

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

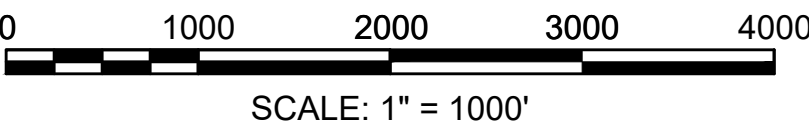
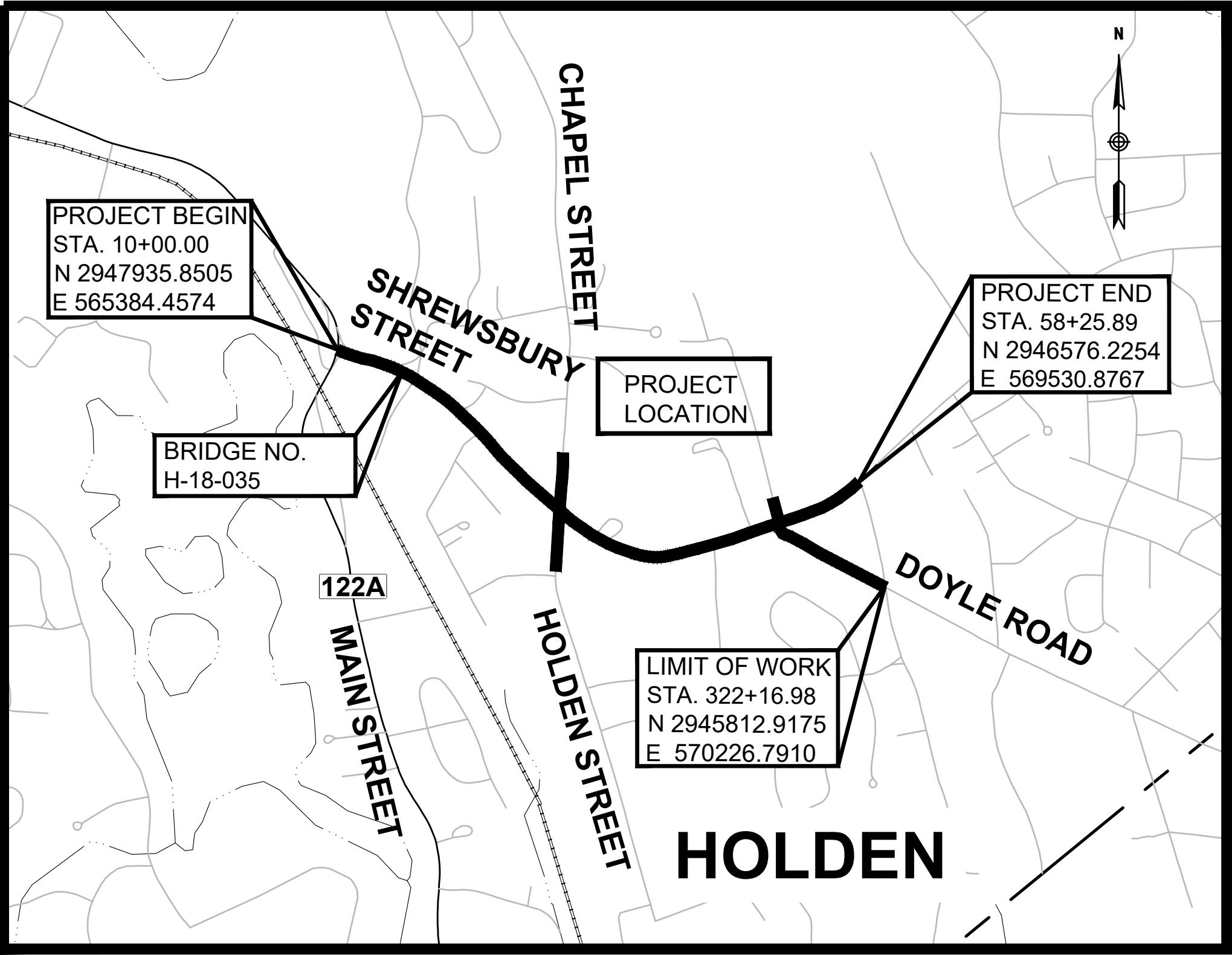
PLAN AND PROFILE OF
SHREWSBURY STREET

IN THE TOWN OF
HOLDEN
WORCESTER COUNTY

FEDERAL AID PROJECT NO.

25% SUBMITTAL

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LENGTH OF PROJECT = 4,827.08 = 0.914 MILES

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	1	65
PROJECT FILE NO. 609219			
TITLE SHEET & INDEX			

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 2019, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, 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, WILL GOVERN.

DESIGN DESIGNATION (SHREWSBURY STREET)

DESIGN SPEED	35mph
ADT (2018)	15,378 vpd
ADT (2038)	18,764 vpd
K	8%
D	60% WB
T (PEAK HOUR)	19.2%
T (AVERAGE DAY)	7.6%
DHV	1,535 vph
DDHV	924 vph
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DESIGN DESIGNATION (DOYLE ROAD)

DESIGN SPEED	35 mph
ADT (2018)	11,087 vpd
ADT (2038)	13,394 vpd
K	8%
D	61% NB
T (PEAK HOUR)	5.5%
T (AVERAGE DAY)	4.7%
DHV	1,078 vph
DDHV	652 vph
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

01-31-2020	25% SUBMISSION	2
06-29-2019	10% SUBMISSION	1
DATE	DESCRIPTION	REV #



120 Front Street
Suite 500
Worcester, MA 01608
508.752.1001



RECOMMENDED FOR APPROVAL

CHIEF ENGINEER

DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR

DATE

APPROVED

HIGHWAY ADMINISTRATOR

DATE

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		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
		EROSION CONTROL BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		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 STOP LINE - WHITE
		SHARE THE ROAD (SHARROW) - WHITE
		YIELD ARROW - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW EDGE LINE
		BROKEN WHITE LINE, 10' LINE W/30' SPACING
		BROKEN YELLOW LINE, 10' LINE W/30' SPACING
		DOTTED WHITE LINE, 2' LINE W/6' SPACING
		DOTTED YELLOW LINE, 2' LINE W/6' SPACING
		LONG DASHED WHITE LINE EXTENSION, 3' LINE W/9' SPACING
		DOUBLE YELLOW CENTER LINE
		SOLID WHITE CHANNELIZATION LINE
		SOLID YELLOW CHANNELIZATION LINE

ABBREVIATIONS

GENERAL

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

ABBREVIATIONS (cont.)

GENERAL

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

TRAFFIC SIGNAL

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
← FR —	FLASHING RED LEFT ARROW
— FR →	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
← FY —	FLASHING YELLOW LEFT ARROW
— FY →	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
← G —	STEADY GREEN LEFT ARROW
— G →	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
⬆ G	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
← R —	STEADY RED LEFT ARROW
— R →	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR YELLOW
← Y —	STEADY YELLOW LEFT ARROW
— Y →	STEADY YELLOW RIGHT ARROW

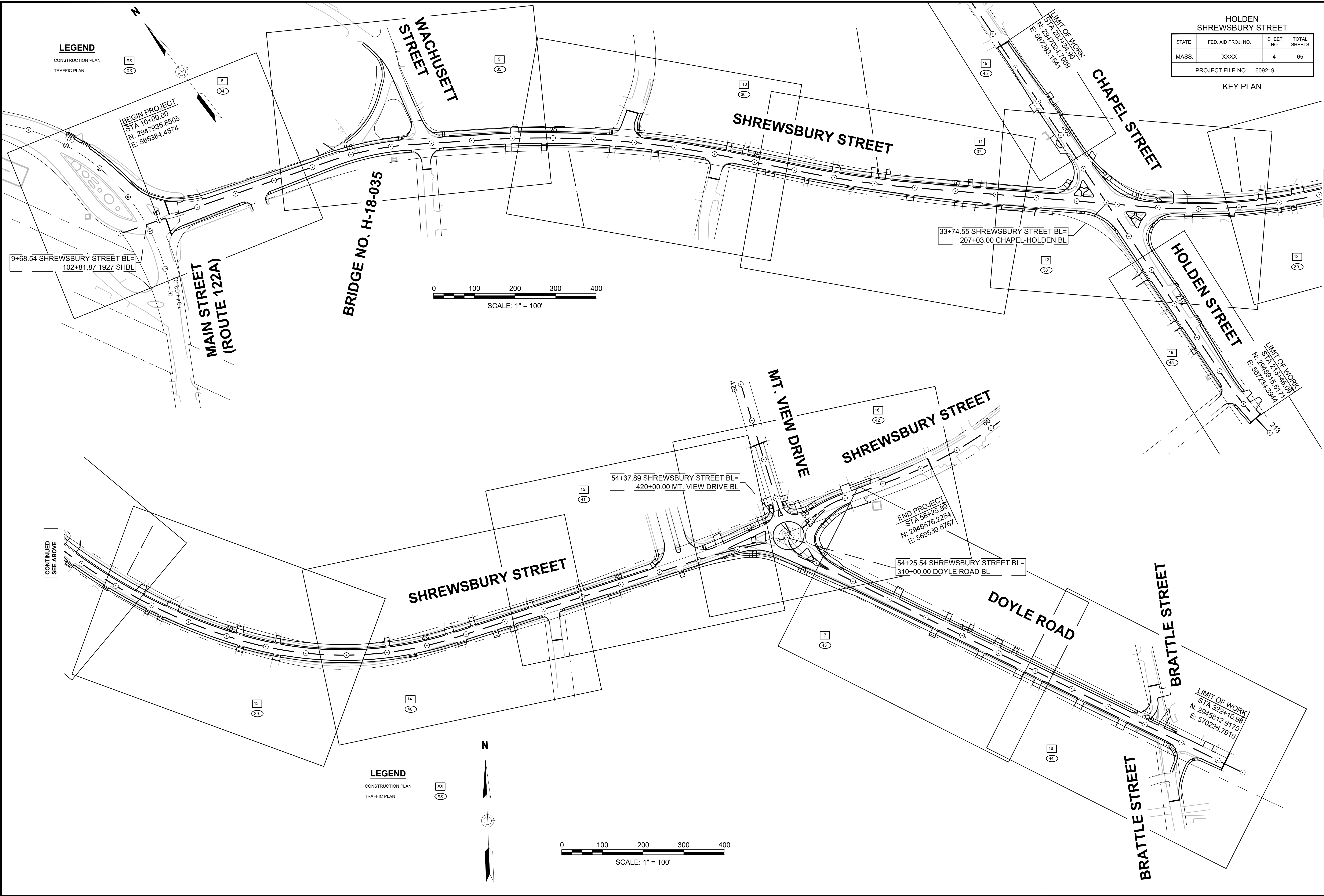
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	3	65
PROJECT FILE NO. 609219			

GENERAL NOTES & ABBREVIATIONS

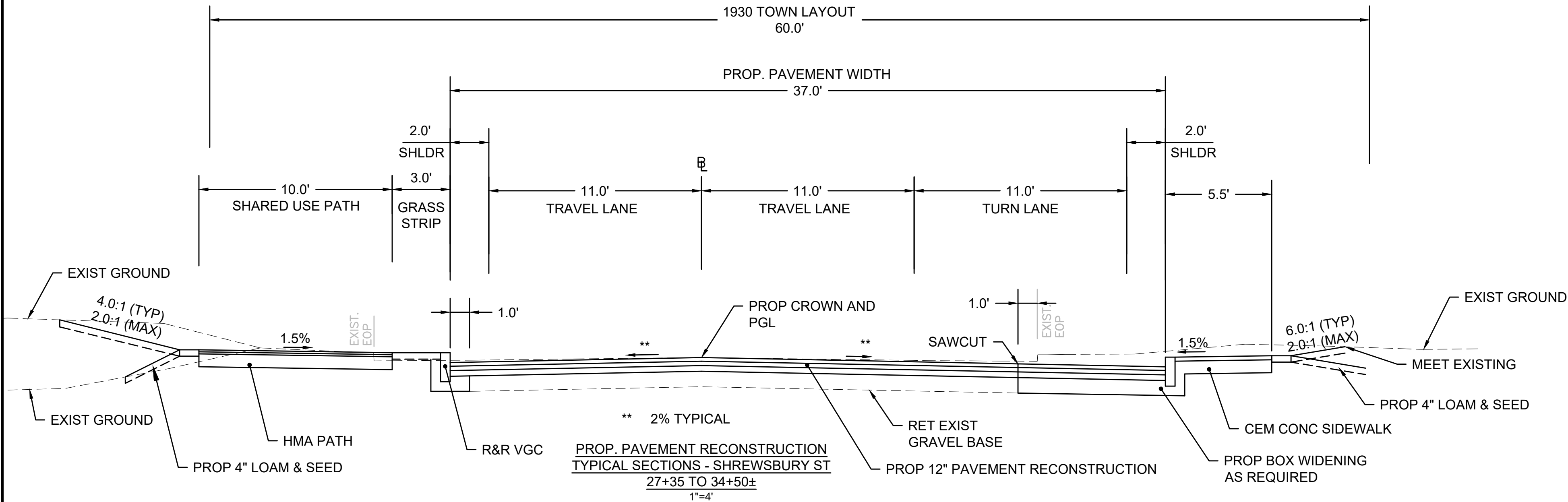
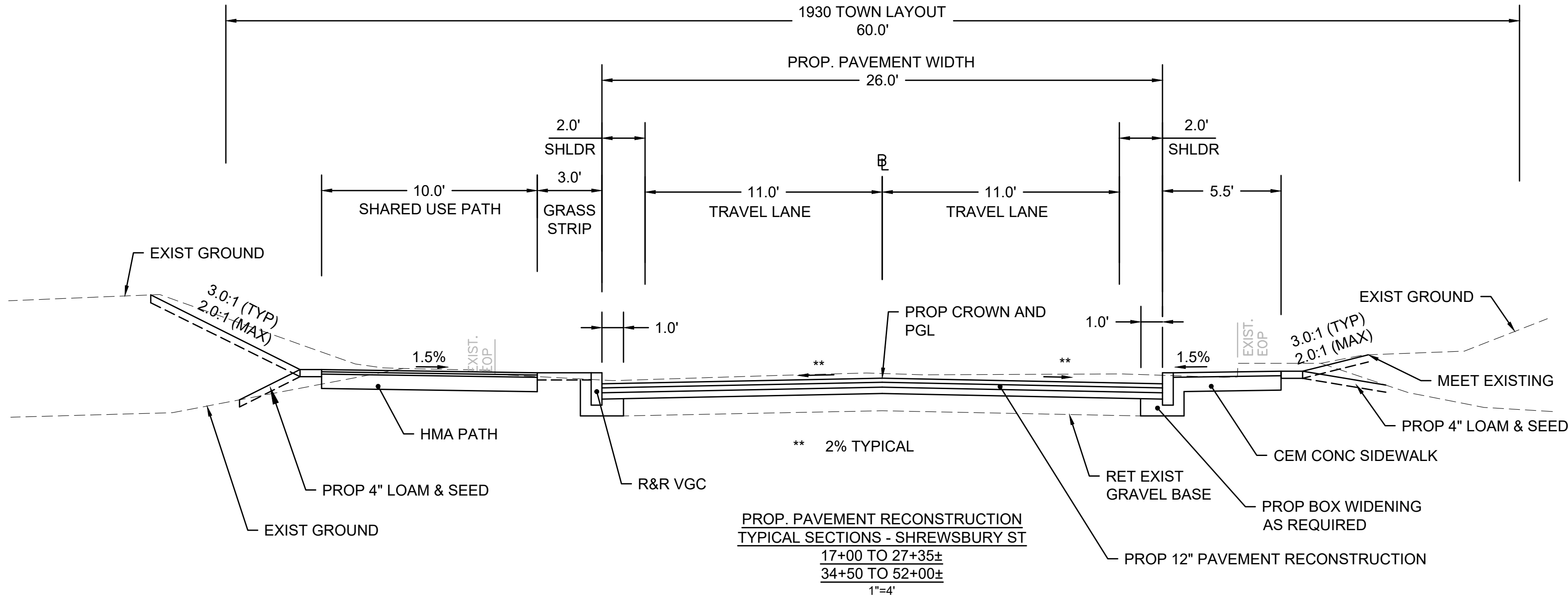
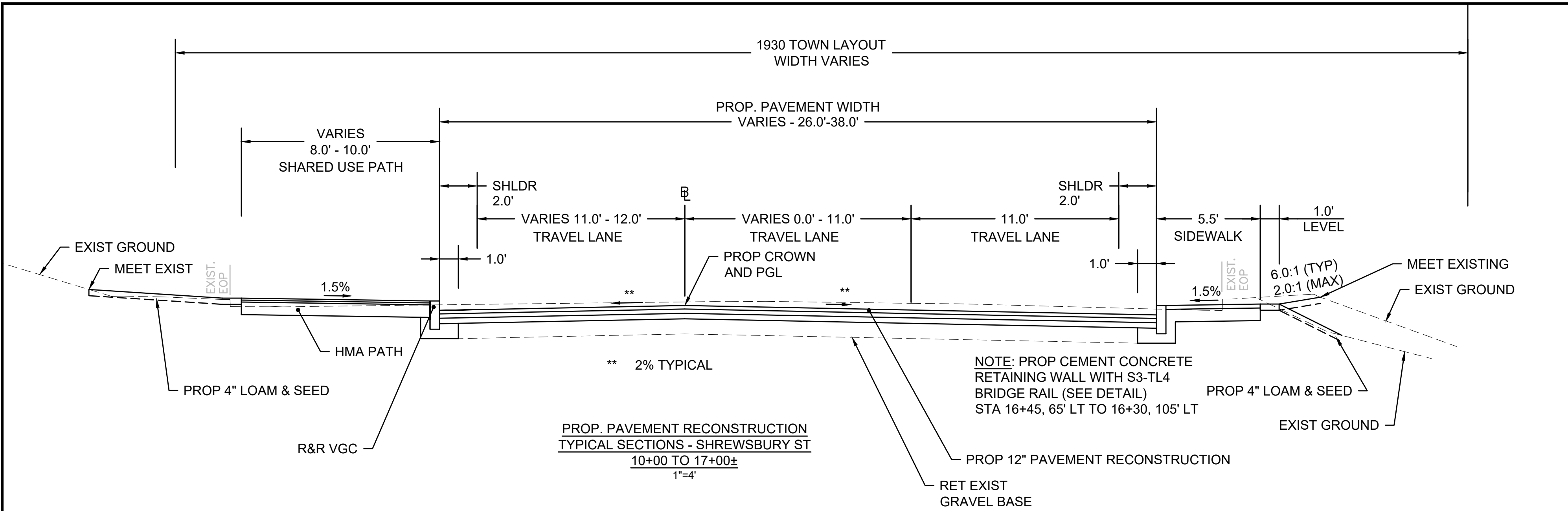
GENERAL NOTES:

- EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY VANASSE HANGEN BRUSTLIN, INC. IN OCTOBER, 2018.
- 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 (NAV88).
- THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 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.
- DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
- THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH PROPOSED CONDUIT AND SIGNAL EQUIPMENT. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER.
- 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.
- 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.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS IF REQUIRED.
- TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
- 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.
- THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
- JOINTS BETWEEN NEW ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDED.
- 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.
- EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- IF SUITABLE, EXISTING GRANITE CURB & EDGING SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
- ALL PROPOSED HOT MIX ASPHALT CURB SHALL BE MASSDOT TYPE 3.
- EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
- 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.
- DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.
- LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE PLANS.



HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	4	65
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KEY PLAN



HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	5	65
PROJECT FILE NO. 609219			

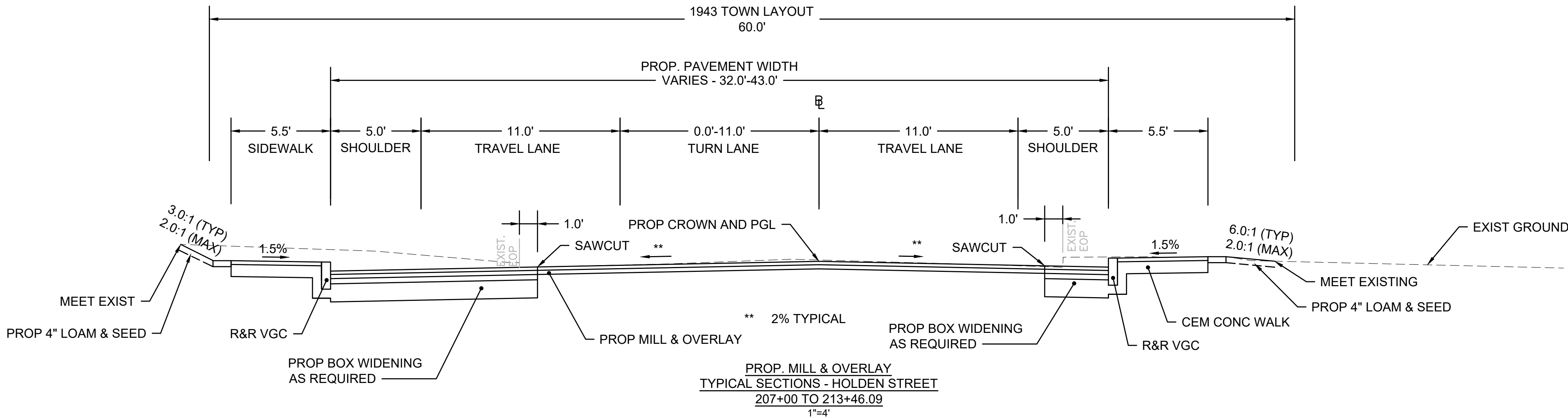
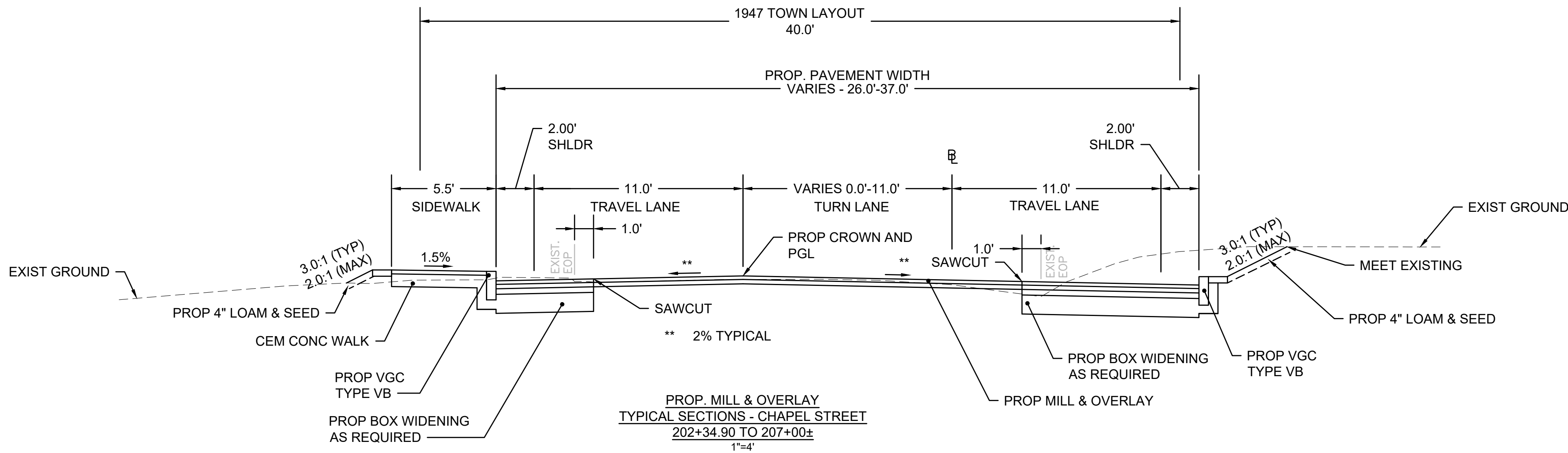
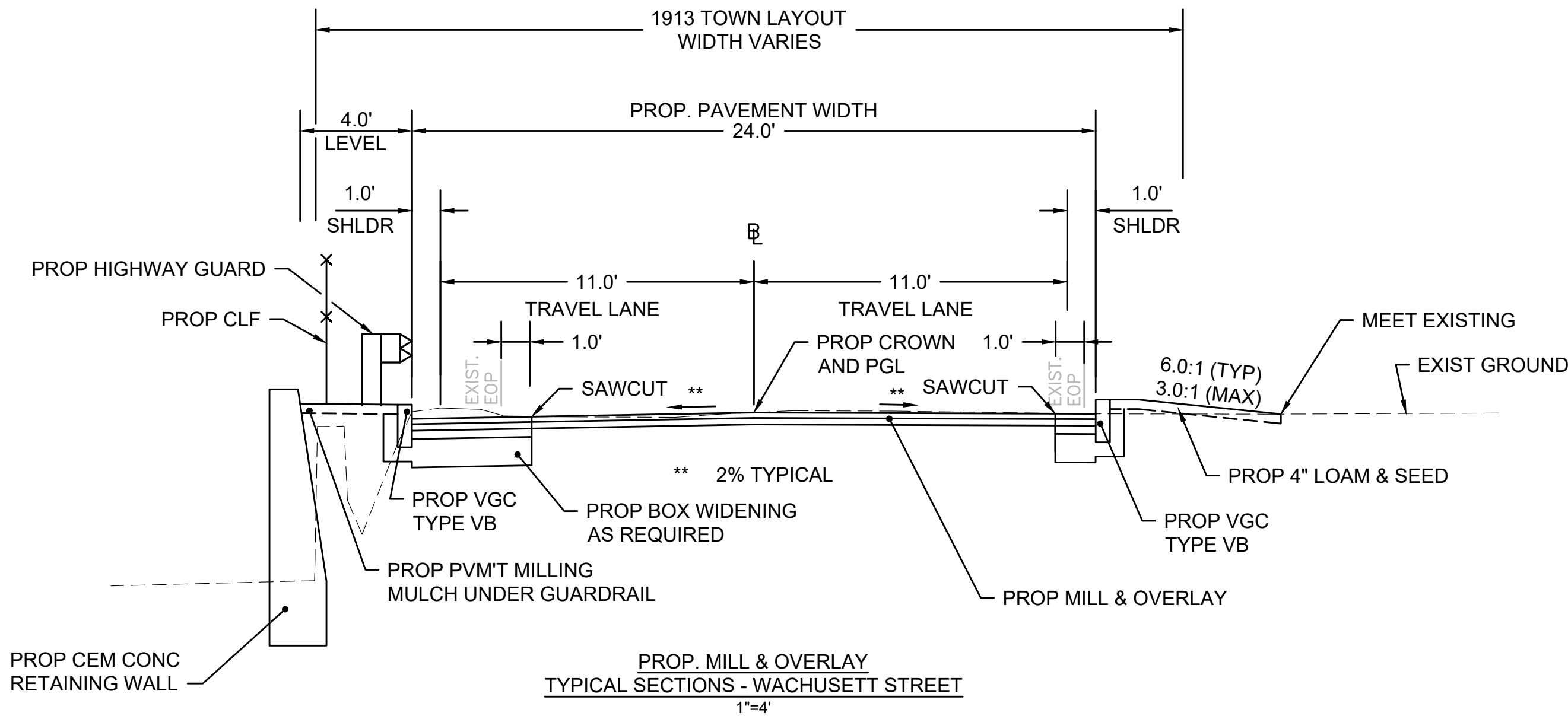
PAVEMENT NOTES

- TYPICAL SECTIONS
- PROPOSED 12" PAVEMENT RECONSTRUCTION (SHREWSBURY STREET)**
- SURFACE:** 4.5" HOT MIX ASPHALT*
(2" SUPERPAVE SURFACE COURSE - 12.5 - P (SSC-12.5-P) LEVEL 3 OVER
2.5" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)) LEVEL 3 OVER
- BASE:** 4" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) LEVEL 3)
- SUBBASE:** 3.5" MIN DENSE GRADED CRUSHED STONE OVER
- REMOVE 12" MIN OF EXISTING PAVEMENT AND BASE MATERIALS, LEVEL WITH DENSE GRADED CRUSHED STONE, COMPACT EXISTING GRAVEL BORROW TO PROPER GRADE LINES
- PROPOSED MICROMILL & OVERLAY (DOYLE ROAD)**
- 4 1/4" HOT MIX ASPHALT
(2" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER
2 1/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)
- 4" MICROMILLING DEPTH
- ASPHALT EMULSION FOR TACK COAT (RS-1) AT 0.07 GAL/SY OVER EXISTING PAVEMENT OR MILLING SURFACE
- PROPOSED FULL DEPTH PAVEMENT (BRATTLE STREET)**
- SURFACE:** 4" HOT MIX ASPHALT*
(2" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5) OVER
2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)) OVER
- BASE:** 3.5" SUPERPAVE BASE COURSE - 25.0 (SBC-25.0)
- SUBBASE:** 4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW, TYPE b.
- PROPOSED FULL DEPTH PAVEMENT - WIDENING (LESS THAN 4.00' WIDE)**
- SURFACE:** 4.5" HOT MIX ASPHALT*
(2" SUPERPAVE SURFACE COURSE - 12.5 - P (SSC-12.5-P) LEVEL 3 OVER
2.5" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)) LEVEL 3 OVER
- BASE:** 6" CEMENT CONCRETE BASE COURSE
- SUBBASE:** 8" GRAVEL BORROW, TYPE b.
- ASPHALT EMULSION FOR TACK COAT (RS-1) AT 0.07 GAL/SY OVER EXISTING PAVEMENT OR MILLING SURFACE
- PROPOSED FULL DEPTH PAVEMENT - WIDENING (GREATER THAN 4.00' WIDE)**
- SURFACE:** 4.5" HOT MIX ASPHALT*
(2" SUPERPAVE SURFACE COURSE - 12.5 - P (SSC-12.5-P) LEVEL 3 OVER
2.5" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)) LEVEL 3 OVER
- BASE:** 4" SUPERPAVE BASE COURSE - 37.5 (SBC-37.5) LEVEL 3)
- SUBBASE:** 4" DENSE GRADED CRUSHED STONE OVER
8" GRAVEL BORROW, TYPE b.
- PROPOSED HMA DRIVEWAY**
- SURFACE:** 3 1/2" HOT MIX ASPHALT
(1 1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5))
- SUBBASE:** 8" GRAVEL BORROW TYPE b
- PROPOSED CEMENT CONCRETE WALK/ WCR**
- SURFACE:** 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610
- FOUNDATION:** 8" GRAVEL BORROW, TYPE b
- PROP STAMPED CEMENT CONCRETE PVM/T**
- SURFACE:** 8" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI,
3/4", 610 (REINFORCED)
- FOUNDATION:** 8" GRAVEL BORROW, TYPE b
- PROPOSED CEMENT CONCRETE DRIVEWAY**
- SURFACE:** 6" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610
- FOUNDATION:** 8" GRAVEL BORROW, TYPE b
- PROPOSED CEMENT CONCRETE ISLAND**
- SURFACE:** 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI,
3/4", 610 (COLOR/STAMPED)
- FOUNDATION:** 8" GRAVEL BORROW, TYPE b
- PROPOSED HMA WALK**
- SURFACE:** 2 1/2" HOT MIX ASPHALT
(1 1/4" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
1 1/4" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5))
- SUBBASE:** 8" GRAVEL BORROW TYPE b

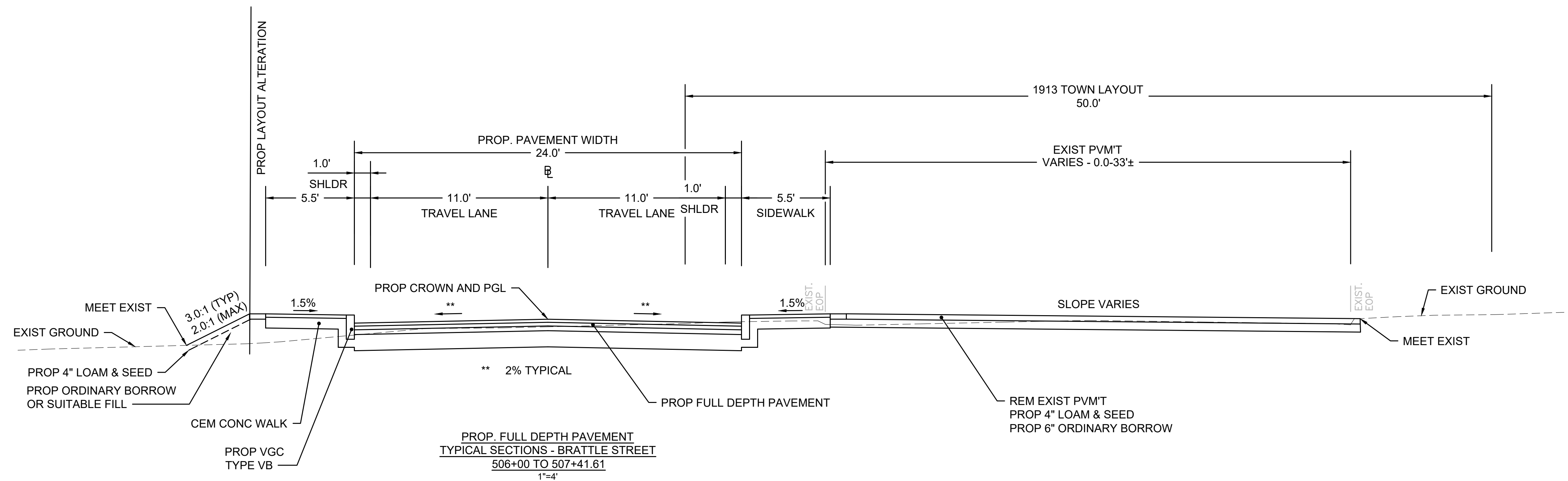
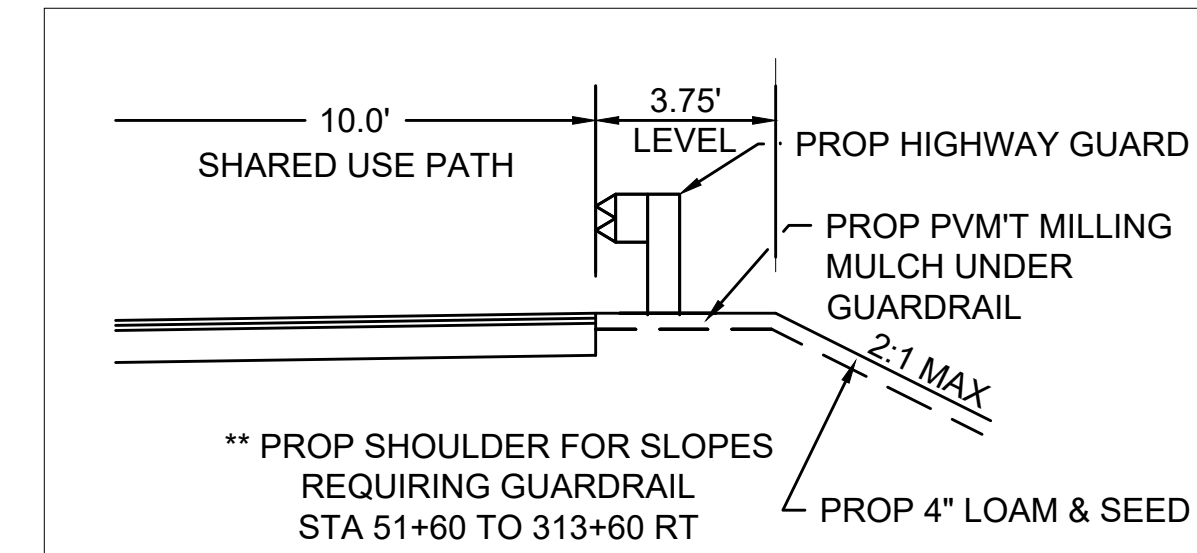
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	6	65
PROJECT FILE NO. 609219			

TYPICAL SECTIONS

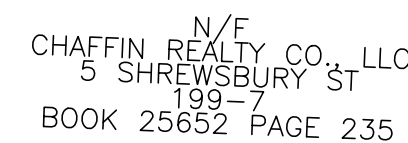
NOTE: SEE SHEET 5 FOR PAVEMENT NOTES.



NOTE: SEE SHEET 5 FOR PAVEMENT NOTES.



