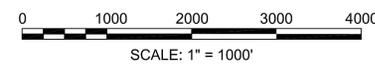
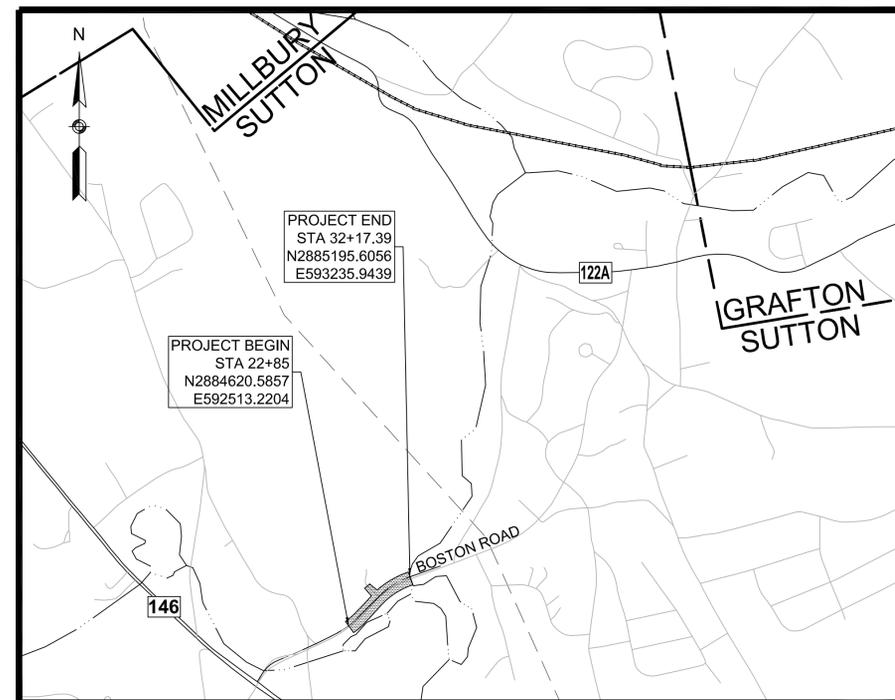


TRANSPORTATION IMPROVEMENT BOSTON ROAD IN THE TOWN OF SUTTON WORCESTER COUNTY

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

FOR PERMITTING - NOT FOR CONSTRUCTION

INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGEND
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LENGTH OF PROJECT = 932.39 FEET = 0.177 MILES

DESIGN DESIGNATION (BOSTON ROAD)

DESIGN SPEED	45 MPH (POSTED 40 MPH)
ADT (2022)	10,575
ADT (2037)	12,390
K	9%
D	51%
T (PEAK HOUR)	8.7%
T (AVERAGE DAY)	10.3%
DHV	1,015
DDHV	520
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DATE	DESCRIPTION	REV #
NOV 21, 2022	PEER REVIEW COMMENTS	2
SEPT 28, 2022	DESIGN FOR PERMITTING	1
MARCH 28 2022	DRAFT PRELIMINARY DESIGN	0

ENGINEER		DATE
 Vanasse Hangen Brustlin, Inc. 101 Walnut St., PO Box 9151 Watertown, MA 02472 617.924.1770 FAX 617.924.2286		
DESIGNED BY AL/ELT	APPROVED BY GR	SHEET OF 1 27
DRAWN BY FM/KF	DFTG CHECKED BY CAC	WB CAD FILE NAME 15047-COVER.DWG
CHECKED BY CAC	DATE NOVEMBER 21, 2022	JOB NO. 15047

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		AREA DRAIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		MAILBOX
		WELL
		ELECTRIC BOX
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		DRILL HOLE FOUND
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		FIRE HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		NO LABEL MANHOLE
		CULVERT
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		STONE BOUND WITH DRILL HOLE FOUND
		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
		DECIDUOUS TREE
		CONIFER TREE
		SHRUB
		STUMP
		SWAMP / MARSH
		ROCK
		GAS VALVE
		VALVE
		VENT
		WATER GATE
		PARKING METER
		SIGN (SINGLE POSTED)
		SIGN (DOUBLE POSTED)
		UNIDENTIFIED STRUCTURE
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		OVERHEAD WIRE
		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)
		FEDERAL EMERGENCY MANAGEMENT AGENCY
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		ABUTTERS LINE
		TRANSMISSION LINE

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		WETLAND LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		QUADRUPOLE WIRE LOOP DETECTOR
		BICYCLE WIRE LOOP DETECTOR, TYPE B-2
		VIDEO DETECTION CAMERA
		PEDESTRIAN PUSH BUTTON, SIGN AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD, WITH/WITHOUT BACKPLATE
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED, WITH/WITHOUT BACKPLATE
		FLASHING BEACON, WITH/WITHOUT BACKPLATE
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		SIGNAL POST AND BASE
		MAST ARM, SHAFT AND BASE
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		OVERHEAD SIGN
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE - SD2.022 (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		BICYCLE LANE WORD, SYMBOL AND/OR ARROW - WHITE
		BICYCLE DETECTOR - WHITE
		STOP LINE - WHITE, 12" WIDTH UNLESS OTHERWISE NOTED
		CROSSWALK - WHITE, 12" WIDTH UNLESS OTHERWISE NOTED
		SOLID WHITE LINE, 6" WIDTH
		SOLID YELLOW LINE, 6" WIDTH
		BROKEN WHITE LINE, 10' LINE W/30' SPACING, 6" WIDTH
		BROKEN YELLOW LINE, 10' LINE W/30' SPACING, 6" WIDTH
		DOTTED WHITE LINE, 2' LINE W/6' SPACING, 6" WIDTH
		DOTTED YELLOW LINE, 2' LINE W/6' SPACING, 6" WIDTH
		LONG DASHED WHITE LINE EXTENSION, 3' LINE W/9' SPACING, 6" WIDTH
		DOUBLE YELLOW LINE, 6" WIDTH
		SOLID WHITE CHANNELIZATION LINE, 12" WIDTH UNLESS OTHERWISE NOTED
		SOLID YELLOW CHANNELIZATION LINE, 12" WIDTH UNLESS OTHERWISE NOTED
		SLOTTED PAVEMENT MARKER ONE-WAY WHITE
		SLOTTED PAVEMENT MARKER TWO-WAY WHITE/RED
		SLOTTED PAVEMENT MARKER TWO-WAY YELLOW

ABBREVIATIONS

GENERAL

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

ABBREVIATIONS

GENERAL

PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY

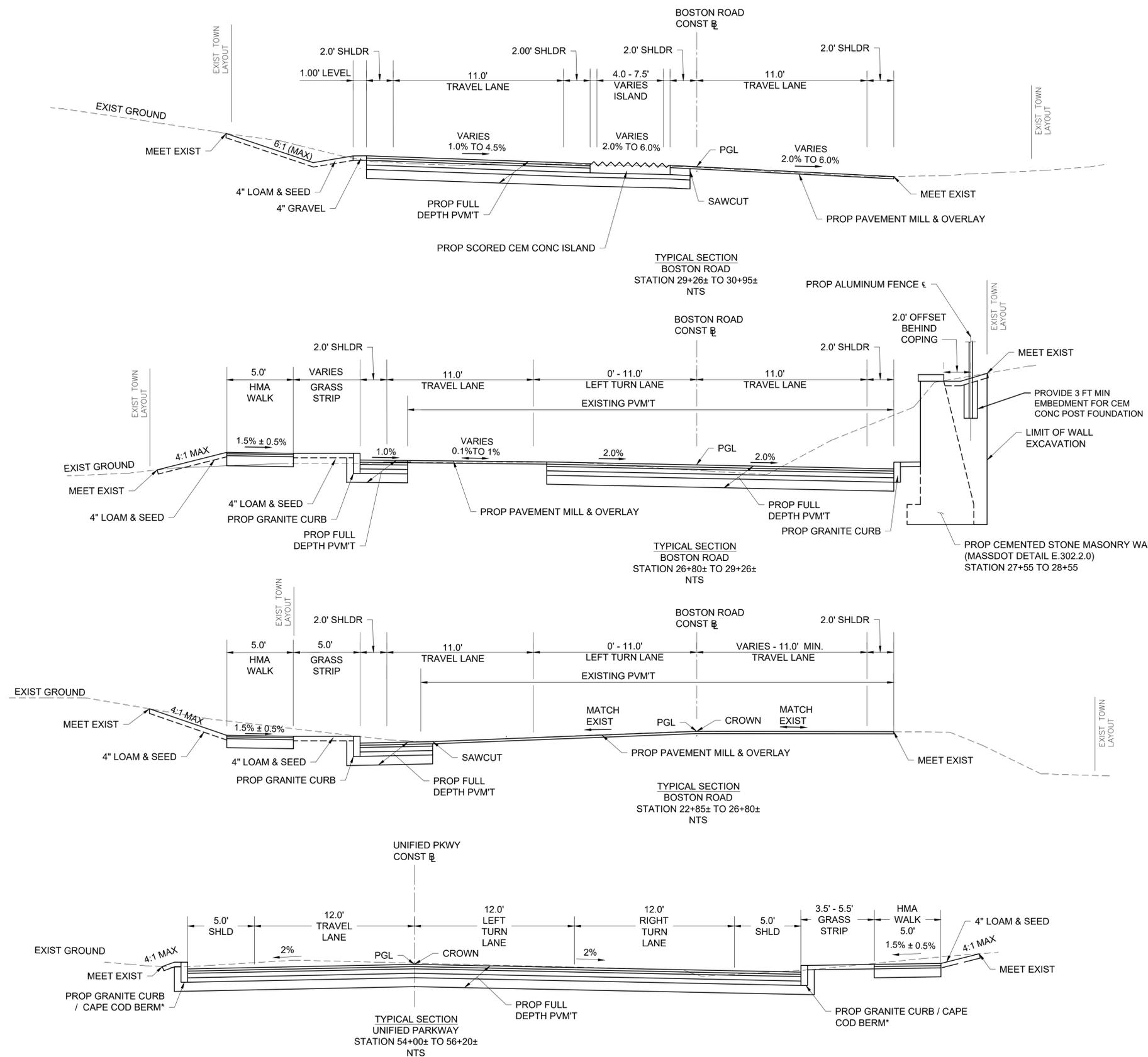
ABBREVIATIONS (cont.)

GENERAL

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

GENERAL NOTES:

1. EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM A COMBINATION OF GROUND AND AERIAL SURVEY CONDUCTED BY WSP IN JUNE, 2021. THE SITE SURVEY HAS BEEN PREPARED BY WSP.
2. THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
4. 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 DETERMINE THE EXACT 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 EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
5. 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. .
6. 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 RESOLUTION OF THE CONFLICT.
7. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SEWER STRUCTURES AS NECESSARY FOR 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.
8. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
9. EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS IF REQUIRED.
10. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
12. 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).
13. JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER IN ACCORDANCE WITH SUBSECTION 450 OF THE MASSDOT STANDARD SPECIFICATIONS.
14. AFTER MILLING OPERATIONS AND PRIOR TO PAVING THE SUPERPAVE INTERMEDIATE OR SURFACES COURSES THE ENGINEER SHALL EVALUATE THE MILLED SURFACE AND SHALL APPLY THE APPROPRIATE REPAIR METHOD IF REQUIRED.
15. EXISTING STATE, COUNTY, CITY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
16. PROPOSED BOUNDS SHALL BE PLACED BY A LICENSED PROFESSIONAL SURVEYOR. THE CONTRACTOR SHALL EXERCISE DUE CARE WHEN WORKING AROUND ALL PROPERTY BOUNDS WHICH ARE TO REMAIN. SHOULD ANY DAMAGE TO A BOUND RESULT FROM THE ACTIONS OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE THE BOUND REPLACED AND/OR REALIGNED BY A LICENSED PROFESSIONAL SURVEYOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
17. DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.
18. LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE PLANS.



PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT

SURFACE:	2"	SUPERPAVE SURFACE COURSE POLYMER - 12.5 (SSC-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT OVER
INTERMEDIATE:	2"	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER
BASE COURSE:	4"	SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) OVER
SUBBASE:	4" 8"	DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER GRAVEL BORROW (TYPE b)

PROPOSED FULL DEPTH PAVEMENT LESS THAN 4.0' WIDE

SURFACE:	2"	SUPERPAVE SURFACE COURSE POLYMER - 12.5 (SSC-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT OVER
INTERMEDIATE:	2"	SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT OVER
BASE COURSE:	8"	CEMENT CONCRETE BASE COURSE OVER
SUBBASE:	8"	GRAVEL BORROW (TYPE b)

PROPOSED MILL AND OVERLAY

SURFACE:	2"	SUPERPAVE SURFACE COURSE POLYMER - 12.5 (SSC-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT OVER
MILLING:	2"	PAVEMENT MICROMILLING

PROPOSED HOT MIX ASPHALT DRIVEWAY

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

PROPOSED SCORED CONCRETE PAVEMENT

SURFACE:	7"-8"	CEMENT CONCRETE AIR ENTRAINED (5000 PSI, 3/4", 705 LB) OVER
SUBBASE:	4" 8"	DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER GRAVEL BORROW (TYPE B)

PROPOSED HMA WALK

SURFACE:	3"	HOT MIX ASPHALT (1 1/4" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5) OVER 1 3/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5))
SUBBASE:	8"	GRAVEL BORROW (TYPE B)

GENERAL NOTES:

- ALL HOT MIX ASPHALT PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SECTION 450 QUALITY ASSURANCE FOR HMA.
- ASPHALT EMULSION FOR TACK COAT (ITEM 452.) SHALL BE SPRAY APPLIED TO COVER A MINIMUM OF 95% OF THE PAVEMENT SURFACE.
- HMA JOINT SEALANT (ITEM 453.) SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.
- ALL HOT MIX ASPHALT WALKS AND DRIVEWAYS SHALL BE ESTIMATED AND PAID FOR UNDER ITEM 702. OF STANDARD SPECIFICATION FOR HIGHWAYS AND BRIDGES.
- SURFACE PAVING TO BE COMPLETED AT THE END OF THE PROJECT AND AS DIRECTED WHEN IT CAN BE PLACED IN ITS ENTIRETY.

* MEET DEVELOPMENT BERM AT UNIFIED PKWY STA 54+00±.
PROP CAPE COD BERM FROM UNIFIED PKWY STA 54+00± TO STA 55+95±.
PROP GRAN CURB FROM STA UNIFIED PKWY 55+95± TO STA 56+20±.
MEET PROP GRAN CURB AT BOSTON ROAD STA 27+55± AND STA 29+43±.

