 6' GAP)
	DYLEx DOTTED YELLOW LANE EXTENSION LINE - 6" (2' LINE & 6' GAP)
	DYBL DOTTED YELLOW BIKE LANE LINE - 6" WITH BLACK OUTSIDE BORDER (3' LINE & 9' GAP)
	BYL BROKEN YELLOW LINE - 6" (10' LINE & 30' GAP)
	DBYL DOUBLE YELLOW LINE - 2 - 6" LINES
	SYL SOLID YELLOW LINE - 6"
	SYGL SOLID YELLOW GORE LINE 12" @ 45°, (SPACING NOTED)
	SYBL SOLID YELLOW BIKE LANE LINE - 6" WITH BLACK OUTSIDE BORDER
	SCHOOL SCHOOL ZONE - WHITE
	ACCESSIBLE SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
	LEGEND "ONLY" - WHITE

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
		CONTROLLER PHASE
		MAST ARM, SHAFT & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION AS NOTED)
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		VEHICULAR SIGNAL HEAD (REMOVED & RESET)
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PULL BOX 12"x12" OR HANDHOLE
		LOOP DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		PRE-EMPTION DETECTOR
		PRE-EMPTION CONFIRMATION STROBE
		SIGNAL CONDUIT (SINGLE RUN)
		SIGNAL CONDUIT (DOUBLE RUN)
		SIGNAL POST & BASE
		MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

TRAFFIC SIGNAL SYSTEMS

R	STEADY CIRCULAR RED
Y	STEADY CIRCULAR AMBER
G	STEADY CIRCULAR GREEN
FR	FLASHING CIRCULAR RED
FY	FLASHING CIRCULAR AMBER
+FY	FLASHING YELLOW LEFT ARROW
R→	STEADY RED RIGHT ARROW
Y→	STEADY AMBER RIGHT ARROW
G→	STEADY GREEN RIGHT ARROW
+R	STEADY RED LEFT ARROW
+Y	STEADY AMBER LEFT ARROW
+G	STEADY GREEN LEFT ARROW
W	STEADY WALK (PERSON WALKING) - LUNAR WHITE
DW	STEADY DON'T WALK (HAND) - PORTLAND ORANGE
FDW	FLASHING DON'T WALK (FLASHING HAND) - PORTLAND ORANGE

TRAFFIC SIGNAL

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER 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
PE	PEDESTRIAN
PTZ	PAN, TILE, 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 WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

ABBREVIATIONS

GENERAL	DESCRIPTION
AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
ALT	ALTERATION
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL (or B)	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BR.	BRIDGE
BSW	BACK OF SIDEWALK
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
CIT	CHANGE IN TYPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
COND	CONDUIT
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
DV	DIVERSION MANHOLE
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
FM	FORCE MAIN
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
IP	IRON PIPE
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE or LOW POINT
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
O.C.	ON CENTER
OHW	OVERHEAD WIRE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT

ABBREVIATIONS (cont.)

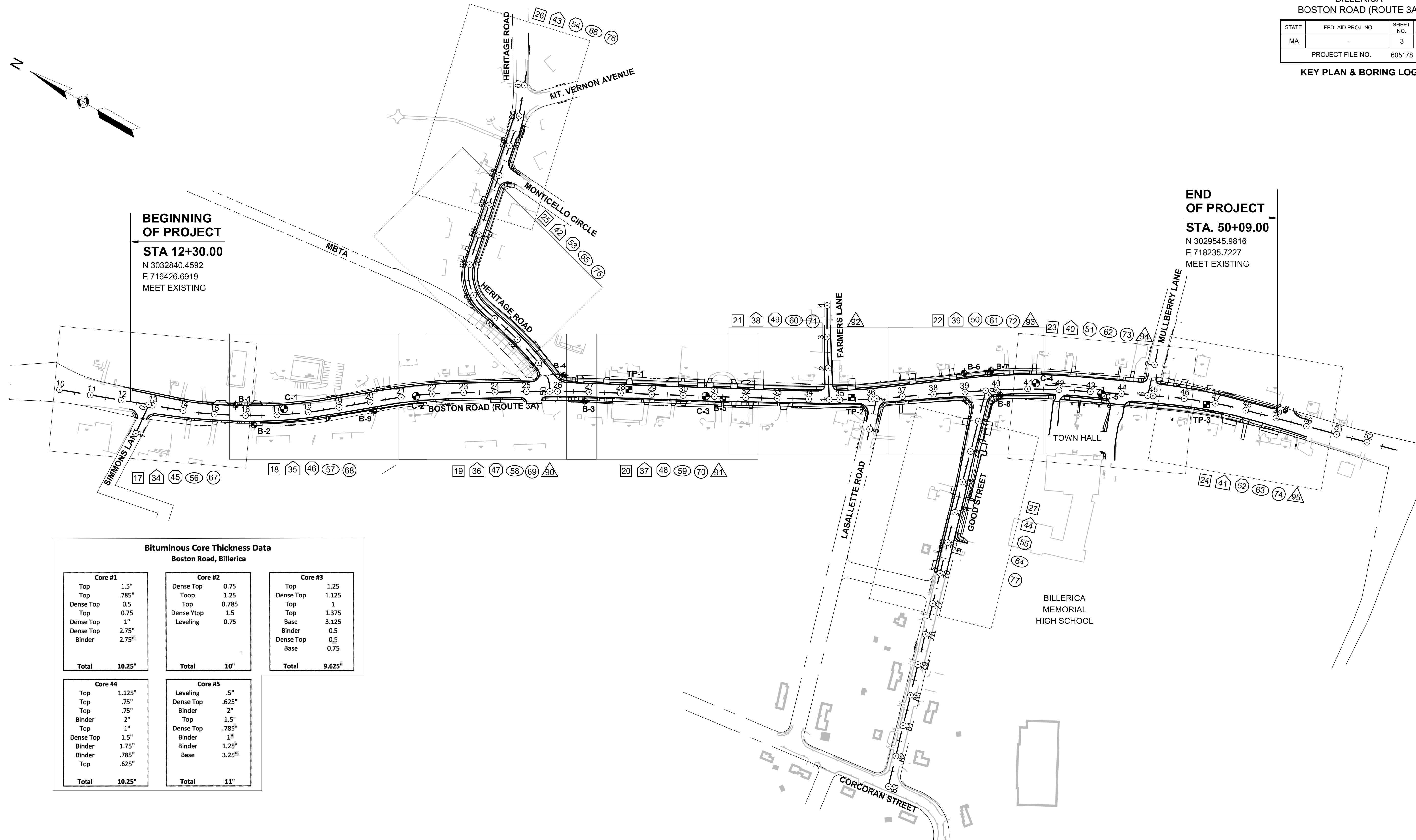
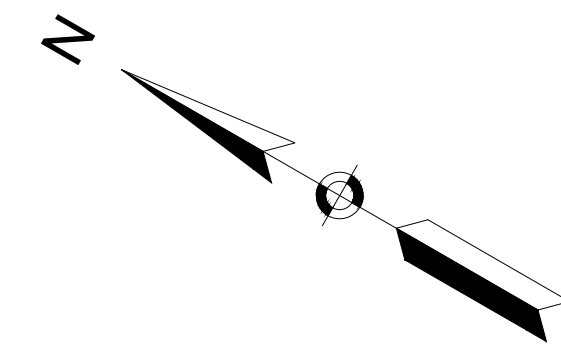
GENERAL	DESCRIPTION
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE or POLY-VINYL -CHLORIDE-PIPE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REL	RELOCATE
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RRFB	RECTANGULAR RAPID FLASHING BEACON
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SD	SUBDRAIN
SHLD	SHOULDER
SHT	SHEET
SMH	SEWER MANHOLE
SP	STRAIN POLE
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
TOW	TOP OF WALL
T.S.	TRAFFIC SIGNAL
TSV&B	TAPPING SLEEVE, VALVE AND BOX
TYP	TYPICAL
UG	UNDERGROUND
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VGC	VERTICAL GRANITE CURB
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
WQU	WATER QUALITY UNIT
X-SECT	CROSS SECTION

BILLERICA BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	139

PROJECT FILE NO. 605178

LEGEND & ABBREVIATIONS



END OF PROJECT
STA. 50+09.00
N 3029545.9816
E 718235.7227
MEET EXISTING

Bituminous Core Thickness Data
Boston Road, Billerica

Core #1	Core #2	Core #3
Top 1.5"	Dense Top 0.75	Top 1.25
Top .785"	Toop 1.25	Dense Top 1.125
Dense Top 0.5	Top 0.785	Top 1
Top 0.75	Dense Ytop 1.5	Top 1.375
Dense Top 1"	Leveling 0.75	Base 3.125
Dense Top 2.75"		Binder 0.5
Binder 2.75"		Dense Top 0.5
Total 10.25"	Total 10"	Total 9.625"

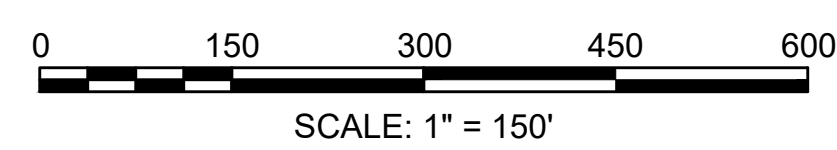
Core #4	Core #5
Top 1.125"	Leveling .5"
Top .75"	Dense Top .625"
Top .75"	Binder 2"
Binder 2"	Top 1.5"
Top 1"	Dense Top .785"
Dense Top 1.5"	Binder 1"
Binder 1.75"	Binder 1.25"
Binder .785"	Base 3.25"
Top .625"	
Total 10.25"	Total 11"

SHEET NUMBER LEGEND

- XX CONSTRUCTION PLAN
- XX CURB TIE & GRADING PLAN
- XX DRAINAGE UTILITY PLAN
- XX UTILITY PLAN
- XX SIGN & PAVEMENT MARKING PLAN
- △ LIGHTING PLAN

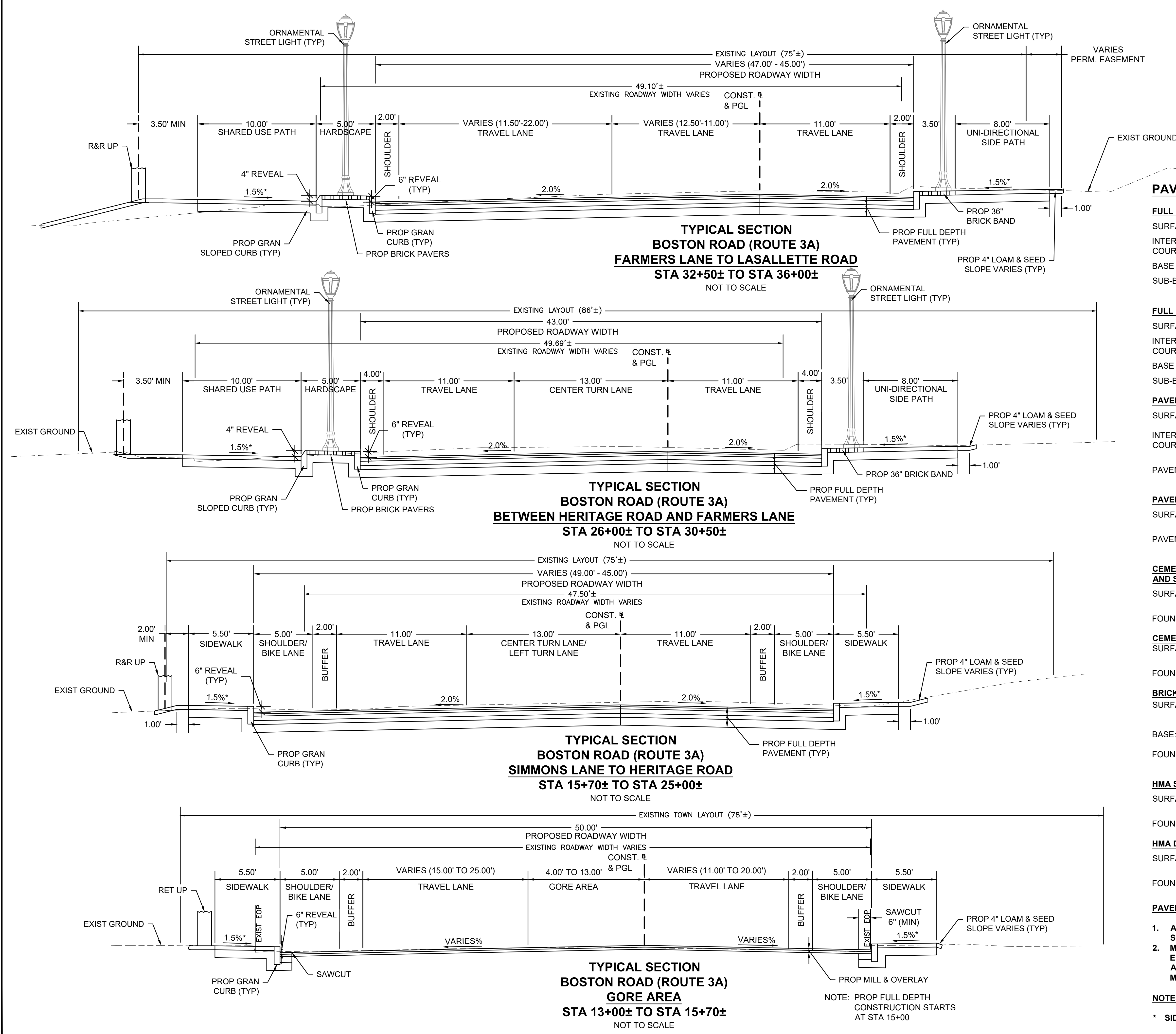
LEGEND

- PAVEMENT CORE
- TEST PIT (SEE SPECIAL PROVISIONS)
- ⊕ BORING LOCATION



BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	139
PROJECT FILE NO.		605178	

TYPICAL SECTIONS & PAVEMENT NOTES
BOSTON ROAD (ROUTE 3A)



PAVEMENT NOTES

FULL DEPTH PAVEMENT & BOX WIDENING > 4' WIDE

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE -12.5 - POLYMER (SSC-12.5-P) OVER
INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER
BASE COURSE: 4-1/2" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
SUB-BASE: 4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW, TYPE b

FULL DEPTH PAVEMENT BOX WIDENING ≤4' WIDE

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE -12.5 - POLYMER (SSC-12.5-P) OVER
INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER
BASE COURSE: 6" HES CEMENT CONCRETE BASE COURSE OVER
SUB-BASE: 8" GRAVEL BORROW, TYPE b

PAVEMENT MILLING AND OVERLAY (BOSTON ROAD & HERITAGE ROAD)

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE -12.5 - POLYMER (SSC-12.5-P) OVER
INTERMEDIATE COURSE: 2-1/4" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER

PAVEMENT MILLING: 1/2" TO 4" PAVEMENT STANDARD MILLING (VARIABLE DEPTH)

PAVEMENT MILLING AND OVERLAY (GOOD STREET & SIDE STREETS)

SURFACE COURSE: 1-3/4" SUPERPAVE SURFACE COURSE -12.5 - POLYMER (SSC-12.5-P) OVER

PAVEMENT MILLING: 1-3/4" PAVEMENT STANDARD MILLING (VARIABLE DEPTH)

**CEMENT CONCRETE SIDEWALKS, WHEELCHAIR RAMPS,
AND SHARED USE PATHS**

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

CEMENT CONCRETE SIDEWALKS AT DRIVEWAYS AND SHARED USE PATH WHEELCHAIR RAMPS

SURFACE: 6" CEMENT CONCRETE WALK SURFACE
4000 PSI, 3/4", 610 AIR ENTRAINED OVER
FOUNDATION: 8" GRAVEL BORROW, TYPE b

BRICK ACCENT STRIP

SURFACE: 4"x8"x2 1/2" BRICK PAVER OVER
1" SAND BEDDING OVER
BASE: 4" CEMENT CONCRETE
FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA SIDEWALKS

SURFACE: 1-1/4" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
1-3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
FOUNDATION: 8" GRAVEL BORROW, TYPE b

HMA DRIVEWAYS

SURFACE: 1-1/2" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER
2-1/2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
FOUNDATION: 8" GRAVEL BORROW, TYPE b

PAVEMENT NOTES

- ALL HMA FOR PATCHING. ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE INSTALLED PER SECTION 450.
- MILLING TO ESTABLISH 2% CROSS SLOPE TO MEET LINES AND GRADES AS DIRECTED BY ENGINEER. A LEVELING COURSE SHALL BE SUPERPAVE LEVELING COURSE 12.5 (SLC-12.5) AT MIN. THICKNESS OF 1.5" KEYED LEVEL INTO THE PREPARED SURFACE FLUSHED AND A MAX. THICKNESS OF 2.5" COMPACTED THICKNESS SHALL BE AS DIRECTED BY ENGINEER.

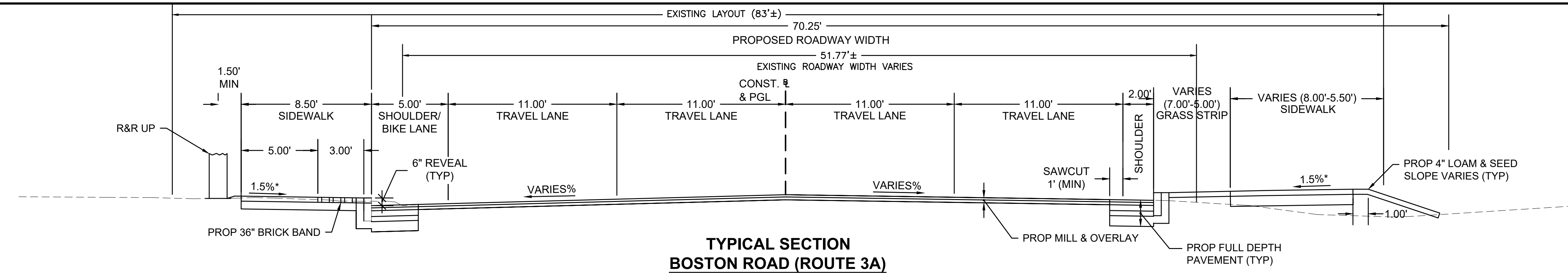
NOTES:

* SIDEWALK CROSS-SLOPE SHALL BE 1.5% WITH A CONSTRUCTION TOLERANCE OF 0.5%±

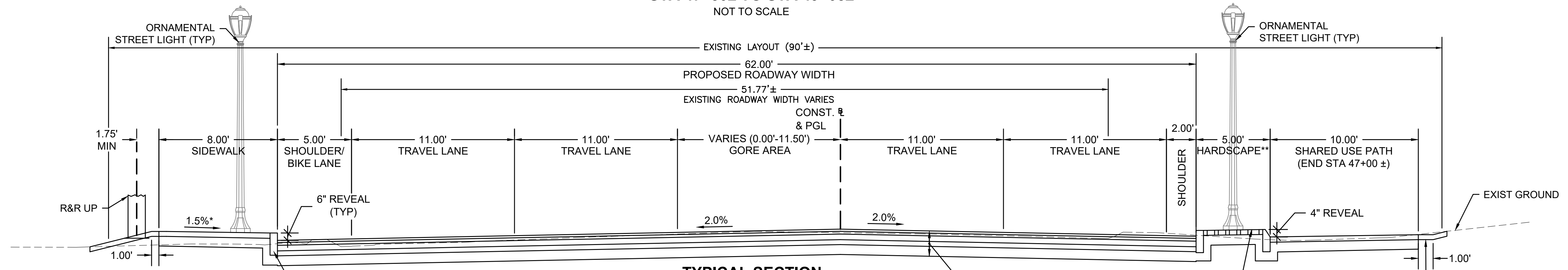
**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	139
PROJECT FILE NO.		605178	

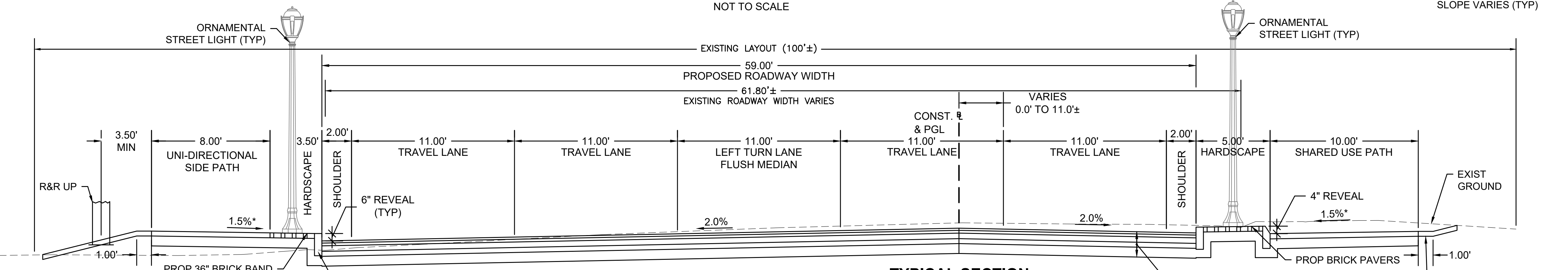
**TYPICAL SECTIONS & PAVEMENT NOTES
BOSTON ROAD (ROUTE 3A)
GOOD STREET**



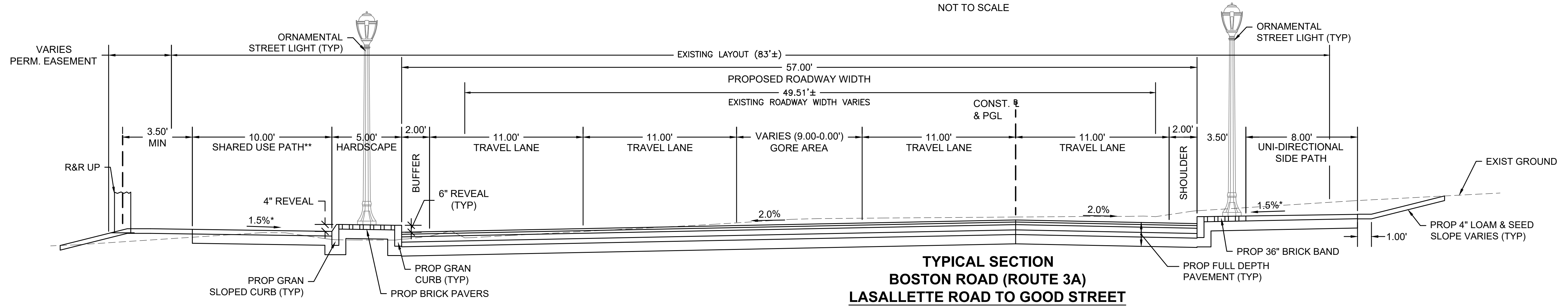
**TYPICAL SECTION
BOSTON ROAD (ROUTE 3A)
STA 47+50± TO STA 49+05±
NOT TO SCALE**



**TYPICAL SECTION
BOSTON ROAD (ROUTE 3A)
STA 45+18± TO STA 47+50±
NOT TO SCALE**



**TYPICAL SECTION
BOSTON ROAD (ROUTE 3A)
STA 39+50± TO STA 45+18±
NOT TO SCALE**

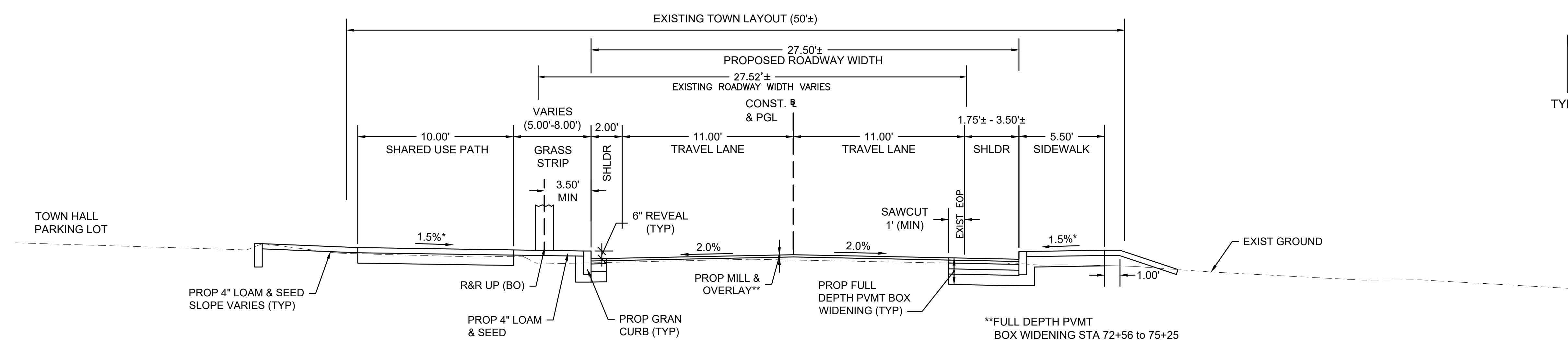


**TYPICAL SECTION
BOSTON ROAD (ROUTE 3A)
LASALLETT ROAD TO GOOD STREET
STA 36+00± TO STA 39+50±
NOT TO SCALE**

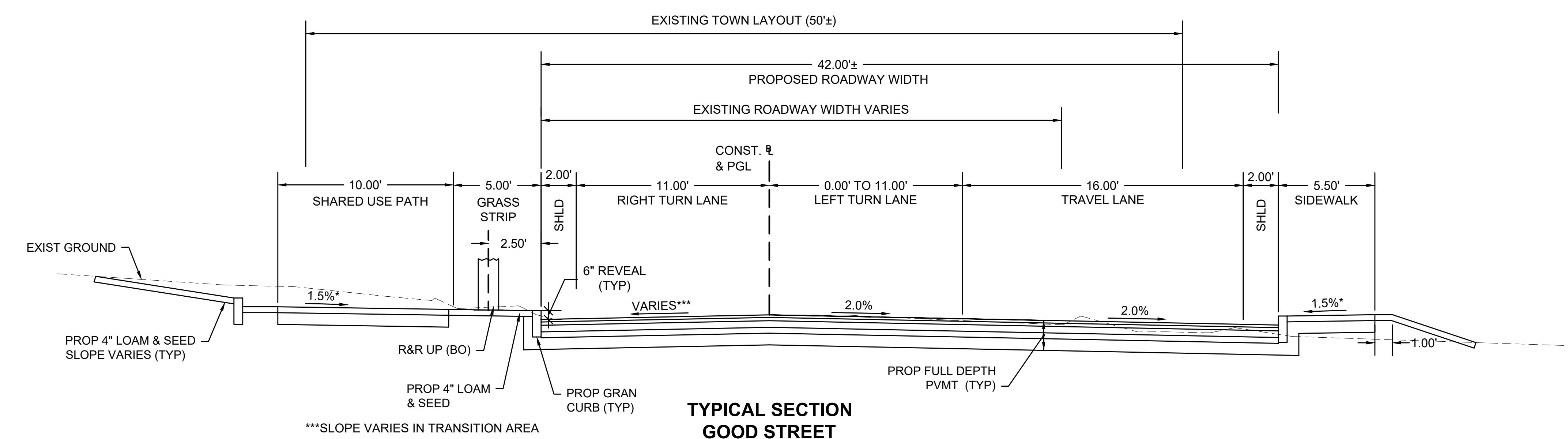
** SHARED USE PATH REGION
ENDS AT STA 40+00± LT

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	139
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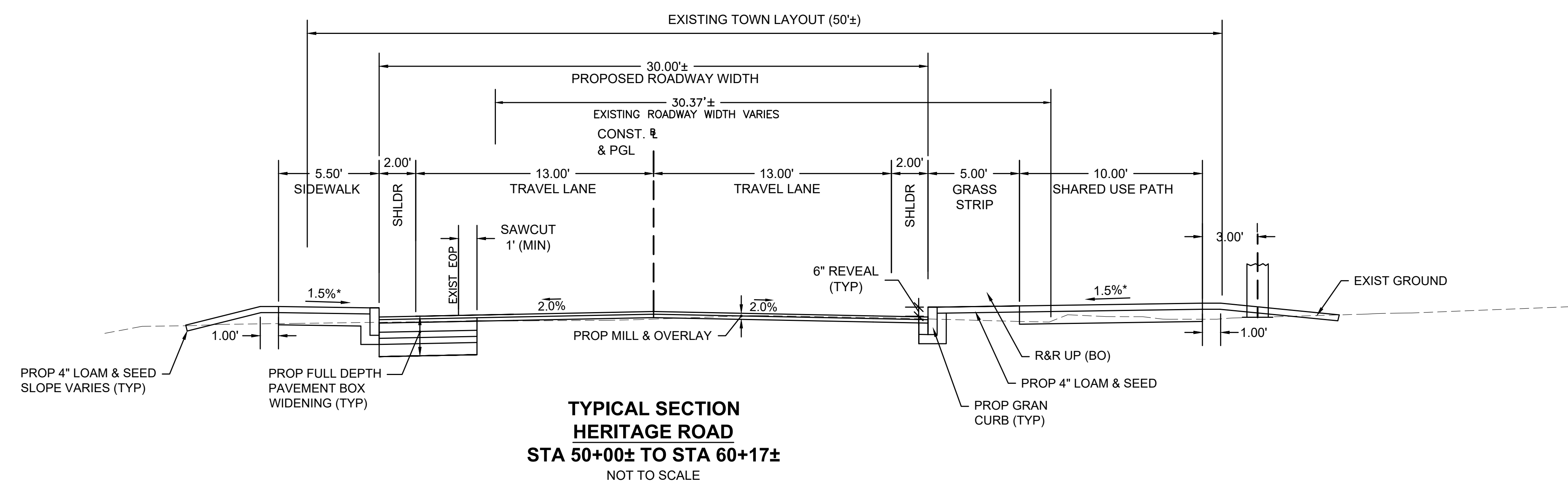
TYPICAL SECTIONS & PAVEMENT NOTES
GOOD STREET
HERITAGE ROAD



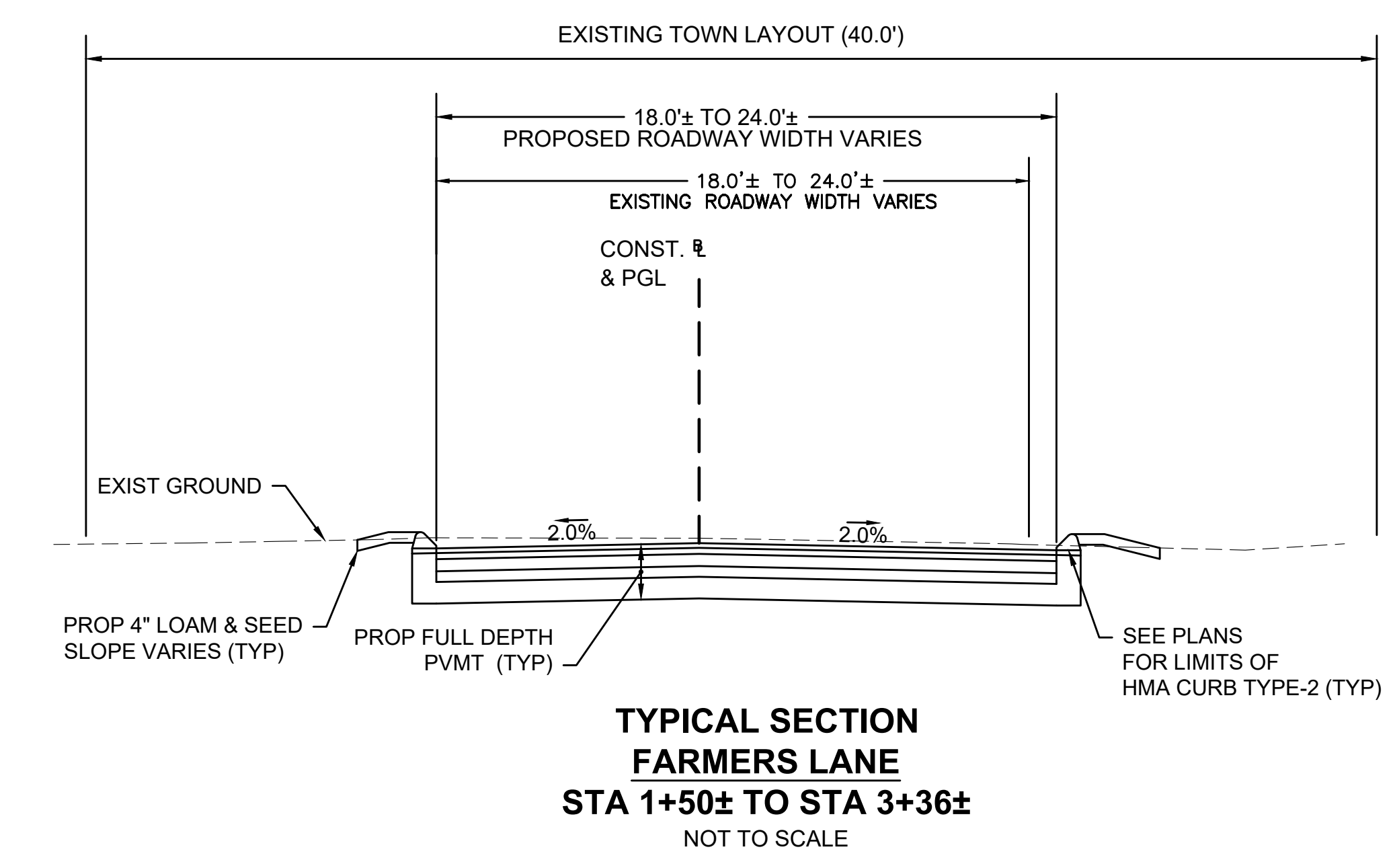
**TYPICAL SECTION
GOOD STREET
STA 72+56± TO STA 76+00±**
NOT TO SCALE



**TYPICAL SECTION
GOOD STREET
STA 70+00± TO STA 72+56±**
NOT TO SCALE



**TYPICAL SECTION
HERITAGE ROAD
STA 50+00± TO STA 60+17±**
NOT TO SCALE



**TYPICAL SECTION
FARMERS LANE
STA 1+50± TO STA 3+36±**
NOT TO SCALE

GENERAL NOTES

- THE LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY, AND ARE NOT WARRANTED TO BE CORRECT. UNDERGROUND UTILITIES ARE SHOWN BASED ON EITHER RECORD DATA PROVIDED BY THE OPERATING AUTHORITIES, VISUAL INSPECTION OF AVAILABLE ABOVEGROUND STRUCTURES, PHYSICAL SURFACE MARKINGS FOUND, OR DATA PROVIDED BY OTHERS. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED FOR SERVICE, SIZE, INVERT ELEVATION, LOCATIONS, ETC. PRIOR TO NEW CONNECTIONS TO OR RELOCATION OF SAME. CONTRACTOR MUST NOTIFY DIG-SAFE AT 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION. NOTIFY THIS FIRM IN WRITING OF ANY AND ALL DISCREPANCIES PRIOR TO COMMENCING ANY WORK.
- DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
- WHERE AN EXISTING 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 THE RESOLUTION OF THE CONFLICT.
- THE CONTRACTOR SHALL VERIFY TYPE OF EXISTING WATER MAIN MATERIAL BEFORE ORDERING ANY NEW REPLACEMENT MATERIAL.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ABUTTING PROPERTIES AT ALL TIMES AND NOTIFY ALL ABUTTERS IN ADVANCE OF ANY INTERRUPTIONS TO ACCESS.
- THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY STRUCTURES AS NECESSARY FOR THE CHANGES IN GRADE, AND RESET ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CABLE TV, FIRE ALARM AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES. ALL UTILITY CASTING SHALL BE ADJUSTED TO FINISH GRADE BY THEIR RESPECTIVE OWNERS.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
- JOINTS BETWEEN NEW BITUMINOUS CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
- DRAINAGE STRUCTURES SHALL BE RETAINED UNLESS NOTED OTHERWISE.
- CATCH BASIN AND MANHOLE FRAMES AND GRATES/COVERS SHALL CLEARLY ALIGN WITH THE OPENINGS IN THE PRECAST STRUCTURES AND THE GRADE OF THE ROADWAY.
- ALL EXISTING DRAINAGE PIPES THAT ARE NO LONGER BEING UTILIZED BY THE NEW DRAINAGE DESIGN WITHIN THE PROJECT LIMITS SHALL BE REMOVED.
- WHERE DRAINAGE PIPES OR STRUCTURES ARE ABANDONED IN PLACE THE CONTRACTOR SHALL MAKE SURE THAT ALL CONNECTING PIPES, DOWN SPOUT FROM BUILDING, INLETS AND OUTLETS ARE PLUGGED. ALL LIVE CONNECTIONS SHALL BE CONNECTED TO THE NEW SYSTEM.
- ALL CURB TIE DIMENSIONS ARE TO THE FACE OF THE CURB (GUTTER LINE) OR EDGE OF TRAVEL WAY.
- CONSTRUCTION BASELINE TIES ARE SHOWN ON CURB TIE & GRADING PLANS.
- PROPOSED SIDEWALKS AND CURB RAMPS SHALL BE CONSTRUCTED TO THE NEAREST SCORE LINE OR EXPANSION JOINT IN THE EXISTING ADJACENT WALK SURFACE AS DIRECTED BY THE ENGINEER.
- IN ALL LOCATIONS WHERE PROPOSED SIDEWALK TRANSITIONS DOWN TO MEET EXISTING GRADE, EXISTING SIDEWALK OR PAVED AREA, SLOPE SHALL NOT EXCEED 1:12.
- THE LOCATION OF THE PROPOSED DRIVEWAY OPENINGS ARE SHOWN ON TIE AND GRADING PLANS. EXACT LOCATIONS MAY BE ADJUSTED IF NECESSARY OR AS REQUIRED BY THE ENGINEERS IN THE FIELD.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL OBJECTS (SIGNS, TREES, GRATE, POLES ETC.) TO BE SET WITHIN SIDEWALK PRIOR TO FINAL PLACEMENT TO PROVIDE A MINIMUM CLEAR PATH OF 36" EXCLUDING THE CURB. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY LOCATION WHICH CANNOT MEET THE CLEARANCE REQUIREMENTS.
- SIGNS, POLES AND OTHER FEATURES LOCATED IN PROPOSED CEMENT CONCRETE SIDEWALK SHALL BE BOXED AND PROVIDED FLEXIBLE JOINT FILLER.
- CONTRACTOR SHALL VERIFY EXISTING GRADES. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND SEEK THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.
- IN AREAS OF NEW SIDEWALK, NEW EDGE OF PAVEMENT OR CURB WITHOUT SIDEWALK OR ANY WORK ADJACENT TO EXISTING GRASS AREAS, EVEN WHEN NO SLOPE-MATCHING OR GRADING IS NECESSARY AND THE EXISTING GRADE IS MET, LOAM BORROW AND SEED SHALL BE PROVIDED AS NECESSARY TO REPAIR AND COMPLETE ANY DAMAGE TO THE GRADE CAUSED BY THE CONSTRUCTION PROCESS.
- IN FILL AREAS, TOP SOIL SHALL BE REMOVED FOR A DEPTH OF 12" (MIN.) OR AS DIRECTED BY THE ENGINEER. SUBGRADE AREAS WILL BE COMPACTED PRIOR TO THE PLACEMENT OF FILL MATERIAL.
- ALL NEW GRANITE CURB SHALL BE MASSDOT TYPE VA-4, UNLESS OTHERWISE NOTED ON THE PLANS.
- ALL PROPOSED PAVEMENT MARKINGS ON ROADWAYS SHALL BE REFLECTORIZED WHITE AND YELLOW THERMOPLASTIC.
- SAFETY CONTROLS FOR CONSTRUCTION OPERATIONS SHALL BE IN ACCORDANCE WITH MASSDOT REQUIREMENTS AND THE LATEST VERSION OF THE MUTCD.
- TREES TO BE RETAINED WHICH RESTRICT SIGHT DISTANCE OR RESTRICT HORIZONTAL OR VERTICAL CLEARANCES SHALL BE TRIMMED AS REQUIRED BY THE ENGINEER.

- NO TREE SHALL BE REMOVED PRIOR TO APPROVAL OF THE TOWN OF BILLERICA.
- WHEN WORKING NEXT TO EXISTING WALLS, BERMS, AND OTHER STRUCTURES, CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO DISTURB THE EXISTING STRUCTURES. ANY DAMAGE TO THE EXISTING STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.
- ALL PAVEMENT MARKINGS AND/OR SIGN NOTES ARE SHOWN ON THE SIGNS AND PAVEMENT MARKING PLANS.

CURB RAMP NOTES

- ALL CURB RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE ARCHITECTURAL ACCESS BOARD (A.A.B.) AND THE AMERICANS WITH DISABILITIES ACT (A.D.A.), AND THE LATEST MASSDOT STANDARDS.
- THE LOCATION OF PROPOSED CURB RAMPS ARE SHOWN ON CONSTRUCTION PLANS AND THE CURB RAMP DETAILS. EXACT LOCATIONS MAY BE ADJUSTED, IF NECESSARY, BY THE ENGINEER IN THE FIELD.
- ALL PROPOSED CURB RAMPS SHALL HAVE DETECTABLE WARNING PANELS INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD DRAWINGS (E 107.65). THE COLOR OF THE PANEL SHALL BE BRICK RED AND APPROVED BY THE ENGINEER.
- IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET, IS WITHIN THE ACTUAL CURB RAMP PATH, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOPMOST SURFACES OF THE STRUCTURE COVER SHALL BE FLUSH WITH THE RAMP SURFACE AND SHALL MATCH THE SLOPE OF THE NEW CURB RAMP AS DIRECTED BY THE ENGINEER.
- THE TRANSITION SLOPE OF ANY CURB RAMP, EXCEPT MAXIMUM LENGTH HIGH SIDE TRANSITIONS, SHALL NOT EXCEED 7.5%, +/-0.5% FOR TOLERANCE OF CONSTRUCTION, PER AAB 521 CMR, FINISHED SLOPE MAY NOT EXCEED 8.33%. PROPOSED CURB RAMP SLOPES, ESPECIALLY HIGH SIDE TRANSITIONS, SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO POURING OF CONCRETE AND ADJUSTED, IF NECESSARY, AT THE DIRECTION OF THE ENGINEER.

SURVEY NOTES

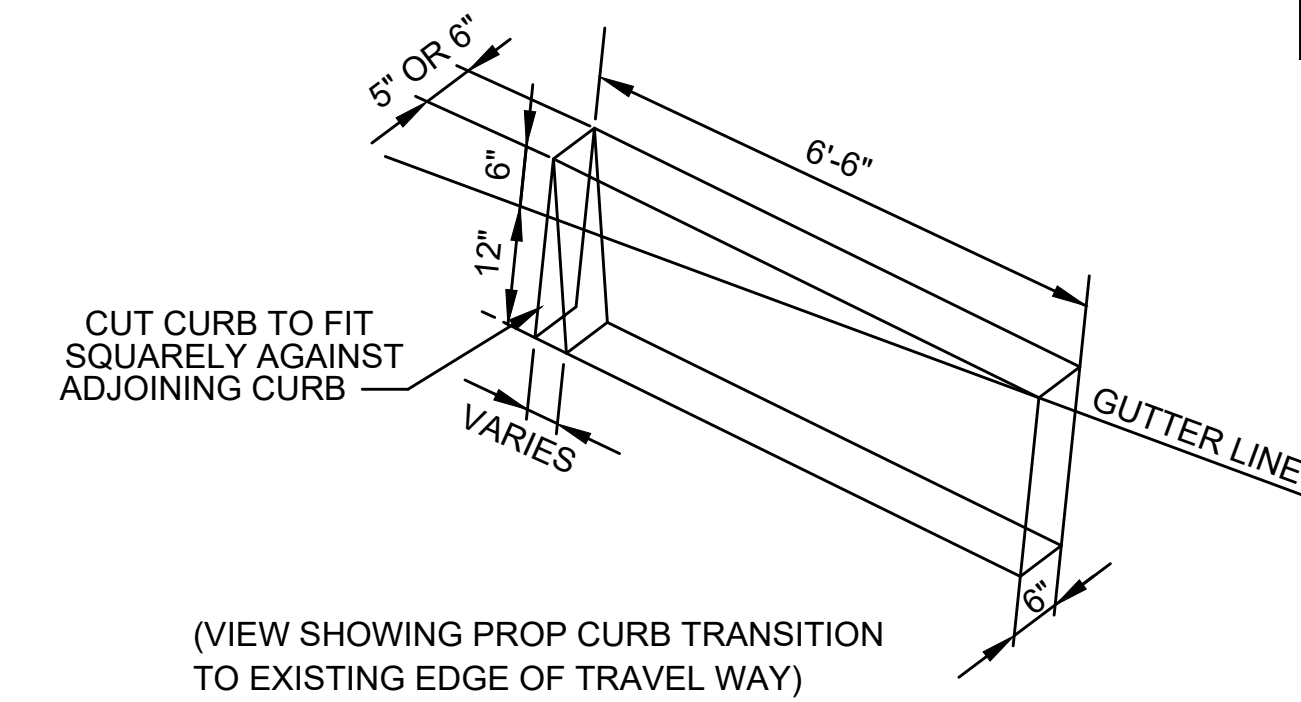
- PROJECT CONTROL PROVIDED BY MASSDOT HIGHWAY DIVISION, SURVEY SECTION, CONTROL POINT NUMBER 416P, 703, & 975 WERE OBSERVED ON MAY 9, 2014 (SEE MASSDOT BOOK 34262 PAGES 98-99).
- | NAME | NORTHING(USft) | EASTING(USft) | ELEVATION(USft) | COMBINED SCALE FACTOR |
|------|----------------|---------------|-----------------|-----------------------|
| 416P | 3023356.824 | 722553.351 | 214.090 | 0.9999765694326 |
| 703 | 3030186.593 | 717954.357 | 213.543 | 0.9999786090326 |
| 975 | 3032822.213 | 716404.120 | 125.643 | 0.9999836226375 |
- HORIZONTAL DATUM:**
MASSACHUSETTS STATE PLANE - MAINLAND ZONE NAD83 (2011) EPOCH 2010.00 - US FEET
- VERTICAL DATUM:**
NORTH AMERICAN VERTICAL DATUM OF 1988 (GEOID 12A) - US FEET
- ALL ON-THE-GROUND OBSERVATIONS WERE PERFORMED USING LEICA TS12 (3") ROBOTIC TOTAL STATIONS.
 - THIS SURVEY AND PLAN ARE BASED UPON AN ACTUAL ON THE GROUND INSTRUMENT SURVEY PERFORMED BY CUOCO & CORMIER IN MAY 2014. SUPPLEMENTAL SURVEYS PERFORMED BY LIGHTHOUSE LAND SURVEYING LLC IN JANUARY AND FEBRUARY 2018.
 - OWNERS NAMES SHOWN HEREON ARE BASED UPON ASSESSORS INFORMATION OBTAINED AS OF THE DATE OF SURVEY. IT DOES NOT REPRESENT A CERTIFICATION OF TITLE NOR DOES IT GUARANTEE THE OWNERSHIP OF LOCUS OR ABUTTING PROPERTIES.
 - THE CONTRACTOR SHALL FIELD VERIFY CONDITIONS AND DIMENSIONS PRIOR TO CONSTRUCTION.

UTILITY UNDERGROUND NOTES

- PROJECT REQUIRES UNDERGROUNDING OVERHEAD WIRES CROSSING BOSTON ROAD FROM HERITAGE ROAD TO DANFORTH VILLAGE. ALL UNDERGROUNDING CONDUITS AND DUCT WORK SHOWN ON UTILITY PLANS.
- EXISTING UTILITY POLES FOR ENTIRE PROJECT SHALL BE REMOVED AND RESET BY THE UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR RELOCATION OF POLES. LIMITS OF POLE RELOCATIONS ARE SHOWN ON UTILITY PLANS.
- EXISTING UTILITY POLES FROM STA 26+00 RT TO STA 49+00 RT SHALL BE RETAINED DURING CONSTRUCTION. POLES WILL BE REMOVED LATER BY THE UTILITY COMPANY THEREFORE ANY PROPOSED WORK IN AREA OF EXISTING POLES SHALL BE DONE WITH TEMPORARY HMA PATCH. LIMIT OF HMA PATCH SHALL BE AS DIRECTED BY THE ENGINEER. HMA PATCH WORK SHALL BE PAID FOR UNDER ITEM 472.
- THE CONSTRUCTION OF UNDERGROUND INFRASTRUCTURE MUST BE DONE BY A CONTRACTOR OR SUBCONTRACTOR APPROVED BY THE RESPECTIVE UTILITY COMPANIES.
- ALL UNDERGROUNDING CONDUITS AND STRUCTURES SHALL BE INSPECTED BY RESPECTIVE UTILITY COMPANIES AND THE ENGINEER. THE CONTRACTOR SHALL COORDINATE INSPECTION SCHEDULE WITH UTILITY COMPANIES WITHOUT ANY ADDITIONAL COMPENSATION.
- LAYOUT OF UNDERGROUNDING DUCT BANKS, CONDUIT, AND STRUCTURES ARE SHOWN ON UTILITY PLANS. THE FINAL LOCATION SHALL BE VERIFIED IN THE FIELD AND ADJUSTED IF CONFLICT WITH EXISTING UTILITIES.
- THE UTILITY POLE RELOCATION WILL BE PHASE I OF THE CONTRACT AND PHASE II WILL BE UNDERGROUNDING OVERHEAD WIRE CROSSING OF BOSTON ROAD FROM HERITAGE STREET TO DANFORTH VILLAGE.

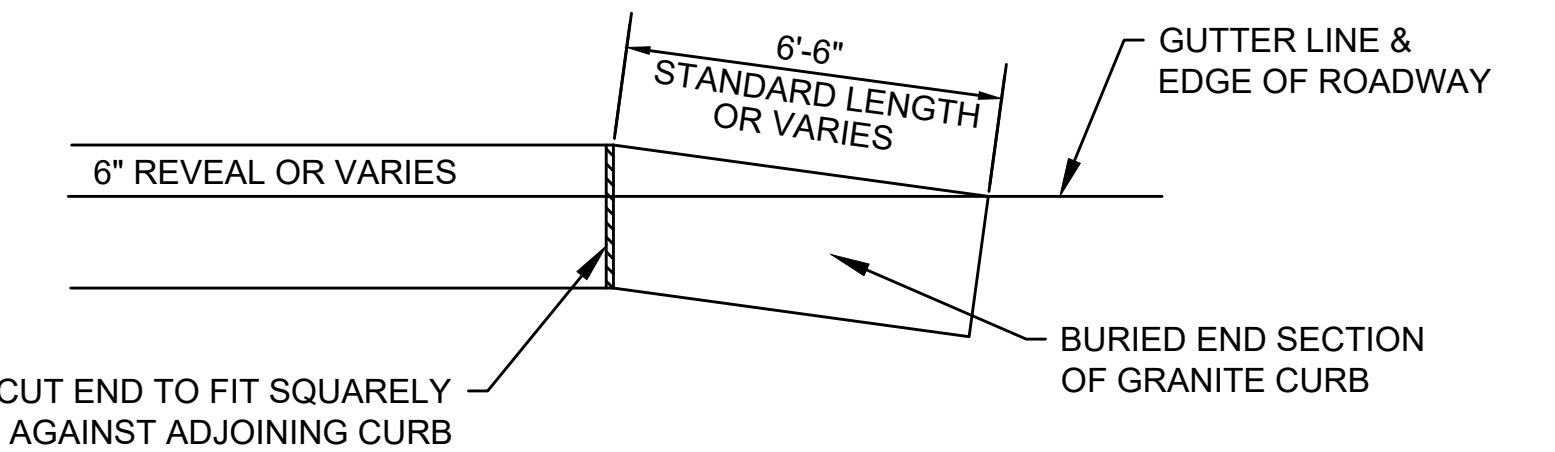
BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	139
PROJECT FILE NO.		605178	

GENERAL NOTES

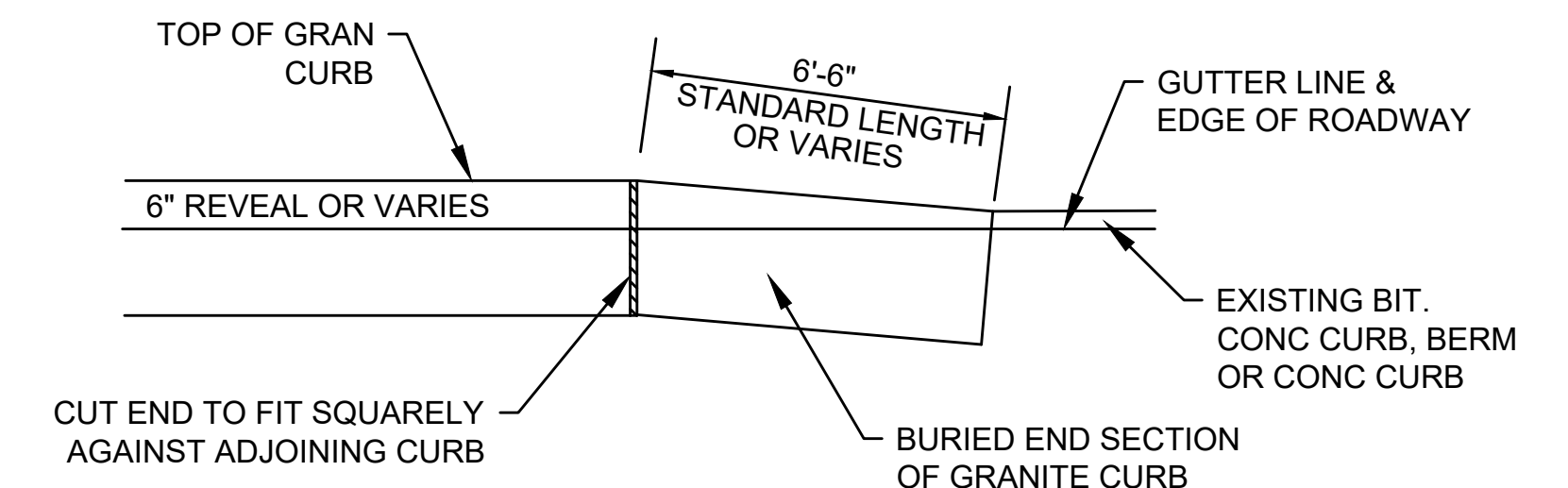


(VIEW SHOWING PROP CURB TRANSITION TO EXISTING EDGE OF TRAVEL WAY)

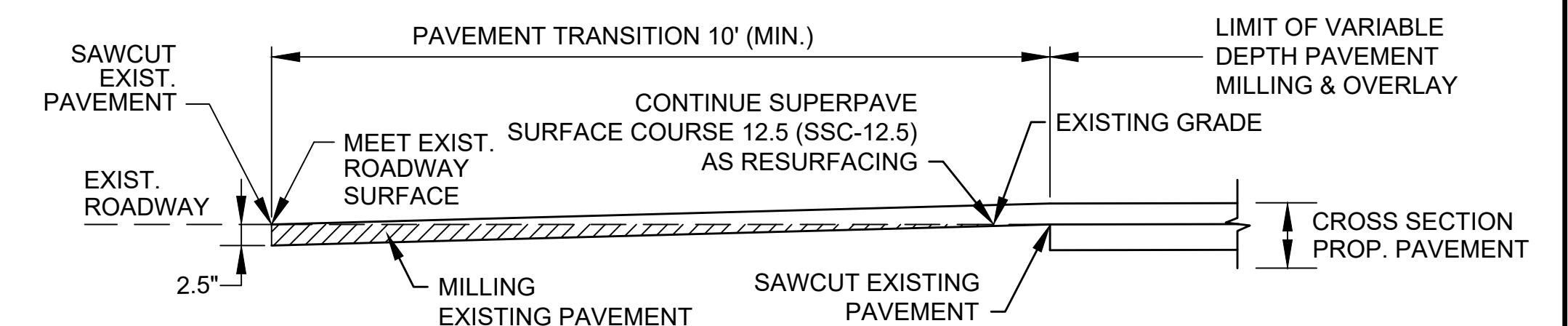
DETAIL FOR GRANITE TRANSITION CURB
NOT TO SCALE



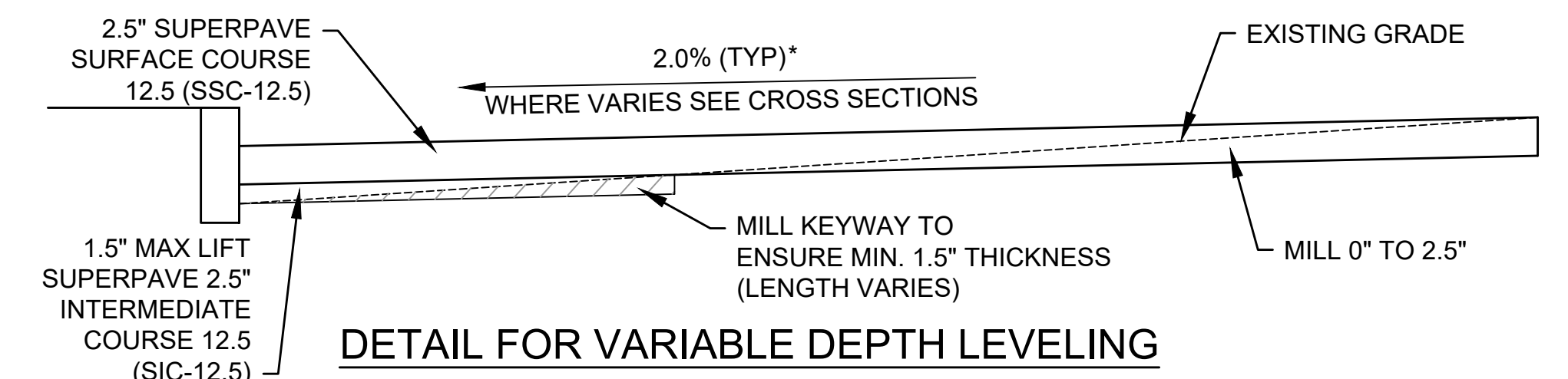
DETAIL FOR TRANSITION CURB
PROP CURB TO EXISTING EDGE OF TRAVEL WAY
NOT TO SCALE



DETAIL FOR TRANSITION CURB
TRANSITION CURB - PROP CURB TO EXISTING CURB
NOT TO SCALE



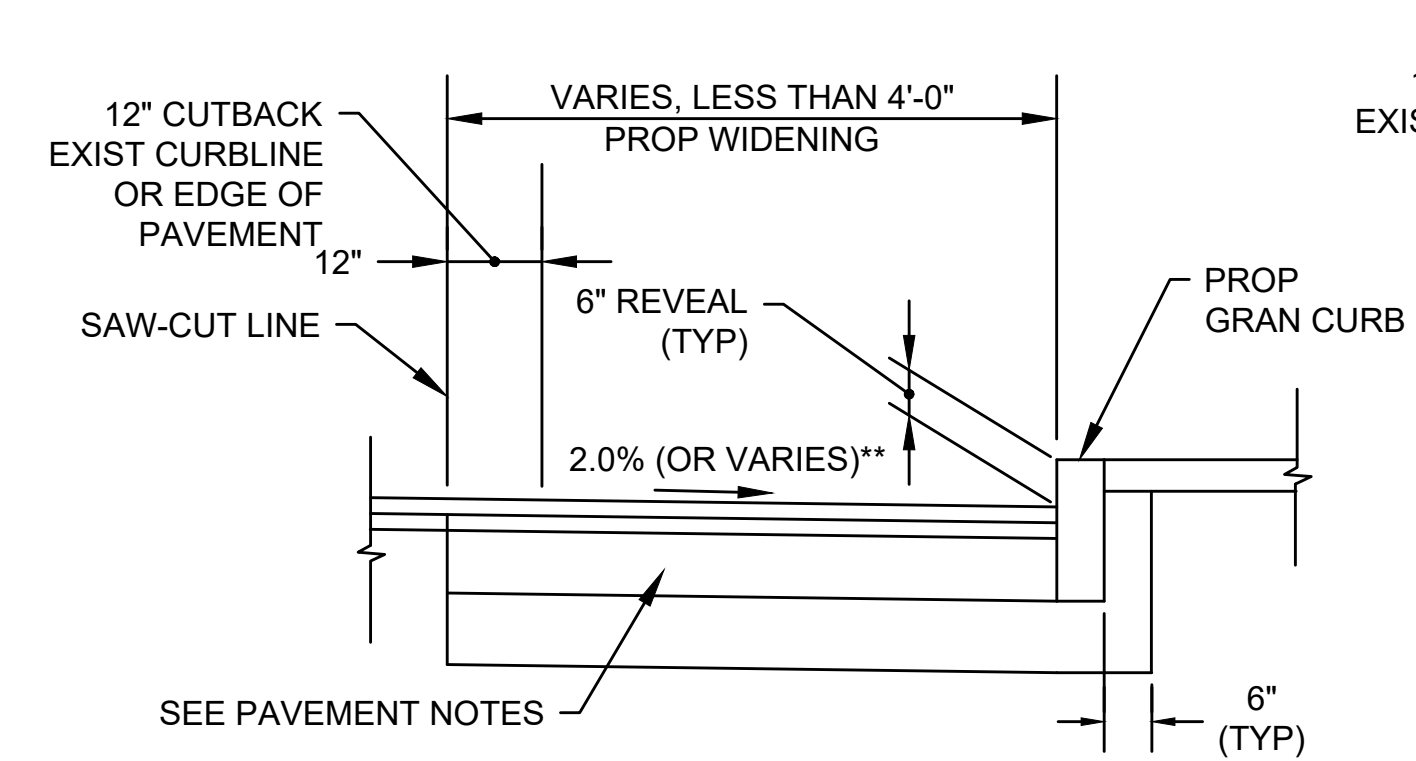
DETAIL FOR PAVEMENT TRANSITION AT LIMIT OF WORK
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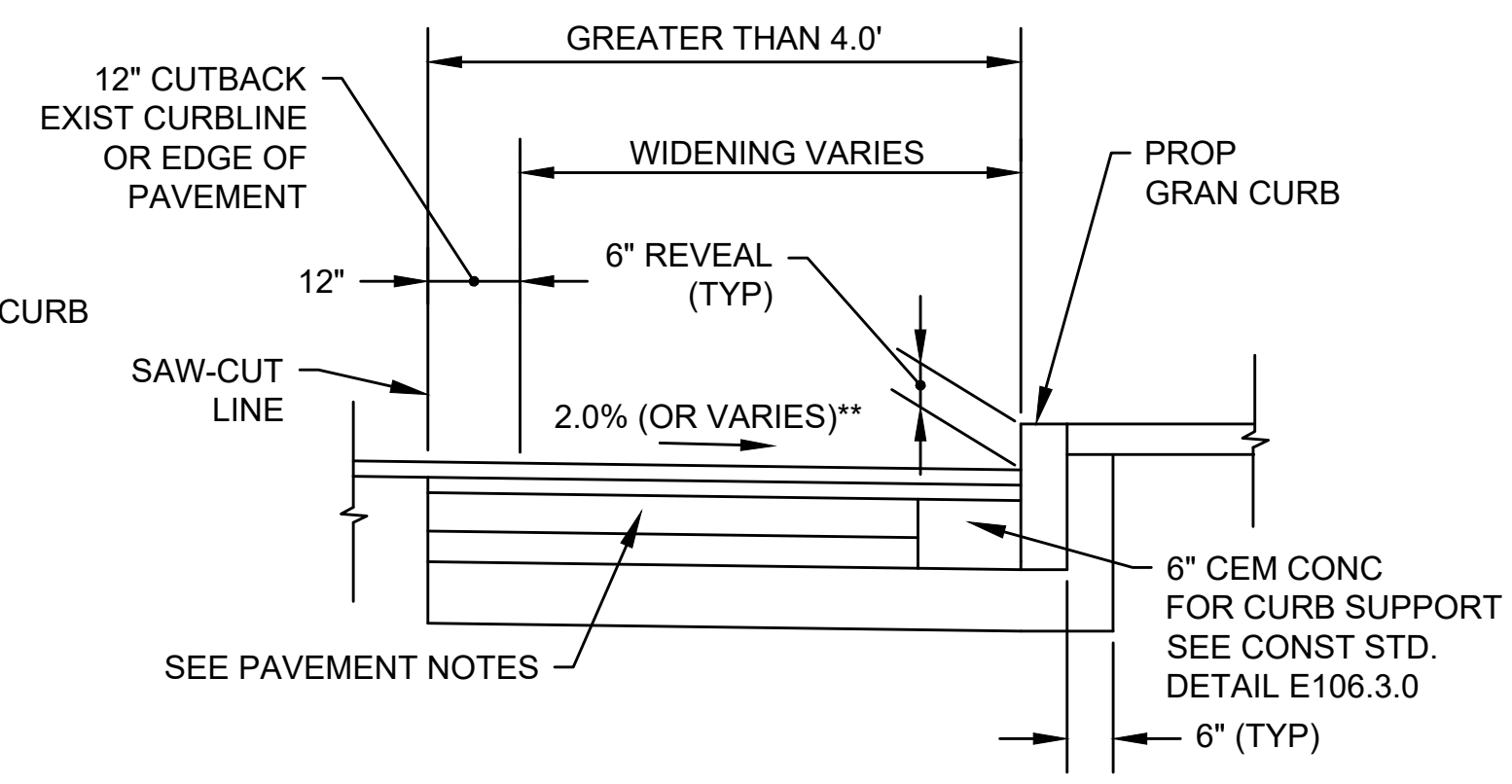
DETAIL FOR VARIABLE DEPTH LEVELING
NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

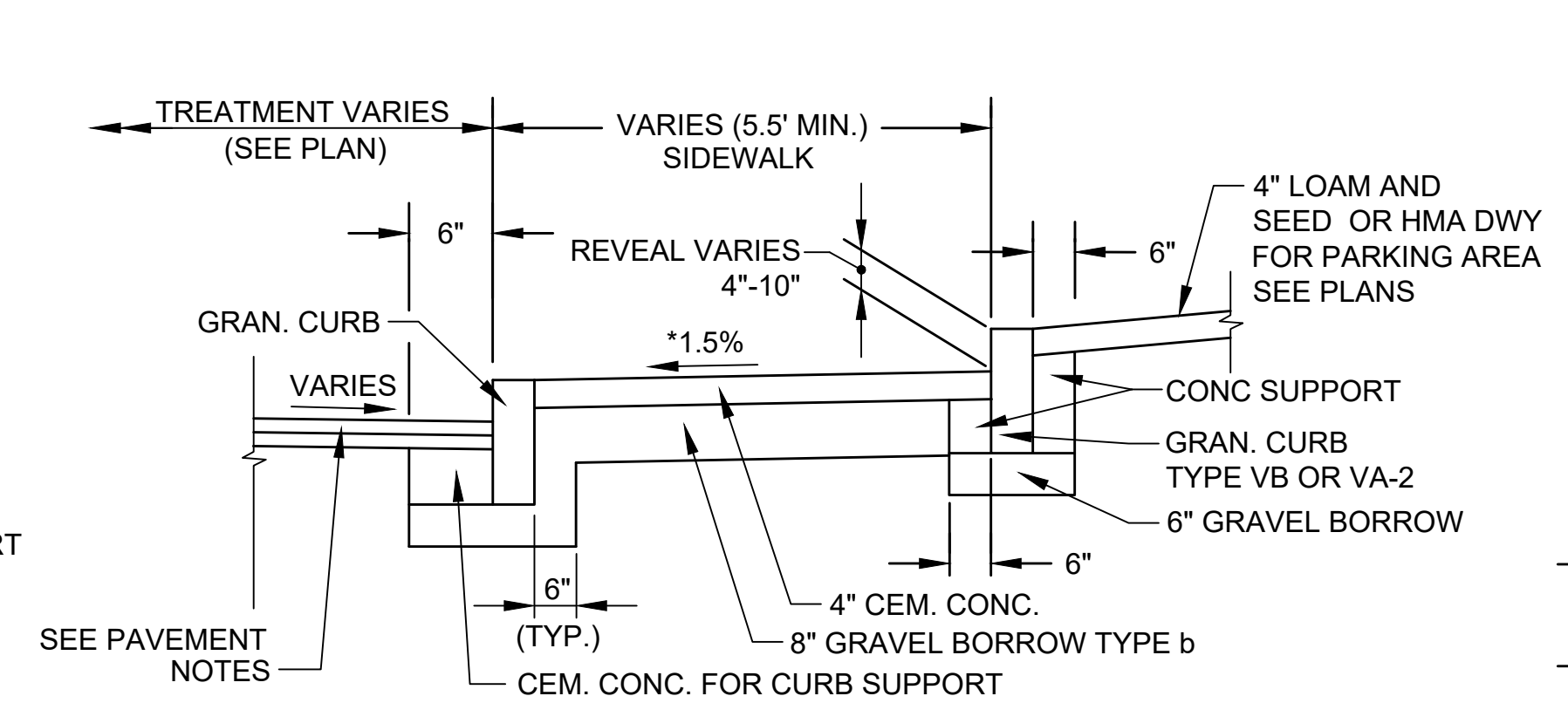
CONSTRUCTION DETAILS



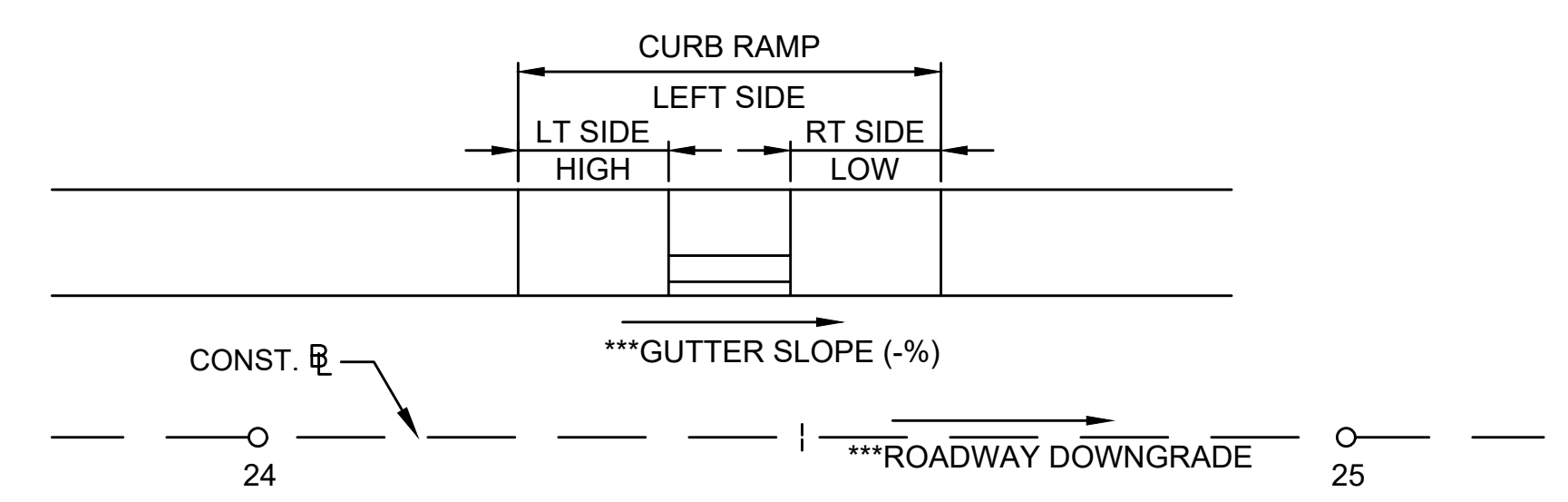
DETAIL FOR BOX WIDENING 4.0' OR LESS
NOT TO SCALE



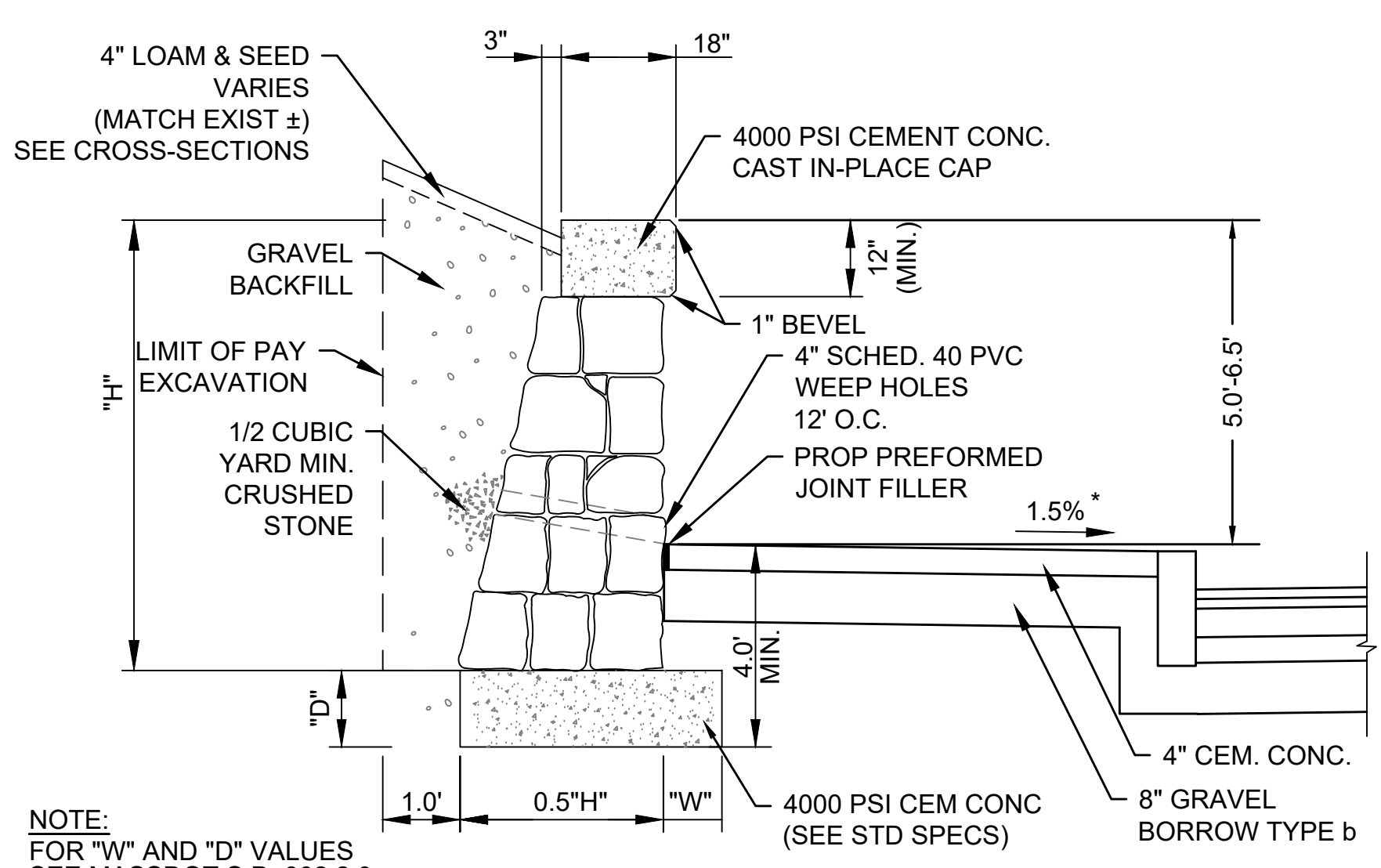
DETAIL FOR BOX WIDENING GREATER THAN 4.0'
NOT TO SCALE



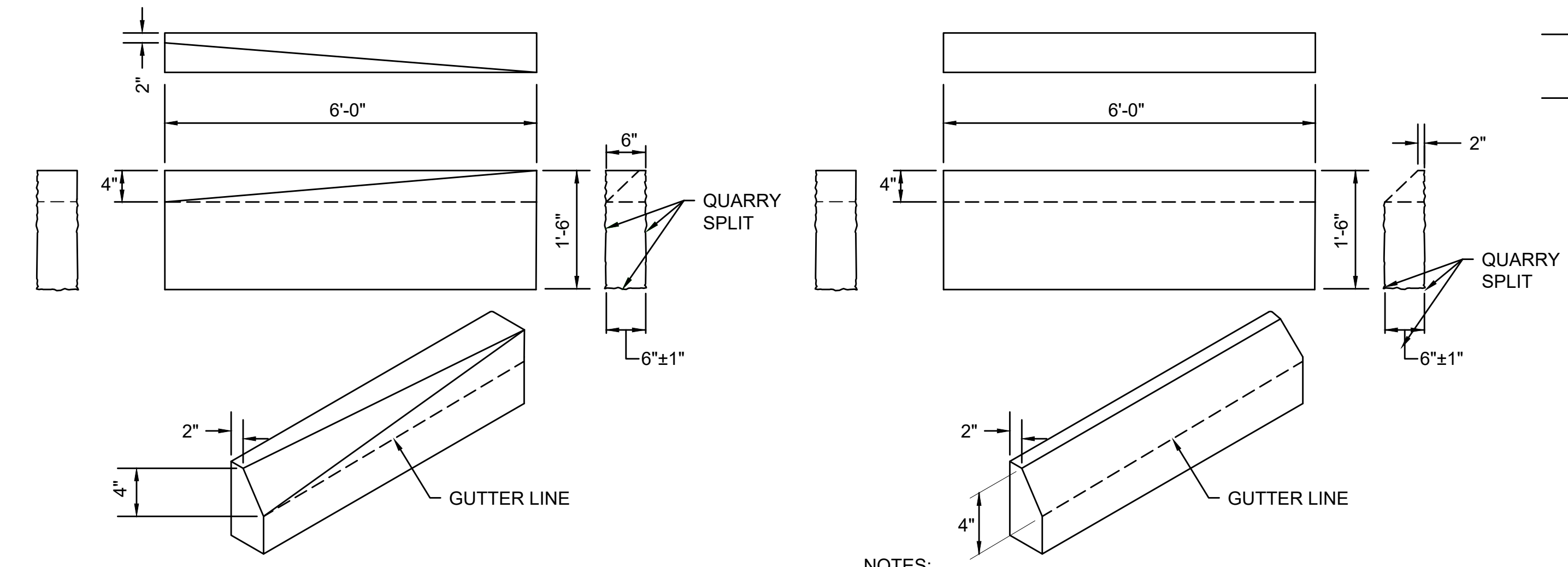
DETAIL FOR GRANITE CURB AT BACK OF SIDEWALK
NOT TO SCALE



GUTTER SLOPE DIAGRAM
NOT TO SCALE



DETAIL FOR SIDEWALK AT CEMENTED STONE MASONRY WALL
STA 20+29± TO 21+79± RT
SEE MASSDOT S.D. E302.2.0.
NOT TO SCALE



GRANITE CURB TYPE VA-4 - SLOPED EDGE
NOT TO SCALE

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

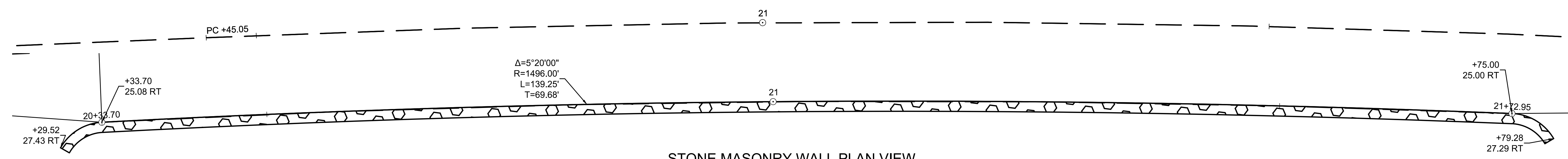
GRANITE TRANSITION CURB- SLOPED
NOT TO SCALE

TABLE I	
ROADWAY PROFILE GRADE	* HIGH SIDE TRANSITION LENGTH
%	ENGLISH UNITS
=0%	6'-6"
>0% TO 1%	7'-8"
>1% TO 2%	9'-0"
>2% TO 3%	11'-0"
>3% TO 4%	14'-0"
>4% TO 5%	15'-0" MAX.

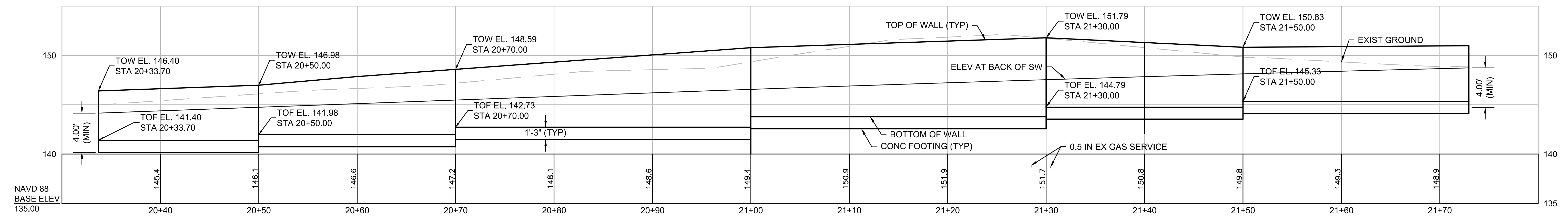
CURB TRANSITION LENGTH FOR CURB RAMPS

MASSDOT CONST. STD. DWG. NO. E107.9.0
*BASED ON A DESIGN SLOPE OF 7.5% AND A REVEAL OF 6".

* TOLERANCE FOR CONSTRUCTION ±0.5%



STONE MASONRY WALL PLAN VIEW
SCALE: 1"=5'



STONE MASONRY WALL PROFILE VIEW
SCALE: 1"=5'

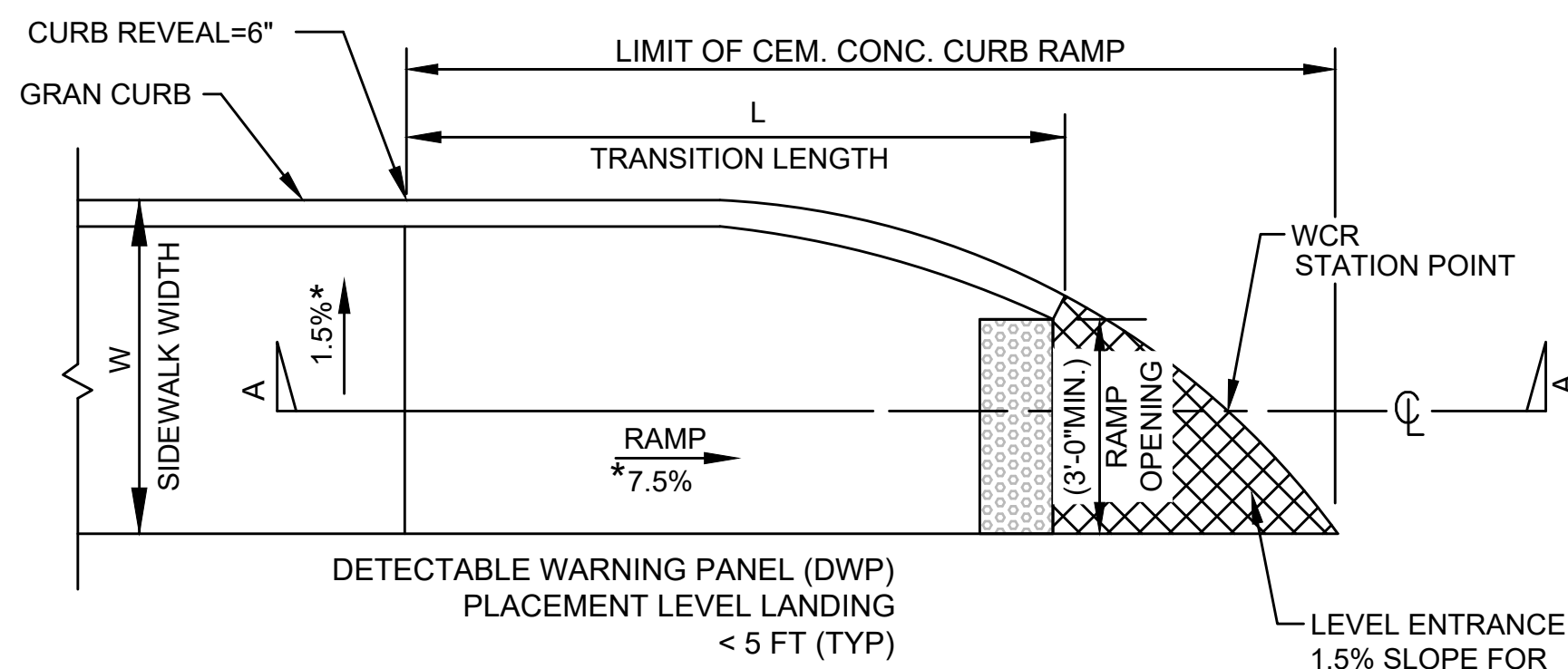
CURB RAMP TYPE A DATA							
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	SIDEWALK WIDTH
		STATION	OFFSET				
5	BOSTON RD	16+15.5	34.9' LT	+2.7%	6.5'	4.0'	5.5'
6	BOSTON RD	16+52.7	34.6' LT	+2.7%	11.0'	4.0'	5.5'
8	BOSTON RD	25+49.1	24.8' RT	+2.0%	9.0'	8.0'	11.5'
25	BOSTON RD	45+05.3	43.5' LT	+4.7%	10.0' 3"R	5.0'	8.5'
34	BOSTON RD	15+94.3	34.0 LT	+1.2%	6.5'	4.0'	5.5'
35	BOSTON RD	15+42.9	35.3 LT	+2.3%	11.0'	4.0'	5.5'

CURB RAMP TYPE B DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
1	SIMMONS LN	0+45.4	20.4' RT	-3.1%	5.0'	6.0'	-	14.0'	6.0'
2	SIMMONS LN	0+37.6	13.1' LT	-3.1%	5.0'	5.5'	14.0'	-	5.5'
4	BOSTON RD	15+83.9	18.9' RT	-2.70%	5.0'	5.5'	11.0'	6.5'	5.5'
7	BOSTON RD	24+96.8	24.9' RT	+1.3%	5.0'	5.5'	-	6.5'	5.5'
9	BOSTON RD	25+33.5	37.3 LT	+2.1%	5.0'	5.5'	6.5'	11.0'	5.5'
26	BOSTON RD	48+92.7	31.1 LT	+2.3%	5.0'	VARIES (7.0' TO 7.3')	6.5'	11.0'	VARIES (6.1' TO 7.7')
33	GOOD ST	75+21.4	13.0' RT	+2.5%	5.0'	5.5'	6.5'	11.0'	5.5'
38	BOSTON RD	49+54.5	31.3' LT	+1.3%	5.0'	6.0'	-	9.0'	6.0'

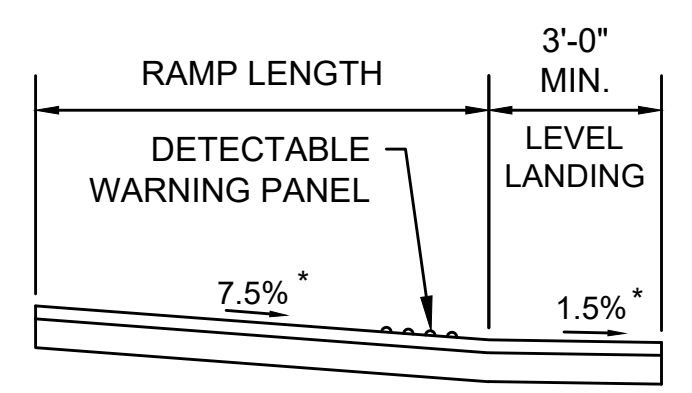
CURB RAMP TYPE C DATA										
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET					LEFT	RIGHT	
3	BOSTON RD	15+83.1	31.7' LT	+2.7%	3'-0.0000"	5.0'	5.0'	6.5'	11.0'	8.0'
10**	BOSTON RD	26+03.6	37.6' LT	+2.5%	6.5'	5.0'	10.0'	9.0'	11.0'	5.5'
11**	BOSTON RD	26+49.9	16.2' RT	-2.6%	3.5'	10.0'	8.0'	11.0'	9.8'	∞
14	BOSTON RD	35+79.8	21.8' RT	-3.7%	6.0'	5.0'	5.0'	14.0'	6.5'	BOSTON RD. 11.5' LASALLETT RD. 9.4'
15	BOSTON RD	36+29.5	20.0' RT	+3.6%	6.4'	5.0'	6.6'	6.5'	7.0' 3"R	BOSTON RD. 11.5' LASALLETT RD. 12.1'
16	BOSTON RD	39+09.7	24.6' RT	+6.5%	3.7'	10.0'	7.1'±	15.0'	6.5'	BOSTON RD. 13.5' GOOD ST. 9.3'
27	BOSTON RD	57+86.6	26.4' RT	-1.3%	VARIES (5.1' TO 5.5')	10.0'	VARIES (9.5' TO 10.5')	9.0'	6.5'	BOSTON RD. 10.0' MONTICELLO CIR. 14.5'
31**	GOOD ST	74+86.7	41.2' LT	+4.6%	5.0'	10.0'	10.0'	-	15.0'	HIGH SCHOOL PARKING LOT DWY VARIES 6.5' TO 15.0'

CURB RAMP TYPE D DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	TRANSITION LENGTH		SIDEWALK WIDTH	
		STATION	OFFSET			LEFT	RIGHT		
12	BOSTON RD	34+48.3	36.5' LT	+3.3%	10.0'	15.0'	-	10.6'	10.0'
13	BOSTON RD	34+78.8	38.2' LT	+3.3%	10.0'	-	15.0'	9.6'	10.0'
20	BOSTON RD	41+86.5	25.1' RT	-4.5%	10.0'	-	15.0'	0'	10.0'
21	BOSTON RD	42+09.5	25.0' RT	-4.5%	10.0'	15.0'	-	12.0'	10.0'
23	BOSTON RD	44+15.9	30.4' RT	-4.7%	10.0'	15.0'	-	12.0'	10.0'

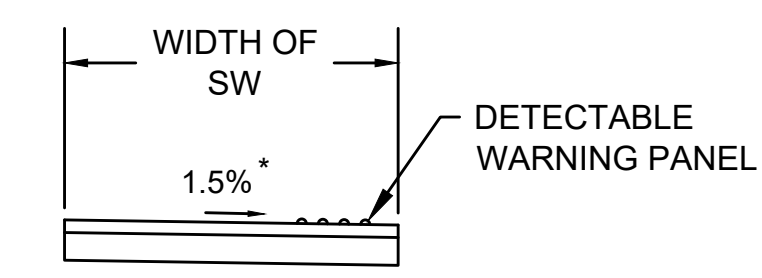
CURB RAMP TYPE E DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	TRANSITION LENGTH		SIDEWALK WIDTH	
		STATION	OFFSET			LEFT	RIGHT		
22	BOSTON RD	43+62.7	28.8' RT	-4.7%	10.0'	15.0'	15.0'	11.9'	10.0' (BOSTON RD) 5.0' (TOM GLAVIN WAY)



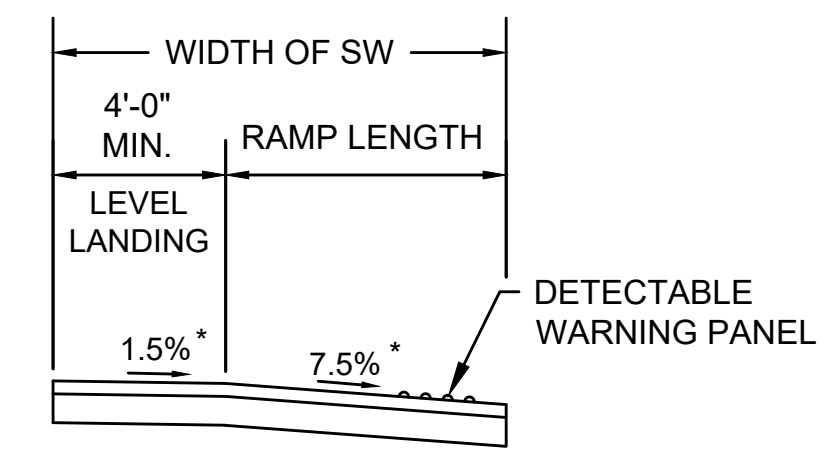
CURB RAMP TYPE "A"
SEE MASSDOT S.D. E107.6.0
NOT TO SCALE



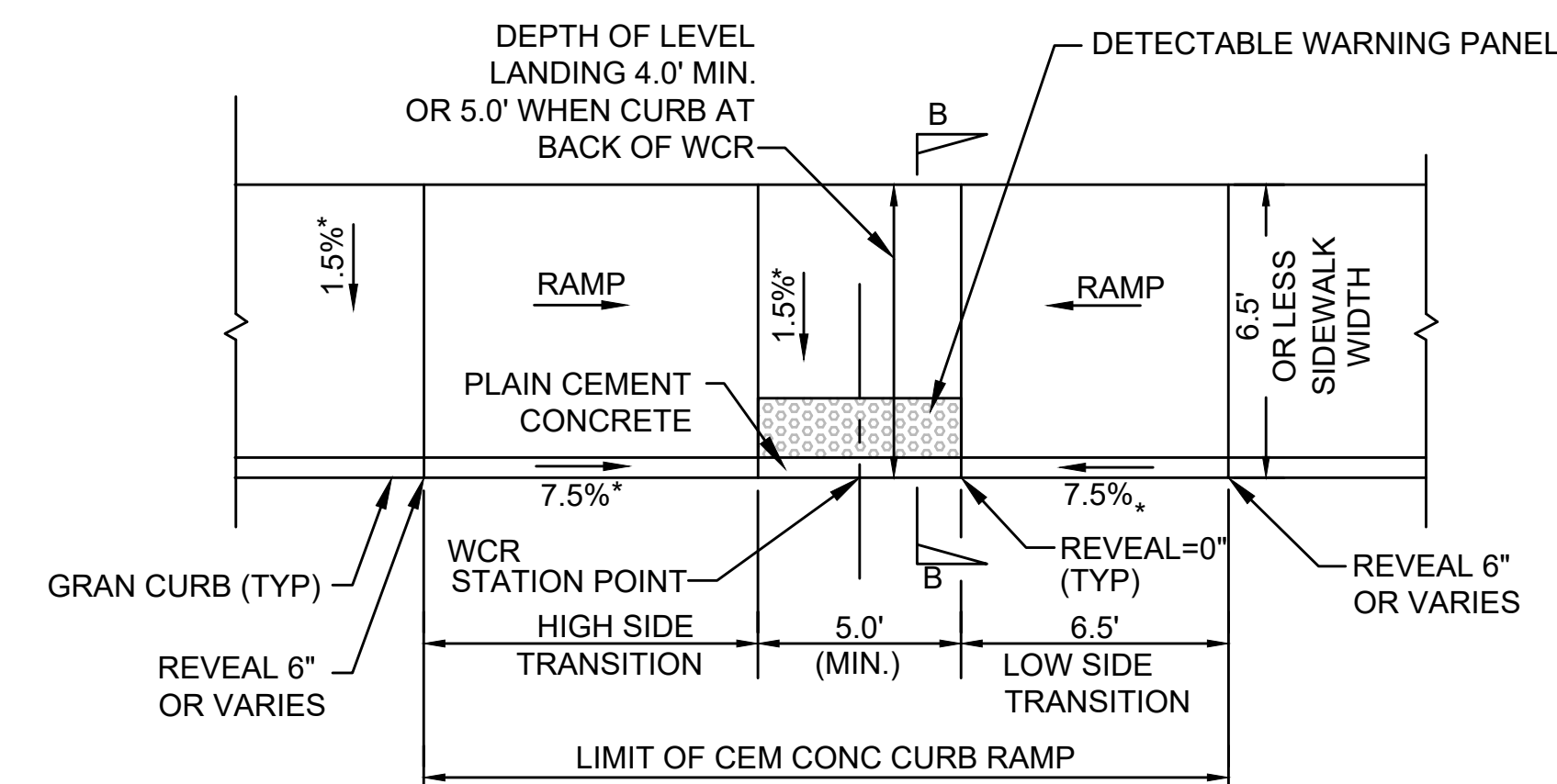
SECTION A-A
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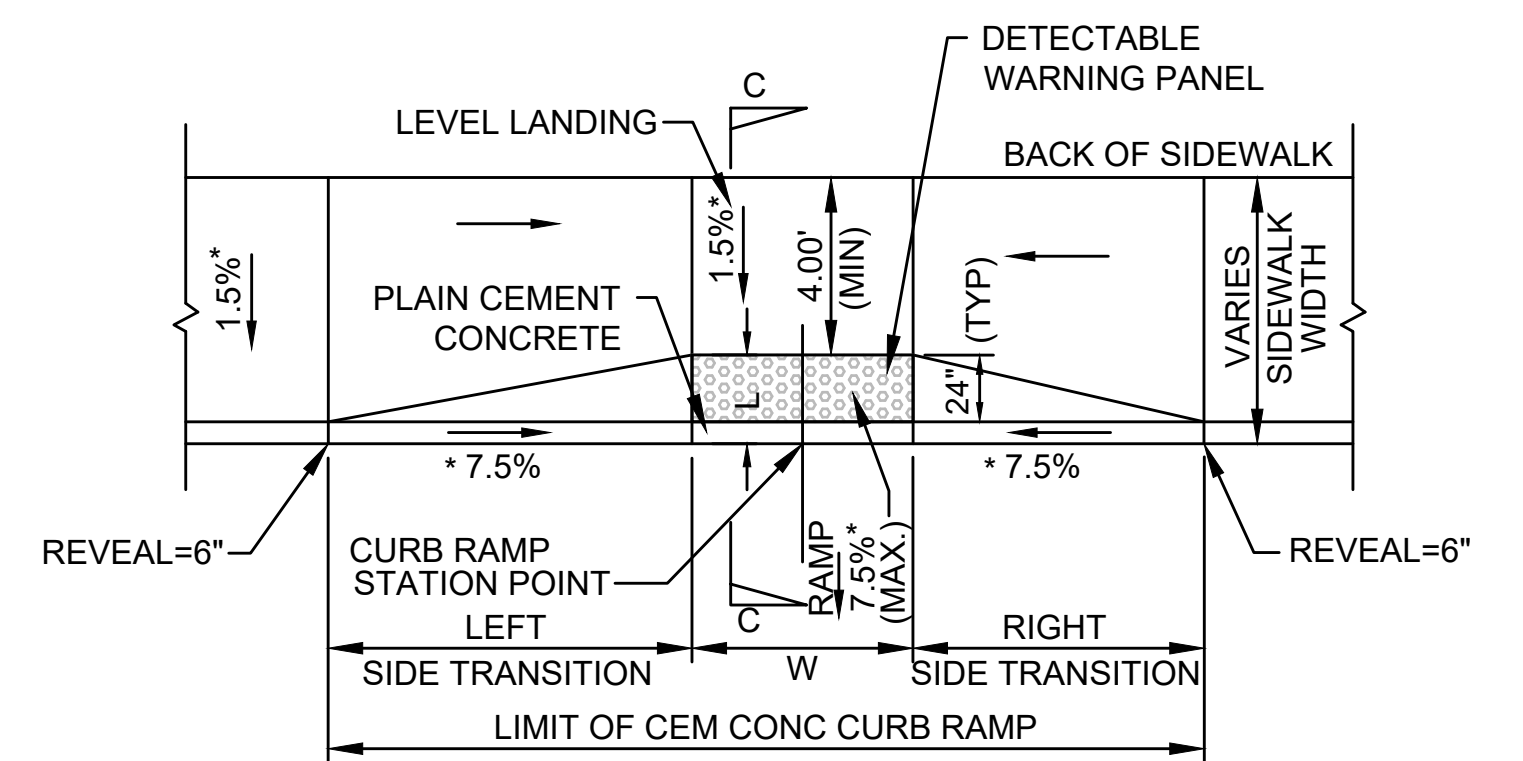
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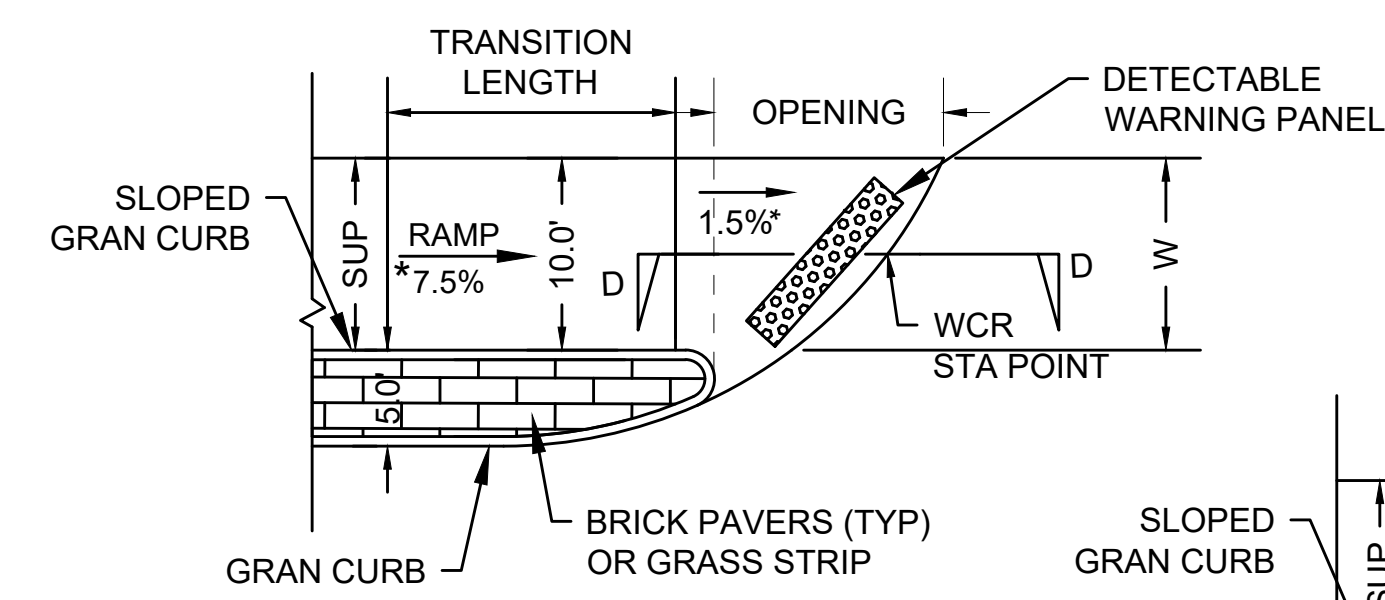
SECTION C-C
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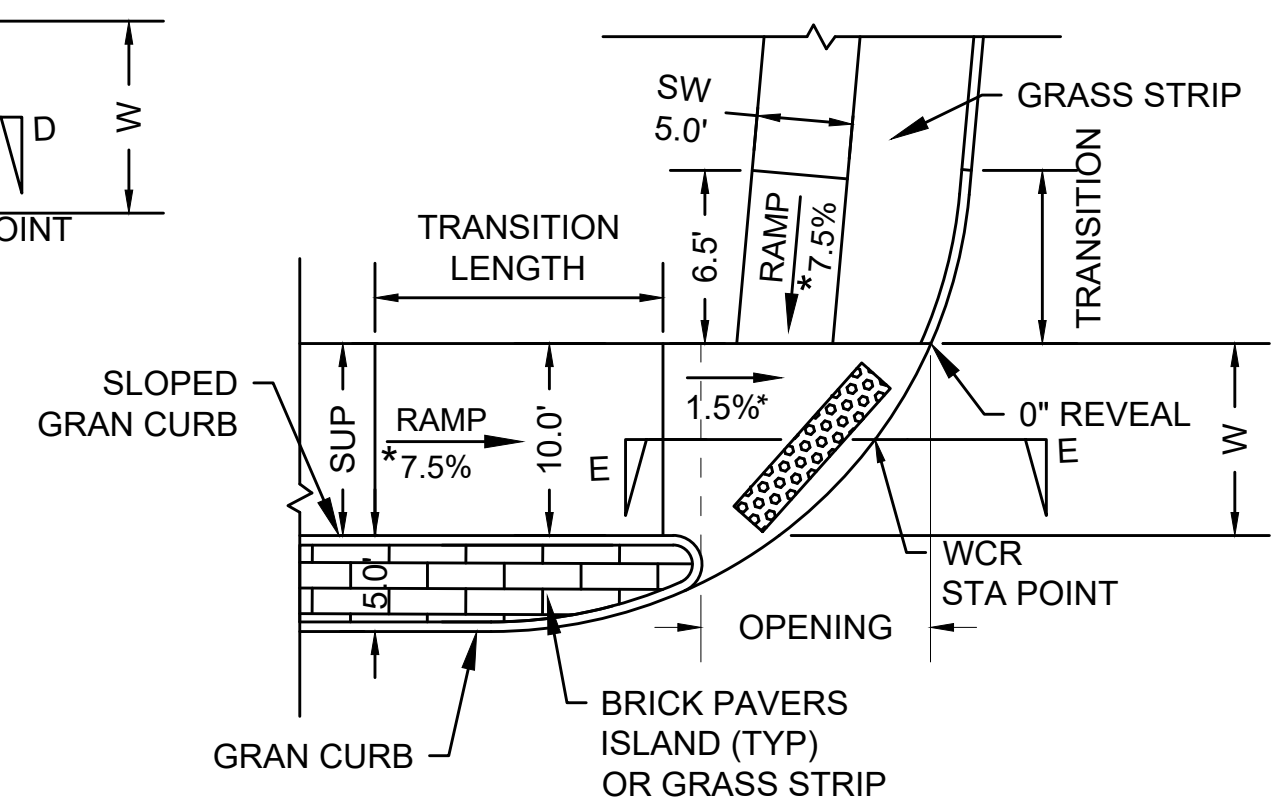
CURB RAMP DETAIL TYPE "B"
SEE MASSDOT S.D. E107.2.1
NOT TO SCALE



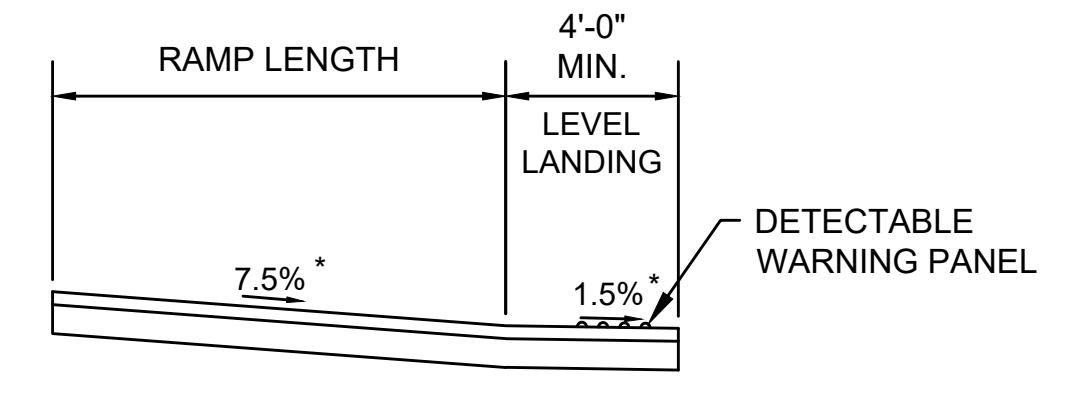
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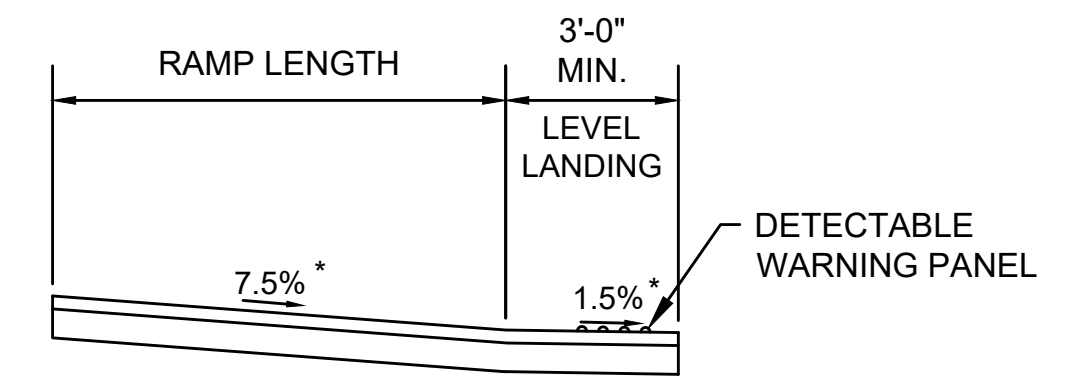
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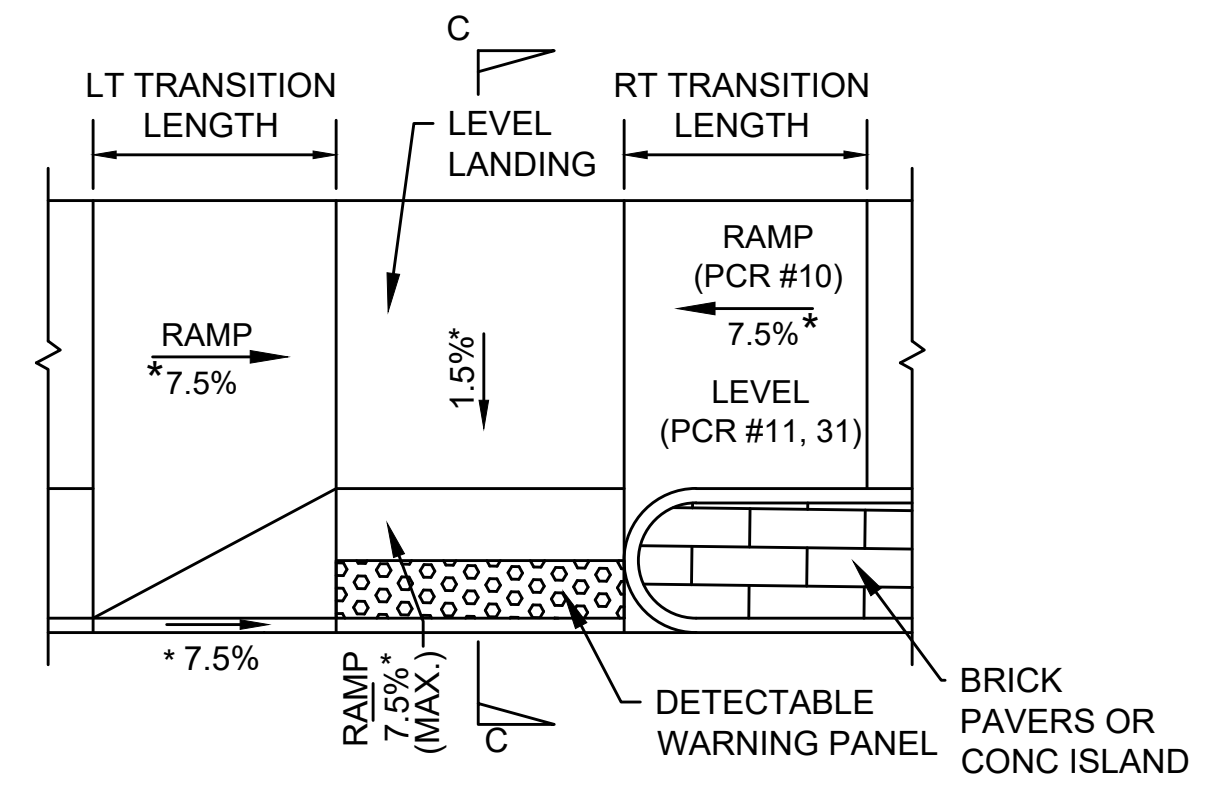
CURB RAMP DETAIL TYPE "E"
NOT TO SCALE



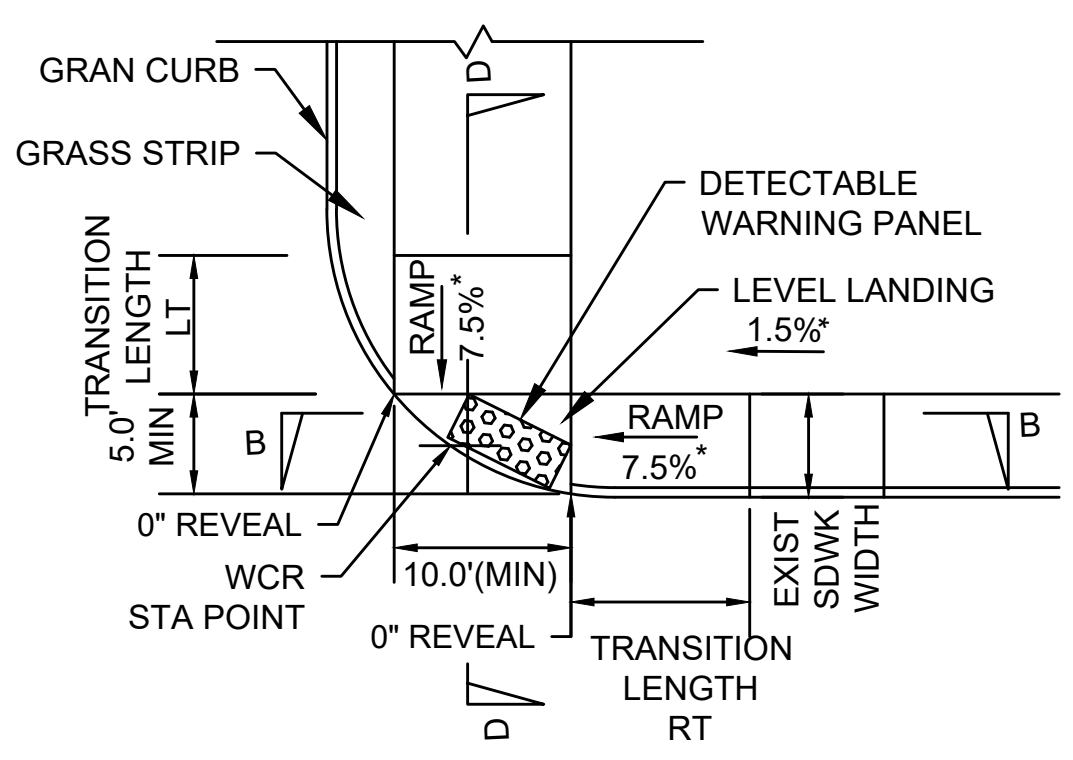
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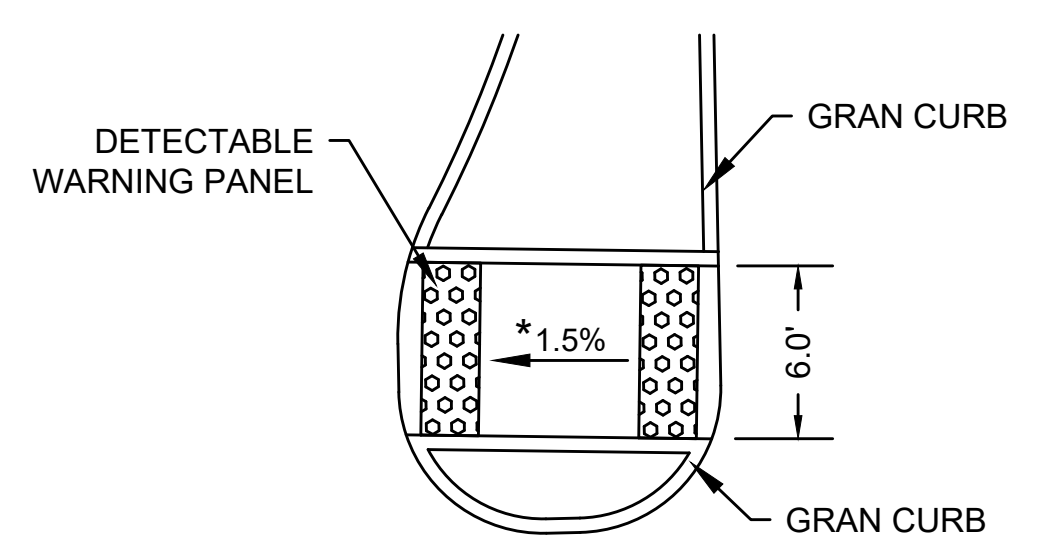
SECTION E-E
NOT TO SCALE



****CURB RAMP #10, 11, & 31 DETAIL**
NOT TO SCALE



CURB RAMP DETAIL TYPE "F"
MODIFIED VERSION - SEE MASSDOT S.D. E107.6.4
NOT TO SCALE



****CURB RAMP #37 DETAIL**
NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

NOTE: SEE CURB RAMP NOTES ON SHEET 7

CONSTRUCTION DETAILS

CURB RAMP TYPE F DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
24	BOSTON RD	44+75.4	47.7' LT	-4.7%	5.0'	VARIABLES (4.0' TO 7.4')	6.5'	6.5'	11.5' (BOSTON RD) 5.0' (MULBERRY LN)
30	HERITAGE RD	59+14.2	15.6 LT	-3.8%	10.0'	6.0'	6.5'	-	5.7' (BOSTON RD) 10.0' (MARSHALL MIDDLE SCHOOL)

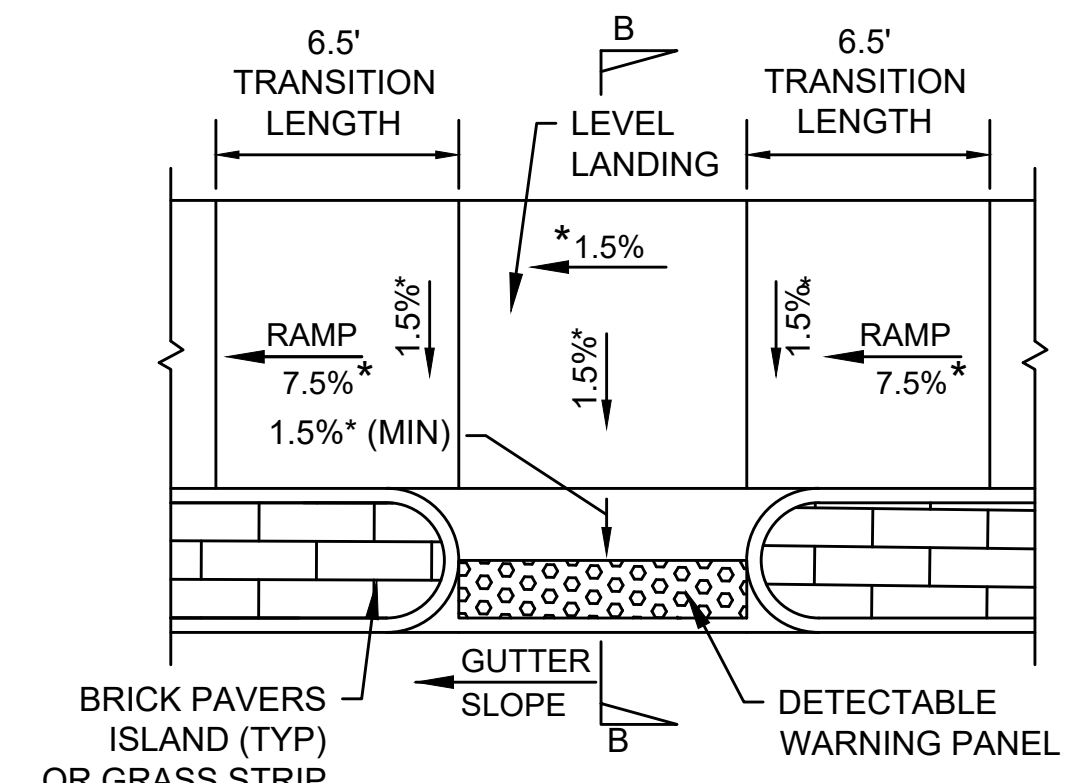
CURB RAMP TYPE G DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
17	BOSTON RD	39+79.5	20.3' RT	-3.1%	5.0'	17.5'	6.5'	6.5'	10.0'-10.5'
18	BOSTON RD	39+11.5	43.9' LT	+4.5%	10.0'	15.0'	6.5'	6.5'	10.0'
19	BOSTON RD	39+80.4	45.9' LT	+4.5%	10.0'	15.0'	6.5'	6.5'	10.0'
36	BOSTON RD	26+50.1	28.2' RT	+3.3%	10.0'	16.0'	6.5'	6.8'	10.0'

CURB RAMP TYPE H DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
28	HERITAGE RD	58+35.3	23.7' RT	+3.0%	10.0'	VARIABLES (4.0' TO 7.4')	11.0'	6.5'	10.0' (BOSTON RD) 5.0' (MONTICELLO CIR)

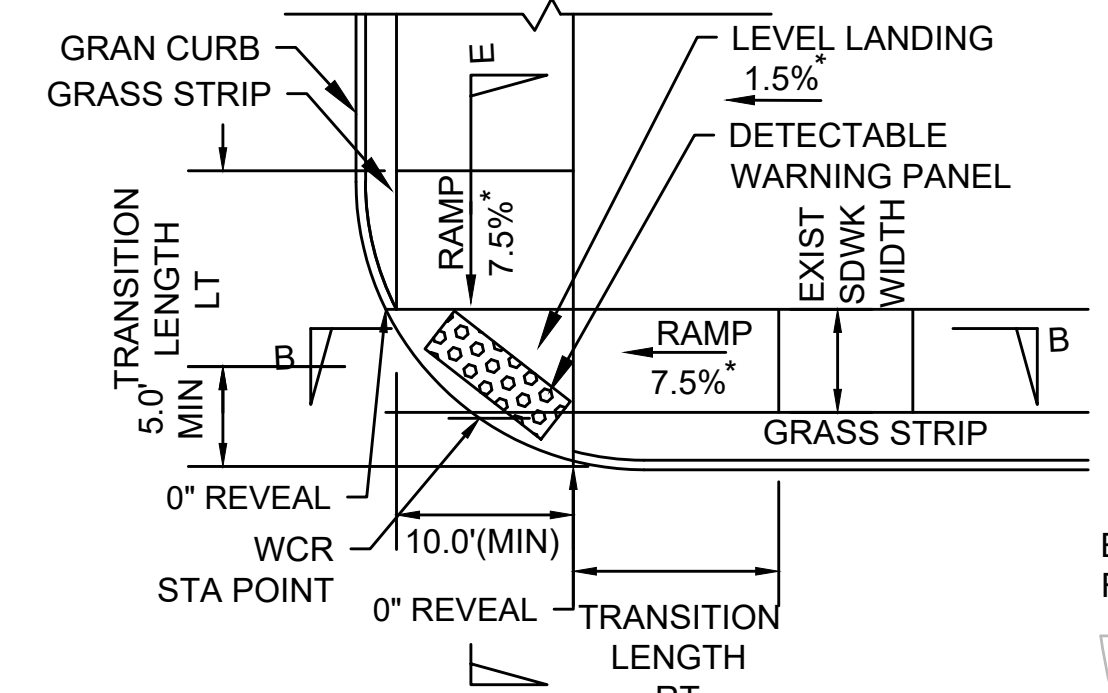
CURB RAMP TYPE I DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	WIDTH OF RAMP OPENING W	DEPTH OF LEVEL LANDING (MIN. 4.0')	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
29	HERITAGE RD	59+14.2	13.0' RT	-3.8%	10.0'	10.0'	14.0'	6.5'	VARIABLES (6.2'-10.0')

CURB RAMP TYPE J DATA									
PCR NO.	LOCATION	RAMP REFERENCE POINT		GUTTER PROFILE SLOPE	LENGTH OF PRIMARY RAMP L	WIDTH OF RAMP OPENING W	TRANSITION LENGTH		SIDEWALK WIDTH
		STATION	OFFSET				LEFT	RIGHT	
32	GOOD ST	75+10.4	41.8' LT	-2.8%	5.5'	5.0'	17.5'	- 3.25'	6.0'

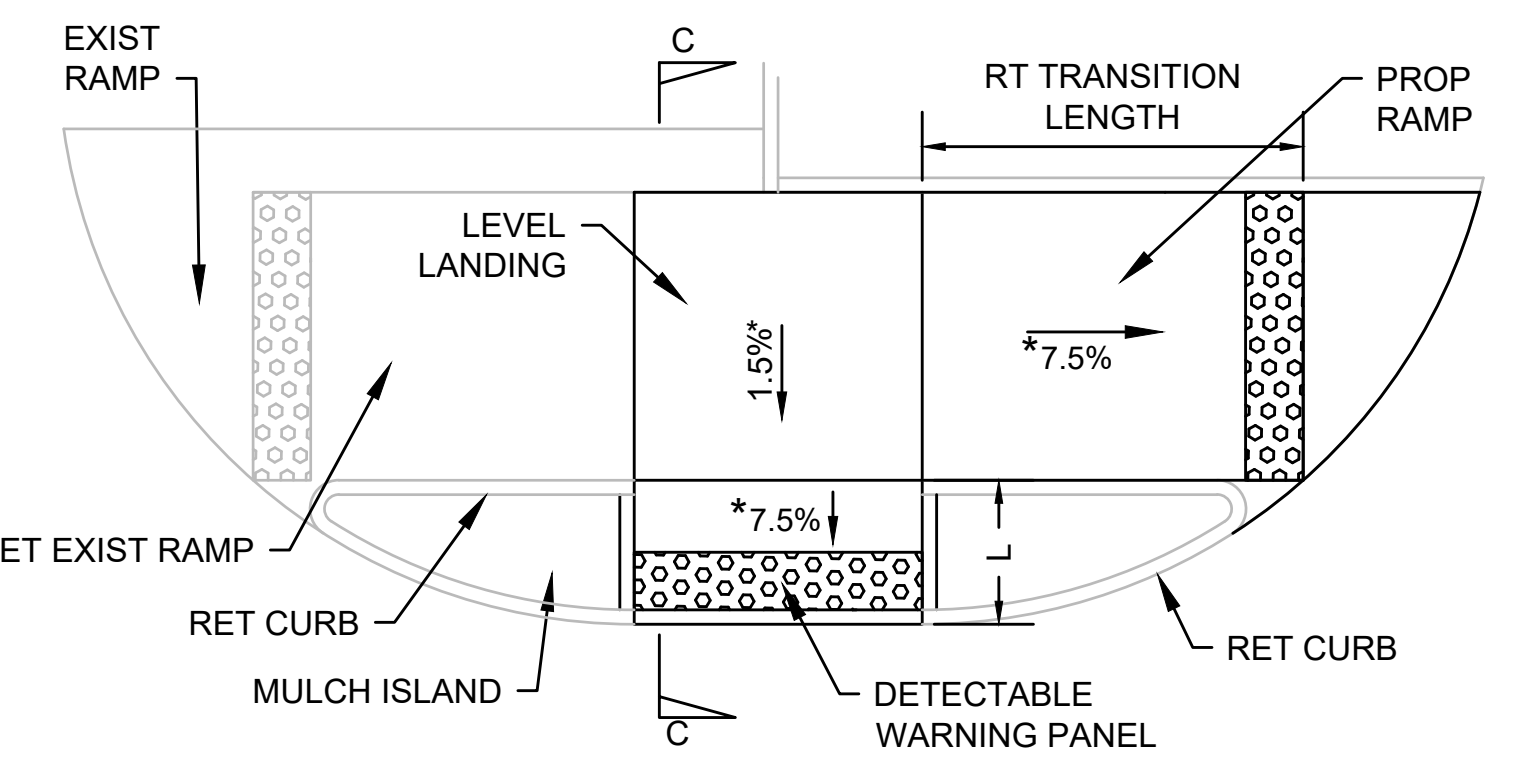
NOTE: SEE CURB RAMP NOTES ON SHEET 7



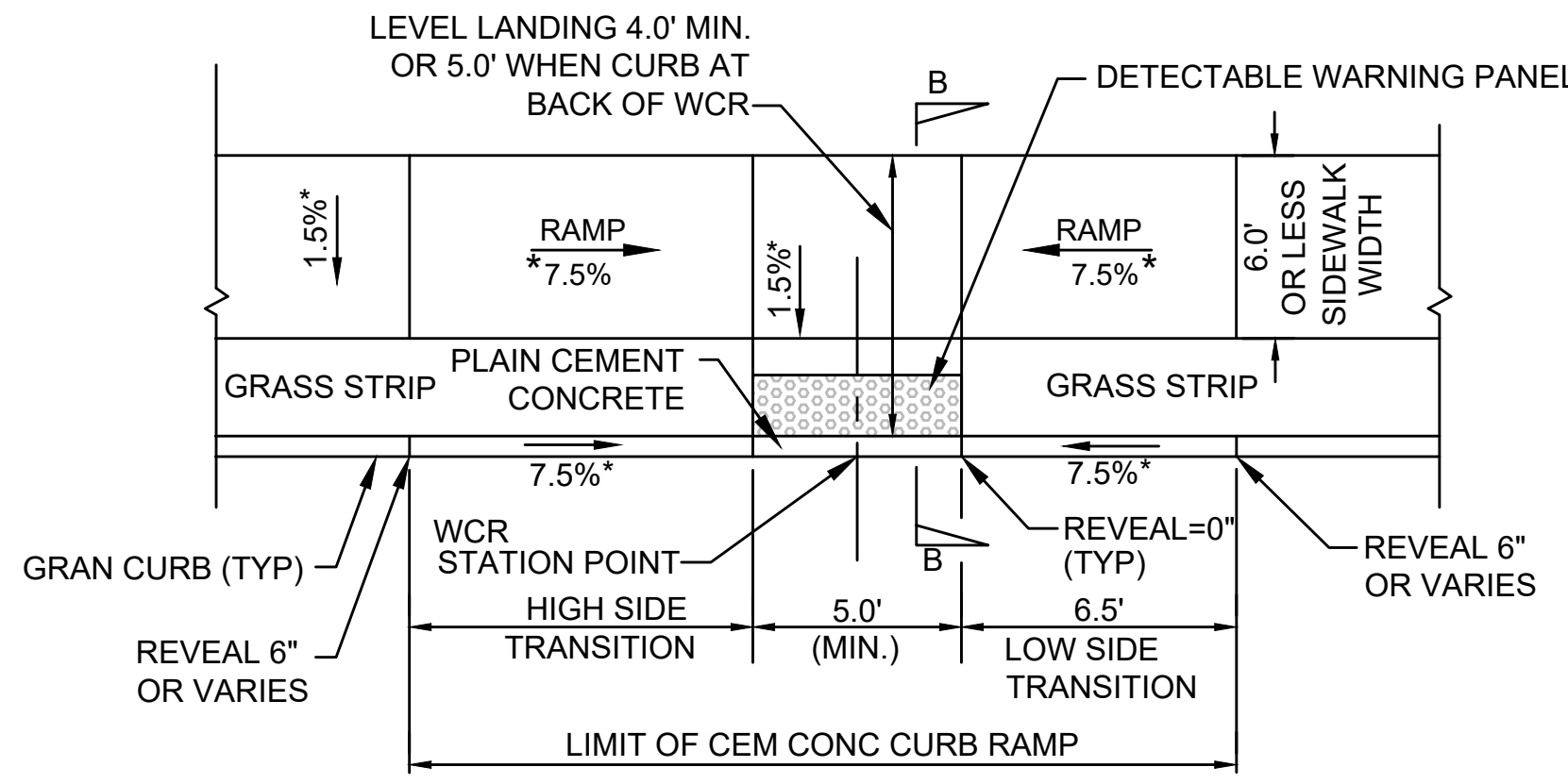
CURB RAMP DETAIL TYPE "G"
NOT TO SCALE



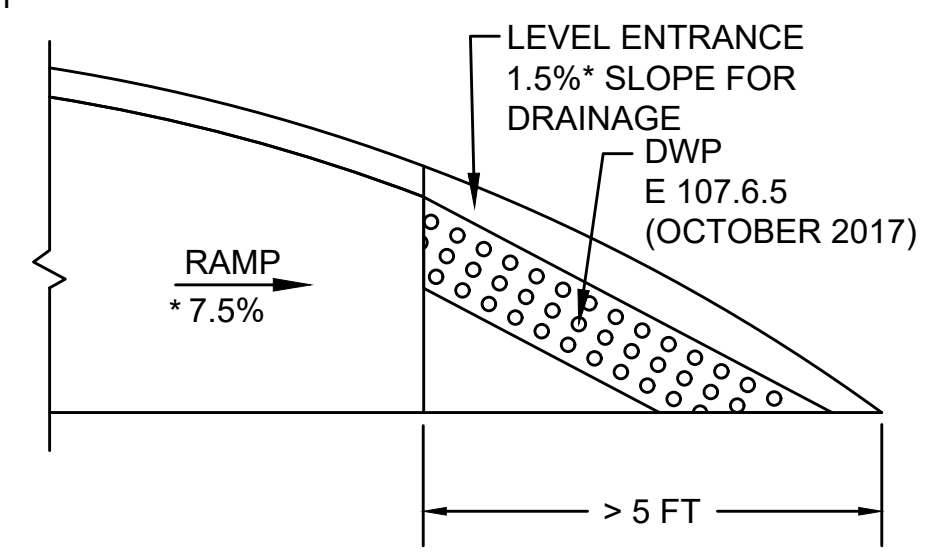
CURB RAMP DETAIL TYPE "H"
MODIFIED VERSION - SEE MASSDOT S.D. E107.6.4
NOT TO SCALE



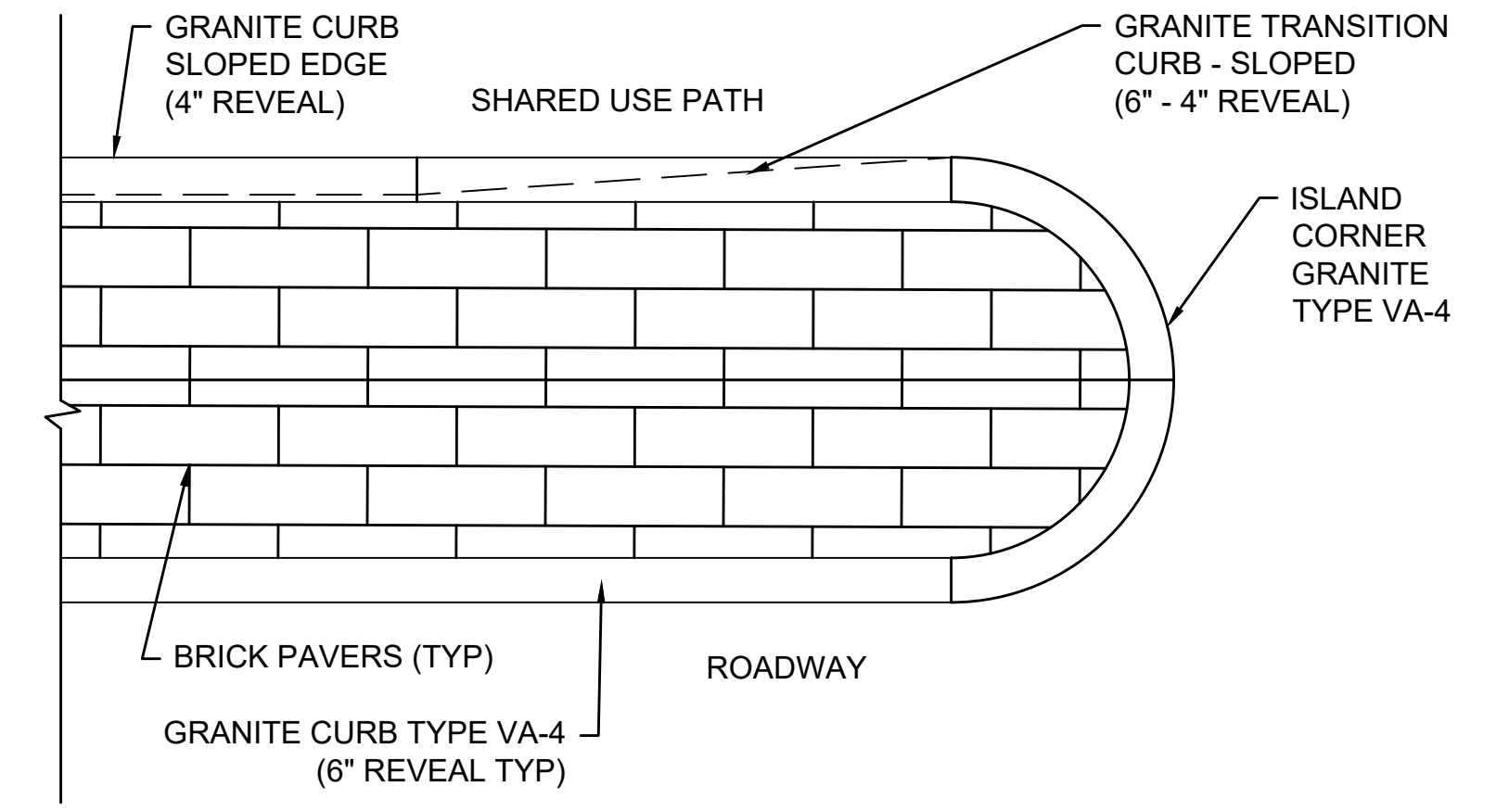
CURB RAMP DETAIL TYPE "J"
NOT TO SCALE



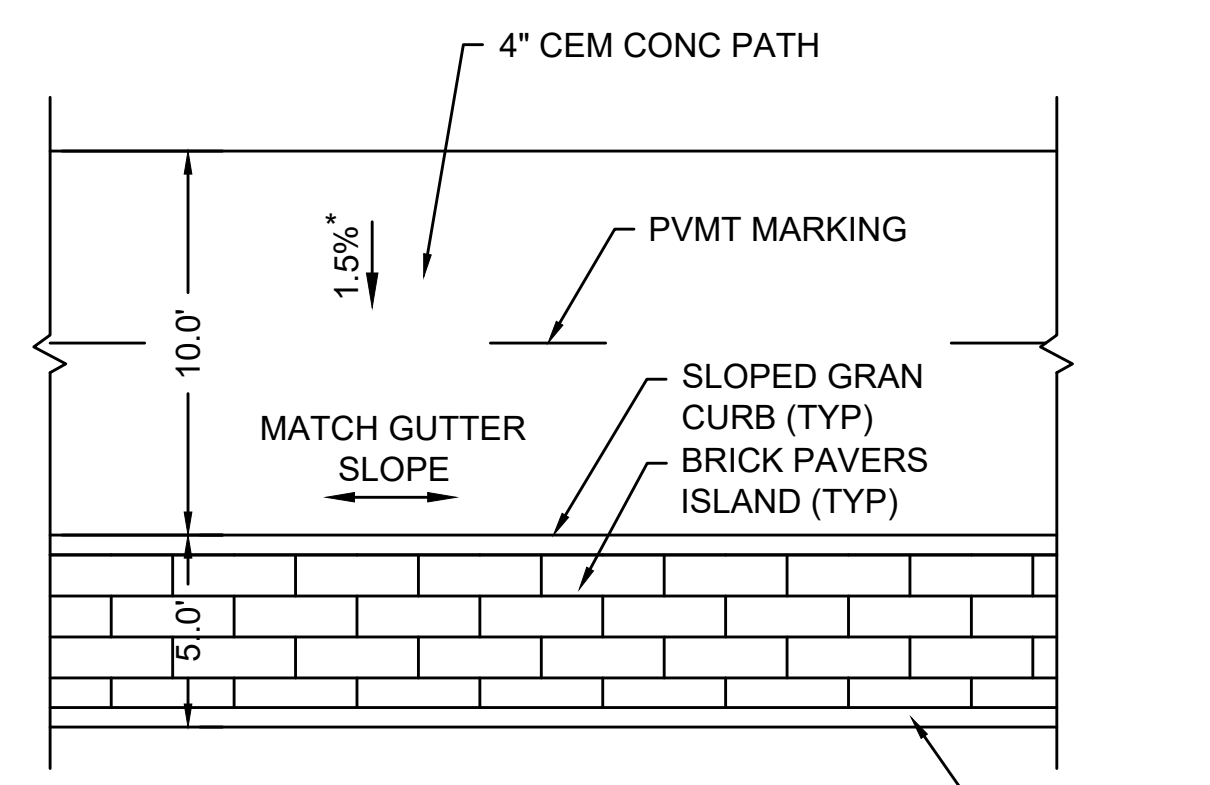
CURB RAMP DETAIL TYPE "I"
SEE MASSDOT S.D. E107.2.1
NOT TO SCALE



