TOWN OF BOLTON, MA

ROUNDABOUT IMPROVEMENTS
MAIN ST. AT FORBUSH MILL - GREEN

SELECT BOARD

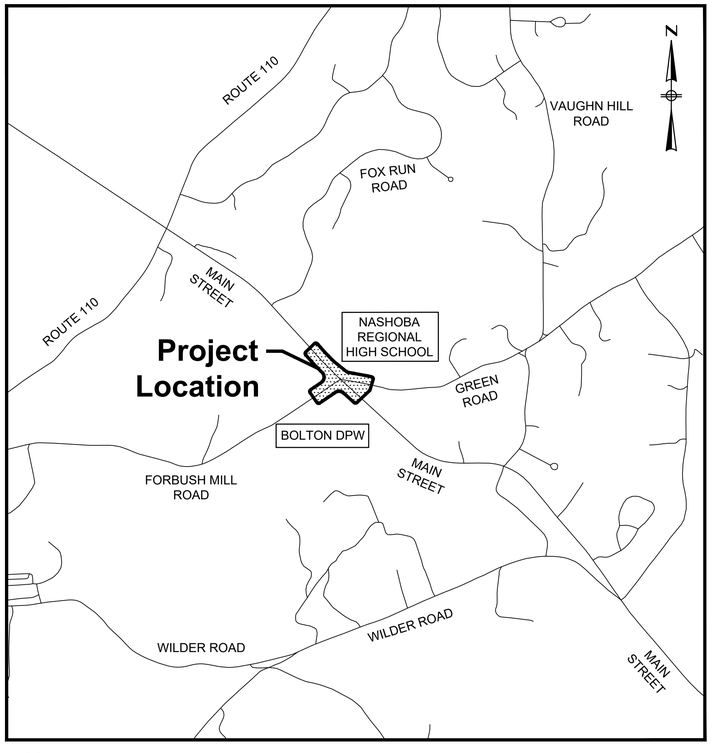
STAN WYSOCKI, CHAIRMAN
ROBERT CZEKANSKI, MEMBER

TOWN ADMINISTRATOR

DONALD LOWE

DEPARTMENT OF PUBLIC WORKS

RANDALL HEGLIN, DIRECTOR



PROJECT LOCATION

LOCATION MAP
NOT TO SCALE

PREPARED BY:

BETA
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ISSUE DATE: 03/20/2023

PLAN INDEX

PROGRESS PRINT

REGISTERED PROFESSIONAL _____ DATE _____

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CURB OR BERM (TYPE AS NOTED)
		EDGE OF PAVEMENT
CB	CB	CATCH BASIN (OR GUTTER INLET, LEACHING BASIN, DROP INLET, CATCH BASIN CURB INLET)
EHH	EHH	ELECTRIC HANDHOLE (NUMBER AS NOTED)
E	EMH	ELECTRIC MANHOLE
T	TMH	TELEPHONE MANHOLE
W	WMH	WATER MANHOLE
S	SMH	SEWER MANHOLE
D	DMH	DRAINAGE MANHOLE
GG	GG	GAS GATE
WG	WG	WATER GATE
CS	CS	CURB STOP
HYD	HYD	HYDRANT
FA	FAB	FIRE ALARM BOX
PM		PARKING METER
LP		STREET LIGHT POLE
UP	UP	UTILITY POLE
UPL	UPL	UTILITY POLE w/ LIGHT
		SIGN
GUY	GUY	GUY POLE
12" RCP D	10'-12" RCP	DRAIN PIPE (SIZE AS NOTED)
8" VCP S	10'-8" PVC	SEWER MAIN (SIZE AS NOTED)
E	10'-8" PVC	ELECTRIC DUCT
4" HP G	10'-4" HP	GAS MAIN (SIZE AS NOTED)
8" CI W	10'-8" DI	WATER MAIN (SIZE AS NOTED)
T	10'-8" PVC	TELEPHONE DUCT (SIZE AS NOTED)
OHW	OHW	OVERHEAD WIRE
MB	MB	MAIL BOX
		WOOD GUARD RAIL STEEL BEAM GUARD, WOOD OR STEEL POSTS (TYPE AS NOTED)
		STEEL GUARD RAIL, STEEL POSTS (TYPE NOTED)
		STONE WALL
		RETAINING WALL (TYPE NOTED)
BND	BND	HIGHWAY/PROPERTY BOUND (TYPE AS NOTED)
SHLO (Date of Layout)		STATE HIGHWAY LAYOUT LINE (SHLO)
		CITY, TOWN OR COUNTY LAYOUT LINE (R.O.W.)
Boundary Name		CITY, TOWN, COUNTY OR STATE BOUNDARY LINE
		PROPERTY LINE
		EASEMENT LINE (TYPE NOTED)
2+00	2+00	CONSTRUCTION BASELINE
N00°00'00"E 000.00'		SURVEY LINE
		RAILROAD OR STREET RAILWAY TRACKS WITH SIDELINES
		PEDESTRIAN CURB RAMP
24" PINE		TREE (SIZE AND TYPE AS NOTED)
		HEDGE/SHRUBS
WF-1	x x x	FENCE (SIZE AND TYPE AS NOTED)
		EDGE OF WETLAND W/ FLAGGED NUMBER
		EDGE OF RIVER/STREAM LINE
		100-FT. WETLAND BUFFER LIMIT
		100-FT. RIVER FRONT LIMIT
		200-FT. RIVER FRONT LIMIT
		WOODED AREA / LIMIT OF CLEARING
x 00.0	x 00.00	SPOT GRADE
		SAW CUT LINE
	TP-1	TEST PIT
	B-1	BORING
ECB	ECB	EROSION CONTROL BARRIER/COMPOST FILTER TUBES

ABBREVIATIONS

GENERAL

ABAN	ABANDON
ADJ	ADJUST
ALT	ALTERATION
APPROX	APPROXIMATE
℄	BASELINE
BB	BITUMINOUS BERM
BC	BITUMINOUS CURB
BD OR BND	BOUND
BLDG	BUILDING
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BOW	BOTTOM OF WALL
BSW	BACK OF SIDEWALK
CC	CEMENT CONCRETE
CEM	CEMENT
CLF	CHAIN LINK FENCE
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
DWY	DRIVEWAY
EP, EOP	EDGE OF PAVEMENT
EL	ELEVATION
ELECT	ELECTRICAL
ESMT	EASEMENT
EXIST	EXISTING
FDN	FOUNDATION
GRAN	GRANITE
GC	GRANITE CURB
HOR	HORIZONTAL
IP	IRON PIPE
JCT	JUNCTION
LP	LOW POINT
MB	MAIL BOX
MHB	MASSACHUSETTS HIGHWAY BOUND
OC	ON CENTER
PCR	PEDESTRIAN CURB RAMP
PCC	POINT OF COMPOUND CURVATURE
PC	POINT OF CURVATURE
PRC	POINT OF REVERSE CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PERM	PERMANENT
PGL	PROFILE GRADE LINE
PROP	PROPOSED
PVC	POINT OF VERTICAL CURVATURE
PVMT	PAVEMENT
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RR	RAILROAD
RT	RIGHT
SB	SOUTH BOUND OR STONE BOUND
SW	SIDEWALK
SHT	SHEET
SHLD	SHOULDER
STA	STATION
TEMP	TEMPORARY
TOS	TOP OF SLOPE
TOW	TOP OF WALL
TYP	TYPICAL
VAR	VARIABLE
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB

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

UTILITIES

ACCMP	ASPHALT COATED CORRUGATED METAL PIPE
CAP	CORRUGATED ALUMINUM PIPE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CI	CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CMP	CORRUGATED METAL PIPE
C	CONDUIT
CPP	CORRUGATED PLASTIC PIPE
CSP	CORRUGATED STEEL PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FM	FORCE MAIN
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GG	GAS GATE
HDW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
LP	LIGHT POLE
MH	MANHOLE
PVC	POLY-VINYL-CHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE (CLASS III UNLESS NOTED)
SD	SUBDRAIN
SMH	SEWER MANHOLE
TS	TRAFFIC SIGNAL
TSV&B	TAPPING SLEEVE, VALVE AND BOX
UP	UTILITY POLE
UPL	UTILITY POLE w/ LIGHT
UPT	UTILITY POLE w/ TRANSFORMER
VCP	VITRIFIED CLAY PIPE
WIP	WROUGHT IRON PIPE
WG	WATER GATE
WM	WATER METER/WATER MAIN

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED WITH FOUNDATION
		CONTROL CABINET POLE MOUNTED
	Ø2	CONTROLLER PHASE
	MA-1	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
HH		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
M	M	MAGNETIC DETECTOR
		SCHOOL ZONE SPEED LIMIT SIGN
		MICROWAVE OR ULTRASONIC DETECTOR
		VIDEO DETECTION CAMERA
		VIDEO DETECTION ZONE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

PROPOSED

CW	CROSSWALK, 2 - 12" WHITE LINES (8' WIDTH)
SL	STOP LINE - 12" WHITE LINE 4' BEHIND CW (TYP.)
SWL	SOLID WHITE LINE - 4"
SWCHL	SOLID WHITE CHANNELIZING LINES - 12" (SPACING NOTED)
SWGL	SOLID WHITE GORE LINE 12" @ 45°, (SPACING NOTED)
SWPL	SOLID WHITE PARKING LINE - 4"
BWL	BROKEN WHITE LINE - 4" (10' LINE & 30' GAP)
DWLEx	DOTTED WHITE LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
DYLEx	DOTTED YELLOW LANE EXTENSION LINE - 4" (2' LINE & 6' GAP)
BYL	BROKEN YELLOW LINE - 4"
DBYL	DOUBLE YELLOW LINE - 2 - 4" LINES
SYL	SOLID YELLOW LINE - 4"
SYGL	SOLID YELLOW GORE LINE 12" @ 45°, (SPACING NOTED)
SCHOOL	SCHOOL ZONE - WHITE
	ACCESSIBLE SYMBOL - WHITE
	PAVEMENT ARROW - WHITE
ONLY	LEGEND "ONLY" - WHITE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL
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SCALE
NONE
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
LEGEND & ABBREVIATIONS
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 2 of 21

3/23/2023 9:28 AM \\BETA-INC.COM\MAIPROJECTS\7500S\7511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 LEGEND.DWG (MADOT-D.STB)

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT SURVEYS. THE CONTRACTOR SHALL EMPLOY A COMPETENT REGISTERED PROFESSIONAL SURVEYOR, REGISTERED IN THE COMMONWEALTH OF MASSACHUSETTS, TO COMPLETE ALL CONSTRUCTION LAYOUT.

2. THE ACCURACY AND COMPLETENESS OF ALL UNDERGROUND AND OVERHEAD UTILITIES AS SHOWN ON THE PLANS IS NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE EXACT LOCATION, SIZE, TYPE, DEPTH, ETC. OF ALL UNDERGROUND UTILITIES THAT MAY BE AFFECTED BY THE WORK. ALL TOWN-OWNED UTILITY STRUCTURES, WITHIN AREAS AFFECTED BY THE WORK, SHALL BE ADJUSTED OR REMODELED TO NEW LINE AND GRADE AS DIRECTED BY THE ENGINEER. ANY UTILITY AND/GUY POLES, WITHIN AREAS AFFECTED BY THE WORK, SHALL BE REMOVED AND RESET BY THE RESPECTIVE UTILITY COMPANY. ALTERATIONS TO UTILITIES AND UTILITY STRUCTURES NOT OWNED BY THE TOWN SHALL BE MADE BY THE RESPECTIVE UTILITY OWNERS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WORK IN ADVANCE WITH THOSE UTILITY OWNERS.

3. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) A MINIMUM OF 72 HOURS PRIOR TO ANY CONSTRUCTION TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. TOWN OF BOLTON, MASSDOT, AND MWRA TO BE CONTACTED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION.

4. ALL EXISTING DRAINAGE STRUCTURES SHALL BE RETAINED UNLESS OTHERWISE NOTED ON THE PLANS.

5. THE CONTRACTOR SHALL VERIFY EXISTING GRADES. IF ANY ADJUSTMENT IS REQUIRED DUE TO DIFFERENT EXISTING GRADES FOUND IN THE FIELD, THE CONTRACTOR SHALL NOTIFY AND OBTAIN THE APPROVAL OF THE ENGINEER PRIOR TO PERFORMING THE WORK.

6. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION, AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL BE REMOVED UPON COMPLETION OF ALL THE WORK WHEN ALL DISTURBED AREAS ARE STABILIZED, TO THE SATISFACTION OF THE ENGINEER.

7. ALL PROPOSED DRAINAGE STRUCTURES SHALL BE AS PER TOWN OF BOLTON STANDARDS UNLESS OTHERWISE NOTED. HOWEVER, ALL PROPOSED CATCH BASINS, WITHIN THE TOWN/ COUNTY HIGHWAY LAYOUT, SHALL INCLUDE HOOK LOCK CASCADE GRATES, SEE PLANS.

8. ALL EXISTING DRAINAGE LINES TO BE REPLACED SHALL BE ABANDONED IN PLACE UNLESS OTHERWISE NOTED. IF ANY EXISTING LINES CONFLICT WITH THE PROPOSED DRAINAGE LINES, THEY SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.

9. WHERE DRAINAGE PIPES OR OTHER STRUCTURES ARE ABANDONED IN PLACE, THE CONTRACTOR SHALL MAKE SURE THAT ALL CONNECTING PIPES, INLETS AND OUTLETS ARE PLUGGED. ALL LIVE DRAINAGE LINES SHALL BE CONNECTED TO THE NEW SYSTEM.

10. WHEN A PROPOSED CATCH BASIN INTERFERES WITH ANY OTHER UNDERGROUND UTILITY, CONTACT THE ENGINEER.

11. ANY EXISTING GRANITE CURB THAT CAN BE RE-USED SHALL BE R&R AS DIRECTED BY THE ENGINEER. NEW GRANITE CURB SHALL NOT BE INTERLAYED WITH R&R GRANITE CURB. IF EXISTING CATCH BASINS ARE TO REMAIN IN PLACE WITH GRANITE CURB BEHIND THEM, THE CONTRACTOR SHALL REPLACE THE EXISTING CURB WITH A CURB INLET SECTION, AS DIRECTED BY THE ENGINEER.