CONSTRUCTION PLANS

SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA

FOR PROFILE PLANS
SEE SHEET 20

HIGHWAY GUARD DETAILS

SEE BELOW

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

SEE BELOW

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	9	65
PROJECT FILE NO. 609219			

CONSTRUCTION PLANS

SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
9+00.00	2947974.6440	565291.6897		S71°40'23"E 542.61'	14+42.61	2947804.0282	565806.7757
14+42.61	2947804.0282	565806.7757	R=787.00' Δ=15°20'51" L=210.81' T=106.04'		16+53.42	2947711.8905	565995.6818
16+53.42	2947711.8905	565995.6818		S56°19'33"E 173.47'	18+26.88	2947615.7083	566140.0416
18+26.88	2947615.7083	566140.0416	R=2375.00' Δ=14°56'33" L=619.39' T=311.46'		24+46.27	2947209.3195	566605.1482

CONTINUED ON
SHEET NO. 8

CONTINUED ON
SHEET NO. 10

FOR PROFILE PLANS
SEE SHEET 21

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

DRAINAGE DETAILS

SEE BELOW

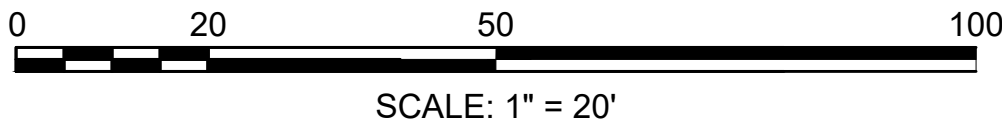
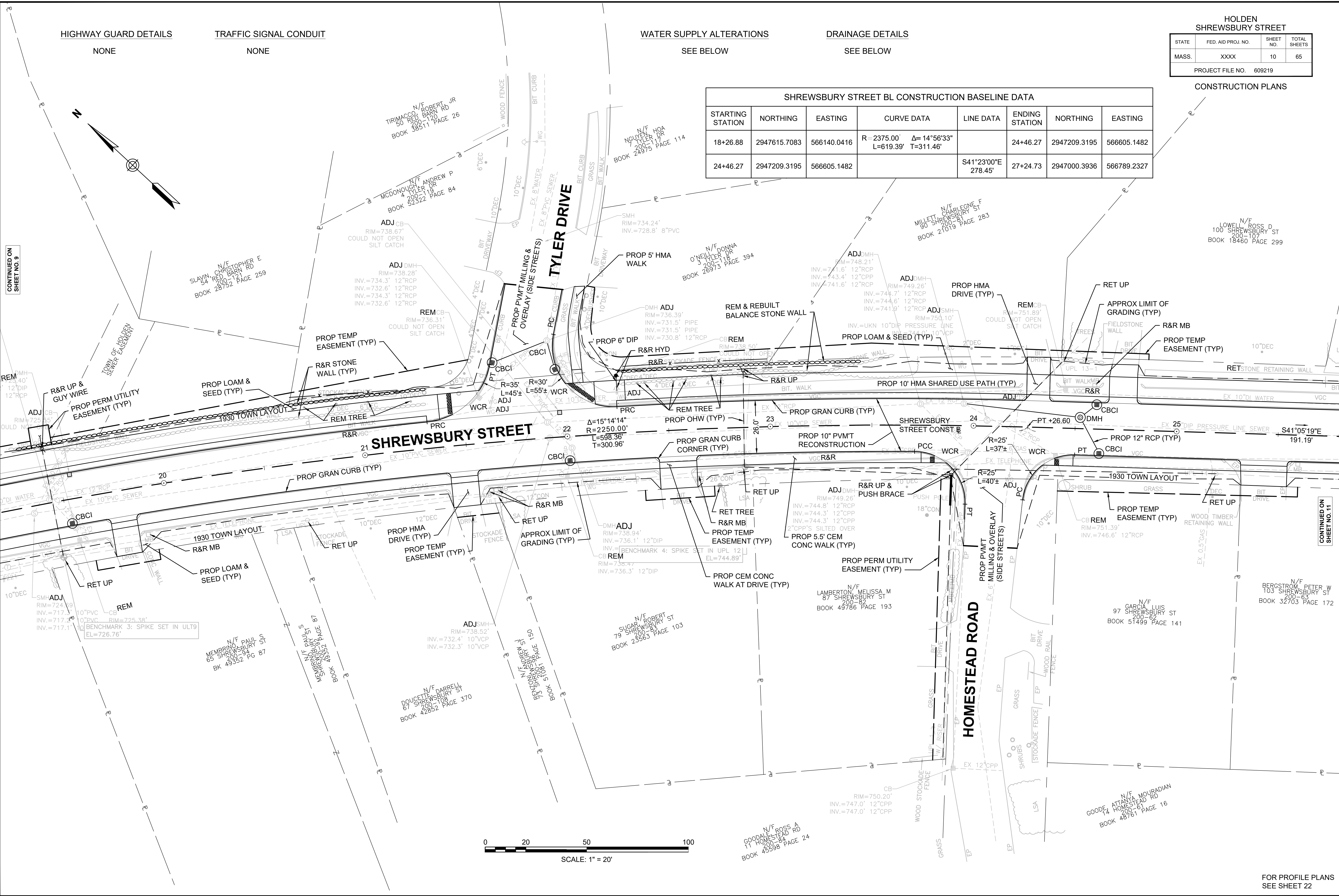
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	10	65
PROJECT FILE NO. 609219			

CONSTRUCTION PLANS

SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
18+26.88	2947615.7083	566140.0416	R=2375.00' Δ=14°56'33" L=619.39' T=311.46'		24+46.27	2947209.3195	566605.1482
24+46.27	2947209.3195	566605.1482		S41°23'00"E 278.45'	27+24.73	2947000.3936	566789.2327



FOR PROFILE PLANS
SEE SHEET 22

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

SEE BELOW

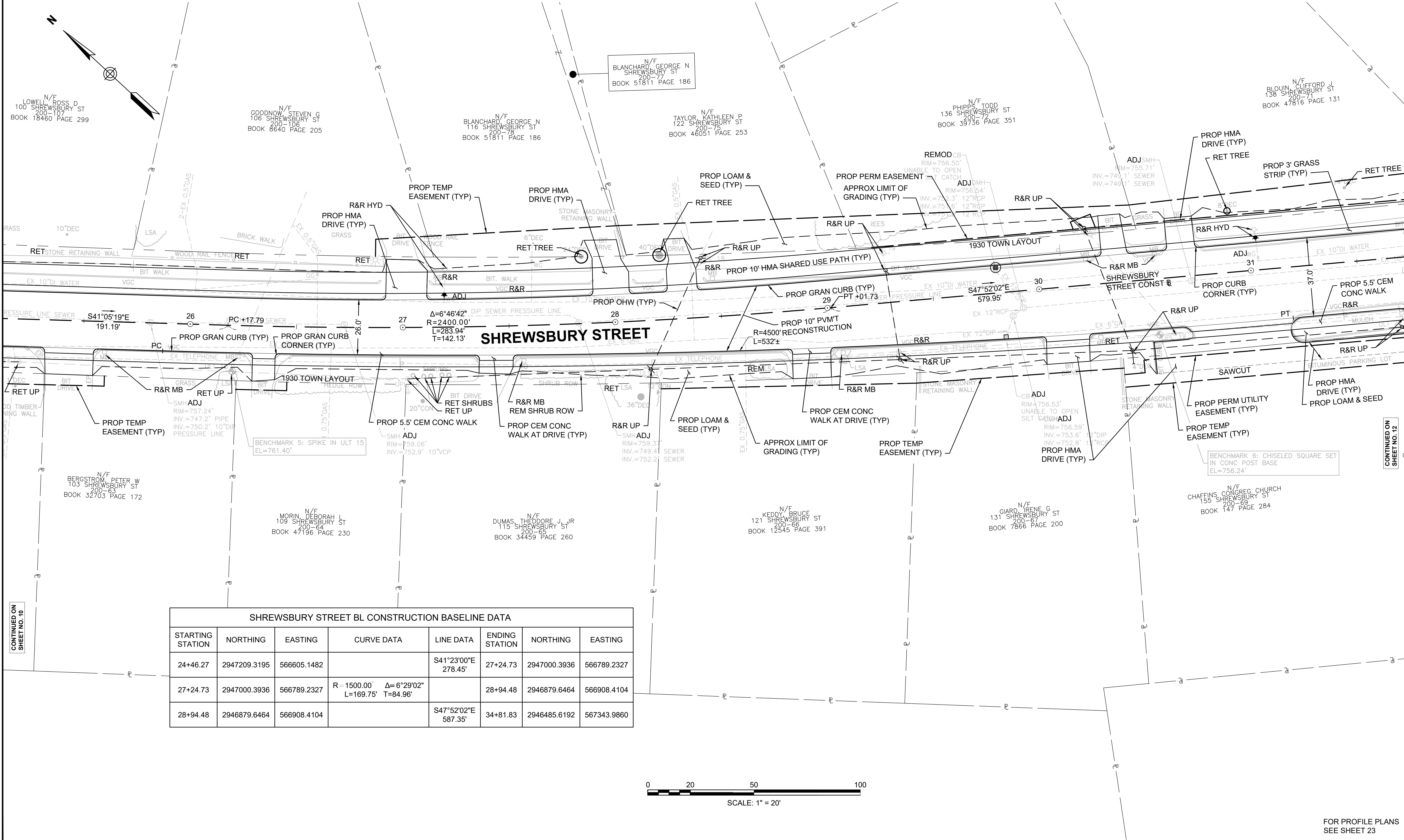
DRAINAGE DETAILS

SEE BELOW

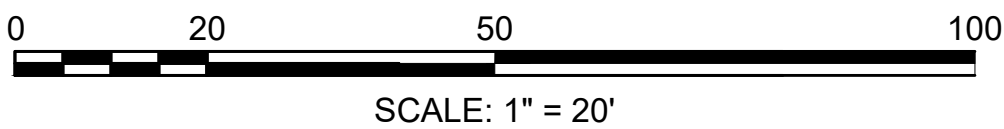
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	11	65
PROJECT FILE NO. 609219			

CONSTRUCTION PLANS



SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
24+46.27	2947209.3195	566605.1482		S41°23'00"E 278.45'	27+24.73	2947000.3936	566789.2327
27+24.73	2947000.3936	566789.2327	R=1500.00' Δ=6°29'02" L=169.75' T=84.96'		28+94.48	2946879.6464	566908.4104
28+94.48	2946879.6464	566908.4104		S47°52'02"E 587.35'	34+81.83	2946485.6192	567343.9860



FOR PROFILE PLANS
SEE SHEET 23

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	12	65
PROJECT FILE NO. 609219			

CONSTRUCTION PLANS

SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
28+94.48	2946879.6464	566908.4104		S47°52'02"E 587.35'	34+81.83	2946485.6192	567343.9860
34+81.83	2946485.6192	567343.9860	R=1350.00' Δ=23°20'12" L=549.86' T=278.79'		40+31.69	2946208.7619	567814.6620

CHAPEL-HOLDEN BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
200+00.00	2947259.1738	567307.5134		S3°30'16"W 1227.63'	212+27.63	2946033.8420	567232.4706

FOR PROFILE PLANS
SEE SHEET 24 & 29-30

609219_HD(GEN).DWG Plotted on 27-Jan-2020 4:24 PM

WATER SUPPLY ALTERATIONS
SEE BELOW

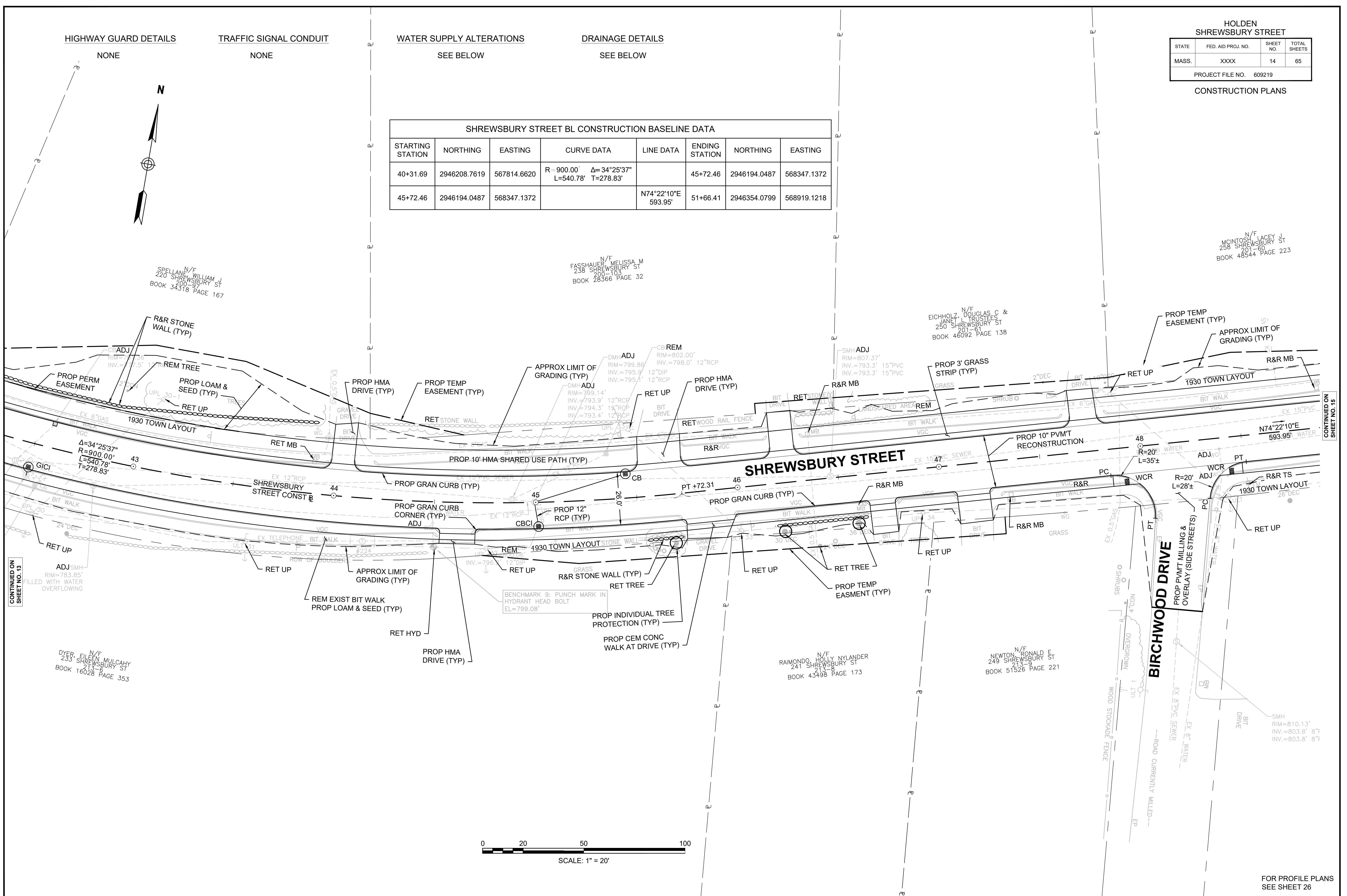
TRAFFIC SIGNAL CONDUIT
NONE

HIGHWAY GUARD DETAILS

NONE



SHREWSBURY STREET BL CONSTRUCTION BASELINE DATA							
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
40+31.69	2946208.7619	567814.6620	R=900.00' Δ= 34°25'37" L=540.78' T=278.83'		45+72.46	2946194.0487	568347.1372
45+72.46	2946194.0487	568347.1372		N74°22'10"E 593.95'	51+66.41	2946354.0799	568919.1218



DRAINAGE DETAILS
SEE BELOW

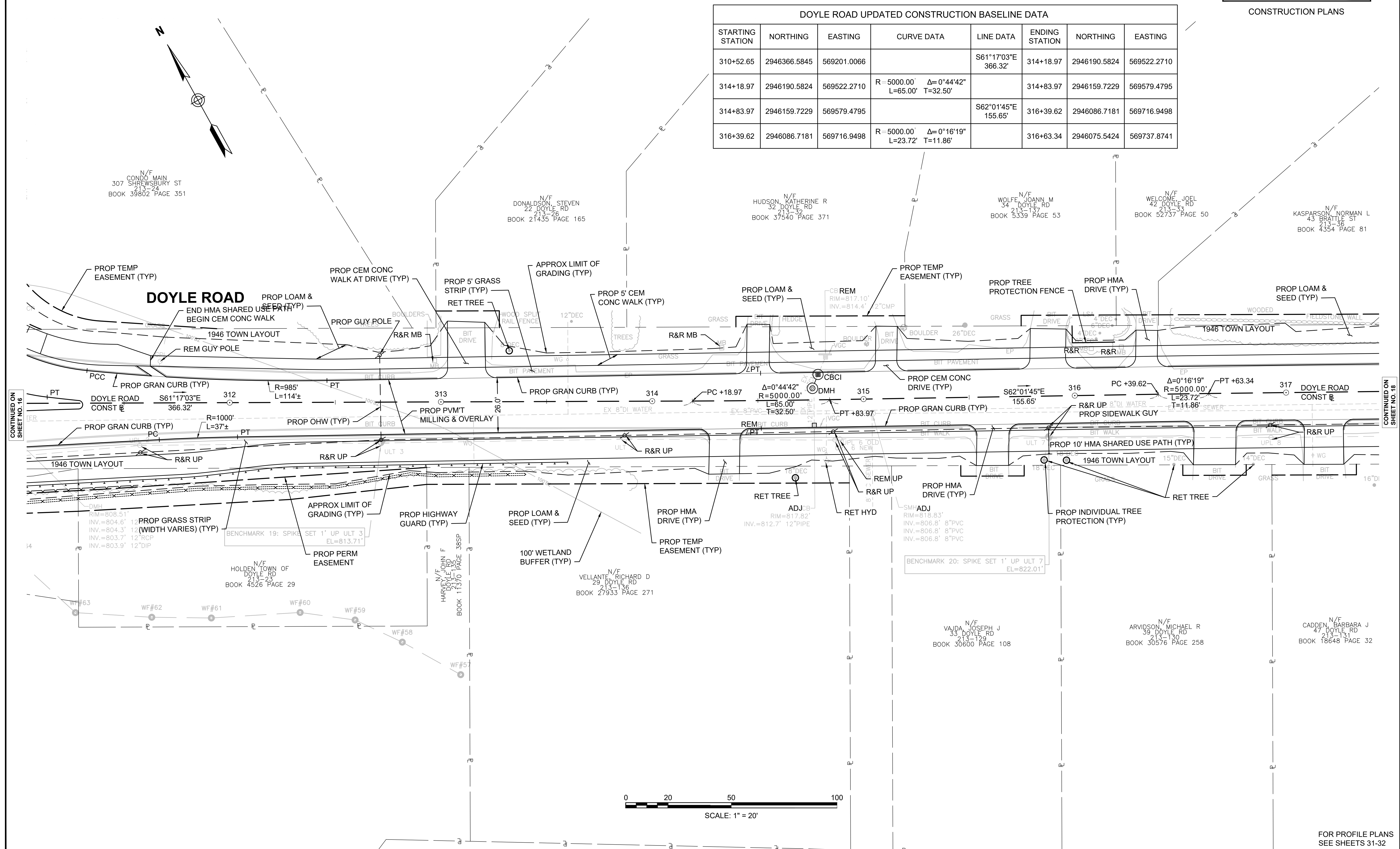
CONSTRUCTION PLANS



FOR PROFILE PLANS
SEE SHEET 28, 31, & 33

DOYLE ROAD UPDATED CONSTRUCTION BASELINE DATA

STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
310+52.65	2946366.5845	569201.0066		S61°17'03"E 366.32'	314+18.97	2946190.5824	569522.271
314+18.97	2946190.5824	569522.2710	R=5000.00' L=65.00' Δ=0°44'42" T=32.50'		314+83.97	2946159.7229	569579.479
314+83.97	2946159.7229	569579.4795		S62°01'45"E 155.65'	316+39.62	2946086.7181	569716.949
316+39.62	2946086.7181	569716.9498	R=5000.00' L=23.72' Δ=0°16'19" T=11.86'		316+63.34	2946075.5424	569737.874

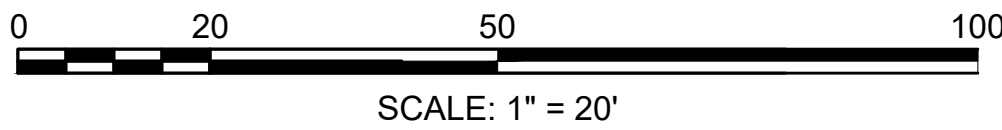


FOR PROFILE PLANS
SEE SHEETS 31-32

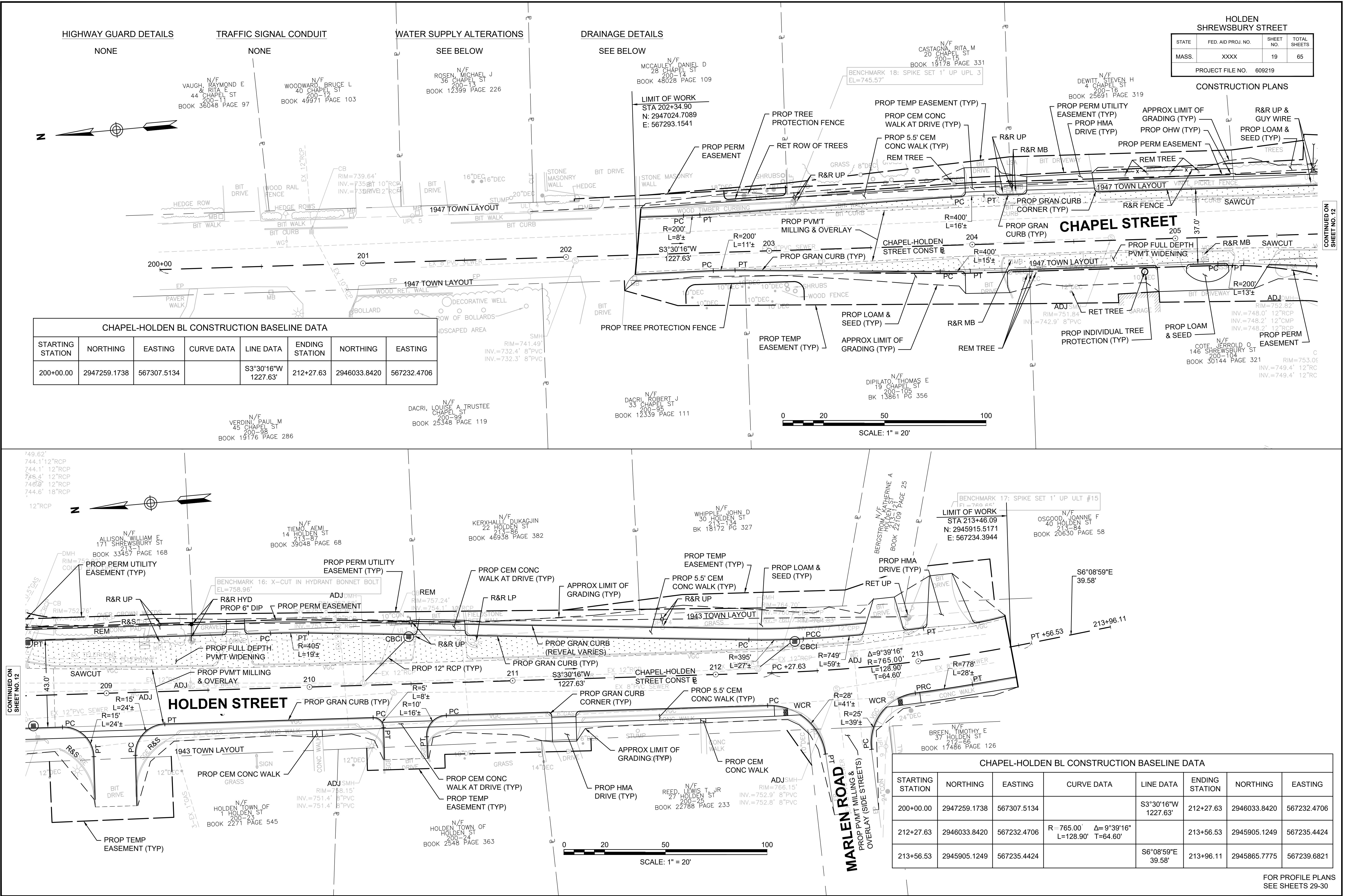
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	18	65
PROJECT FILE NO. 609219			
CONSTRUCTION PLANS			

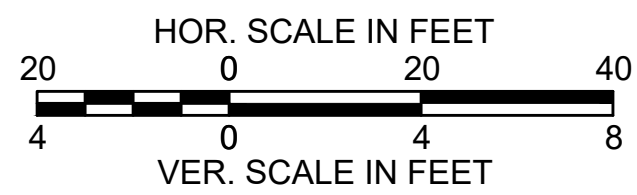
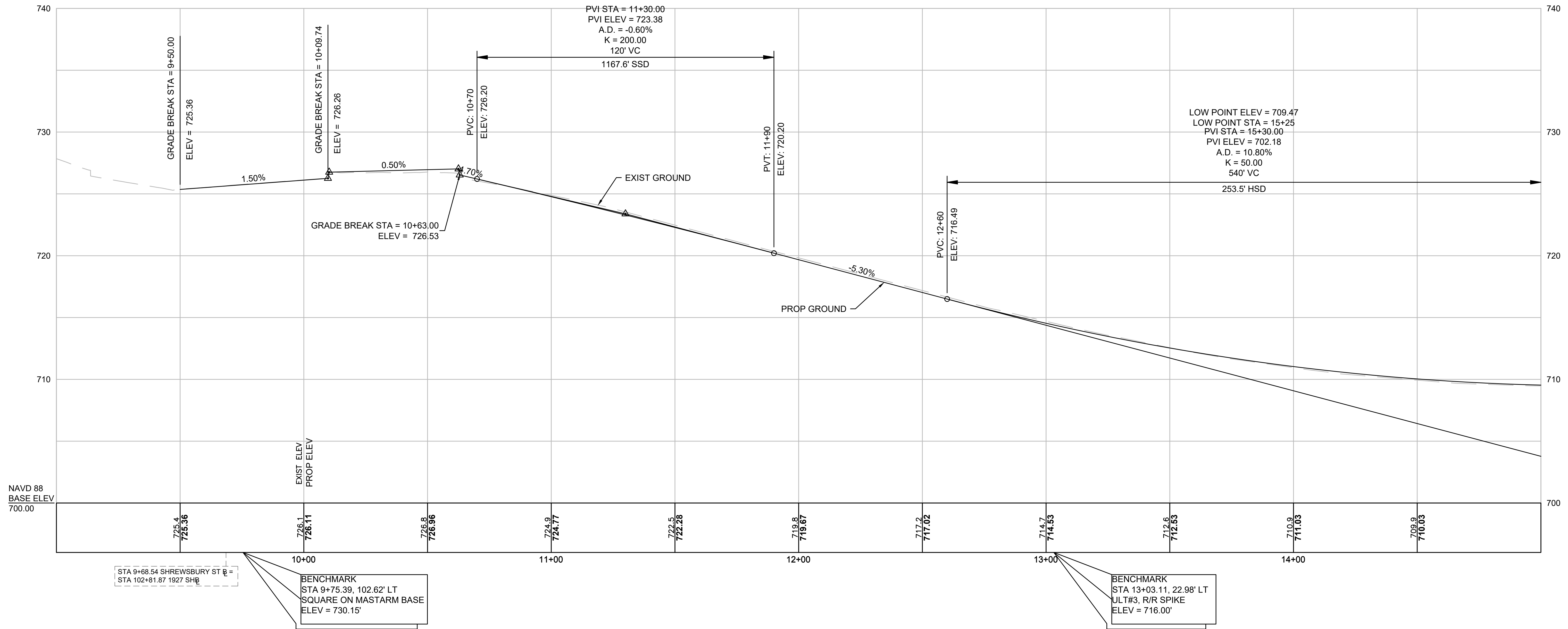
DOYLE ROAD UPDATED CONSTRUCTION BASELINE DATA						
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	EASTING
316+63.34	2946075.5424	569737.8741		S61°45'26"E 604.93'	322+68.27	2945789.2841
						570270.7883

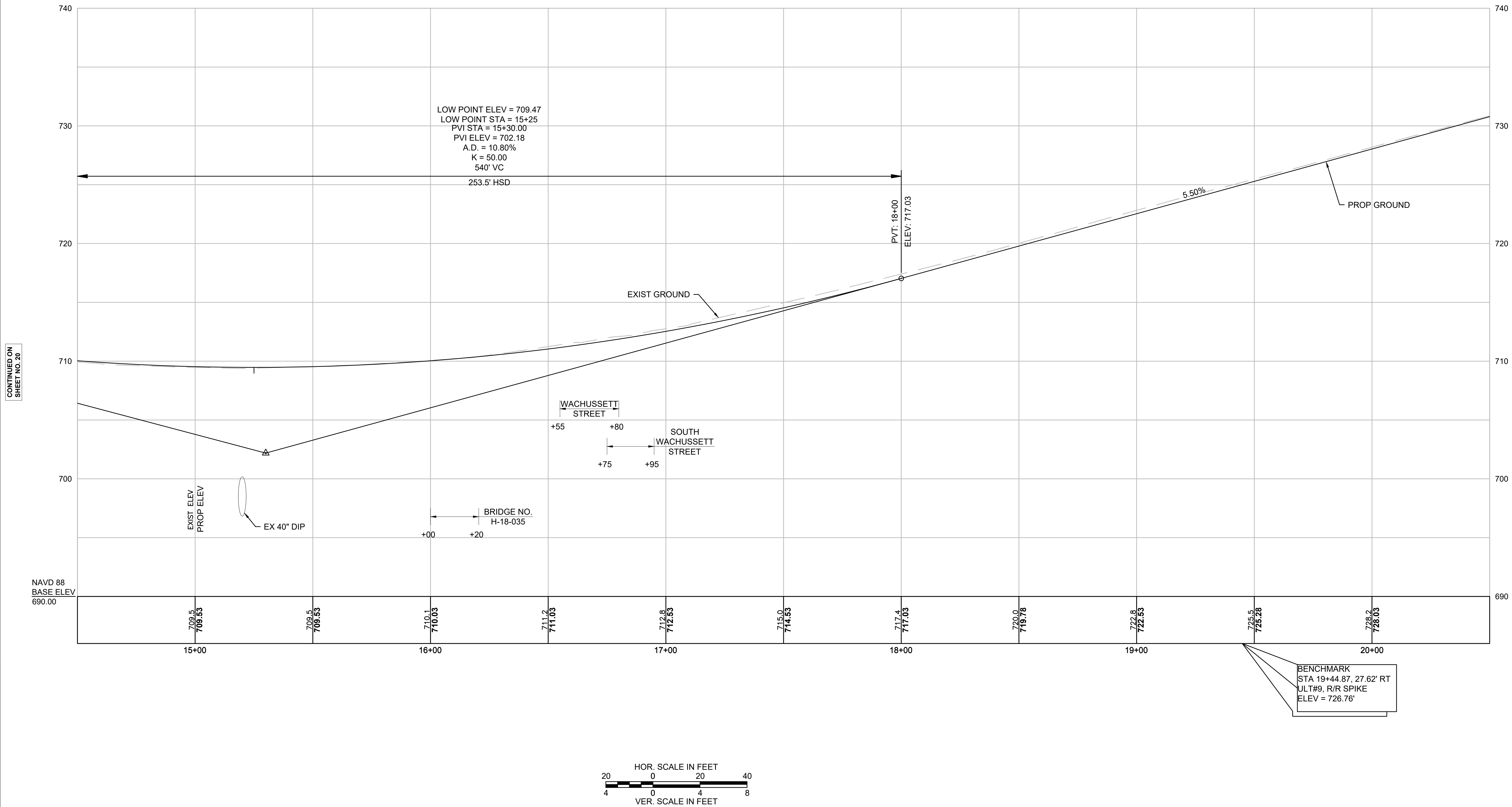
BRATTLE STREET SOUTH BL CONSTRUCTION BASELINE DATA						
STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	EASTING
506+00.00	2945858.5905	570141.7636		S27°33'24"W 45.42'	506+45.42	2945818.3260
506+45.42	2945818.3260	570120.7526	R=200.00' Δ=33°00'22" L=115.21' T=59.25'		507+60.63	2945706.8075
507+60.63	2945706.8075	570098.9674		S5°26'58"E 96.17'	508+56.80	2945611.0729
						570108.1005



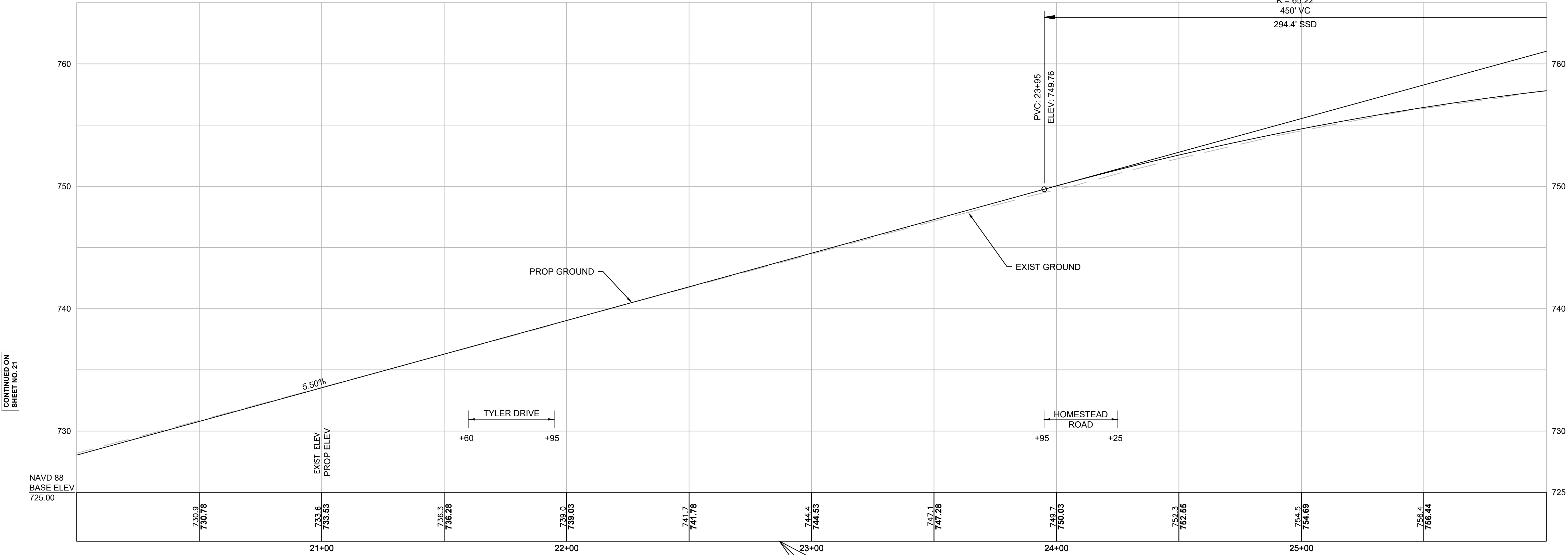
FOR PROFILE PLANS
SEE SHEET 32







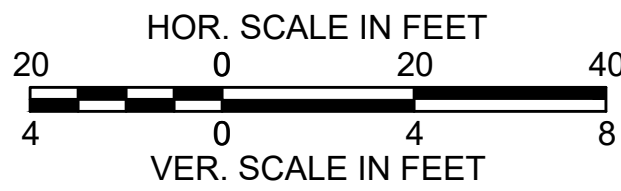
HIGH POINT ELEV = 759.62
HIGH POINT STA = 27+53.70
PVI STA = 26+20.00
PVI ELEV = 762.13
A.D. = -6.90%
K = 65.22
450' VC
294.4' SSD



CONTINUED ON
SHEET NO. 21

CONTINUED ON
SHEET NO. 21

BENCHMARK
STA 22+86.87, 21.64' RT
UPL#12, R/R SPIKE
ELEV = 744.89'

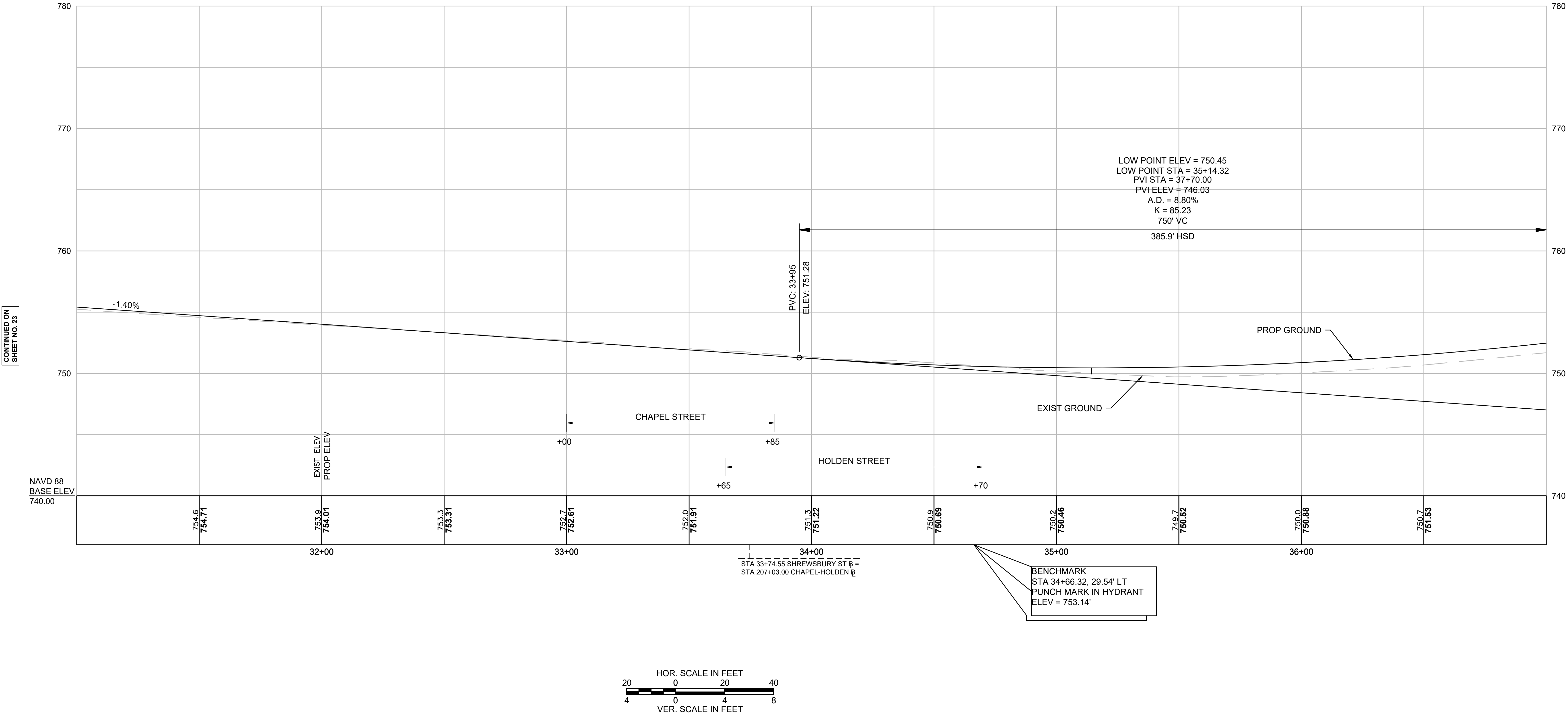


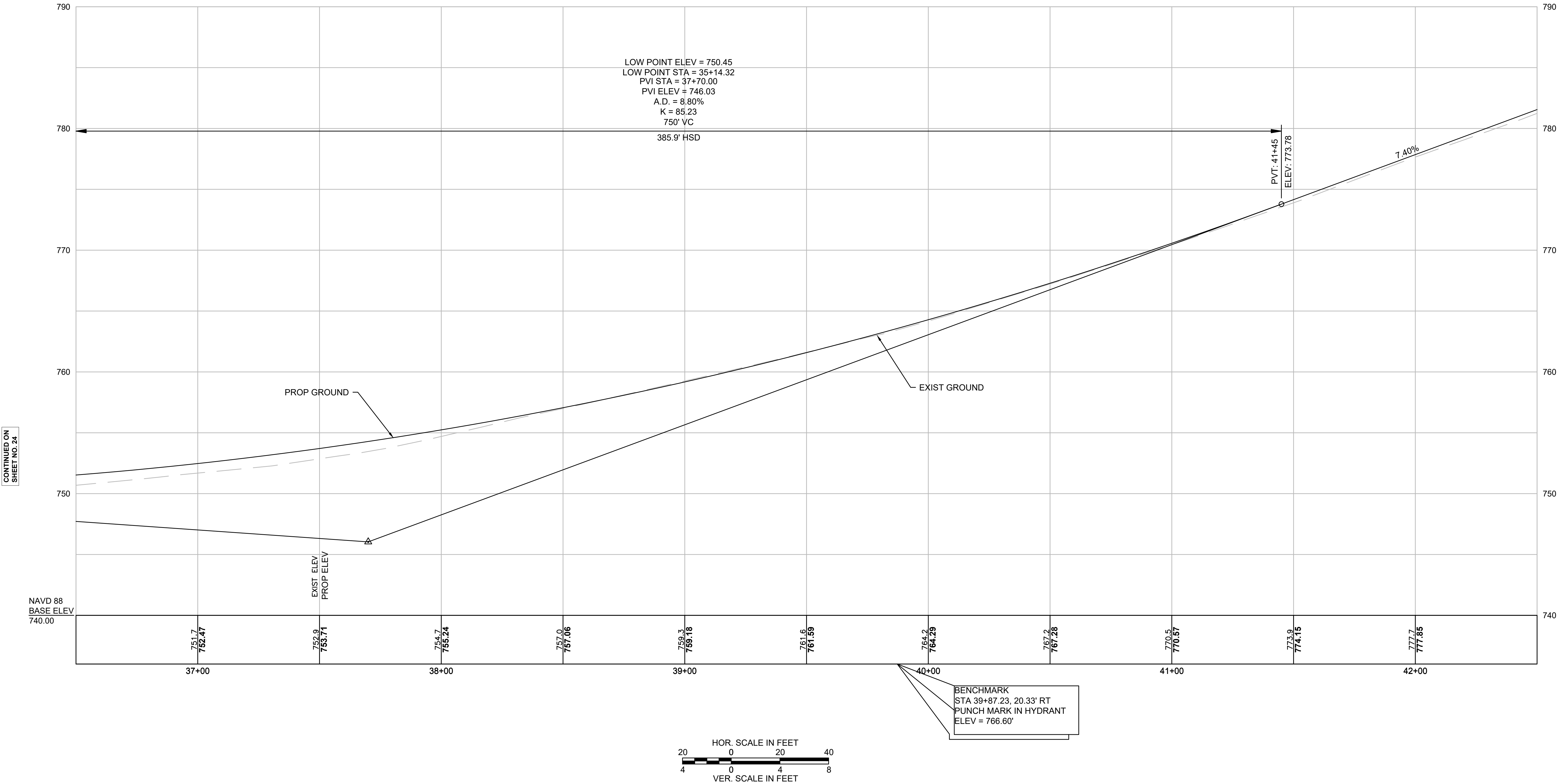
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	24	65