BOSTON RD STRUCTURE TABLE					
NO.	STATION	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
CBCI-1	24+50 -23.0' LT	410.62		I=406.30' (DMH-1)	
CB-2	27+13.5 12.0' RT	405.47		I=399.60' (DMH-1)	
CBCI-3	27+30.2 -23.0' LT	405.38		I=401.05' (DMH-1)	
DMH-1	27+36.5 -16.8' LT	405.19	I=400.90' (CBCI-3) I=400.80' (CBCI-1) I=399.20' (CB-2)	I=399.00' (DMH-3)	RETAIN EXIST, ADJ
EX-DI-1	27+55 -31.0' LT	403.79		I=398.98' (EX-CB-5)	PROVIDE CURB INLET
GICI-1	29+03 12.0' RT	397.07		I=394.40' (EX-CB-5)	PROVIDE CURB INLET
EX-CB-5	29+03.1 7.5' RT	397.16	I=389.83' (EX-DI-1) I=394.30' (GICI-1)	I=390.03' ()	PROP FRAME & COVER
CB-4	29+18.2 -37.2' LT	397.80		I=393.60' (DMH-3)	
DMH-3	29+32.2 -23.1' LT	396.59	I=393.40' (CB-4) I=393.50' (DMH-1)	I=393.40' (FE-1)	
FE-1	29+59.1 -77.6' LT	397.33	I=393.00' (DMH-3)		
EX-DI-2	30+38.1 -24.8' LT	392.93			PROP FRAME & COVER
EX-DMH-1	30+58.3 -10.1' LT	391.72		I=386.20' ()	RETAIN EXIST, ADJ

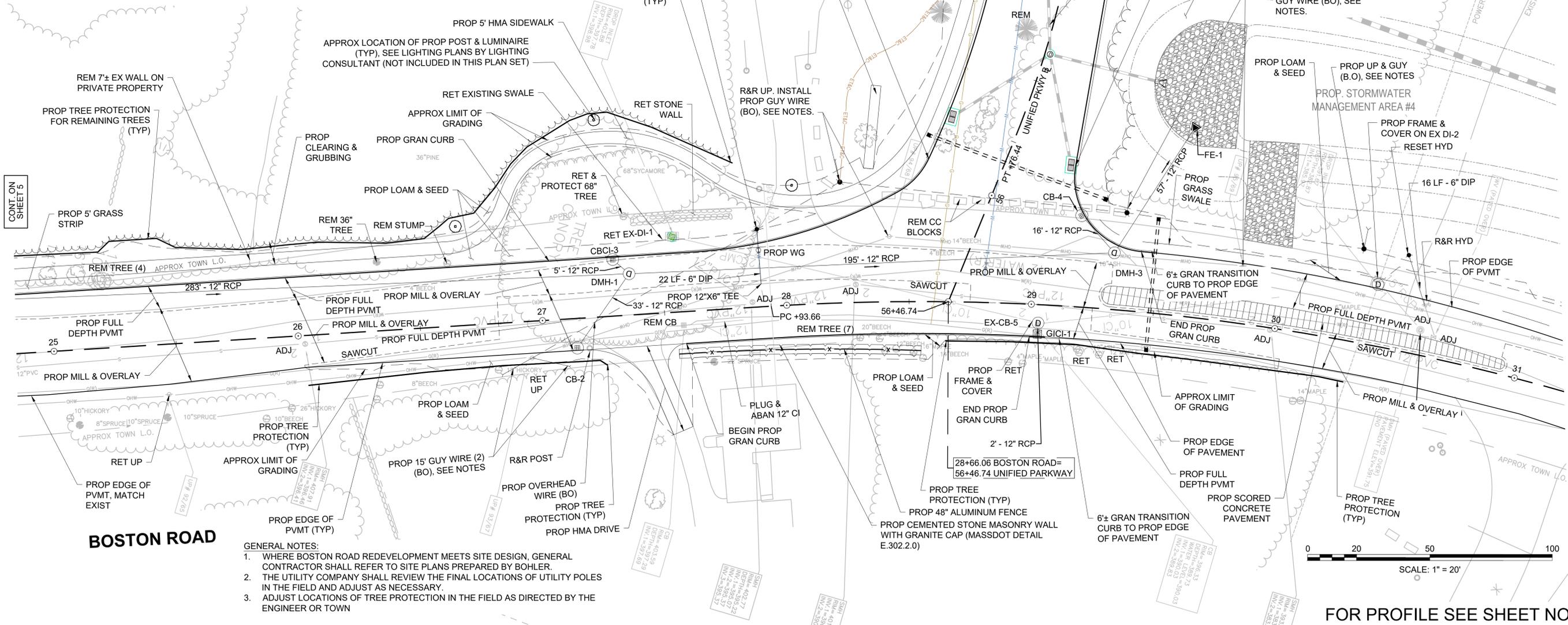
HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
SEE TRAFFIC PLANS

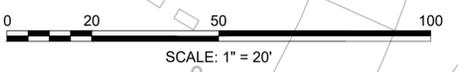
WATER SUPPLY ALTERATIONS
SEE BELOW

DRAINAGE DETAILS
SEE BELOW

15047 SUTTON
BOSTON ROAD
CONSTRUCTION PLANS
SHEET 6 OF 27



- GENERAL NOTES:
- WHERE BOSTON ROAD REDEVELOPMENT MEETS SITE DESIGN, GENERAL CONTRACTOR SHALL REFER TO SITE PLANS PREPARED BY BOHLER.
 - THE UTILITY COMPANY SHALL REVIEW THE FINAL LOCATIONS OF UTILITY POLES IN THE FIELD AND ADJUST AS NECESSARY.
 - ADJUST LOCATIONS OF TREE PROTECTION IN THE FIELD AS DIRECTED BY THE ENGINEER OR TOWN



FOR PROFILE SEE SHEET NO. 9

CONT. ON SHEET 5

CONT. ON SHEET 7

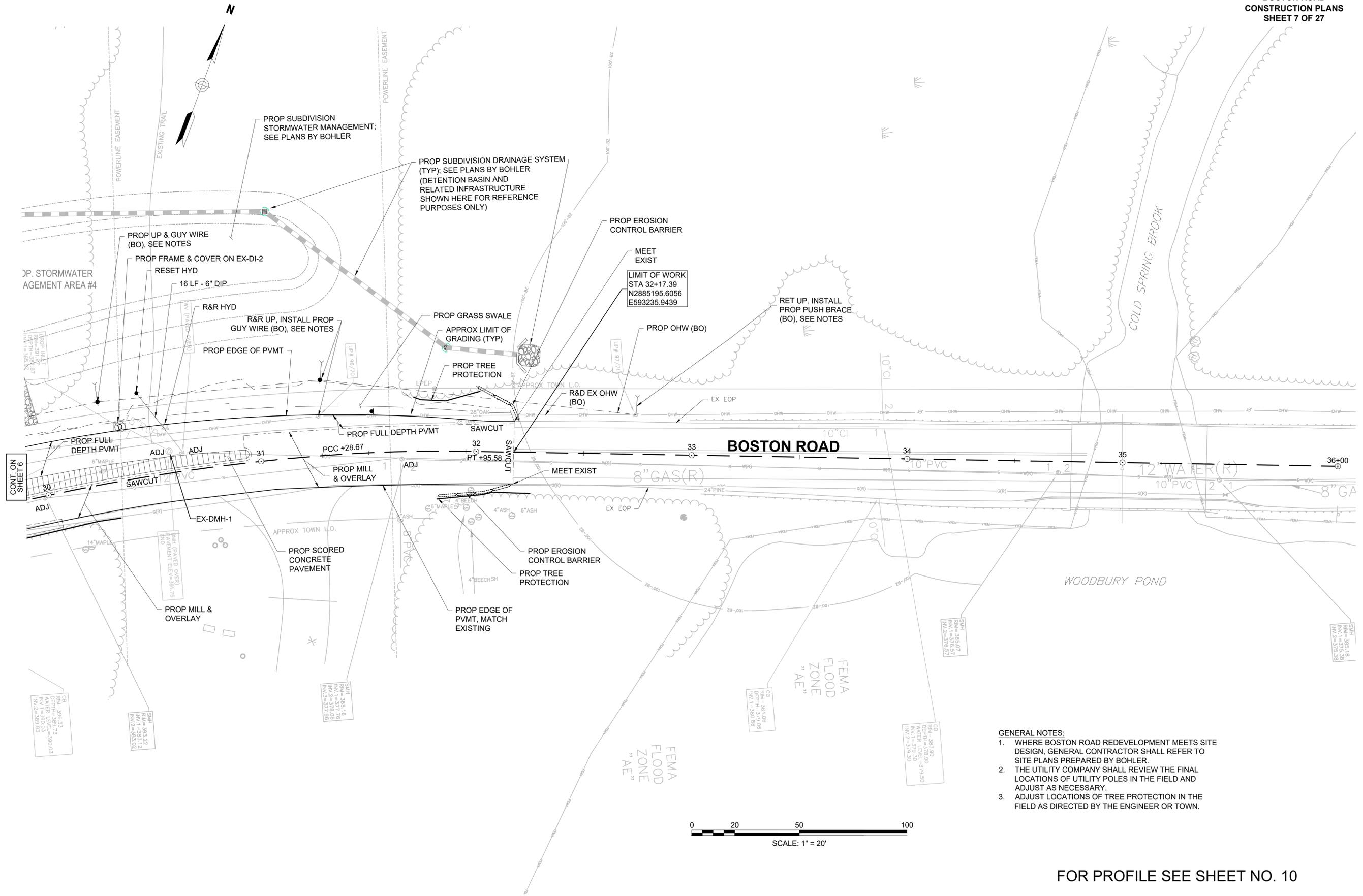
HIGHWAY GUARD DETAILS
NONE

TRAFFIC SIGNAL CONDUIT
NONE

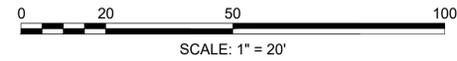
WATER SUPPLY ALTERATIONS
SEE BELOW

DRAINAGE DETAILS
SEE BELOW

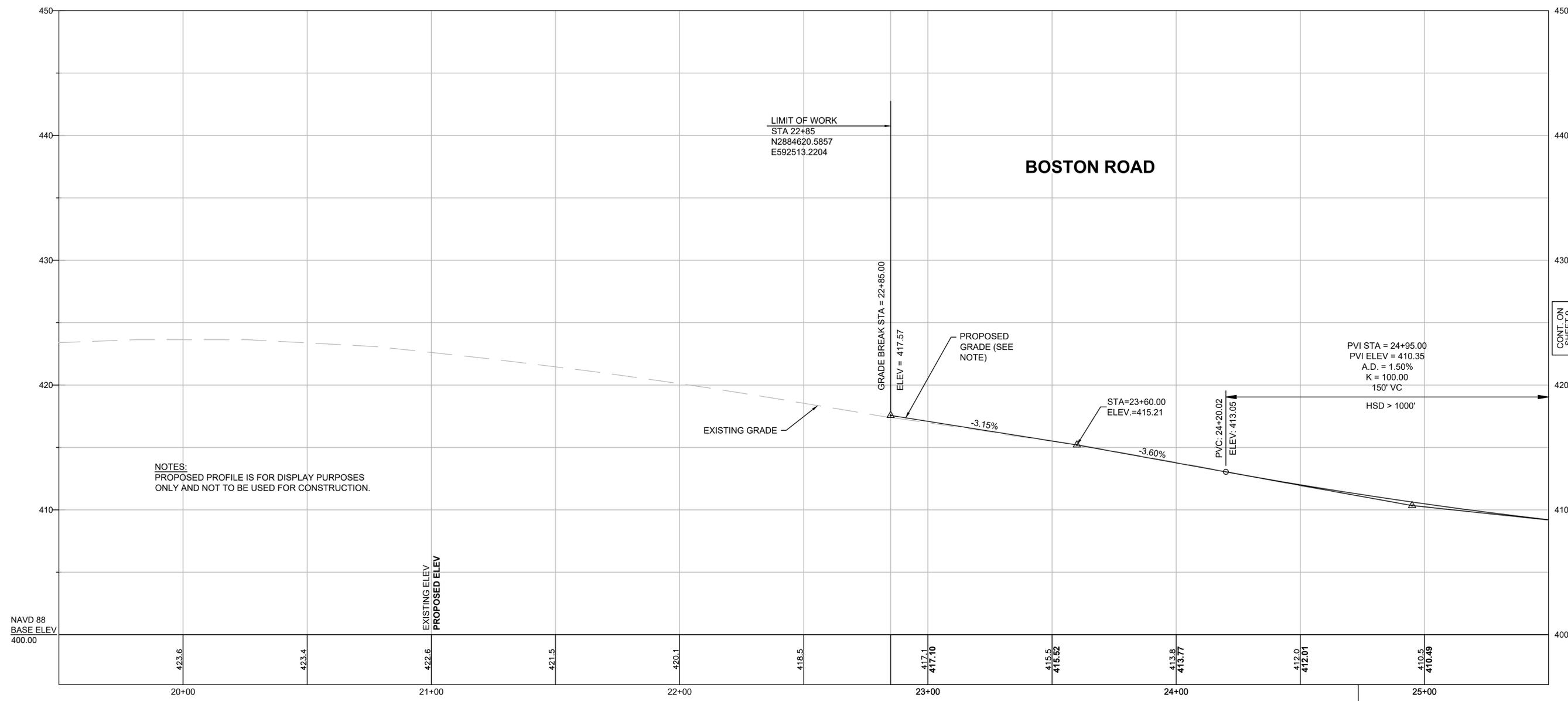
15047 SUTTON
BOSTON ROAD
CONSTRUCTION PLANS
SHEET 7 OF 27



- GENERAL NOTES:
- WHERE BOSTON ROAD REDEVELOPMENT MEETS SITE DESIGN, GENERAL CONTRACTOR SHALL REFER TO SITE PLANS PREPARED BY BOHLER.
 - THE UTILITY COMPANY SHALL REVIEW THE FINAL LOCATIONS OF UTILITY POLES IN THE FIELD AND ADJUST AS NECESSARY.
 - ADJUST LOCATIONS OF TREE PROTECTION IN THE FIELD AS DIRECTED BY THE ENGINEER OR TOWN.



FOR PROFILE SEE SHEET NO. 10



NOTES:
 PROPOSED PROFILE IS FOR DISPLAY PURPOSES
 ONLY AND NOT TO BE USED FOR CONSTRUCTION.