12. ALL TREES WITHIN THE LIMITS OF WORK SHALL BE RETAINED UNLESS OTHERWISE NOTED ON THE PLANS. IN ADDITION, SOME TREES, IN CRITICAL LOCATIONS, ARE NOTED TO BE RETAINED, FOR CLARITY. THE ENGINEER SHALL OBTAIN THE APPROVAL OF THE TOWN TREE WARDEN OR HIS EQUIVALENT OFFICER BEFORE ANY TREE IS REMOVED. TREE PROTECTION SHALL BE INSTALLED PRIOR TO THE ONSET OF CONSTRUCTION ACTIVITY.

13. PRIOR TO UTILITY POLE RELOCATIONS THE CONTRACTOR SHALL COORDINATE WITH UTILITIES FOR THE PLACEMENT OF OHW, POLES, GUY WIRES, ANCHORS, AND UNDERGROUND CONDUIT. TREE TRIMMING AND/ OR TREE REMOVALS MADE NECESSARY BY THAT WORK WILL BE PERFORMED BY THE CONTRACTOR UNDER CONTRACT ITEMS, IT BEING NOTED THAT MORE THAN ONE MOBILIZATION MAY BE REQUIRED FOR THIS WORK.

14. RETAINED VEGETATION, WHICH RESTRICT SIGHT DISTANCE OR RESTRICT HORIZONTAL OR VERTICAL CLEARANCES SHALL BE TRIMMED AS DIRECTED BY THE ENGINEER.

15. UNLESS OTHERWISE NOTED, ALL EXISTING WALLS WITHIN THE PROJECT LIMITS SHALL BE RETAINED.

16. WHEN WORKING NEXT TO EXISTING TREES, WALLS OR FENCES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO DISTURB THE EXISTING WALLS, TREES OR FENCES. THE CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR ANY DAMAGES TO EXISTING TREES, WALLS, OR FENCES DUE TO THE CONSTRUCTION PROCESS AND AS DIRECTED BY THE ENGINEER. ALL WORK ASSOCIATED WITH THE REPAIR OR REPLACEMENT OF EXISTING TREES, WALLS OR FENCES SHALL BE CONSIDERED AS INCLUDED IN THE BID PRICE AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED THEREFORE.

17. IN AREAS OF NEW SIDEWALK, NEW EDGE OF PAVEMENT OR CURB WITHOUT SIDEWALK, OR ANY WORK ADJACENT TO EXISTING GRASS AREAS, LOAM AND SEED SHALL BE PROVIDED AS NECESSARY TO REPAIR ANY DAMAGE TO THE GRADE CAUSED BY THE CONSTRUCTION PROCESS, AS DIRECTED BY THE ENGINEER.

18. ALL AREAS OUTSIDE THE LIMITS OF THE PROPOSED WORK THAT HAVE BEEN DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE, TO THE SATISFACTION OF THE ENGINEER AND THE PROPERTY OWNER.

19. ALL JOINTS BETWEEN EXISTING AND PROPOSED PAVEMENT AT SIDE STREETS, DRIVEWAYS, MILLING AND OVERLAY TRANSITIONS SHALL BE SAWCUT BY MECHANICAL MEANS. ALL JOINTS SHALL BE SEALED WITH HMA IN ACCORDANCE WITH REQUIREMENT OF SECTION 450.49.

20. MAILBOXES, FENCES, ETC., THAT NEED TO BE RELOCATED SHALL BE REMOVED AND RESET (R&R) IN THEIR NEW LOCATIONS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE OWNER SHALL BE CONSULTED PRIOR TO THE WORK. ALL FENCES AND HEDGES SHALL BE RETAINED AS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

21. EXISTING ON-THE-GROUND SURVEY BY ALPHA SURVEY GROUP, 695 WAREHAM STREET MIDDLEBOROUGH, MA 02346, ON MARCH 31, 2021.
    HORIZONTAL DATUM: MASSACHUSETTS STATE PLANE (NAD83)
    VERTICAL DATUM: NAVD88

22. PROPOSED BOUNDS, AND BOUNDS REMOVED AND RESET SHALL BE SET FLUSH WITH THE ADJACENT WALK SURFACE.

23. ALL STRUCTURES IN SIDEWALKS SHALL BE SET FLUSH WITH FINISH GRADE IN ACCORDANCE WITH ADA REQUIREMENTS.

PEDESTRIAN RAMP NOTES

1. ALL PEDESTRIAN RAMPS SHALL CONFORM TO THE REQUIREMENTS OF THE ARCHITECTURAL ACCESS BOARD (A.A.B.), THE AMERICANS WITH DISABILITIES ACT (A,D,A,) AND MASSDOT HIGHWAY DIVISION.

2. ALL PROPOSED CURB FOR PEDESTRIAN RAMP TRANSITIONS SHALL BE CUT AND TRANSITIONED AS NECESSARY TO PROVIDE THE CORRECT TRANSITION LENGTHS FOR EACH PEDESTRIAN RAMP, AS SHOWN ON THE PEDESTRIAN RAMP DETAILS OR AS DIRECTED BY THE ENGINEER. ANY EXISTING CURB INLETS, IN AREAS OF NEW PEDESTRIAN RAMP TRANSITIONS, SHALL BE REMOVED AND REPLACED WITH APPROPRIATE TRANSITION CURB, AS DIRECTED BY THE ENGINEER.

3. IN NO CASE, EXCEPT MAXIMUM LENGTH HIGH SIDE TRANSITIONS, SHALL ANY TRANSITION SLOPE OF ANY PEDESTRIAN RAMP EXCEED 7.5%. PROPOSED PEDESTRIAN RAMP SLOPES, ESPECIALLY HIGH SIDE TRANSITIONS, SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE POURING OF CONCRETE, AND ADJUSTED, IF NECESSARY, AT THE DIRECTION OF THE ENGINEER.

4. IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR OTHER "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET, IS WITHIN THE PEDESTRIAN RAMP PATH OF TRAVEL, 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 PEDESTRIAN RAMP EXACTLY, AS DIRECTED BY THE ENGINEER.

5. ANY UTILITY STRUCTURES WITHIN THE TRANSITIONS OF THE PEDESTRIAN RAMP TRANSITIONS SHALL ALSO BE ADJUSTED TO THE PROPOSED GRADE AND THE SLOPE OF THE SURFACE OF THE PROPOSED TRANSITION PANEL OR PANELS.

6. THE LOCATION OF PROPOSED PEDESTRIAN RAMPS ARE SHOWN ON THE CONSTRUCTION PLANS AND THE PEDESTRIAN RAMP DATA SCHEDULE. EXACT LOCATIONS MAY BE ADJUSTED, IF NECESSARY, BY THE ENGINEER IN THE FIELD.

7. DETECTABLE WARNING PANELS SHALL BE INSTALLED ON ALL PEDESTRIAN RAMPS IN ACCORDANCE WITH CONSTRUCTION STANDARD E 107.6.5 (2017) AND WILL BE PAID FOR UNDER ITEM 701.2.

8. PROPOSED PEDESTRIAN RAMP SLOPES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO THE POURING OF CONCRETE, AND ADJUSTED, IF NECESSARY, TO CONFORM TO THE LATEST STANDARDS, AS DIRECTED BY THE ENGINEER.

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

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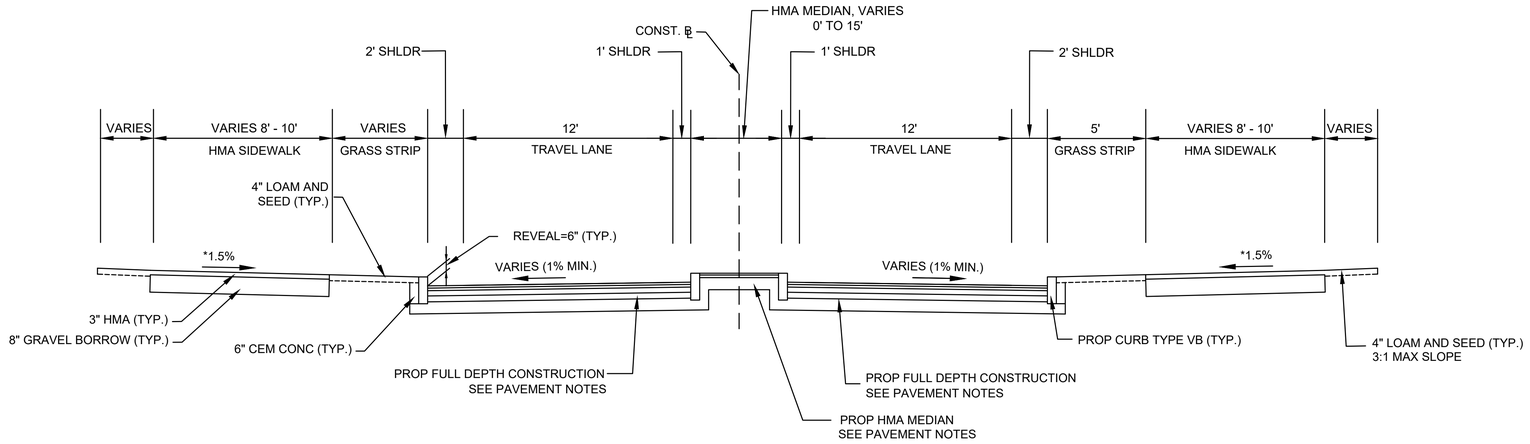
SUBCONSULTANT:

SCALE: NONE

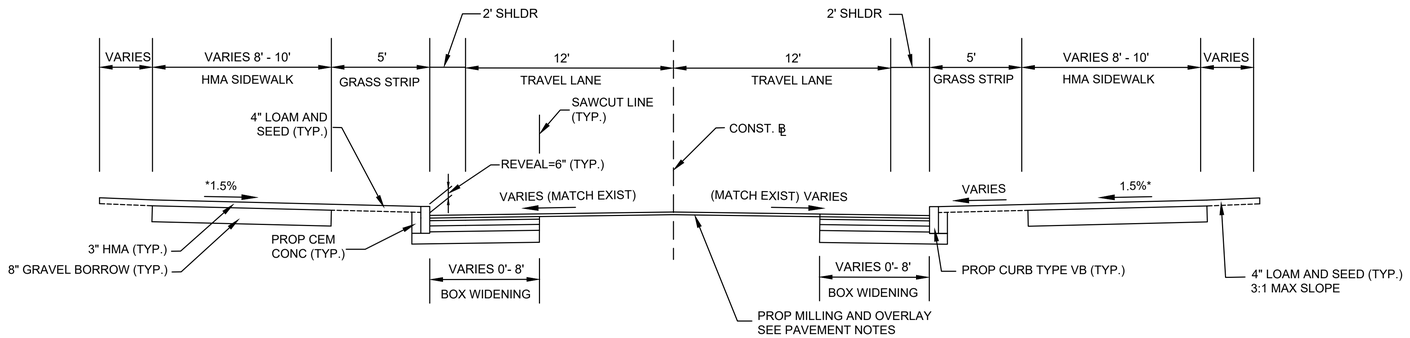
TITLE: INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
GENERAL NOTES
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 3 of 21



TYPICAL SECTION - ROUTE 117

STA. 14+35 TO STA.16+93
STA. 31+25 TO STA. 34+35
NOT TO SCALE



TYPICAL SECTION - ROUTE 117

STA. 11+20 TO STA.14+35
STA. 16+93 TO STA. 19+50
STA. . 34+35 TO STA.35+48
NOT TO SCALE

PAVEMENT NOTES

MILLING AND OVERLAY

SURFACE COURSE	1 3/4" PAVEMENT STANDARD MILLING 1 3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5)

BOX WIDENING 4.0' OR LESS

SURFACE COURSE:	1 1/2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5)
INTERMEDIATE COURSE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE COURSE 12.5 (SIC-12.5) OVER
BASE COURSE:	6" HES CEMENT CONCRETE BASE, 3000 PSI 1-1/2", 470 CEM. CONC.
SUB BASE:	8" GRAVEL BORROW, TYPE b

FULL DEPTH CONSTRUCTION/BOX WIDENING > 4.0' WIDE (INCLUDES ASPHALT BRICK IMPRINT AREAS)

SURFACE COURSE :	1 1/2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5)
INTERMEDIATE COURSE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)
BASE COURSE:	3.5" SUPERPAVE BASE COURSE – 25.5 (SBC-25.5)
SUB-BASE:	4" DENSE GRADED CRUSHED STONE 8" GRAVEL BORROW, TYPE b

CEMENT CONCRETE SIDEWALKS, WHEELCHAIR RAMPS AND ISLANDS

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

HMA DRIVEWAYS & APRONS

SURFACE:	1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 2.5" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
FOUNDATION:	8" GRAVEL BORROW, TYPE b

HMA SIDEWALKS AND MEDIANS

SURFACE:	1.25" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 1.75" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER
FOUNDATION:	8" GRAVEL BORROW, TYPE b

PAVEMENT NOTES

1. ALL HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE INSTALLED PER SECTION 450.
2. TACK COAT SHALL BE APPLIED FOR UNIFORM COVERAGE OF 90% AT RATE OF 0.07 GALLONS PER SQUARE YARD FOR MILLED SURFACES AND 0.05 GALLONS PER SQUARE YARD FOR MILLED SURFACES AND 0.05 GALLONS PER SQUARE YARD FOR SMOOTH TIGHT PAVED SURFACES.