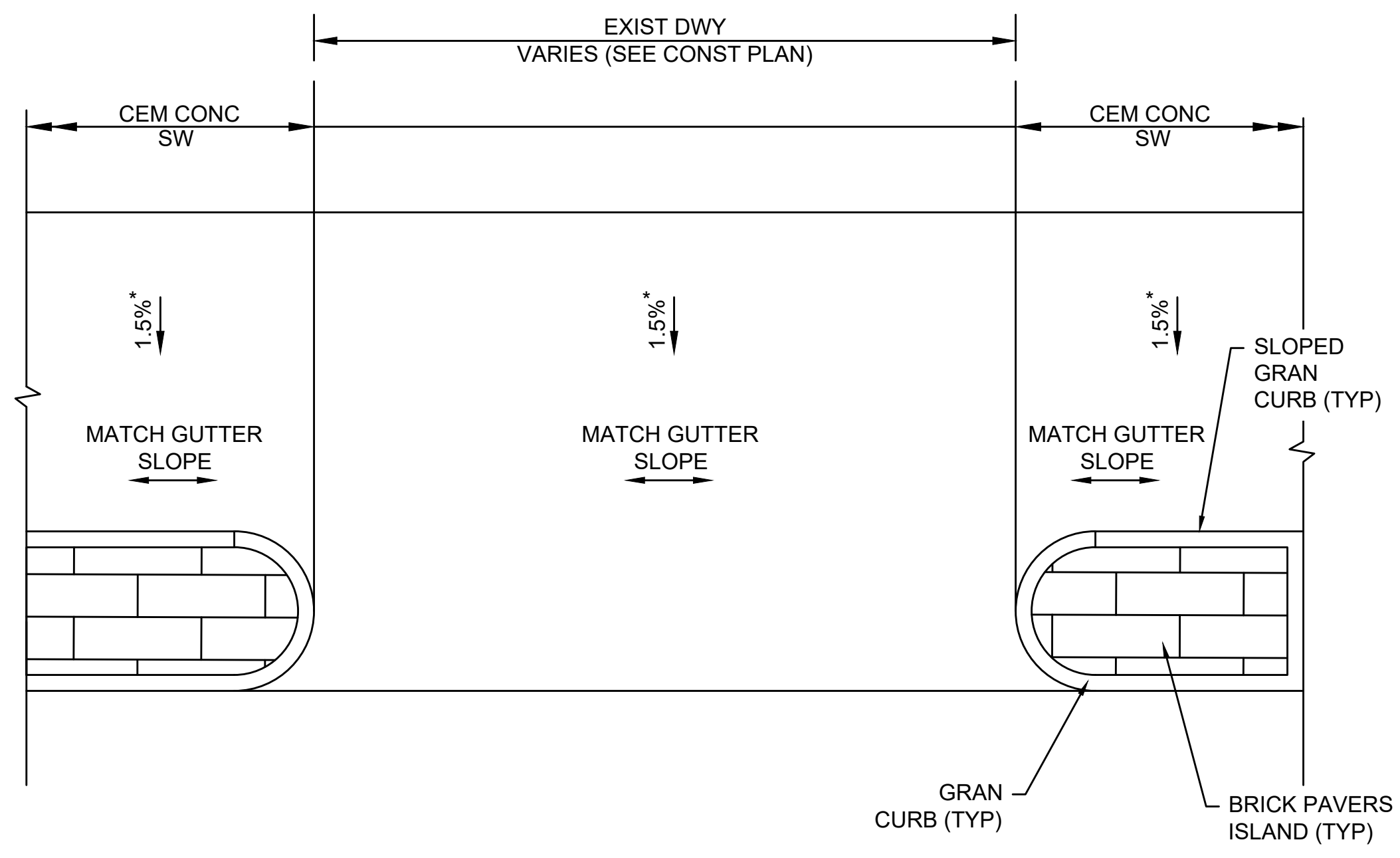
DETECTABLE WARNING PANEL AT
LEVEL LANDING >5'
NOT TO SCALE



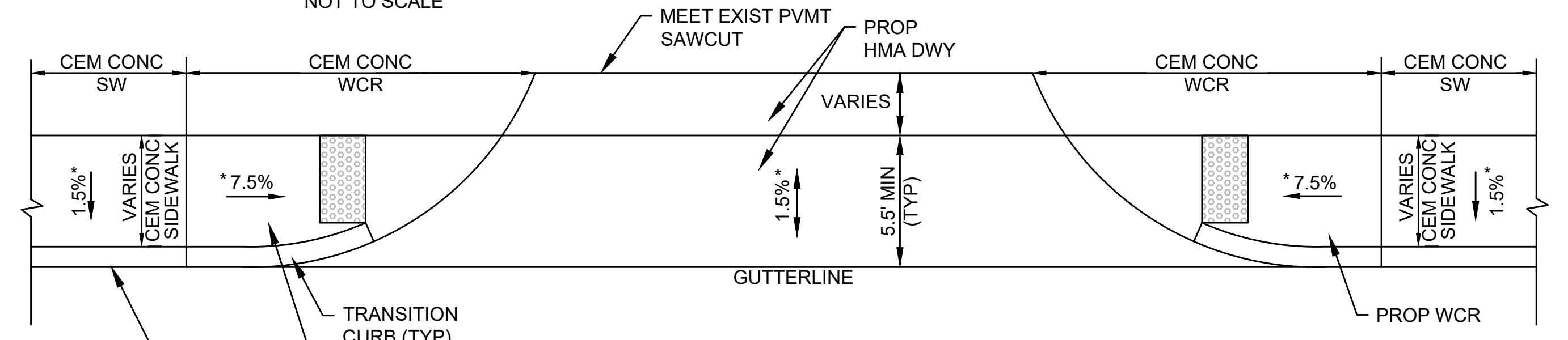
GRANITE ISLAND DETAIL AT SHARED USE PATH
NOT TO SCALE



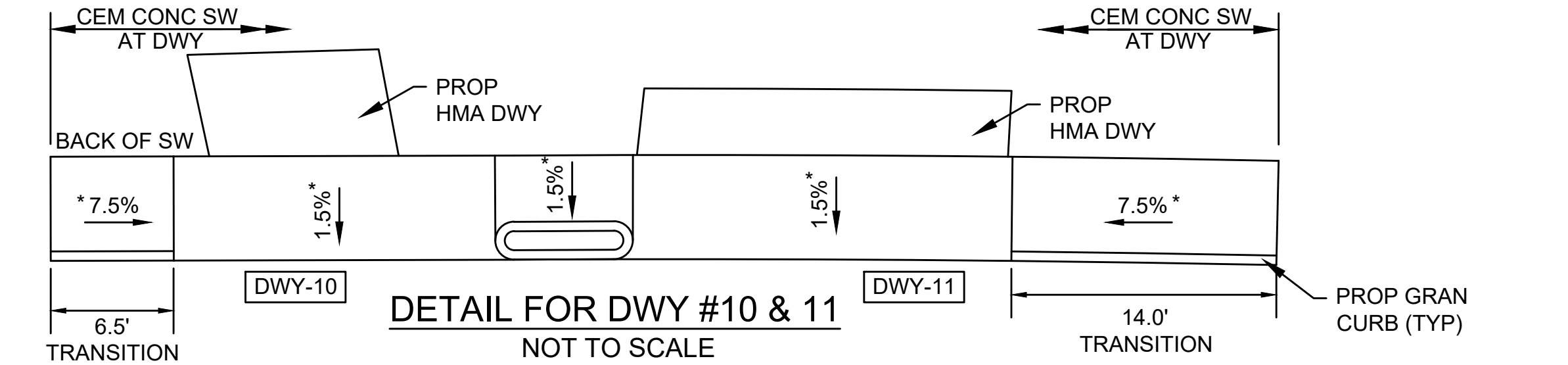
DETAIL FOR SHARED USE PATH
NOT TO SCALE



SHARED USE PATH DRIVEWAY WITH BRICK PAVERS ISLAND
NOT TO SCALE



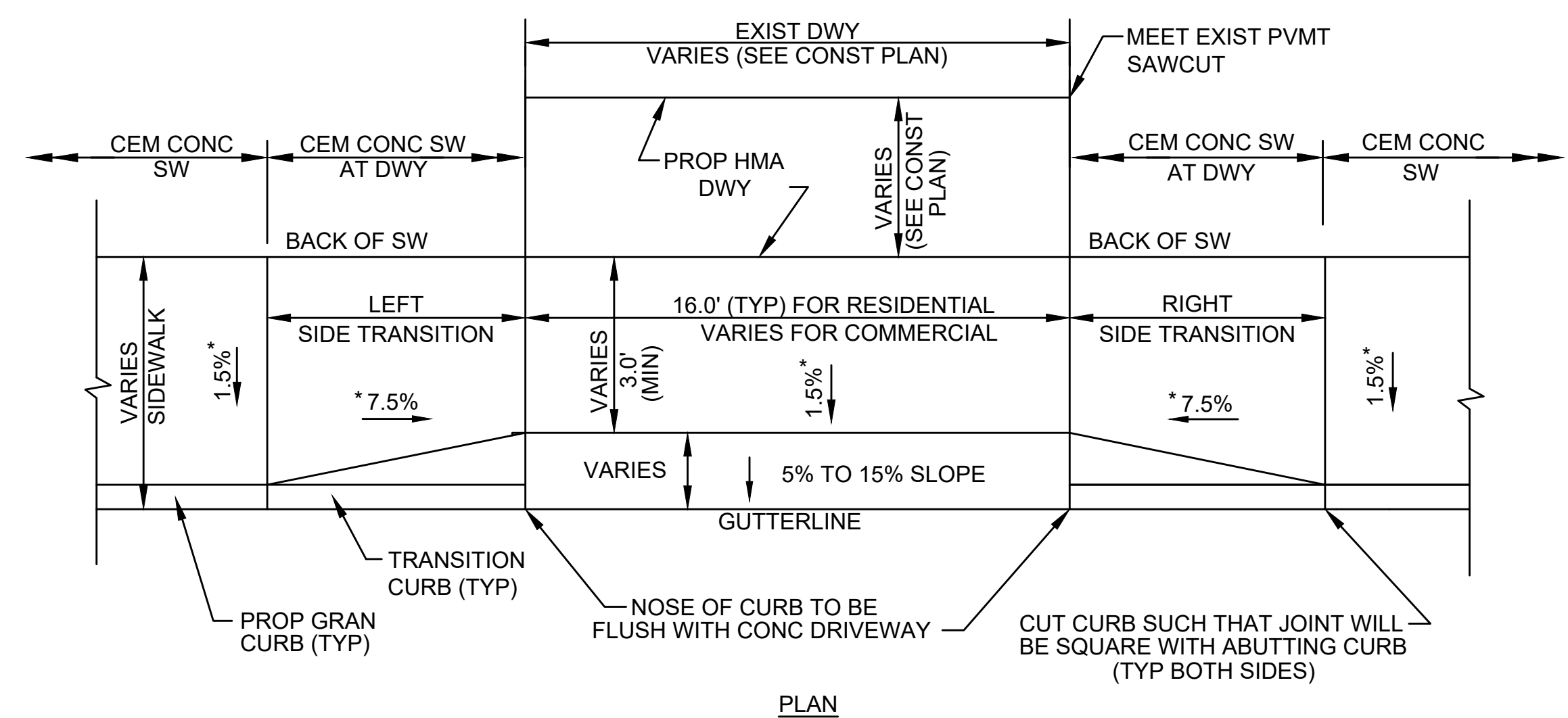
DETAIL FOR COMMERCIAL HMA DRIVEWAY
WITH SIDEWALK
NOT TO SCALE



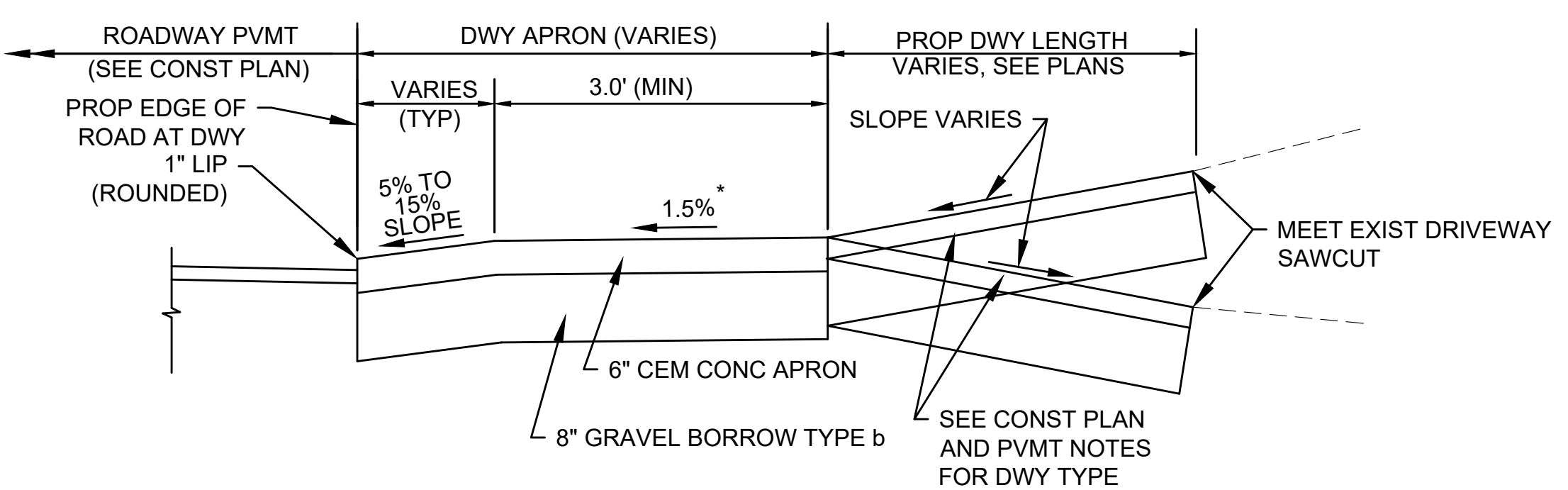
DETAIL FOR DWY #10 & #11
NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

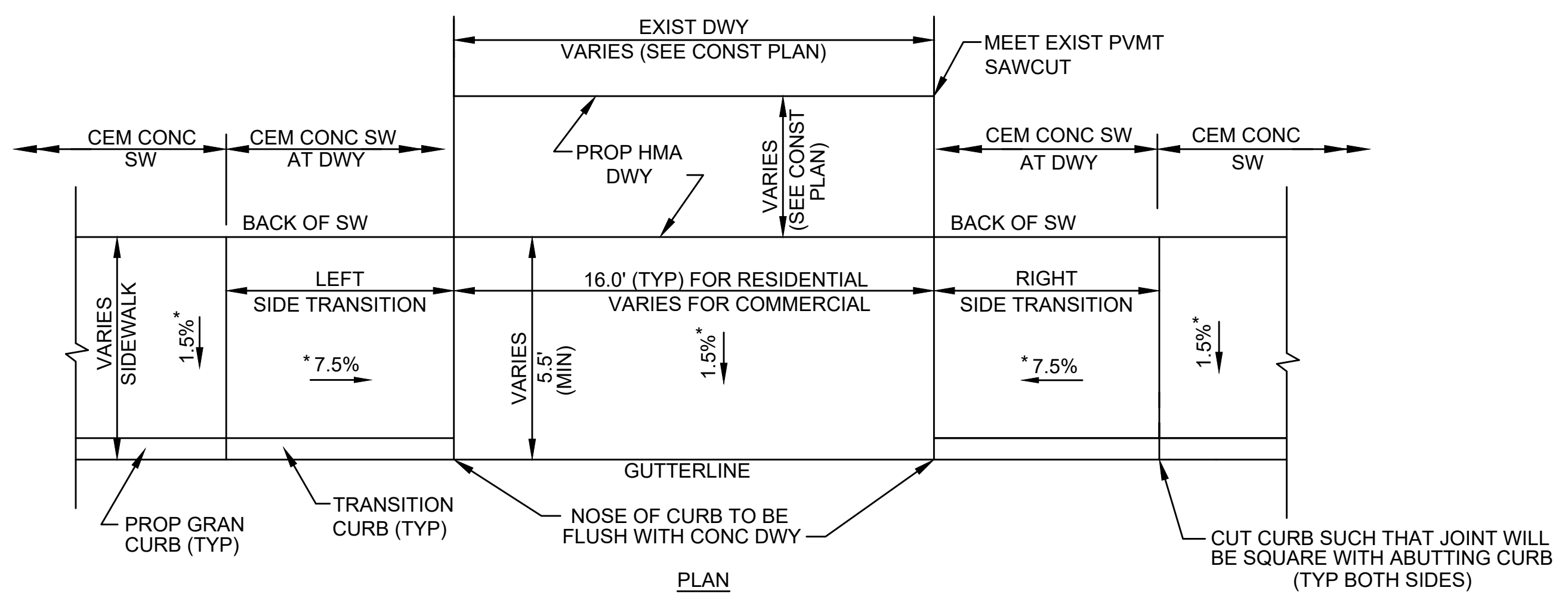
CONSTRUCTION DETAILS



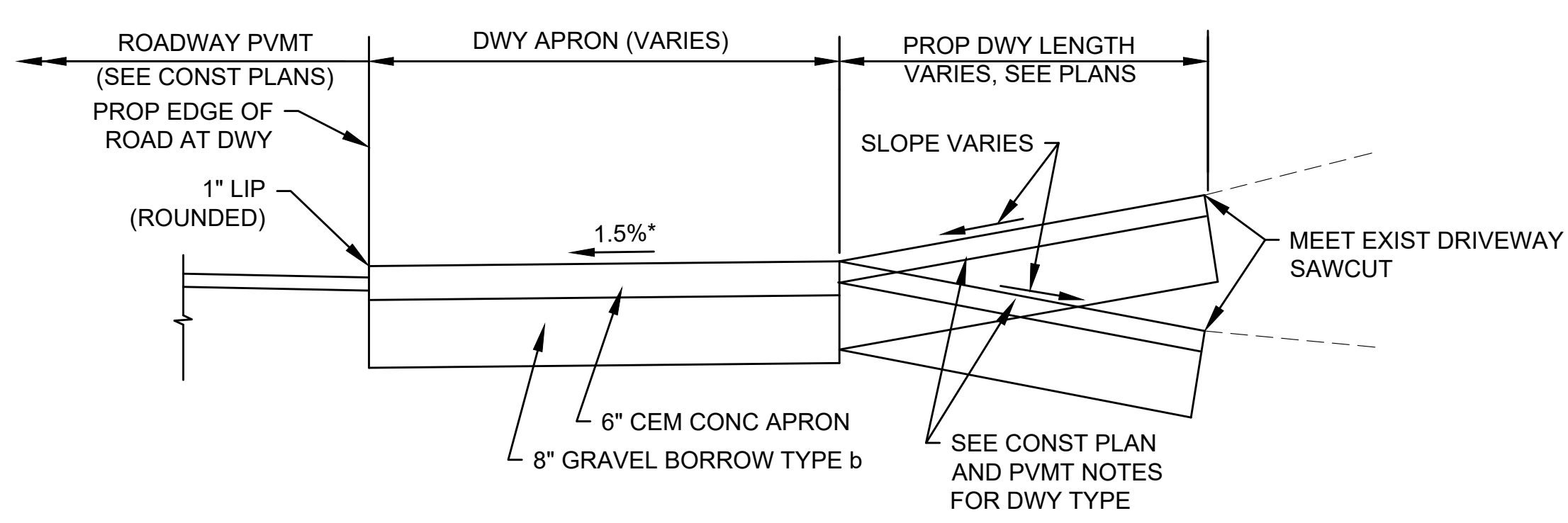
DETAIL FOR TYPICAL DRIVEWAY WITH SIDEWALK - TYPE A
NOT TO SCALE



SECTION FOR TYPICAL CEM. CONC. DRIVEWAY WITH SIDEWALK
NOT TO SCALE



DETAIL FOR DEPRESSED DRIVEWAY WITH SIDEWALK - TYPE B
NOT TO SCALE



SECTION FOR DEPRESSED DRIVEWAY WITH SIDEWALK
NOT TO SCALE

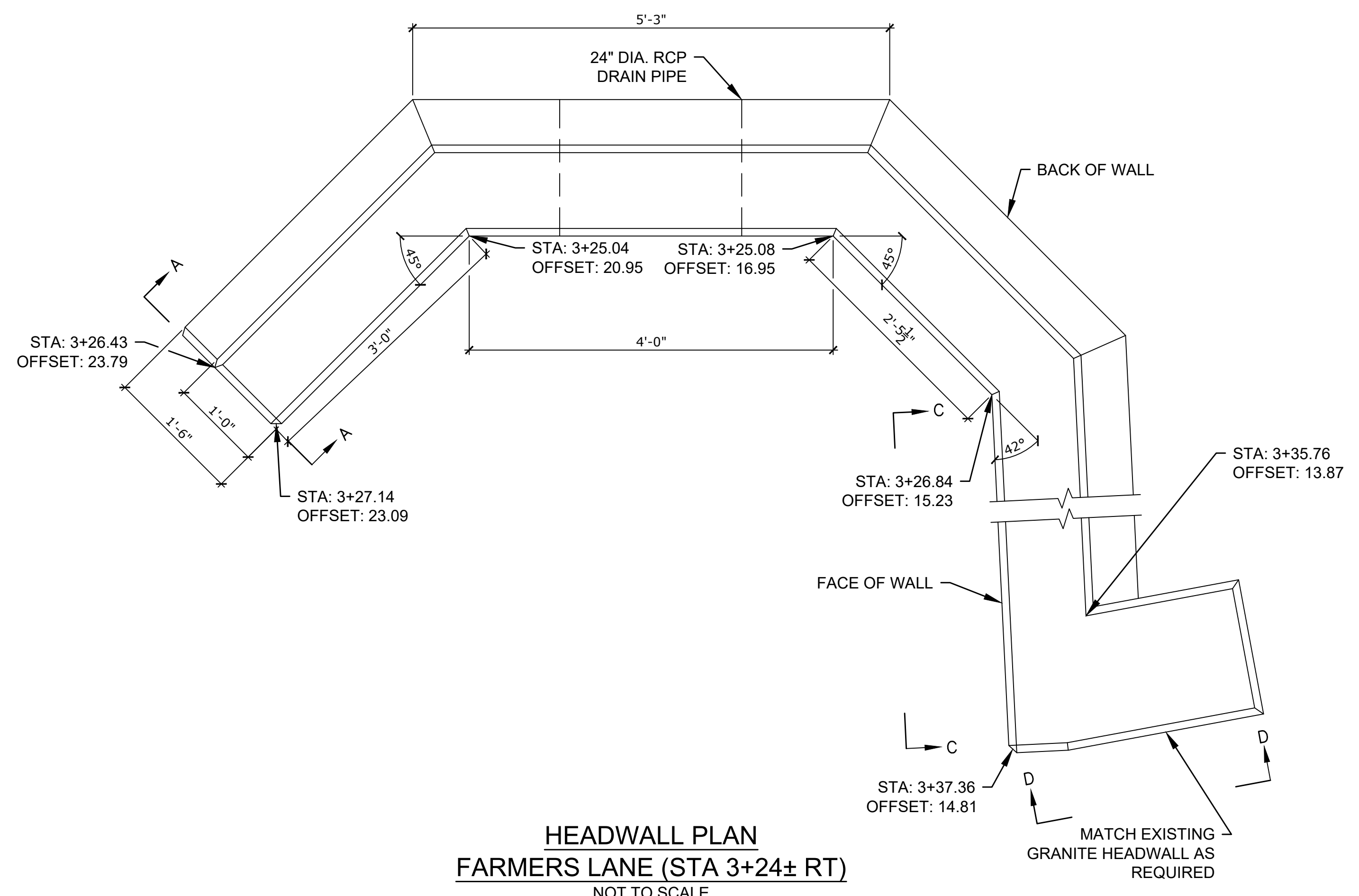
DRIVEWAY TYPE A OPENING									
DWY NO.	LOCATION	€ DRIVEWAY OPENING AT GUTTER		GUTTER PROFILE SLOPE	OPENING WIDTH AT GUTTER	DEPTH OF GUTTER TO BACK OF SIDEWALK	PATH OF TRAVEL WIDTH ACROSS DRIVEWAY	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
1	BOSTON RD	13+94.5	30.8' L	+1.0%	16.0'	5.50'	4.00'	6.5'	7.7'
15	BOSTON RD	26+41.5	16.3' R	-2.7%	28.0'	11.5'	8.00'	6.5'	6.0' 3\"R
16	BOSTON RD	27+07.3	15.2' R	-2.6%	40.0'	11.5'	8.00'	6.5'	6.5'
17	BOSTON RD	27+65.3	15.0' R	-2.8%	20.0'	11.5'	8.00'	11.0'	4.0'
18	BOSTON RD	28+84.7	15.0' R	-3.3%	20.0'	11.5'	8.00'	14.0'	6.5'
19	BOSTON RD	29+69.3	15.0' R	-3.3%	20.0'	11.5'	8.00'	-	6.5'
20	BOSTON RD	30+02.1	15.0' R	-3.3%	20.0'	11.5'	8.00'	14.0'	-
21	BOSTON RD	31+12.7	15.0' R	-3.3%	20.0'	11.5'	8.00'	7.0' 3\"R	6.5'
23	BOSTON RD	32+17.1	13.2' R	-3.3%	18.0'	11.5'	8.00'	14.0'	6.5'
24	BOSTON RD	33+22.0	13.0' R	-3.3%	28.0'	11.5'	8.00'	14.0'	6.5'
25	BOSTON RD	36+93.57	13.0' R	-3.3%	20.0'	11.5'	8.00'	14.0'	6.5'
33	HERITAGE RD	58+02.3	14.1' L	+2.9%	23.0'	5.50'	5.50'	6.5'	11.0'

DRIVEWAY TYPE B OPENING									
DWY NO.	LOCATION	€ DRIVEWAY OPENING AT GUTTER		GUTTER PROFILE SLOPE	OPENING WIDTH AT GUTTER	DEPTH OF GUTTER TO BACK OF SIDEWALK	PATH OF TRAVEL WIDTH ACROSS DRIVEWAY	TRANSITION LENGTH	
		STATION	OFFSET					LEFT	RIGHT
2	BOSTON RD	14+21.8	21.2' R	-1.3%	18.0'	5.5'	5.5'	9.0'	6.5'
3	BOSTON RD	14+65.5	30.2' L	+1.7%	16.0'	5.5'	5.5'	6.5'	5.5' 3\"R
4	BOSTON RD	15+04.0	18.4' R	-2.0%	18.0'	5.5'	5.5'	11.0'	6.5'
5	BOSTON RD	16+32.7	18.3' R	-2.7%	28.0'	5.5'	5.5'	11.0'	6.5'
6	BOSTON RD	17+88.4	18.0' R	-2.8%	24.0'	5.5'	5.5'	3\"R 4.0'	6.5'
7	BOSTON RD	18+41.6	18.0' R	-3.1%	24.0'	5.5'	5.5'	14.0'	4.0' 3\"R
8	BOSTON RD	18+81.8	31.0' L	+3.1%	30.0'	5.5'	5.5'	6.5'	14.0'
9	BOSTON RD	20+04.7	18.0' R	-3.3%	30.0'	5.5'	5.5'	14.0'	6.5'
10	BOSTON RD	20+36.0	31.0' L	+3.6%	17.0'	5.5'	5.5'	6.5'	-
11	BOSTON RD	20+60.5	31.0' L	+3.6%	20.0'	5.5'	5.5'	-	14.0'
12	BOSTON RD	22+24.7	18.0' R	-1.5%	33.0'	5.5'	5.5'	9.0'	6.5'
13	BOSTON RD	22+27.3	27.3' L	+1.4%	40.0'	5.5'	5.5'	6.5'	7.7'
14	BOSTON RD	24+01.1	18.2' R	-1.0%	31.0'	5.5'	5.5'	7.7'	6.5'
22	BOSTON RD	31+62.1	14.6' R	-3.3%	18.0'	11.5'	8.0'	14.0'	3.5' 3\"R
26	BOSTON RD	45+52.4	37.0' L	+4.6%	21.0'	8.5'	8.5'	6.5' 3\"R	7.5' 3\"R
27	BOSTON RD	45+91.6	35.1' L	+4.3%	23.0'	8.5'	8.5'	3.2' 3\"R	15.0'
28	BOSTON RD	46+78.3	31.1' L	+3.7%	28.0'	8.5'	8.5'	6.5'	11.0'
29	BOSTON RD	48+09.0	25.3' R	-3.7%	20.0'	15.0'	10.0'	6.5'	15.0'
30	HERITAGE RD	55+13.4	13.0' L	+3.0%	17.0'	5.5'	5.5'	6.5'	7.0' 3\"R
31	HERITAGE RD	55+46.4	13.0' L	+3.0%	16.0'	5.5'	5.5'	3.3' 3\"R	14.0'
32	HERITAGE RD	57+12.1	13.0' L	+3.0%	17.0'	5.5'	5.5'	6.5'	14.0'
34	GOOD ST	71+06.3	13.0' L	+1.7%	23.0'	15.0'	10.0'	6.50'	9.0'
35	GOOD ST	71+10.0	26.9' R	-4.3%	22.0'	5.5'	5.5'	15.0'	6.5'
36	GOOD ST	71+76.3	13.0' L	+2.7%	30.0'	15.0'	10.0'	6.5'	11'
37	GOOD ST	73+33.6	13.7' R	+0.4%	24.0'	5.5'	5.5'	7.7'	6.5'
38	GOOD ST	73+63.3	17.8' L	-0.4%	25.6'	15.0'	10.0'	6.5'	7.6'
39	GOOD ST	74+22.9	18.0' L	-1.0%	77.8'	15.2'	10.0'	7.6'	6.5'
40	GOOD ST	75+75.6	11.8' R	+1.8%	22.0'	6.9'	5.5'	-	10.2'

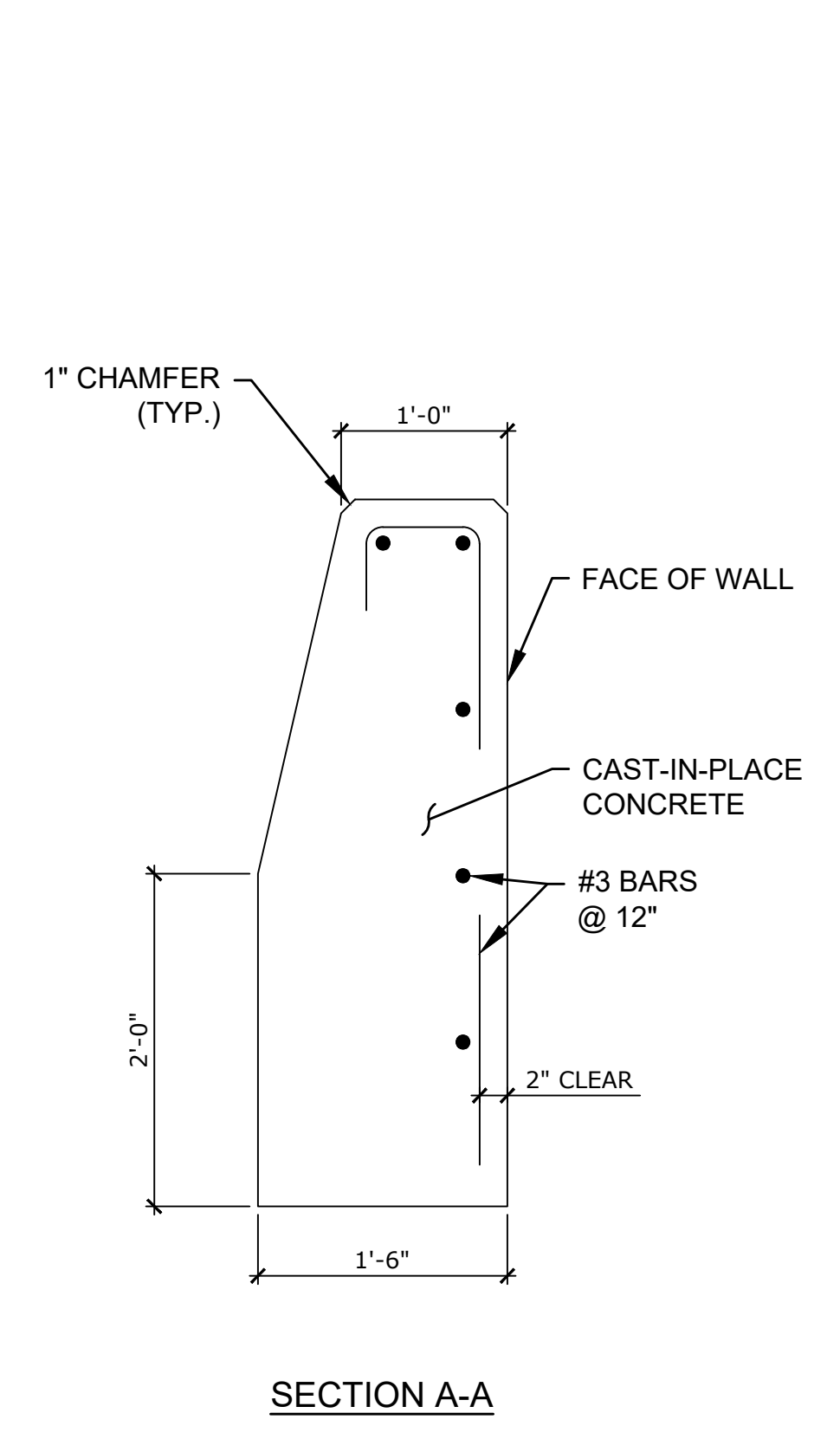
SEE DETAIL ON SHEET 12
SEE DETAIL ON SHEET 12

NOTE: FOR COMMERCIAL DWY WITH HMA APPROACH SEE CURB TIE PLAN AND WCR TABLE.

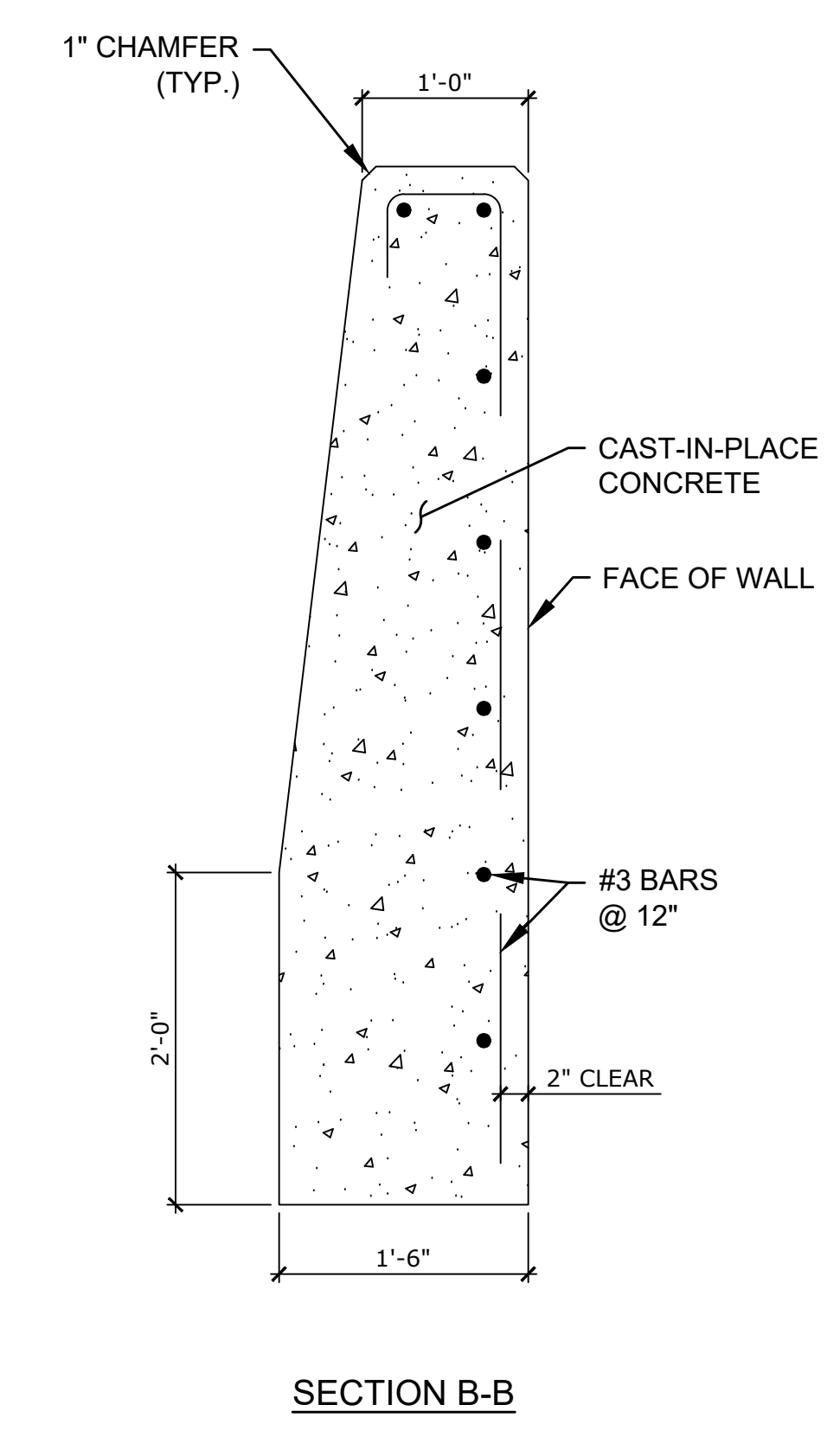
* TOLERANCE FOR CONSTRUCTION ±0.5%



HEADWALL PLAN
FARMERS LANE (STA 3+24± RT)
NOT TO SCALE

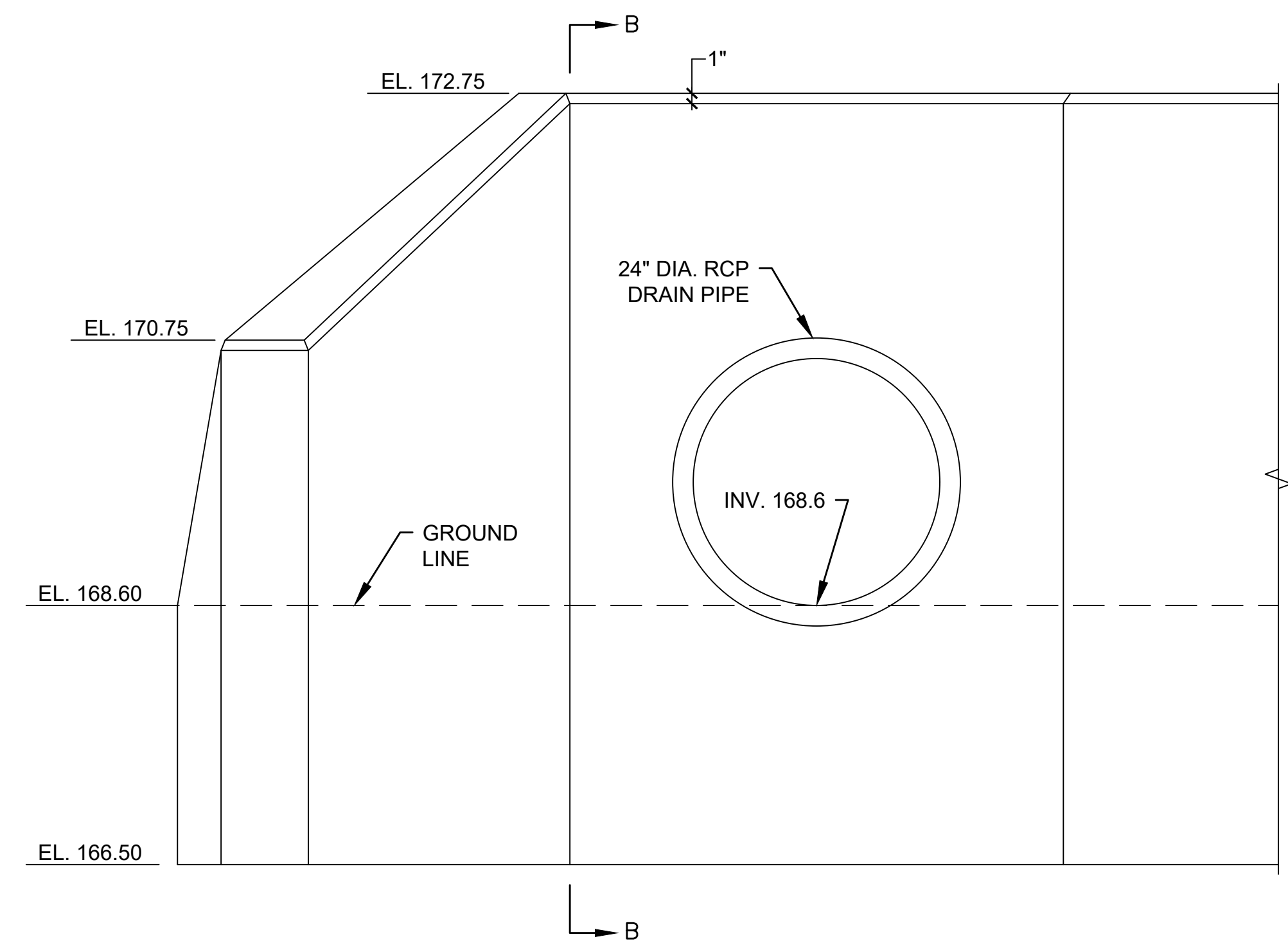


SECTION A-A

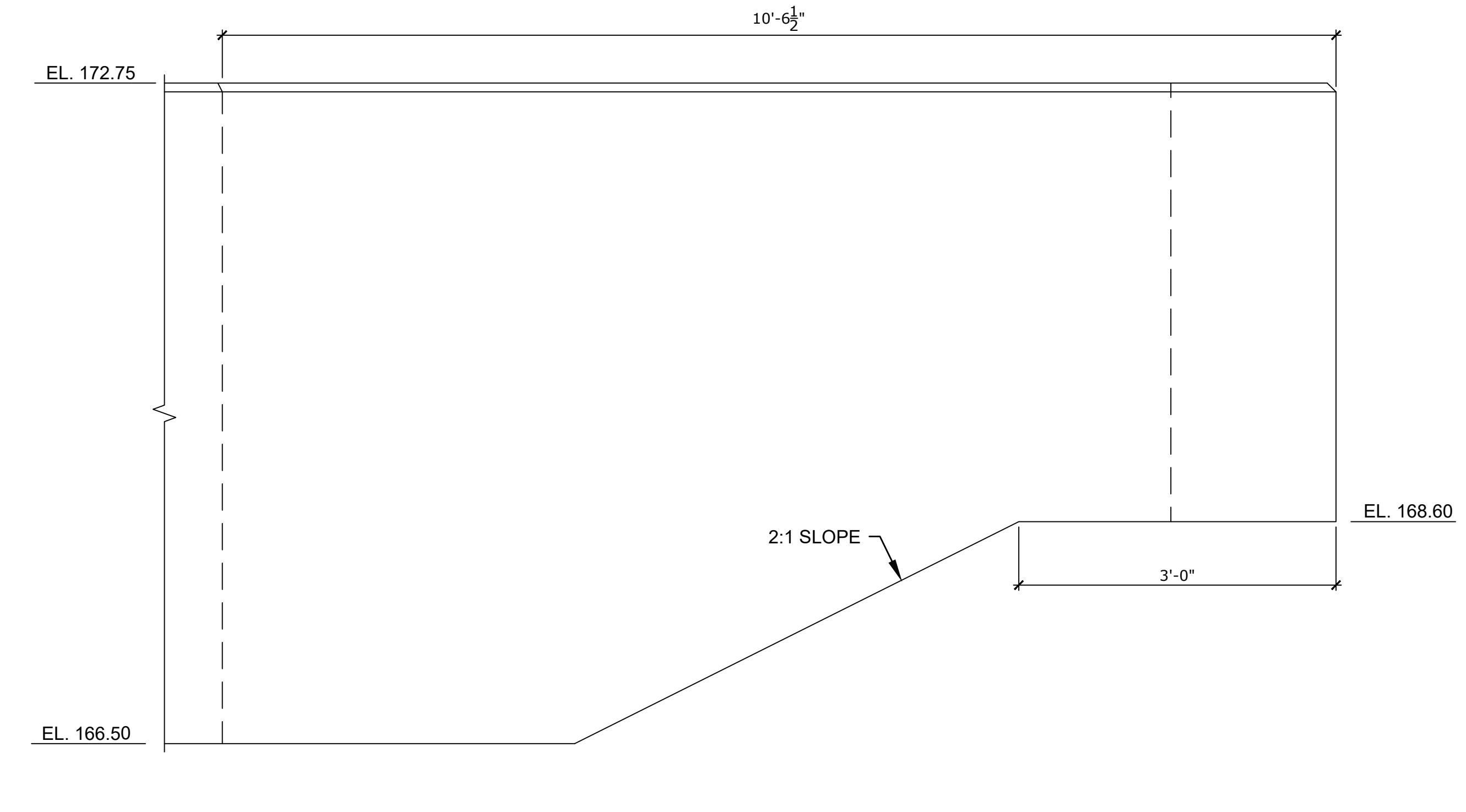


SECTION B-B

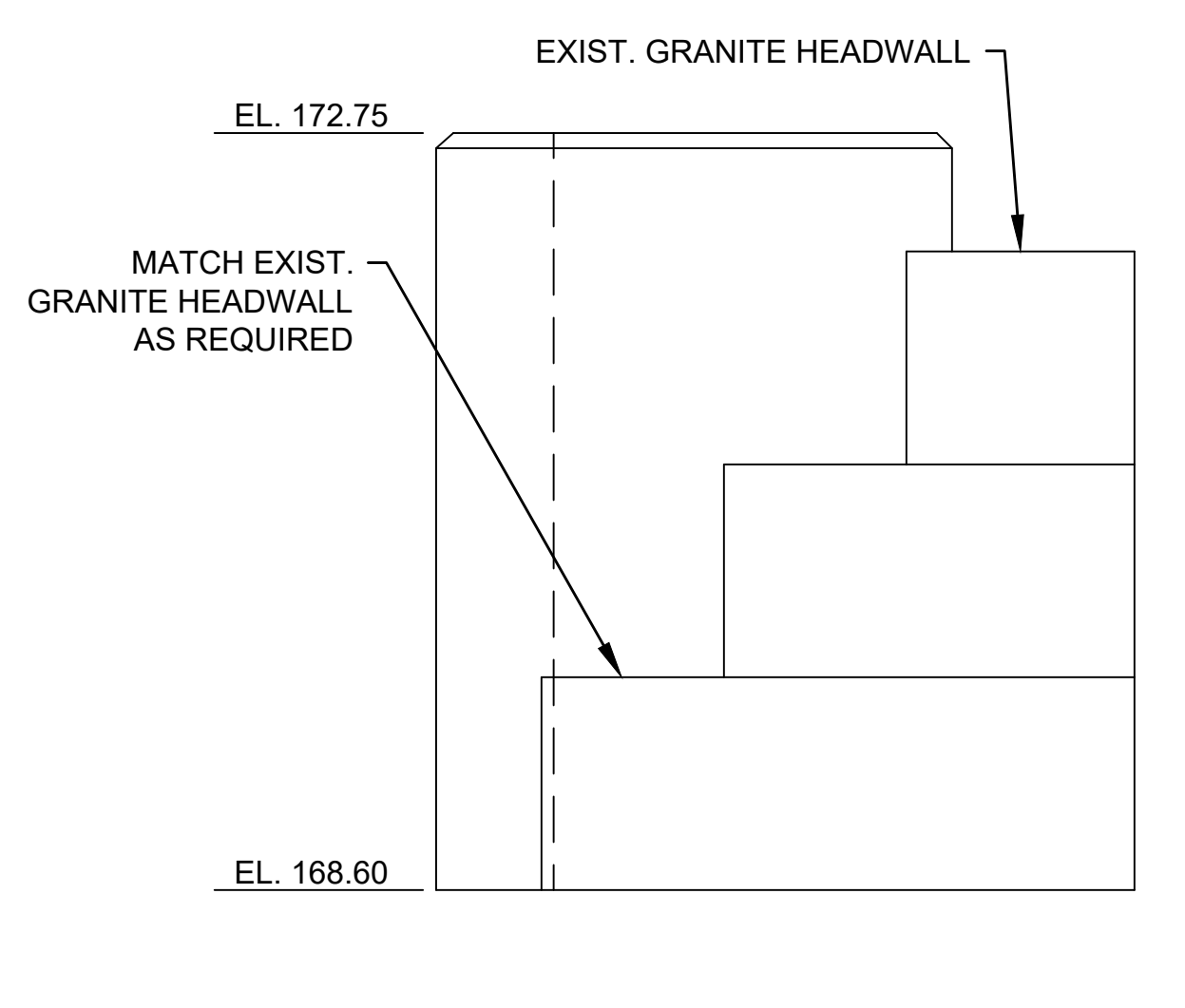
HEADWALL NOTES:
1. ALL CAST-IN-PLACE HEADWALL CONCRETE SHALL BE 4000 PSI, 3/4 IN., 610 CEMENT CONCRETE.
2. ALL REINFORCING SHOWN IN THE HEADWALL DETAILS SHALL BE EPOXY COATED BAR.



HEADWALL FRONT ELEVATION
NOT TO SCALE



SECTION C-C

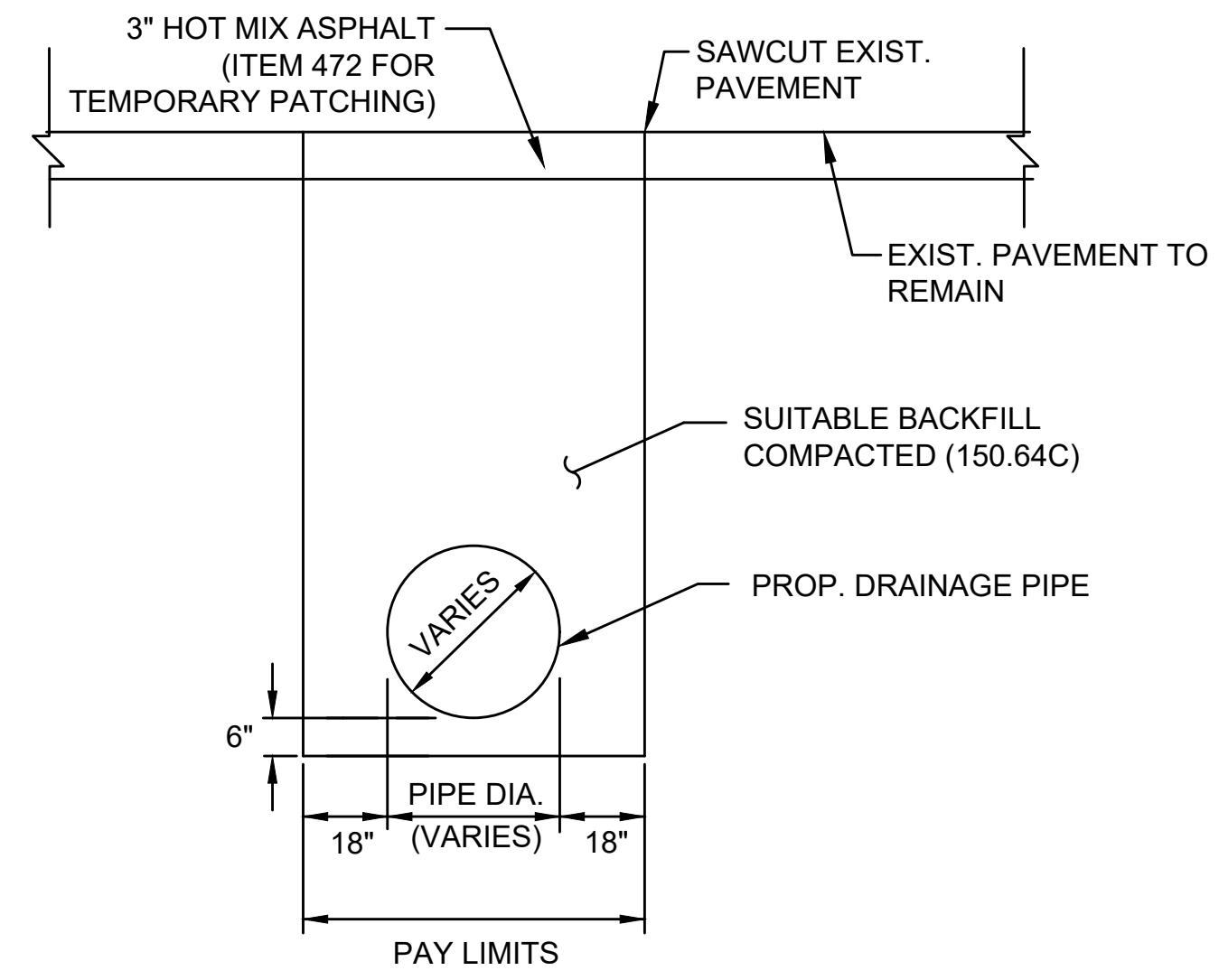


SECTION D-D

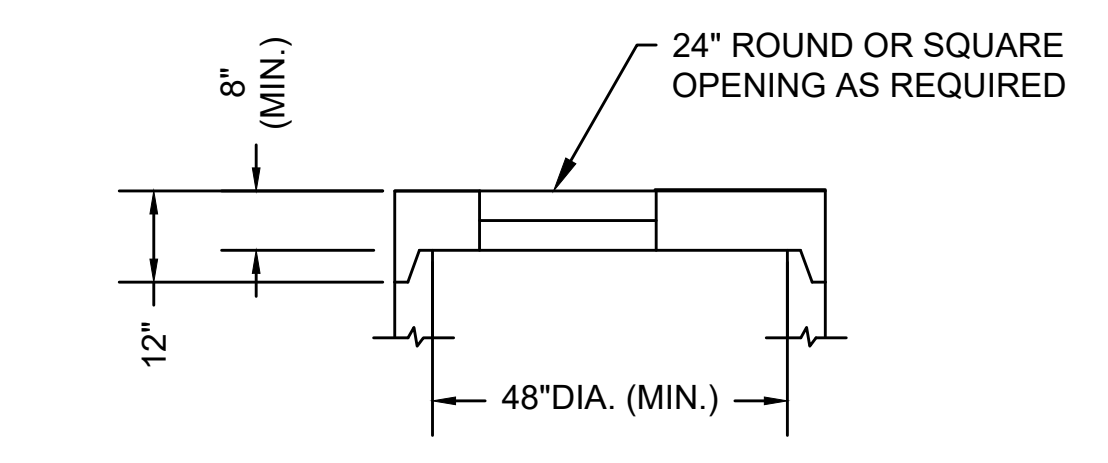
CONSTRUCTION DETAILS

CONCRETE ANCHORAGE THRUST BLOCK REQUIREMENTS	
FITTING	MIN. BEARING AREA (H X B)
6" - 1/8 BEND	32" x 32"
8" - 1/8 BEND	24" x 24"
8" x 6" TEE	20" x 20"
12" - 1/8 BEND	32" x 32"
12" x 12" TEE	24" x 24"
12" x 6" TEE	24" x 24"
12" x 8" TEE	32" x 32"
16" x 12" TEE	24" x 24"
HYDRANT	24" x 24"
8" PLUG	32" x 32"
150 mm PLUG	24" x 24"
8" x 6" REDUCER	24" x 24"
8" - 1/16 BEND	20" x 20"
12" x 8" REDUCER	24" x 24"

NOTE:
ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH

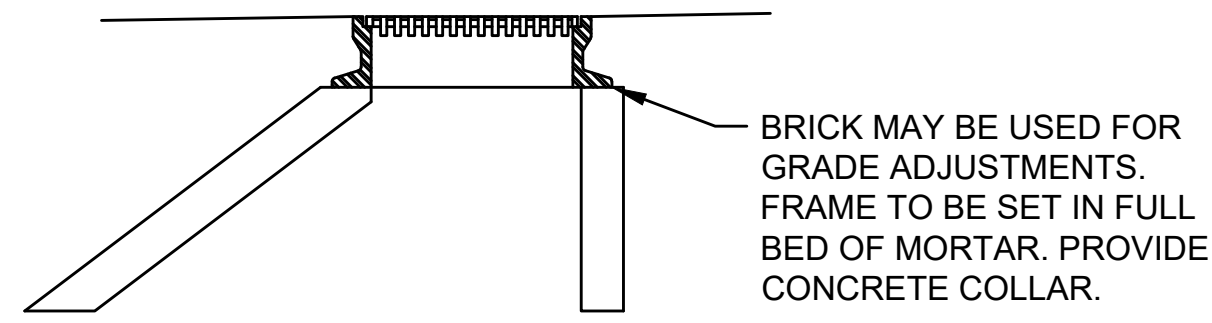


DETAIL FOR TEMPORARY TRENCH FOR DRAINAGE PIPE IN FULL DEPTH AREAS
NOT TO SCALE

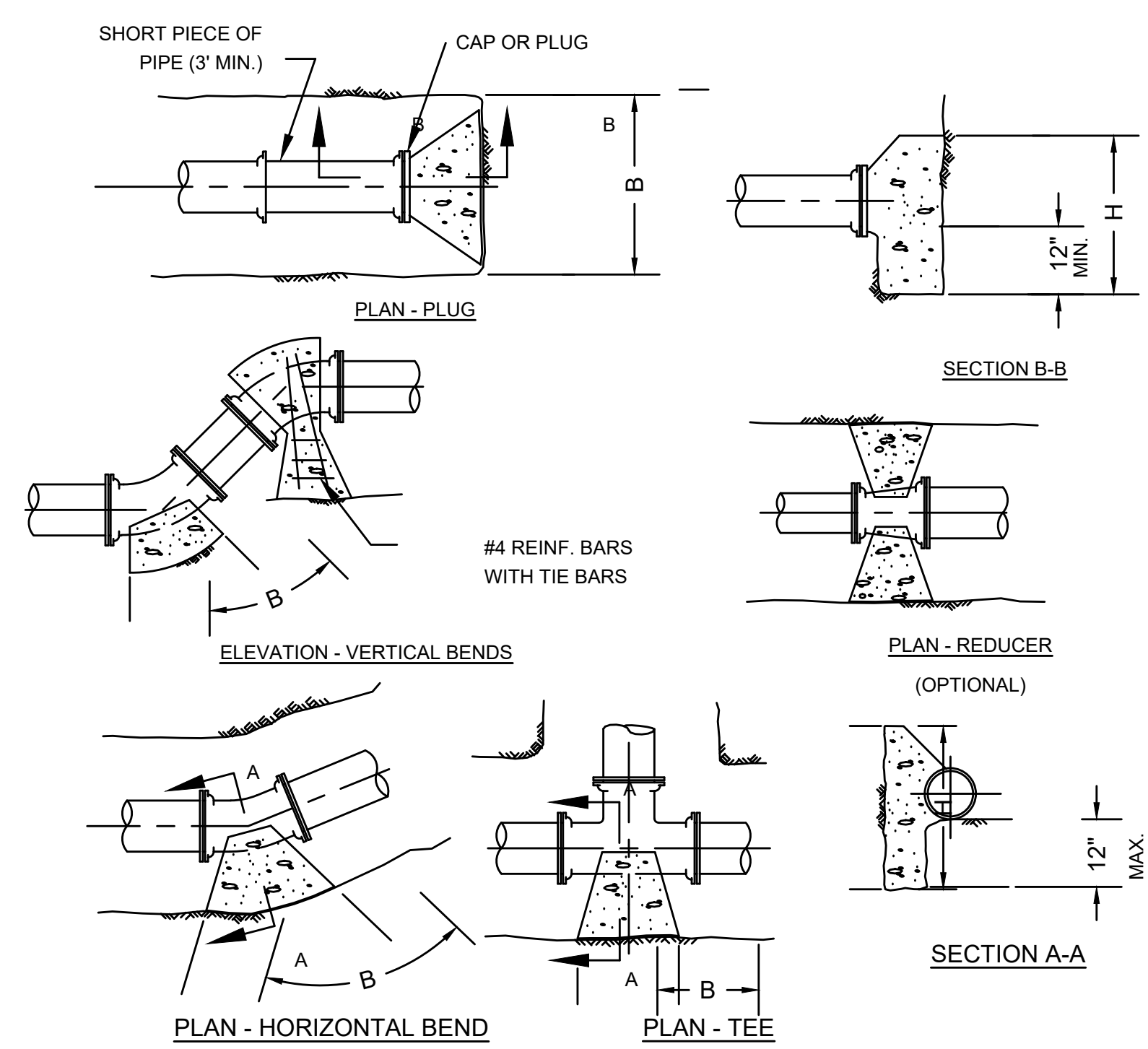


ALTERNATE TOP SLAB FOR CATCH BASIN OR DRAINAGE MANHOLE
NOT TO SCALE

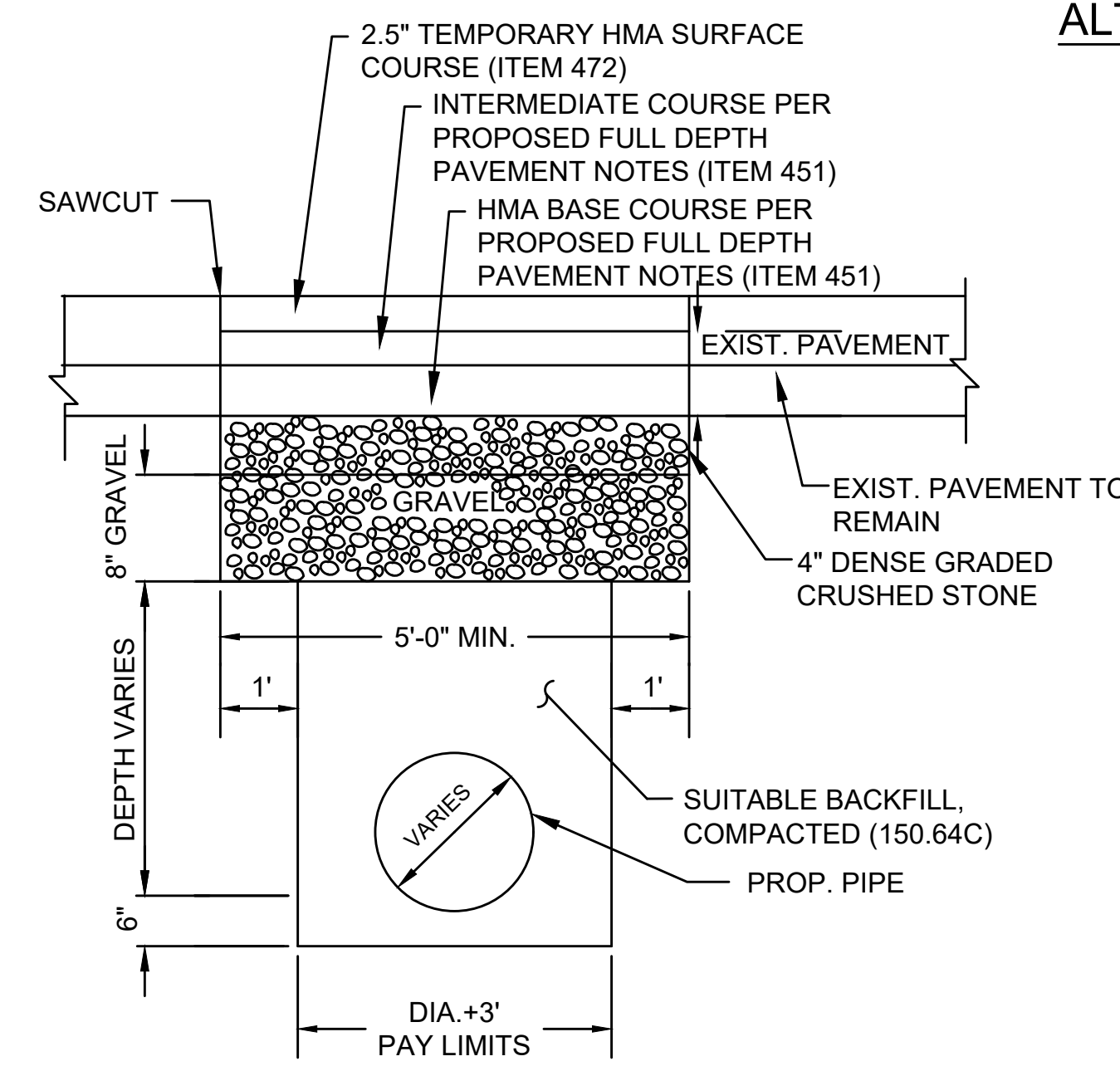
NOTES:
1. BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTOR SHALL DETERMINE WHICH STYLE OF TOP SECTION SHOULD BE USED.



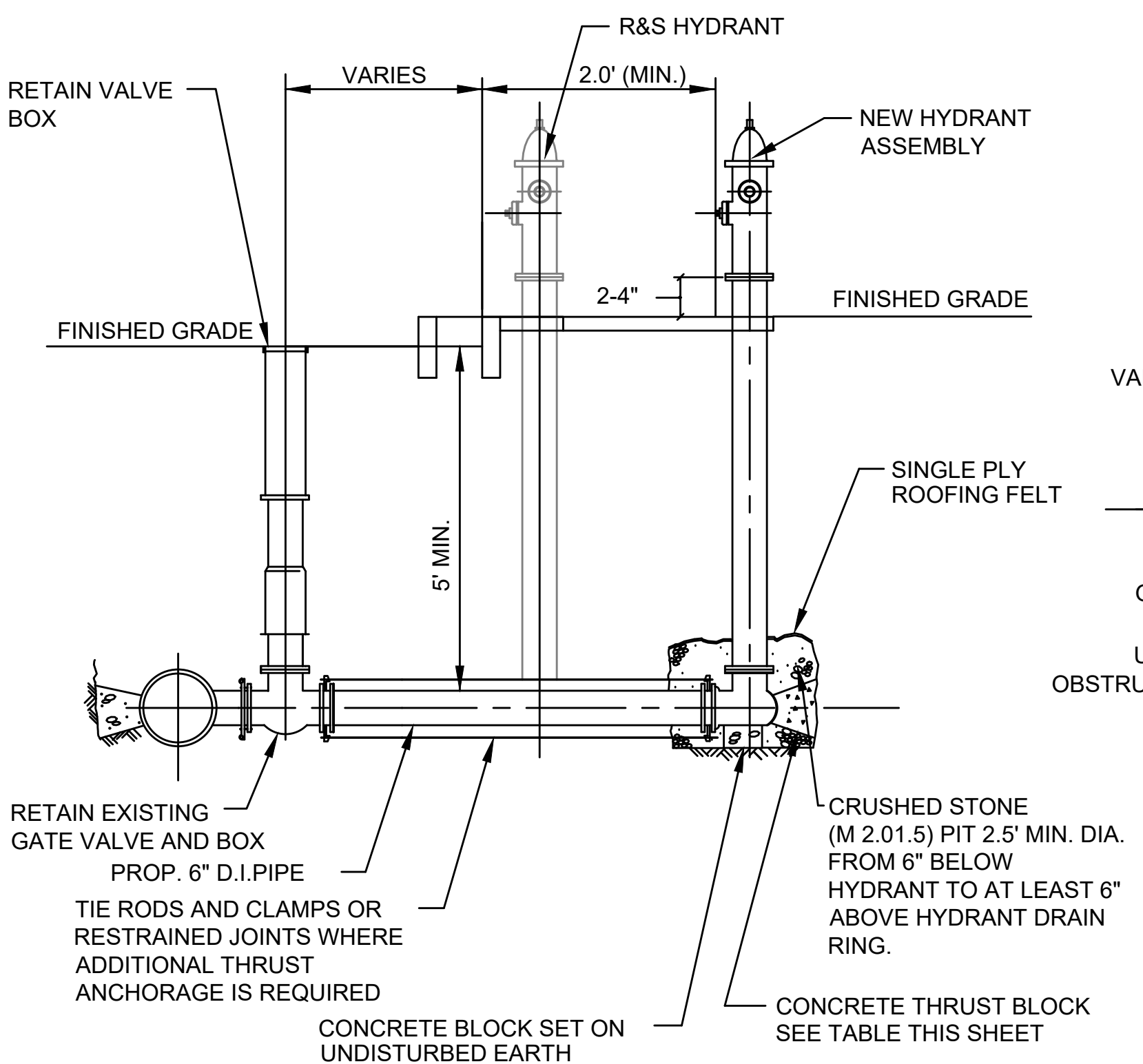
ALTERNATE ECCENTRIC CONE SECTION OR DRAINAGE MANHOLE
NOT TO SCALE



CONCRETE ANCHORAGE DETAILS
NOT TO SCALE

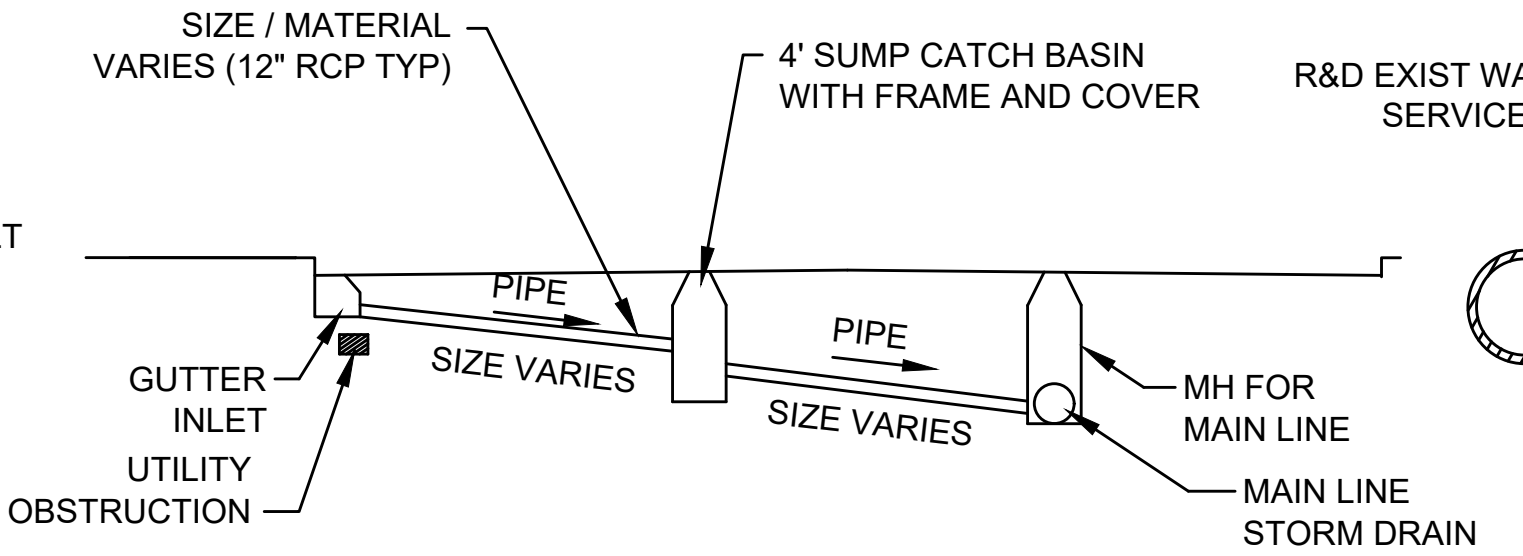


PERMANENT TRENCH PATCH DETAIL IN MILLED AREAS
NOT TO SCALE

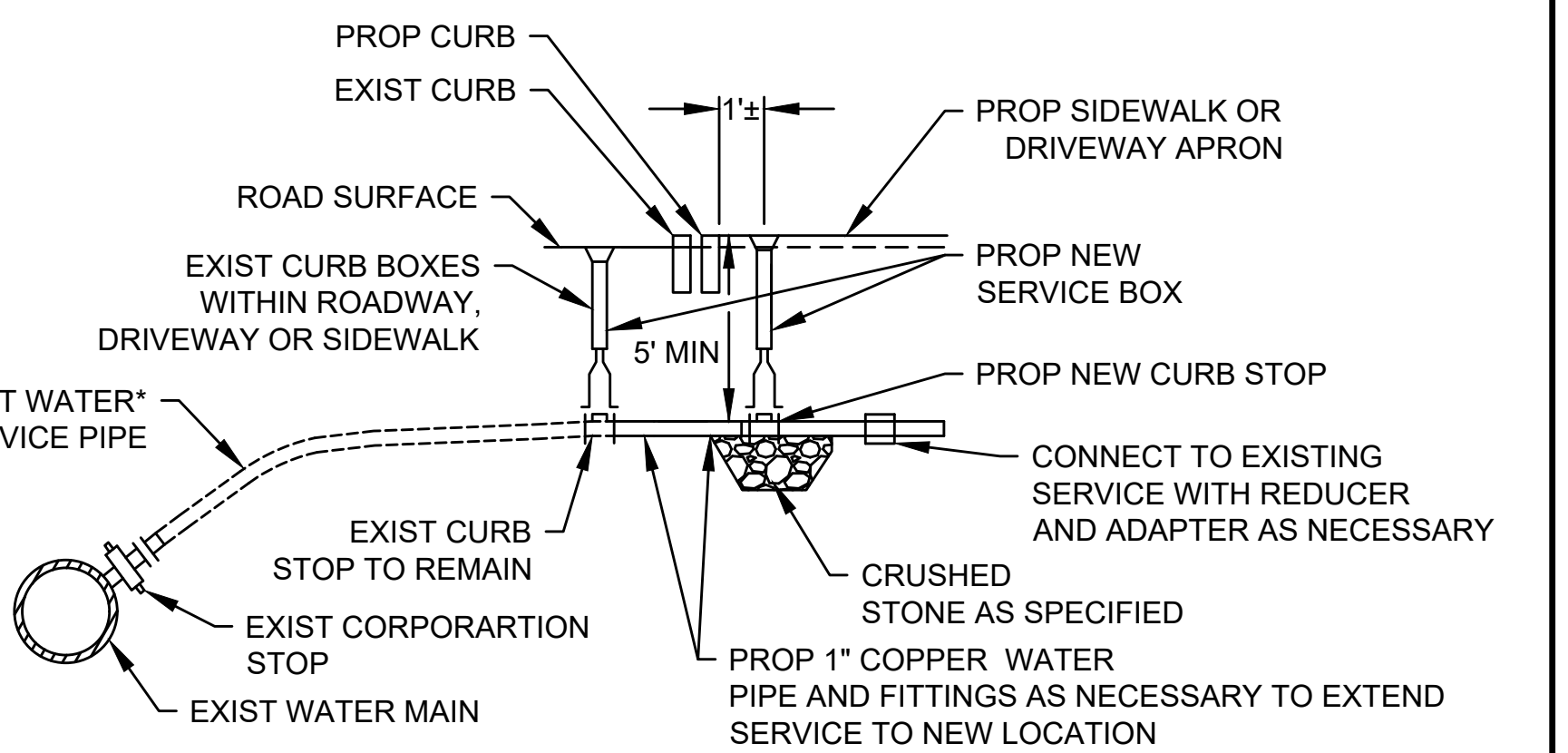


DETAIL FOR HYDRANT REMOVED AND RESET
NOT TO SCALE

NOTES:
1. DESIGNED FOR AASHTO HS25-44 LOADING
2. CONCRETE STRENGTH $f_c=4000$ PSI
3. REINFORCING STEEL: ASTM A185 (wwf) $f_y=60,000$ PSI
4. CURB INLETS ARE REQUIRED WHEN GUTTER INLETS ARE INSTALLED AGAINST CURBING. PROVIDE 3"x6" OPENING WHERE CURB INLETS ARE PROPOSED.

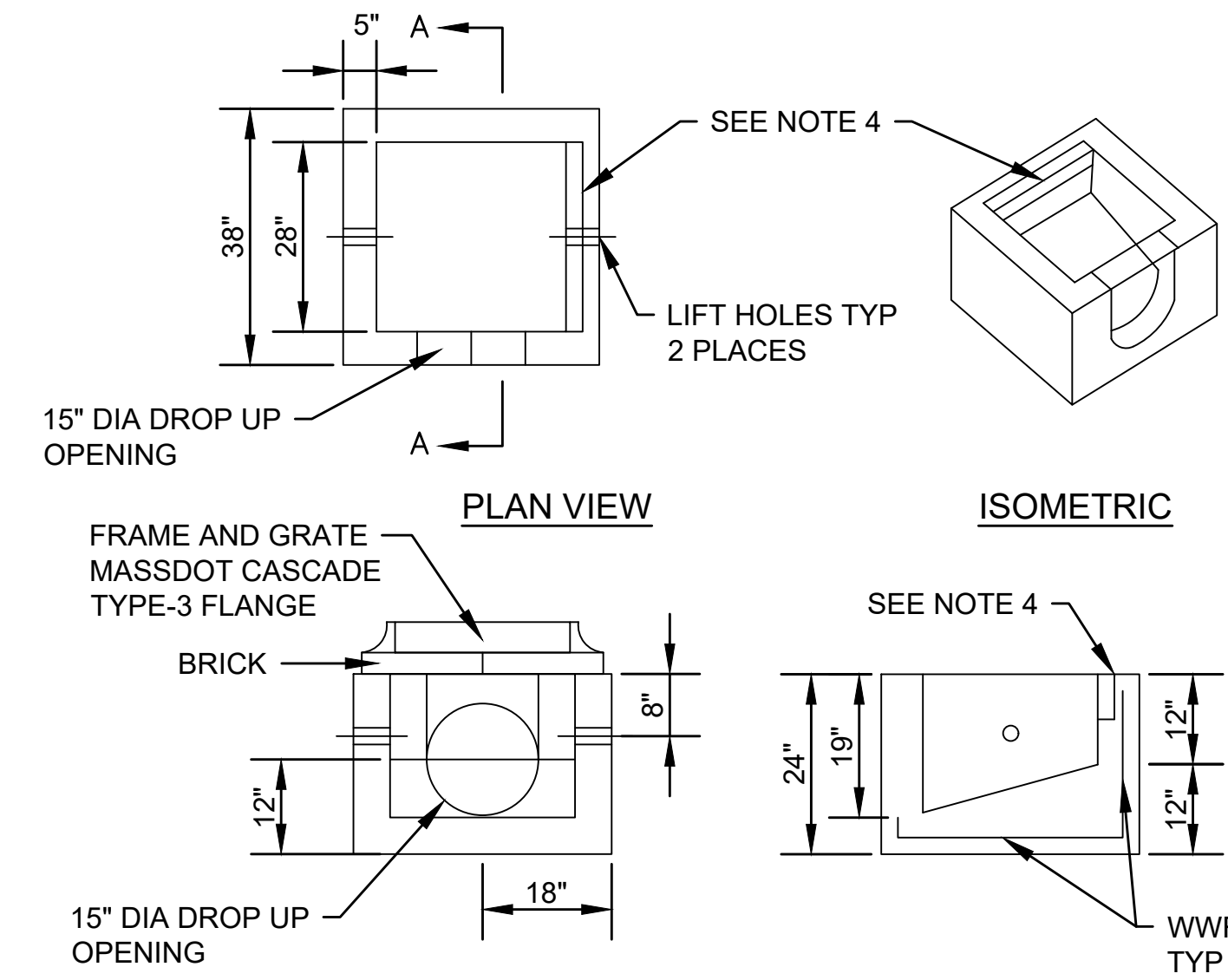


CONTINGENCY DETAIL FOR STORM DRAIN LATERAL LINES
(USE ONLY IF OBSTRUCTION IS ENCOUNTERED)
NOT TO SCALE

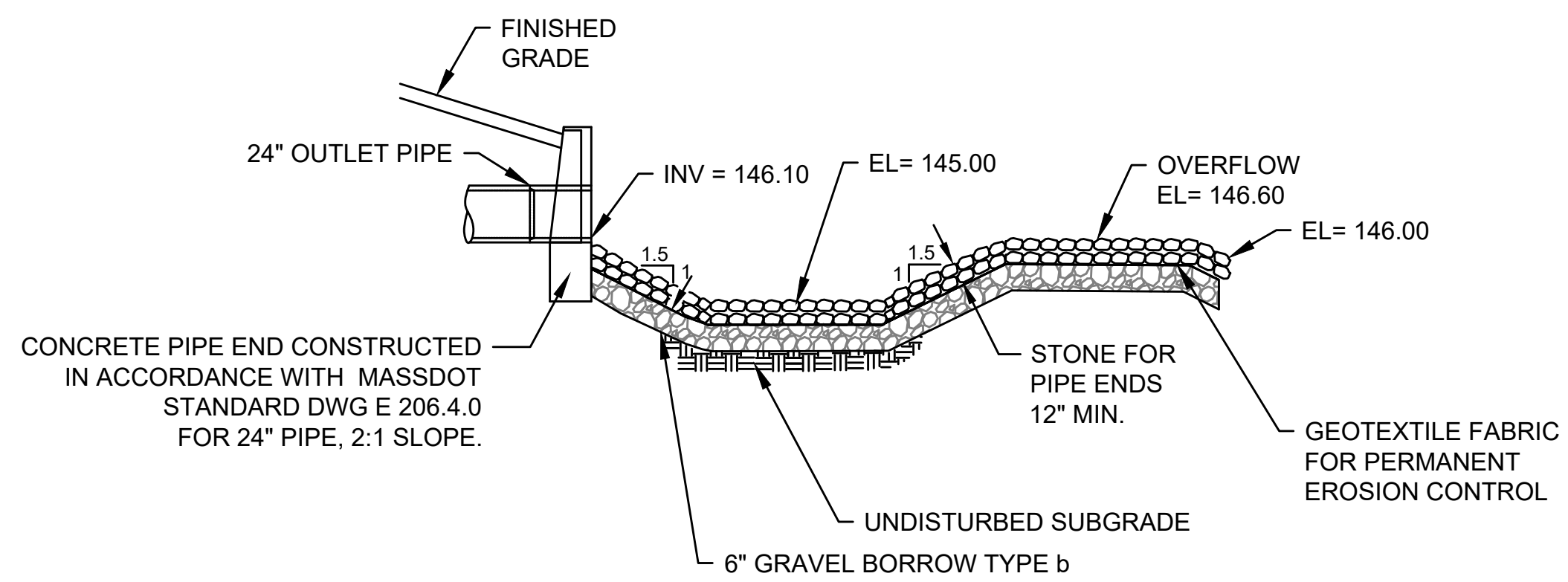


CURB STOP RELOCATION DETAIL
NOT TO SCALE

* IF EXISTING WATER SERVICE LINES IS NOT PLASTIC, CONTRACTOR SHALL INFORM BILLERICA WATER DEPARTMENT. NO CONNECTION SHALL BE MADE UNTIL THE BILLERICA WATER DEPARTMENT DETERMINES IF THE EXISTING LINE IS SUITABLE TO BE EXTENDED OR MUST BE REPLACE TO THE MAIN.



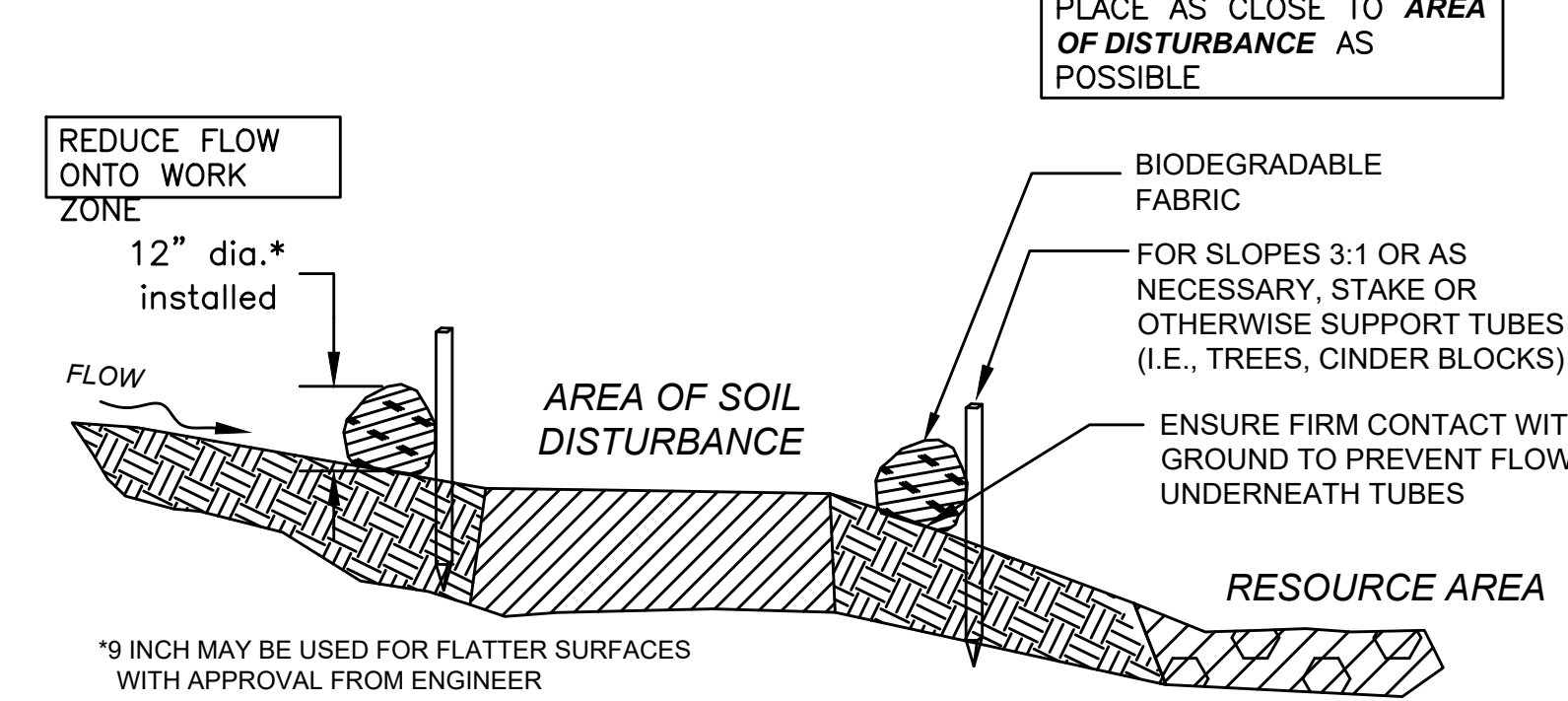
SPECIAL GUTTER INLET
NOT TO SCALE
(ITEM 204.11)



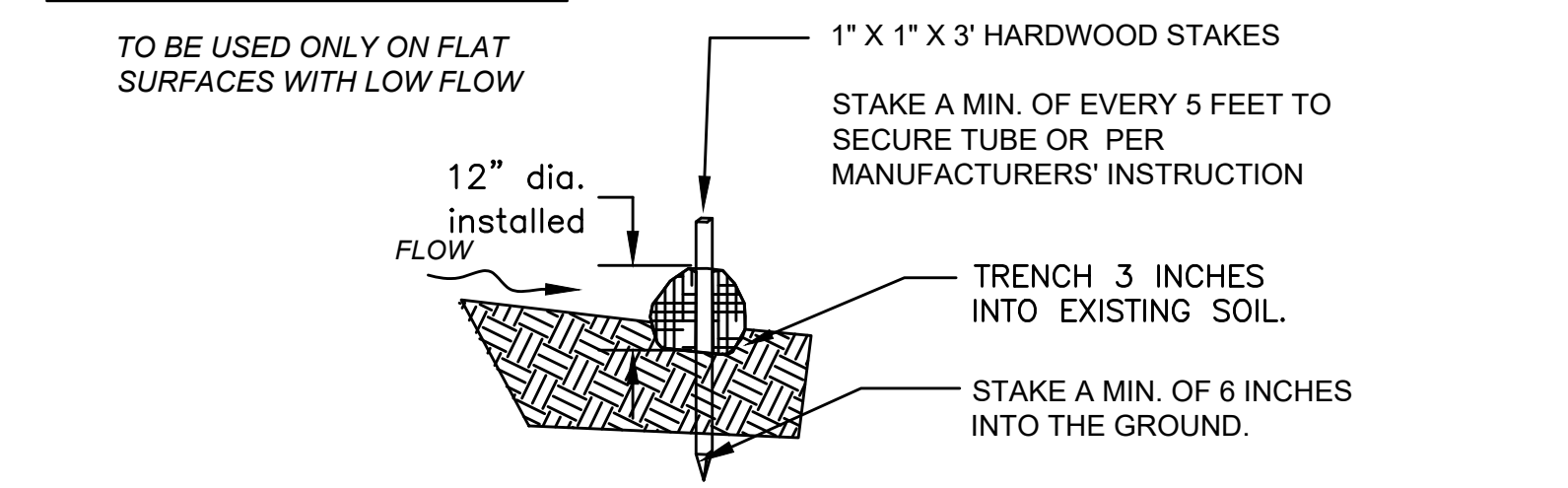
OUTLET SEDIMENT TRAP
STA. 52+26 HERITAGE ROAD
NOT TO SCALE

NOTES:
1. SEE DRAINAGE PLAN FOR SEDIMENT TRAP DIMENSIONS

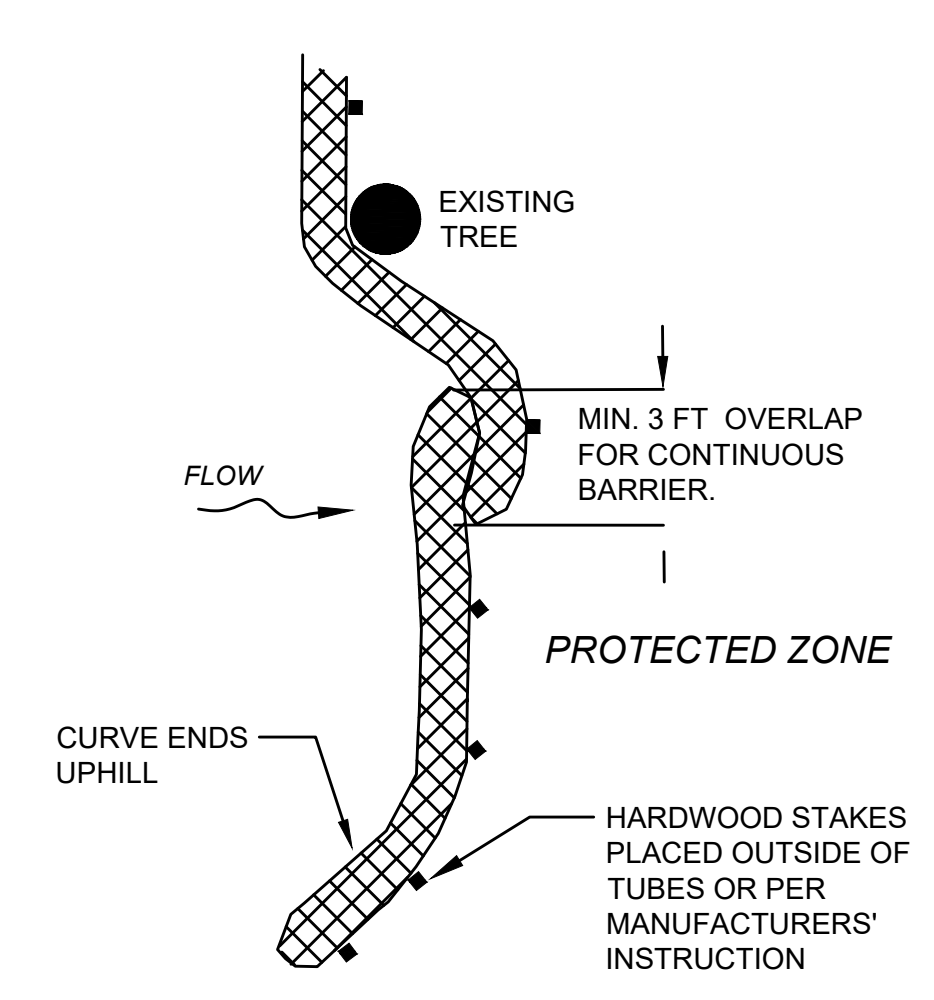
COMPOST FILTER TUBE



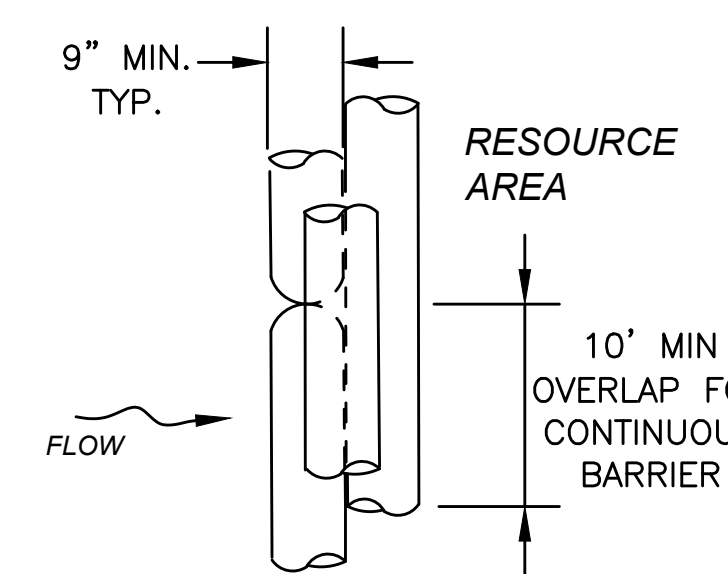
12 INCH STRAW WATTLE



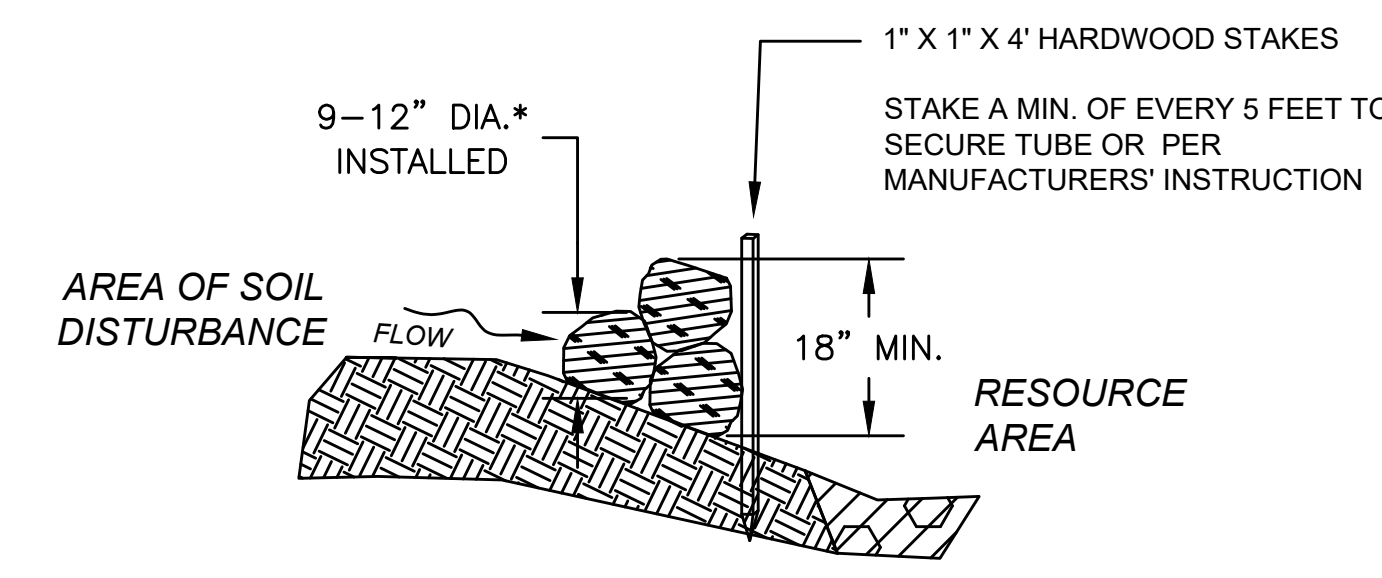
SECTION



PLAN VIEW



PLAN VIEW

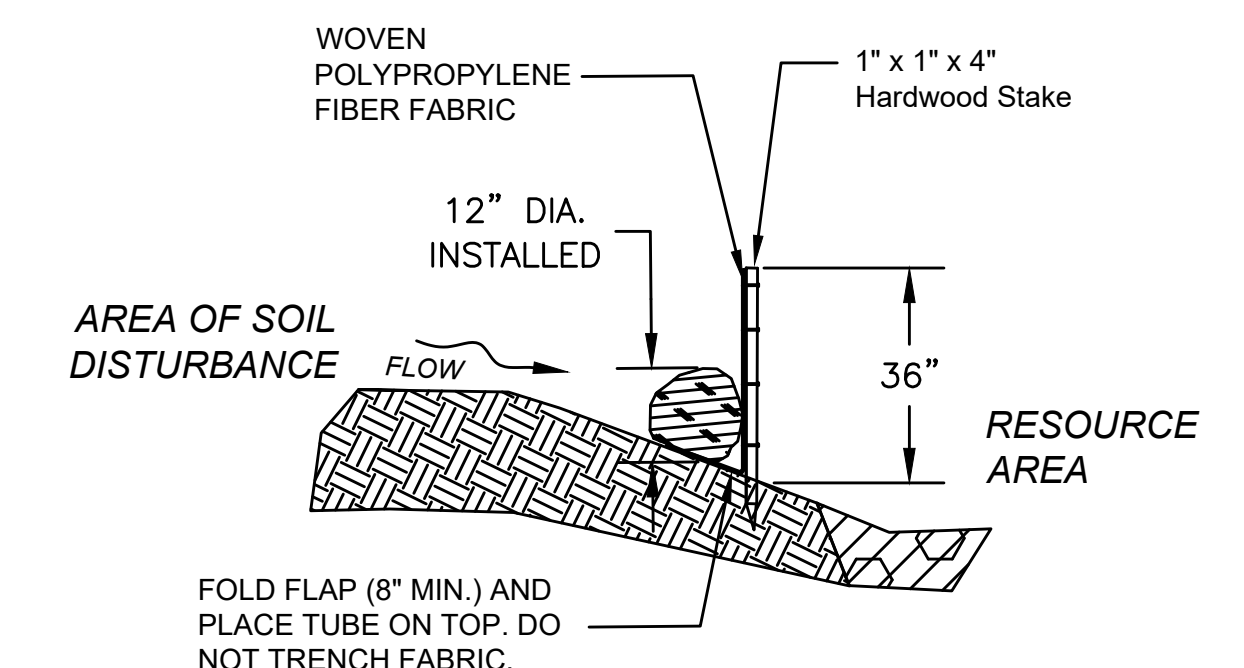


SECTION

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	139
PROJECT FILE NO.		605178	

CONSTRUCTION DETAILS



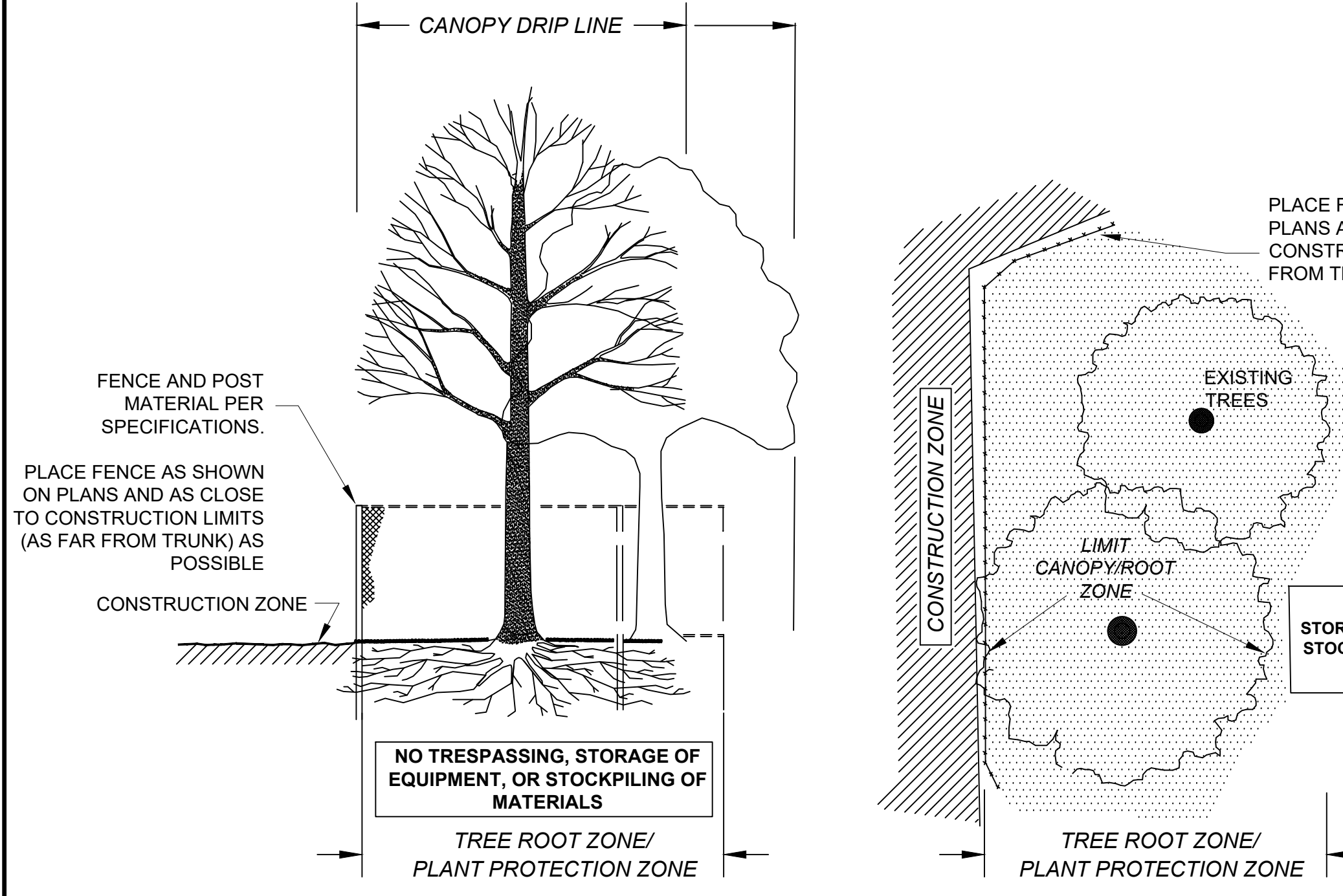
SECTION

COMPOST FILTER TUBE & SILT FENCE

NOT TO SCALE

SEDIMENT BARRIERS - COMPOST FILTER TUBES & STRAW WATTLES

NOT TO SCALE

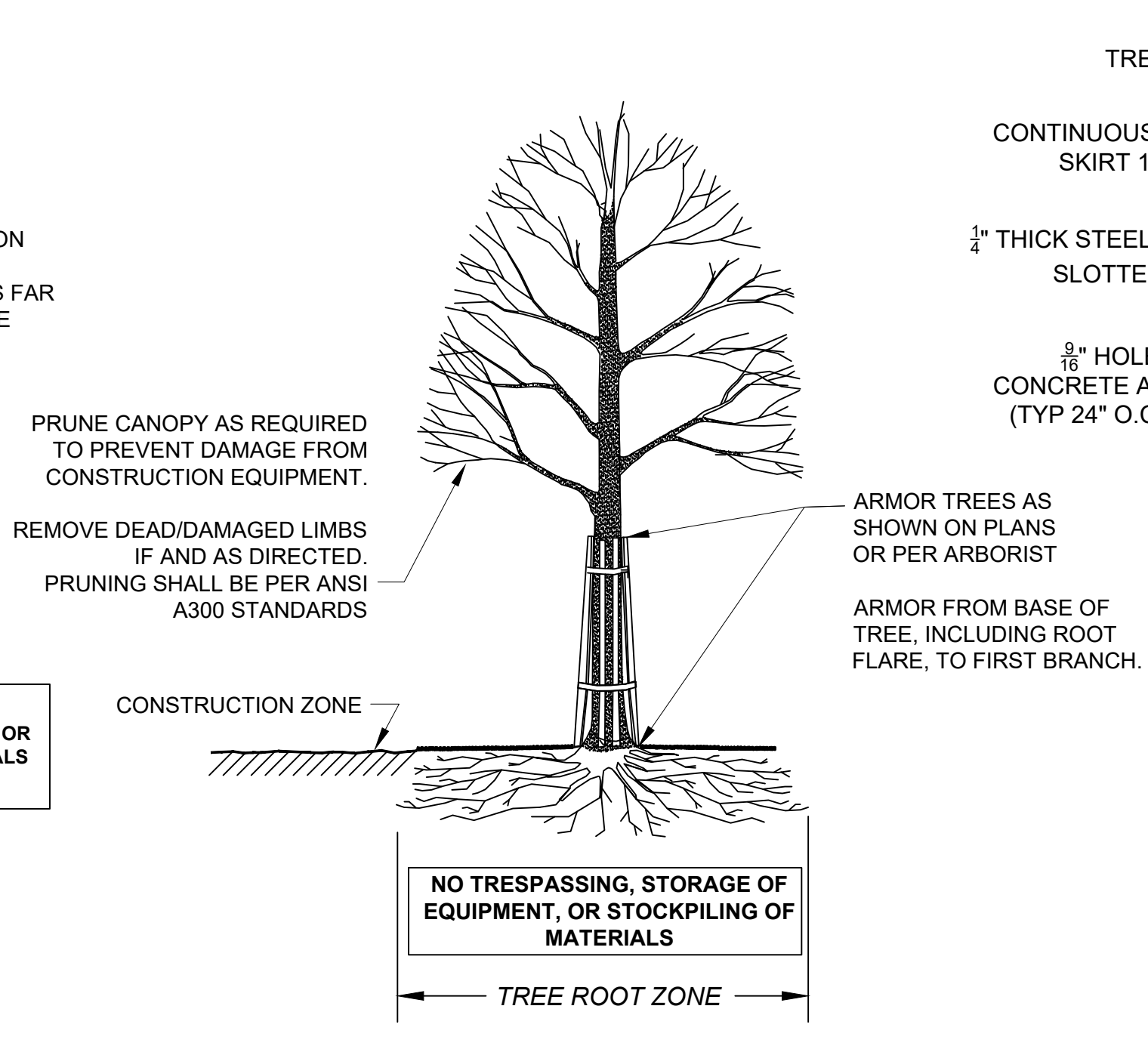


SECTION - FENCE PROTECTION OF ROOT ZONE

PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

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

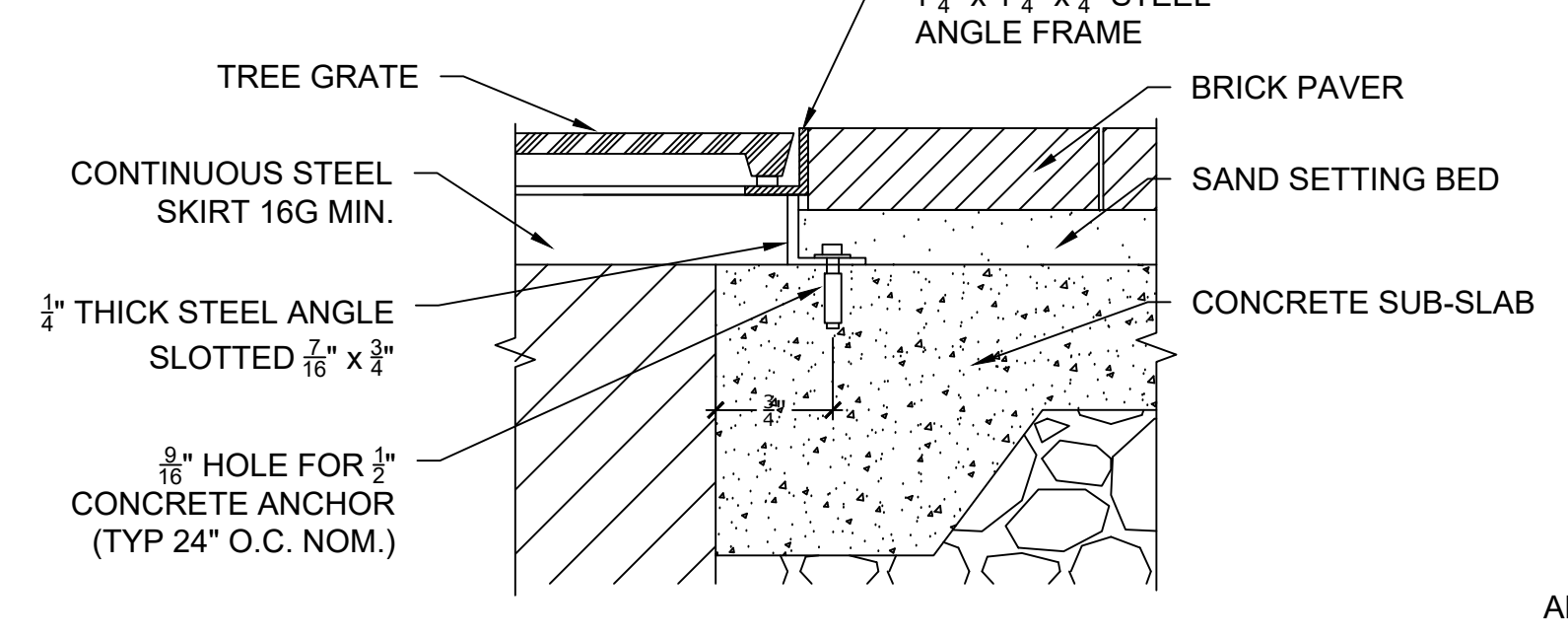
NOT TO SCALE



SECTION - TRUNK ARMORING & PRUNING

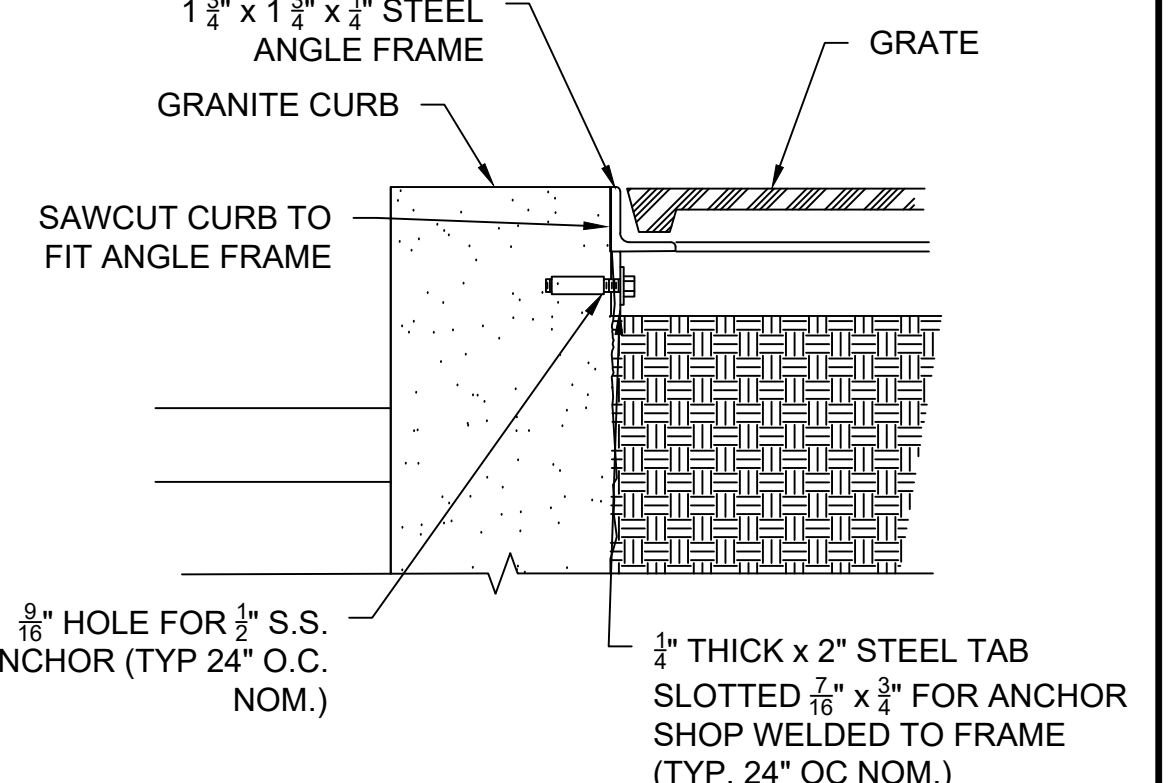
GRATE FRAME CONNECTION IN CONCRETE BASE

NOT TO SCALE



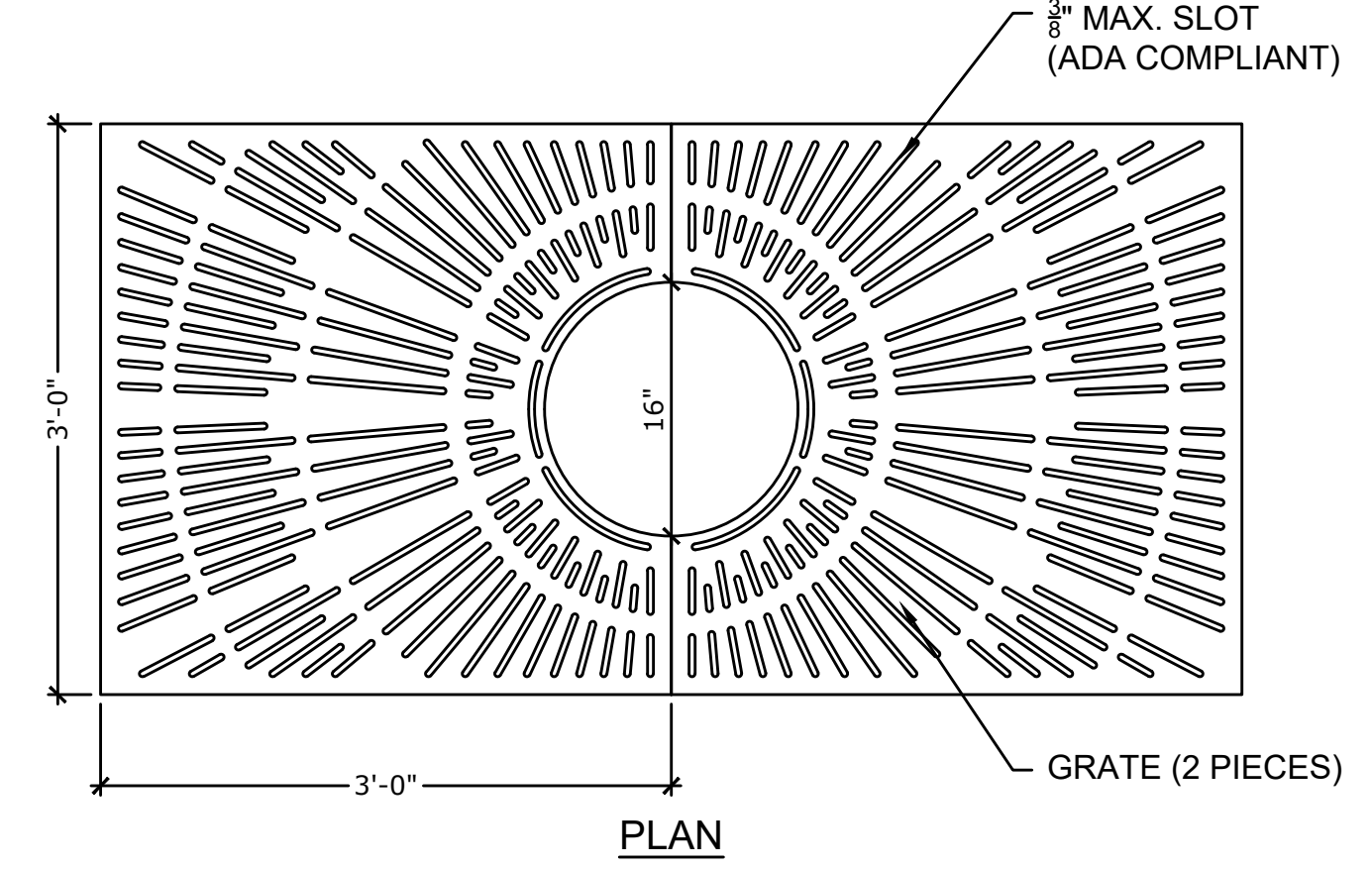
GRATE FRAME CONNECTION IN CONCRETE BASE

NOT TO SCALE

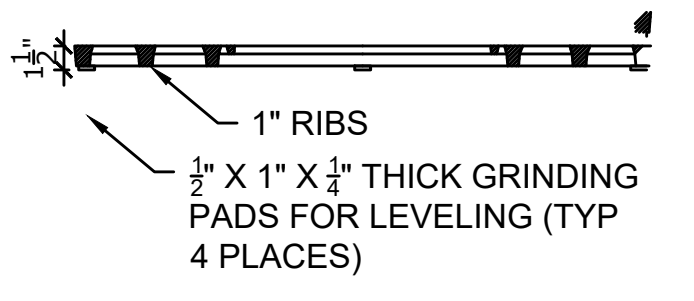


GRATE FRAME CONNECTION DETAIL A

NOT TO SCALE



PLAN



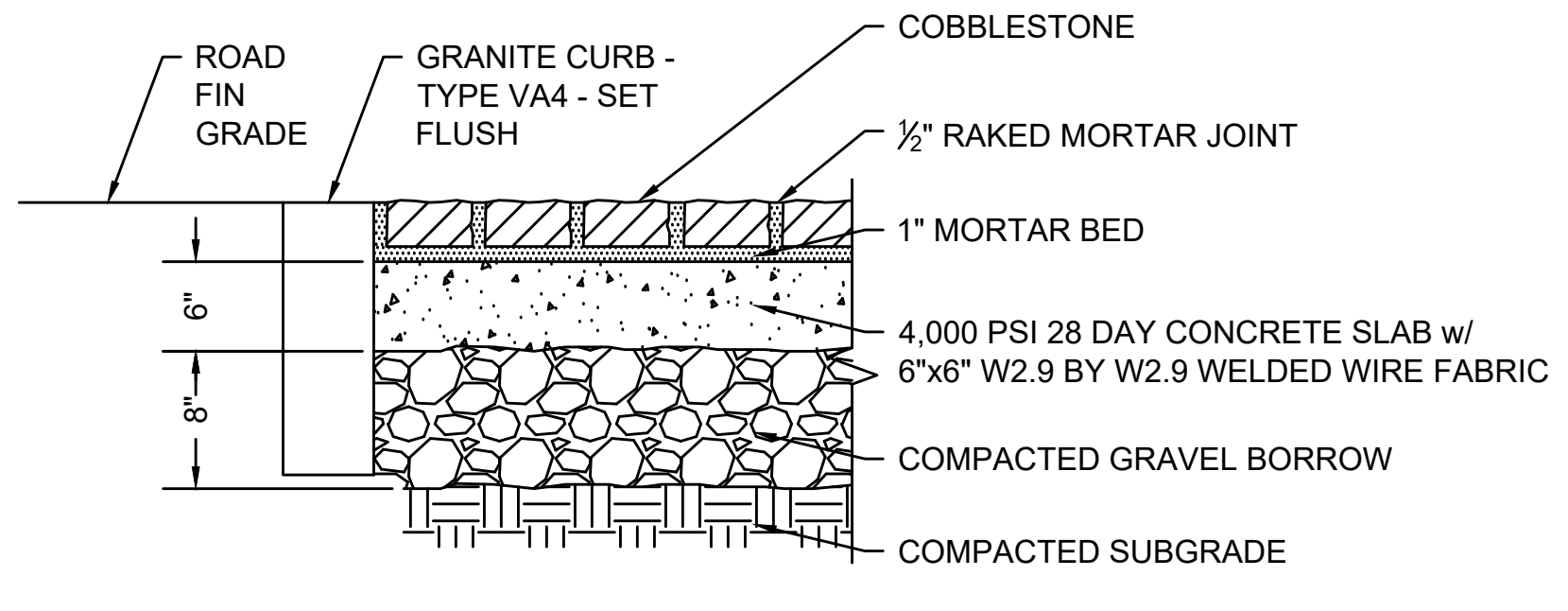
SECTION

TREE GRATE

NOT TO SCALE

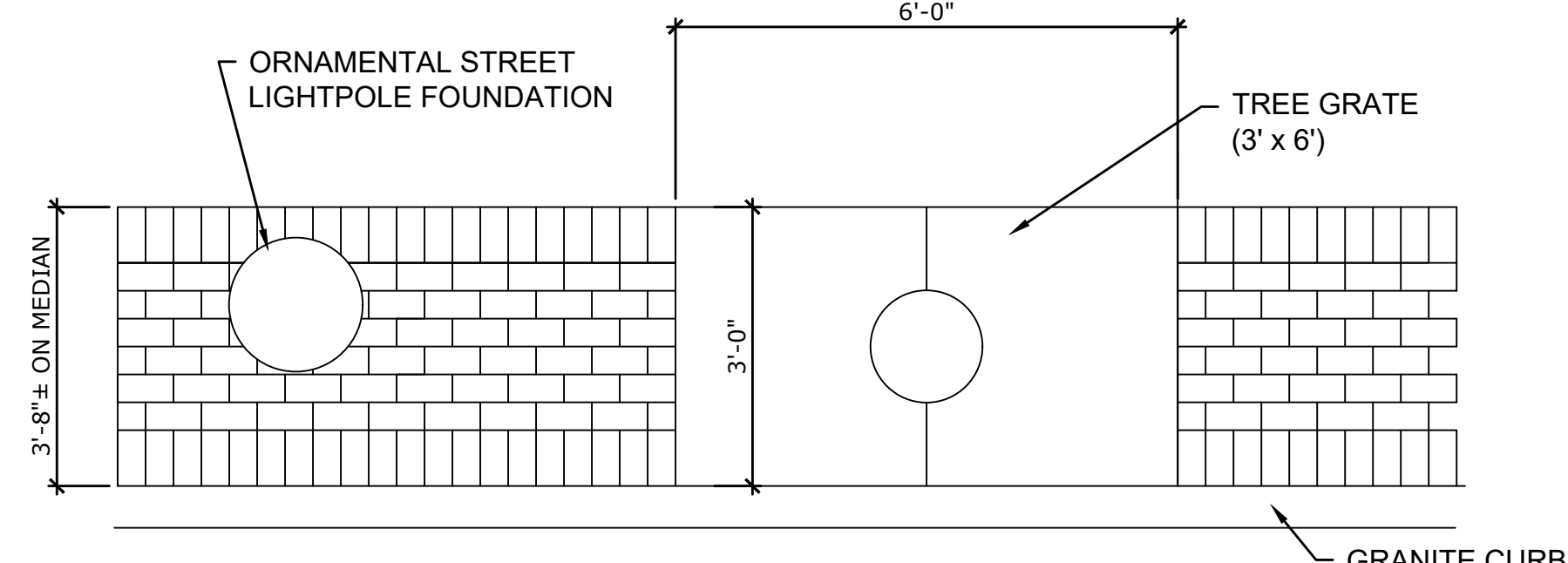
TREE PROTECTION DETAILS

NOT TO SCALE



COBBLESTONE PAVEMENT

NOT TO SCALE



BRICK PAVERS AT TREE GRATE & LIGHT POLE

NOT TO SCALE

PLANT LIST - MASTER

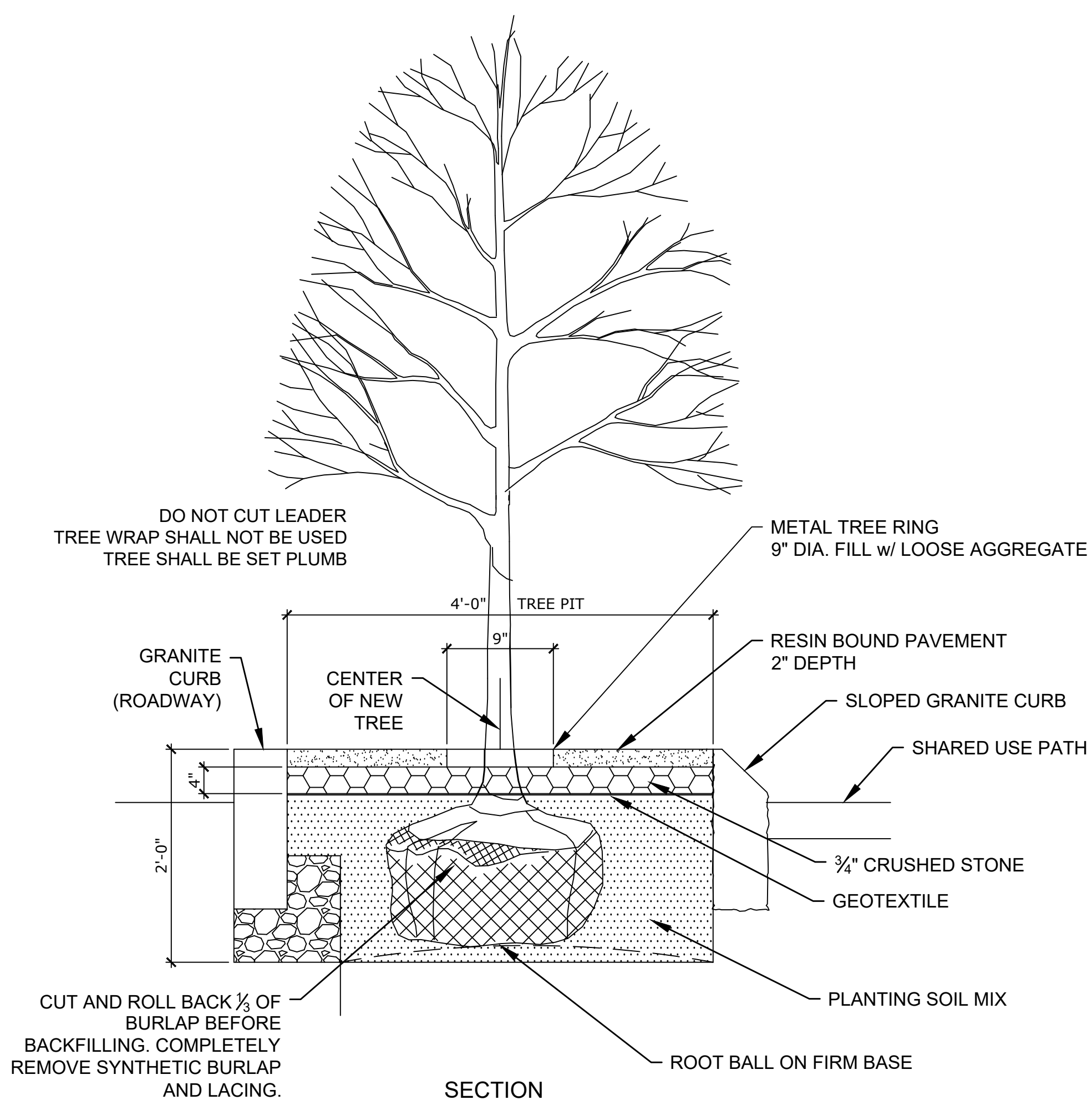
(SEE CONSTRUCTION PLANS FOR INDIVIDUAL SHEET PLANT LISTS)

KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
AC	4	ACER CAMPSTRE 'STREETSIDE'	MAPLE - HEDGE - 'STREETSIDE'	2-2.5\" CAL	B&B	
AR	1	ACER RUBRUM 'OCTOBER GLORY'	MAPLE - RED - 'OCTOBER GLORY'	2-2.5\" CAL	B&B	
LS	2	LIQUIDAMBAR STYRICIFLUA	SWEETGUM	2-2.5\" CAL	B&B	
MS	10	MALUS 'SPRING SNOW'	CRABAPPLE - 'SPRING SNOW'	2-2.5\" CAL	B&B	
NS	5	NYSSA SYLVATICA	TUPELO	2-2.5\" CAL	B&B	
PS	10	PRUNUS SARGENTII 'PINK FLAIR'	CHERRY - 'PINK FLAIR'	2-2.5\" CAL	B&B	
TC	2	TILIA CORDATA 'GREENSPIRE'	LINDEN - LITTLELEAF - 'GREENSPIRE'	2-2.5\" CAL	B&B	
ZS	10	ZELKOVA SERRATA 'CITY SPRITE'	ZELKOVA - 'CITY SPRITE'	2-2.5\" CAL	B&B	

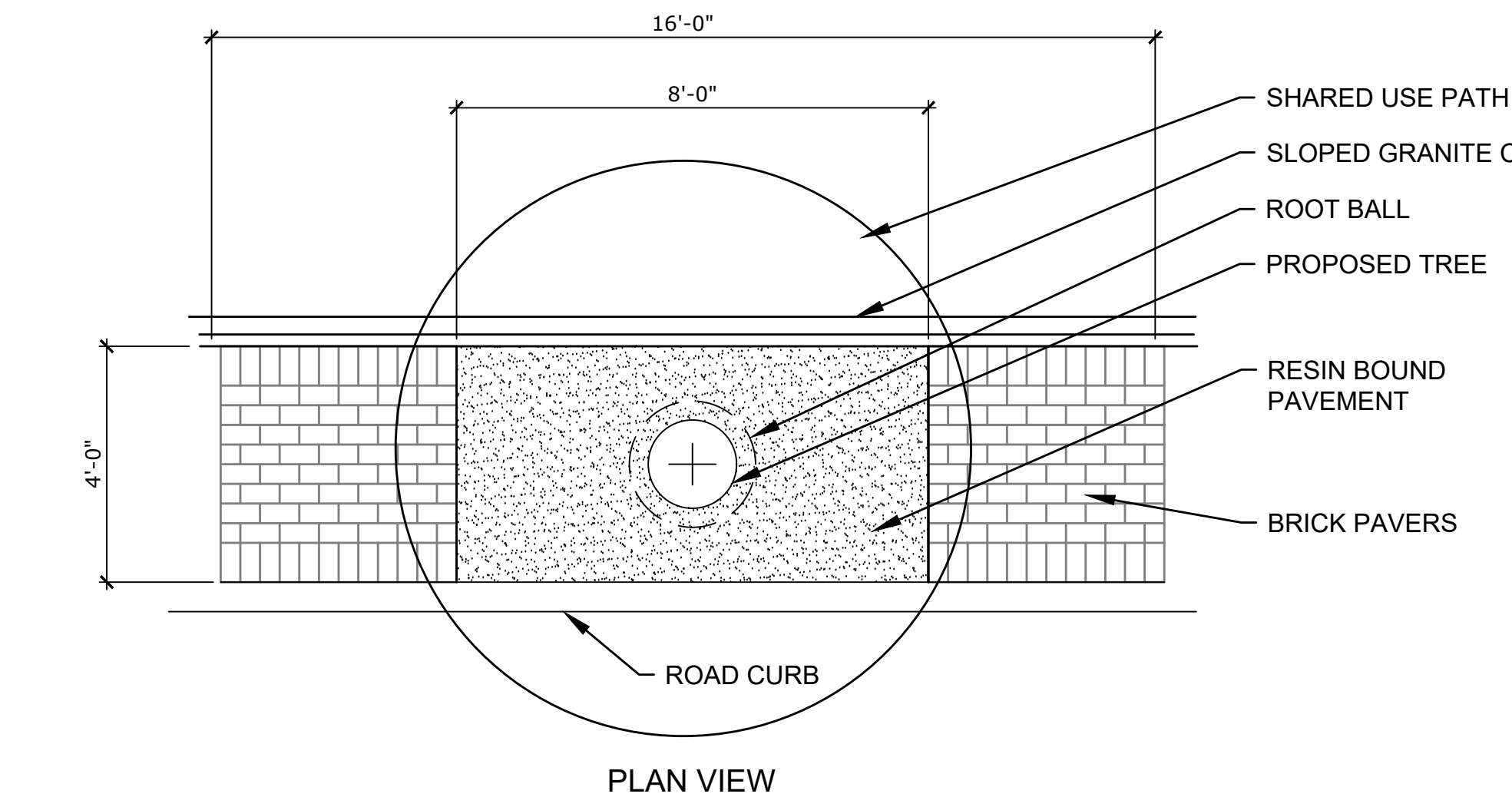
**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	139
PROJECT FILE NO.		605178	

CONSTRUCTION DETAILS



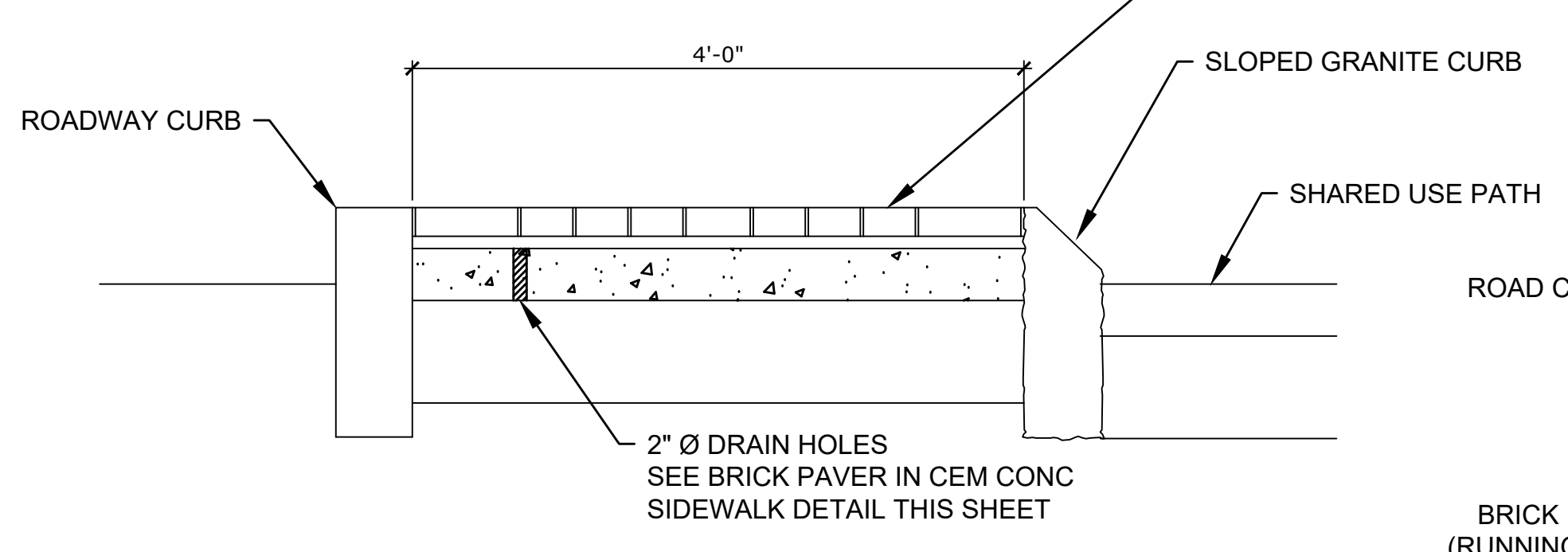
SECTION



PLAN VIEW

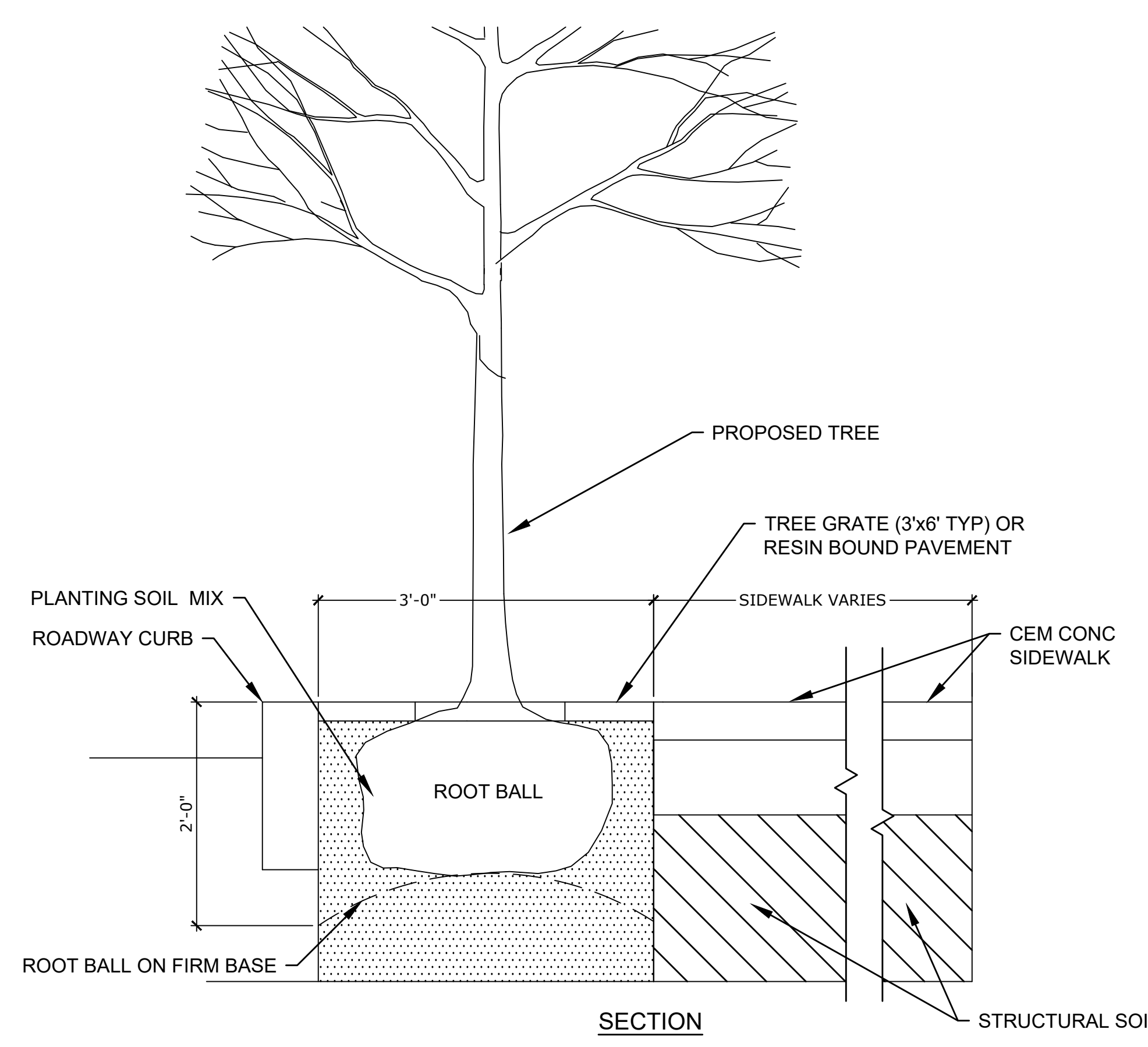
**5' WIDE MEDIAN TREE PLANTING w/
RESIN BOUND PAVEMENT**