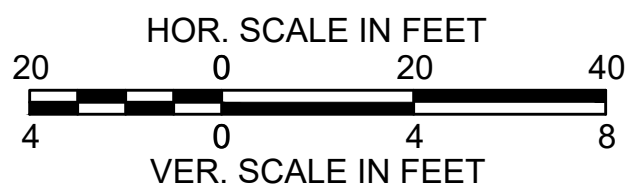
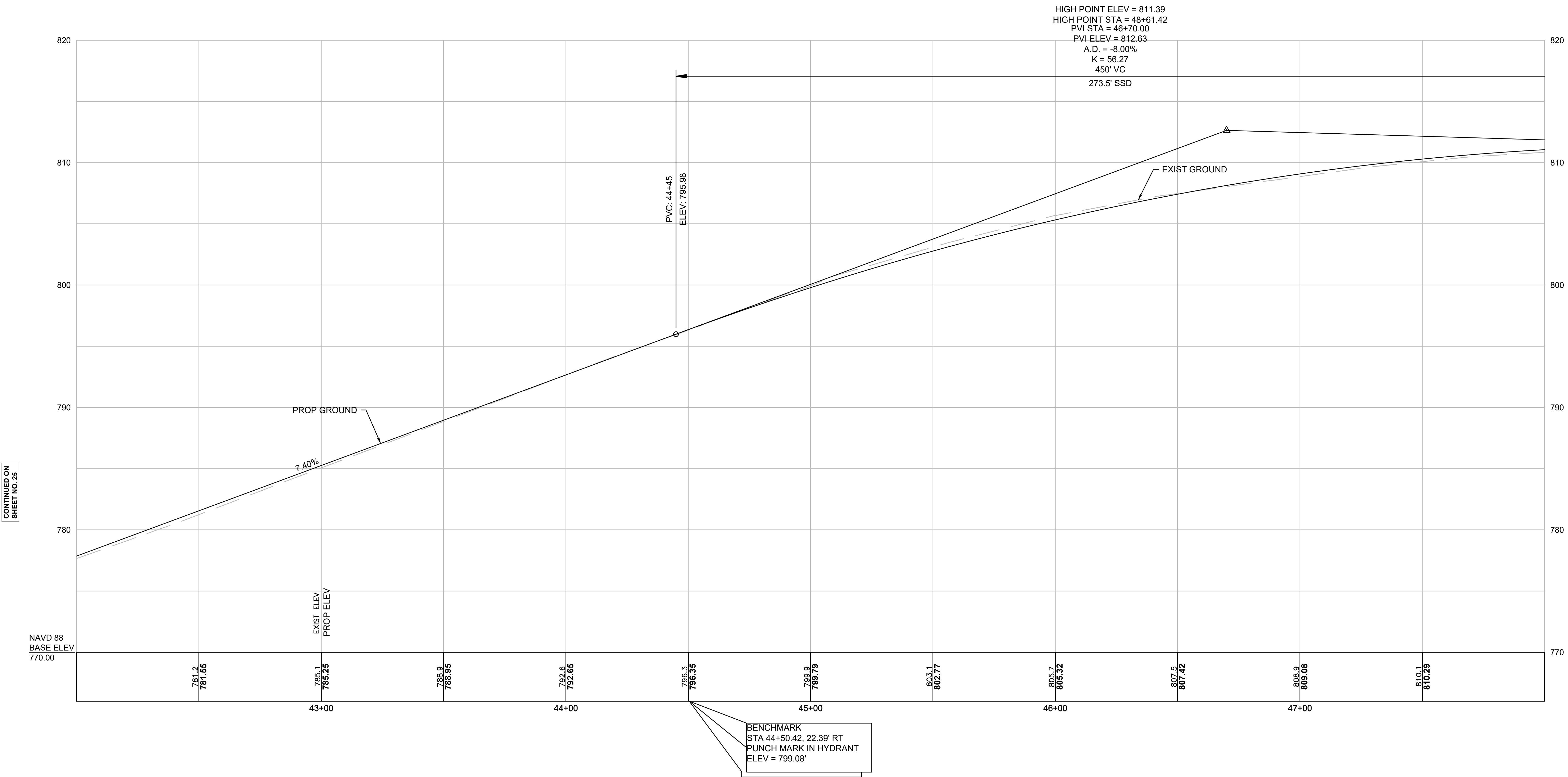
PROJECT FILE NO. 609219

PROFILE
SHREWSBURY STREET

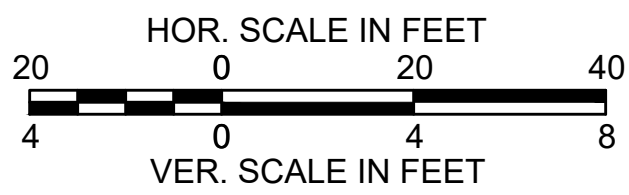
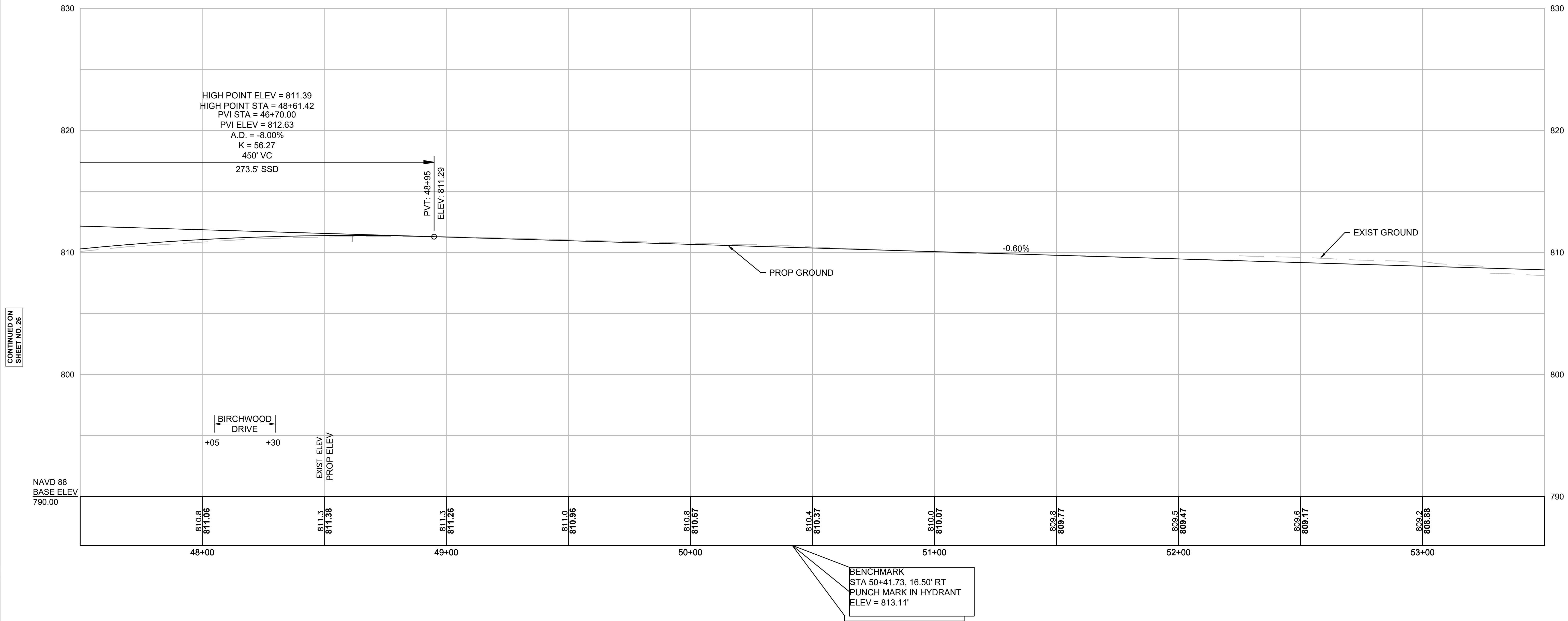


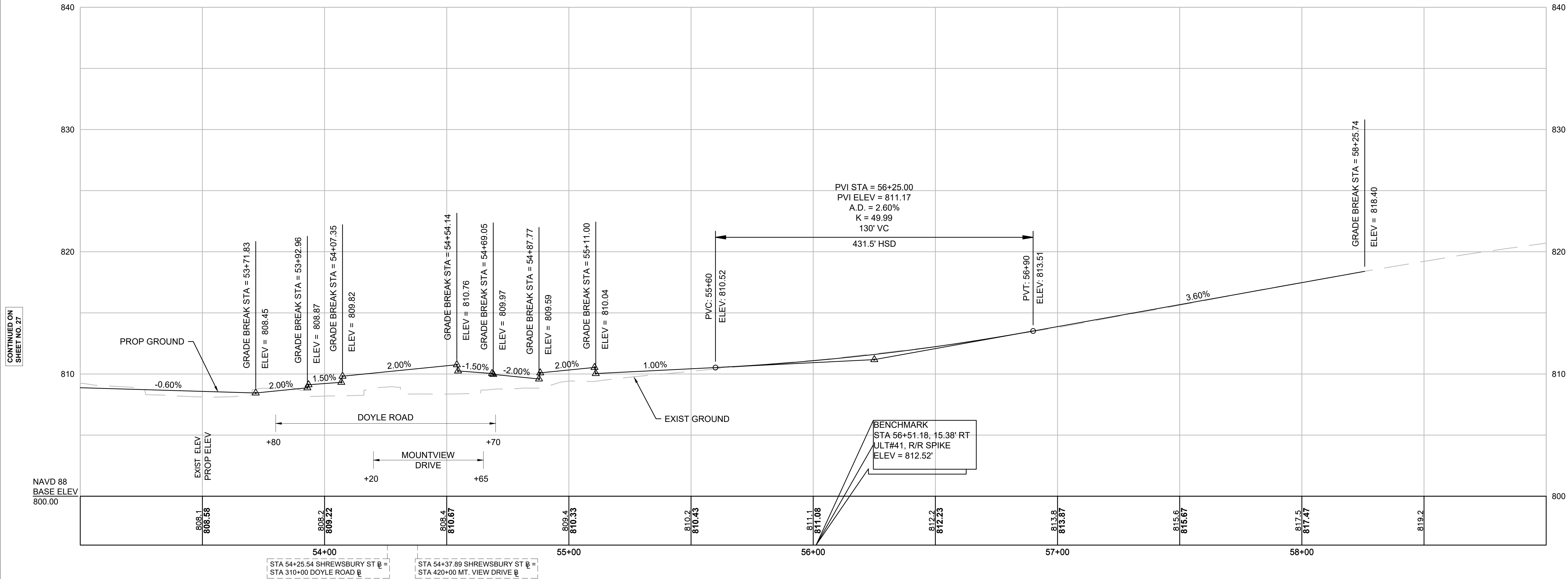


HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	26	65
PROJECT FILE NO. 609219			
PROFILE SHREWSBURY STREET			



CONTINUED ON
SHEET NO. 27





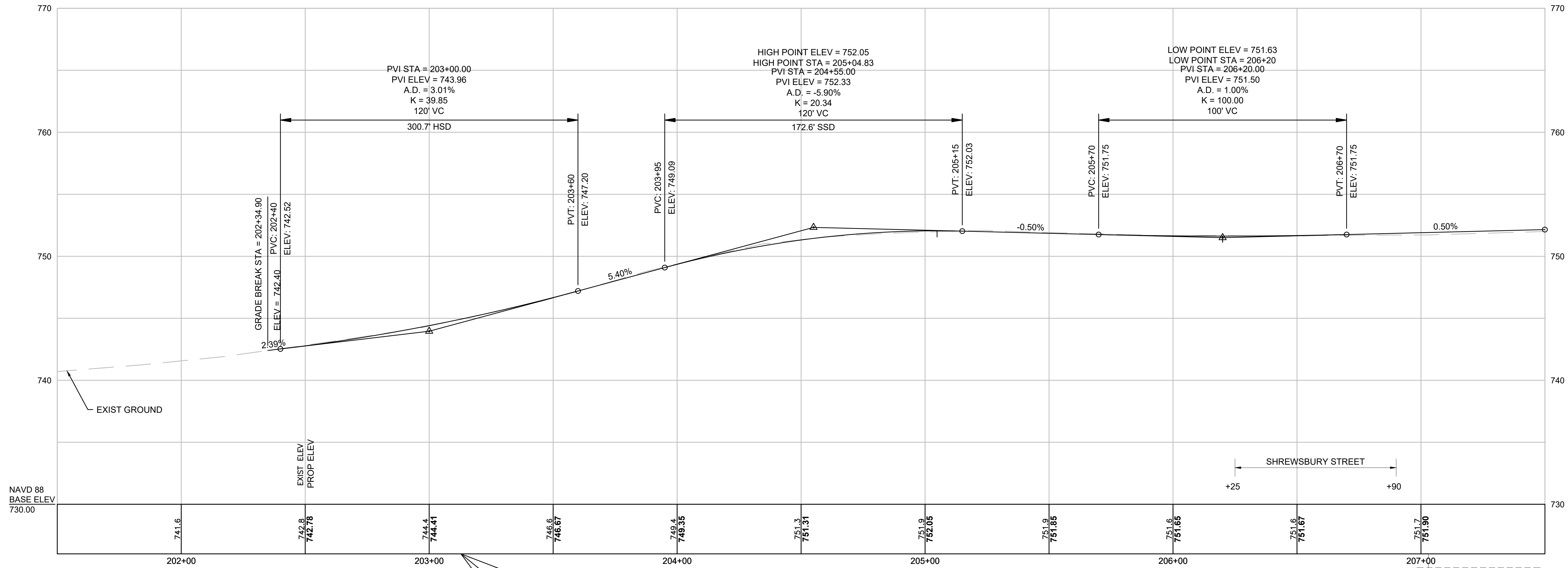
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	29	65

PROJECT FILE NO. 609219

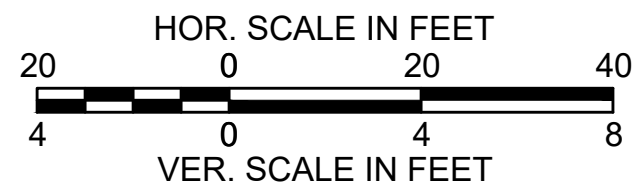
PROFILE

CHAPEL STREET / HOLDEN STREET



BENCHMARK
STA 203+12.80, 23.67' LT
UPL#3, R/R SPIKE
ELEV = 745.57'

CHAPEL/HOLDEN STREET ARE PROPOSED MICRO-MILLING & PAVEMENT OVERLAY. NO PROFILE ADJUSTMENTS ARE PROPOSED FOR CHAPEL/HOLDEN STREET. A PROFILE IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

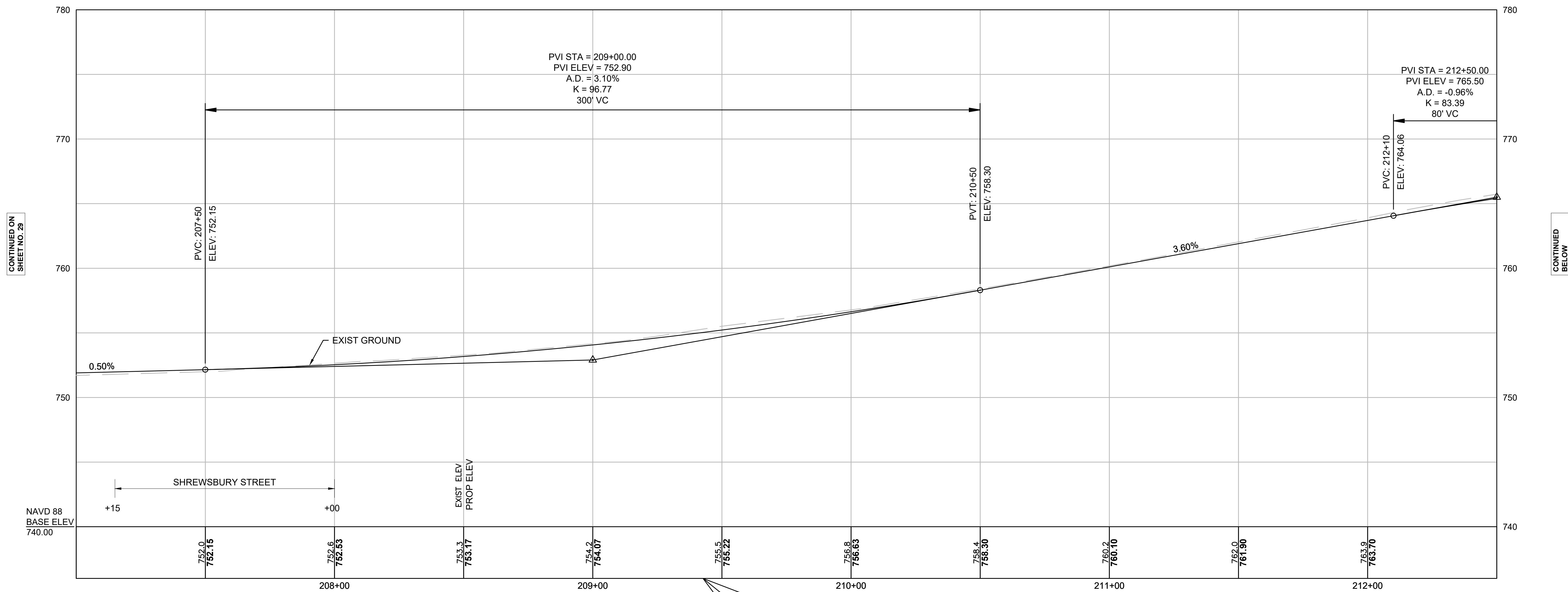


STA 33+74.70 SHREWSBURY ST B =
STA 207+03.00 CHAPEL-HOLDEN B

CONTINUED ON
SHEET NO. 30

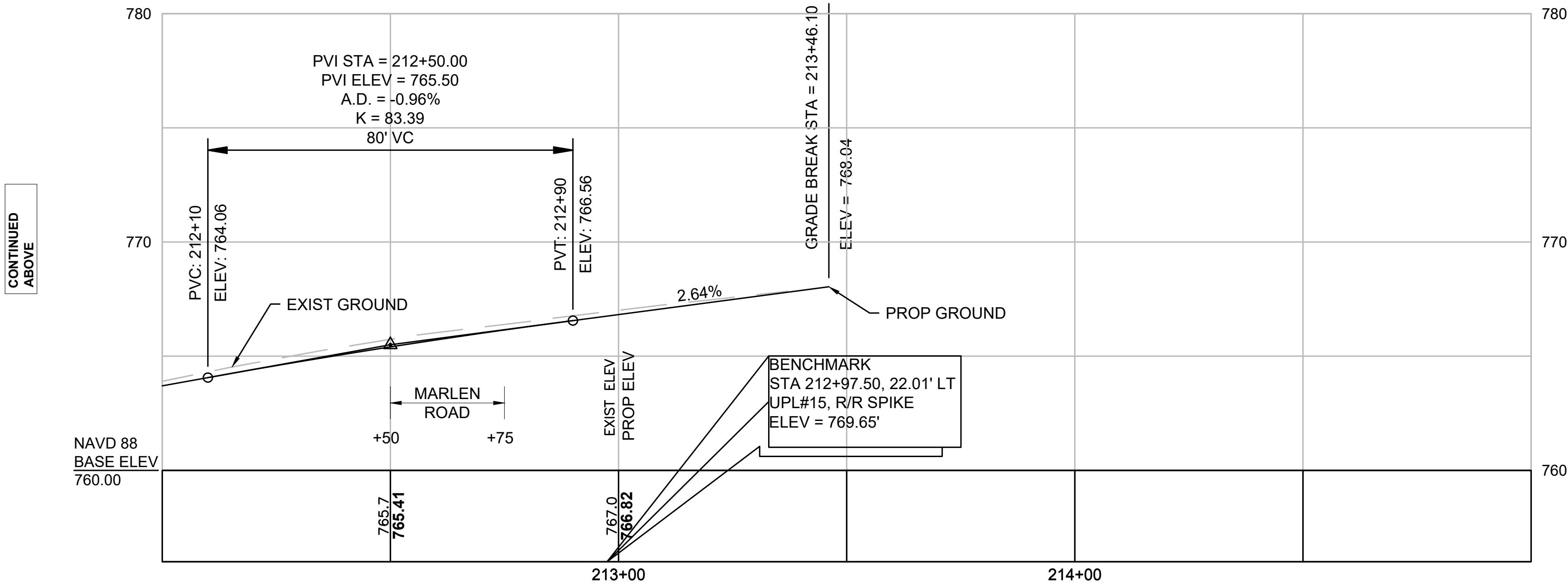
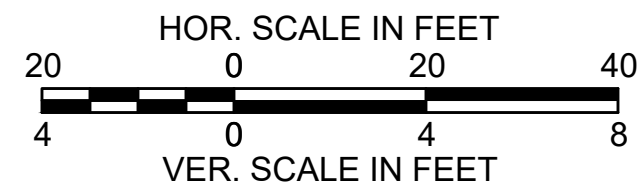
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	30	65
PROJECT FILE NO. 609219			

PROFILE
CHAPEL STREET / HOLDEN STREET



CHAPEL/HOLDEN STREET ARE PROPOSED MICRO-MILLING & PAVEMENT OVERLAY. NO PROFILE ADJUSTMENTS ARE PROPOSED FOR CHAPEL/HOLDEN STREET. A PROFILE IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

BENCHMARK
STA 209+42.68, 24.52' LT
X-CUT IN HYDRANT
ELEV = 758.96'



BENCHMARK
STA 212+97.50, 22.01' LT
UPL#15, R/R SPIKE
ELEV = 769.65'

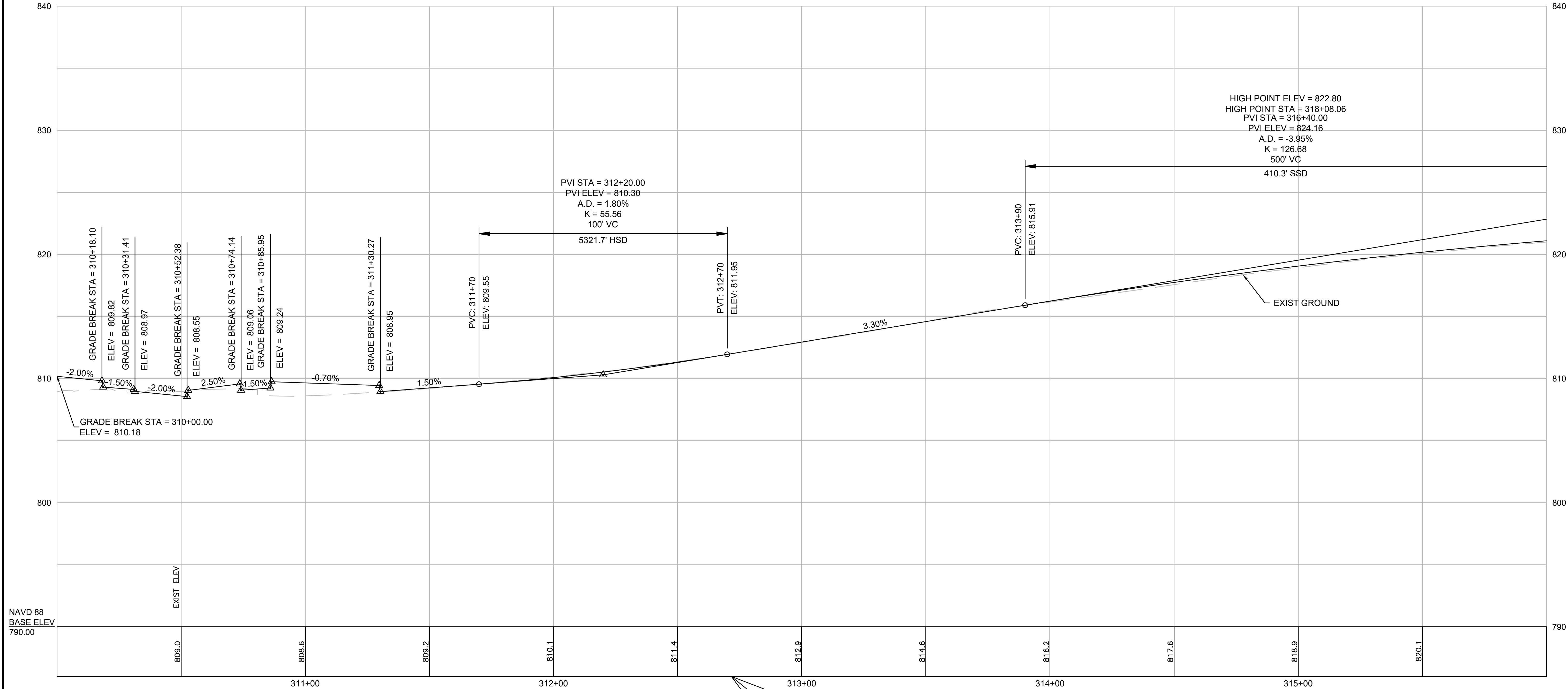
CONTINUED ON
SHEET NO. 29

CONTINUED
BELOW

CONTINUED
ABOVE

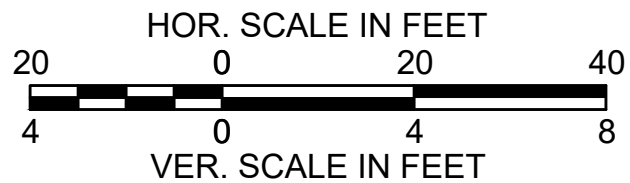
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	31	65
PROJECT FILE NO. 609219			

PROFILE
DOYLE ROAD



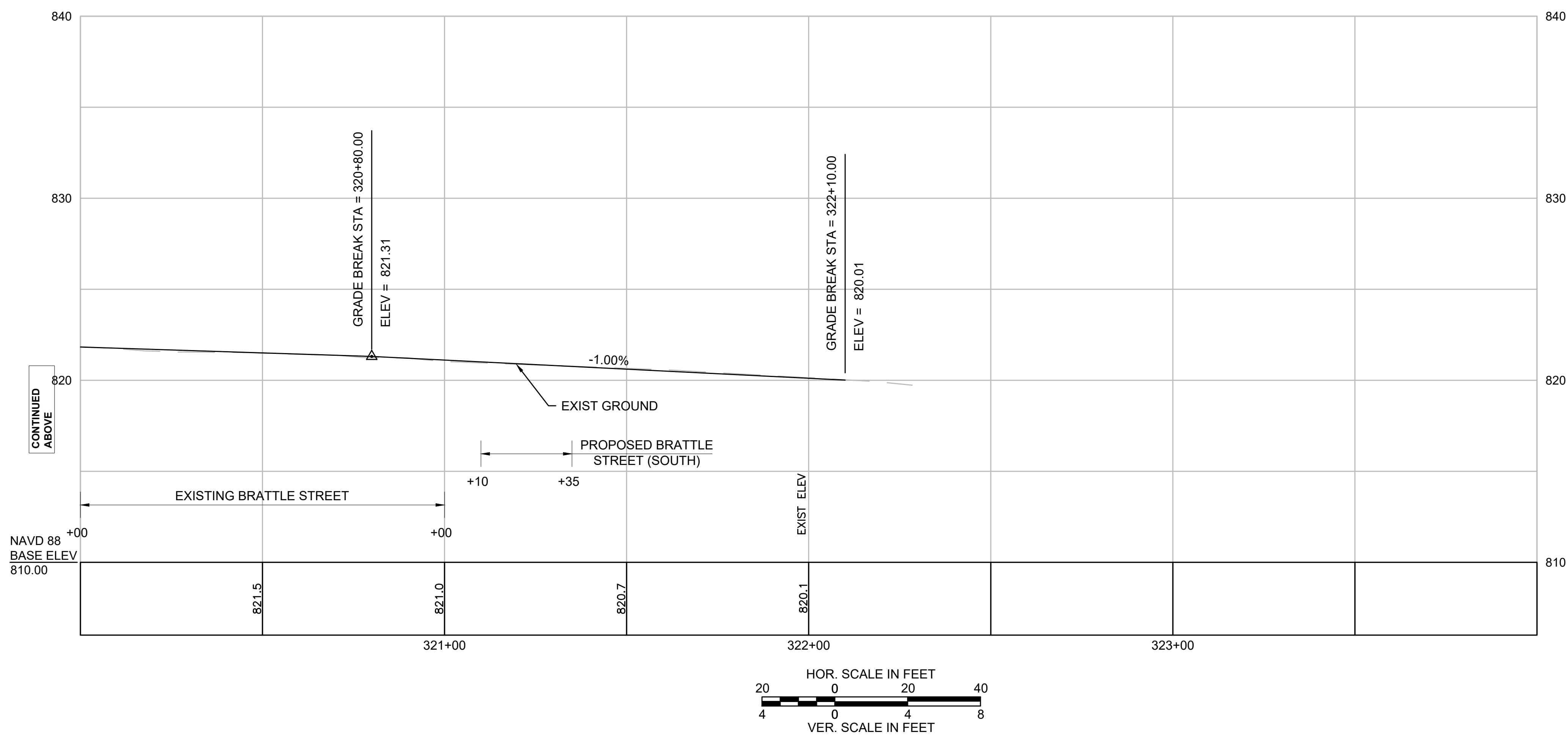
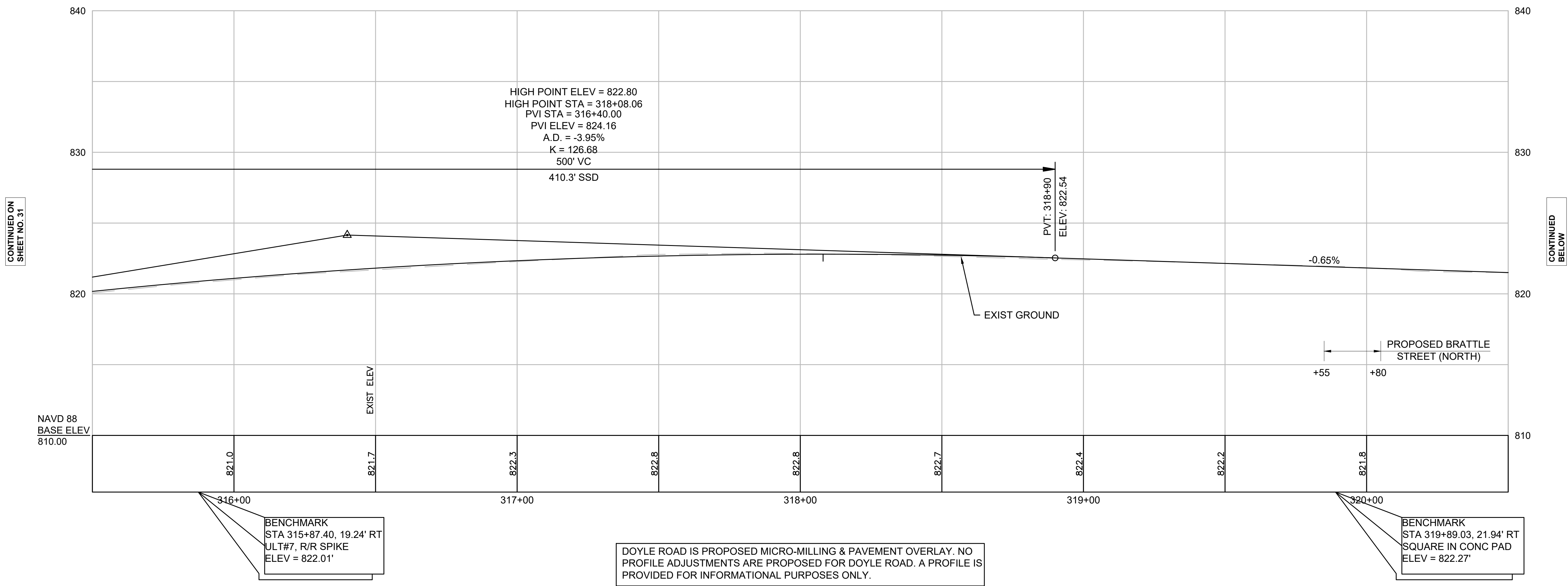
BENCHMARK
STA 312+71.65, 18.78' RT
ULT#3, R/R SPIKE
ELEV = 813.71'

DOYLE ROAD IS PROPOSED MICRO-MILLING & PAVEMENT OVERLAY. NO
PROFILE ADJUSTMENTS ARE PROPOSED FOR DOYLE ROAD. A PROFILE IS
PROVIDED FOR INFORMATIONAL PURPOSES ONLY.



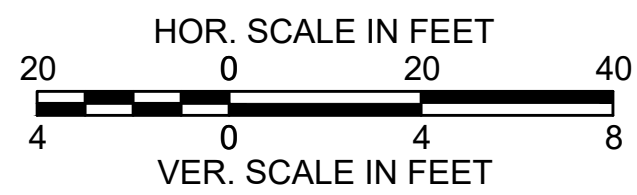
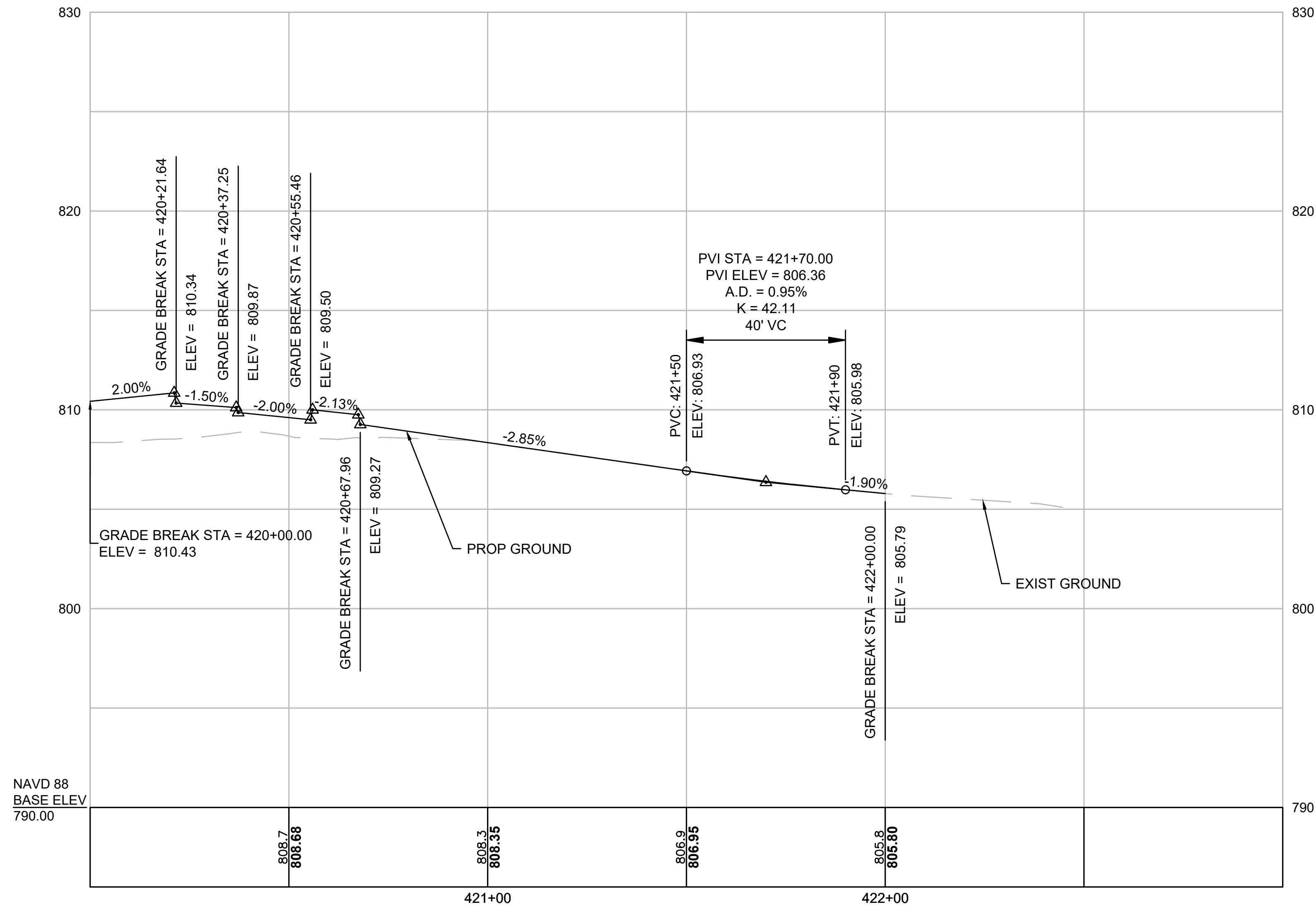
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	32	65
PROJECT FILE NO. 609219			

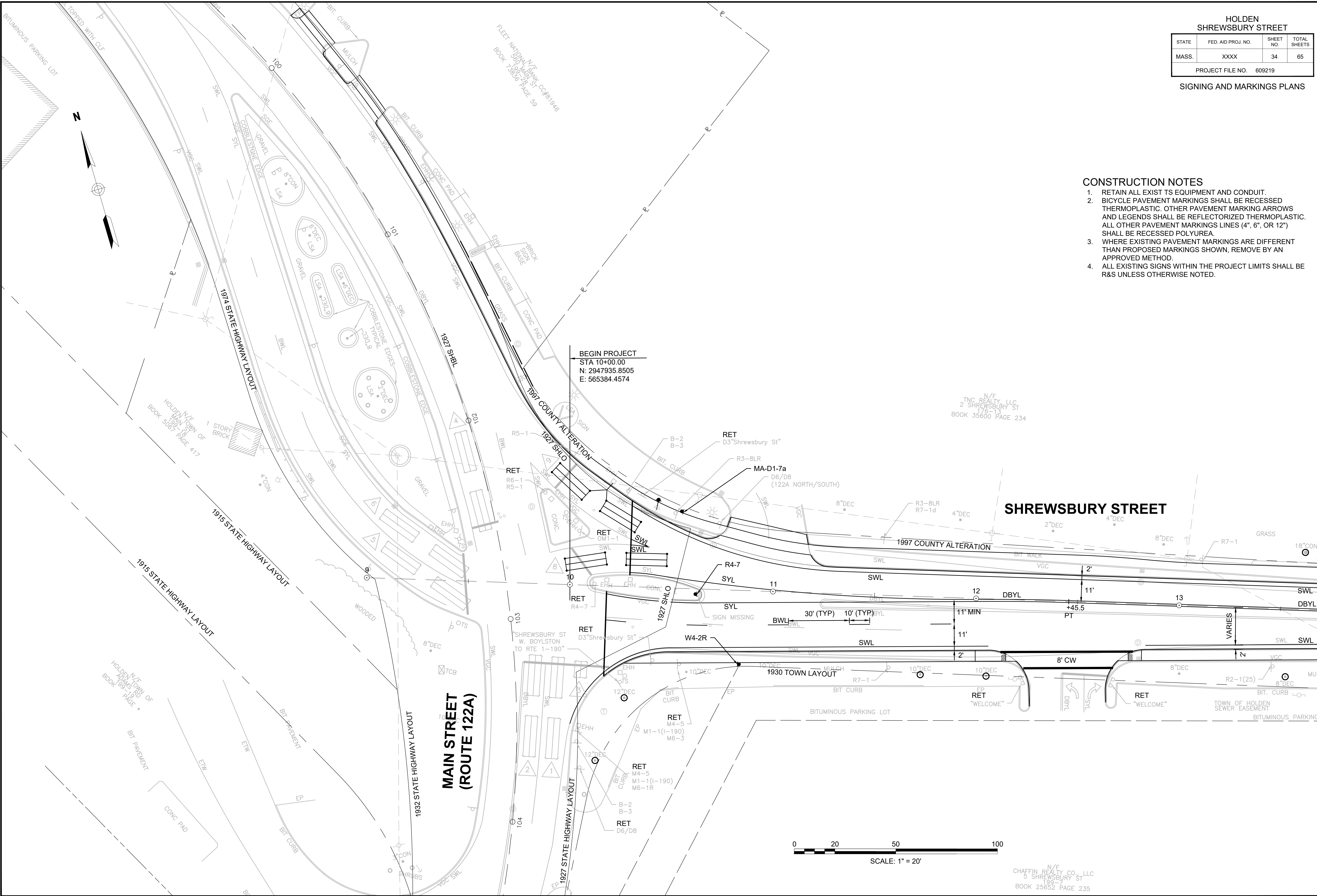
PROFILE
DOYLE ROAD



HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	33	65
PROJECT FILE NO. 609219			