NOTES:

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

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SUBCONSULTANT:

SCALE: NONE

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MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
TYPICAL SECTIONS AND PAVEMENT NOTES
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
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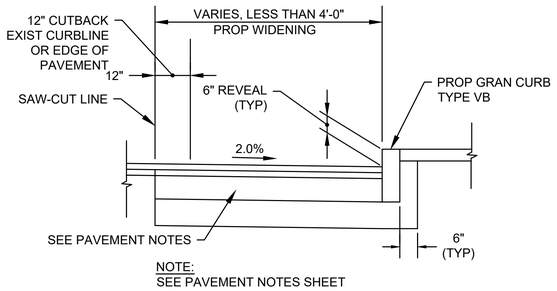
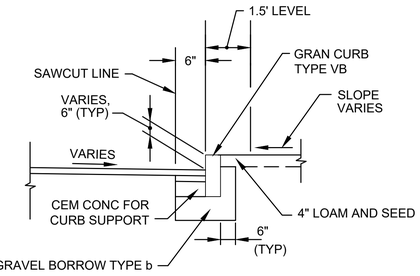
SHEET NO. **4 of 21**



NOTE:
SEE PAVEMENT NOTES SHEET

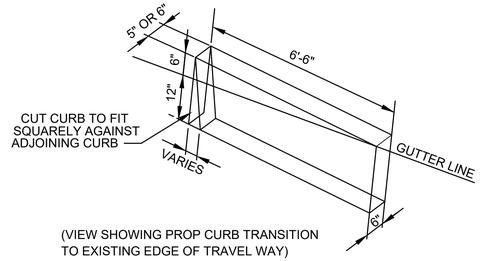
DETAIL FOR BOX WIDENING 4.0' OR LESS

NOT TO SCALE



DETAIL FOR GRANITE CURB WITHOUT SIDEWALK IN MILLING AREA

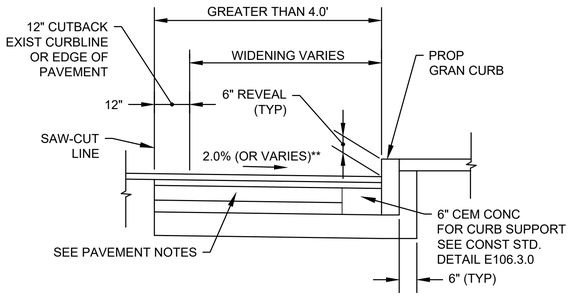
NOT TO SCALE



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

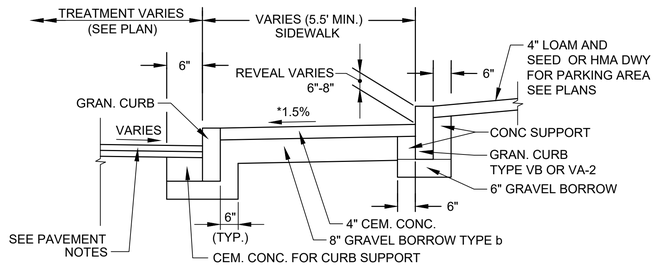
DETAIL FOR GRANITE TRANSITION CURB

NOT TO SCALE



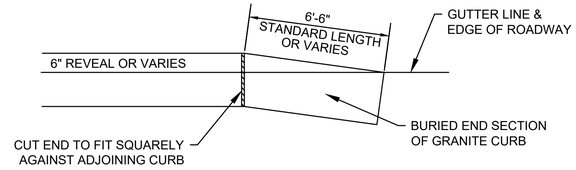
DETAIL FOR BOX WIDENING GREATER THAN 4.0'

NOT TO SCALE



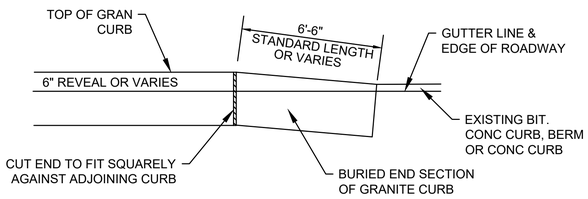
DETAIL FOR GRANITE CURB AT BACK OF SIDEWALK

NOT TO SCALE



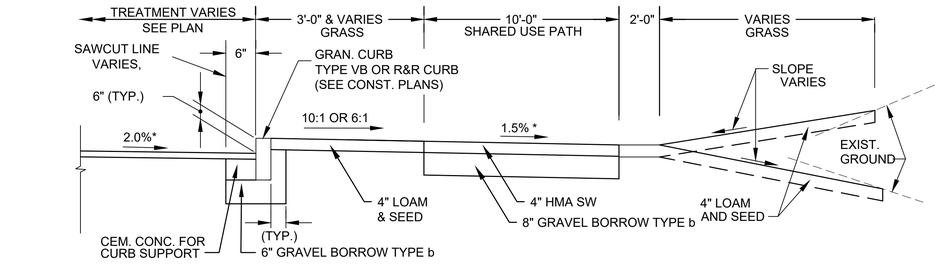
DETAIL FOR TRANSITION CURB
PROP CURB TO EXISTING EDGE OF TRAVEL WAY

NOT TO SCALE



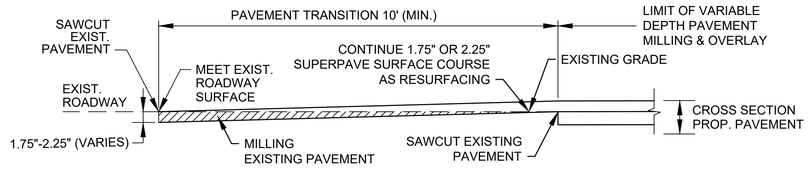
DETAIL FOR TRANSITION CURB
TRANSITION CURB - PROP CURB TO EXISTING CURB

NOT TO SCALE



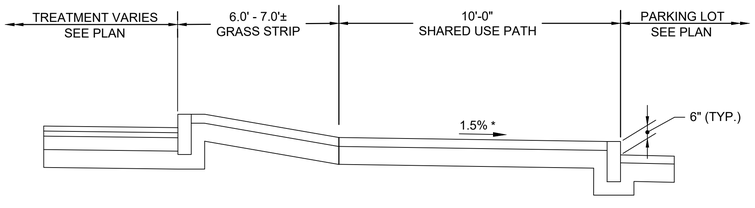
DETAIL FOR GRANITE CURB WITH SIDEWALK AND GRASS STRIP

NOT TO SCALE



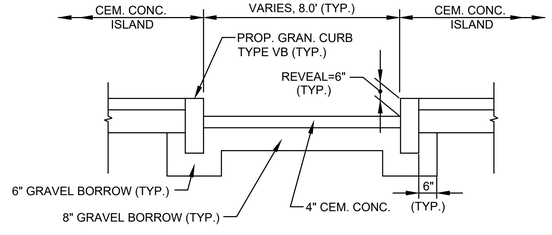
DETAIL FOR PAVEMENT TRANSITION AT LIMIT OF WORK

NOT TO SCALE



DETAIL FOR SHARED USE PATH

NOT TO SCALE



DETAIL FOR HANDICAPPED ACCESS
CUT THROUGH ISLAND

NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL
For Review Only

PREPARED BY
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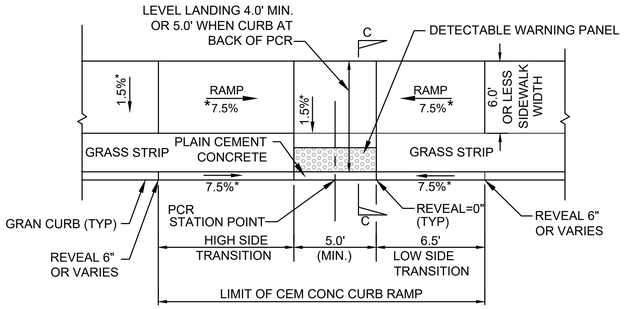
SUBCONSULTANT

SCALE
NONE

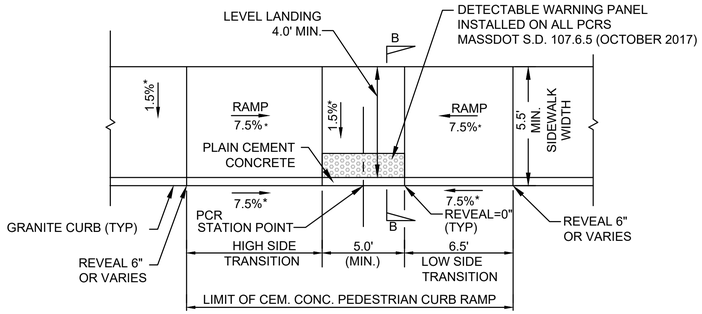
TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
GENERAL NOTES
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 5 of 21



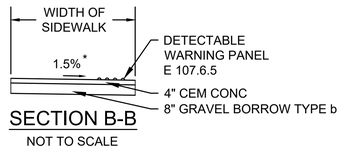
CURB RAMP DETAIL TYPE "D"

SEE MASSDOT S.D. E107.2.1
NOT TO SCALE



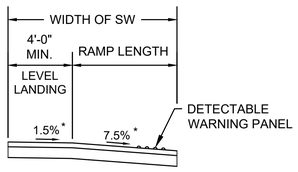
PEDESTRIAN CURB RAMP DETAIL TYPE "C"

NOT TO SCALE



SECTION B-B

NOT TO SCALE



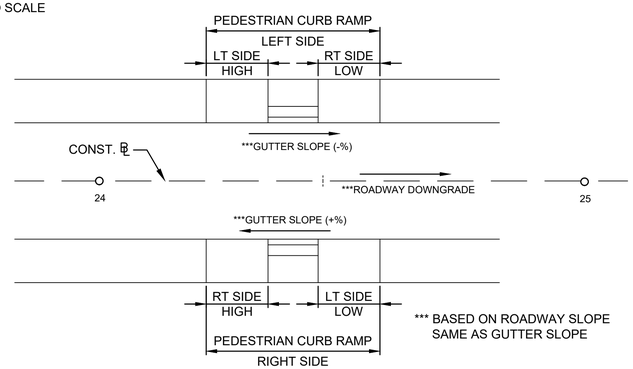
SECTION C-C

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 PEDESTRIAN CURB RAMPS

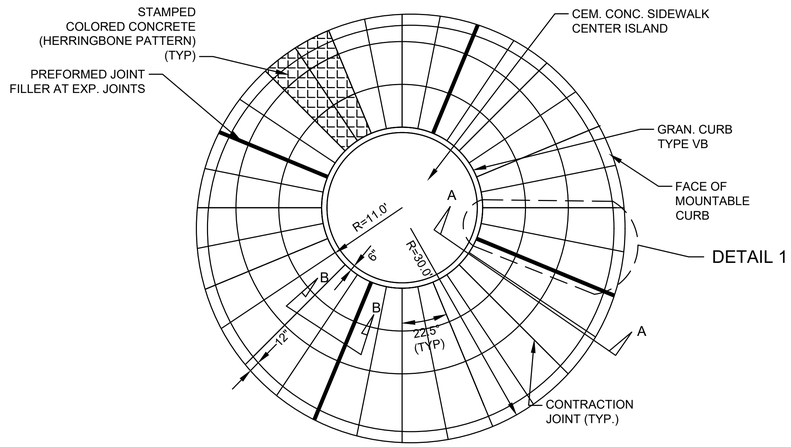
MASSDOT CONST. STD. DWG. NO. E107.9.0
*BASED ON A DESIGN SLOPE
OF 7.5% AND A REVEAL OF 6".



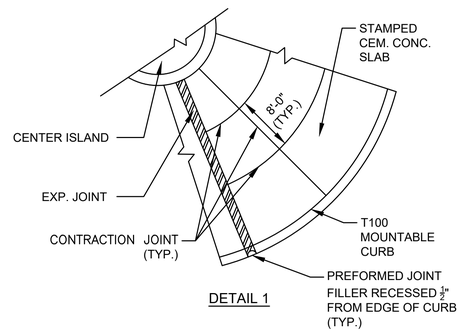
*** BASED ON ROADWAY SLOPE
SAME AS GUTTER SLOPE

GUTTER SLOPE DIAGRAM

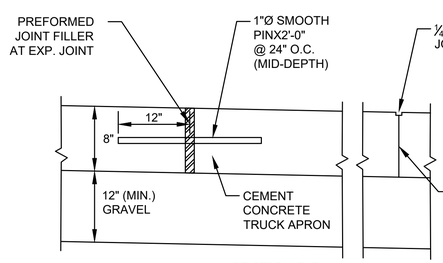
NOT TO SCALE



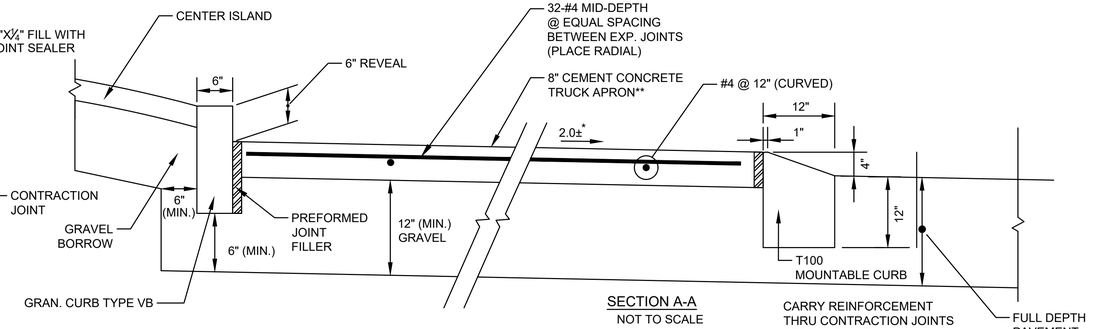
PLAN VIEW



DETAIL 1



SECTION B-B



SECTION A-A
NOT TO SCALE

CARRY REINFORCEMENT
THRU CONTRACTION JOINTS
STOP 2" CL. AT
EXPANSION JOINTS.