NOT TO SCALE

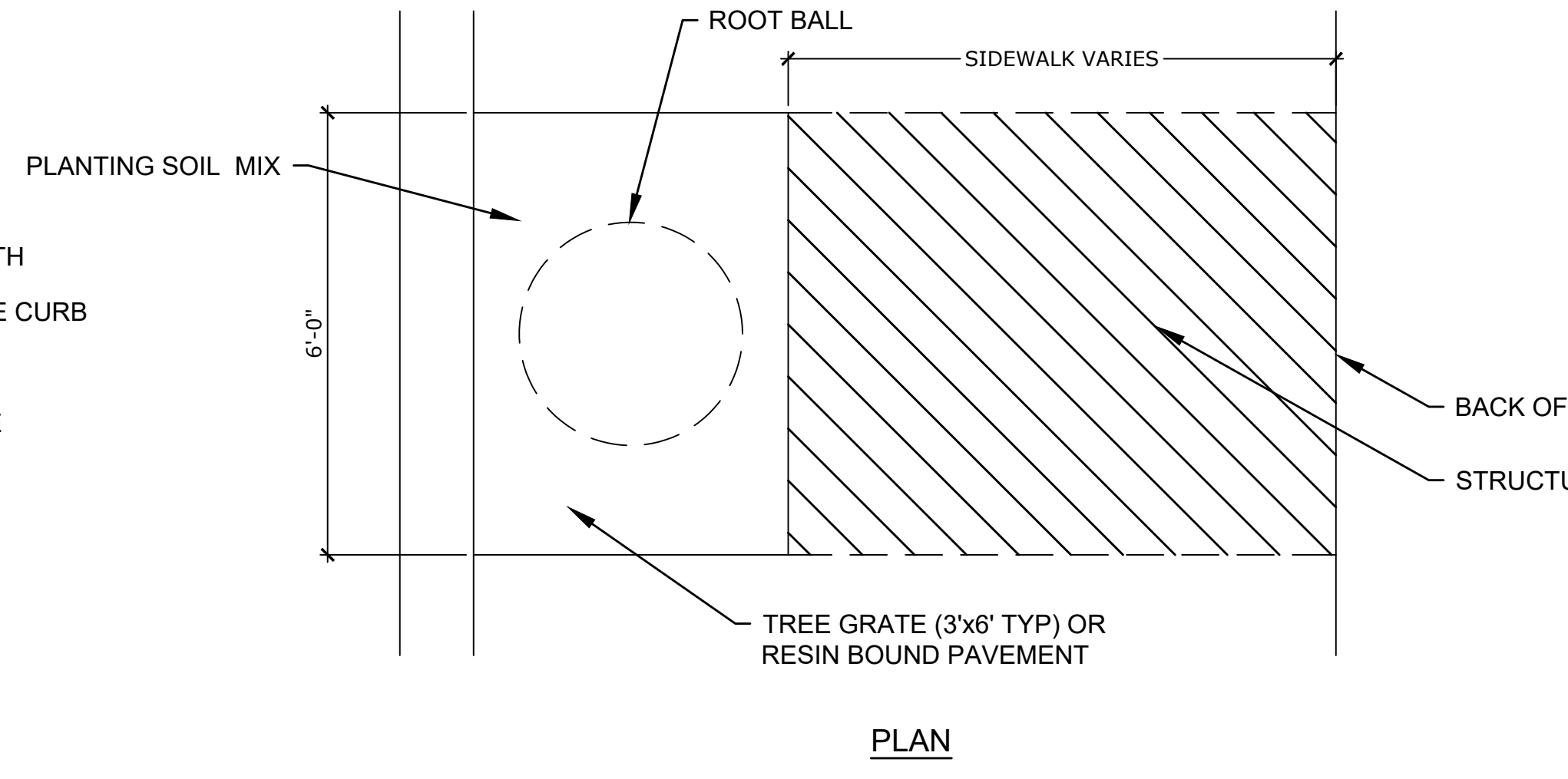


**5' WIDE MEDIAN - BRICK PAVERS
NORTH & SOUTH SIDES**

NOT TO SCALE



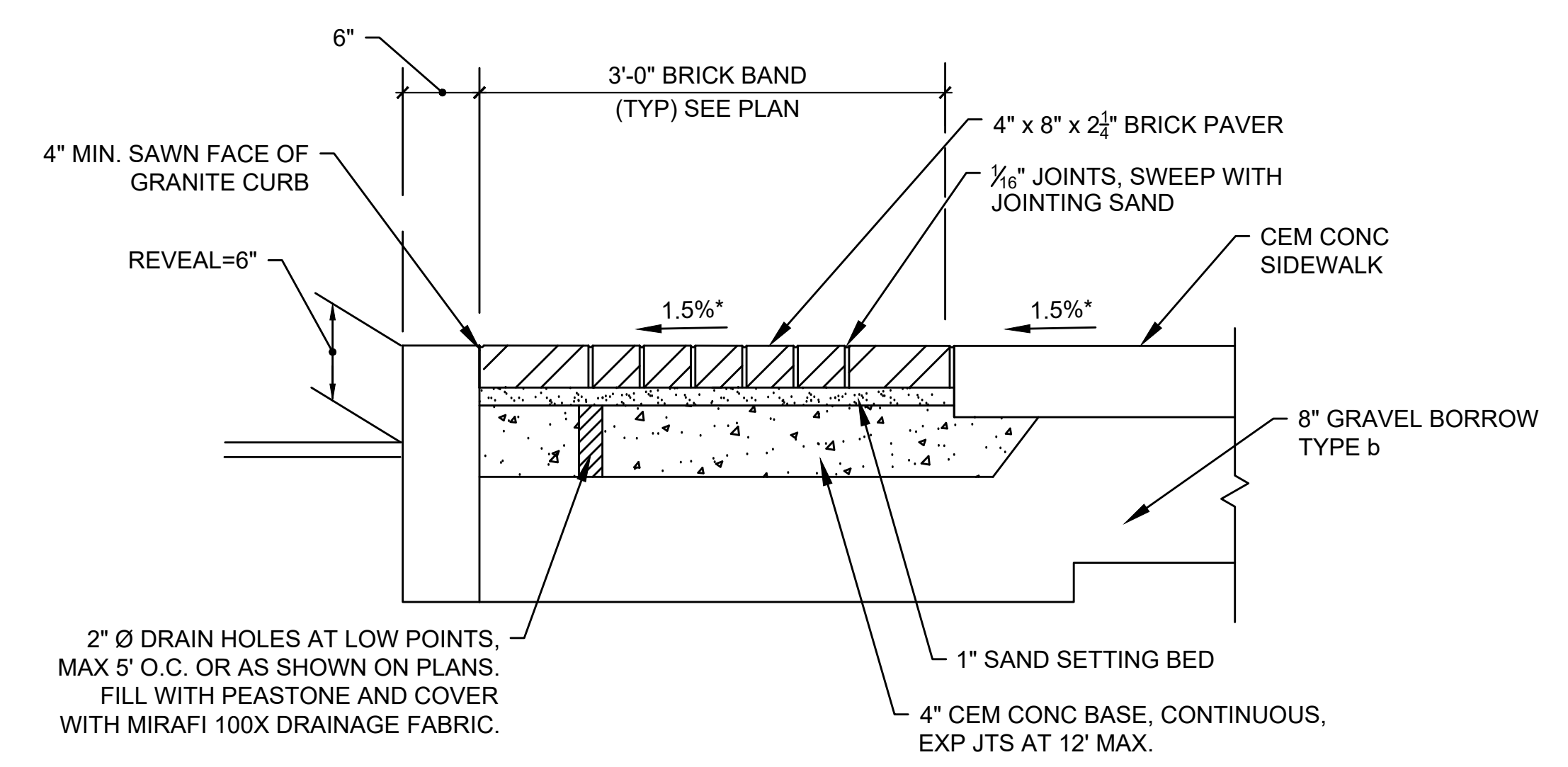
SECTION



PLAN

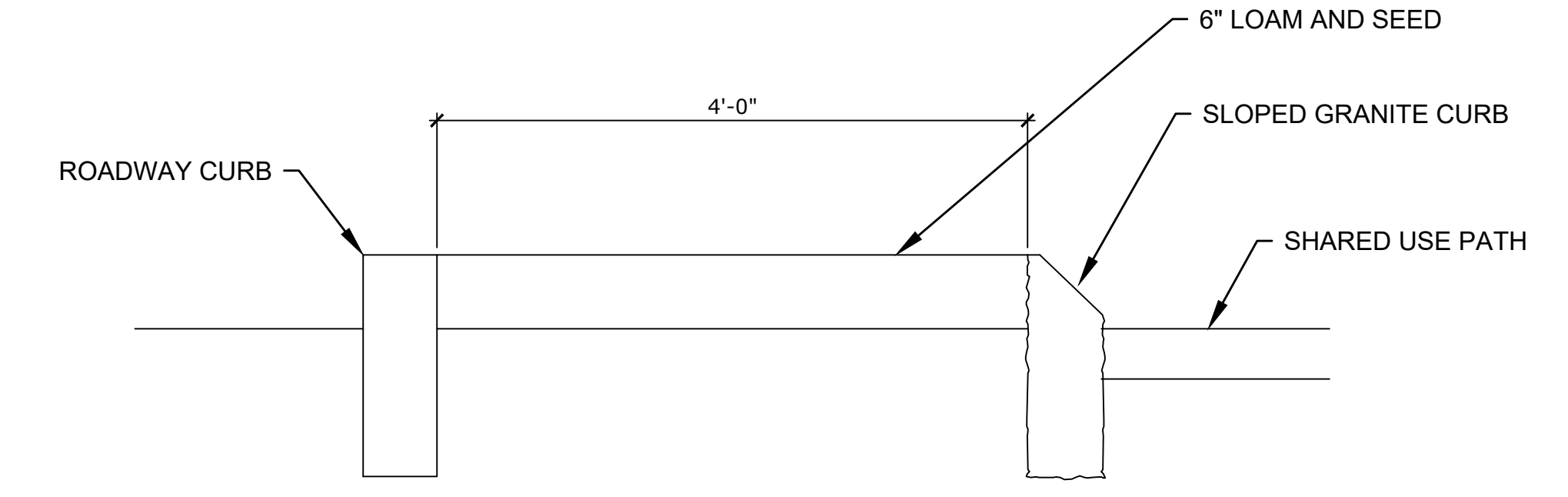
TREE PLANTING IN BRICK STRIP

NOT TO SCALE



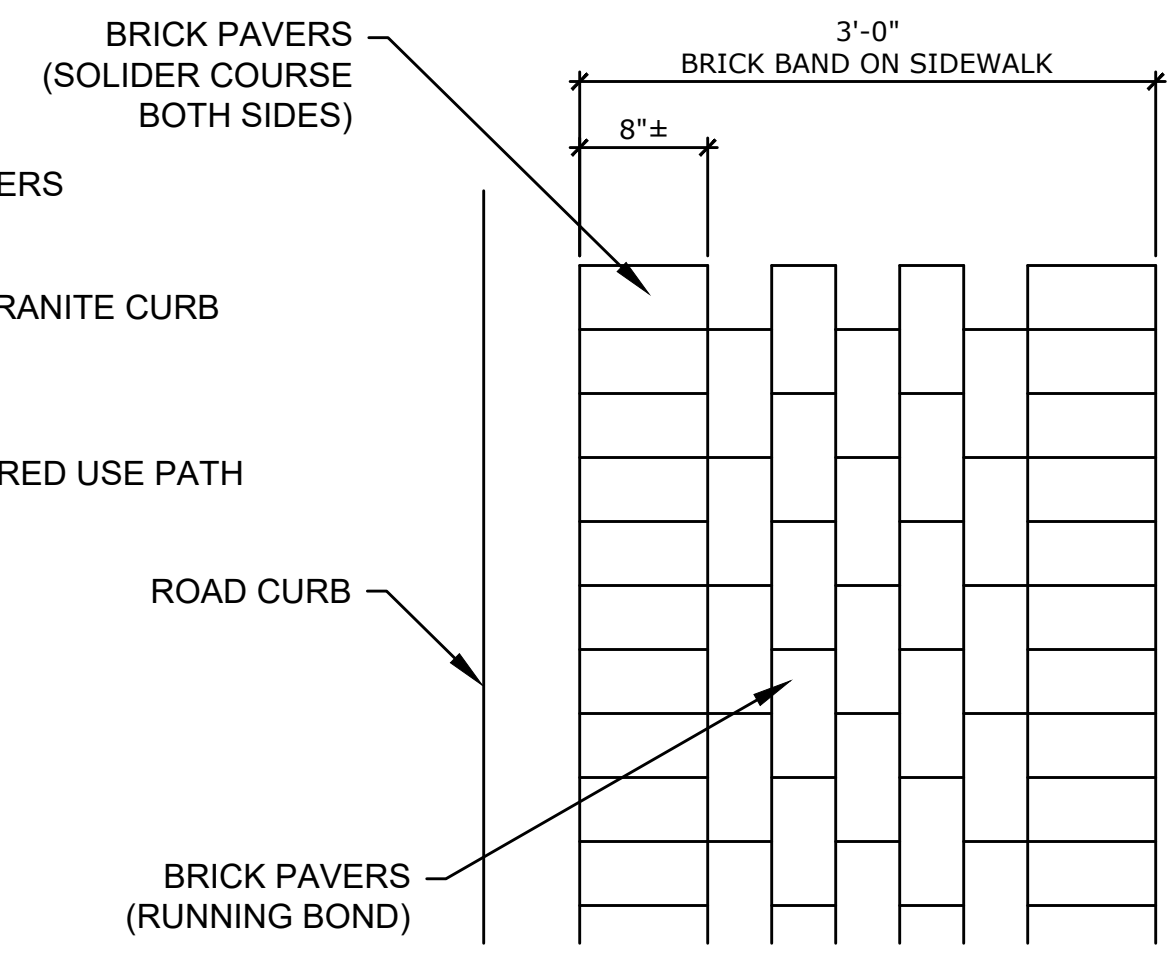
BRICK PAVERS IN CEM CONC SIDEWALK

NOT TO SCALE



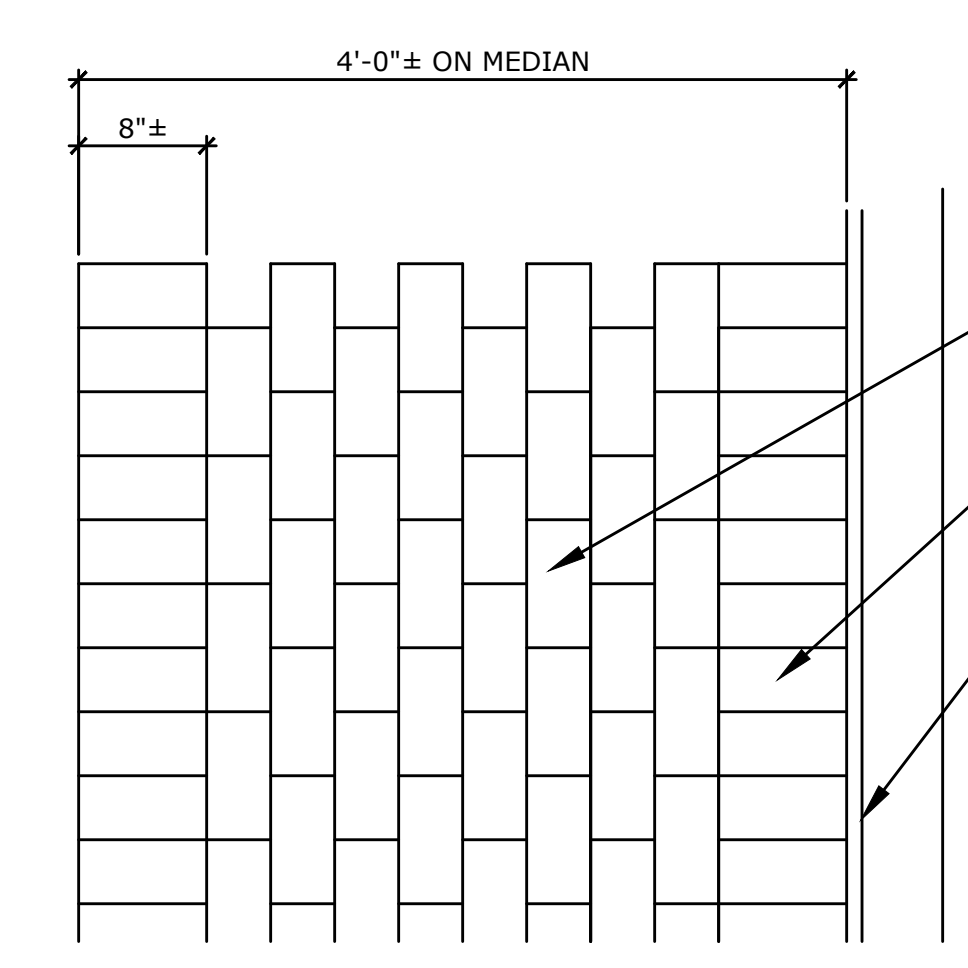
**GRASS MEDIAN AT SHARED
USE PATH - SOUTH SIDE**

NOT TO SCALE



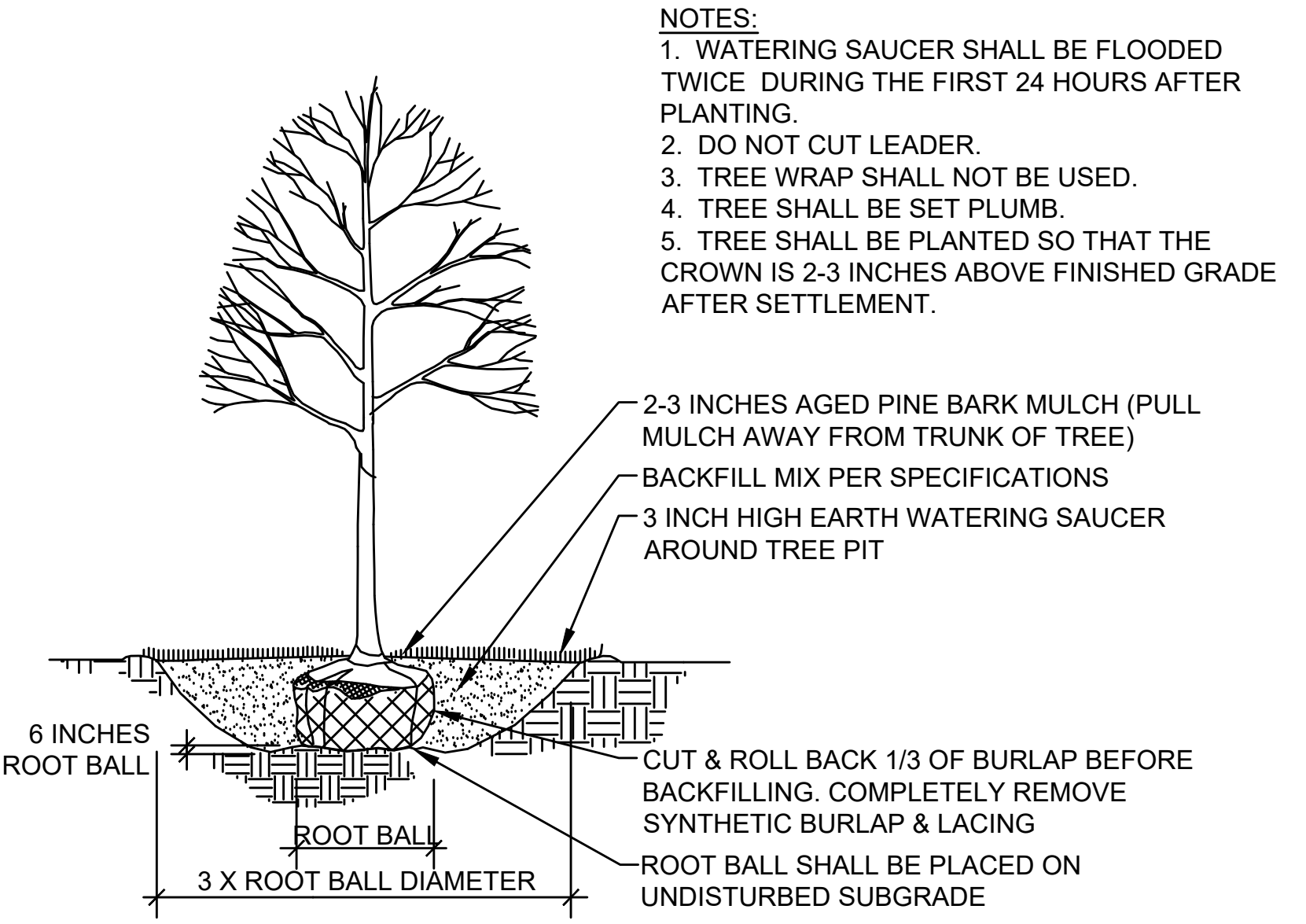
BRICK PAVERS IN CEM CONC SIDEWALK

NOT TO SCALE



BRICK PAVERS IN MEDIAN

NOT TO SCALE



DECIDUOUS TREE PLANTING

NOT TO SCALE

- NOTES:**
1. WATERING SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.
 2. DO NOT CUT LEADER.
 3. TREE WRAP SHALL NOT BE USED.
 4. TREE SHALL BE SET PLUMB.
 5. TREE SHALL BE PLANTED SO THAT THE CROWN IS 2-3 INCHES ABOVE FINISHED GRADE AFTER SETTLEMENT.

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

CURB TIE & GRADING
34

WATER SUPPLY ALTERATIONS
NONE

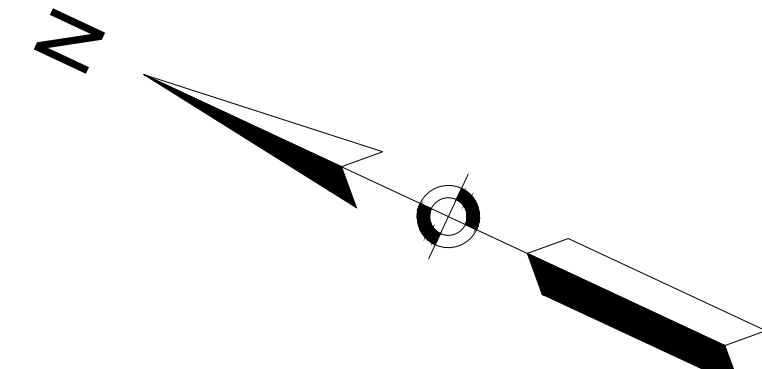
DRAINAGE & UTILITY PLANS
45 & 56

LIGHTING PLAN
NONE

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	139

PROJECT FILE NO. 605178
CONSTRUCTION PLAN



N/F
KRAJEWSKI MARIUSZ
316 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31 - PARCEL ID: 31-38-0
DEED BK 23810 / PAGE 124
PLAN BOOK 78 PLAN 24

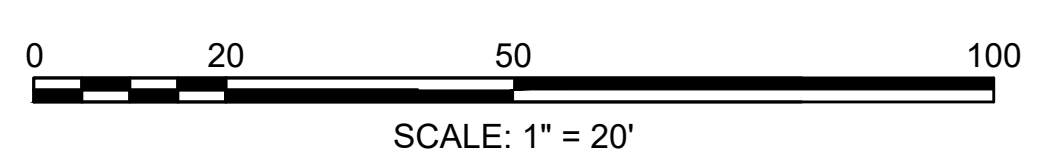
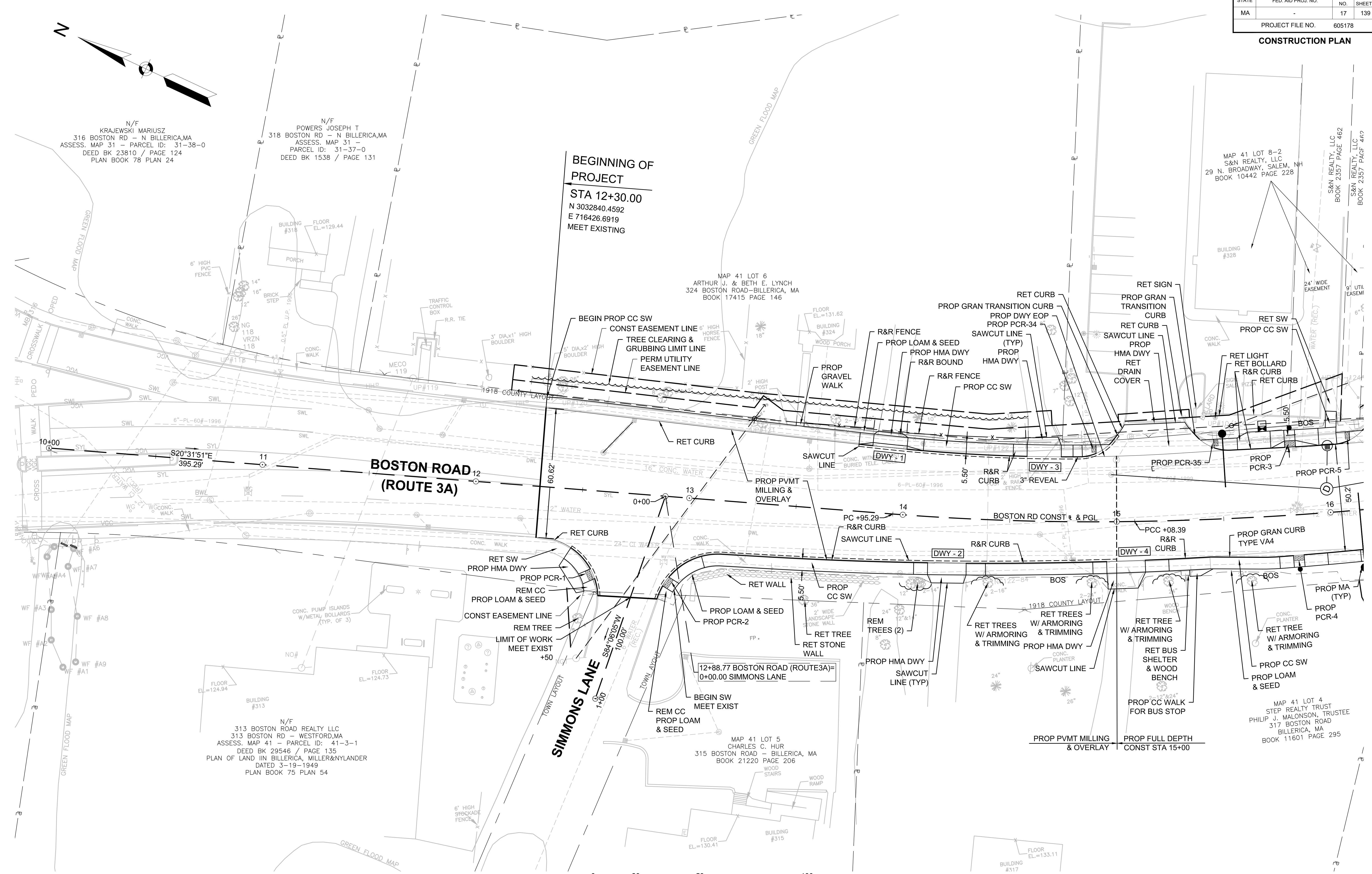
N/F
POWERS JOSEPH T
318 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31
PARCEL ID: 31-37-0
DEED BK 1538 / PAGE 131

BEGINNING OF PROJECT
STA 12+30.00
N 3032840.4592
E 716426.6919
MEET EXISTING

MAP 41 LOT 8-2
S&N REALTY, LLC
29 N. BROADWAY, SALEM, NH
BOOK 10442 PAGE 228

MAP 41 LOT 6
ARTHUR J. & BETH E. LYNCH
324 BOSTON ROAD - BILLERICA, MA
BOOK 17415 PAGE 146

MAP 41 LOT 4
STEP REALTY TRUST
PHILIP J. MALONSON, TRUSTEE
317 BOSTON ROAD
BILLERICA, MA
BOOK 11601 PAGE 295



FOR PROFILE SEE SHEET 28

CONTINUED ON SHEET NO. 18

605178_HD(722_CONST PLAN).DWG Plotted on: 2-Aug-21 5:45 PM

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

CURB TIE & GRADING

35

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE & UTILITY PLAN

46 & 57

LIGHTING PLAN

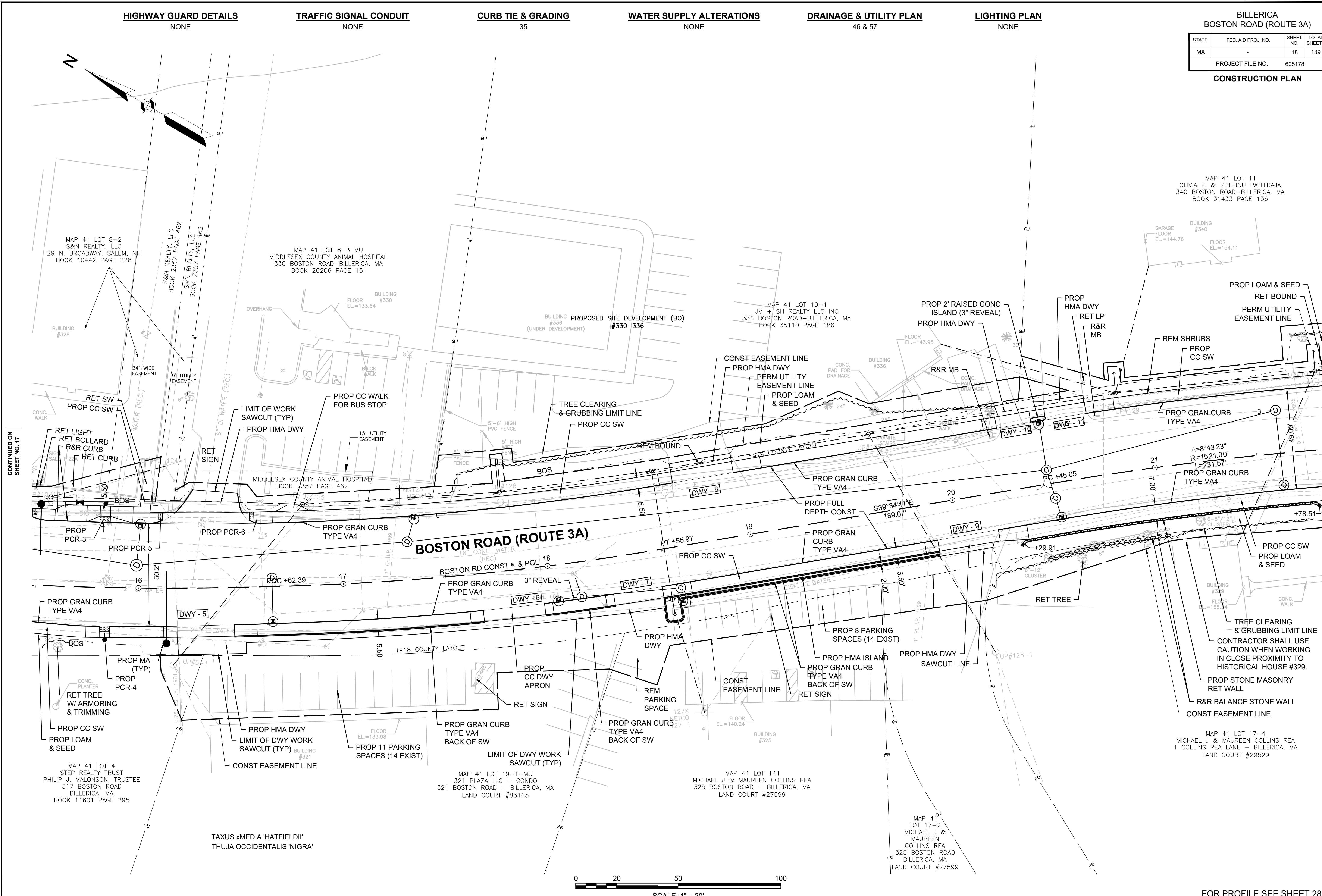
NONE

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	139
PROJECT FILE NO.		605178	

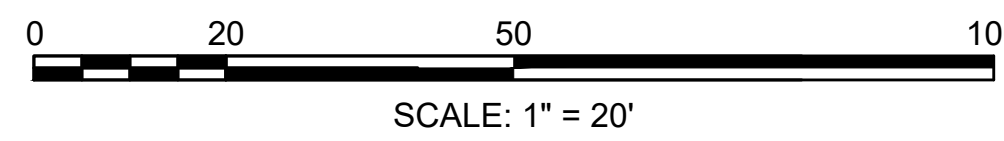
CONSTRUCTION PLAN

MAP 41 LOT 11
OLIVIA F. & KITHUNU PATHIRAJA
340 BOSTON ROAD-BILLERICA, MA
BOOK 31433 PAGE 136



CONTINUED ON SHEET NO. 17

CONTINUED ON SHEET NO. 19



FOR PROFILE SEE SHEET 28

605178_HD4722_CONST_PLAN.DWG Plotted on: 2-Aug-21 5:45 PM

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

CURB TIE & GRADING

36

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE & UTILITY PLANS

47 & 58

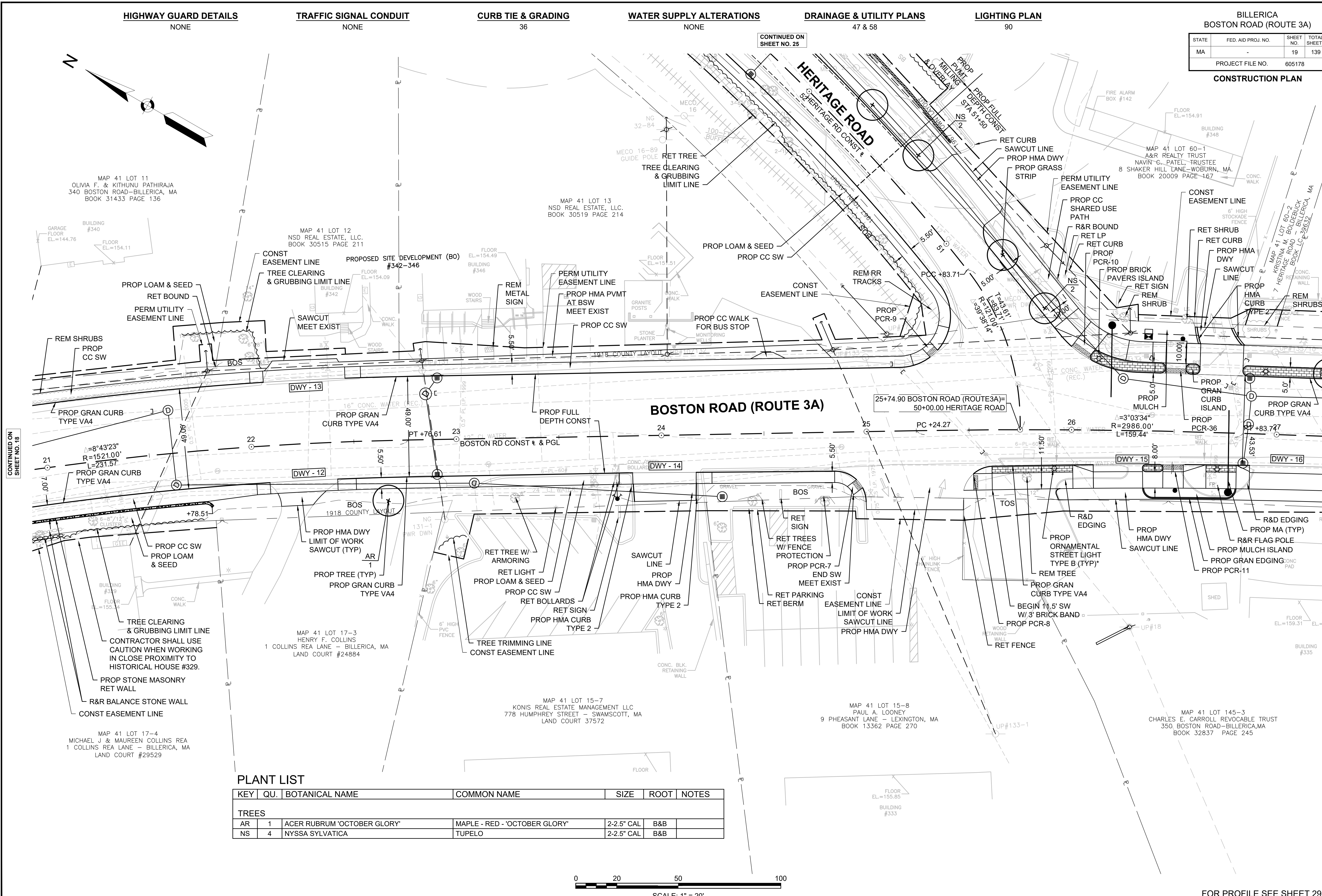
LIGHTING PLAN

90

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

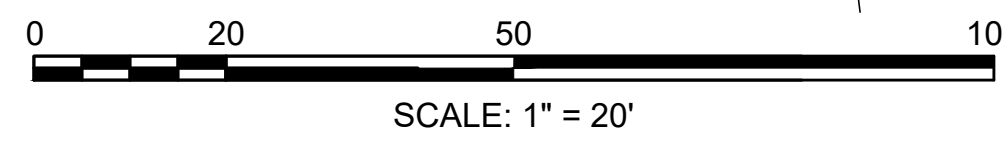
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		19	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN



PLANT LIST

KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
AR	1	ACER RUBRUM 'OCTOBER GLORY'	MAPLE - RED - 'OCTOBER GLORY'	2-2.5" CAL	B&B	
NS	4	NYSSA SYLVATICA	TUPELO	2-2.5" CAL	B&B	



FOR PROFILE SEE SHEET 29

CONTINUED ON SHEET NO. 18

CONTINUED ON SHEET NO. 20

605178_HDW722_CONST_PLAN.DWG Plotted on 2-Aug-21 5:45 PM

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

CURB TIE & GRADING

37

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE & UTILITY PLANS

48 & 59

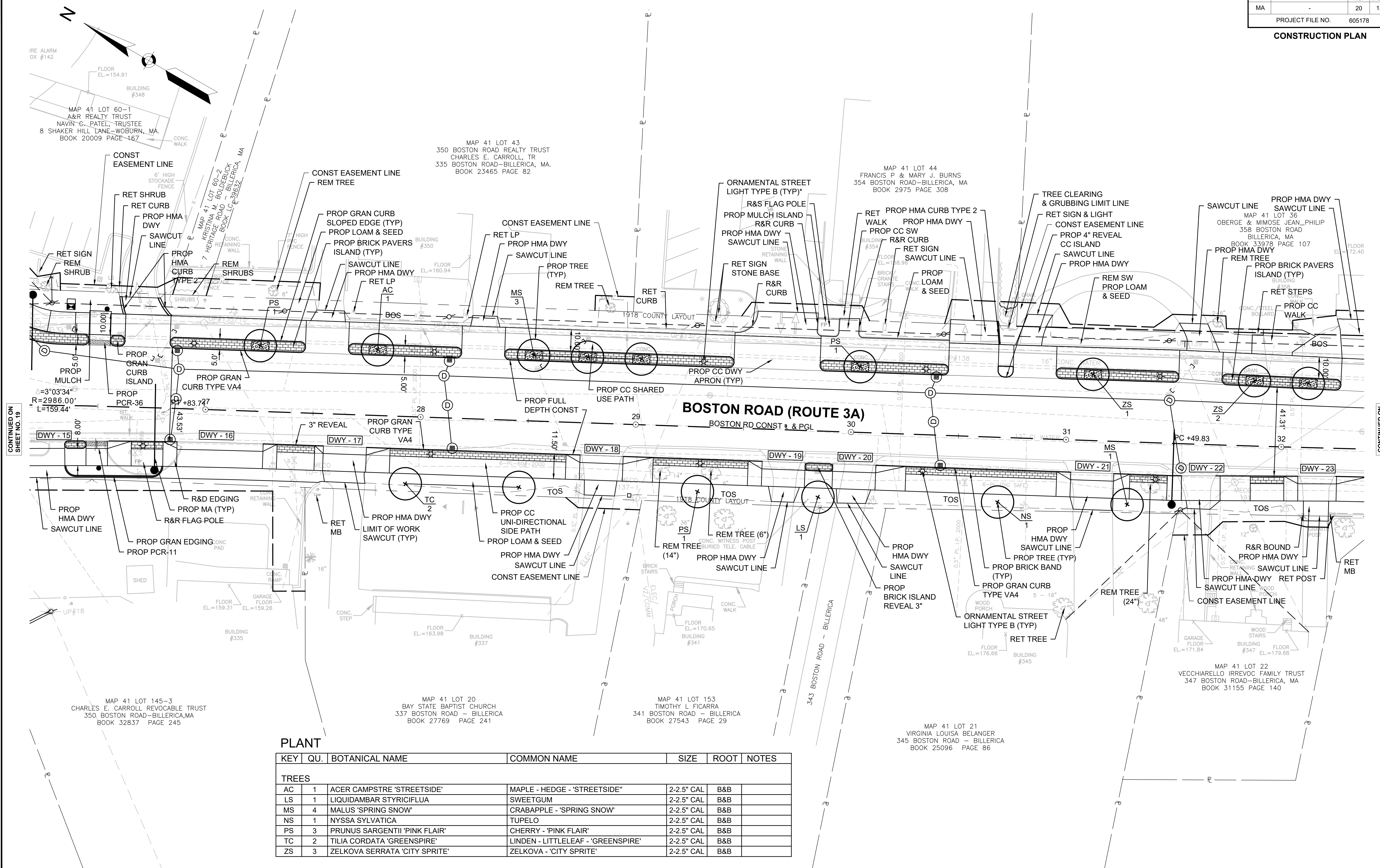
LIGHTING PLAN

91

BILLERICA
BOSTON ROAD (ROUTE 3A)

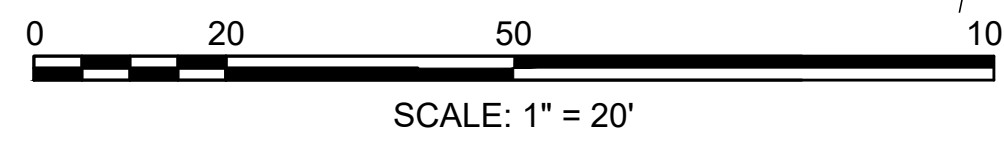
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN



PLANT

KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
AC	1	ACER CAMPSTRE 'STREETSIDE'	MAPLE - HEDGE - 'STREETSIDE'	2-2.5" CAL	B&B	
LS	1	LIQUIDAMBAR STYRICIFLUA	SWEETGUM	2-2.5" CAL	B&B	
MS	4	MALUS 'SPRING SNOW'	CRABAPPLE - 'SPRING SNOW'	2-2.5" CAL	B&B	
NS	1	NYSSA SYLVATICA	TUPELO	2-2.5" CAL	B&B	
PS	3	PRUNUS SARGENTII 'PINK FLAIR'	CHERRY - 'PINK FLAIR'	2-2.5" CAL	B&B	
TC	2	TILIA CORDATA 'GREENSPIRE'	LINDEN - LITTLELEAF - 'GREENSPIRE'	2-2.5" CAL	B&B	
ZS	3	ZELKOVA SERRATA 'CITY SPRITE'	ZELKOVA - 'CITY SPRITE'	2-2.5" CAL	B&B	



FOR PROFILE SEE SHEET 29

CONTINUED ON SHEET NO. 19

CONTINUED ON SHEET NO. 21

605178_IDW722_CONST_PLAN.DWG Plotted on 2-Aug-21 5:44 PM

HIGHWAY GUARD DETAILS

GUARDRAIL TANGENT END TREATMENT, TL-2 STA 2+93.8 RT
 GUARDRAIL, TL-2 (SINGLE FACED - DEEP POST) STA 3+18.6 TO 3+59.0 RT
 TRAILING ANCHORAGE STA 3+59.0 RT

TRAFFIC SIGNAL CONDUIT

NONE

CURB TIE & GRADING

38

LIGHTING PLAN

92

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE & UTILITY PLANS

49 & 60

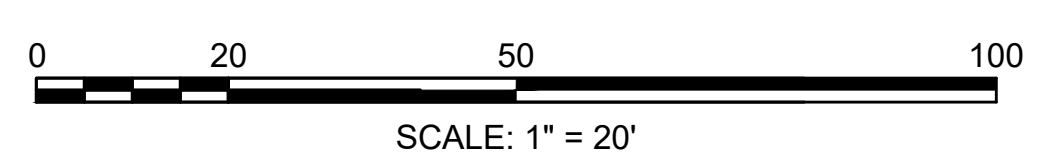
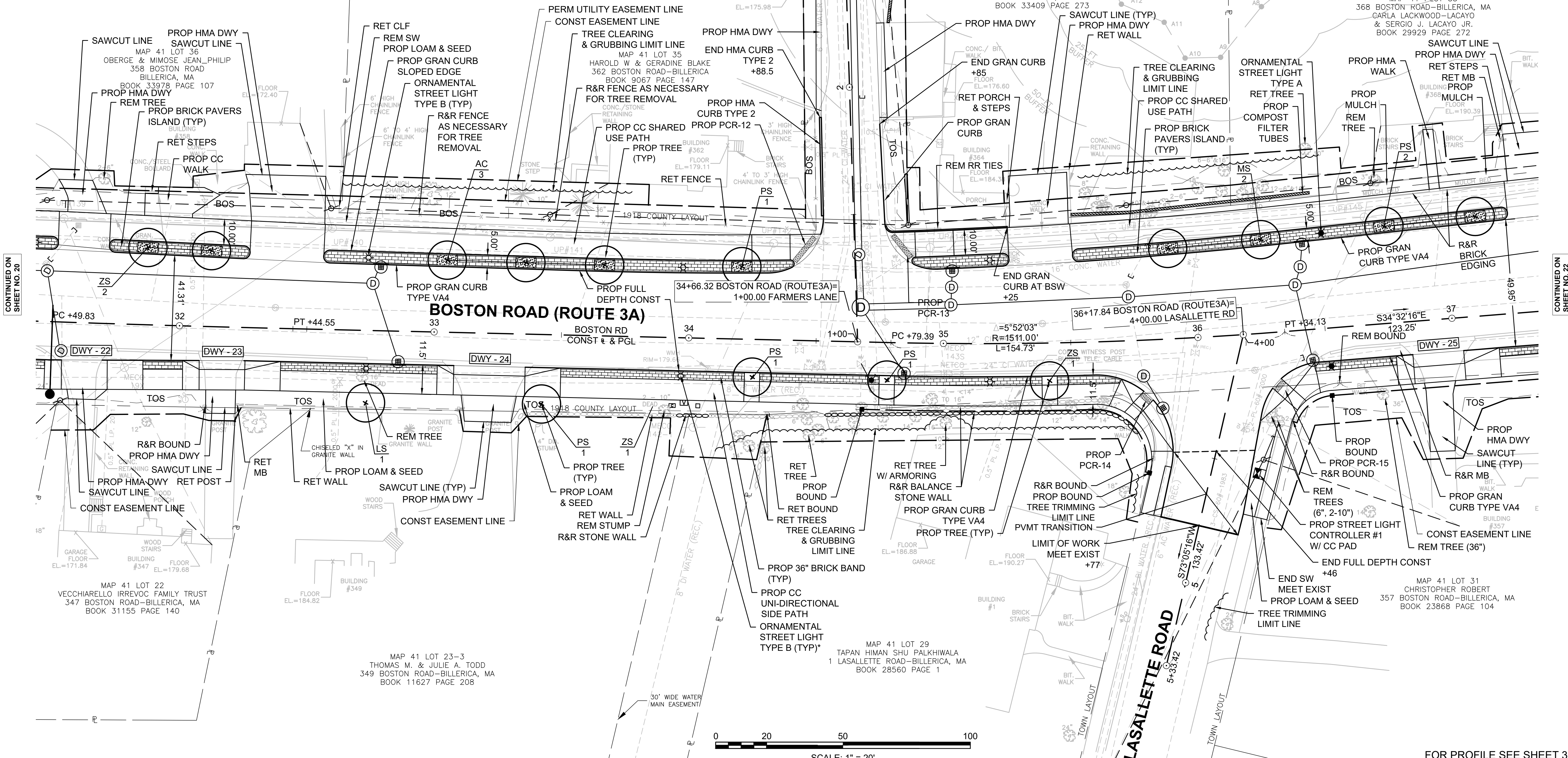
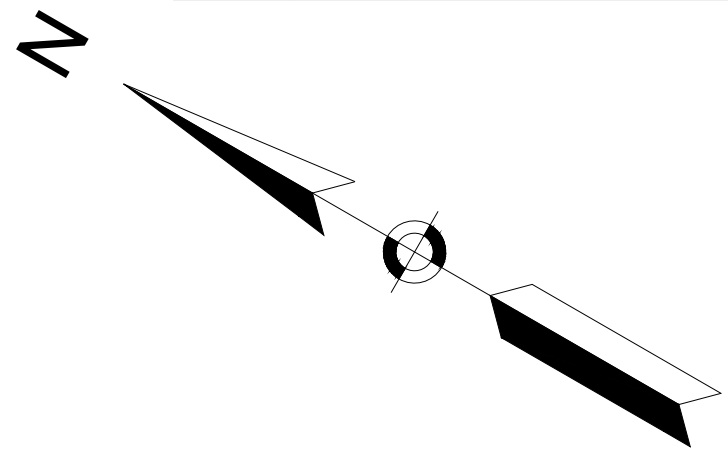
BILLERICA
 BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		21	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN

PLANT LIST

KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
AC	3	ACER CAMPSTRE 'STREETSIDE'	MAPLE - HEDGE - 'STREETSIDE'	2-2.5" CAL	B&B	
LS	1	LIQUIDAMBAR STYRICIFLUA	SWEETGUM	2-2.5" CAL	B&B	
MS	2	MALUS 'SPRING SNOW'	CRABAPPLE - 'SPRING SNOW'	2-2.5" CAL	B&B	
PS	6	PRUNUS SARGENTII 'PINK FLAIR'	CHERRY - 'PINK FLAIR'	2-2.5" CAL	B&B	
ZS	1	ZELKOVA SERRATA 'CITY SPRITE'	ZELKOVA - 'CITY SPRITE'	2-2.5" CAL	B&B	



CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 22

FOR PROFILE SEE SHEET 30 & 33

605178_HD\722_CONST_PLAN\DWG Ploited on 2-Aug-21 5:44 PM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

CURB TIE & GRADING
39

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE & UTILITY PLANS
50 & 61

LIGHTING PLAN
93

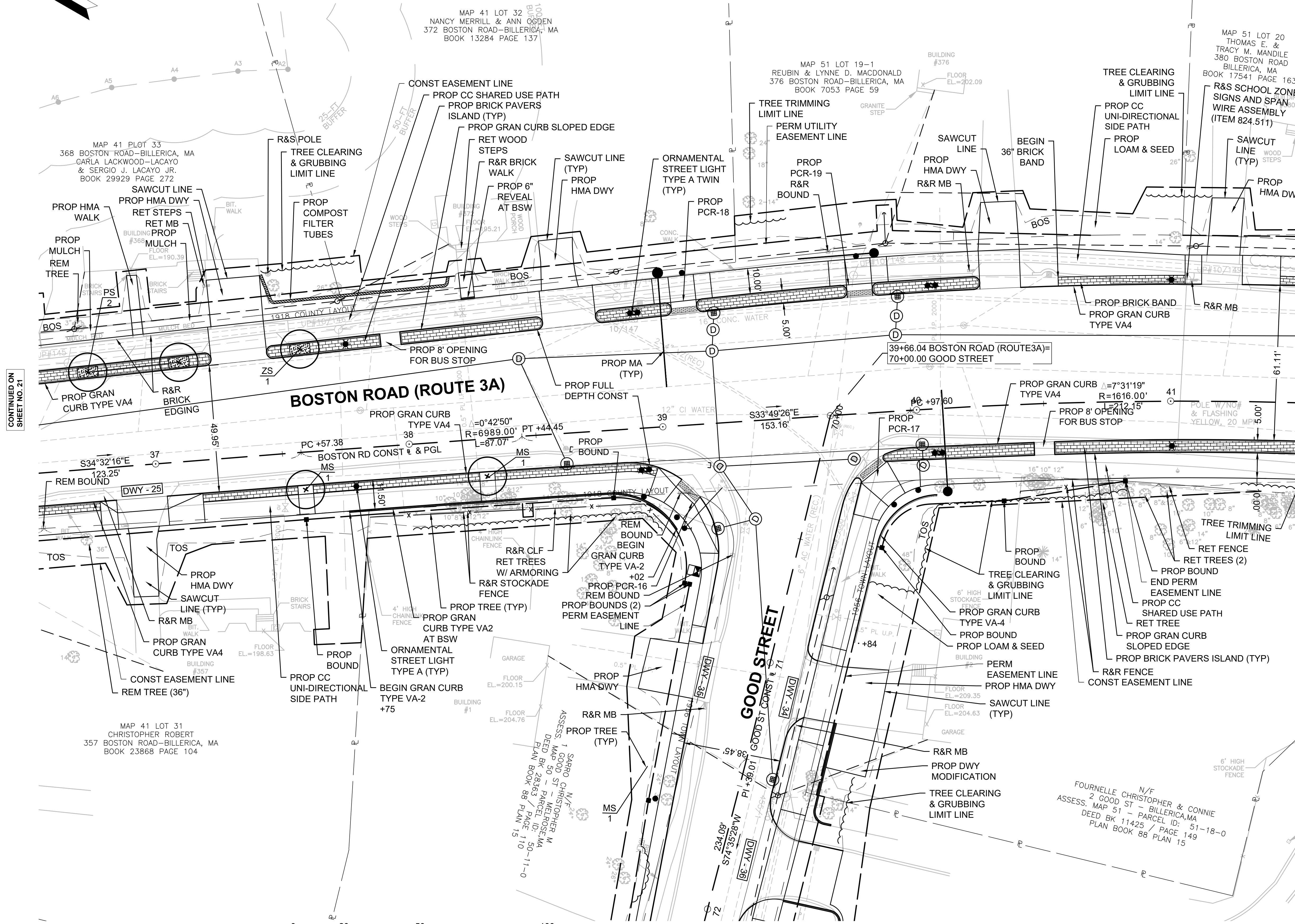
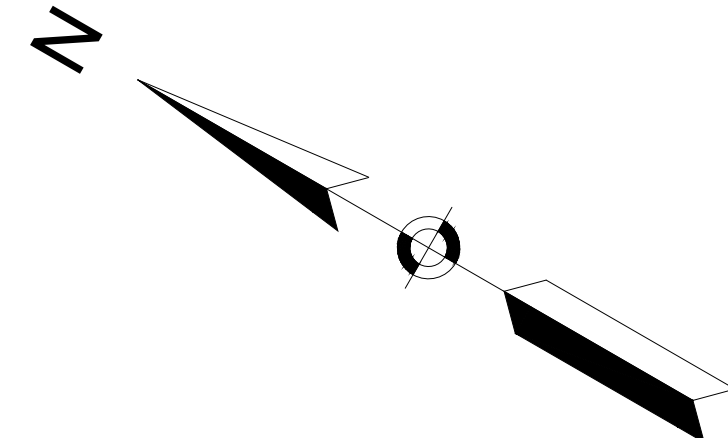
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN

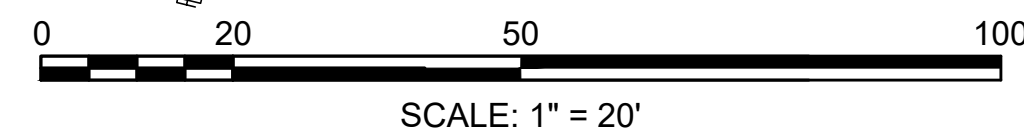
PLANT LIST

KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
MS	2	MALUS 'SPRING SNOW'	CRABAPPLE - 'SPRING SNOW'	2-2.5" CAL	B&B	
ZS	1	ZELKOVA SERRATA 'CITY SPRITE'	ZELKOVA - 'CITY SPRITE'	2-2.5" CAL	B&B	



CONTINUED ON
SHEET NO. 21

CONTINUED ON
SHEET NO. 23



CONTINUED ON
SHEET NO. 27

FOR PROFILE SEE SHEET 30

605178_HDW722_CONST_PLAN1.DWG Plotted on 2-Aug-21 5:44 PM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

CURB TIE & GRADING
41

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE & UTILITY PLANS
52 & 63

LIGHTING PLAN
95

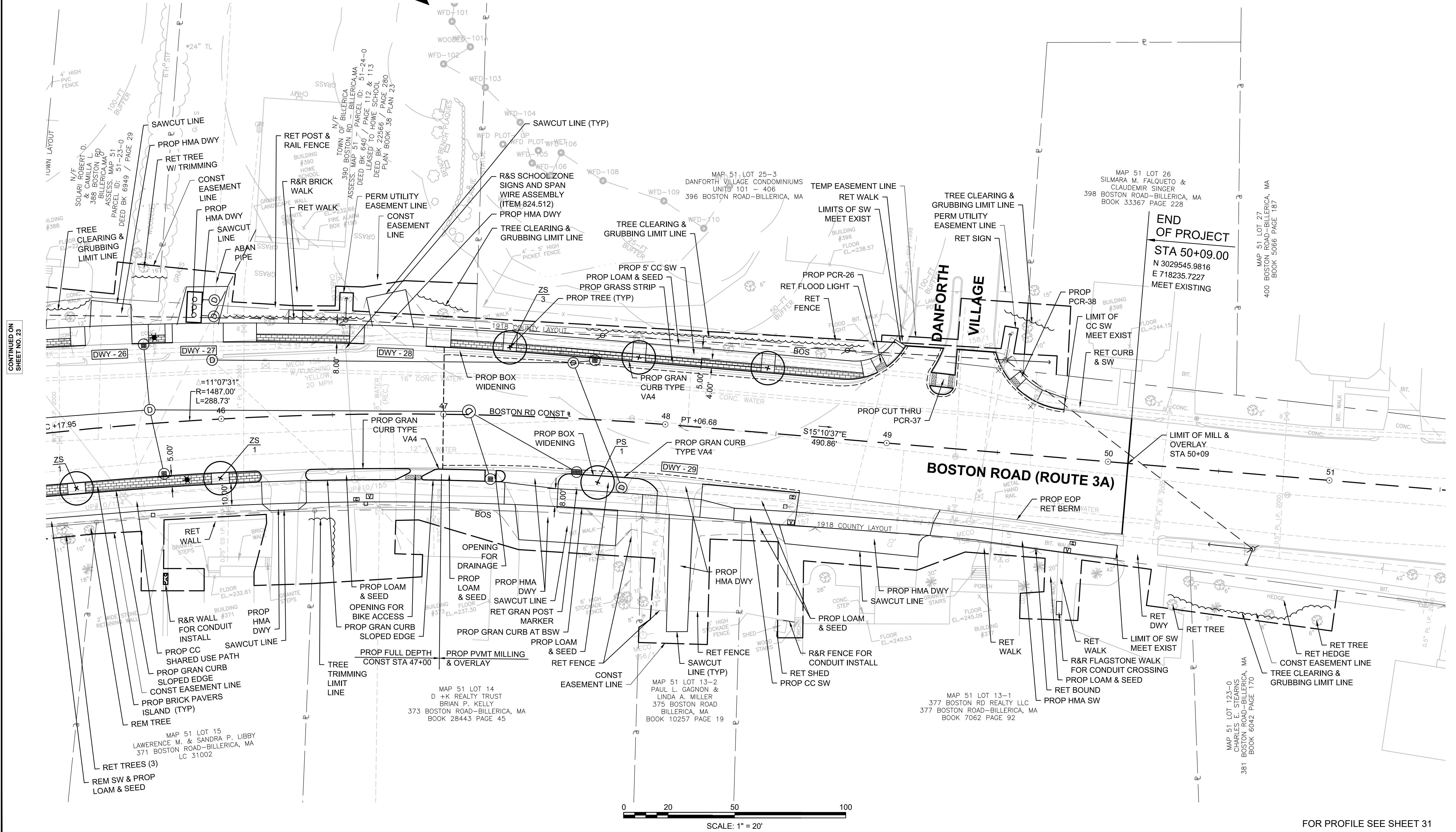
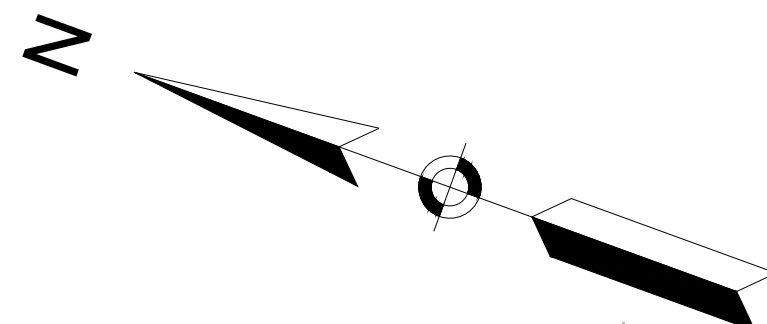
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		24	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN

PLANT LIST

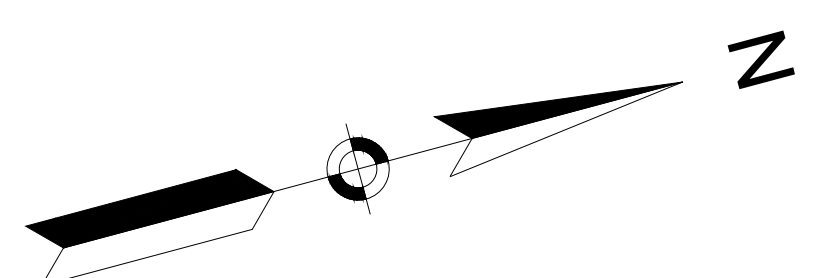
KEY	QU.	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	NOTES
TREES						
PS	2	PRUNUS SARGENTII 'PINK FLAIR'	CHERRY - 'PINK FLAIR'	2-2.5" CAL	B&B	
ZS	3	ZELKOVA SERRATA 'CITY SPRITE'	ZELKOVA - 'CITY SPRITE'	2-2.5" CAL	B&B	



CONTINUED ON
SHEET NO. 23

605178_HDW722_CONST_PLAN.DWG
Plotted on: 2-Aug-21 5:45 PM

FOR PROFILE SEE SHEET 31



HIGHWAY GUARD DETAILS
 TANGENT END TREATMENT STA 52+01.6 RT
 GUARDRAIL, TL-2 (SINGLE FACED) STA 52+01.6 TO 52+84.0 RT
 TRAILING ANCHORAGE STA 52+84.0 RT

TRAFFIC SIGNAL CONDUIT
 NONE

CURB TIE & GRADING
 42

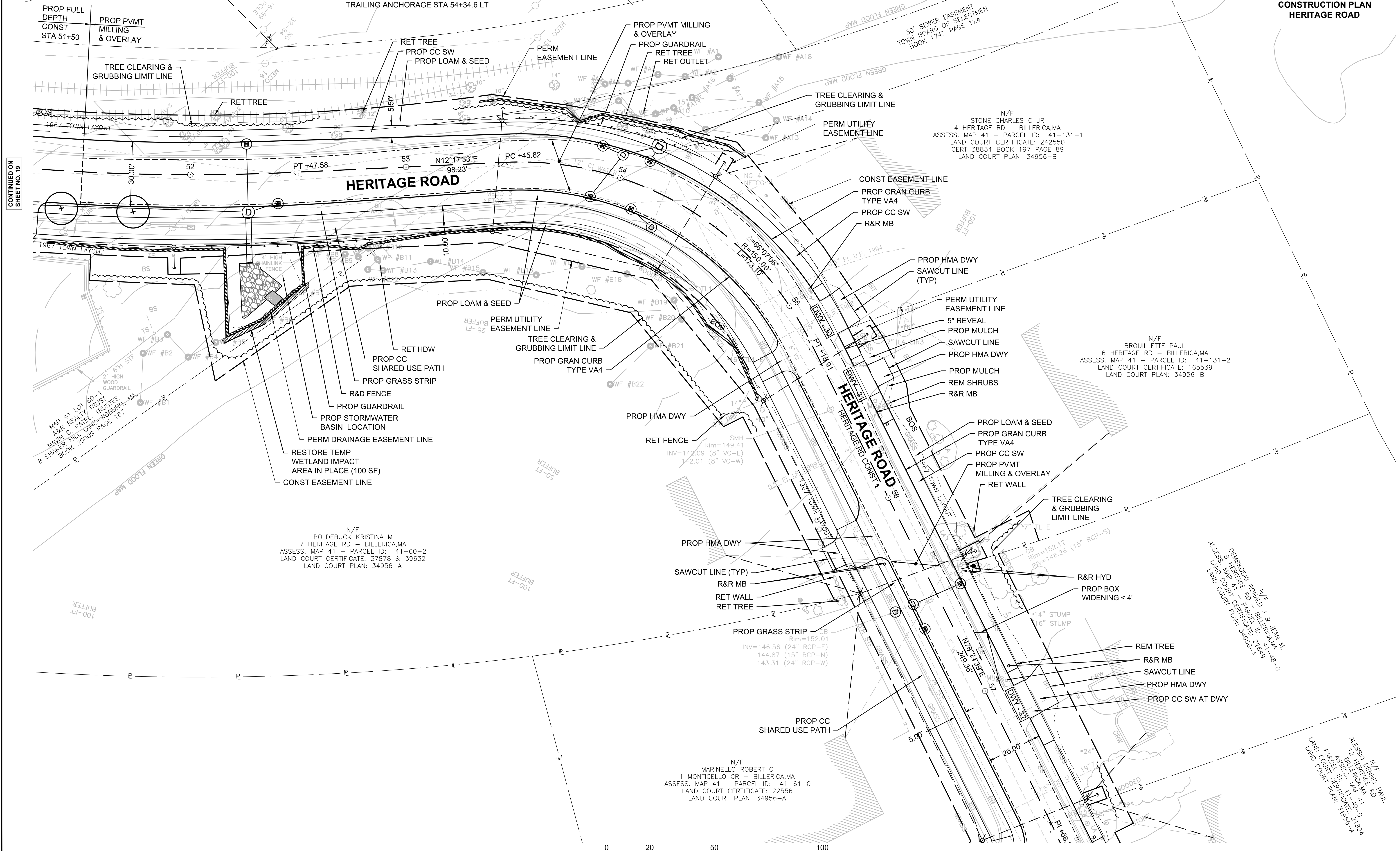
WATER SUPPLY ALTERATIONS
 53

DRAINAGE & UTILITY PLANS
 53 & 64

BILLERICA
 BOSTON ROAD (ROUTE 3A)

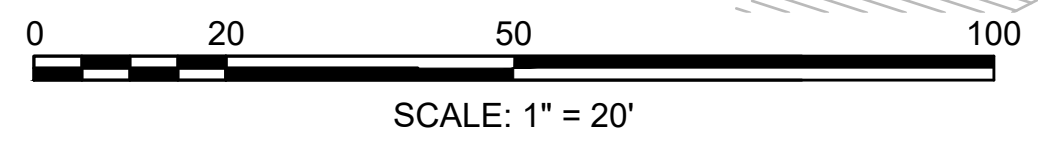
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	139
PROJECT FILE NO.		605178	

**CONSTRUCTION PLAN
 HERITAGE ROAD**



CONTINUED ON
SHEET NO. 19

CONTINUED ON
SHEET NO. 26



FOR PROFILE SEE SHEET 32

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

CURB TIE & GRADING
43

WATER SUPPLY ALTERATIONS
NONE

DRAINAGE & UTILITY PLANS
54 & 65

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	139
PROJECT FILE NO. 605178			

CONSTRUCTION PLAN
HERITAGE ROAD

N/F
SENG SOKLEANG
18 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-52-0
LAND COURT CERTIFICATE: 39175
LAND COURT PLAN: 31951-B

N/F
LEVASSEUR DAVID R.
16 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-51-0
LAND COURT CERTIFICATE: 30708
LAND COURT PLAN: 31951-B

N/F
DIMATTEO JASON P. & ALISHA D.
14 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-50-0
DEED BK 11361 / PAGE 178
LAND COURT CERTIFICATE: 193936
LAND COURT PLAN: 31951-B

N/F
DEMBKOSKI RONALD J & JEAN M.
8 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-48-0
LAND COURT CERTIFICATE: 22649
LAND COURT PLAN: 34956-A

N/F
ALESSIO DENNIS PAUL
12 HERITAGE RD
BILLERICA, MA
ASSESS. MAP 41
PARCEL ID: 41-49-0
LAND COURT CERTIFICATE: 21824
LAND COURT PLAN: 34956-A

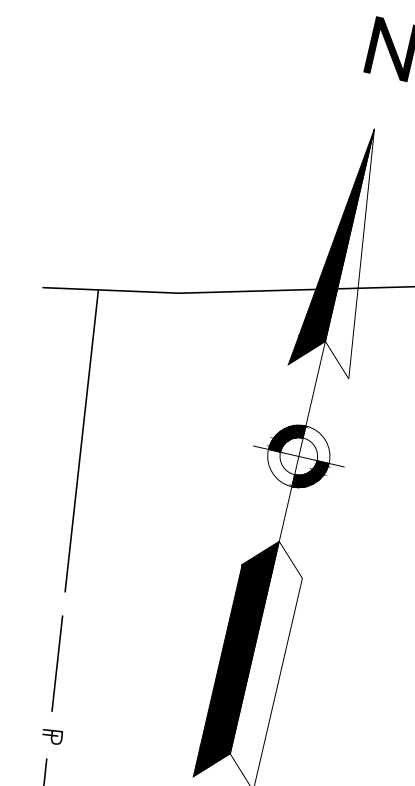
N/F
SASSER LINDA C.
17 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-69-0
LAND COURT CERTIFICATE: 34710
LAND COURT PLAN: 31951-A

N/F
ERIC JAMES RICHARD, HEATHER A. MAGEE
1 MOUNT VERNON AV - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-67-0
LAND COURT CERTIFICATE: 42451
LAND COURT PLAN: 34956-A

N/F
THE PORCARO FAMILY TRUST
2 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-66-0
LAND COURT CERTIFICATE: 291821
LAND COURT PLAN: 34956-A

N/F
MARRINELLO ROBERT C.
1 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-61-0
LAND COURT CERTIFICATE: 22556
LAND COURT PLAN: 34956-A

CONTINUED ON
SHEET NO. 25



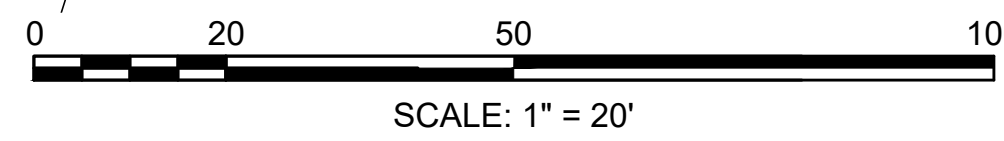
MARSHALL
MIDDLE
SCHOOL

HERITAGE ROAD

HERITAGE ROAD

MONTICELLO CIRCLE

MT VERNON AVENUE



FOR PROFILE SEE SHEET 32

605178_ID(4722_CONST PLAN).DWG
Plotted on: 2-Aug-21 5:45 PM

HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

CURB TIE & GRADING
44

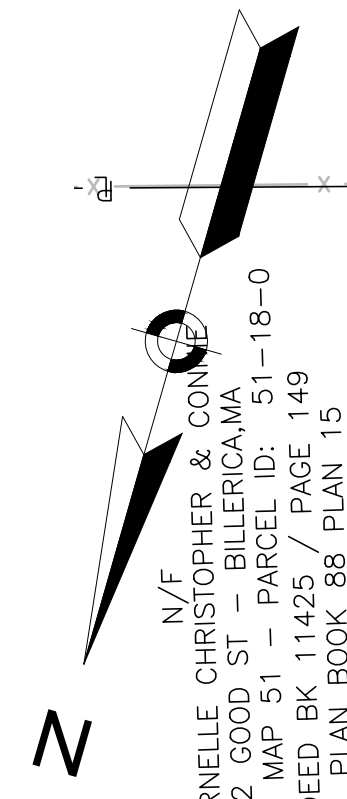
WATER SUPPLY ALTERATIONS
NONE

DRAINAGE & UTILITY PLANS
55 & 66

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	139
PROJECT FILE NO.		605178	

CONSTRUCTION PLAN
GOOD STREET



N/F
FOURNELLE CHRISTOPHER & CO
2 GOOD ST - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-18-0
DEED BK 11425 / PAGE 149
PLAN BOOK 88 PLAN 15

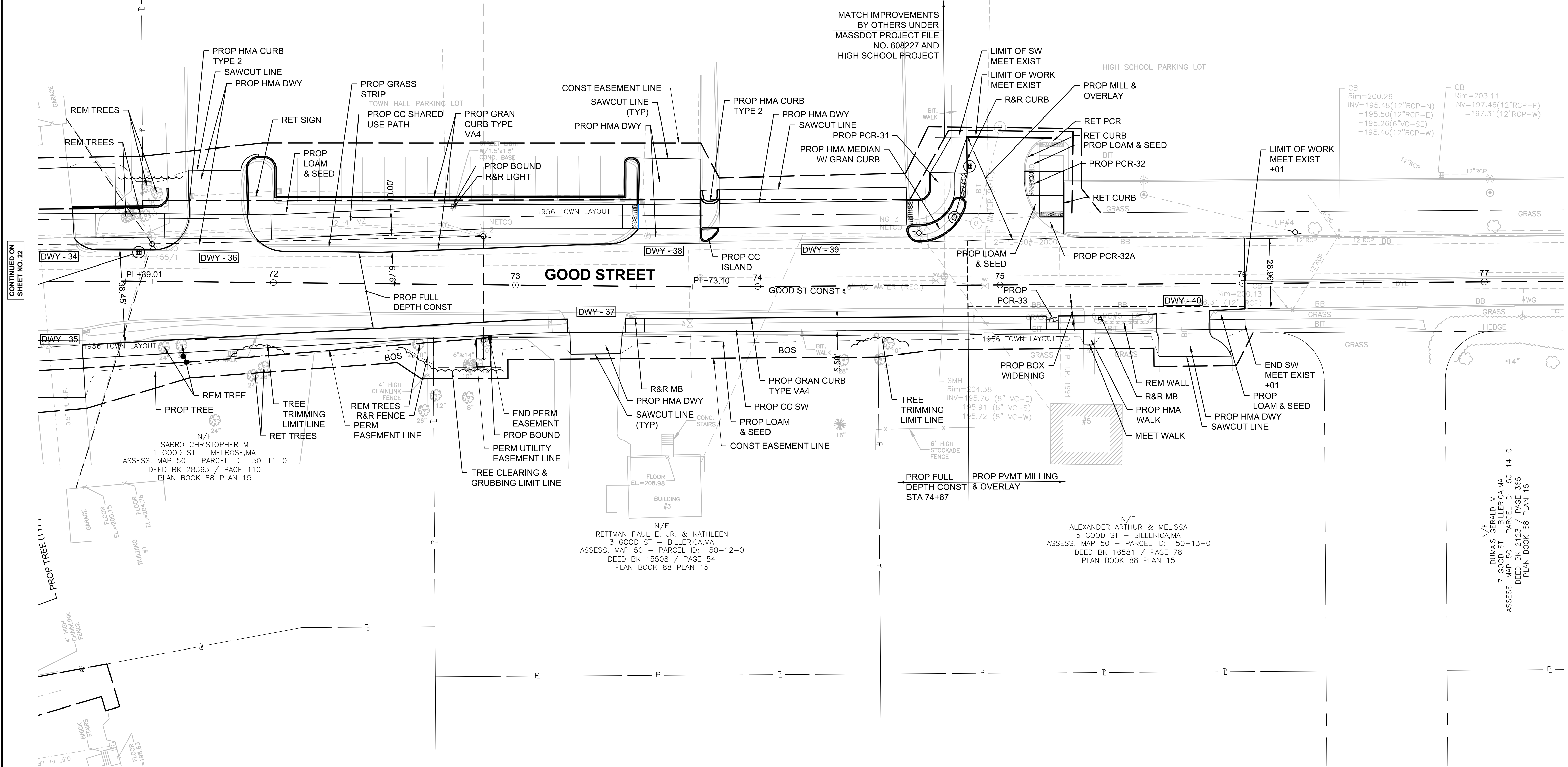
TOWN HALL

FIRE DEPARTMENT

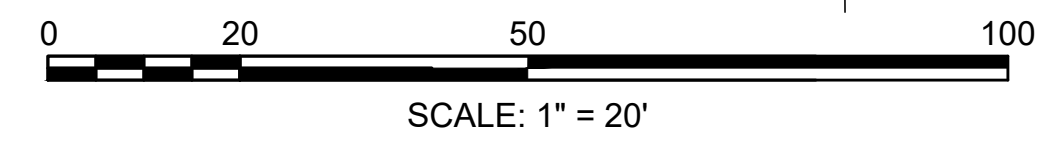
BILLERICA HIGH SCHOOL

N/F
TOWN OF BILLERICA
(POLICE AND FIRE DEPARTMENT
AND HIGH SCHOOL)
365 BOSTON RD - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-17-0
DEED BK 593 / PAGE 22, 23, & 24

MATCH IMPROVEMENTS
BY OTHERS UNDER
MASSDOT PROJECT FILE
NO. 608227 AND
HIGH SCHOOL PROJECT



CONTINUED ON
SHEET NO. 22



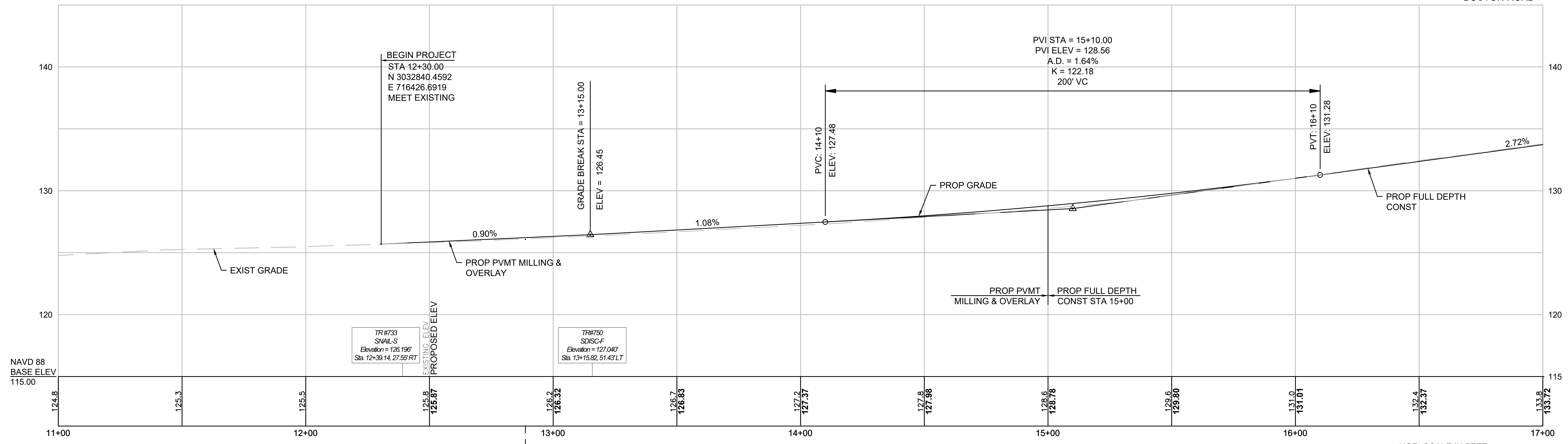
FOR PROFILE SEE SHEET 33

605178_ID(772_CONST_PLAN).DWG Plotted on: 2-Aug-21 5:45 PM

BILLERICA
BOSTON ROAD (ROUTE 3A)

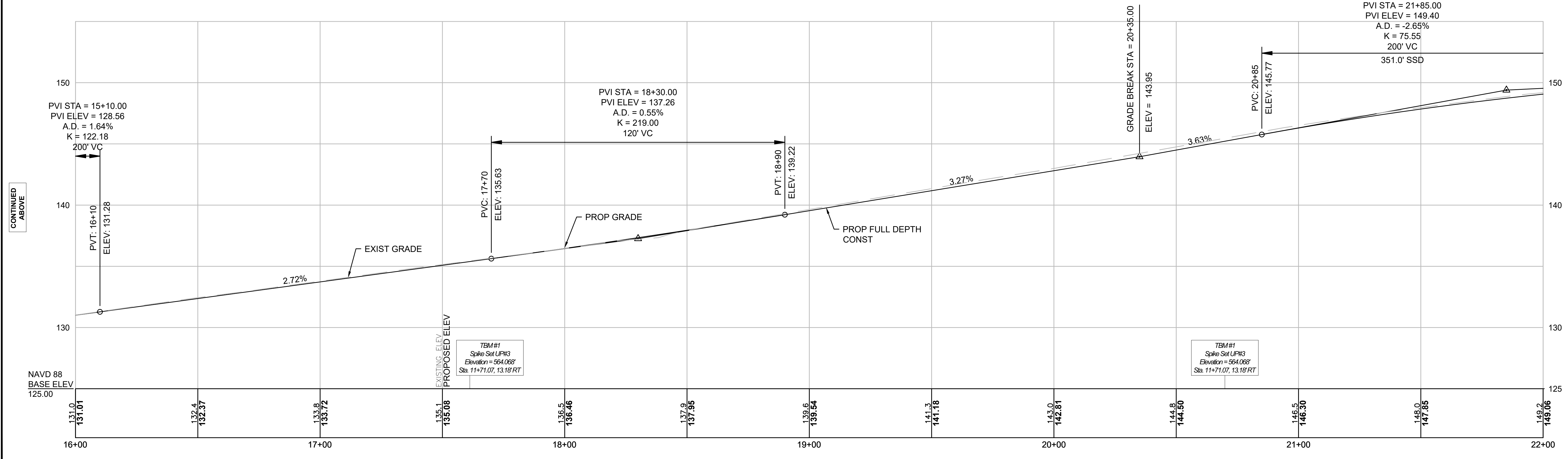
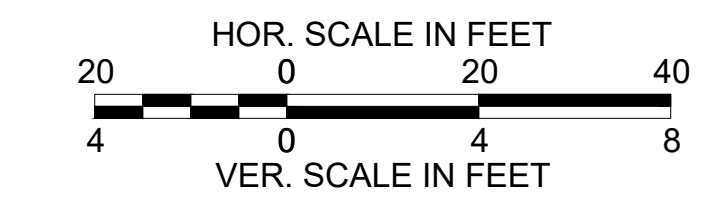
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	139
PROJECT FILE NO.		605178	

PROFILE
BOSTON ROAD



STA. 12+88.77 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 00+00.00 SIMMONS LANE CONST. ϵ

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 17-18



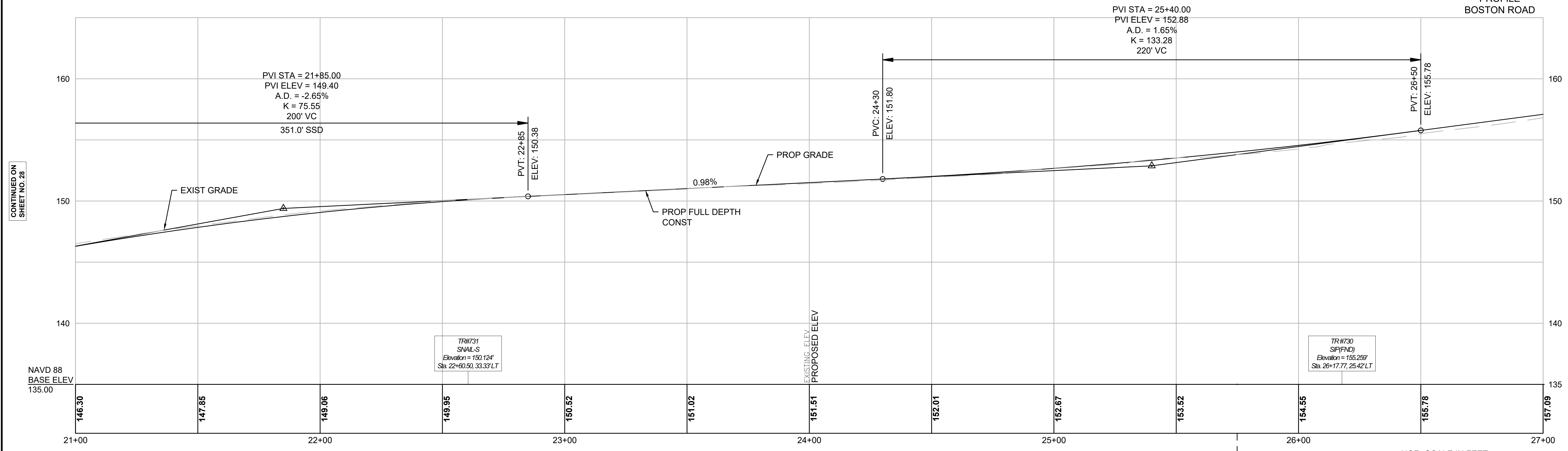
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CONTINUED ON SHEET NO. 29

BILLERICA
BOSTON ROAD (ROUTE 3A)

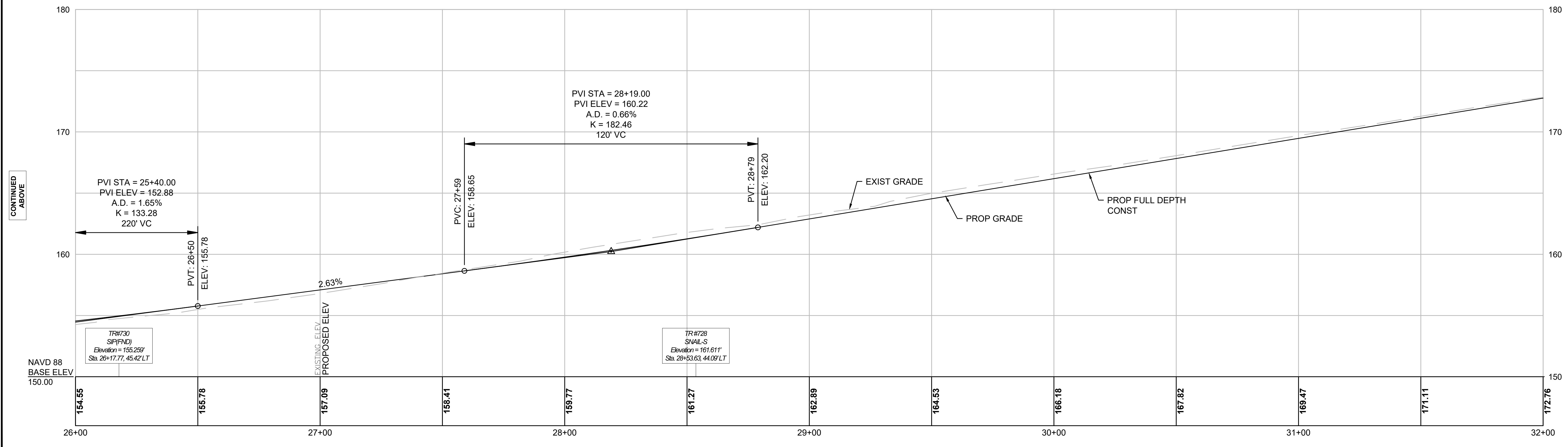
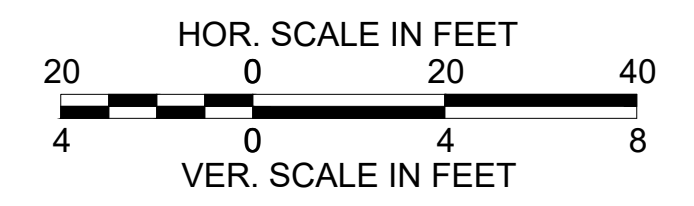
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	139
PROJECT FILE NO.		605178	

PROFILE
BOSTON ROAD



FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 19 & 20

STA. 25+74.90 BOSTON ROAD (ROUTE 3A) CONST. =
STA. 50+00.00 HERITAGE ROAD CONST. =



CONTINUED ON
SHEET NO. 28

CONTINUED
BELOW

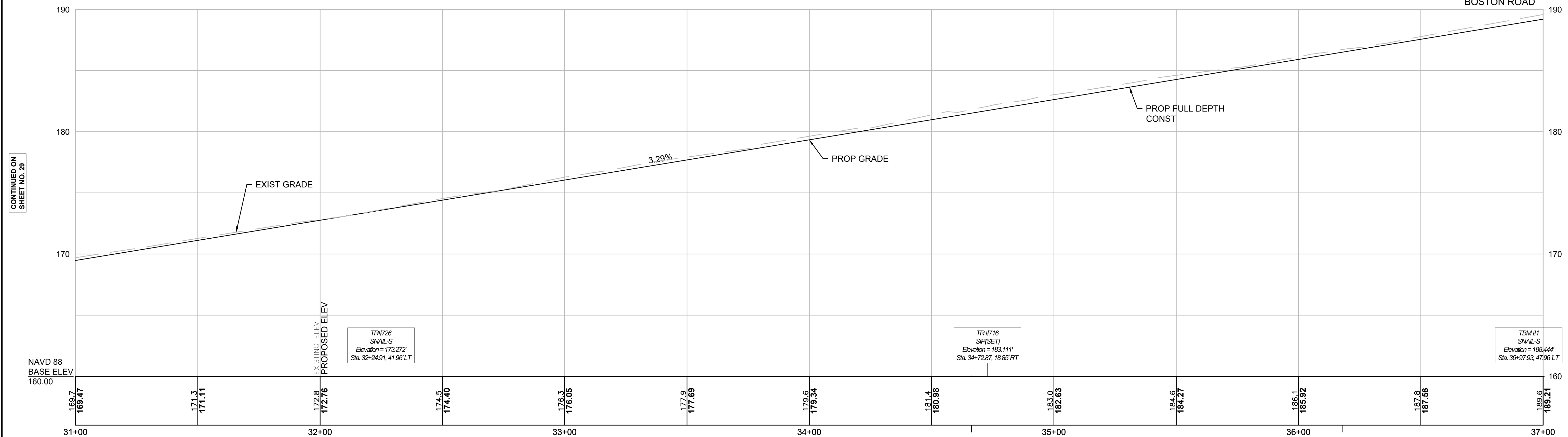
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CONTINUED ON
SHEET NO. 30

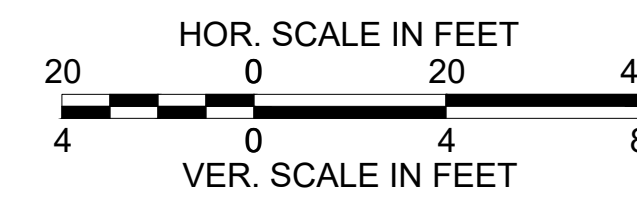
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	139
PROJECT FILE NO.		605178	

PROFILE
BOSTON ROAD

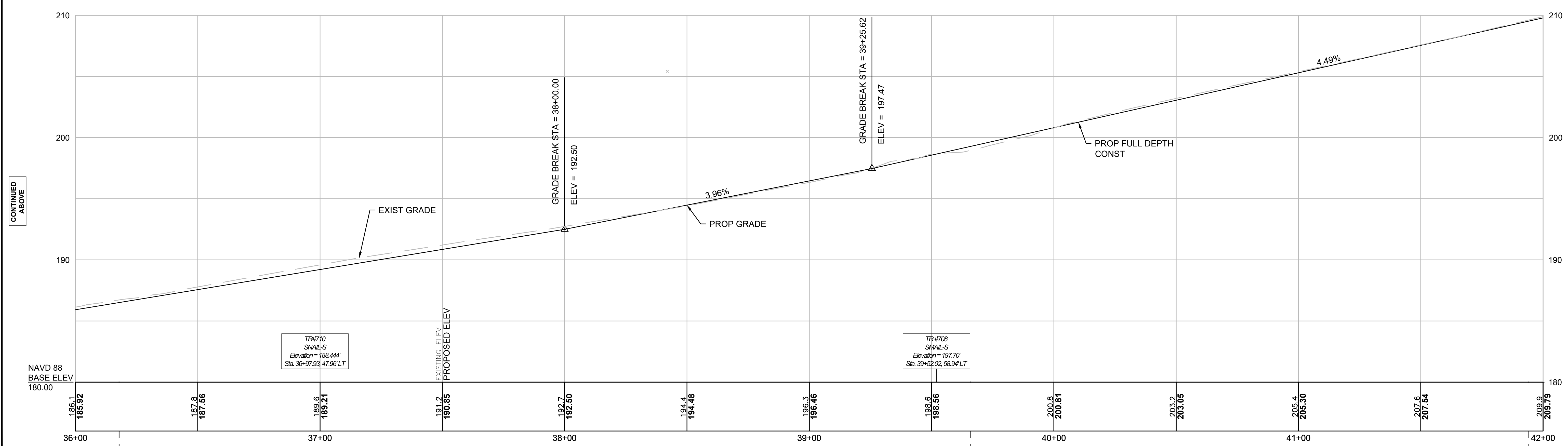


FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 21-22



STA. 34+66.32 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 1+00.00 FARMERS LANE-EG CONST. ϵ

STA. 36+17.84 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 4+00.00 LASALLETTE ROAD CONST. ϵ



STA. 36+17.84 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 4+00.00 LASALLETTE ROAD CONST. ϵ

STA. 39+66.04 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 70+00.00 GOOD STREET CONST. ϵ

STA. 41+94.19 BOSTON ROAD (ROUTE 3A) CONST. ϵ =
STA. 90+00.00 TOWN HALL DRIVE CONST. ϵ

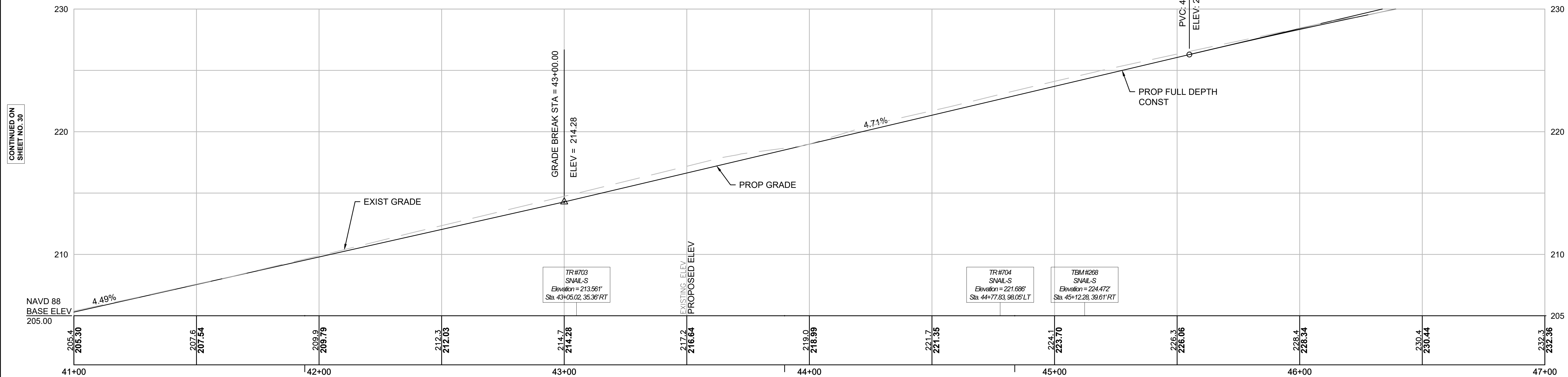
CONTINUED ON
SHEET NO. 29

CONTINUED
BELOW

CONTINUED
ABOVE

CONTINUED ON
SHEET NO. 31

PVI STA = 47+05.00
PVI ELEV = 233.36
A.D. = -2.18%
K = 137.59
300' VC
454.8' SSD

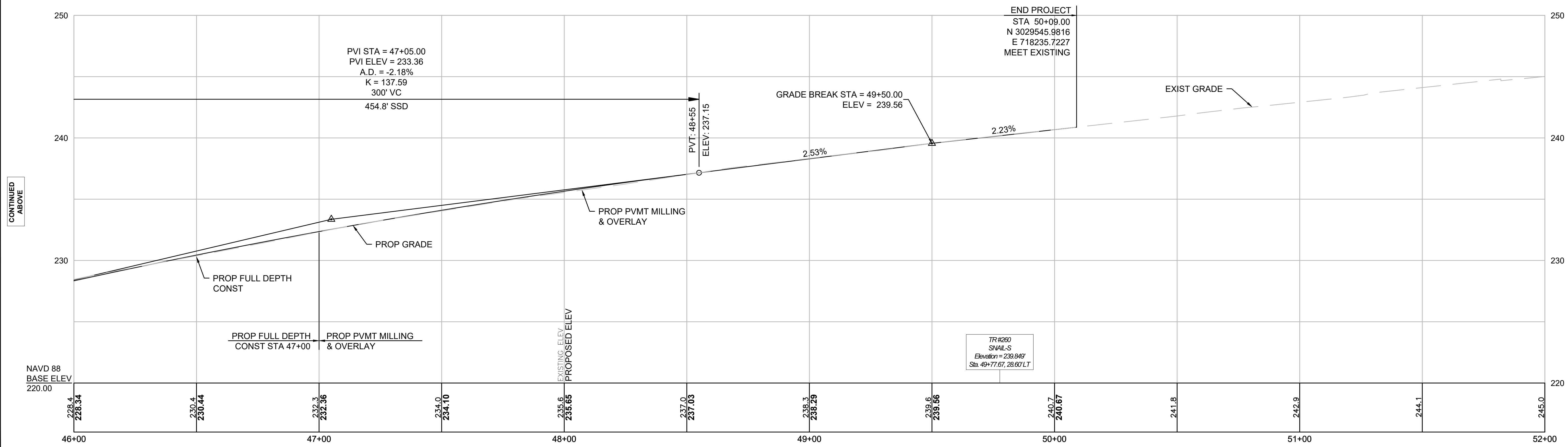
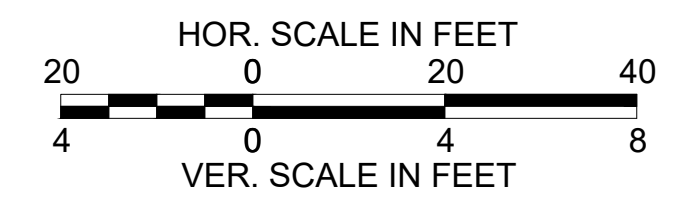


STA. 41+94.19 BOSTON ROAD (ROUTE 3A) CONST. =
STA. 90+00.00 TOWN HALL DRIVE CONST. =

STA. 43+89.91 BOSTON ROAD (ROUTE 3A) CONST. =
STA. 92+00.00 TOM GLAVINE WAY CONST. =

STA. 44+83.79 BOSTON ROAD (ROUTE 3A) CONST. =
STA. 6+00.00 MULBERRY LANE CONST. =

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 23 & 24



PVI STA = 47+05.00
PVI ELEV = 233.36
A.D. = -2.18%
K = 137.59
300' VC
454.8' SSD

END PROJECT
STA 50+09.00
N 3029545.9816
E 718235.7227
MEET EXISTING

PROP FULL DEPTH
CONST STA 47+00

PROP PVMT MILLING
& OVERLAY

TR#260
SNAIL-S
Elevation = 239.949
Sta. 49+77.07, 28.00' LT

CONTINUED ON
SHEET NO. 30

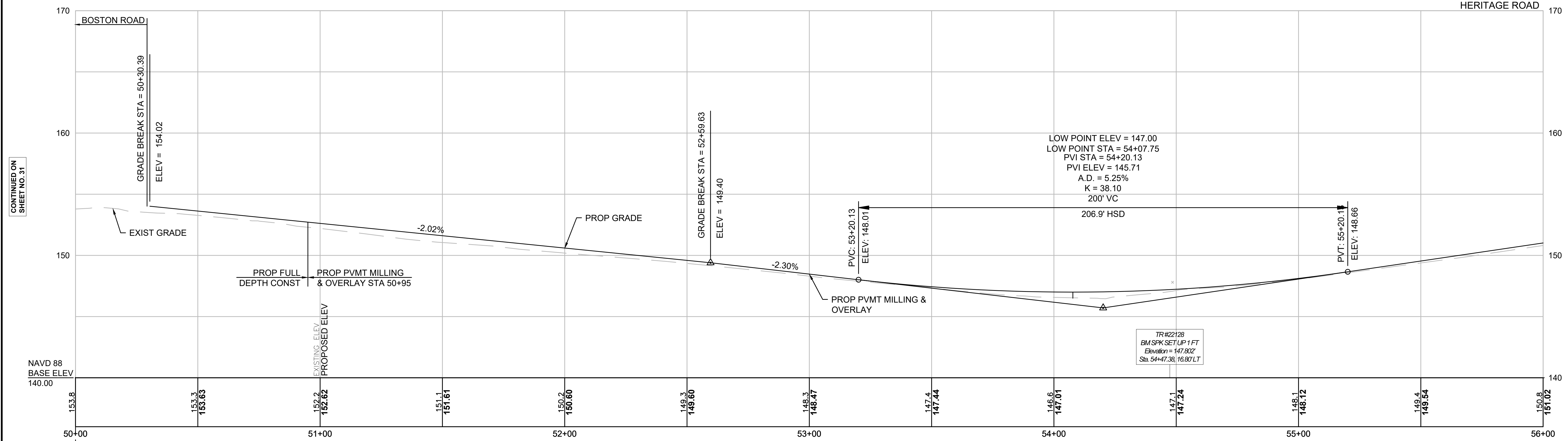
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BELOW

CONTINUED
ABOVE

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	139
PROJECT FILE NO.		605178	

PROFILE
HERITAGE ROAD

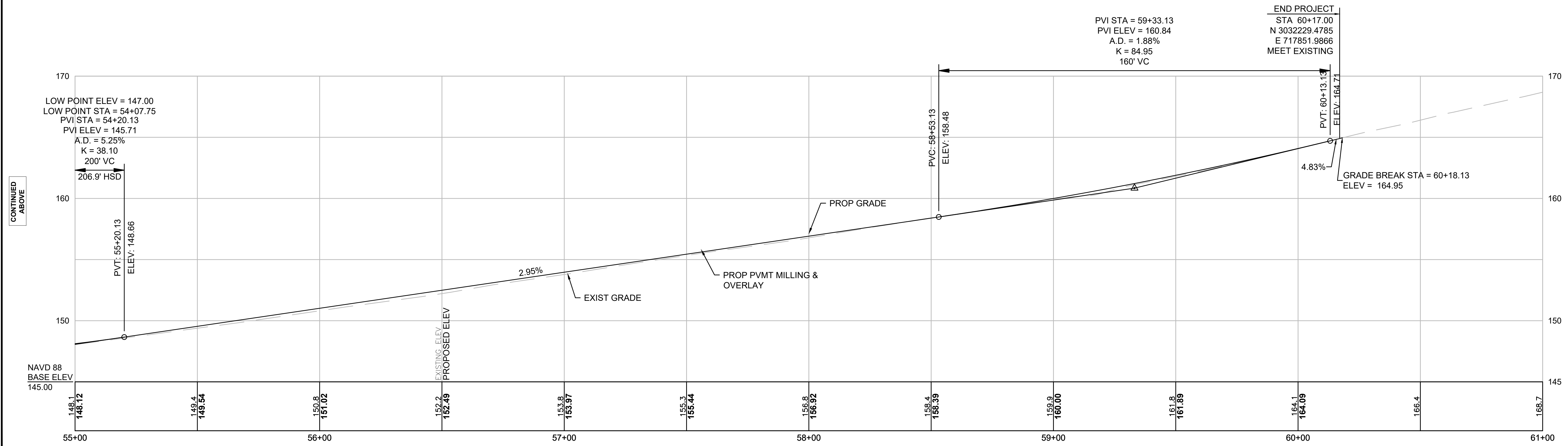
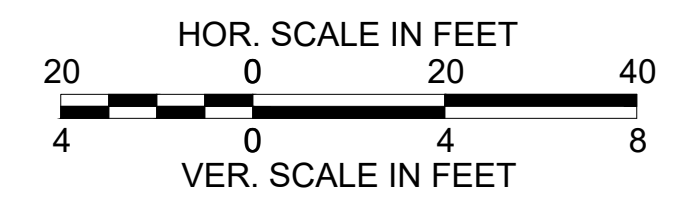


CONTINUED ON
SHEET NO. 31

CONTINUED
BELOW

STA. 50+00.00 HERITAGE ROAD CONST. ϵ =
STA. 25+75.45 BOSTON ROAD (ROUTE 3A) CONST. ϵ

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 25 & 26



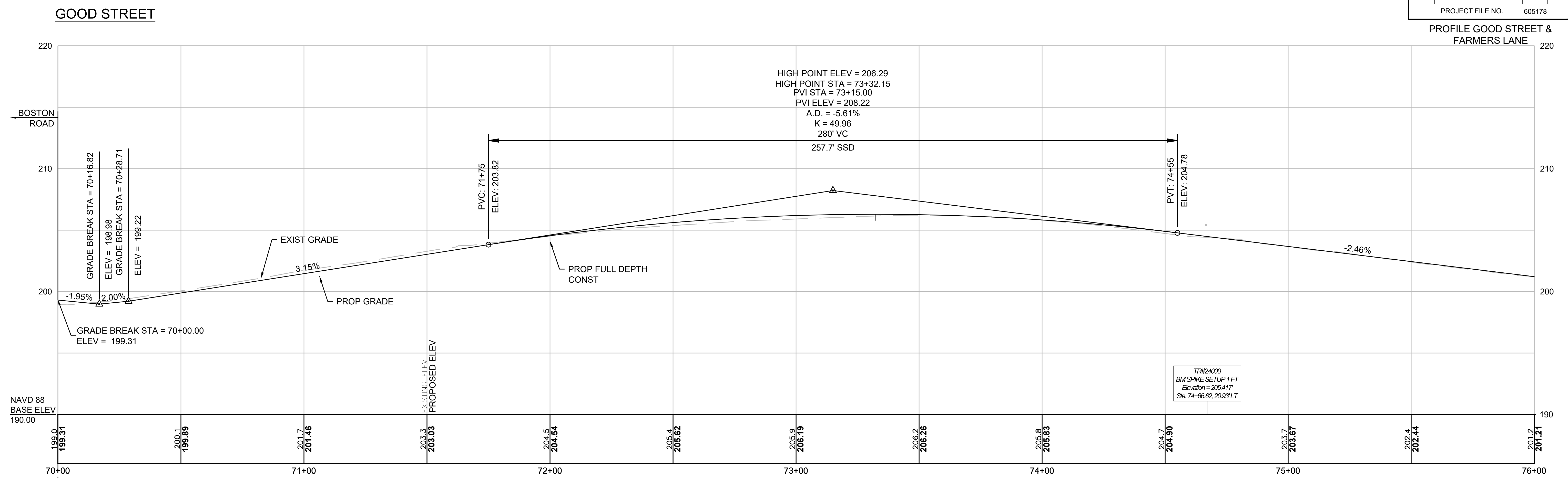
CONTINUED
ABOVE

CONTINUED
BELOW

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

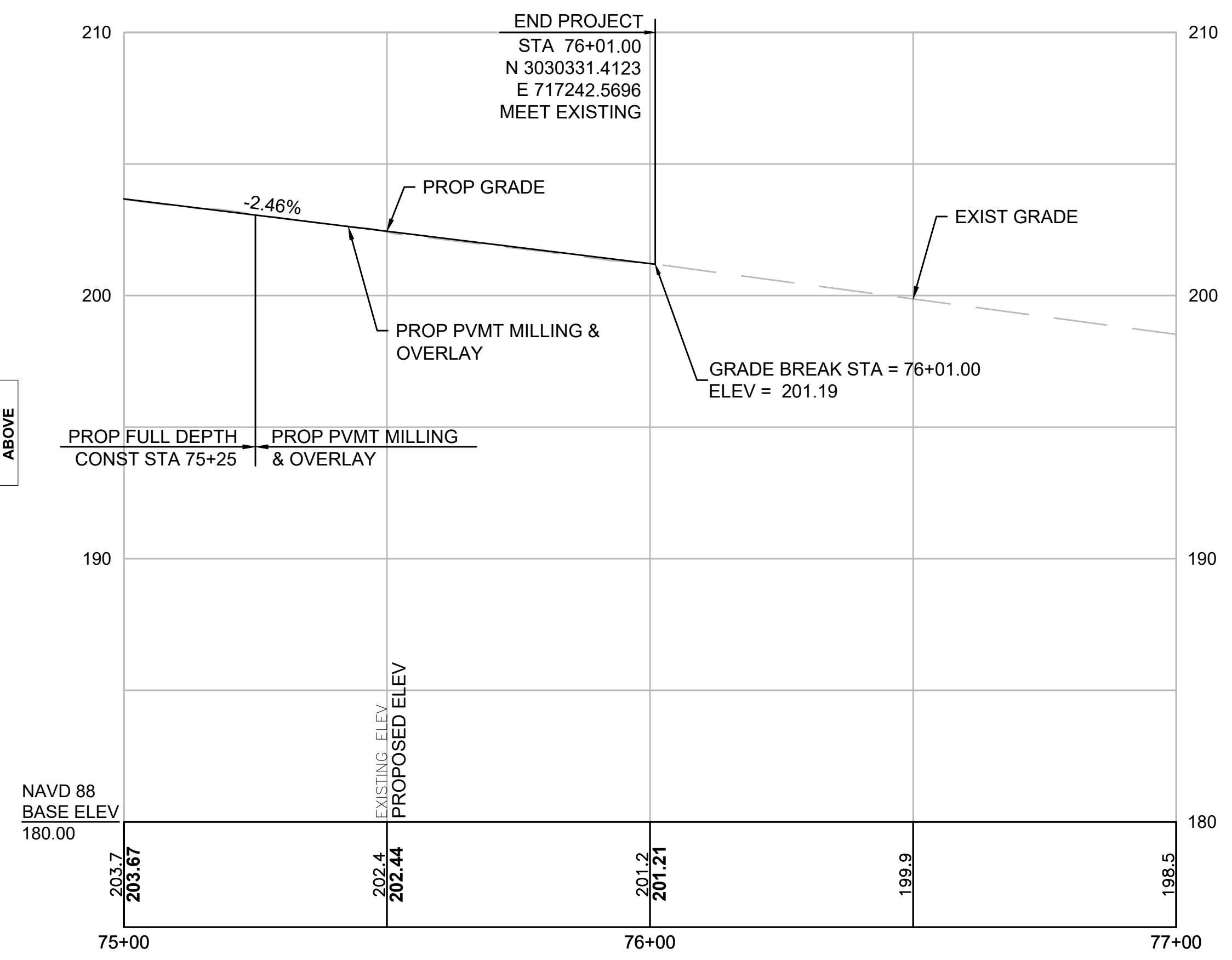
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	139
PROJECT FILE NO.		605178	

**PROFILE GOOD STREET &
FARMERS LANE**

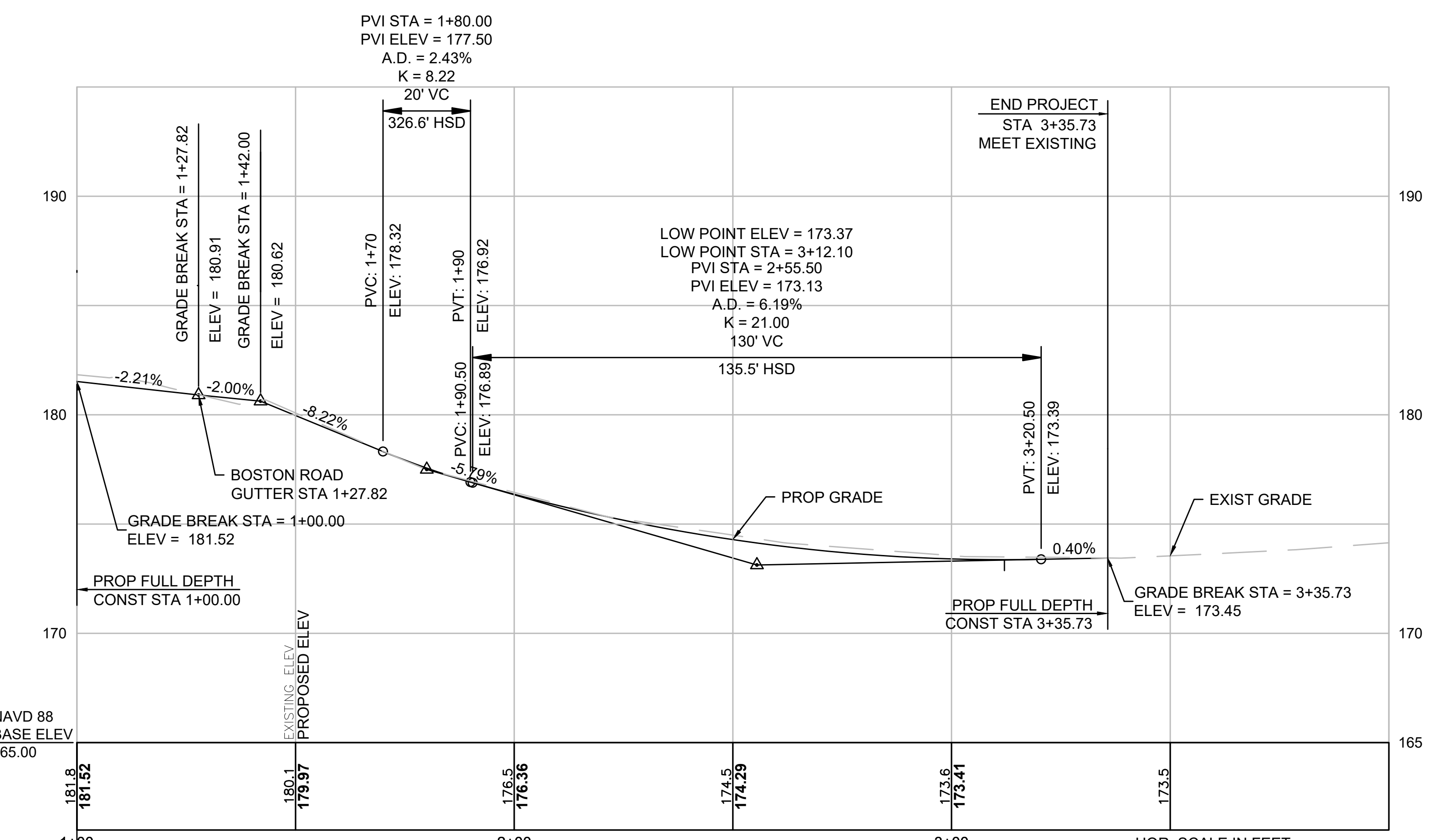


STA. 70+00.00 GOOD STREET CONST. \pm =
STA. 39+66.59 BOSTON ROAD (ROUTE 3A) CONST. \pm

GOOD STREET



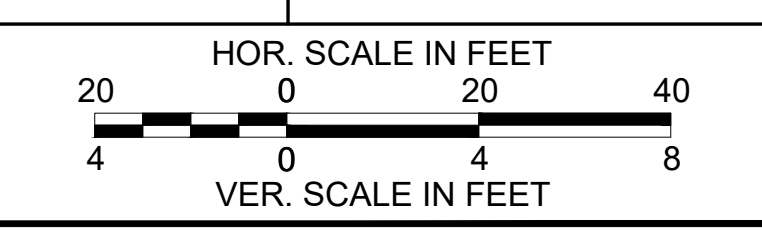
FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 22 & 27



STA. 1+00.00 FARMERS LANE CONST. \pm =
STA. 34+66.87 BOSTON ROAD (ROUTE 3A) CONST. \pm

FOR CONSTRUCTION PLAN:
SEE SHEET NO. 21

FARMERS LANE



CONTINUED
BELOW

CONTINUED
ABOVE

BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA

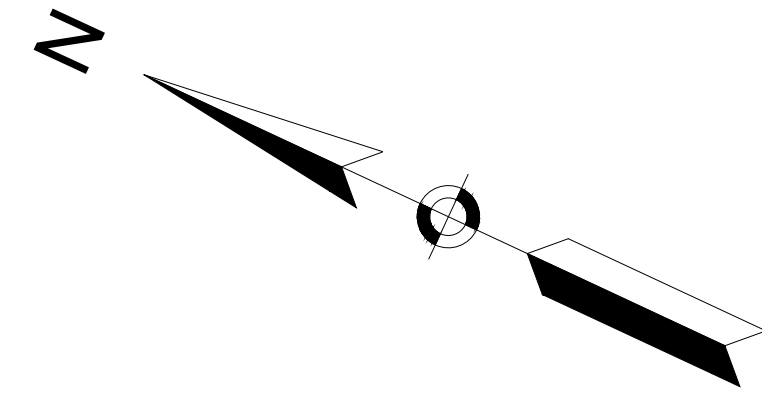
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3033055.8505	716346.0283		S20°31'51"E 395.29'	13+95.29	3032685.6723	716484.6592
C1	13+95.29	3032685.6723	716484.6592	R=1200.00' Δ=5°24'02" L=113.11' T=56.60'		15+08.39	3032581.7718	716529.2579
C2	15+08.39	3032581.7718	716529.2579	R=1513.00' Δ=5°49'54" L=153.99' T=77.06'		16+62.39	3032446.9453	716603.5241

SIMMONS LANE CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L26	0+00.00	3032785.4198	716447.3040		S84°06'05"W 100.00'	1+00.00	3032775.1428	716347.8319

Point Table

Point #	Northing	Easting	Elevation	Raw Description
27000	3032568.737	716577.431	129.146	T.MAGN



N/F
KRAJEWSKI MARIUSZ
316 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31 - PARCEL ID: 31-38-0
DEED BK 23810 / PAGE 124
PLAN BOOK 78 PLAN 24

N/F
POWERS JOSEPH T
318 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31 - PARCEL ID: 31-37-0
DEED BK 1538 / PAGE 131

MAP 41 LOT 6
ARTHUR J. & BETH E. LYNCH
324 BOSTON ROAD - BILLERICA, MA
BOOK 17415 PAGE 146

MAP 41 LOT 8-2
S&N REALTY, LLC
29 N. BROADWAY, SALEM, NH
BOOK 10442 PAGE 228

S&N REALTY, LLC
BOOK 2357 PAGE 462
S&N REALTY, LLC
BOOK 2357 PAGE 462

20
N: 3033034.495'
E: 716313.590'
EL: 124.985'
MAG NL(SET)

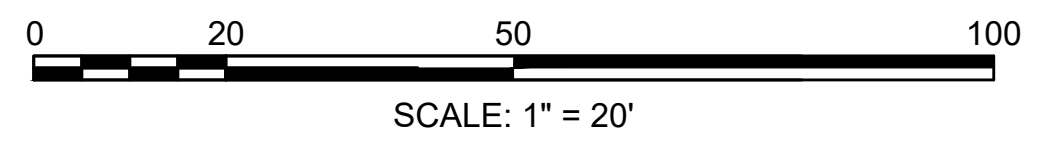
N/F
313 BOSTON ROAD REALTY LLC
313 BOSTON RD - WESTFORD, MA
ASSESS. MAP 41 - PARCEL ID: 41-3-1
DEED BK 29546 / PAGE 135
PLAN OF LAND IN BILLERICA, MILLER&NYLANDER
DATED 3-19-1949
PLAN BOOK 75 PLAN 54

MAP 41 LOT 5
CHARLES C. HUR
315 BOSTON ROAD - BILLERICA, MA
BOOK 21220 PAGE 206

MAP 41 LOT 4
STEP REALTY TRUST
PHILIP J. MALONSON, TRUSTEE
317 BOSTON ROAD
BILLERICA, MA
BOOK 11601 PAGE 295

Curve Table

Curve #	Delta	Radius	Length	Tangent
C14	81°07'53"	28.00	39.65	23.97
C15	74°04'17"	30.00	38.78	22.64
C16	6°32'58"	1800.00	205.76	102.99
C17	5°47'04"	800.00	80.77	40.42
C20	51°59'54"	20.00	18.15	9.75
C22	50°09'49"	20.00	17.51	9.36
C23	0°25'19"	1500.00	11.04	5.52
C24	4°34'54"	100.00	8.00	4.00
C26	3°00'25"	1802.00	94.57	47.30
C28	50°29'59"	20.00	17.63	9.43



CONTINUED ON
SHEET NO. 35

605178_HD(4722_TIE).DWG Plotted on 2-Aug-2021 5:47 PM

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	139
PROJECT FILE NO.		605178	

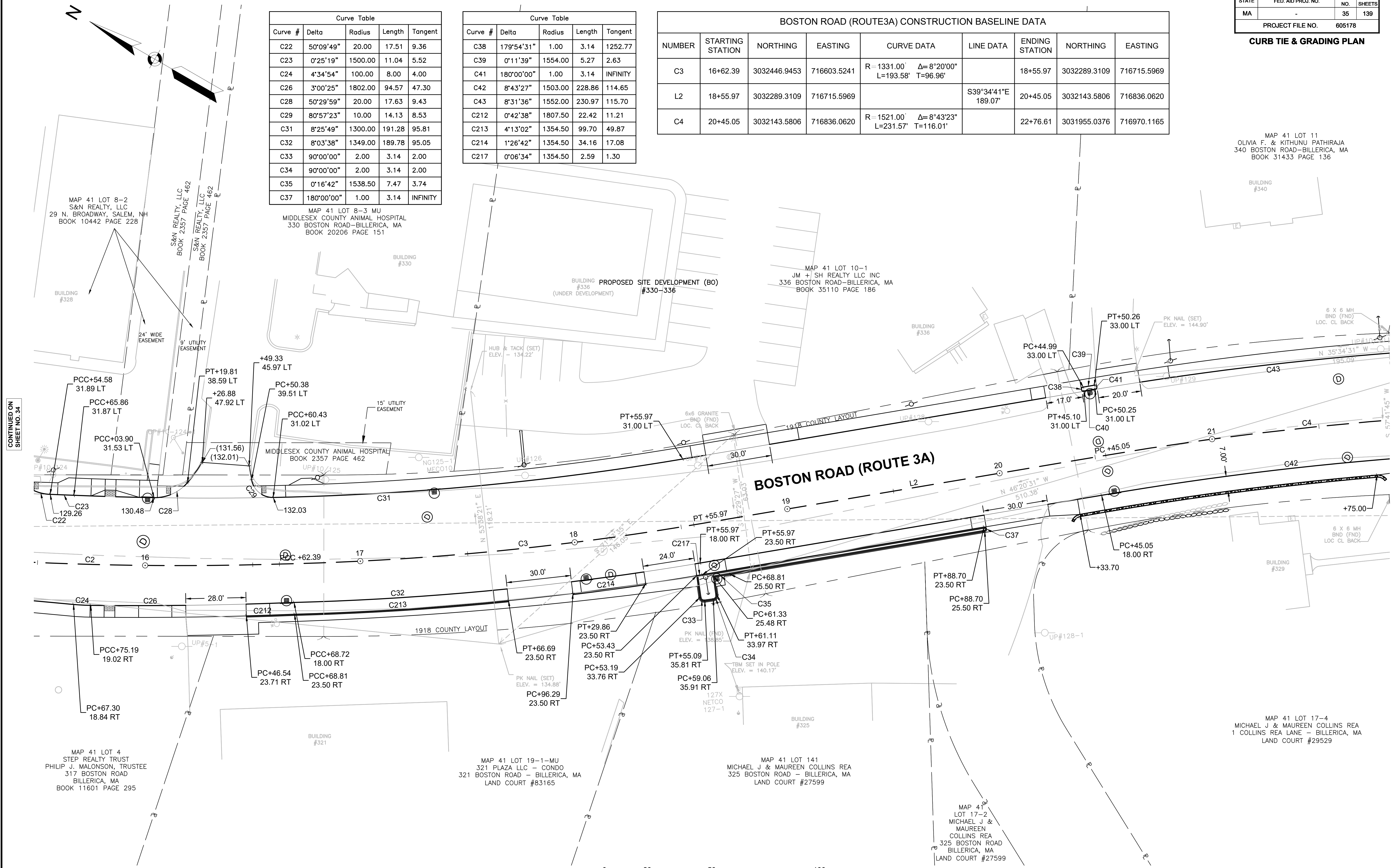
CURB TIE & GRADING PLAN

Curve #	Delta	Radius	Length	Tangent
C22	50°09'49"	20.00	17.51	9.36
C23	0°25'19"	1500.00	11.04	5.52
C24	4°34'54"	100.00	8.00	4.00
C26	3°00'25"	1802.00	94.57	47.30
C28	50°29'59"	20.00	17.63	9.43
C29	80°57'23"	10.00	14.13	8.53
C31	8°25'49"	1300.00	191.28	95.81
C32	8°03'38"	1349.00	189.78	95.05
C33	90°00'00"	2.00	3.14	2.00
C34	90°00'00"	2.00	3.14	2.00
C35	0°16'42"	1538.50	7.47	3.74
C37	180°00'00"	1.00	3.14	INFINITY

Curve #	Delta	Radius	Length	Tangent
C38	179°54'31"	1.00	3.14	1252.77
C39	0°11'39"	1554.00	5.27	2.63
C41	180°00'00"	1.00	3.14	INFINITY
C42	8°43'27"	1503.00	228.86	114.65
C43	8°31'36"	1552.00	230.97	115.70
C212	0°42'38"	1807.50	22.42	11.21
C213	4°13'02"	1354.50	99.70	49.87
C214	1°26'42"	1354.50	34.16	17.08
C217	0°06'34"	1354.50	2.59	1.30

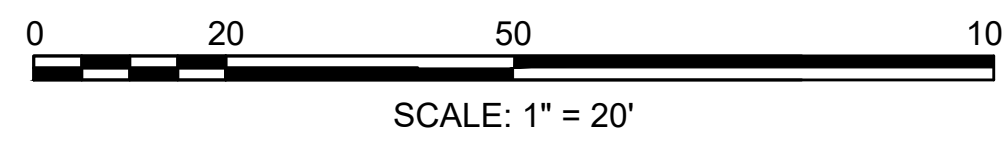
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C3	16+62.39	3032446.9453	716603.5241	R=1331.00' Δ=8°20'00" L=193.58' T=96.96'		18+55.97	3032289.3109	716715.5969
L2	18+55.97	3032289.3109	716715.5969		S39°34'41"E 189.07'	20+45.05	3032143.5806	716836.0620
C4	20+45.05	3032143.5806	716836.0620	R=1521.00' Δ=8°43'23" L=231.57' T=116.01'		22+76.61	3031955.0376	716970.1165

MAP 41 LOT 11
OLIVIA F. & KITHUNU PATHIRAJA
340 BOSTON ROAD-BILLERICA, MA
BOOK 31433 PAGE 136



CONTINUED ON
SHEET NO. 34

CONTINUED ON
SHEET NO. 36



MAP 41 LOT 8-2
S&N REALTY, LLC
29 N. BROADWAY, SALEM, NH
BOOK 10442 PAGE 228

S&N REALTY, LLC
BOOK 2357 PAGE 462
S&N REALTY, LLC
BOOK 2357 PAGE 462

MAP 41 LOT 8-3 MU
MIDDLESEX COUNTY ANIMAL HOSPITAL
330 BOSTON ROAD-BILLERICA, MA
BOOK 20206 PAGE 151

BUILDING #330
BUILDING PROPOSED SITE DEVELOPMENT (BO)
#330-336

MAP 41 LOT 10-1
JM + SH REALTY LLC INC
336 BOSTON ROAD-BILLERICA, MA
BOOK 35110 PAGE 186

MAP 41 LOT 4
STEP REALTY TRUST
PHILIP J. MALONSON, TRUSTEE
317 BOSTON ROAD
BILLERICA, MA
BOOK 11601 PAGE 295

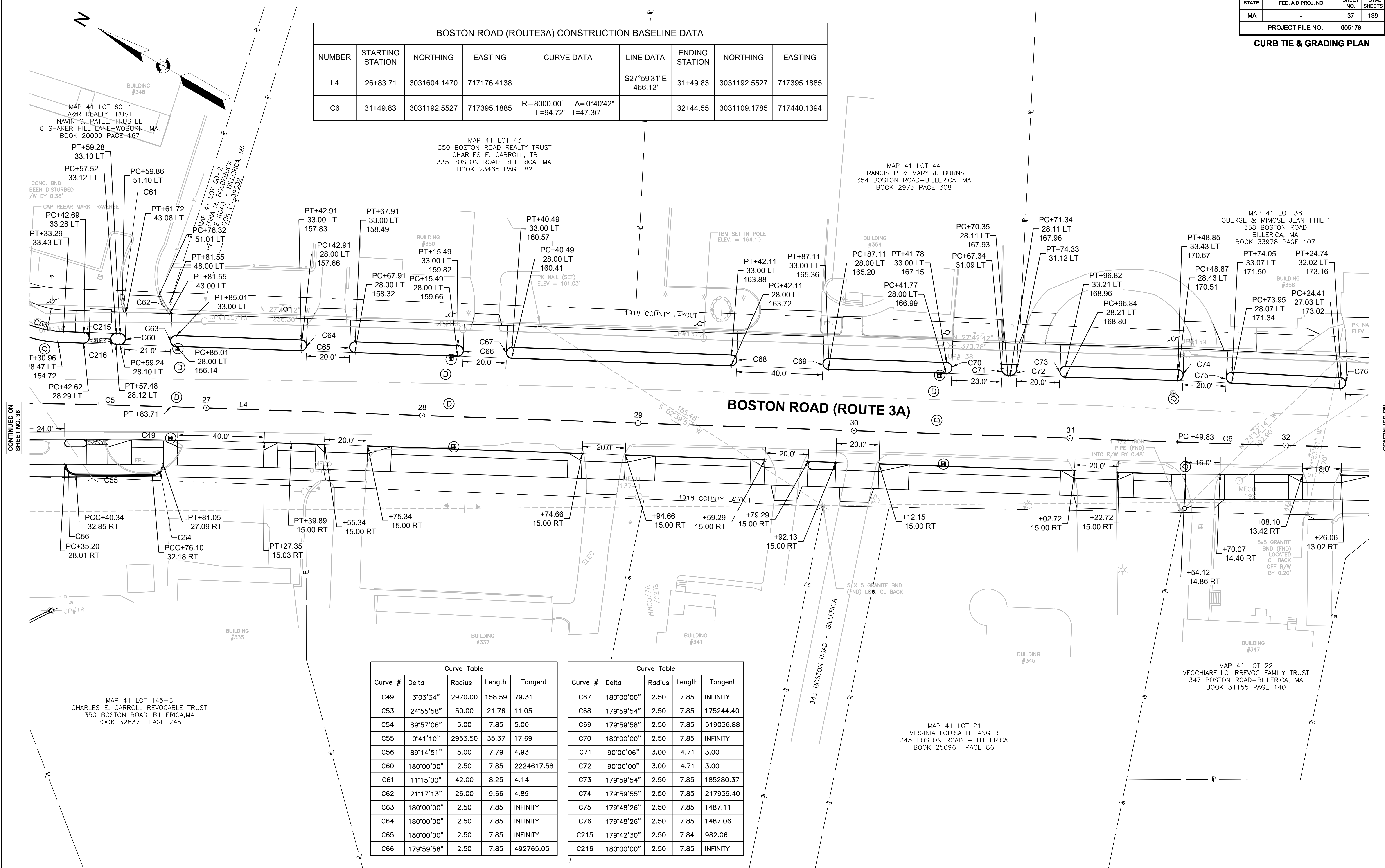
MAP 41 LOT 19-1-MU
321 PLAZA LLC - CONDO
321 BOSTON ROAD - BILLERICA, MA
LAND COURT #83165

MAP 41 LOT 141
MICHAEL J & MAUREEN COLLINS REA
325 BOSTON ROAD - BILLERICA, MA
LAND COURT #27599

MAP 41
LOT 17-2
MICHAEL J &
MAUREEN
COLLINS REA
325 BOSTON ROAD
BILLERICA, MA
LAND COURT #27599

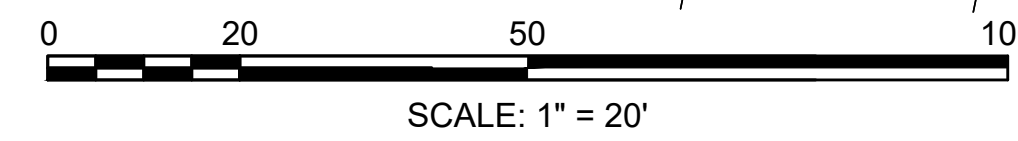
MAP 41 LOT 17-4
MICHAEL J & MAUREEN COLLINS REA
1 COLLINS REA LANE - BILLERICA, MA
LAND COURT #29529

BOSTON ROAD (ROUTE3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L4	26+83.71	3031604.1470	717176.4138		S27°59'31"E 466.12'	31+49.83	3031192.5527	717395.1885
C6	31+49.83	3031192.5527	717395.1885	R=8000.00' L=94.72' Δ=0°40'42" T=47.36'		32+44.55	3031109.1785	717440.1394



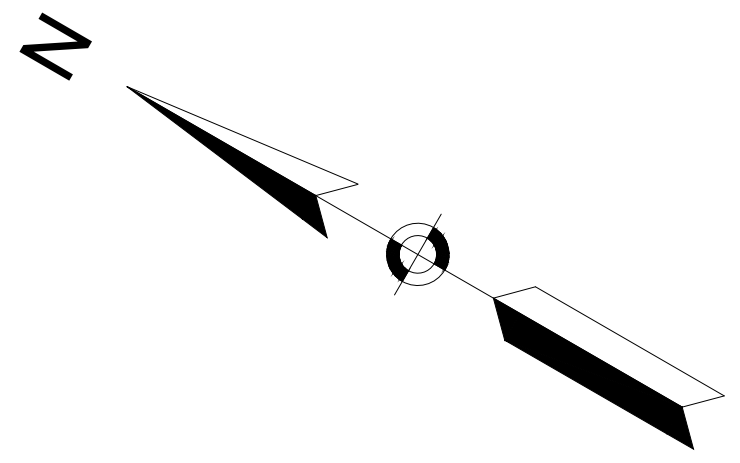
Curve #	Delta	Radius	Length	Tangent
C49	3°03'34"	2970.00	158.59	79.31
C53	24°55'58"	50.00	21.76	11.05
C54	89°57'06"	5.00	7.85	5.00
C55	0°41'10"	2953.50	35.37	17.69
C56	89°14'51"	5.00	7.79	4.93
C60	180°00'00"	2.50	7.85	2224617.58
C61	11°15'00"	42.00	8.25	4.14
C62	21°17'13"	26.00	9.66	4.89
C63	180°00'00"	2.50	7.85	INFINITY
C64	180°00'00"	2.50	7.85	INFINITY
C65	180°00'00"	2.50	7.85	INFINITY
C66	179°59'58"	2.50	7.85	492765.05

Curve #	Delta	Radius	Length	Tangent
C67	180°00'00"	2.50	7.85	INFINITY
C68	179°59'54"	2.50	7.85	175244.40
C69	179°59'58"	2.50	7.85	519036.88
C70	180°00'00"	2.50	7.85	INFINITY
C71	90°00'06"	3.00	4.71	3.00
C72	90°00'00"	3.00	4.71	3.00
C73	179°59'54"	2.50	7.85	185280.37
C74	179°59'55"	2.50	7.85	217939.40
C75	179°48'26"	2.50	7.85	1487.11
C76	179°48'26"	2.50	7.85	1487.06
C215	179°42'30"	2.50	7.84	982.06
C216	180°00'00"	2.50	7.85	INFINITY



CONTINUED ON SHEET NO. 36

CONTINUED ON SHEET NO. 38



MAP 41 LOT 45
ALLEN GEORGE + SON CONST.
4 FARMERS LANE-BILLERICA
BOOK 8210 PAGE 31

MAP 51 LOT 19-1
REUBIN & LYNNE D. MACDONALD
376 BOSTON ROAD-BILLERICA, MA
BOOK 7053 PAGE 59

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		38	139
PROJECT FILE NO.		605178	

CURB TIE & GRADING PLAN

Curve #	Delta	Radius	Length	Tangent
C74	179°59'55"	2.50	7.85	217939.40
C75	179°48'26"	2.50	7.85	1487.11
C76	179°48'26"	2.50	7.85	1487.06
C77	180°00'00"	2.50	7.85	INFINITY
C78	2°07'04"	2000.00	73.93	36.97
C79	2°22'21"	1995.00	82.61	41.31
C80	25°38'49"	22.00	9.85	5.01
C81	154°36'27"	1.50	4.05	6.66
C82	153°13'56"	1.50	4.01	6.30
C83	27°00'32"	20.00	9.43	4.80
C84	0°58'35"	1995.00	34.00	17.00
C86	180°00'00"	2.50	7.85	INFINITY
C87	3°00'56"	1524.00	80.21	40.11
C88	180°00'00"	2.50	7.85	INFINITY
C89	103°37'08"	30.00	54.25	38.14
C90	2°21'10"	1995.00	81.92	40.97
C91	3°56'58"	2000.00	137.87	68.96
C92	75°01'26"	25.00	32.74	19.19
C93	180°00'00"	2.50	7.85	INFINITY
C165	19°08'02"	22.00	7.35	3.71
C219	82°59'59"	3.00	4.35	2.65

FARMERS LANE CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L15	1+00.00	3030914.6050	717546.5345		N58°10'10"E 219.01'	3+19.01	3031030.1135	717732.6093
L16	3+19.01	3031030.1135	717732.6093		N60°15'31"E 80.99'	4+00.00	3031070.2925	717802.9323

LASALLETTE RD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L17	4+00.00	3030784.8724	717624.6975		S73°05'16"W 133.42'	5+33.42	3030746.0609	717497.0525