PROFILE
MOUNTAIN VIEW DRIVE



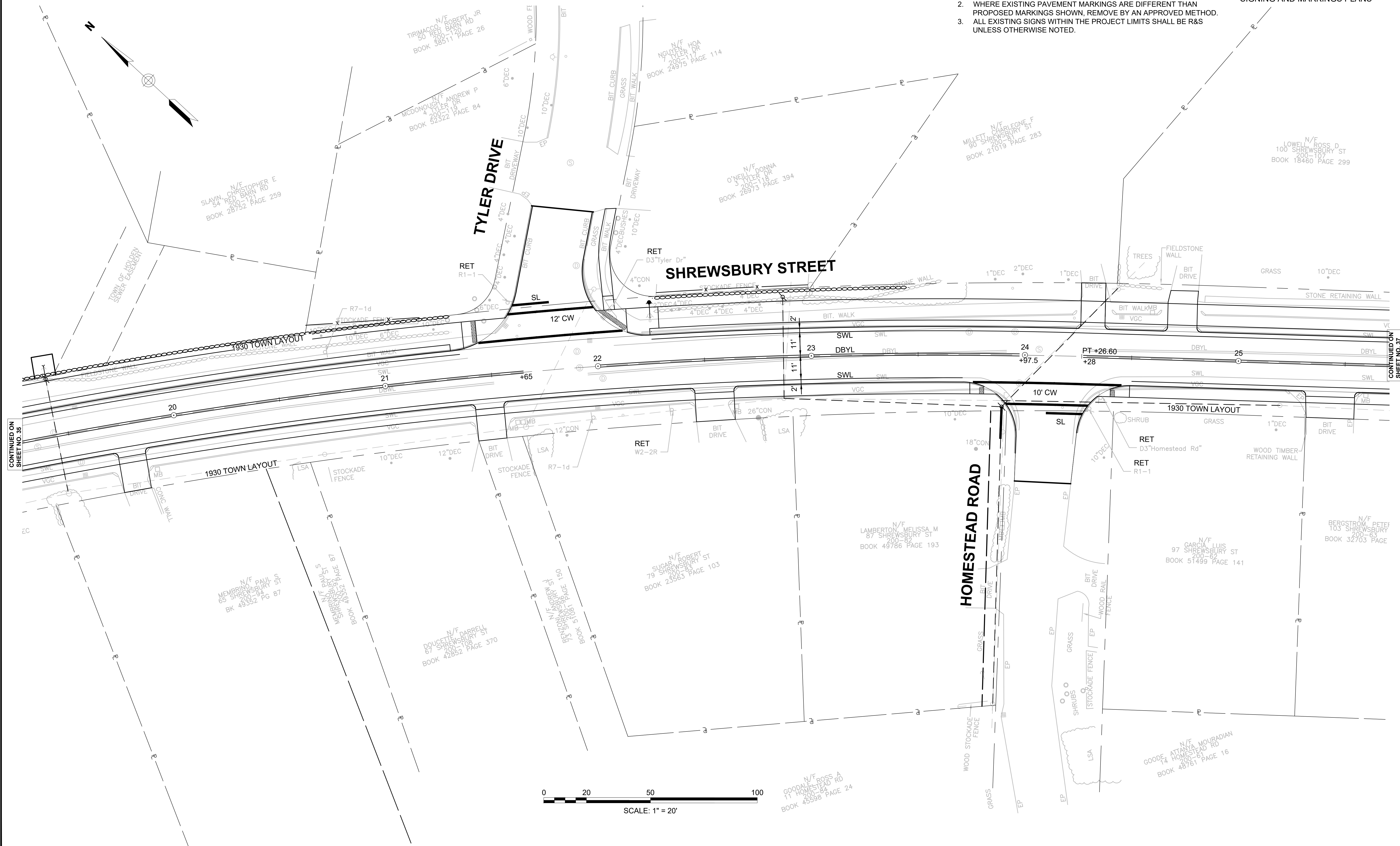


HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	34	65
PROJECT FILE NO. 609219			
SIGNING AND MARKINGS PLANS			

- CONSTRUCTION NOTES
1. RETAIN ALL EXIST TS EQUIPMENT AND CONDUIT.
 2. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
 3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
 4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

CONTINUED ON
SHEET NO. 35

N/E
CHAFFIN REALTY CO., LLC
5 SHREWSBURY ST
198-7
BOOK 25652 PAGE 235



- CONSTRUCTION NOTES**
1. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
 2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
 3. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	36	65
PROJECT FILE NO. 609219			
SIGNING AND MARKINGS PLANS			

CONTINUED ON
SHEET NO. 35

CONTINUED ON
SHEET NO. 37

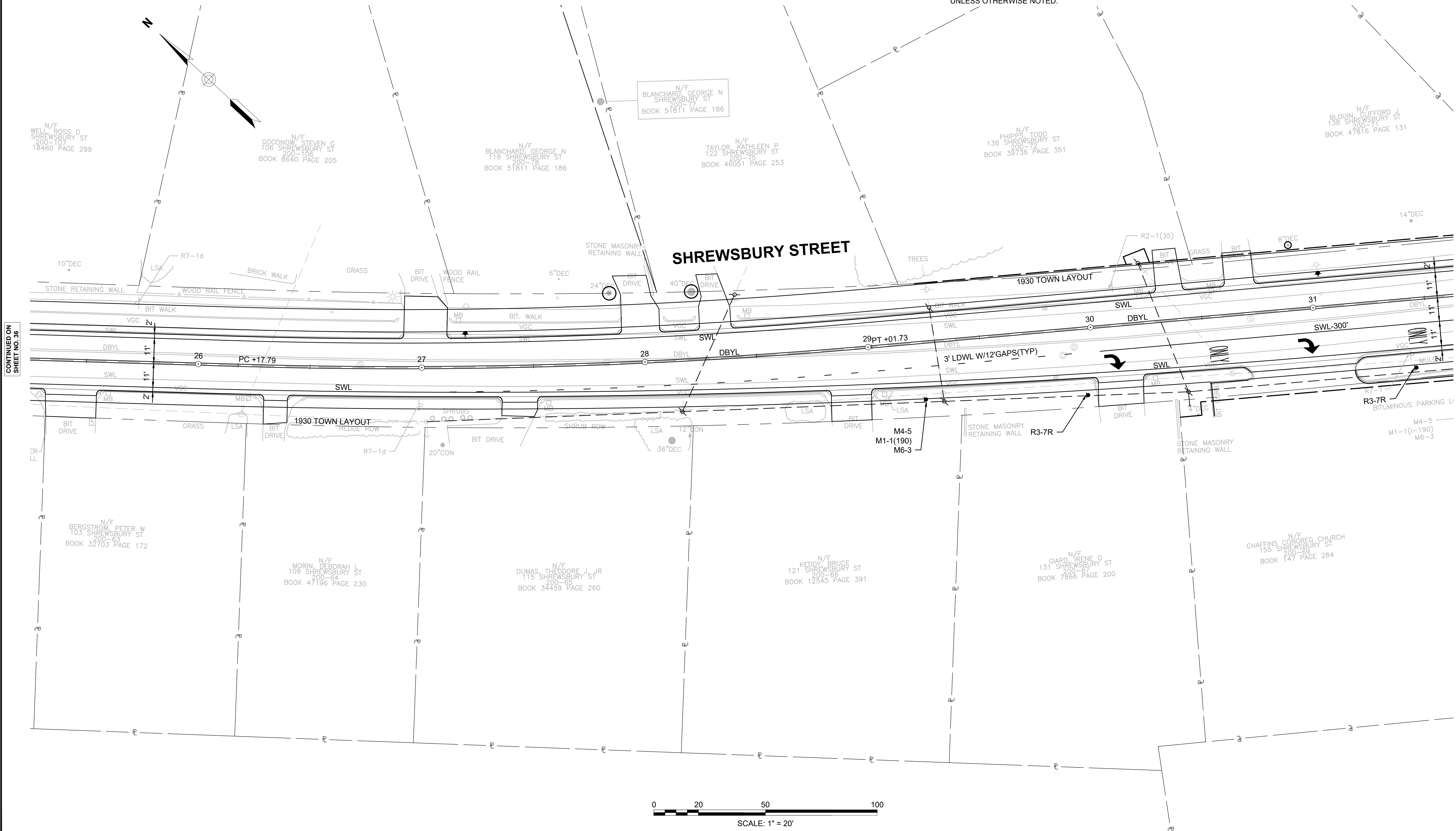
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	37	65

PROJECT FILE NO. 609219

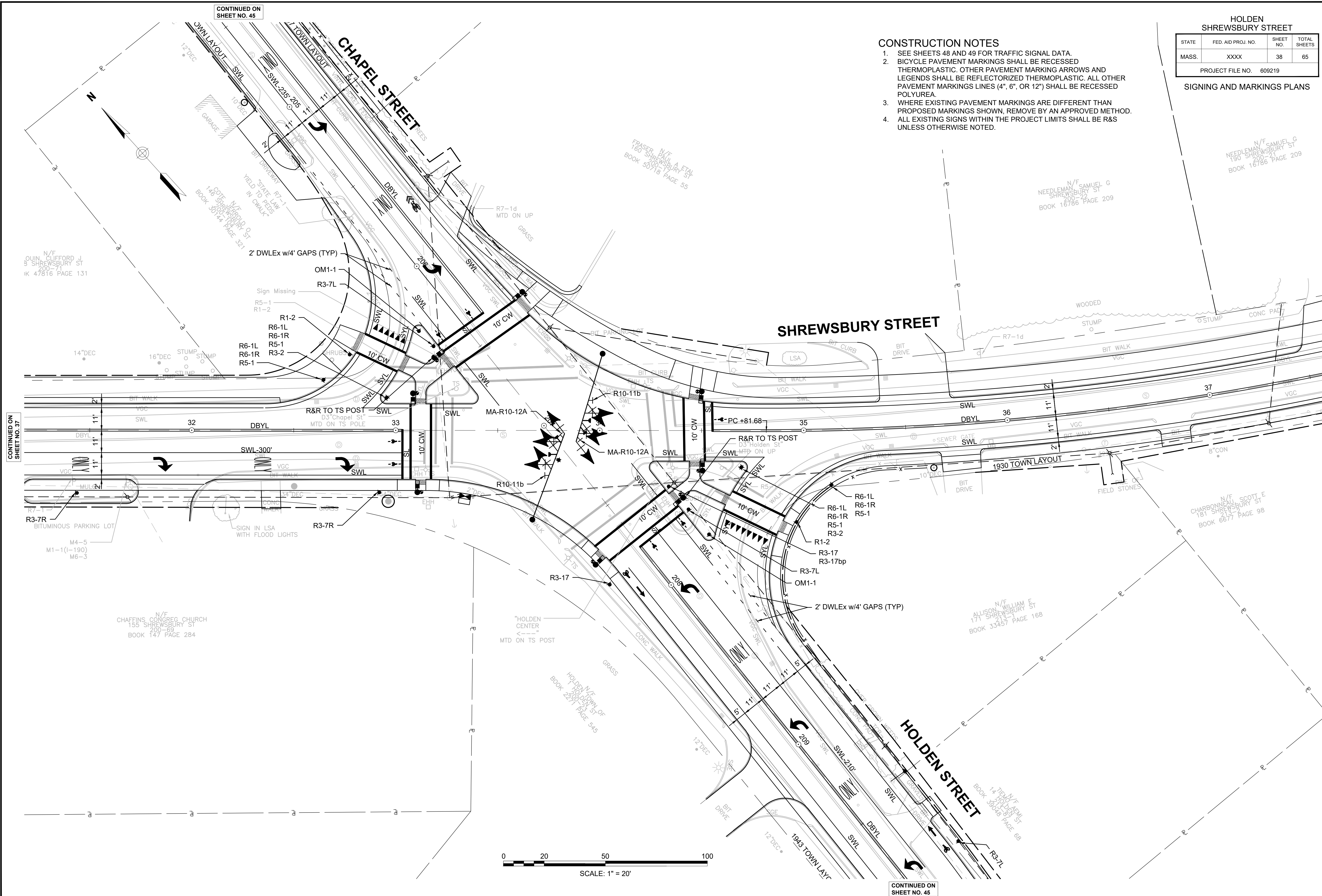
SIGNING AND MARKINGS PLANS

- CONSTRUCTION NOTES
- BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
 - WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
 - ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.



CONTINUED ON
SHEET NO. 36

CONTINUED ON
SHEET NO. 38



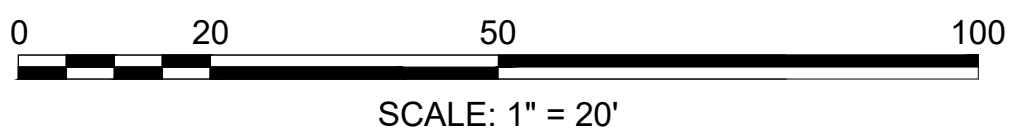
CONSTRUCTION NOTES

- 1. SEE SHEETS 48 AND 49 FOR TRAFFIC SIGNAL DATA.
- 2. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
- 3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
- 4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	38	65
PROJECT FILE NO. 609219			

SIGNING AND MARKINGS PLANS



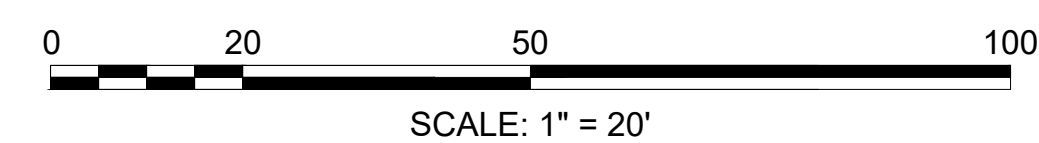
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SHEET NO. 39

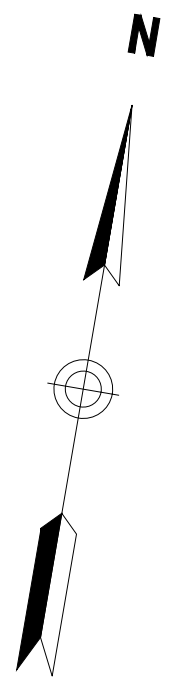
CONTINUED ON
SHEET NO. 45

1. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
3. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	39	65
PROJECT FILE NO. 609219			

SHREWSBURY STREET

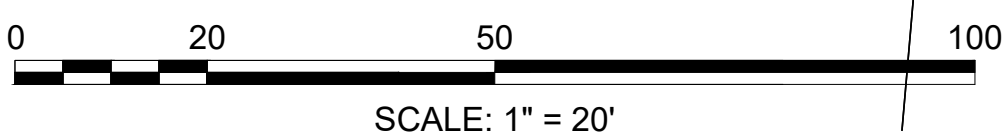
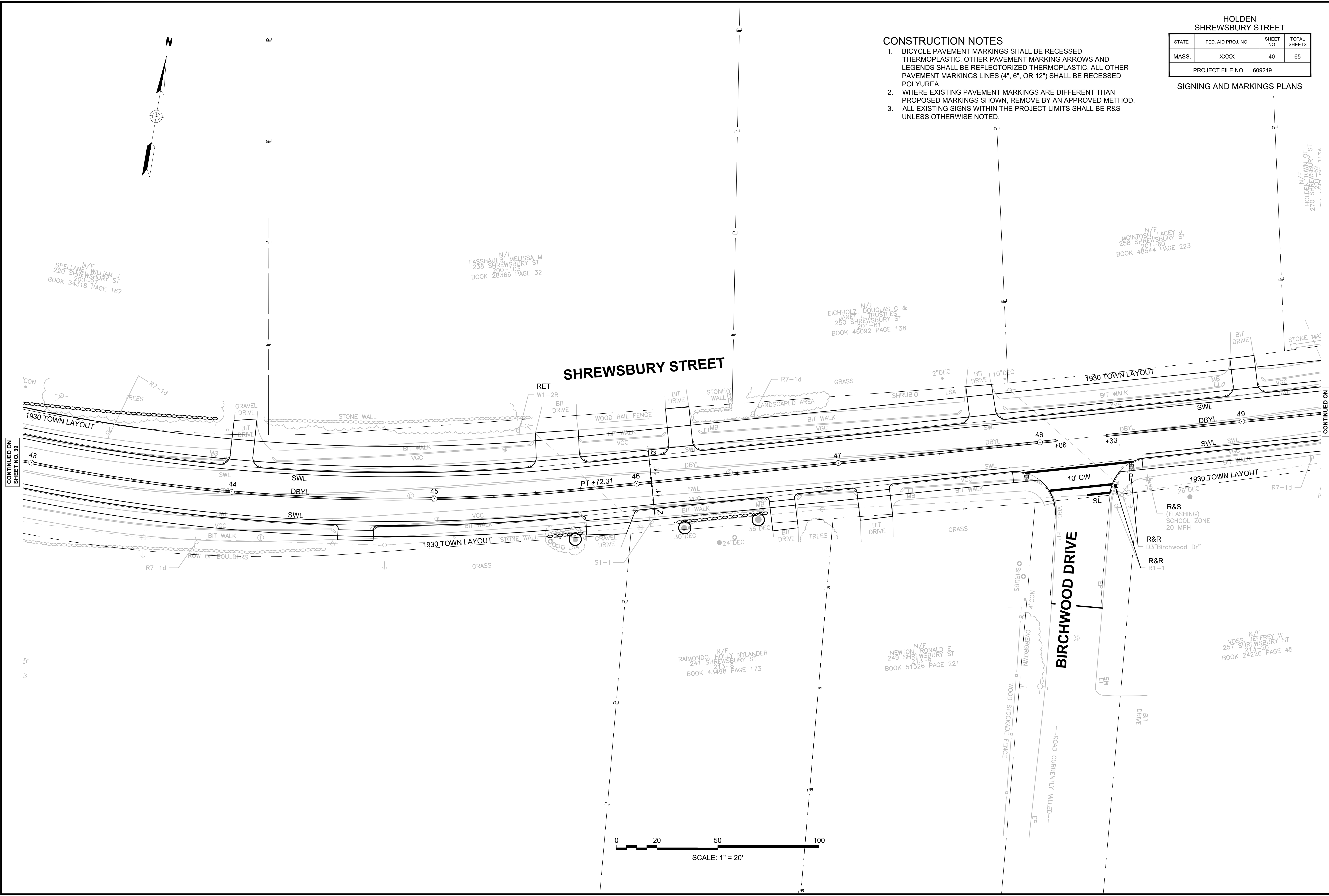




CONSTRUCTION NOTES

- 1. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
- 2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
- 3. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	40	65
PROJECT FILE NO. 609219			
SIGNING AND MARKINGS PLANS			



CONTINUED ON
SHEET NO. 39

CONTINUED ON
SHEET NO. 41

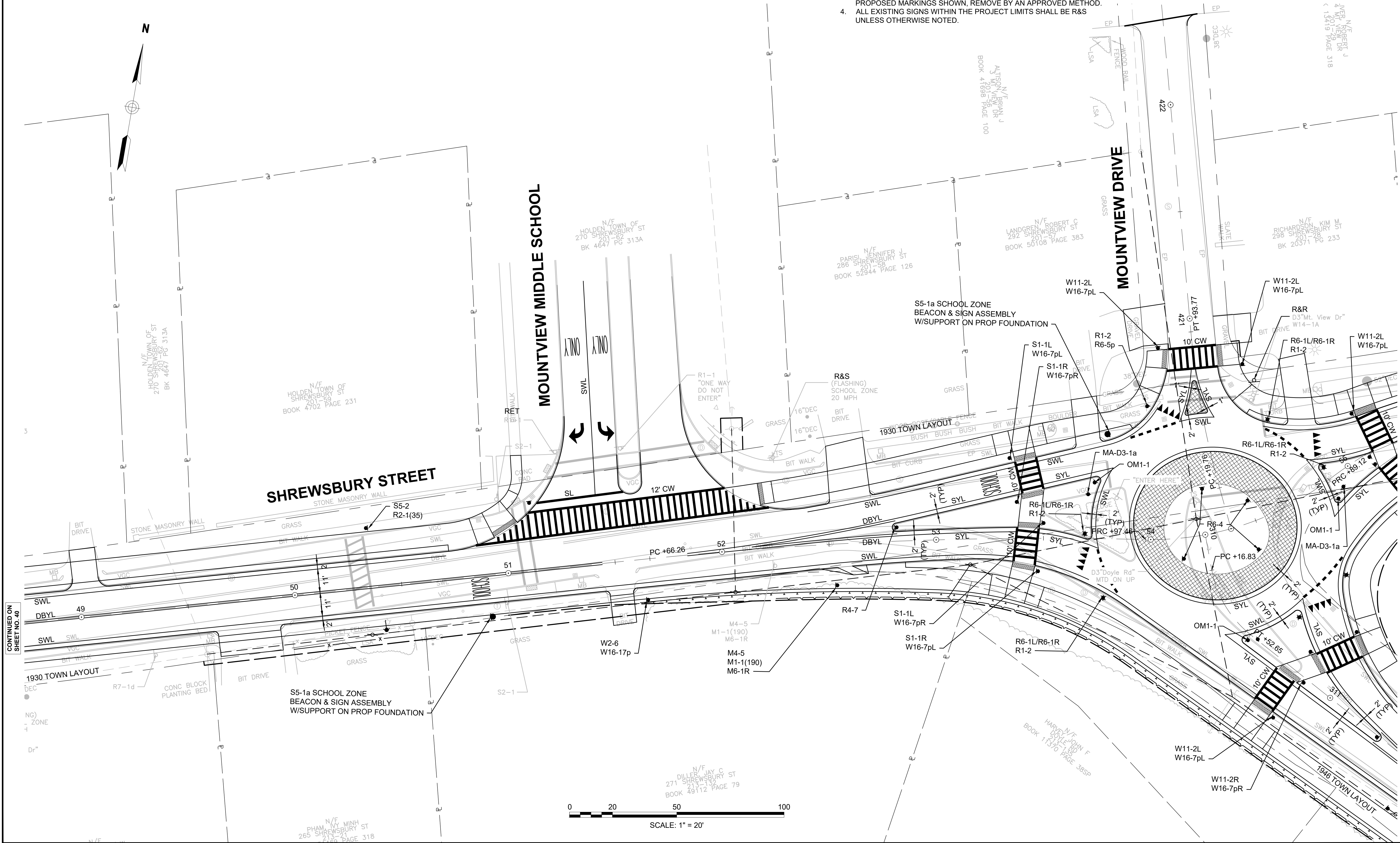
CONSTRUCTION NOTES

1. REMOVE AND STACK ALL EXIST TS EQUIPMENT AND ABANDON EXIST CONDUIT.
2. ALL PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA. PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	41	65
PROJECT FILE NO. 609219			

SIGNING AND MARKINGS PLANS



CONSTRUCTION NOTES

1. REMOVE AND STACK ALL EXIST TS EQUIPMENT AND ABANDON EXIST CONDUIT.
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4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

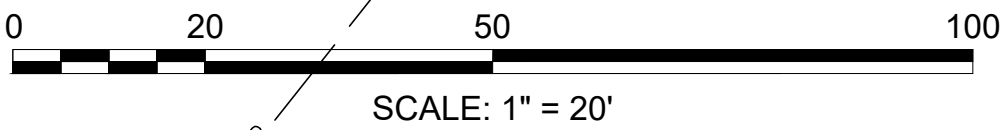
HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	42	65
PROJECT FILE NO. 609219			

SIGNING AND MARKINGS PLANS

CONTINUED ON
SHEET NO. 41

CONTINUED ON
SHEET NO. 43



CONSTRUCTION NOTES

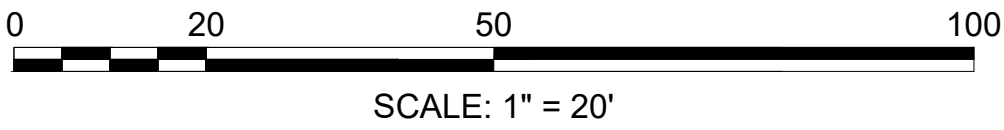
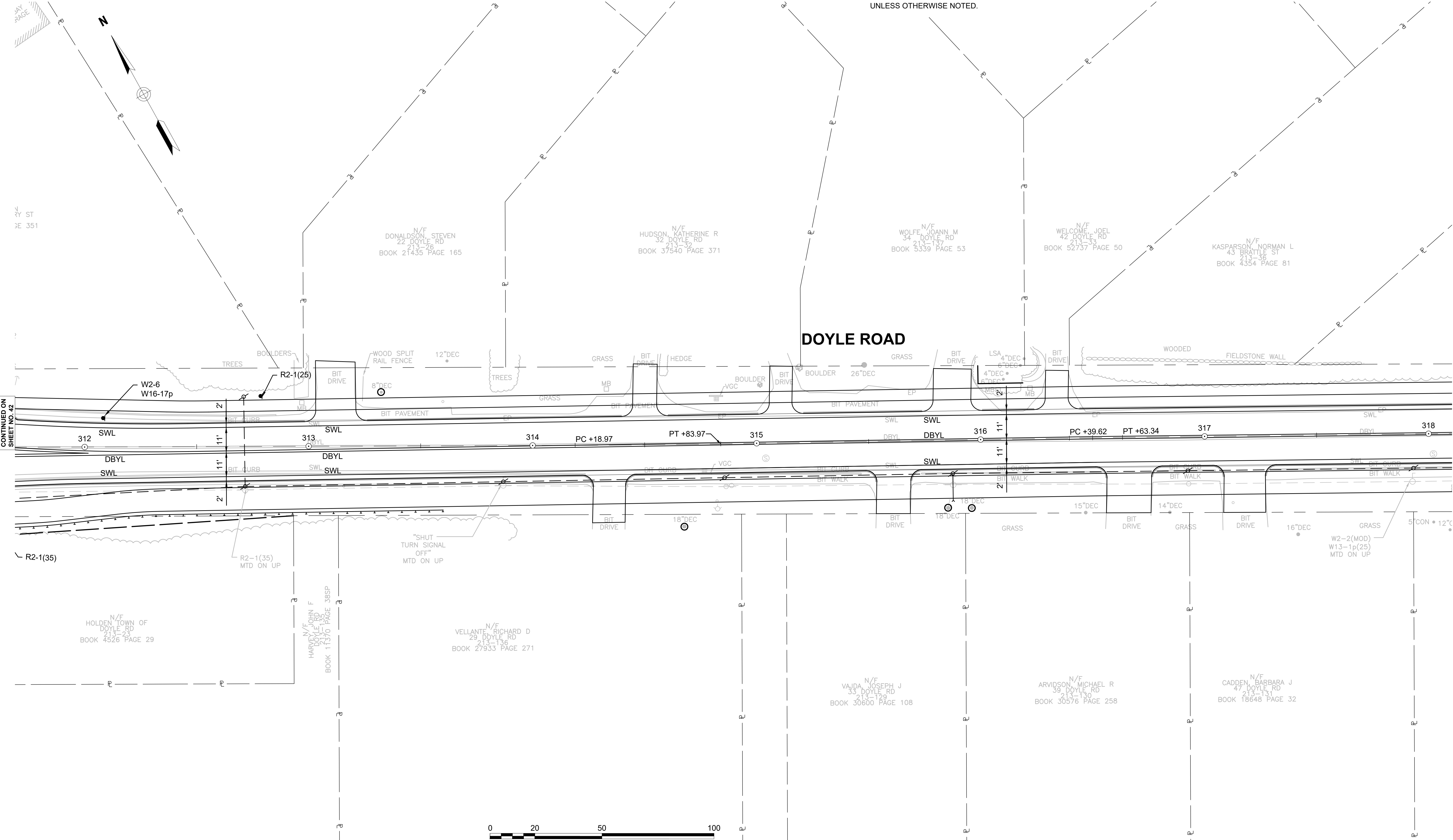
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2. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
3. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	43	65
PROJECT FILE NO. 609219			

SIGNING AND MARKINGS PLANS

DOYLE ROAD



CONTINUED ON
SHEET NO. 42

CONTINUED ON
SHEET NO. 44

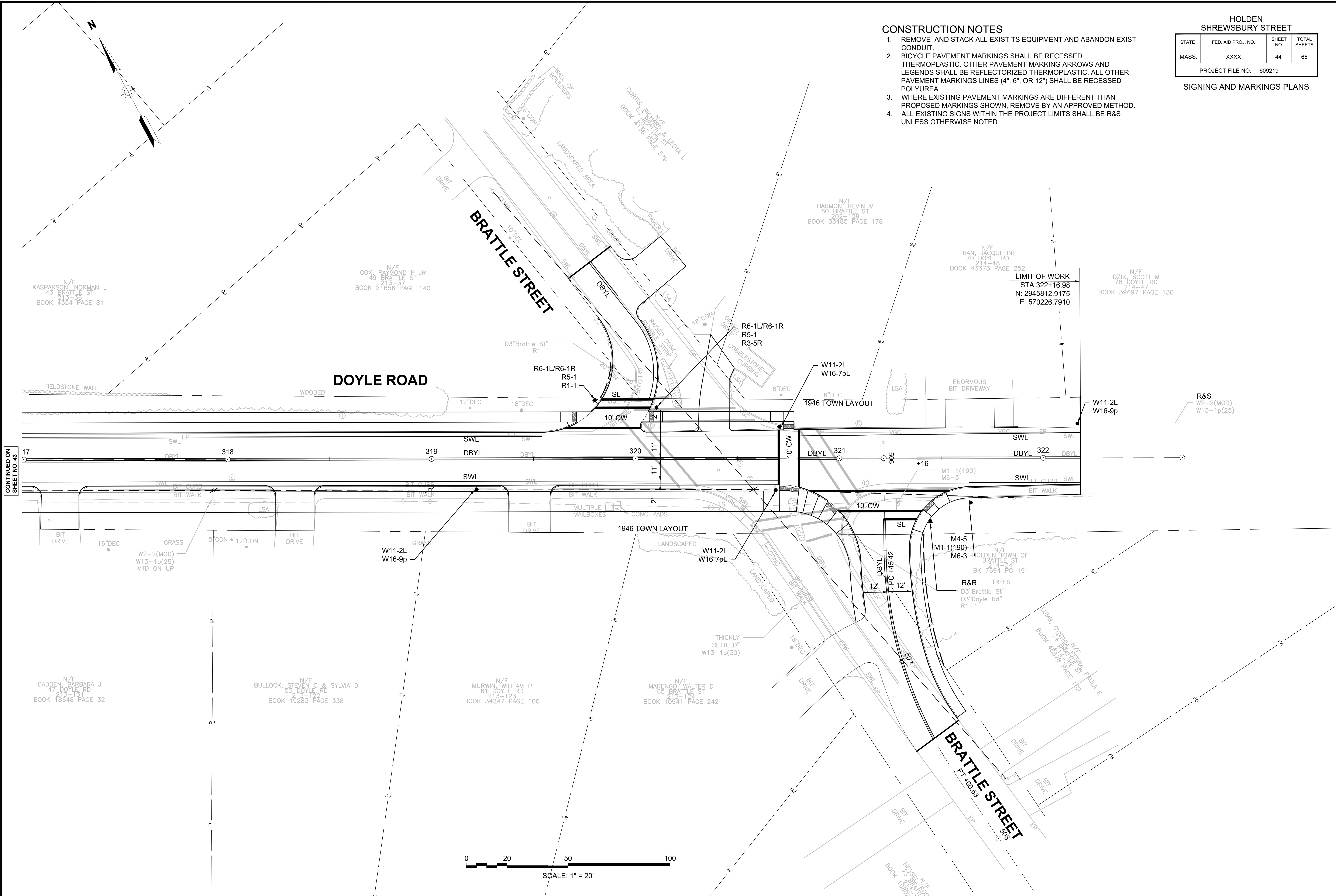
HOLDEN
SHREWSBURY STREET

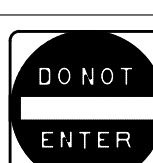
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	44	65
PROJECT FILE NO. 609219			

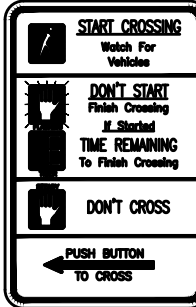
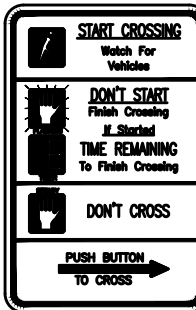
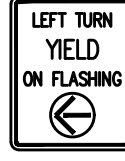
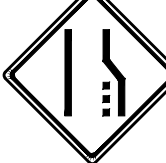
SIGNING AND MARKINGS PLANS

CONSTRUCTION NOTES

1. REMOVE AND STACK ALL EXIST TS EQUIPMENT AND ABANDON EXIST CONDUIT.
2. BICYCLE PAVEMENT MARKINGS SHALL BE RECESSED THERMOPLASTIC. OTHER PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL OTHER PAVEMENT MARKINGS LINES (4", 6", OR 12") SHALL BE RECESSED POLYUREA.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
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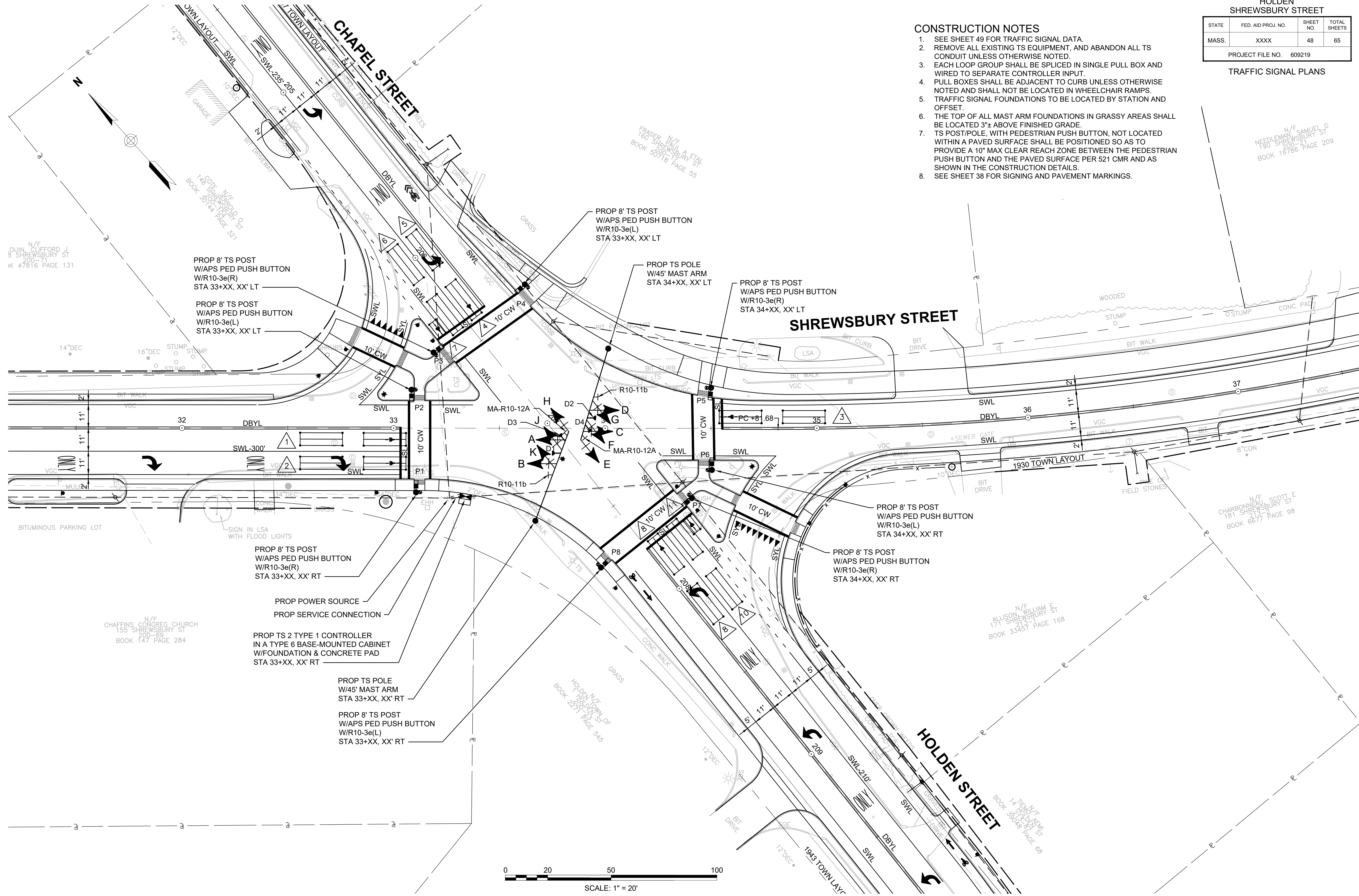


TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
R1-1	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED				RED	WHITE	WHITE		5.18	
R1-2	36"X36"X36"							WHITE	RED	WHITE		4.50	
R2-1(25)	24"	30"						WHITE	BLACK	BLACK		5.00	
R2-1(35)	24"	30"						WHITE	BLACK	BLACK		5.00	
R3-2	24"	24"						WHITE	RED/ BLACK	BLACK		4.00	
R3-5R	30"	36"						WHITE	BLACK	BLACK		7.50	
R3-7L	30"	30"						WHITE	BLACK	BLACK		6.25	
R3-7R	30"	30"						WHITE	BLACK	BLACK		6.25	
R3-17	30"	24"						BLACK WHITE	WHITE BLACK	WHITE BLACK		5.00	
R3-17bp	30"	12"						WHITE	BLACK	BLACK		2.50	
R4-7	24"	30"						WHITE	BLACK	BLACK		5.00	
R5-1	30"	30"						WHITE	RED/ WHITE	-		6.25	
R6-1L	36"	12"	 PAINTED ONE SIDE					BLACK	WHITE	WHITE		3.00	
R6-1R	36"	12"	 PAINTED ONE SIDE					BLACK	WHITE	WHITE		3.00	
R6-4	30"	24"						WHITE	BLACK	BLACK		5.00	
R6-5p	30"	30"						BLACK	WHITE	WHITE		6.25	

TRAFFIC SIGN SUMMARY (CONTINUED)													
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			
R10-3e(L)	9"	15"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED				WHITE	WHITE/ BLACK/ ORANGE	BLACK		PAID FOR UNDER ITEM 816.01	
R10-3e(R)	9"	15"						WHITE	WHITE/ BLACK/ ORANGE	BLACK		PAID FOR UNDER ITEM 816.01	
R10-11b	36"	36"						WHITE	BLACK	BLACK		9.00	
MA-R10-12A	30"	36"		AS PER MASSDOT STANDARD				WHITE	BLACK/ YELLOW	BLACK		7.50	
W2-6	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED				YELLOW	BLACK	BLACK		6.25	
W4-2R	36"	36"						YELLOW	BLACK	BLACK		9.00	
W11-2L	30"	30"						FLUOR- ESCENT YELLOW GREEN	BLACK	BLACK		6.25	
W11-2R	30"	30"						FLUOR- ESCENT YELLOW GREEN	BLACK	BLACK		6.25	
W16-7pL	24"	12"						FLUOR- ESCENT YELLOW GREEN	BLACK	BLACK		2.00	
W16-7pR	24"	12"						FLUOR- ESCENT YELLOW GREEN	BLACK	BLACK		2.00	
W16-9p	24"	12"						FLUOR- ESCENT YELLOW GREEN	BLACK	BLACK		2.00	
W16-17p	24"	12"						YELLOW	BLACK	BLACK		2.00	

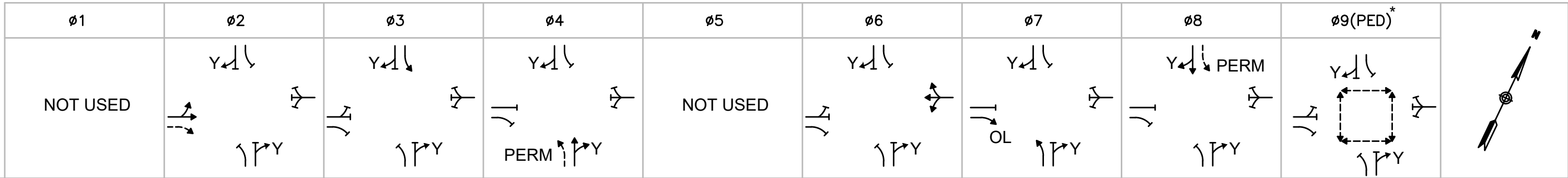
NOTES:
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; AND THE MASSHIGHWAY DEPARTMENT SIGN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

[illegible]



- CONSTRUCTION NOTES**
1. SEE SHEET 49 FOR TRAFFIC SIGNAL DATA.
 2. REMOVE ALL EXISTING TS EQUIPMENT, AND ABANDON ALL TS CONDUIT UNLESS OTHERWISE NOTED.
 3. EACH LOOP GROUP SHALL BE SPICED IN SINGLE PULL BOX AND WIRED TO SEPARATE CONTROLLER INPUT.
 4. PULL BOXES SHALL BE ADJACENT TO CURB UNLESS OTHERWISE NOTED AND SHALL NOT BE LOCATED IN WHEELCHAIR RAMPS.
 5. TRAFFIC SIGNAL FOUNDATIONS TO BE LOCATED BY STATION AND OFFSET.
 6. THE TOP OF ALL MAST ARM FOUNDATIONS IN GRASSY AREAS SHALL BE LOCATED 3"± ABOVE FINISHED GRADE.
 7. TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN IN THE CONSTRUCTION DETAILS.
 8. SEE SHEET 38 FOR SIGNING AND PAVEMENT MARKINGS.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	48	65
PROJECT FILE NO. 609219			
TRAFFIC SIGNAL PLANS			



SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL (ISOLATED)

APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH
SHREWSBURY STREET	EB	A				G	Y	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	FY
SHREWSBURY STREET	EB	B				G	Y	R	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	FY
SHREWSBURY STREET	WB	C,D				R	R	R	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R	R	R	R	FY
HOLDEN STREET	NB	E				<R	<R	<R	<R	<R	<R	<FY	<Y	<R				<R	<R	<R	<G	<Y	<R	<R	<R	<R	<R	<R	<R	<FR
HOLDEN STREET	NB	F,G				R	R	R	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R	R	R	R	FR
CHAPEL STREET	SB	H				<R	<R	<R	<G	<Y	<R	<R	<R	<R				<R	<R	<R	<R	<R	<R	<R	<R	<R	<R	<R	<R	<FR
CHAPEL STREET	SB	J,K				R	R	R	R	R	R	R	R	R				R	R	R	R	R	G	Y	R	R	R	R	R	FR
PEDESTRIAN X-ING	ALL	P1-P8				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	W/FDW	DW	DW	OUT

		TIMING IN SECONDS																				CONFLICT FLASH OPERATION ONLY
MINIMUM GREEN (INITIAL)		10		6		8				10		6		8		—						
PASSAGE TIME (VEHICLE)		3		2.5		3				3		2.5		3		—						
MAXIMUM 1		X		X		X				X		X		X		—						
MAXIMUM 2		X		X		X				X		X		X		—						
YELLOW CLEARANCE			4.5		3		4.5				4.5		3.5		4.5			3				
RED CLEARANCE				1.5		3		1.5				1.5		2.5		1.5		0				
PEDESTRIAN WALK																7						
PEDESTRIAN CLEARANCE																10						
DETECTOR MEMORY		NON-LOCK		NON-LOCK		NON-LOCK				NON-LOCK		NON-LOCK		NON-LOCK		LOCK						
RECALL		SOFT		OFF		OFF				SOFT		OFF		OFF		OFF						

- NOTES:
- AUTOMATIC FLASHING OPERATION PER 2009 M.U.T.C.D., AS AMENDED.
 - * UPON PEDESTRIAN PUSH BUTTON ACTUATION
 - OL = OVERLAP
 - PERM = PERMISSIVE
 - Y = YIELD CONTROL
 - Ø4 & Ø8 DUAL ENTRY
 - SIMULTANEOUS GAP-OUT FOR Ø2 & Ø6 SHALL NOT BE ENABLED
 - MAXIMUM 1 = NORMAL OPERATION
 - MAXIMUM 2 = NOT USED
 - STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.
 - DURING PEDESTRIAN INTERVAL, FDW THROUGH YELLOW OPERATION SHALL NOT BE IN EFFECT.