FULL DEPTH
PAVEMENT

** STAMPED CEMENT CONCRETE (AIR ENTRAINED), 5000 PSI, 3/4", 705

ROUNDABOUT TRUCK APRON DETAIL

NOT TO SCALE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

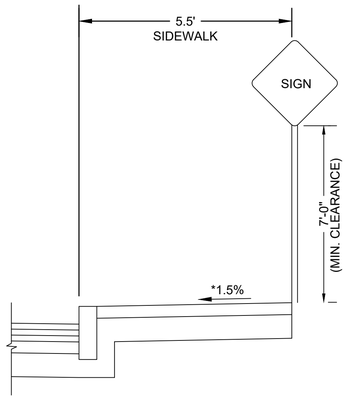
PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT:

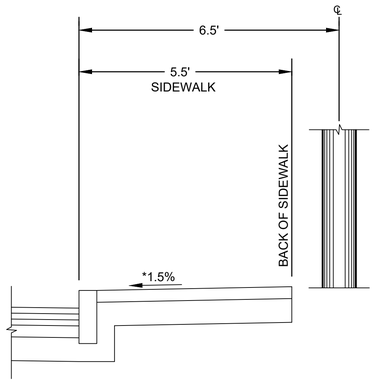
SCALE: NONE

TITLE:
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
TYPICAL SECTIONS AND PAVEMENT NOTES
BOLTON, MASSACHUSETTS

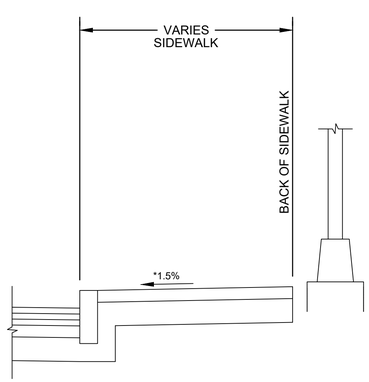
BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 6 of 21



TRAFFIC SIGN
NOT TO SCALE



UTILITY POLE
NOT TO SCALE

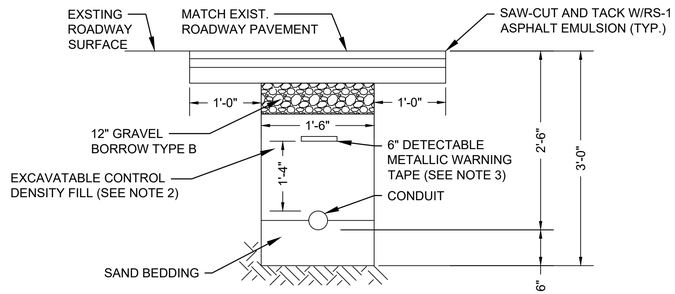


TRAFFIC SIGNAL FOUNDATION
NOT TO SCALE

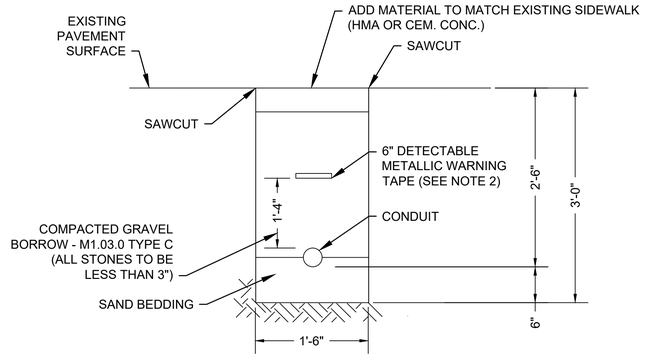
NOTES:
1. MINIMUM CLEAR PATH ON ALL SIDEWALKS SHALL 36 INCHES, EXCLUDING THE CURB.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL OBJECTS (SIGNS, POLES ETC.) TO BE SET WITHIN SIDEWALK PRIOR TO FINAL PLACEMENT TO PROVIDE A MINIMUM CLEAR PATH OF 36 INCHES NOT INCLUDING CURB. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY LOCATION WHICH CANNOT MEET THE CLEARANCE REQUIREMENTS.

* TOLERANCE FOR CONSTRUCTION ±0.5%

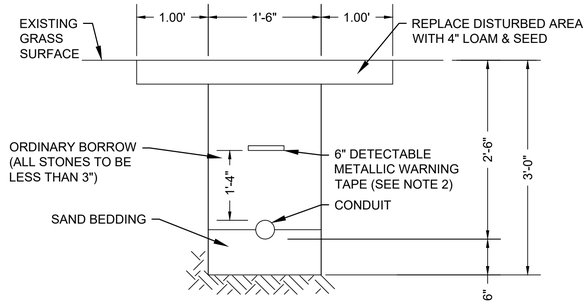
DETAILS SHOWING SIDEWALK CLEARANCES



CONDUIT CROSSING ROADWAY
NOT TO SCALE

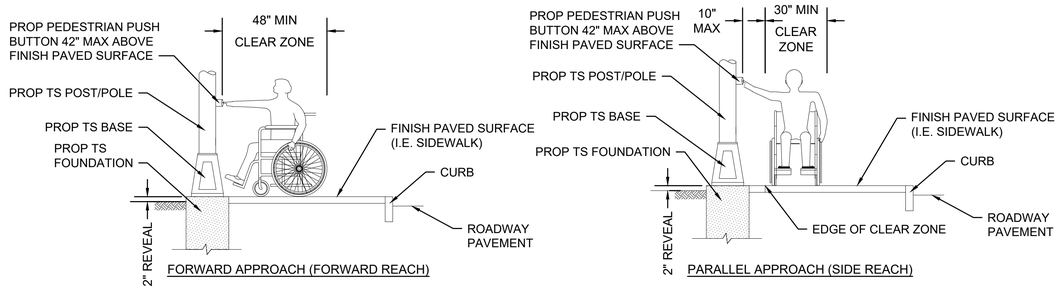


CONDUIT UNDER SIDEWALK AREAS
NOT TO SCALE



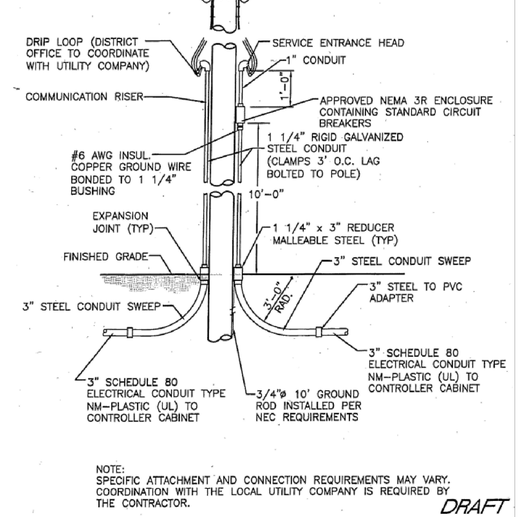
CONDUIT UNDER GRASS AREAS
NOT TO SCALE

NOTES:
1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE UNLESS OTHERWISE APPROVED BY MASSDOT.
2. CONTROL DENSITY FILL SHALL MEET THE REQUIREMENTS OF SUBSECTION M4.08.0
3. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.



PEDESTRIAN PUSH BUTTON CLEAR ZONE
NOT TO SCALE

NOTE:
A CLEAR GROUND SPACE SHALL CONSIST OF A STABLE AND FIRM AREA, COMPLYING WITH 521 CMR 6.5 (FORWARD REACH) OR 521 CMR 6.6 (SIDE REACH) AND SHALL BE PROVIDED AT EACH OF THE PEDESTRIAN PUSH BUTTONS.
a) WHERE A FORWARD APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL ABUT AND BE CENTERED ON THE CLEAR GROUND SPACE.
b) WHERE A PARALLEL APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL BE WITHIN TEN INCHES (10") HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.



NOTE:
SPECIFIC ATTACHMENT AND CONNECTION REQUIREMENTS MAY VARY. COORDINATION WITH THE LOCAL UTILITY COMPANY IS REQUIRED BY THE CONTRACTOR.

DRAFT

TRAFFIC SIGNAL SERVICE CONNECTION - OVERHEAD
NOT TO SCALE

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

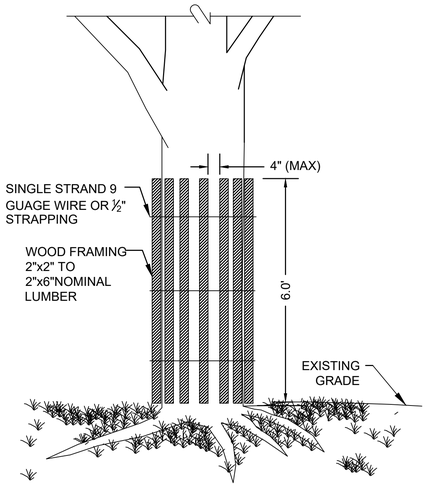
PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT:

SCALE: NONE

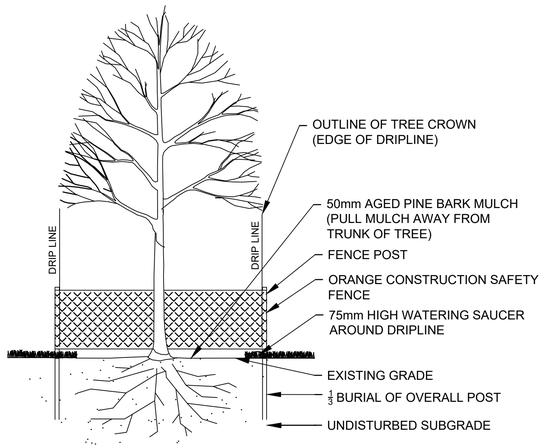
TITLE:
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
TYPICAL SECTIONS AND PAVEMENT NOTES
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 7 of 21



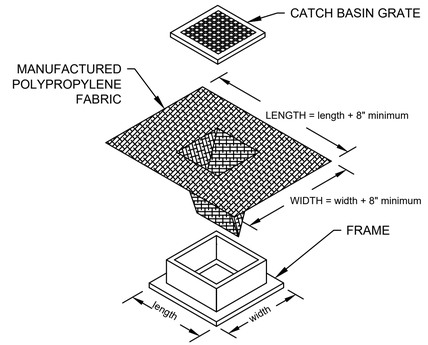
INDIVIDUAL TREE PROTECTION DETAIL

NOT TO SCALE



TEMPORARY TREE PROTECTION FENCE

NOT TO SCALE

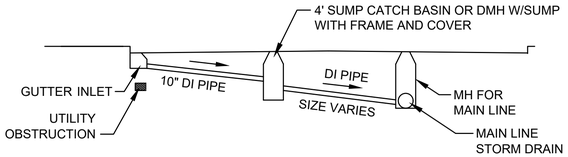


NOTES

1. LENGTH AND WIDTH OF POLYPROPYLENE FABRIC MUST EXCEED EXISTING CATCH BASIN FRAME DIMENSIONS BY A MINIMUM OF 8".
2. REMOVE CATCH BASIN GRATE AND INSTALL POLYPROPYLENE FABRIC OVER CATCH BASIN FRAME. REPLACE CATCH BASIN GRATE TO SECURE POLYPROPYLENE FABRIC IN PLACE.

CATCH BASIN EROSION CONTROL PROTECTION (TYP)

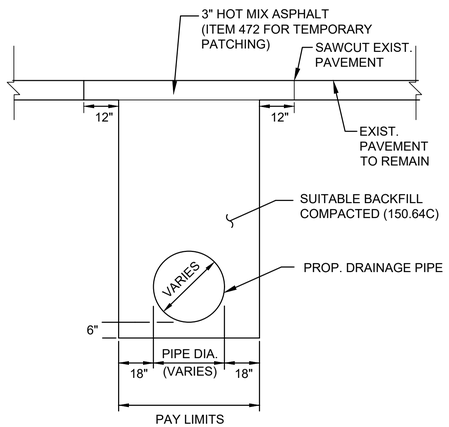
NOT TO SCALE



NOTE:
GUTTER INLET SHOULD NOT BE USED DIRECTLY OVER GAS MAINS, TELEPHONE OR ELECTRIC DUCTS.

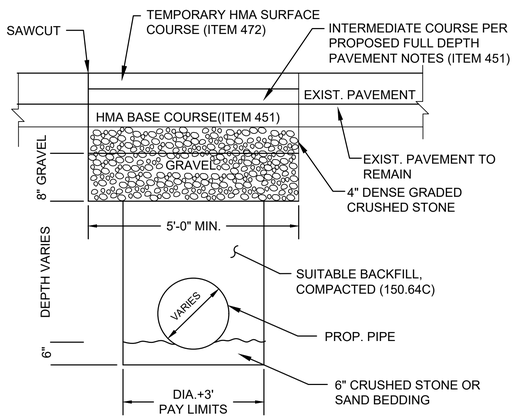
CONTINGENCY DETAIL FOR STORM DRAIN LATERAL LINES

(USE ONLY IF OBSTRUCTION IS ENCOUNTERED)
NOT TO SCALE



DETAIL FOR TEMPORARY PATCH OF DRAINAGE PIPE TRENCH IN FULL DEPTH AREAS

NOT TO SCALE



PERMANENT TRENCH PATCH DETAIL IN MILLED AREAS

NOT TO SCALE

* TOLERANCE FOR CONSTRUCTION ±0.5%

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT:

SCALE: NONE

TITLE: **INTERSECTION IMPROVEMENTS MAIN STREET AT FOREBUSH MILL AND GREEN ROAD**

TYPICAL SECTIONS AND PAVEMENT NOTES

BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. **8 of 21**

N

N/F
NASHOBA REGIONAL SCHOOL
12 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0012.0
DEED BK 15978 / PAGE 146

BEGINNING OF PROJECT
STA 10+32
MEET EXISTING

MAIN STREET/ROUTE 117

LIMIT OF MILL AND OVERLAY STA 11+20

PROP PCR
PROP PCR
PROP GRAN CURB
PROP GRAN CURB
RETAIN TREES W/ TREE PROTECTION FENCE (TYP)
PROP BOX WIDENING > 4 FT
PROP 10 FT HMA SW
PROP HMA ISLAND
PROP GRAN CURB
PROP 8' CC WALK TO SCHOOL
PROP GRAN CURB
PROP HMA ISLAND
LIMIT OF FULL DEPTH CONSTRUCTION STA 14+35
PROP 10 FT HMA SW
PROP IMPRINT CW
PROP PCR
PROP GRASS STRIP
COUNTY LAYOUT
5.00'
MAIN STREET CONST BL & PGL
PC +03.08
SAWCUT LINE
PT +43.30
PC +36.38
PROP PVMT MILLING & OVERLAY
PROP GRAN CURB
PROP FLUSH IMPRINT ISLAND
PROP CC ISLAND W/CURB
PROP HMA DWY
PROP IMPRINT CW
PROP PCR
PROP GRAN CURB
PROP 3 FT CC MEDIAN W/CURB
PROP MULCH ISLAND W/ GRAN CURB
PROP 10 FT HMA SW
PROP HMA DWY APRON
RE-PAVE HMA DWY
REM R&R TIE ISLAND
PROP MULCH ISLAND W/ GRAN CURB
PROP PCR
MATCHLINE
LIMIT OF DWY WORK
PROP TEMP EASEMENT (TYP)
PROP HMA 8' BIKE OFF RAMP
LIMIT OF GRADING
LIMIT OF FULL DEPTH CONSTRUCTIOIN STA 31+25
PROP EOP (TYP)
PROP HMA DWY
PROP GRADING LIMIT (TYP)
PROP LOAM & SEED (TYP)
PROP BOX WIDENING > 4 FT
PROPOSED TEMPORARY EASEMENT
COUNTY LAYOUT
MATCHLINE
MATCHLINE