MAP 41 LOT 36
OBERGE & MIMOSE JEAN-PHILIP
358 BOSTON ROAD
BILLERICA, MA
BOOK 33978 PAGE 107

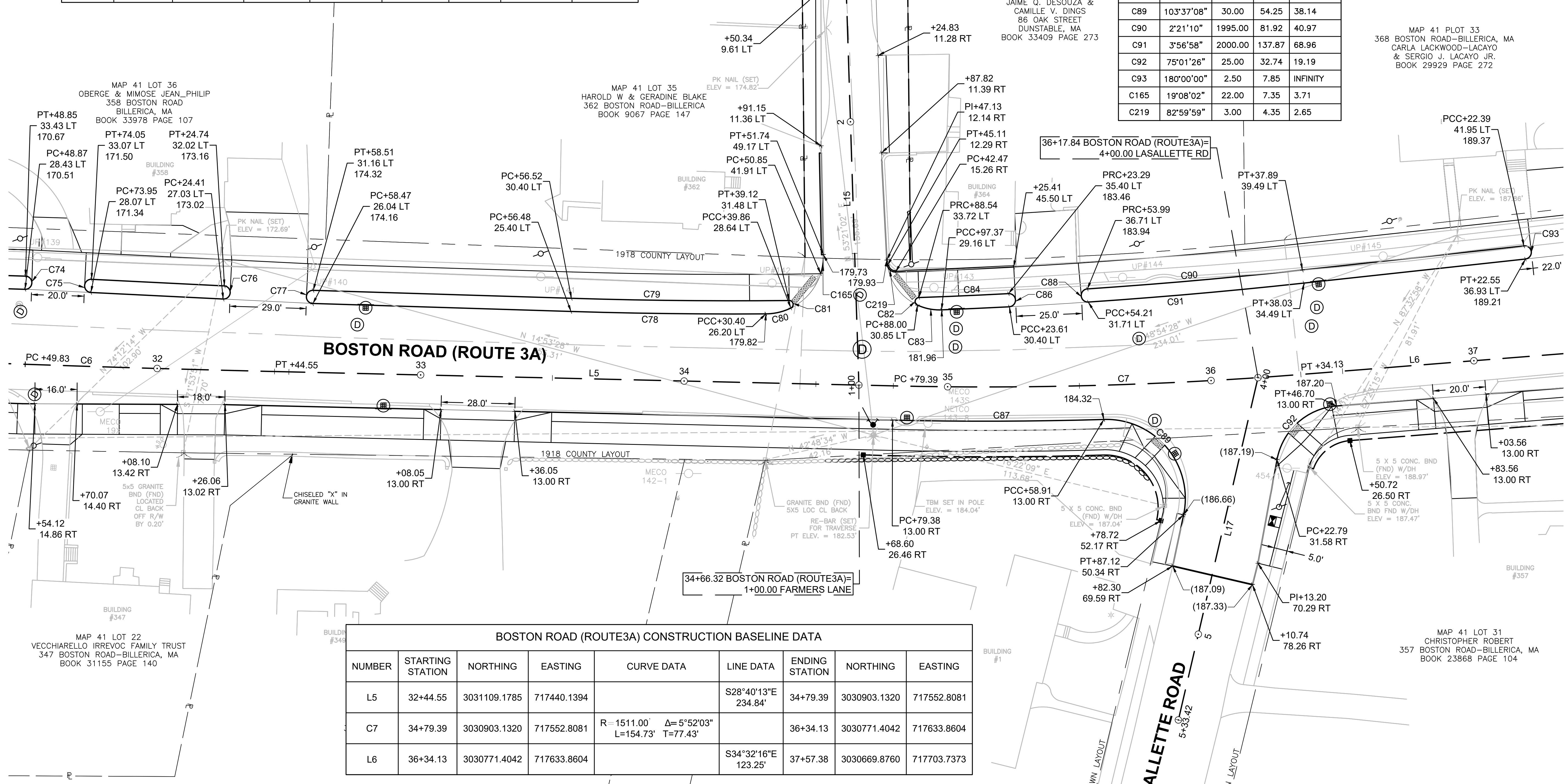
MAP 41 LOT 35
HAROLD W & GERADINE BLAKE
362 BOSTON ROAD-BILLERICA
BOOK 9067 PAGE 147

MAP 41 LOT 34
ROBERT A. &
JAIME Q. DESOUZA &
CAMILLE V. DINGS
36 OAK STREET
DUNSTABLE, MA
BOOK 33409 PAGE 273

MAP 41 PLOT 33
368 BOSTON ROAD-BILLERICA, MA
CARLA LACKWOOD-LACAYO
& SERGIO J. LACAYO JR.
BOOK 29929 PAGE 272

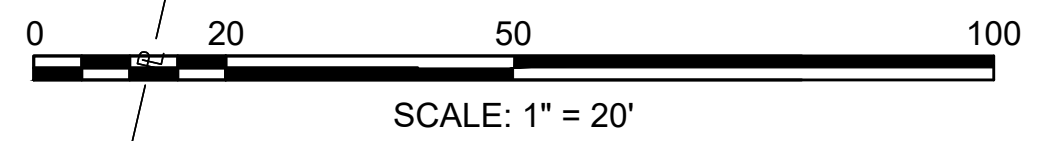
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SHEET NO. 37

CONTINUED ON
SHEET NO. 39



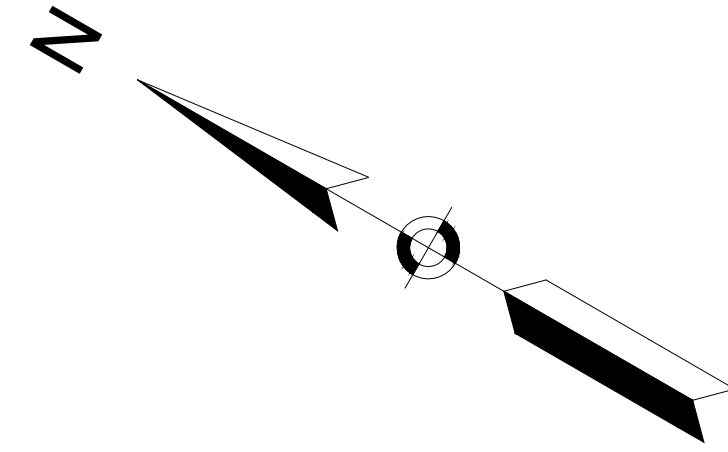
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	32+44.55	3031109.1785	717440.1394		S28°40'13"E 234.84'	34+79.39	3030903.1320	717552.8081
C7	34+79.39	3030903.1320	717552.8081	R = 1511.00' Δ = 5°52'03" L = 154.73' T = 77.43'		36+34.13	3030771.4042	717633.8604
L6	36+34.13	3030771.4042	717633.8604		S34°32'16"E 123.25'	37+57.38	3030669.8760	717703.7373



MAP 41 LOT 22
VECCHIARELLO IRREVOC FAMILY TRUST
347 BOSTON ROAD-BILLERICA, MA
BOOK 31155 PAGE 140

MAP 41 LOT 31
CHRISTOPHER ROBERT
357 BOSTON ROAD-BILLERICA, MA
BOOK 23868 PAGE 104

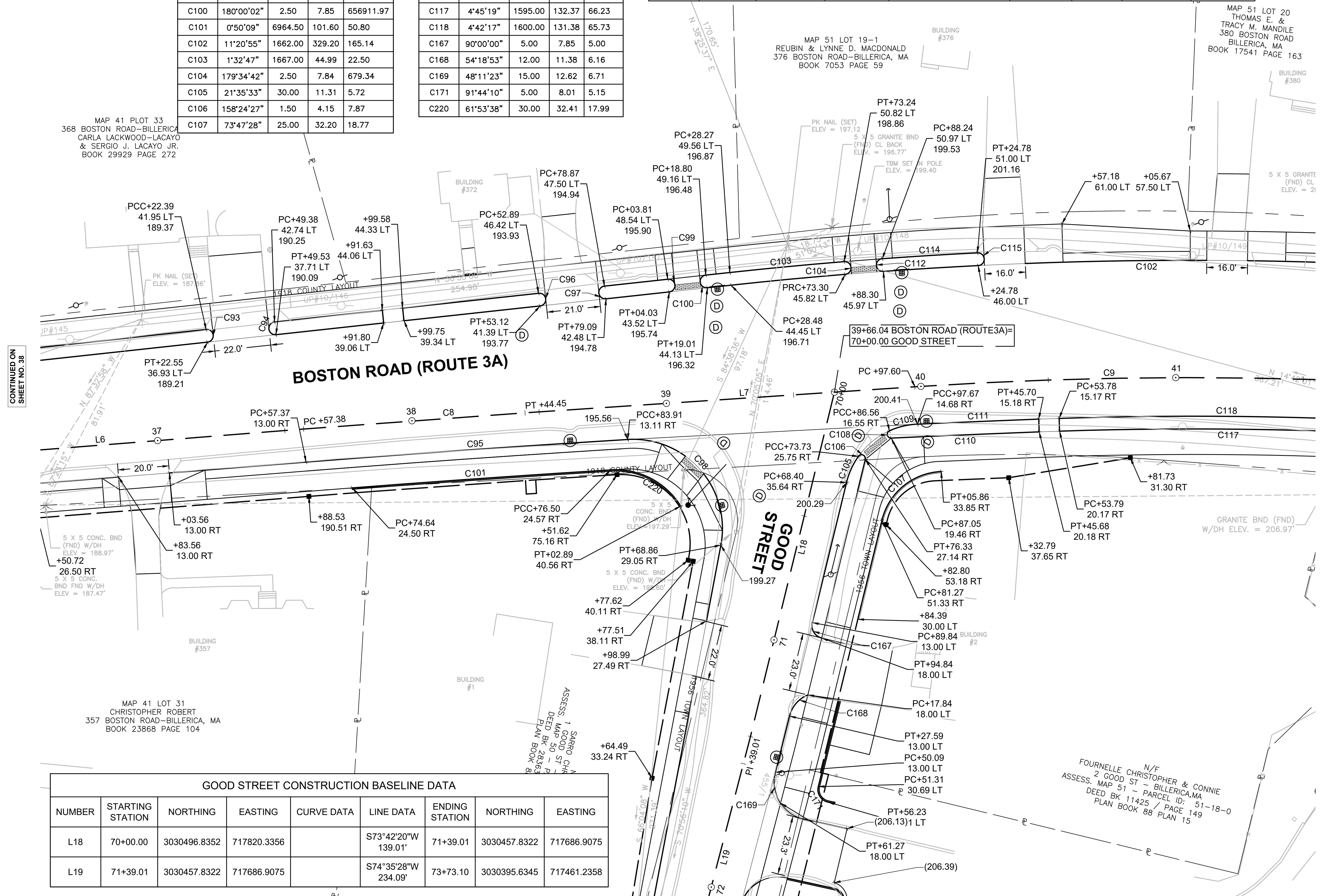


Curve Table				
Curve #	Delta	Radius	Length	Tangent
C93	180°00'00"	2.50	7.85	INFINITY
C94	180°00'00"	2.50	7.85	INFINITY
C95	1°02'17"	6976.00	126.38	63.19
C96	180°00'00"	2.50	7.85	INFINITY
C97	180°00'00"	2.50	7.85	INFINITY
C98	64°55'52"	35.00	39.66	22.27
C99	180°00'00"	2.50	7.85	INFINITY
C100	180°00'02"	2.50	7.85	656911.97
C101	0°50'09"	6964.50	101.60	50.80
C102	11°20'55"	1662.00	329.20	165.14
C103	1°32'47"	1667.00	44.99	22.50
C104	179°34'42"	2.50	7.84	679.34
C105	21°35'33"	30.00	11.31	5.72
C106	158°24'27"	1.50	4.15	7.87
C107	73°47'28"	25.00	32.20	18.77

Curve Table				
Curve #	Delta	Radius	Length	Tangent
C108	158°27'02"	1.50	4.15	7.88
C109	21°38'09"	30.00	11.33	5.73
C110	0°28'31"	6971.00	57.81	28.91
C111	0°23'20"	6976.00	47.34	23.67
C112	180°00'00"	2.50	7.85	INFINITY
C114	1°17'07"	1667.00	37.39	18.70
C115	180°00'00"	2.50	7.85	INFINITY
C117	4°45'19"	1595.00	132.37	66.23
C118	4°42'17"	1600.00	131.38	65.73
C167	90°00'00"	5.00	7.85	5.00
C168	54°18'53"	12.00	11.38	6.16
C169	48°11'23"	15.00	12.62	6.71
C171	91°44'10"	5.00	8.01	5.15
C220	61°53'38"	30.00	32.41	17.99

BOSTON ROAD (ROUTE3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C8	37+57.38	3030669.8760	717703.7373	R = 6989.00' Δ= 0°42'50" L=87.07' T=43.54'		38+44.45	3030597.8455	717752.6540
L7	38+44.45	3030597.8455	717752.6540		S33°49'26"E 153.16'	39+97.60	3030470.6109	717837.9071
C9	39+97.60	3030470.6109	717837.9071	R = 1616.00' Δ= 7°31'19" L=212.15' T=106.23'		42+09.76	3030287.1311	717944.1084

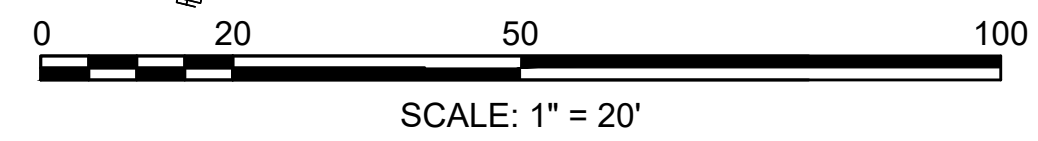
BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		39	139
PROJECT FILE NO.		605178	
CURB TIE & GRADING PLAN			



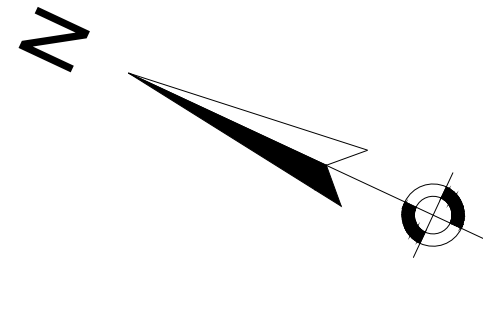
CONTINUED ON SHEET NO. 38

CONTINUED ON SHEET NO. 40

GOOD STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L18	70+00.00	3030496.8352	717820.3356		S73°42'20"W 139.01'	71+39.01	3030457.8322	717686.9075
L19	71+39.01	3030457.8322	717686.9075		S74°35'28"W 234.09'	73+73.10	3030395.6345	717461.2358



CONTINUED ON SHEET NO. 44



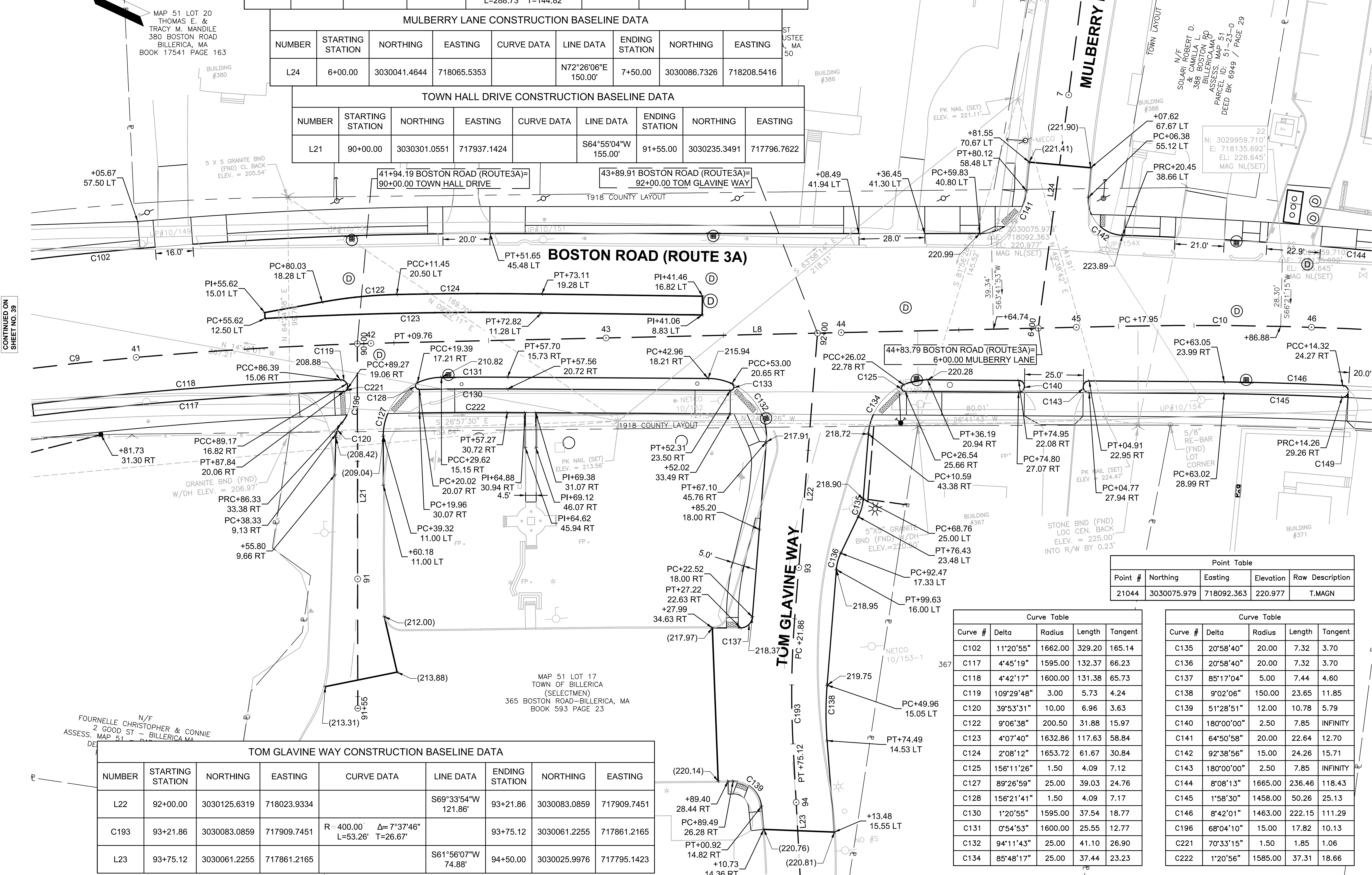
BOSTON ROAD (ROUTE3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L8	42+09.76	3030287.1311	717944.1084		S26°18'07"E 308.19'	45+17.95	3030010.8445	718080.6700
C10	45+17.95	3030010.8445	718080.6700	R=1487.00' Δ=11°07'31" L=288.73' T=144.82'		48+06.68	3029741.2468	718182.7548

MULBERRY LANE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L24	6+00.00	3030041.4644	718065.5353		N72°26'06"E 150.00'	7+50.00	3030086.7326	718208.5416

TOWN HALL DRIVE CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L21	90+00.00	3030301.0551	717937.1424		S64°55'04"W 155.00'	91+55.00	3030235.3491	717796.7622

BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		40	139
PROJECT FILE NO. 605178			

CURB TIE & GRADING PLAN



CONTINUED ON SHEET NO. 39

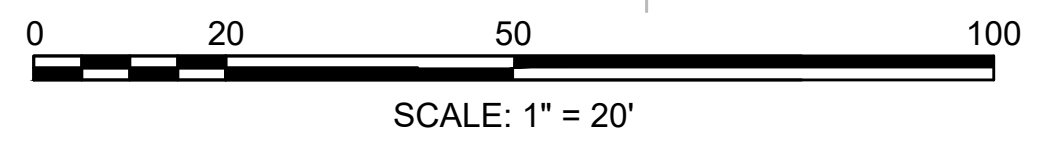
CONTINUED ON SHEET NO. 41

TOM GLAVINE WAY CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L22	92+00.00	3030125.6319	718023.9334		S69°33'54"W 121.86'	93+21.86	3030083.0859	717909.7451
C193	93+21.86	3030083.0859	717909.7451	R=400.00' Δ=7°37'46" L=53.26' T=26.67'		93+75.12	3030061.2255	717861.2165
L23	93+75.12	3030061.2255	717861.2165		S61°56'07"W 74.88'	94+50.00	3030025.9976	717795.1423

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
21044	3030075.979	718092.363	220.977	T.MAGN

Curve Table				
Curve #	Delta	Radius	Length	Tangent
C102	11°20'55"	1662.00	329.20	165.14
C117	4°45'19"	1595.00	132.37	66.23
C118	4°42'17"	1600.00	131.38	65.73
C119	109°29'48"	3.00	5.73	4.24
C120	39°53'31"	10.00	6.96	3.63
C122	9°06'38"	200.50	31.88	15.97
C123	4°07'40"	1632.86	117.63	58.84
C124	2°08'12"	1653.72	61.67	30.84
C125	156°11'26"	1.50	4.09	7.12
C127	89°26'59"	25.00	39.03	24.76
C128	156°21'41"	1.50	4.09	7.17
C130	1°20'55"	1595.00	37.54	18.77
C131	0°54'53"	1600.00	25.55	12.77
C132	94°11'43"	25.00	41.10	26.90
C134	85°48'17"	25.00	37.44	23.23

Curve Table				
Curve #	Delta	Radius	Length	Tangent
C135	20°58'40"	20.00	7.32	3.70
C136	20°58'40"	20.00	7.32	3.70
C137	85°17'04"	5.00	7.44	4.60
C138	9°02'06"	150.00	23.65	11.85
C139	51°28'51"	12.00	10.78	5.79
C140	180°00'00"	2.50	7.85	INFINITY
C141	64°50'58"	20.00	22.64	12.70
C142	92°38'56"	15.00	24.26	15.71
C143	180°00'00"	2.50	7.85	INFINITY
C144	8°08'13"	1665.00	236.46	118.43
C145	1°58'30"	1458.00	50.26	25.13
C146	8°42'01"	1463.00	222.15	111.29
C196	68°04'10"	15.00	17.82	10.13
C221	70°33'15"	15.00	1.85	1.06
C222	1°20'56"	1585.00	37.31	18.66



N/F
FOURNELLE CHRISTOPHER & CONNIE
ASSESS. MAP 51 - BILLERICA MA

MAP 51 LOT 17
TOWN OF BILLERICA
(SELECTMEN)
365 BOSTON ROAD-BILLERICA, MA
BOOK 593 PAGE 23

MAP 51 LOT 20
THOMAS E. &
TRACY M. MANDILE
380 BOSTON ROAD
BILLERICA, MA
BOOK 17541 PAGE 163

N/F
SOLARI ROBERT D.
& CAMILLO L.
388 BOSTON RD
BILLERICA MA
ASSESS. MAP 51
PARCEL ID: 51-23-0
DEED BK 6949 / PAGE 29

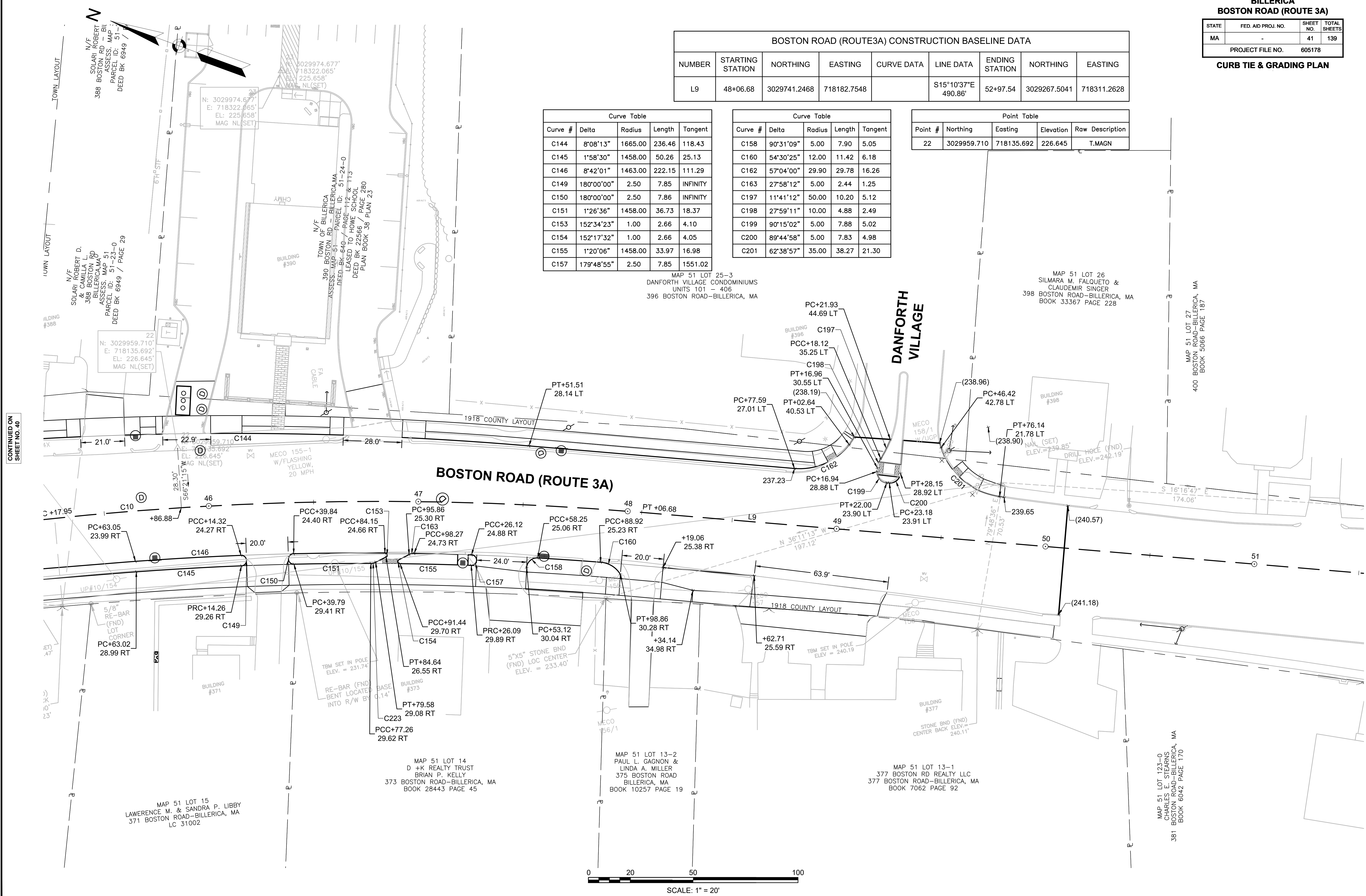
BOSTON ROAD (ROUTE 3A) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L9	48+06.68	3029741.2468	718182.7548		S15°10'37"E 490.86'	52+97.54	3029267.5041	718311.2628

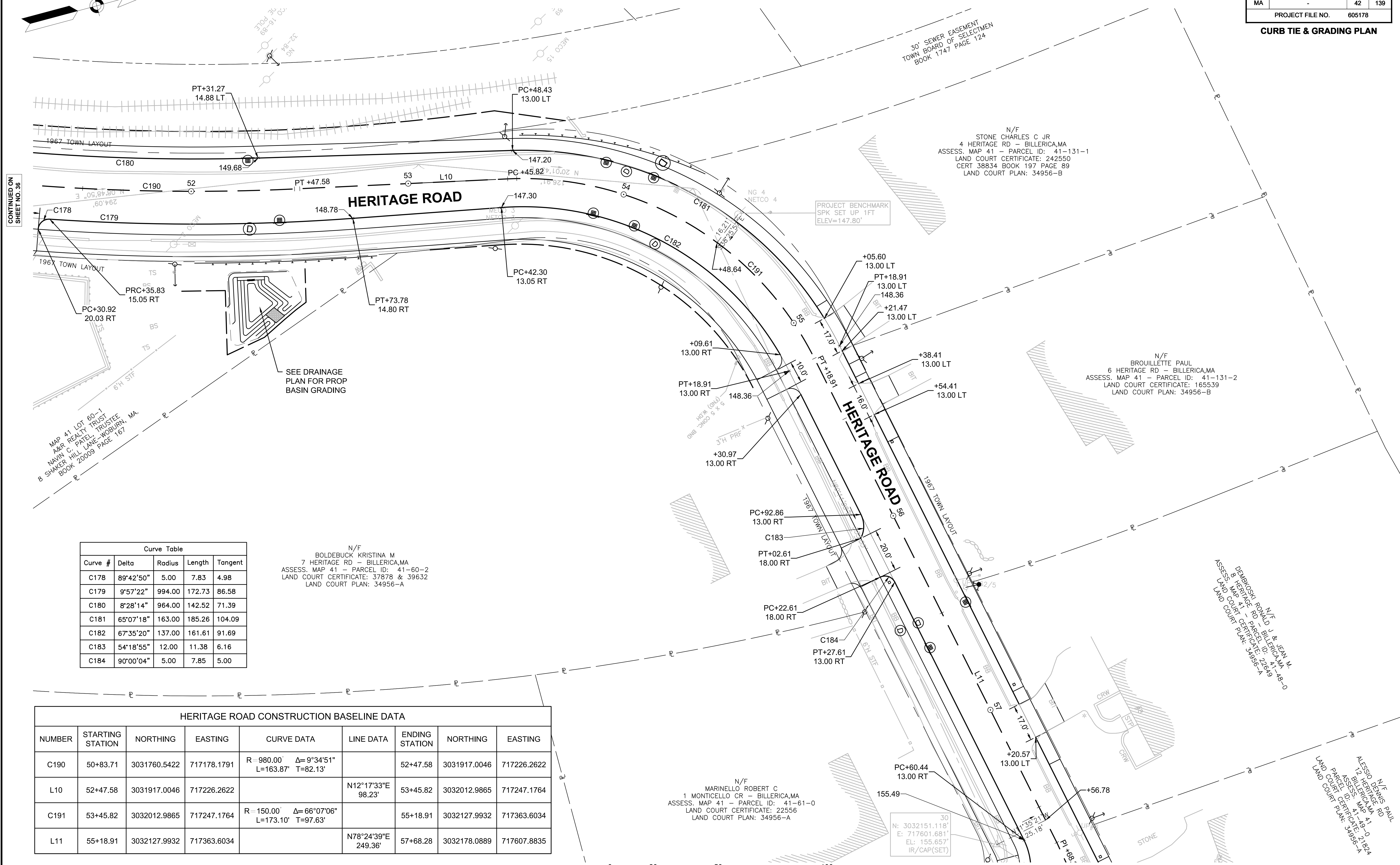
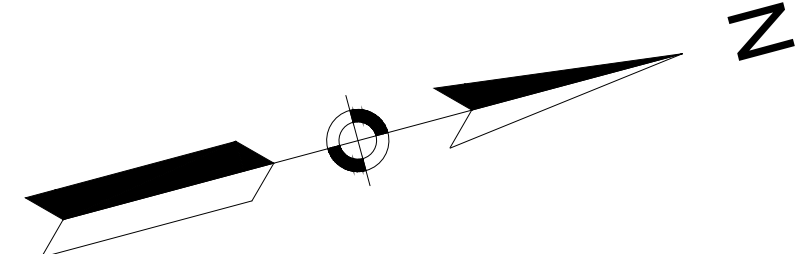
Curve Table				
Curve #	Delta	Radius	Length	Tangent
C144	8°08'13"	1665.00	236.46	118.43
C145	1°58'30"	1458.00	50.26	25.13
C146	8°42'01"	1463.00	222.15	111.29
C149	180°00'00"	2.50	7.85	INFINITY
C150	180°00'00"	2.50	7.86	INFINITY
C151	1°26'36"	1458.00	36.73	18.37
C153	152°34'23"	1.00	2.66	4.10
C154	152°17'32"	1.00	2.66	4.05
C155	1°20'06"	1458.00	33.97	16.98
C157	179°48'55"	2.50	7.85	1551.02

Curve Table				
Curve #	Delta	Radius	Length	Tangent
C158	90°31'09"	5.00	7.90	5.05
C160	54°30'25"	12.00	11.42	6.18
C162	57°04'00"	29.90	29.78	16.26
C163	27°58'12"	5.00	2.44	1.25
C197	11°41'12"	50.00	10.20	5.12
C198	27°59'11"	10.00	4.88	2.49
C199	90°15'02"	5.00	7.88	5.02
C200	89°44'58"	5.00	7.83	4.98
C201	62°38'57"	35.00	38.27	21.30

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
22	3029959.710	718135.692	226.645	T.MAGN

CONTINUED ON
SHEET NO. 40

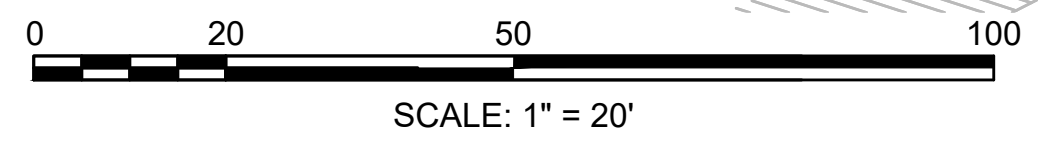




Curve Table				
Curve #	Delta	Radius	Length	Tangent
C178	89°42'50"	5.00	7.83	4.98
C179	9°57'22"	994.00	172.73	86.58
C180	8°28'14"	964.00	142.52	71.39
C181	65°07'18"	163.00	185.26	104.09
C182	67°35'20"	137.00	161.61	91.69
C183	54°18'55"	12.00	11.38	6.16
C184	90°00'04"	5.00	7.85	5.00

N/F
BOLDEUCK KRISTINA M
7 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-60-2
LAND COURT CERTIFICATE: 37878 & 39632
LAND COURT PLAN: 34956-A

HERITAGE ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C190	50+83.71	3031760.5422	717178.1791	R=980.00 Δ=9°34'51" L=163.87 T=82.13'		52+47.58	3031917.0046	717226.2622
L10	52+47.58	3031917.0046	717226.2622		N12°17'33"E 98.23'	53+45.82	3032012.9865	717247.1764
C191	53+45.82	3032012.9865	717247.1764	R=150.00 Δ=66°07'06" L=173.10 T=97.63'		55+18.91	3032127.9932	717363.6034
L11	55+18.91	3032127.9932	717363.6034		N78°24'39"E 249.36'	57+68.28	3032178.0889	717607.8835



CONTINUED ON SHEET NO. 36

CONTINUED ON SHEET NO. 43

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	139

PROJECT FILE NO. 605178

CURB TIE & GRADING PLAN

HERITAGE ROAD CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L12	57+68.28	3032178.0889	717607.8835		N80°10'19"E 88.63'	58+56.91	3032193.2169	717695.2106
L13	58+56.91	3032193.2169	717695.2106		N78°18'51"E 62.47'	59+19.37	3032205.8696	717756.3839
C192	59+65.79	3032214.0182	717802.0822	R=180.00' Δ=10°15'43" L=32.24' T=16.16'		59+98.03	3032222.4819	717833.1452
L25	59+98.03	3032222.4819	717833.1452		N69°37'40"E 144.99'	61+43.02	3032272.9536	717969.0616

N/F
SENG SOKLEANG
18 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-52-0
LAND COURT CERTIFICATE: 39175
LAND COURT PLAN: 31951-B

Curve Table

Curve #	Delta	Radius	Length	Tangent
C185	97°26'18"	30.00	51.02	34.17
C187	73°47'56"	30.00	38.64	22.52
C189	76°40'56"	5.00	6.69	3.95
C194	34°17'00"	10.00	5.98	3.08
C195	37°39'48"	10.00	6.57	3.41

N/F
LEVASSEUR DAVID R.
16 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-51-0
LAND COURT CERTIFICATE: 30708
LAND COURT PLAN: 31951-B

N/F
DIMATTEO JASON P. & ALISHA D.
14 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-50-0
DEED BK 11361 / PAGE 178
LAND COURT CERTIFICATE: 193936
LAND COURT PLAN: 31951-B

N/F
DEMBKOSKI RONALD J & JEAN M.
8 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-48-0
LAND COURT CERTIFICATE: 22649
LAND COURT PLAN: 34956-A

N/F
ALESSIO DENNIS PAUL
12 HERITAGE RD
BILLERICA, MA
ASSESS. MAP 41
PARCEL ID: 41-49-0
LAND COURT CERTIFICATE: 21824
LAND COURT PLAN: 34956-A

31
N: 3032278.318'
E: 717742.802'
EL: 162.378'
IR/CAP(SET)

32
N: 3032240.727'
E: 717935.023'
EL: 168.875'
IR/CAP(SET)

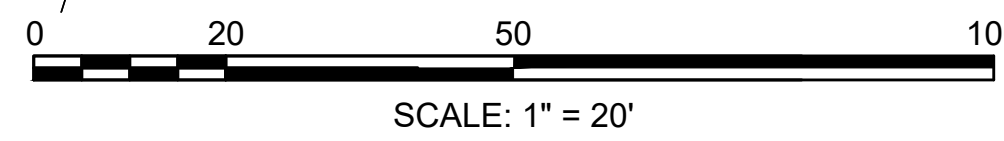
N/F
SASSER LINDA C.
17 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-69-0
LAND COURT CERTIFICATE: 34710
LAND COURT PLAN: 31951-A

N/F
THE PORCARO FAMILY TRUST
2 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-66-0
LAND COURT CERTIFICATE: 291821
LAND COURT PLAN: 34956-A

N/F
ERIC JAMES RICHARD, HEATHER A. MAGEE
1 MOUNT VERNON AV - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-67-0
LAND COURT CERTIFICATE: 42451
LAND COURT PLAN: 34956-A

N/F
MARRINELLO ROBERT C.
1 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-61-0
LAND COURT CERTIFICATE: 22536
LAND COURT PLAN: 34956-A

CONTINUED ON
SHEET NO. 42

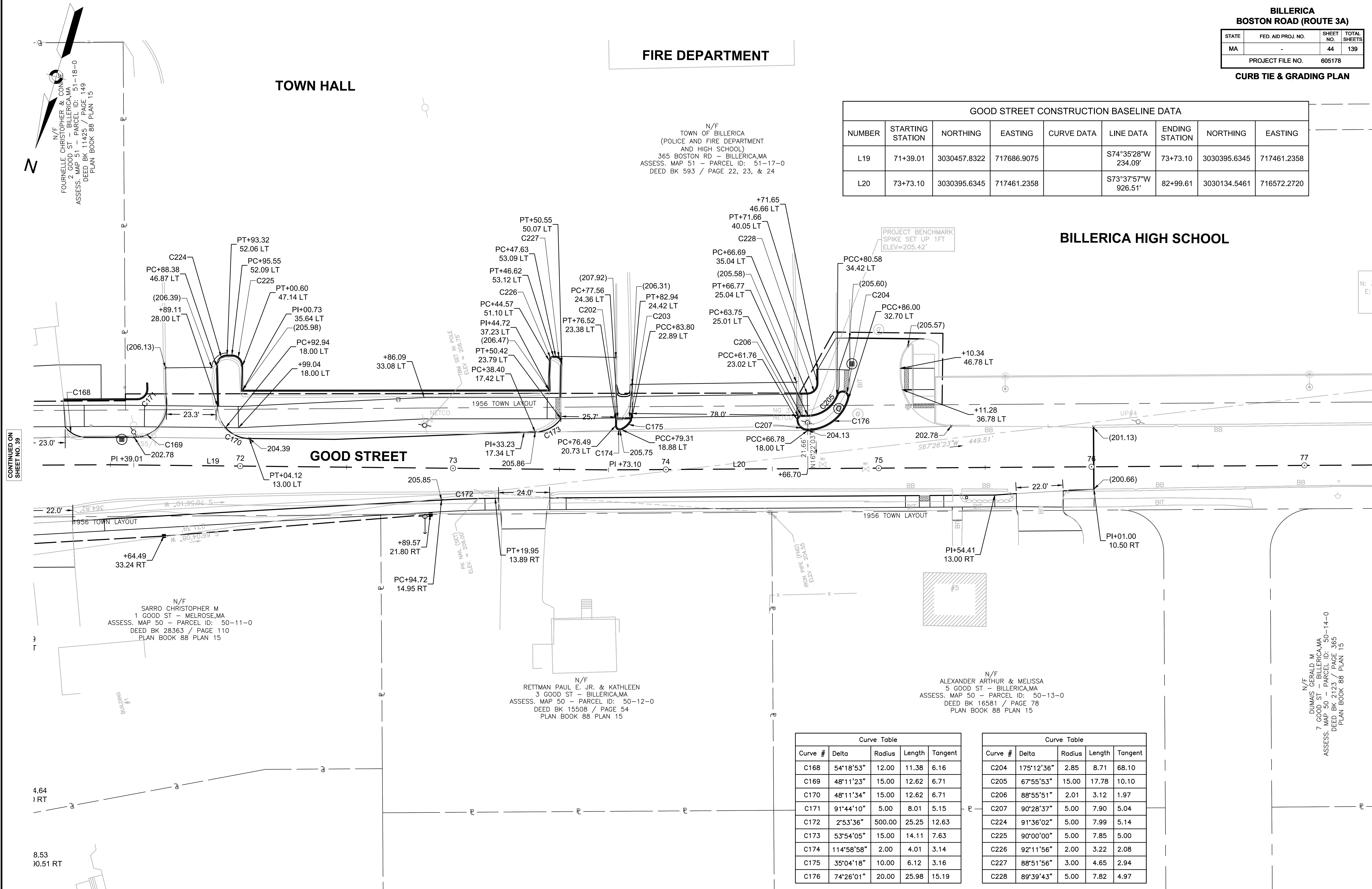


GOOD STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L19	71+39.01	3030457.8322	717686.9075		S74°35'28"W 234.09'	73+73.10	3030395.6345	717461.2358
L20	73+73.10	3030395.6345	717461.2358		S73°37'57"W 926.51'	82+99.61	3030134.5461	716572.2720

FIRE DEPARTMENT

N/F
TOWN OF BILLERICA
(POLICE AND FIRE DEPARTMENT
AND HIGH SCHOOL)
365 BOSTON RD - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-17-0
DEED BK 593 / PAGE 22, 23, & 24

BILLERICA HIGH SCHOOL



CONTINUED ON
SHEET NO. 39

N: 3
E: 1

N/F
SARRO CHRISTOPHER M
1 GOOD ST - MELROSE, MA
ASSESS. MAP 50 - PARCEL ID: 50-11-0
DEED BK 28363 / PAGE 110
PLAN BOOK 88 PLAN 15

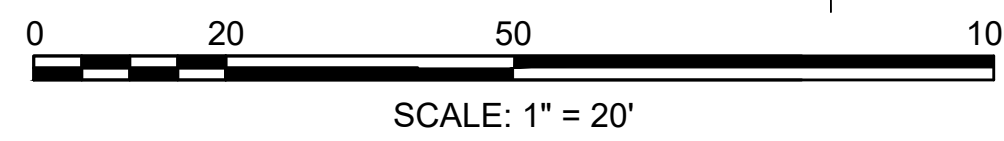
N/F
RETTMAN PAUL E. JR. & KATHLEEN
3 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-12-0
DEED BK 15508 / PAGE 54
PLAN BOOK 88 PLAN 15

N/F
ALEXANDER ARTHUR & MELISSA
5 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-13-0
DEED BK 16581 / PAGE 78
PLAN BOOK 88 PLAN 15

N/F
DUMAIS GERALD M
7 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-14-0
DEED BK 2123 / PAGE 365
PLAN BOOK 88 PLAN 15

Curve #	Delta	Radius	Length	Tangent
C168	54°18'53"	12.00	11.38	6.16
C169	48°11'23"	15.00	12.62	6.71
C170	48°11'34"	15.00	12.62	6.71
C171	91°44'10"	5.00	8.01	5.15
C172	2°53'36"	500.00	25.25	12.63
C173	53°54'05"	15.00	14.11	7.63
C174	114°58'58"	2.00	4.01	3.14
C175	35°04'18"	10.00	6.12	3.16
C176	74°26'01"	20.00	25.98	15.19

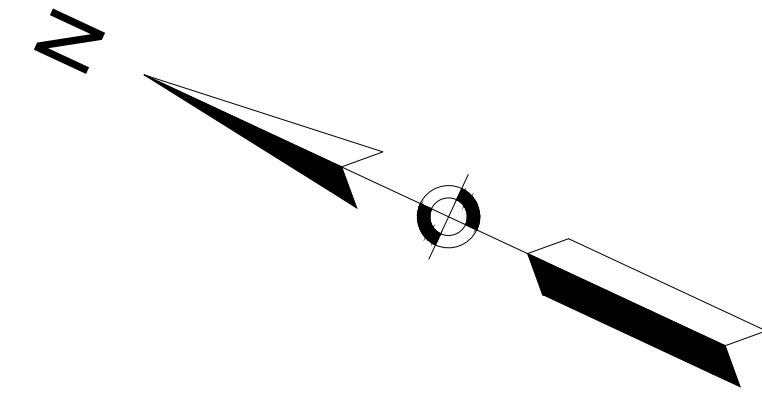
Curve #	Delta	Radius	Length	Tangent
C204	175°12'36"	2.85	8.71	68.10
C205	67°55'53"	15.00	17.78	10.10
C206	88°55'51"	2.01	3.12	1.97
C207	90°28'37"	5.00	7.90	5.04
C224	91°36'02"	5.00	7.89	5.14
C225	90°00'00"	5.00	7.95	5.00
C226	92°11'56"	2.00	3.22	2.08
C227	88°51'56"	3.00	4.65	2.94
C228	89°39'43"	5.00	7.82	4.97



STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	139
PROJECT FILE NO. 605178			

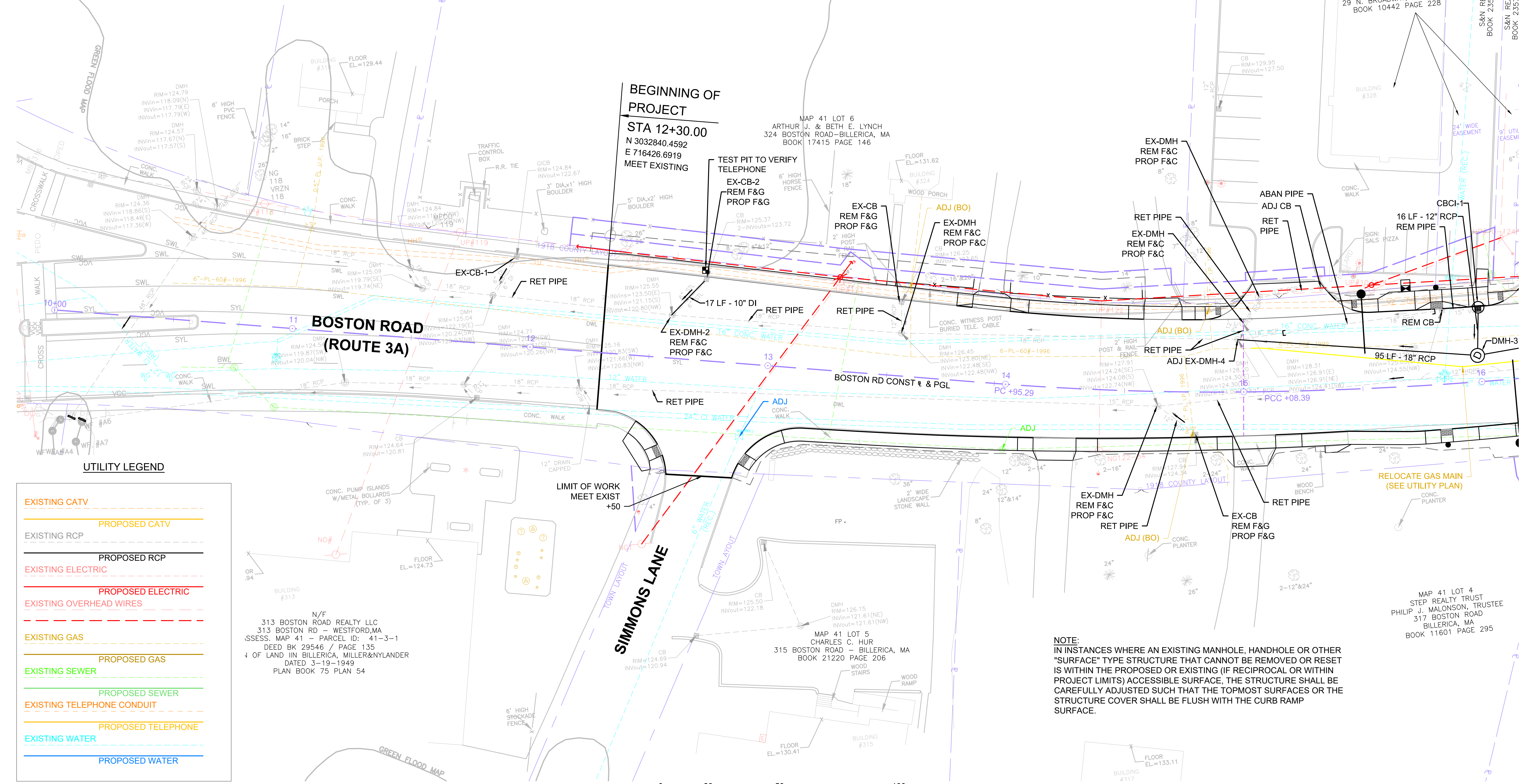
DRAINAGE PLAN

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CBCI-1	16+00.84	31.4 L	130.41		I=126.90' (DMH-3)	OFFSET CB FLAT TOP
DMH-3	15+99	11.1 L	130.76	I=126.30' (DMH-4) I=126.60' (CBCI-1)	I=126.20' (EX-DMH-4)	OFFSET DMH 5' DIA. FLAT TOP
EX-CB-2	12+71.55	34.2 L	125.44		I=121.90' (EX-DMH-2)	
EX-DMH-2	12+58.16	18.1 L	125.66	I=121.15' (EXISTING) I=121.70' (EX-CB-2)	I=120.80' (EXISTING)	
EX-DMH-4	14+97.60	22.0 L	128.41	I=124.30' (DMH-3)	I=124.00' (EXISTING)	



N/F KRAJEWSKI MARIUSZ
316 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31 - PARCEL ID: 31-38-0
DEED BK 23810 / PAGE 124
PLAN BOOK 78 PLAN 24

N/F POWERS JOSEPH T
318 BOSTON RD - N BILLERICA, MA
ASSESS. MAP 31 - PARCEL ID: 31-37-0
DEED BK 1538 / PAGE 131



BEGINNING OF PROJECT
STA 12+30.00
N 3032840.4592
E 716426.6919
MEET EXISTING

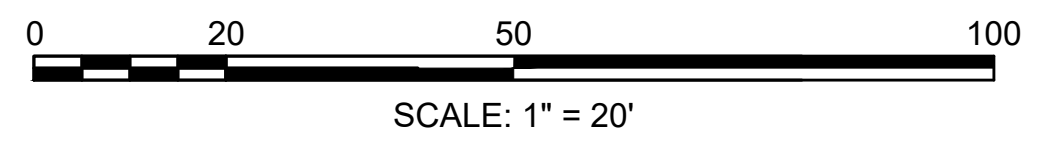
SIMMONS LANE

BOSTON ROAD (ROUTE 3A)

UTILITY LEGEND

	EXISTING CATV
	PROPOSED CATV
	EXISTING RCP
	PROPOSED RCP
	EXISTING ELECTRIC
	PROPOSED ELECTRIC
	EXISTING OVERHEAD WIRES
	EXISTING GAS
	PROPOSED GAS
	EXISTING SEWER
	PROPOSED SEWER
	EXISTING TELEPHONE CONDUIT
	PROPOSED TELEPHONE
	EXISTING WATER
	PROPOSED WATER

NOTE:
IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET IS WITHIN THE PROPOSED OR EXISTING (IF RECIPROCAL OR WITHIN PROJECT LIMITS) ACCESSIBLE SURFACE, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOPMOST SURFACES OR THE STRUCTURE COVER SHALL BE FLUSH WITH THE CURB RAMP SURFACE.



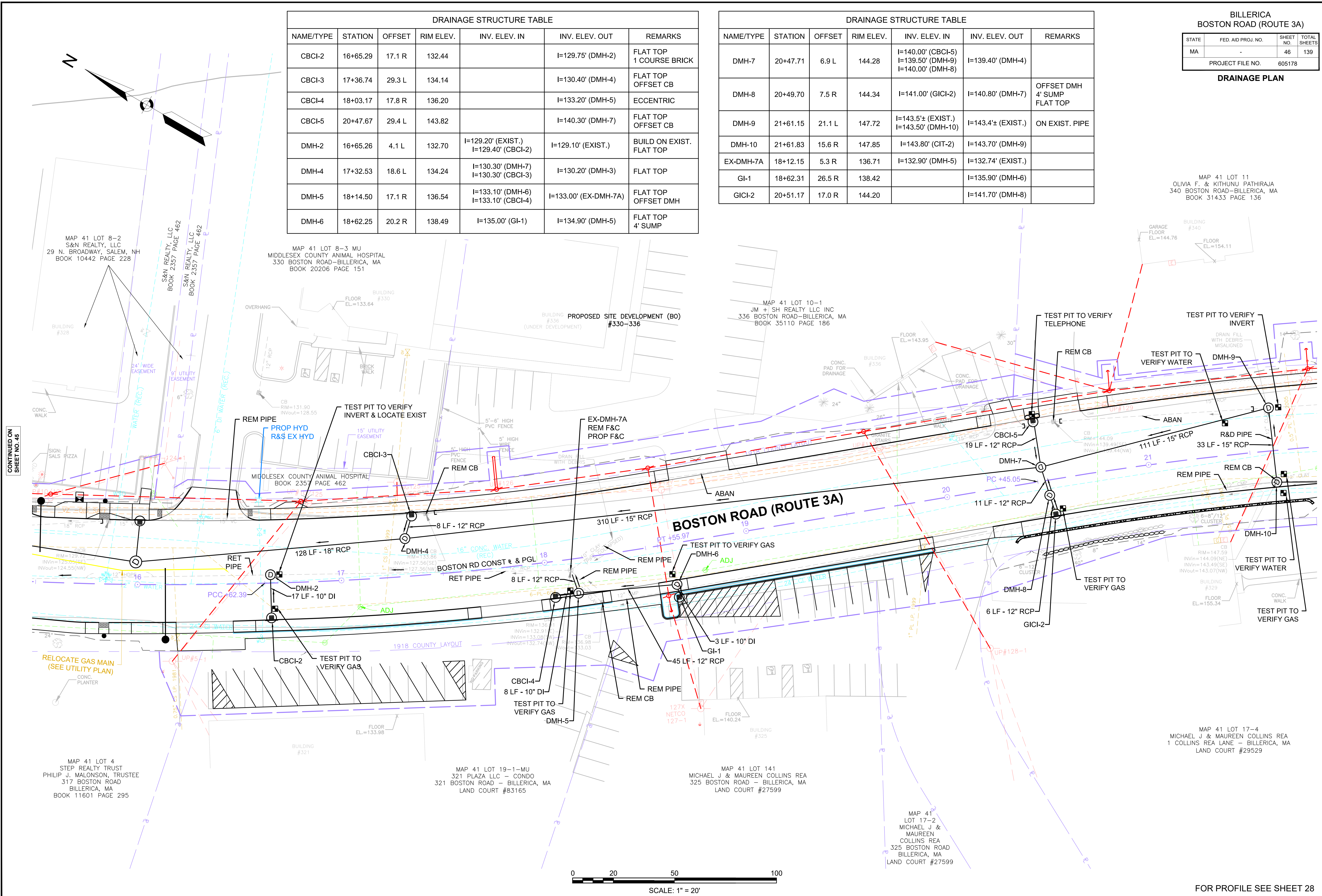
FOR PROFILE SEE SHEET 28

CONTINUED ON SHEET NO. 46

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CBCI-2	16+65.29	17.1 R	132.44		I=129.75' (DMH-2)	FLAT TOP 1 COURSE BRICK
CBCI-3	17+36.74	29.3 L	134.14		I=130.40' (DMH-4)	FLAT TOP OFFSET CB
CBCI-4	18+03.17	17.8 R	136.20		I=133.20' (DMH-5)	ECCENTRIC
CBCI-5	20+47.67	29.4 L	143.82		I=140.30' (DMH-7)	FLAT TOP OFFSET CB
DMH-2	16+65.26	4.1 L	132.70	I=129.20' (EXIST.) I=129.40' (CBCI-2)	I=129.10' (EXIST.)	BUILD ON EXIST. FLAT TOP
DMH-4	17+32.53	18.6 L	134.24	I=130.30' (DMH-7) I=130.30' (CBCI-3)	I=130.20' (DMH-3)	FLAT TOP
DMH-5	18+14.50	17.1 R	136.54	I=133.10' (DMH-6) I=133.10' (CBCI-4)	I=133.00' (EX-DMH-7A)	FLAT TOP OFFSET DMH
DMH-6	18+62.25	20.2 R	138.49	I=135.00' (GI-1)	I=134.90' (DMH-5)	FLAT TOP 4' SUMP

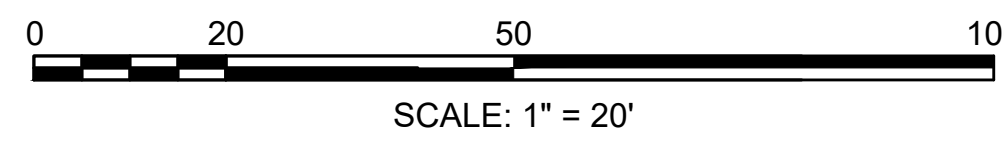
DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-7	20+47.71	6.9 L	144.28	I=140.00' (CBCI-5) I=139.50' (DMH-9) I=140.00' (DMH-8)	I=139.40' (DMH-4)	
DMH-8	20+49.70	7.5 R	144.34	I=141.00' (GICI-2)	I=140.80' (DMH-7)	OFFSET DMH 4' SUMP FLAT TOP
DMH-9	21+61.15	21.1 L	147.72	I=143.5± (EXIST.) I=143.50' (DMH-10)	I=143.4± (EXIST.)	ON EXIST. PIPE
DMH-10	21+61.83	15.6 R	147.85	I=143.80' (CIT-2)	I=143.70' (DMH-9)	
EX-DMH-7A	18+12.15	5.3 R	136.71	I=132.90' (DMH-5)	I=132.74' (EXIST.)	
GI-1	18+62.31	26.5 R	138.42		I=135.90' (DMH-6)	
GICI-2	20+51.17	17.0 R	144.20		I=141.70' (DMH-8)	

MAP 41 LOT 11
OLIVIA F. & KITHUNU PATHIRAJA
340 BOSTON ROAD - BILLERICA, MA
BOOK 31433 PAGE 136



CONTINUED ON
SHEET NO. 45

CONTINUED ON
SHEET NO. 47



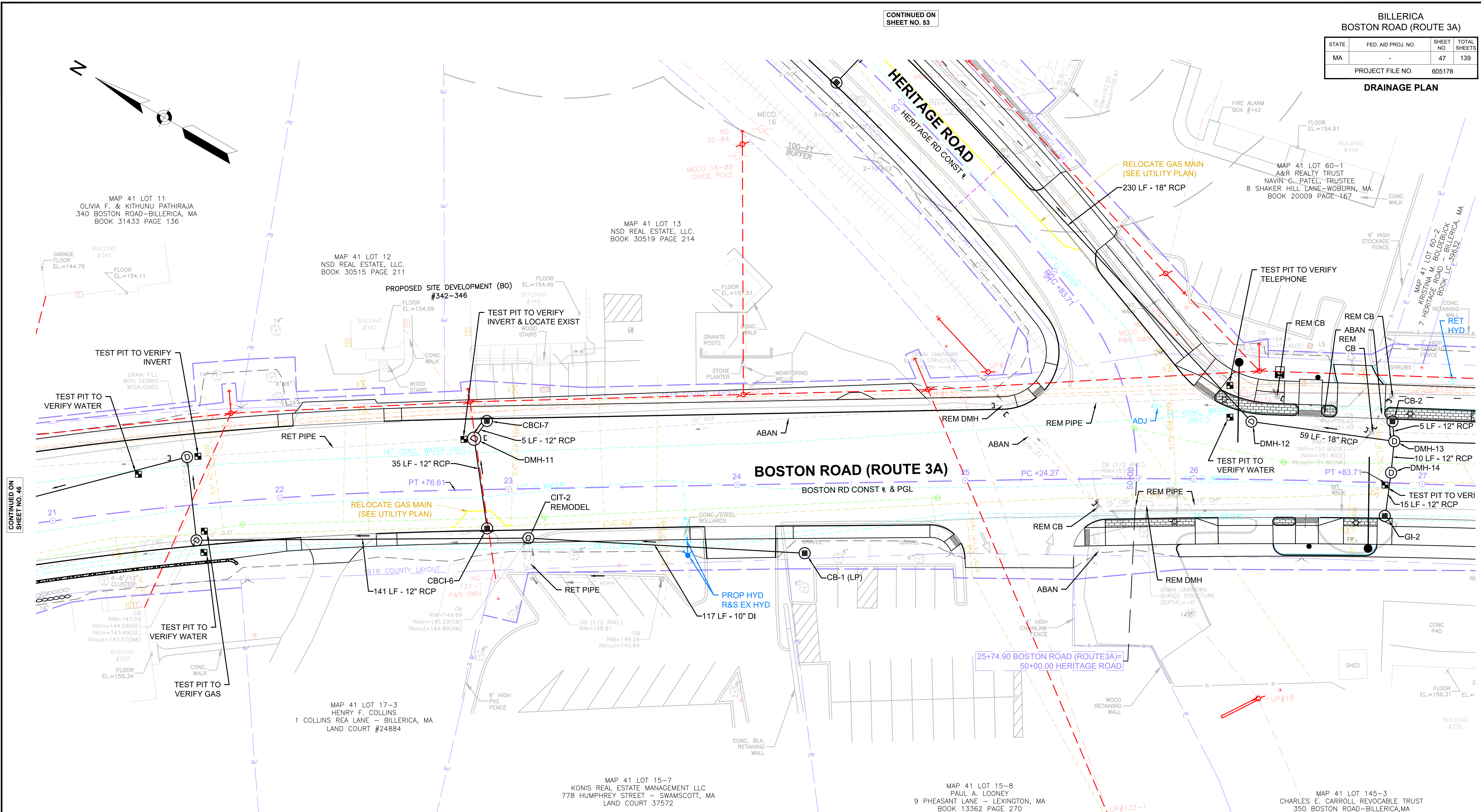
FOR PROFILE SEE SHEET 28

CONTINUED ON SHEET NO. 53

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	139
PROJECT FILE NO. 605178			

DRAINAGE PLAN

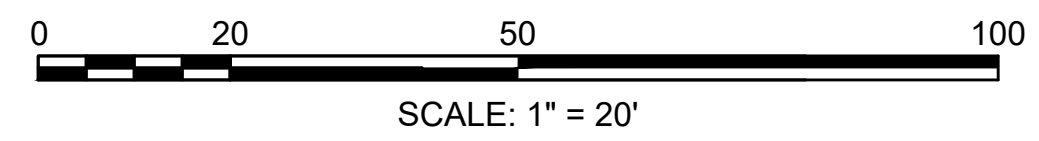


CONTINUED ON SHEET NO. 46

CONTINUED ON SHEET NO. 48

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-1	24+29.11	30.4 R	151.50		I=148.00' (CIT-2)	LOW POINT
CB-2	26+85.99	27.0 L	156.18		I=152.50' (DMH-13)	FLAT TOP
CBI-6	22+90.37	17.0 R	150.09		I=146.50' (DMH-11)	
CBI-7	22+91.13	30.0 L	149.84		I=146.30' (DMH-11)	FLAT TOP
CIT-2	23+08.33	21.6 R	150.79	I=145.29' (EXIST.) I=147.30' (CB-1)	I=147.30' (DMH-10)	CHANGE IN TYPE REMODEL
DMH-11	22+85.40	22.4 L	149.93	I=146.20' (CBI-7) I=146.20' (CBI-6)	I=144.1'± (EXIST.)	5' DIA FLAT TOP

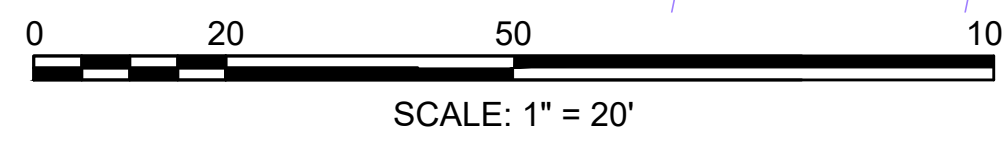
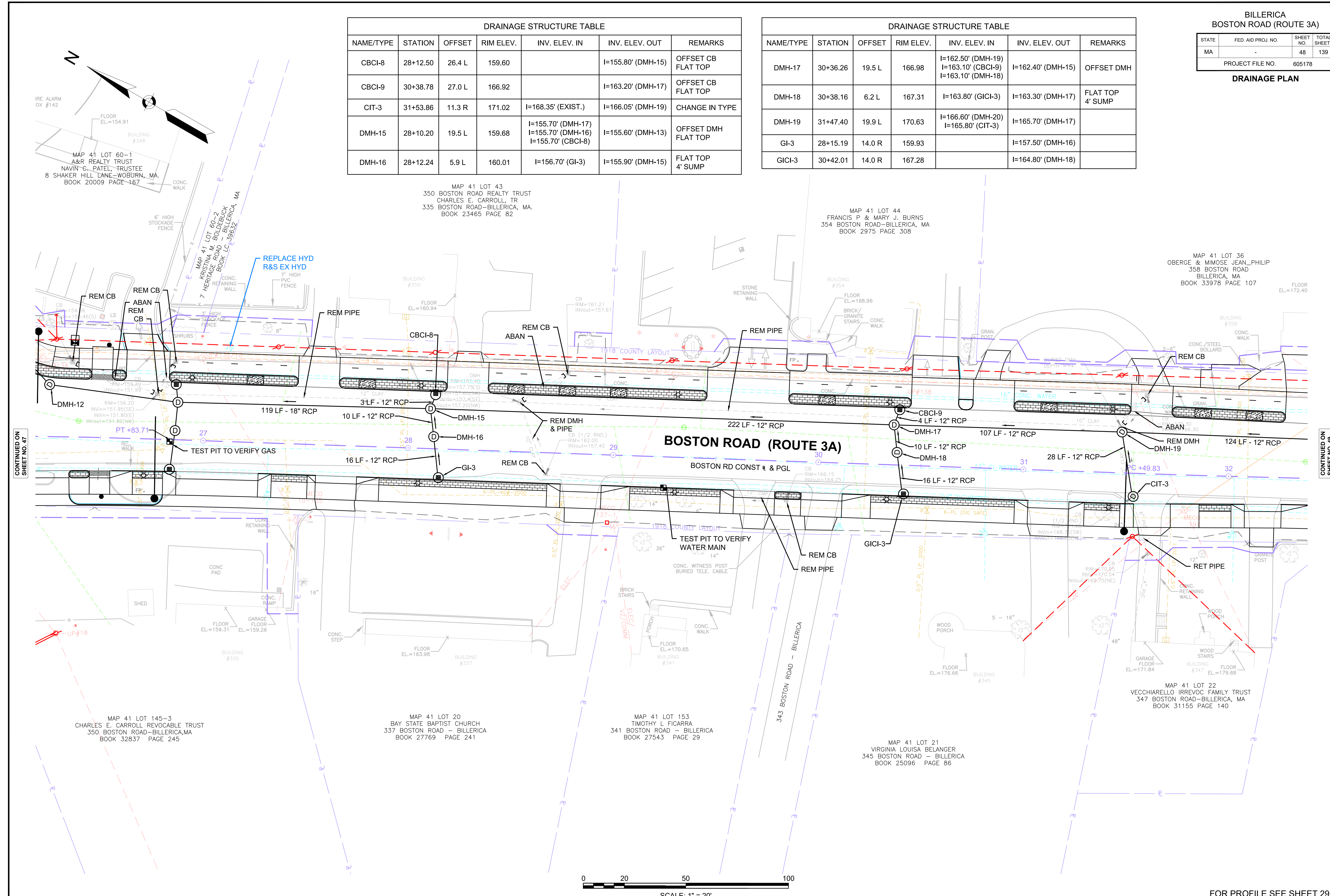
DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-12	26+24.80	25.3 L	154.63	I=150.60' (DMH-13)	I=149.60' (DMH-44)	
DMH-13	26+87.08	18.3 L	156.39	I=152.10' (DMH-15) I=152.40' (DMH-14)	I=152.00' (DMH-12)	
DMH-14	26+86.17	4.5 L	156.64	I=153.30' (GI-2)	I=152.60' (DMH-13)	FLAT TOP 4' SUMP
GI-2	26+84.07	14.5 R	156.38		I=153.90' (DMH-14)	



FOR PROFILE SEE SHEET 29

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CBCI-8	28+12.50	26.4 L	159.60		I=155.80' (DMH-15)	OFFSET CB FLAT TOP
CBCI-9	30+38.78	27.0 L	166.92		I=163.20' (DMH-17)	OFFSET CB FLAT TOP
CIT-3	31+53.86	11.3 R	171.02	I=168.35' (EXIST.)	I=166.05' (DMH-19)	CHANGE IN TYPE
DMH-15	28+10.20	19.5 L	159.68	I=155.70' (DMH-17) I=155.70' (DMH-16) I=155.70' (CBCI-8)	I=155.60' (DMH-13)	OFFSET DMH FLAT TOP
DMH-16	28+12.24	5.9 L	160.01	I=156.70' (GI-3)	I=155.90' (DMH-15)	FLAT TOP 4' SUMP

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-17	30+36.26	19.5 L	166.98	I=162.50' (DMH-19) I=163.10' (CBCI-9) I=163.10' (DMH-18)	I=162.40' (DMH-15)	OFFSET DMH
DMH-18	30+38.16	6.2 L	167.31	I=163.80' (GICI-3)	I=163.30' (DMH-17)	FLAT TOP 4' SUMP
DMH-19	31+47.40	19.9 L	170.63	I=166.60' (DMH-20) I=165.80' (CIT-3)	I=165.70' (DMH-17)	
GI-3	28+15.19	14.0 R	159.93		I=157.50' (DMH-16)	
GICI-3	30+42.01	14.0 R	167.28		I=164.80' (DMH-18)	



FOR PROFILE SEE SHEET 29

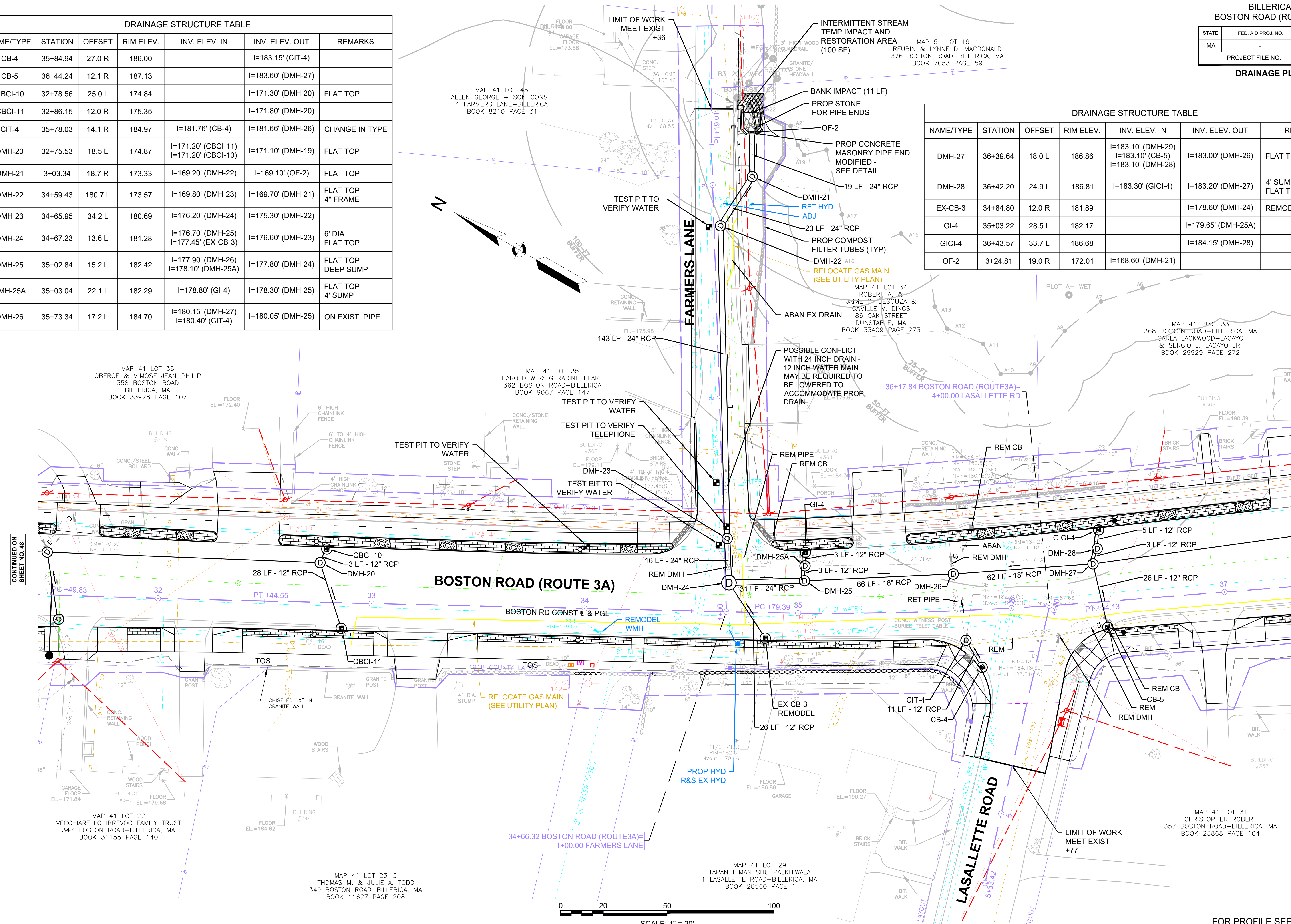
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DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-4	35+84.94	27.0 R	186.00		I=183.15' (CIT-4)	
CB-5	36+44.24	12.1 R	187.13		I=183.60' (DMH-27)	
CBCI-10	32+78.56	25.0 L	174.84		I=171.30' (DMH-20)	FLAT TOP
CBCI-11	32+86.15	12.0 R	175.35		I=171.80' (DMH-20)	
CIT-4	35+78.03	14.1 R	184.97	I=181.76' (CB-4)	I=181.66' (DMH-26)	CHANGE IN TYPE
DMH-20	32+75.53	18.5 L	174.87	I=171.20' (CBCI-11) I=171.20' (CBCI-10)	I=171.10' (DMH-19)	FLAT TOP
DMH-21	3+03.34	18.7 R	173.33	I=169.20' (DMH-22)	I=169.10' (OF-2)	FLAT TOP
DMH-22	34+59.43	180.7 L	173.57	I=169.80' (DMH-23)	I=169.70' (DMH-21)	FLAT TOP 4" FRAME
DMH-23	34+65.95	34.2 L	180.69	I=176.20' (DMH-24)	I=175.30' (DMH-22)	
DMH-24	34+67.23	13.6 L	181.28	I=176.70' (DMH-25) I=177.45' (EX-CB-3)	I=176.60' (DMH-23)	6" DIA FLAT TOP
DMH-25	35+02.84	15.2 L	182.42	I=177.90' (DMH-26) I=178.10' (DMH-25A)	I=177.80' (DMH-24)	FLAT TOP DEEP SUMP
DMH-25A	35+03.04	22.1 L	182.29	I=178.80' (GI-4)	I=178.30' (DMH-25)	FLAT TOP 4" SUMP
DMH-26	35+73.34	17.2 L	184.70	I=180.15' (DMH-27) I=180.40' (CIT-4)	I=180.05' (DMH-25)	ON EXIST. PIPE

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-27	36+39.64	18.0 L	186.86	I=183.10' (DMH-29) I=183.10' (CB-5) I=183.10' (DMH-28)	I=183.00' (DMH-26)	FLAT TOP
DMH-28	36+42.20	24.9 L	186.81	I=183.30' (GIC-4)	I=183.20' (DMH-27)	4' SUMP FLAT TOP
EX-CB-3	34+84.80	12.0 R	181.89		I=178.60' (DMH-24)	REMODEL EXIST. CB
GI-4	35+03.22	28.5 L	182.17		I=179.65' (DMH-25A)	
GIC-4	36+43.57	33.7 L	186.68		I=184.15' (DMH-28)	
OF-2	3+24.81	19.0 R	172.01		I=168.60' (DMH-21)	



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SHEET NO. 48

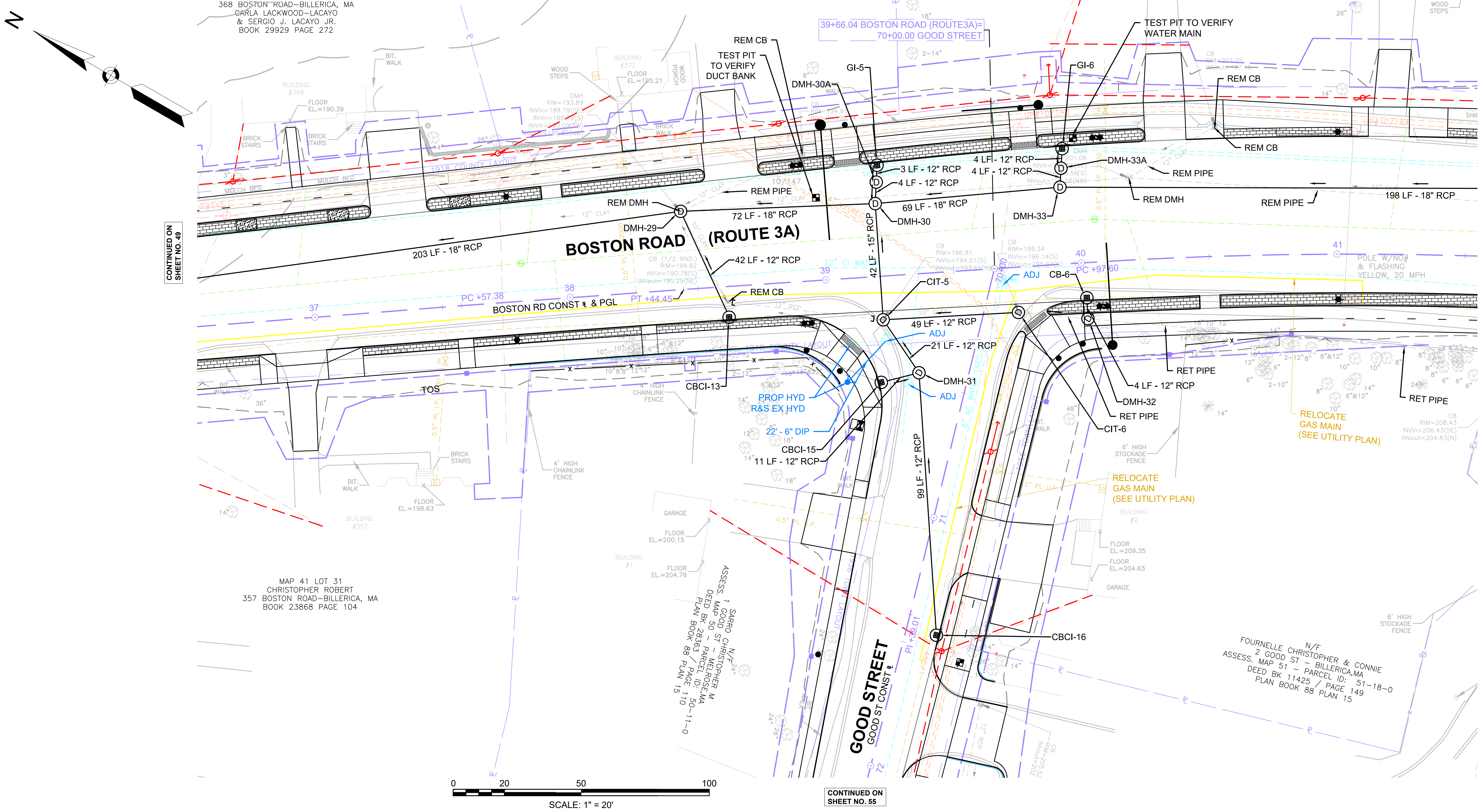
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SHEET NO. 50

0 20 50 100
SCALE: 1" = 20'

FOR PROFILE SEE SHEET 30

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-6	40+01.32	13.8 R	200.59		I=197.20' (DMH-32)	FLAT TOP
CBCI-13	38+61.40	12.0 R	194.69		I=190.70' (DMH-29)	
CBCI-15	70+53.60	32.4 R	198.62		I=194.90' (DMH-31)	FLAT TOP
CBCI-16	71+44.25	12.0 L	202.70		I=198.60' (DMH-31)	FLAT TOP
CIT-5	39+21.37	17.0 R	197.25	I=193.70' (CIT-6) I=193.70' (DMH-31)	I=193.60' (DMH-30)	FLAT TOP CHANGE IN TYPE
CIT-6	39+74.24	17.7 R	199.56	I=196.14' (DMH-32)	I=195.60' (CIT-5)	CHANGE IN TYPE
DMH-29	38+45.26	30.5 L	194.58	I=189.70' (DMH-30) I=189.70' (CBCI-13)	I=189.60' (DMH-27)	
DMH-30	39+21.28	28.5 L	196.73	I=192.60' (DMH-30A) I=192.60' (CIT-5) I=192.60' (DMH-33)	I=192.50' (DMH-29)	5' DIA FLAT TOP
DMH-30A	39+22.23	36.8 L	196.60	I=193.10' (GI-5)	I=193.00' (DMH-30)	FLAT TOP 4' SUMP

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DMH-31	70+46.47	19.0 R	198.91	I=194.80' (CBCI-15) I=194.80' (CBCI-16)	I=194.70' (CIT-5)	
DMH-32	40+01.21	21.9 R	200.77	I=197.10' (CB-6) I=197.00' (EX-CB-11)	I=197.00' (CIT-6)	FLAT TOP ON EXIST. PIPE OFFSET DMH
DMH-33	39+93.67	30.0 L	199.92	I=195.70' (DMH-33A) I=195.70' (DMH-34)	I=195.60' (DMH-30)	FLAT TOP
DMH-33A	39+94.57	37.4 L	199.82	I=196.30' (GI-6)	I=196.20' (DMH-33)	FLAT TOP 4' SUMP
GI-5	39+22.97	43.4 L	196.50		I=194.00' (DMH-30A)	
GI-6	39+95.51	45.0 L	199.71		I=197.20' (DMH-33A)	



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SHEET NO. 49

CONTINUED ON
SHEET NO. 51

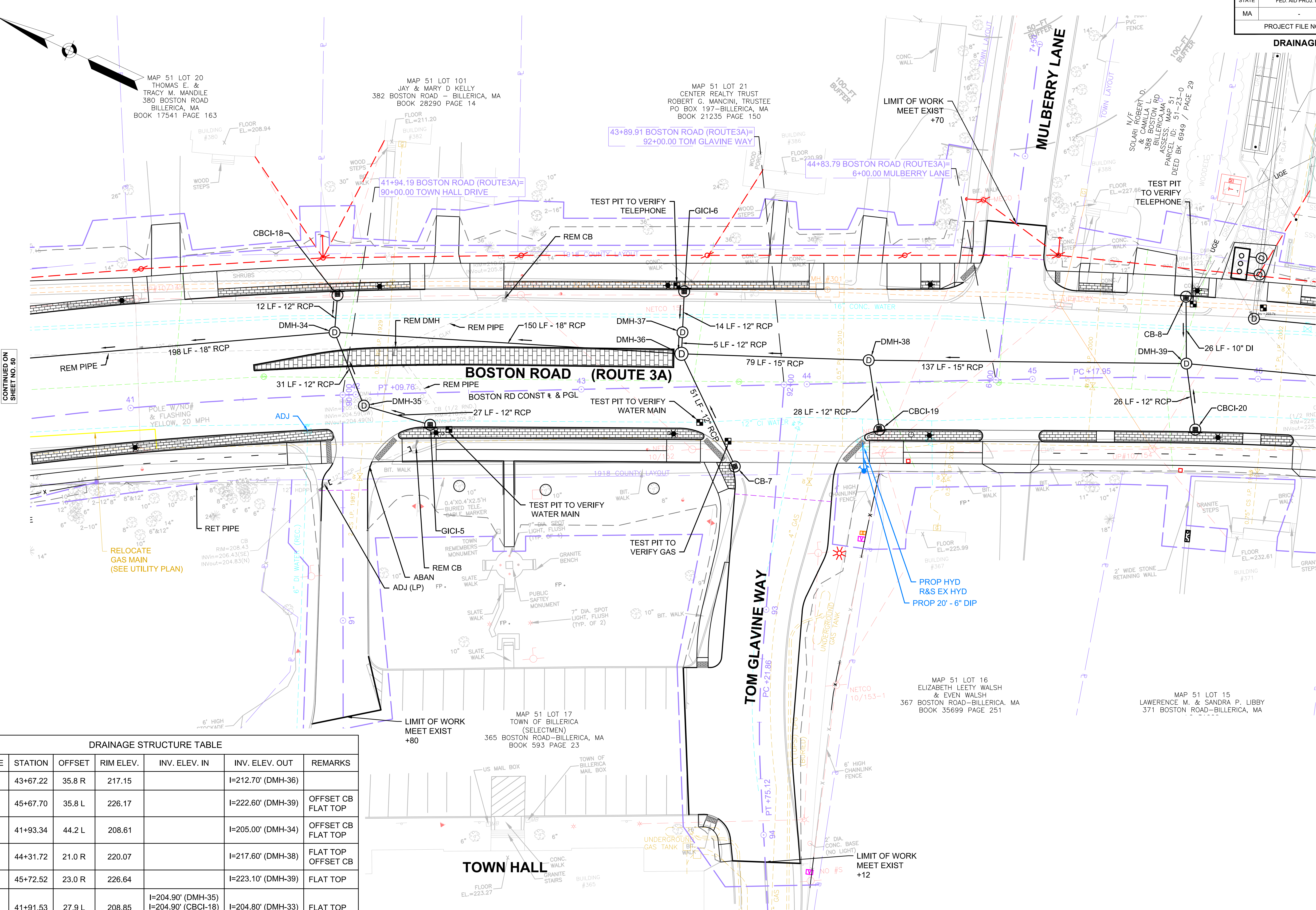
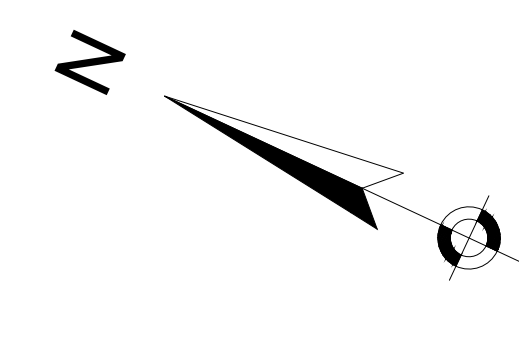
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FOR PROFILE SEE SHEET 30

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		51	139
PROJECT FILE NO.		605178	

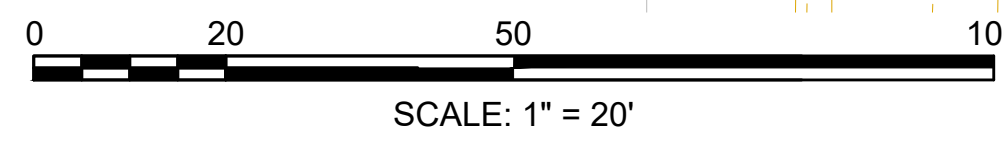
DRAINAGE PLAN



CONTINUED ON SHEET NO. 50

CONTINUED ON SHEET NO. 52

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-7	43+67.22	35.8 R	217.15		I=212.70' (DMH-36)	
CB-8	45+67.70	35.8 L	226.17		I=222.60' (DMH-39)	OFFSET CB FLAT TOP
CBCI-18	41+93.34	44.2 L	208.61		I=205.00' (DMH-34)	OFFSET CB FLAT TOP
CBCI-19	44+31.72	21.0 R	220.07		I=217.60' (DMH-38)	FLAT TOP OFFSET CB
CBCI-20	45+72.52	23.0 R	226.64		I=223.10' (DMH-39)	FLAT TOP
DMH-34	41+91.53	27.9 L	208.85	I=204.90' (DMH-35) I=204.90' (CBCI-18) I=204.90' (DMH-36)	I=204.80' (DMH-33)	FLAT TOP
DMH-35	42+03.45	5.0 R	209.84	I=206.30' (GICI-5)	I=206.20' (DMH-34)	4' SUMP



FOR PROFILE SEE SHEET 31

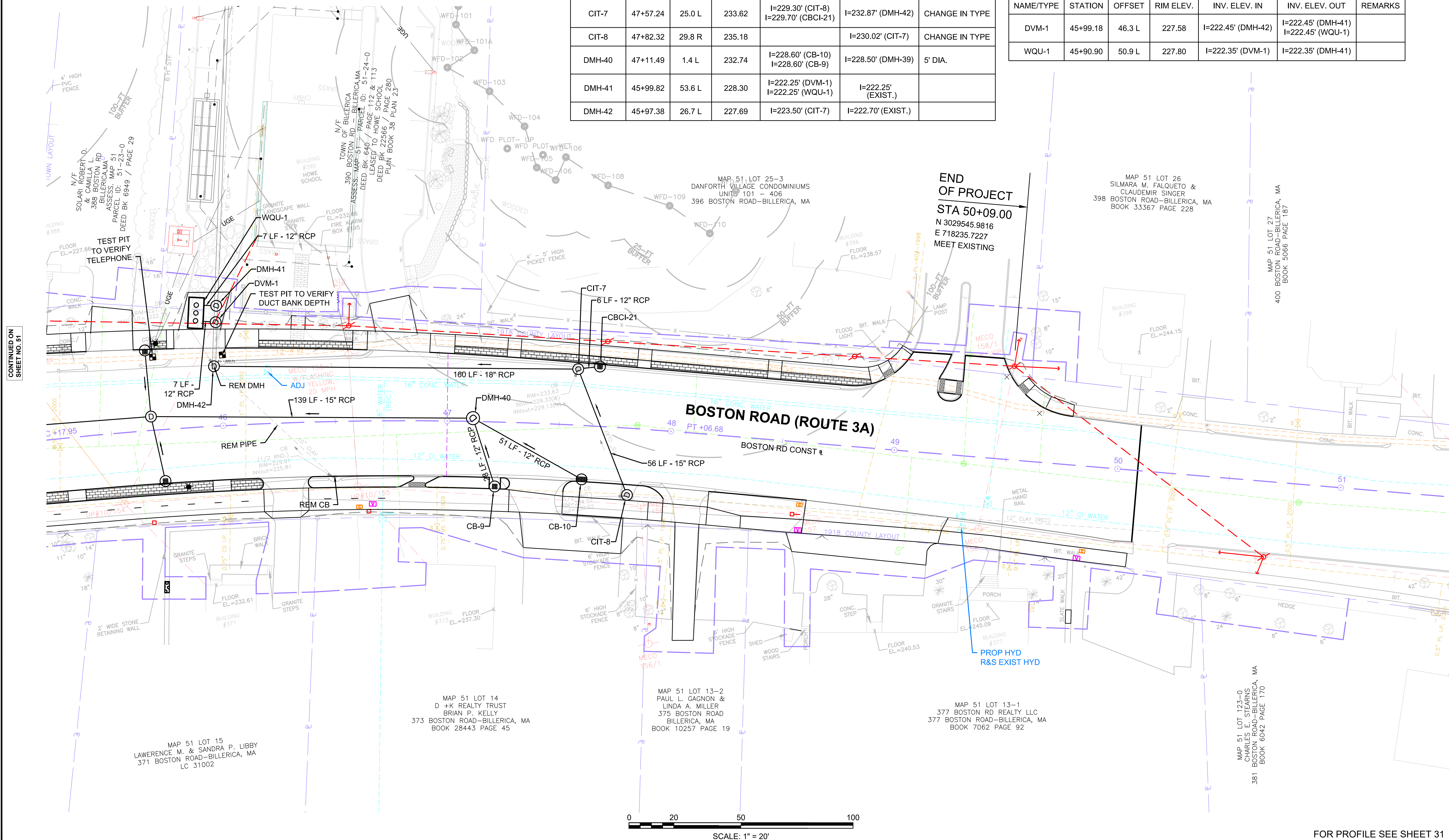
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	139
PROJECT FILE NO.		605178	

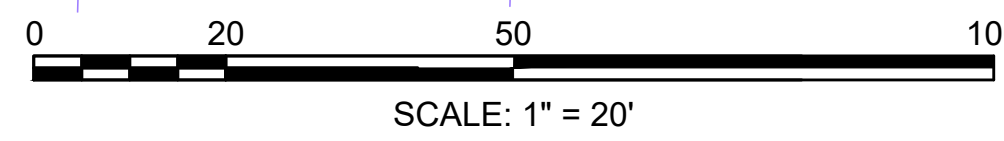
DRAINAGE PLAN

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-9	47+21.99	28.8 R	232.55		I=228.80' (DMH-40)	LOW POINT FLAT TOP
CB-10	47+61.32	24.1 R	234.00		I=230.40' (DMH-40)	5' DIA. DOUBLE GRATE FLAT TOP
CBCI-21	47+66.71	26.6 L	233.87		I=229.80' (CIT-7)	
CIT-7	47+57.24	25.0 L	233.62	I=229.30' (CIT-8) I=229.70' (CBCI-21)	I=232.87' (DMH-42)	CHANGE IN TYPE
CIT-8	47+82.32	29.8 R	235.18		I=230.02' (CIT-7)	CHANGE IN TYPE
DMH-40	47+11.49	1.4 L	232.74	I=228.60' (CB-10) I=228.60' (CB-9)	I=228.50' (DMH-39)	5' DIA.
DMH-41	45+99.82	53.6 L	228.30	I=222.25' (DVM-1) I=222.25' (WQU-1)	I=222.25' (EXIST.)	
DMH-42	45+97.38	26.7 L	227.69	I=223.50' (CIT-7)	I=222.70' (EXIST.)	

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DVM-1	45+99.18	46.3 L	227.58	I=222.45' (DMH-42)	I=222.45' (DMH-41) I=222.45' (WQU-1)	
WQU-1	45+90.90	50.9 L	227.80	I=222.35' (DVM-1)	I=222.35' (DMH-41)	



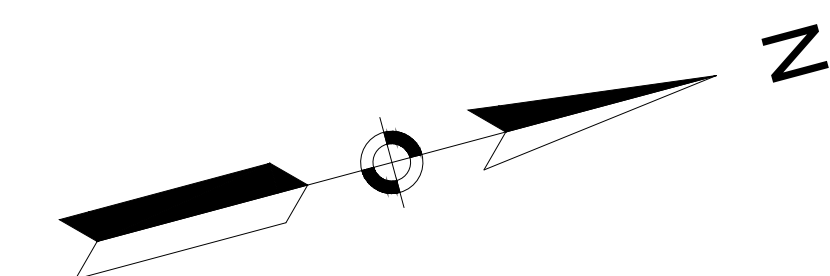
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SHEET NO. 51



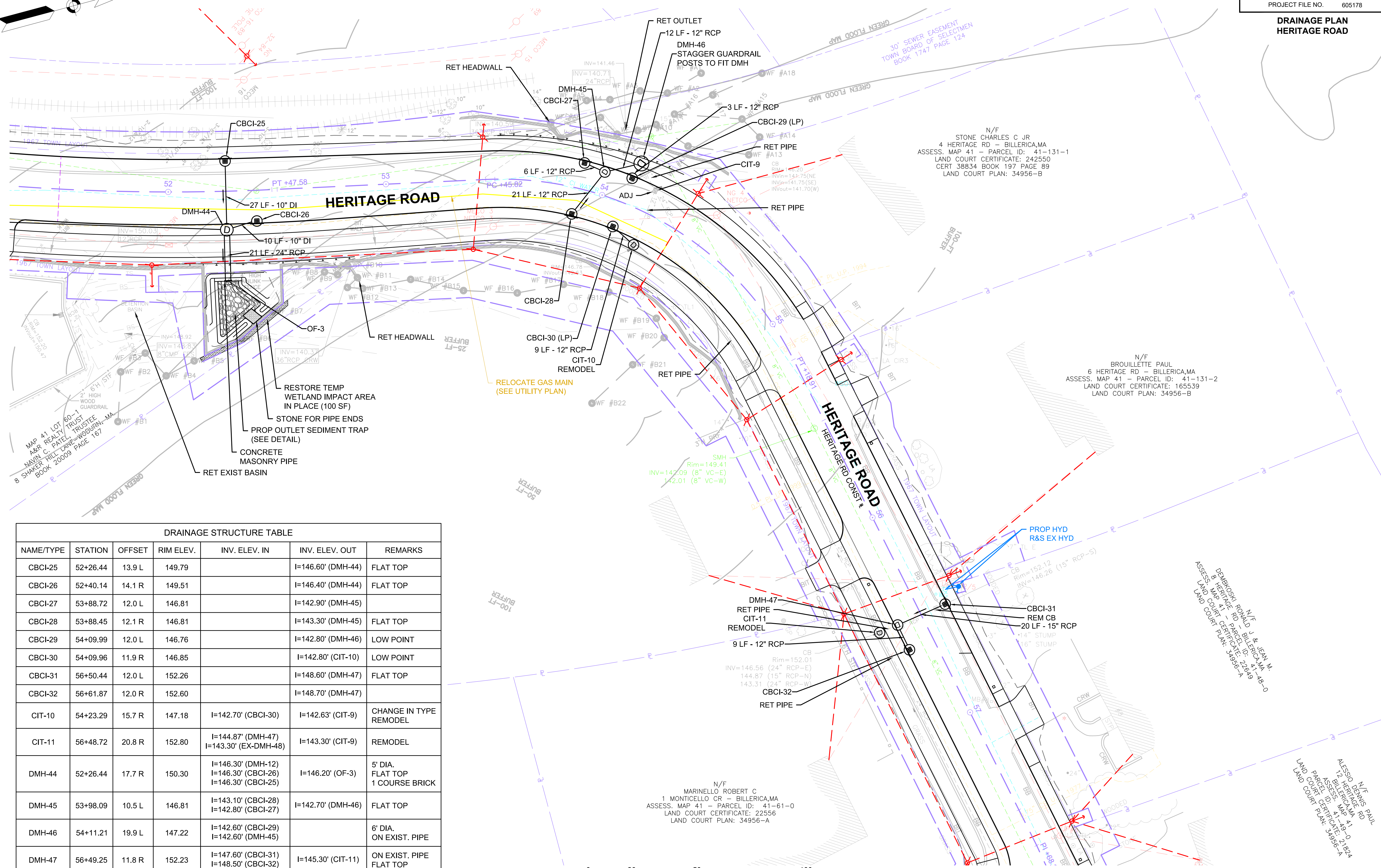
FOR PROFILE SEE SHEET 31

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	139
PROJECT FILE NO.		605178	

**DRAINAGE PLAN
HERITAGE ROAD**

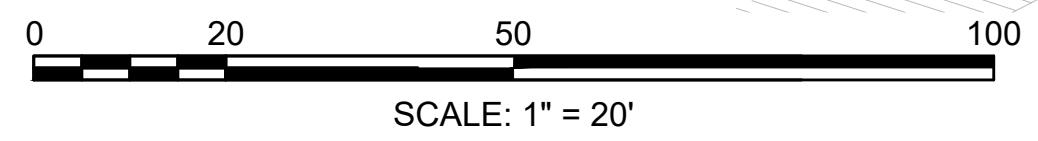


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SHEET NO. 47



DRAINAGE STRUCTURE TABLE

NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CBCI-25	52+26.44	13.9 L	149.79	I=146.60' (DMH-44)	I=146.60' (DMH-44)	FLAT TOP
CBCI-26	52+40.14	14.1 R	149.51	I=146.40' (DMH-44)	I=146.40' (DMH-44)	FLAT TOP
CBCI-27	53+88.72	12.0 L	146.81	I=142.90' (DMH-45)	I=142.90' (DMH-45)	FLAT TOP
CBCI-28	53+88.45	12.1 R	146.81	I=143.30' (DMH-45)	I=143.30' (DMH-45)	FLAT TOP
CBCI-29	54+09.99	12.0 L	146.76	I=142.80' (DMH-46)	I=142.80' (DMH-46)	LOW POINT
CBCI-30	54+09.96	11.9 R	146.85	I=142.80' (CIT-10)	I=142.80' (CIT-10)	LOW POINT
CBCI-31	56+50.44	12.0 L	152.26	I=148.60' (DMH-47)	I=148.60' (DMH-47)	FLAT TOP
CBCI-32	56+61.87	12.0 R	152.60	I=148.70' (DMH-47)	I=148.70' (DMH-47)	FLAT TOP
CIT-10	54+23.29	15.7 R	147.18	I=142.70' (CBCI-30)	I=142.63' (CIT-9)	CHANGE IN TYPE REMODEL
CIT-11	56+48.72	20.8 R	152.80	I=144.87' (DMH-47) I=143.30' (EX-DMH-48)	I=143.30' (CIT-9)	REMODEL
DMH-44	52+26.44	17.7 R	150.30	I=146.30' (DMH-12) I=146.30' (CBCI-26) I=146.30' (CBCI-25)	I=146.20' (OF-3)	5' DIA. FLAT TOP 1 COURSE BRICK
DMH-45	53+98.09	10.5 L	146.81	I=143.10' (CBCI-28) I=142.80' (CBCI-27)	I=142.70' (DMH-46)	FLAT TOP
DMH-46	54+11.21	19.9 L	147.22	I=142.60' (CBCI-29) I=142.60' (DMH-45)	I=142.60' (DMH-45)	6' DIA. ON EXIST. PIPE
DMH-47	56+49.25	11.8 R	152.23	I=147.60' (CBCI-31) I=148.50' (CBCI-32)	I=145.30' (CIT-11)	ON EXIST. PIPE FLAT TOP
OF-3	52+26.44	41.3 R	148.85	I=146.10' (DMH-44)		



CONTINUED ON
SHEET NO. 54

FOR PROFILE SEE SHEET XX

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	54	139
PROJECT FILE NO.		605178	

**DRAINAGE PLAN
HERITAGE ROAD**

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-33	57+90.88	32.2 R	156.72		I=153.20' (CIT-12)	FLAT TOP
CB-34	59+49.83	15.4 L	161.58		I=157.90' (CIT-13)	FLAT TOP
CIT-12	57+86.01	42.2 R	157.24	I=153.10' (CB-33)	I=153.03' (EXIST.)	CHANGE IN TYPE REMODEL
CIT-13	59+42.37	11.7 L	161.35	I=157.80' (CB-34)	I=157.71' (EXIST.)	CHANGE IN TYPE

N/F
SENG SOKLEANG
18 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-52-0
LAND COURT CERTIFICATE: 39175
LAND COURT PLAN: 31951-B

N/F
LEVASSEUR DAVID R.
16 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-51-0
LAND COURT CERTIFICATE: 30708
LAND COURT PLAN: 31951-B

N/F
DIMATTEO JASON P. & ALISHA D.
14 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-50-0
DEED BK 11361 / PAGE 178
LAND COURT CERTIFICATE: 193936
LAND COURT PLAN: 31951-B

N/F
DEMBKOSKI RONALD J & JEAN M.
8 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-48-0
LAND COURT CERTIFICATE: 22649
LAND COURT PLAN: 34956-A

N/F
ALESSIO DENNIS PAUL
12 HERITAGE RD
BILLERICA, MA
ASSESS. MAP 41
PARCEL ID: 41-49-0
LAND COURT CERTIFICATE: 21824
LAND COURT PLAN: 34956-A

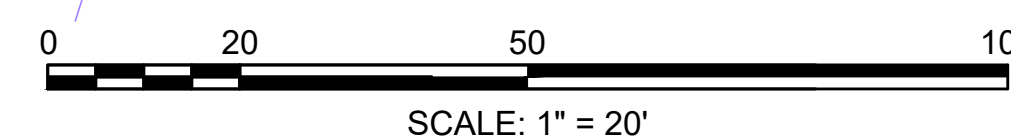
N/F
SASSER LINDA C.
17 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-69-0
LAND COURT CERTIFICATE: 34710
LAND COURT PLAN: 31951-A

N/F
MARRINELLO ROBERT C.
1 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-61-0
LAND COURT CERTIFICATE: 22536
LAND COURT PLAN: 34956-A

N/F
THE PORCARO FAMILY TRUST
2 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-66-0
LAND COURT CERTIFICATE: 291821
LAND COURT PLAN: 34956-A

N/F
ERIC JAMES RICHARD, HEATHER A. MAGEE
1 MOUNT VERNON AV - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-67-0
LAND COURT CERTIFICATE: 42451
LAND COURT PLAN: 34956-A

CONTINUED ON
SHEET NO. 53



605178_HD(4722_DRAIN).DWG Plotted on: 2-Aug-21 8:02 PM

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	139
PROJECT FILE NO.		605178	

**DRAINAGE PLAN
GOOD STREET**

BILLERICA HIGH SCHOOL

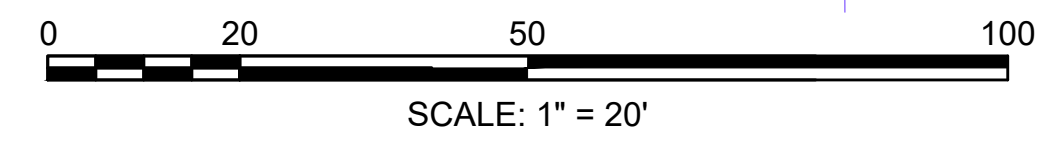
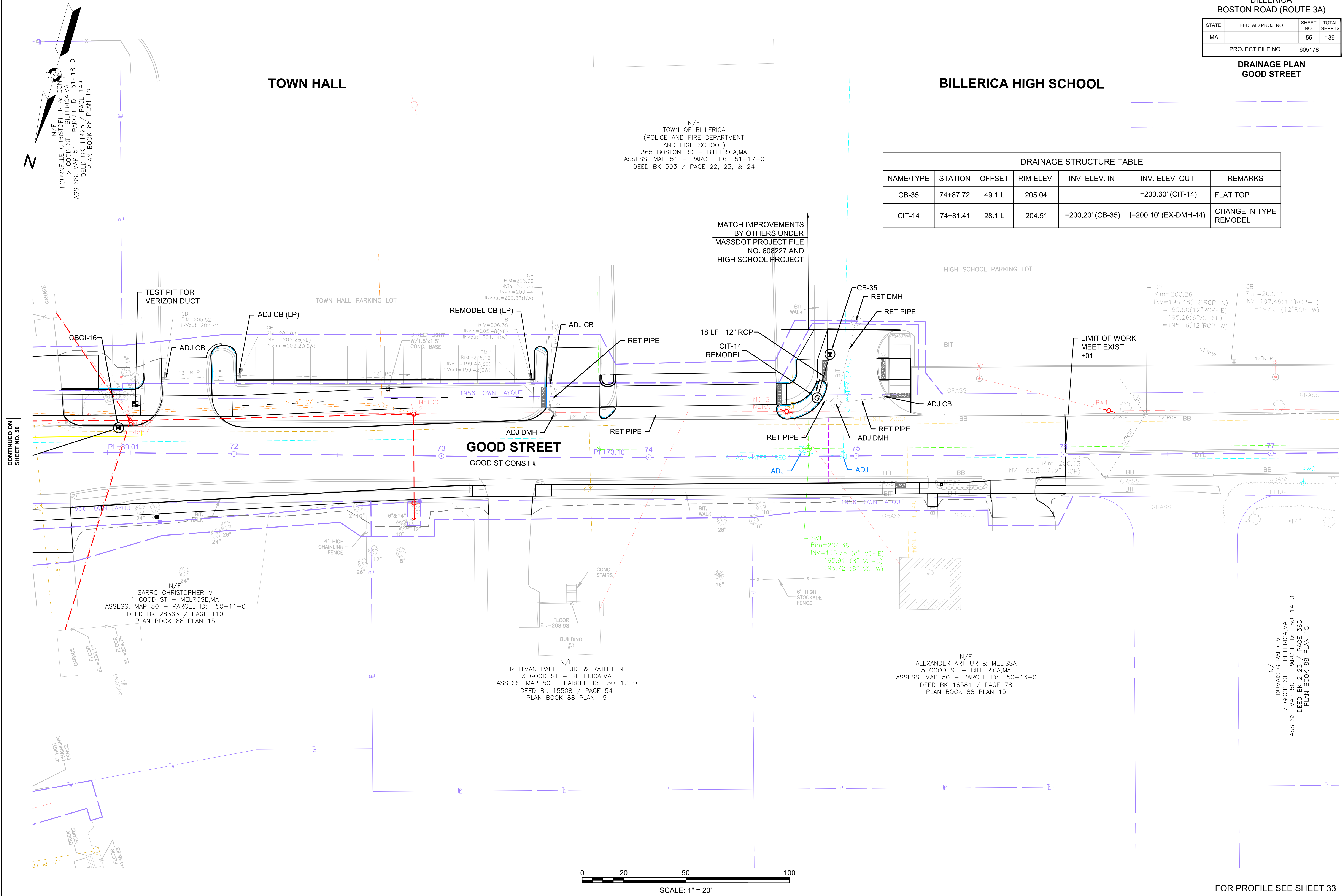
TOWN HALL

DRAINAGE STRUCTURE TABLE						
NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CB-35	74+87.72	49.1 L	205.04		I=200.30' (CIT-14)	FLAT TOP
CIT-14	74+81.41	28.1 L	204.51	I=200.20' (CB-35)	I=200.10' (EX-DMH-44)	CHANGE IN TYPE REMODEL

N/F
TOWN OF BILLERICA
(POLICE AND FIRE DEPARTMENT
AND HIGH SCHOOL)
365 BOSTON RD - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-17-0
DEED BK 593 / PAGE 22, 23, & 24

MATCH IMPROVEMENTS
BY OTHERS UNDER
MASSDOT PROJECT FILE
NO. 608227 AND
HIGH SCHOOL PROJECT

CONTINUED ON
SHEET NO. 50

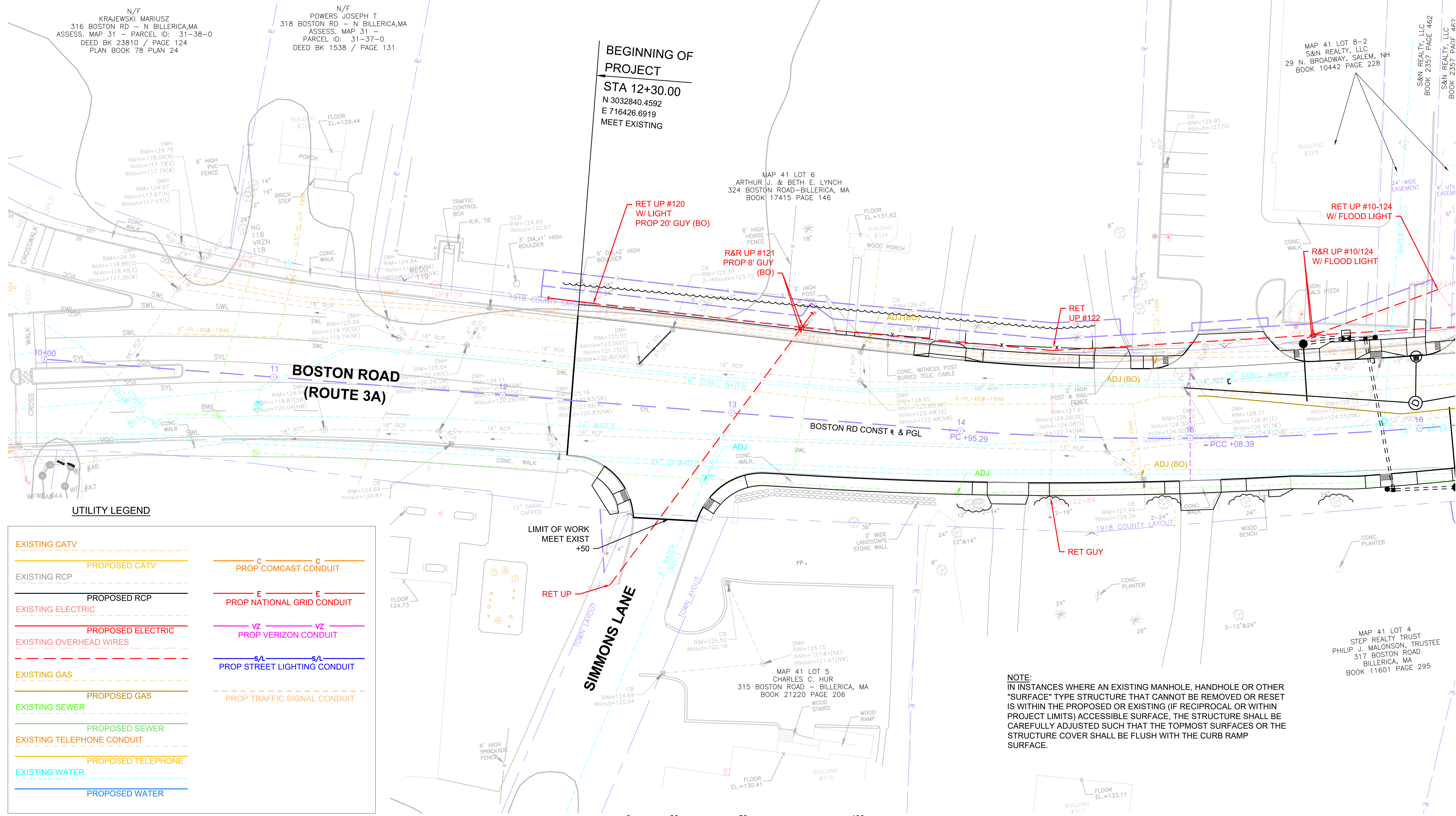
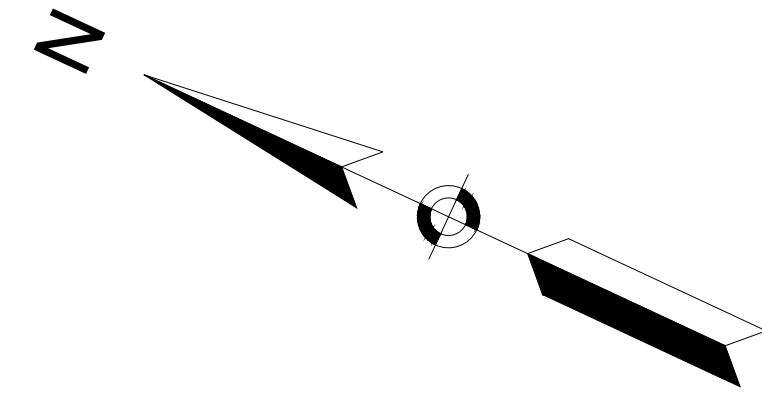


FOR PROFILE SEE SHEET 33

**BILLERICA
BOSTON ROAD (ROUTE 3A)**

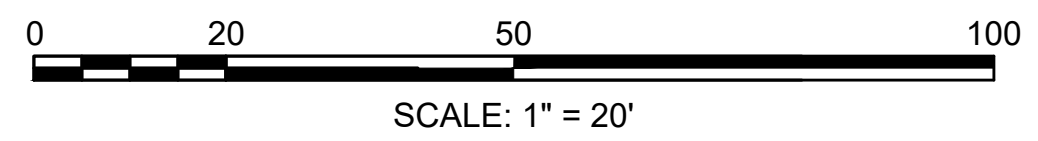
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	139
PROJECT FILE NO.		605178	

UTILITY PLAN



UTILITY LEGEND

EXISTING CATV	PROPOSED CATV	PROP COMCAST CONDUIT
EXISTING RCP	PROPOSED RCP	PROP NATIONAL GRID CONDUIT
EXISTING ELECTRIC	PROPOSED ELECTRIC	PROP VERIZON CONDUIT
EXISTING OVERHEAD WIRES	PROPOSED OVERHEAD WIRES	PROP STREET LIGHTING CONDUIT
EXISTING GAS	PROPOSED GAS	PROP TRAFFIC SIGNAL CONDUIT
EXISTING SEWER	PROPOSED SEWER	PROP TRAFFIC SIGNAL CONDUIT
EXISTING TELEPHONE CONDUIT	PROPOSED TELEPHONE	PROP TRAFFIC SIGNAL CONDUIT
EXISTING WATER	PROPOSED WATER	PROP TRAFFIC SIGNAL CONDUIT



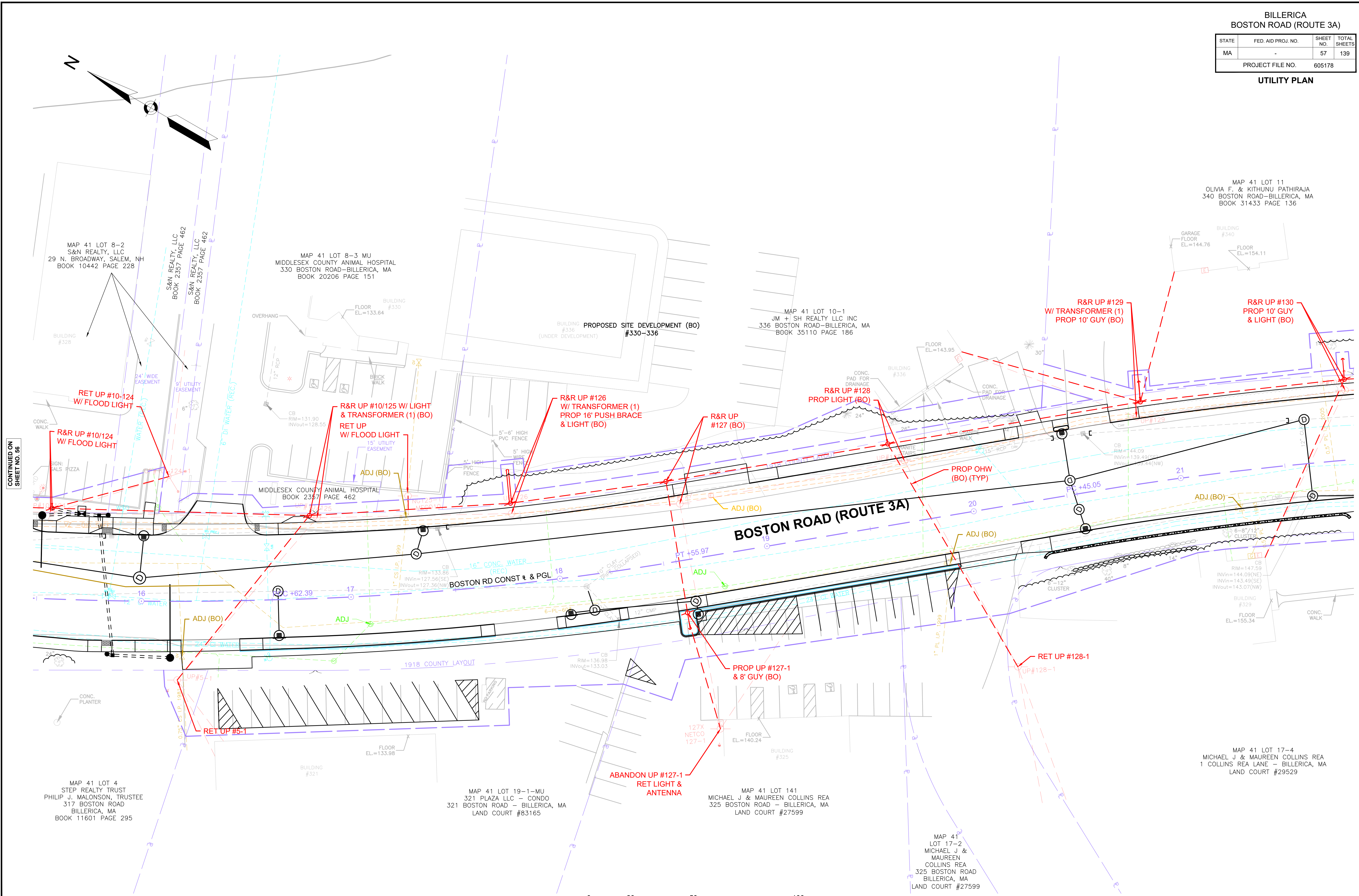
NOTE:
IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET IS WITHIN THE PROPOSED OR EXISTING (IF RECIPROCAL OR WITHIN PROJECT LIMITS) ACCESSIBLE SURFACE, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOPMOST SURFACES OR THE STRUCTURE COVER SHALL BE FLUSH WITH THE CURB RAMP SURFACE.