LIMIT OF WORK
 STA 22+85
 N2884620.5857
 E592513.2204

BOSTON ROAD

GRADE BREAK STA = 22+85.00
 ELEV = 417.57

PROPOSED
 GRADE (SEE
 NOTE)

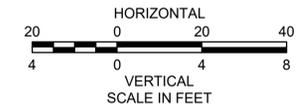
STA=23+60.00
 ELEV.=415.21

PVC: 24+20.02
 ELEV: 413.05

PVI STA = 24+95.00
 PVI ELEV = 410.35
 A.D. = 1.50%
 K = 100.00
 150' VC
 HSD > 1000'

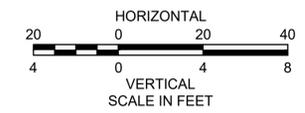
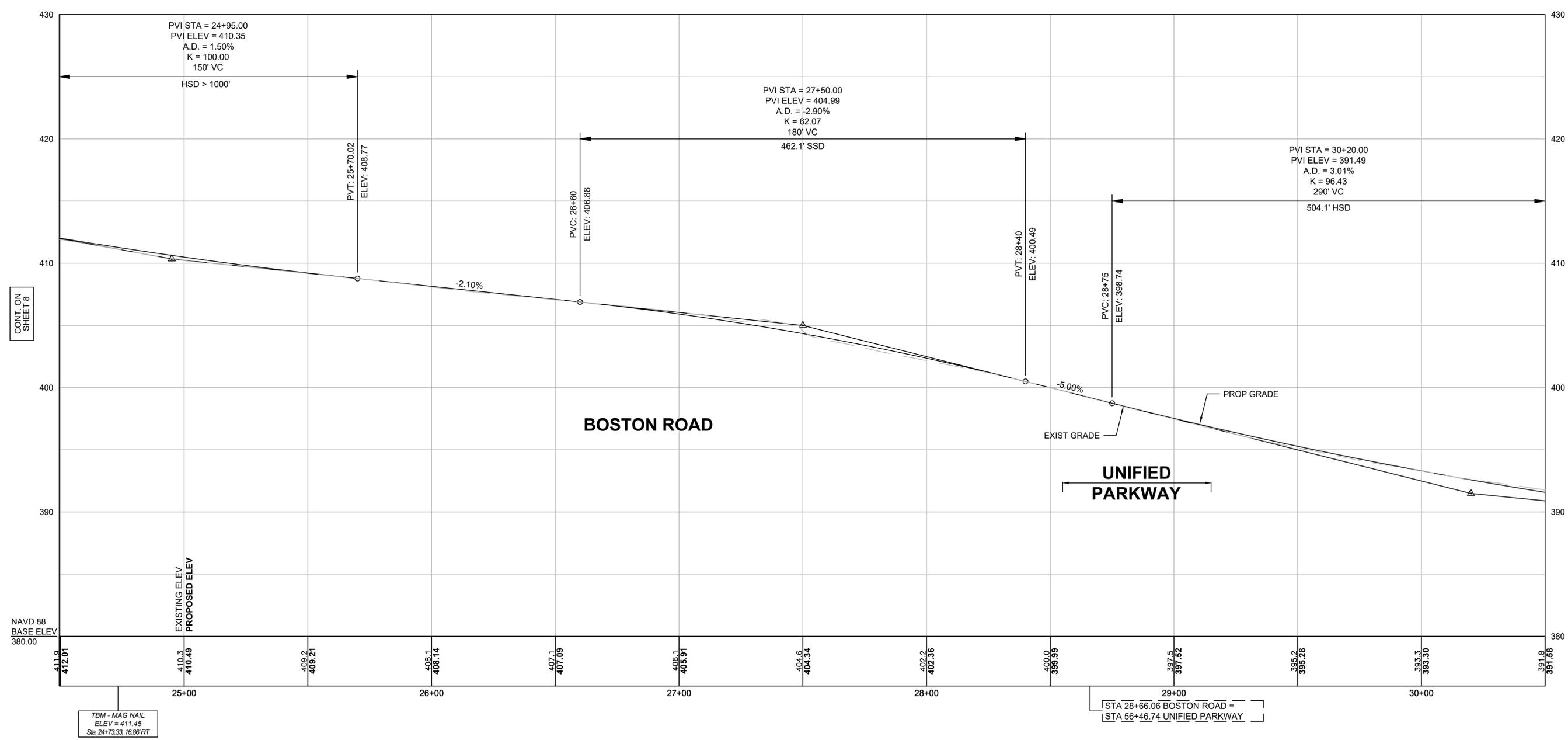
NAVD 88
 BASE ELEV
 400.00

TBM - MAG NAIL
 ELEV = 411.45
 Sta. 24+73.33, 16.88' RT



CONT. ON
 SHEET 9

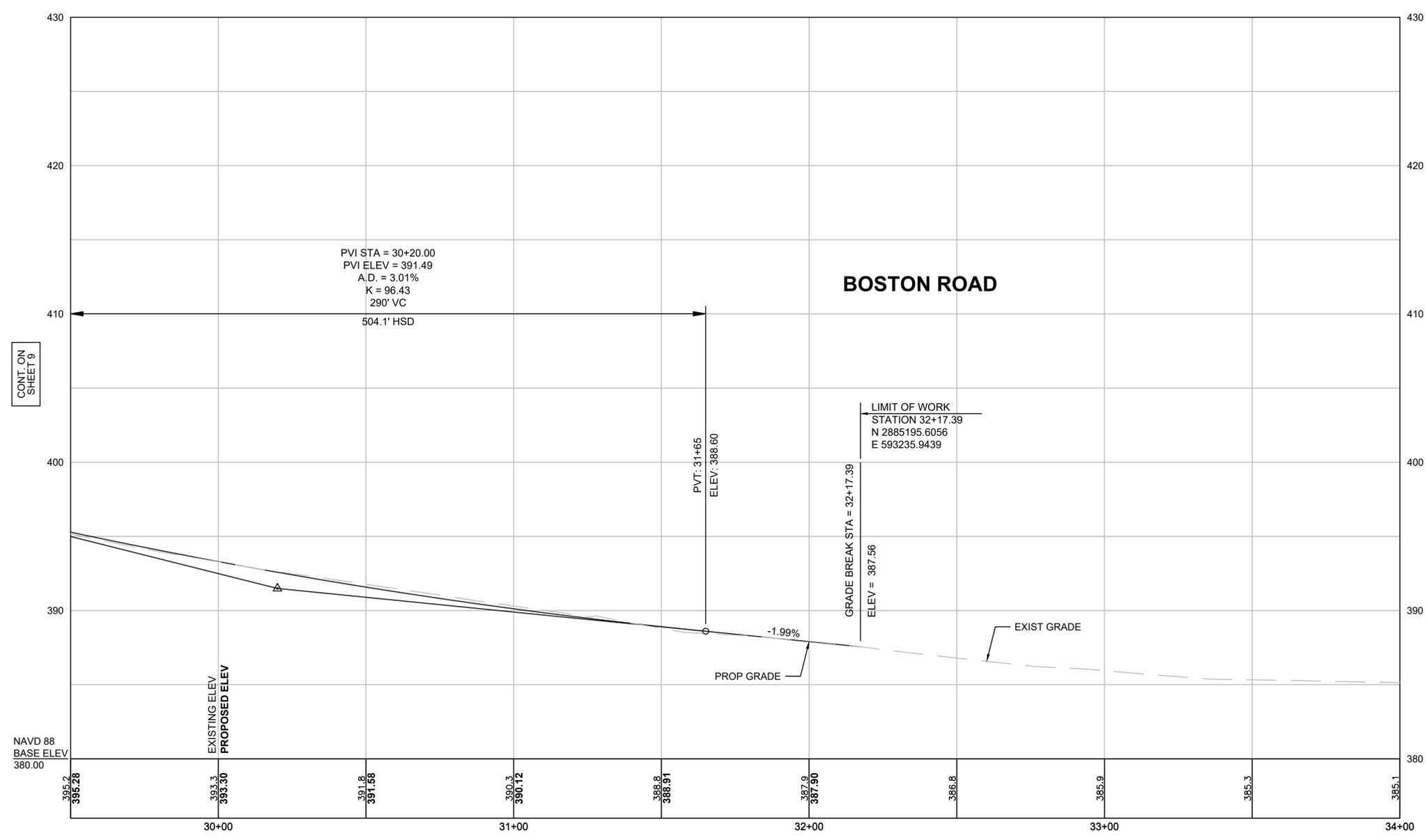
FOR CONSTRUCTION PLANS, SEE SHEET NO. 5



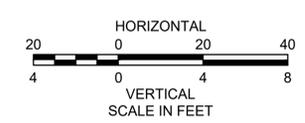
FOR CONSTRUCTION PLANS, SEE SHEET NO. 6

CONT. ON SHEET 8

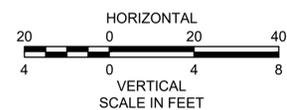
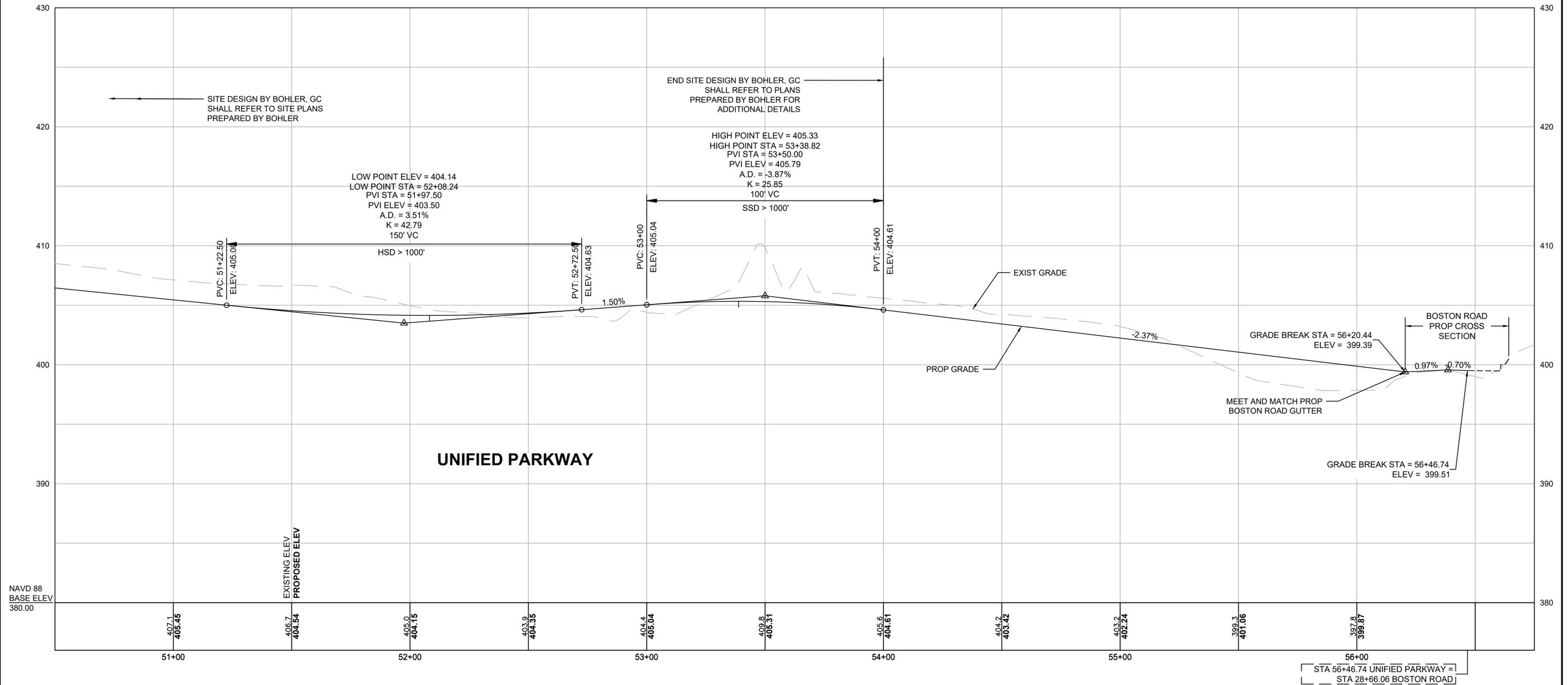
CONT. ON SHEET 10



CONT. ON
 SHEET 9

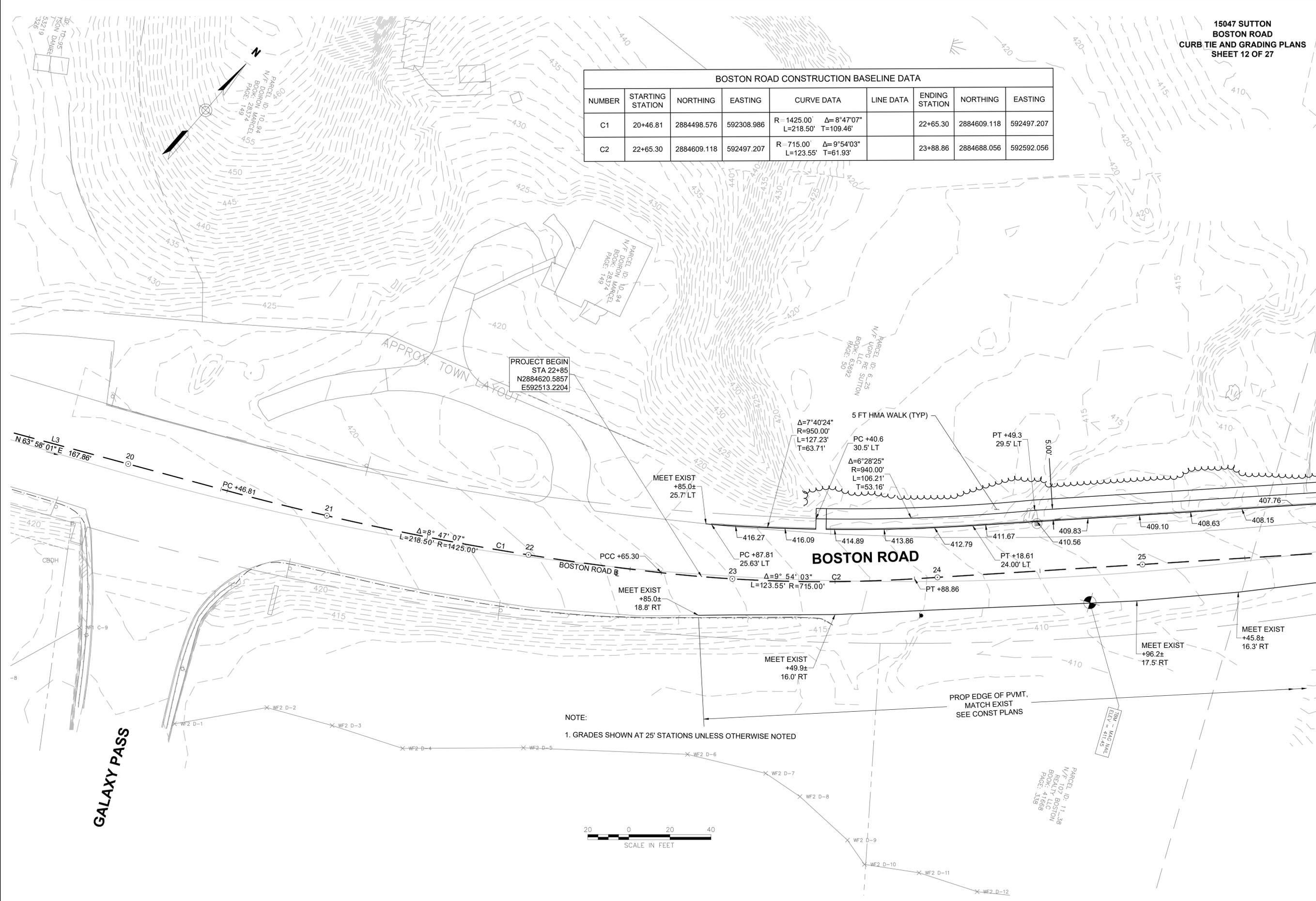


FOR CONSTRUCTION PLANS, SEE SHEET NO. 7



FOR CONSTRUCTION PLANS, SEE SHEET NO. 6

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C1	20+46.81	2884498.576	592308.986	R=1425.00' Δ=8°47'07" L=218.50' T=109.46'		22+65.30	2884609.118	592497.207
C2	22+65.30	2884609.118	592497.207	R=715.00' Δ=9°54'03" L=123.55' T=61.93'		23+88.86	2884688.056	592592.056