CONTINUED ON SHEET NO. 10

WOODED
GRASS
BIT. CURB
GRAVEL
BIT. PAVED DRIVE
BIT. PAVED WALK
BIT. PAVED PARKING
BROKEN PAVE
CONC. HEADWALL
E.O.P.
"FOR SALE"
ULT 63
SIGN
LSA
LSA 8"
"NO PARKING"
"NO PASSING ZONE"
"EXIT ONLY"
12"
MULCH
FD
BIT. BERM
SIGN (TYP)
MAILBOX
15" RCP (APPROX LOCATION)
DMH–1 (BURIED) APPROX LOCATION
CB–1
DROP INLET
DMH–3 (BURIED) APPROX LOCATION
ULT 62
STONE WALL
WIRE FENCE
STOCKADE FENCE
STONE MARKERS
"SCHOOL BUS" SIGN
"NO PARKING"
WOOD LANDS
STORE SIGN
UTILITY POST
.5" IP
COUNTY LAYOUT
FORMER SAND ROAD (PRIVATE WAY)
FORBUSH MILL RD
MMILL ROAD

N/F
NASHOBA PARK REALTY TR D F SOCHALSKI TR
1092 MAIN ST – STELLA,NC
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0006.0
DEED BK 21429 / PAGE 298
PLAN BK 741 / PAGE 69

N/F
1084 MAIN STREET BOLTON LLC
1084 MAIN ST – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0004.0
DEED BK 54602 / PAGE 20
PLAN BK 146 / PAGE 30

N/F
KATSIS MIHAEL
1076 MAIN ST – MARLBORO,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0005.0
DEED BK 7845 / PAGE 109
PB 146 P 30; 937/103
681/52
937/103

IE A, TR
'OLTON,MA
PARCEL ID:
–0007.0
PAGE 139
PAGE 6
PAGE 10

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

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PREPARED BY
BETA
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SUBCONSULTANT

SCALE
20 0 20 40
SCALE IN FEET: 1"=20'
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
CONSTRUCTION PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 9 of 21

3/23/2023 9:29 AM \\BETA-INC.COM\MA\PROJECTS\17500\17511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\17511 CONST.DWG (MADOT-D STB)

LIMIT OF WORK
STA 35+48
MEET EXISTING

END OF PROJECT
STA 19+50
MEET EXISTING

GREEN ROAD

MAIN STREET/ROUTE 117

FORBUSH MILL ROAD

FORMER SAND ROAD (PRIVATE WAY)

GREEN ROAD CONST BL & PGL

MAIN STREET CONST BL & PGL

FORBUSH MILL ROAD CONST BL & PGL

PROP 8' CC WALK TO SCHOOL

PROP 10 FT HMA SW

PROP GRAN CURB

PROP HMA ISLAND

LIMIT OF FULL DEPTH CONSTRUCTION STA 14+35

PROP GRASS STRIP

PROP IMPRINT CW

PROP PCR

PROP LANDSCAPE ISLAND

PROP MOUNTABLE CURB

PROP IMPRINT TRUCK APRON

PROP FLUSH IMPRINT ISLAND

PROP CC ISLAND W/CURB

PROP 3 FT CC MEDIAN W/CURB

PROP MULCH ISLAND W/ GRAN CURB

PROP 10 FT HMA SW

PROP HMA DWY APRON

RE-PAVE HMA DWY

REM R&R TIE ISLAND

PROPOSED TEMPORARY EASEMENT

PROP MULCH ISLAND W/ GRAN CURB

LIMIT OF DWY WORK

PROP TEMP EASEMENT (TYP)

PROP HMA 8' BIKE OFF RAMP

LIMIT OF GRADING

LIMIT OF FULL DEPTH CONSTRUCTIOIN STA 31+25

REM TREES

PROP 4 FT GRASS STRIP

PROP 8 FT PATH

PROP HMA ISLAND

PROP GRAN CURB

PROP PCR

PROP IMPRINT CW

RELOCATED EV CHARGING STATION (SEE UTILITY PLAN)

PROP HMA DWY

PROP LIMIT OF GRADING (TYP)

PROP FLUSH IMPRINT ISLAND

RET TREE

PROP 10 FT PATH

PROP CC ISLAND

RETAIN SIGN

PROP BIKE ON RAMP

LIMIT OF MILLING AND OVERLAY STA 35+48

PROP PVMT MILLING & OVERLAY

PROP EOP

SAWCUT LINE

LIMIT OF FULL DEPTH CONSTRUCTION STA 34+35

PROP TEMP EASEMENT (TYP)

PROP 8' BIKE ON RAMP

PROP DRAINAGE EASEMENT

PROP BOX WIDENING

SAWCUT LINE (TYP)

PROP PVMT MILLING & OVERLAY

LIMIT OF MILLING AND OVERLAY STA 19+50

PROP 8' BIKE OFF RAMP

PROP GRASS STRIP

LIMIT OF FULL DEPTH CONSTRUCTION STA 16+93

PROP EOP

PC +36.38

PT +43.30

PT +02.04

PC +58.76

PT +24.98

PC +42.01

PT +43.07

PT +33.60

PC +29.97

57'

80'

8.00'

5.00'

36.00'

CONTINUED ON SHEET NO. 9

SEE INSET

N/F
NASHOBA REGIONAL SCHOOL
12 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0012.0
DEED BK 15978 / PAGE 146
PLAN BK 245 / PAGE 102

N/F
KERBLE
21 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0055.0
DEED BK 21961 / PAGE 35
PLAN BK 508 / PAGE 81

N/F
FRANKLIN JOEL B & MARLENE KERBLE
21 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0055.0
DEED BK 21961 / PAGE 35
PLAN BK 508 / PAGE 81

N/F
KATSIS MIHAEL
MAIN ST – MARLBORO,MA
S. MAP 6.B – PARCEL ID:
4/006.B–0000–0005.0
D BK 7845 / PAGE 109
3 146 P 30; 937/103
681/52
937/103

N/F
TADMOR SHOPPES REALTY TRUST
D. BRUCE WHEELER, TRUSTEE
0 MAIN ST & FORBUSH HILL RD
ASSESSOR MAP 6.B
PARCEL ID:
034/006.B–0000–0003.0
DEED BK 60526 PAGE 297
PLAN BK 929 PAGE 55 LOT B
PB 170 P 65
PB 932 P 110
PB 935 P 49

N/F
TOWN OF BOLTON
12 FORBUSH MILL RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0001.0
PLAN BK 170 / PAGE 65
PB 929 / P 55
PB 932 / P110

SHOWN ON PB 935 P 49

TRAIL EASEMENT PB 935 P 49

INSET

LIMIT OF WORK
STA 30+00
MEET EXISTING

PROP GRADING LIMIT

PROP LOAM AND SEED

PROP 3 FT CC MEDIAN

PROP 10 FT PATH

PROP PCR

PROP 8' BIKE OFF RAMP

PROP IMPRINT CW

PROP HMA DWY

PROP GRAN CURB

PROP 8' BIKE ON RAMP

PROP EOP (TYP)

PROP LIMIT OF GRADING (TYP)

LIMIT OF FULL DEPTH CONSTRUCTIOIN STA 31+25

PROP HMA DWY

PROP PCR

PROP HMA ISLAND

LIMIT OF MILL & OVERLAY MEET EXIST

30+00

PC +29.97

SHOWN ON PB 935 P 49

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL
For Review Only

PREPARED BY
BETA
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SUBCONSULTANT

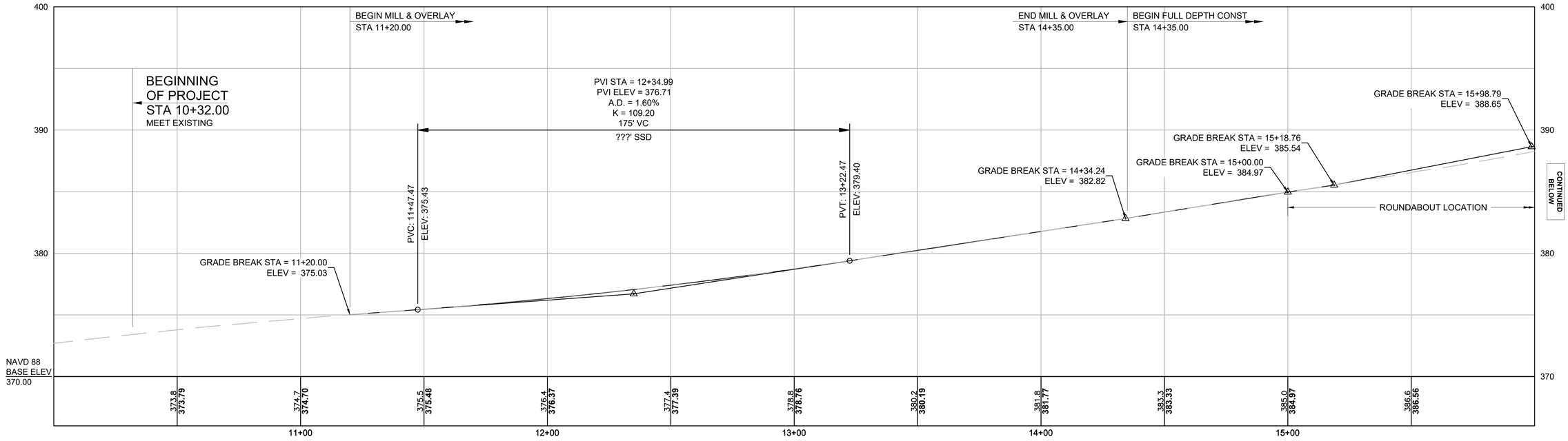
SCALE
20 0 20 40
SCALE IN FEET: 1"=20'
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
CONSTRUCTION PLAN
BOLTON, MASSACHUSETTS

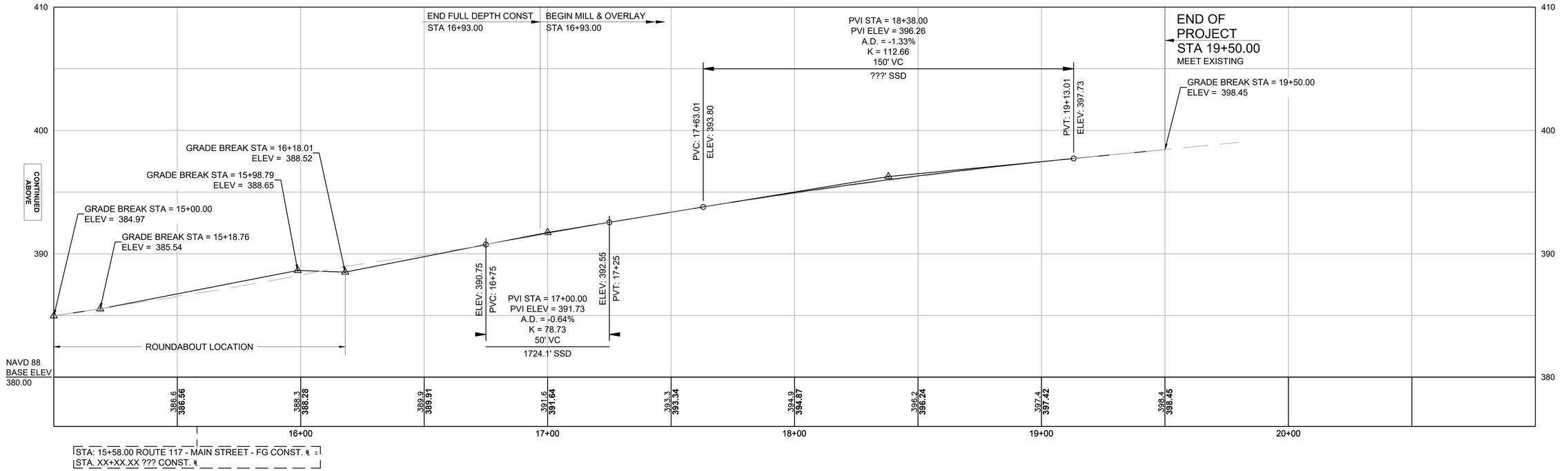
BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 10 of 21

3/23/2023 9:29 AM \\BETA-INC.COM\MA\PROJECTS\7500S\7511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 CONST.DWG (MADOT-D STB)

ROUTE 117 - MAIN STREET



ROUTE 117 - MAIN STREET



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SCALE

HOR. SCALE IN FEET: 1"=20'
20 0 20 40
VER. SCALE IN FEET: 1"=4'
4 0 4 8

TITLE

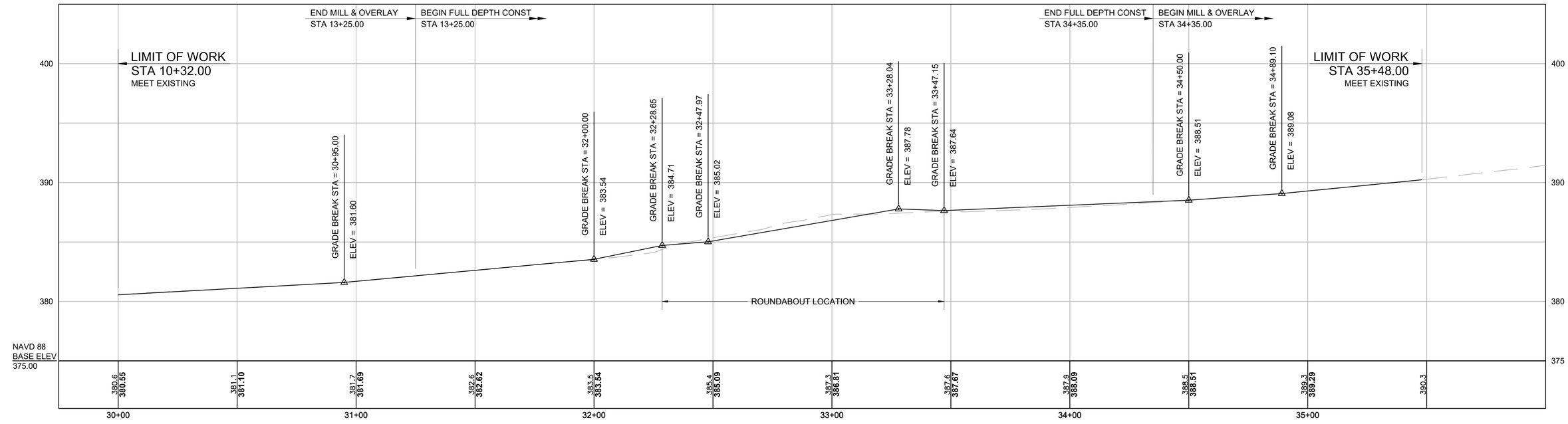
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD

PROFILE

BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. **11 of 21**

FOREBUSH MILL ROAD AND GREEN ROAD



NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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SCALE
HOR. SCALE IN FEET: 1"=20'
20 0 20 40
VER. SCALE IN FEET: 1"=4'
4 0 4 8