FOR PROFILE SEE SHEET 28

CONTINUED ON SHEET NO. 57

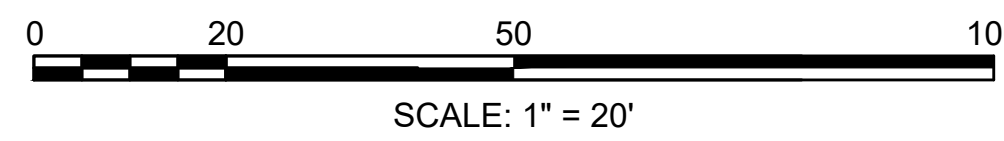
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MAP 41 LOT 11
OLIVIA F. & KITHUNU PATHIRAJA
340 BOSTON ROAD-BILLERICA, MA
BOOK 31433 PAGE 136



CONTINUED ON
SHEET NO. 56

CONTINUED ON
SHEET NO. 58



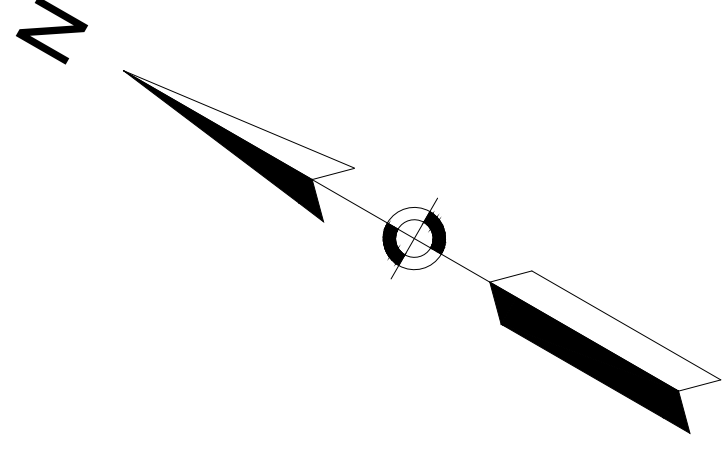
FOR PROFILE SEE SHEET 28

CONTINUED ON SHEET NO. 64

BILLERICA
BOSTON ROAD (ROUTE 3A)

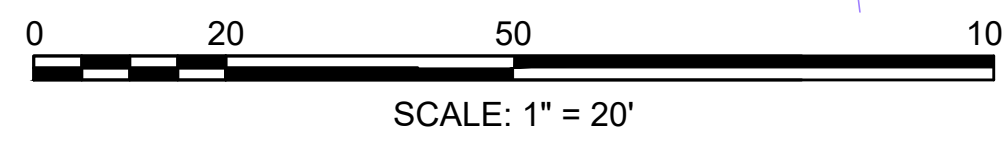
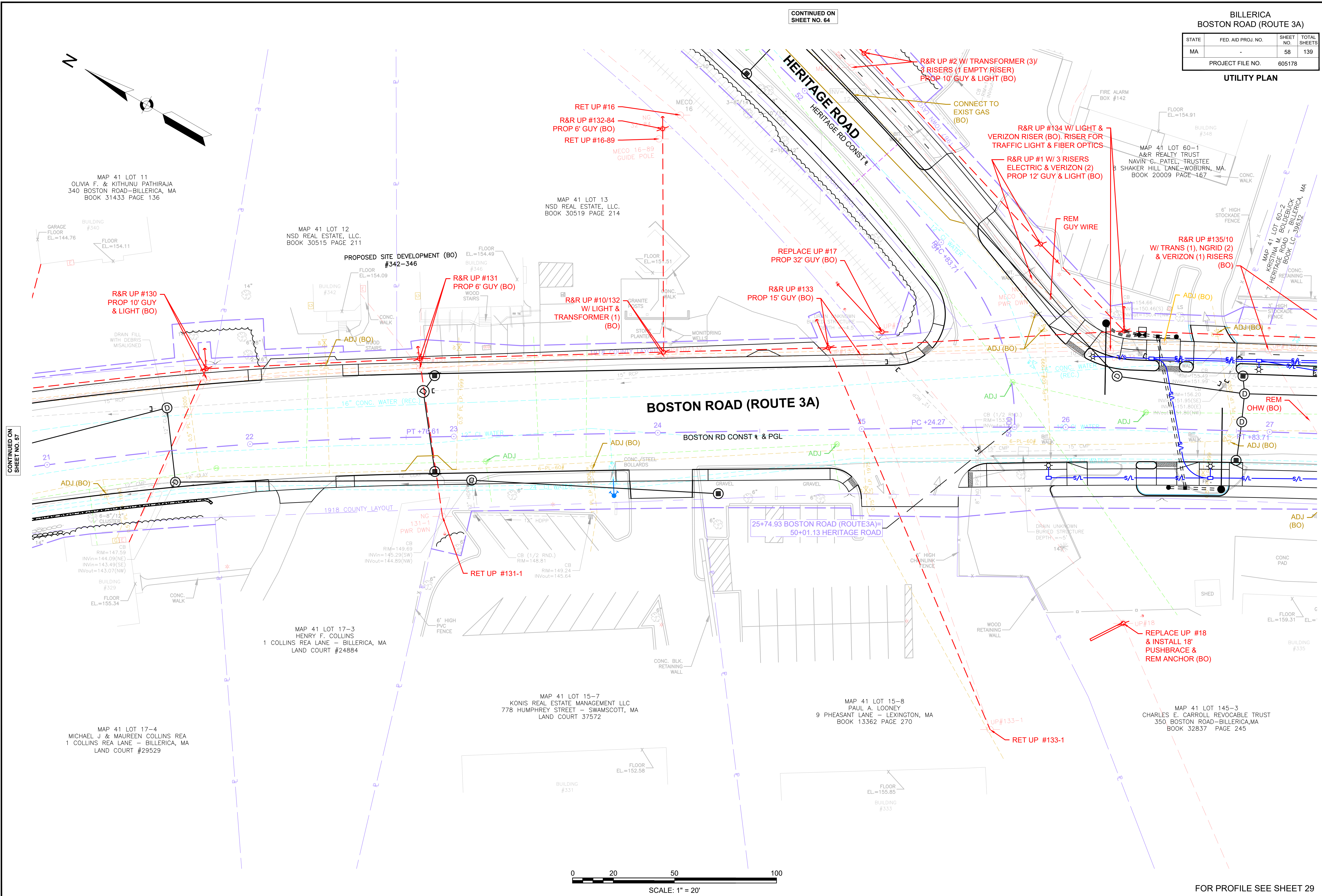
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		58	139
PROJECT FILE NO.		605178	

UTILITY PLAN



CONTINUED ON SHEET NO. 57

CONTINUED ON SHEET NO. 59



FOR PROFILE SEE SHEET 29

MAP 41 LOT 11
OLIVIA F. & KITHUNU PATHIRAJA
340 BOSTON ROAD - BILLERICA, MA
BOOK 31433 PAGE 136

MAP 41 LOT 12
NSD REAL ESTATE, LLC.
BOOK 30515 PAGE 211

MAP 41 LOT 13
NSD REAL ESTATE, LLC.
BOOK 30519 PAGE 214

MAP 41 LOT 60-1
A&R REALTY TRUST
NAVIN G. PATEL, TRUSTEE
8 SHAKER HILL LANE - WOBURN, MA.
BOOK 20009 PAGE -167

MAP 41 LOT 60-2
KRISHNA M. BOLDRECK
BOOK LC 39632
BILLERICA, MA

MAP 41 LOT 17-3
HENRY F. COLLINS
1 COLLINS REA LANE - BILLERICA, MA
LAND COURT #24884

MAP 41 LOT 15-7
KONIS REAL ESTATE MANAGEMENT LLC
778 HUMPHREY STREET - SWAMSCOTT, MA
LAND COURT 37572

MAP 41 LOT 15-B
PAUL A. LOONEY
9 PHEASANT LANE - LEXINGTON, MA
BOOK 13362 PAGE 270

MAP 41 LOT 145-3
CHARLES E. CARROLL REVOCABLE TRUST
350 BOSTON ROAD - BILLERICA, MA
BOOK 32837 PAGE 245

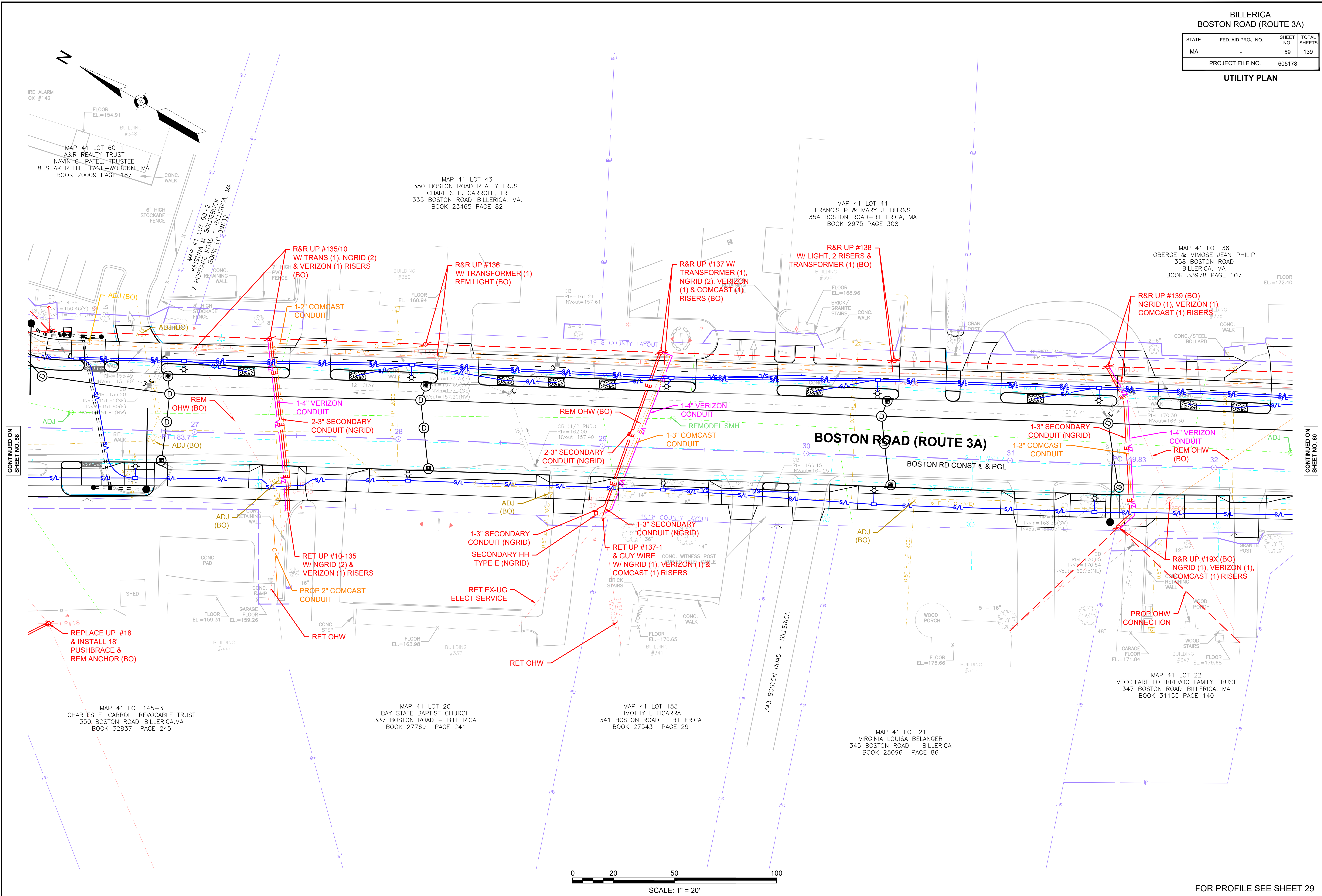
MAP 41 LOT 17-4
MICHAEL J & MAUREEN COLLINS REA
1 COLLINS REA LANE - BILLERICA, MA
LAND COURT #29529

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BILLERICA
BOSTON ROAD (ROUTE 3A)

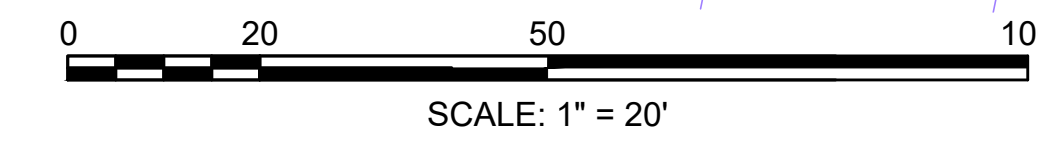
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MA	-	59	139
PROJECT FILE NO.		605178	

UTILITY PLAN



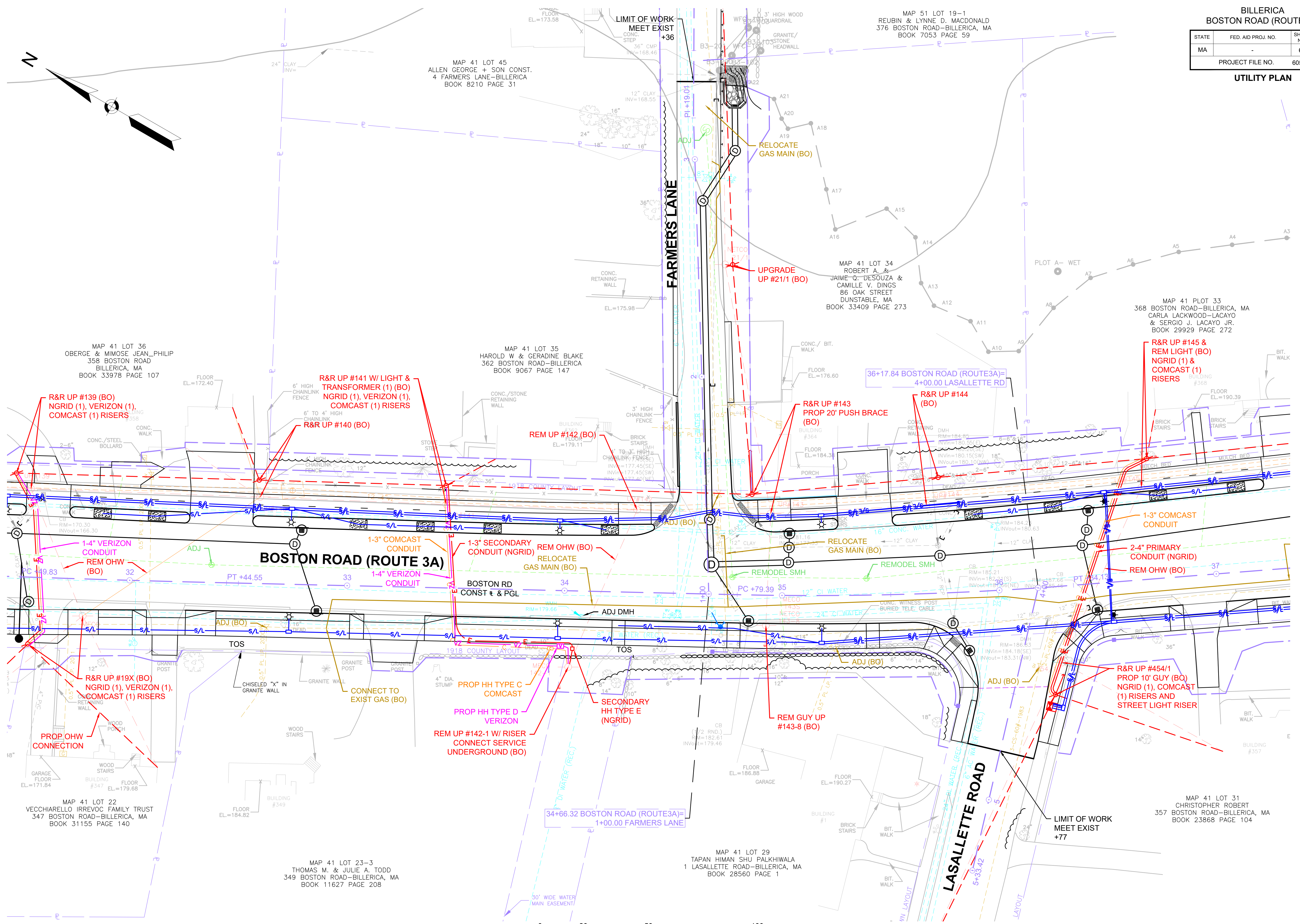
CONTINUED ON
SHEET NO. 58

CONTINUED ON
SHEET NO. 60



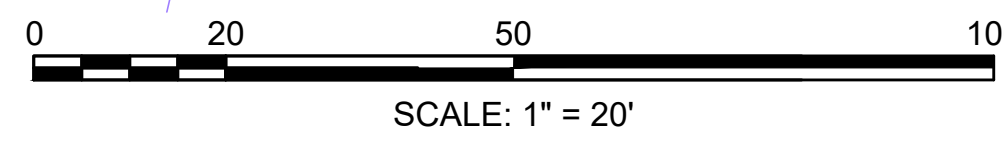
FOR PROFILE SEE SHEET 29

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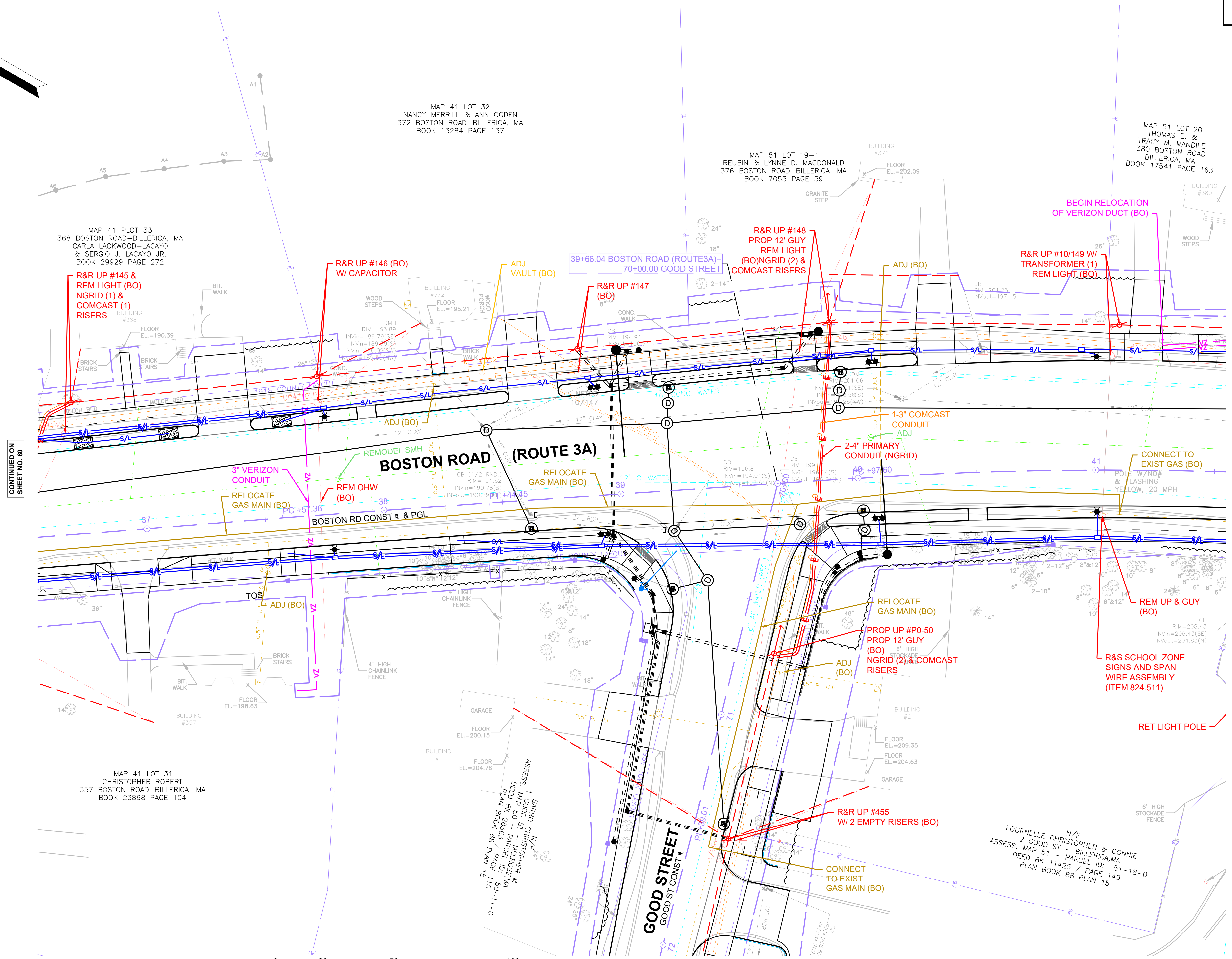
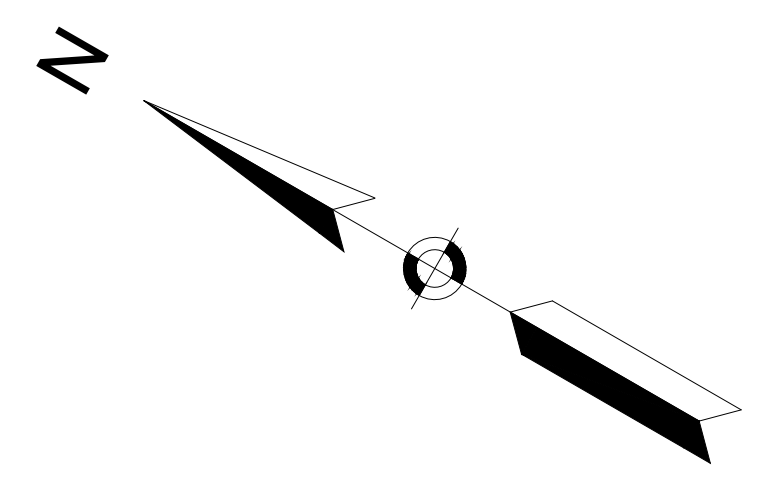


CONTINUED ON SHEET NO. 59

CONTINUED ON SHEET NO. 61



FOR PROFILE SEE SHEET 30



CONTINUED ON
SHEET NO. 60

CONTINUED ON
SHEET NO. 62

MAP 41 LOT 31
CHRISTOPHER ROBERT
357 BOSTON ROAD-BILLERICA, MA
BOOK 23868 PAGE 104

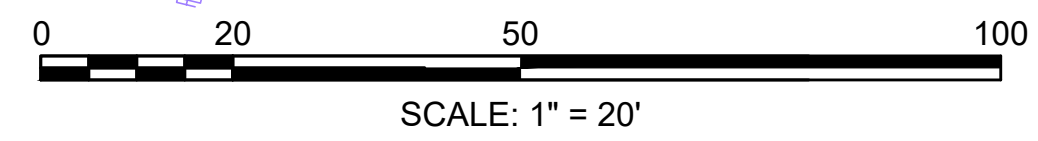
MAP 41 LOT 32
NANCY MERRILL & ANN OGDEN
372 BOSTON ROAD-BILLERICA, MA
BOOK 13284 PAGE 137

MAP 51 LOT 19-1
REUBIN & LYNNE D. MACDONALD
376 BOSTON ROAD-BILLERICA, MA
BOOK 7053 PAGE 59

MAP 51 LOT 20
THOMAS E. &
TRACY M. MANDILE
380 BOSTON ROAD
BILLERICA, MA
BOOK 17541 PAGE 163

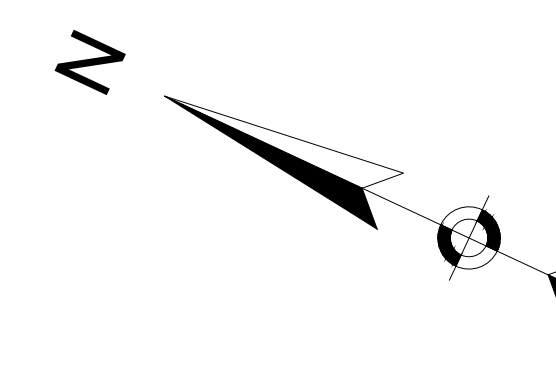
ASSSES. MAP 50 - ST. MELROSE
DEED BK 28363 / PAGE 10
PLAN BOOK 88 PLAN 15

N/F
FOURNELLE CHRISTOPHER & CONNIE
ASSESS. MAP 51 - BILLERICA, MA
DEED BK 11425 / PAGE 149
PLAN BOOK 88 PLAN 15

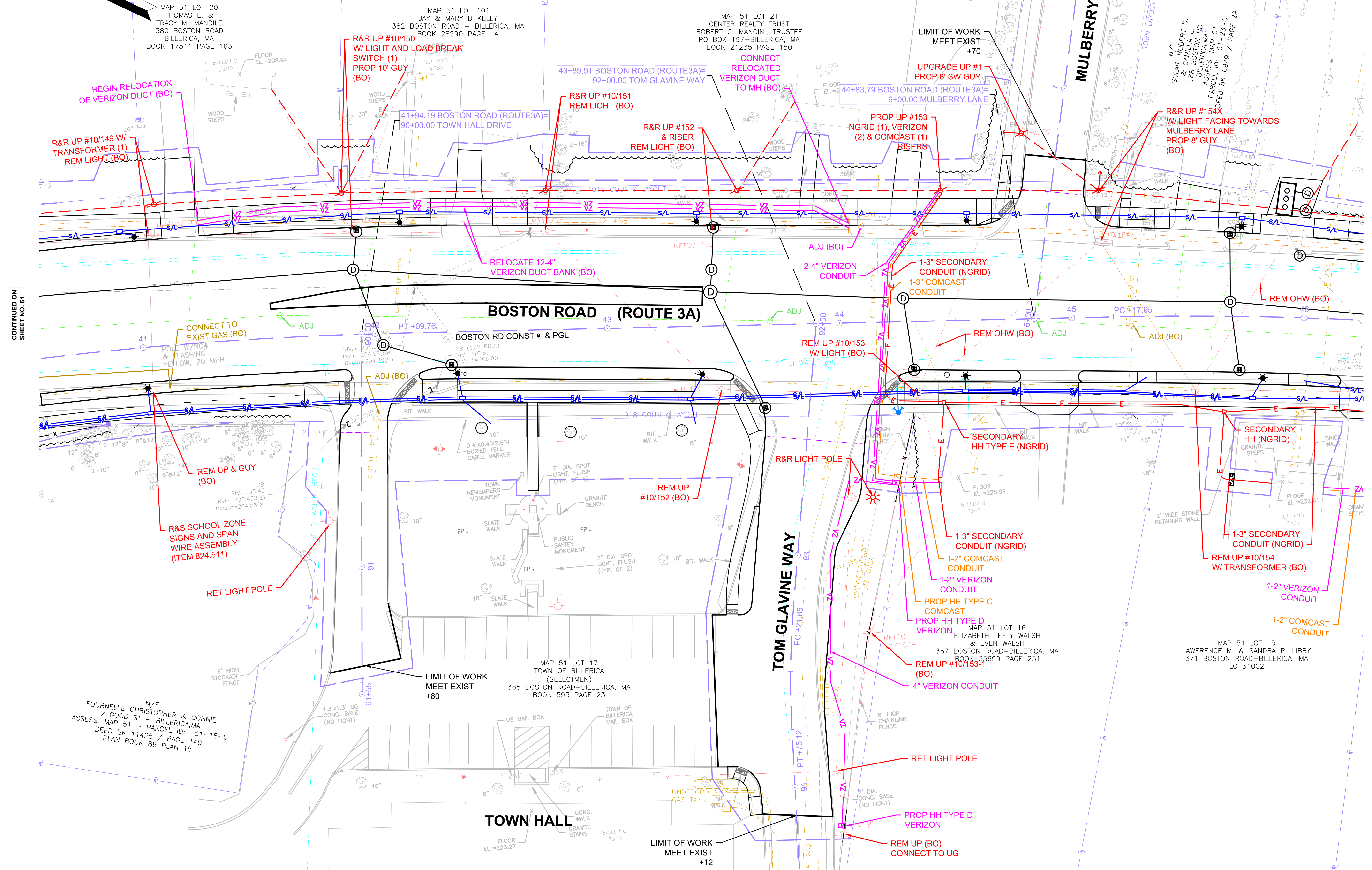


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SHEET NO. 66

FOR PROFILE SEE SHEET 30

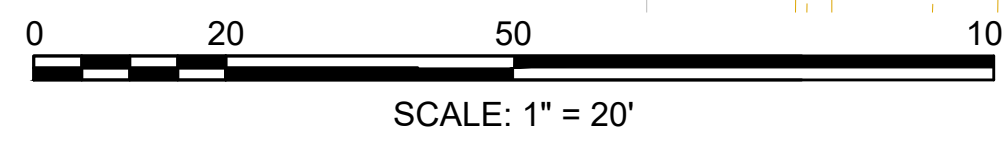


CONTINUED ON
SHEET NO. 63



CONTINUED ON
SHEET NO. 61

CONTINUED ON
SHEET NO. 63

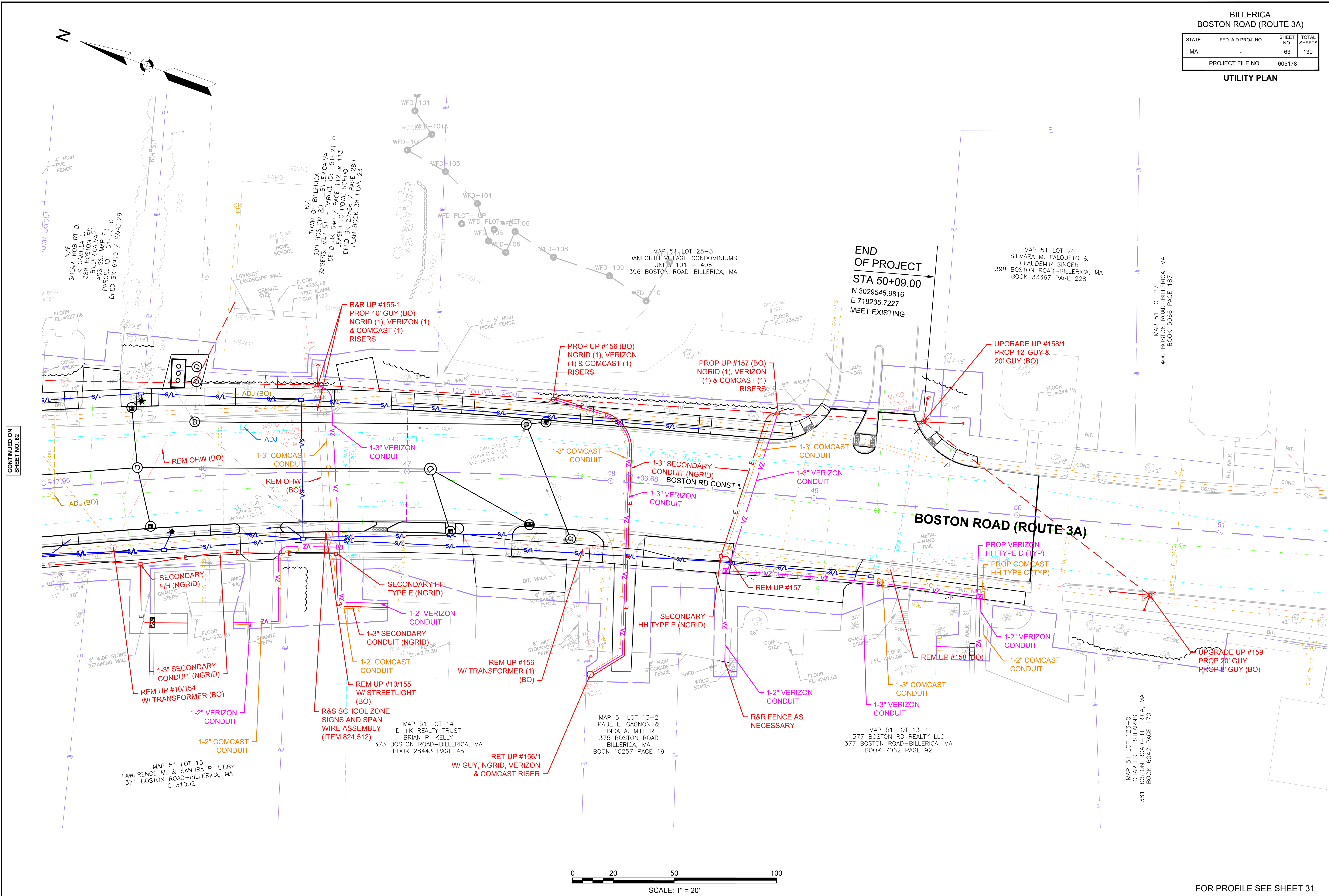


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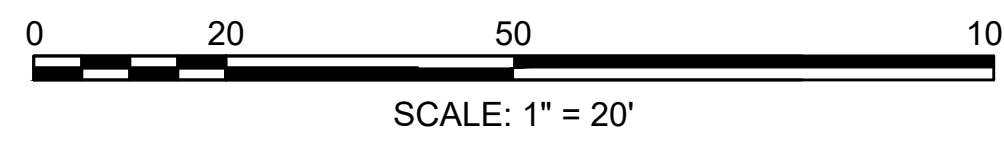
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	139
PROJECT FILE NO.		605178	

UTILITY PLAN



CONTINUED ON
SHEET NO. 62

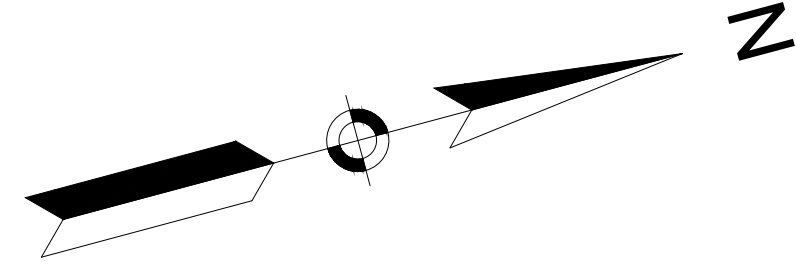


FOR PROFILE SEE SHEET 31

BILLERICA
BOSTON ROAD (ROUTE 3A)

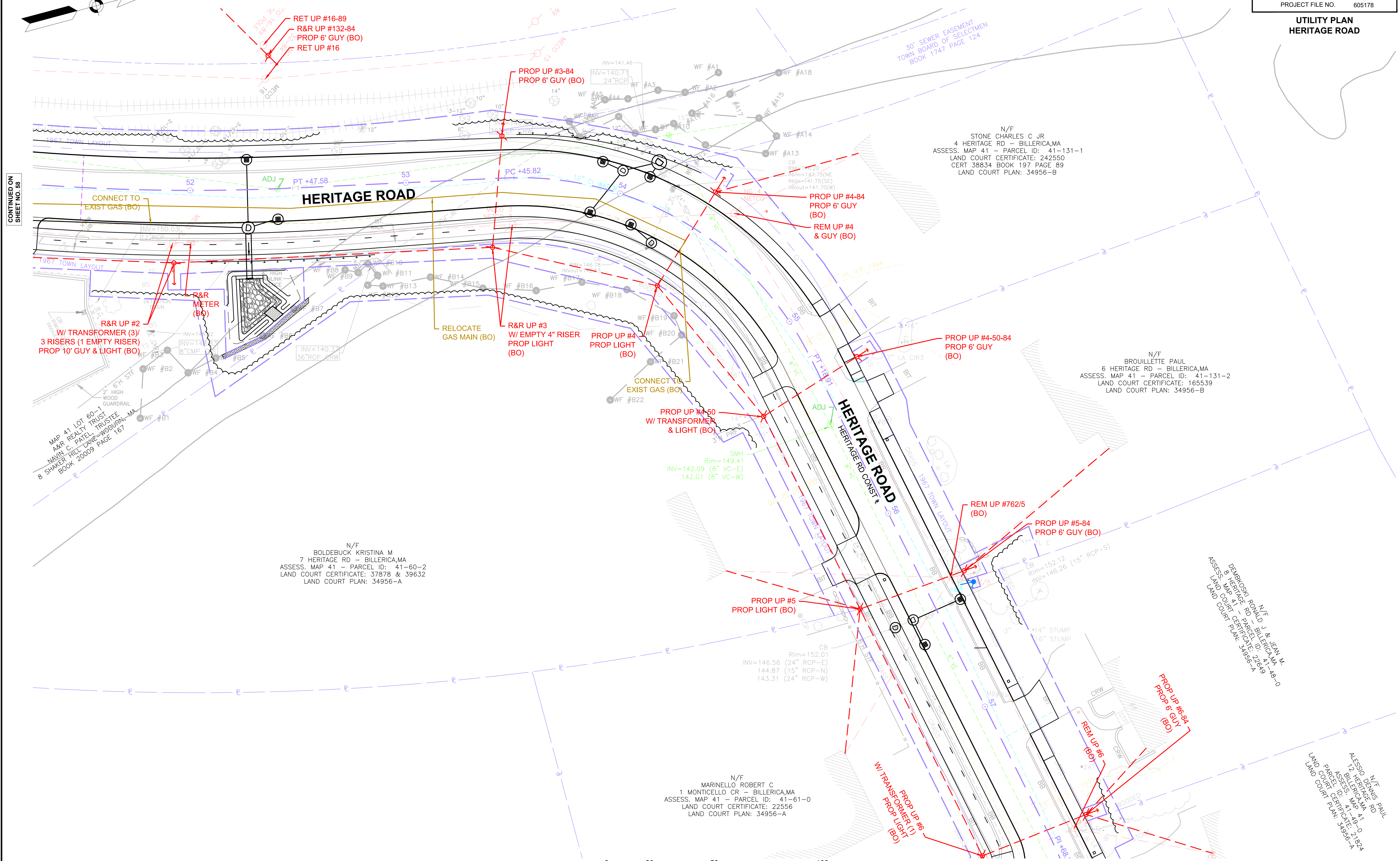
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	64	139
PROJECT FILE NO.		605178	

UTILITY PLAN
HERITAGE ROAD



CONTINUED ON
SHEET NO. 65

Plotted on: 2-Aug-21 6:06 PM
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N/F
BOLDEBUCK KRISTINA M
7 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-60-2
LAND COURT CERTIFICATE: 37878 & 39632
LAND COURT PLAN: 34956-A

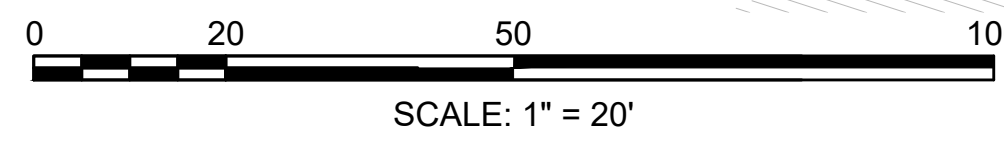
N/F
MARINELLO ROBERT C
1 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-61-0
LAND COURT CERTIFICATE: 22556
LAND COURT PLAN: 34956-A

N/F
STONE CHARLES C JR
4 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-131-1
LAND COURT CERTIFICATE: 242550
CERT 36834 BOOK 197 PAGE 89
LAND COURT PLAN: 34956-B

N/F
BROUILLETTE PAUL
6 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-131-2
LAND COURT CERTIFICATE: 165539
LAND COURT PLAN: 34956-B

N/F
DEBROSIO ROBERT J & JEAN M
8 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-131-3
LAND COURT CERTIFICATE: 22649
LAND COURT PLAN: 34956-A

N/F
ALESSIO DENNIS PAUL
12 BILLERICA AVE
ASSESS. MAP 41 - PARCEL ID: 41-0-1824
LAND COURT CERTIFICATE: 21824
LAND COURT PLAN: 34956-A



CONTINUED ON
SHEET NO. 65

FOR PROFILE SEE SHEET XX

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	65	139
PROJECT FILE NO. 605178			

UTILITY PLAN
HERITAGE ROAD

N/F
SENG SOKLEANG
18 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-52-0
LAND COURT CERTIFICATE: 39175
LAND COURT PLAN: 31951-B

N/F
LEVASSEUR DAVID R.
16 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-51-0
LAND COURT CERTIFICATE: 30708
LAND COURT PLAN: 31951-B

N/F
DIMATTEO JASON P. & ALISHA D.
14 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-50-0
DEED BK 11361 / PAGE 178
LAND COURT CERTIFICATE: 193936
LAND COURT PLAN: 31951-B

N/F
ALESSIO DENNIS PAUL
12 HERITAGE RD
BILLERICA, MA
ASSESS. MAP 41
PARCEL ID: 41-49-0
LAND COURT CERTIFICATE: 21824
LAND COURT PLAN: 34956-A

N/F
DEMBKOSKI RONALD J & JEAN M.
8 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-48-0
LAND COURT CERTIFICATE: 22649
LAND COURT PLAN: 34956-A

N/F
SASSER LINDA C.
17 HERITAGE RD - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-69-0
LAND COURT CERTIFICATE: 34710
LAND COURT PLAN: 31951-A

N/F
ERIC JAMES RICHARD, HEATHER A. MAGEE
1 MOUNT VERNON AV - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-67-0
LAND COURT CERTIFICATE: 42451
LAND COURT PLAN: 34956-A

N/F
THE PORCARO FAMILY TRUST
2 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-66-0
LAND COURT CERTIFICATE: 291821
LAND COURT PLAN: 34956-A

N/F
MARRINELLO ROBERT C.
1 MONTICELLO CR - BILLERICA, MA
ASSESS. MAP 41 - PARCEL ID: 41-61-0
LAND COURT CERTIFICATE: 22536
LAND COURT PLAN: 34956-A

MARSHALL
MIDDLE
SCHOOL

HERITAGE ROAD

MT VERNON AVENUE

MONTICELLO CIRCLE

PROP UP #6-84
PROP 6' GUY
(BO)

REM UP #6
(BO)

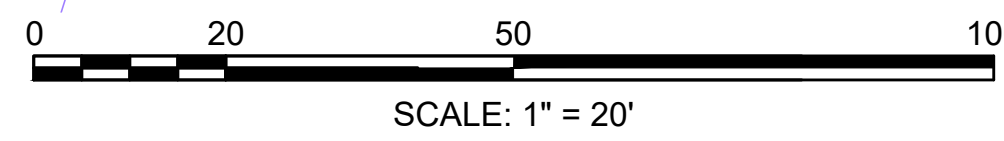
R&R UP #7
PROP 6' GUY
PROP LIGHT
(BO)

PROP UP #6
W/ TRANSFORMER (1)
PROP LIGHT
(BO)

UPGRADE UP #73/1
PROP 12' GUY
(BO)

PROP UP #6-50
W/ TRANSFORMER (1)
PROP 10' GUY
PROP LIGHT (BO)

UPGRADE UP #8
W/ LIGHT & MB
PROP 12' GUY
(BO)



CONTINUED ON
SHEET NO. 64

Plotted on: 2-Aug-21 6:06 PM
605178_HD4722_UTIL.DWG

BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	66	139
PROJECT FILE NO.		605178	

**UTILITY PLAN
GOOD STREET**

BILLERICA HIGH SCHOOL

TOWN HALL

N/F
TOWN OF BILLERICA
(POLICE AND FIRE DEPARTMENT
AND HIGH SCHOOL)
365 BOSTON RD - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-17-0
DEED BK 593 / PAGE 22, 23, & 24

MATCH IMPROVEMENTS
BY OTHERS UNDER
MASSDOT PROJECT FILE
NO. 608227 AND
HIGH SCHOOL PROJECT

HIGH SCHOOL PARKING LOT

R&R UP #455
W/ 2 EMPTY
RISERS (BO)

TEST PIT FOR
VERIZON DUCT

TOWN HALL PARKING LOT

REPLACE
UP #2 (BO)

REPLACE
UP #3 (BO)

LIMIT OF WORK
MEET EXIST
+01

REPLACE
UP #4 (BO)

CB
Rim=200.26
INV=195.48(12"RCP-N)
=195.50(12"RCP-E)
=195.26(6"VC-SE)
=195.46(12"RCP-W)

CB
Rim=203.11
INV=197.46(12"RCP-E)
=197.31(12"RCP-W)

GOOD STREET

GOOD ST CONST

RELOCATE
GAS MAIN (BO)

RELOCATE
GG (BO)

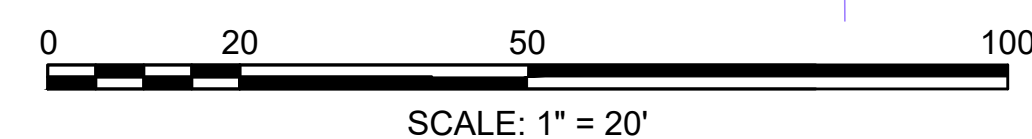
PROP UP #2-84
& 8' GUY
REM EX TREE GUY
(BO)

N/F
SARRO CHRISTOPHER M
1 GOOD ST - MELROSE, MA
ASSESS. MAP 50 - PARCEL ID: 50-11-0
DEED BK 28363 / PAGE 110
PLAN BOOK 88 PLAN 15

N/F
RETTMAN PAUL E. JR. & KATHLEEN
3 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-12-0
DEED BK 15508 / PAGE 54
PLAN BOOK 88 PLAN 15

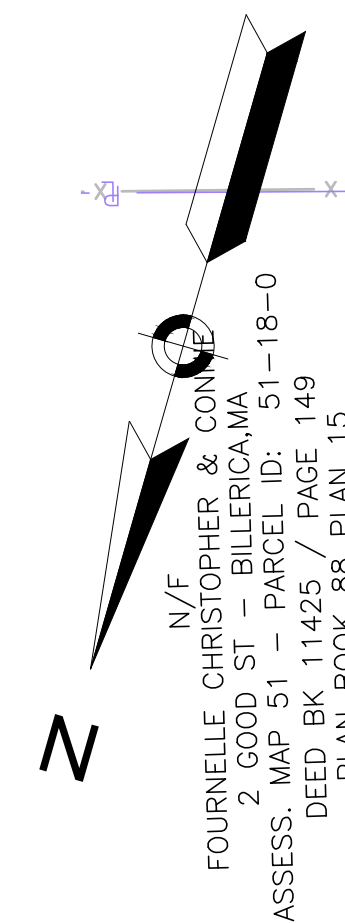
N/F
ALEXANDER ARTHUR & MELISSA
5 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-13-0
DEED BK 16581 / PAGE 78
PLAN BOOK 88 PLAN 15

N/F
DUMAIS GERALD M
7 GOOD ST - BILLERICA, MA
ASSESS. MAP 50 - PARCEL ID: 50-14-0
DEED BK 2123 / PAGE 365
PLAN BOOK 88 PLAN 15



FOR PROFILE SEE SHEET XX

CONTINUED ON
SHEET NO. 61

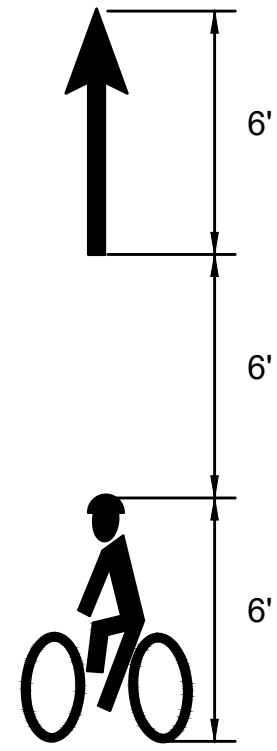


N/F
FOURNELLE CHRISTOPHER & CORA
2 GOOD ST - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-18-0
DEED BK 11425 / PAGE 149
PLAN BOOK 88 PLAN 15

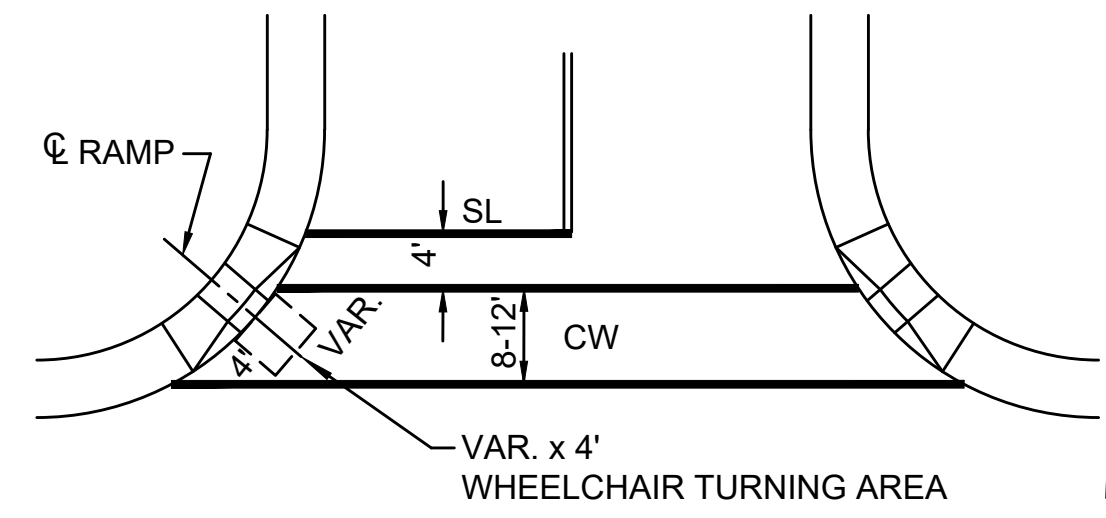
605178_HD4722_UTIL.DWG Plotted on: 2-Aug-21 6:06 PM

PAVEMENT MARKING & SIGN NOTES

1. ALL EXISTING SIGNS AND SIGN POSTS WITHIN THE PROJECT LIMITS SHALL BE R&D UNLESS OTHERWISE NOTED ON PLANS.
2. ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC. ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED BY AN APPROVED METHOD.
3. ALL PROPOSED SIGN POSTS SHALL BE P-5 TYPE (TELESCOPIC POST).
4. UNLESS OTHERWISE PROVIDED FOR IN THE MUTCD, ALL SIGNS SHOULD BE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC. ALL R7 SIGNS SHALL BE MOUNTED AT AN ANGLE OF 45° TO THE CURB AND FACING THE FLOW OF TRAFFIC. ALL W1-8 SIGNS SHALL BE MOUNTED AT AN ANGLE TO FACE THE FLOW OF ONCOMING TRAFFIC.
5. STREET NAME SIGNS SHALL BE MOUNTED PARALLEL WITH THE STREET.
6. ALL R&R SIGNS SHALL BE MOUNTED ON NEW POSTS.
7. SIGNS TO BE MOUNTED NEAR THE CURB LINE IN AREAS WITHOUT SIDEWALK SHALL BE SET BACK 2' FROM THE EDGE OF THE SIGN PANEL TO THE CURB LINE. NO SIGN SHALL OVERHANG THE CURB LINE. SIGNS TO BE MOUNTED NEAR THE SHARED-USE PATH OR UNI-DIRECTIONAL SIDE PATH SHALL BE SET BACK 2' FROM THE EDGE OF THE SIGN PANEL TO THE EDGE OF THE PATH. NO SIGNS SHALL BE INSTALLED IN THE THE SHARED-USE PATH OR UNI-DIRECTIONAL SIDE PATH.
8. ALL SIGNS SHALL BE MOUNTED TO PROVIDE A 7' MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISHED GRADE. ALL W1-8 SIGNS SHALL BE MOUNTED 4' ABOVE FINISHED GRADE.



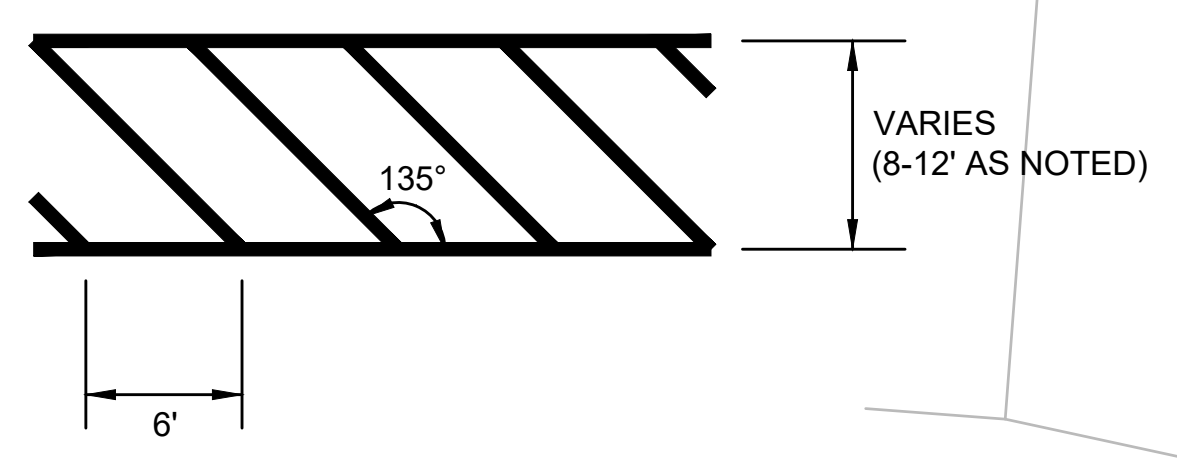
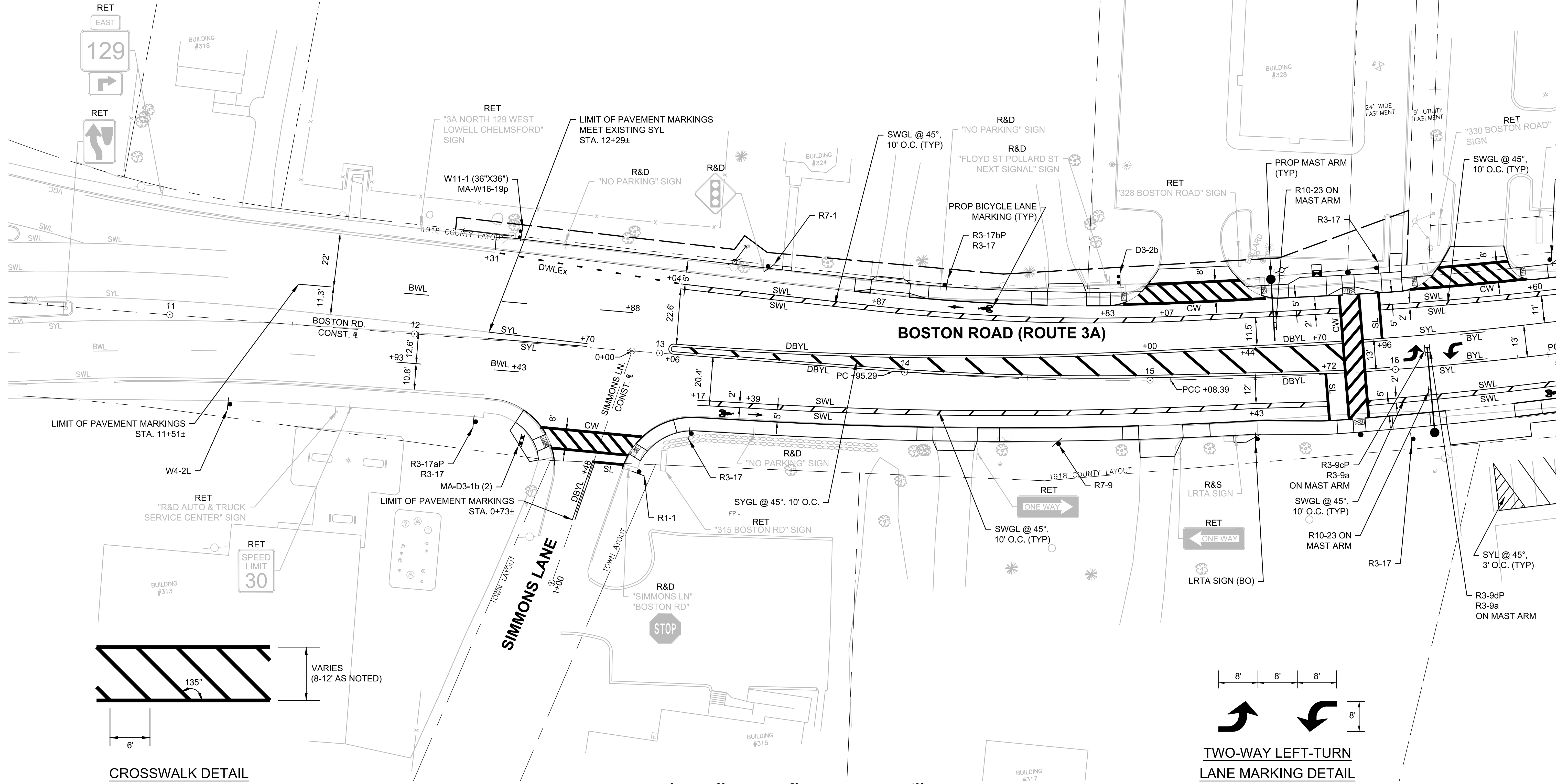
BICYCLE LANE MARKING DETAIL
NOT TO SCALE



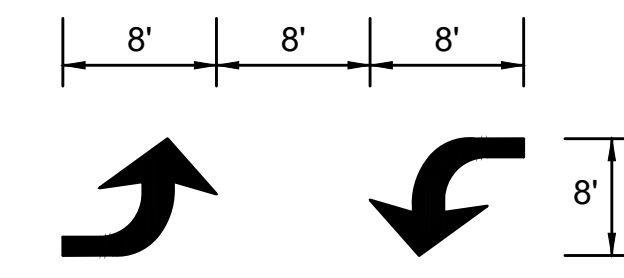
CROSSWALK LOCATION DETAIL
NOT TO SCALE

BILLERICA BOSTON ROAD (ROUTE 3A)			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	67	139
PROJECT FILE NO.		605178	

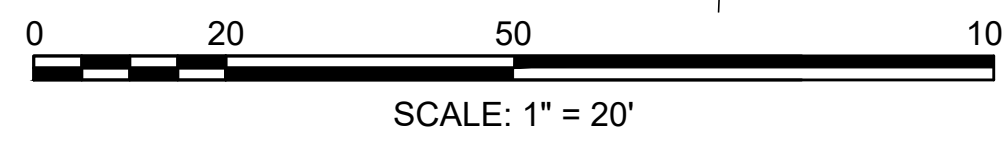
SIGN & PAVEMENT MARKINGS PLAN



CROSSWALK DETAIL
NOT TO SCALE



TWO-WAY LEFT-TURN LANE MARKING DETAIL
NOT TO SCALE



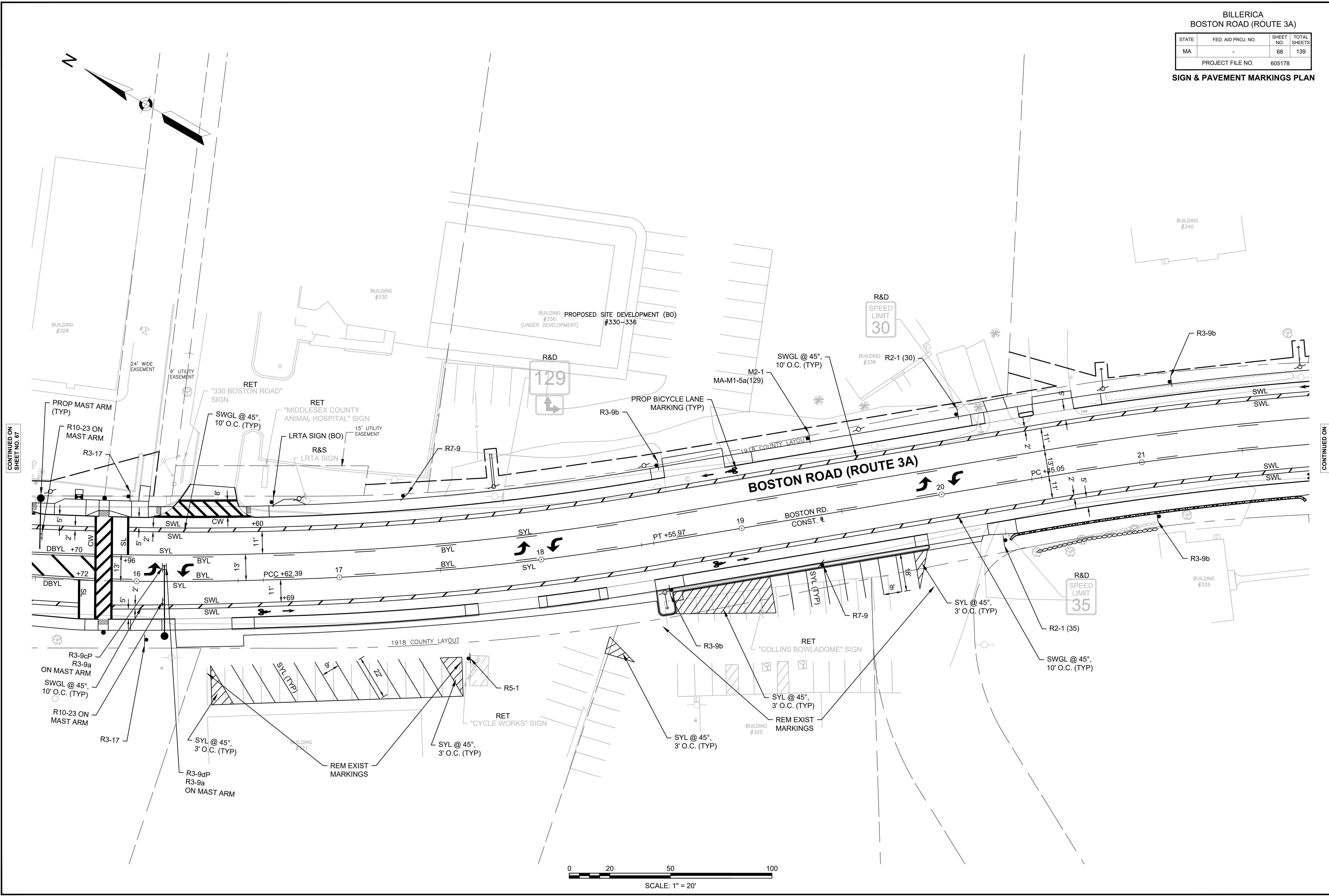
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BILLERICA
BOSTON ROAD (ROUTE 3A)

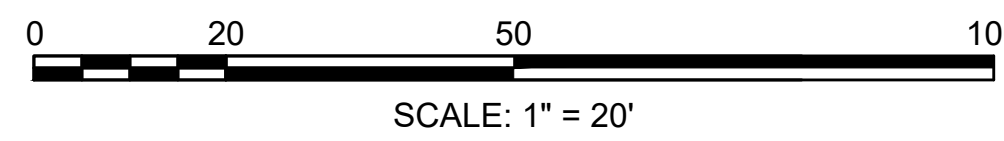
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	68	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN



CONTINUED ON SHEET NO. 67

CONTINUED ON SHEET NO. 69



CONTINUED ON SHEET NO. 75

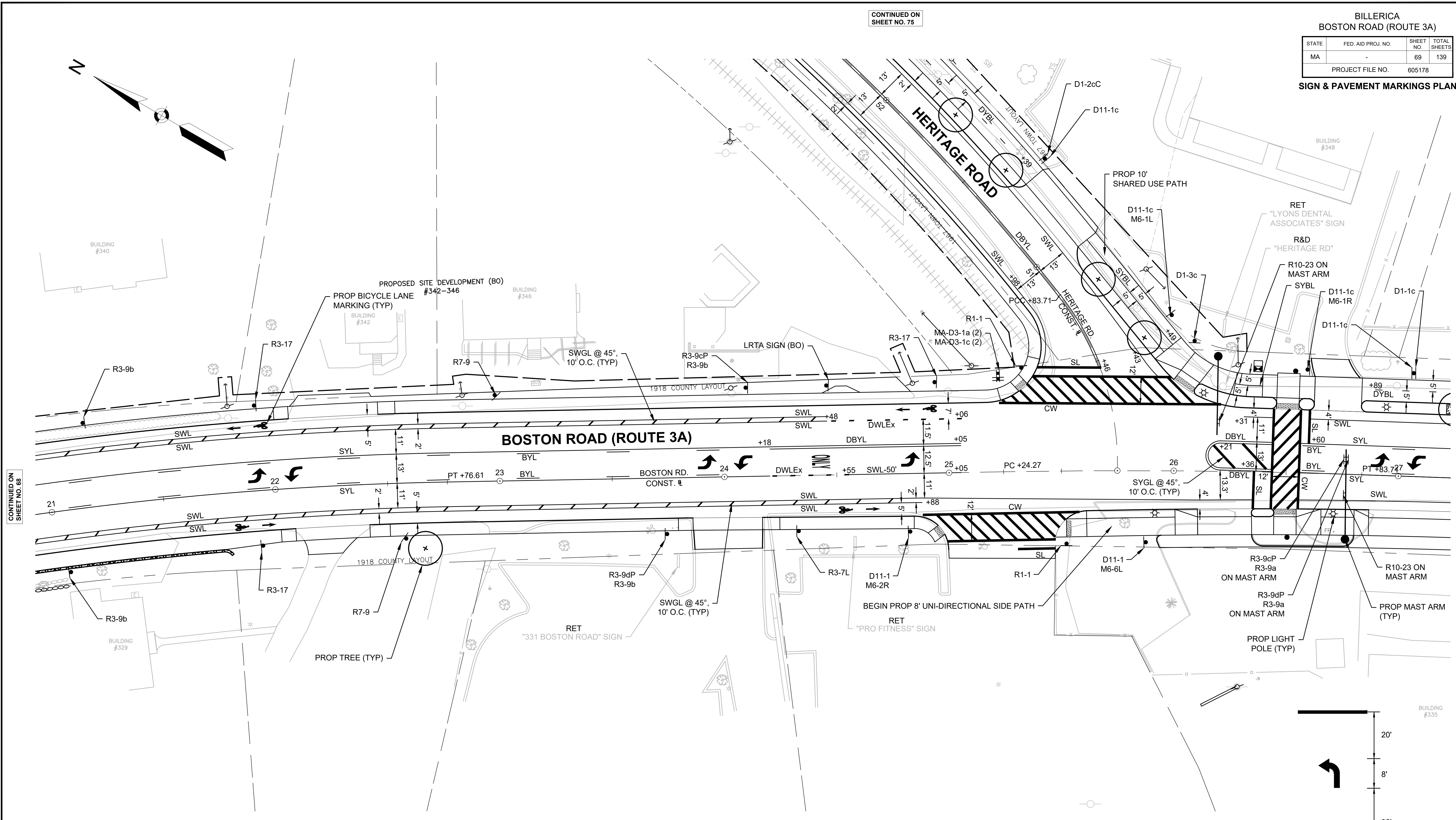
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	69	139

PROJECT FILE NO. 605178

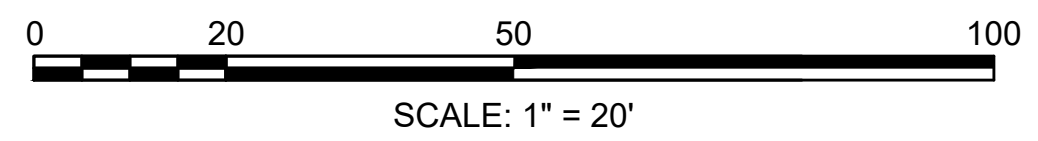
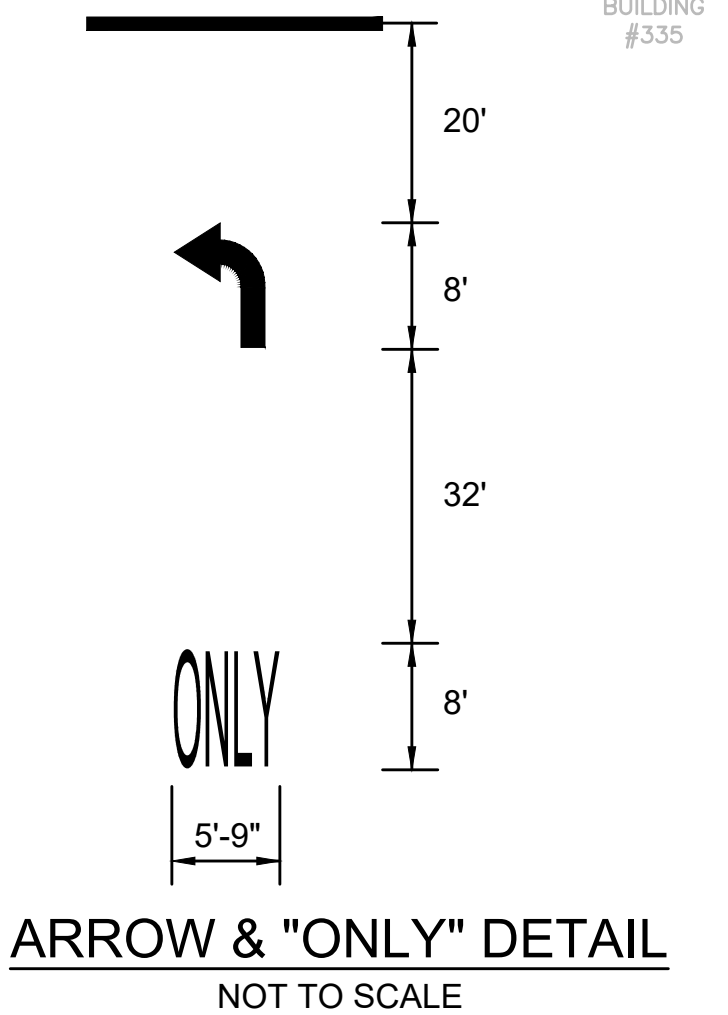
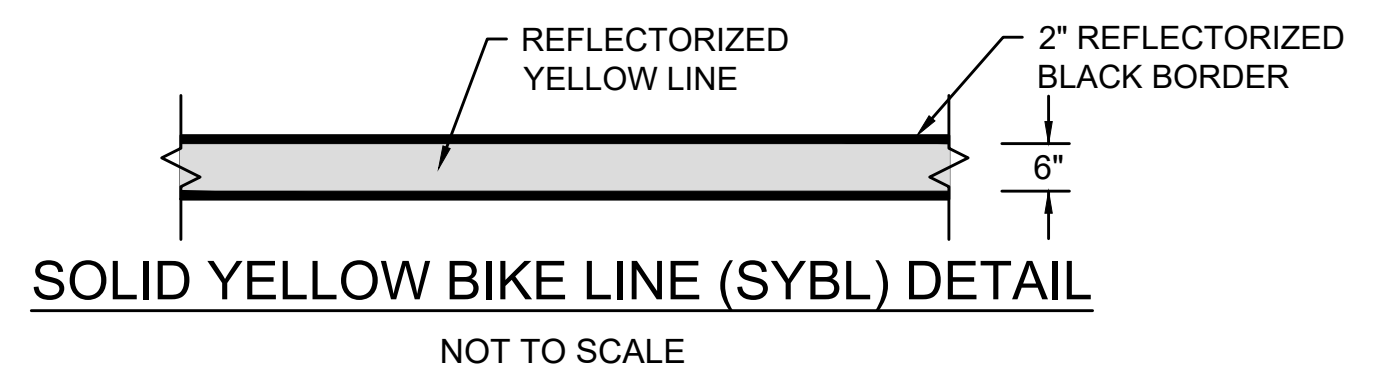
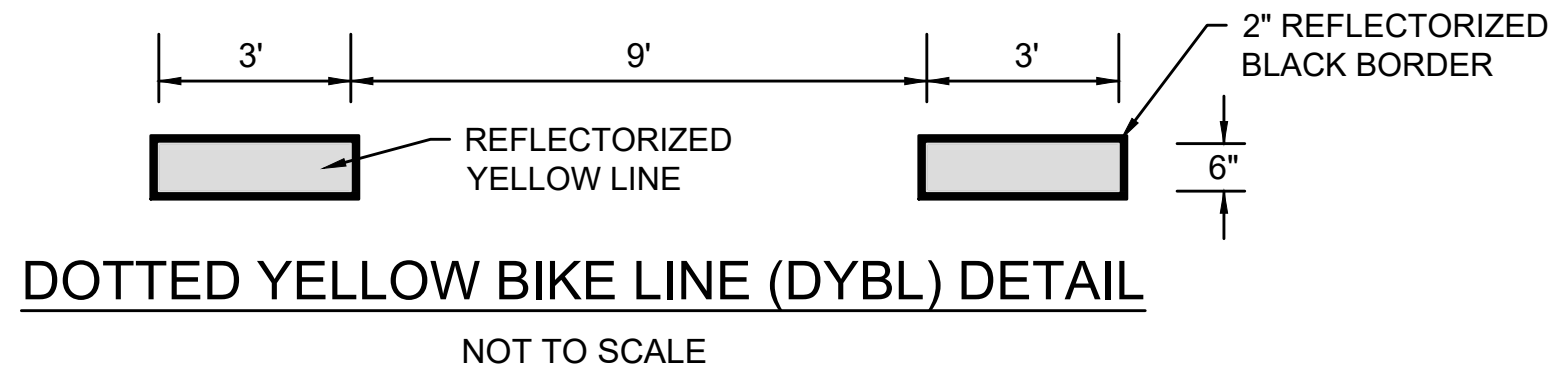
SIGN & PAVEMENT MARKINGS PLAN

605178_HD(4722_SIGN_PMRK).DWG Plotted on 2-Aug-21 6:15 PM



CONTINUED ON SHEET NO. 68

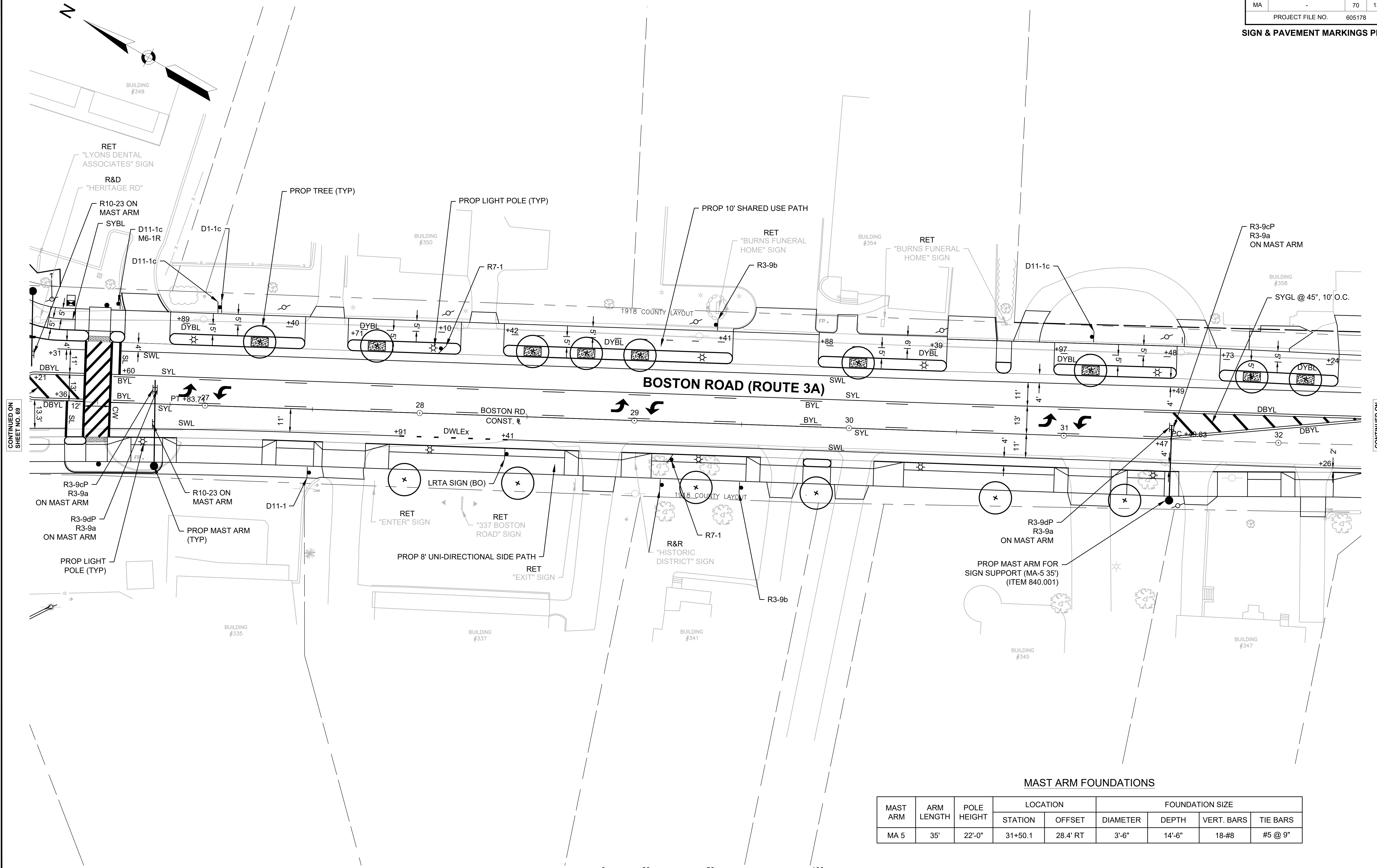
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BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	70	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN

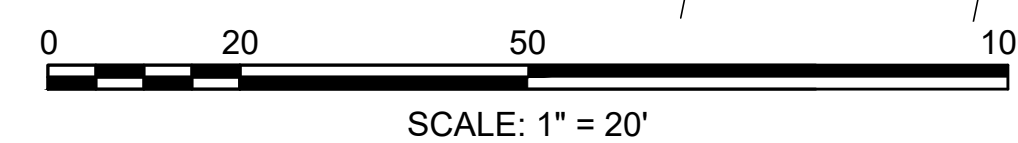


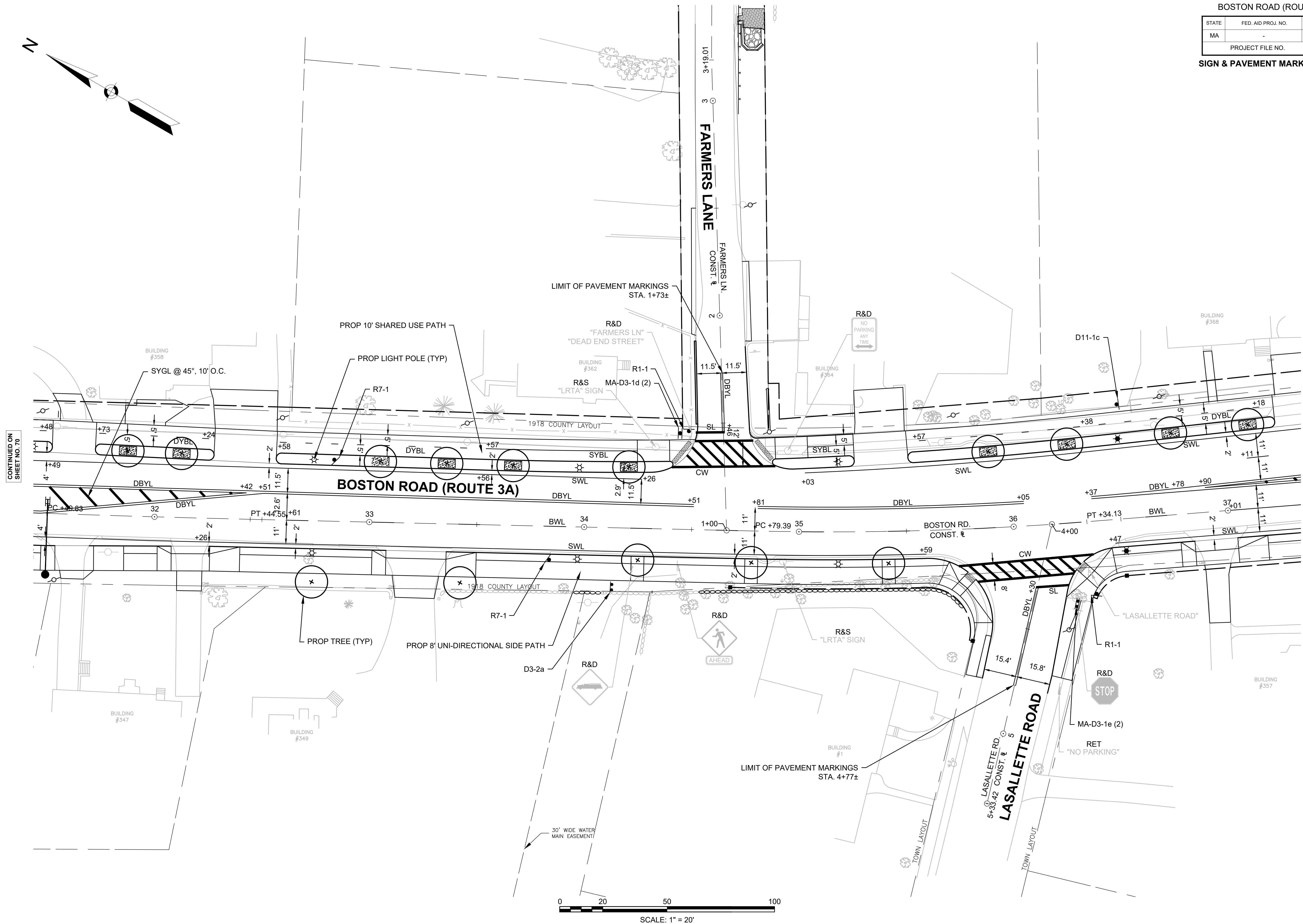
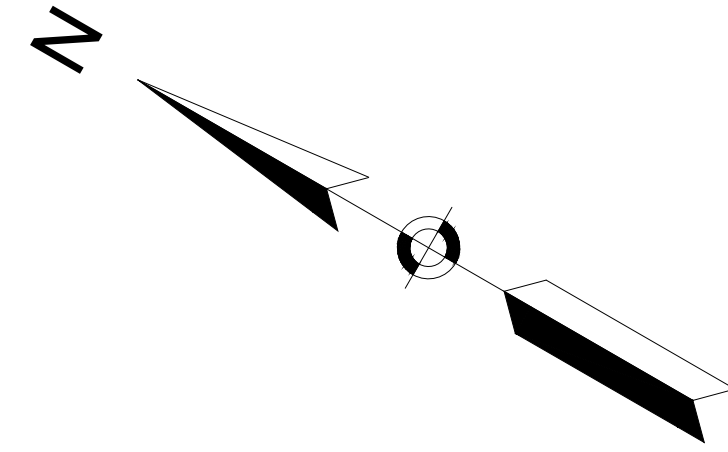
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CONTINUED ON SHEET NO. 71

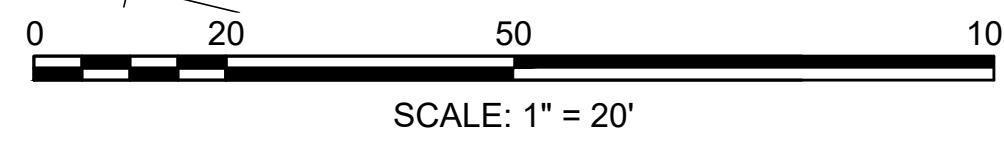
MAST ARM FOUNDATIONS

MAST ARM	ARM LENGTH	POLE HEIGHT	LOCATION		FOUNDATION SIZE			
			STATION	OFFSET	DIAMETER	DEPTH	VERT. BARS	TIE BARS
MA 5	35'	22'-0"	31+50.1	28.4' RT	3'-6"	14'-6"	18-#8	#5 @ 9"





CONTINUED ON SHEET NO. 72

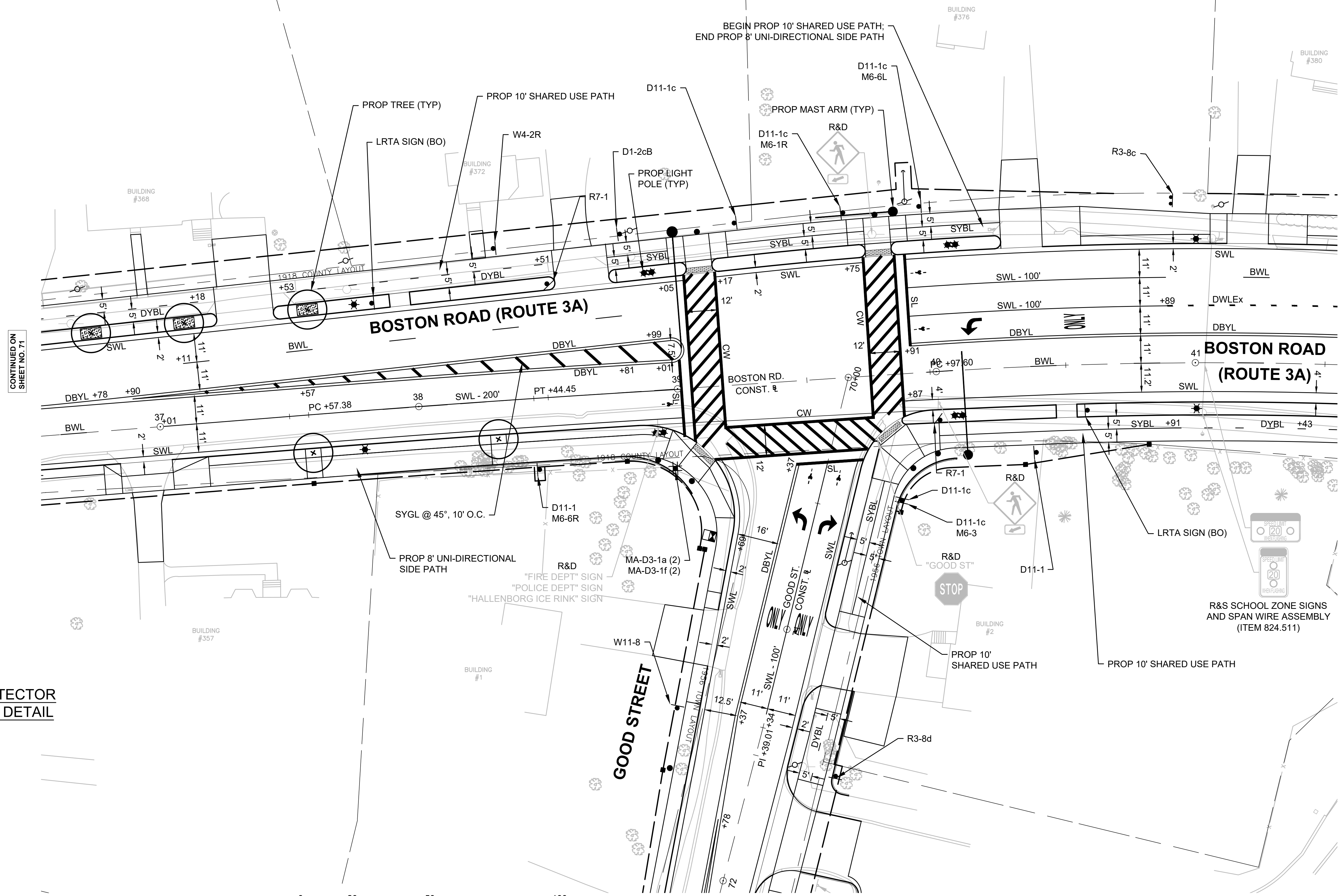
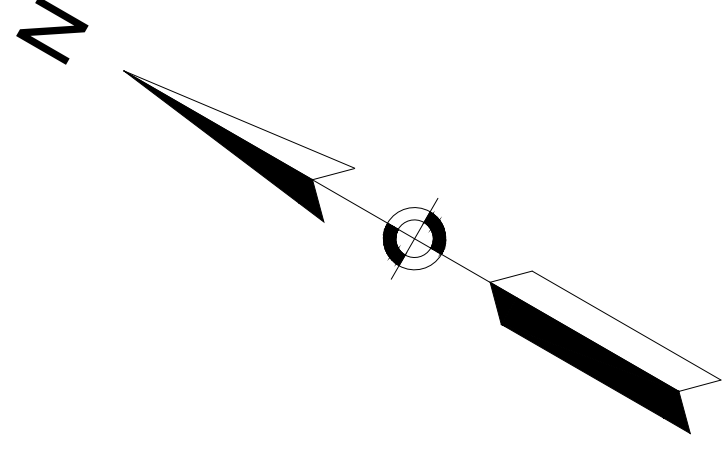


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	72	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN

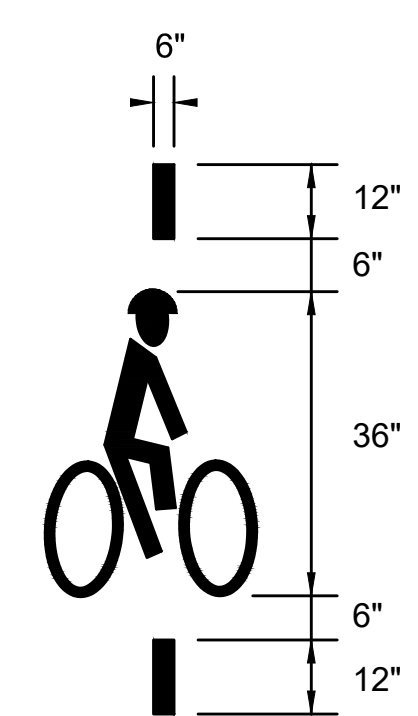
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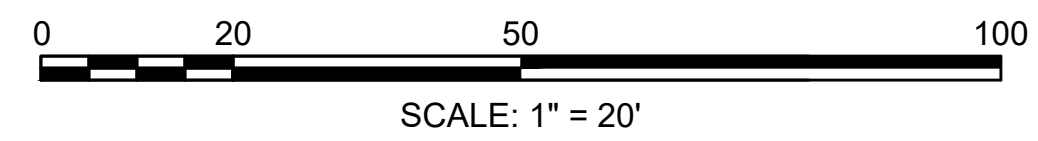
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CONTINUED ON SHEET NO. 73

CONTINUED ON SHEET NO. 77



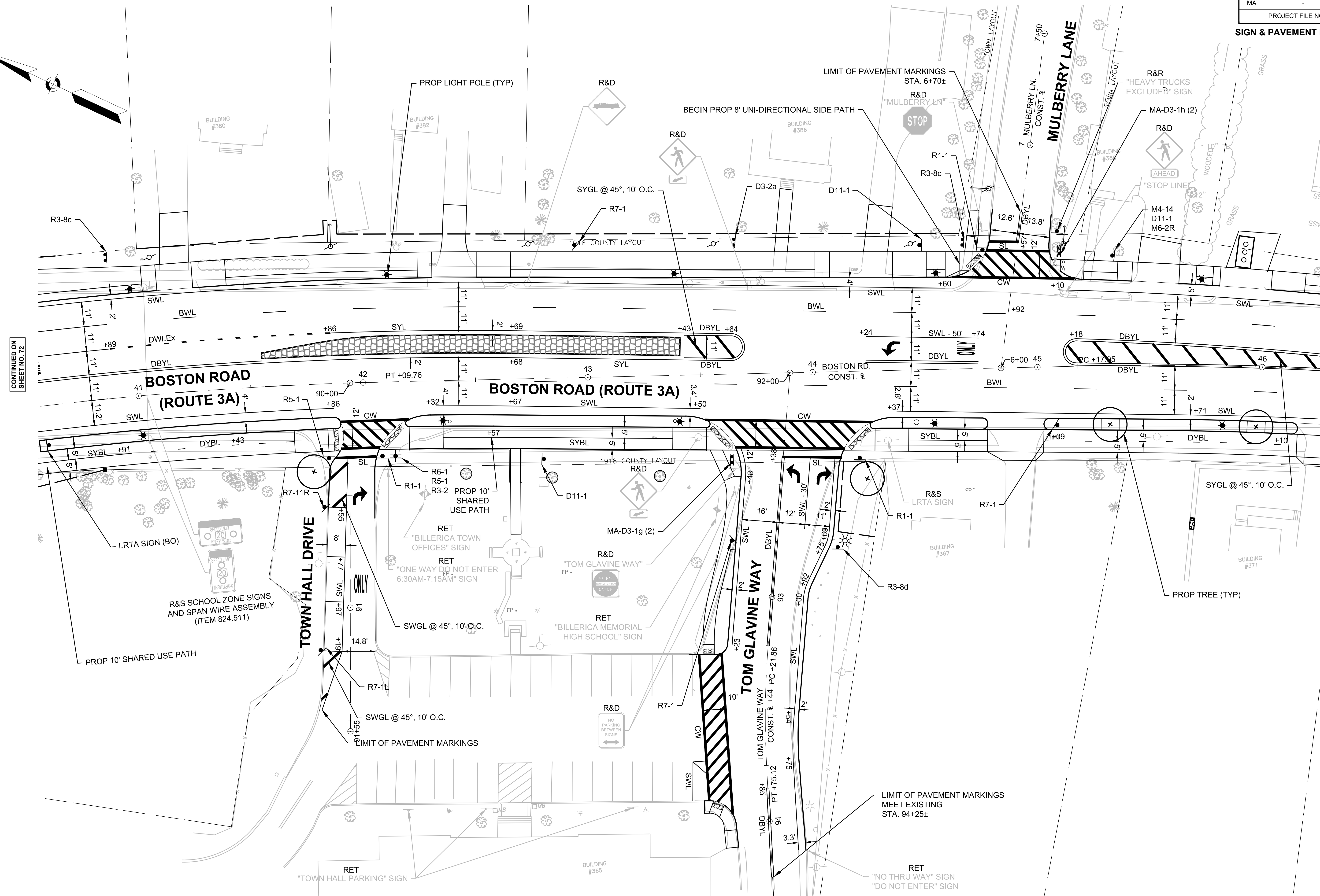
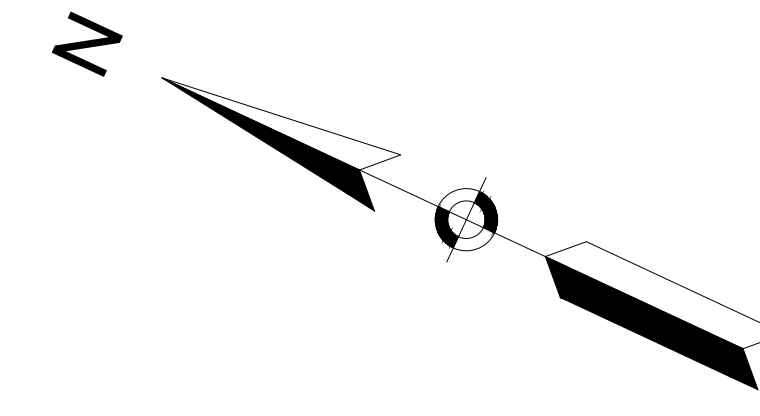
TYPICAL BICYCLE DETECTOR PAVEMENT MARKING DETAIL
NOT TO SCALE



BILLERICA
BOSTON ROAD (ROUTE 3A)

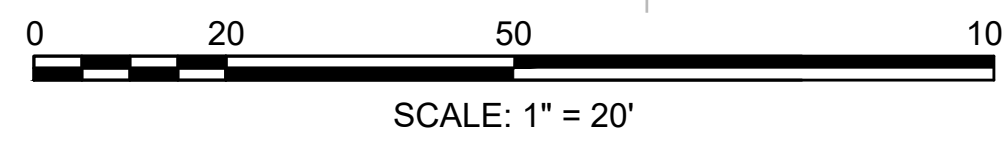
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		73	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN



CONTINUED ON SHEET NO. 72

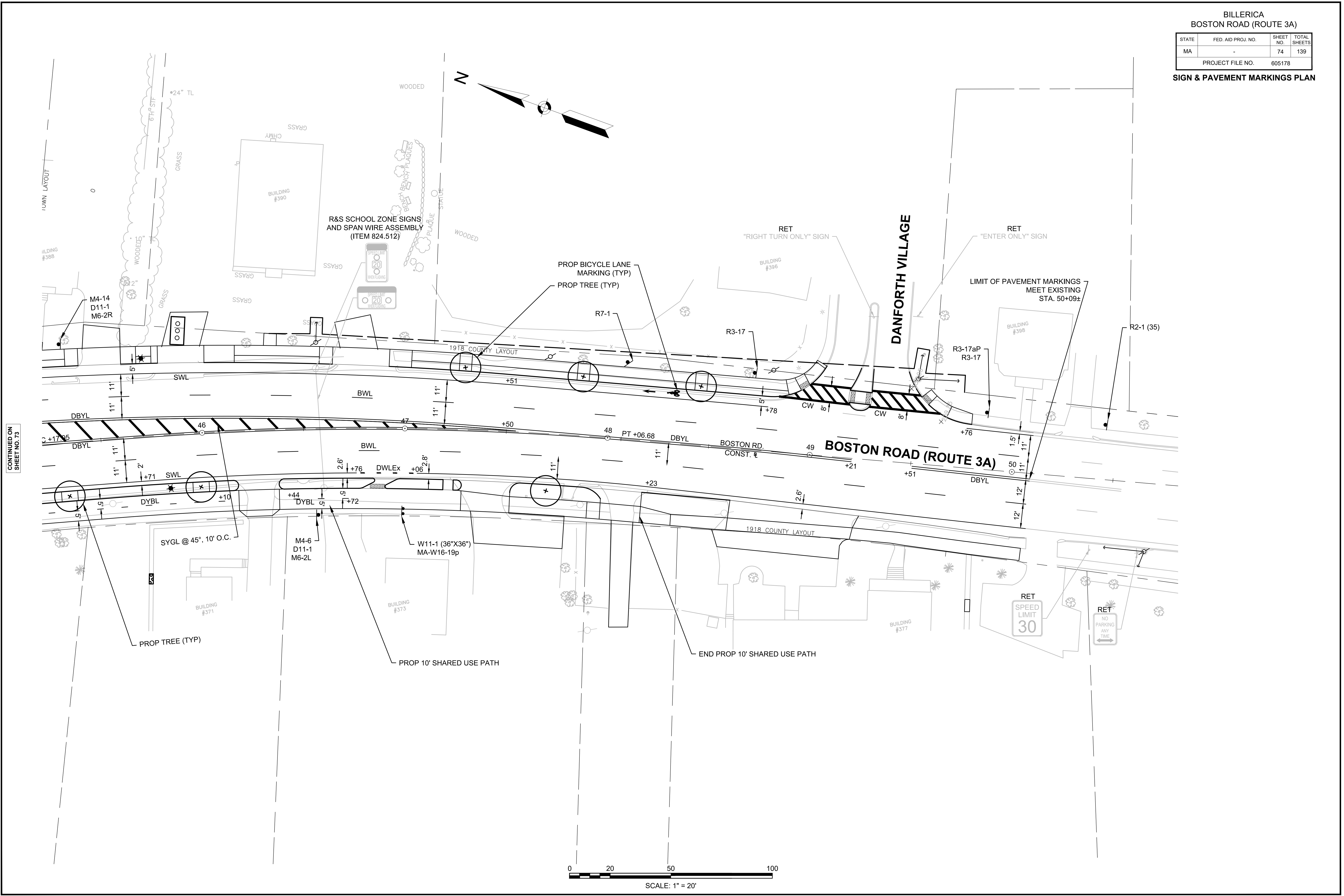
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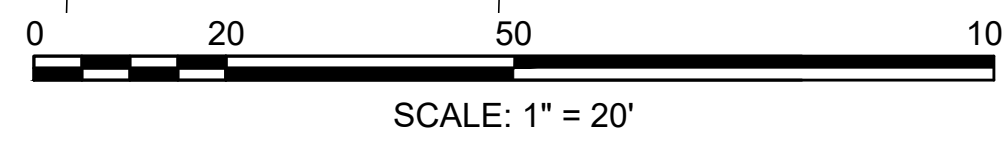
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	74	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN



CONTINUED ON SHEET NO. 73

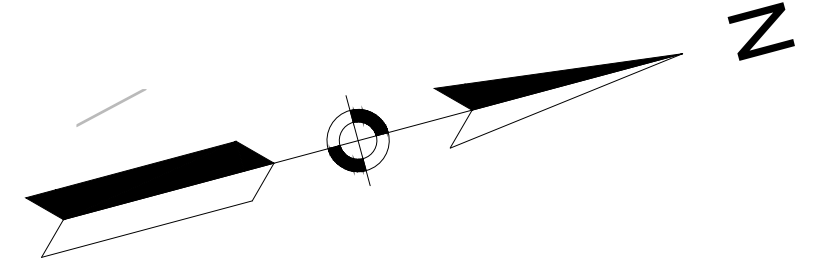


BILLERICA
BOSTON ROAD (ROUTE 3A)

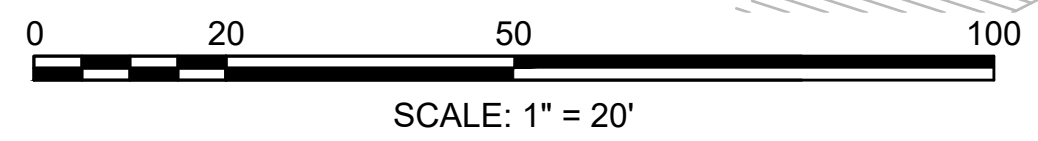
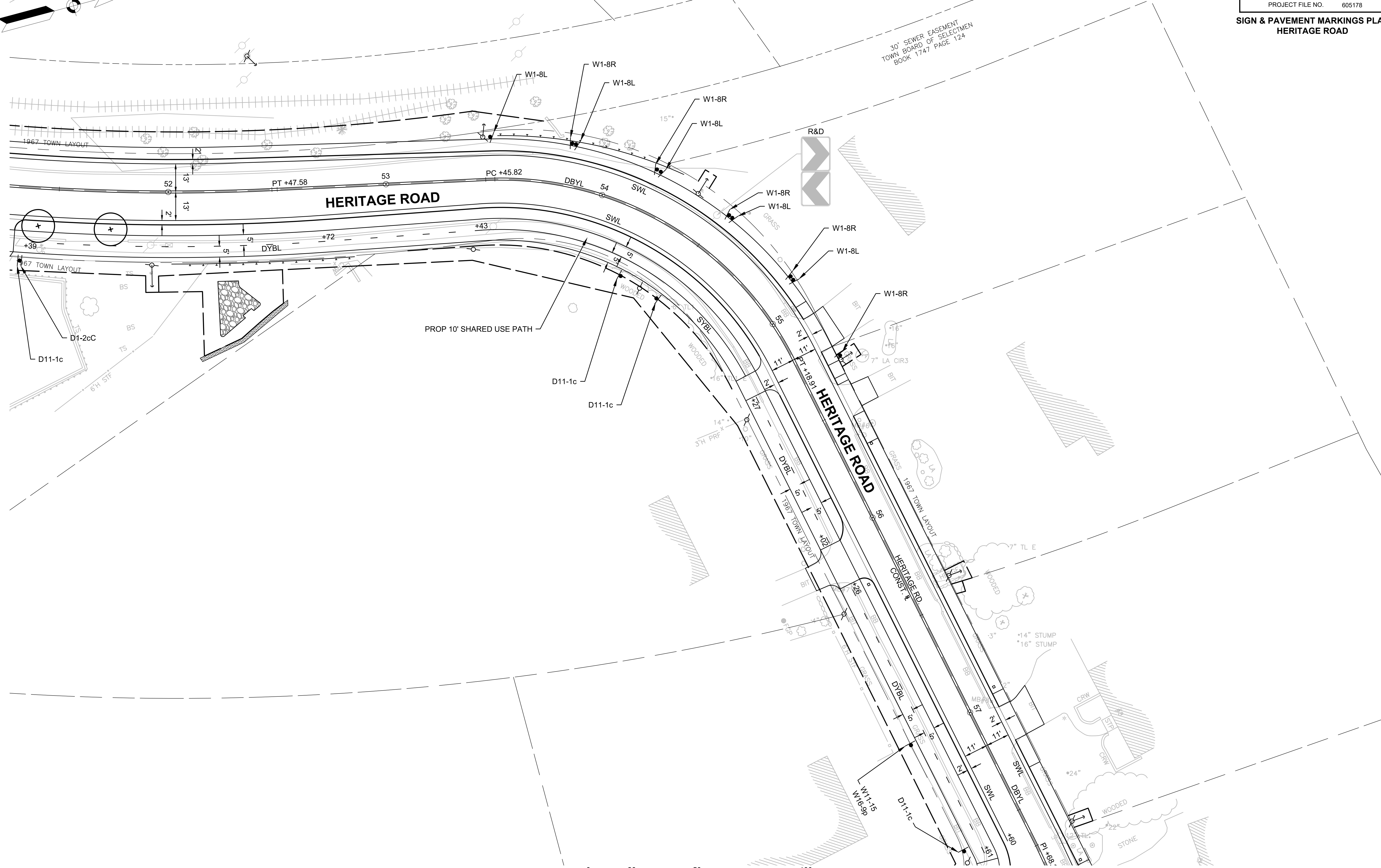
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	75	139
PROJECT FILE NO.		605178	

SIGN & PAVEMENT MARKINGS PLAN
HERITAGE ROAD

30' SEWER EASEMENT
TOWN BOARD OF SELECTMEN
BOOK 1747 PAGE 124



CONTINUED ON
SHEET NO. 69

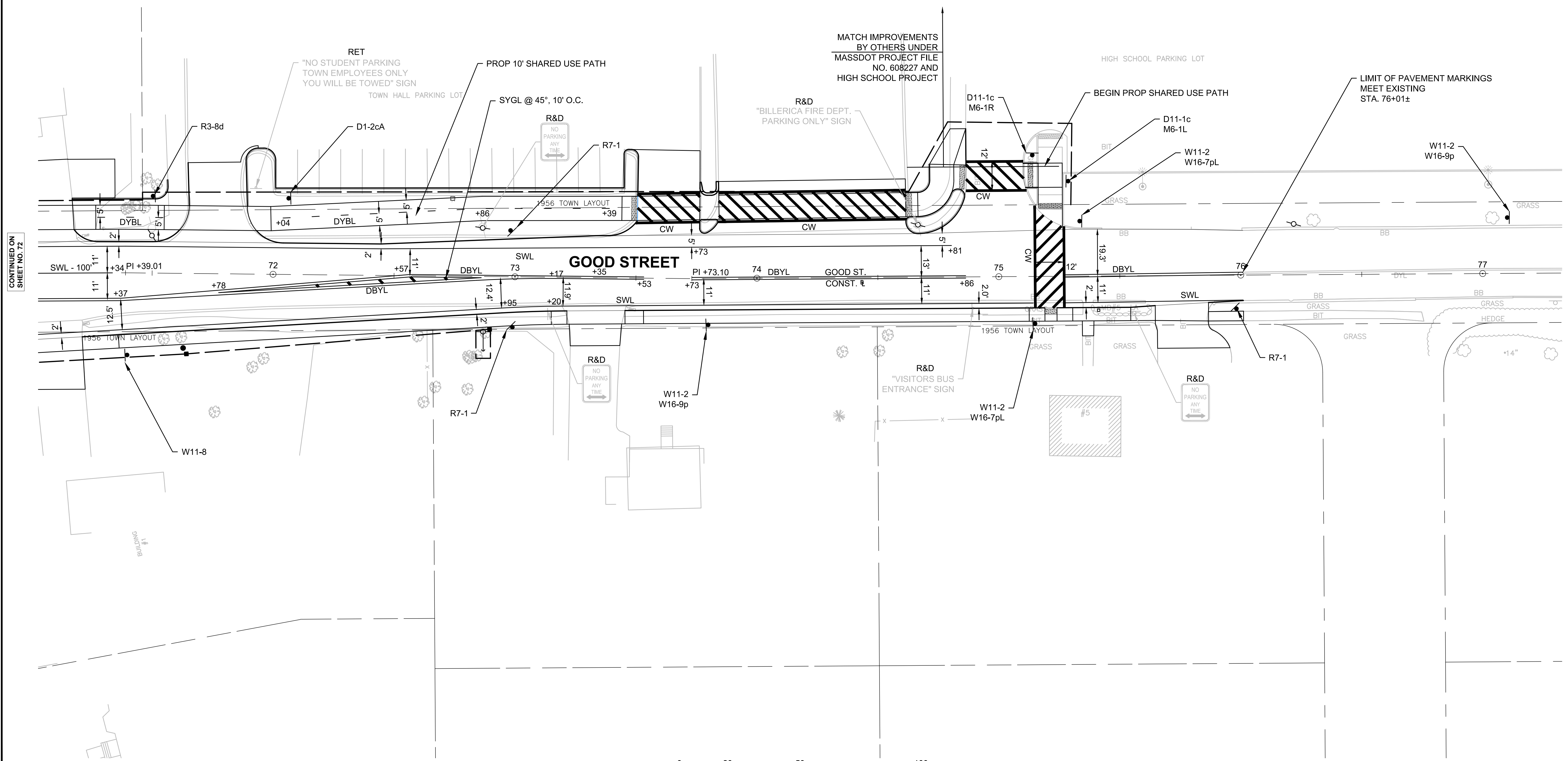
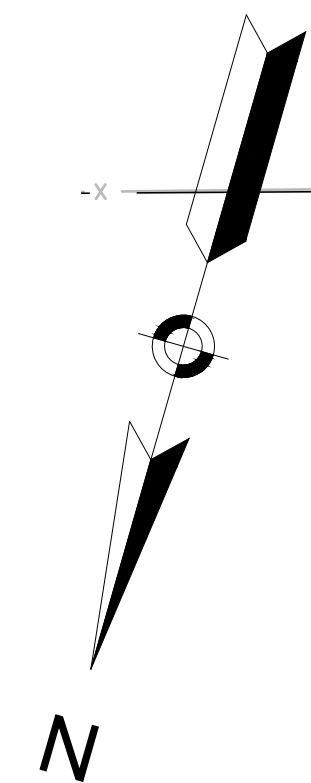


CONTINUED ON
SHEET NO. 76

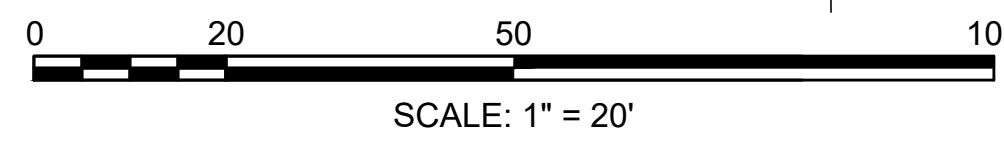
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	77	139
PROJECT FILE NO.		605178	

**SIGN & PAVEMENT MARKINGS PLAN
GOOD STREET**



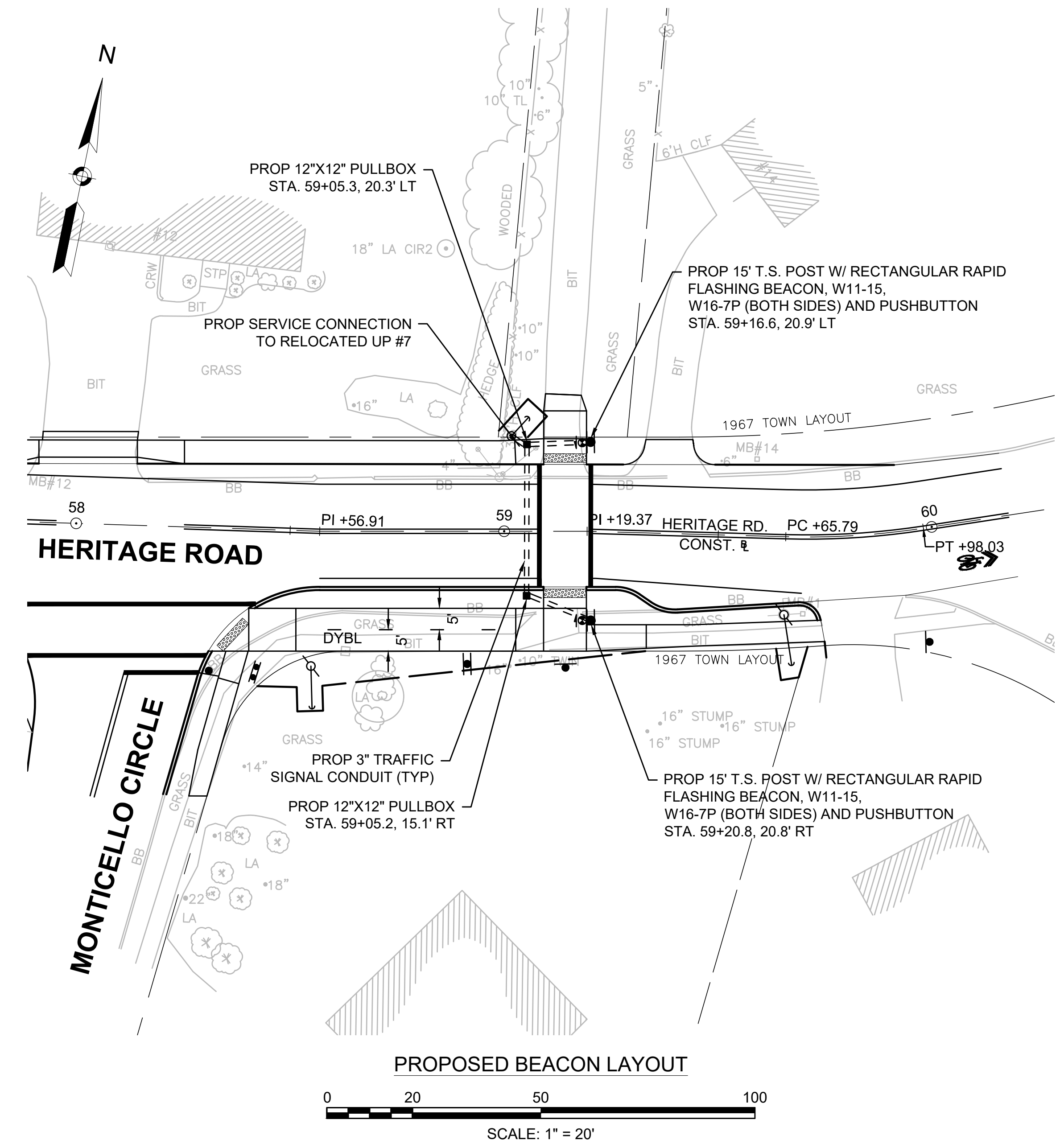
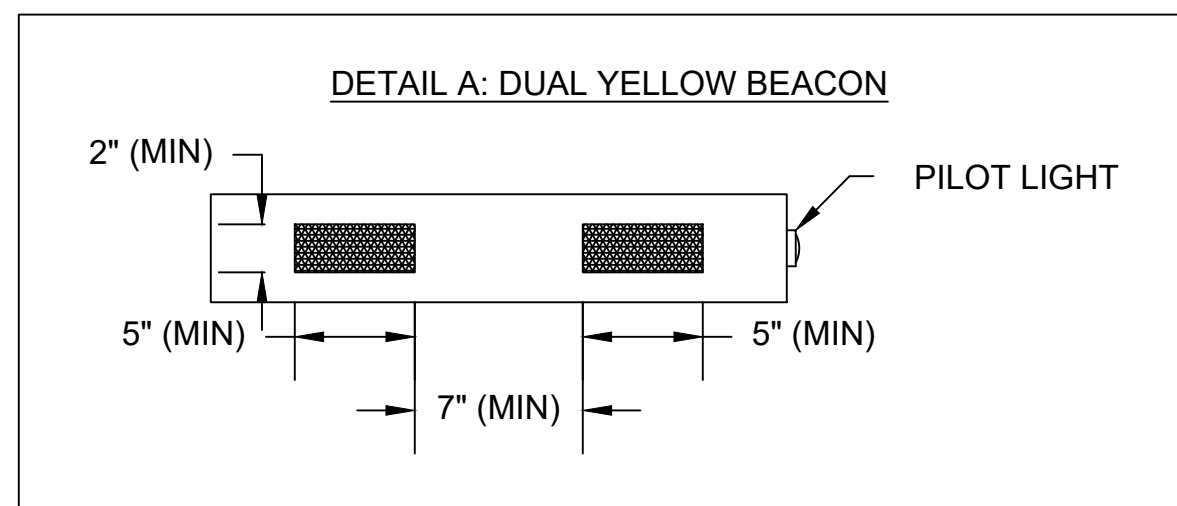
CONTINUED ON SHEET NO. 72



- NOTES:
- ACCESS TO ALL PEDESTRIAN ACTUATED CONTROLS SHALL BE ADA/AAB COMPLIANT.
 - *0.5% CONSTRUCTION TOLERANCE FOR CROSS-SLOPE.

RRFB TIMING AND OPERATIONS TABLE

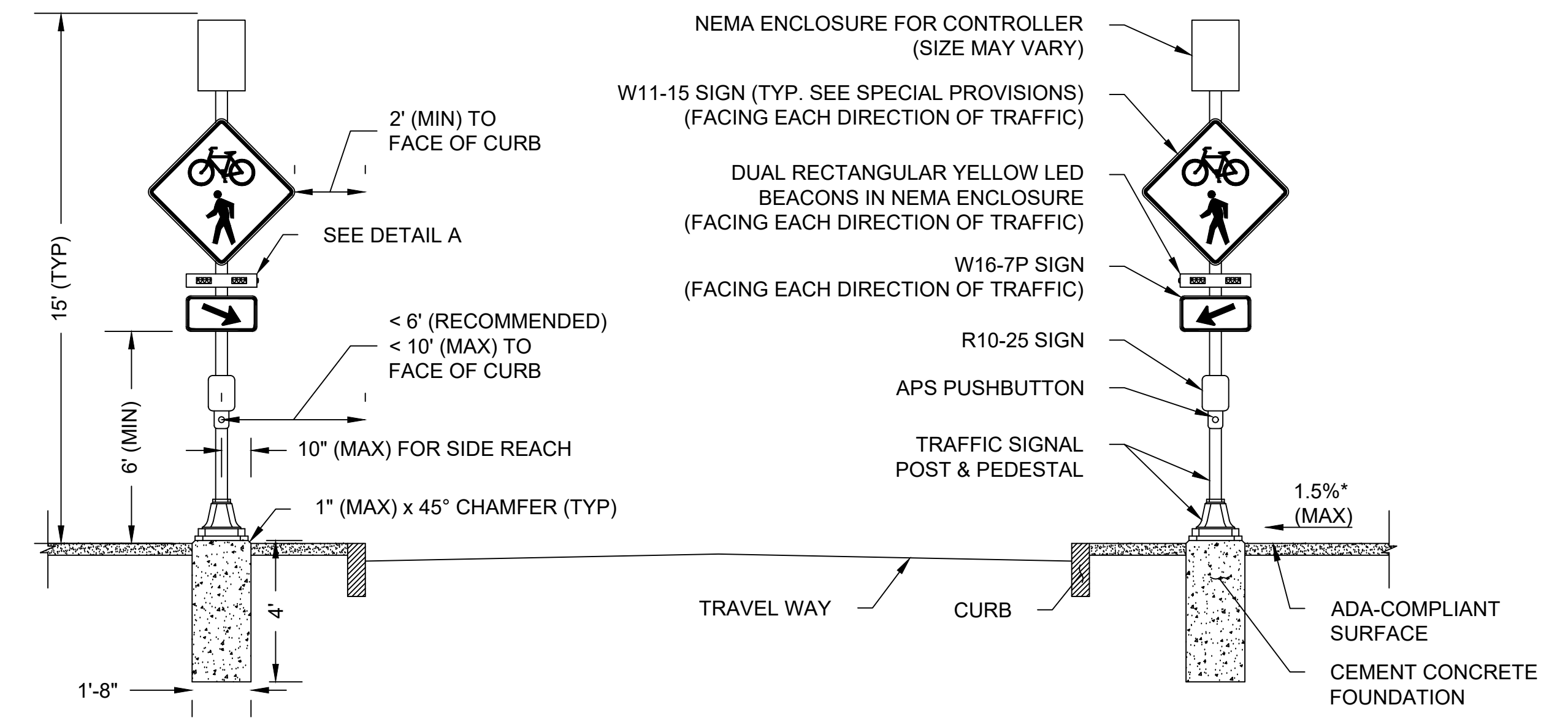
LOCATION	FLASHING CYCLE TIME	MINIMUM TIME BETWEEN ACTUATIONS
LOCATION 1 (STA 59+16± HERITAGE ROAD)	15 SECONDS	60 SECONDS



SCALE: 1" = 20'

MAJOR ITEMS - RRFB LOCATION 1 - HERITAGE ROAD (STA. 59+16±)		
ITEM NO.	QUANTITY	DESCRIPTION
824.211	2	NEMA ENCLOSURES FOR ALL COMPONENTS NEEDED TO MEET FUNCTIONAL REQUIREMENTS PER SPECIAL PROVISIONS
	2	TRAFFIC SIGNAL POST AND BASE STANDARD - 15' STEEL
	4	DUAL RECTANGULAR YELLOW LED BEACONS IN NEMA ENCLOSURES
	2	APS PUSHBUTTON SYSTEMS
	2	R10-25 SIGNS (9" x 12")
	4	W11-15 SIGNS (30" x 30")
	2	W16-7pL SIGNS (24" x 12")
	2	W16-7pR SIGNS (24" x 12")
804.3	68 FT	3" TRAFFIC SIGNAL CONDUIT
811.31	2	PULL BOX, 12" X 12"

PLUS ALL MOUNTING AND SUPPORTING HARDWARE AND WIRING NECESSARY TO COMPLETE A WORKING SYSTEM.



RRFB DETAIL - LOCATION 1 (HERITAGE RD STA 59+16)
(FACING EASTBOUND)
NOT TO SCALE

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER			
R1-1	30 in	30 in					9	RED	WHITE	WHITE	P-5 9	6.25	56.25
R2-1 (30)	30 in	36 in					1	WHITE	BLACK	BLACK	P-5 1	7.5	7.5
R2-1 (35)	30 in	36 in					2	WHITE	BLACK	BLACK	P-5 2	7.5	15
R3-2	24 in	24 in					1	WHITE	RED/BLACK	BLACK	MOUNT W/ R5-1	4.0	4.0
R3-7L	36 in	36 in					1	WHITE	BLACK	BLACK	P-5 1	9.0	9.0
R3-8c	48 in	30 in					2	WHITE	BLACK	BLACK	P-5 (2) 2	10.0	20.0
R3-8d	36 in	30 in					2	WHITE	BLACK	BLACK	P-5 2	7.5	15.0
R3-9a	30 in	36 in					6	WHITE	BLACK	BLACK	MOUNT ON MA	7.5	45.0
R3-9b	24 in	36 in					8				P-5 8	6.0	48.0
R3-9cP	30 in	12 in					4	WHITE	BLACK	BLACK	MOUNT 3 W/ R3-9a 1 W/ R3-9b	2.5	10.0
R3-9dP	30 in	12 in					4	WHITE	BLACK	BLACK	MOUNT 3 W/ R3-9a 1 W/ R3-9b	2.5	10.0
R3-17aP	24 in	8 in					2	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	2.66
R3-17bP	24 in	8 in					1	WHITE	BLACK	BLACK	MOUNT W/ R3-17	1.33	1.33
R3-17	24 in	18 in					10	WHITE	BLACK	BLACK	P-5 10	3.0	30.0
R5-1	30 in	30 in					3	WHITE	RED/BLACK	BLACK	P-5 3	6.25	18.75
R6-1 (PBS)	36 in	12 in					1	WHITE	BLACK	BLACK	MOUNT W/ R5-1	3.0	3.0
R7-1	12 in	18 in					14	WHITE	RED	RED	P-5 14	1.5	21.0
R7-1L	12 in	18 in					1	WHITE	RED	RED	P-5 1	1.5	1.5
R7-9	12 in	18 in					5	WHITE	RED	RED	P-5 5	1.5	7.5
R7-11R	12 in	18 in					1	WHITE	RED	RED	P-5 1	1.5	1.5
R10-23	24 in	30 in					4	WHITE	BLACK	BLACK	MOUNT ON MAST ARM	5.0	20.0
R10-25	9 in	12 in					2	WHITE	BLACK	BLACK	MOUNT ON RRFB	-	-

SEE 2009 MUTCD STANDARDS

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER			
W1-8L	18 in	24 in					5	YELLOW	BLACK	BLACK	P-5 5	3.0	15.0
W1-8R	18 in	24 in					5	YELLOW	BLACK	BLACK	P-5 5	3.0	15.0
W4-2L	36 in	36 in					1	YELLOW	BLACK	BLACK	P-5 1	9.0	9.0
W4-2R	36 in	36 in					1	YELLOW	BLACK	BLACK	P-5 1	9.0	9.0
W11-1	36 in	36 in					2	FY	BLACK	BLACK	P-5 (2) 2	9.0	18.0
	30 in	30 in		1	P-5 1	6.25	6.25						
W11-2	30 in	30 in					4	FY	BLACK	BLACK	P-5 4	6.25	25.0
W11-8	30 in	30 in					1	FY	BLACK	BLACK	P-5 1	6.25	6.25
W11-15	30 in	30 in					6	FY	BLACK	BLACK	MOUNT 4 ON RRFB 2 ON P-5	6.25	37.5
W16-7pL	24 in	12 in					4	FY	BLACK	BLACK	MOUNT 2 ON RRFB 2 W/ W11-2	2.0	8.0
W16-7pR	24 in	12 in					2	FY	BLACK	BLACK	MOUNT ON RRFB	-	-
W16-9p	24 in	12 in					4	FY	BLACK	BLACK	MOUNT 2 W/ W11-2 2 W/ W11-15	2.0	8.0
MA-W16-19p	24 in	18 in					3	FY	BLACK	BLACK	MOUNT W/ W11-1	3.0	9.0
MA-M1-5a(129)	30 in	24 in					1	WHITE	BLACK	BLACK	MOUNT W/ M2-1	5.0	5.0
M2-1	21 in	15 in					1	WHITE	BLACK	BLACK	P-5 1	2.2	2.2
M4-6	12 in	6 in					1	GREEN	WHITE	WHITE	MOUNT W/ D11-1	0.5	0.5
M4-14	12 in	6 in					1				MOUNT W/ D11-1	0.5	0.5
M6-1L	12 in	9 in					3				MOUNT W/ D11-1c	0.75	2.25
M6-1R	12 in	9 in					4				MOUNT W/ D11-1c	0.75	3.0
M6-2L	12 in	9 in					1				MOUNT W/ D11-1	0.75	0.75

SEE 2009 MUTCD STANDARDS

SEE MASSDOT STANDARDS

SEE 2009 MUTCD STANDARDS

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	80	139
PROJECT FILE NO.		605178	

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET	
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER				
M6-2R	12 in	9 in		SEE 2009 MUTCD STANDARDS			2	GREEN	WHITE	WHITE	MOUNT W/ D11-1	0.75	1.5	
M6-3	12 in	9 in					1					MOUNT W/ D11-1c	0.75	0.75
M6-6L	12 in	9 in					2					MOUNT 1 W/D11-1 1 W/D11-1c	0.75	1.5
M6-6R	12 in	9 in					1					MOUNT W/ D11-1	0.75	0.75
D1-1c	33 in	6 in	Middle School 0.2 →	2D	2	2	1				MOUNT W/ D11-1c	1.375	1.375	
D1-2cA	33 in	12 in	← Middle School 0.5 Town Center 0.4 →	2D	2.125	ARROW 3X2@180°	1				P-5 1	2.75	2.75	
				2D	3.75	ARROW 3X2@0°								
D1-2cB	33 in	12 in	↑ Town Center 0.4 High School 0.1 →	2D	2.125	ARROW 3X2@90°	1				P-5 1	2.75	2.75	
				2D	3.75	ARROW 3X2@0°								
D1-2cC	33 in	12 in	← Town Center 0.6 ← High School 0.4	2D	2.125	ARROW 3X2@180°	1				MOUNT W/ D11-1c	2.75	2.75	
				2D	3.75	ARROW 3X2@180°								
D1-3c	33 in	18 in	↑ Middle School 0.2 High School 0.5 → Town Center 0.9 →	2D	2.125	ARROW 3X2@90°	1				P-5 1	4.125	4.125	
				2D	3.875	ARROW 3X2@0°								
				2D	3.875	ARROW 3X2@0°								
MA-D3-1a	48 in	12 in	Boston Rd	6/4D	3	3	4				MOUNT 2 W/ MA-D3-1c 2 W/ MA-D3-1f	EACH	EACH	
MA-D3-1b	54 in	12 in	Simmons Ln	6/4D	3	3	2				P-5 (2) 1	EACH	EACH	
MA-D3-1c	54 in	12 in	Heritage Rd	6/4D	2.75	3.25	2				1 - P-5 (2) 1 - P-5	EACH	EACH	
MA-D3-1d	48 in	12 in	Farmers Ln	6/4D	3	3	2				P-5 1	EACH	EACH	
MA-D3-1e	54 in	12 in	Lasalette Rd	6/4D	3	3	2				P-5 (2) 1	EACH	EACH	
MA-D3-1f	36 in	12 in	Good st	6/4D	3	3	2				P-5 1	EACH	EACH	
MA-D3-1g	66 in	12 in	Tom Glavine way	6/4D	2.75	3.25	2				P-5 (2) 1	EACH	EACH	
MA-D3-1h	54 in	12 in	Mulberry Ln	6/4D	3	3	2				P-5 (2) 1	EACH	EACH	
MA-D3-1i	60 in	12 in	Monticello Cir	6/4D	3	3	2				P-5 (2) 1	EACH	EACH	

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	DIMENSIONS (in)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER			
D3-2a	66 in	30 in	Good Street NEXT SIGNAL	6D 6D	6 6 6		2	GREEN	WHITE	WHITE	P-5 (2) 2	13.75	27.5
D3-2b	66 in	42 in	Floyd Street Pollard Street NEXT SIGNAL	6D 6D 6D	6 6 6 6		1				P-5 (2) 1	19.25	19.25
D11-1	24 in	18 in		SEE 2009 MUTCD STANDARDS			9				P-5 9	3.0	27.0
D11-1c	24 in	18 in		2.5C	1.75 1.25 1.5	11" SYMBOL	19				P-5 17	3.0	57.0

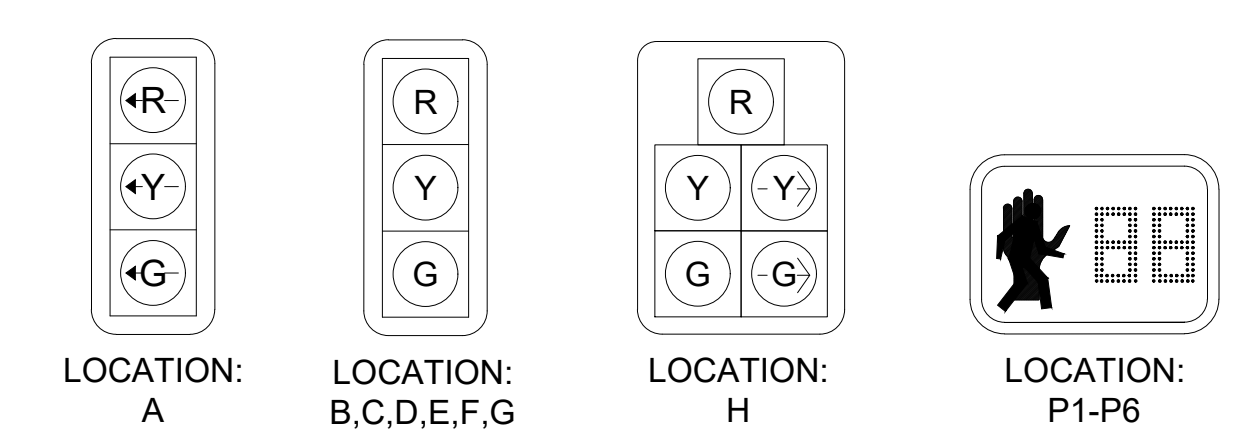
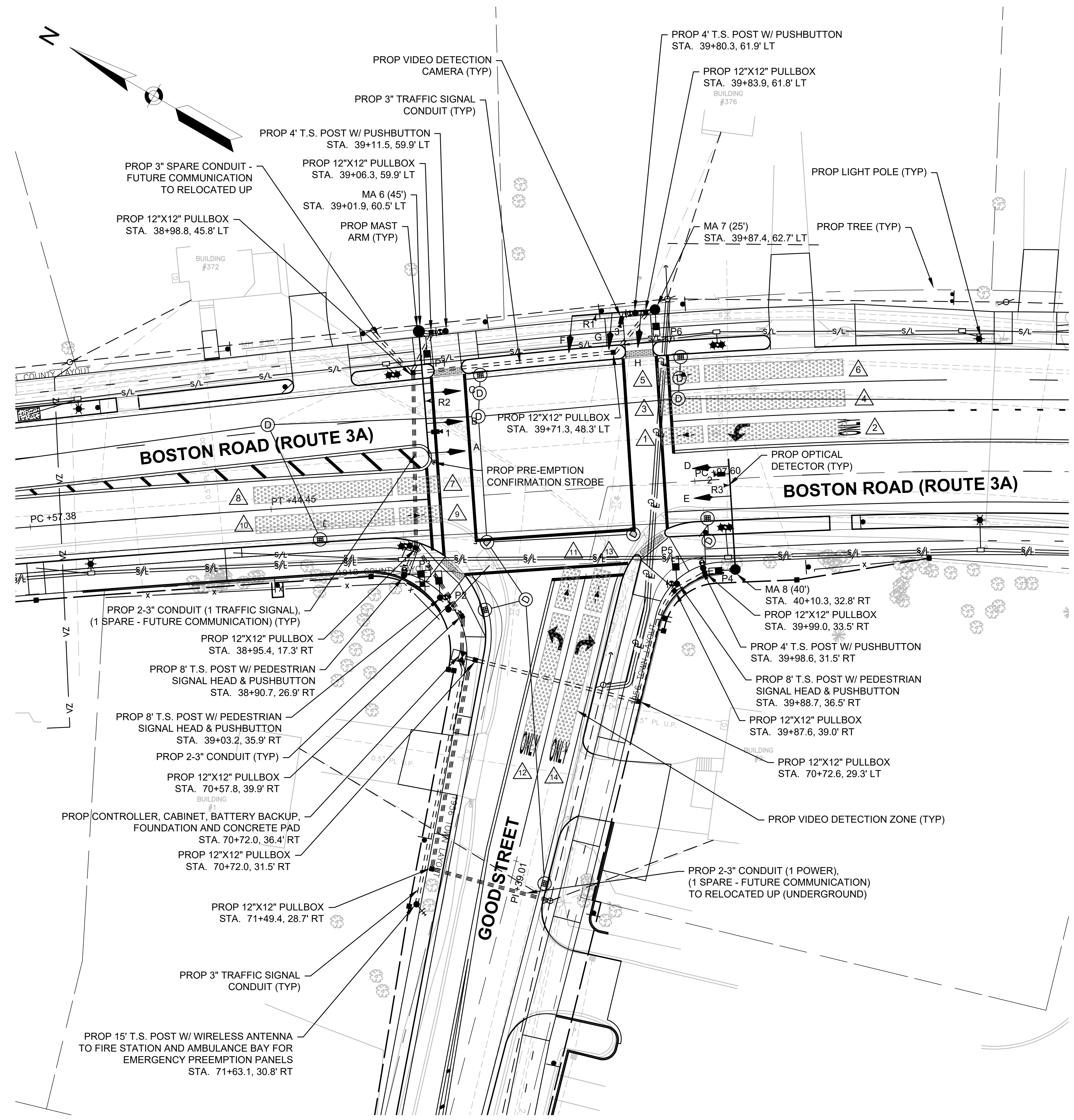
NOTES:

- HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING CONFORMING TO SECTION M9:30.0, TYPE III OR IV, OF THE MASSDOT STANDARD SPECIFICATIONS SHALL BE USED FOR ALL SIGNS.
- ALL P5 POSTS SHALL BE TELESCOPIC, RECTANGULAR TYPE POSTS, CONFORMING TO THE DIMENSIONS AND REQUIREMENTS OF THE MASSDOT "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS" (LATEST EDITION).
- SEE THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND "STANDARD HIGHWAY SIGNS" FOR THE LATEST SPECIFICATIONS ON TEXT, DIMENSIONS AND COLOR. (ALSO SEE SECTION M9.30.0 TYPE III MASSDOT STANDARD SPECIFICATION, THE "MASSACHUSETTS MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES," AND "GUIDE SIGN POLICY FOR SECONDARY STATE HIGHWAYS" (LATEST EDITIONS) BY THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION).
- ALL STREET NAME SIGNS SHALL BE PAINTED ONE SIDE AND SHALL USE TWO SIGNS MOUNTED BACK TO BACK WITH BOLT-THROUGH METHOD.
- FY: FLUORESCENT YELLOW.
- PBS: PAINTED BOTH SIDES.

BILLERICA
BOSTON ROAD (ROUTE 3A)

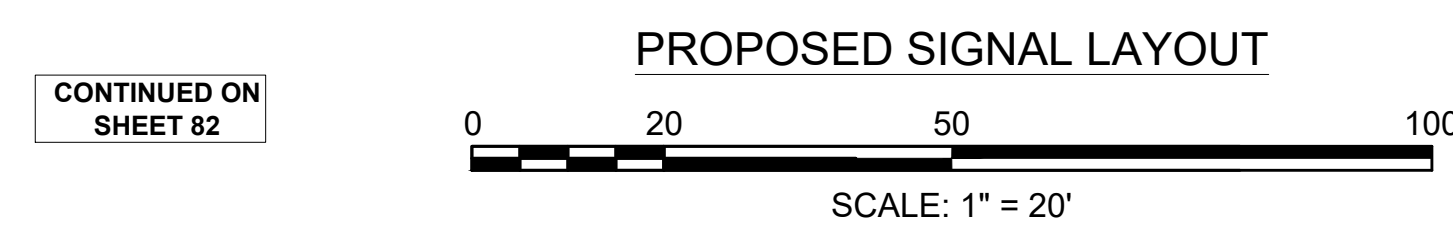
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	81	139
PROJECT FILE NO.		605178	

TRAFFIC SIGNAL PLAN
LOCATION 1:
BOSTON ROAD (ROUTE 3A)
AT GOOD STREET



SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

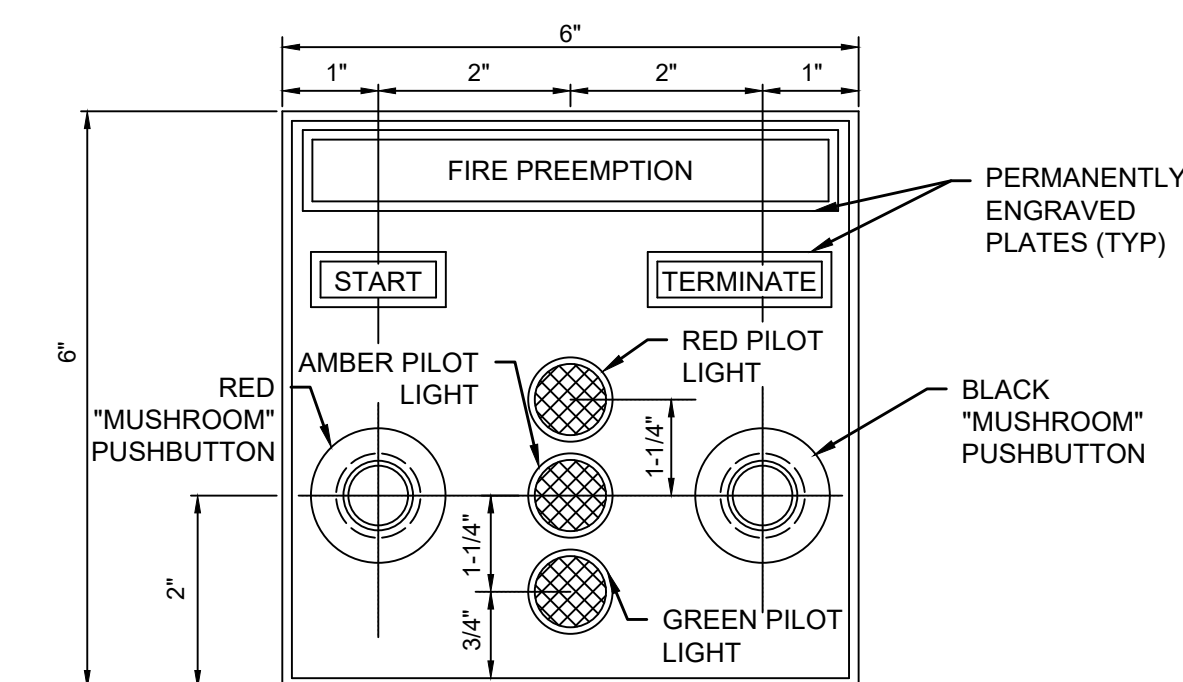
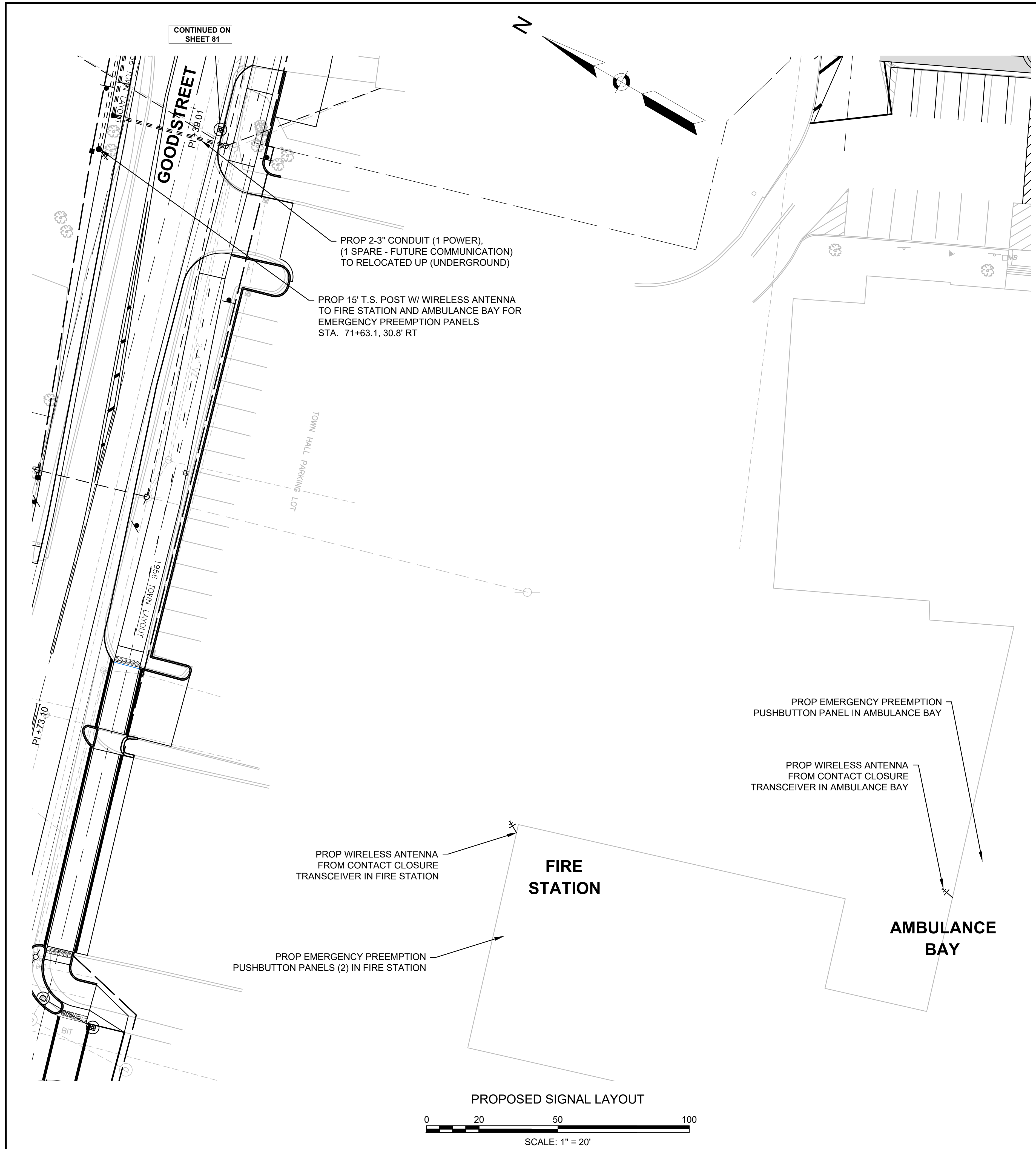
- SIGNAL HEAD NOTES
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES AND TUNNEL VISORS.
 2. ALL SIGNAL BACKPLATES SHALL BE 5" LOUVERED WITH 3" YELLOW RETROREFLECTIVE BORDER.
 3. ALL SIGNAL LENSES SHALL BE 12" DIA. LED.
 4. ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
 5. ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
 6. ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	82	139
PROJECT FILE NO.		605178	

TRAFFIC SIGNAL PLAN
LOCATION 1:
BOSTON ROAD (ROUTE 3A)
AT GOOD STREET



**EMERGENCY PREEMPTION
PUSHBUTTON PANEL DETAIL**
(NEMA ENCLOSURE)
NOT TO SCALE

PANEL NOTES

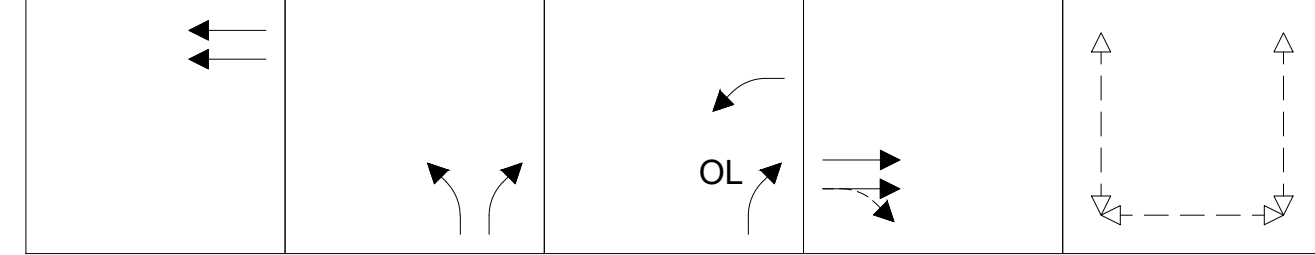
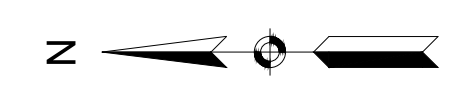
1. ALL BUTTON LOCATIONS SHALL BE COORDINATED WITH STATION COMMANDER

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	83	139
PROJECT FILE NO.		605178	

**TRAFFIC SIGNAL PLAN
LOCATION 1:
BOSTON ROAD (ROUTE 3A)
AT GOOD STREET**

SEQUENCE AND TIMING CHART FOR FULLY ACTUATED SIGNAL CONTROL (ISOLATED)		Ø2		Ø4		Ø5		Ø6		Ø9		FLASH OPER.						
PHASE/EMERGENCY PRE-EMPTION	DIRECTION	HOUSINGS	4	5	6	7	8	9	10	11	12	13	14	15	19	20	21	FLASH OPER.
BOSTON ROAD	NB	A	+R	+R	+R	+R	+R	+R	+G	+Y	+R	+R	+R	+R	+R	+R	+R	+FR
BOSTON ROAD	NB	B,C	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
BOSTON ROAD	SB	D,E	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FY
GOOD STREET	EB	F,G	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
GOOD STREET	EB	H	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	P1-P6	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF

TIMING IN SECONDS		Ø2		Ø4		Ø5		Ø6		Ø9		EMERGENCY ONLY
MINIMUM GREEN		10		7		6		10				
VEHICLE EXTENSION		4		2		2		4				
MAXIMUM GREEN I (ALL OTHER TIMES)		40		25		10		40				
MAXIMUM GREEN II (6:00 AM - 10:00 AM MON - FRI)		55		25		10		55				
CLEARANCE INTERVAL		4	1	3	3	3.5	2.5	4	1			
WALK/CLEARANCE/BUFFER INTERVAL										7	20	4
DETECTOR MEMORY		NON-LOCK		NON-LOCK		NON-LOCK		NON-LOCK		LOCK		
RECALL SWITCH		SOFT		OFF		OFF		SOFT		OFF		



TRAFFIC SIGNAL NOTES:

- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- FLASHING OPERATION IS FOR EMERGENCY OPERATION ONLY. THE SIGNAL SHALL PROVIDE STOP AND GO OPERATION 24 HOURS DAILY.
- PEDESTRIAN PHASE TO BE ACTIVATED BY PEDESTRIAN PUSH-BUTTON ONLY.
- OPTICAL DETECTORS SHALL BE LOCATED FOR OPTIMUM SIGHT DISTANCE.
- PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (FIG. 4E-4) AND POINTED PARALLEL TO THE CROSSWALK.

MAST ARM FOUNDATIONS

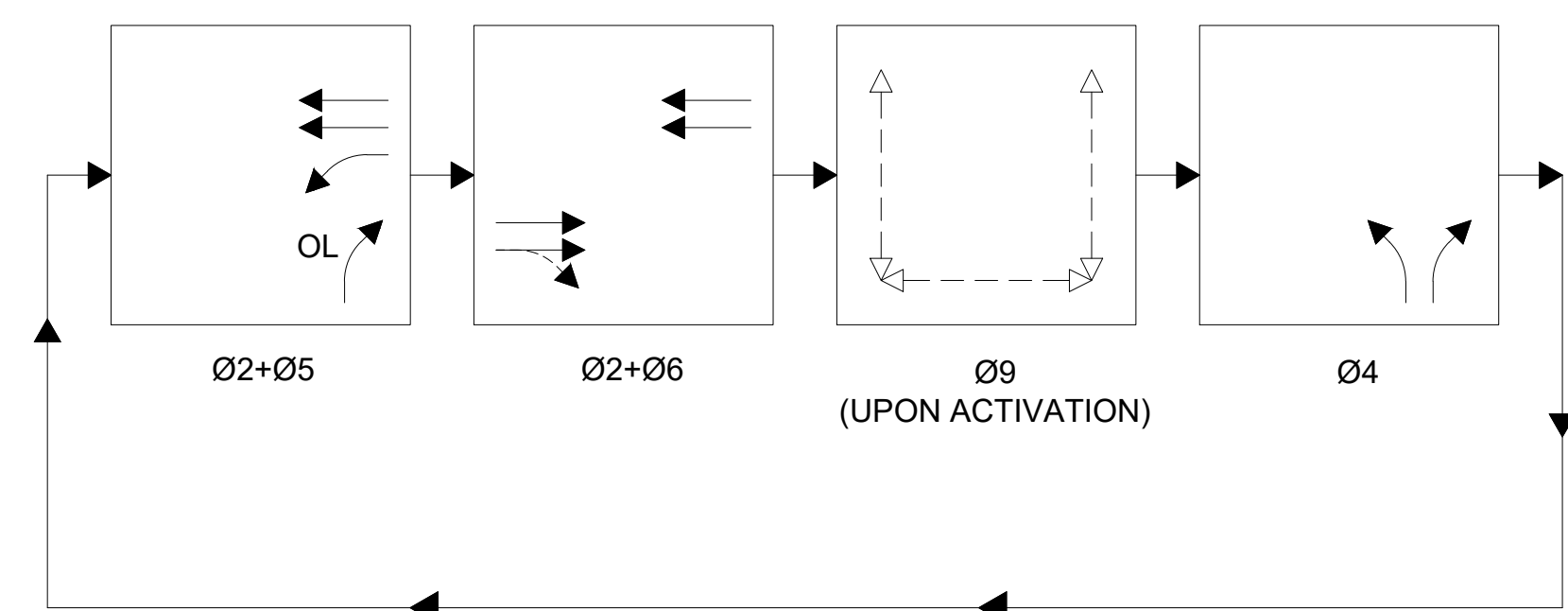
MAST ARM	ARM LENGTH	POLE HEIGHT	LOCATION		FOUNDATION SIZE			
			STATION	OFFSET	DIAMETER	DEPTH	VERT. BARS	TIE BARS
MA 6	45'	22'-0"	39+01.9	60.5' LT	4'-0"	11'-6"	18-#9	#5 @ 9"
MA 7	25'	22'-0"	39+87.4	62.7' LT	3'-6"	9'-0"	18-#8	#5 @ 12"
MA 8	40'	22'-0"	40+10.3	32.8' RT	3'-6"	14'-6"	18-#8	#5 @ 9"

PRE-EMPTION PHASING & PRIORITY

RECEIVER AND PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
R1	1	EB	Ø4
R2	2	NB	Ø2 & Ø5
R3	3	SB	Ø6

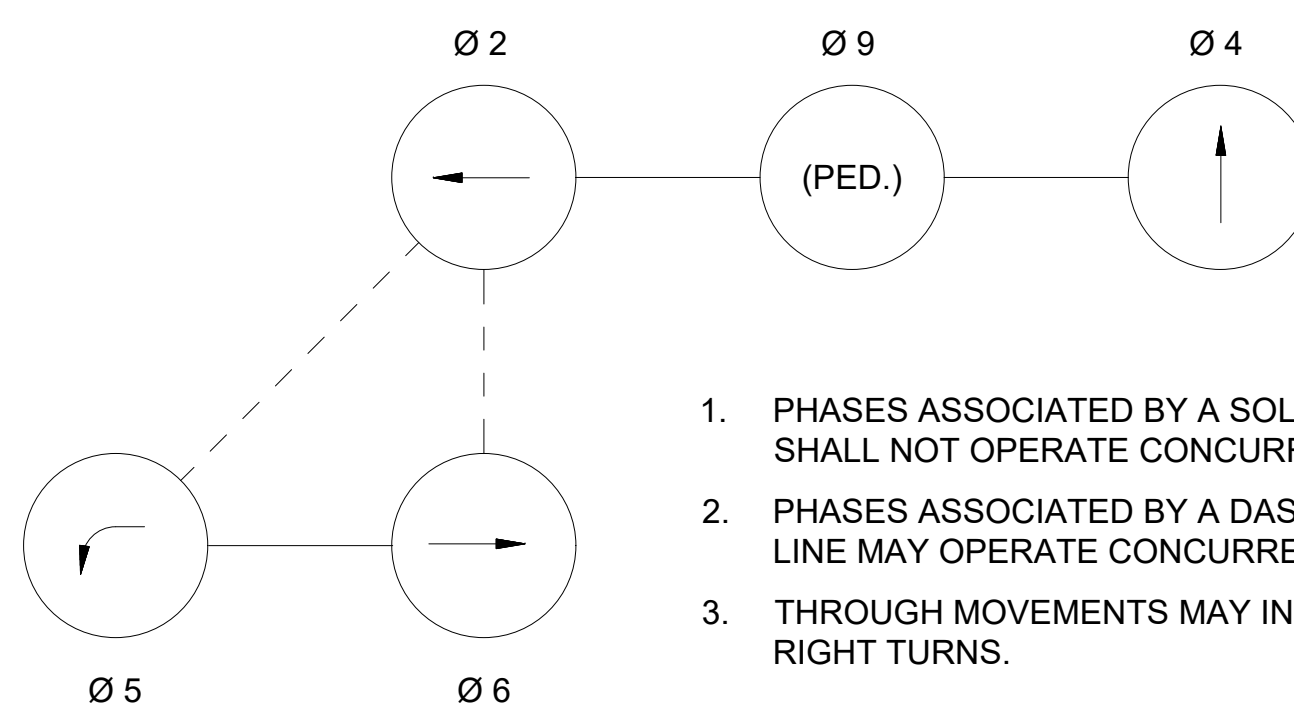
EMERGENCY PREEMPTION NOTES:

- UPON PREEMPTION ACTIVATION, PHASE(S) BEING SERVICED SHALL IMMEDIATELY BEGIN CLEARANCE (I.E., YELLOW AND ALL RED) AS DESIGNED, EXCEPT FOR WHEN PHASE(S) CALLED BY PREEMPTION ARE CURRENTLY IN SERVICE. WHEN PHASE(S) CURRENTLY IN SERVICE MATCH PHASE(S) CALLED BY PREEMPTION, SIGNAL INDICATIONS ARE MAINTAINED. HOWEVER, PREEMPTION OPERATION (I.E. TIMING) SUPERCEDES NORMAL TRAFFIC SIGNAL CONTROL.
- AFTER THE PREEMPTION SEQUENCE HAS TERMINATED, THE SIGNAL SHALL RETURN TO THE BEGINNING OF Ø2 & Ø6.
- THE PREEMPTION STROBE SHALL BE ILLUMINATED ONLY WHEN THE PREEMPTED PHASE IS DISPLAYING A GREEN INDICATION.
- A SEPARATE CABLE SHALL BE RUN FOR THE PREEMPTION STROBE. IT MAY NOT BE RUN ON THE SPARE SIGNAL CABLE.
- EMERGENCY PREEMPTION SHALL COME ON A FIRST-COME FIRST-SERVED BASIS.
- EMERGENCY PREEMPTION CALLS VIA OPTICAL DETECTOR SHALL HAVE A 15 SECOND MINIMUM AND 60 SECOND MAX TIME. MINIMUM PREEMPTION TIME SHALL BE VERIFIED WITH THE STATION COMMANDER.
- EMERGENCY PREEMPTION CALLS VIA FIRE STATION PUSHBUTTON PANEL SHALL CALL THE MAXIMUM GREEN FOR PHASE 4. CALL MAY BE TERMINATED VIA THE "TERMINATE" PUSHBUTTON ON THE PANEL.



PREFERENTIAL PHASE SEQUENCE

NEMA DUAL RING PHASING NOTES:



- PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
- PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
- THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.