SEQUENCE & TIMING NOTES:

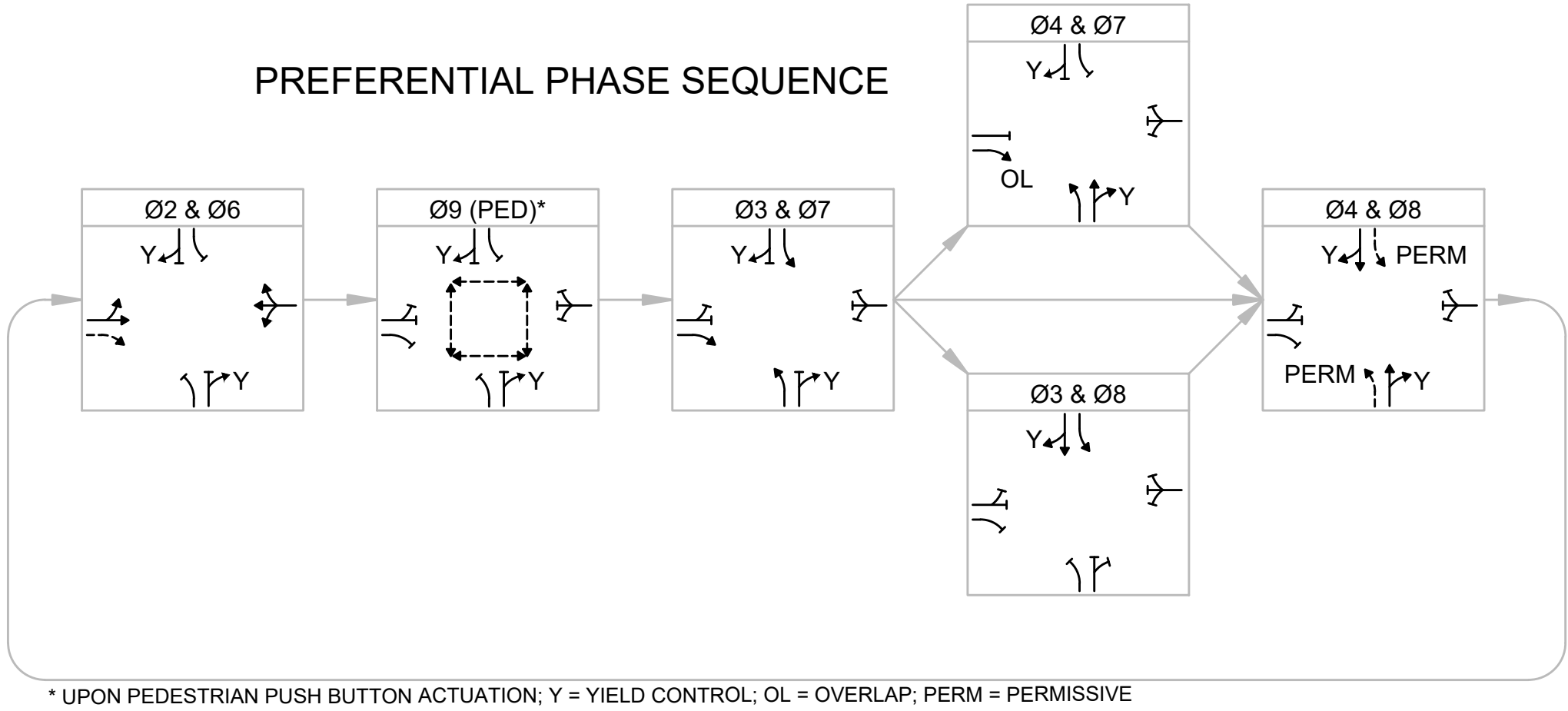
- IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
- THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
- IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
- IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	49	65

PROJECT FILE NO. 609219

TRAFFIC SIGNAL PLANS



* UPON PEDESTRIAN PUSH BUTTON ACTUATION; Y = YIELD CONTROL; OL = OVERLAP; PERM = PERMISSIVE

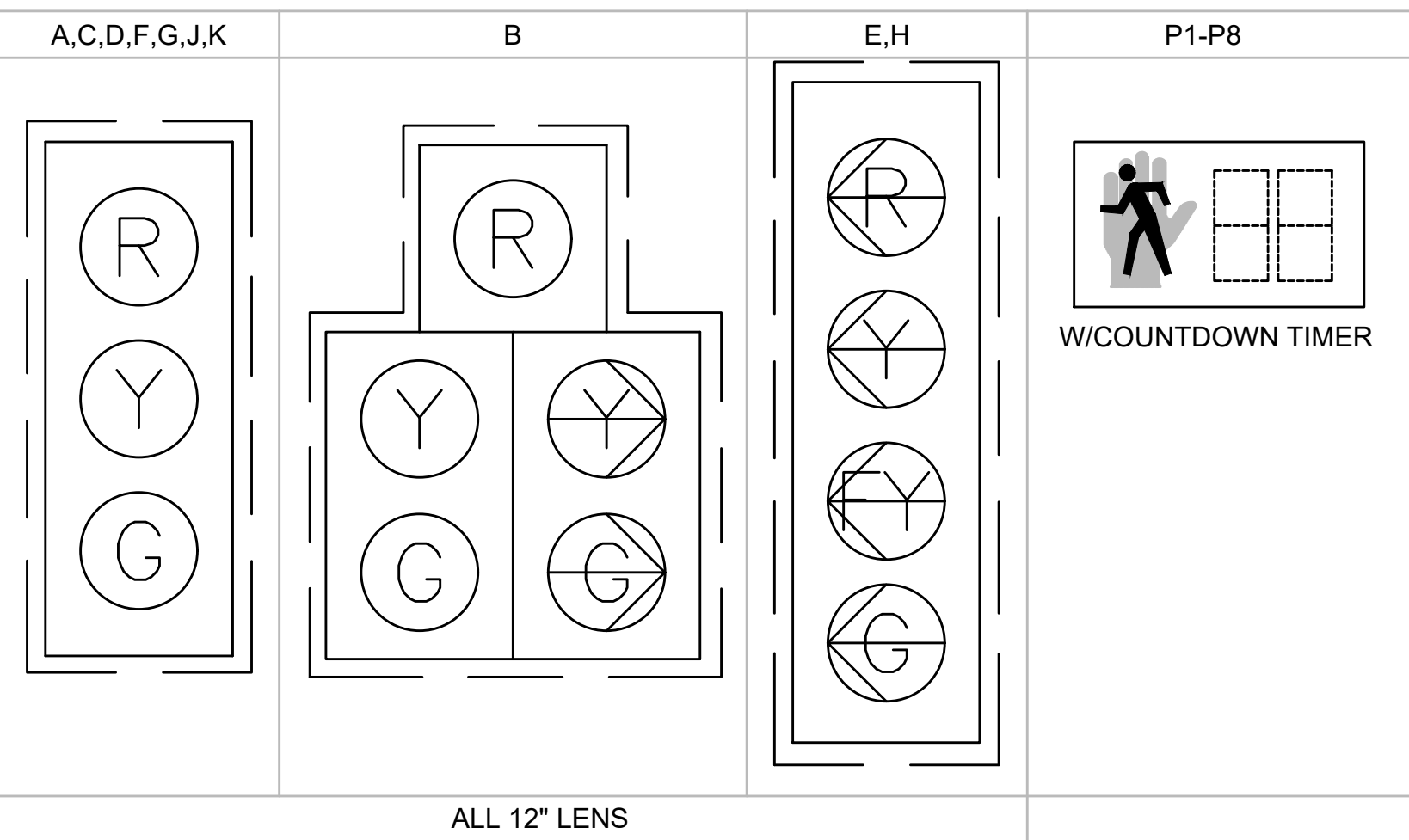
EMERGENCY VEHICLE PRE-EMPTION OPERATION

- EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
- PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH DETECTORS D1, D2, D3 OR D4 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (D1 HIGHEST AND D4 LOWEST)
- IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCES FOR THE ASSOCIATED PHASE(S) AS SHOWN IN THE SEQUENCE AND TIMING CHART AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
- MINIMUM GREEN AND NORMAL VEHICLE & PEDESTRIANS CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
- PRE-EMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ACTIVE.

PRE-EMPTION PHASING & PRIORITY

DETECTOR & PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø3 & Ø8
D4	4		Ø4 & Ø7

SIGNAL HEAD DATA



- NOTES:
- ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.
 - ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± NON- LOUVERED BACKPLATES. ALL BACKPLATES SHALL CONTAIN A 3" WIDE YELLOW REFLECTIVE BORDER.
 - ALL SIGNAL HEADS SHALL BE EQUIPPED WITH TUNNEL VISORS.
 - ALL SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.

LOOP DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY /EXT	CALL PHASE	LOOP CONNECTION
1	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
2	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
3	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SERIES
4	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø3	SINGLE
5	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø8	SINGLE
6	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø8	SERIES
7	1-4'X8' QUADRUPOLE	2-4-2	PRESENCE	0	Ø8	SINGLE
8	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø7	SINGLE
9	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SINGLE
10	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SERIES
11	1-4'X8' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SINGLE

NOTE: DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY

LIST OF MAJOR ITEMS REQUIRED

SHREWSBURY STREET AT HOLDEN STREET & CHAPEL STREET

PAY ITEM	QUANTITY	DESCRIPTION
	1	80 TS 2 TYPE 1 CONTROLLER IN A TYPE 6 BASE MOUNTED CABINET
	2	TS 45' MAST ARM TYPE 2, STEEL, (PAINTED) INCL. FOUNDATION
	8	TS POST 8" STANDARD (PAINTED) INCL. FOUNDATION
	7	SIGNAL HEAD, 3-SECTION, 12" LENSES
	2	SIGNAL HEAD, 4-SECTION, 12" LENSES, FLASHING YELLOW ARROW
	1	SIGNAL HEAD, 5-SECTION, 12" LENSES
	8	PEDESTRIAN SIGNAL HEAD W/COUNTDOWN TIMER
	4	PEDESTRIAN PUSH BUTTON W/R10-3e(L) AND SIGN SADDLE
	4	PEDESTRIAN PUSH BUTTON W/R10-3e(R) AND SIGN SADDLE
	6	TYPE C, 2-CHANNEL CARD RACK LOOP DETECTOR AMPLIFIER
	16	WIRE LOOP DETECTOR
	4	EMERGENCY PRE-EMPTION OPTICAL DETECTORS & DETECTOR CABLE
	1	EMERGENCY PRE-EMPTION 4 CHANNEL PHASE SELECTOR
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
	1	SERVICE CONNECTION (OVERHEAD)
804.3	X±	3" CONDUIT, SCHEDULE 80, TYPE NM
811.22	X	13"x24" ELECTRIC HANDHOLE-SD2.022
811.31	X	PULL BOX-12"x12"

PPLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES

1.

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).
2.

ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) AND AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) REQUIREMENTS.
3.

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.
4.

ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
5.

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.
6.

THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
7.

ON LOCAL ROADWAYS A MINIMUM OF ONE LANE OF TRAVEL SHALL BE MAINTAINED AT ALL TIMES, AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8.

GRADE SEPARATIONS IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
9.

FOR DROP-OFFS 4" OR LESS, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 4" BUT LESS THAN 12" DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH TEMPORARY CHANNELIZATION DEVICES AND A 1V:4H (MIN) TO 1V:6H (DESIRED) WEDGE OR TO SHIELD IT. FOR DROP-OFFS GREATER THAN 12" BUT NOT MORE THAN 24" DETERMINE WHETHER IT I IS MORE COST EFFECTIVE TO MAINTAIN AN ADDITIONAL 5' OF SHOULDER WIDTH AND INSTALL BOTH TEMPORARY CHANNELIZATION DEVICES AND 1V:6H (DESIRED) WEDGE OR TO SHIELD IT. FOR DROP-OFFS 24" OR GREATER USE BARRIER IN ACCORDANCE WITH MASSDOT WORK ZONE POSITIVE PROTECTION GUIDELINES.
10.

CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NOT MORE THAN 12" EXISTS WITHIN THE CLEAR ZONE AT ANY TIME.
11.

11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED.
12.

NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
13.

ADVISORY SPEED PLATES (W13-1p) SHALL BE USED IF APPROPRIATE AND AS REQUESTED BY THE ENGINEER. ADVISORY SPEED SHALL BE AS ESTABLISHED BY THE MASSDOT DISTRICT 3 TRAFFIC SECTION.
14.

SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
15.

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.
16.

SIGNS MOUNTED ON P5 POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.
17.

MA-W20-7b SIGNS SHALL BE REPLACED BY W20-7 SIGNS WHEN FLAGGERS ARE USED IN LIEU OF POLICE OFFICER DETAILS.
18.

TEMPORARY MARKINGS FOR ROADWAY SHALL BE WATER-BORNE PAINT. THE TEMPORARY MARKING FOR CROSSWALKS AND TRAFFIC ARROWS SHALL BE WATER-BORNE PAINT.
19.

ALL TEMPORARY CROSSWALKS AND STOP LINES SHALL BE 12 INCHES WIDE.
20.

ALL TEMPORARY DOUBLE YELLOW LINES (DBYL) SHALL BE 6 INCHES WIDE.
21.

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.
22.

REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
23.

CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
24.

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.
25.

W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
26.

THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.
27.

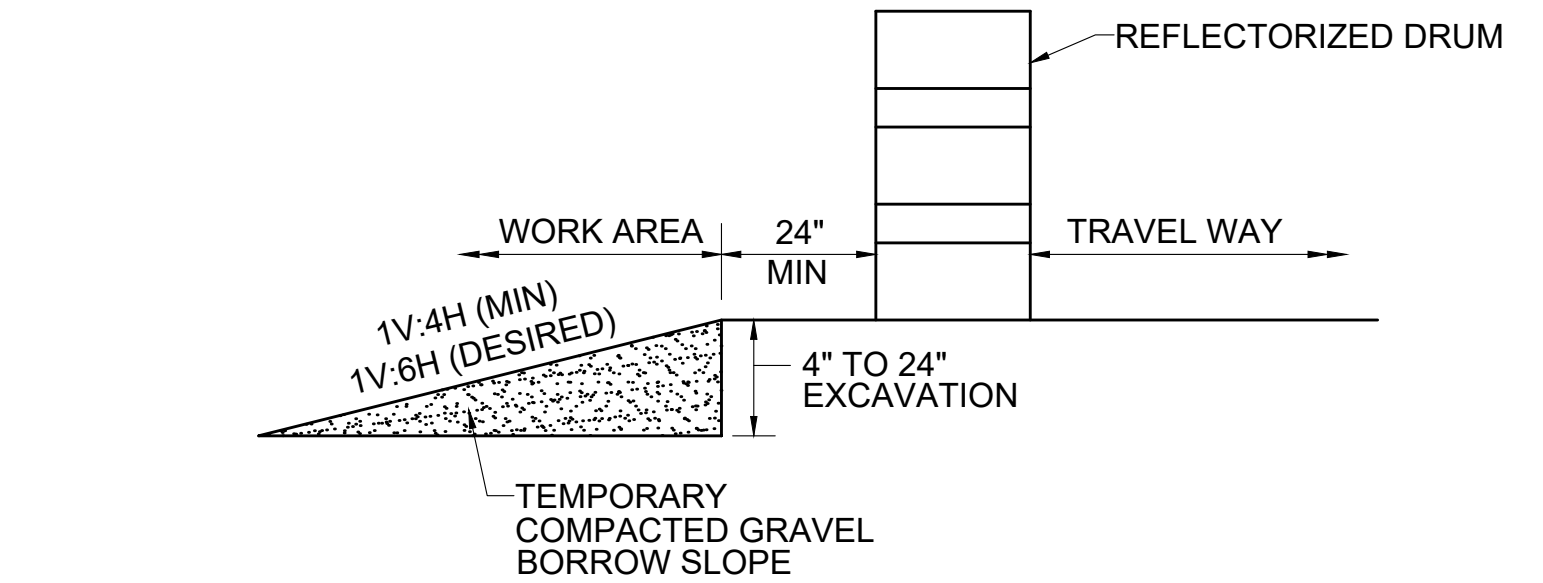
W20-1c OR MA-R2-10A SIGNS SHOWN ON THE ADVANCE SIGN SCHEMATIC MAY BE USED IN LIEU OF THOSE SIGNS SHOWN ON TYPICAL DETAILS ON THE TEMPORARY TRAFFIC CONTROL PLANS IF MINIMUM SIGN SPACING IS MET.
28.

ARROW BOARD FLASHING CAUTION SHALL FLASH IN FOUR-POINT CAUTION MODE ONLY.
29.

CONTRACTOR SHALL SECURE WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
30.

NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY ON STATE RECOGNIZED HOLIDAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
31.

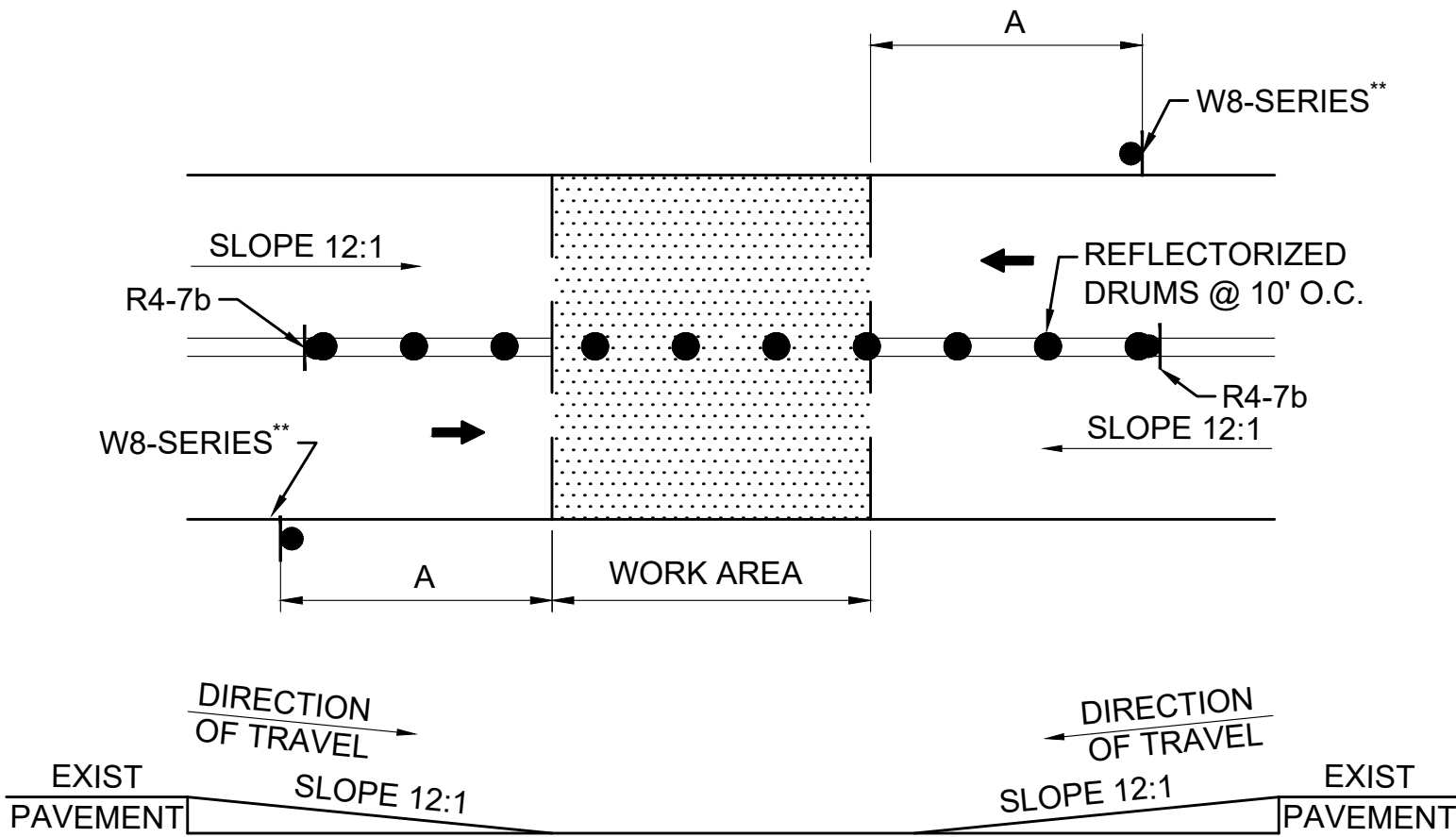
SEE SHEET 52 FOR SUGGESTED SEQUENCING OF THE PROPOSED ROUNDABOUT AT THE INTERSECTION OF SHREWSBURY STREET AND DOYLE ROAD/MOUNTVIEW DRIVE.



NOTE:
CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 100 FT IN ADVANCE OF THE START OF DROP-OFF CONDITION.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: N.T.S.



- NOTES:
1.

SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY
2.

** CONTRACTOR SHALL INSTALL W8-1, W8-3, OR W8-8 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION

SCALE: NTS

HOLDEN
SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	50	65
PROJECT FILE NO. 609219			

TEMPORARY TRAFFIC CONTROL PLANS
GENERAL NOTES & LEGEND

LEGEND

	FLAGGER
	POLICE OFFICER
	TRAFFIC SIGNAL
	REFLECTORIZED DRUM
	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS (SEE NOTE 21)
	TEMPORARY CONSTRUCTION SIGN
	TRAFFIC CONE
	TYPE III BARRICADE
	ARROW BOARD (AB) (RIGHT OR LEFT)
	ARROW BOARD (AB) (CAUTION)
	PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
	TEMPORARY IMPACT ATTENUATOR (TYPE NOTED)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	CONSTRUCTION FENCE
	PEDESTRIAN CHANNELIZATION DEVICE
NTS	NOT TO SCALE

ADVANCE SIGN SPACING

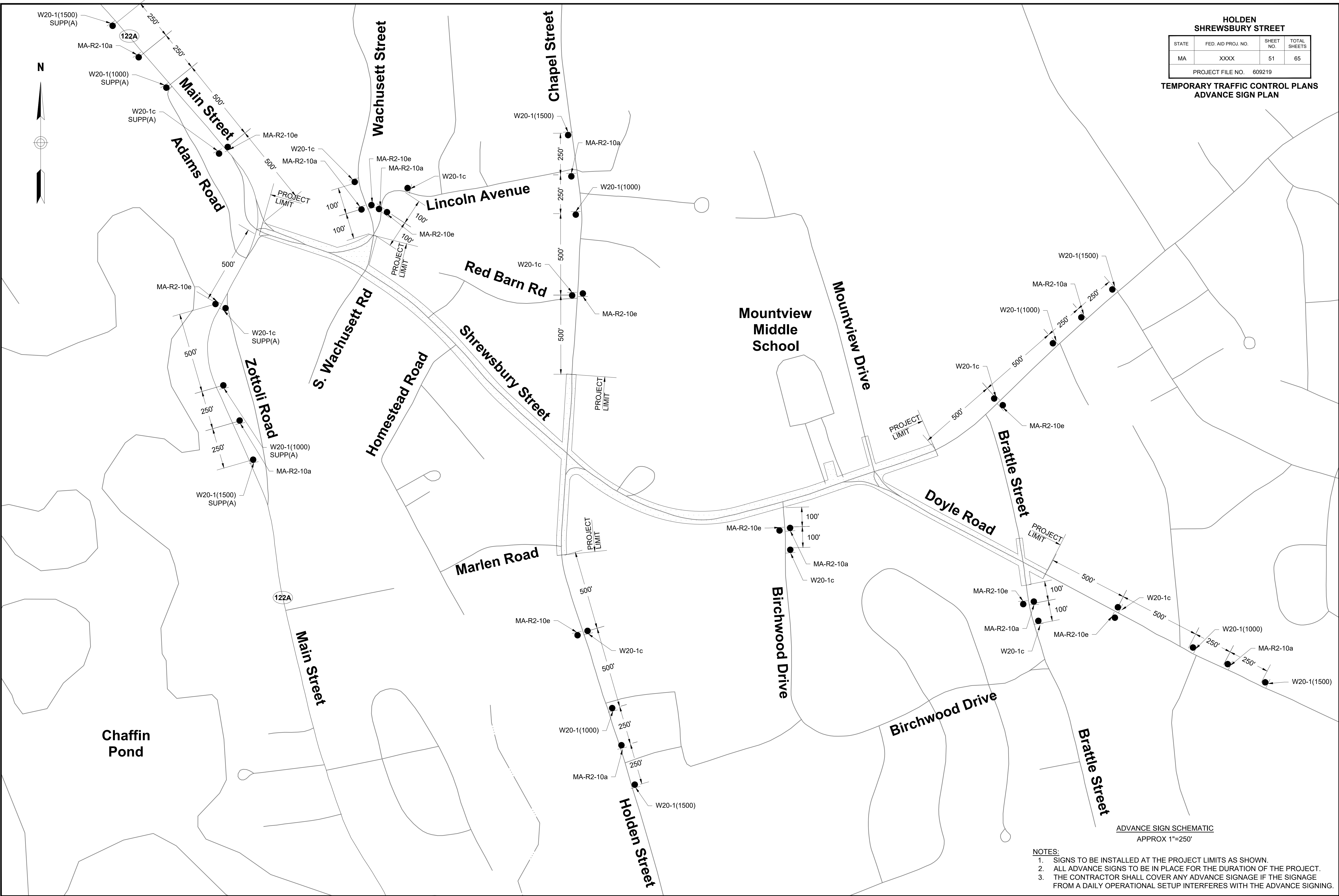
ROAD	DISTANCE BETWEEN SIGNS (FEET)			
	A	B	C	D
MAIN ST, SHREWSBURY ST, CHAPEL ST, HOLDEN ST, DOYLE ST	500	250	500	500
ALL OTHER ROADWAYS	100	50	100	100

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	GREATER THAN 40 MPH
$L= \frac{WS^2}{60}$	L= WS

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	51	65
PROJECT FILE NO. 609219			

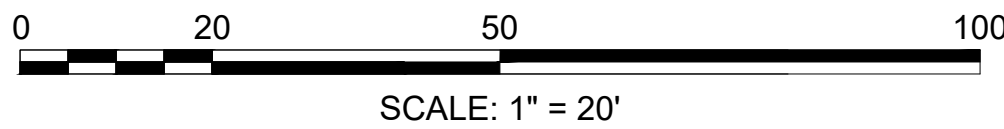
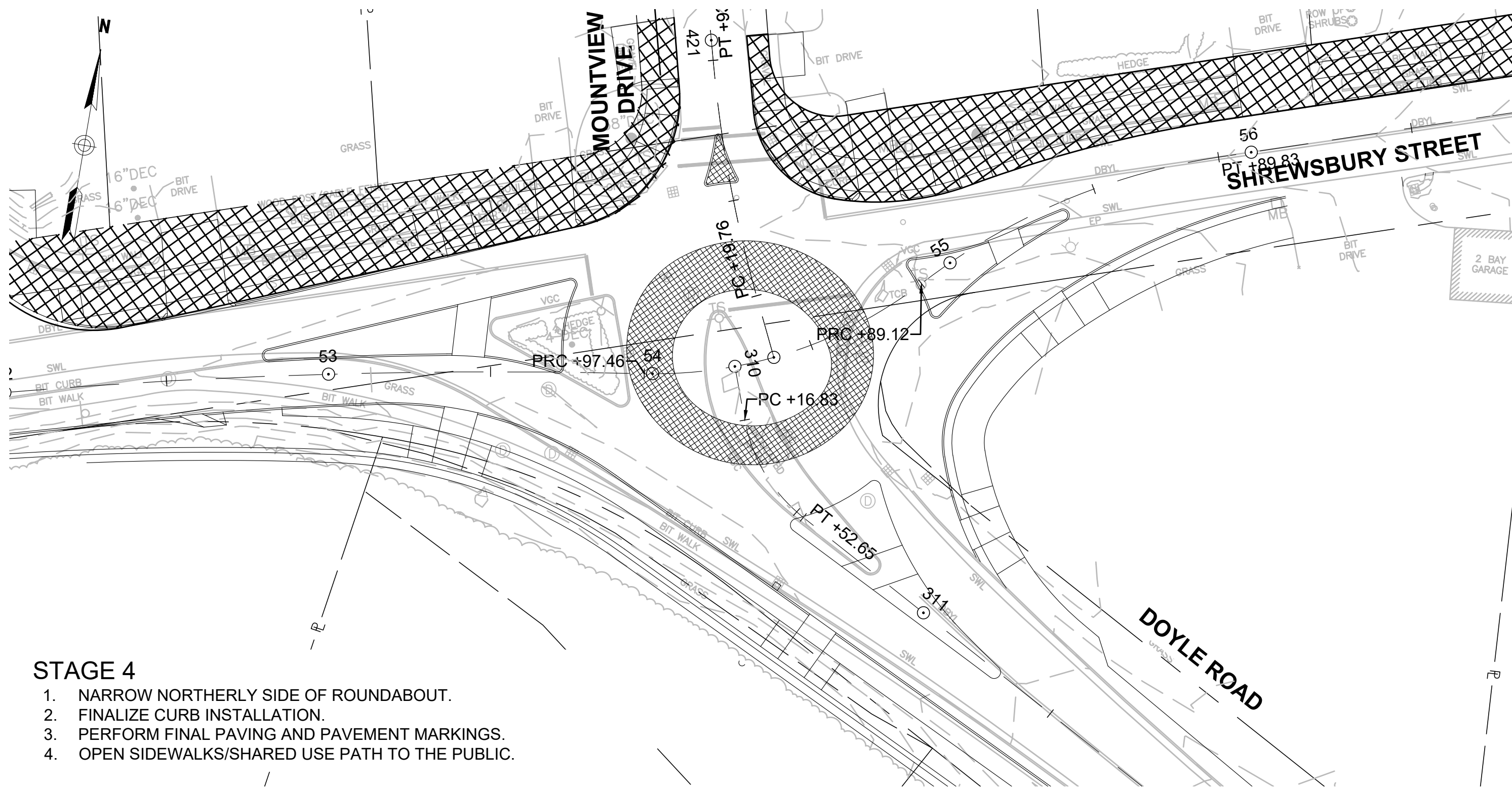
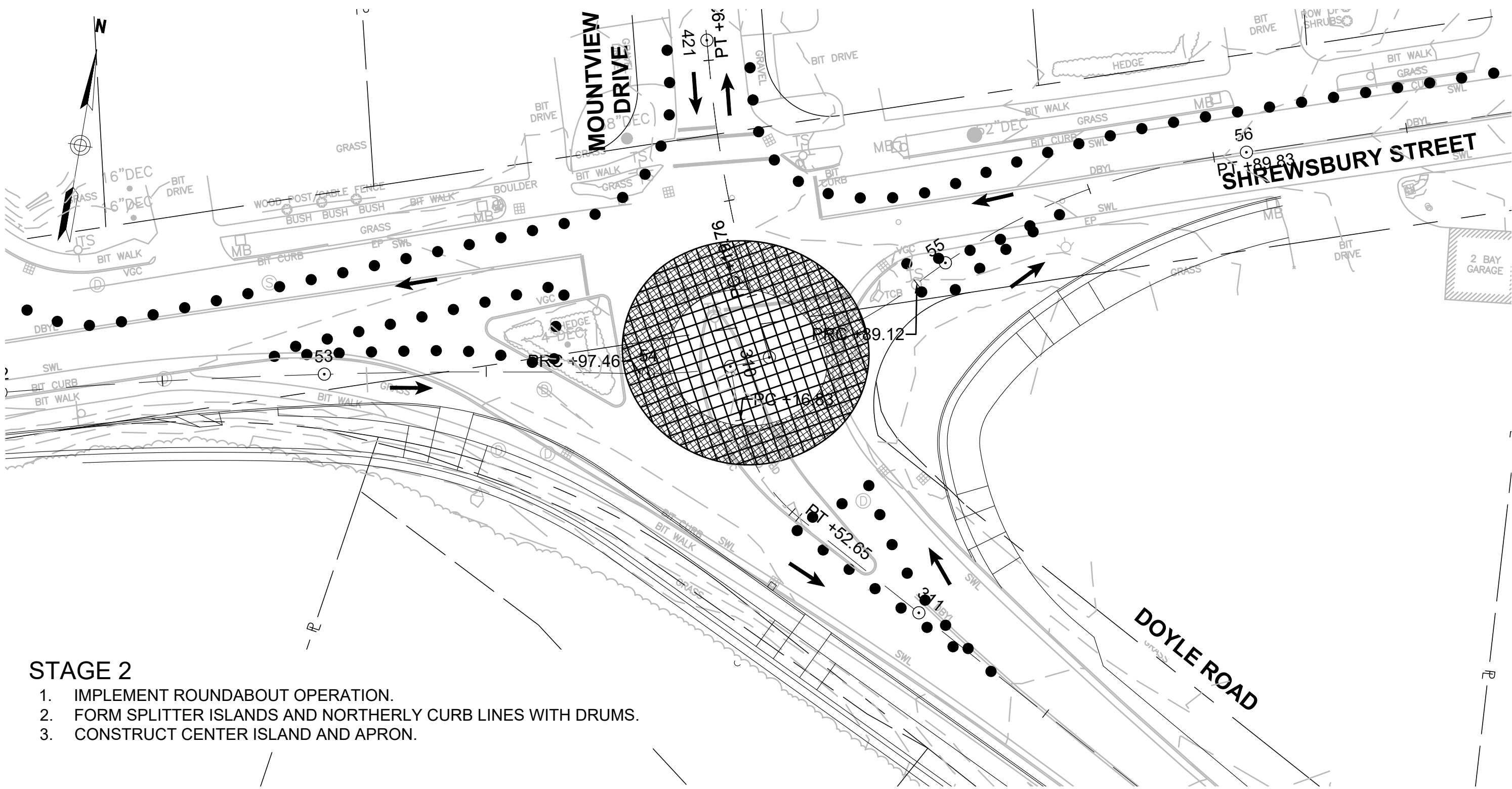
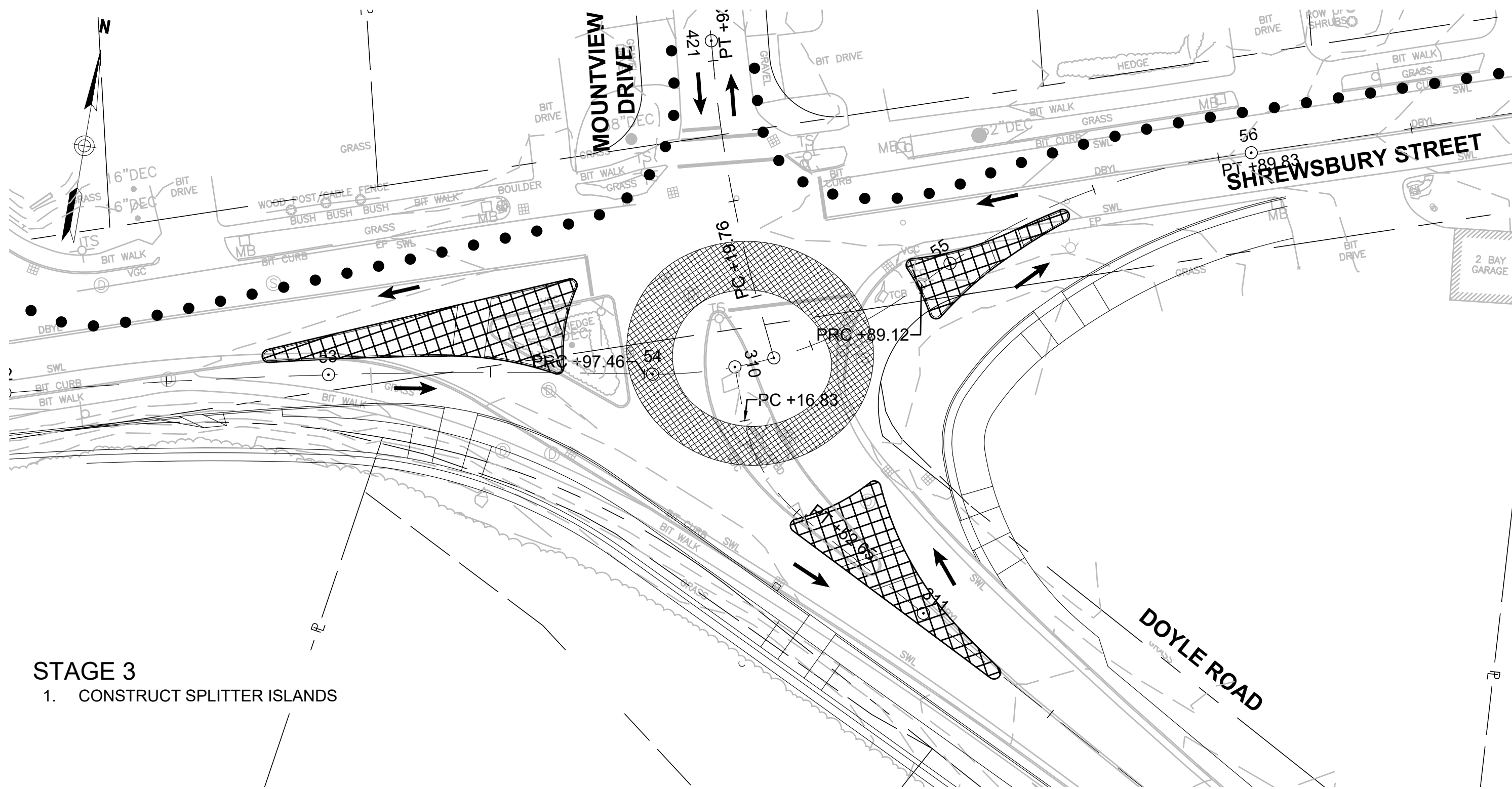
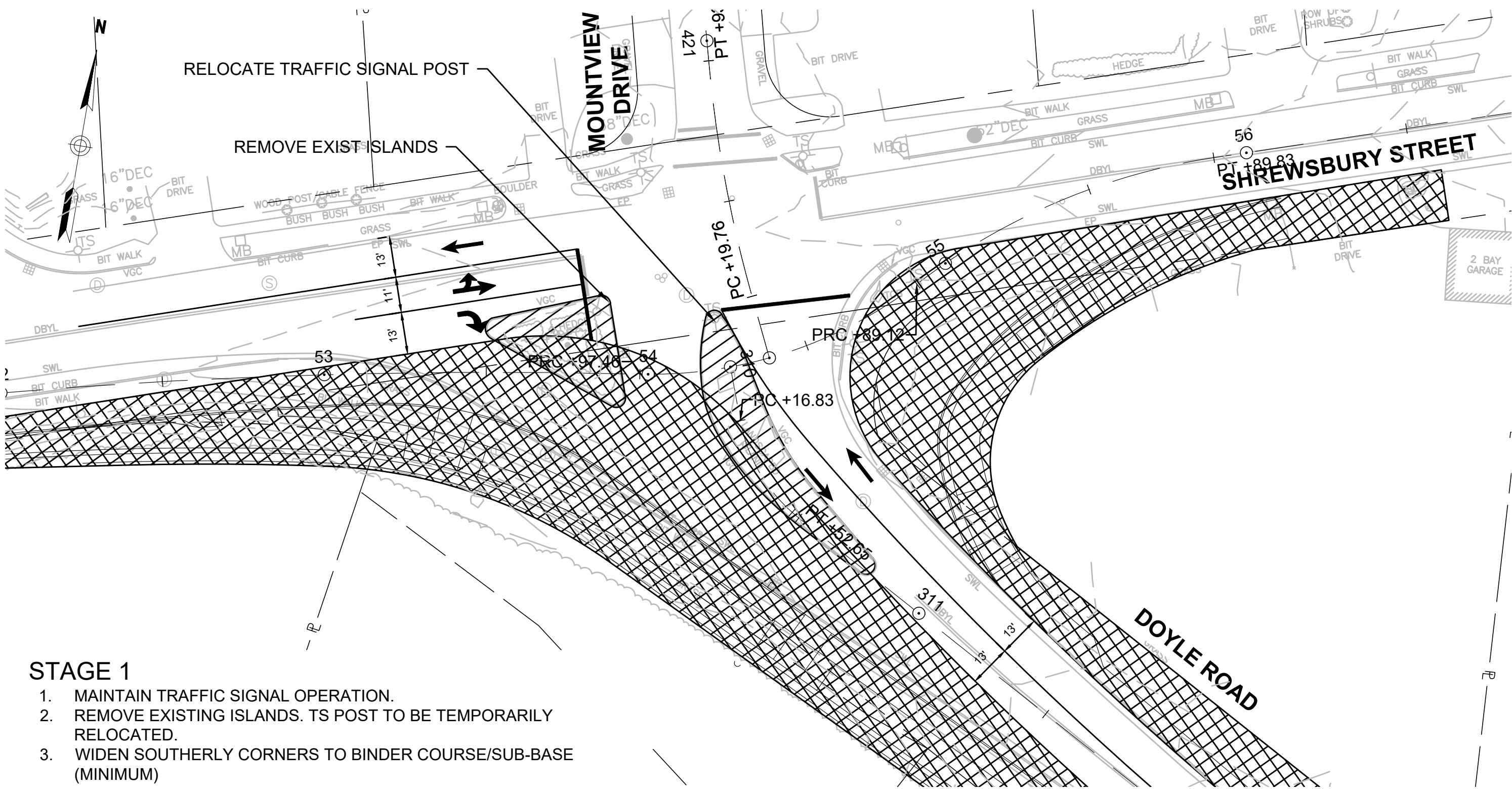
TEMPORARY TRAFFIC CONTROL PLANS
ADVANCE SIGN PLAN