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
PROFILE
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. **12 of 21**

Curve Table			
Curve #	Delta	Radius	Length
C6	74°04'29"	40.00	51.71
C7	71°05'50"	35.00	43.43
C8	2°07'49"	2986.00	111.02
C9	0°27'58"	16199.25	131.78
C10	173°04'57"	2.50	7.55
C11	0°07'33"	3001.00	6.60
C12	0°16'55"	14999.00	73.83
C13	6°10'47"	750.00	80.89
C14	180°00'00"	5.18	16.28

Curve Table			
Curve #	Delta	Radius	Length
C15	127°08'17"	5.00	11.09
C16	137°35'18"	8.00	19.21
C17	0°37'47"	3978.00	43.73
C18	27°45'24"	198.00	95.92
C19	180°00'01"	3.34	10.50
C20	0°31'18"	3903.84	35.54
C21	10°20'39"	121.00	21.85
C23	29°48'53"	91.00	47.35
C25	136°43'33"	1.50	3.58
C26	23°31'13"	105.00	43.10
C28	176°16'33"	1.50	4.62
C29	9°10'55"	94.00	15.06
C30	13°13'17"	14.00	3.23
C32	13°02'28"	11.00	2.50
C33	9°14'38"	91.00	14.68
C34	124°28'48"	1.00	2.17

N/F
NASHOBA REGIONAL SCHOOL
12 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0012.0
DEED BK 15978 / PAGE 146

BEGINNING OF PROJECT
STA 11+13
MEET EXISTING

+71.08
42.72 LT
PT +70.91
42.16' LT
PC +16.55
38.37' LT
PC +32.03
13.68' LT
10+00
PCC +50.22
15.50' LT
PC +03.08
PRC +55.58
4.17' LT
PCC +55.44
0.82' RT
PCC +62.18
4.38' LT
PCC +61.70
19.38' LT
PRC +36.19
5.17' LT
PT +43.30
PCC +36.06
5.20' RT
PC +36.38
2.76' RT
PC +39.01
PC +38.99
3.93' LT
PCC +37.95
18.93' LT
PCC +74.17
5.43' LT
PCC +94.29
19.29' LT
PC +51.92
2.01' RT
PI +58.71
19.74 RT
PC +44.24
18.20' RT
PC +43.01
20.72' RT
PT +10.70
32.82' RT
PT +54.56
32.09' RT
PC +56.37
31.57' RT
PRC +67.33
35.79' RT
PRC +84.75
41.70' RT
PCC +03.78
42.99' RT
PRC +92.26
59.79' RT
PCC +95.64
69.43' RT
PRC +92.32
72.27' RT
PCC +95.81
72.55' RT
PRC +88.97
89.09' RT
PCC +92.52
89.80' RT
PRC +81.55
17.47' LT
PT +90.01
19.73' RT
PC +04.76
19.14' RT
PC +86.35
27.91' RT
PI +90.60
40.85 RT
PI +99.42
43.80 RT
+70.16
68.30 RT
+39.60
77.17 RT
PC +98.77
8.66' RT
PCC +68.2
32.91' RT
PI +02.60
40.85 RT

MAIN STREET/ROUTE 117
L1
L2
C1
C2
COUNTY LAYOUT
MATCHLINE
CONTINUED ON SHEET NO. 10

N/F
1084 MAIN STREET BOLTON LLC
1084 MAIN ST – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0004.0
DEED BK 54602 / PAGE 20
PLAN BK 146 / PAGE 30

N/F
KATSIS MIHAEL
1076 MAIN ST – MARLBORO,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0005.0
DEED BK 7845 / PAGE 109
PB 146 P 30; 937/103
681/52
937/103

FORMER SAND ROAD
(PRIVATE WAY)

IE A, TR
'OLTON,MA
PARCEL ID:
–0007.0
PAGE 139
PAGE 6
PAGE 10

ROUTE 117 - MAIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	2989061.006	619541.971		S43°04'12"E 203.08'	12+03.08	2988912.655	619680.649
C1	12+03.08	2988912.655	619680.649	R=2000.00' Δ=4°01'02" L=140.22' T=70.14'		13+43.30	2988813.659	619779.917
L2	13+43.30	2988813.659	619779.917		S47°05'13"E 93.08'	14+36.38	2988750.283	619848.086
C2	14+36.38	2988750.283	619848.086	R=500.00' Δ=7°31'28" L=65.66' T=32.88'		15+02.04	2988702.550	619893.107
L3	15+02.04	2988702.550	619893.107		S39°33'45"E 56.72'	15+58.76	2988658.823	619929.232
C3	15+58.76	2988658.823	619929.232	R=300.00' Δ=12°38'18" L=66.17' T=33.22'		16+24.93	2988612.850	619976.643
L4	16+24.93	2988612.850	619976.643		S52°12'04"E 118.14'	17+43.07	2988540.443	620069.992
C4	17+43.07	2988540.443	620069.992	R=1000.00' Δ=5°11'14" L=90.53' T=45.30'		18+33.60	2988481.796	620138.920
L5	18+33.60	2988481.796	620138.920		S47°00'50"E 146.39'	19+80.00	2988381.983	620246.009

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL
For Review Only

PREPARED BY
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SUBCONSULTANT

SCALE
20 0 20 40
SCALE IN FEET: 1"=20'
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
CURB TIE & GRADING PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 13 of 21

3/23/2023 9:31 AM \\BETA-INC.COMMA\PROJECTS\7500S\7511 - BOLTON - MAIN ST AT FOREBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 TIE-GRADING.DWG (MADOT-D.STB)

FOREBUSH MILL ROAD AND GREEN ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	30+00.00	2988526.458	619676.123		N56°16'31"E 129.97'	31+29.97	2988598.617	619784.220
C5	31+29.97	2988598.617	619784.220	R=405.00' Δ=44°08'41" L=312.04' T=164.23'		34+42.01	2988660.093	620082.325
L7	34+42.01	2988660.093	620082.325		S79°34'48"E 157.99'	36+00.00	2988631.518	620237.712

Curve Table			
Curve #	Delta	Radius	Length
C22	104°15'16"	3.00	5.46
C24	114°19'34"	1.00	2.00
C25	136°43'33"	1.50	3.58
C26	23°31'13"	105.00	43.10
C27	50°40'24"	25.00	22.11
C31	182°02'51"	1.50	4.77
C34	124°28'48"	1.00	2.17
C35	106°09'25"	2.50	4.63
C36	25°17'17"	60.00	26.48
C37	38°19'31"	88.00	58.86

Curve Table			
Curve #	Delta	Radius	Length
C38	11°01'05"	417.50	80.29
C39	116°21'28"	1.00	2.03
C40	14°43'14"	90.50	23.25
C41	1°29'20"	403.50	10.49
C42	175°51'15"	3.10	9.51
C43	18°27'39"	91.00	29.32
C44	102°27'31"	3.00	5.36
C45	176°10'39"	40.00	123.00
C46	177°16'39"	28.50	88.18
C47	183°49'21"	40.00	128.33
C48	182°43'21"	28.50	90.89

Curve Table			
Curve #	Delta	Radius	Length
C49	33°56'50"	97.93	58.03
C50	97°11'14"	10.00	16.96
C51	22°55'23"	78.00	31.21
C52	32°06'07"	40.70	22.80
C53	57°34'27"	40.00	40.19
C54	28°00'10"	20.00	9.77
C55	111°31'42"	1.00	1.95
C56	25°22'04"	91.00	40.29
C57	108°47'12"	3.00	5.70
C58	16°49'59"	201.00	59.05
C59	1°44'58"	1064.00	32.49
C60	5°44'29"	1049.00	105.12
C61	180°00'00"	2.50	7.85
C62	20°06'55"	60.00	21.06
C63	30°55'09"	198.00	106.85

Curve Table			
Curve #	Delta	Radius	Length
C64	4°15'45"	313.00	23.29
C65	8°34'43"	148.00	22.16
C66	23°37'46"	75.00	30.93
C67	108°34'07"	2.50	4.74
C68	179°59'56"	1.50	4.71
C69	7°18'42"	137.00	17.48
C70	11°46'05"	64.00	13.15
C71	173°46'13"	1.50	4.56
C72	11°44'35"	61.00	12.50

Curve Table			
Curve #	Delta	Radius	Length
C73	7°17'51"	134.00	17.07
C74	83°38'12"	2.00	2.92
C75	8°03'28"	151.00	21.24
C76	106°28'56"	3.00	5.58
C77	79°49'25"	2.00	2.79
C78	15°05'03"	91.00	23.96
C79	113°11'59"	1.00	1.98
C80	1°03'20"	383.00	7.06
C81	55°15'02"	78.00	75.22

N/F NASHOBA REGIONAL SCHOOL 12 GREEN RD – BOLTON,MA ASSESS. MAP 6.B – PARCEL ID: 034/006.B–0000–0012.0 DEED BK 15978 / PAGE 146 PLAN BK 245 / PAGE 102

KERBLE 21 GREEN RD – BOLTON,MA ASSESS. MAP 6.B – PARCEL ID: 034/006.B–0000–0055.0 DEED BK 21961 / PAGE 35 PLAN BK 508 / PAGE 81

N/F KATSIS MIHAEL MAIN ST – MARLBORO,MA ASSESS. MAP 6.B – PARCEL ID: 034/006.B–0000–0005.0 DEED BK 7845 / PAGE 109 PLAN BK 146 P 30; 937/103 681/52 937/103

N/F TOWN OF BOLTON 12 FORBUSH MILL BOLTON,MA ASSESS. MAP 6.B – P 034/006.B–0000–0 PLAN BK 170 / PA PB 929 / P 5 PB 932 / P110

END OF PROJECT STA 35+48 MEET EXISTING

END OF PROJECT STA 19+50 MEET EXISTING

BEGINNING OF PROJECT STA 30+50 MEET EXISTING

GREEN ROAD

MAIN STREET/ROUTE 117

FORBUSH MILL ROAD

FORMER SAND ROAD (PRIVATE WAY)

FOREBUSH MILL ROAD CONST BL & PGL

SHOWN ON PB 935 P 49

TRAIL EASEMENT PB 935 P 49

COUNTY LAYOUT

MATCHLINE

CONTINUED ON SHEET NO. 9

SEE INSET

INSET

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM

DESIGNED BY: KL

CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT

SCALE: 20 0 20 40 SCALE IN FEET: 1"=20'

UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

TITLE

INTERSECTION IMPROVEMENTS MAIN STREET AT FOREBUSH MILL AND GREEN ROAD

CURB TIE & GRADING PLAN

BOLTON, MASSACHUSETTS

BETA JOB NO. ####

ISSUE DATE 03/20/2023

SHEET NO. 14 of 21

3/23/2023 9:31 AM \\BETA-INC.COM\MA\PROJECTS\7500\S\7511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 TIE-GRADING.DWG (MADOT-D.STB)

N

N/F
NASHOBA REGIONAL SCHOOL
12 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0012.0
DEED BK 15978 / PAGE 146

BEGINNING OF PROJECT
STA 10+32
MEET EXISTING

MAIN STREET/ROUTE 117

10+00

11

12

13

14

WOODED

GRASS

BIT. CURB

GRAVEL

E.O.P.

15" RCP (APPROX LOCATION)

BIT. PAVED DRIVE

CONC. HEADWALL

INV 12" RCP
EL=369.30'

"FOR SALE"

ULT 63

SIGN

LSA

LSA 8"

"NO PASSING ZONE"

"NO PARKING"

MULCH

12"

"EXIT ONLY"

DMH-1 (BURIED)
APPROX LOCATION

CB-1

10 LF - 12" RCP

COUNTY LAYOUT

DI-1

REM EX DI

DROP INLET
=373.98'

DMH-2

CONNECT TO EX 15" RCP

GICI-1

REM EX DMH

9 LF - 12" RCP

3 LF - 12" RCP

DMH-1 W/ 4' SUMP

"WATCH FOR SCHOOL BUS" SIGN

MATCHLINE

REMODEL EX DMH

BIT. PAVED WALK

DMH-3 (BURIED)
APPROX LOCATION

UNIDENTIFIED STONE MARKERS

CBCI-2

5 LF - 12" RCP

DMH-3,
CONNECT TO EX 15" RCP

"NO PARKING"

SEE TRAFFIC PLANS FOR DETAILS ON CONDUIT AND PULL BOXES

BROKEN PAVE

BIT. PAVED PARKING

WOOD LANDSCAPE TIMBERS

RET UP#64,
PROP RISER

CONTINUED ON SHEET NO. 10

COUNTY LAYOUT

RET UP#62

STONE WALL

WIRE FENCE

STOCKADE FENCE

LSA

N/F
1084 MAIN STREET BOLTON LLC
1084 MAIN ST – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0004.0
DEED BK 54602 / PAGE 20
PLAN BK 146 / PAGE 30

N/F
NASHOBA PARK REALTY TR D F
SOCHALSKI TR
1092 MAIN ST – STELLA,NC
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0006.0
DEED BK 21429 / PAGE 298
PLAN BK 741 / PAGE 69

N/F
KATSIS MIHAEL
1076 MAIN ST – MARLBORO,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0005.0
DEED BK 7845 / PAGE 109
PB 146 P 30; 937/103
681/52
937/103

FORMER SAND ROAD (PRIVATE WAY)

RET UP

STORE SIGN

.5" EC POST

FORBUSH MILL

IE A, TR
'OLTON,MA
PARCEL ID:
–0007.0
PAGE 139
PAGE 6
PAGE 10

RIM=371.42'

BIT. BERM

SIGN (TYP)

MAILBOX

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL
For Review Only

PREPARED BY
BETA
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SUBCONSULTANT

SCALE
20 0 20 40
SCALE IN FEET: 1"=20'

TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
DRAINAGE & UTILITY PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 15 of 21

LIMIT OF WORK
STA 35+48
MEET EXISTING

END OF PROJECT
STA 19+50
MEET EXISTING

GREEN ROAD

MAIN STREET/ROUTE 117

FORBUSH MILL ROAD

FORMER SAND ROAD (PRIVATE WAY)

N/F
NASHOBA REGIONAL SCHOOL
12 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0012.0
DEED BK 15978 / PAGE 146
PLAN BK 245 / PAGE 102

N/F
KERBLE
21 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0055.0
DEED BK 21961 / PAGE 35
PLAN BK 508 / PAGE 81

N/F
FRANKLIN JOEL B & MARLENE KERBLE
21 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0055.0
DEED BK 21961 / PAGE 35
PLAN BK 508 / PAGE 81