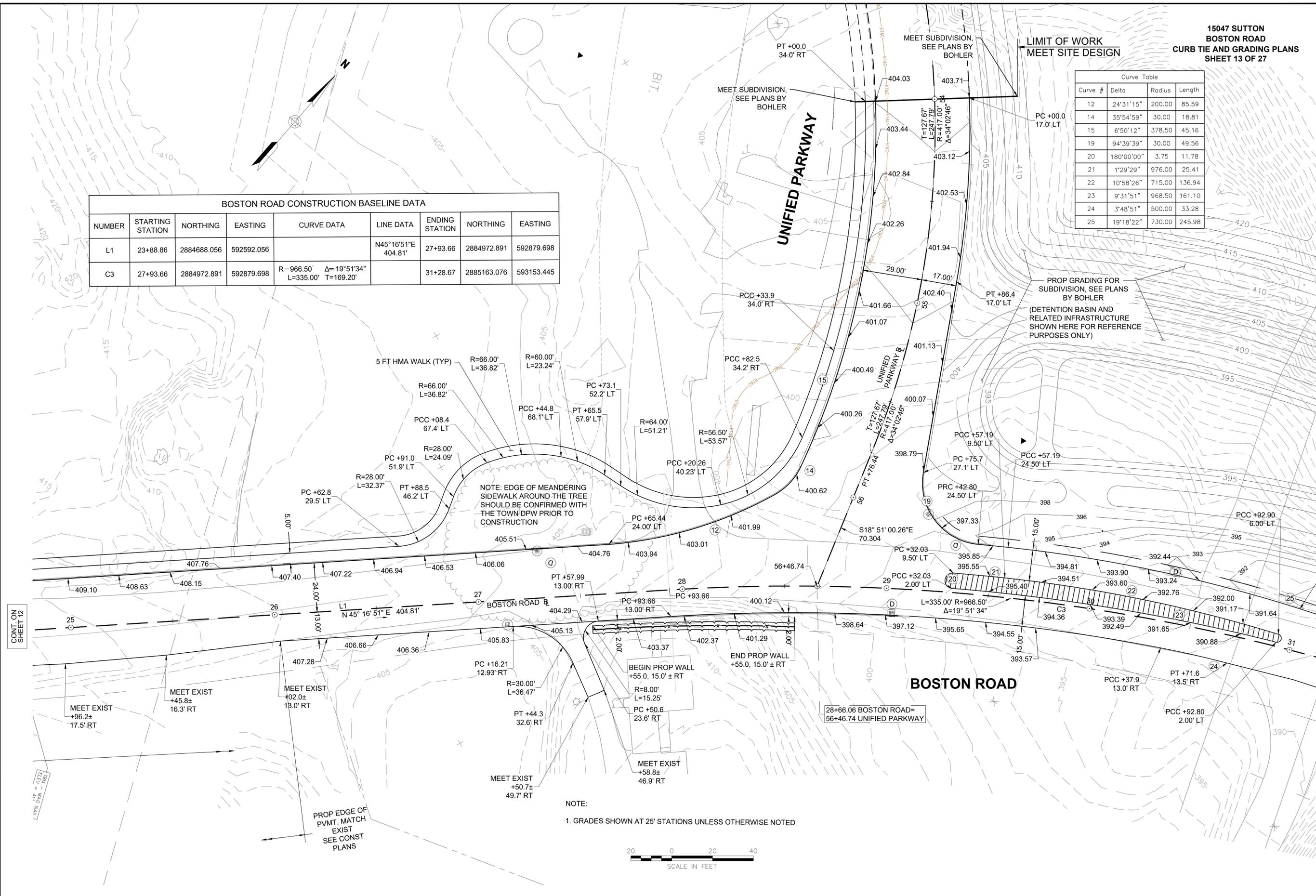
NOTE:
1. GRADES SHOWN AT 25' STATIONS UNLESS OTHERWISE NOTED



CONT. ON SHEET 13

Curve Table			
Curve #	Delta	Radius	Length
12	24°31'15"	200.00	85.59
14	35°54'59"	30.00	18.81
15	6°50'12"	378.50	45.16
19	94°39'39"	30.00	49.56
20	180°00'00"	3.75	11.78
21	1°29'29"	976.00	25.41
22	10°58'26"	715.00	136.94
23	9°31'51"	968.50	161.10
24	3°48'51"	500.00	33.28
25	19°18'22"	730.00	245.98

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	23+88.86	2884688.056	592592.056		N45°16'51"E 404.81'	27+93.66	2884972.891	592879.698
C3	27+93.66	2884972.891	592879.698	R=966.50 Δ=19°51'34" L=335.00' T=169.20'		31+28.67	2885163.076	593153.445



CONT. ON SHEET 12

CONT. ON SHEET 14

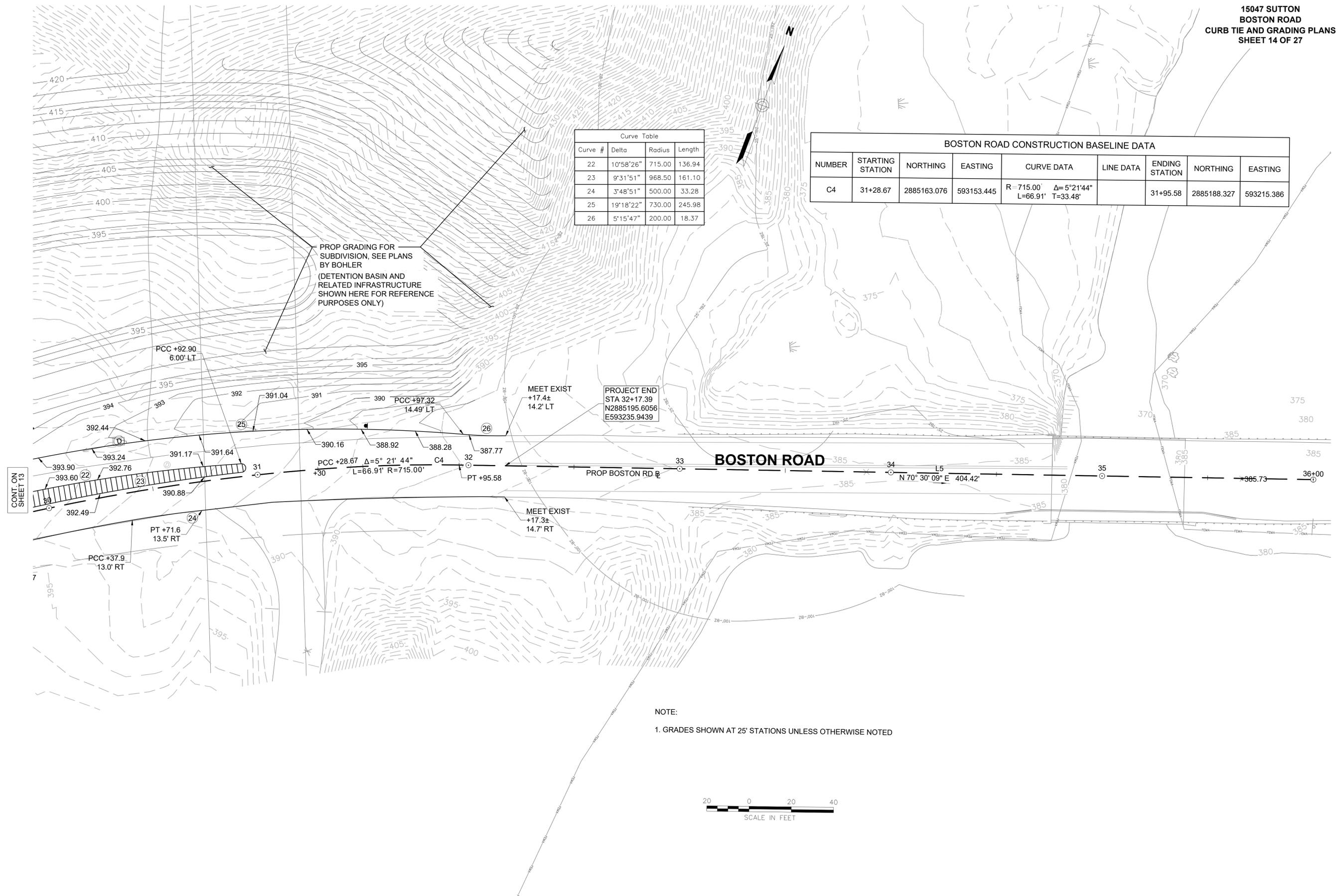
Curve Table			
Curve #	Delta	Radius	Length
22	10°58'26"	715.00	136.94
23	9°31'51"	968.50	161.10
24	3°48'51"	500.00	33.28
25	19°18'22"	730.00	245.98
26	5°15'47"	200.00	18.37

BOSTON ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C4	31+28.67	2885163.076	593153.445	R=715.00' Δ=5°21'44" L=66.91' T=33.48'		31+95.58	2885188.327	593215.386

PROP GRADING FOR
 SUBDIVISION, SEE PLANS
 BY BOHLER
 (DETENTION BASIN AND
 RELATED INFRASTRUCTURE
 SHOWN HERE FOR REFERENCE
 PURPOSES ONLY)

PROJECT END
 STA 32+17.39
 N2885195.6056
 E593235.9439

CONT. ON
 SHEETS 13

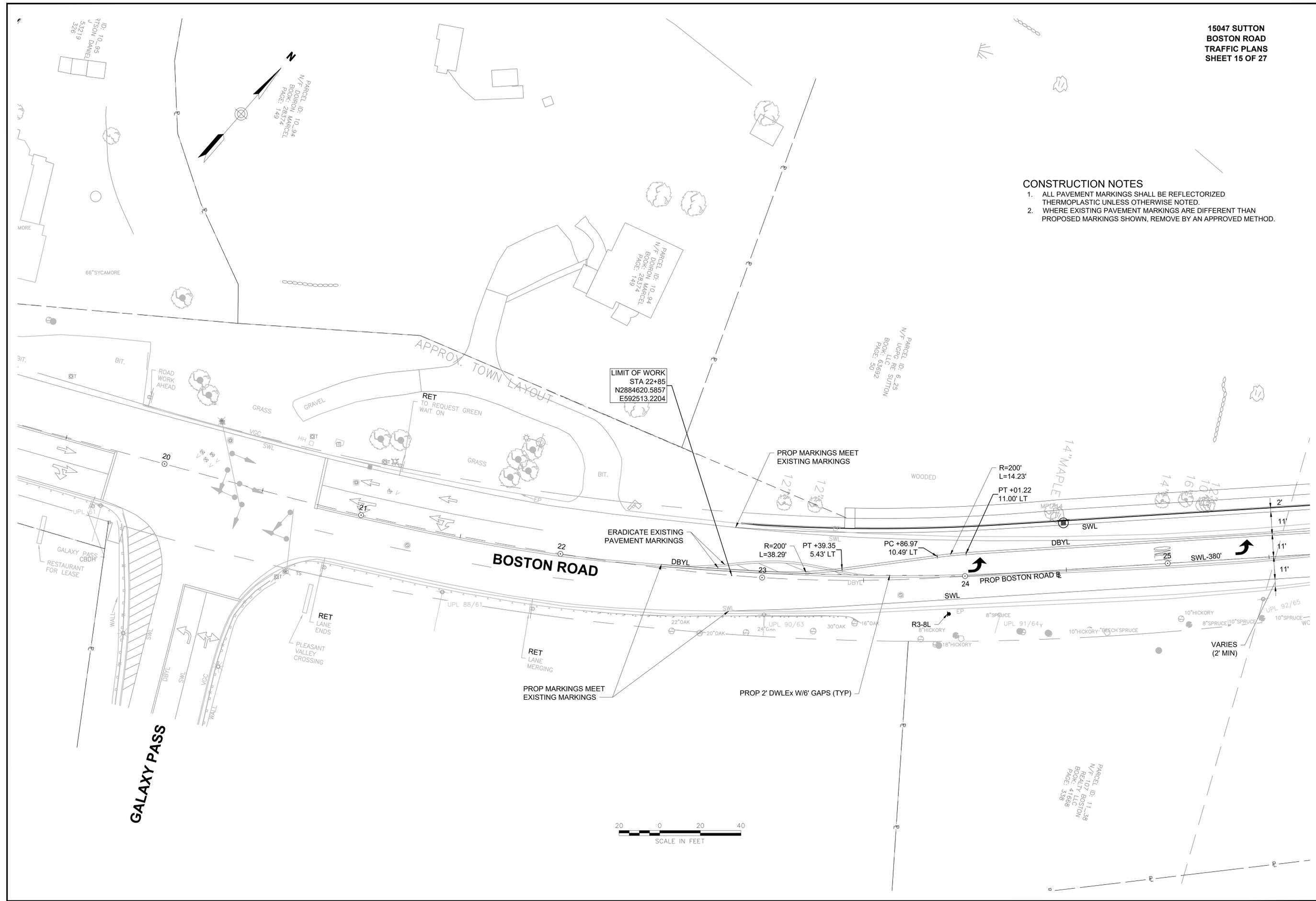


NOTE:
 1. GRADES SHOWN AT 25' STATIONS UNLESS OTHERWISE NOTED



CONSTRUCTION NOTES

1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC UNLESS OTHERWISE NOTED.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.