DETECTOR DATA

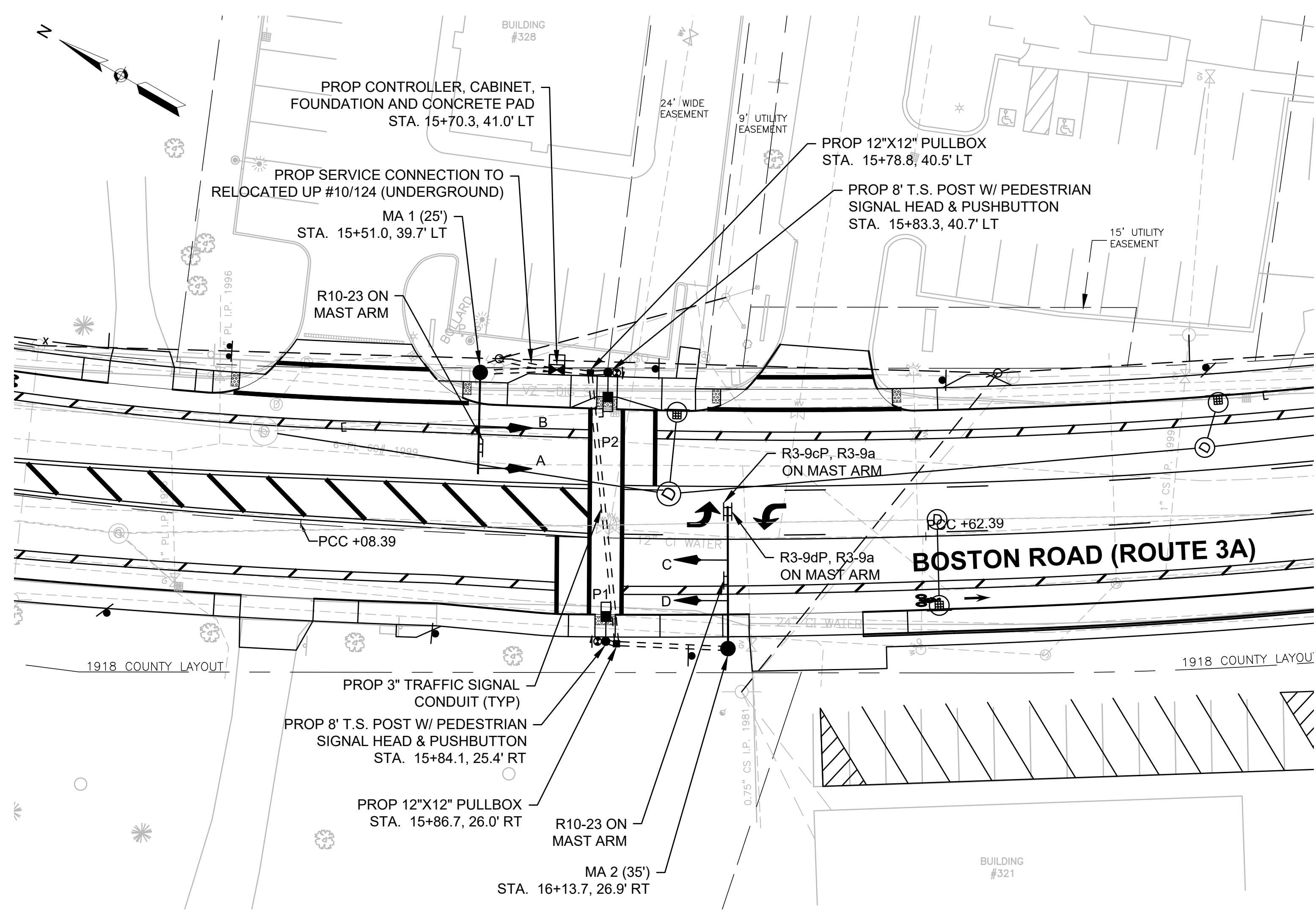
DETECTOR NO.	VIDEO CAMERA NO.	NO. SECTION/ SIZE	OPERATIONS	EXTENSION (SECONDS)	CALL DELAY (SECONDS)	CALL PHASE	SWITCH	EXTEND PHASE
1	1	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø5	-	Ø5
2	1	1 - 6'x50'	PRESENCE	0	0	Ø5	-	Ø5
3	1	1 - 6'x15'	PRESENCE	0	0	Ø2	-	Ø2
4	1	1 - 6'x50'	PRESENCE	0	0	Ø2	-	Ø2
5	1	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø2	-	Ø2
6	1	1 - 6'x50'	PRESENCE	0	0	Ø2	-	Ø2
7	2	1 - 6'x15'	PRESENCE	0	0	Ø6	-	Ø6
8	2	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
9	2	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø6	-	Ø6
10	2	1 - 6'x50'	PRESENCE	0	0	Ø6	-	Ø6
11	3	1 - 6'x15'	PRESENCE/BICYCLE	0	0	Ø4	-	Ø4
12	3	1 - 6'x50'	PRESENCE	0	0	Ø4	-	Ø4
13	3	1 - 6'x15'	PRESENCE/BICYCLE	0	5	Ø4	-	Ø4
14	3	1 - 6'x50'	PRESENCE	0	5	Ø4	-	Ø4

MAJOR ITEMS (LOCATION 1)

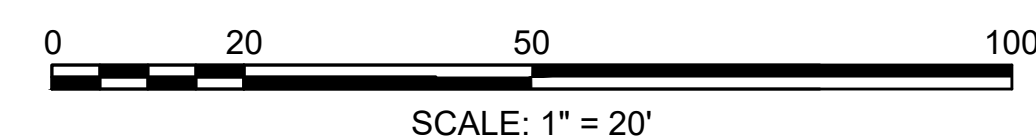
ITEM NO.	QUANTITY	DESCRIPTION
	1	TRAFFIC SIGNAL CONTROLLER (TS2, TYPE 1), LOCATED IN BASE MOUNTED CABINET WITH FOUNDATION AND CONCRETE PAD
	1	45' MAST ARM, TYPE II, ORNAMENTAL STEEL MONOLEVER WITH FOUNDATION
	1	40' MAST ARM, TYPE II, ORNAMENTAL STEEL MONOLEVER WITH FOUNDATION
	1	25' MAST ARM, TYPE II, ORNAMENTAL STEEL MONOLEVER WITH FOUNDATION
	1	TRAFFIC SIGNAL POST AND BASE STANDARD - 15' STEEL
	3	TRAFFIC SIGNAL POST AND BASE STANDARD - 8' ORNAMENTAL STEEL
	3	TRAFFIC SIGNAL POST AND BASE STANDARD - 4' STEEL
	1	SIGNAL HEAD, 1-WAY, 5 SECTION, 12" LENSES
	7	SIGNAL HEAD, 1-WAY, 3 SECTION, 12" LENSES
	1	5" 5-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	7	5" 3-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	6	PEDESTRIAN SIGNAL HEAD, 1-WAY, 1 SECTION, 16" WITH COUNTDOWN
	6	AUDIBLE & VIBRO-TACTILE PEDESTRIAN PUSHBUTTON INTEGRATED SIGN & SADDLE WITH LED CONFIRMATION LIGHT
	2	VIDEO PROCESSOR (2 CHANNEL)
	3	VIDEO DETECTION CAMERA
	1	9" VIDEO DETECTION MONITOR
	1	SIDE MOUNT BATTERY BACKUP SYSTEM
	1	SERVICE CONNECTION (UNDERGROUND)
	3	OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	1	4 CHANNEL PHASE SELECTOR
	1	CARD RACK
	1	EMERGENCY PRE-EMPTION CONFIRMATION STROBE (WHITE)
	3	WIRELESS CONTACT CLOSURE TRANSCEIVER AND ANTENNA
	3	EMERGENCY PREEMPTION PUSHBUTTON PANEL
815.11	1	MANAGED FIBER/ETHERNET SWITCH (FOR FUTURE USE)
804.3	827 FT	3" TRAFFIC SIGNAL CONDUIT
811.31	11	PULL BOX, 12" X 12"

PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.

**TRAFFIC SIGNAL PLAN
LOCATION 2:
BOSTON ROAD (ROUTE 3A)
STA. 15+84±**



PROPOSED PEDESTRIAN HYBRID BEACON LAYOUT



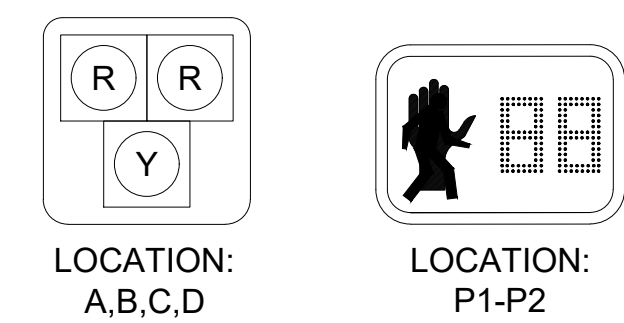
MAST ARM FOUNDATIONS

MAST ARM	ARM LENGTH	POLE HEIGHT	LOCATION		FOUNDATION SIZE			
			STATION	OFFSET	DIAMETER	DEPTH	VERT. BARS	TIE BARS
MA 1	25'	22'-0"	15+51.0	39.7' LT	3'-6"	9'-0"	18-#8	#5 @ 12"
MA 2	35'	22'-0"	16+13.7	26.9' RT	3'-6"	10'-6"	18-#8	#5 @ 9"

MAJOR ITEMS (LOCATION 2)

ITEM NO.	QUANTITY	DESCRIPTION
815.2	1	TRAFFIC SIGNAL CONTROLLER (TS2, TYPE 1), LOCATED IN BASE MOUNTED CABINET (SIZE 5) WITH FOUNDATION AND CONCRETE PAD
	1	35' MAST ARM, TYPE II, STEEL MONOLEVER WITH FOUNDATION
	1	25' MAST ARM, TYPE II, STEEL MONOLEVER WITH FOUNDATION
	2	TRAFFIC SIGNAL POST AND BASE STANDARD - 8" STEEL
	4	SIGNAL HEAD, 1-WAY, 3 SECTION, 12" LENSES
	4	5" 3-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	2	PEDESTRIAN SIGNAL HEAD, 1-WAY, 1 SECTION, 16" WITH COUNTDOWN
	2	AUDIBLE & VIBRO-TACTILE PEDESTRIAN PUSHBUTTON INTEGRATED SIGN & SADDLE WITH LED CONFIRMATION LIGHT
811.31	2	PULL BOX, 12" X 12"

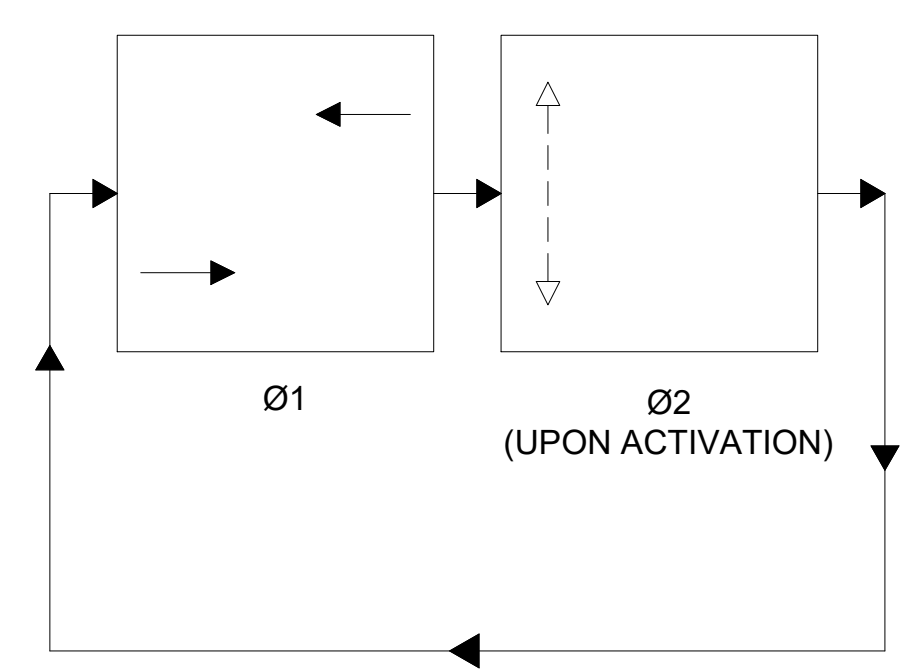
PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.



SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

SIGNAL HEAD NOTES

- ALL SIGNAL HEADS SHALL HAVE BACKPLATES AND TUNNEL VISORS.
- ALL SIGNAL BACKPLATES SHALL BE 5" LOUVERED WITH 3" YELLOW RETROREFLECTIVE BORDER.
- ALL SIGNAL LENSES SHALL BE 12" DIA. LED.
- ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
- ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
- ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.



PREFERENTIAL PHASE SEQUENCE

PEDESTRIAN HYBRID BEACON NOTES:

- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- PEDESTRIAN PHASE TO BE ACTIVATED BY PEDESTRIAN PUSH-BUTTON ONLY.
- PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (FIG. 4E-4) AND POINTED PARALLEL TO THE CROSSWALK.

SEQUENCE AND TIMING CHART FOR PEDESTRIAN HYBRID BEACON (HAWK) SIGNAL						
PHASE	DIRECTION	HOUSINGS	Ø1		Ø2	
BOSTON ROAD	NB	A, B	OUT*	FY	SY	SR
BOSTON ROAD	SB	C, D	OUT*	FY	SY	SR
PEDESTRIAN	ALL	P1-P2	DW	DW	DW	W

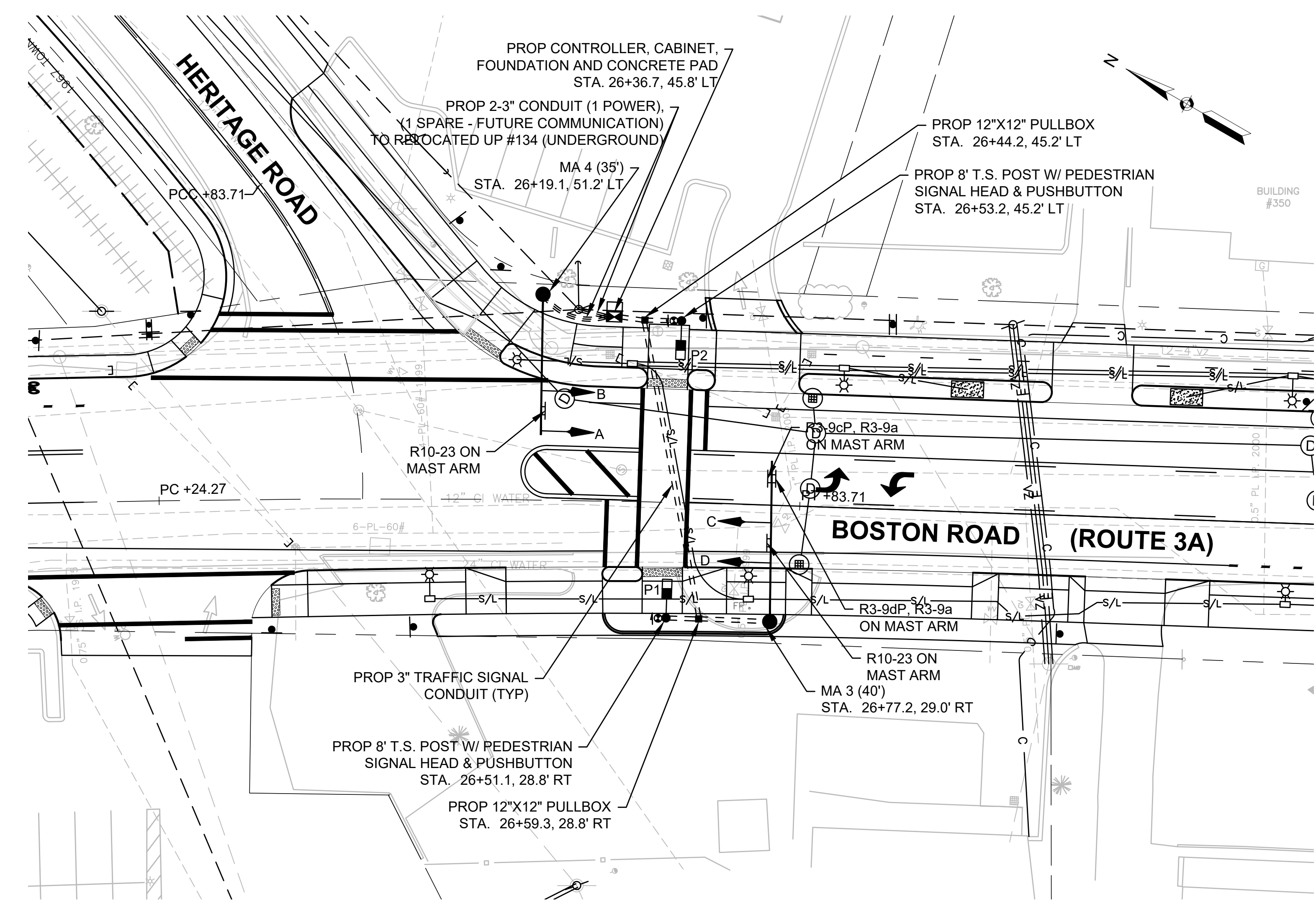
TIMING IN SECONDS						
MINIMUM GREEN			45			
PASSAGE TIME			-			
MAXIMUM 1			-			
MAXIMUM 2			-			
CLEARANCE INTERVAL			3	3	1	4
WALK/CLEARANCE/BUFFER INTERVAL					7	11
DETECTOR MEMORY			NON-LOCK		LOCK	
RECALL SWITCH			MAX		OFF	

* DARK UNTIL ACTIVATED

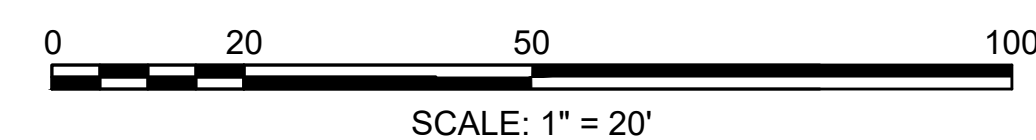
SEQUENCE FOR PEDESTRIAN HYBRID BEACON (HAWK) SIGNAL

	1. DARK UNTIL ACTIVATED.		1. DON'T WALK.
	2. FLASHING YELLOW UPON ACTIVATION.		2. DON'T WALK.
	3. STEADY YELLOW FOR VEHICLE CLEARANCE		3. DON'T WALK.
	4. STEADY RED DURING BUFFER INTERVAL.		4. DON'T WALK.
	5. STEADY RED DURING PEDESTRIAN WALK INTERVAL.		5. WALK.
	6. ALTERNATING FLASHING RED DURING PEDESTRIAN CLEARANCE INTERVAL.		6. FLASHING DON'T WALK WITH COUNTDOWN.
	7. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.		7. DON'T WALK.
	8. DARK UNTIL ACTIVATED AGAIN.		8. DON'T WALK.

**TRAFFIC SIGNAL PLAN
LOCATION 3:
BOSTON ROAD (ROUTE 3A)
STA. 26+50±**



PROPOSED PEDESTRIAN HYBRID BEACON LAYOUT



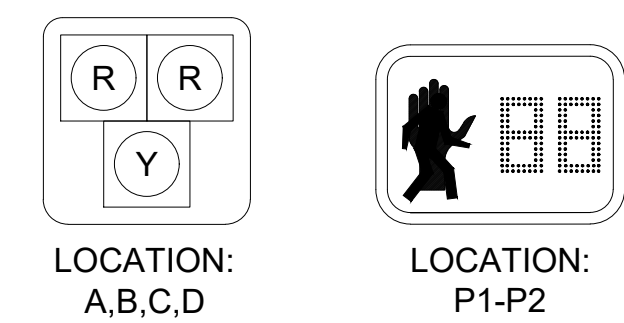
MAST ARM FOUNDATIONS

MAST ARM	ARM LENGTH	POLE HEIGHT	LOCATION		FOUNDATION SIZE			
			STATION	OFFSET	DIAMETER	DEPTH	VERT. BARS	TIE BARS
MA 3	40'	22'-0"	26+77.2	29.0' RT	3'-6"	10'-6"	18-#8	#5 @ 9"
MA 4	35'	22'-0"	26+19.1	51.2' LT	3'-6"	14'-6"	18-#8	#5 @ 9"

MAJOR ITEMS (LOCATION 3)

ITEM NO.	QUANTITY	DESCRIPTION
815.3	1	TRAFFIC SIGNAL CONTROLLER (TS2, TYPE 1), LOCATED IN BASE MOUNTED CABINET (SIZE 5) WITH FOUNDATION
	1	40' MAST ARM, TYPE II, ORNAMENTAL STEEL MONOLEVER WITH FOUNDATION
	1	35' MAST ARM, TYPE II, ORNAMENTAL STEEL MONOLEVER WITH FOUNDATION
	2	TRAFFIC SIGNAL POST AND BASE STANDARD - 8' ORNAMENTAL STEEL
	4	SIGNAL HEAD, 1-WAY, 3 SECTION, 12" LENSES
	4	5" 3-SECTION BACKPLATES WITH 3" YELLOW RETROREFLECTIVE YELLOW BORDER
	2	PEDESTRIAN SIGNAL HEAD, 1-WAY, 1 SECTION, 16" WITH COUNTDOWN
	2	AUDIBLE & VIBRO-TACTILE PEDESTRIAN PUSHBUTTON INTEGRATED SIGN & SADDLE WITH LED CONFIRMATION LIGHT
811.31	1	SERVICE CONNECTION (UNDERGROUND)
811.31	2	PULL BOX, 12" X 12"

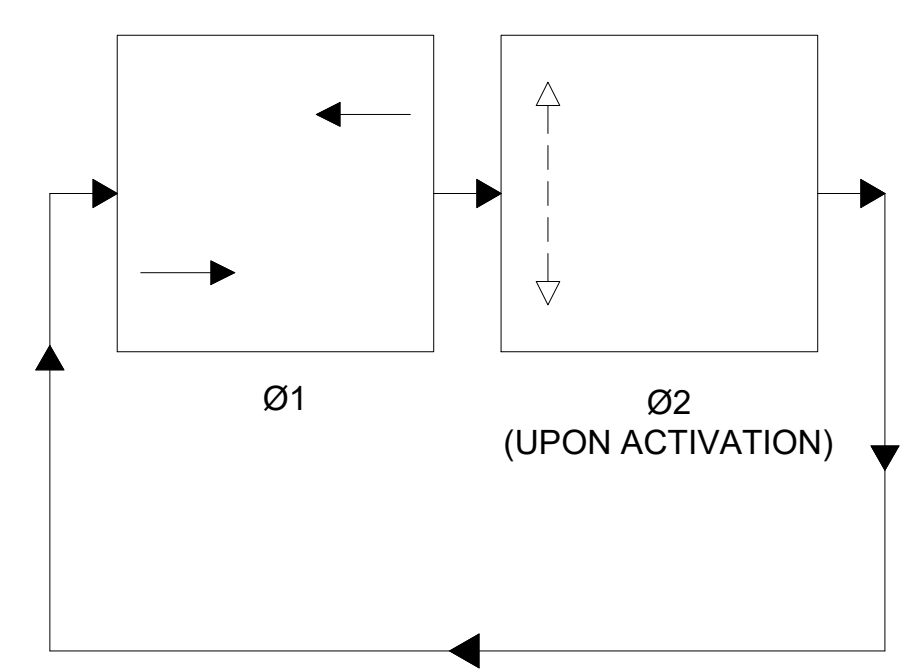
PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL.



SIGNAL HEAD DESIGNATIONS
NOT TO SCALE

SIGNAL HEAD NOTES

- ALL SIGNAL HEADS SHALL HAVE BACKPLATES AND TUNNEL VISORS.
- ALL SIGNAL BACKPLATES SHALL BE 5" LOUVERED WITH 3" YELLOW RETROREFLECTIVE BORDER.
- ALL SIGNAL LENSES SHALL BE 12" DIA. LED.
- ALL PEDESTRIAN SIGNAL HEADS SHALL DISPLAY INTERNATIONAL SYMBOLS - (HAND)/(PERSON WALKING) WITH COUNTDOWN DISPLAYS.
- ALL PEDESTRIAN SIGNAL HEADS SHALL HAVE 16" LED LENSES AND SUN VISORS.
- ALL SIGNAL HEADS SHALL BE FIXED MOUNTED.



PREFERENTIAL PHASE SEQUENCE

PEDESTRIAN HYBRID BEACON NOTES:

- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT TRAFFIC MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.
- PEDESTRIAN PHASE TO BE ACTIVATED BY PEDESTRIAN PUSH-BUTTON ONLY.
- PEDESTRIAN PUSHBUTTONS AND SIGNS SHALL BE LOCATED IN ACCORDANCE WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (FIG. 4E-4) AND POINTED PARALLEL TO THE CROSSWALK.

SEQUENCE AND TIMING CHART FOR PEDESTRIAN HYBRID BEACON (HAWK) SIGNAL

PHASE	STREET	DIRECTION	HOUSINGS	Ø1				Ø2			
				1	2	3	4	4	5	6	6
BOSTON ROAD	NB		A,B	OUT*	FY	SY	SR	SR	FR	FR	FR
BOSTON ROAD	SB		C,D	OUT*	FY	SY	SR	SR	FR	FR	FR
PEDESTRIAN	ALL		P1-P2	DW	DW	DW	DW	W	FDW	DW	

TIMING IN SECONDS	
MINIMUM GREEN	45
PASSAGE TIME	-
MAXIMUM 1	-
MAXIMUM 2	-
CLEARANCE INTERVAL	3 3 1 4
WALK/CLEARANCE/BUFFER INTERVAL	7 10
DETECTOR MEMORY	NON-LOCK LOCK
RECALL SWITCH	MAX OFF

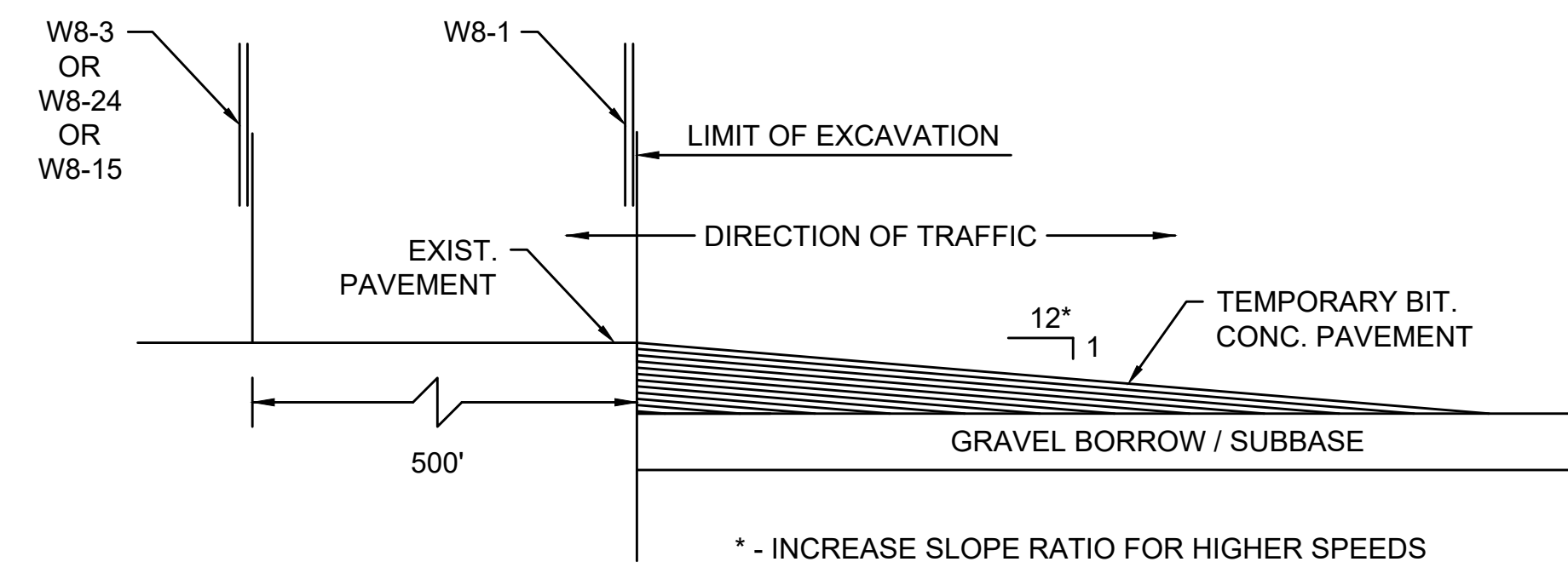
* DARK UNTIL ACTIVATED

SEQUENCE FOR PEDESTRIAN HYBRID BEACON (HAWK) SIGNAL

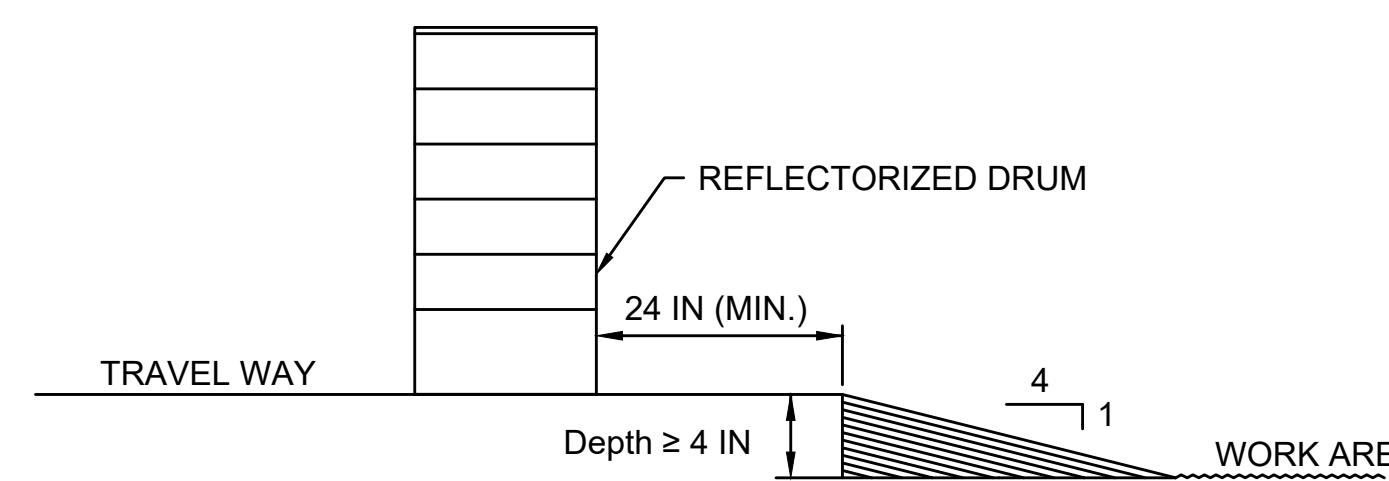
	1. DARK UNTIL ACTIVATED.		1. DON'T WALK.
	2. FLASHING YELLOW UPON ACTIVATION.		2. DON'T WALK.
	3. STEADY YELLOW FOR VEHICLE CLEARANCE		3. DON'T WALK.
	4. STEADY RED DURING BUFFER INTERVAL.		4. DON'T WALK.
	5. STEADY RED DURING PEDESTRIAN WALK INTERVAL.		5. WALK.
	6. ALTERNATING FLASHING RED DURING PEDESTRIAN CLEARANCE INTERVAL.		6. FLASHING DON'T WALK WITH COUNTDOWN.
	7. ALTERNATING FLASHING RED DURING PEDESTRIAN BUFFER INTERVAL.		7. DON'T WALK.
	8. DARK UNTIL ACTIVATED AGAIN.		8. DON'T WALK.

NOTES:

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
- ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD, EXCEPT THAT BACKGROUND COLOR SHALL BE FLUORESCENT ORANGE, IN ACCORDANCE WITH MASSDOT SPECIFICATIONS.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- 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.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN THE "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- 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.
- THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
- THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL NOT COVERED IN THE PLAN SHALL REFER TO MASSDOT "2017 STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS".
- NO WORK, INCLUDING THE SETTING UP AND TAKING DOWN OF WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE DONE ON ROADWAYS BETWEEN 7AM-9AM AND 4PM-6PM.



LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE



LATERAL DROP-OFF DETAIL
NOT TO SCALE

GENERAL CONSTRUCTION STAGES

- UTILITY WORK**
 - CONSTRUCT ALL PROPOSED UTILITIES AND ADJUST, ABANDON, REMOVE, OR REMOVE AND RESET, ALL EXISTING UTILITIES, AS SHOWN ON THE PLANS.
 - CONSTRUCT UNDERGROUNDING OF SERVICES CONDUITS AND DUCT BOXES.
- WIDENING**
SET CURBING AND PERFORM BOX WIDENING.
- FULL DEPTH CONSTRUCTION/BOX WIDENING**
 - EXCAVATE ROADWAY FOR WIDENING; PLACE THE GRAVEL SUBBASE, WHILE MAINTAINING TRAFFIC IN EACH DIRECTION ON THE EXISTING ROADWAY.
 - PLACE CRUSHED STONE AND HOT MIX ASPHALT BASE COURSE OR H.E.S. CONCRETE ON ENTIRE WIDENING ROADWAY.
- TRAFFIC CONTROL**
INSTALL ALL TRAFFIC SIGNAL EQUIPMENT.
- SIDEWALKS**
CONSTRUCT SIDEWALKS
- TOP COURSE AND BINDER COURSE**
PLACE BINDER COURSE (WHERE REQUIRED) FOLLOWED BY TOP COURSE FOR THE ENTIRE LENGTH OF THE PROJECT.
- PAVEMENT MARKINGS**
INSTALL PAVEMENT MARKINGS.

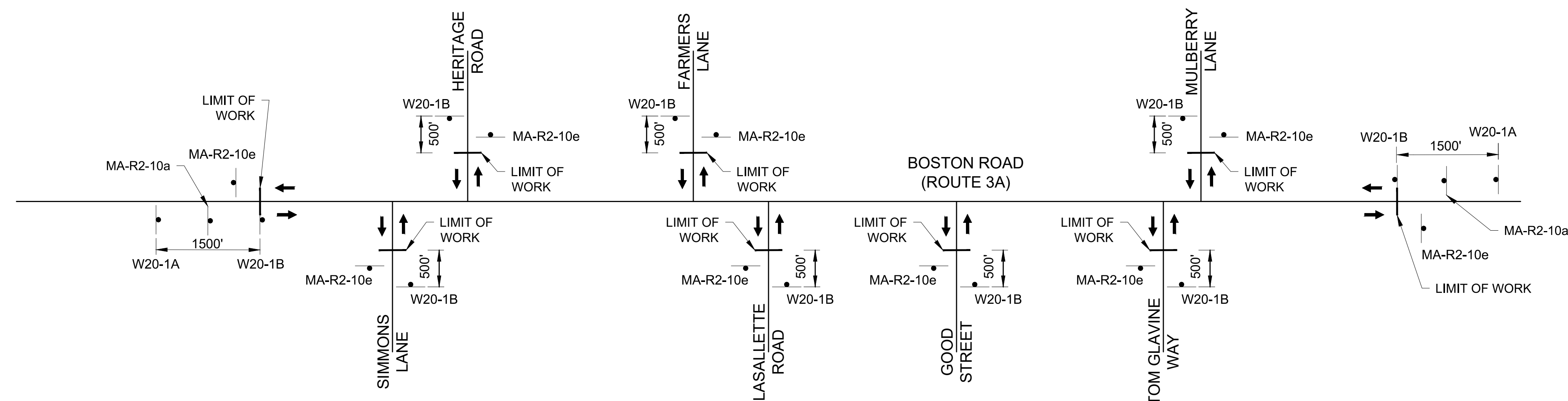
LEGEND:

- REFLECTORIZED PLASTIC DRUM
- ▩ TYPE III BARRICADE
- ⬆️ FLASHING ARROW PANNEL
- ⬆️ FLASHING ARROW PANNEL
- ▨ WORK ZONE
- ➡️ DIRECTION OF TRAFFIC
- ⊘ IMPACT ATTENUATOR
- ▭ MEDIAN BARRIER
- ⊘ MEDIAN BARRIER WITH WARNING LIGHTS
- 🚚 WORK VEHICLE
- ⊘ TRUCK MOUNTED ATTENUATOR
- ⬆️ TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN
- P POLICE DETAIL
- F FLAGGER

TAPER LENGTH

SPEED LIMIT	FORMULA
40 MPH or Less	$L = WS^2/60$
45 MPH or Greater	$L = W \times S$

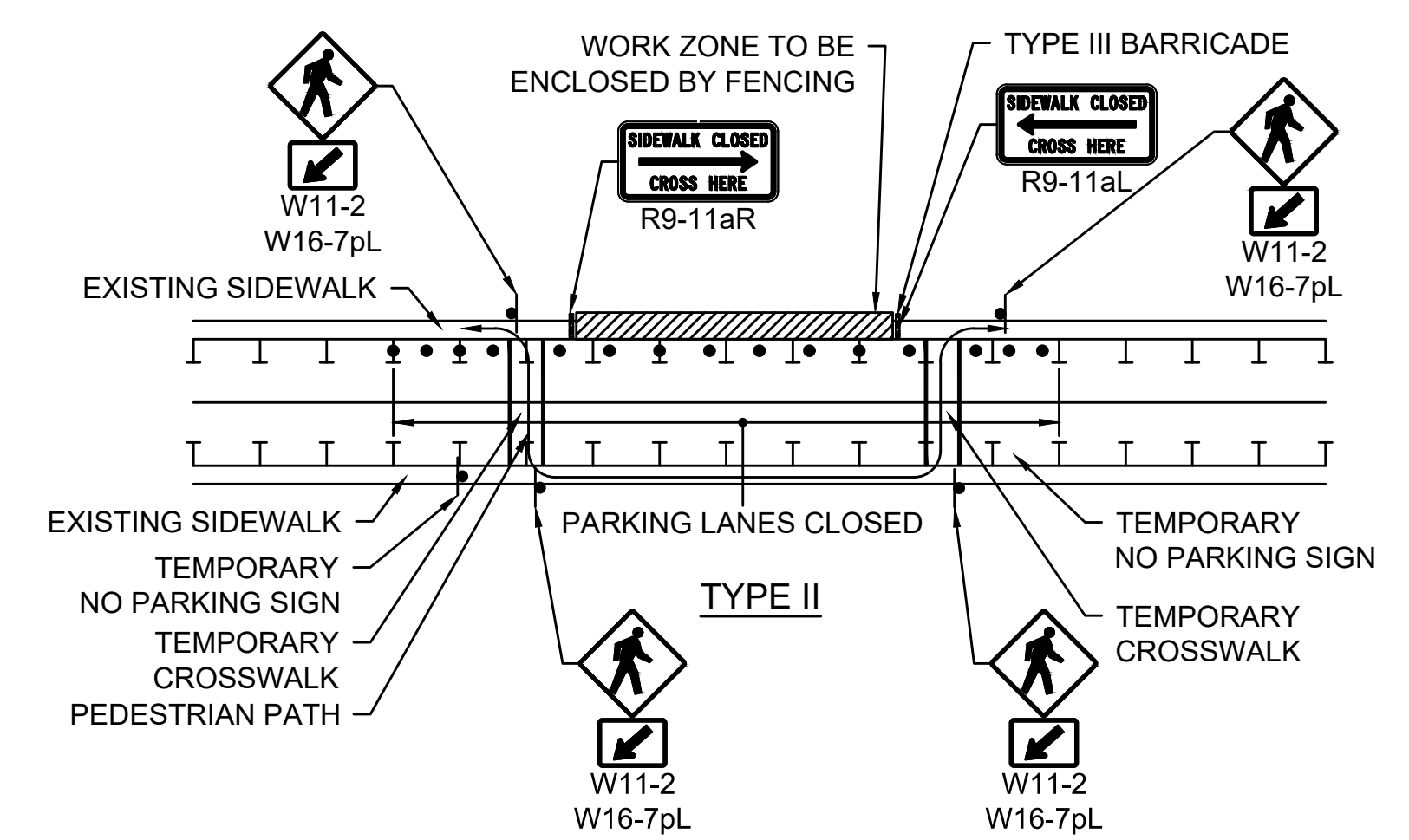
L = TAPER LENGTH IN FEET
W = WIDTH OF OFFSET IN FEET
S = POSTED SPEED IN MPH



**INTERSECTION PROJECT
LIMIT SIGNING**
NOT TO SCALE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	87	139
PROJECT FILE NO.		605178	

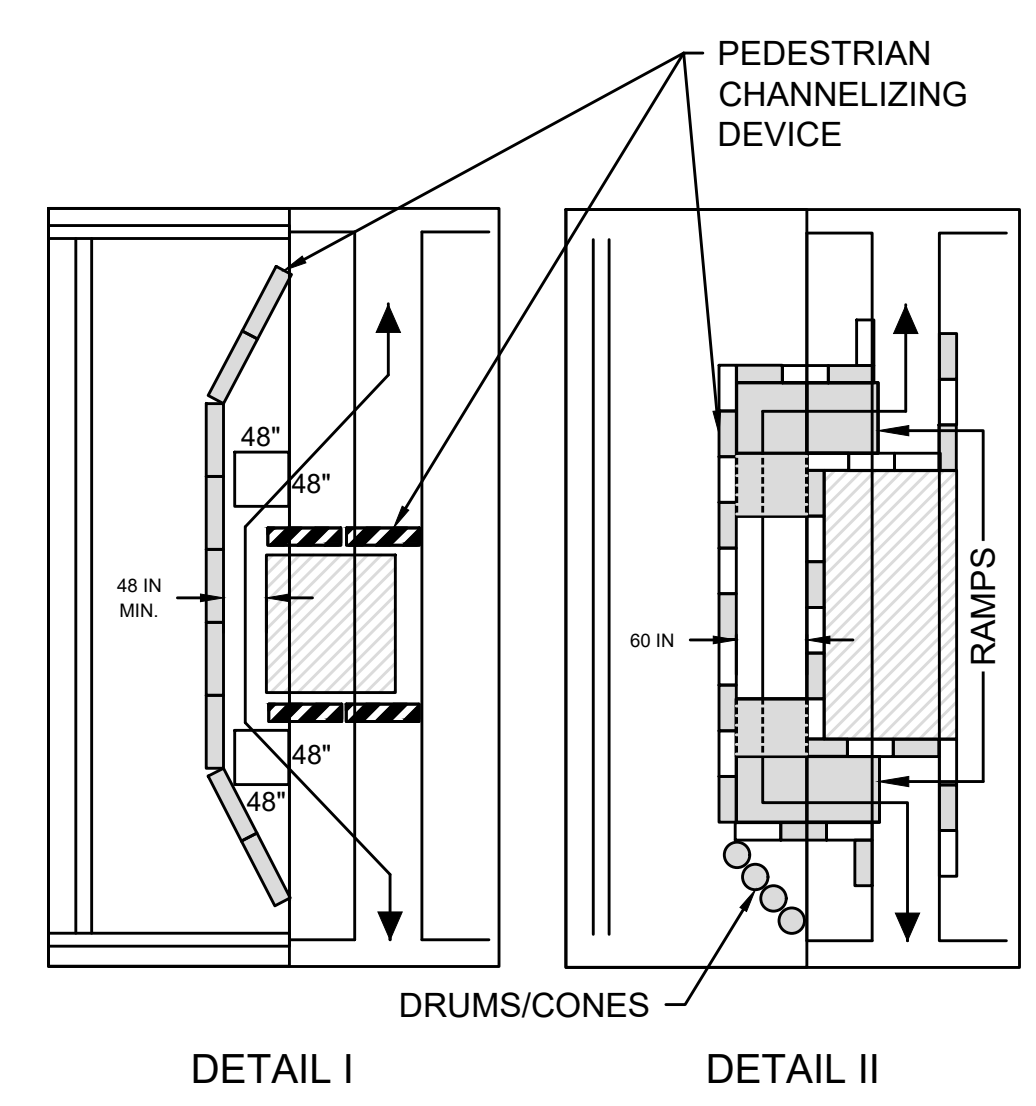
TEMPORARY TRAFFIC CONTROL PLAN



NOTES:

- ADDITIONAL ADVANCE WARNING MAY BE NECESSARY.
- CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN. VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE.
- STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
- IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT, TEMPORARY CROSSWALKS WITH APPROPRIATE SIGNS SHOULD BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AS SHOWN IN PEDESTRIAN BYPASS, AND AS DIRECTED BY THE ENGINEER. TEMPORARY CURB RAMPS WILL BE REQUIRED AT ALL TEMPORARY CROSSWALK LOCATIONS.
- BYPASS IS TO BE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DIRECTED BY THE ENGINEER.
- THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THIS WALKWAY EXCEEDS 200 FEET THEN A 5 FOOT X 5 FOOT PASSING ZONE.

PEDESTRIAN BYPASS DETAILS
NOT TO SCALE

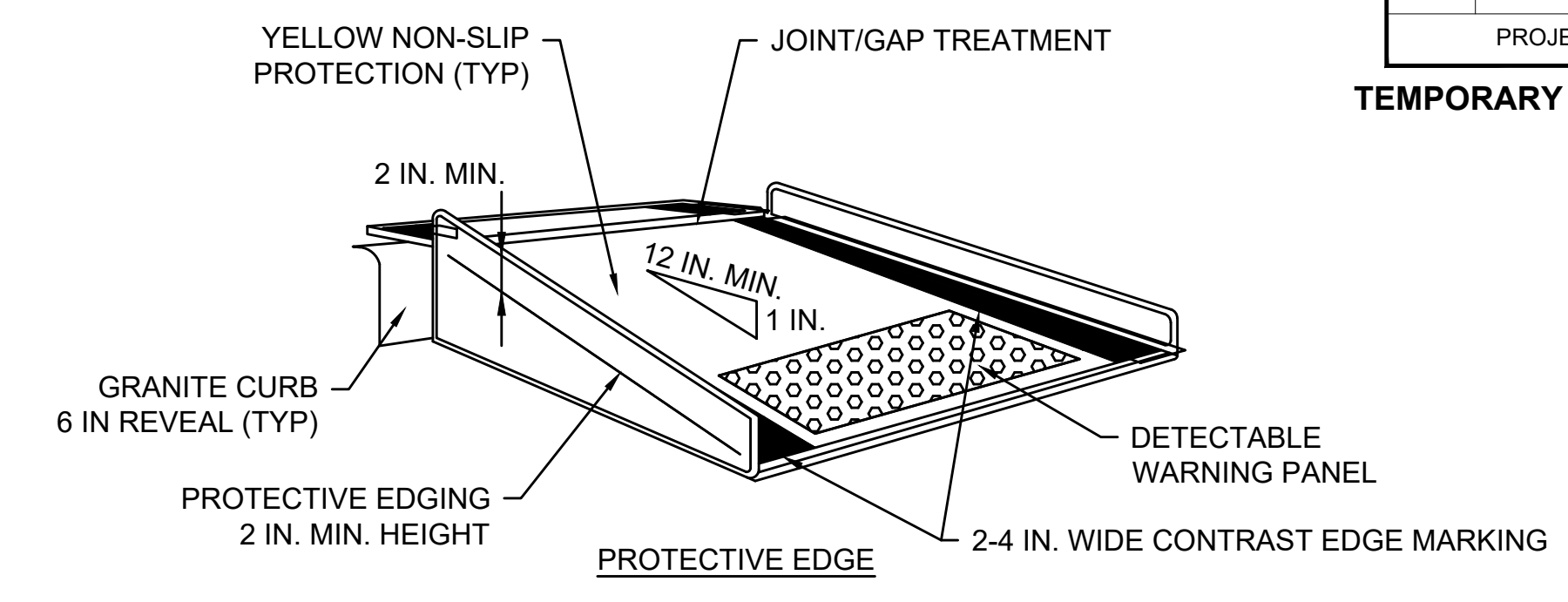


NOTES:

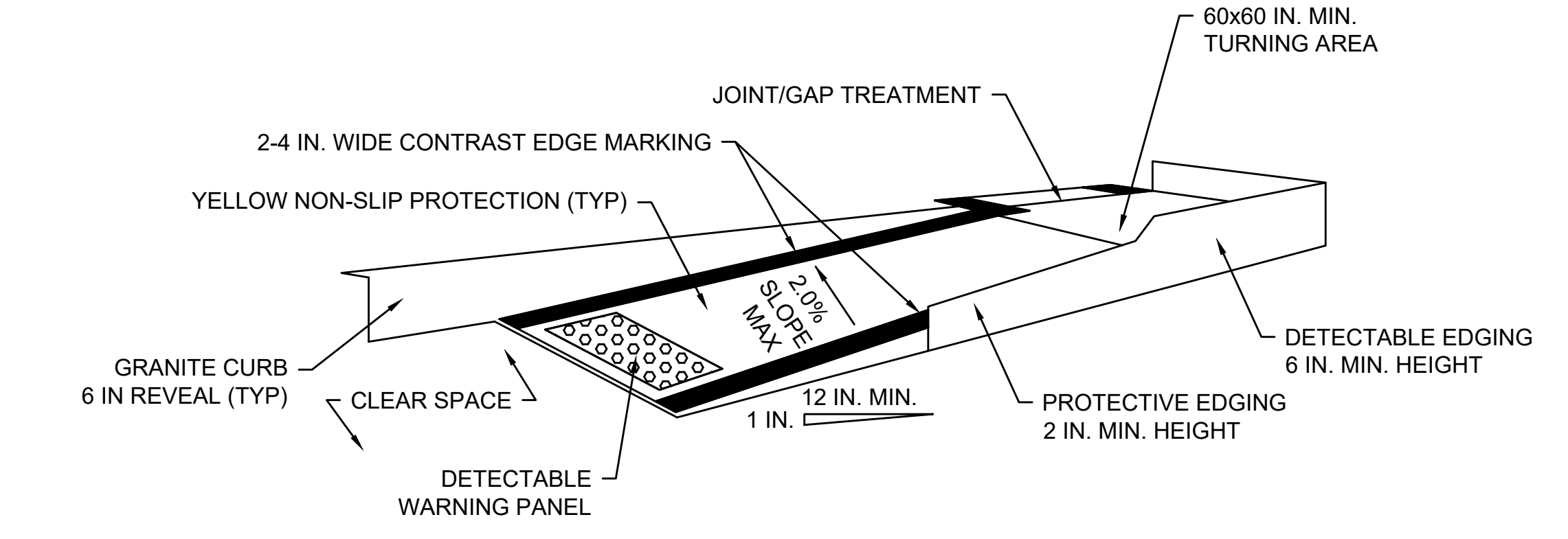
- DETAIL I IS CONSIDERED AN EXAMPLE OF A SHORT TERM CLOSURE AND PEDESTRIAN ASSISTANCE (PERSONEL) TO NAVIGATE AROUND THE CLOSURE/WORK AREA COULD BE CONSIDERED AS AN OPTION IN PLACE OF PROVIDING ADA/AAB DEVICES. DETAIL II IS CONSIDERED AN EXAMPLE OF A LONG TERM CLOSURE THAT WOULD REQUIRE ADDITIONAL ADA/AAB COMPLIANCE SHALL BE FOLLOWED.
- WHEN EXISTING PEDESTRIAN FACILITIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TTC ZONE, TEMPORARY FACILITIES SHALL BE PROVIDED AND THEY SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
- A PEDESTRIAN CHANNELIZING DEVICE THAT IS DETECTABLE BY A PERSON WITH A VISUAL DISABILITY TRAVELING WITH THE AID OF A LONG CANE SHALL BE PLACED ACROSS THE FULL WIDTH OF THE CLOSED SIDEWALK.
- WHEN USED, TEMPORARY RAMPS SHALL COMPLY WITH AMERICANS WITH DISABILITIES ACT (SEE FIGURES).
- THE ALTERNATE PATHWAY SHOULD HAVE A SMOOTH CONTINUOUS HARD SURFACE FOR THE ENTIRE LENGTH OF THE TEMPORARY PEDESTRIAN FACILITY.
- THE TEMPORARY SIDEWALK SHOULD BE A MINIMUM OF 4 FEET WIDE. IF THE SIDEWALK EXCEEDS 200 FEET THEN A 5 FOOT BE 5 FOOT PASSING ZONE SHALL BE PROVIDED.
- THE PROTECTIVE REQUIREMENTS OF A TTC WORK ZONE MAY HAVE AN IMPACT IN DETERMINING THE NEED FOR TEMPORARY TRAFFIC BARRIERS AND THEIR USE IN PROVIDING PEDESTRIAN DELINEATION SHOULD BE BASED ON ENGINEERING JUDGMENT.
- CONTROLS ONLY FOR PEDESTRIAN TRAFFIC ARE SHOWN; VEHICULAR TRAFFIC SHOULD BE HANDLED AS SHOWN ELSEWHERE. THESE DETAILS ARE USED IN CONJUNCTION WITH THE PROPOSED LANE CLOSURE DETAILS AND DURING CONSTRUCTION STAGING, AS DETERMINED BY THE ENGINEER.
- AUDIBLE INFORMATION DEVICES SHOULD BE CONSIDERED WHERE MIDBLOCK CLOSINGS AND CHANGED CROSSWALK AREAS CAUSE INADEQUATE COMMUNICATION TO BE PROVIDED TO PEDESTRIANS WHO HAVE VISUAL DISABILITIES.
- EXISTING AUDIBLE DEVICES NO LONGER APPLICABLE DUE TO CONSTRUCTION SHALL BE DISABLED.

AUDIBLE DEVICES:

- FOR LONG TERM SIDEWALK CLOSURES (AT A MINIMUM OVERNIGHT) A FORM OF SPEECH MESSAGING FOR PEDESTRIANS WITH VISUAL DISABILITIES SHALL BE PROVIDED. AUDIBLE INFORMATION DEVICES SUCH AS DETECTABLE BARRIERS OR BARRICADES AND OTHER PASSIVE PEDESTRIAN ACTIVATION (MOTION ACTIVATED) DEVICES SHOULD BE CONSIDERED FOR THESE CASES. THESE AUDIBLE DEVICES CAN BE MOUNTABLE OR STAND ALONE.



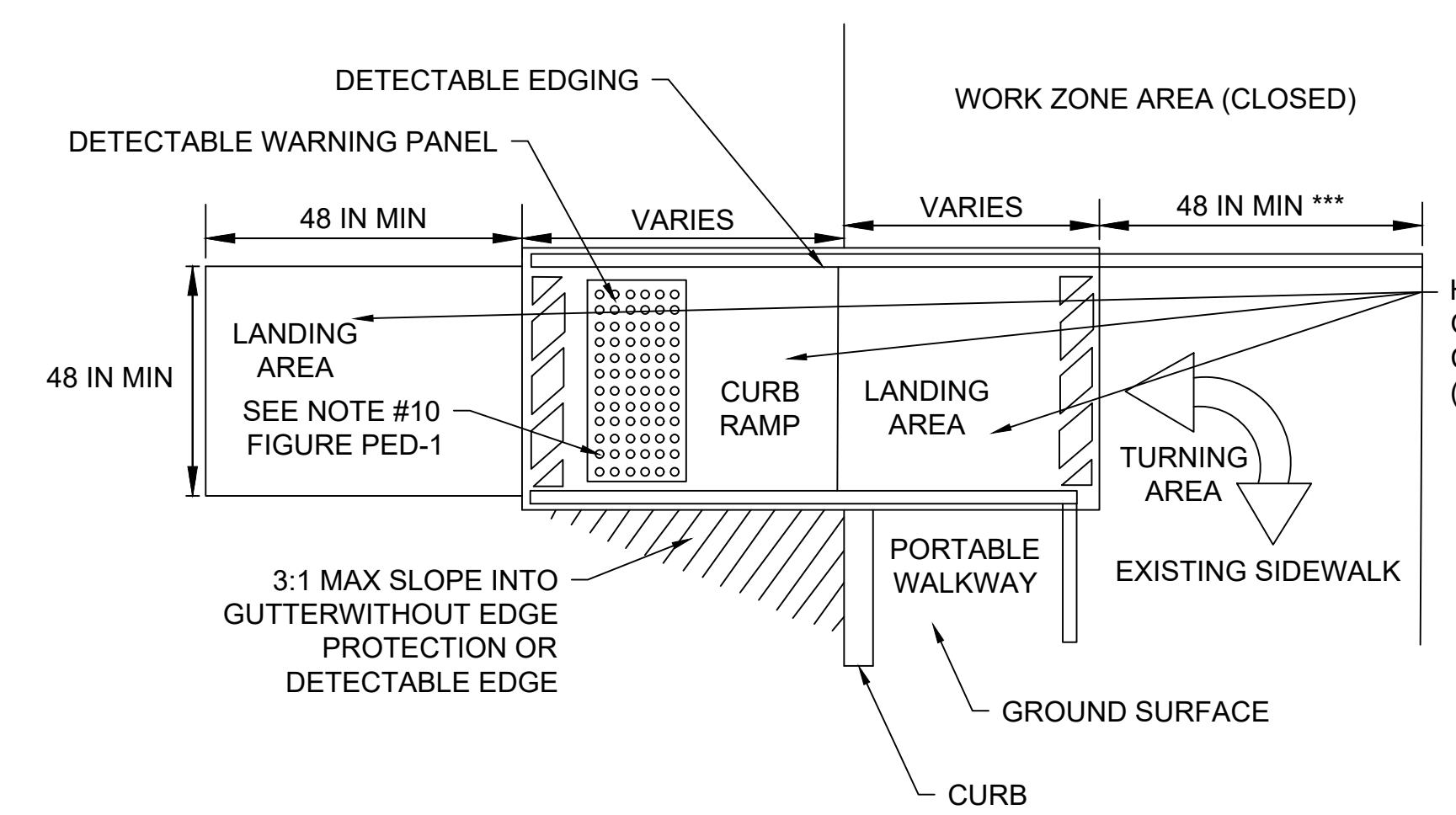
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB
NOT TO SCALE



TEMPORARY CURB RAMP-PARALLEL TO CURB
NOT TO SCALE

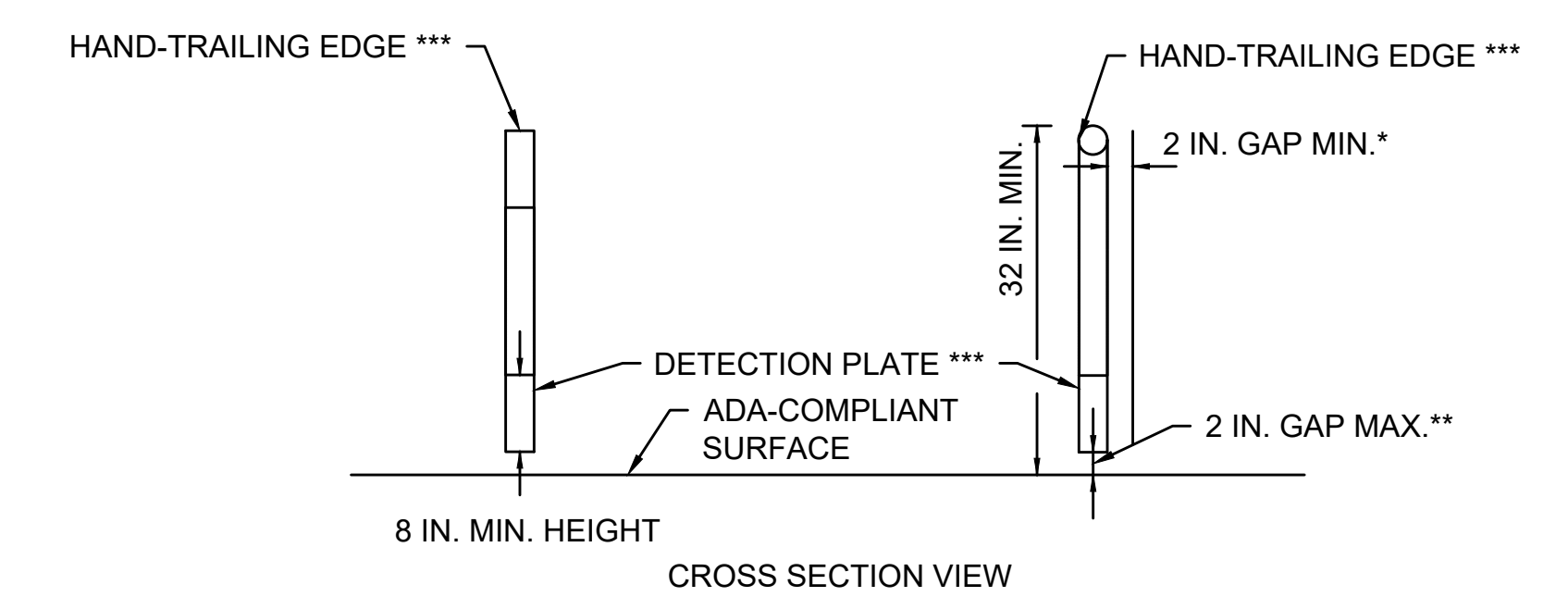
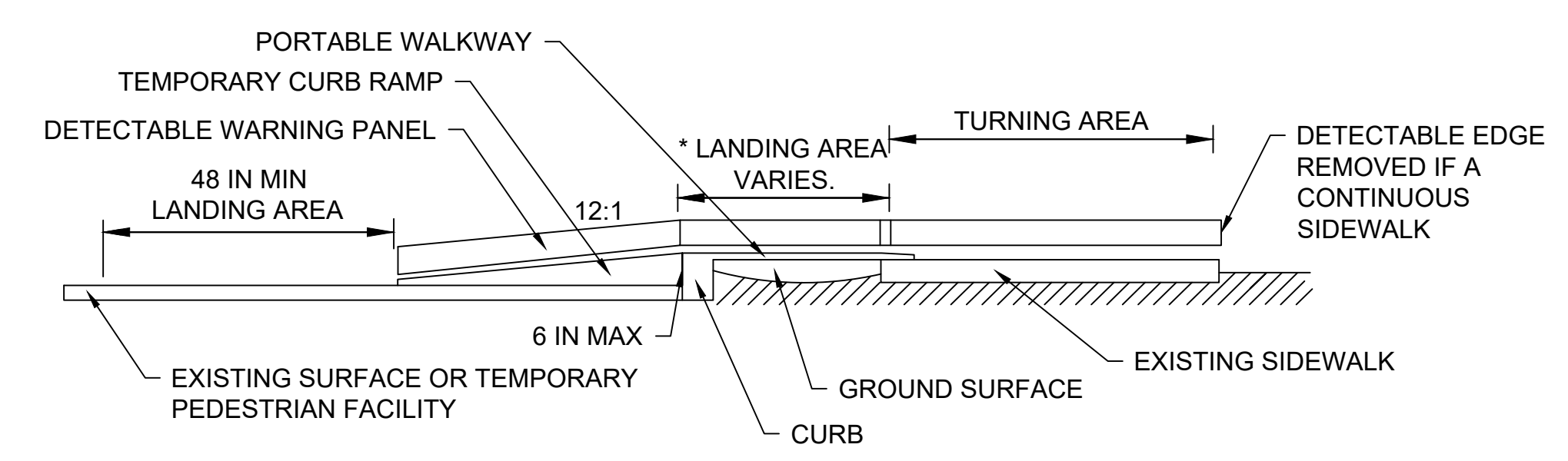
NOTES:

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



TEMPORARY CURB RAMP
NOT TO SCALE

- * LANDING AREA USED TO OVERLAP NON-ADA COMPLIANT SURFACES.
- ** DETECTABLE EDGE REMOVED IF A CONTINUOUS SIDEWALK.
- *** 60 IN. IF AN OBSTRUCTION IS AT BACK OF SIDEWALK



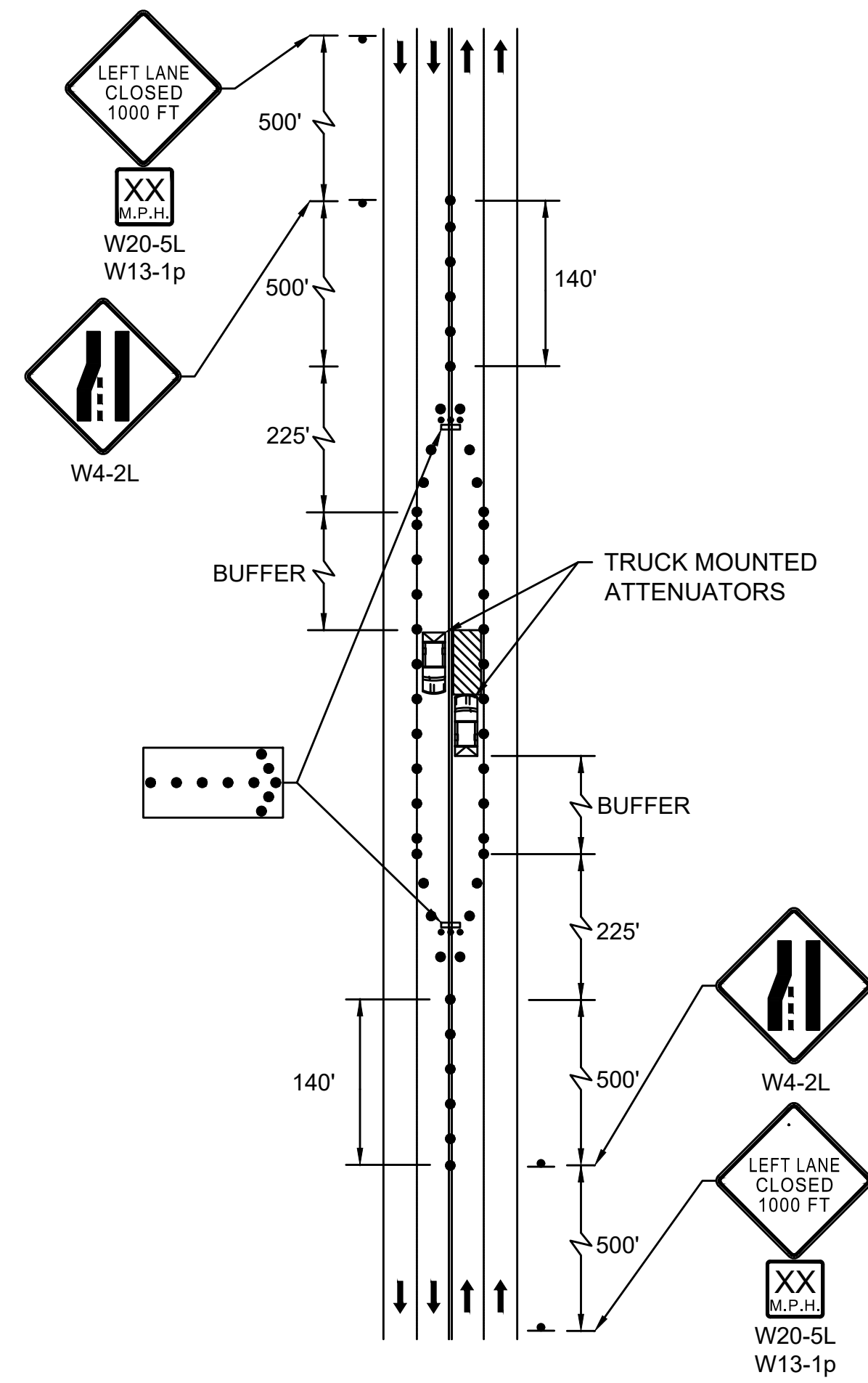
PEDESTRIAN CHANNELIZING DEVICE
NOT TO SCALE

NOTES:

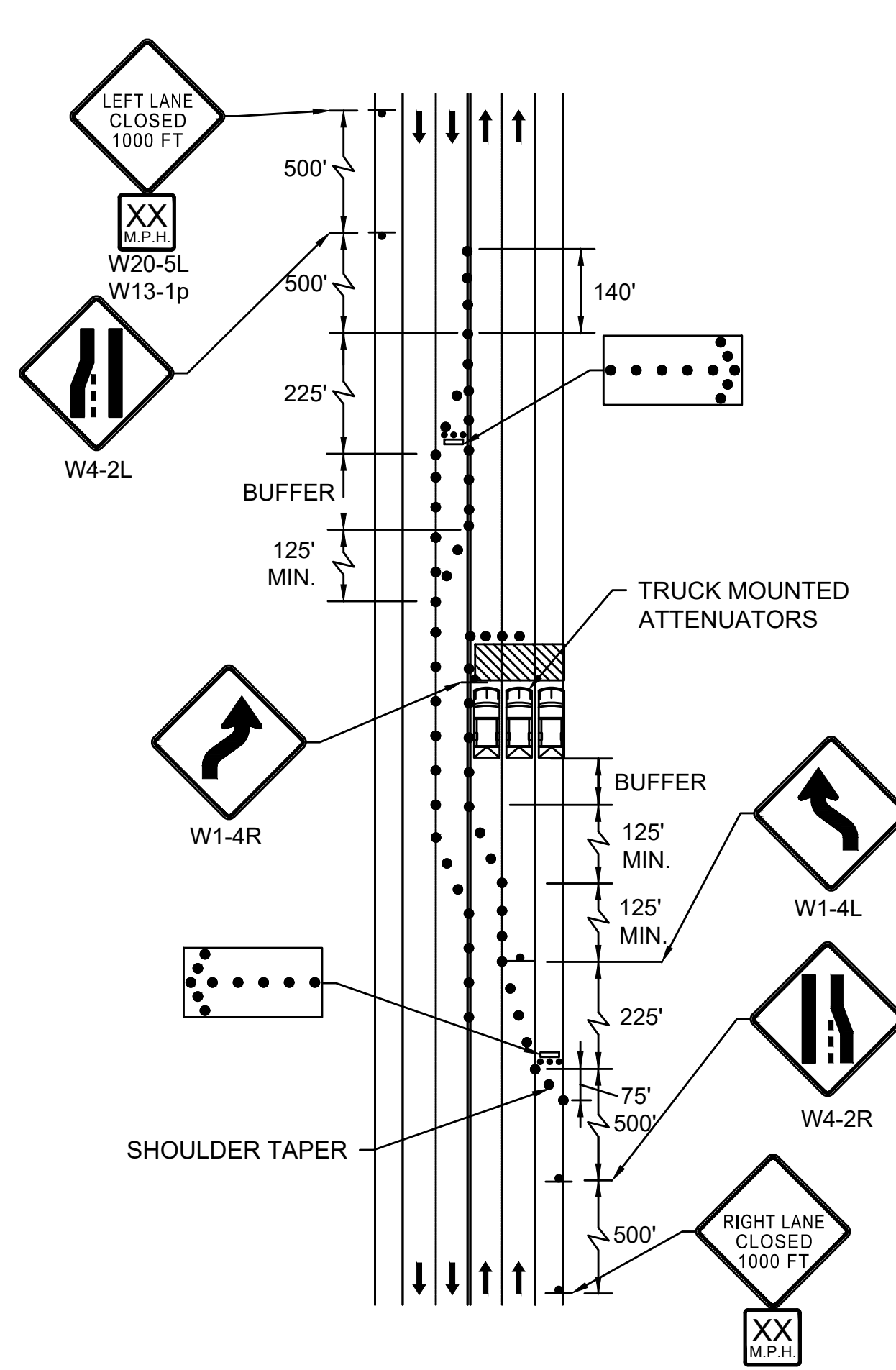
- * THERE SHALL BE A 2 INCH GAP BETWEEN THE HAND-TRAILING EDGE AND ITS SUPPORT.
- ** A MAXIMUM 2 INCH GAP BETWEEN THE BOTTOM OF THE BOTTOM RAIL AND THE SURFACE MAY BE USED TO PROVIDE DRAINAGE.
- *** THE HAND-TRAILING EDGE AND DETECTION PLATE SHALL BE CONTINUOUS THROUGHOUT THE LENGTH OF THE PATH SUCH THAT A PEDESTRIAN USER WITH A LONG CANE CAN FOLLOW IT.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	88	139
PROJECT FILE NO.		605178	

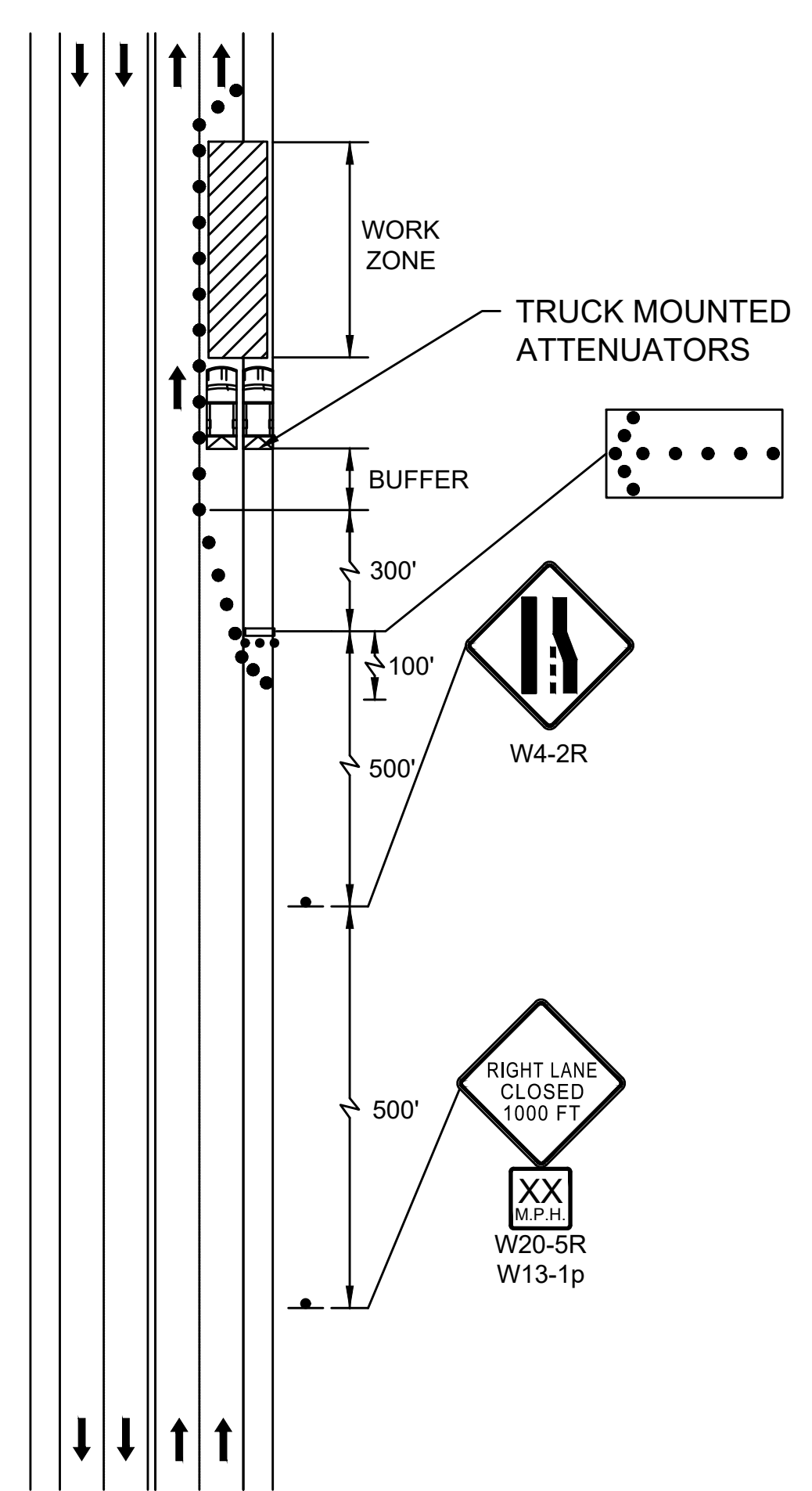
TEMPORARY TRAFFIC CONTROL PLAN



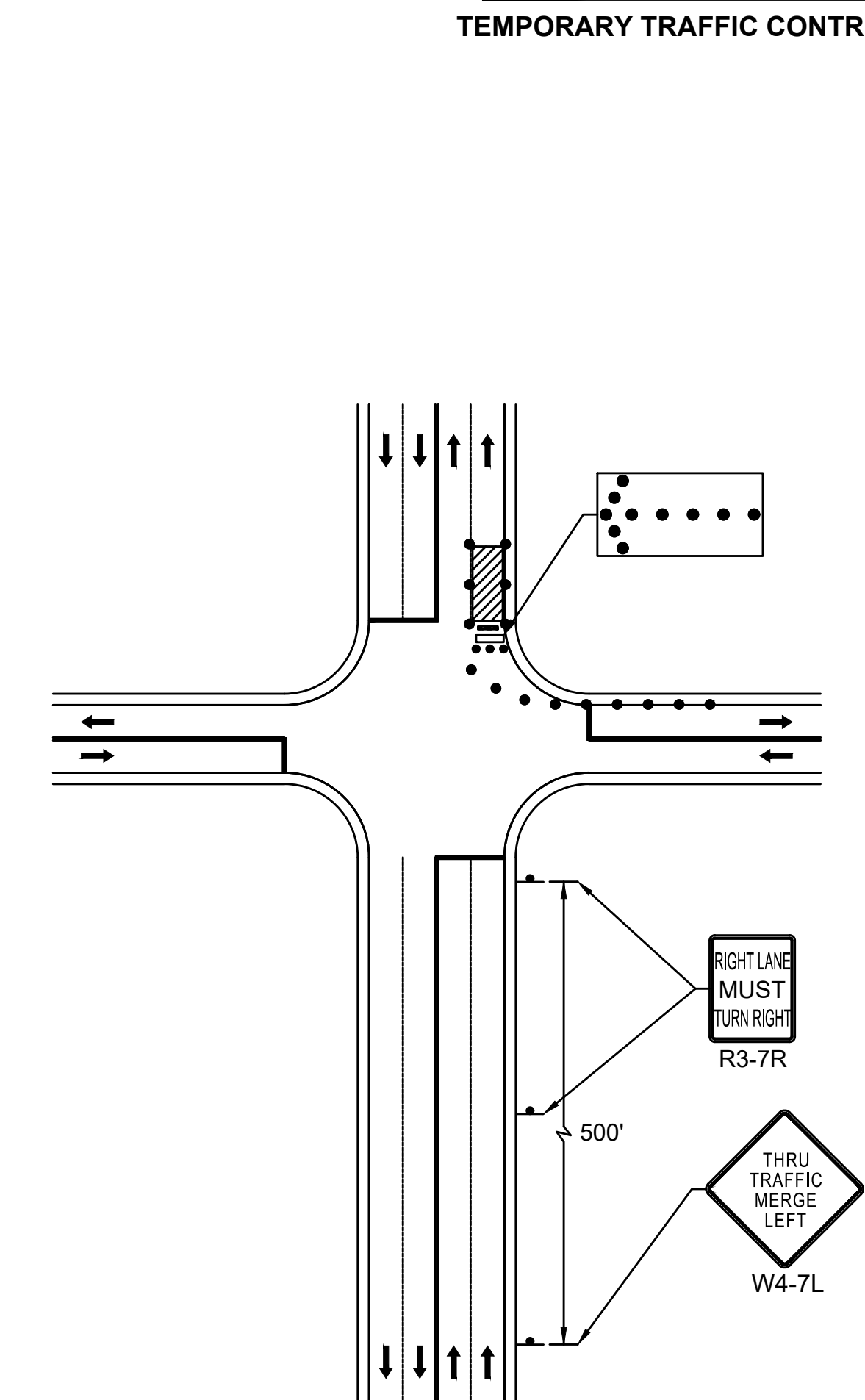
MULTIPLE LANE ROAD
INTERIOR LANE CLOSURE
NOT TO SCALE



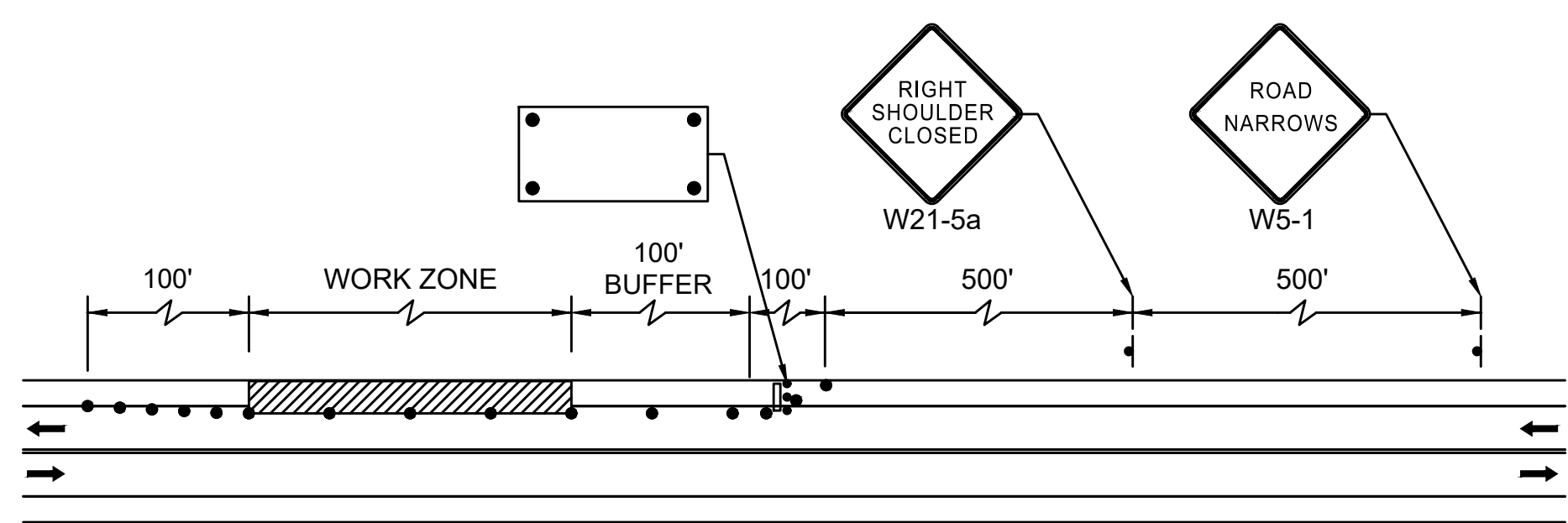
MULTIPLE LANE ROAD
HALF ROAD CLOSURE
NOT TO SCALE



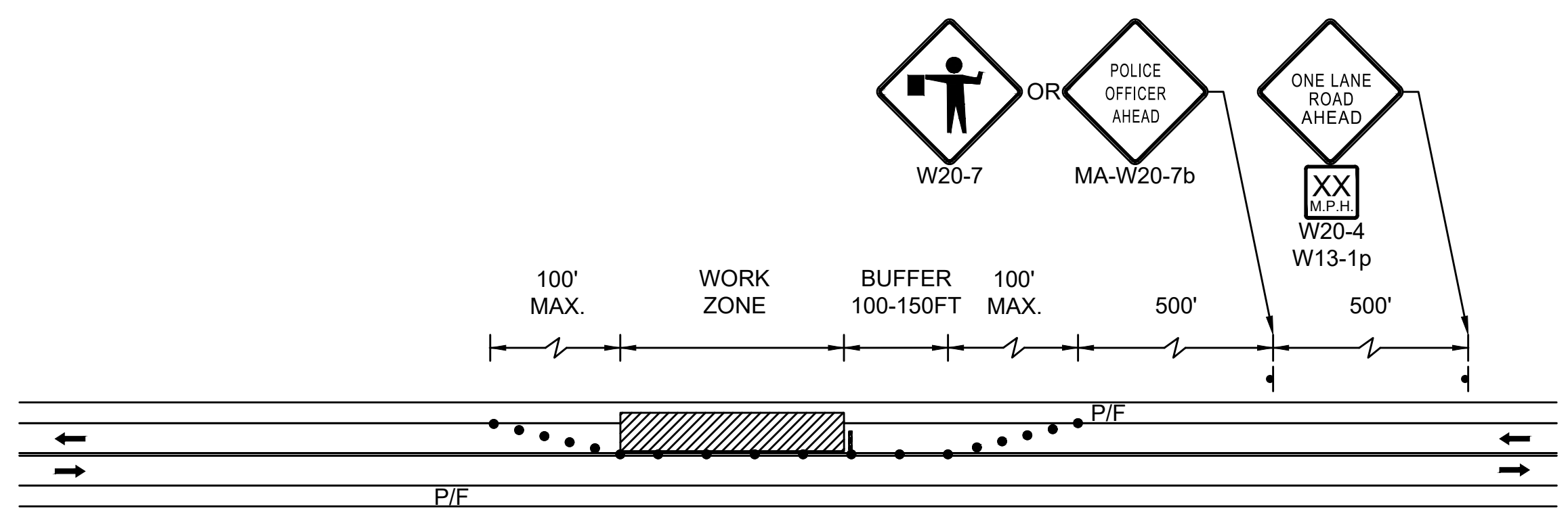
MULTIPLE LANE ROADWAY - RIGHT LANE CLOSED
NOT TO SCALE



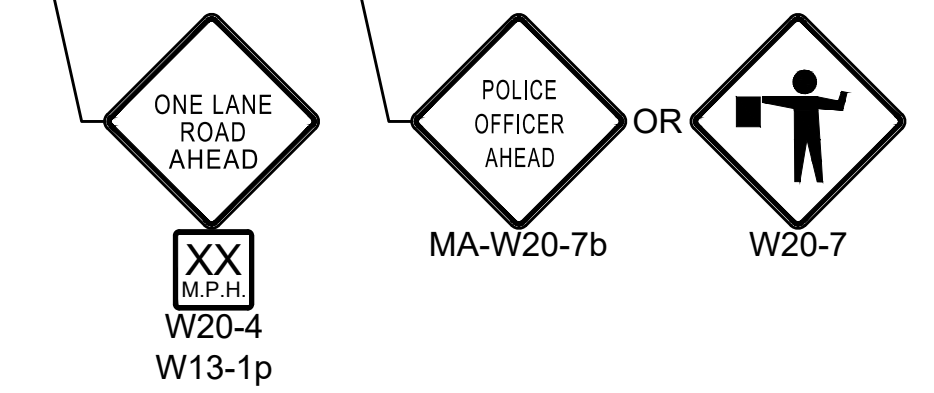
DOUBLE LANE APPROACH
FAR SIDE CLOSURE RIGHT LANE
NOT TO SCALE



TWO-LANE ROAD - SHOULDER CLOSED
NOT TO SCALE

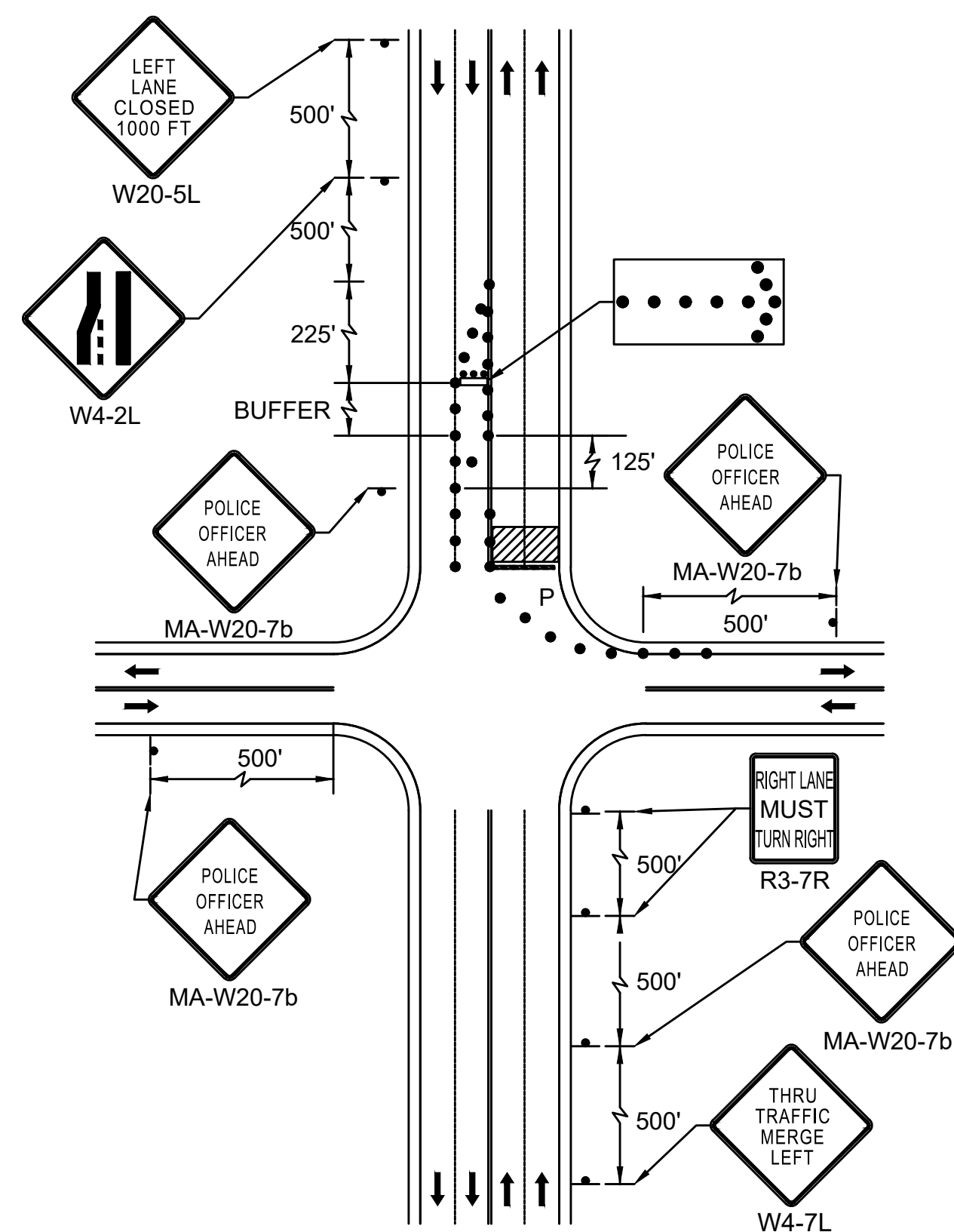


TWO-LANE ROAD - ONE LANE ALTERNATING TRAFFIC
WITH POLICE OR FLAGGER DETAIL
NOT TO SCALE

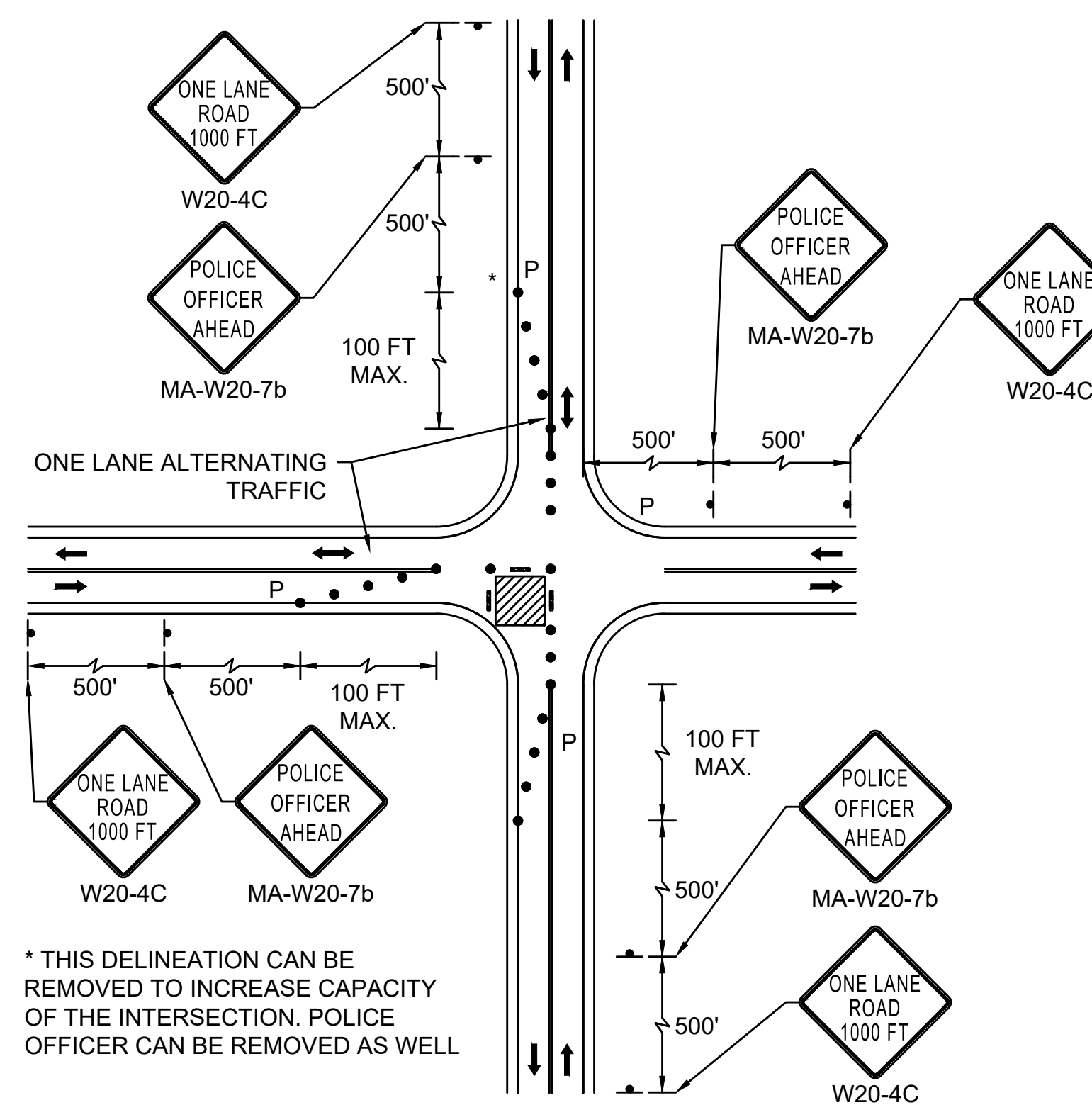


STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	89	139
PROJECT FILE NO.		605178	

TEMPORARY TRAFFIC CONTROL PLAN

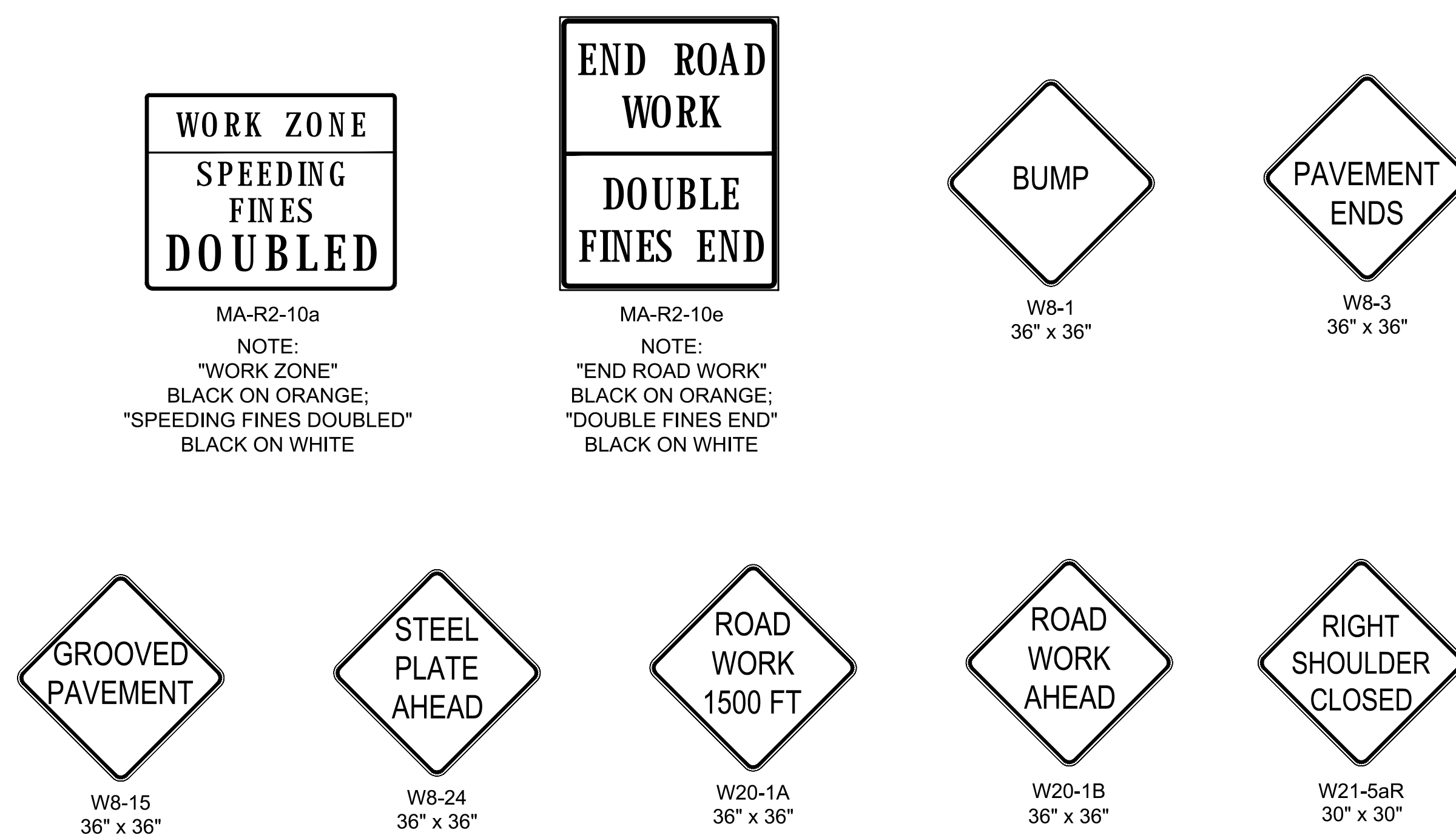


DOUBLE LANE APPROACH
HALF ROAD CLOSURE
NOT TO SCALE



SINGLE LANE APPROACH ONE QUADRANT CLOSURE
NOT TO SCALE

* THIS DELINEATION CAN BE REMOVED TO INCREASE CAPACITY OF THE INTERSECTION. POLICE OFFICER CAN BE REMOVED AS WELL



CONSTRUCTION SIGNS
NOT TO SCALE

SAFETY SIGNING FOR CONSTRUCTION OPERATIONS

LEGEND	TYPE	SIZE	COLOR			UNIT AREA	NO. SIGNS	TOTAL AREA	POSTS
			BACKGROUND	LEGEND	BORDER				
WORK ZONE SPEEDING FINES...	MA-R2-10a	48" x 36"	WHITE/ORANGE**	BLACK	BLACK	12 SF	2	24 SF	P-5: 2
END ROAD WORK	MA-R2-10e	36" x 48"	WHITE/ORANGE**	BLACK	BLACK	12 SF	9	108 SF	P-5: 9
RIGHT LANE MUST TURN RIGHT	R3-7R	24" x 30"	WHITE	BLACK	BLACK	5 SF	2	10 SF	P-5: 2
SIDEWALK CLOSED CROSS HERE	R9-11a	48" x 24"	WHITE	BLACK	BLACK	8 SF	2	16 SF	P-5: 2
REVERSE CURVE LEFT	W1-4L	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
REVERSE CURVE RIGHT	W1-4R	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
LEFT LANE ENDS	W4-2L	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
RIGHT LANE ENDS	W4-2R	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
THRU TRAFFIC MERGE LEFT	W4-7L	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
ROAD NARROWS	W5-1	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
BUMP	W8-1	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
PAVEMENT ENDS	W8-3	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
GROOVED PAVEMENT	W8-15	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
STEEL PLATE AHEAD	W8-24	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
PEDESTRIAN	W11-2	30" x 30"	FYG***	BLACK	BLACK	6.3 SF	4	25 SF	P-5: 4
ADVISORY SPEED	W13-1p	24" x 24"	ORANGE**	BLACK	BLACK	4 SF	2	8 SF	P-5: 0
DOWNWARD LEFT DIAGONAL ARROW	W16-7pL	24" x 12"	FYG***	BLACK	BLACK	2 SF	4	8 SF	P-5: 0
ROAD WORK 1500 FT	W20-1A	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 4
ROAD WORK AHEAD	W20-1B	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	9	81 SF	P-5: 9
ONE LANE ROAD AHEAD	W20-4	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
ONE LANE ROAD 1000 FT	W20-4C	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
LEFT LANE CLOSED 1000 FT	W20-5L	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
RIGHT LANE CLOSED 1000 FT	W20-5R	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
FLAGGER	W20-7	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
POLICE OFFICER AHEAD	MA-W20-7b	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
RIGHT SHOULDER CLOSED	W21-5aR	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
						TOTAL AREA OF SIGNS:		748 SF	P-5: 82

* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY

** ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND

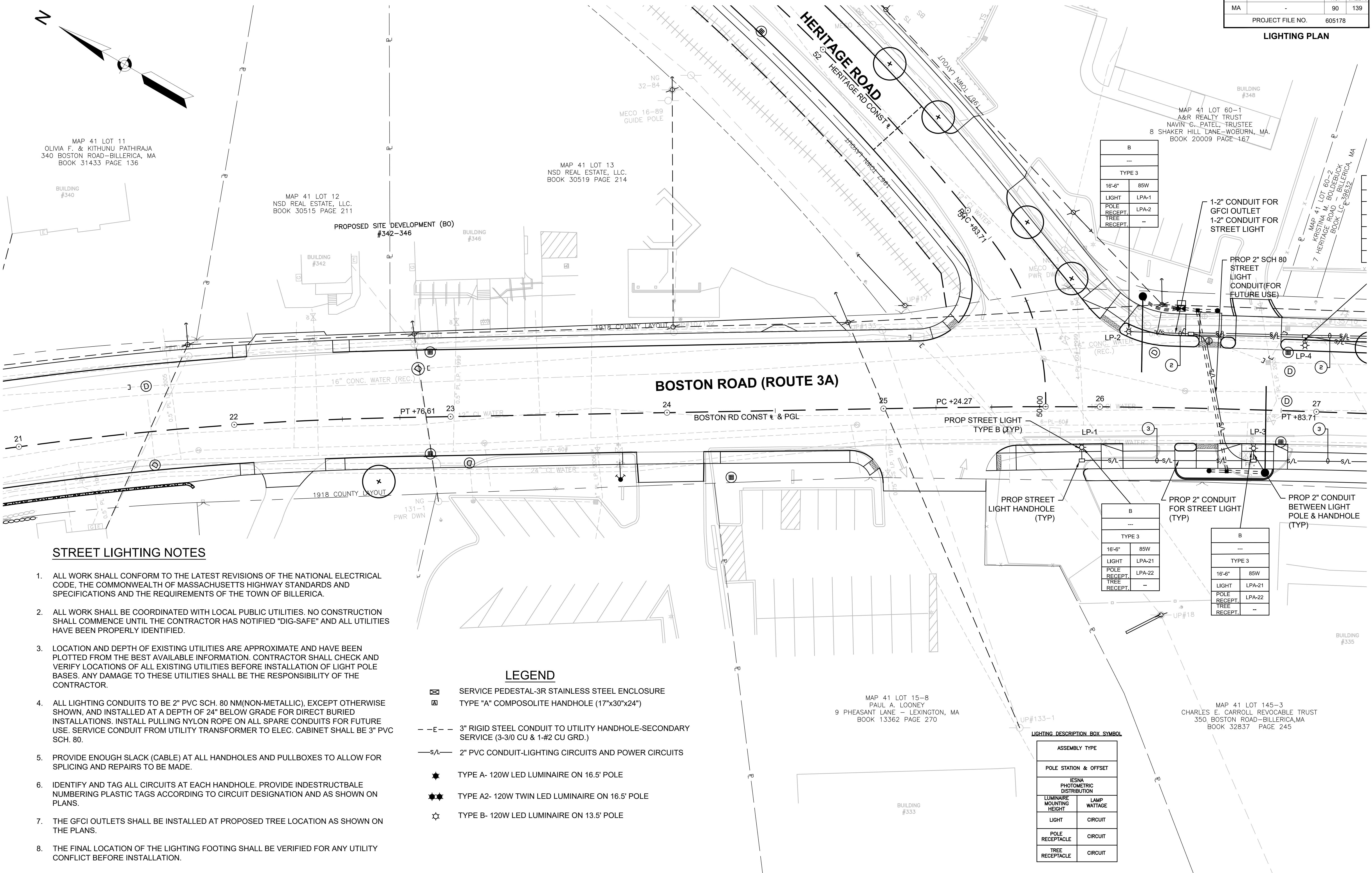
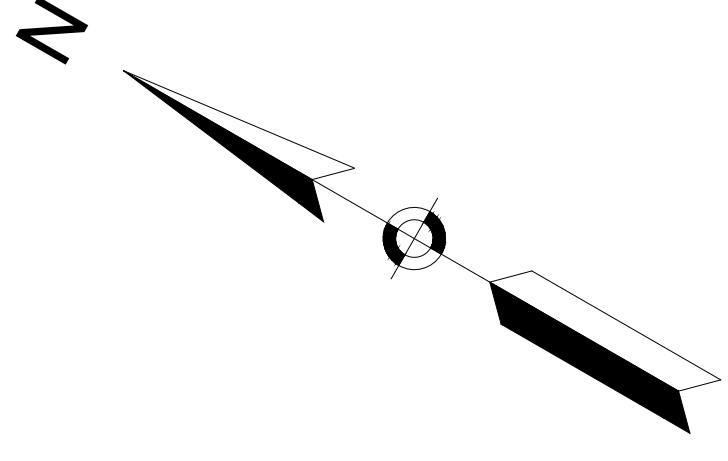
*** FLUORESCENT YELLOW GREEN

CONTINUED ON SHEET NO. 96

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	90	139
PROJECT FILE NO. 605178			

LIGHTING PLAN



STREET LIGHTING NOTES

1. ALL WORK SHALL CONFORM TO THE LATEST REVISIONS OF THE NATIONAL ELECTRICAL CODE, THE COMMONWEALTH OF MASSACHUSETTS HIGHWAY STANDARDS AND SPECIFICATIONS AND THE REQUIREMENTS OF THE TOWN OF BILLERICA.
2. ALL WORK SHALL BE COORDINATED WITH LOCAL PUBLIC UTILITIES. NO CONSTRUCTION SHALL COMMENCE UNTIL THE CONTRACTOR HAS NOTIFIED "DIG-SAFE" AND ALL UTILITIES HAVE BEEN PROPERLY IDENTIFIED.
3. LOCATION AND DEPTH OF EXISTING UTILITIES ARE APPROXIMATE AND HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL CHECK AND VERIFY LOCATIONS OF ALL EXISTING UTILITIES BEFORE INSTALLATION OF LIGHT POLE BASES. ANY DAMAGE TO THESE UTILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL LIGHTING CONDUITS TO BE 2" PVC SCH. 80 NM(NON-METALLIC), EXCEPT OTHERWISE SHOWN, AND INSTALLED AT A DEPTH OF 24" BELOW GRADE FOR DIRECT BURIED INSTALLATIONS. INSTALL PULLING NYLON ROPE ON ALL SPARE CONDUITS FOR FUTURE USE. SERVICE CONDUIT FROM UTILITY TRANSFORMER TO ELEC. CABINET SHALL BE 3" PVC SCH. 80.
5. PROVIDE ENOUGH SLACK (CABLE) AT ALL HANDHOLES AND PULLBOXES TO ALLOW FOR SPLICING AND REPAIRS TO BE MADE.
6. IDENTIFY AND TAG ALL CIRCUITS AT EACH HANDHOLE. PROVIDE INDESTRUCTIBLE NUMBERING PLASTIC TAGS ACCORDING TO CIRCUIT DESIGNATION AND AS SHOWN ON PLANS.
7. THE GFCI OUTLETS SHALL BE INSTALLED AT PROPOSED TREE LOCATION AS SHOWN ON THE PLANS.
8. THE FINAL LOCATION OF THE LIGHTING FOOTING SHALL BE VERIFIED FOR ANY UTILITY CONFLICT BEFORE INSTALLATION.

LEGEND

- ☒ SERVICE PEDESTAL-3R STAINLESS STEEL ENCLOSURE
- ☒ TYPE "A" COMPOSOLITE HANDHOLE (17"x30"x24")
- E- 3" RIGID STEEL CONDUIT TO UTILITY HANDHOLE-SECONDARY SERVICE (3-3/0 CU & 1-#2 CU GRD.)
- S/L- 2" PVC CONDUIT-LIGHTING CIRCUITS AND POWER CIRCUITS
- ★ TYPE A- 120W LED LUMINAIRE ON 16.5' POLE
- ★★ TYPE A2- 120W TWIN LED LUMINAIRE ON 16.5' POLE
- ☆ TYPE B- 120W LED LUMINAIRE ON 13.5' POLE

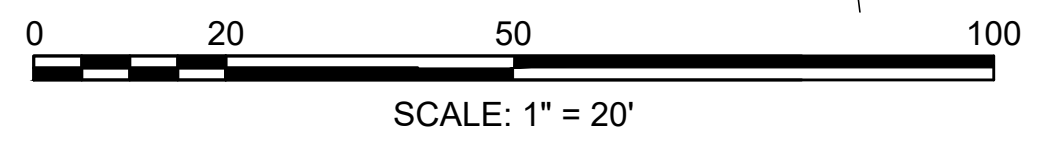
LIGHTING DESCRIPTION BOX SYMBOL

ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT

B	---
TYPE 3	
16'-6"	85W
LIGHT	LPA-1
POLE RECEPT.	LPA-2
TREE RECEPT.	---

B	---
TYPE 3	
16'-6"	85W
LIGHT	LPA-21
POLE RECEPT.	LPA-22
TREE RECEPT.	---

B	---
TYPE 3	
16'-6"	85W
LIGHT	LPA-21
POLE RECEPT.	LPA-22
TREE RECEPT.	---



FOR PROFILE SEE SHEET 29

CONTINUED ON SHEET NO. 89

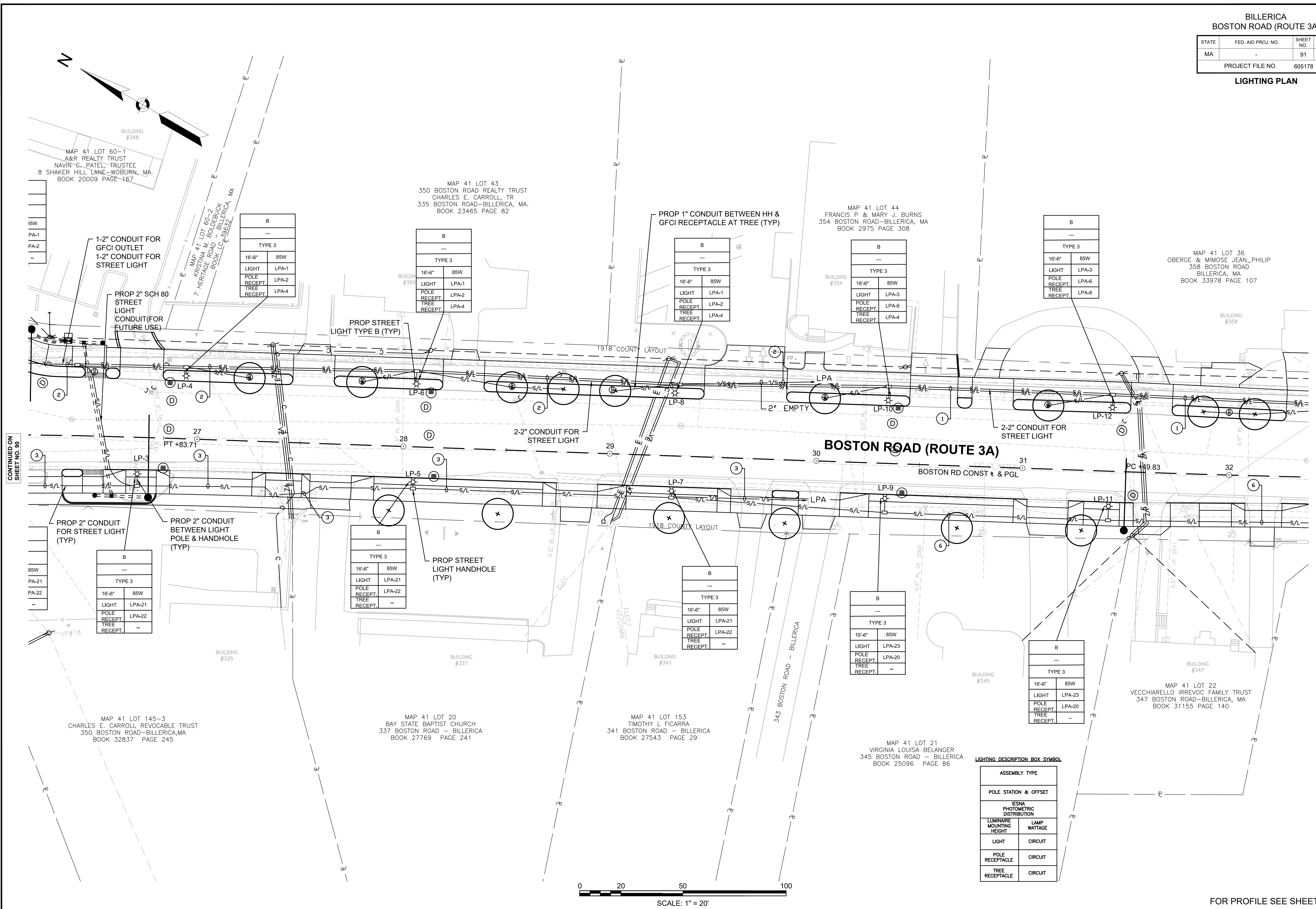
CONTINUED ON SHEET NO. 91

605178_HD(4722)_LIGHTING.DWG Plotted on: 2-Aug-21 8:20 PM

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	91	139
PROJECT FILE NO.		605178	

LIGHTING PLAN



CONTINUED ON SHEET NO. 90

CONTINUED ON SHEET NO. 92

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-1
POLE RECEPT.	LPA-2
TREE RECEPT.	LPA-4

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-1
POLE RECEPT.	LPA-2
TREE RECEPT.	LPA-4

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-1
POLE RECEPT.	LPA-2
TREE RECEPT.	LPA-4

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-3
POLE RECEPT.	LPA-6
TREE RECEPT.	LPA-4

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-3
POLE RECEPT.	LPA-6
TREE RECEPT.	LPA-8

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-21
POLE RECEPT.	LPA-22
TREE RECEPT.	-

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-21
POLE RECEPT.	LPA-22
TREE RECEPT.	-

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-21
POLE RECEPT.	LPA-22
TREE RECEPT.	-

B	

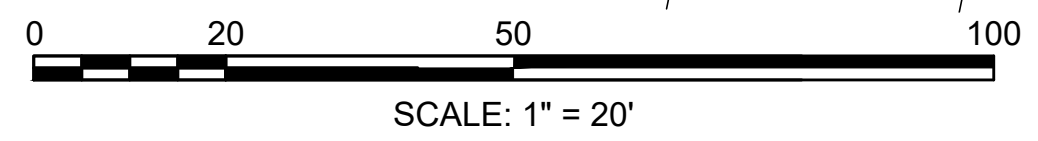
TYPE 3	
16'-6"	85W
LIGHT	LPA-23
POLE RECEPT.	LPA-20
TREE RECEPT.	-

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-23
POLE RECEPT.	LPA-20
TREE RECEPT.	-

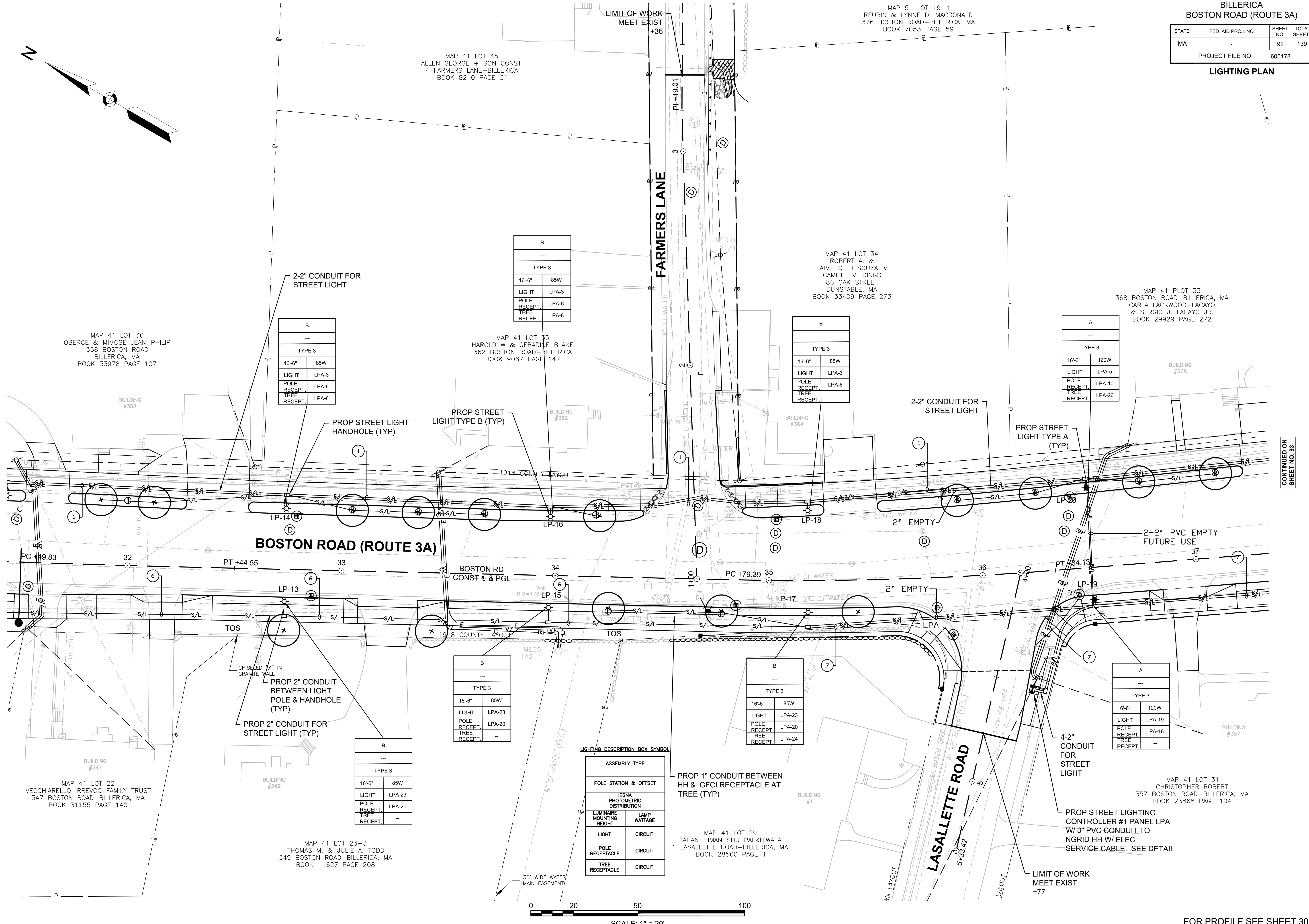
LIGHTING DESCRIPTION BOX SYMBOL

ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT



FOR PROFILE SEE SHEET 29

605178_HD(4722)_LIGHTING.DWG Plotted on: 2-Aug-21 8:20 PM



MAP 41 LOT 36
OBERGE & MIMOSE JEAN PHILIP
358 BOSTON ROAD
BILLERICA, MA
BOOK 33978 PAGE 107

MAP 41 LOT 45
ALLEN GEORGE + SON CONST.
4 FARMERS LANE-BILLERICA
BOOK 8210 PAGE 31

MAP 51 LOT 19-1
REUBIN & LYNNE D. MACDONALD
376 BOSTON ROAD-BILLERICA, MA
BOOK 7053 PAGE 59

MAP 41 LOT 34
ROBERT A. &
JAIME O. DESOUZA &
CAMILLE V. DINGS
86 OAK STREET
DUNSTABLE, MA
BOOK 33409 PAGE 273

MAP 41 PLOT 33
368 BOSTON ROAD-BILLERICA, MA
CARLA LACKWOOD-LACAYO
& SERGIO J. LACAYO JR.
BOOK 29929 PAGE 272

MAP 41 LOT 22
VECCHIARELLO IRREVOC FAMILY TRUST
347 BOSTON ROAD-BILLERICA, MA
BOOK 31155 PAGE 140

MAP 41 LOT 23-3
THOMAS M. & JULIE A. TODD
349 BOSTON ROAD-BILLERICA, MA
BOOK 11627 PAGE 208

MAP 41 LOT 31
CHRISTOPHER ROBERT
357 BOSTON ROAD-BILLERICA, MA
BOOK 23868 PAGE 104

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-3
POLE RECEPT.	LPA-6
TREE RECEPT.	LPA-8

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-3
POLE RECEPT.	LPA-6
TREE RECEPT.	LPA-8

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-3
POLE RECEPT.	LPA-6
TREE RECEPT.	---

A	

TYPE 3	
16'-6"	120W
LIGHT	LPA-5
POLE RECEPT.	LPA-10
TREE RECEPT.	LPA-26

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-23
POLE RECEPT.	LPA-20
TREE RECEPT.	---

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-23
POLE RECEPT.	LPA-20
TREE RECEPT.	LPA-24

A	

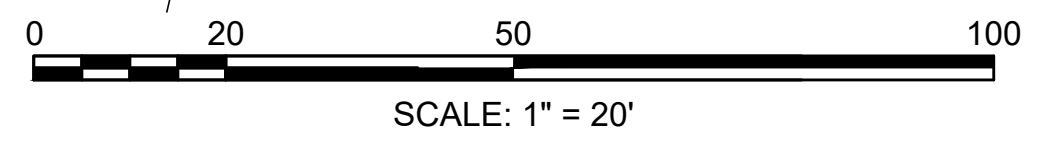
TYPE 3	
16'-6"	120W
LIGHT	LPA-19
POLE RECEPT.	LPA-16
TREE RECEPT.	---

B	

TYPE 3	
16'-6"	85W
LIGHT	LPA-23
POLE RECEPT.	LPA-20
TREE RECEPT.	---

LIGHTING DESCRIPTION BOX SYMBOL

ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT



CONTINUED ON SHEET NO. 91

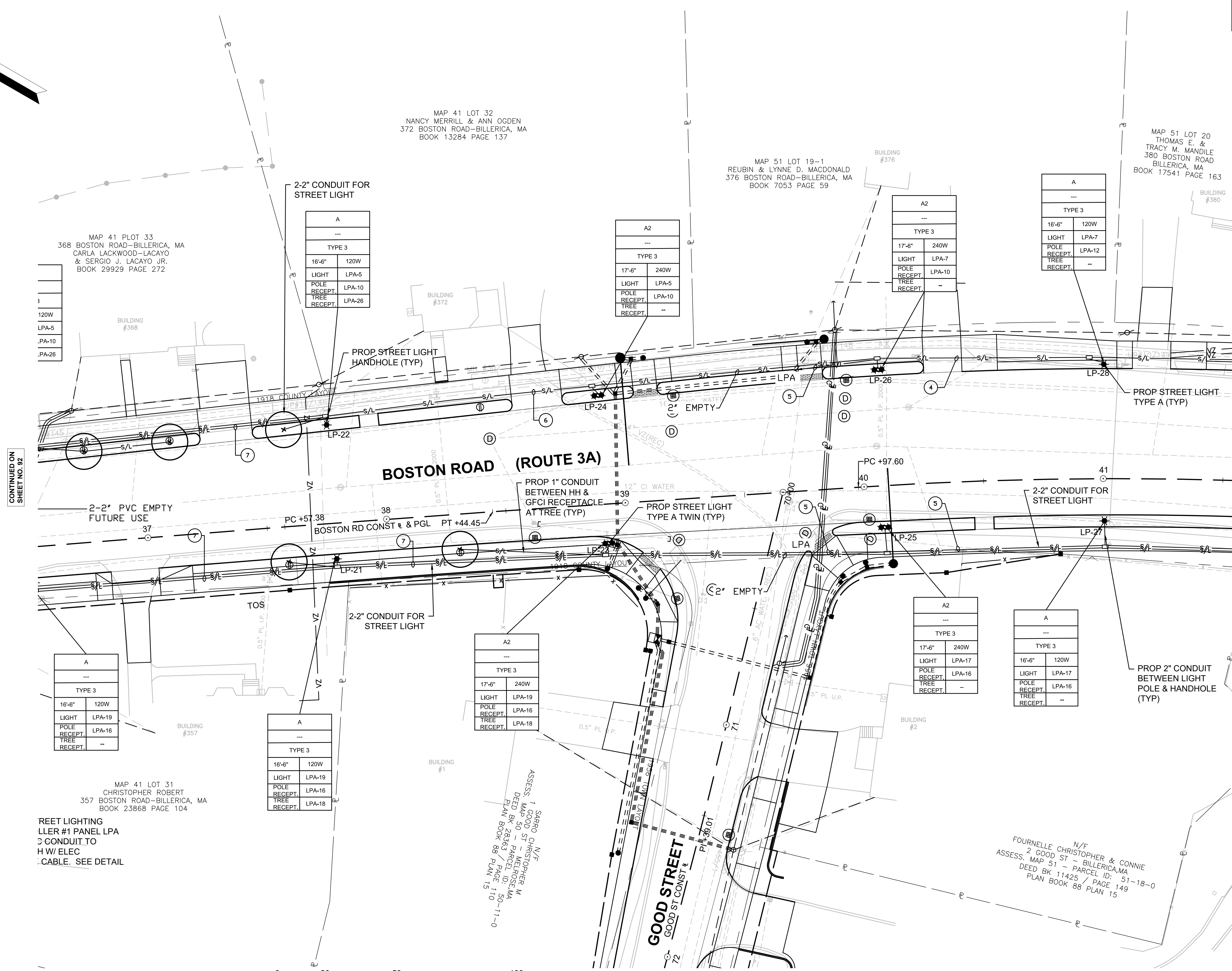
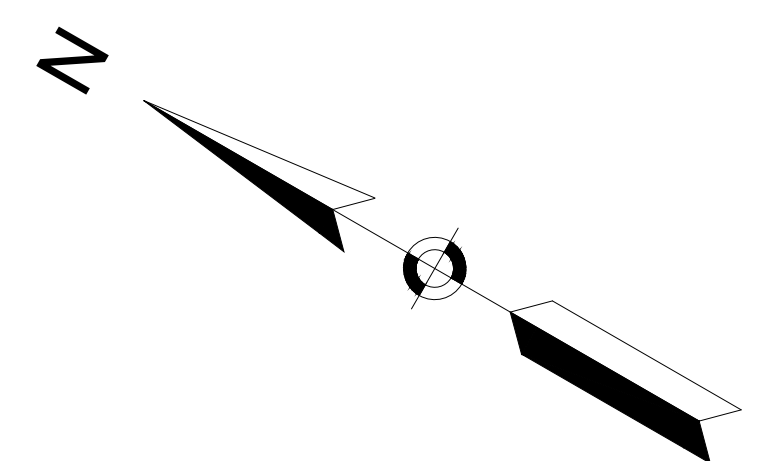
CONTINUED ON SHEET NO. 93

FOR PROFILE SEE SHEET 30

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	93	139
PROJECT FILE NO.		605178	

LIGHTING PLAN



CONTINUED ON SHEET NO. 92

CONTINUED ON SHEET NO. 94

MAP 41 PLOT 33
368 BOSTON ROAD-BILLERICA, MA
CARLA LACKWOOD-LACAYO
& SERGIO J. LACAYO JR.
BOOK 29929 PAGE 272

MAP 41 LOT 32
NANCY MERRILL & ANN OGDEN
372 BOSTON ROAD-BILLERICA, MA
BOOK 13284 PAGE 137

MAP 51 LOT 19-1
REUBIN & LYNNE D. MACDONALD
376 BOSTON ROAD-BILLERICA, MA
BOOK 7053 PAGE 59

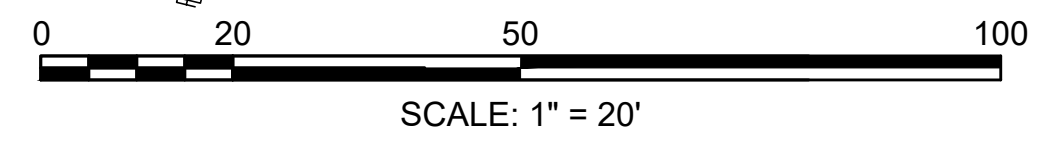
MAP 51 LOT 20
THOMAS E. &
TRACY M. MANDILE
380 BOSTON ROAD
BILLERICA, MA
BOOK 17541 PAGE 163

MAP 41 LOT 31
CHRISTOPHER ROBERT
357 BOSTON ROAD-BILLERICA, MA
BOOK 23868 PAGE 104

ASSSES. 1 N/F
SARRO CHRISTOPHER M
2 GOOD ST - PARCEL ID: 50-11-0
DEED BK 28363 / PAGE 110
PLAN BOOK 88 PLAN 15

N/F
FOURNELLE CHRISTOPHER & CONNIE
2 GOOD ST - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-18-0
DEED BK 11425 / PAGE 149
PLAN BOOK 88 PLAN 15

REET LIGHTING
LLER #1 PANEL LPA
3 CONDUIT TO
H W/ ELEC
CABLE. SEE DETAIL



CONTINUED ON SHEET NO. 98

LIGHTING DESCRIPTION BOX SYMBOL

ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT

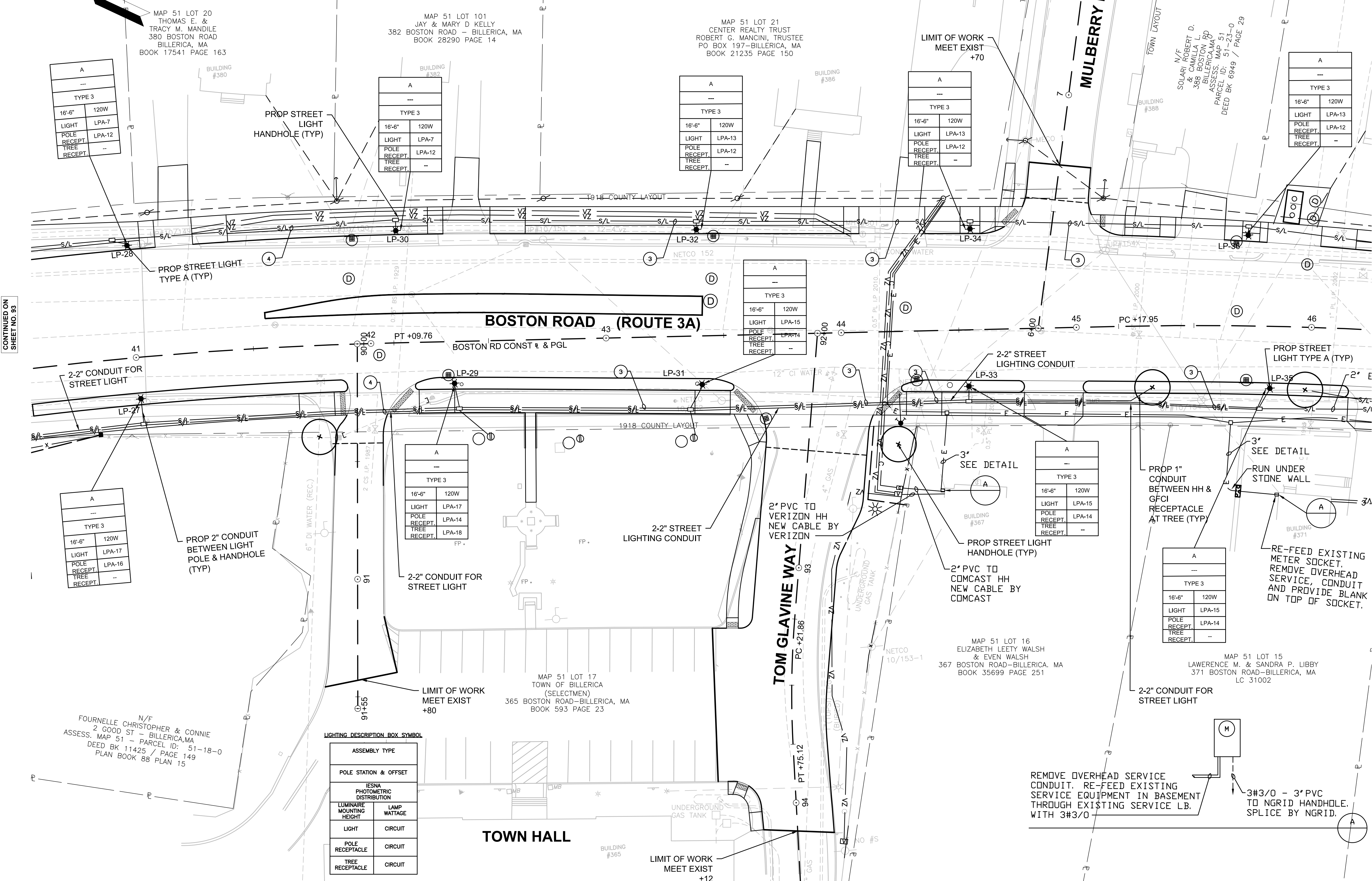
FOR PROFILE SEE SHEET 30

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	94	139
PROJECT FILE NO.		605178	

LIGHTING PLAN

CONTINUED ON SHEET NO. 95



CONTINUED ON SHEET NO. 93

CONTINUED ON SHEET NO. 95

TYPE 3	
16'-6"	120W
LIGHT	LPA-7
POLE RECEPT.	LPA-12
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-7
POLE RECEPT.	LPA-12
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-13
POLE RECEPT.	LPA-12
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-13
POLE RECEPT.	LPA-12
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-13
POLE RECEPT.	LPA-12
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-15
POLE RECEPT.	LPA-14
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-17
POLE RECEPT.	LPA-16
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-17
POLE RECEPT.	LPA-14
TREE RECEPT.	LPA-18

TYPE 3	
16'-6"	120W
LIGHT	LPA-15
POLE RECEPT.	LPA-14
TREE RECEPT.	--

TYPE 3	
16'-6"	120W
LIGHT	LPA-15
POLE RECEPT.	LPA-14
TREE RECEPT.	--

LIGHTING DESCRIPTION BOX SYMBOL

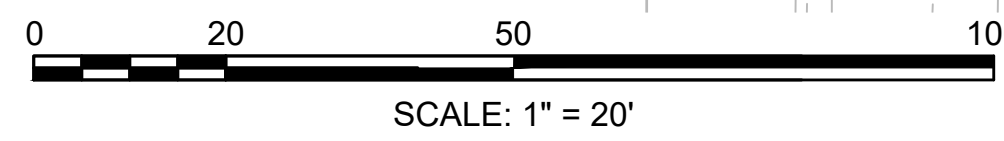
ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT

N/F
FOURNELLE CHRISTOPHER & CONNIE
2 GOOD ST - BILLERICA, MA
ASSESS. MAP 51 - PARCEL ID: 51-18-0
DEED BK 11425 / PAGE 149
PLAN BOOK 88 PLAN 15

MAP 51 LOT 17
TOWN OF BILLERICA (SELECTMEN)
365 BOSTON ROAD-BILLERICA, MA
BOOK 593 PAGE 23

MAP 51 LOT 16
ELIZABETH LEETY WALSH & EVEN WALSH
367 BOSTON ROAD-BILLERICA, MA
BOOK 35699 PAGE 251

MAP 51 LOT 15
LAWRENCE M. & SANDRA P. LIBBY
371 BOSTON ROAD-BILLERICA, MA
LC 31002

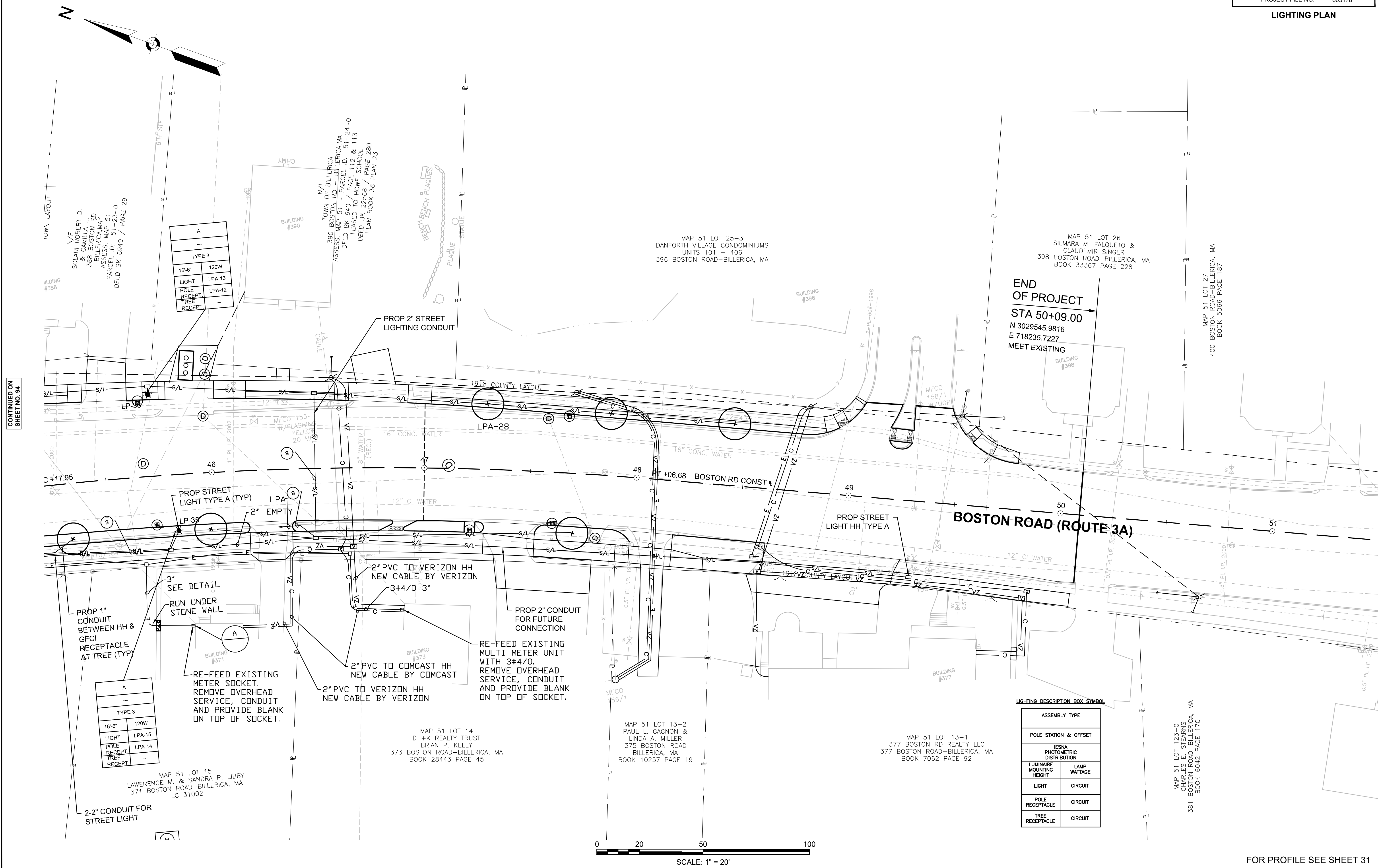


FOR PROFILE SEE SHEET 31

BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	95	139
PROJECT FILE NO.		605178	

LIGHTING PLAN



CONTINUED ON
SHEET NO. 94

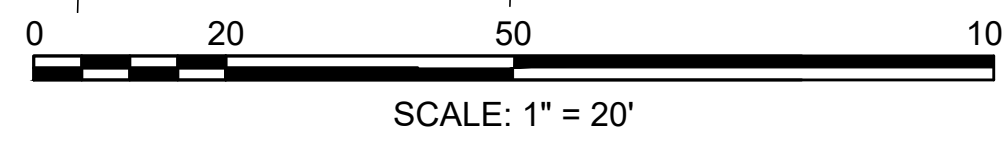
END
OF PROJECT
STA 50+09.00
N 3029545.9816
E 718235.7227
MEET EXISTING

TYPE 3	
16'-6"	120W
LIGHT	LPA-13
POLE	LPA-12
RECEPT	--
TREE	--

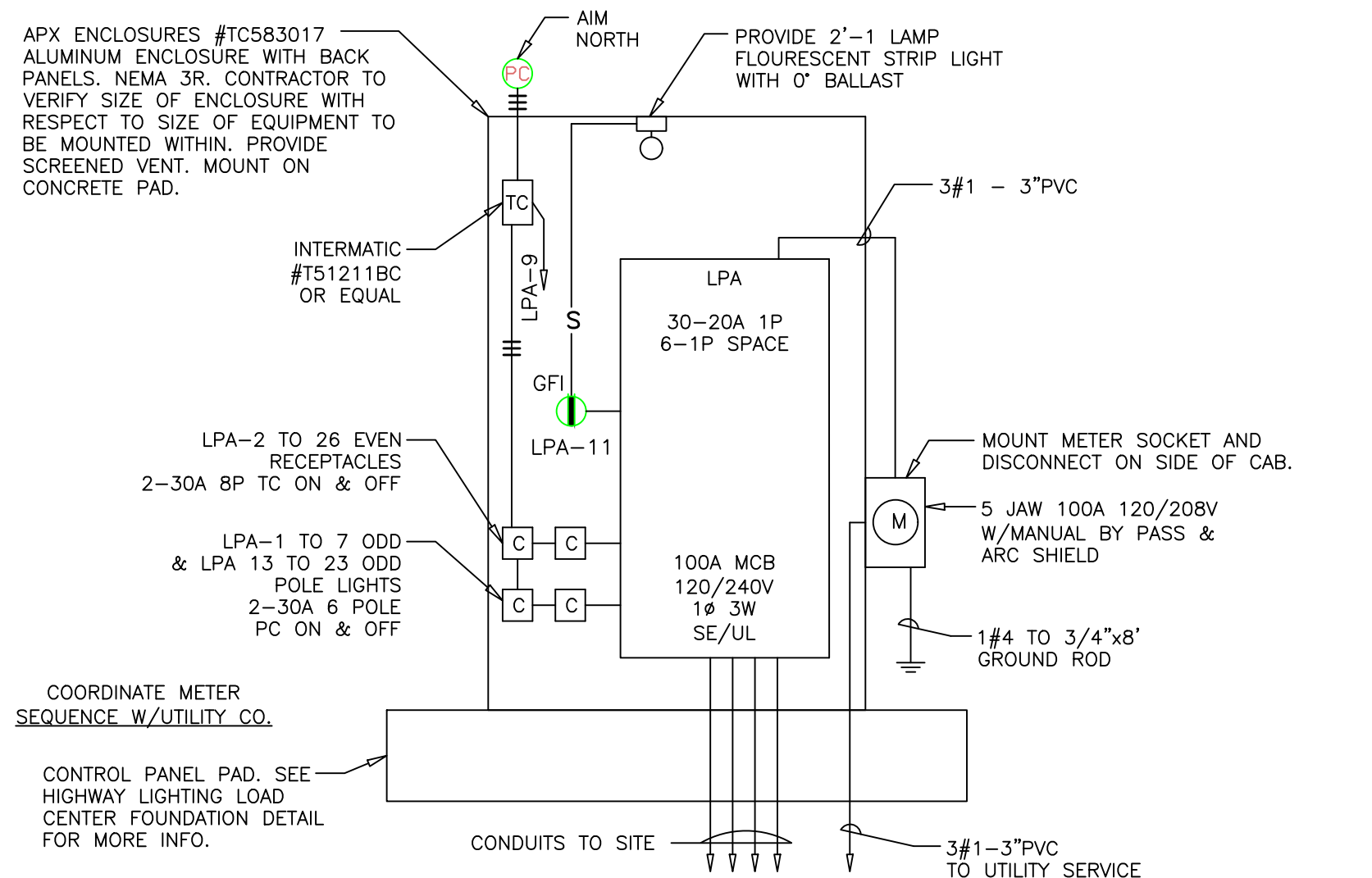
TYPE 3	
16'-6"	120W
LIGHT	LPA-15
POLE	LPA-14
RECEPT	--
TREE	--

LIGHTING DESCRIPTION BOX SYMBOL

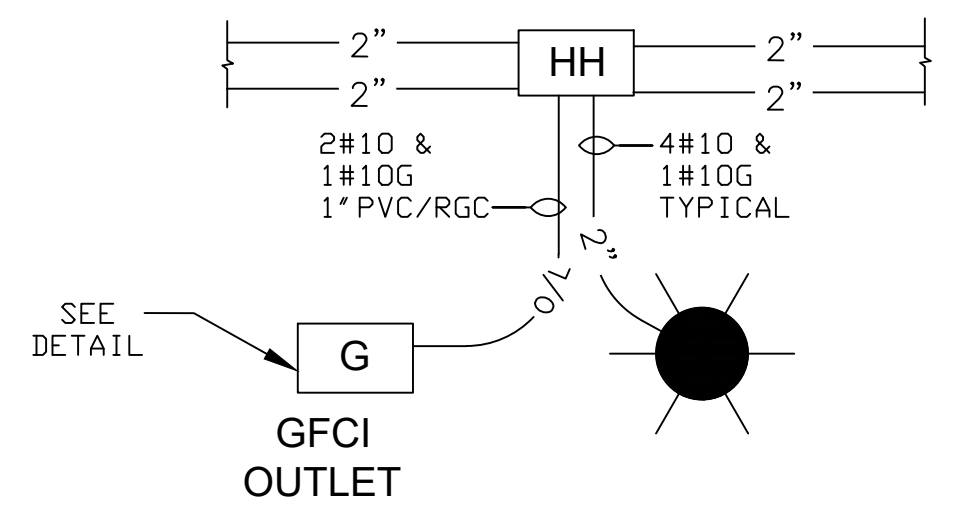
ASSEMBLY TYPE	
POLE STATION & OFFSET	
IESNA PHOTOMETRIC DISTRIBUTION	
LUMINAIRE MOUNTING HEIGHT	LAMP WATTAGE
LIGHT	CIRCUIT
POLE RECEPTACLE	CIRCUIT
TREE RECEPTACLE	CIRCUIT



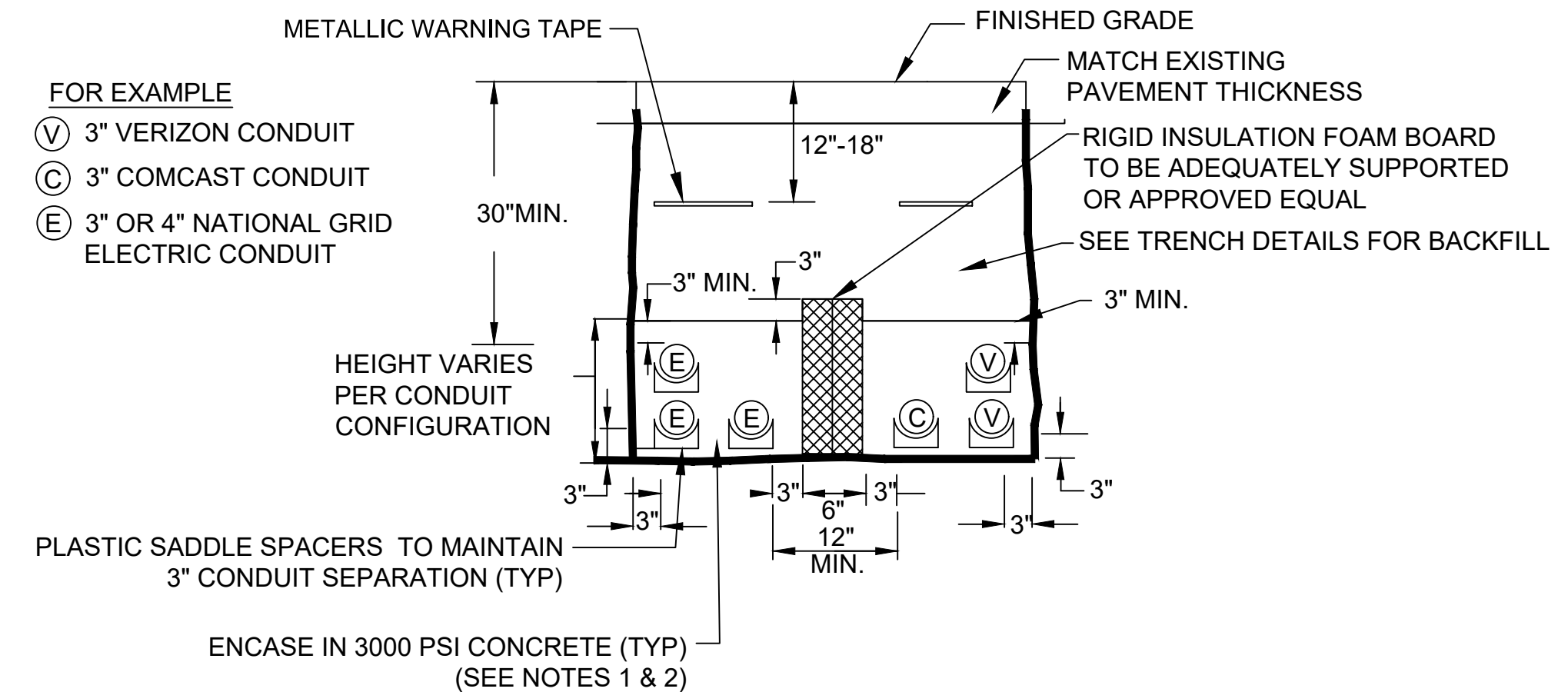
FOR PROFILE SEE SHEET 31



LIGHTING CABINET NO.1
NOT TO SCALE



STREET LIGHT AND TREE LIGHTING CONDUIT DETAIL
NOT TO SCALE



- NOTES:**
- ALL ELECTRICAL CONDUIT LOCATED IN ROADWAY OR DRIVEWAY SHALL BE ENCASED IN HIGH EARLY CONCRETE.
 - ALL COMMUNICATIONS CONDUIT UNDER ROADWAY SURFACES SHALL BE BACKFILLED WITH CONTROL DENSITY FILL (EXCAVATABLE).
 - PAY LIMITS SHALL BE SUM OF ALL CONDUIT & CLEARANCES PLUS 3" EACH SIDE.