N/F
KATSIS MIHAEL
MAIN ST – MARLBORO,MA
S. MAP 6.B – PARCEL ID:
4/006.B–0000–0005.0
D BK 7845 / PAGE 109
3 146 P 30; 937/103
681/52
937/103

N/F
TADMOR SHOPPES REALTY TRUST
D. BRUCE WHEELER, TRUSTEE
0 MAIN ST & FORBUSH HILL RD
ASSESSOR MAP 6.B
PARCEL ID:
034/006.B–0000–0003.0
DEED BK 60526 PAGE 297
PLAN BK 929 PAGE 55 LOT B
PB 170 P 65
PB 932 P 110
PB 935 P 49

N/F
TOWN OF BOLTON
12 FORBUSH MILL RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID:
034/006.B–0000–0001.0
PLAN BK 170 / PAGE 65
PB 929 / P 55
PB 932 / P110

PT +42.01
PC +29.97
PC +28.97

REMODEL EX DMH
CBCI-2
5 LF - 12" RCP
DMH-3, CONNECT TO EX 15" RCP
DMH-4 CONNECT TO EX 15" RCP
REM EX CB
DMH-5 CONNECT TO EX 15" RCP
28 LF - 12" RCP
RET UP
CB-4
ADJ CB
REMODEL EX DMH
R&R GUY POLE AND WIRE
SEE TRAFFIC PLANS FOR DETAILS ON CONDUIT AND PULL BOXES
37 LF - 12" RCP
CBCI-1
R&R UP
75 LF - 12" RCP
SHOWN ON PB 935 P 49
RET UP#64, PROP RISER
PROP UP W/ RISER
ADJ CB
RET UP
CBCI-3
R&R UP, PROP RISER
PROP 50' - 3" ELEC. CONDUIT
RELOCATE EV STATION
RET UP
SEE INSET

CONTINUED ON SHEET NO. 9

INSET

LIMIT OF WORK
STA 30+00
MEET EXISTING

30+00
PC +29.97
RET UP
R&R UP
R&R UP, PROP RISER
37 LF -
SHOWN ON PB 935 P 49

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

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SCALE
20 0 20 40
SCALE IN FEET: 1"=20'
UNLESS OTHERWISE NOTED OR CHANGED BY REPRODUCTION

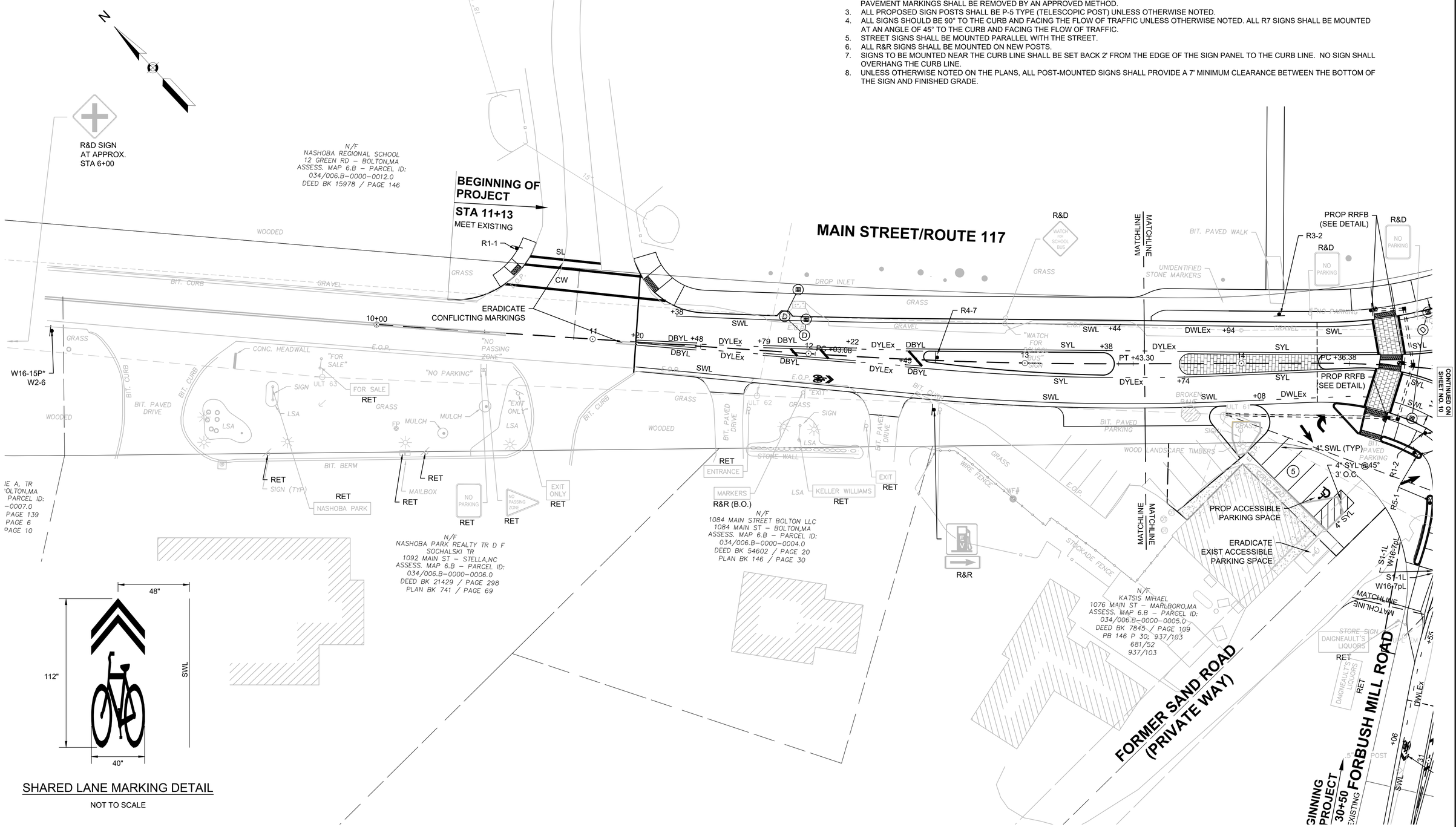
TITLE
INTERSECTION IMPROVEMENTS MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
DRAINAGE & UTILITY PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 16 of 21

3/22/2023 9:31 AM \\BETA-INC.COM\MA\PROJECTS\17500\17511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\17511 DRAIN UTIL.DWG (MADOT-D.STB)

SIGN & PAVEMENT MARKING 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) UNLESS OTHERWISE NOTED.
4. ALL SIGNS SHOULD BE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC UNLESS OTHERWISE NOTED. ALL R7 SIGNS SHALL BE MOUNTED AT AN ANGLE OF 45° TO THE CURB AND FACING THE FLOW OF TRAFFIC.
5. STREET 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 SHALL BE SET BACK 2' FROM THE EDGE OF THE SIGN PANEL TO THE CURB LINE. NO SIGN SHALL OVERHANG THE CURB LINE.
8. UNLESS OTHERWISE NOTED ON THE PLANS, ALL POST-MOUNTED SIGNS SHALL PROVIDE A 7' MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISHED GRADE.



SHARED LANE MARKING DETAIL

NOT TO SCALE

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SCALE IN FEET: 1"=20'
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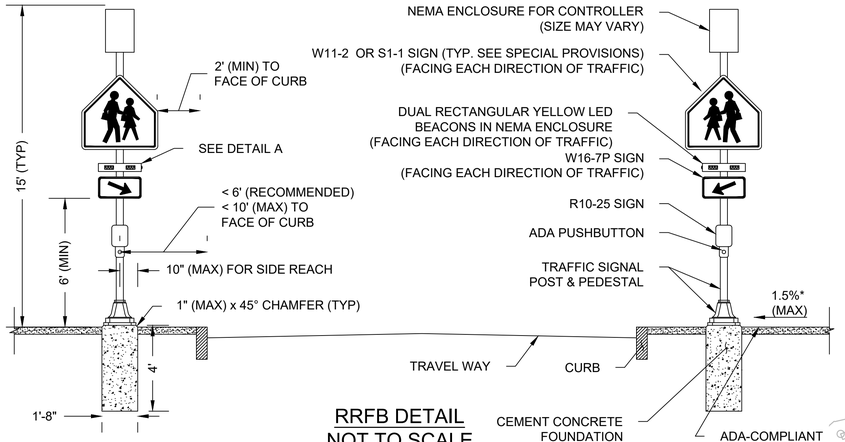
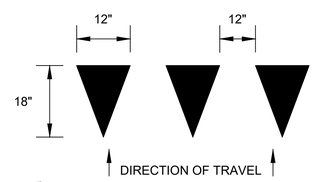
TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
SIGN & PAVEMENT MARKINGS PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 17 of 21

3/23/2023 9:32 AM \\BETA-INC.COMMA\PROJECTS\7500S\7511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 PWMK.DWG (MADOT-D STB)



RRFB DETAIL
NOT TO SCALE



YIELD LINE MARKING DETAIL
NOT TO SCALE

KERBLE
21 GREEN RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID: 034/006.B–0000–0055.0
DEED BK 21961 / PAGE 35
PLAN BK 508 / PAGE 81

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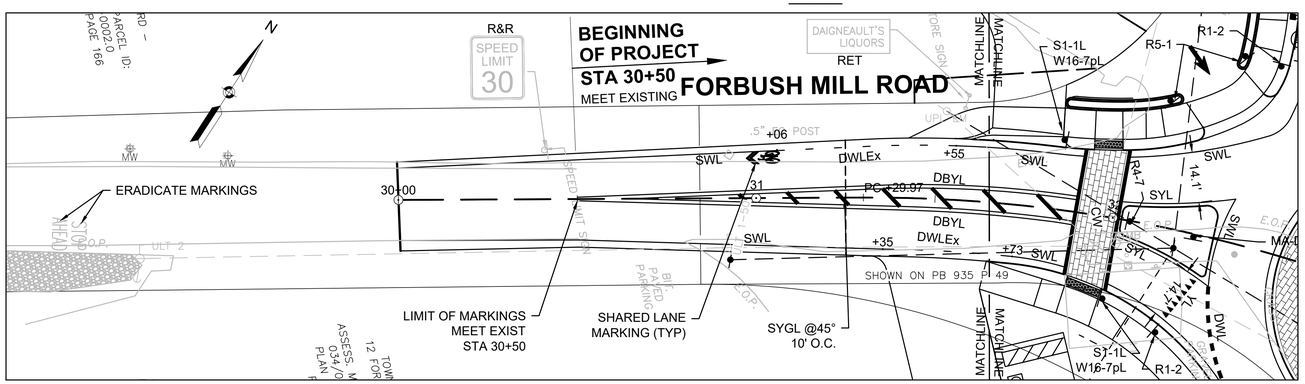
N/F
KATSIS MIHAEL
MAIN ST – MARLBORO,MA
ASS. MAP 6.B – PARCEL ID: 4/006.B–0000–0005.0
D BK 7845 / PAGE 109
B 146 P 30; 937/103
681/52
937/103

N/F
TOWN OF BOLTON
12 FORBUSH MILL RD – BOLTON,MA
ASSESS. MAP 6.B – PARCEL ID: 034/006.B–0000–0001.0
PLAN BK 170 / PAGE 65
PB 929 / P 55
PB 932 / P110

INSET



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TITLE
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
SIGN & PAVEMENT MARKINGS PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 18 of 21

3/23/2023 9:32 AM \\BETA-INC.COM\MA\PROJECTS\7500\S\7511 - BOLTON - MAIN ST AT FORBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 PVMK.DWG (MADOT-D STB)

IDENTIFI-CATION 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		SEE 2009 MUTCD STANDARDS			1	RED	WHITE	WHITE	P-5 1	6.25	6.25
R1-2	36 in	36 in					6	RED	WHITE	WHITE	P-5 6	9.0	54
R3-2	24 in	24 in					1	WHITE	RED BLACK	BLACK	P-5 1	4.0	4.0
R4-7	24 in	30 in					4	WHITE	BLACK	BLACK	P-5 2	5.0	20.0
R5-1	30 in	30 in					2	WHITE	RED	NONE	P-5 2	6.25	12.5
R6-4	30 in	24 in					4	WHITE	BLACK	NONE	P-5 4	5.0	20.0
R10-25	9 in	12 in					5	WHITE	BLACK	BLACK	MOUNT ON RRFB PUSHBUTTON	0.75	3.75
W2-6	30 in	30 in					2	YELLOW	BLACK	BLACK	P-5 2	6.25	12.5
W16-7PL	24 in	12 in					9	FYG	BLACK	BLACK	MOUNT 4 W/ S1-1L 5 ON RRFB	2.0	18.0
W16-7PR	24 in	12 in					3	FYG	BLACK	BLACK	MOUNT 3 ON RRFB	2.0	6.0
W16-15P	24 in	12 in					2	YELLOW	BLACK	BLACK	MOUNT W/ W2-6	2.0	4.0
S1-1L	36 in	36 in					9	FYG	BLACK	BLACK	MOUNT 4 ON P-5 5 ON RRFB	9.0	81.0
S1-1R	36 in	36 in					3	FYG	BLACK	BLACK	MOUNT 4 ON RRFB	9.0	27.0

IDENTIFI-CATION 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		BACK-GROUND	LEGEND	BORDER			
MA-D3-1A	36 in	12 in	Main St	6D,4D	3.0 3.0	4	GREEN	WHITE	WHITE	P-5 2	-	-
MA-D3-1B	66 in	12 in	Forbush Mill Rd	6D,4D	3.0 3.0	2	GREEN	WHITE	WHITE	P-5 4	-	-
MA-D3-1C	42 in	12 in	Green Rd	6D,4D	3.0 3.0	2	GREEN	WHITE	WHITE	P-5 1	-	-

NOTES:

1. SIGNS TO BE MOUNTED ON RECTANGULAR RAPID FLASHING BEACON (RRFB) WILL BE PAID FOR UNDER SEPARATE ITEM 824.211.
2. 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.
3. ALL P5 POSTS SHALL BE GALVANIZED, TELESCOPIC, RECTANGULAR TYPE POSTS, CONFORMING TO THE DIMENSIONS AND REQUIREMENTS OF THE MASSDOT "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS" (LATEST EDITION) AND CITY OF ATTLEBORO STANDARDS.
4. 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).
5. ALL STREET NAME SIGNS SHALL BE PAINTED ONE SIDE AND SHALL USE TWO SIGNS MOUNTED BACK TO BACK WITH BOLT-THROUGH METHOD.
6. W16-15P (NEW) PLAQUES SHALL BE REMOVED NOT LESS THAN SIX (6) MONTHS AFTER OPENING TO FULL VEHICULAR TRAFFIC.
7. FYG: FLUORESCENT YELLOW GREEN