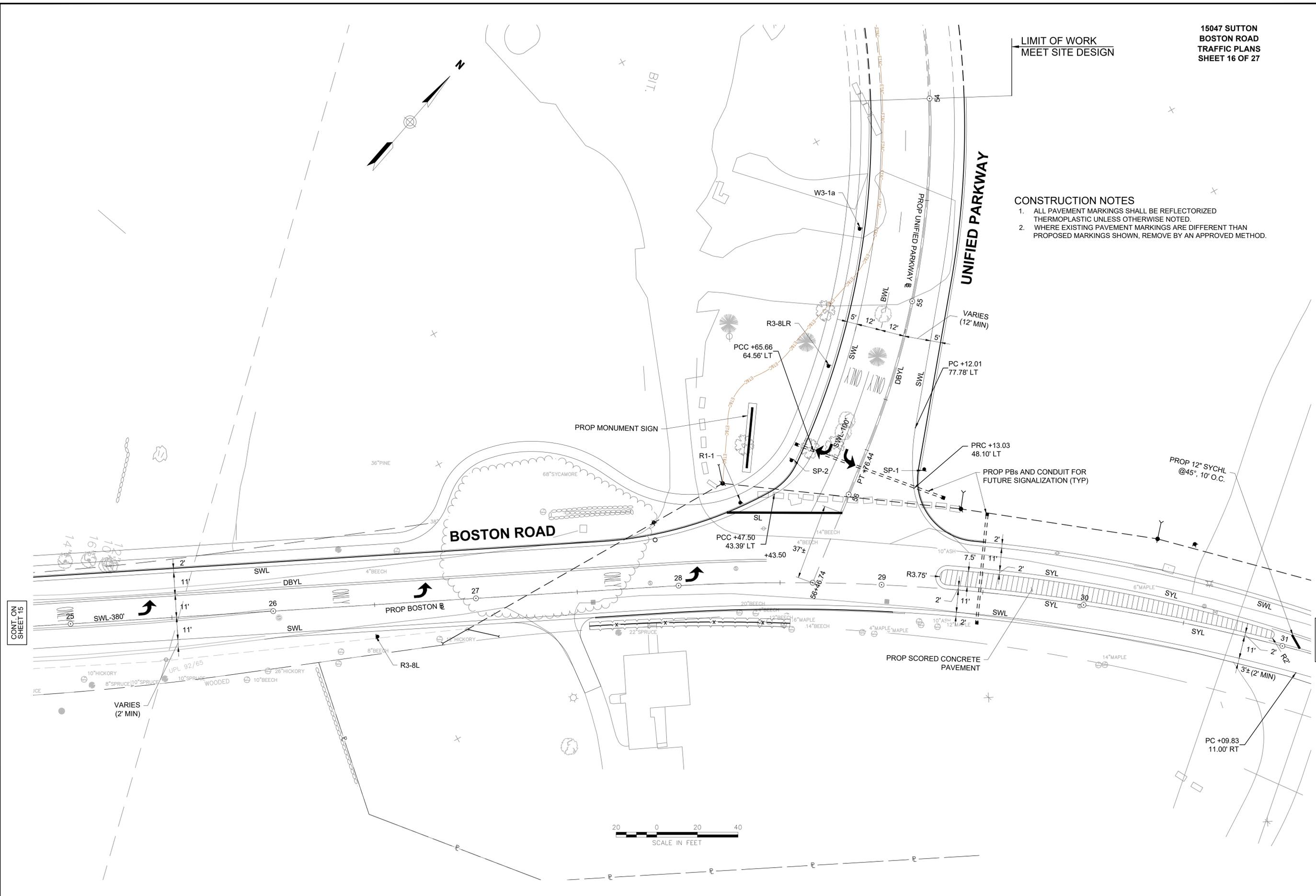


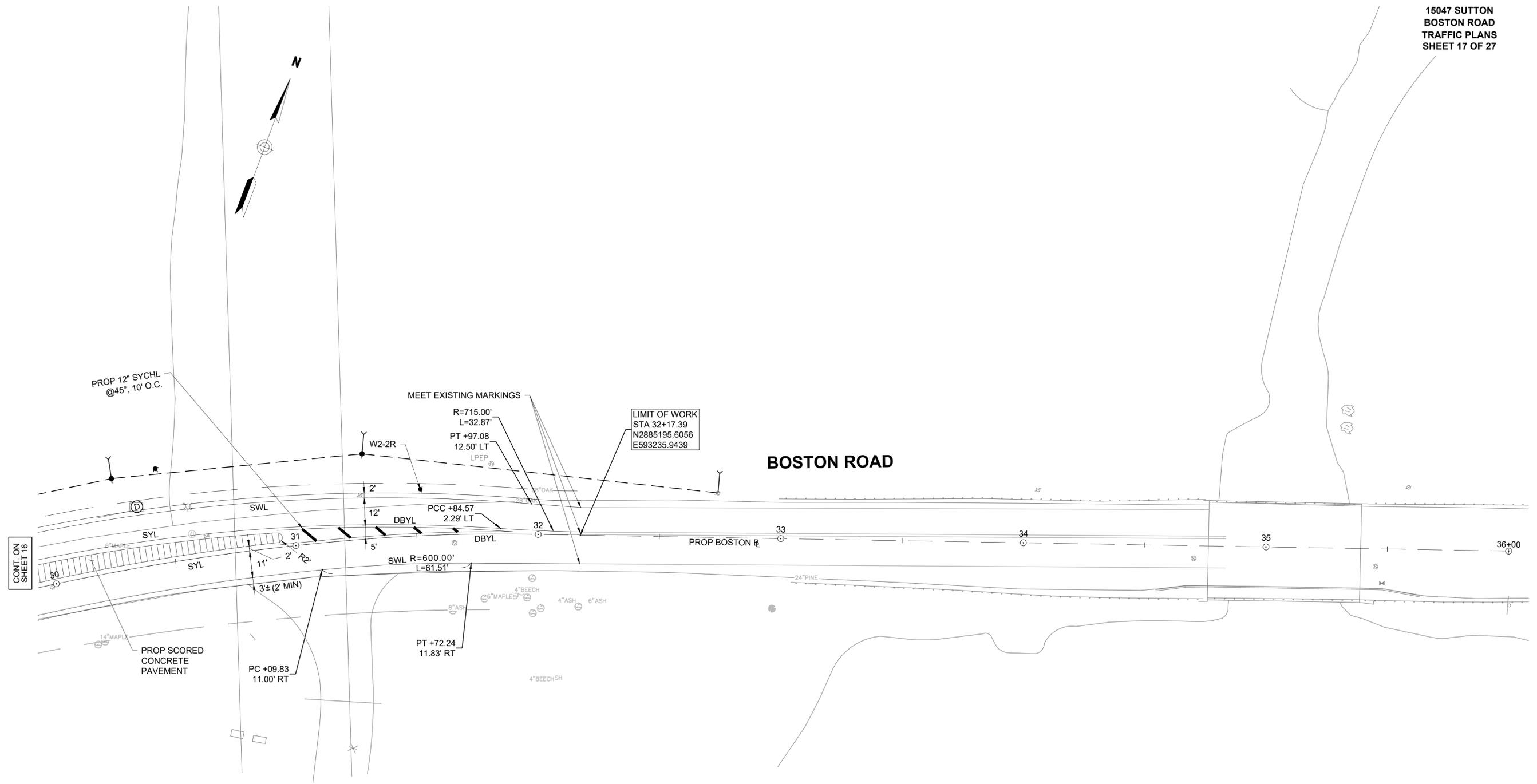
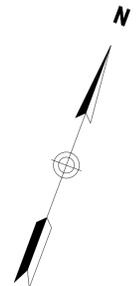
CONT. ON SHEET 16

LIMIT OF WORK
 MEET SITE DESIGN

CONSTRUCTION NOTES

1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC UNLESS OTHERWISE NOTED.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.





CONT. ON
 SHEET 16

BOSTON ROAD

- CONSTRUCTION NOTES**
1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC UNLESS OTHERWISE NOTED.
 2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.



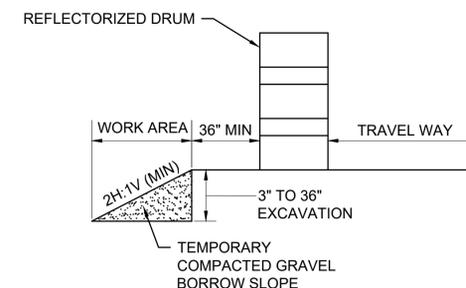
TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
R1-1	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			1	RED	WHITE	WHITE	P5-1	6.25	6.25
R3-8L	30"	30"					2	WHITE	BLACK	BLACK	P5-2	6.25	12.50
R3-8LR	36"	30"					1	WHITE	BLACK	BLACK	P5-1	7.50	7.50
W2-2R	30"	30"					1	YELLOW	BLACK	BLACK	P5-1	6.25	6.25
W3-1a	30"	30"					1	YELLOW	RED/ BLACK	BLACK	P5-1	6.25	6.25
SP-1	24"	30"		6"D 5"D 5"C	3" 4" 4" 3"	NA	1	WHITE	BLACK	BLACK	P5-1	5.00	5.00
SP-2	24"	36"		4"D 3"C 21"	2" 2" 2" 2"	NA	1	WHITE	RED/ BLACK	BLACK	P5-1	6.00	6.00

NOTES:

1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.

GENERAL NOTES

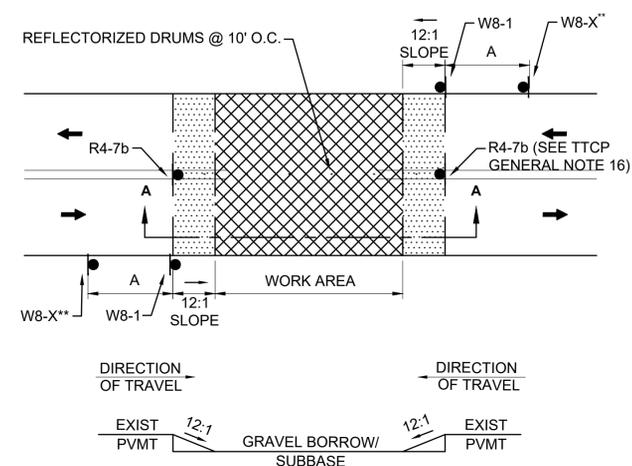
- ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED; THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO), ROADSIDE DESIGN GUIDE; AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS; AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- WORK HOURS SHALL BE 7:00AM TO 3:00PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER. WORK SHALL NOT AFFECT TRAFFIC PATTERNS DURING PEAK TRAFFIC PERIODS. PEAK TRAFFIC PERIODS ARE DEFINED AS MONDAY THRU FRIDAY 7:00AM-9:00AM AND 4:00PM-6:00PM.
- NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY THE DAY BEFORE, AFTER OR ON A STATE RECOGNIZED HOLIDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
- ALL DRUMS AND SIGNS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY AS APPROVED BY THE ENGINEER TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
- THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
- ON LOCAL ROADWAYS A MINIMUM OF ONE LANE OF TRAVEL SHALL BE MAINTAINED AT ALL TIMES, AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
- FOR DROP-OFFS 3" OR LESS WITHIN THE CLEAR ZONE, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 3" BUT NO MORE THAN 36", DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH W8-9 SIGN AND TEMPORARY CHANNELIZATION DEVICES IN ACCORDANCE WITH MASSDOT WORK ZONE SAFETY GUIDE OR W8-9 SIGN WITH A 2H:1V (MIN) WEDGE OR TO REMOVE THE HAZARD. FOR DROP-OFFS 36" OR GREATER USE TEMPORARY BARRIER IN ACCORDANCE WITH MASSDOT WORK ZONE POSITIVE PROTECTION GUIDELINES.
- CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NO MORE THAN 3" AT THE END OF EACH WORK DAY EXISTS WITHIN THE CLEAR ZONE AT ANY TIME AND ENSURE DROP-OFF IS MITIGATED WITHOUT BARRIER PER NOTE 11.
- CONSTRUCTION CLEAR ZONE SHALL BE IN ACCORDANCE WITH MASSDOT BOSTON TRAFFIC GUIDELINES AS FOLLOWS:
4' IF POSTED SPEED IS LESS THAN 35 MPH
8' IF POSTED SPEED IS 35 MPH
15' IF POSTED SPEED IS 40 MPH
- 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
- NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
- SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN NCHRP 350 AND/OR MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD. SIGNS SHALL NOT BE MOUNTED TO OR LEANED AGAINST DRUMS OR CONES.
- ALL TEMPORARY MARKINGS FOR ROADWAY SHALL BE WATER-BORNE PAINT.
- ALL TEMPORARY STOP LINES SHALL BE 12 INCHES WIDE.
- TEMPORARY DOUBLE YELLOW LINES (DBYL) SHALL BE 6 INCHES WIDE AT ALL INTERSECTIONS WITHIN THE PROJECT LIMITS. TEMPORARY DBYL SHALL BE 4 INCHES WIDE AT ALL OTHER LOCATIONS.
- THE FIRST 10 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AND SHALL BE OPERATING, AT A MINIMUM, BETWEEN DUSK AND DAWN, WHEN TAPER IS DEPLOYED.
- REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
- CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
- W21-7 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF AREAS WHERE UTILITY CASTINGS HAVE BEEN RAISED IN ADVANCE OF PAVING OPERATIONS OR AS REQUESTED BY THE ENGINEER.
- W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
- THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.
- W20-1c OR MA-R2-10a SIGNS SHOWN ON THE ADVANCE SIGN SCHEMATIC MAY BE USED IN LIEU OF THOSE SIGNS SHOWN ON TYPICAL DETAILS ON THE TEMPORARY TRAFFIC CONTROL PLANS IF MINIMUM SIGN SPACING IS MET.
- CONTRACTOR SHALL SECURE WORK AREAS BY APPROPRIATE MEANS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.



NOTE:
1. CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 350 FEET IN ADVANCE OF THE START OF DROP-OFF CONDITION.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: NTS DWG: TTCP1f DATE: FEB 2022



NOTES:
1. SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY.
2. ** CONTRACTOR SHALL INSTALL W8-1 AT LIMIT OF EXCAVATION AND A W8-3, W8-8, W8-15, OR W8-24 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. R4-7b SIGNS AND DRUMS MAY BE OMITTED AT THE DISCRETION OF THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION

SCALE: NTS DWG: TTCP1g DATE: FEB 2022

LEGEND

	POLICE OFFICER
	TRAFFIC SIGNAL
	REFLECTORIZED DRUM
	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS (SEE NOTE 20)
	TEMPORARY CONSTRUCTION SIGN
	TRAFFIC CONE
	TYPE III BARRICADE
	TRAFFIC FLOW
	CONSTRUCTION FENCE
NTS	NOT TO SCALE
TTCP	TEMPORARY TRAFFIC CONTROL PLAN

ADVANCE SIGN SPACING

ROAD	DISTANCE BETWEEN SIGNS (FEET)		
	A	B	C
BOSTON ROAD, EAST OF GALAXY PASS	500	500	500
BOSTON ROAD, WEST OF GALAXY PASS	350	350	350
ALL OTHER ROADWAYS	100	100	100

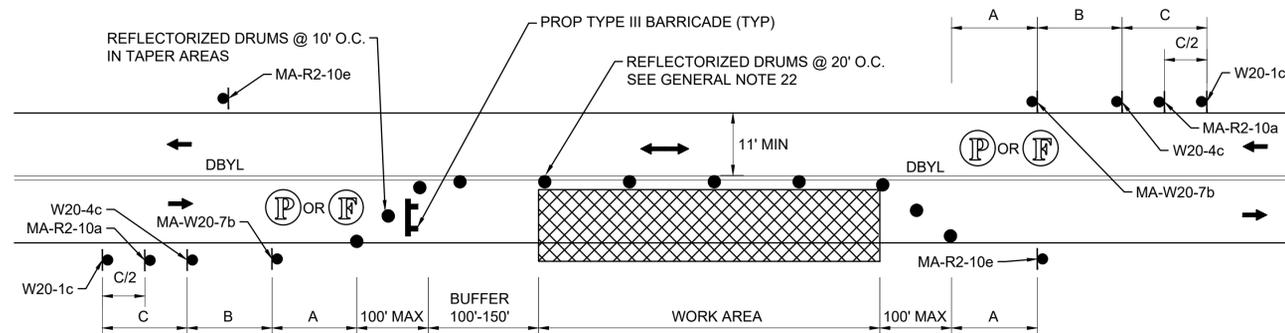
LANE TAPER LENGTH FORMULAS

L= TAPER LENGTH IN FEET
W= WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED IN FEET
S= POSTED SPEED LIMIT IN MPH

POSTED SPEED
40 MPH OR LESS
$L = \frac{WS^2}{60}$

BUFFER SPACING

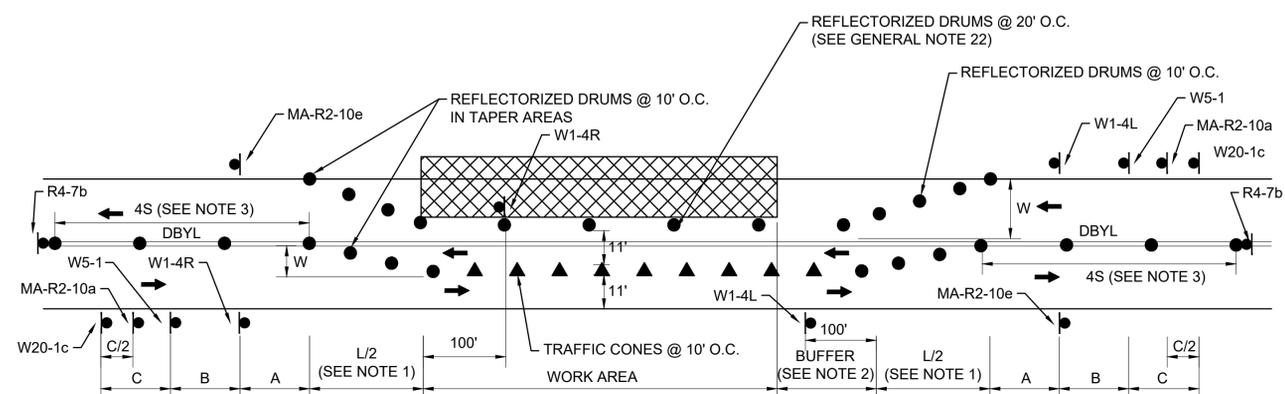
SPEED (MPH)	DISTANCE (FEET)
15	80
20	115
25	155
30	200
35	250
40	305



- NOTES:
1. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE TTCP GENERAL NOTE 26 REGARDING ADVANCE SIGNAGE.