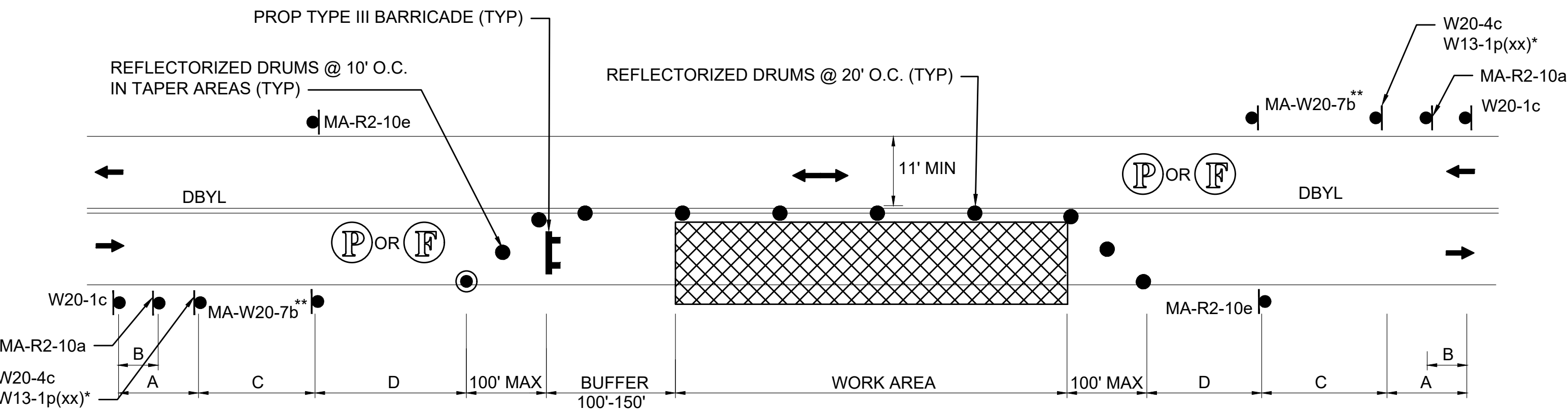


- NOTES:
1. SIGNS TO BE INSTALLED AT THE PROJECT LIMITS AS SHOWN.
 2. ALL ADVANCE SIGNS TO BE IN PLACE FOR THE DURATION OF THE PROJECT.
 3. THE CONTRACTOR SHALL COVER ANY ADVANCE SIGNAGE IF THE SIGNAGE FROM A DAILY OPERATIONAL SETUP INTERFERES WITH THE ADVANCE SIGNING.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	52	65
PROJECT FILE NO. 609219			

TEMPORARY TRAFFIC CONTROL PLANS
SUGGESTED ROUNDABOUT STAGING



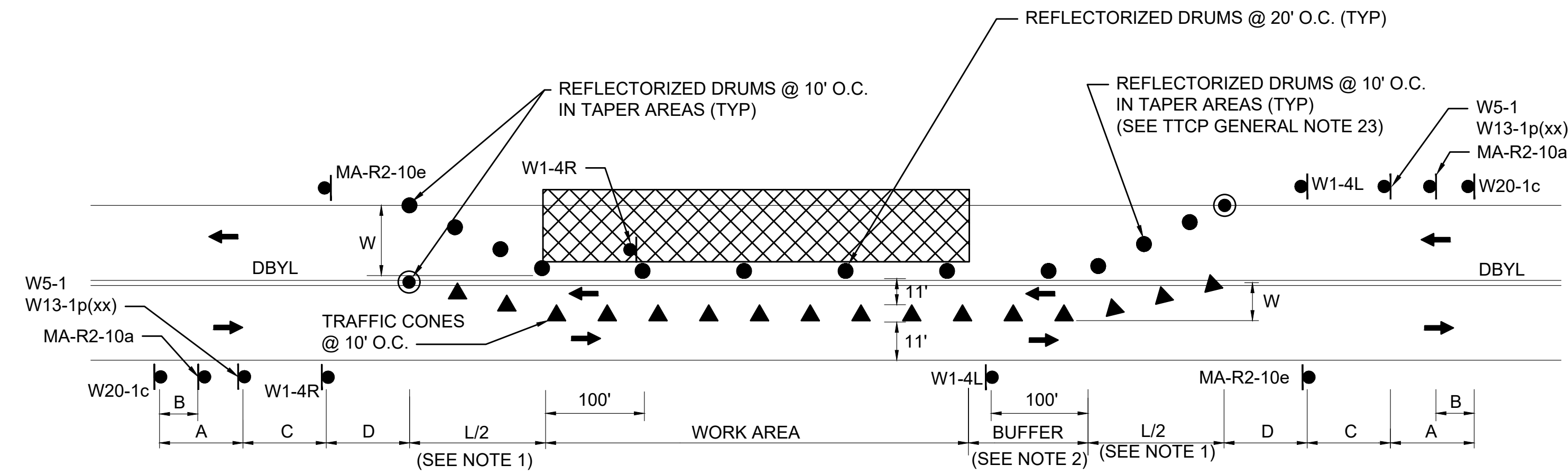


NOTES:

1. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
2. * SEE NOTE 13 ON TTCP GENERAL NOTES & LEGEND SHEET.
3. ** SEE NOTE 17 ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE CLOSURE ALTERNATING TRAFFIC

SCALE: N.T.S.

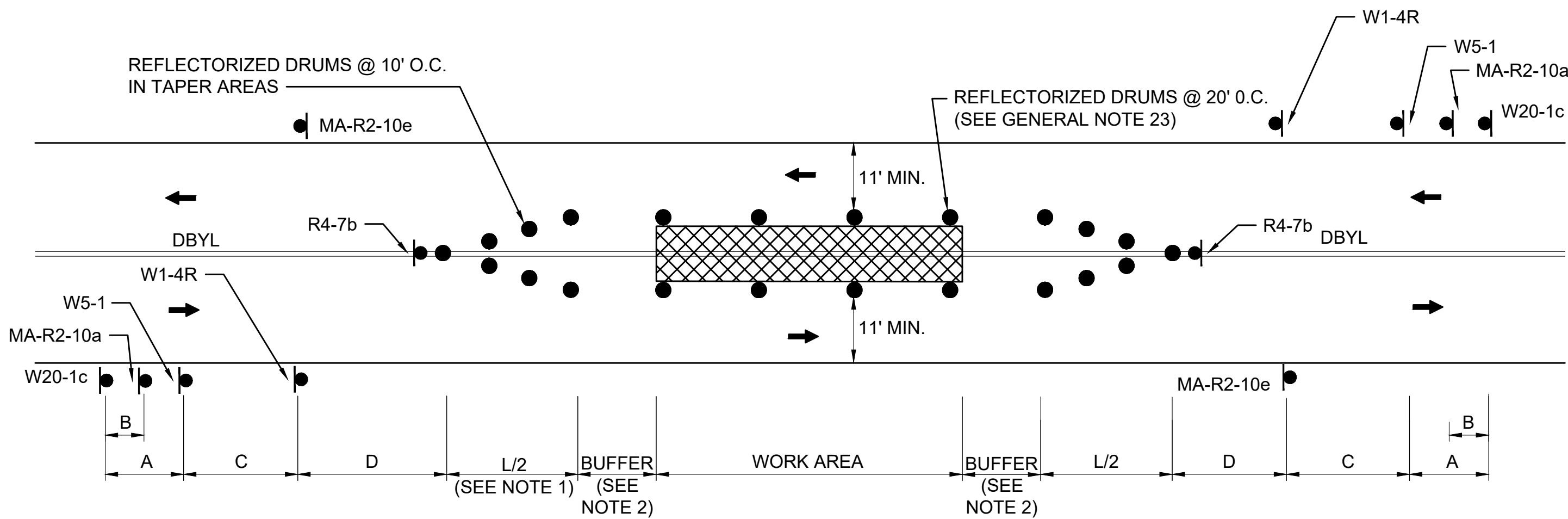


NOTES:

1. SEE TAPER LENGTH FORUMLA ON TTCP GENERAL NOTES & LEGEND SHEET.
2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
3. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE SHIFT

SCALE: N.T.S.



NOTES:

1. SEE TAPER LENGTH FORMULA ON TTCP GENERAL NOTES & LEGEND SHEET.
2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
3. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET CENTER WORK AREA

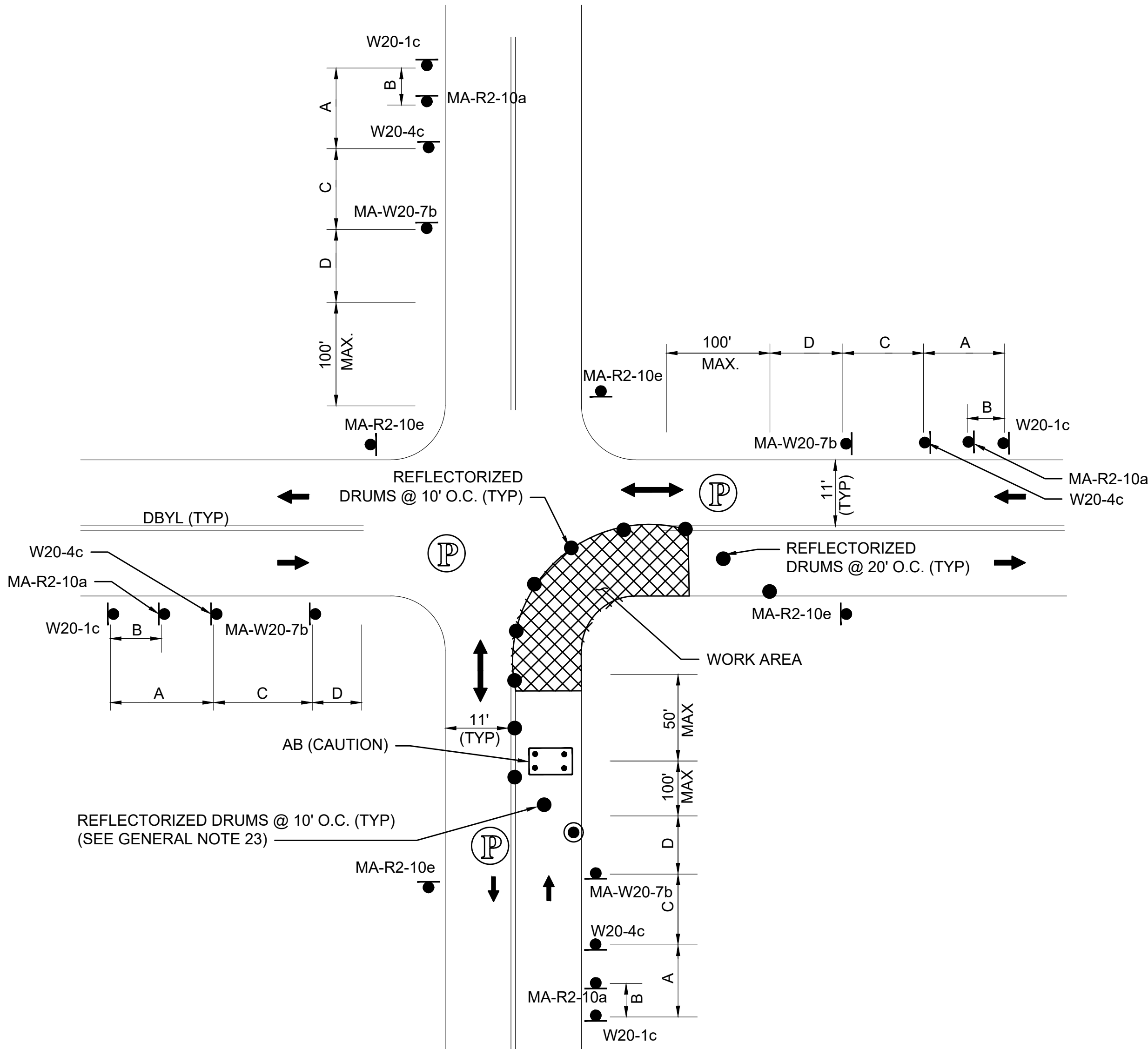
SCALE: NTS

DWG: TTCP2c

DATE: JULY 2019

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	53	65
PROJECT FILE NO. 609219			

TEMPORARY TRAFFIC CONTROL PLANS
TYPICAL DETAILS



NOTE:

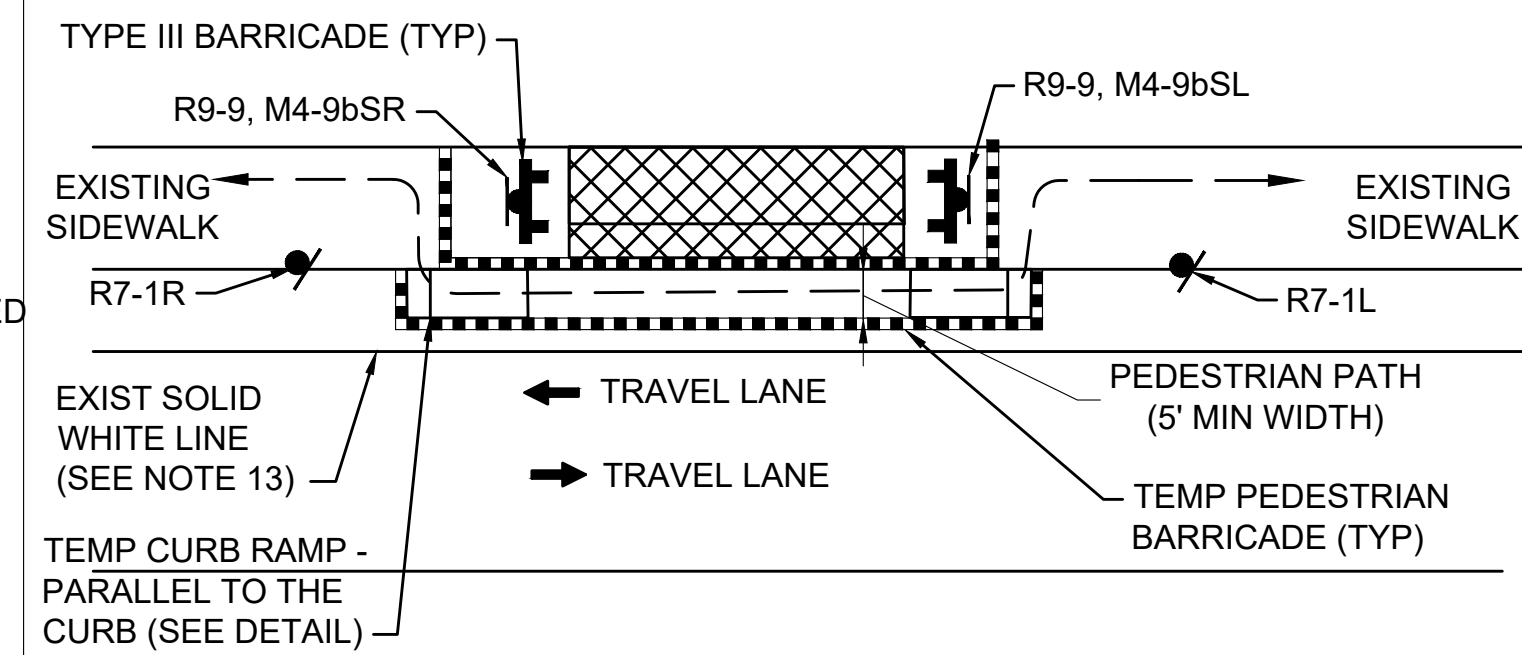
ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS

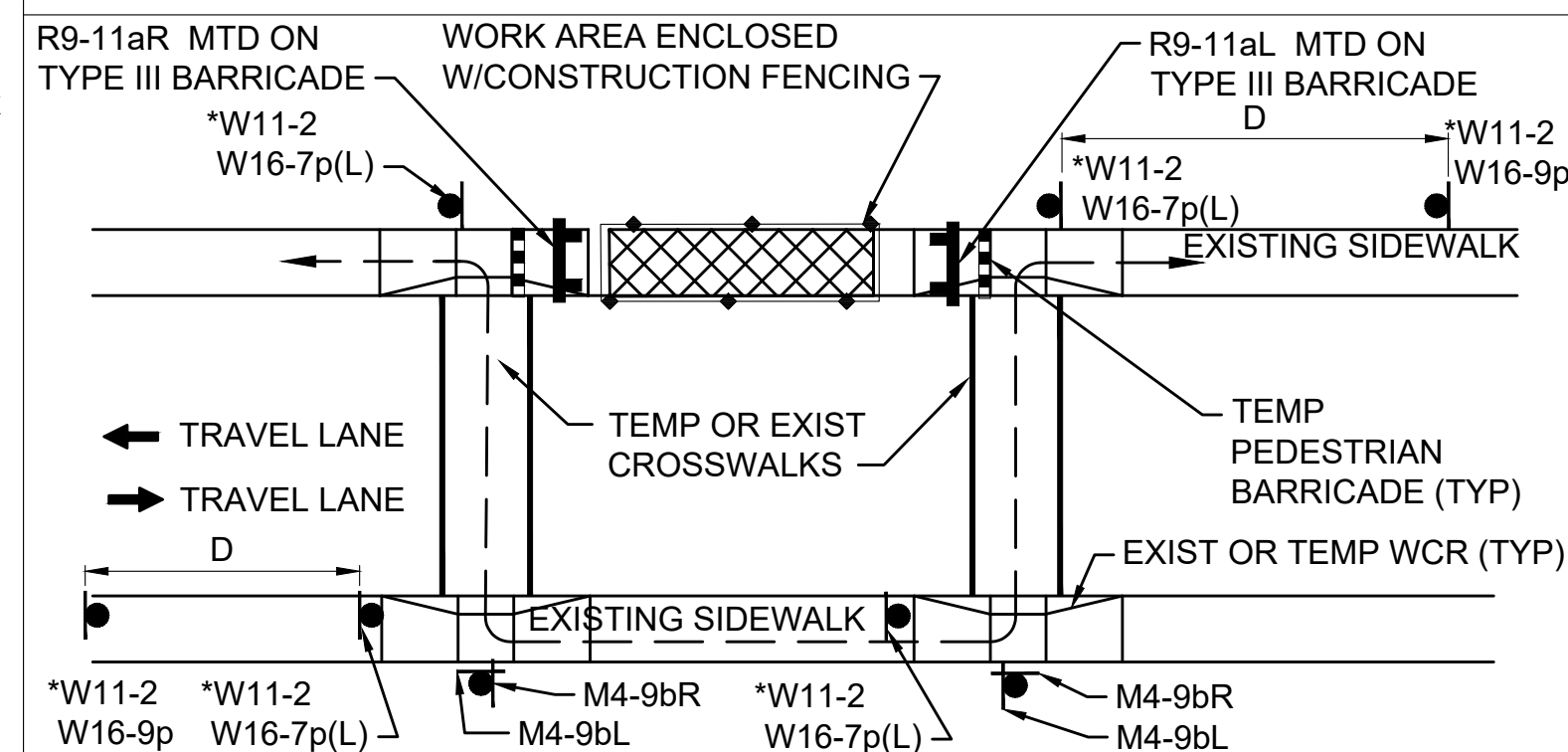
SCALE: N.T.S.

1. ADDITIONAL ADVANCE WARNING SIGNS WILL BE NECESSARY FOR DETERMINED BY THE ENGINEER.
2. CONTROLS FOR PEDESTRIAN TRAFFIC ONLY, ARE SHOWN. VEHICULAR TRAFFIC SHALL BE MAINTAINED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. ← — → INDICATES DIRECTION OF PEDESTRIAN TRAVEL.
5. IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, THE APPROPRIATE SIGNS SHALL BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AT EXISTING OR TEMPORARY CROSSWALKS AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER.
6. PROPOSED TEMPORARY CROSSWALKS SHALL BE 12" WIDE SURFACE APPLIED TAPE OR REFLECTORIZED PAINT AS DIRECTED BY THE ENGINEER.
7. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MAAB AND ADAAG REQUIREMENTS AND INCLUDE THE USE OF COMPLIANT TEMPORARY PEDESTRIAN BARRICADES AND TEMPORARY PEDESTRIAN CURB RAMPS AT ALL TIMES.
8. CONTRACTOR SHALL MAINTAIN AS WIDE OF A PEDESTRIAN ACCESS AS POSSIBLE AT ALL TIMES. EXCEPT WHERE NECESSARY, THE CONTRACTOR MAY TEMPORARILY REDUCE PEDESTRIAN PATHWAYS TO 4 FEET IN WIDTH (EXCLUDING CURB) FOR NO MORE THAN 200 LINEAR FEET AT A TIME IN ACCORDANCE WITH ALL STANDARDS. A 5' x 5' PASSING AREA SHALL BE PROVIDED IN INTERVALS NOT EXCEEDING 200 FEET.
9. TEMPORARY WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MASSDOT, MAAB, AND ADAAG REQUIREMENTS.
10. TEMPORARY PEDESTRIAN BARRICADES SHALL BE PAID FOR UNDER ITEM 852.11 TEMPORARY PEDESTRIAN BARRICADE.
11. TEMPORARY PEDESTRIAN CURB RAMPS SHALL BE PAID FOR UNDER ITEM 852.12 TEMPORARY PEDESTRIAN CURB RAMP.
12. * INDICATES SIGNS ARE NOT REQUIRED IF EXISTING CROSSWALKS ARE USED.
13. IF INSUFFICIENT SHOULDER WIDTH EXISTS THE CONTRACTOR SHALL SHIFT TRAFFIC UTILIZING THE TYPICAL TWO-WAY STREET LANE SHIFT DETAIL OR THE TYPICAL TWO-WAY STREET LANE CLOSURE ALTERNATING TRAFFIC DETAIL PROVIDED ON SHEET 53.

PEDESTRIAN BYPASS TYPE I

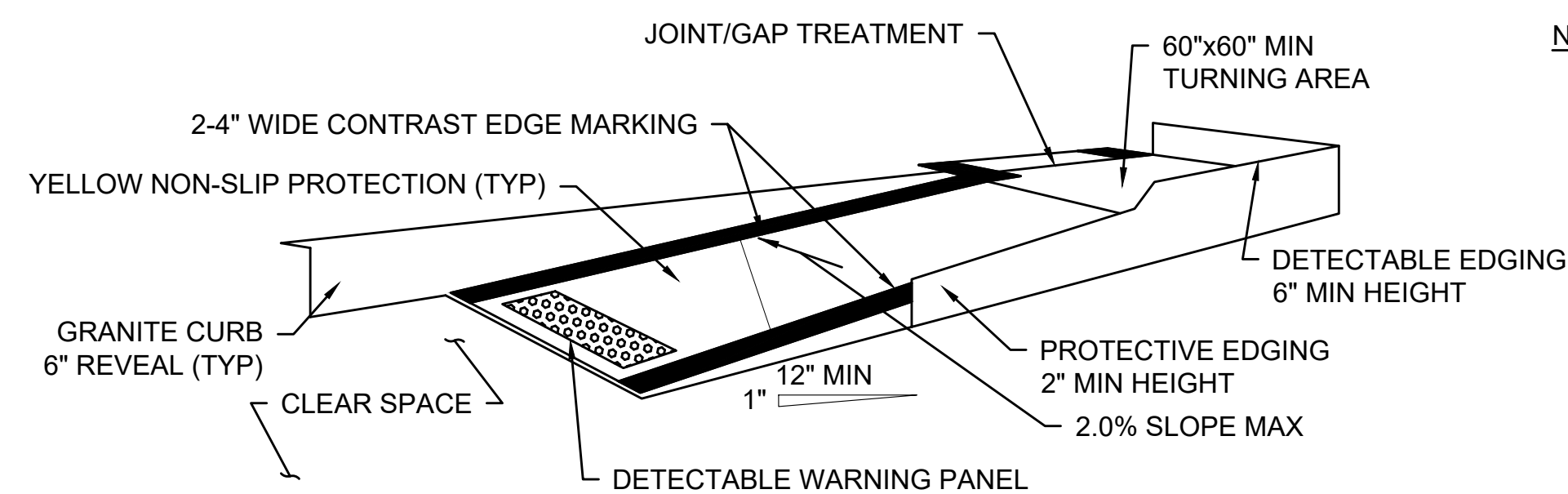


PEDESTRIAN BYPASS TYPE II

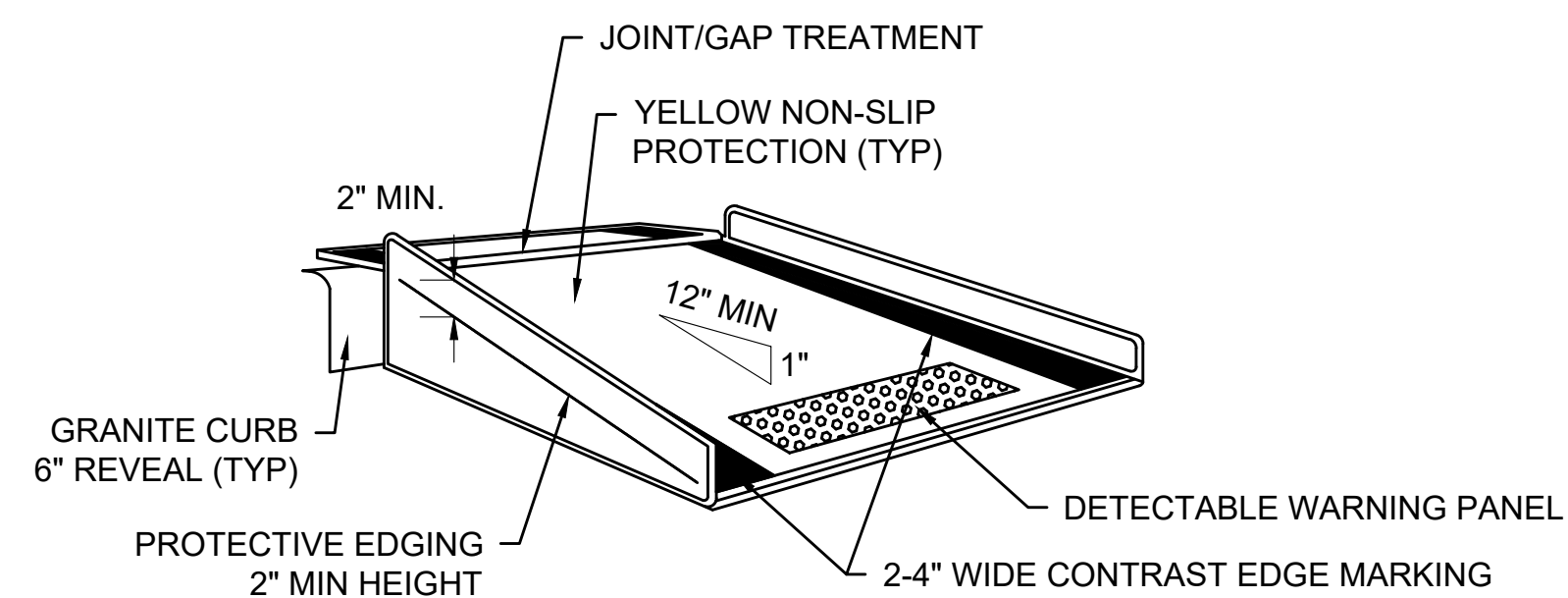


PEDESTRIAN BYPASS DETAIL

SCALE: NTS



TEMPORARY CURB RAMP-PARALLEL TO CURB



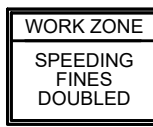
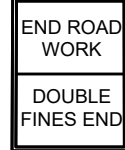
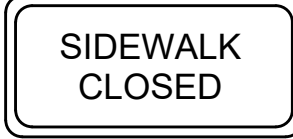
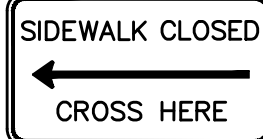
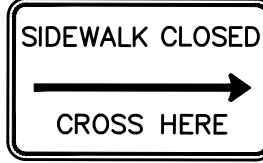
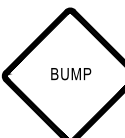
TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

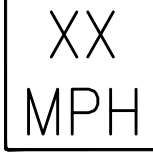
TEMPORARY CURB RAMPS

SCALE: NTS

NOTES:

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

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY									
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR		
	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
MA-R2-10e	36"	48"					WHITE FLUOR- ESCENT ORANGE	BLACK	BLACK
R4-7b	24"	30"					WHITE	BLACK	BLACK
R9-9	24"	12"					WHITE	BLACK	BLACK
R9-11aL	24"	12"					WHITE	BLACK	BLACK
R9-11aR	24"	12"					WHITE	BLACK	BLACK
W1-4L	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W1-4R	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W5-1	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-1	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-3	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-8	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-9	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W8-15	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)									
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			COLOR		
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	BACK- GROUND	LEGEND	BORDER
W11-2	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			YELLOW	BLACK	BLACK
W13-1p(xx)	24"	24"	 SEE NOTE 3				FLUOR- ESCENT ORANGE	BLACK	BLACK
W16-7pL	24"	12"					YELLOW	BLACK	BLACK
W16-9p	24"	12"					YELLOW	BLACK	BLACK
W20-1c	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-1(1500)	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-1(1000)	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-4c	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
W20-7	36"	36"					FLUOR- ESCENT ORANGE	BLACK	BLACK
MA-W20-7b	36"	36"		AS PER MASSDOT STANDARD			FLUOR- ESCENT ORANGE	BLACK	BLACK
W21-7	36"	36"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUOR- ESCENT ORANGE	BLACK	BLACK
M4-9bL	30"	24"					FLUOR- ESCENT ORANGE	BLACK	BLACK
M4-9bR	30"	24"					FLUOR- ESCENT ORANGE	BLACK	BLACK
M4-9bsL	30"	24"					FLUOR- ESCENT ORANGE	BLACK	BLACK
M4-9bsR	30"	24"					FLUOR- ESCENT ORANGE	BLACK	BLACK
SUPP(A)					3" 3"	N/A	FLUOR- ESCENT ORANGE	BLACK	BLACK

- 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; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.
 - ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.
 - REFER TO GENERAL NOTE 13 ON TTCP GENERAL NOTES AND LEGEND SHEET FOR SPEED LIMIT INFORMATION.

HOLDEN

SHREWSBURY STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	XXXX	55	65

PROJECT FILE NO. 609219

TEMPORARY TRAFFIC CONTROL PLANS
SIGN SUMMARY

609219_HD(DET').DWG Plotted on 27-Jan-2020 4:34 PM

A cross-sectional diagram showing the connection between a full depth pavement and a granite curb. The pavement is on the left, and the curb is on the right. The curb is labeled "GRANITE CURB 6\" REVEAL (TYP)". The pavement is labeled "FULL DEPTH PAVEMENT". The curb is shown with a "6\" MIN" reveal on its top surface. The curb is supported by a "CEMENT CONCRETE (SEE NOTES)" base. The base is shown with a "6\" MIN" thickness. The diagram also shows a "6\" MIN" gap between the pavement and the curb base.

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.

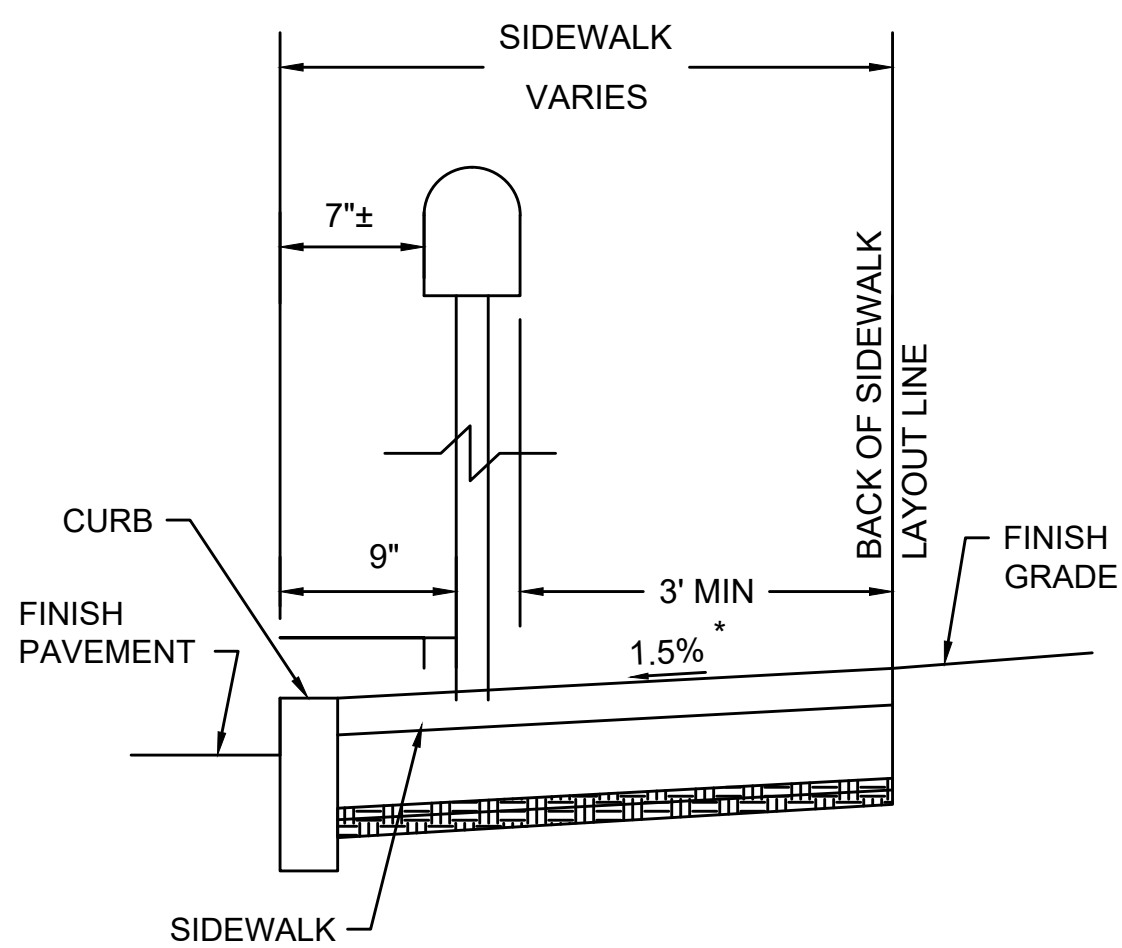


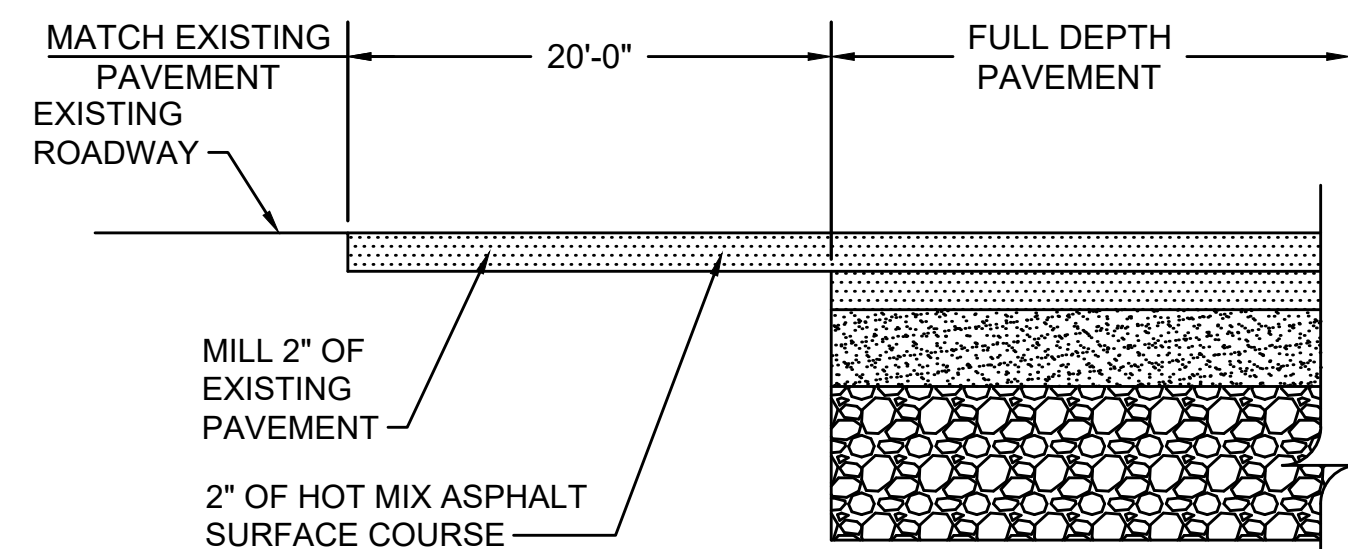
Diagram illustrating the layout of a sidewalk and its connection to a street. The diagram shows a cross-section of the sidewalk and the adjacent street. Key dimensions and labels include:

- 1"**: Dimension indicating the width of the sidewalk curb.
- 9"**: Dimension indicating the width of the sidewalk.
- 3' MIN**: Dimension indicating the minimum width of the sidewalk.
- 1.5%**: Slope percentage of the sidewalk.
- BACK OF SIDEWALK LAYOUT LINE**: Label for the line defining the back of the sidewalk.
- FINISH GRADE**: Label for the ground surface.
- SIDEWALK**: Label for the sidewalk structure.
- URB**: Label for the urban area.
- H**: Label for the height of the sidewalk curb.
- MENT**: Label for the sidewalk structure.
- SIDEWALK VARIES**: Label indicating the variable width of the sidewalk.