TYPICAL COMBINED UTILITY DUCT TRENCH DETAIL (WITH NGRID DUCT)
NOT TO SCALE

VOLTAGE DROP CALCULATIONS
% VD = AMPS X DISTANCE (100') X FACTOR /120

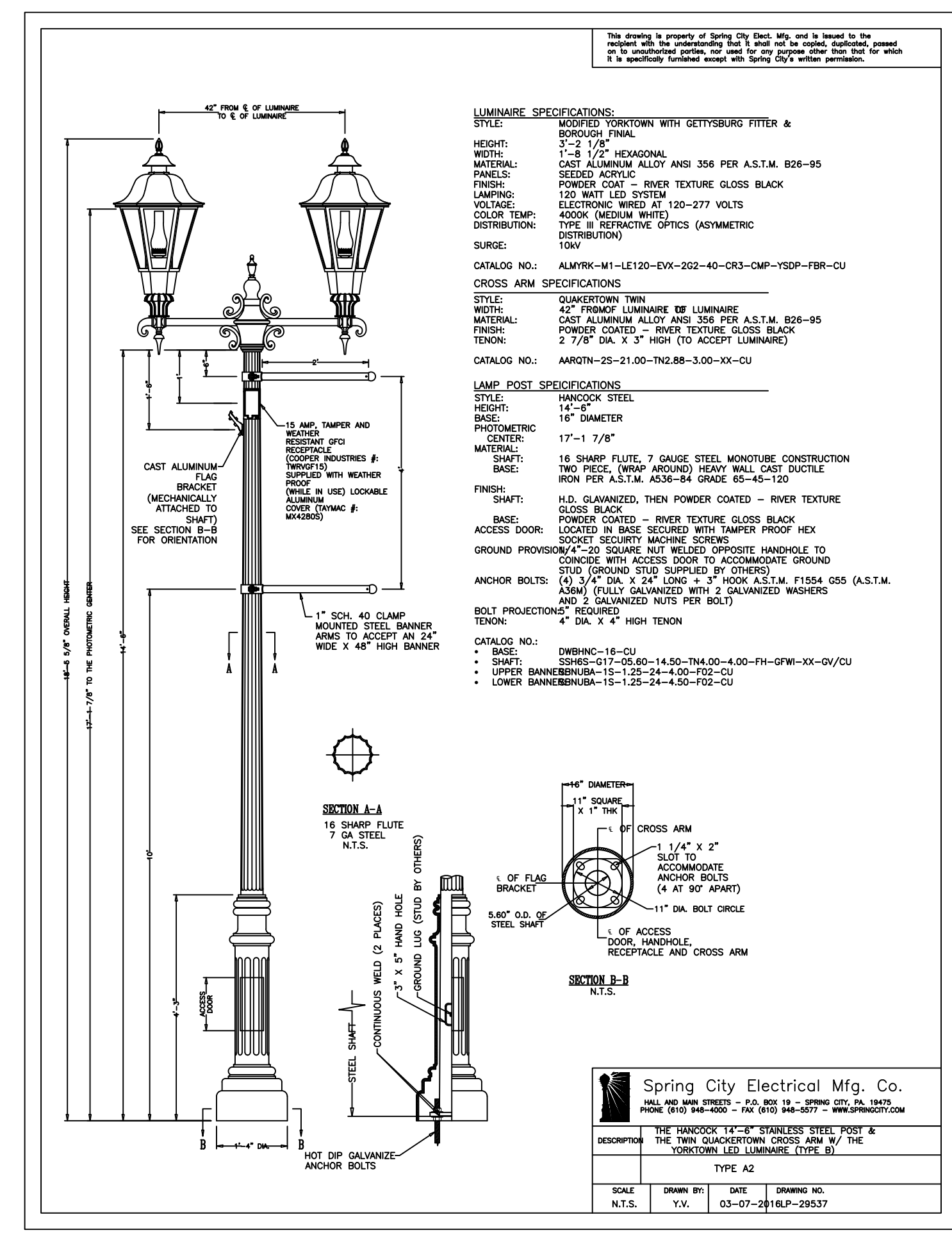
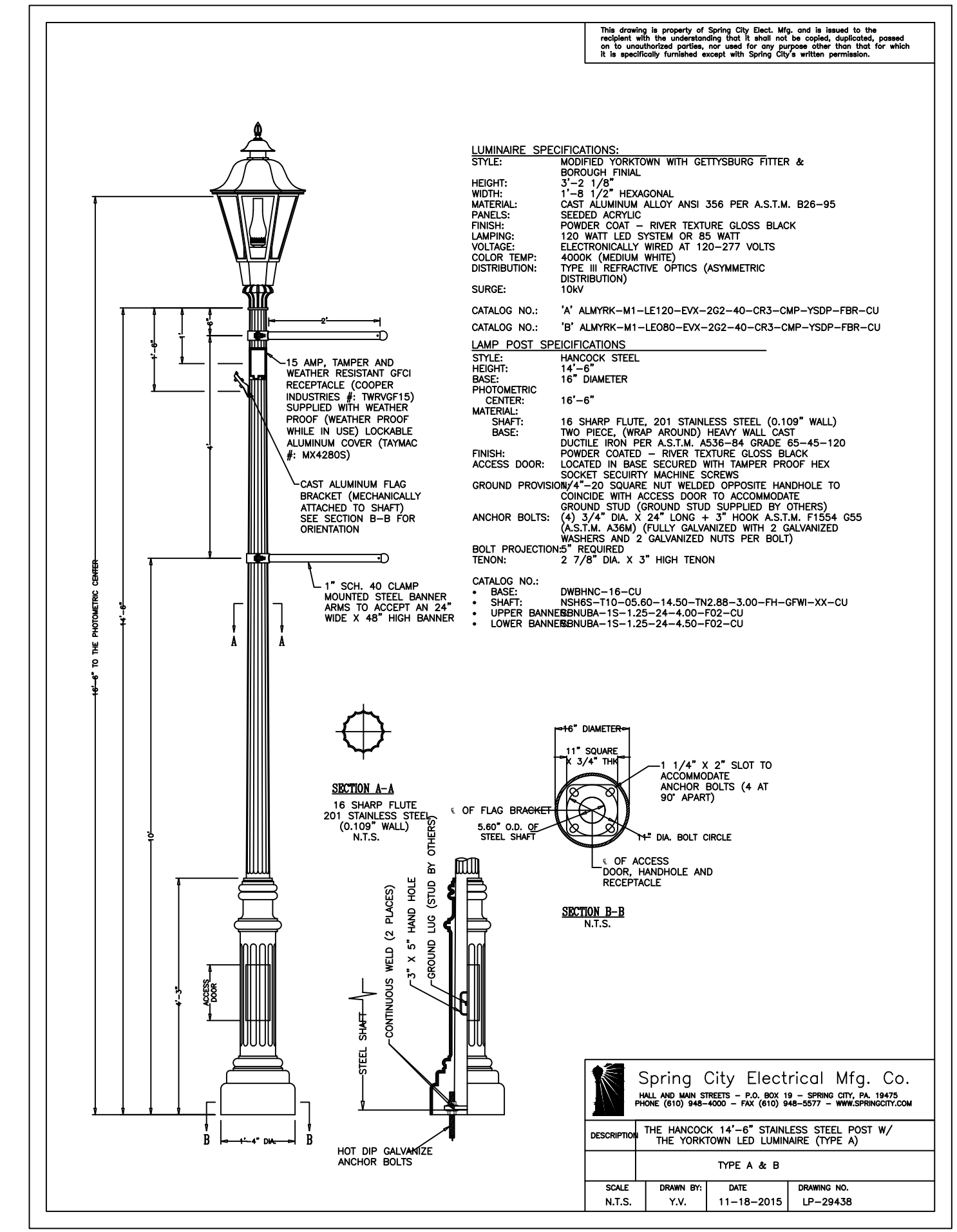
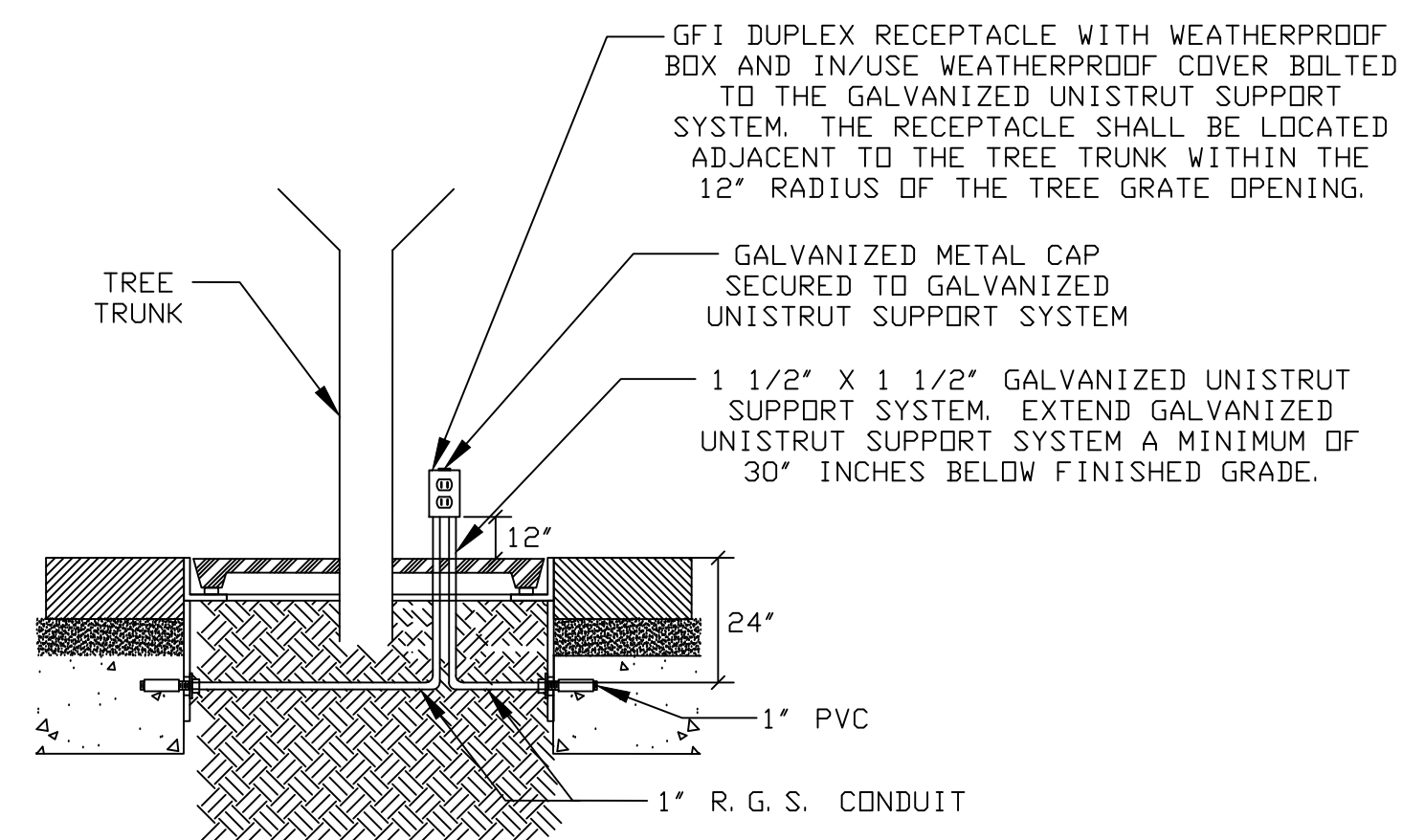
CIR#	AMPS	DIST.	WIRE SIZE	% VD
LPA-1	2.8	1000'	#6	2.3%
LPA-3	3.5	500'	#8	2.2%
LPA-5	4.0	300'	#8	1.5%
LPA-7	4.0	650'	#6	2.1%
LPA-13	3.0	900'	#6	2.2%
LPA-15	3.0	850'	#6	2.1%
LPA-17	4.0	600'	#6	1.9%
LPA-19	4.0	250'	#8	1.3%
LPA-21	2.8	900'	#6	2.0%
LPA-23	3.5	400'	#8	1.8%

PANEL LPA SCHEDULE

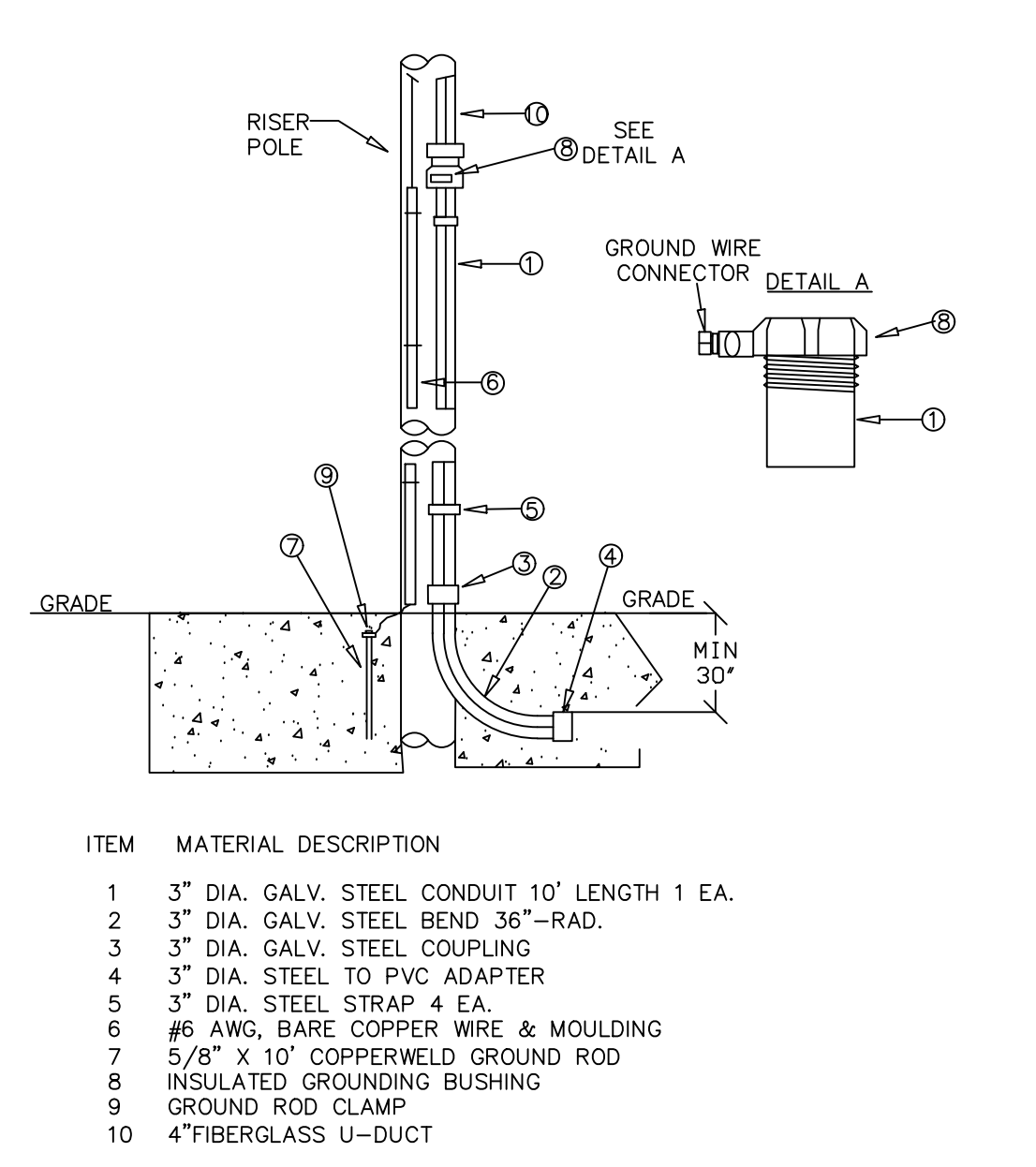
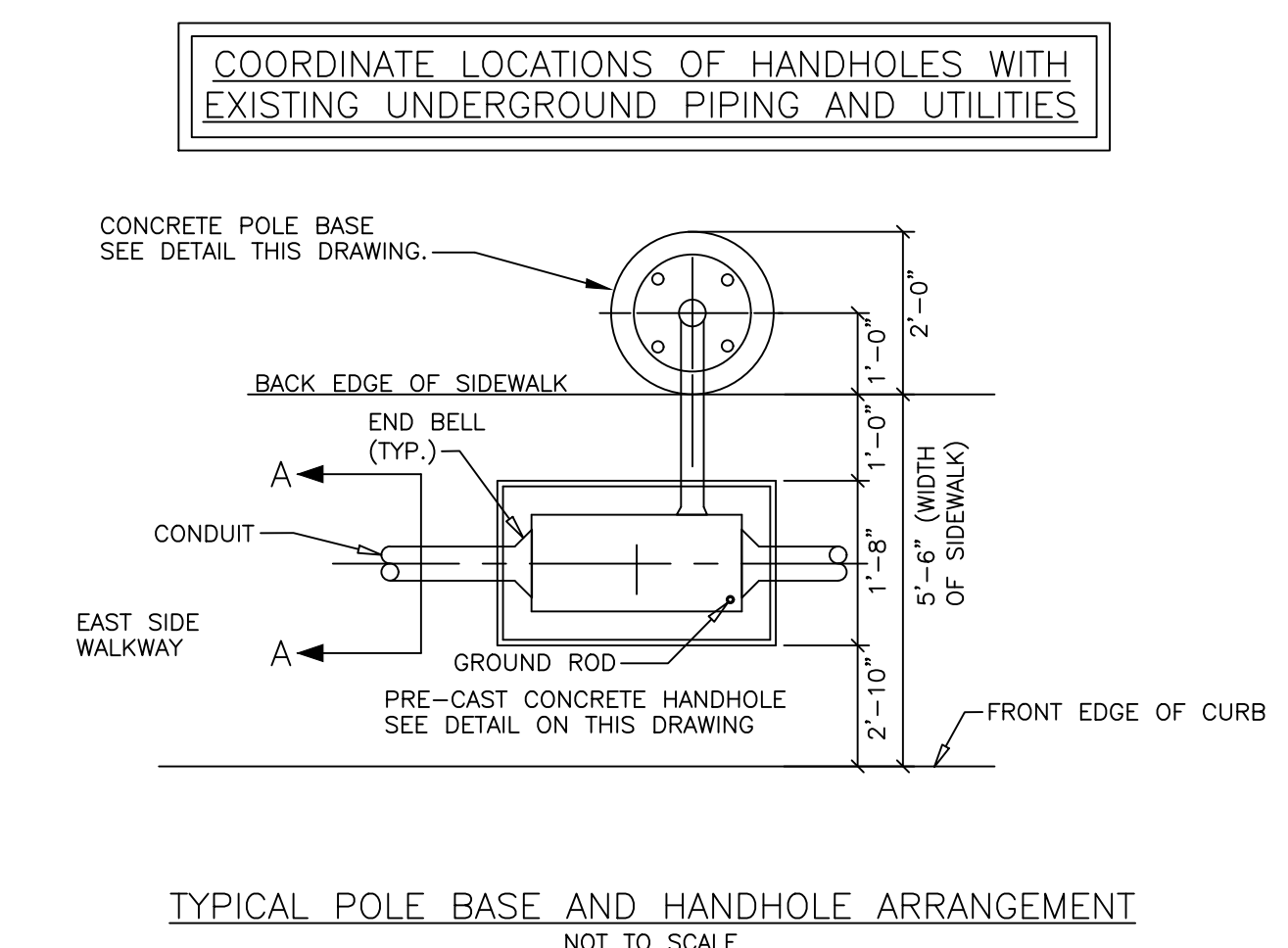
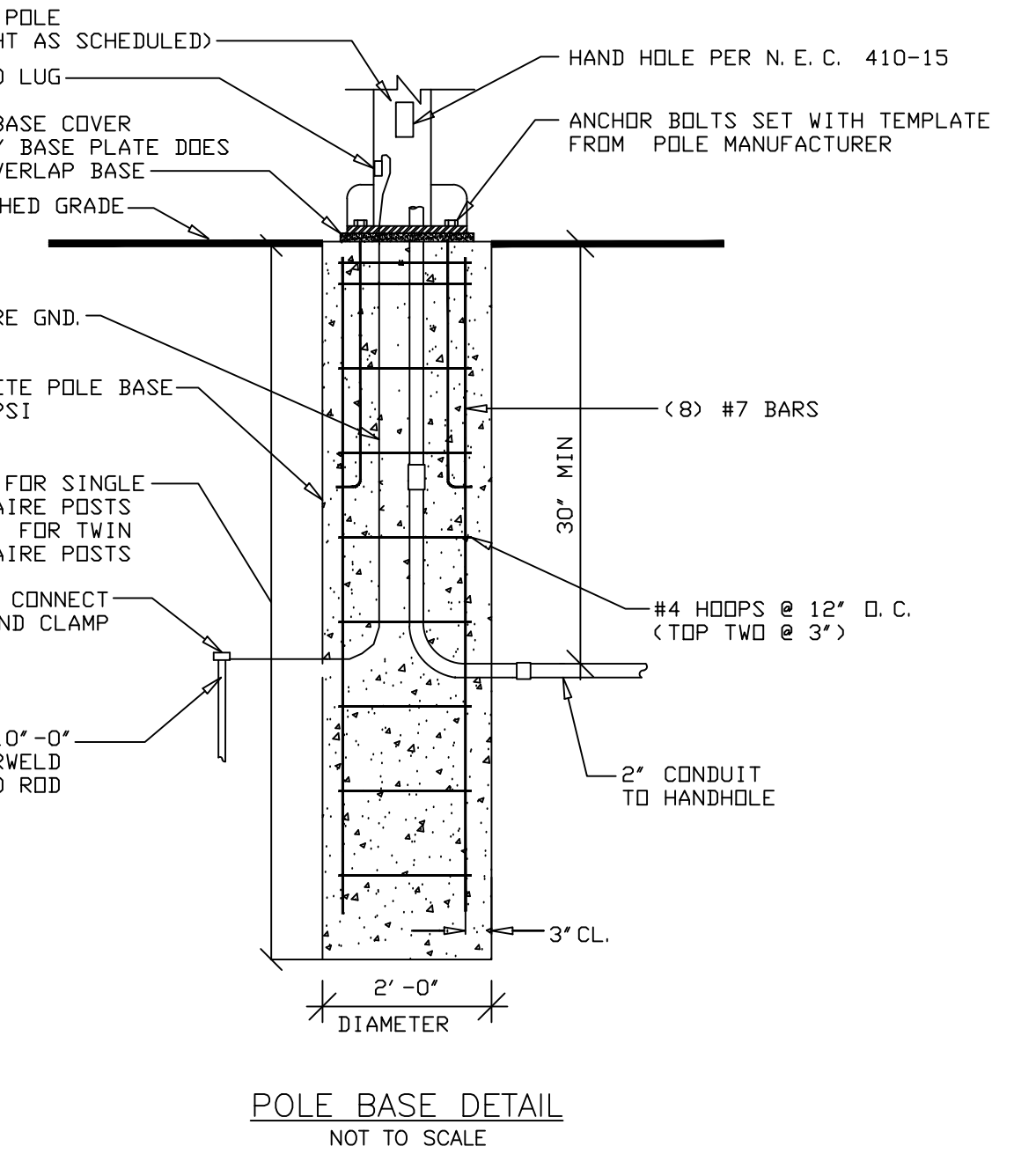
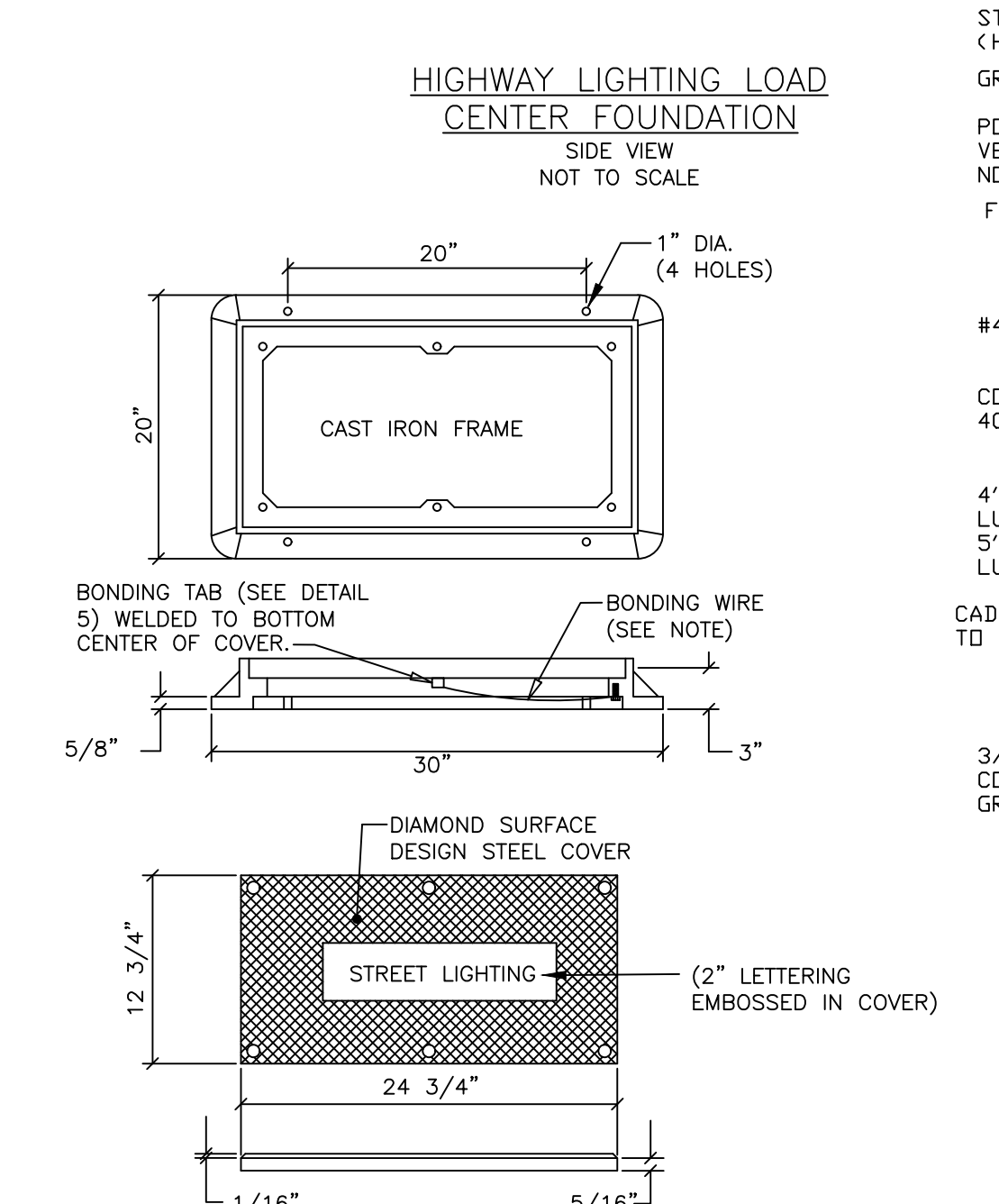
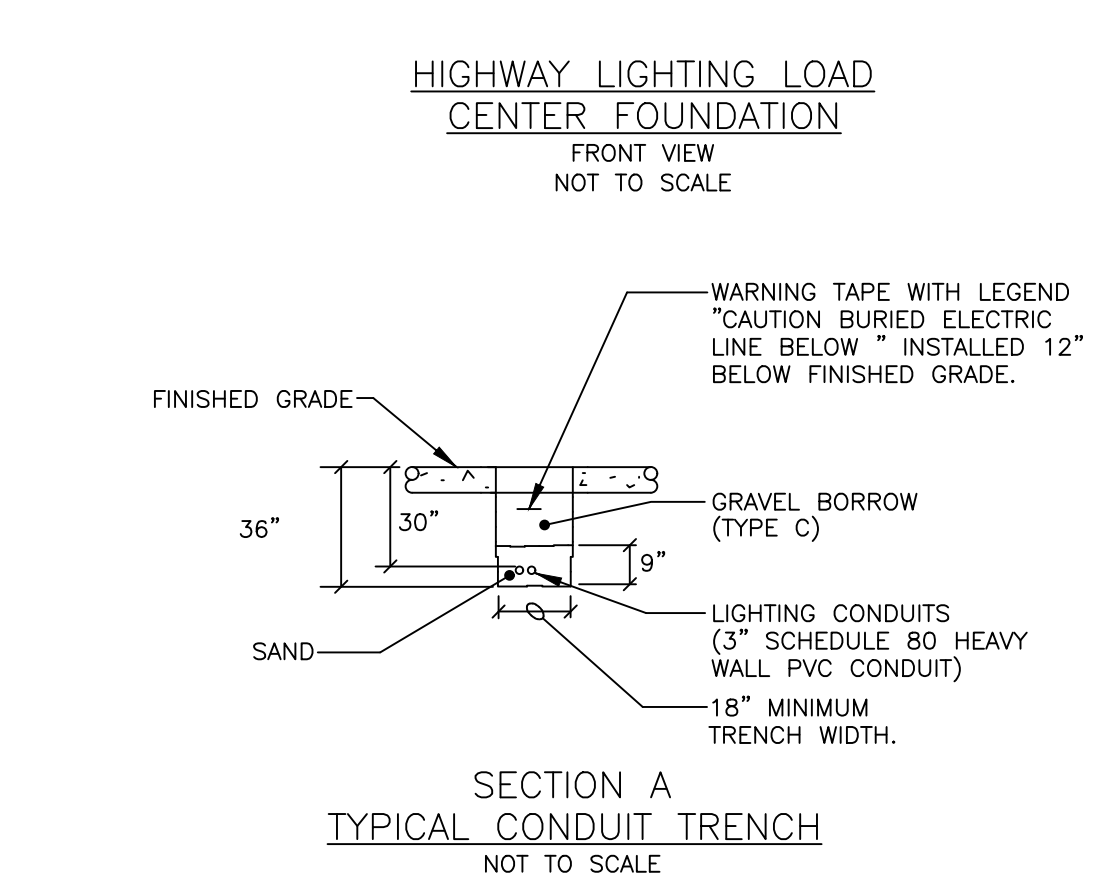
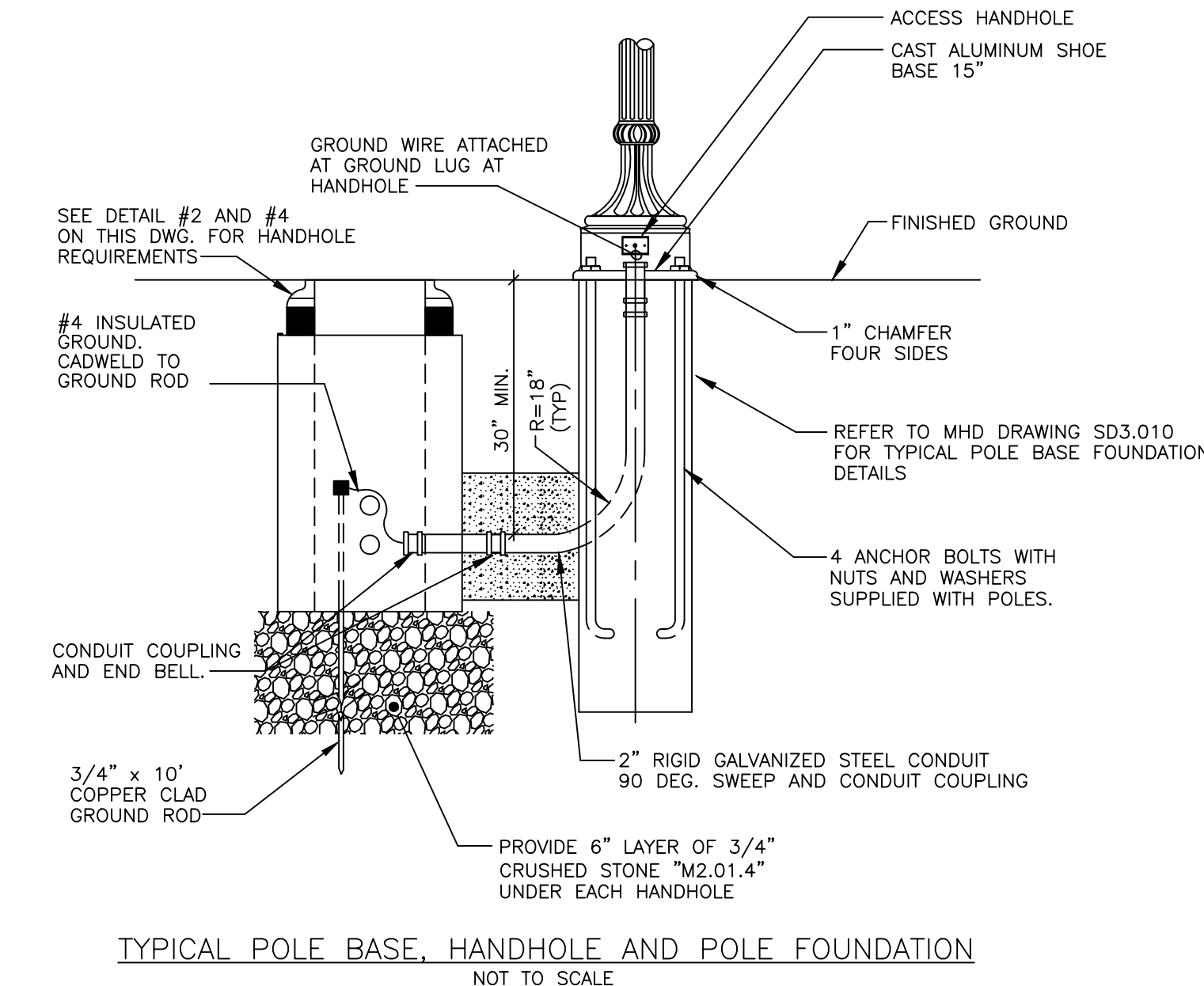
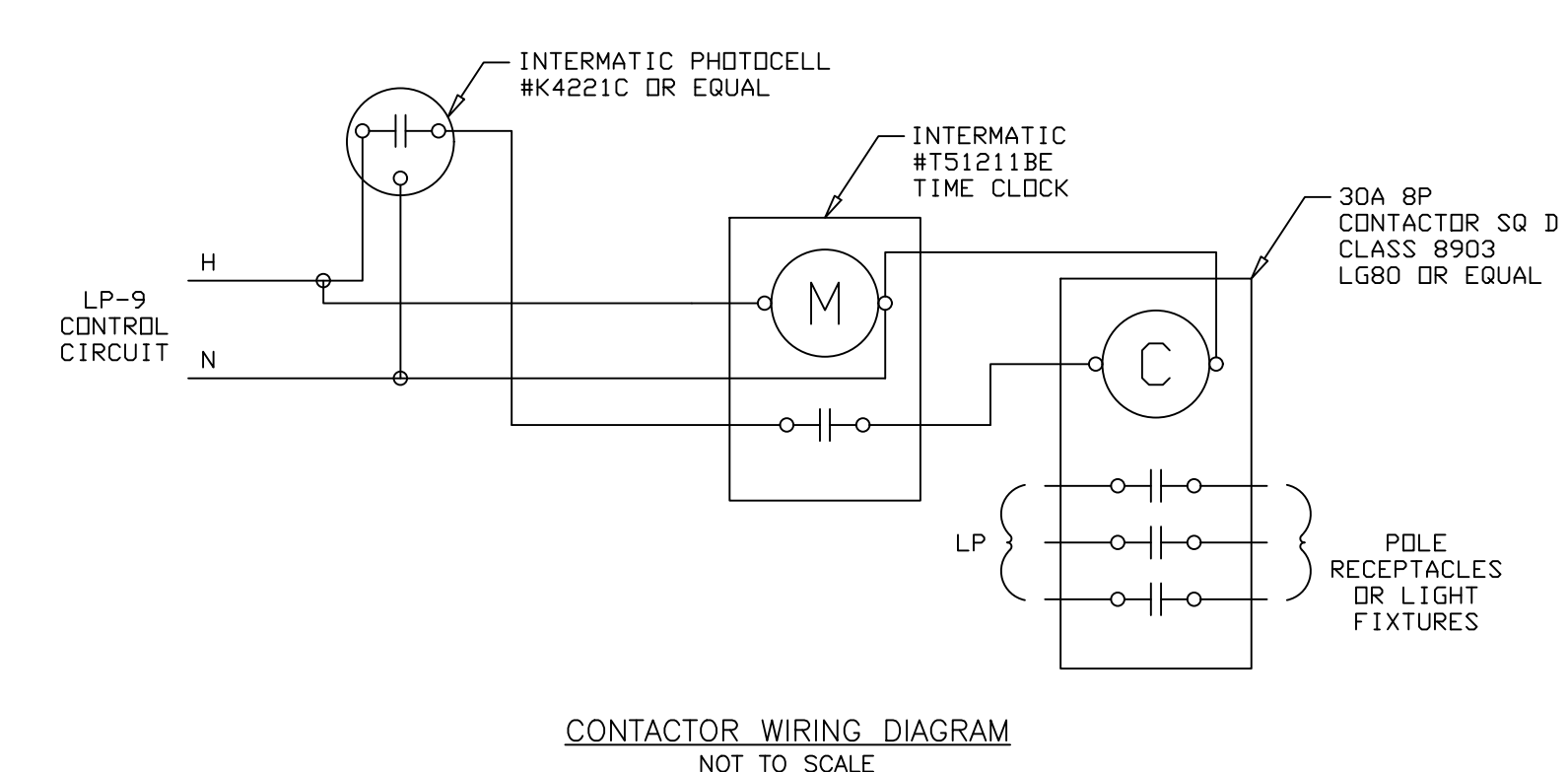
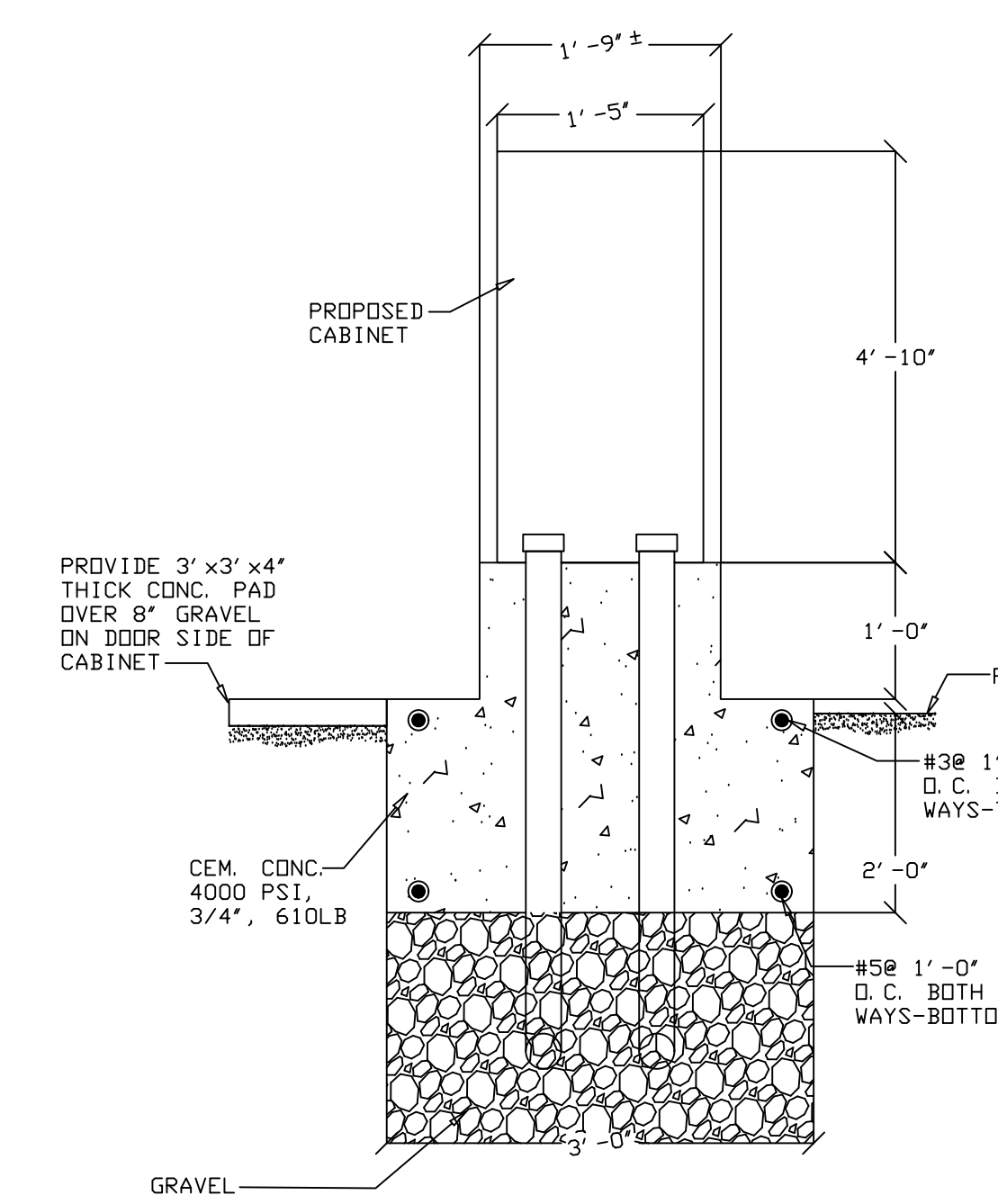
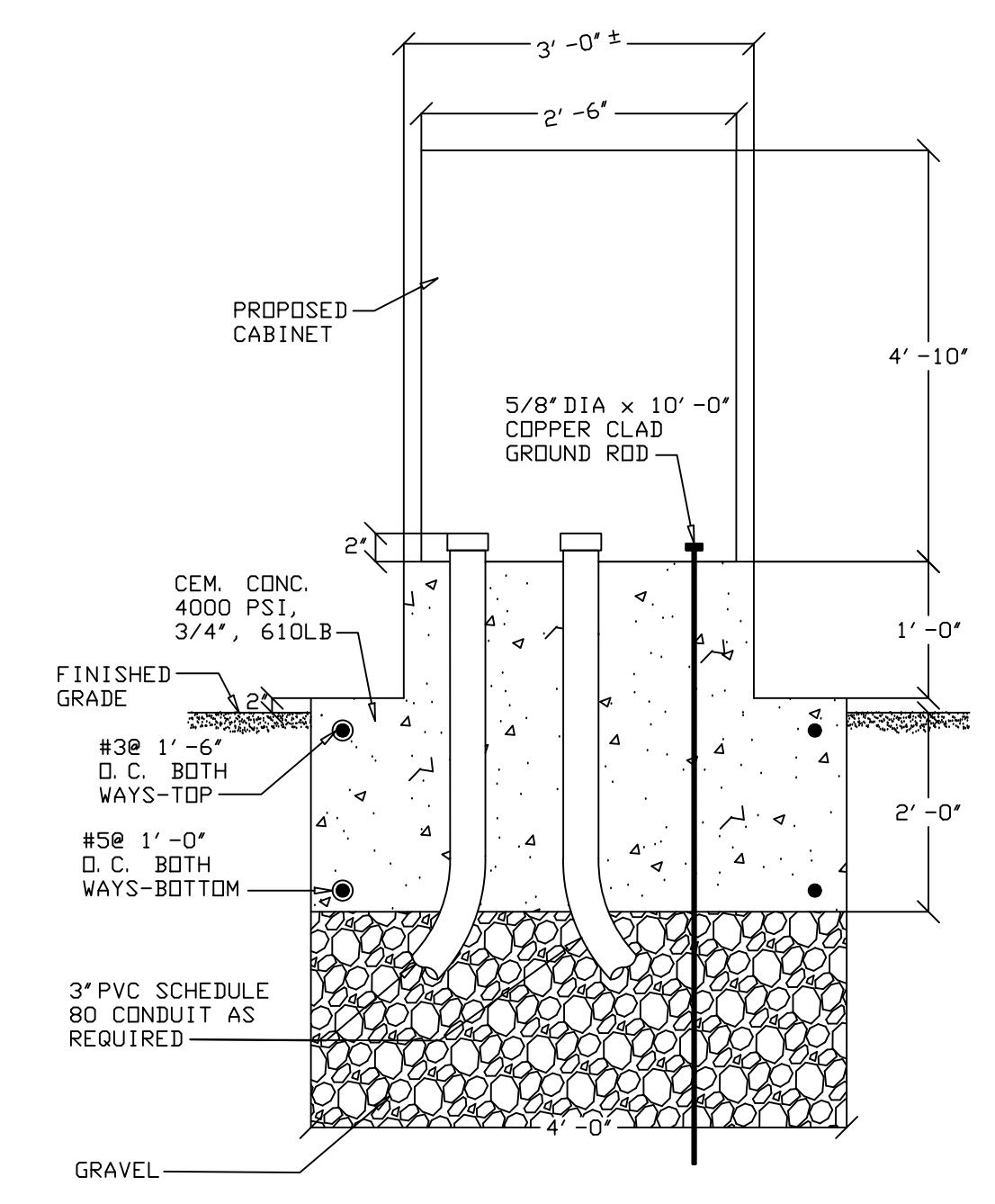
CONNECTED LOAD: 11,620 WATTS *HANDLE LOCKS!
44.25 AMPS
120/240 VOLTS 1P 3W
MAINS:

CKT NO	DESCRIPTION	CONNECTED LOAD		CKT BKR	DESCRIPTION
		WATTS	AMPS		
1	4 LIGHTS (B)	340	20	1	(4) POLE RECEP
3	5 LIGHTS (B)	425	20	1	(6) TREE RECEP
5	4 LIGHTS (A)	480	20	1	(5) POLE RECEP
7	4 LIGHTS (A)	480	20	1	(6) TREE RECEP
9	CONTROL CIRCUIT	100	20	1	(5) POLE RECEP
11	CAB. LTG & RECEP	250	20	1	(5) POLE RECEP
13	3 LIGHTS (A)	360	20	1	(4) POLE RECEP
15	3 LIGHTS (A)	360	20	1	(5) TREE RECEP
17	4 LIGHTS (A)	480	20	1	(5) TREE RECEP
19	4 LIGHTS (A)	480	20	1	(5) POLE RECEP
21	4 LIGHTS (B)	340	20	1	(4) POLE RECEP
23	5 LIGHTS (B)	425	20	1	(2) TREE RECEP
25	SPARE	0	20	1	(5) TREE RECEP
27	SPARE	0	20	1	(5) TREE RECEP
29	SPARE	0	20	1	SPACE
31	SPACE	0	20	1	SPACE
33	SPACE	0	20	1	SPACE
35	SPACE	0	20	1	SPACE
TOTAL		5300	5820		

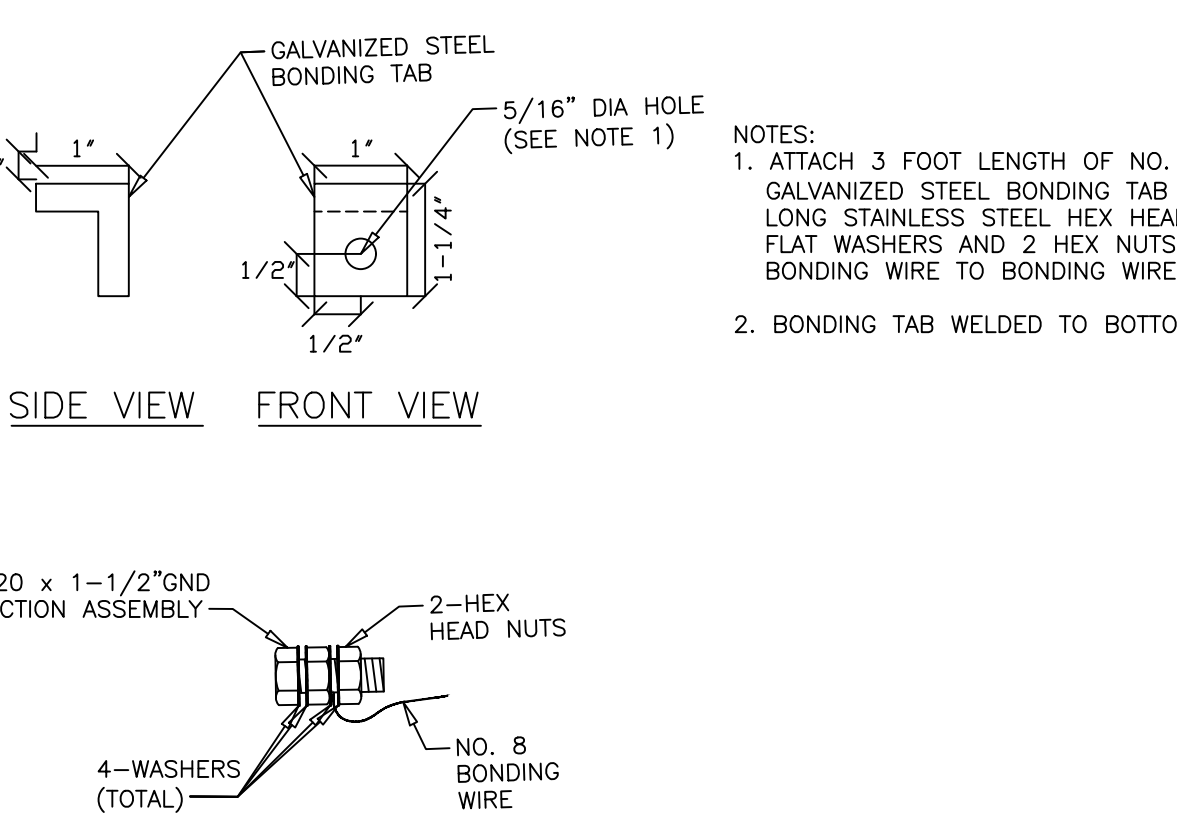
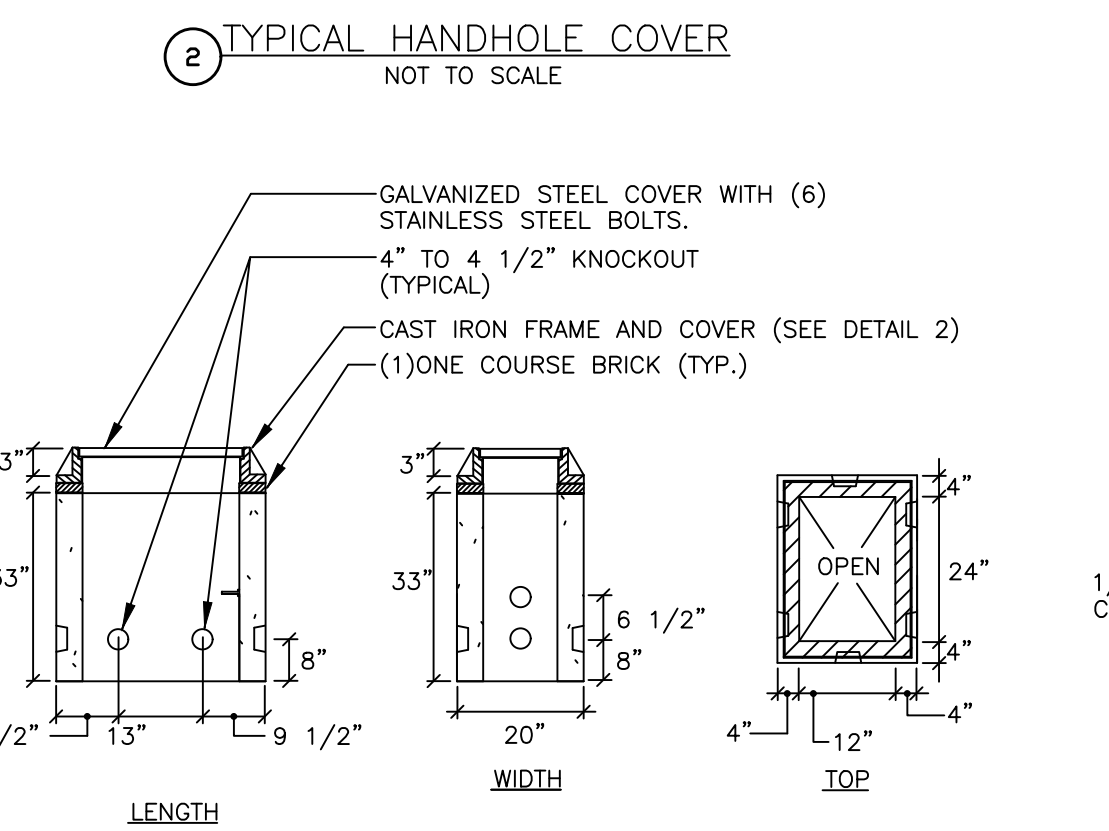
- WIRE SCHEDULE**
- 5#8 & 1#8GND. - 2" PVC
 - 5#6 & 1#6GND. - 2" PVC
 - 4#6 & 1#6GND. - 2" PVC
 - 6#6 & 1#6GND. - 2" PVC
 - 7#6 & 1#6GND. - 2" PVC
 - 4#8 & 1#8GND. - 2" PVC
 - 6#8 & 1#8GND. - 2" PVC
 - 2#6 & 1#6GND. - 2" PVC



CONTINUED ON SHEET NO. 91



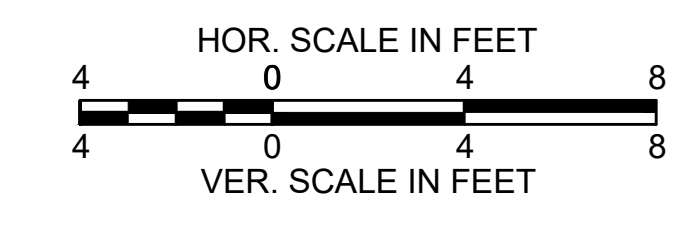
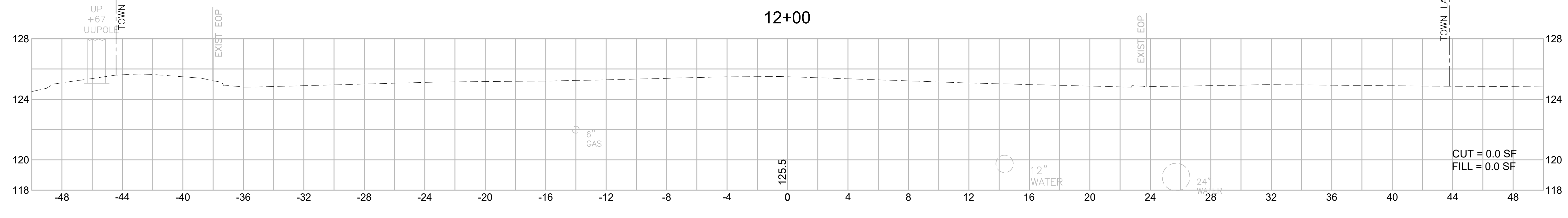
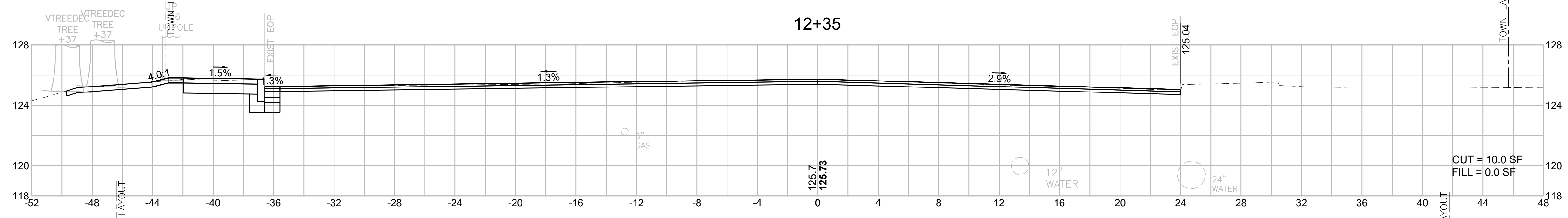
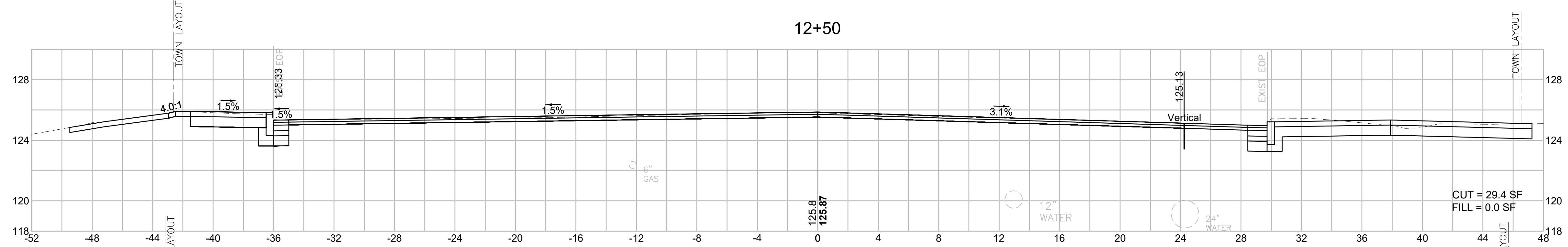
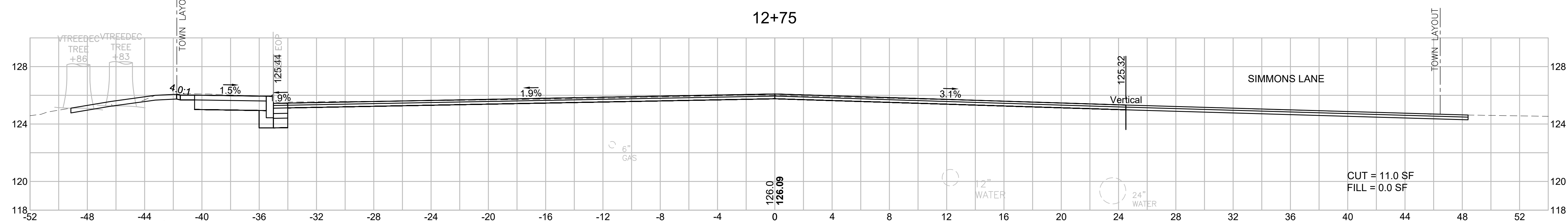
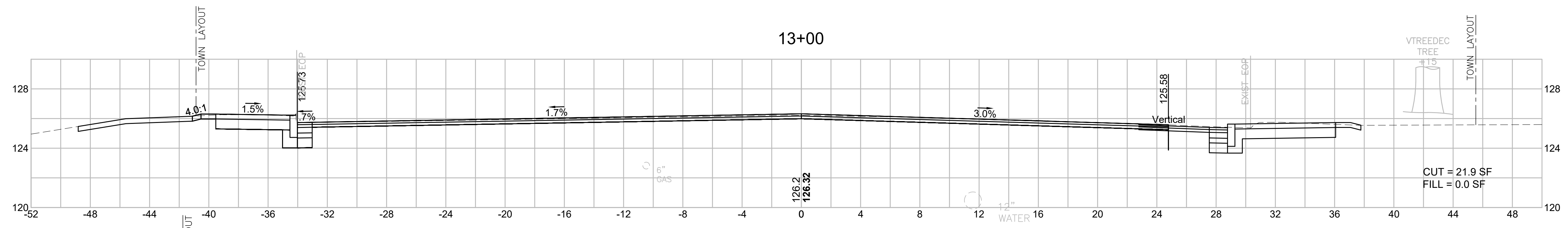
- | ITEM | MATERIAL DESCRIPTION |
|------|--|
| 1 | 3" DIA. GALV. STEEL CONDUIT 10' LENGTH 1 EA. |
| 2 | 3" DIA. GALV. STEEL BEND 36"-RAD. |
| 3 | 3" DIA. GALV. STEEL COUPLING |
| 4 | 3" DIA. STEEL TO PVC ADAPTER |
| 5 | 3" DIA. STEEL STRAP 4 EA. |
| 6 | #6 AWG, BARE COPPER WIRE & MOUNDING |
| 7 | 5/8" x 10' COPPERWELDED GROUND ROD |
| 8 | INSULATED GROUNDING BUSHING |
| 9 | GROUND ROD CLAMP |
| 10 | 4" FIBERGLASS U-DUCT |



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	98	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

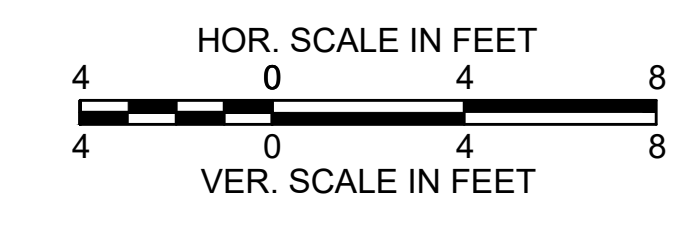
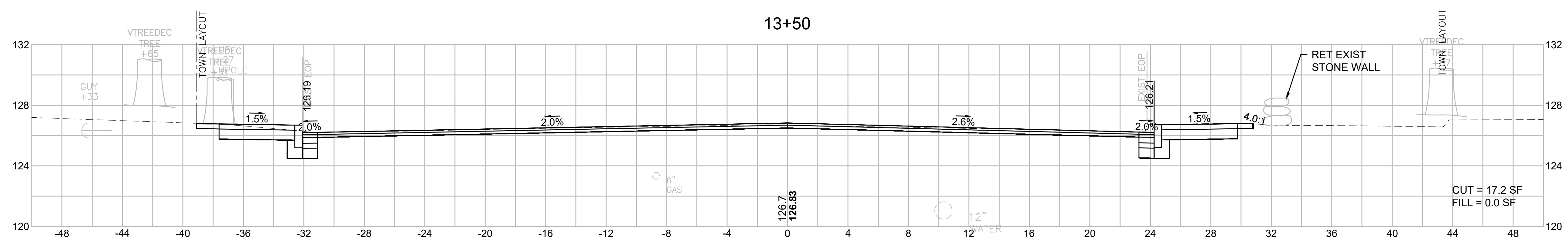
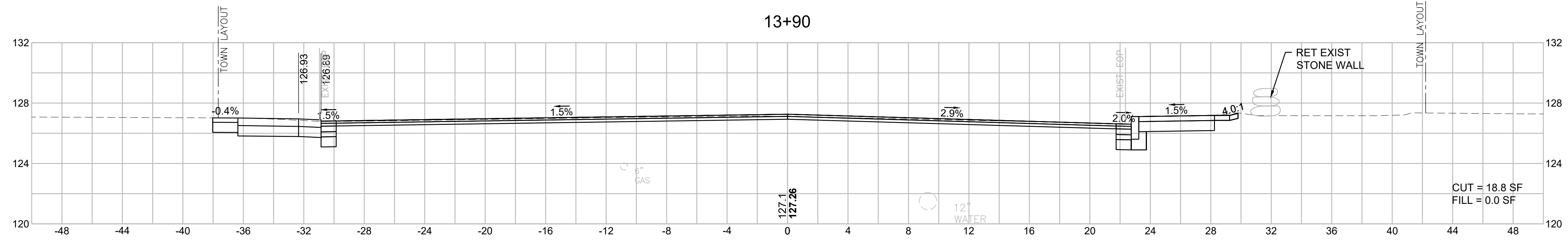
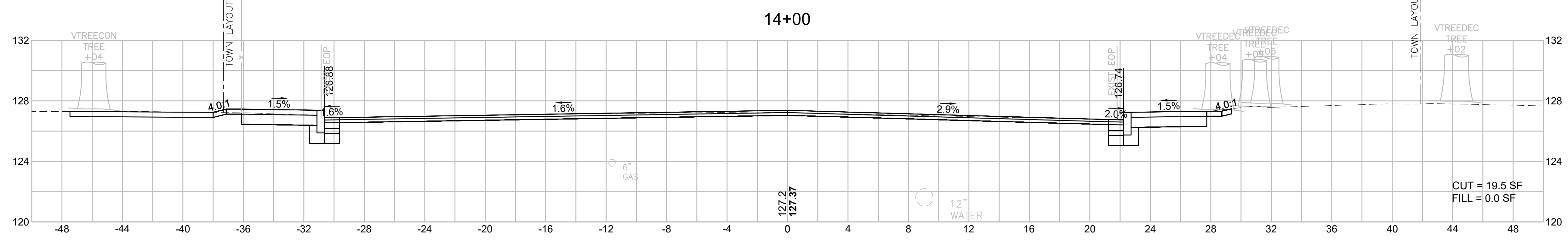
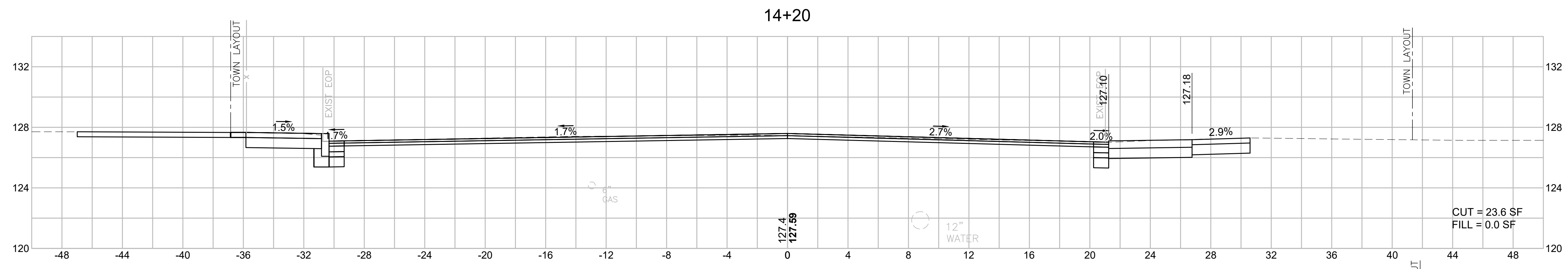


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	99	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Plotted on: 2-Aug-21 8:22 PM

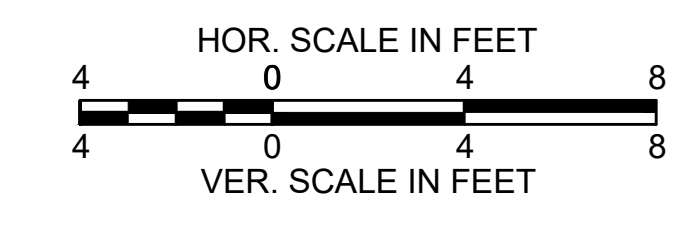
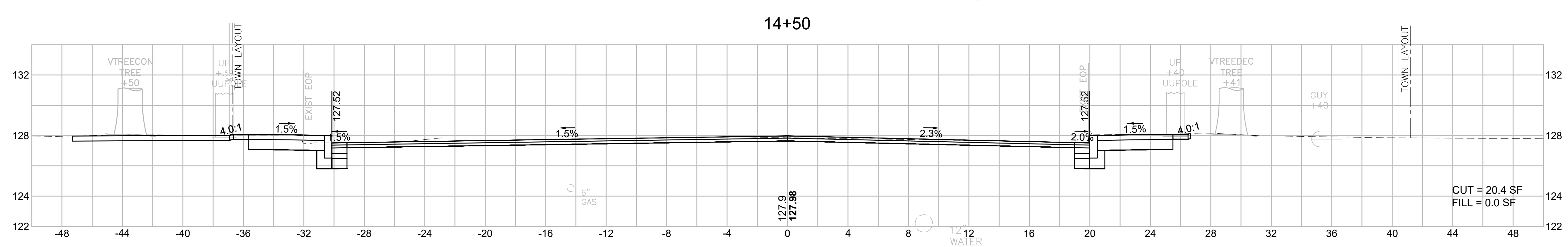
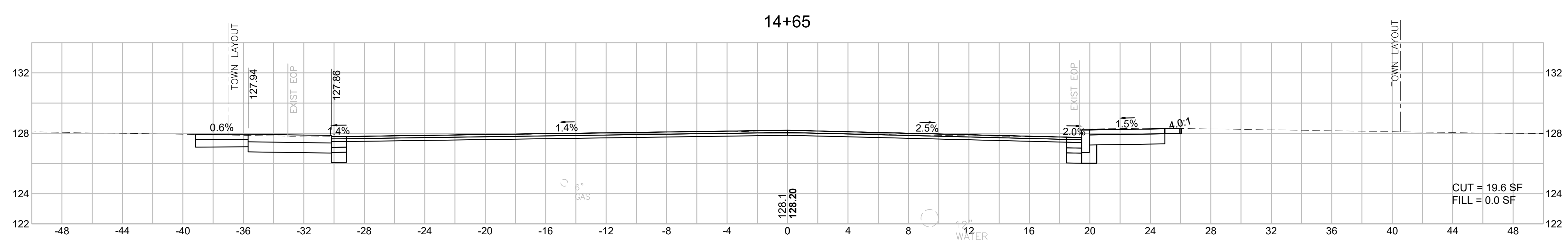
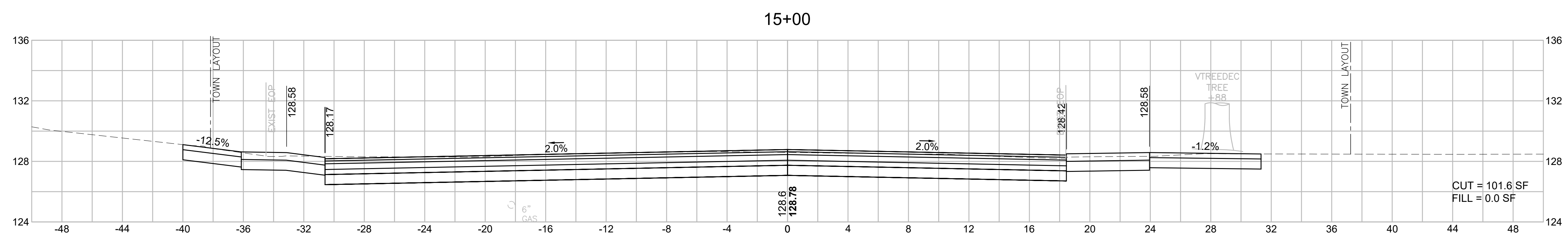
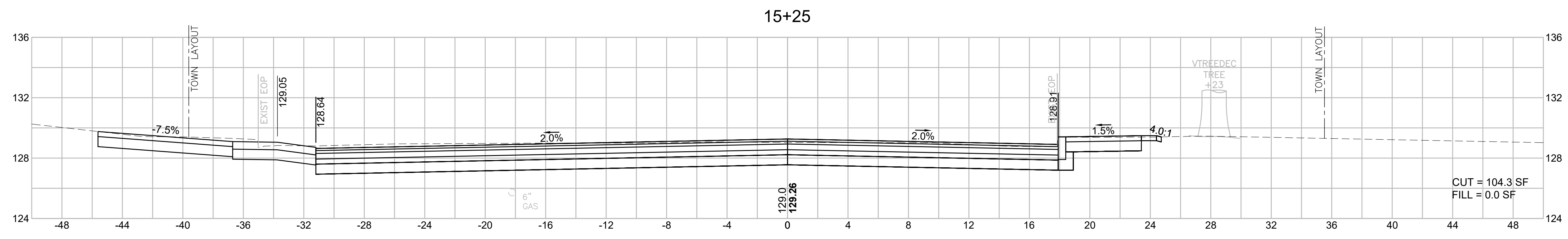


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	100	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Plotted on 2-Aug-21 8:28 PM

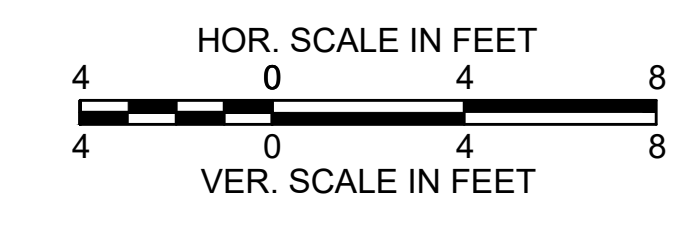
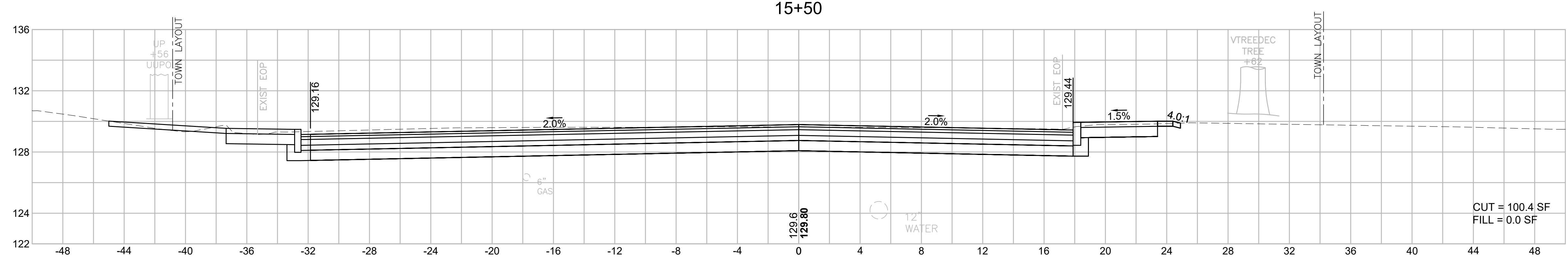
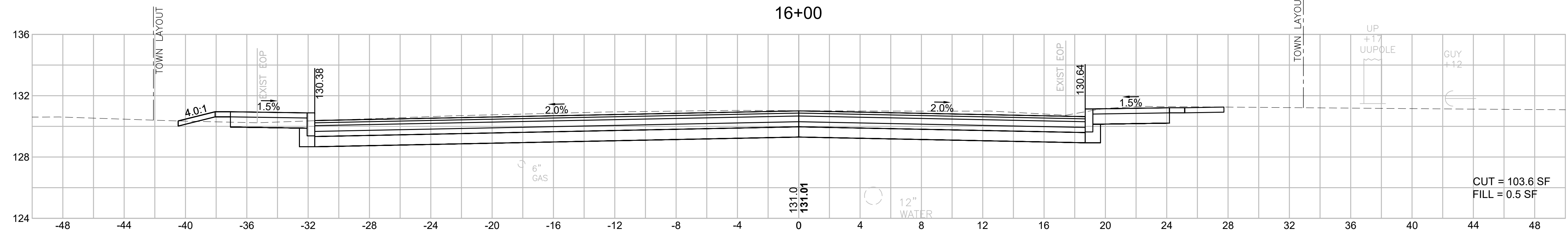
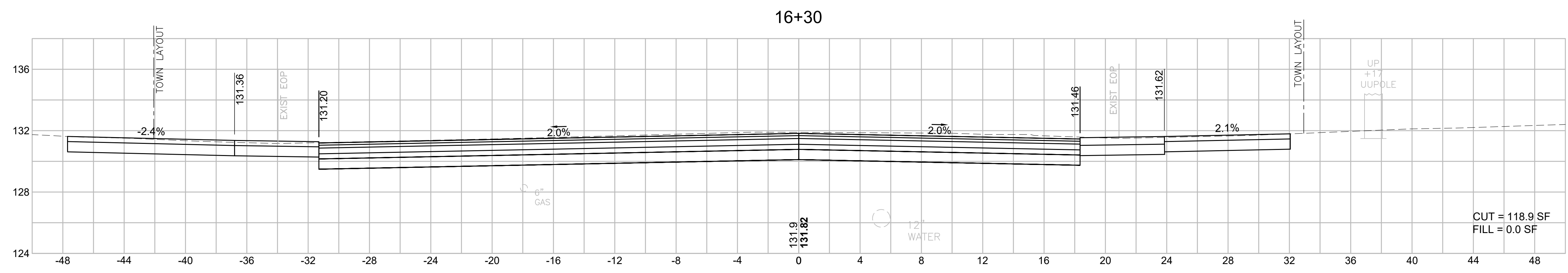
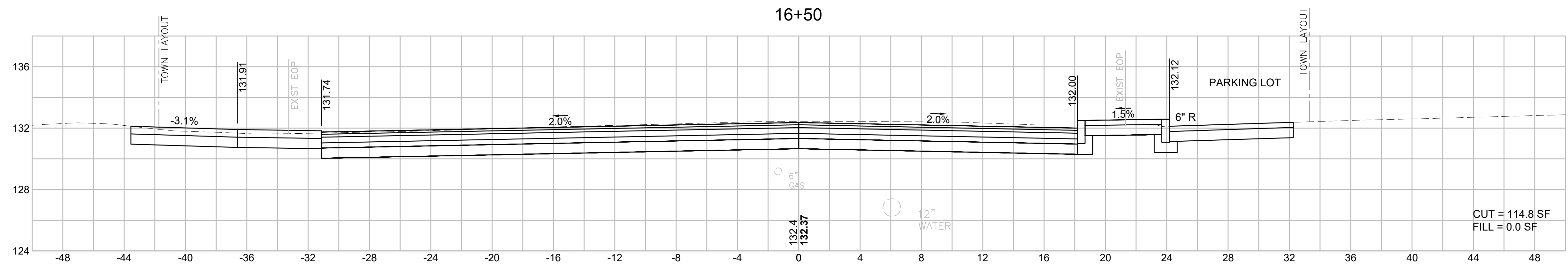


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	101	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Plotted on: 2-Aug-21 8:28 PM

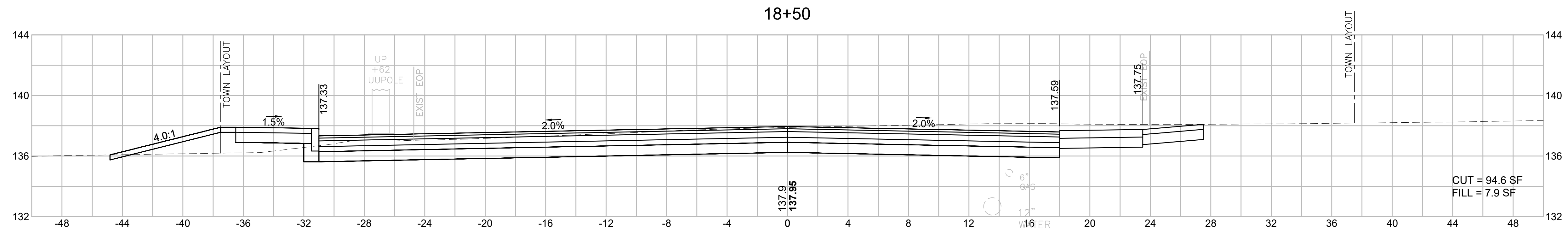


BILLERICA
BOSTON ROAD (ROUTE 3A)

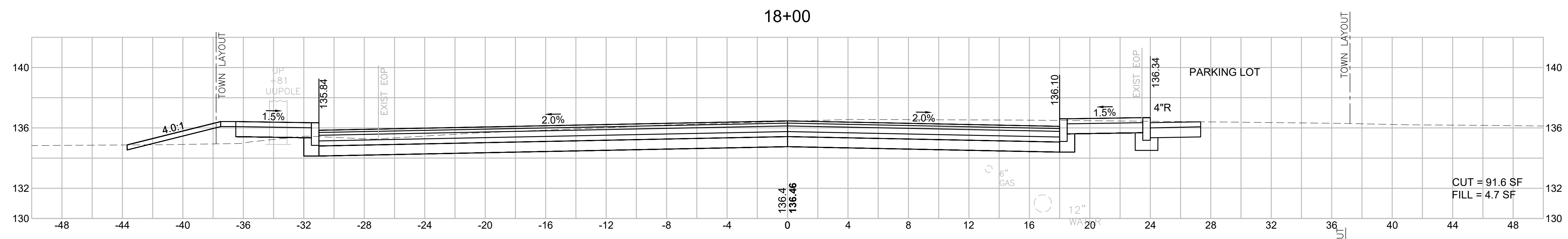
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	102	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

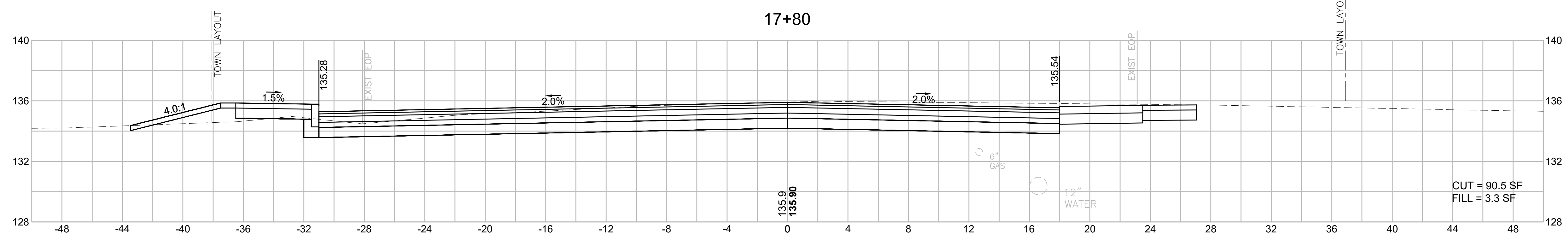
605178_HD(172)_XS-3A.DWG Printed on 2-Aug-21 8:28 PM



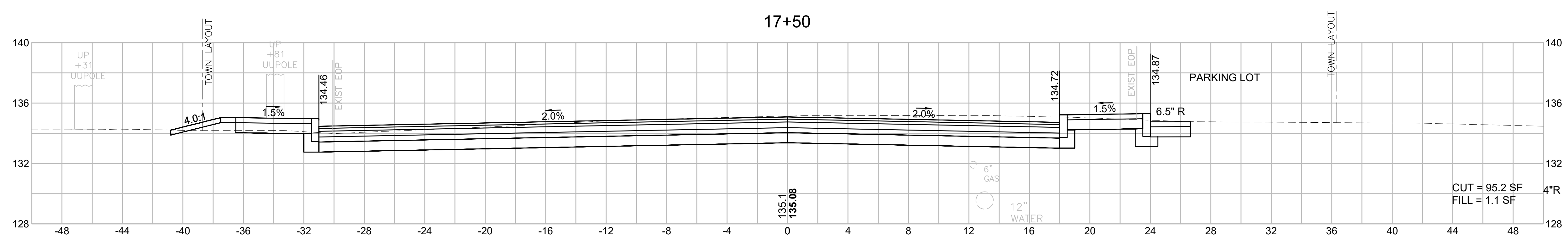
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FILL = 7.9 SF



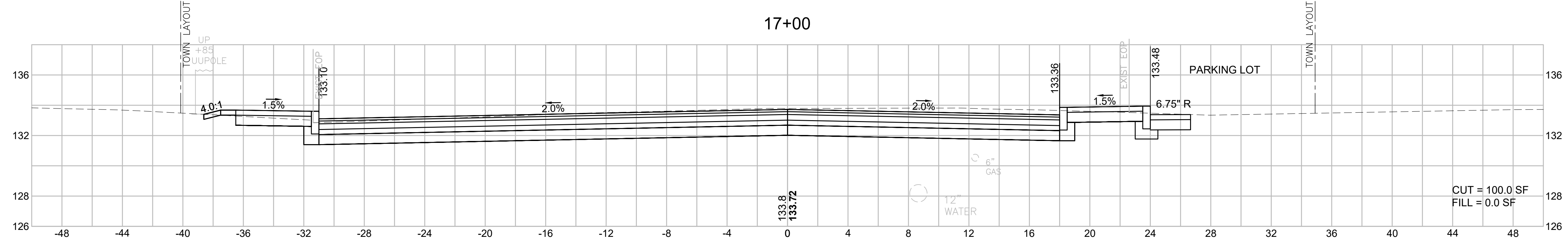
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FILL = 4.7 SF



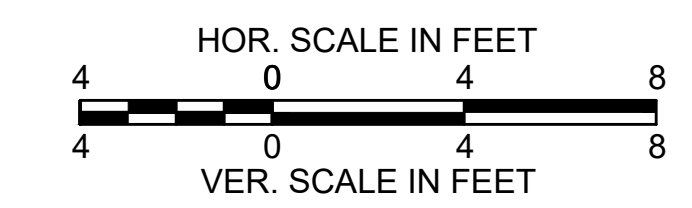
CUT = 90.5 SF
FILL = 3.3 SF



CUT = 95.2 SF
FILL = 1.1 SF



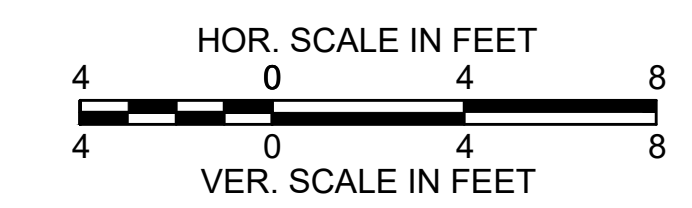
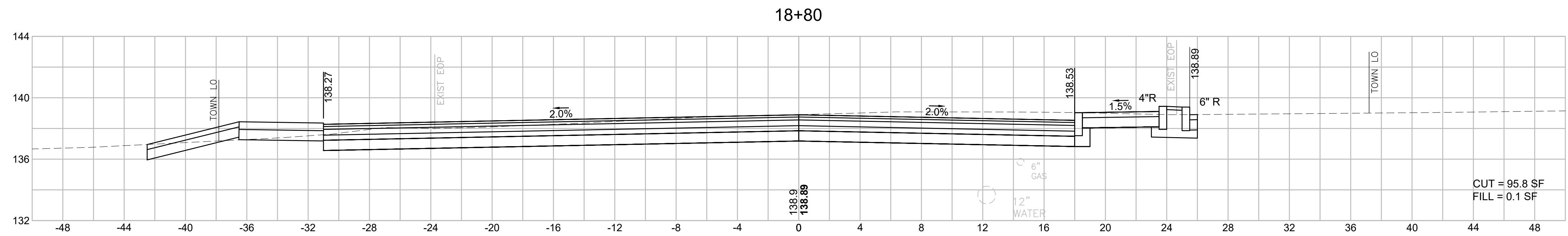
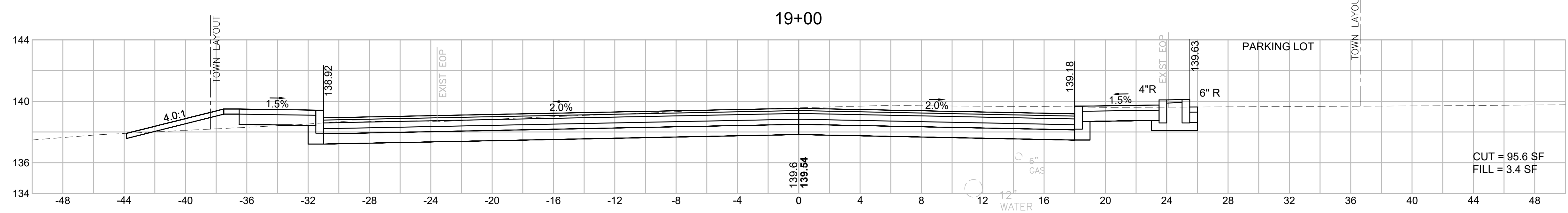
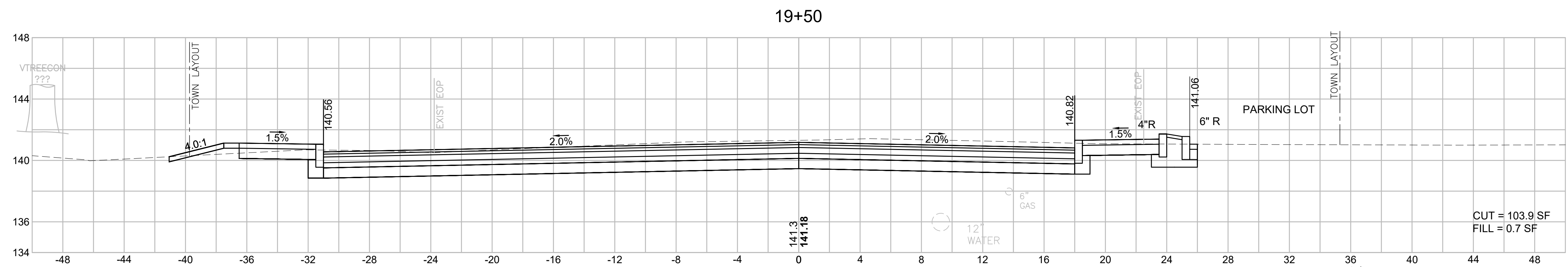
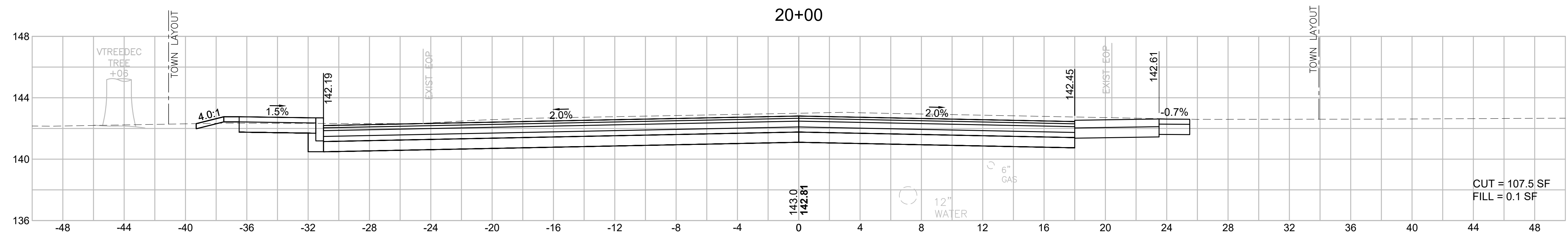
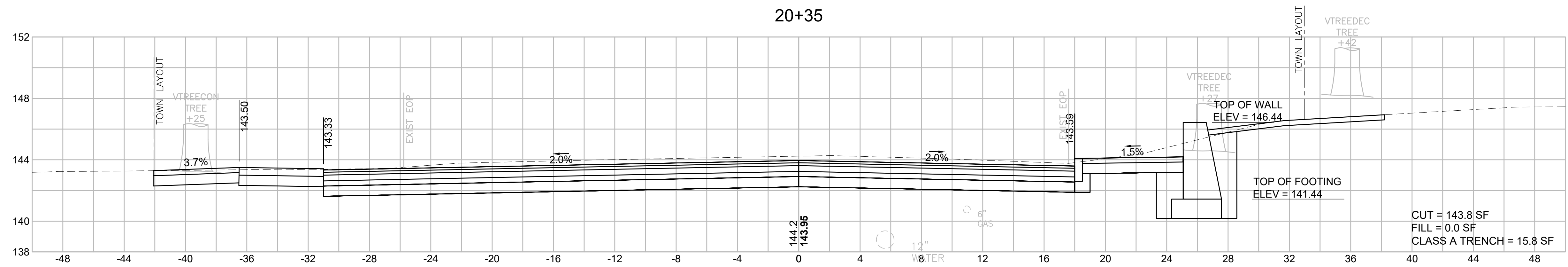
CUT = 100.0 SF
FILL = 0.0 SF



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	103	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

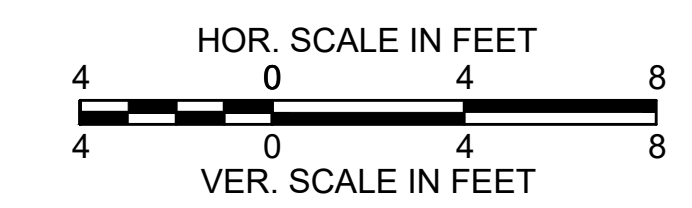
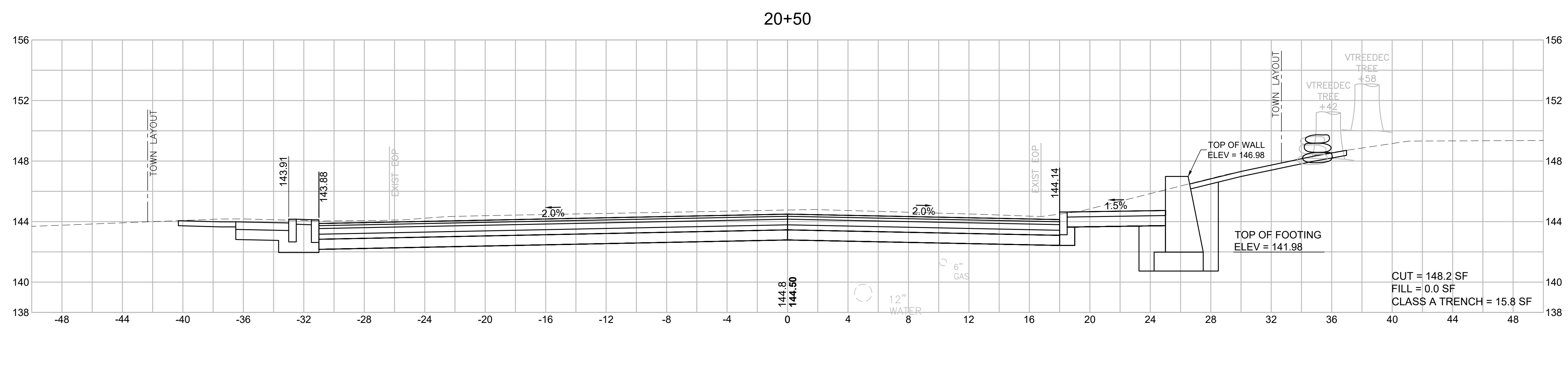
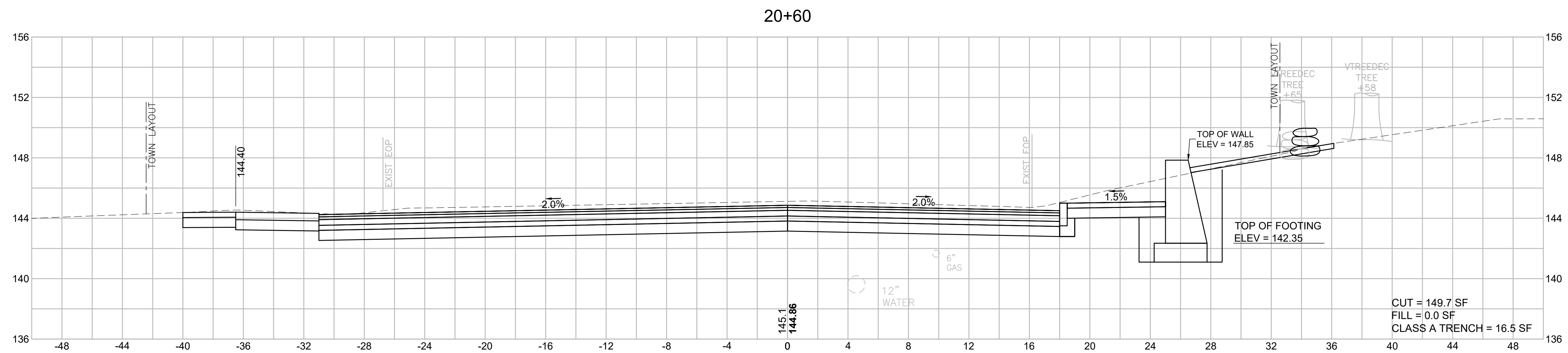
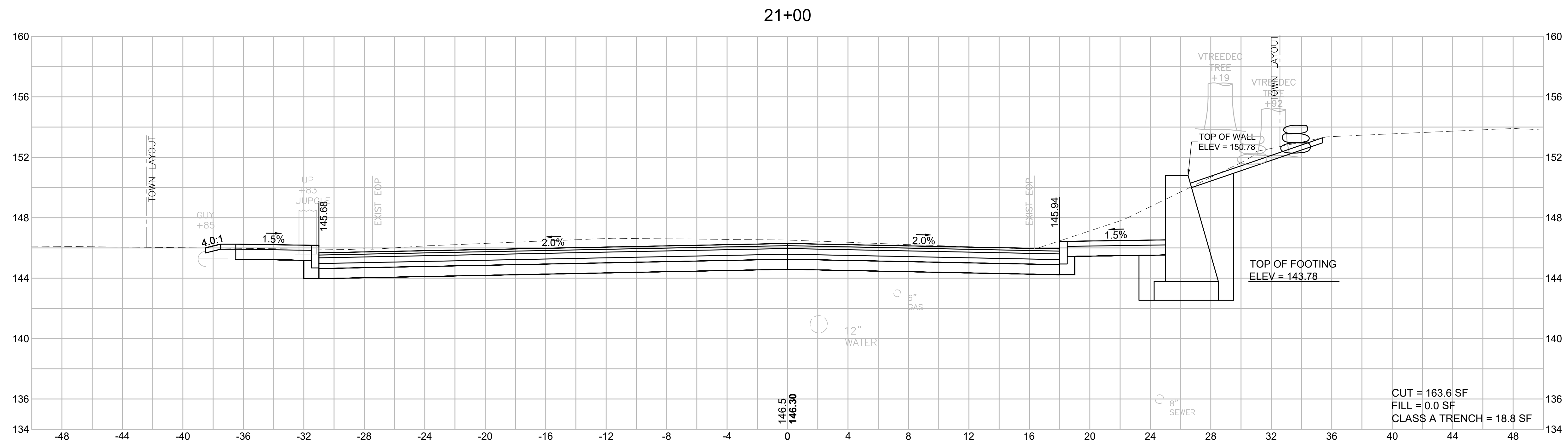


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	104	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Plotted on 2-Aug-21 8:24 PM

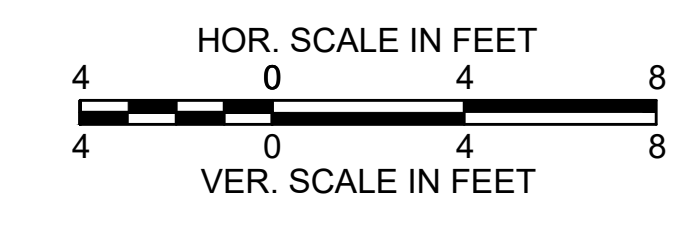
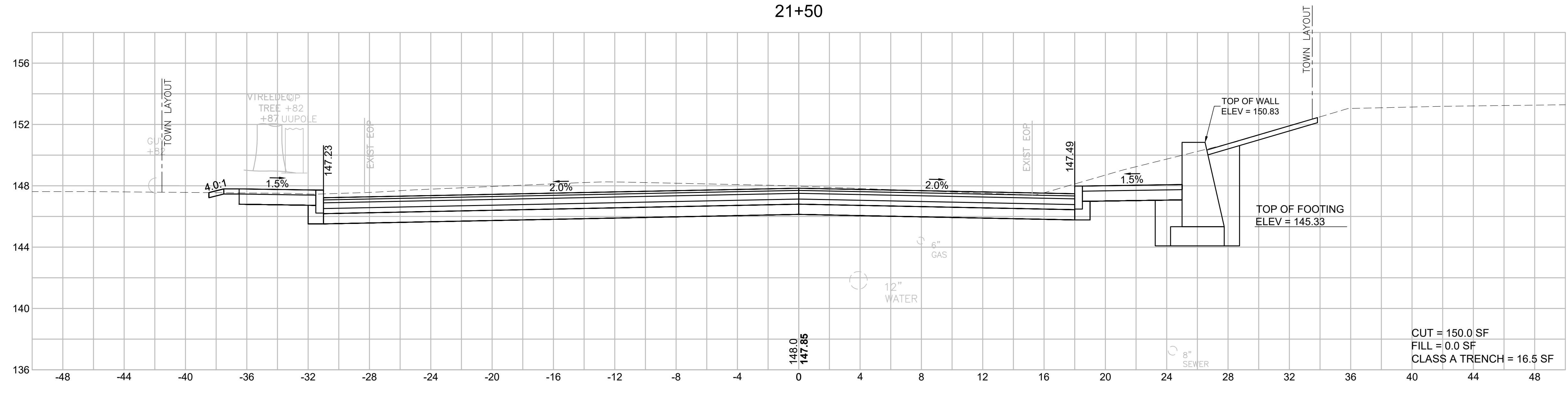
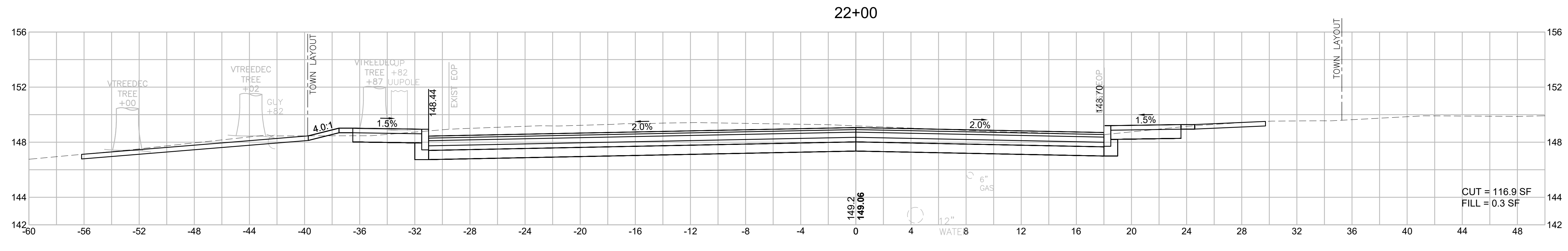
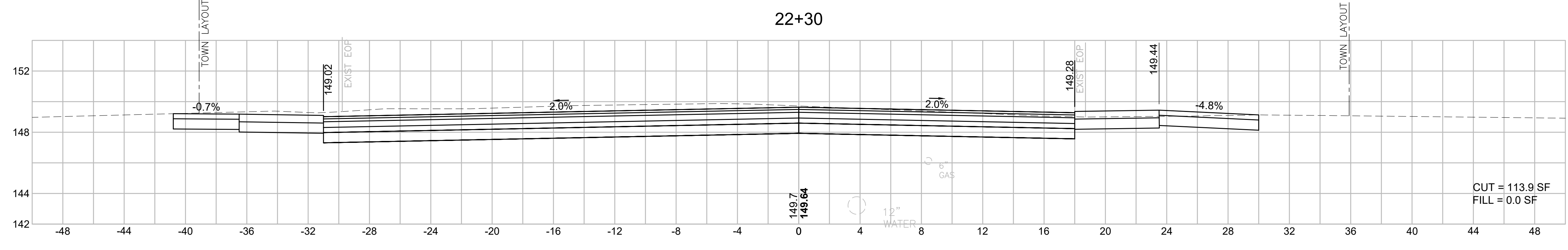
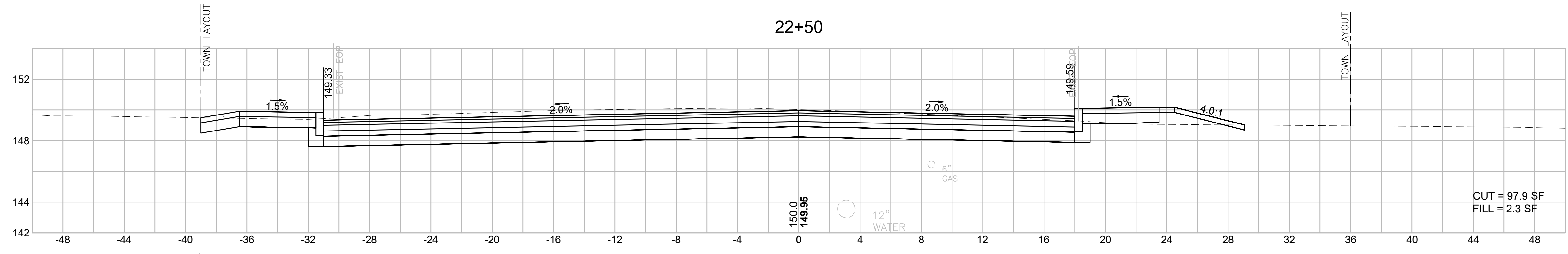


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	105	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(472)_XS-3A.DWG Plotted on 2-Aug-21 8:24 PM

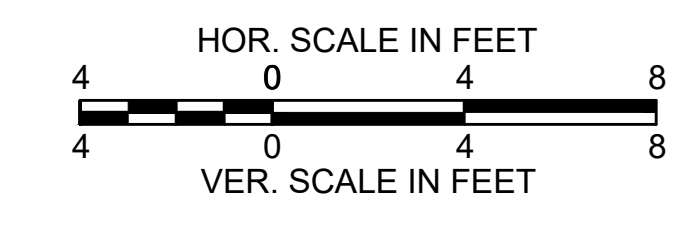
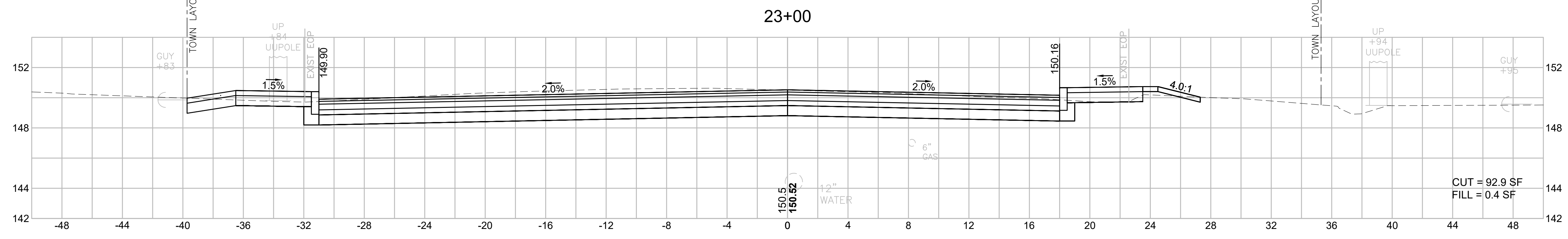
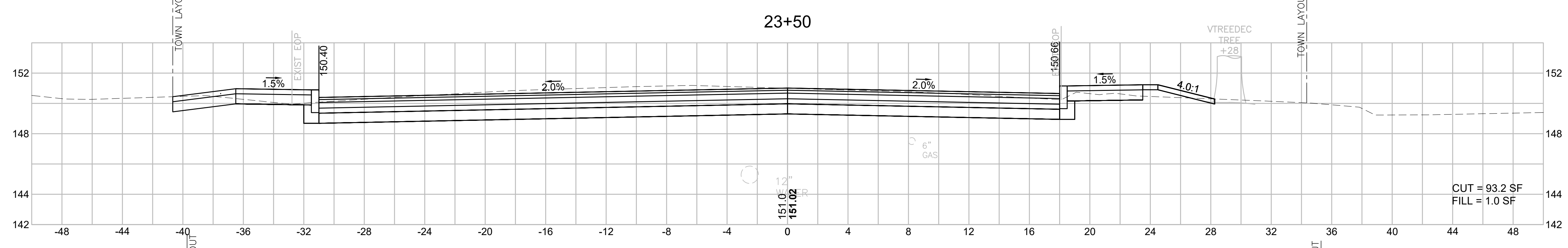
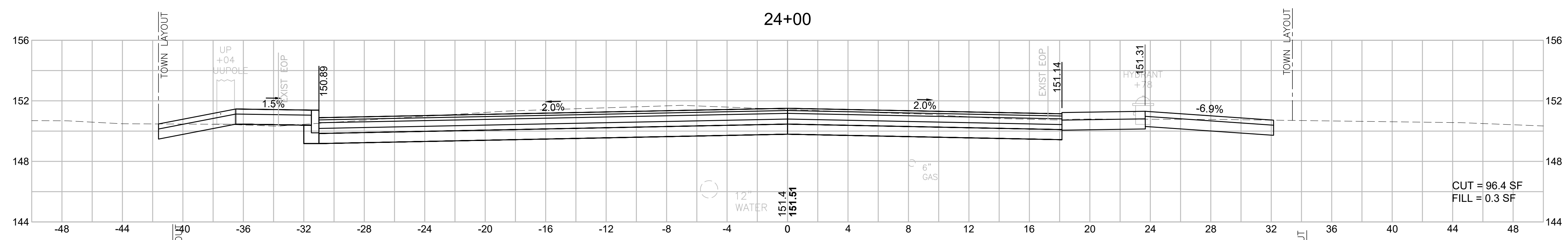
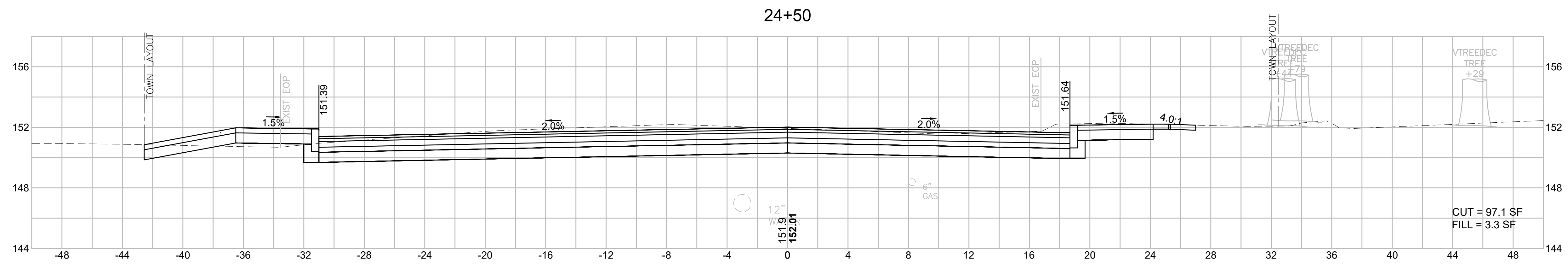


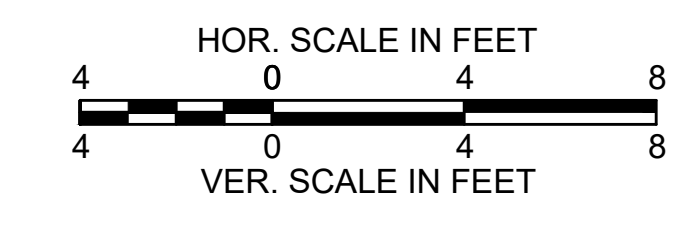
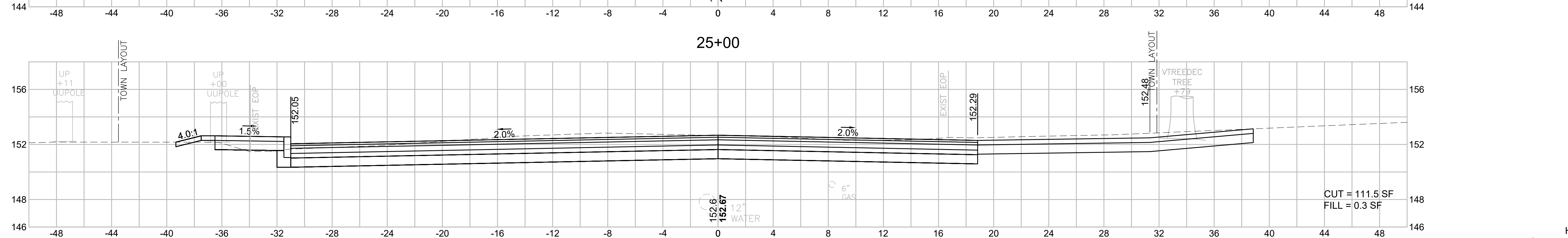
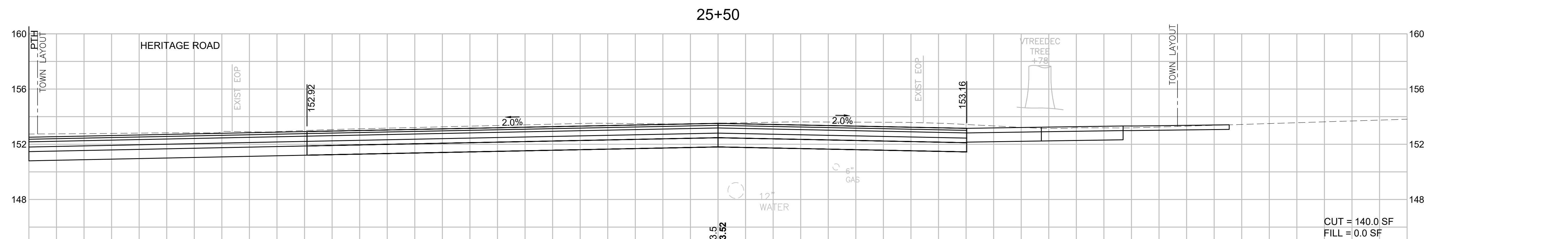
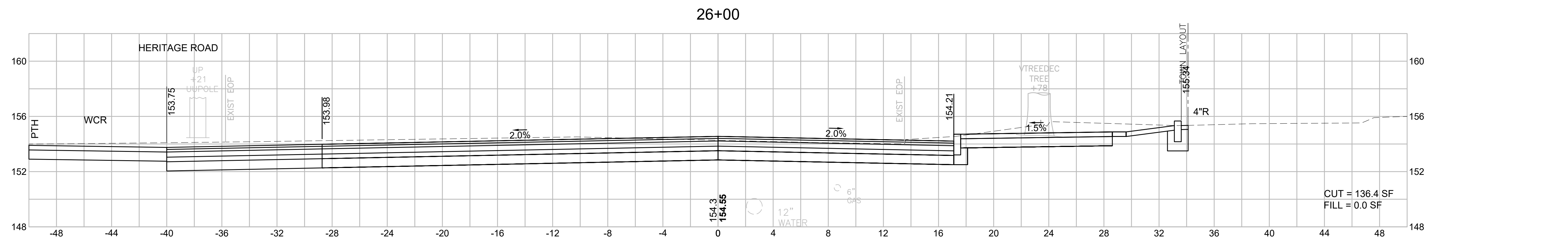
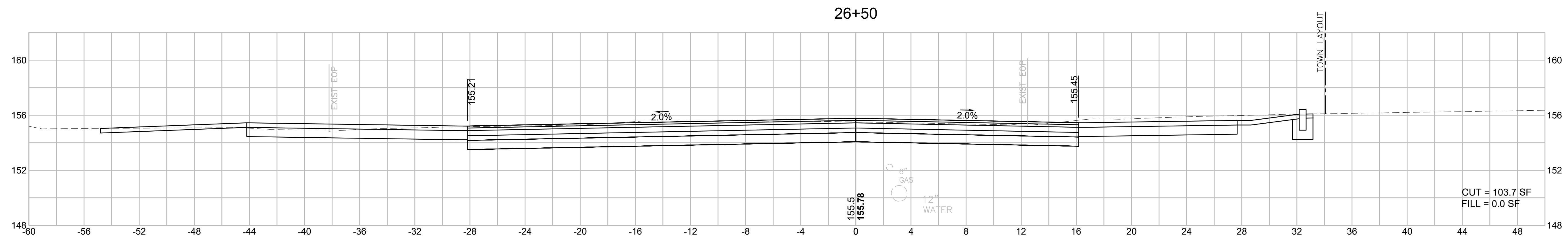
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	106	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(722_XS-3A).DWG Plotted on 2-Aug-21 8:24 PM





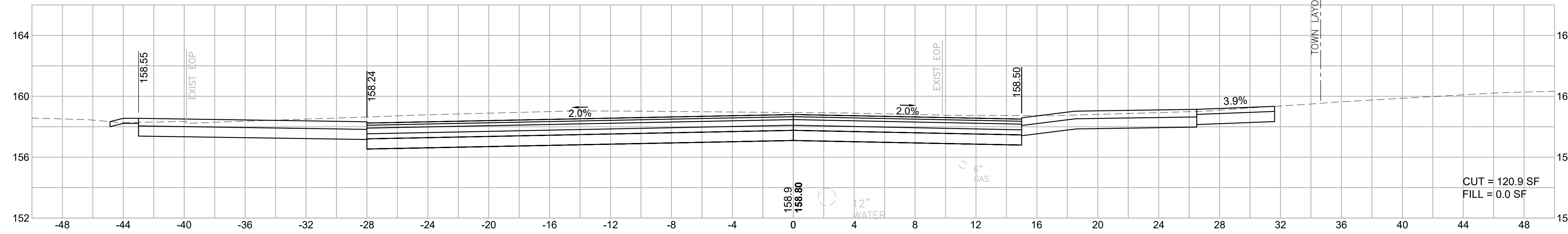
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	108	139
PROJECT FILE NO.		605178	

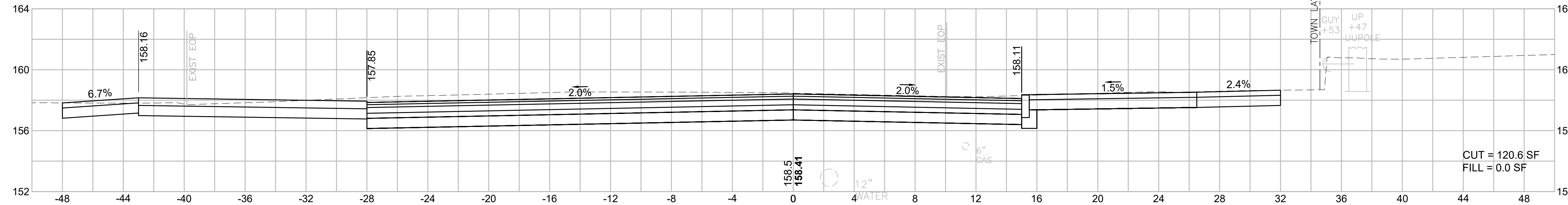
CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(722_XS-3A).DWG Printed on 2-Aug-21 8:26 PM

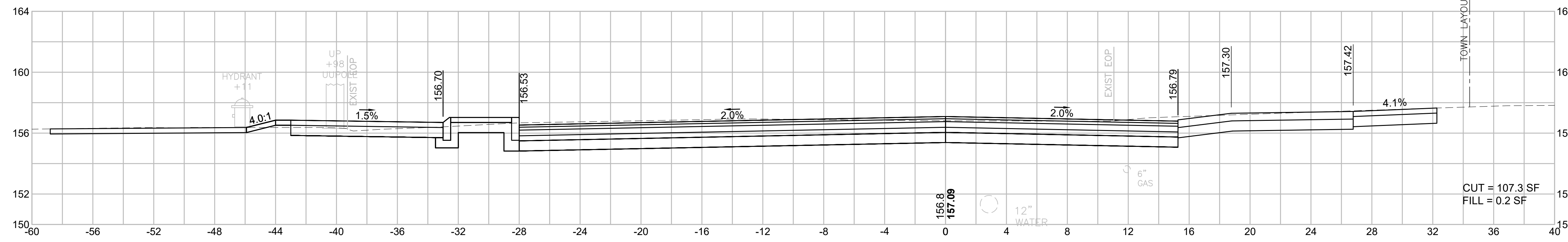
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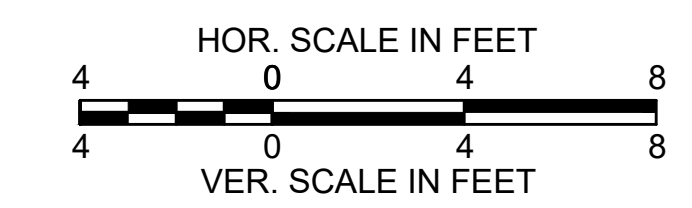
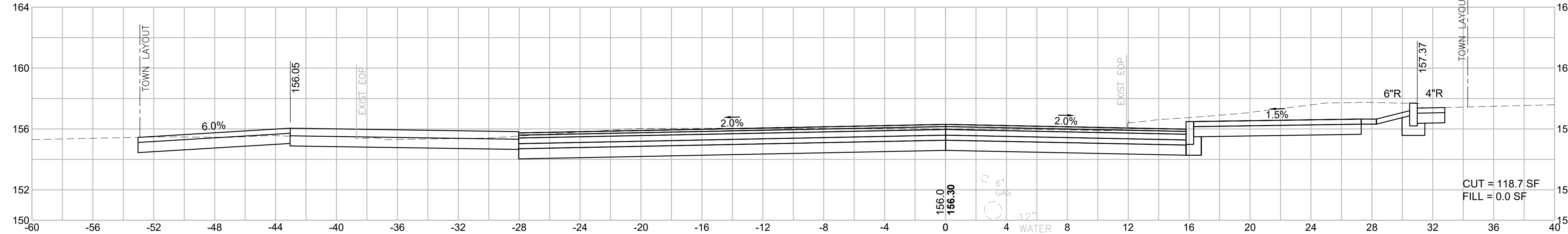
27+50



27+00



26+70

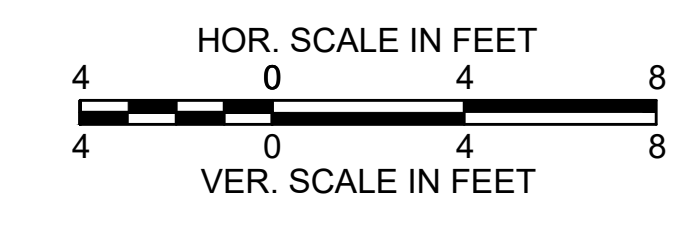
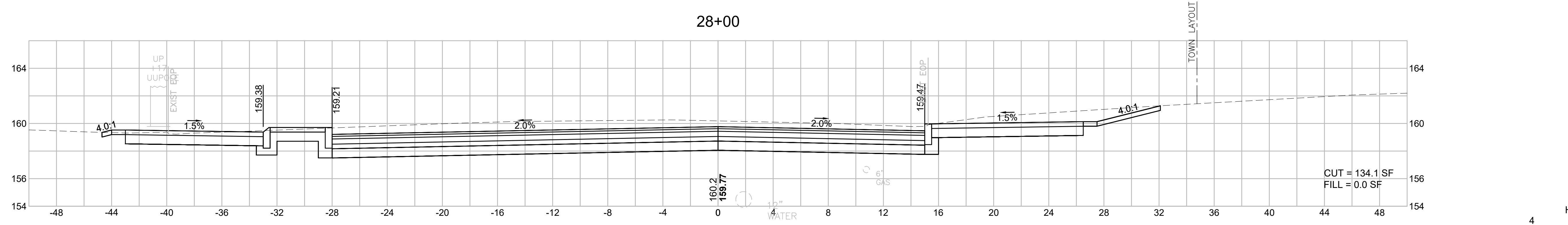
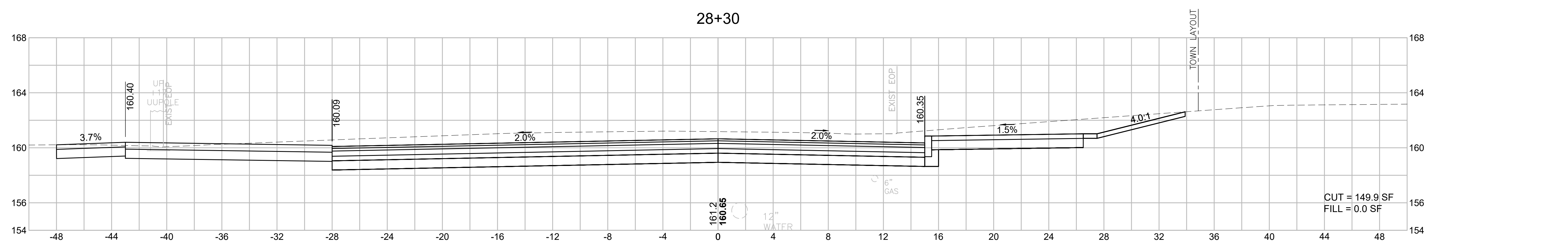
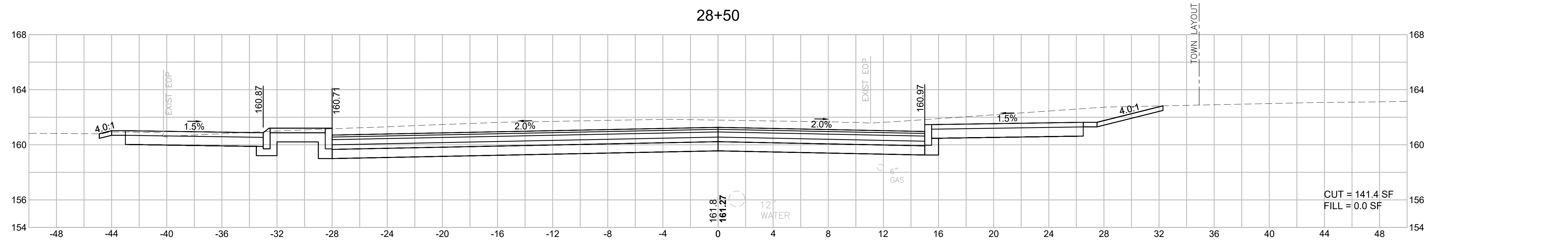
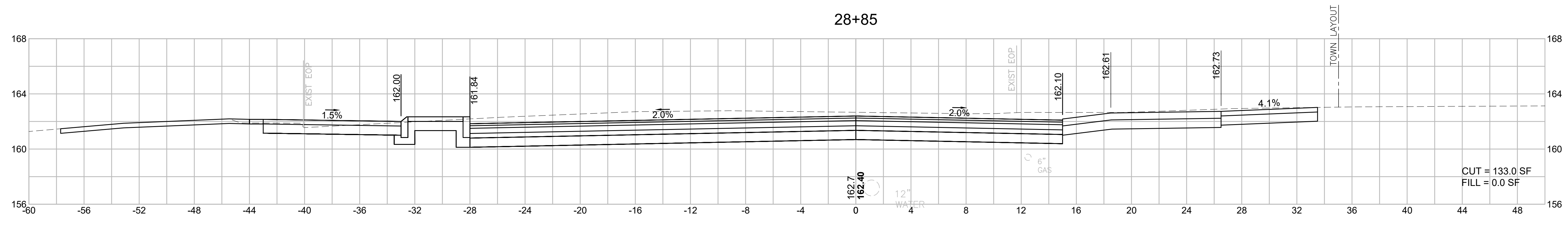


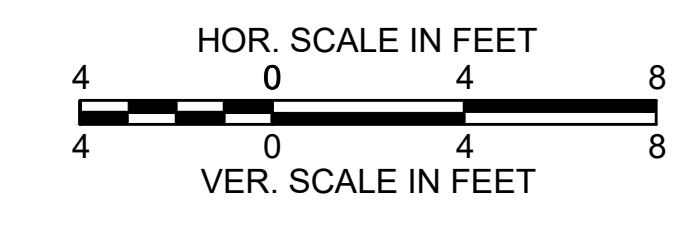
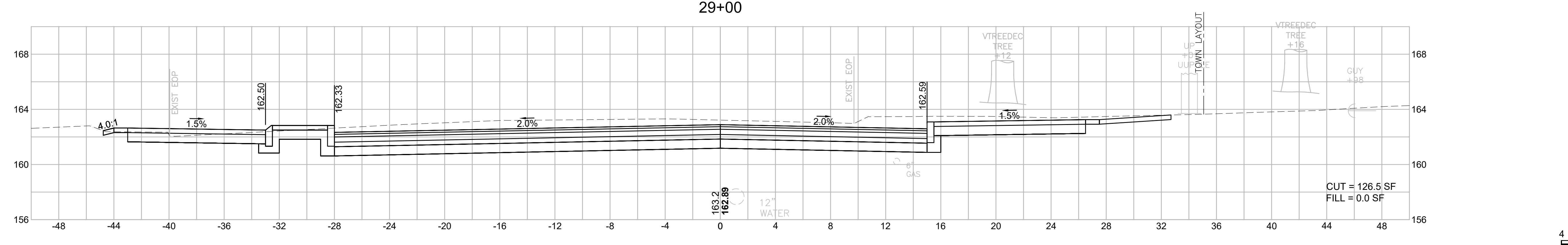
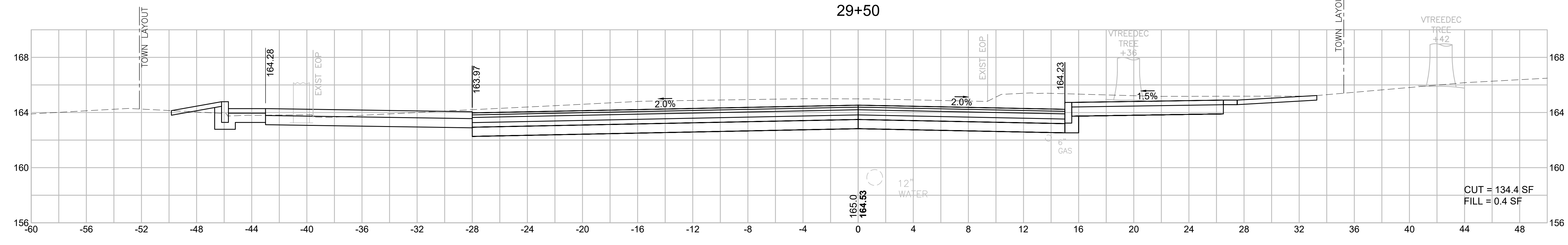
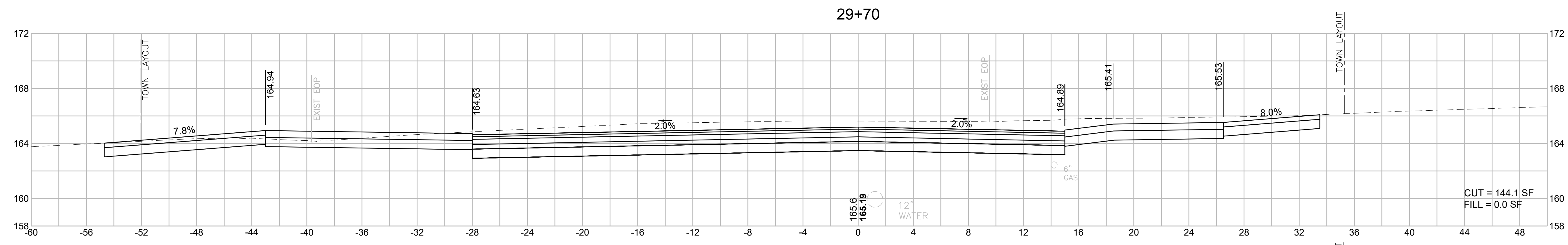
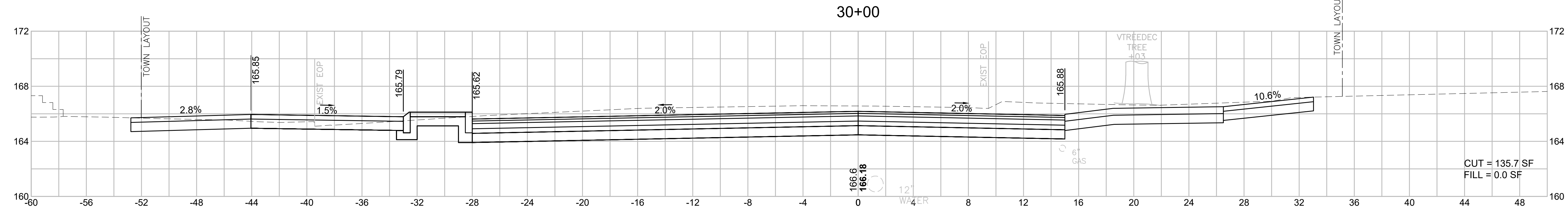
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	109	139
PROJECT FILE NO.		605178	