TYPICAL TWO-WAY STREET LANE CLOSURE ALTERNATING TRAFFIC

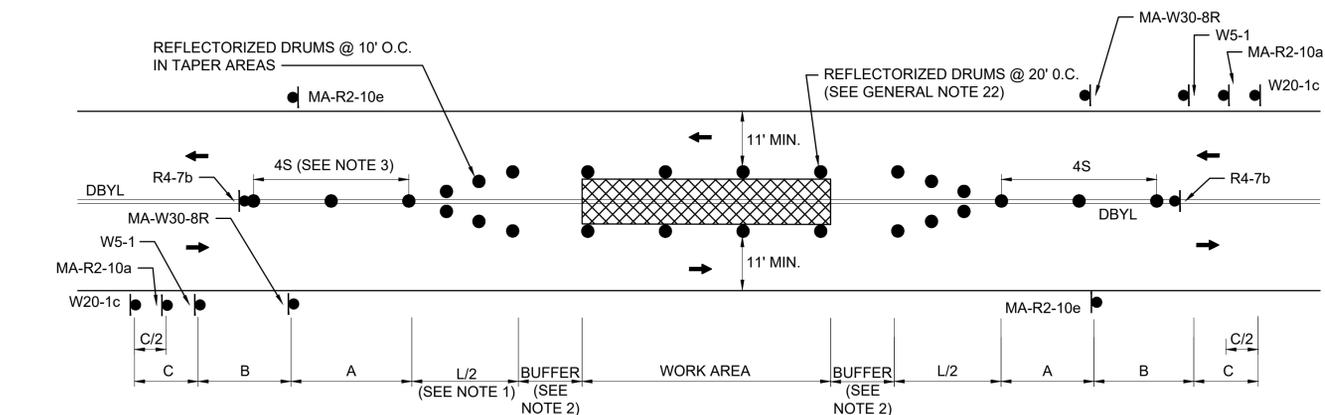
SCALE: NTS DWG: TTCP2b DATE: FEB 2022



- NOTES:
1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. S = POSTED SPEED OF ROADWAY IN MPH.
 4. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
 5. SEE TTCP GENERAL NOTE 26 REGARDING ADVANCE SIGNAGE.

TYPICAL TWO-WAY STREET LANE SHIFT

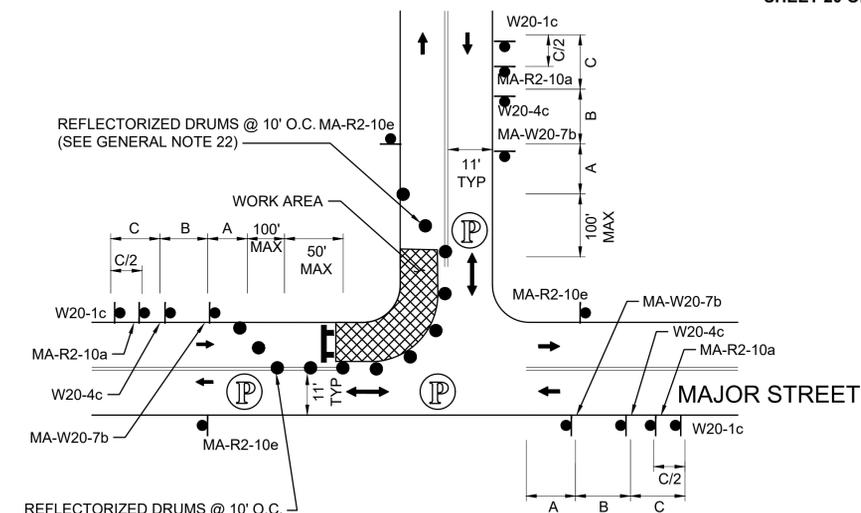
SCALE: NTS DWG: TTCP2a DATE: FEB 2022



- NOTES:
1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
 2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. S = POSTED SPEED OF ROADWAY IN MPH.
 4. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
 5. SEE TTCP GENERAL NOTE 26 REGARDING ADVANCE SIGNAGE.

TYPICAL TWO-WAY STREET CENTER WORK AREA

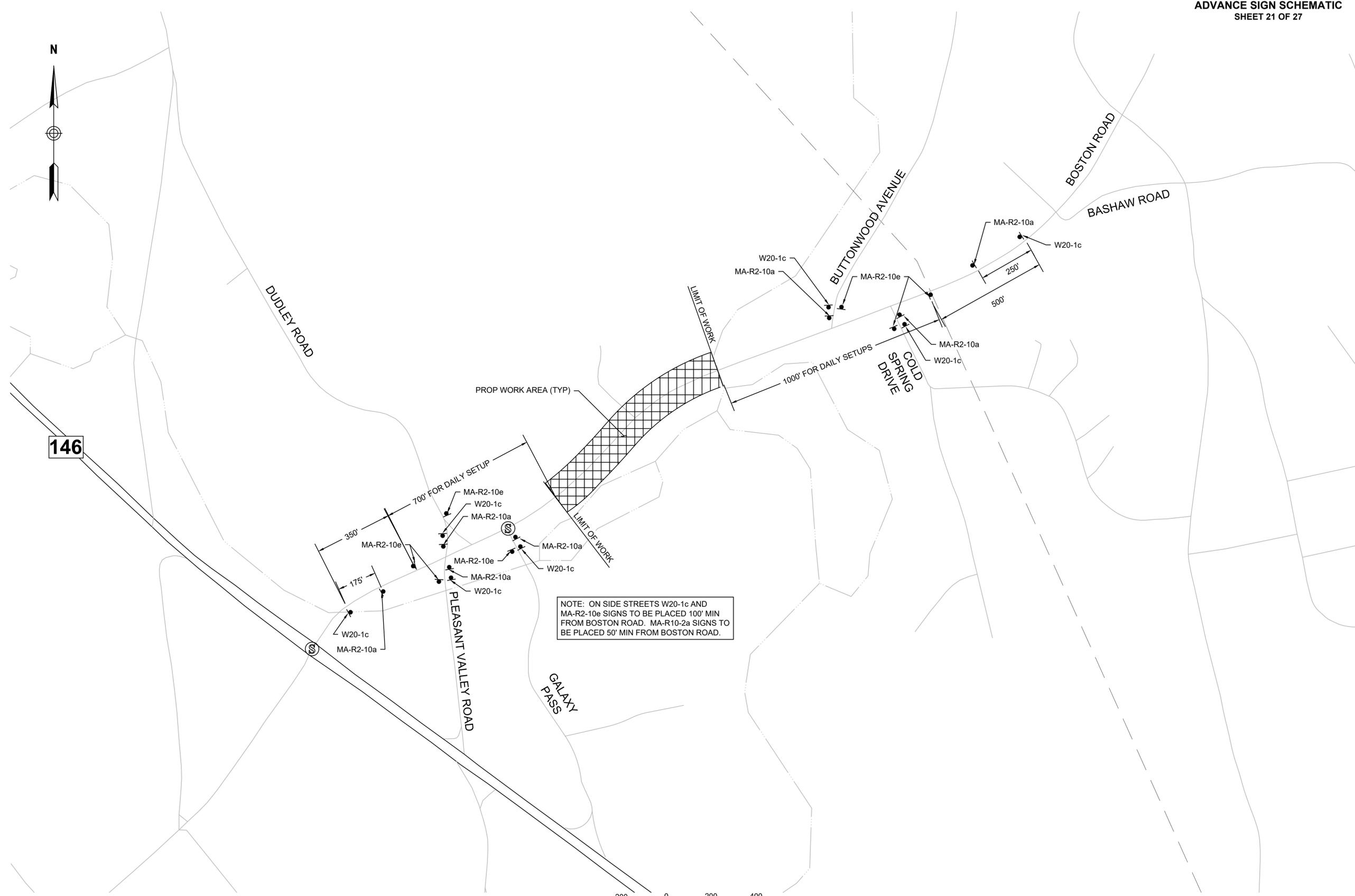
SCALE: NTS DWG: TTCP2c DATE: FEB 2022



- NOTES:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
 2. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
 3. SEE TTCP GENERAL NOTE 26 REGARDING ADVANCE SIGNAGE.

ONE LANE BI-DIRECTIONAL TRAFFIC AT-INTERSECTIONS - NEAR SIDE

SCALE: NTS DWG: TTCP4d DATE: FEB 2022



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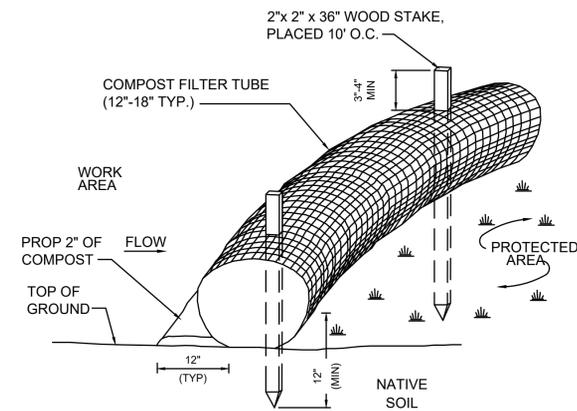
NOTE: ON SIDE STREETS W20-1c AND MA-R2-10e SIGNS TO BE PLACED 100' MIN FROM BOSTON ROAD. MA-R10-2a SIGNS TO BE PLACED 50' MIN FROM BOSTON ROAD.



TEMPORARY TRAFFIC CONTROL SIGN SUMMARY										
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
MA-R2-10a	48"	36"		AS PER MASSDOT STANDARD			FLUOR-ESCENT ORANGE	BLACK	BLACK	12.00
MA-R2-10e	36"	48"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			WHITE	BLACK	BLACK	12.00
R4-7b	24"	30"					FLUOR-ESCENT ORANGE	BLACK	BLACK	5.00
W1-4L	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W1-4R	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W5-1	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-1	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-3	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-8	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-9	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W8-15	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)										
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR			UNIT AREA (S.F.)
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK-GROUND	LEGEND	BORDER	
W20-1c	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W20-4c	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W20-7	36"	36"					FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
MA-W20-7b	36"	36"		AS PER MASSDOT STANDARD			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00
W21-7	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR-ESCENT ORANGE	BLACK	BLACK	9.00

- NOTES:
- HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR MOUNTING REQUIREMENTS; AND THE 2017 MassDOT STANDARD SIGNS BOOK, AS AMENDED.
 - ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

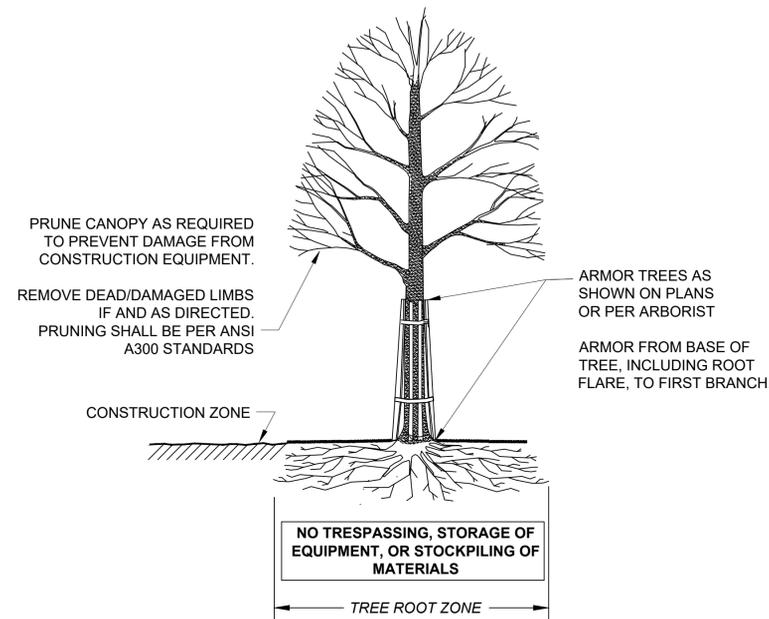


NOTES:

1. FILTER TUBE SHALL BE FILLED BY BLOWN IN ORGANIC COMPOST AND PLACED AS ILLUSTRATED ON THE PROJECT PLANS.
2. COMPOST FILTER TUBES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIRED OR REPLACED AS NEEDED.
3. AT COMPLETION OF PROJECT, COMPOST FILTER TUBES SHALL BE CUT OPEN AND COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
4. THE EMPTY FILTER TUBE FABRIC SHALL BE COLLECTED AND DISPOSED OF PROPERLY.

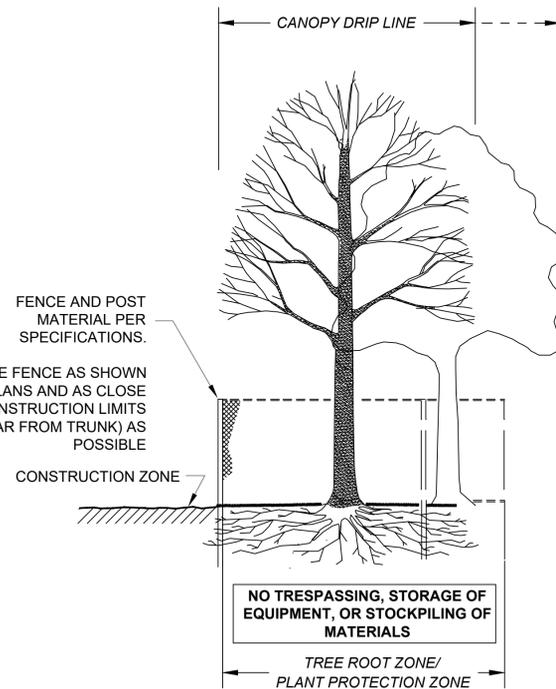
LINEAR SEDIMENTATION AND EROSION CONTROL

SCALE: N.T.S.