1. MINIMUM CLEAR PATH ON ALL SIDEWALK SHALL BE 36" EXCLUDING THE CURB. THE CLEAR PATH SHALL BE MEASURED TO FIRST VERTICAL FACE ENCOUNTERED ON THE MAILBOX OR PAPER TUBE (INCLUDING ALL PROTRUSIONS LESS THAN 6'-8" IN HEIGHT).
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL MAILBOXES AND PAPER TUBES TO BE SET WITHIN THE SIDEWALK PRIOR TO FINAL PLACEMENT TO PROVIDE A MINIMUM CLEAR PATH OF 36". CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY LOCATION THAT CANNOT MEET THE CLEARANCE REQUIREMENTS.
3. REFER TO MASSDOT STANDARD DETAIL E 504.1.0 FOR ADDITIONAL INFORMATION.

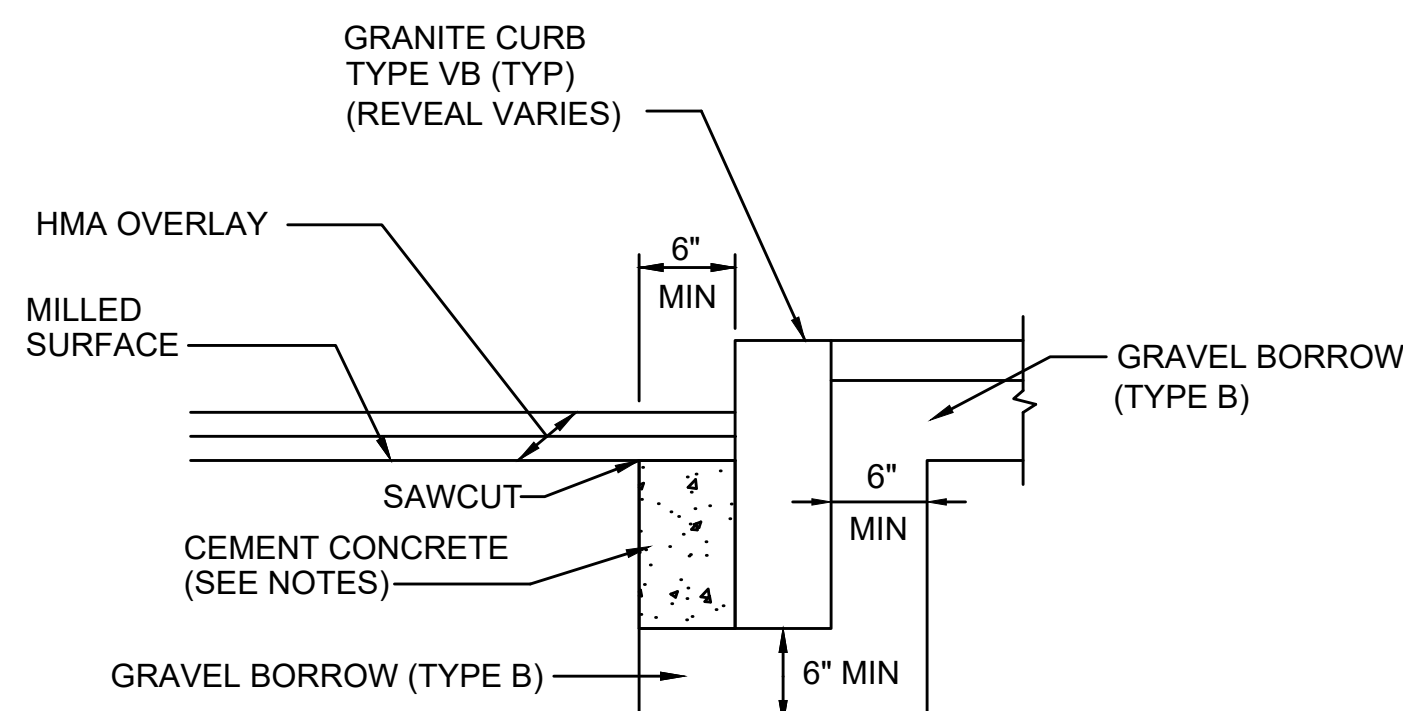
* TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

SCALE: N.T.S. DWG: CURB-05 DATE: MARCH 2013



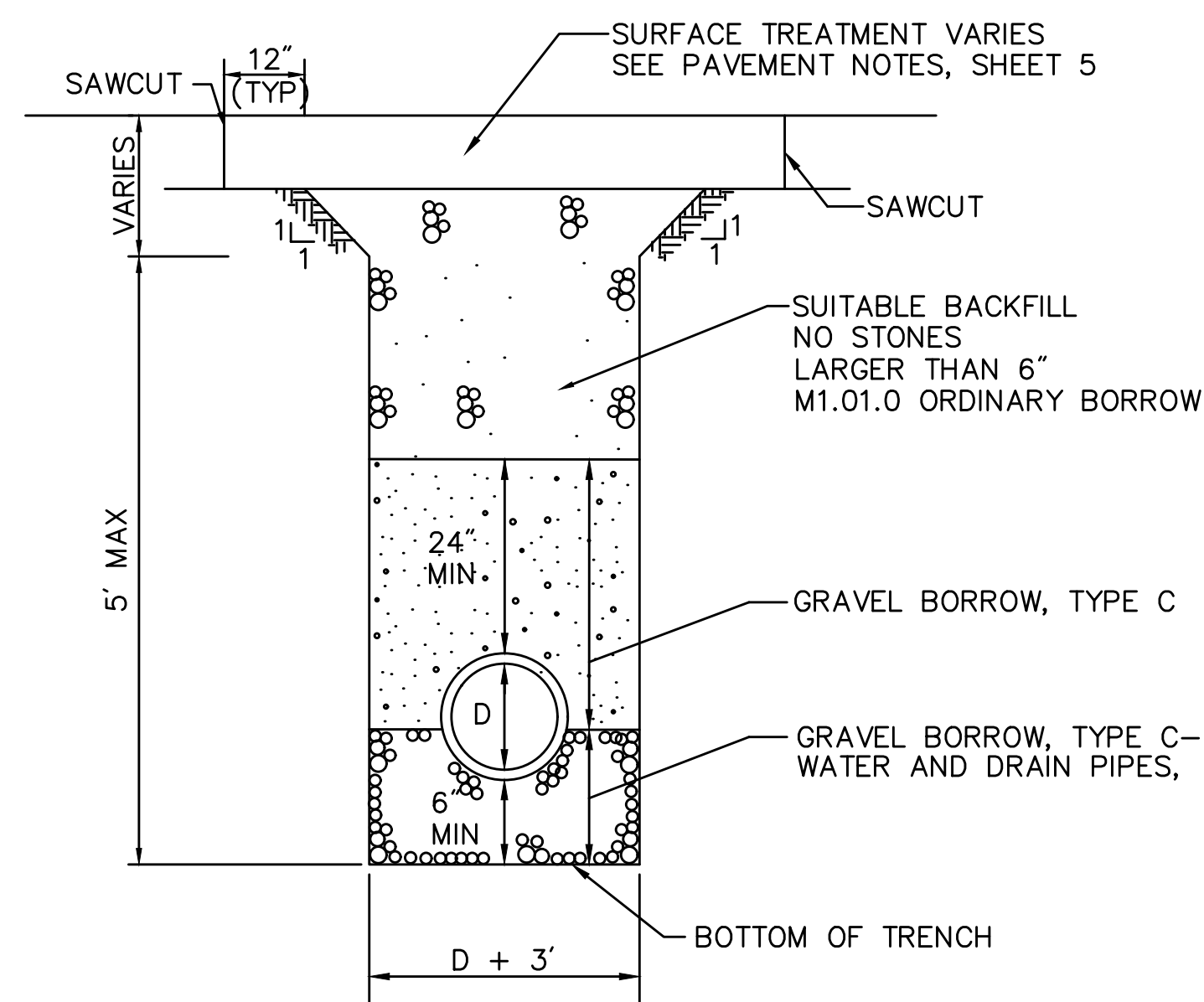
LONGITUDINAL SECTION

SCALE: N.T.S. DWG: PVMT-03 DATE: OCT. 2017

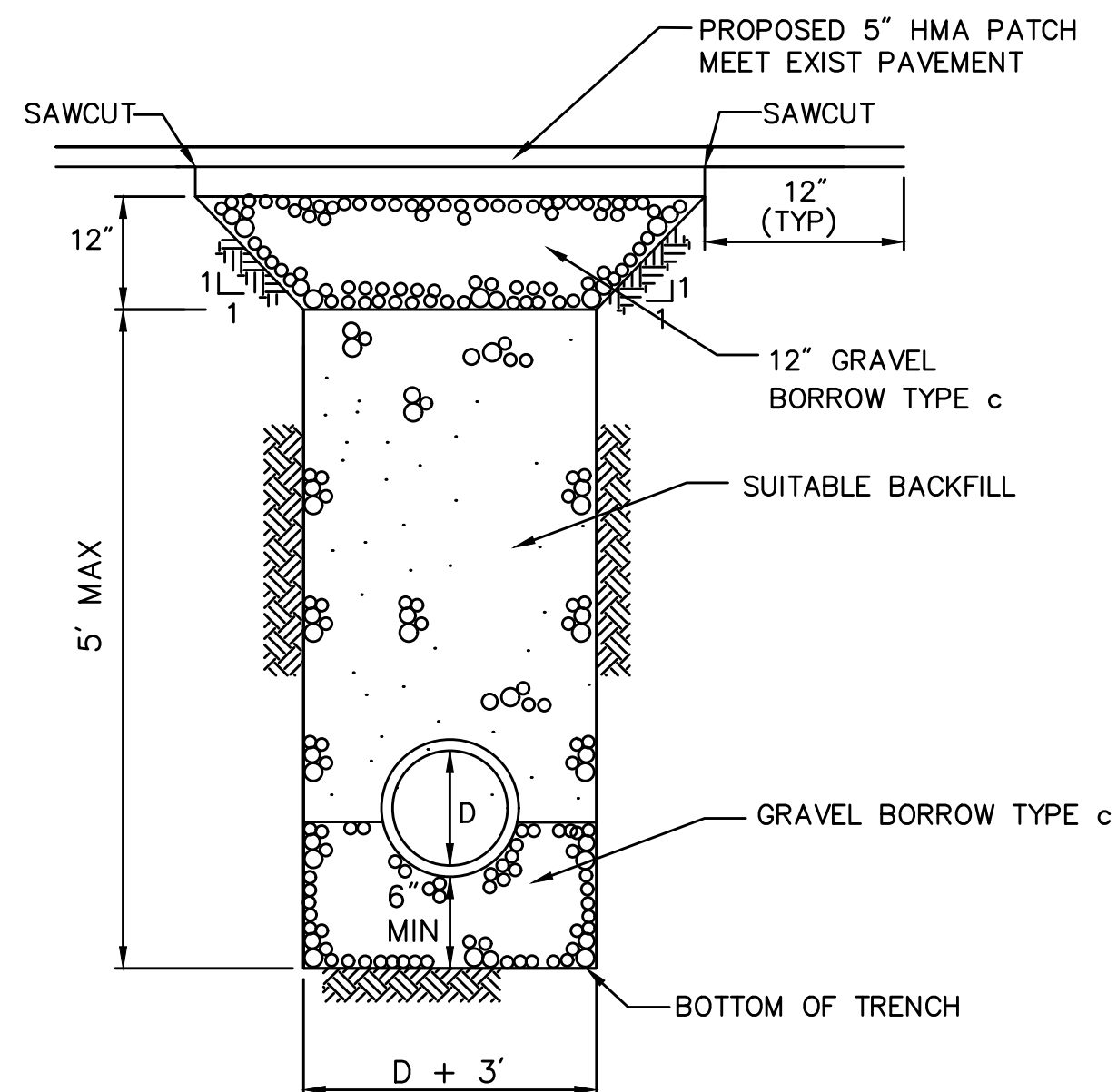


1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB.
2. SAWCUT 6" FROM CURB LINE AND REMOVE EXISTING PAVEMENT AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
3. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED.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

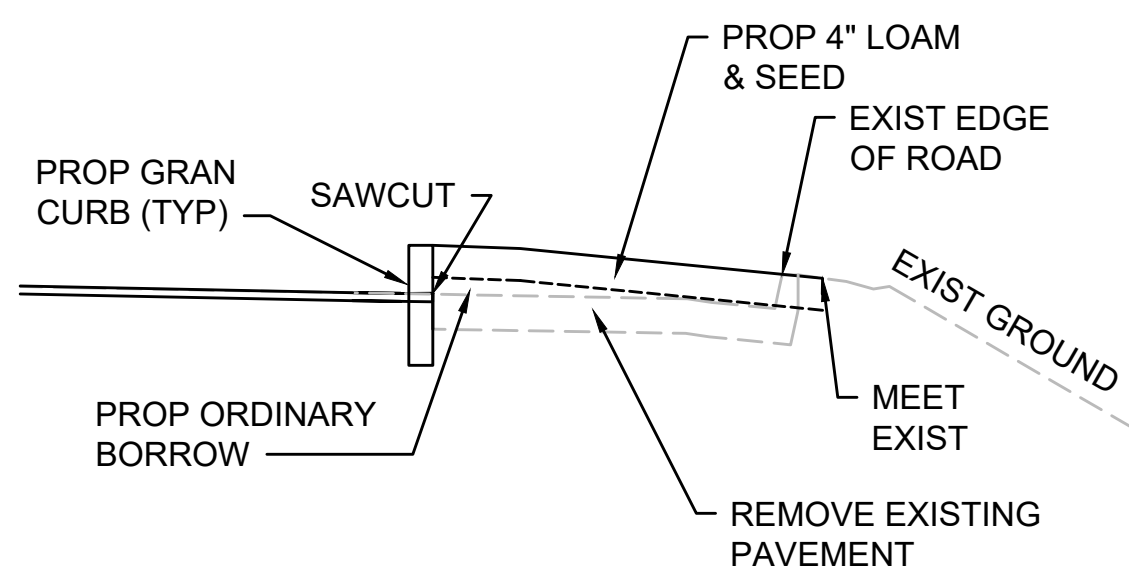
SCALE: N.T.S. DWG: CURB-04 DATE: APRIL 2003



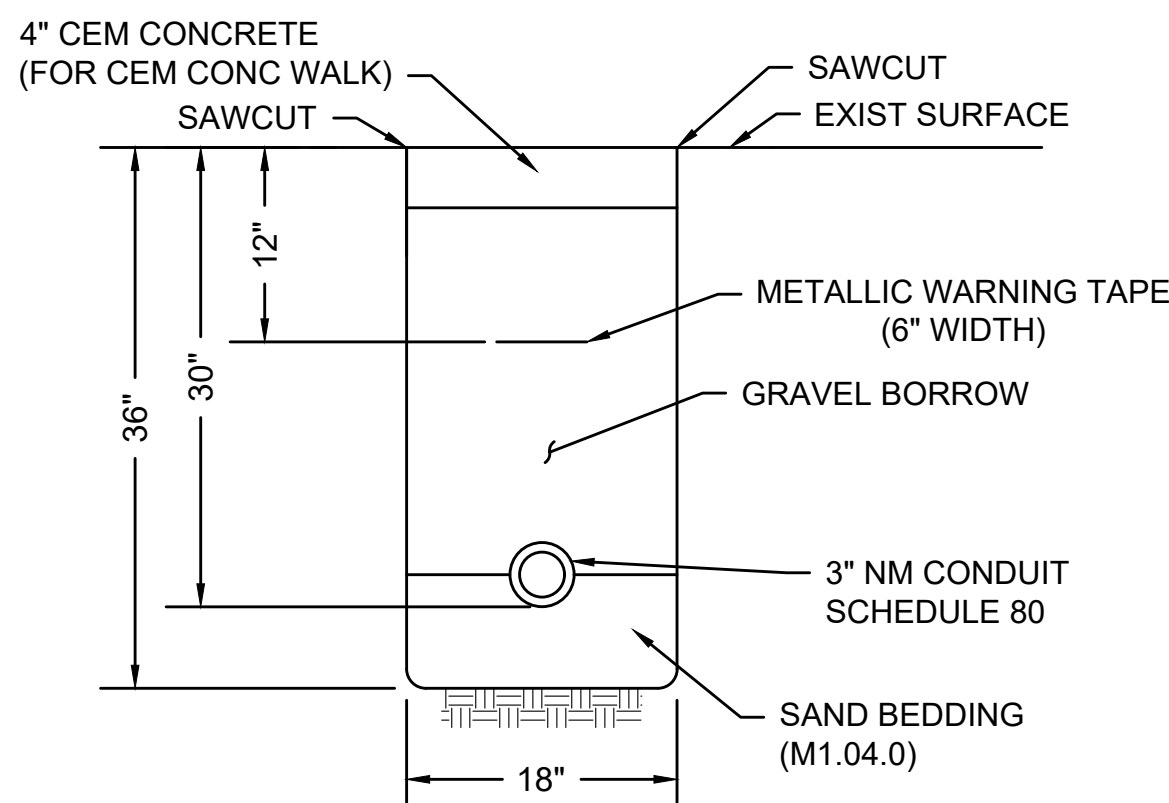
SCALE: N.T.S.



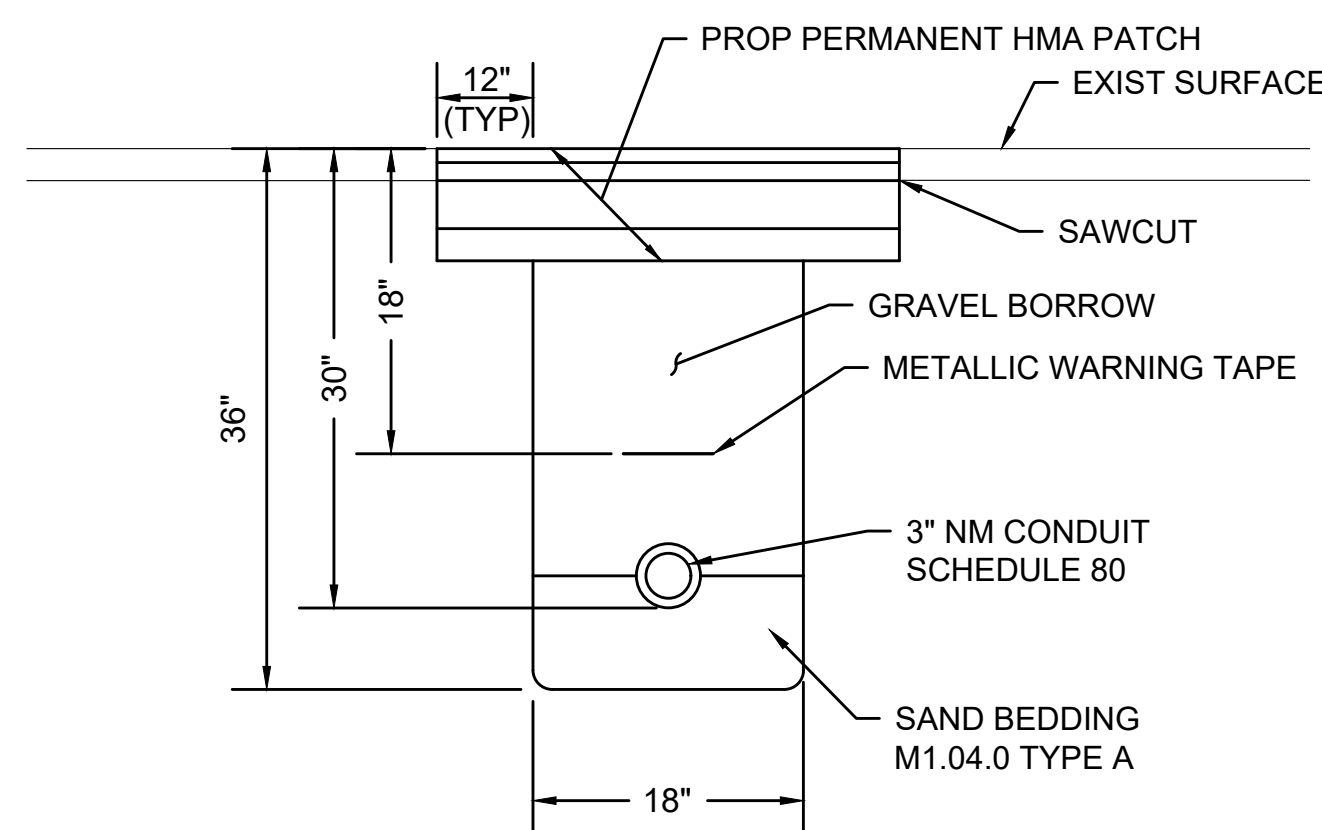
SCALE: N.T.S. DWG: TRENCH-04 DATE: OCT. 2012



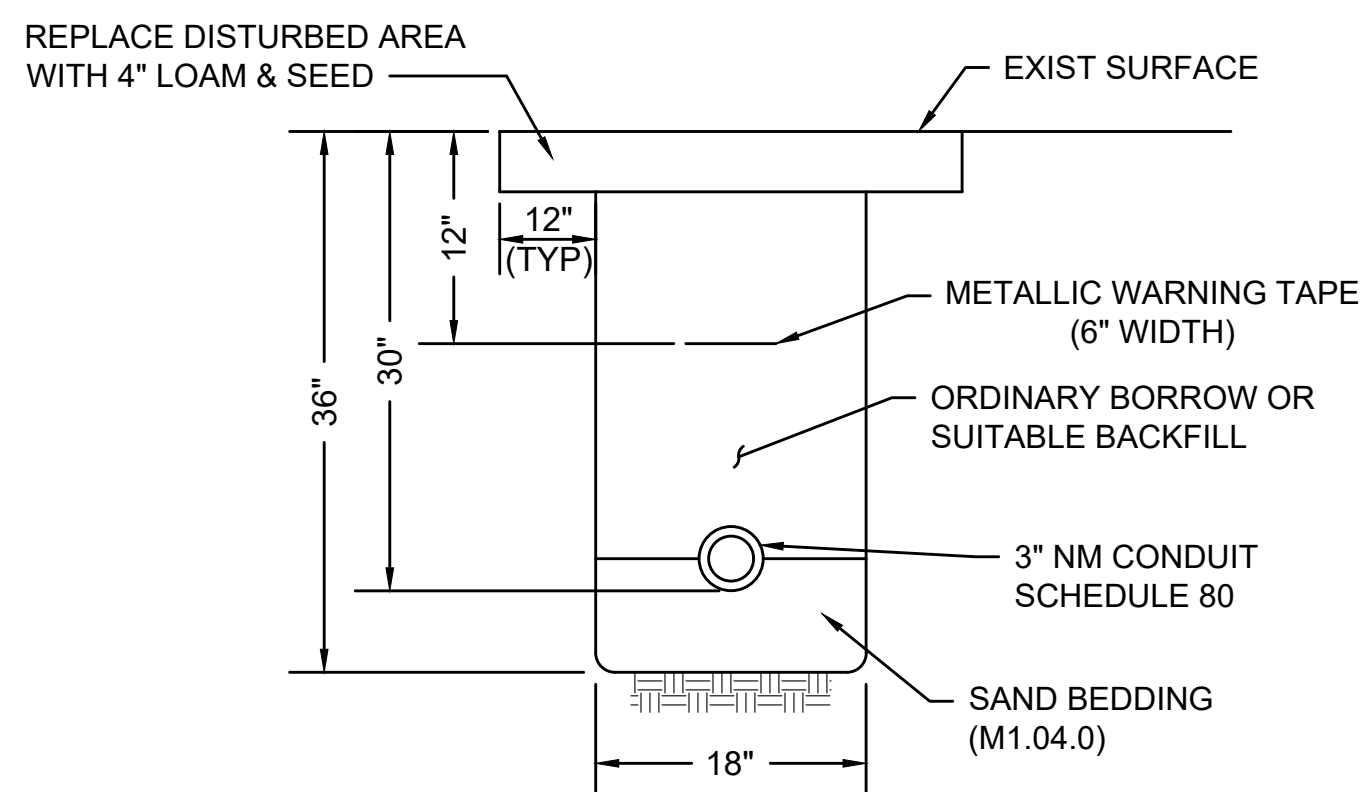
SCALE: N.T.S. DWG: PVMT-08 DATE: FEB. 2012



SCALE: N.T.S.



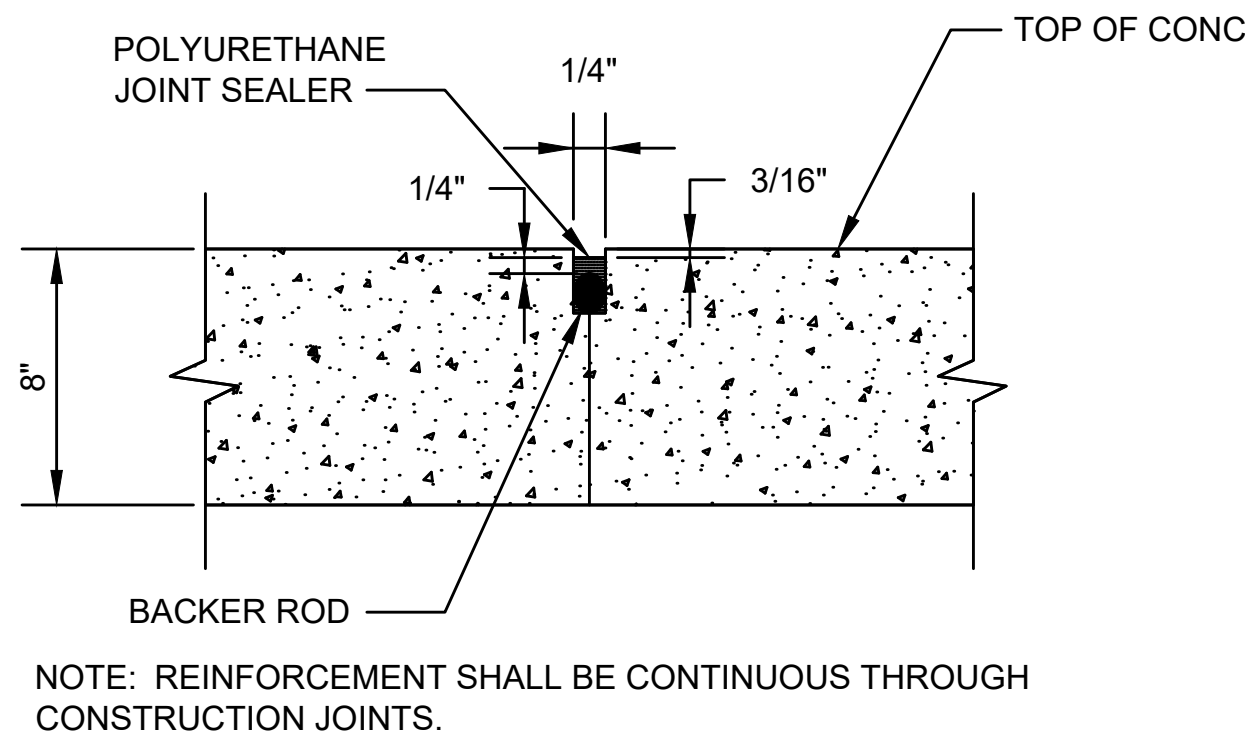
SCALE: N.T.S. DWG: TRENCH-01 DATE: MARCH 2013



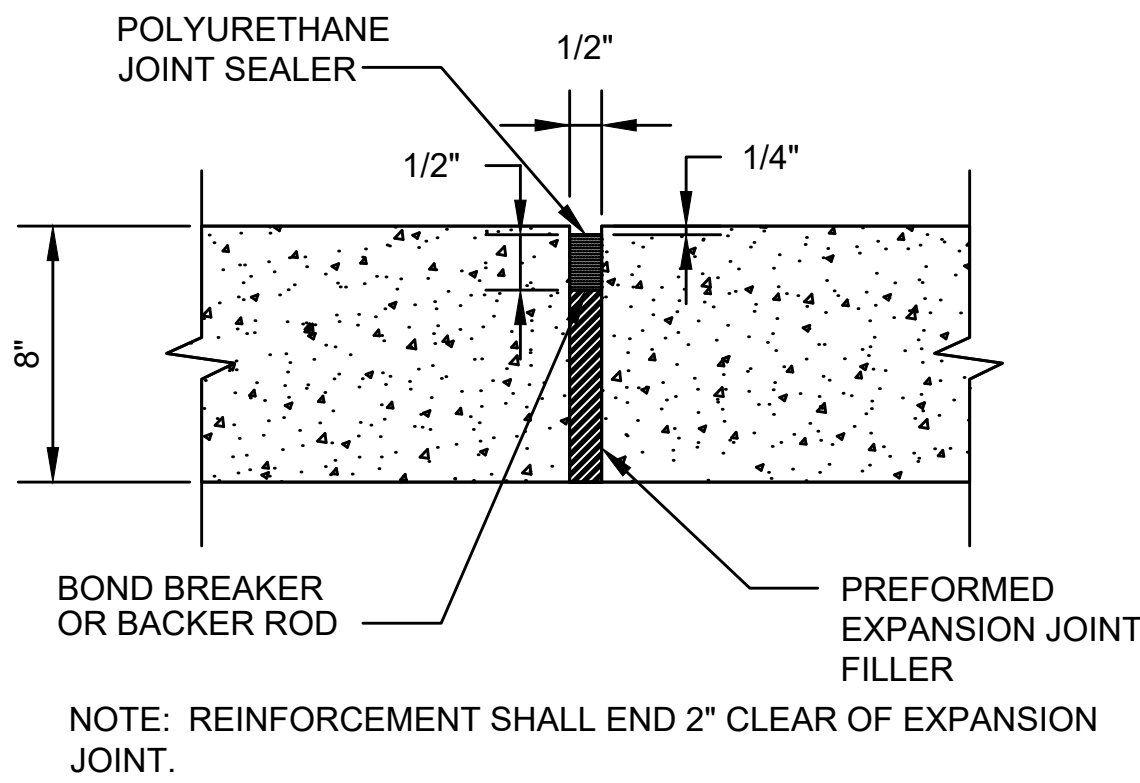
SCALE: N.T.S.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	57	65
PROJECT FILE NO. 609219			

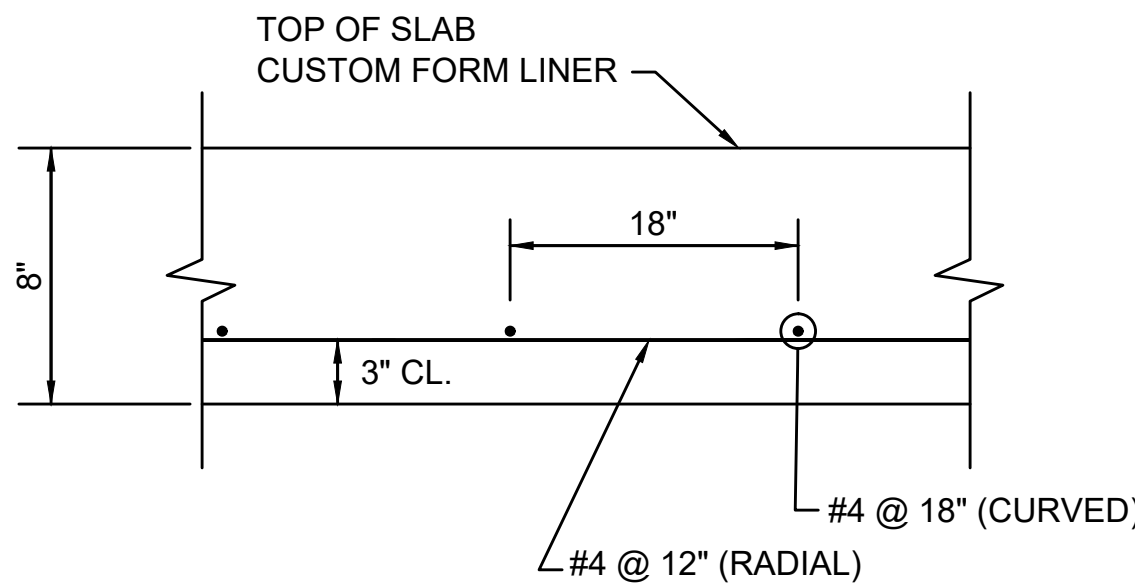
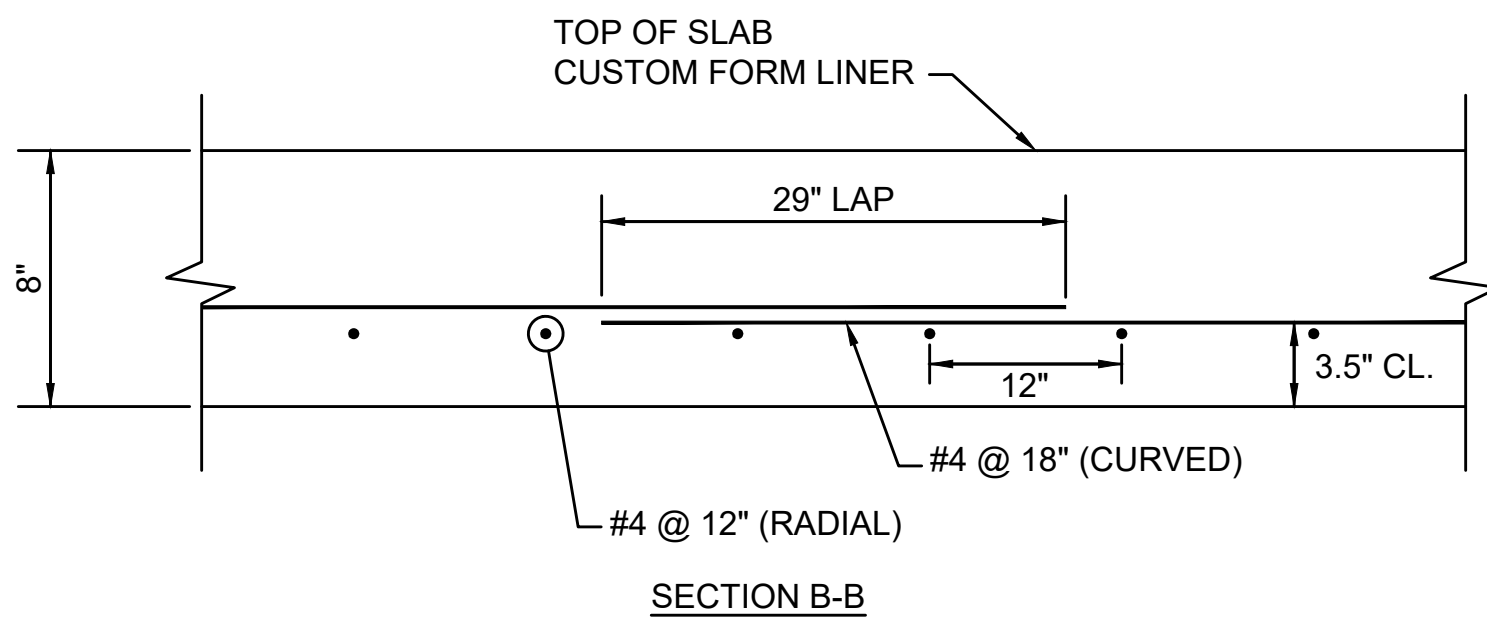
CONSTRUCTION DETAILS



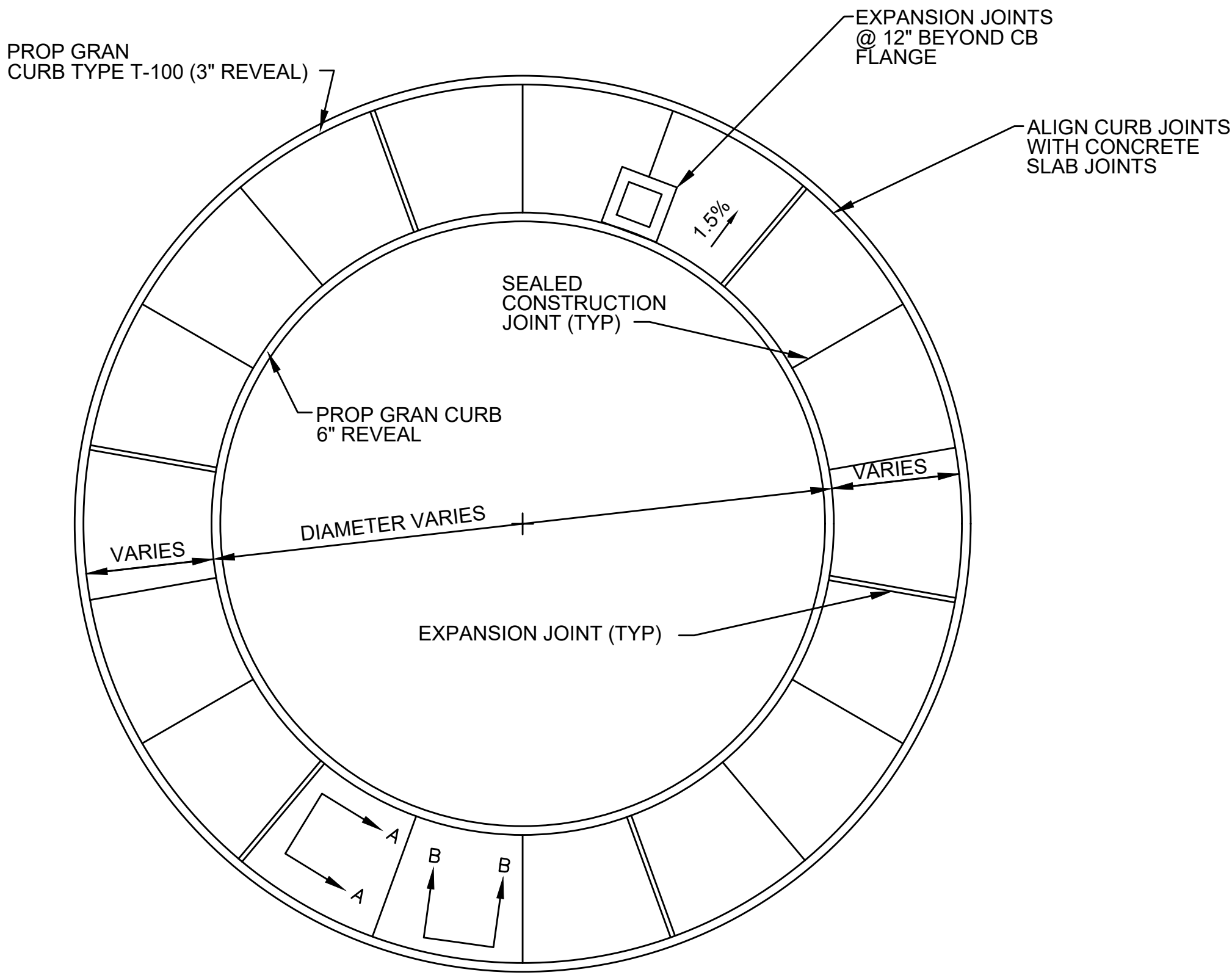
SEALED CONSTRUCTION JOINT DETAILS
SCALE: N.T.S. DWG: -- DATE: OCT. 2012



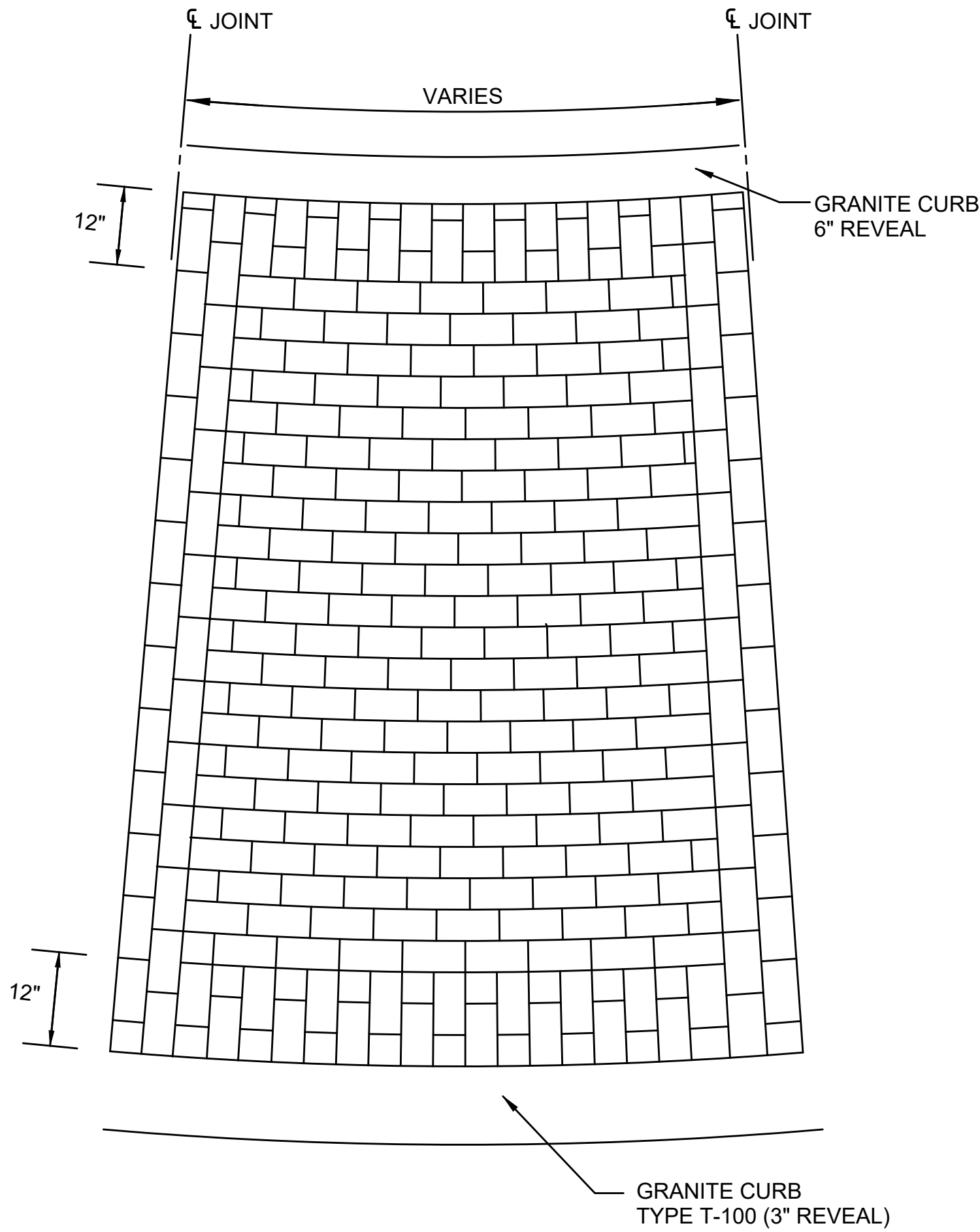
EXPANSION CONTROL JOINT
SCALE: N.T.S. DWG: DATE: APR. 2014