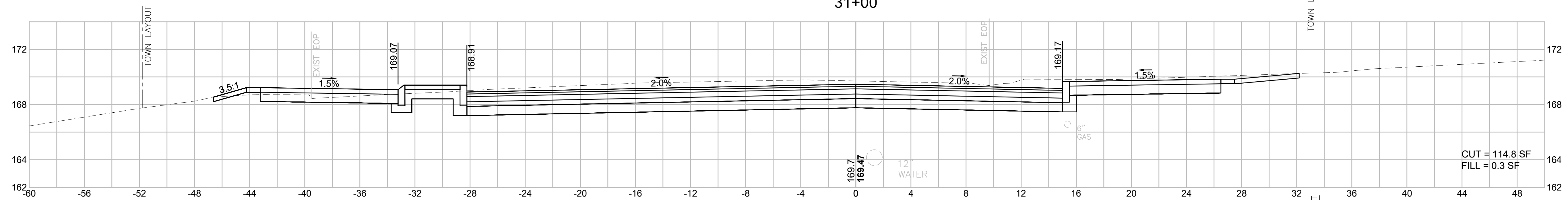
CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(472)_XS-3A.DWG Printed on 2-Aug-21 8:26 PM

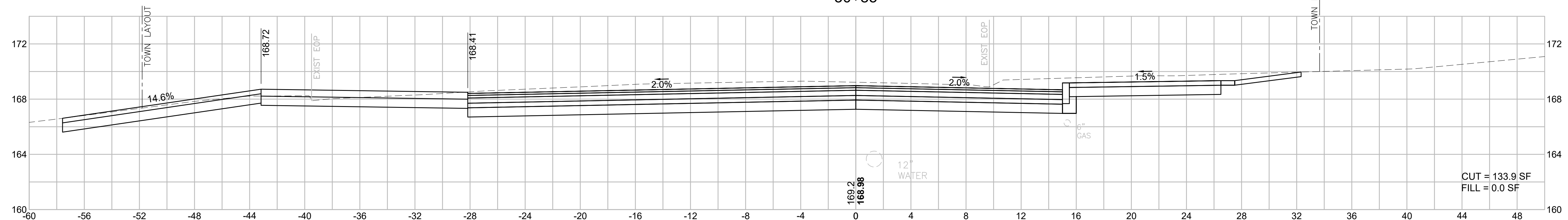




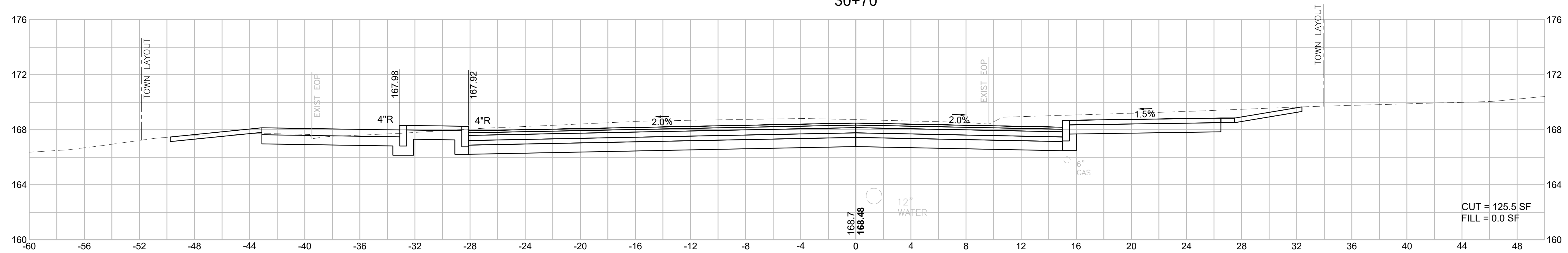
31+00



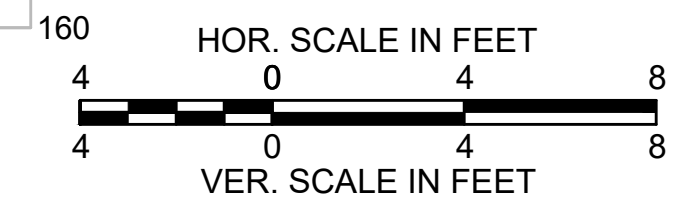
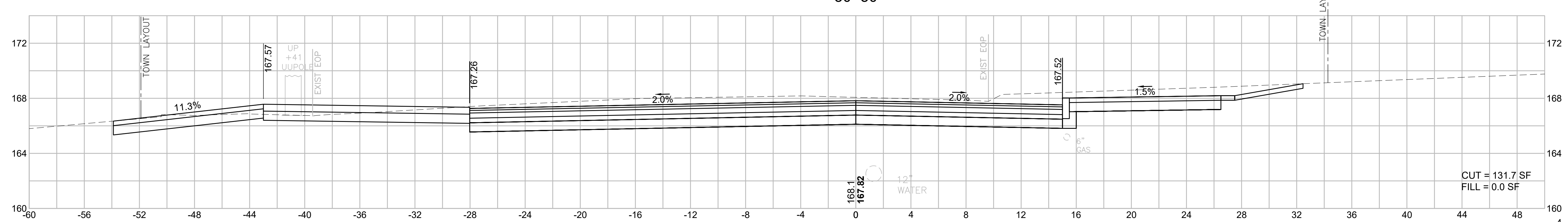
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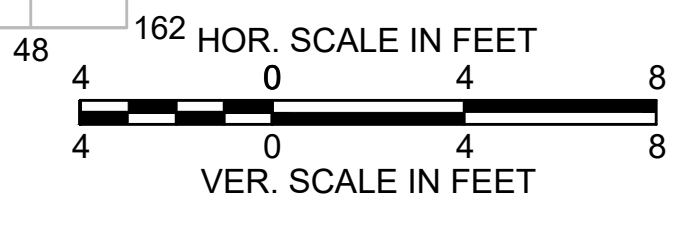
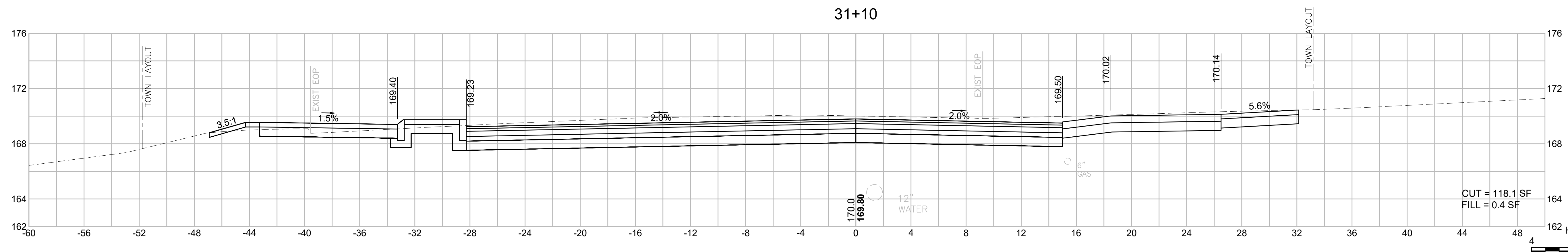
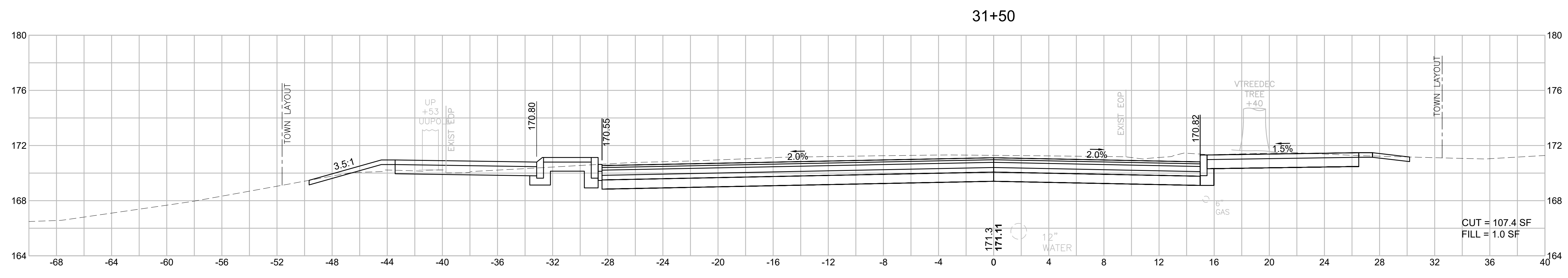
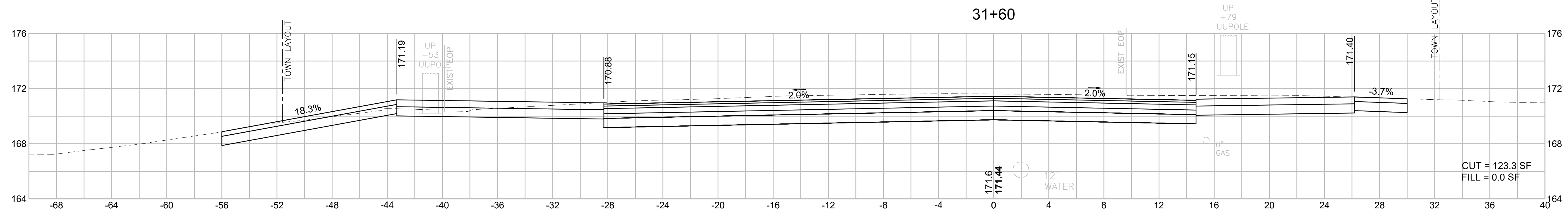
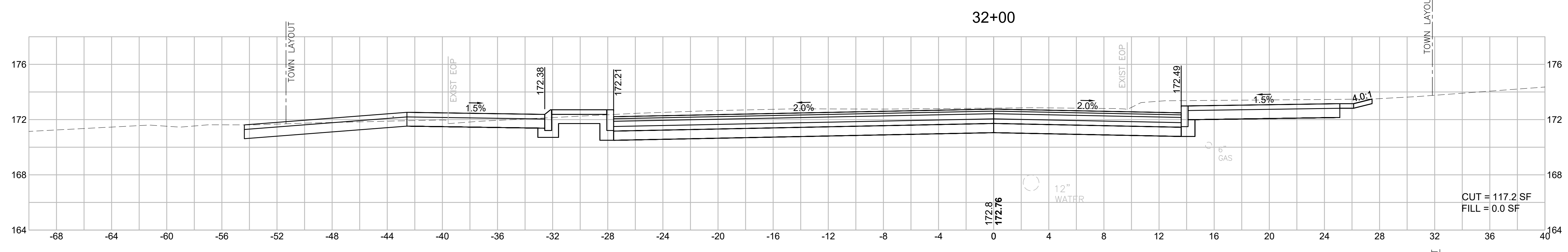


30+70



30+50



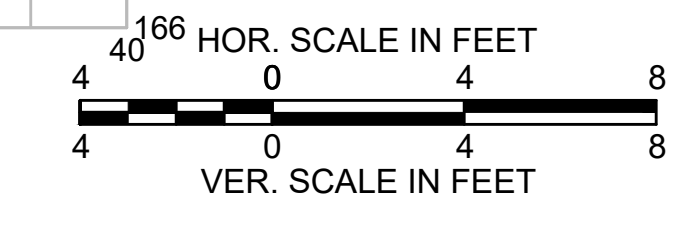
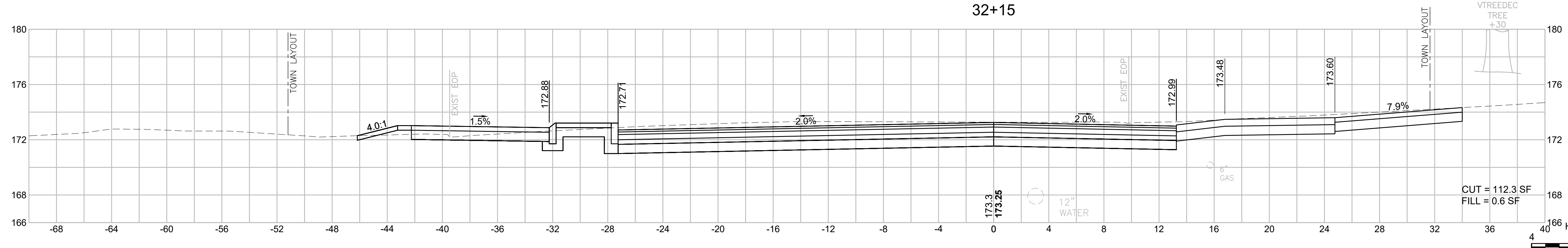
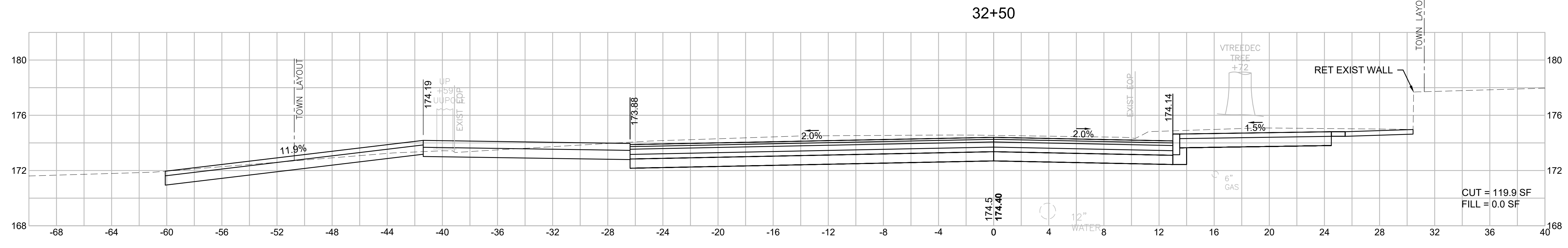
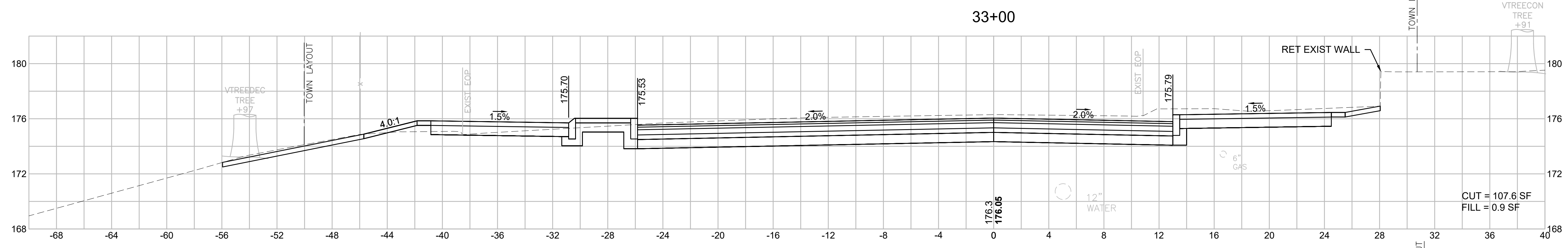
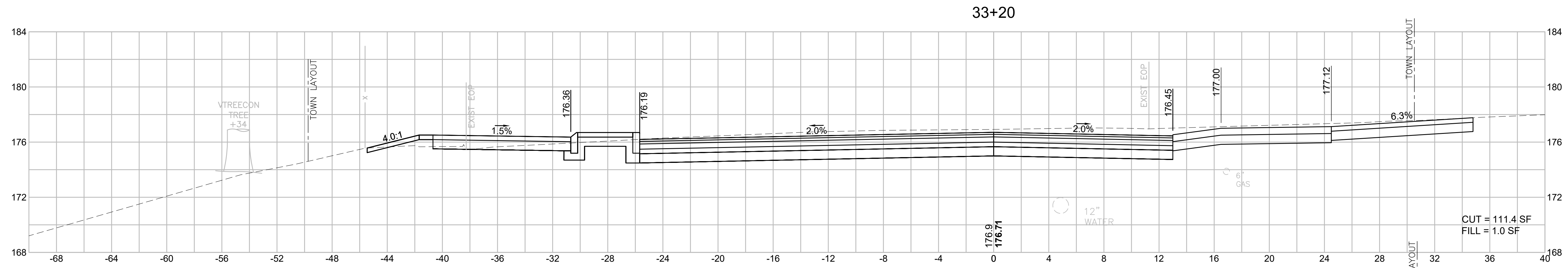


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	113	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Printed on 2-Aug-21 6:26 PM

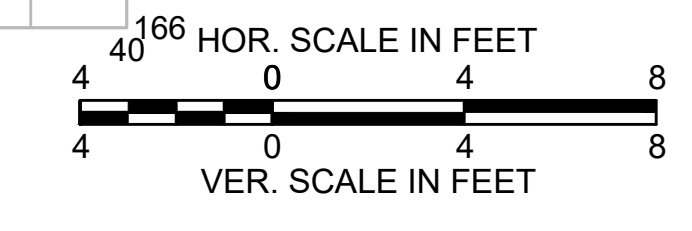
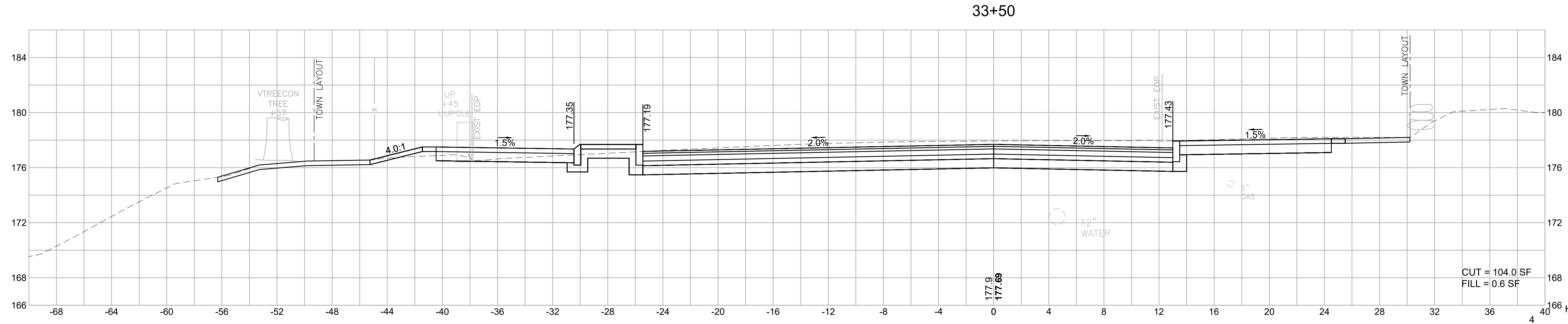
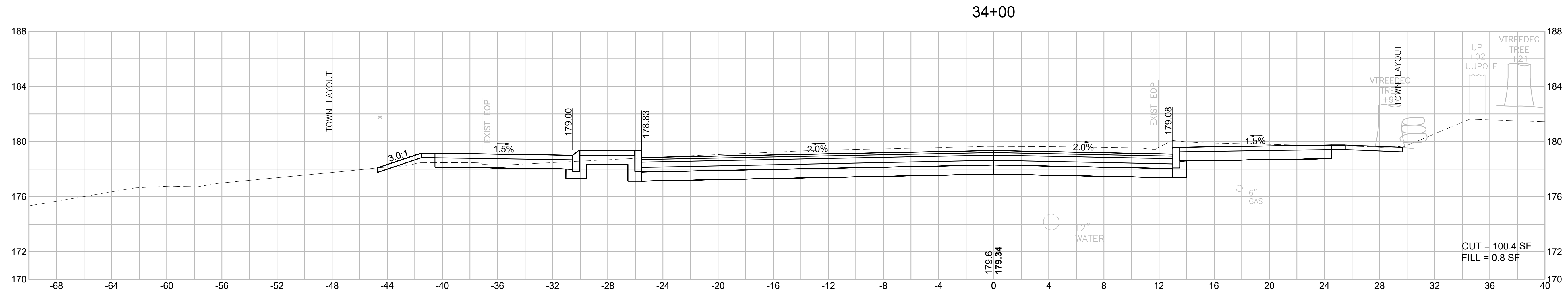
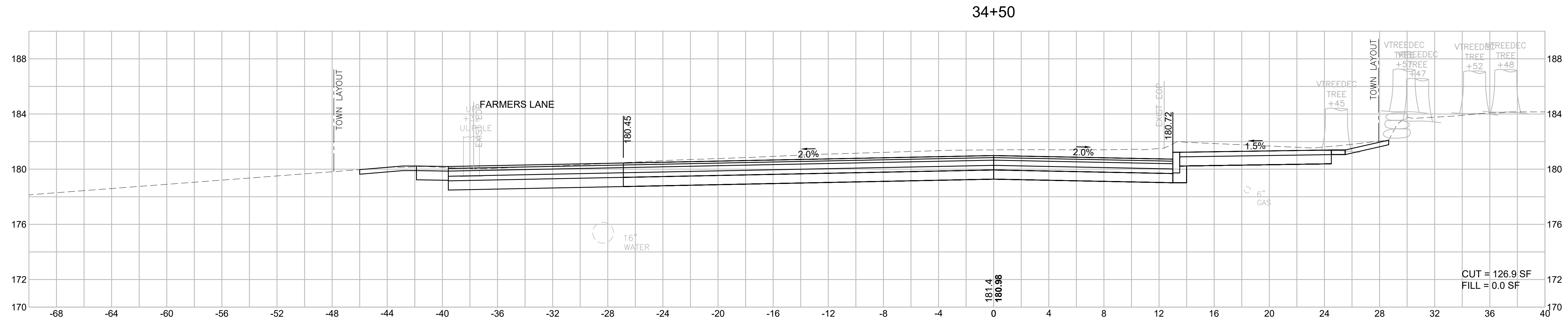


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	114	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(172)_XS-3A.DWG Plotted on 2-Aug-21 8:27 PM

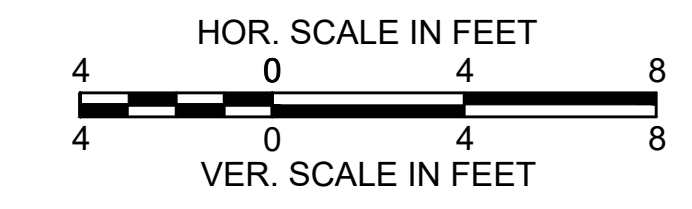
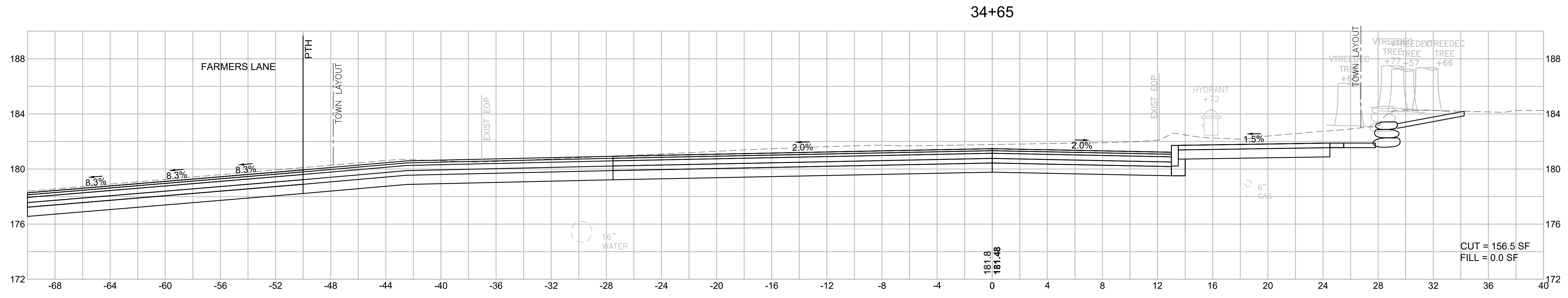
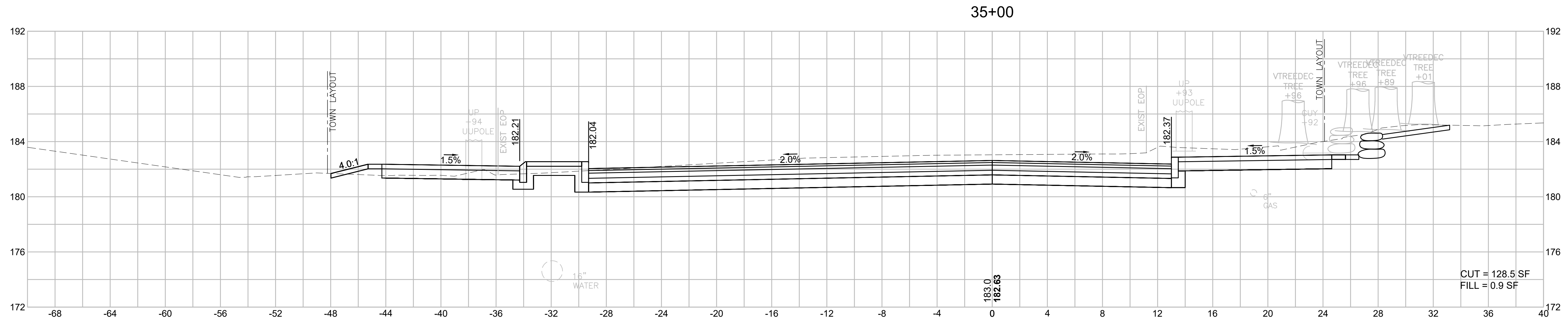
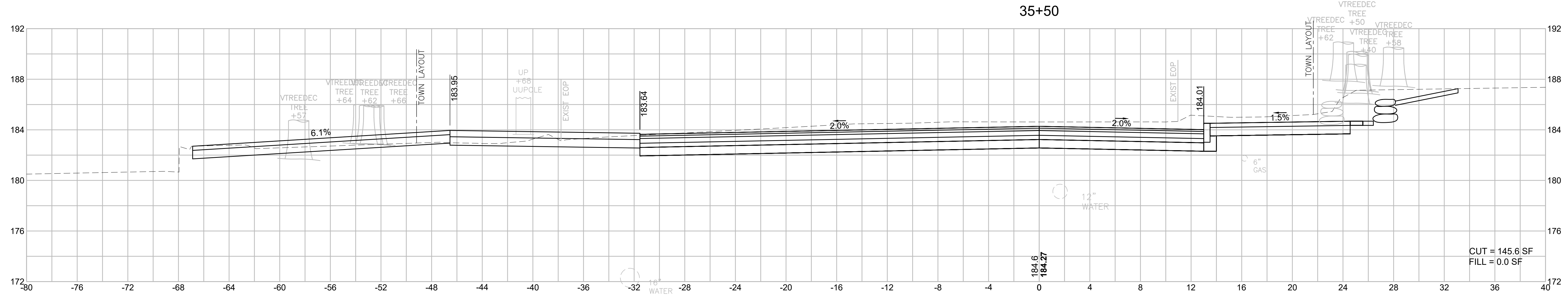


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	115	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

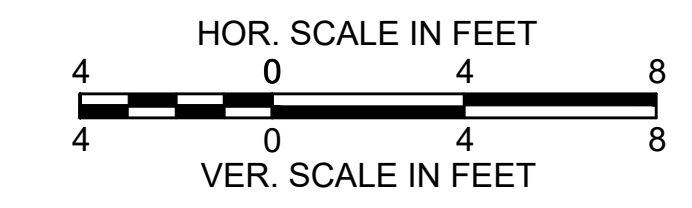
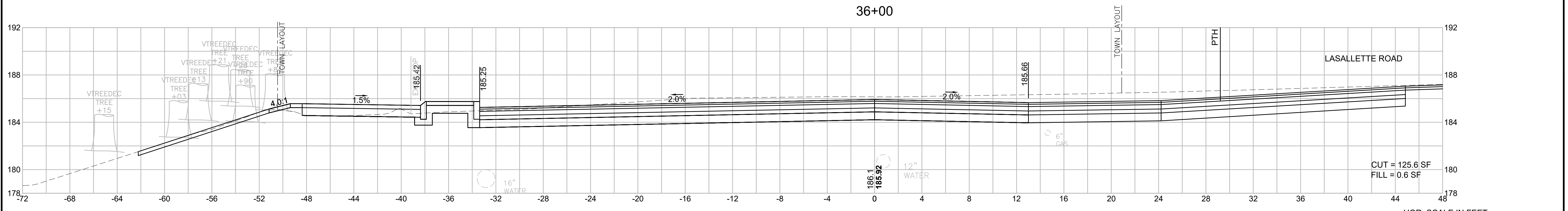
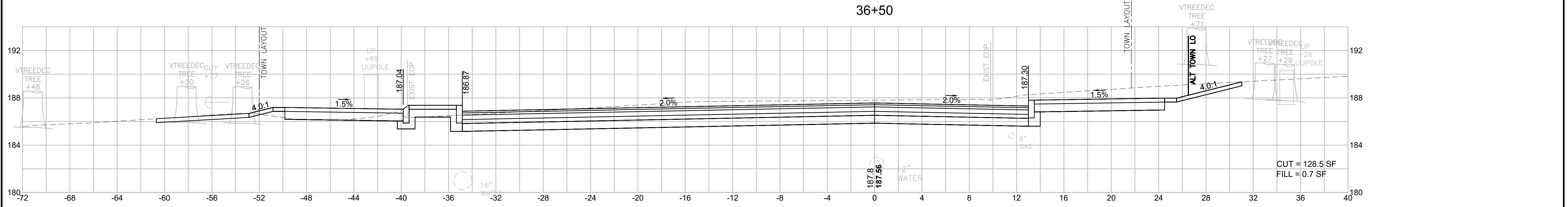
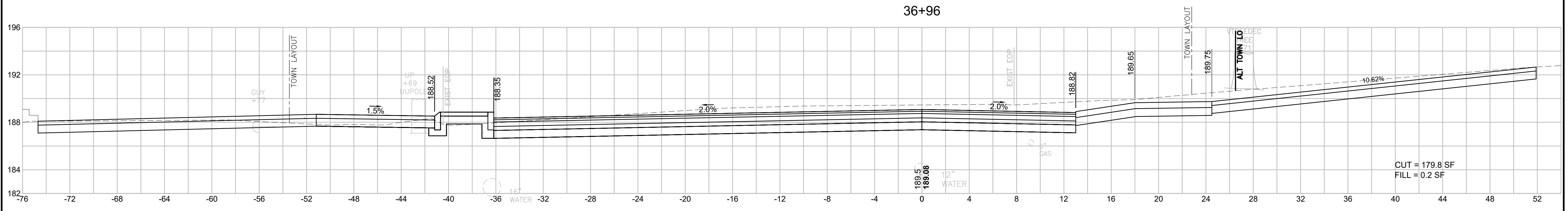
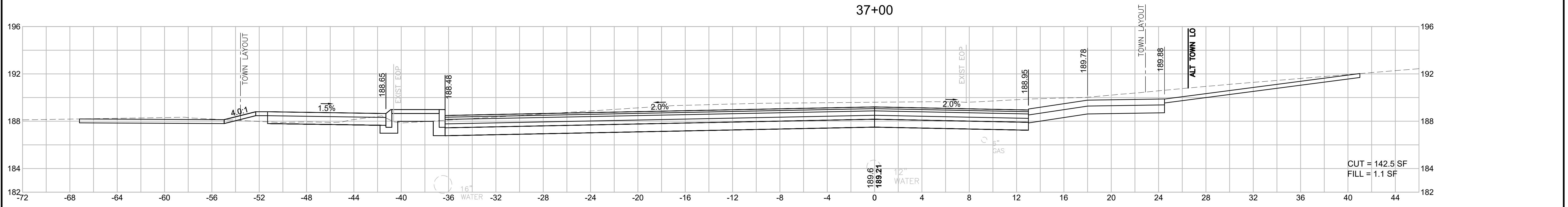
605178_HD(172)_XS-3A.DWG Printed on 2-Aug-21 8:27 PM



**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	116	139
PROJECT FILE NO.		605178	

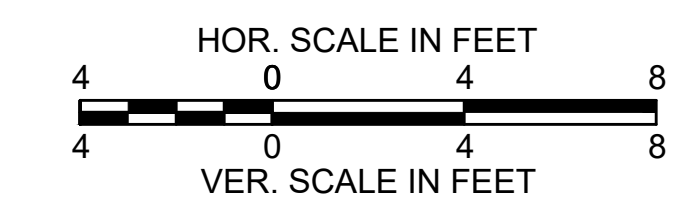
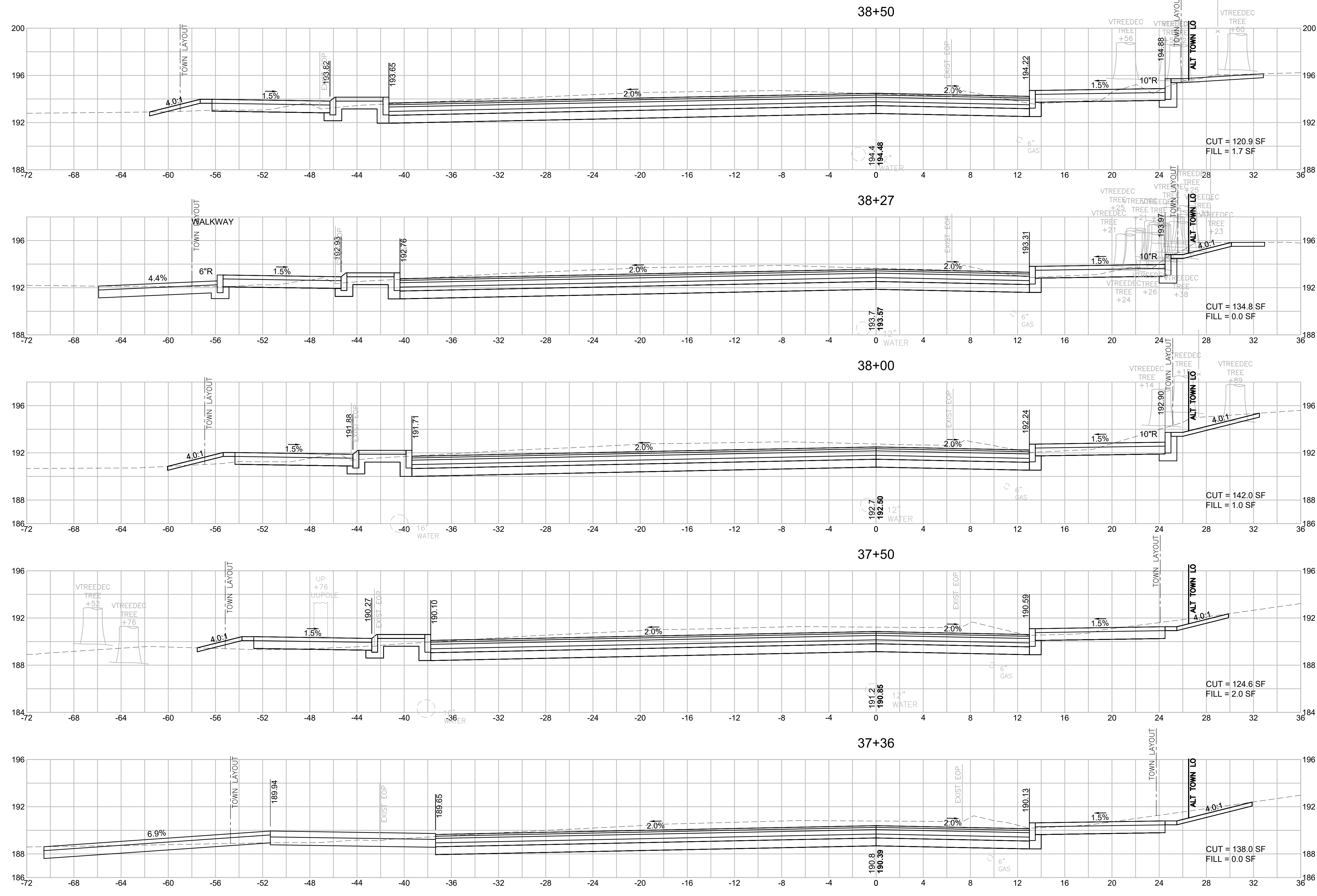
**CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)**



**BILLERICA
BOSTON ROAD (ROUTE 3A)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	117	139
PROJECT FILE NO.		605178	

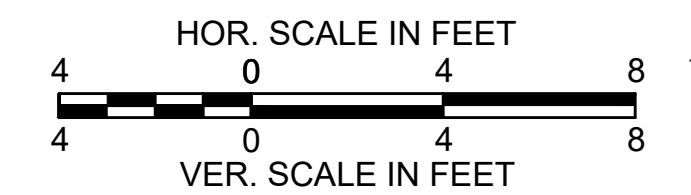
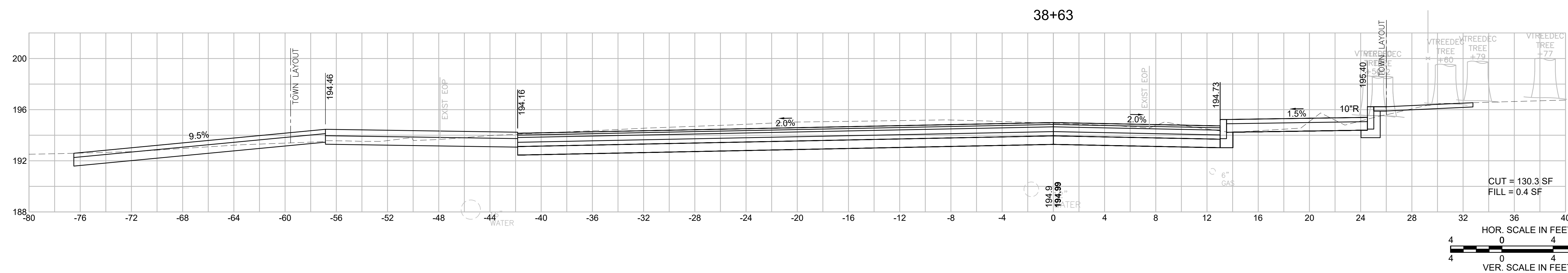
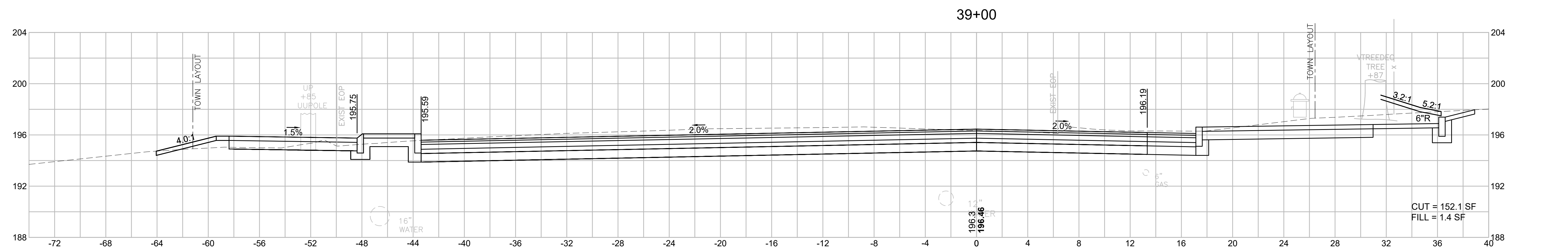
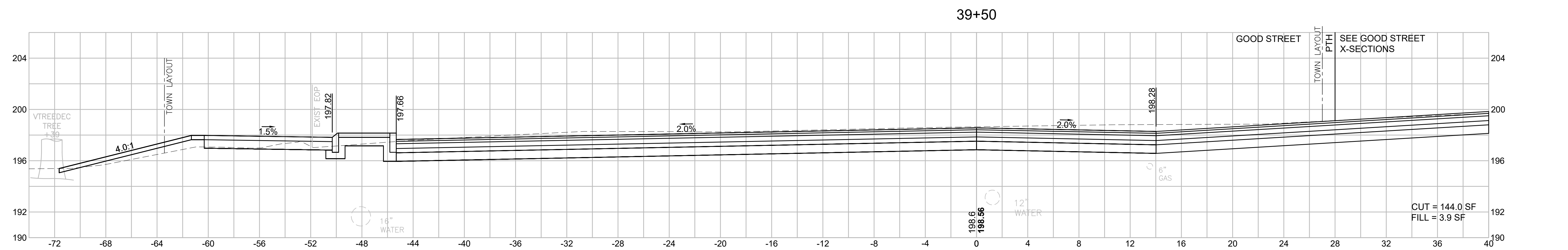
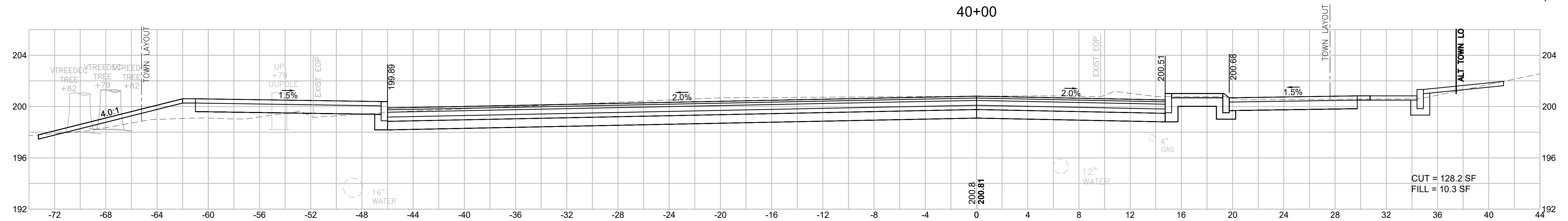
**CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)**



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	118	139
PROJECT FILE NO.		605178	

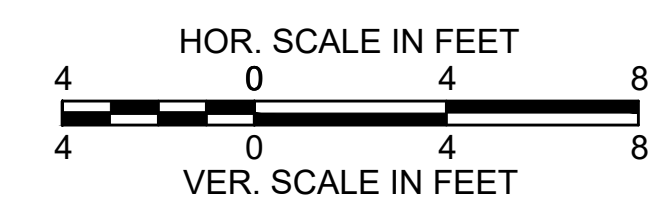
CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)



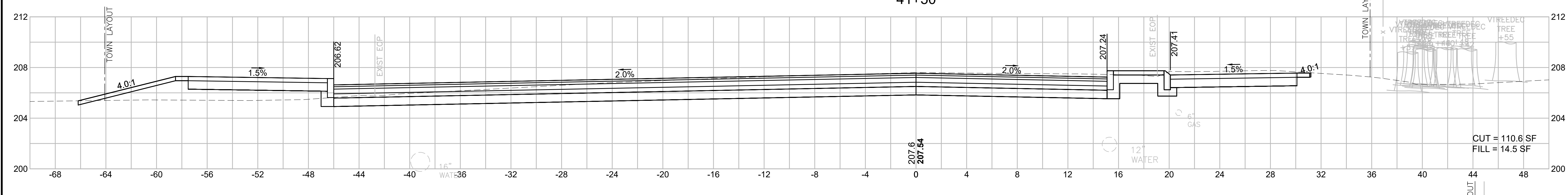
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	119	139
PROJECT FILE NO.		605178	

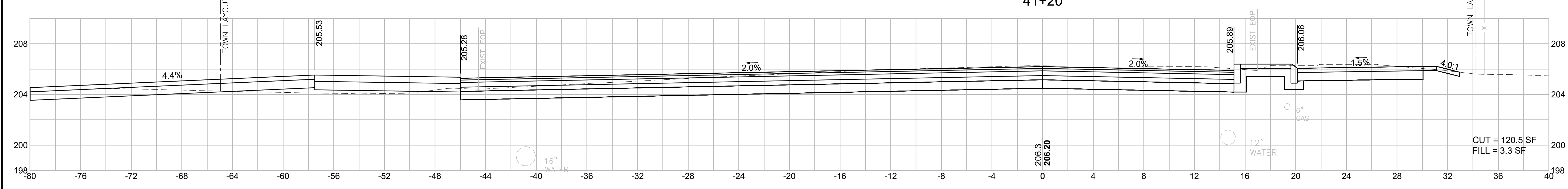
CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)



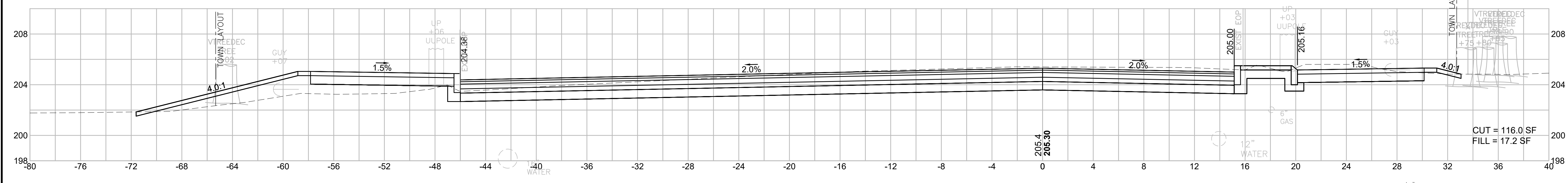
41+50



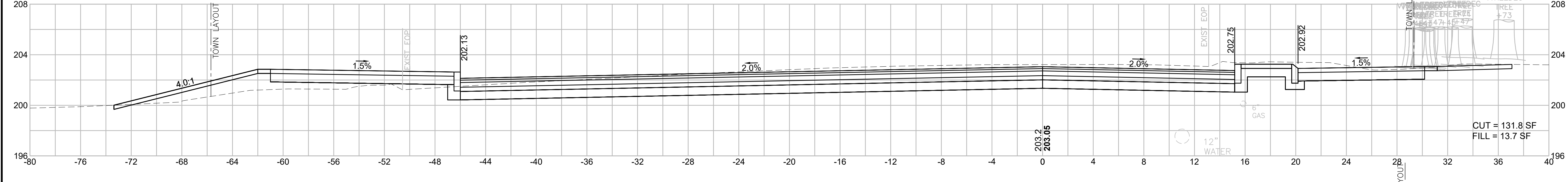
41+20



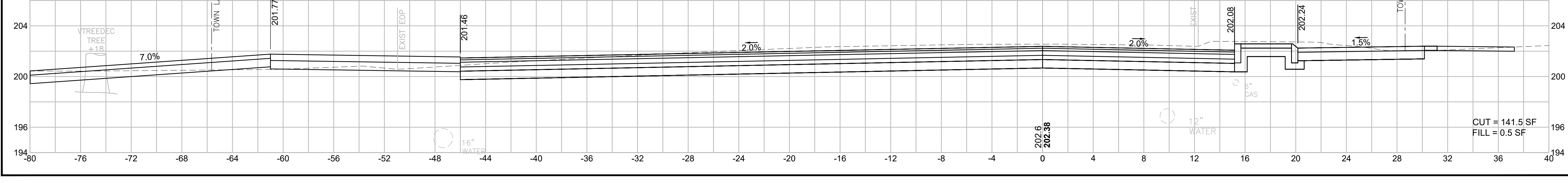
41+00



40+50



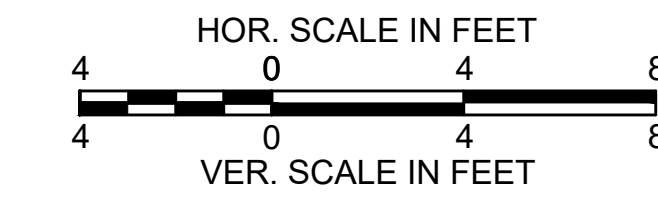
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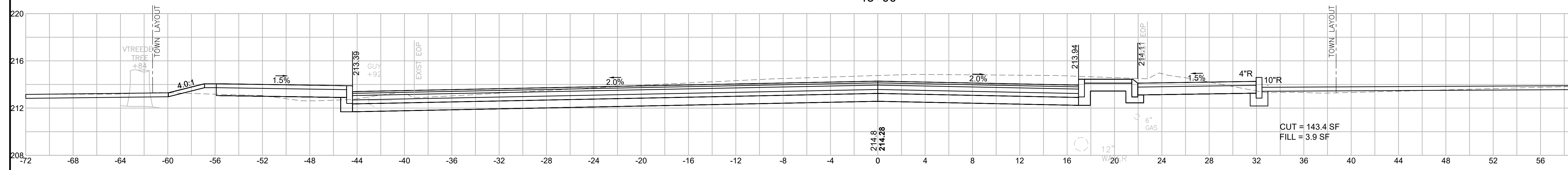
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	120	139
PROJECT FILE NO.		605178	

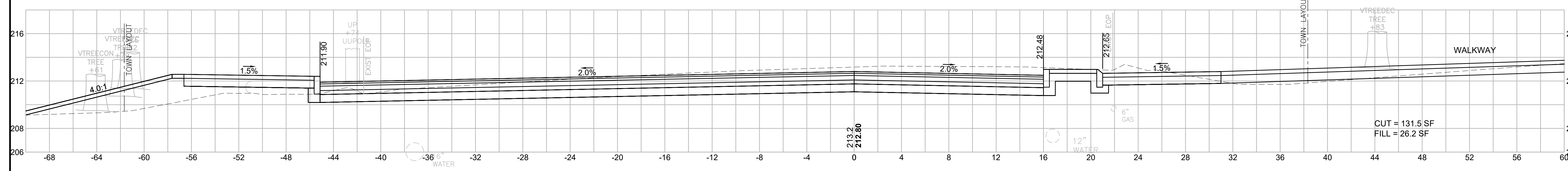
CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)



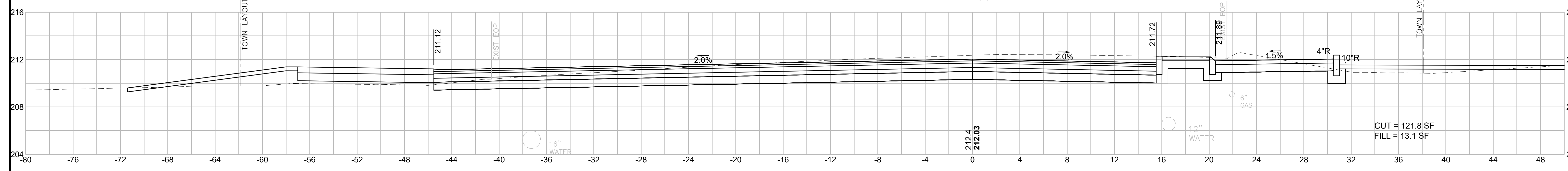
43+00



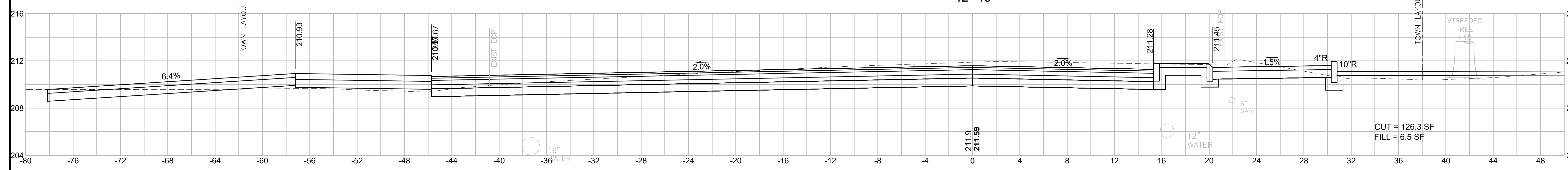
42+67



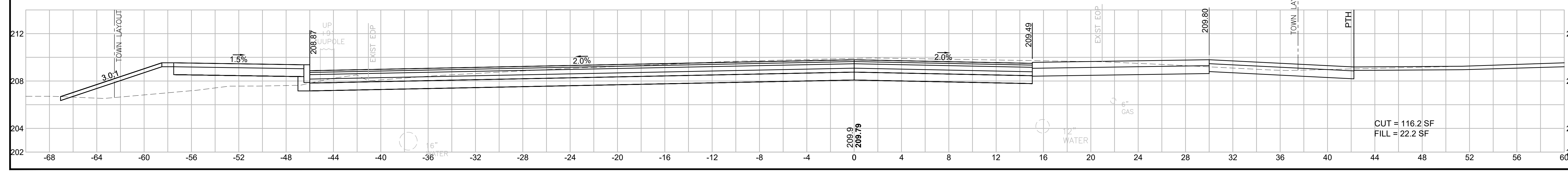
42+50



42+40



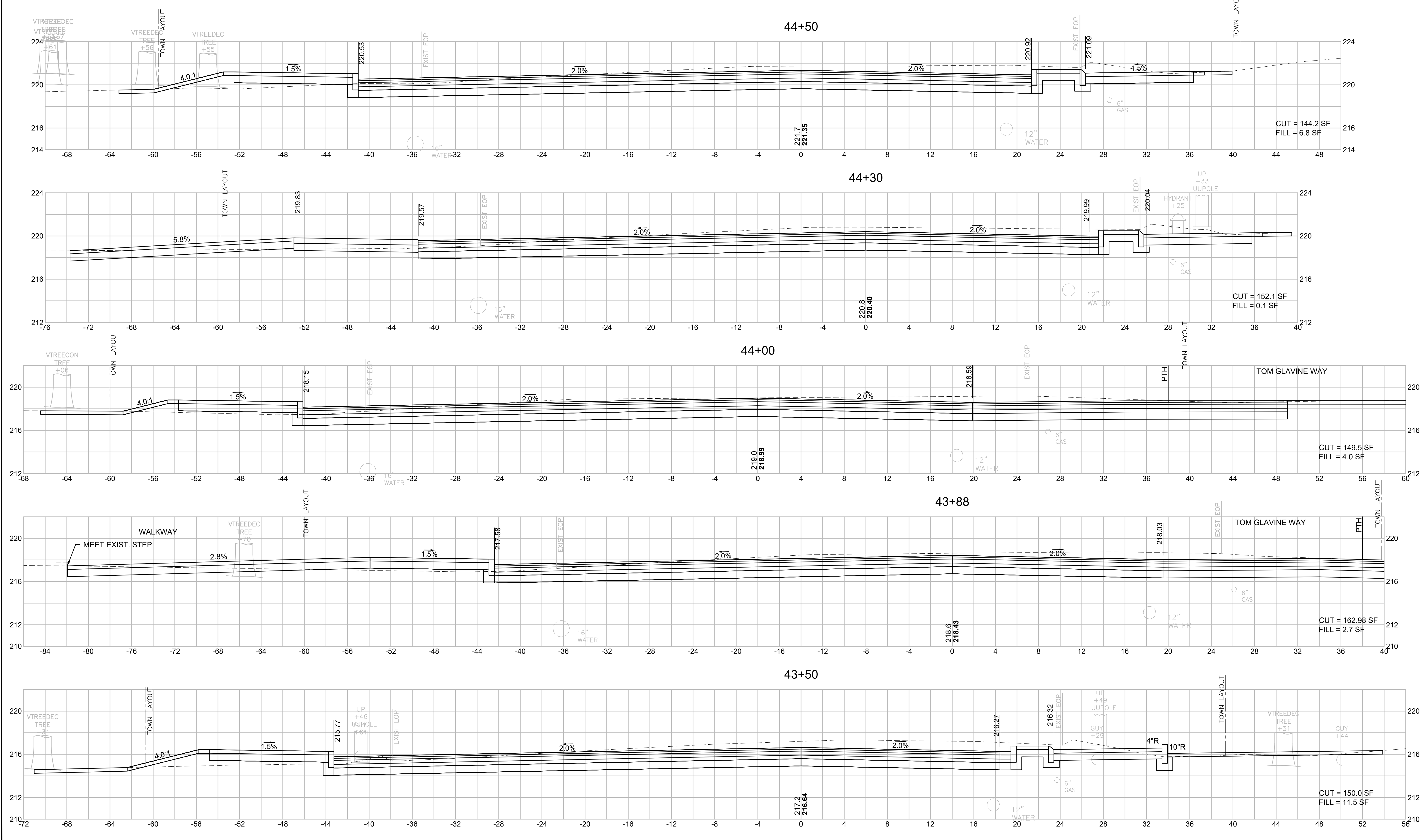
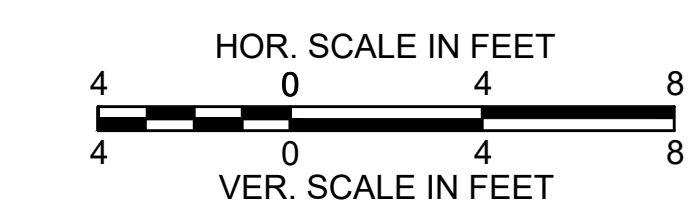
42+00



BILLERICA
BOSTON ROAD (ROUTE 3A)

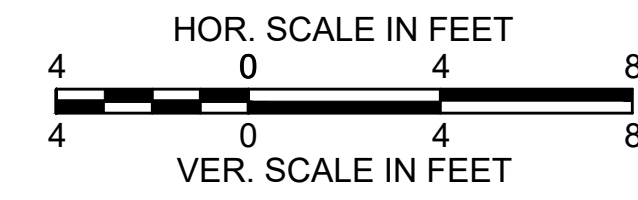
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	121	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

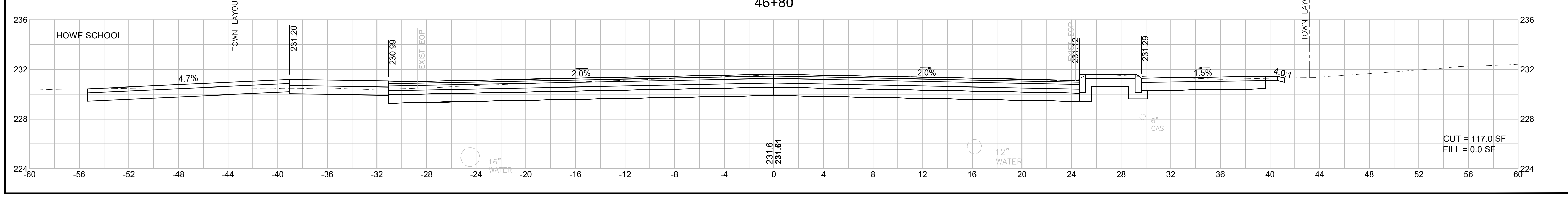
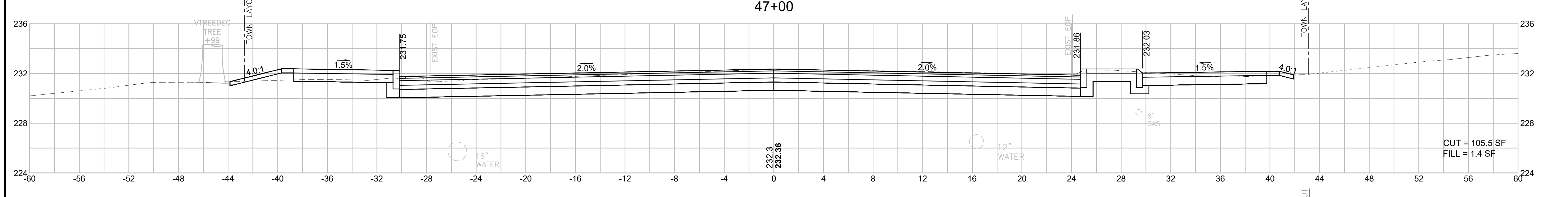
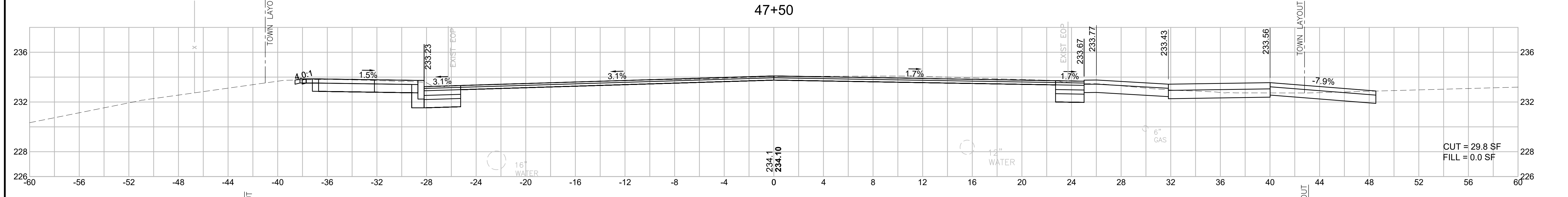
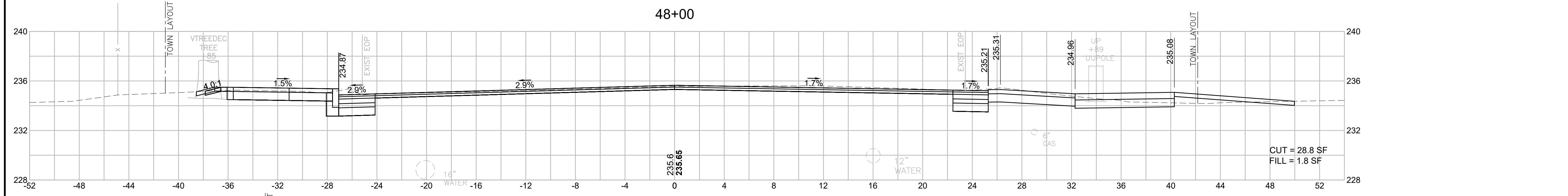
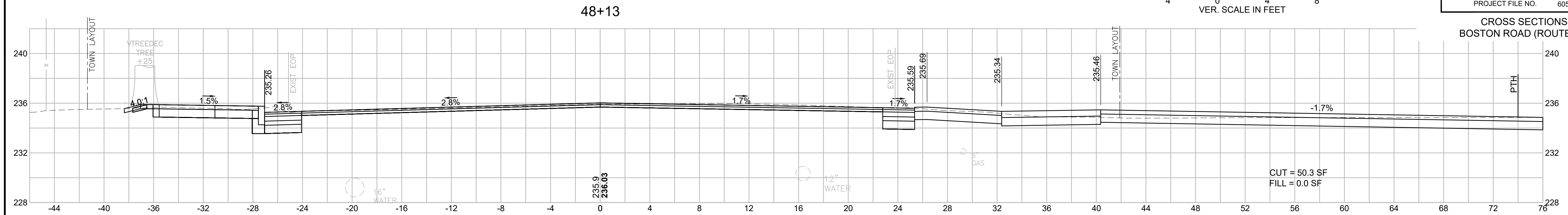


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	123	139
PROJECT FILE NO.		605178	



CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

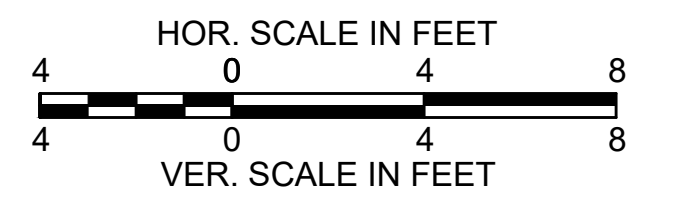
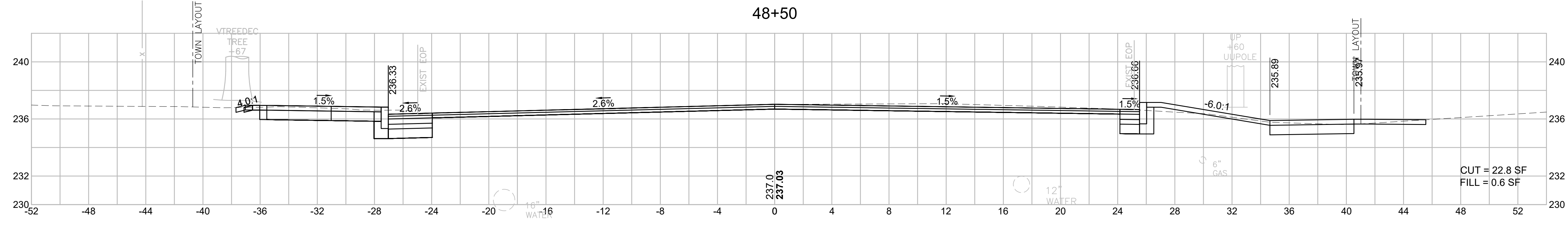
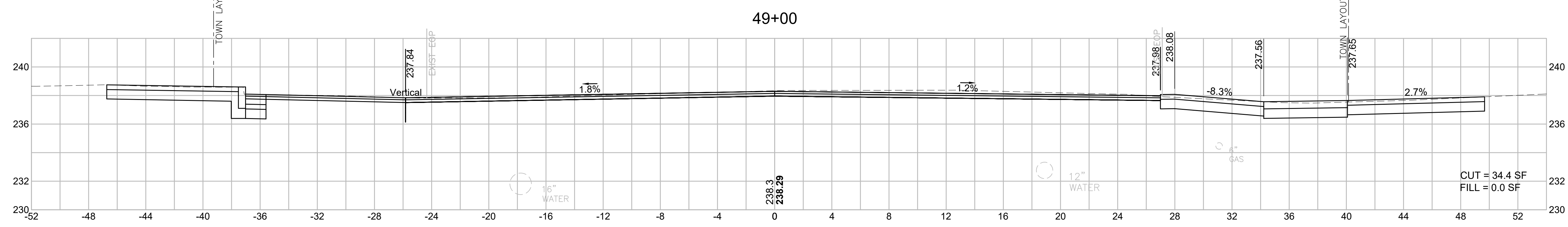
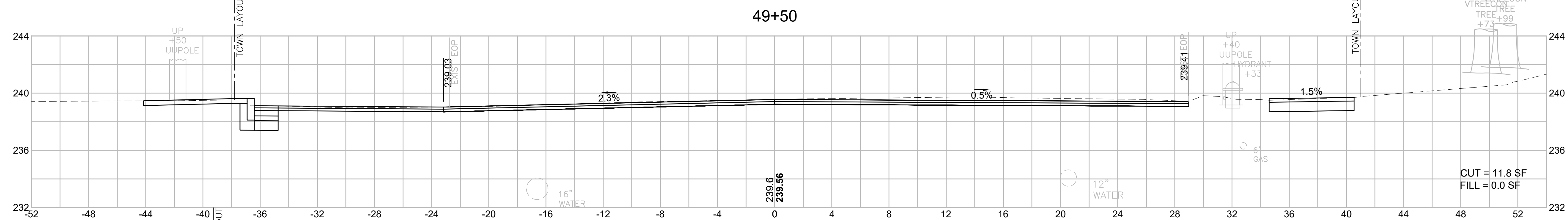
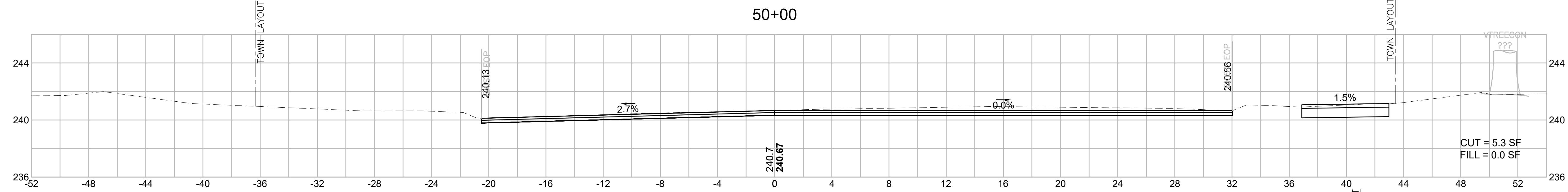
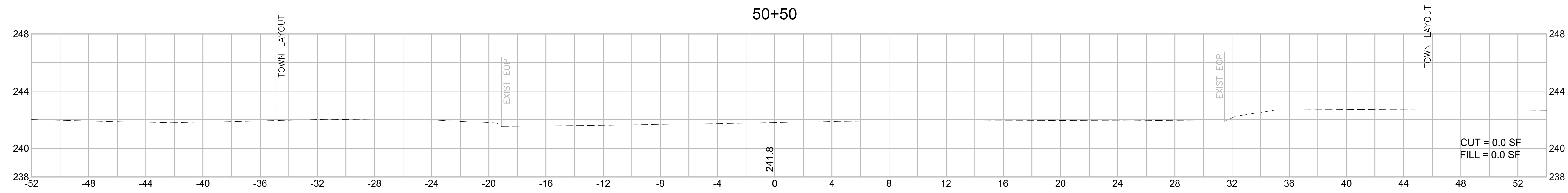


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	124	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
BOSTON ROAD (ROUTE 3A)

605178_HD(722_XS-3A).DWG Plotted on 3-Aug-21 9:18 AM

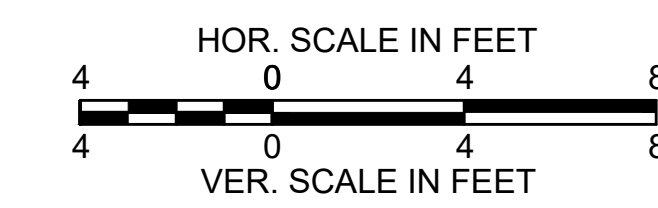
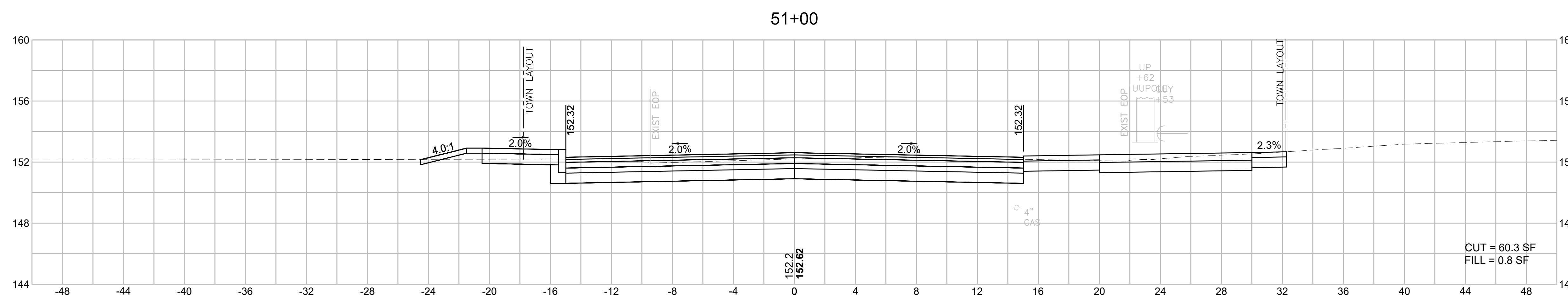
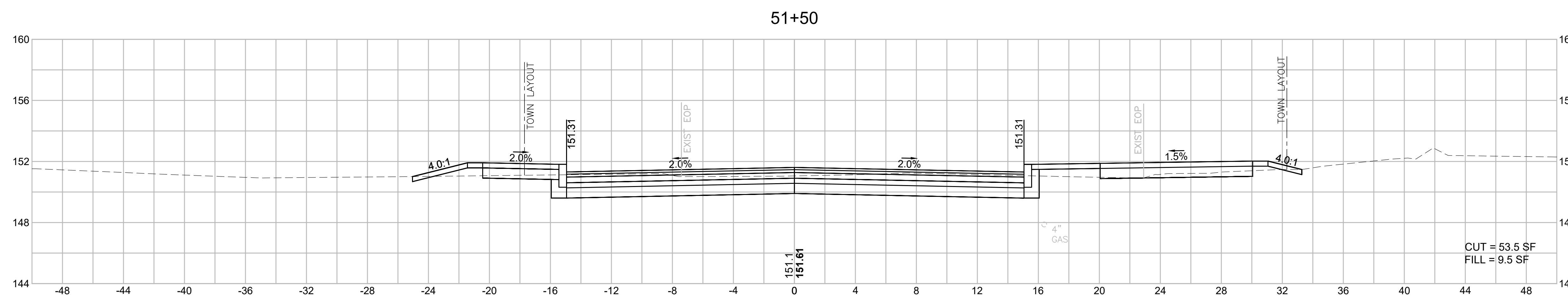
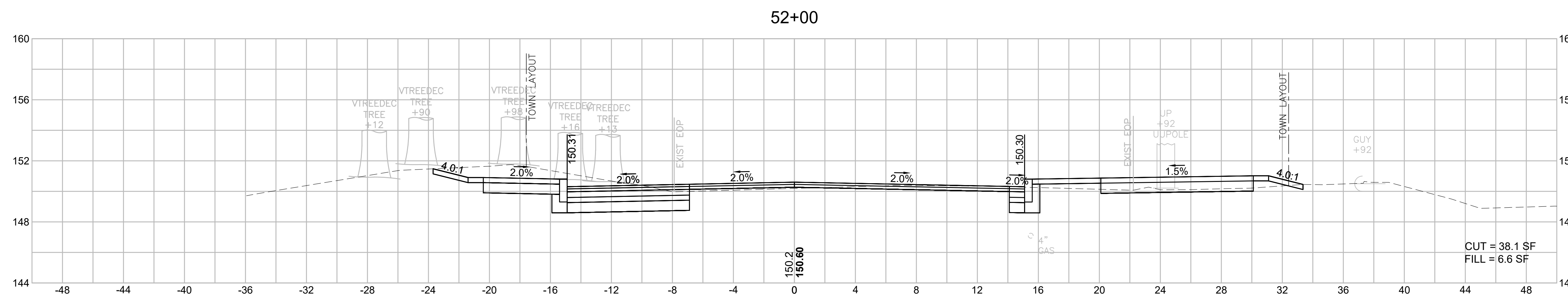


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	125	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:31 PM

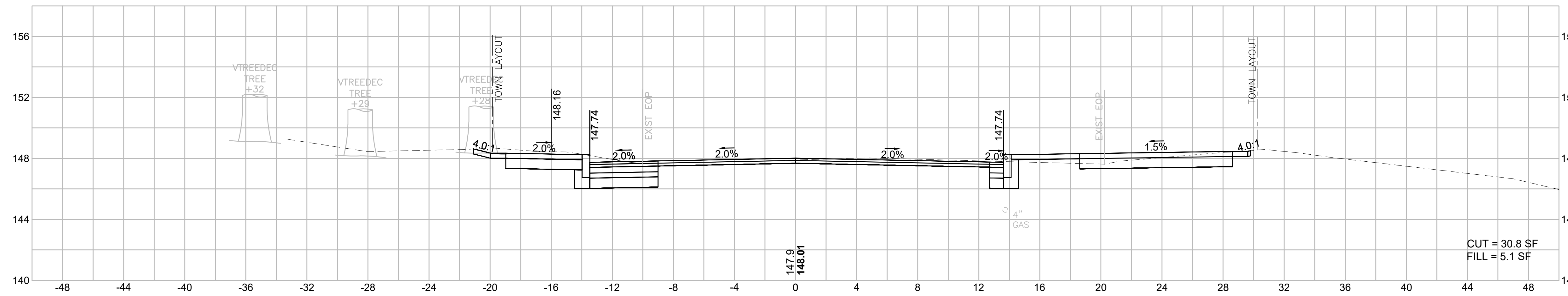


BILLERICA
BOSTON ROAD (ROUTE 3A)

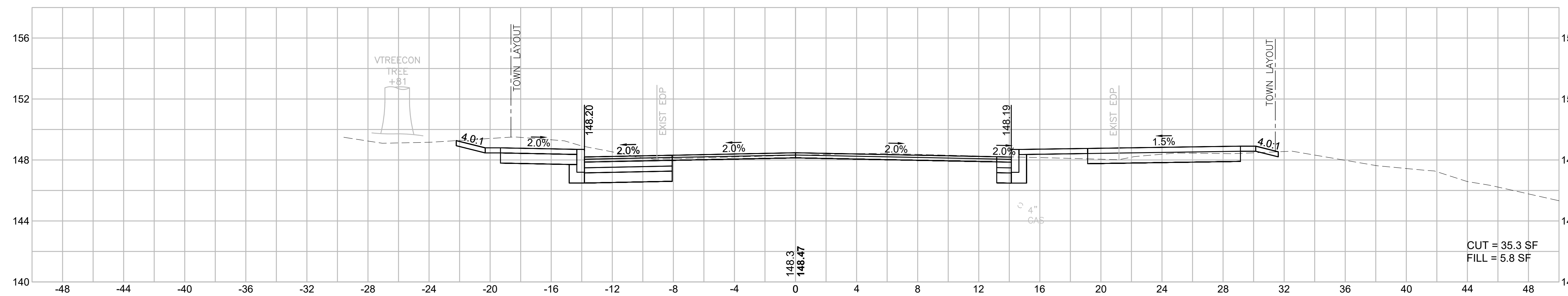
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	126	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

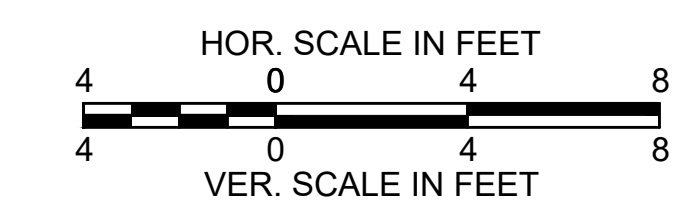
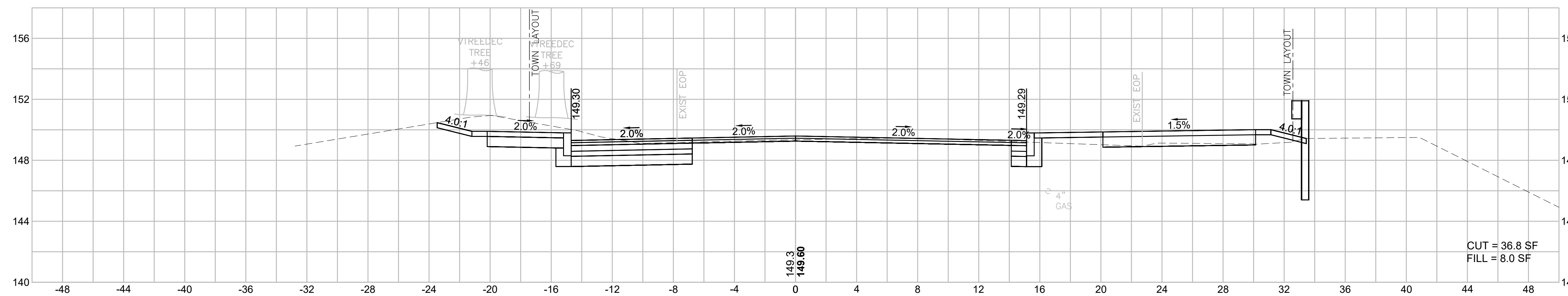
53+20



53+00



52+50

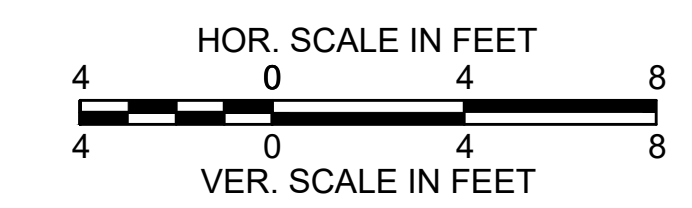
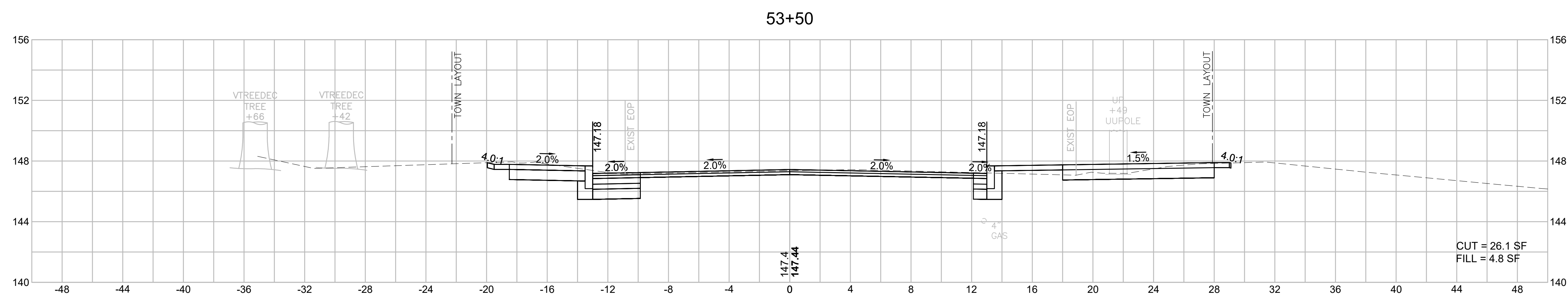
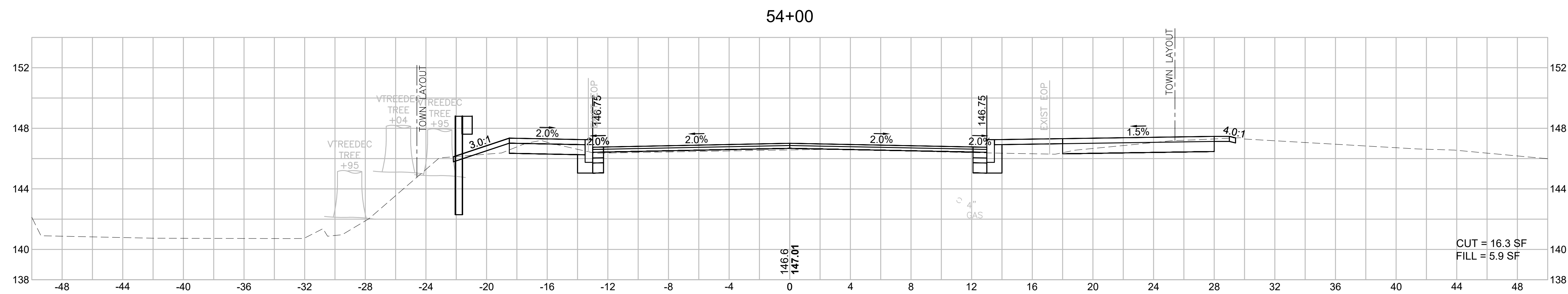
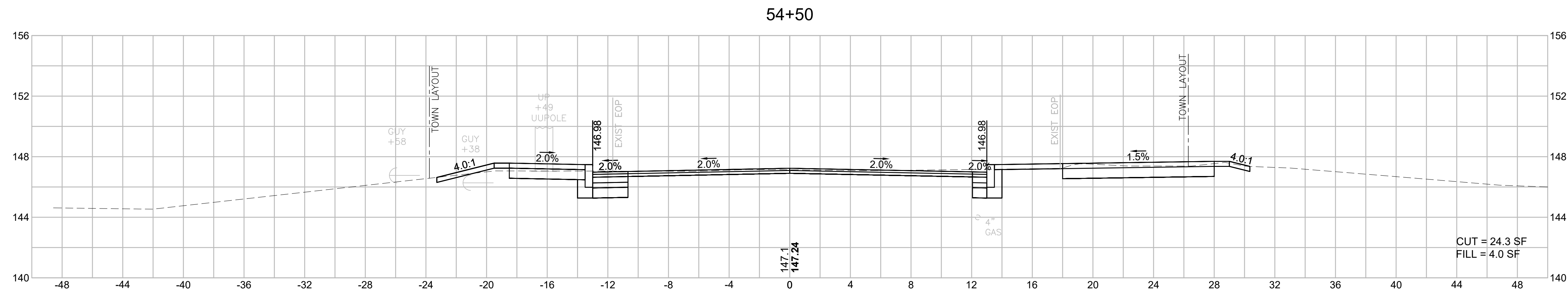


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	127	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

605178_HID(722_XS_SIDESTREETS).DWG Printed on 2-Aug-21 6:31 PM

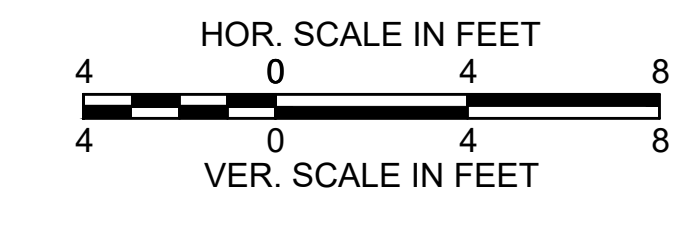
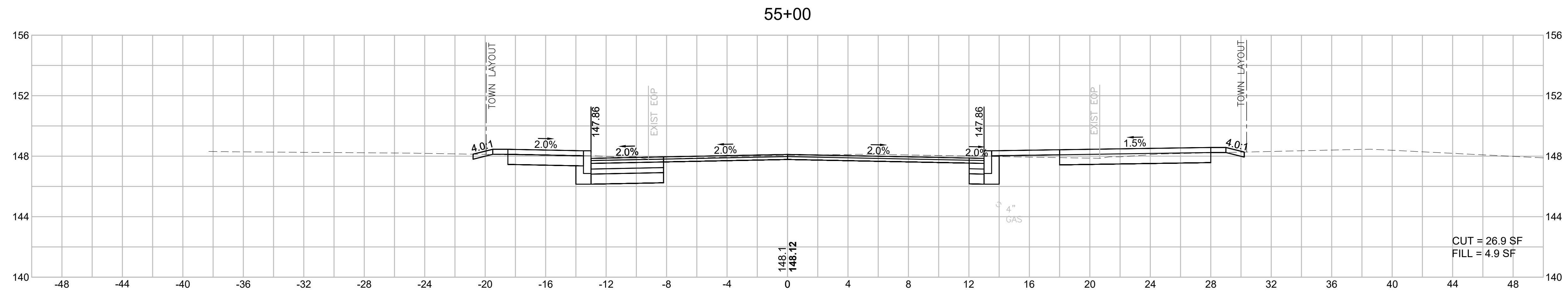
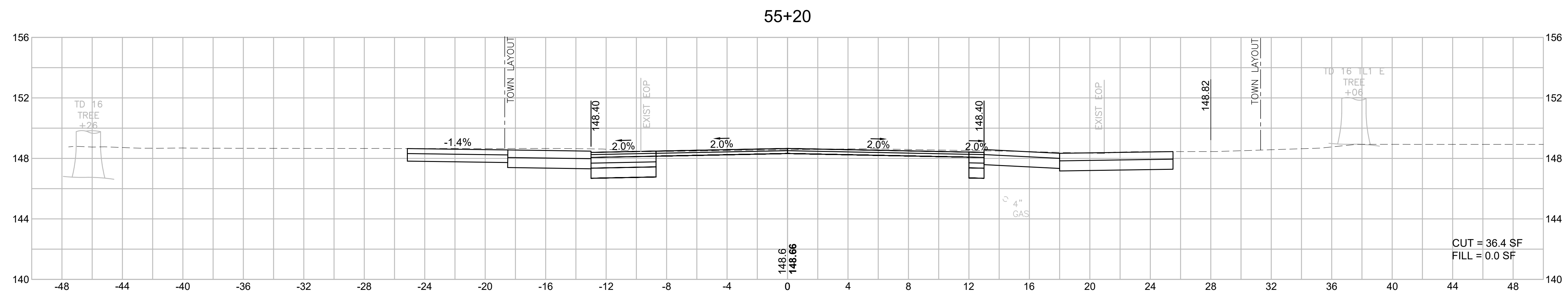
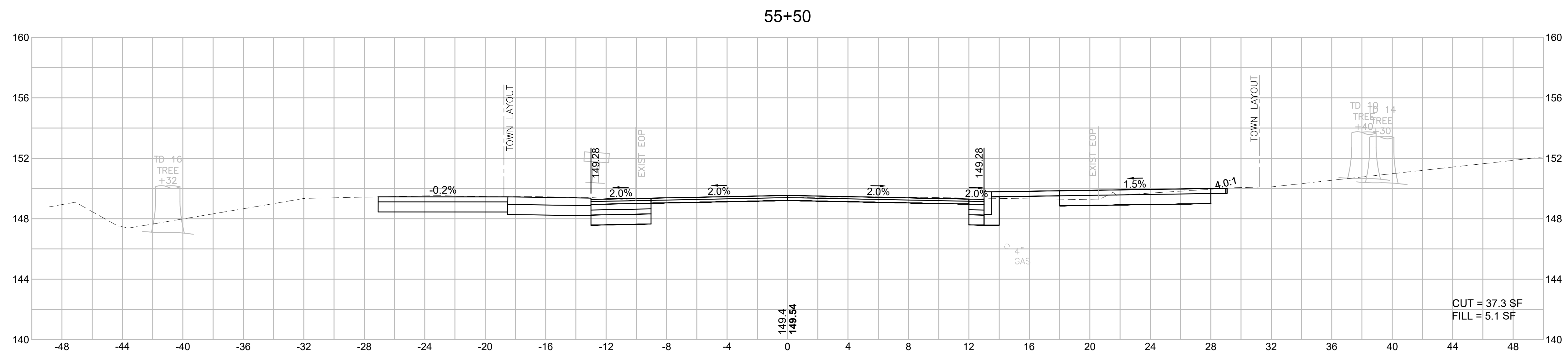


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	128	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 9:32 PM

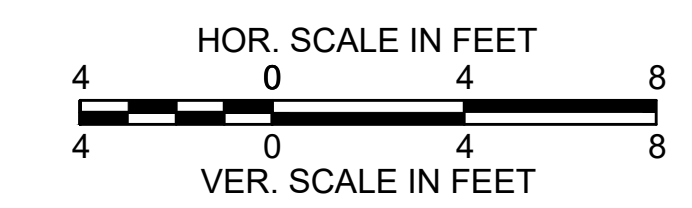
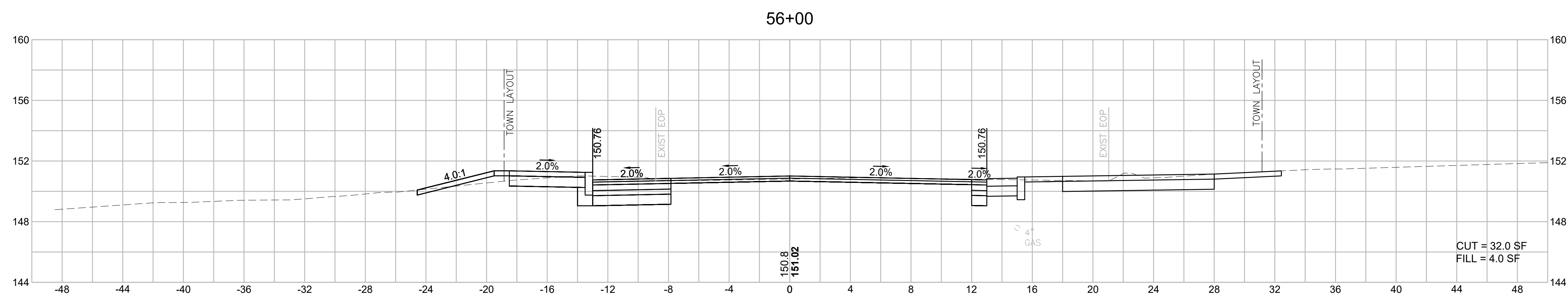
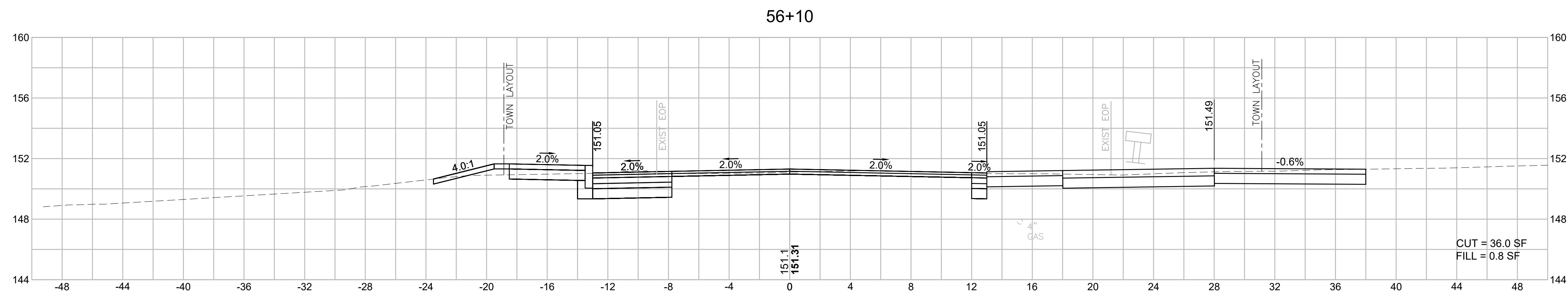
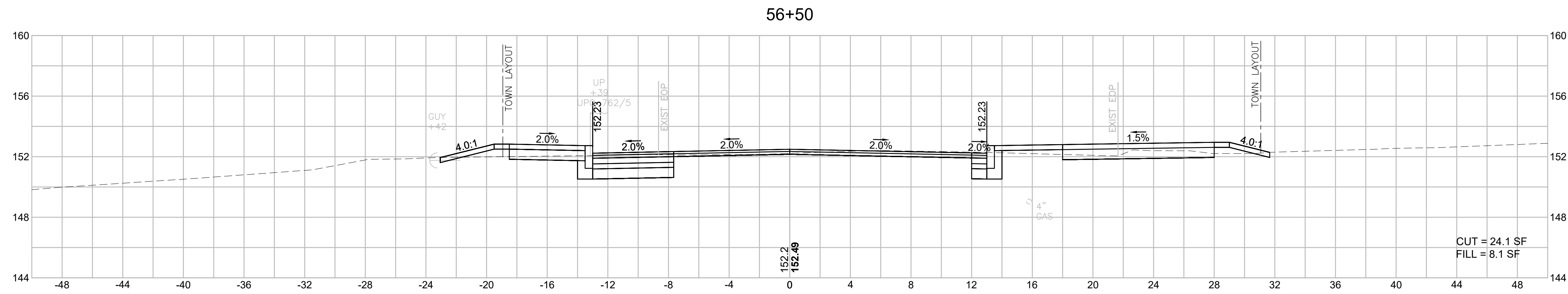


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	129	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 9:32 PM

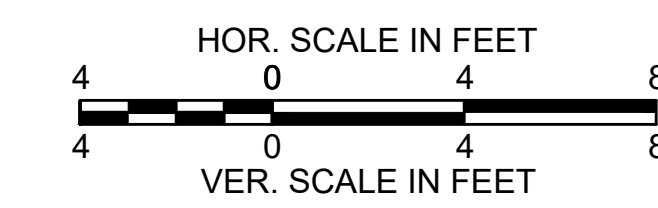
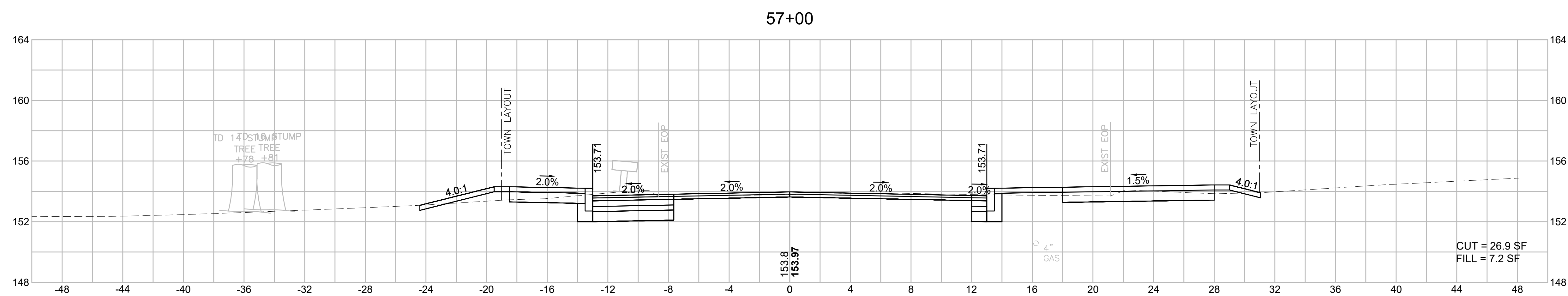
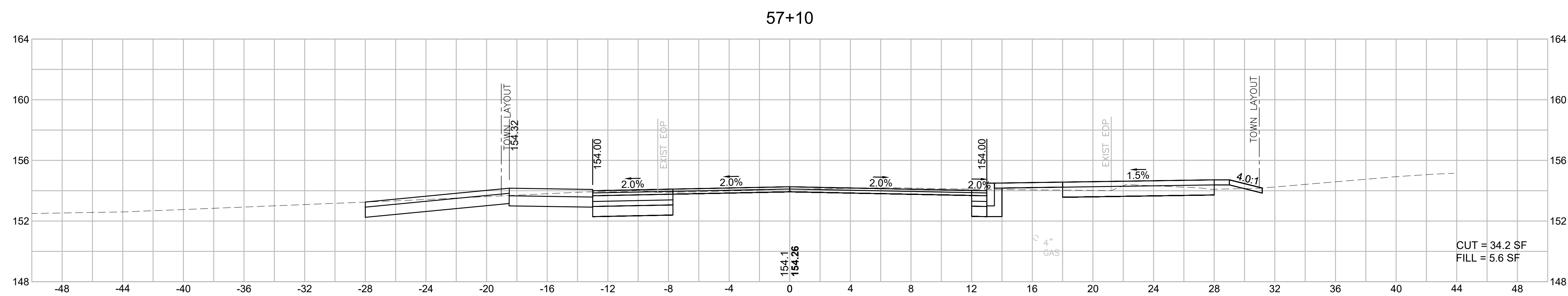
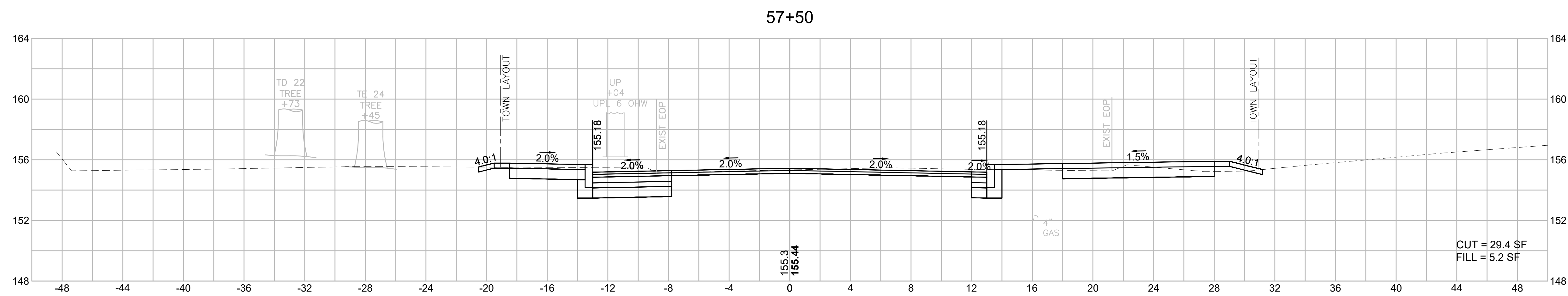


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	130	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

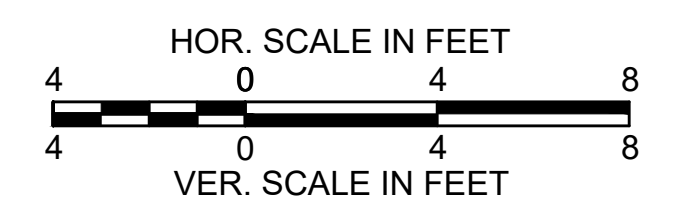
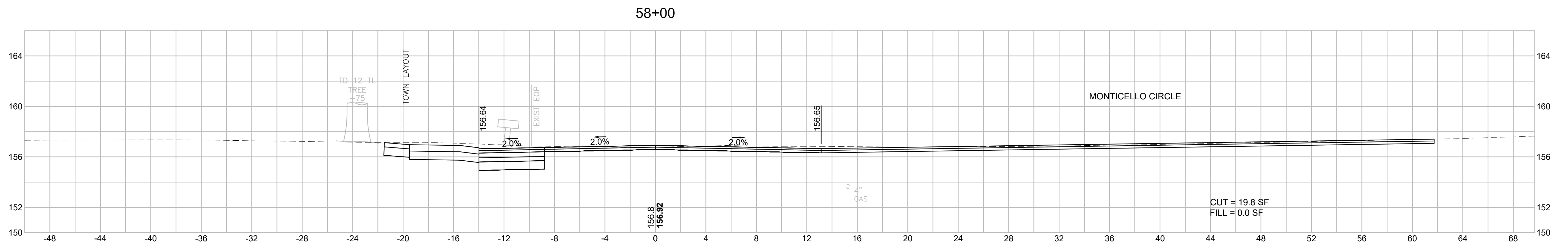
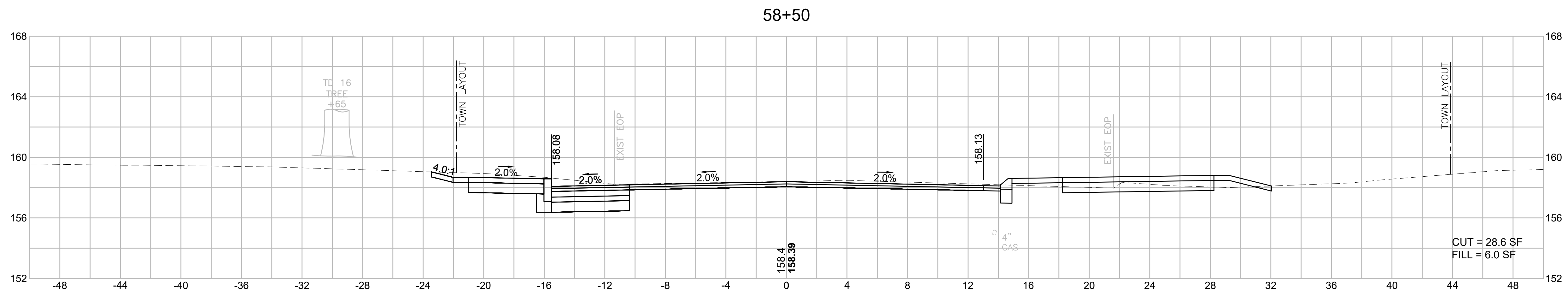
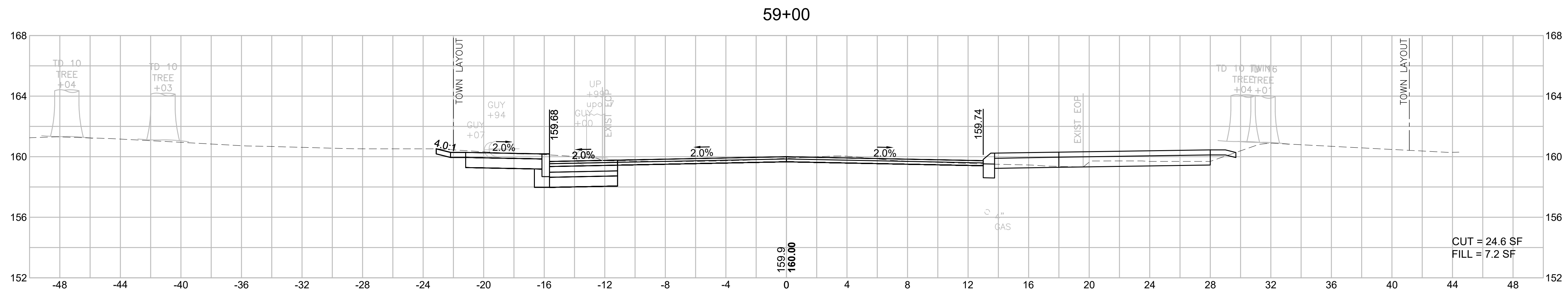
605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:32 PM



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	131	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

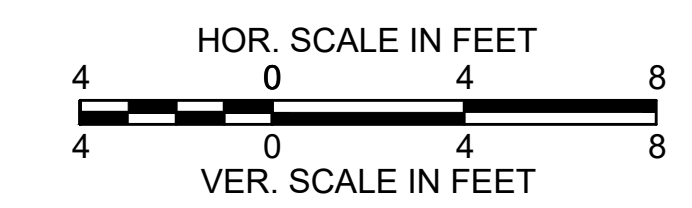
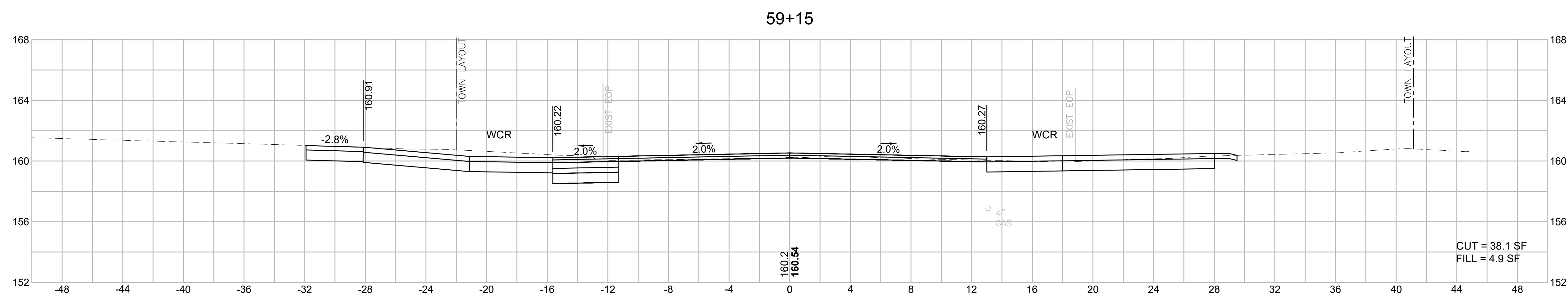
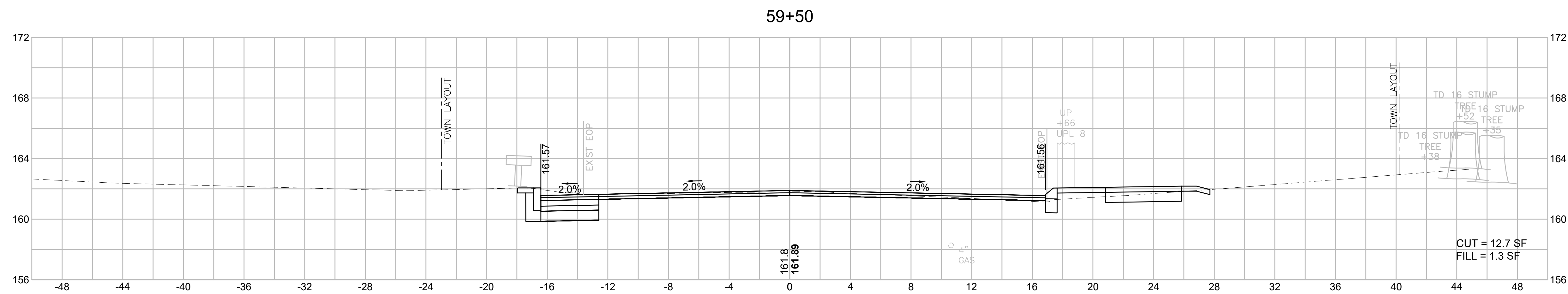
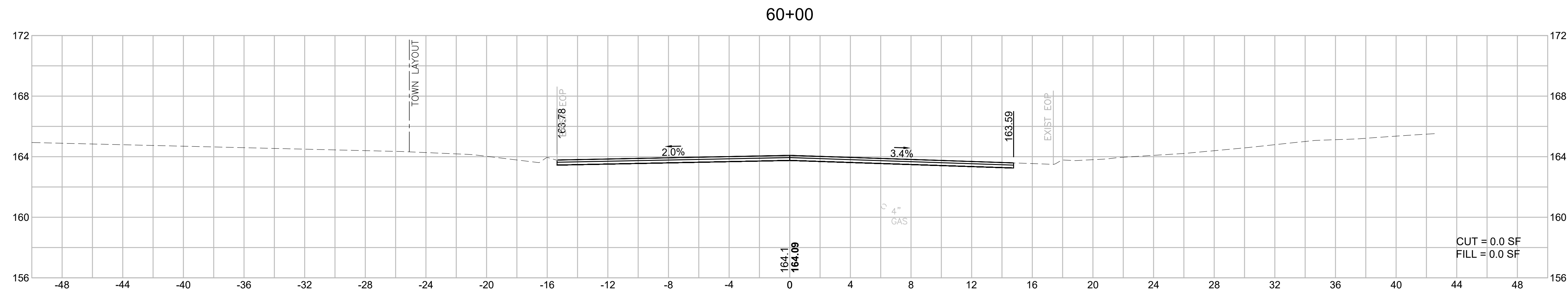


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	132	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
HERITAGE ROAD

605178_HID(4722_XS_SIDESTREETS).DWG Printed on 2-Aug-21 6:33 PM

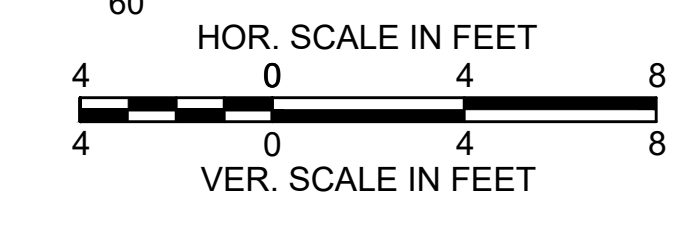
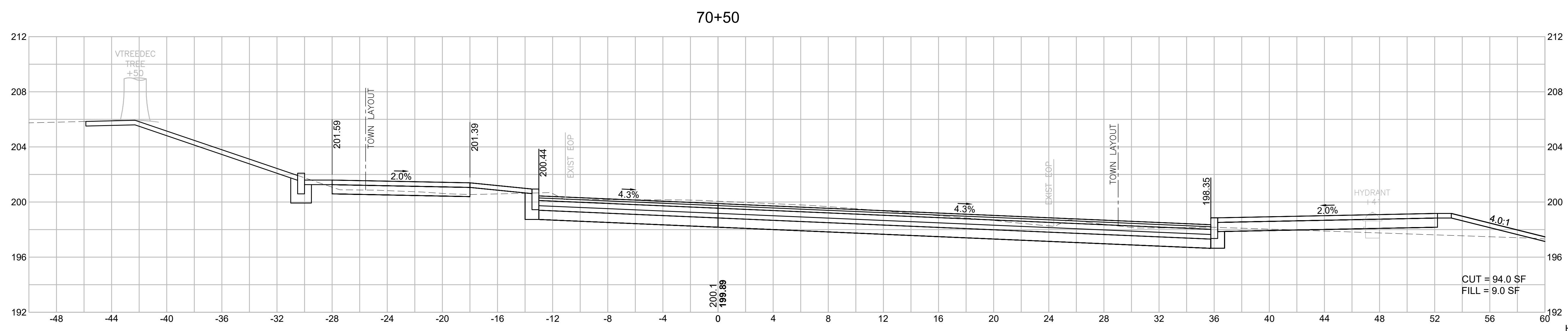
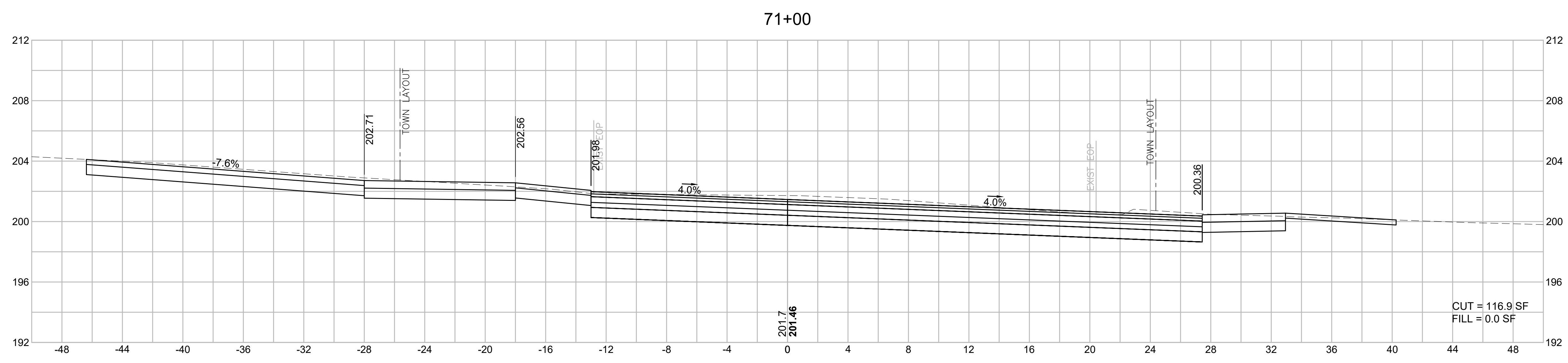
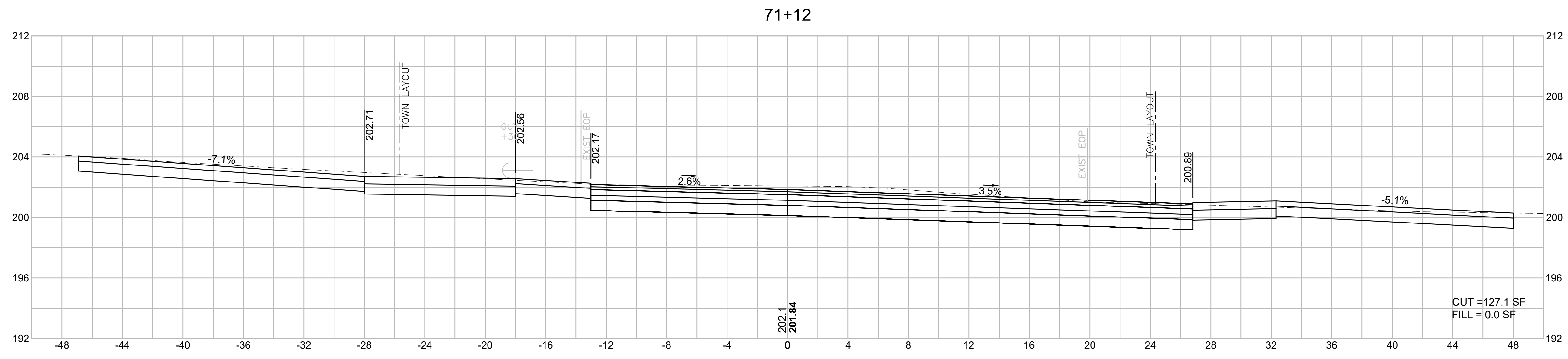


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	133	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
GOOD STREET

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:33 PM



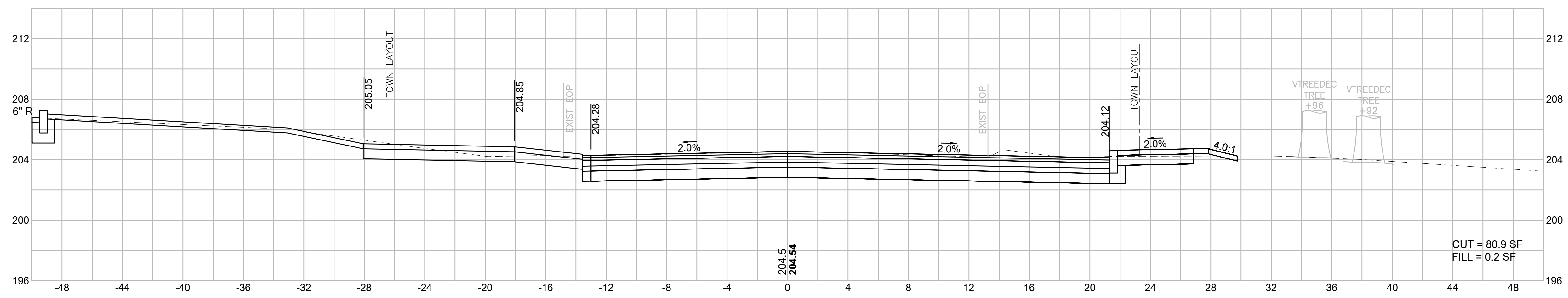
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	134	139
PROJECT FILE NO.		605178	

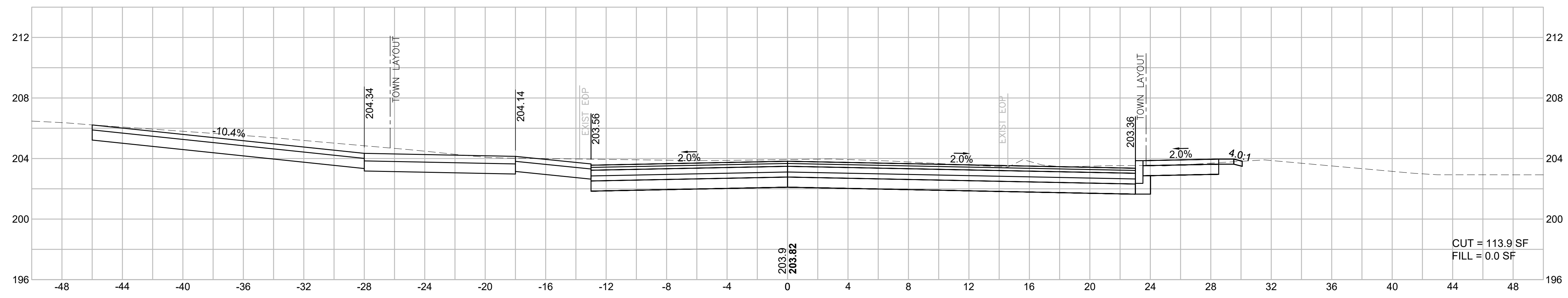
CROSS SECTIONS
GOOD STREET

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:33 PM

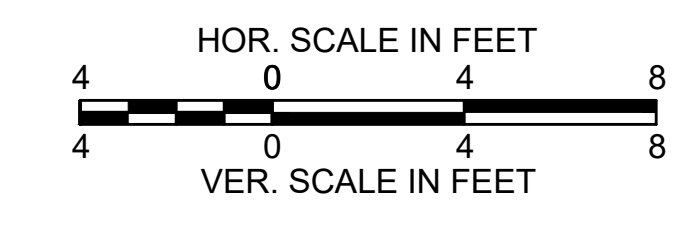
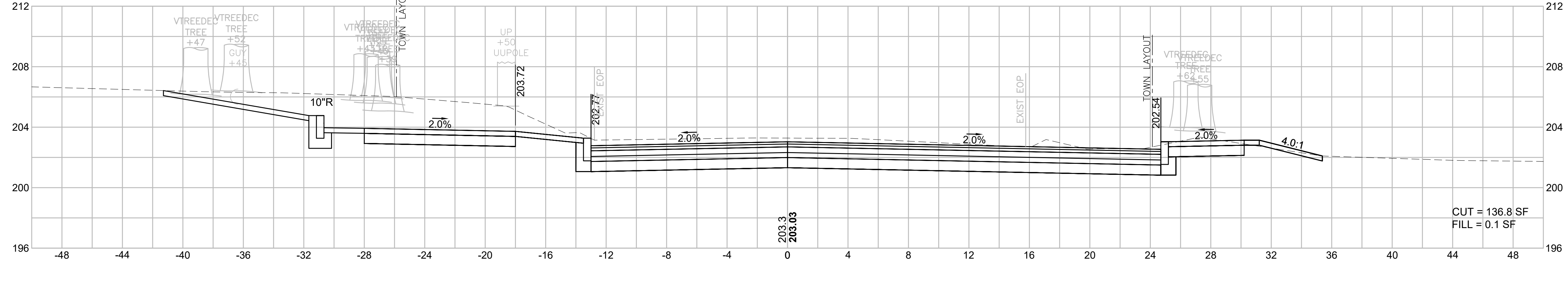
72+00



71+75



71+50

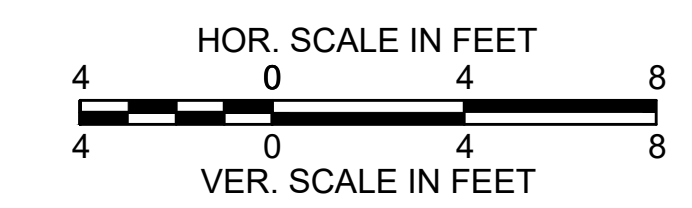
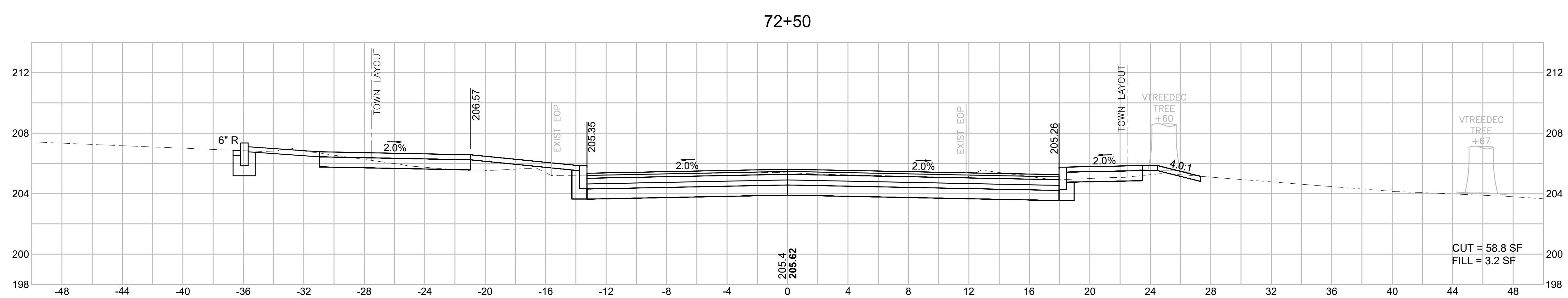
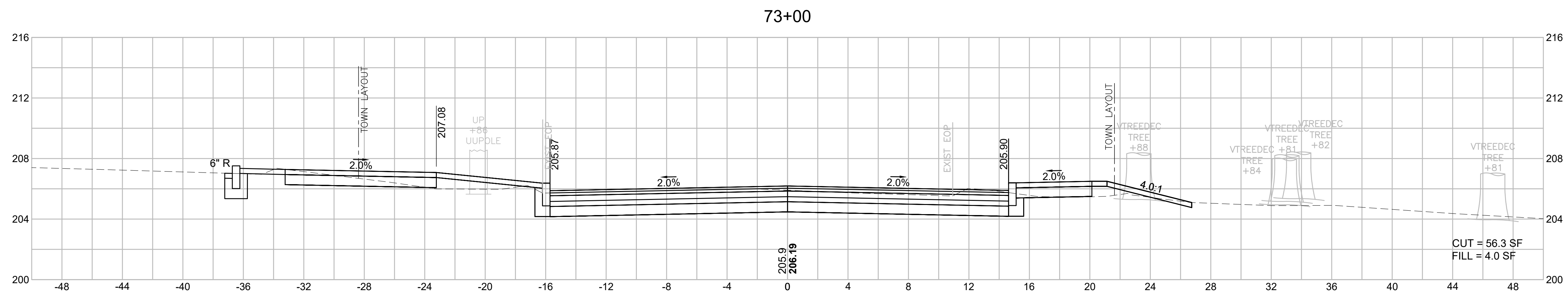
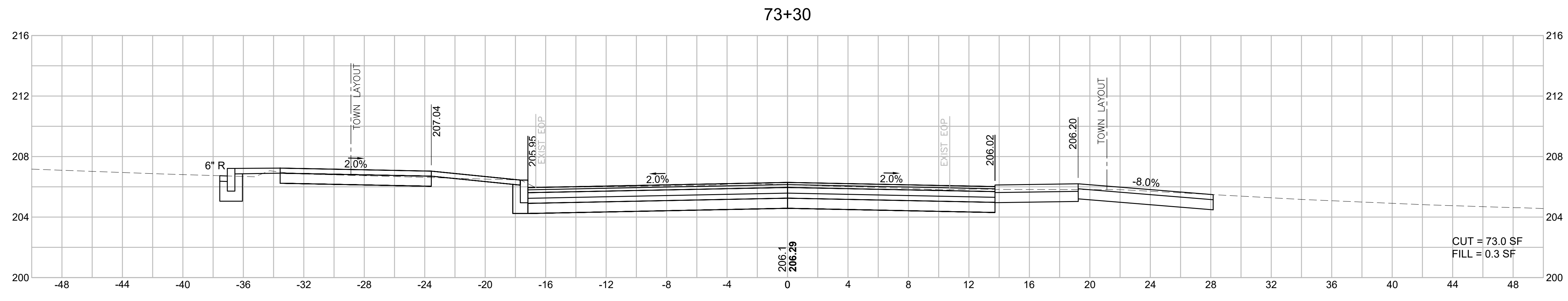


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	135	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
GOOD STREET

605178_HID(722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:34 PM

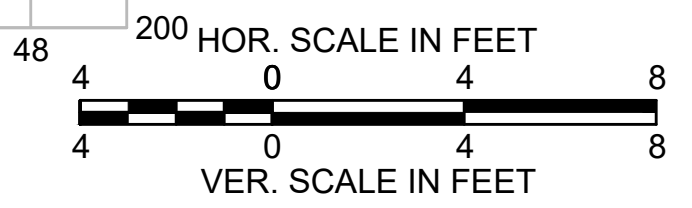
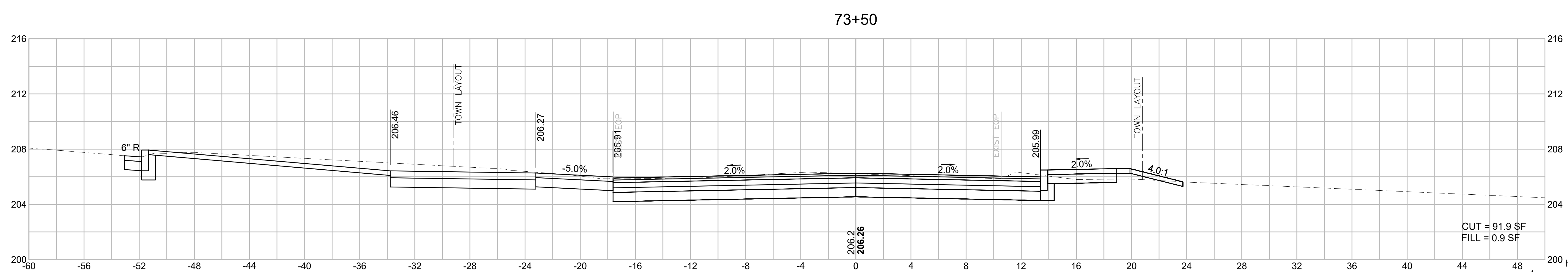
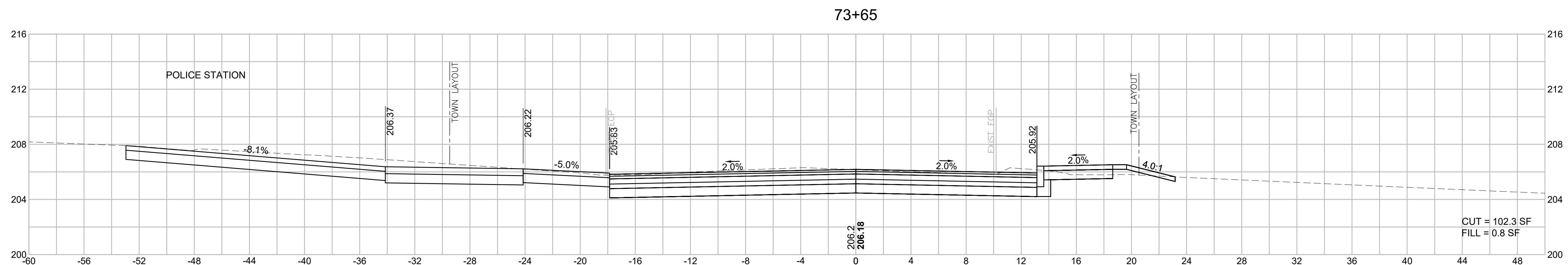
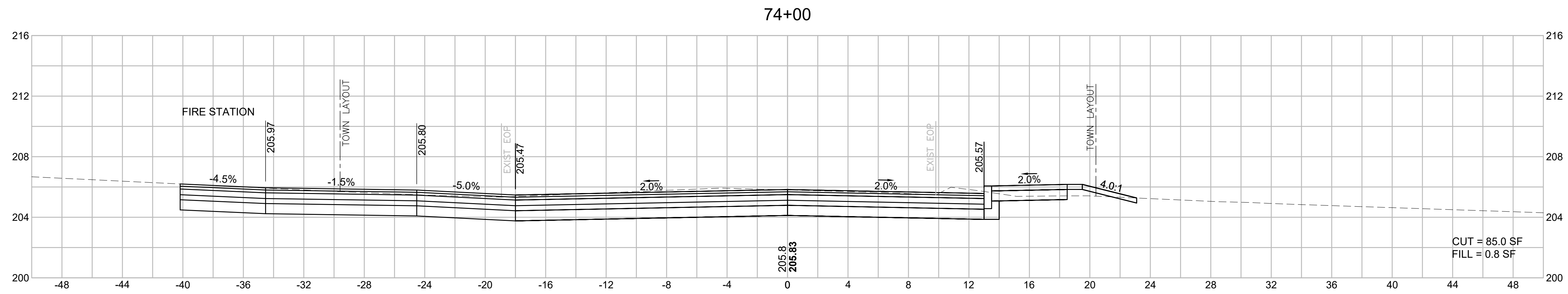


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	136	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
GOOD STREET

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:34 PM

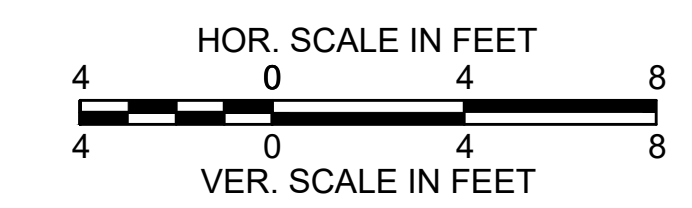
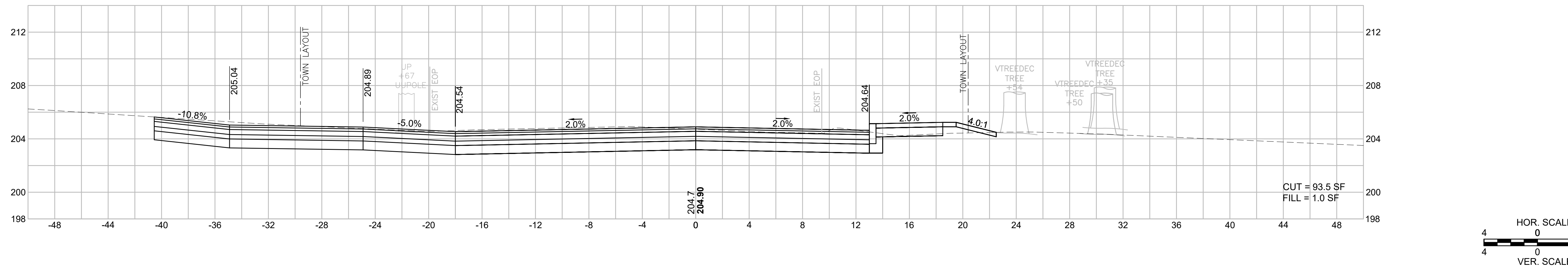
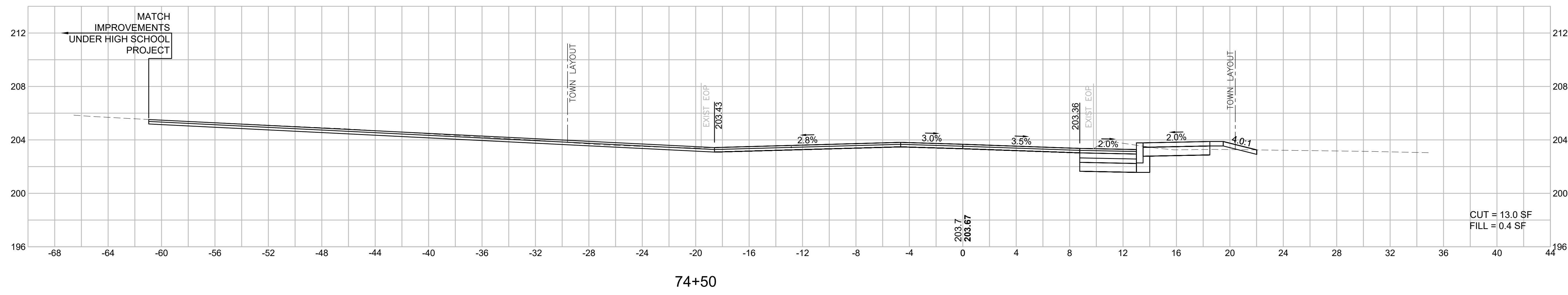
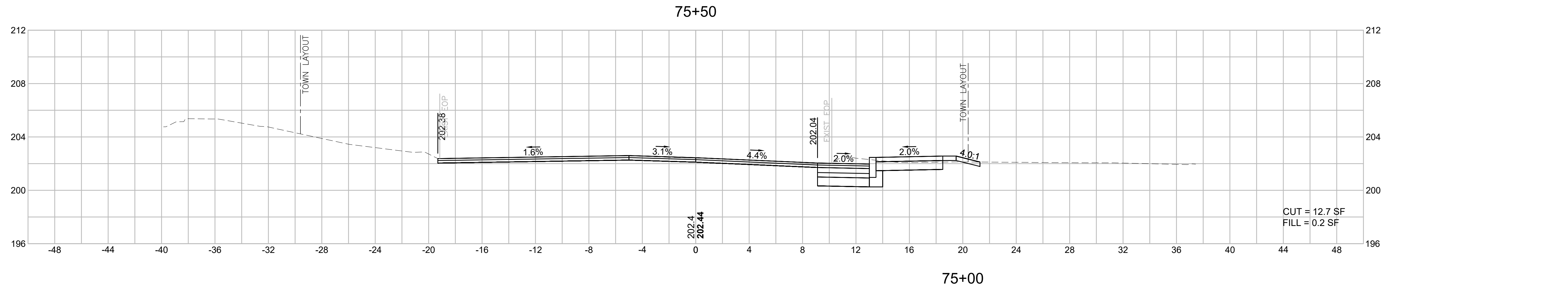


BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	137	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
GOOD STREET

605178_HID(4722_XS_SIDESTREETS).DWG Printed on 2-Aug-21 6:34 PM



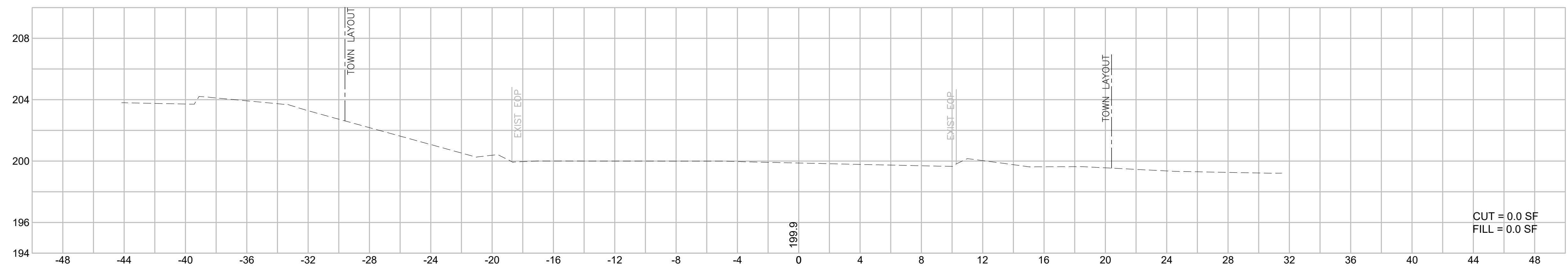
BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	138	139
PROJECT FILE NO.		605178	

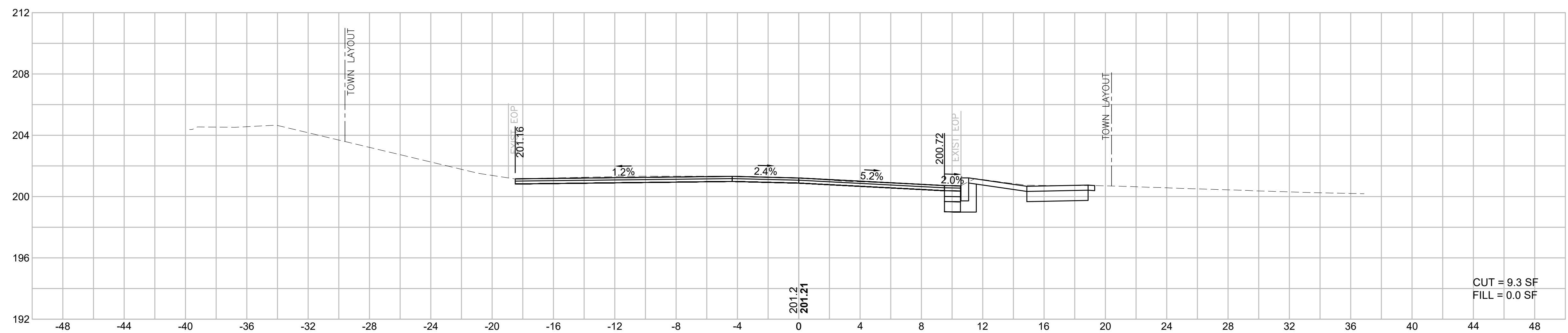
CROSS SECTIONS
GOOD STREET

605178_HD(4722_XS_SIDESTREETS).DWG Plotted on 2-Aug-21 6:34 PM

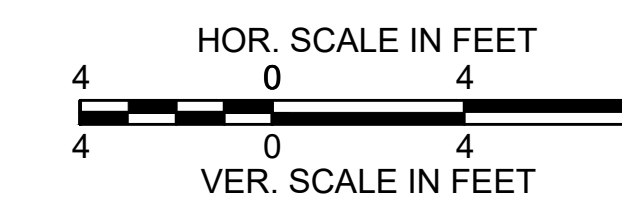
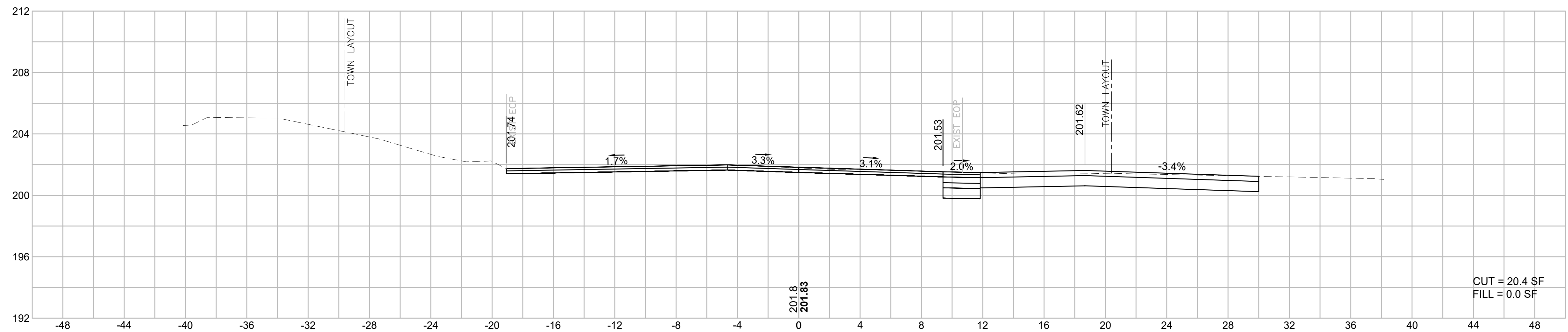
76+50



76+00



75+75



BILLERICA
BOSTON ROAD (ROUTE 3A)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	139	139
PROJECT FILE NO.		605178	

CROSS SECTIONS
FARMERS LANE

605178_HID(4722_XS_SIDESTREETS).DWG Plotted on 3-Aug-21 9:54 AM