SECTION - TRUNK ARMORING & PRUNING

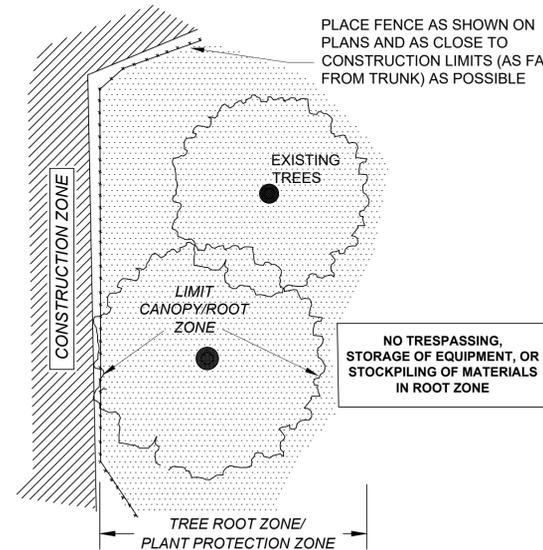
TREE PROTECTION - TRUNK



SECTION - FENCE PROTECTION OF ROOT ZONE

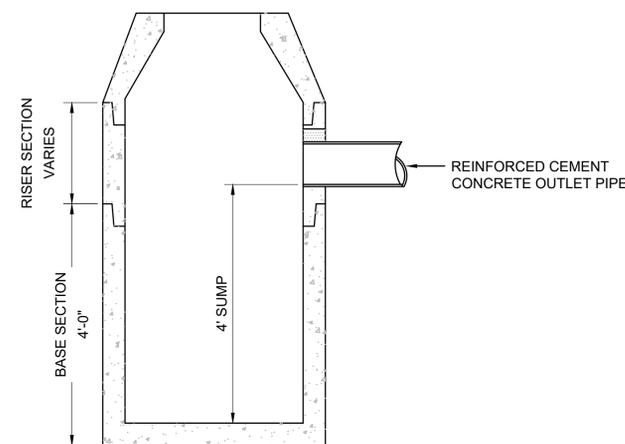
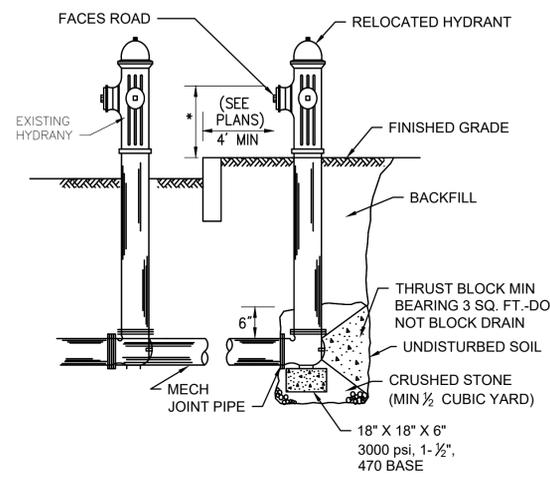
TREE PROTECTION - ROOT ZONE

NOT TO SCALE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

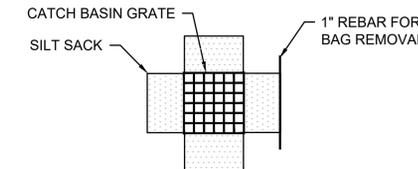
HYDRANT RELOCATION



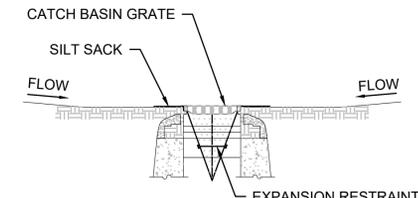
NOTE:
ALL CATCH BASINS SHALL CONFORM TO MASSDOT CONSTRUCTION STANDARD 201.4.0 EXCEPT FOR 4' SUMP DEPTH AS SHOWN.

DEEP SUMP CATCH BASIN

SCALE: N.T.S.



PLAN VIEW



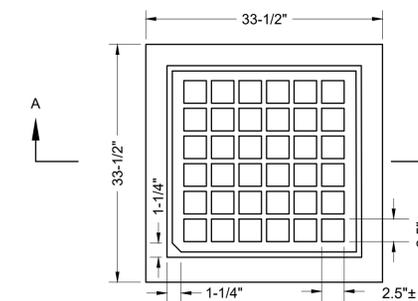
SECTION VIEW

NOTES:

1. INSTALL SILT SACK IN EXISTING CATCH BASINS, BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. GRATE TO BE PLACED OVER SILT SACK.
3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED

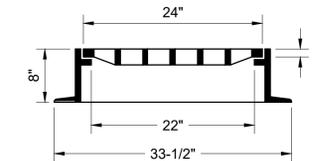
INLET PROTECTION - SILT SACK IN CATCH BASIN

SCALE: N.T.S.



PLAN

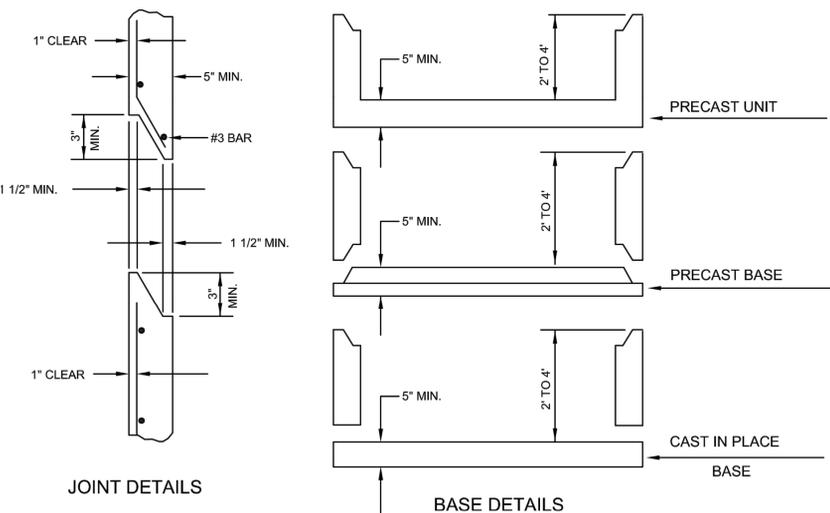
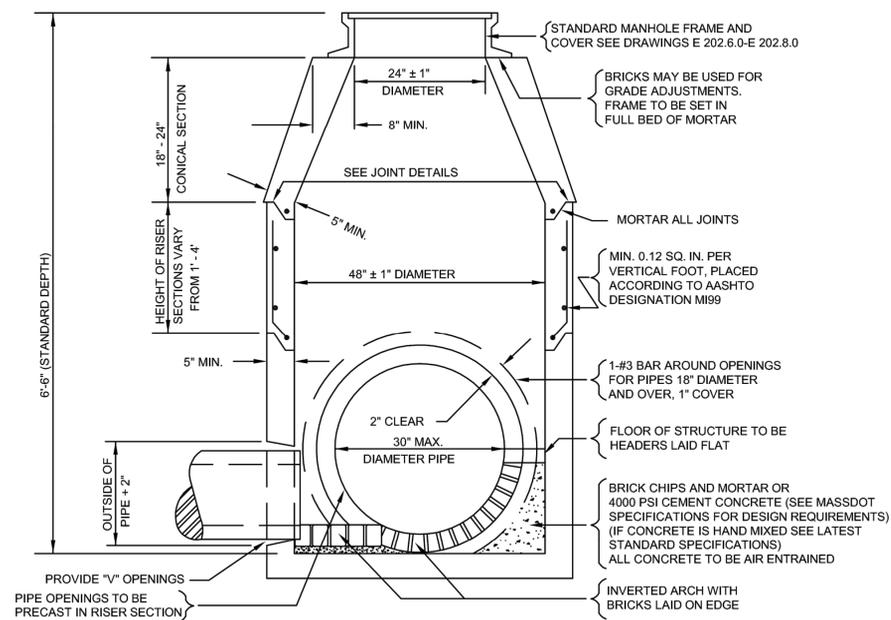
- NOTES:**
1. FRAME AND GRATE SHALL BE RATED FOR HS-20 LOADING.
 2. MIN FRAME WEIGHT: 4 FLANGE 295 LBS., 3 FLANGE 265 LBS.
 3. USE 3 FLANGE FRAMES AT CURB INLETS.
 4. GRATE OPENINGS SHALL BE 2.5" X 2.5" (NOM.) SQUARES AND BE BICYCLE COMPLIANT.



SECTION

MUNICIPAL STANDARD CATCH BASIN FRAME & GRATE

SCALE: N.T.S.

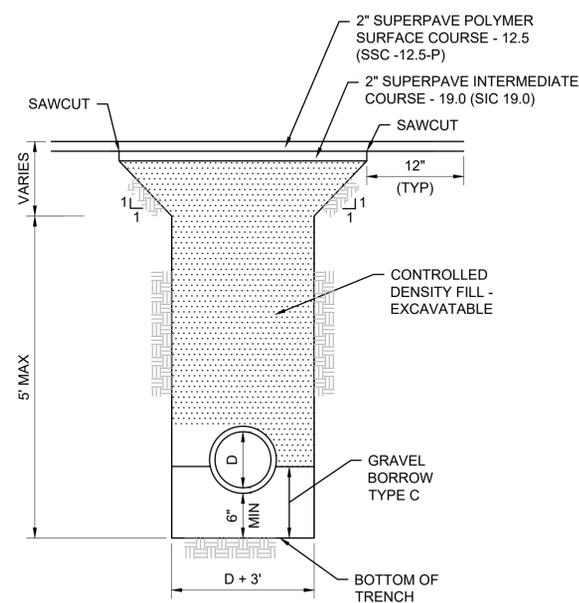


PRECAST MANHOLE

SCALE: N.T.S.

PRECAST MANHOLE NOTES:

1. MATERIALS SHALL COMPLY WITH MASSDOT STANDARDS.
2. ADDITIONAL PRECAST RISERS MAY BE ADDED. SEE CONSTRUCTION PLANS FOR RIM AND INVERT ELEVATIONS.
3. USE 4000 PSI (MIN.) CEMENT CONCRETE MIX FOR CAST IN PLACE ELEMENTS, IF ANY.

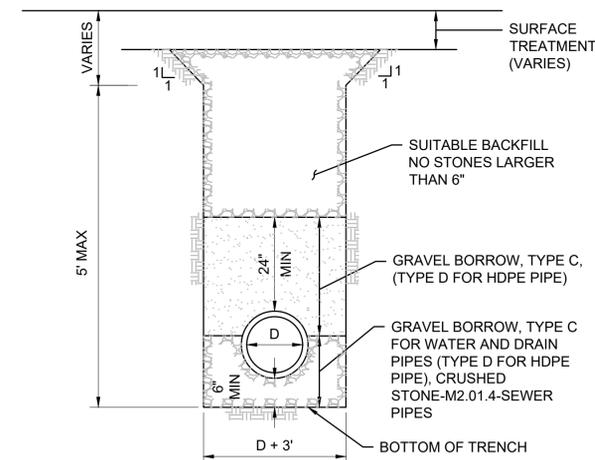


TRENCH DETAIL IN EXISTING HOT MIX ASPHALT

SCALE: N.T.S.

DWG: TRENCH-04

DATE: MARCH 2013

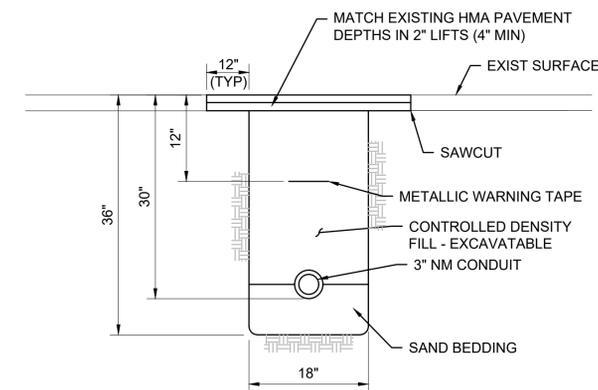


TRENCH DETAIL

SCALE: N.T.S.

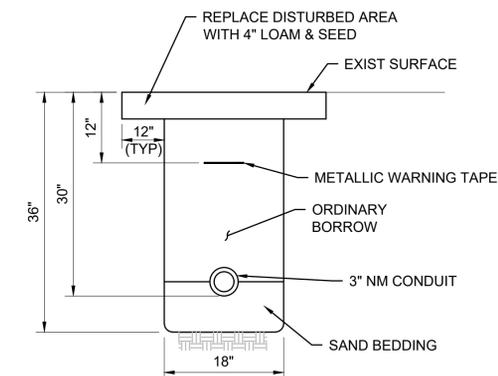
DWG: TRENCH-05

DATE: AUGUST 2018



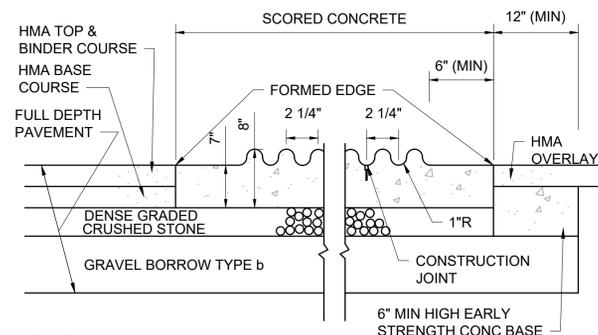
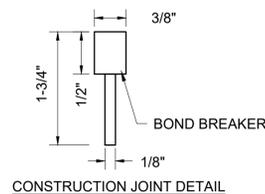
CONDUIT CROSSING ROADWAY/DRIVEWAY

SCALE: N.T.S.



CONDUIT IN GRASS

SCALE: N.T.S.

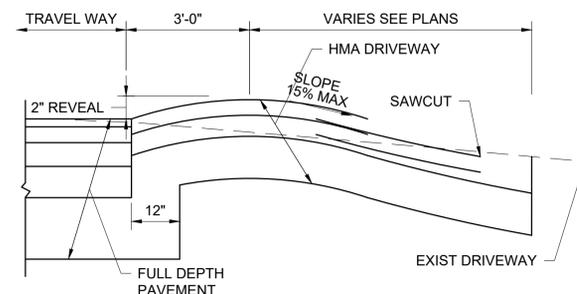
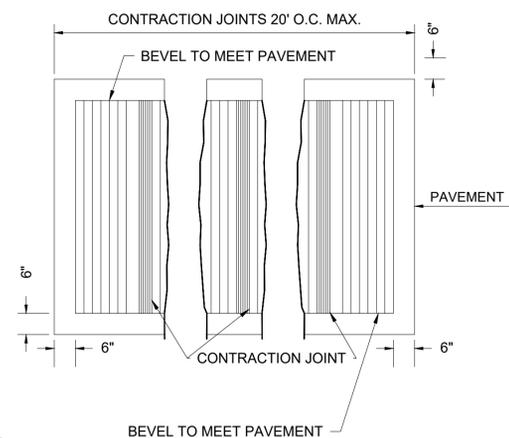


NOTES:

1. CONTRACTION JOINTS ARE TO BE SPACED AT A MAXIMUM OF 20 FEET APART.
2. THE JOINTS ARE TO BE SAWCUT AND LOCATED IN THE DEPRESSIONS OF THE CORRUGATIONS.
3. END OF CORRUGATED RIDGES TO BE BEVELED.
4. FOR DESCRIPTION OF MATERIALS AND CONSTRUCTION METHODS SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
5. SCORED CEMENT CONCRETE TO BE 5000 PSI, 3/4", 705 LB/CY.
6. THROUGH FLUSH WITH ADJACENT PAVEMENT FOR DRAINAGE.