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

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CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT:

SCALE: 20 0 20 40 SCALE IN FEET: 1"=20'

TITLE: **INTERSECTION IMPROVEMENTS MAIN STREET AT FOREBUSH MILL AND GREEN ROAD**

TRAFFIC SIGN SUMMARY

BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 19 of 21

NOTES:

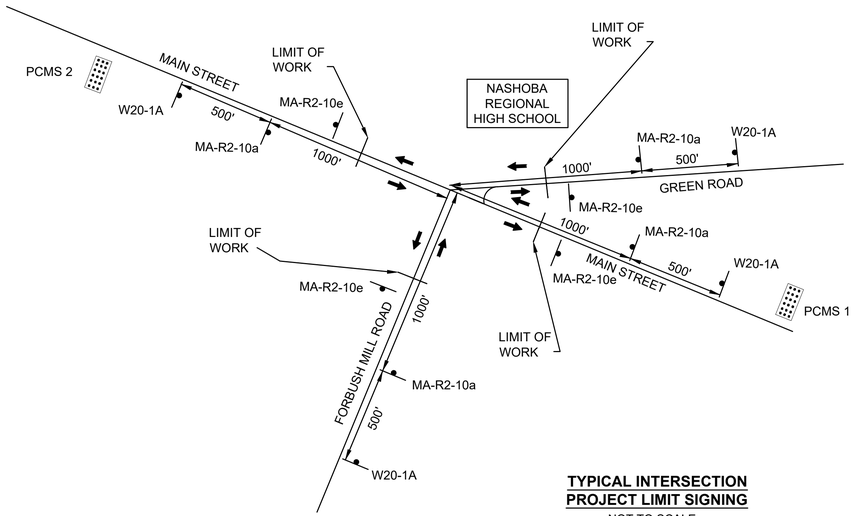
1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE 2009 EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD, EXCEPT THAT BACKGROUND COLOR SHALL BE FLUORESCENT ORANGE, IN ACCORDANCE WITH MASSDOT SPECIFICATIONS.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, AND REFLECTORIZED PLASTIC DRUMS WITH LIGHTING DEVICES MOUNTED ON THEM, MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
7. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH. DRUMS AND CONES SHOWN ON PLAN ARE FOR ILLUSTRATION ONLY. ACTUAL LAYOUT TO BE DETERMINED BY THE CONTRACTOR.
11. 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.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
13. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL NOT COVERED IN THE PLAN SHALL REFER TO MASSDOT "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS".
14. WORK SHIFT SHALL BE RESTRICTED TO A NORMAL EIGHT HOUR DAY FROM 7:00 AM TO 4:00 PM, MONDAY THROUGH FRIDAY, WITH THE PRIME CONTRACTOR AND ALL SUBCONTRACTORS WORKING THE SAME SHIFT.
15. INSTALL PCMS TWO WEEKS PRIOR TO CONSTRUCTION TO INFORM MOTORISTS OF UPCOMING WORK IN PROJECT AREA. CONTRACTOR TO COORDINATE LOCATION OF PCMS WITH TOWN OF LEXINGTON.

LEGEND:

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

GENERAL CONSTRUCTION STAGES (ALTERNATIVE STAGES WILL BE CONSIDERED)

1. UTILITY WORK
   CONSTRUCT ALL PROPOSED DRAINAGE AND UTILITIES (HYDRANT RELOCATION, LIGHTING, ETC), CONDUITS AND ADJUST, ABANDON, REMOVE, OR REMOVE AND RESET, ALL EXISTING UTILITIES, AS SHOWN ON THE PLANS.
2. ROUNDABOUT CONSTRUCTION
   SEE CONSTRUCTION PHASING.
3. FULL DEPTH CONSTRUCTION
   REMOVE GRASS ISLAND.
   EXCAVATE ROADWAY AND PLACE THE GRAVEL SUBBASE WHILE MAINTAINING TRAFFIC IN EACH DIRECTION ON THE EXISTING ROADWAY.
   PLACE CRUSHED STONE AND BASE COURSE.
4. FULL DEPTH RECLAMATION
   RECLAIM EXISTING PAVEMENT.
   INSTALL HMA BASE COURSE.
5. CURBING AND SIDEWALK
   REMOVE AND RESET OR REPLACE CURB AS SHOWN ON PLANS. CONSTRUCT SIDEWALKS.
   INSTALL ISLAND AND WALL.
6. STREETSCAPE
   INSTALL STREETSCAPE FEATURES.
7. PAVEMENT MILLING
   VARIABLE DEPTH PAVEMENT MILLING AS SHOWN ON THE PLAN AND SECTIONS.
8. TOP COURSE AND BINDER COURSE
   PLACE BINDER COURSE (WHERE REQUIRED) FOLLOWED BY TOP COURSE FOR THE ENTIRE LENGTH OF THE PROJECT.
9. PAVEMENT MARKINGS AND SIGNAGE
   INSTALL PAVEMENT MARKINGS AND SIGNAGE.



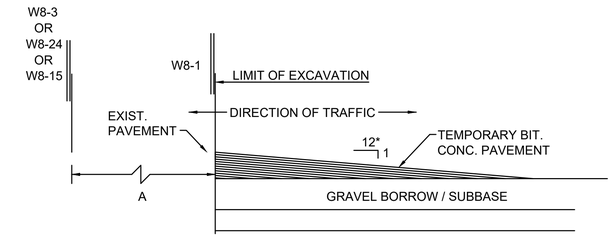
TYPICAL INTERSECTION PROJECT LIMIT SIGNING
NOT TO SCALE

PRIOR TO CONSTRUCTION

	PANEL 1	PANEL 2
PCMS 1	ROAD	
PCMS 2	WORK	BEGINS
	AHEAD	XX

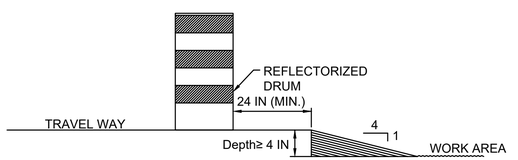
DURING CONSTRUCTION

	PANEL 1	PANEL 2
PCMS 1	ROAD	EXPECT
PCMS 2	WORK	DELAYS
	AHEAD	



* - INCREASE SLOPE RATIO FOR HIGHER SPEEDS

LONGITUDINAL DROP-OFF DETAIL
NOT TO SCALE



LATERAL DROP-OFF DETAIL
NOT TO SCALE

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SUBCONSULTANT:

SCALE: NONE

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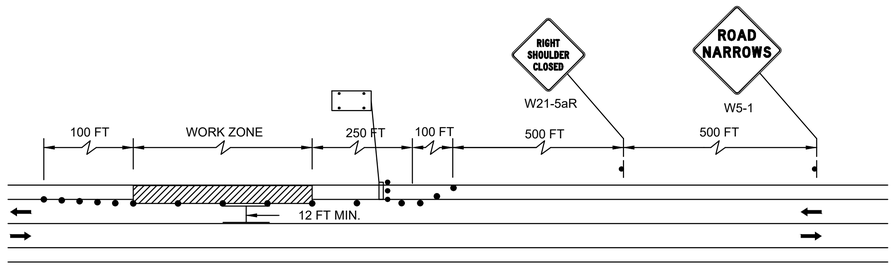
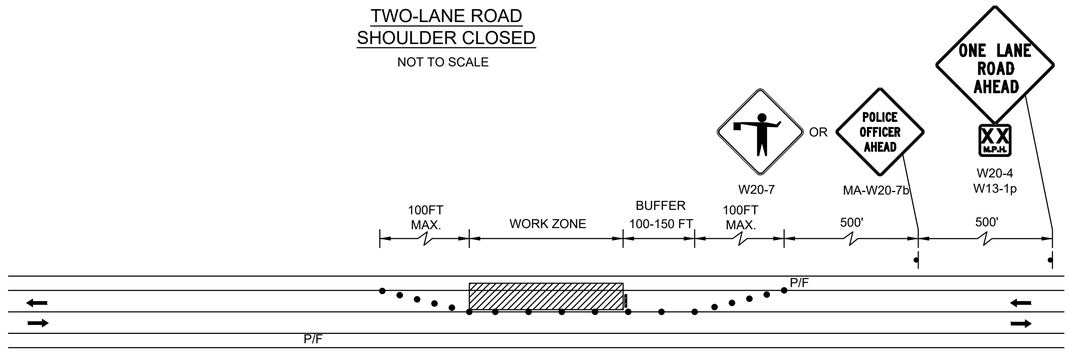
TITLE:
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
TEMPORARY TRAFFIC CONTROL PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 20 of 21

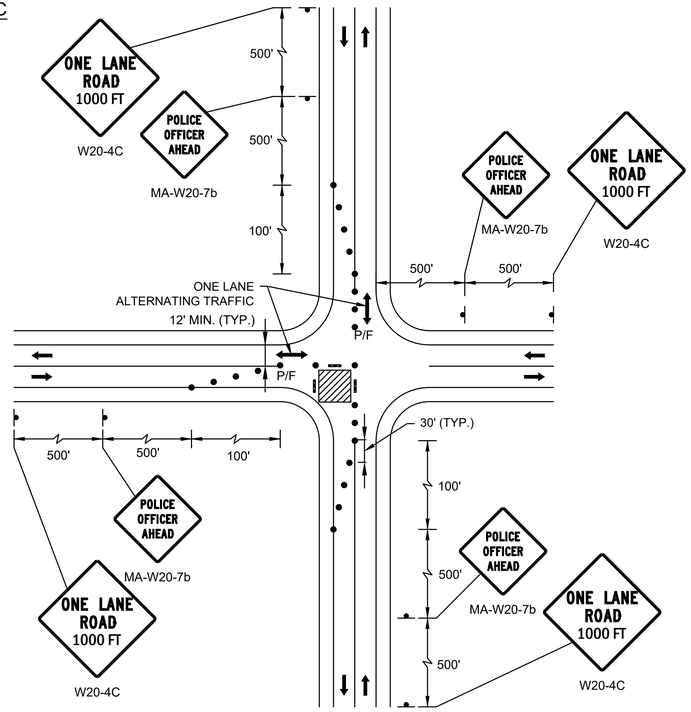
3/23/2023 9:32 AM \\BETA-INC.COM\MA\PROJECTS\7500S\7511 - BOLTON - MAIN ST AT FOREBUSH MILL - GREEN\DRAWING FILES\PLANSET\7511 TTCP.DWG (MADOT-D.STB)



TWO-LANE ROAD
SHOULDER CLOSED
NOT TO SCALE



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

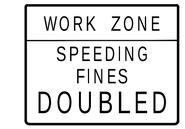


INTERSECTION WITH
LANE CLOSURE
NOT TO SCALE

TAPER LENGTH

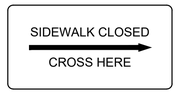
SPEED LIMIT	FORMULA
40 MPH or Less	$L=WS^2/60$
45 MPH or Greater	L=W x S

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

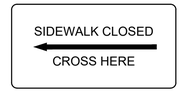


MA-R2-10a

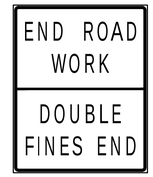
NOTE:
"WORK ZONE"
BLACK ON ORANGE;
"SPEEDING FINES DOUBLED"
BLACK ON WHITE



R9-11aR



R9-11aL



MA-R2-10e

NOTE:
"END ROAD WORK"
BLACK ON ORANGE;
"DOUBLE FINES END"
BLACK ON WHITE

W13-1p

W20-1

W21-5aR

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	BLACK	BLACK	12 SF	4	48 SF	P-5: 4
END ROAD WORK	MA-R2-10e	36" x 48"	WHITE/ORANGE**	BLACK	BLACK	12 SF	4	48 SF	P-5: 4
KEEP RIGHT	R4-7	24" x 30"	WHITE	BLACK	BLACK	5 SF	3	15 SF	P-5: 3
SIDEWALK CLOSED	R9-9	30" x 18"	WHITE	BLACK	BLACK	3.8 SF	8	30.4 SF	P-5: 8
SIDEWALK CLOSED CROSS HERE	R9-11a	48" x 24"	WHITE	BLACK	BLACK	8 SF	6	48 SF	P-5: 6
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	2	18 SF	P-5: 2
PAVEMENT ENDS	W8-3	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
GROOVED PAVEMENT	W8-15	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
STEEL PLATE AHEAD	W8-24	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
PEDESTRIAN	W11-2	30" x 30"	FYG	BLACK	BLACK	6.3 SF	4	25.2 SF	P-5: 4
ADVISORY SPEED	W13-1p	24" x 30"	ORANGE**	BLACK	BLACK	5 SF	4	20 SF	P-5: 4
DOWNWARD DIAGONAL ARROW	W16-7pL	24" x 12"	FYG	BLACK	BLACK	2 SF	4	8 SF	P-5: -
ROAD WORK AHEAD	W20-1	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	3	27 SF	P-5: 3
ROAD WORK AHEAD 1500FT	W20-1A	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
ONE LANE ROAD	W20-4	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
ONE LANE ROAD 1000 FT	W20-4C	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	4	36 SF	P-5: 4
FLAGGER	W20-7	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
RIGHT SHOULDER CLOSED	W21-5aR	36" x 36"	ORANGE**	BLACK	BLACK	9 SF	2	18 SF	P-5: 2
					TOTAL AREA OF SIGNS:			485.6 SF	P-5: 60

* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY
** ALL CONSTRUCTION SIGNAGE SHALL HAVE FLUORESCENT ORANGE BACKGROUND

NUMBER	DATE	MADE BY	CHECKED BY	REVISIONS

DRAWN BY: CM
DESIGNED BY: KL
CHECKED BY: DJ

REGISTERED PROFESSIONAL: For Review Only

PREPARED BY: BETA www.BETA-Inc.com

SUBCONSULTANT:

SCALE: NONE

TITLE:
INTERSECTION IMPROVEMENTS
MAIN STREET AT FOREBUSH MILL AND GREEN ROAD
TEMPORARY TRAFFIC CONTROL PLAN
BOLTON, MASSACHUSETTS

BETA JOB NO. ####
ISSUE DATE 03/20/2023
SHEET NO. 21 of 21