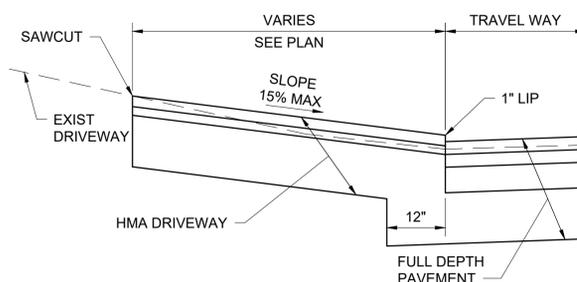
SCORED CONCRETE PAVEMENT

SCALE: N.T.S.



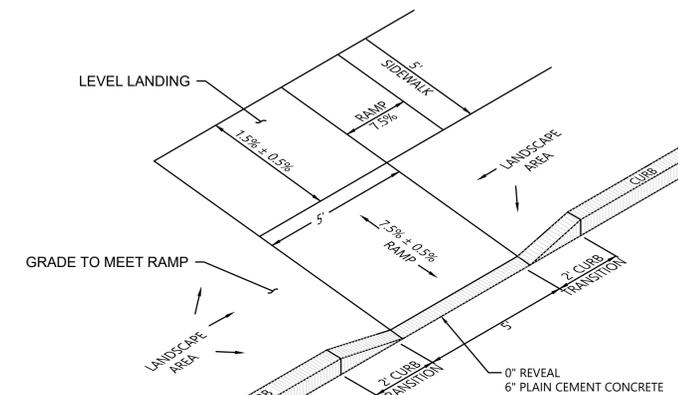
TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE I

SCALE: N.T.S.



TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE II

SCALE: N.T.S.

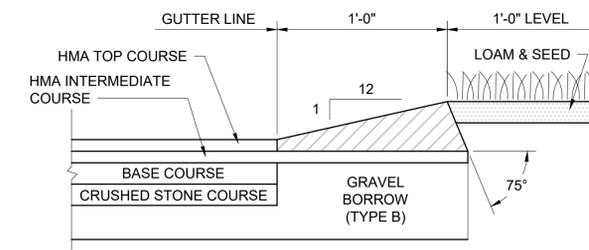


NOTES:

1. THE MAXIMUM ALLOWABLE SIDEWALK AND CURB RAMP CROSS SLOPES SHALL BE 1.5% ± 0.5%.
2. THE MAXIMUM ALLOWABLE LONGITUDINAL SLOPE AT CURB RAMPS SHALL BE 7.5% ± 0.5%.
3. A MINIMUM OF 3 FEET CLEAR SHALL BE MAINTAINED AT ANY PERMANENT OBSTACLE IN ACCESSIBLE ROUTE (I.E., HYDRANTS, UTILITY POLES, TREE WELLS, SIGNS, ETC.).
4. RAMP, CURB AND ADJACENT PAVEMENTS SHALL BE GRADED TO PREVENT PONDING.

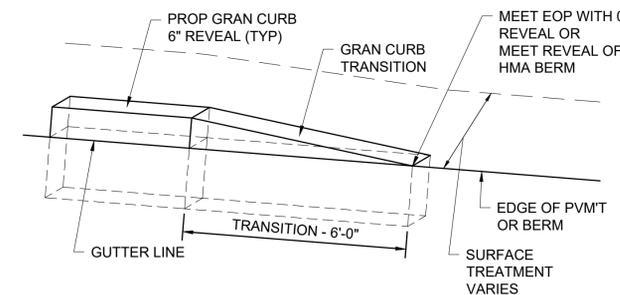
SIDEWALK RAMP TO SHOULDER

SCALE: NTS



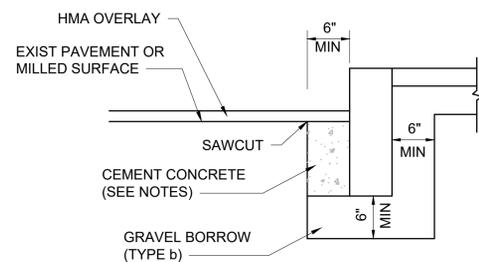
HMA BERM TYPE A-MODIFIED (USED WITH FULL DEPTH PAVEMENT)

SCALE: N.T.S.



GRANITE CURB TRANSITION PIECE

SCALE: N.T.S.

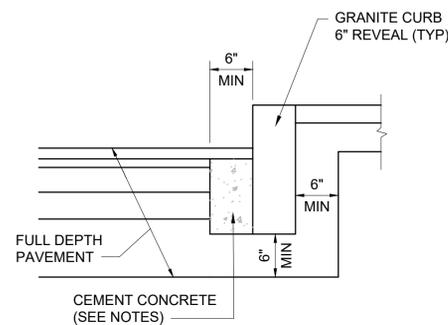


NOTES:

1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB.
2. SAWCUT 6" FROM CURB LINE AND REMOVE EXISTING PAVEMENT AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN EXISTING PAVEMENT - WITH OVERLAY

SCALE: N.T.S.

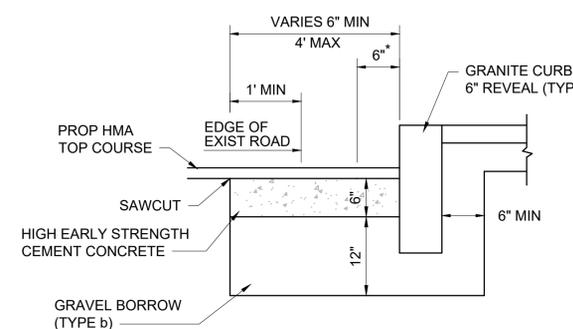


NOTES:

1. TO BE PLACED IF CURB IS INSTALLED AFTER HOT MIX ASPHALT
2. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB
3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN FULL DEPTH PAVEMENT

SCALE: N.T.S.



* 6" OF HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB.

GRANITE CURB IN FULL DEPTH PAVEMENT LESS THAN 4' WIDE

SCALE: N.T.S.

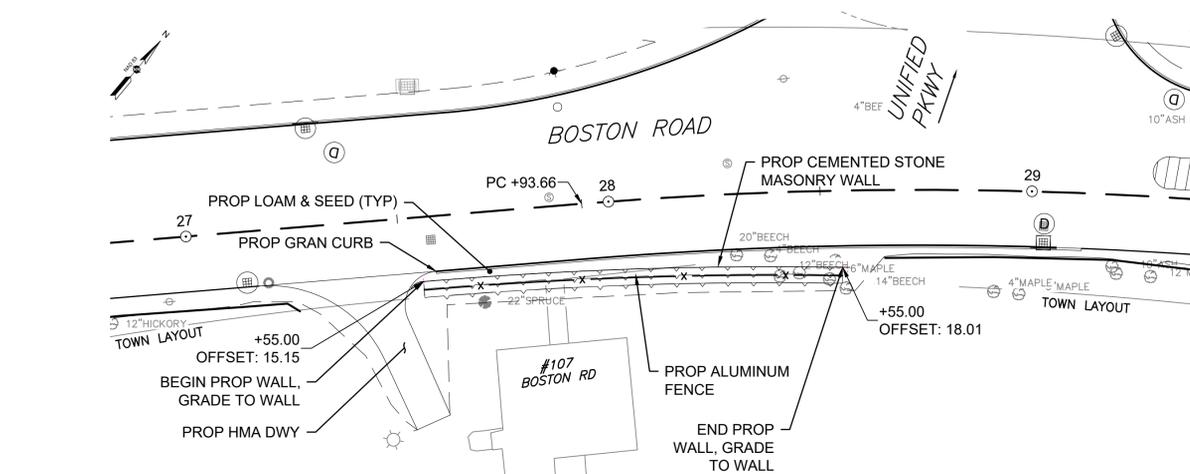


FACE

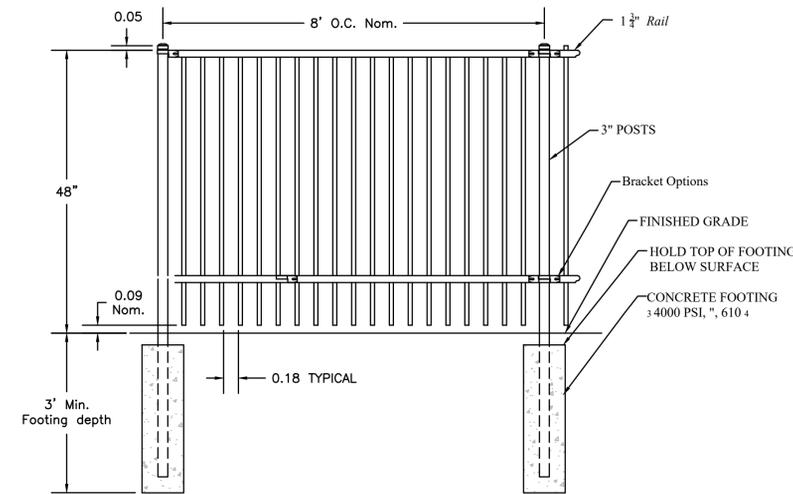


ISOMETRIC FACE

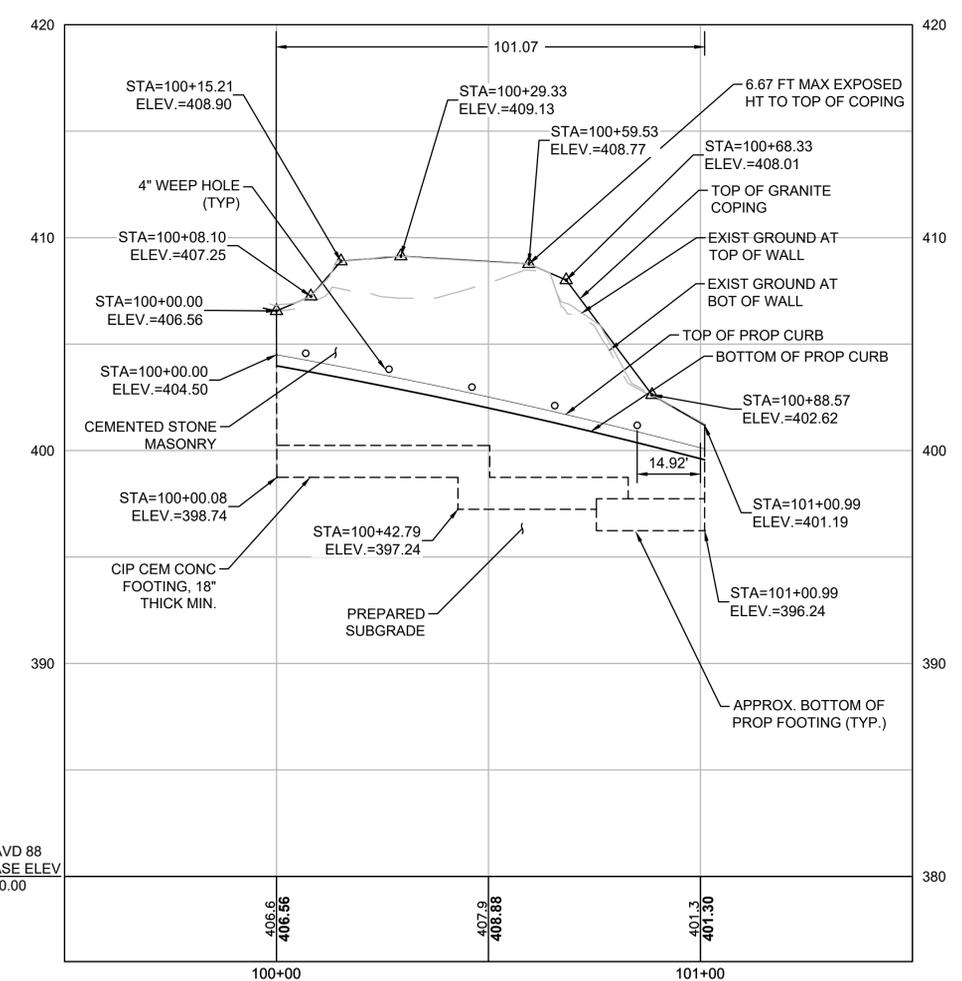
FINISHED WALL
SCALE: NONE
(STOCK IMAGE FOR GENERAL
REFERENCE PURPOSES ONLY)



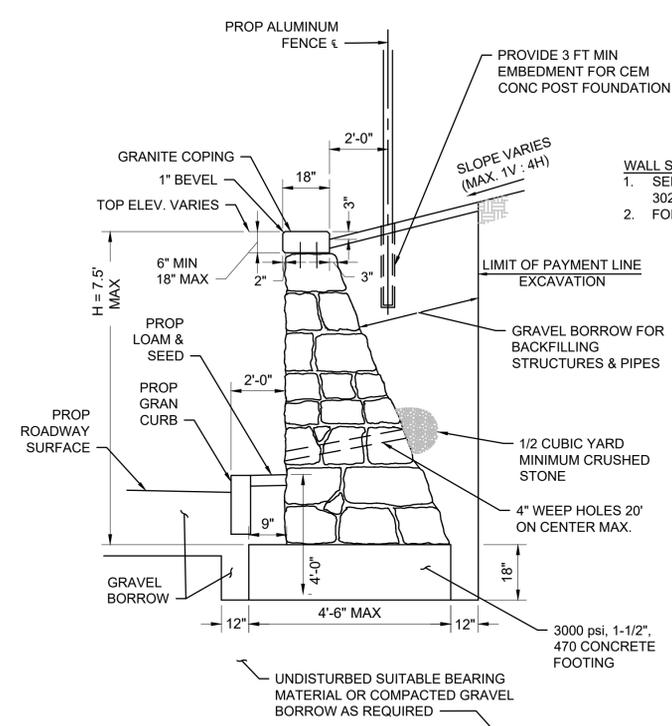
WALL PLAN
STA. 27+55, 15' RT TO
STA. 28+55, 15' RT
SCALE: 1" = 20'



ALUMINUM FENCE
SCALE: N.T.S.

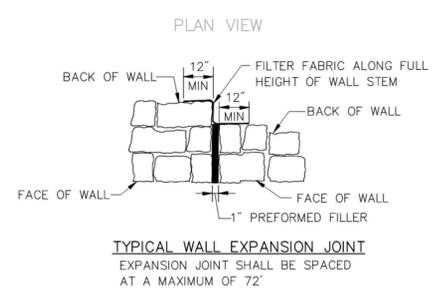


WALL PROFILE
STA. 27+51.34, OS 15 RT TO
STA. 28+50.37, OS 15 RT
HSCALE: 1" = 20'
VSCALE: 1" = 4'

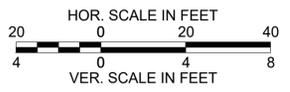


CEMENTED STONE MASONRY - WALL SECTION
SCALE: N.T.S. DWG: SP-01

WALL SECTION NOTES:
1. SEE CONSTRUCTION STANDARDS PLATE 302.2.0 FOR ADDITIONAL DETAILS.
2. FOR WALL JOINT DETAILS SEE THIS SHEET.



TYPICAL WALL EXPANSION JOINT
EXPANSION JOINT SHALL BE SPACED AT A MAXIMUM OF 72'



15047 SUTTON
 BOSTON ROAD
 CRITICAL CROSS SECTIONS
 SHEET ## OF 27

15047-CROSS SECTION1.DWG Plotted on 21-Nov-2022 2:11 PM