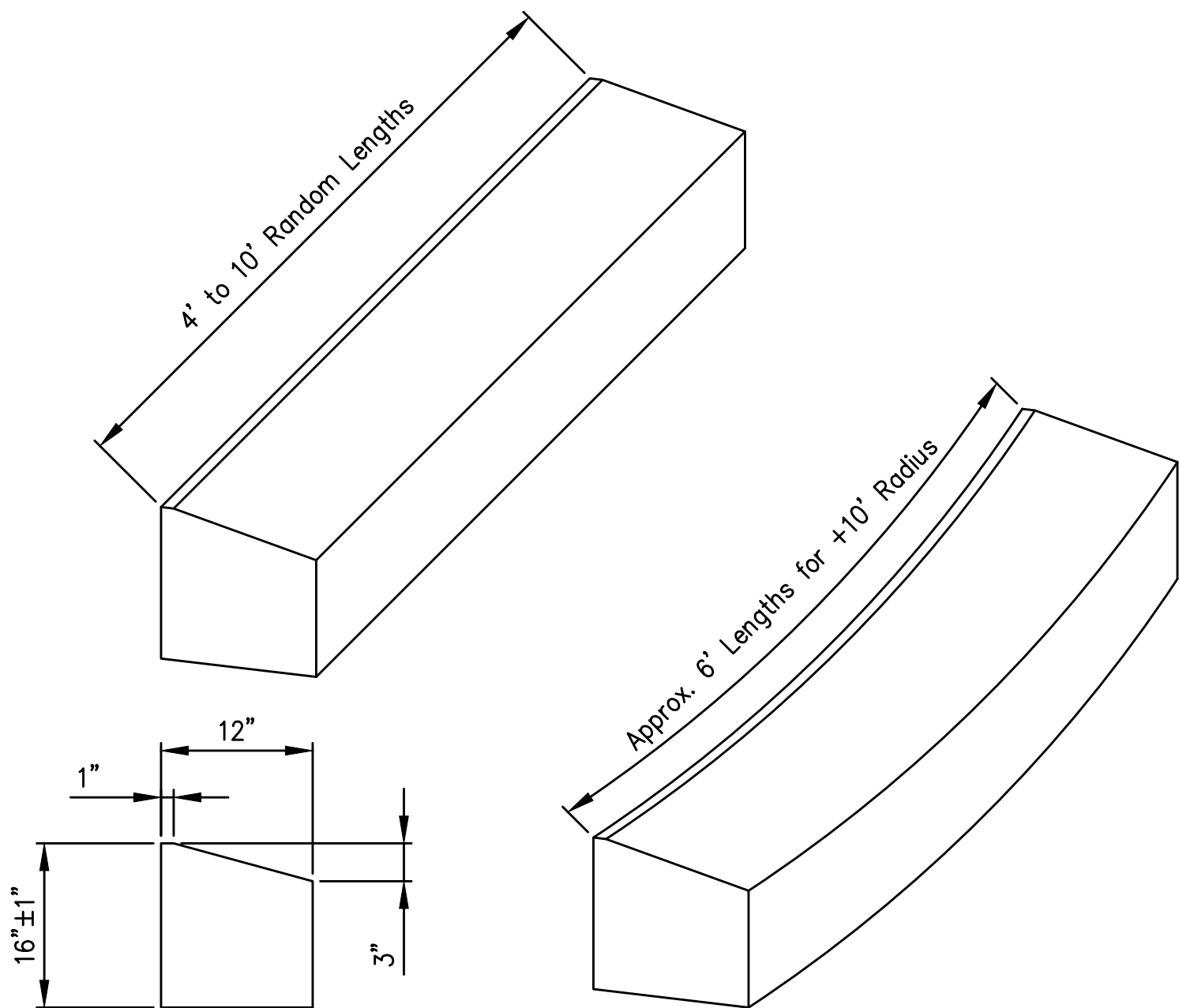
CONCRETE PAVEMENT REINFORCING DETAILS
SCALE: N.T.S. DWG: -- DATE: OCT. 2012



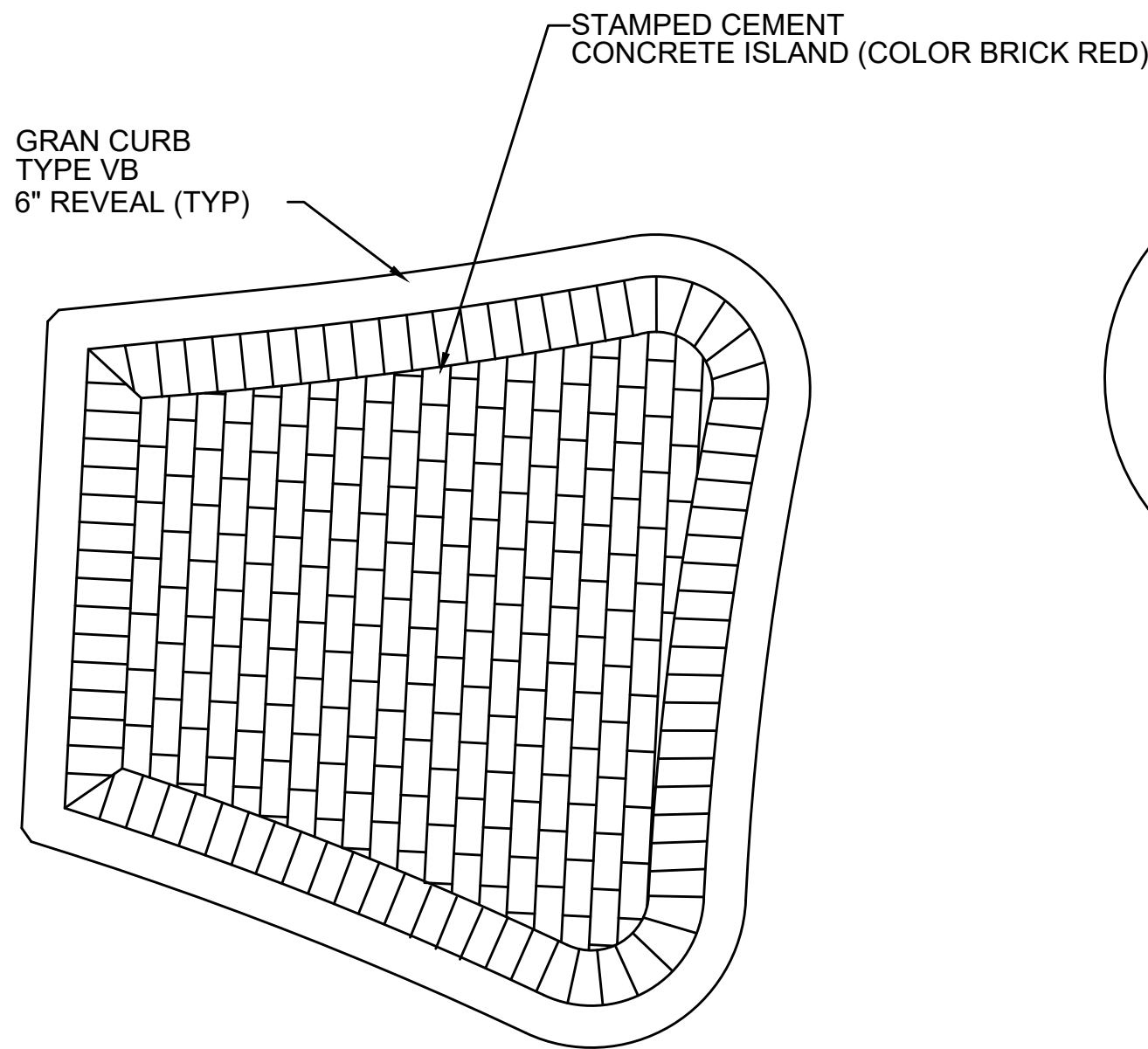
JOINT LAYOUT
SCALE: N.T.S. DWG: -- DATE: APR. 2014



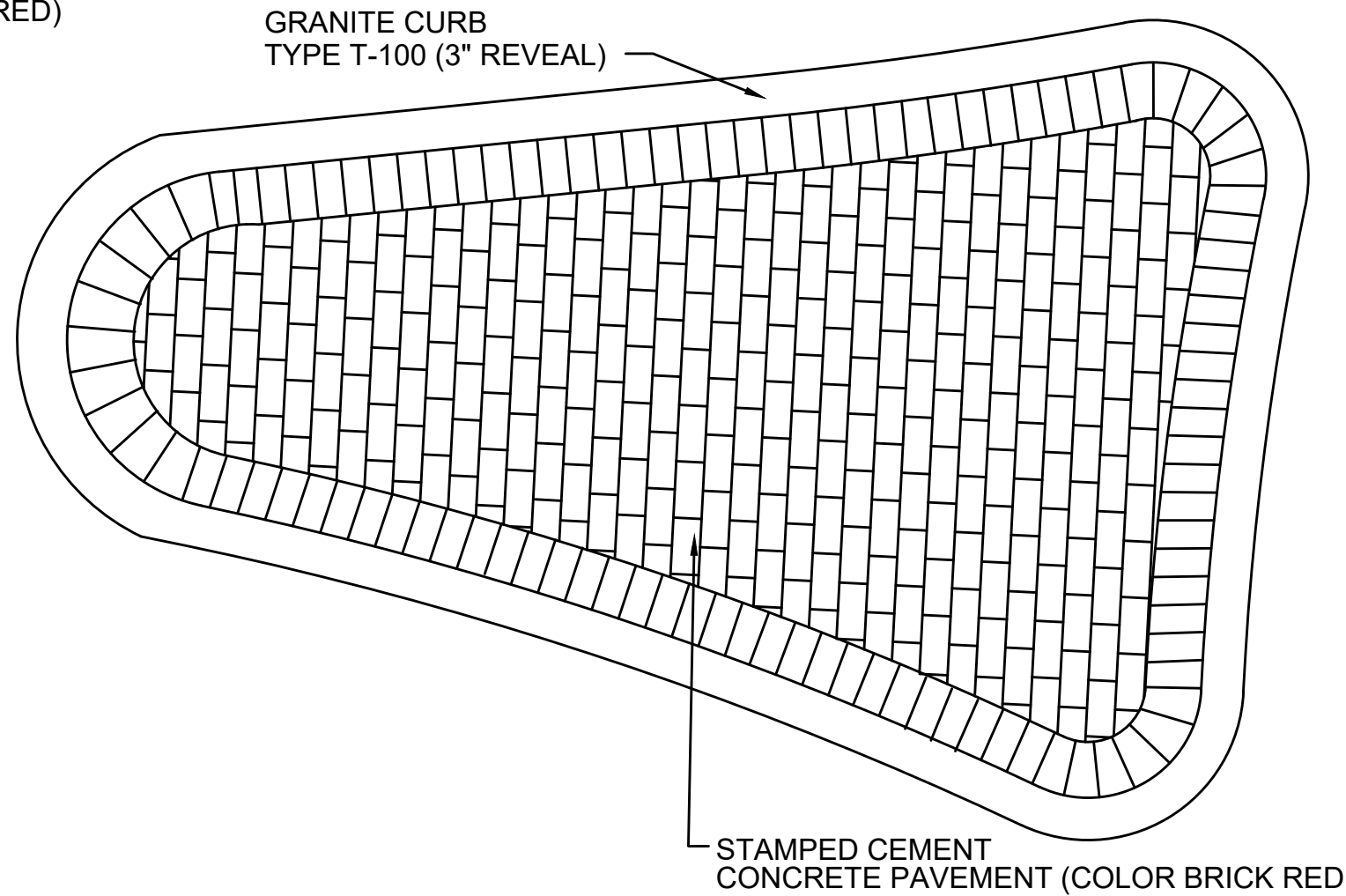
STAMPED CEMENT CONCRETE PAVEMENT
SCALE: N.T.S. DWG: -- DATE: APR. 2014



TYPE T-100 TRAVERSABLE GRANITE CURBING
SCALE: N.T.S. DWG: -- DATE:



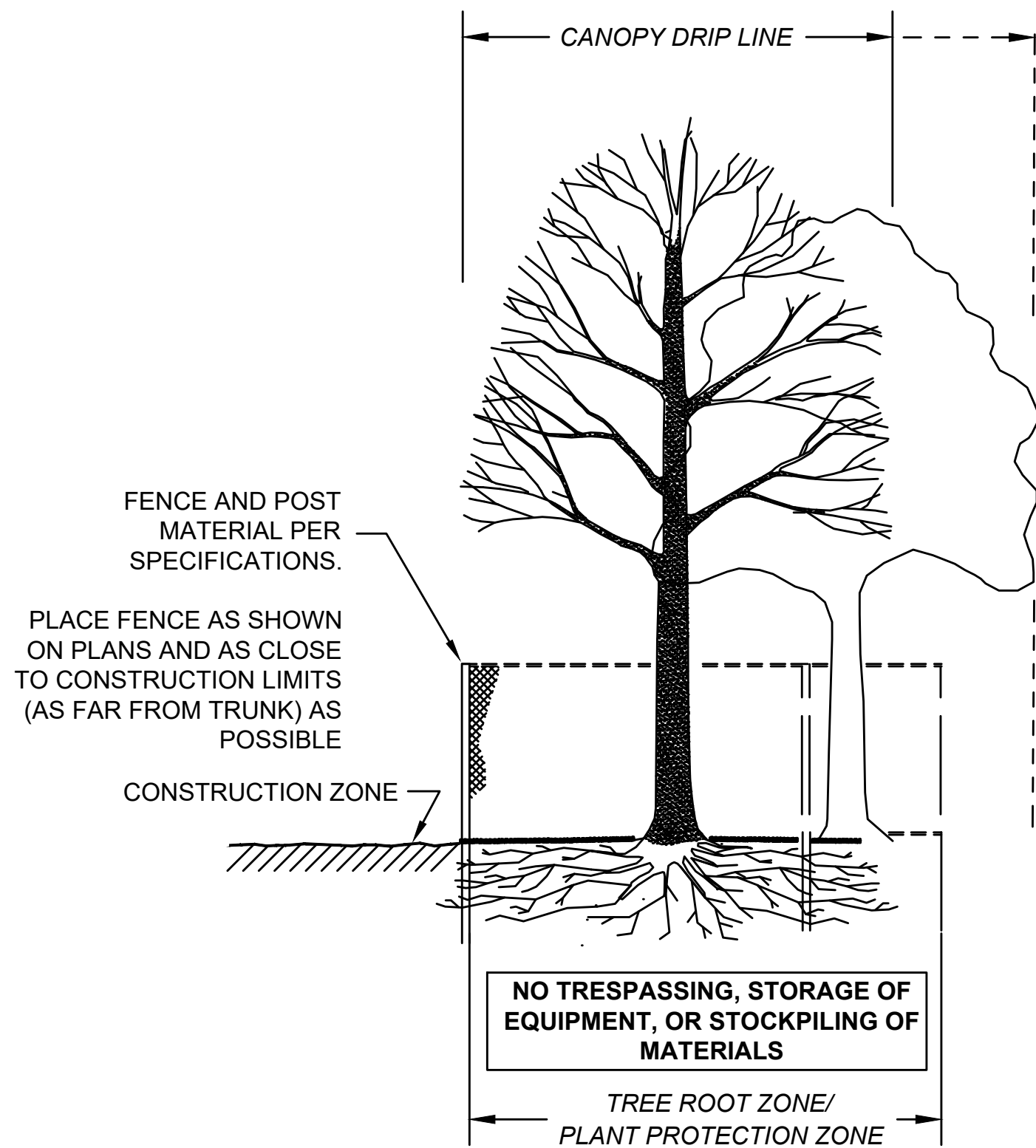
STAMPED CEMENT CONCRETE ISLAND PATTERN
SCALE: N.T.S. DWG: -- DATE: APR. 2014



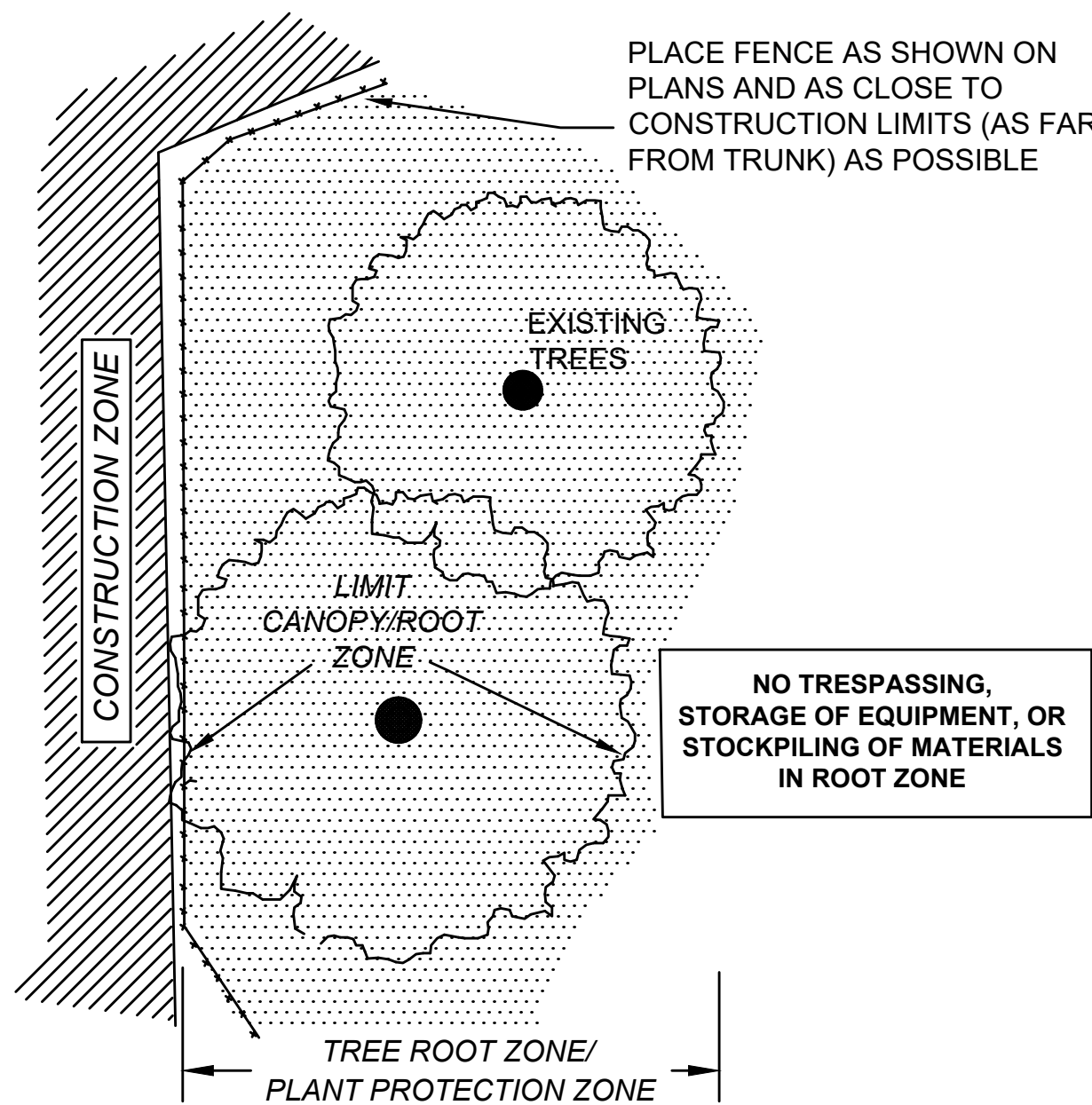
STAMPED CEMENT CONCRETE PAVEMENT
SCALE: N.T.S. DWG: -- DATE: APR. 2014

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	58	65
PROJECT FILE NO. 609219			

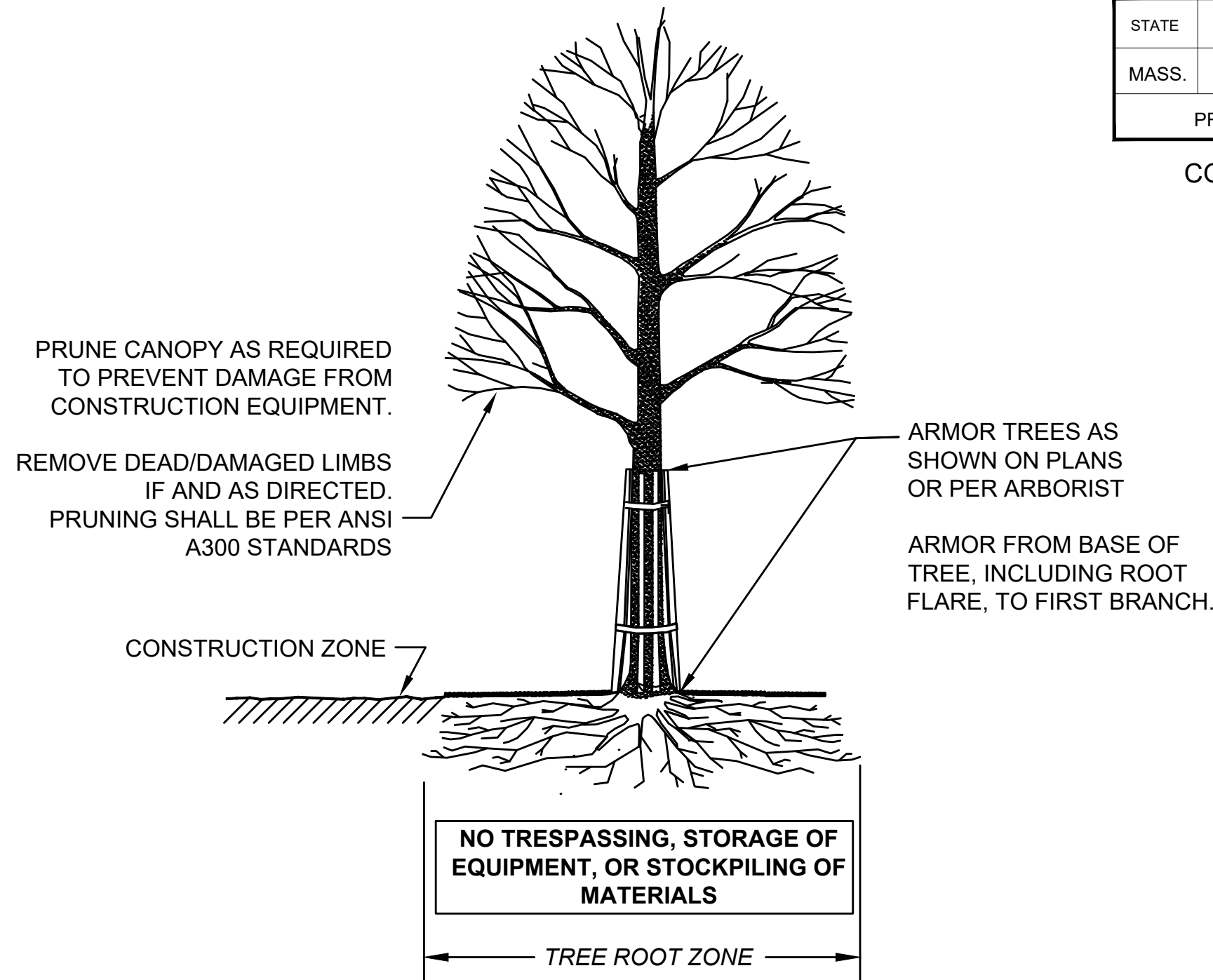
CONSTRUCTION DETAILS



SECTION - FENCE PROTECTION OF ROOT ZONE



PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

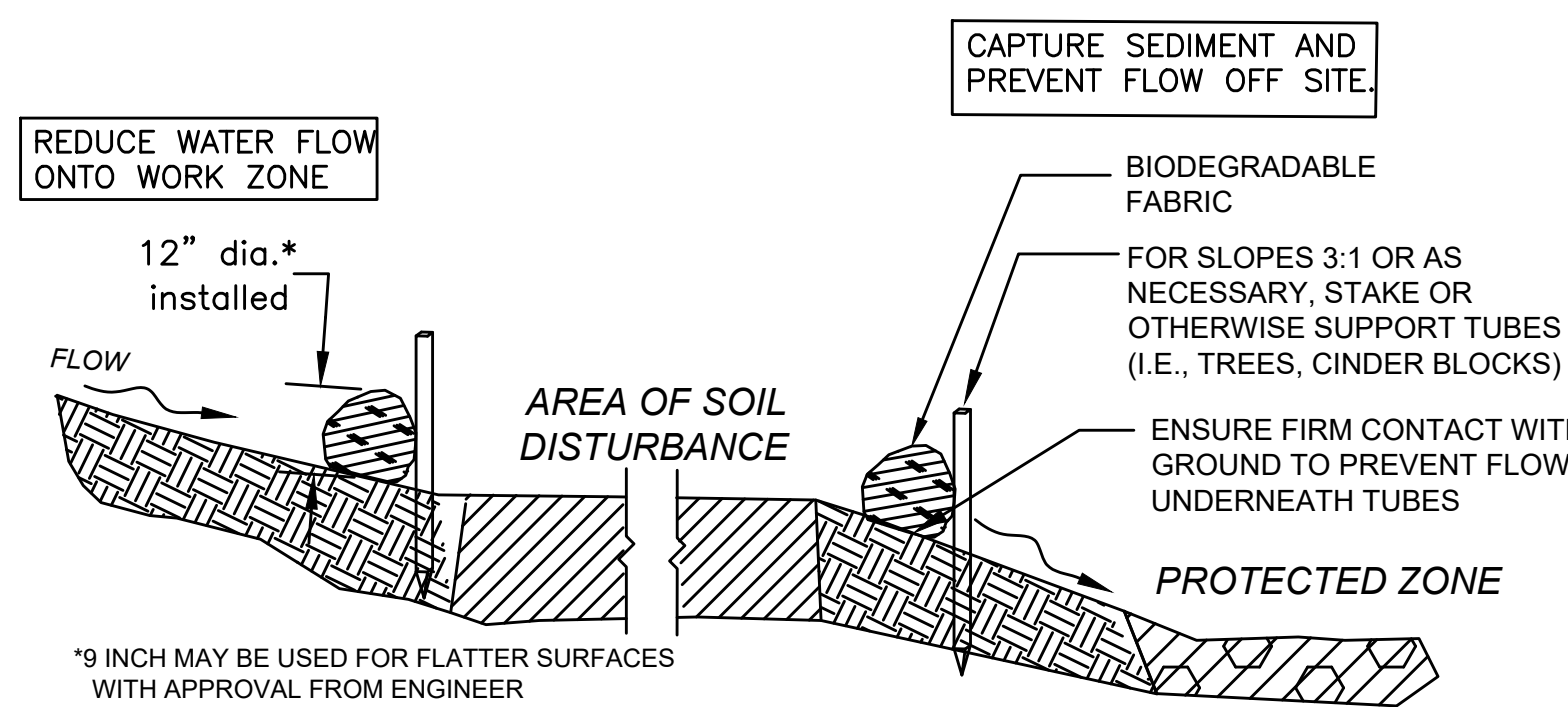


SECTION - TRUNK ARMORING & PRUNING

TREE PROTECTION TRUNK

TREE PROTECTION ROOT ZONE

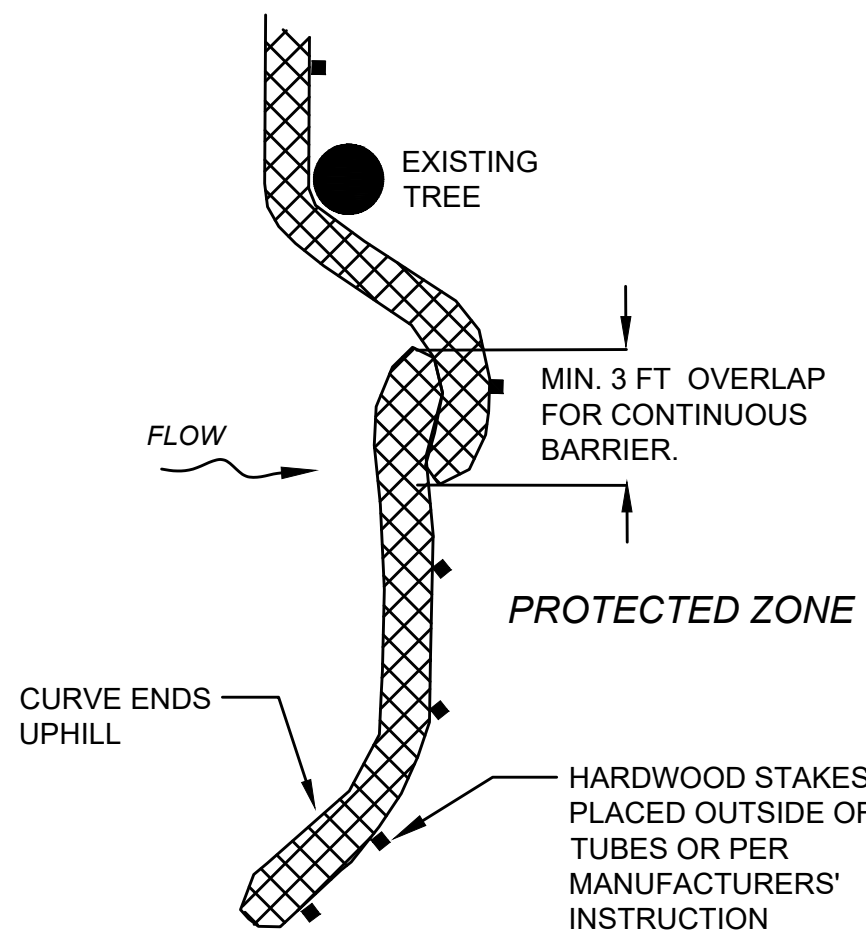
NOT TO SCALE



SECTION

SEDIMENT BARRIERS - COMPOST FILTER TUBES

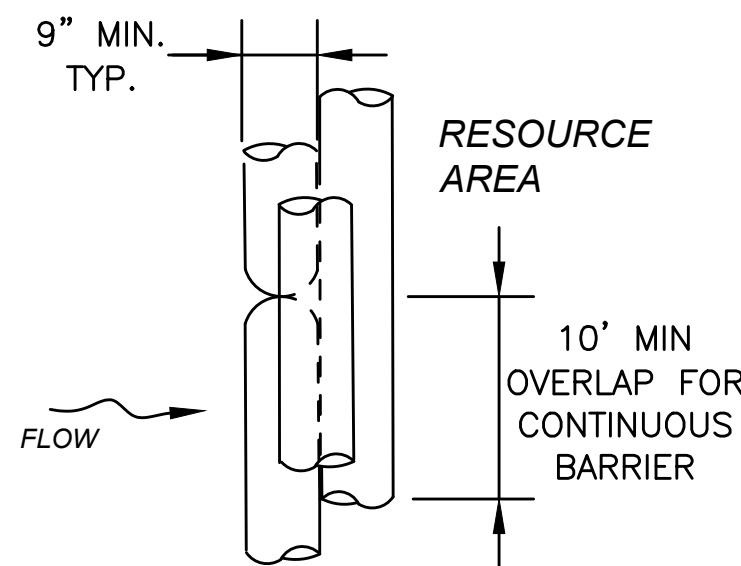
NOT TO SCALE



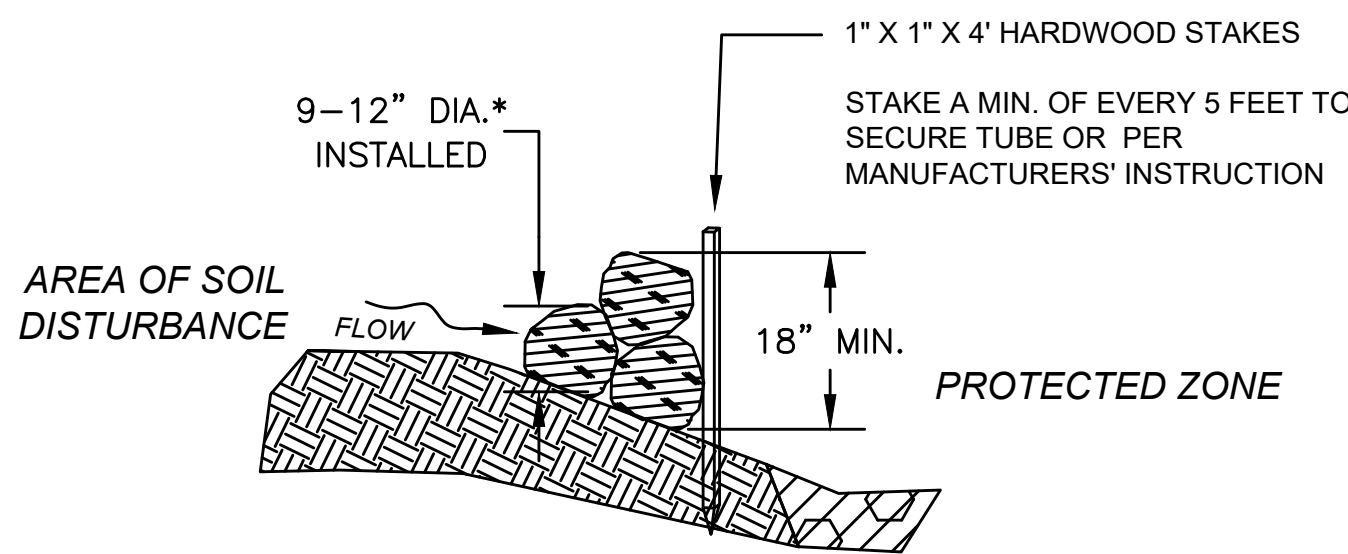
PLAN VIEW

SEDIMENT BARRIERS

NOT TO SCALE



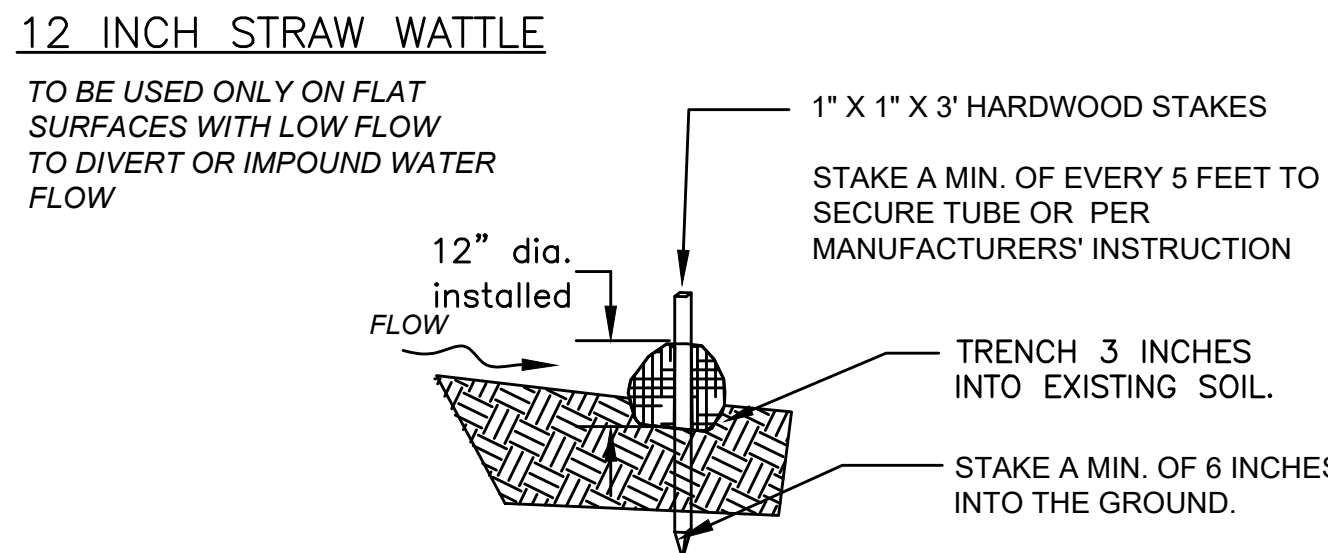
PLAN VIEW



SECTION

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

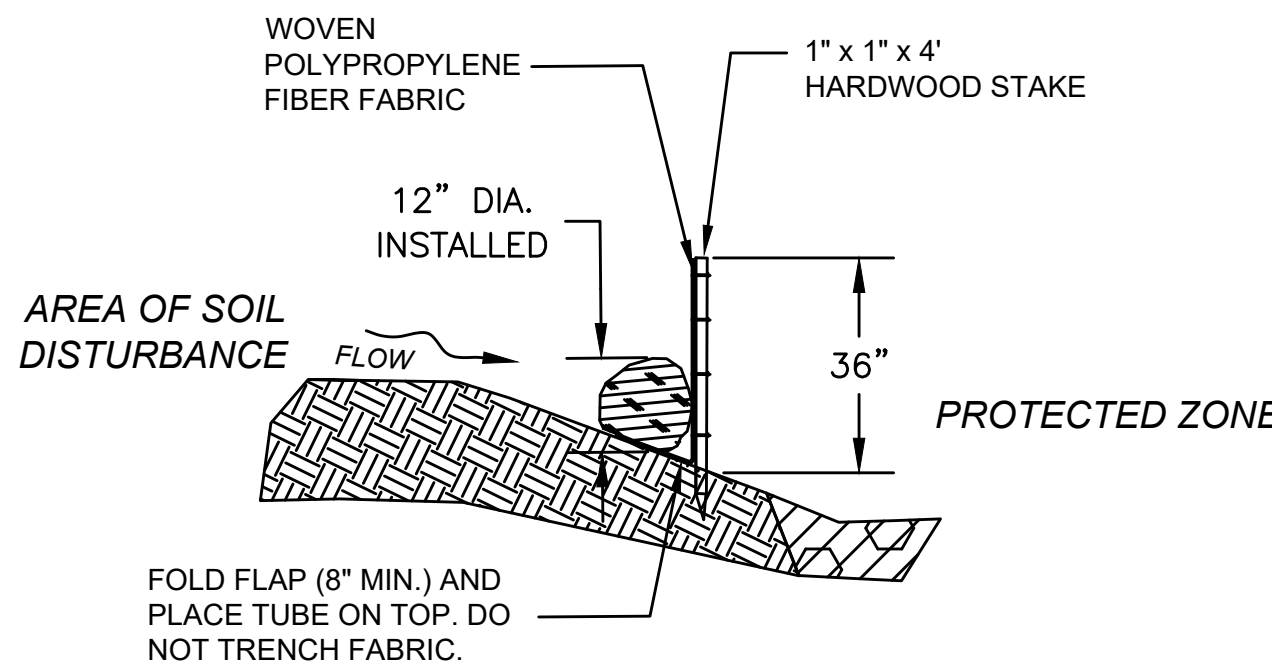
NOT TO SCALE



SECTION

SEDIMENT BARRIERS - STRAW WATTLE

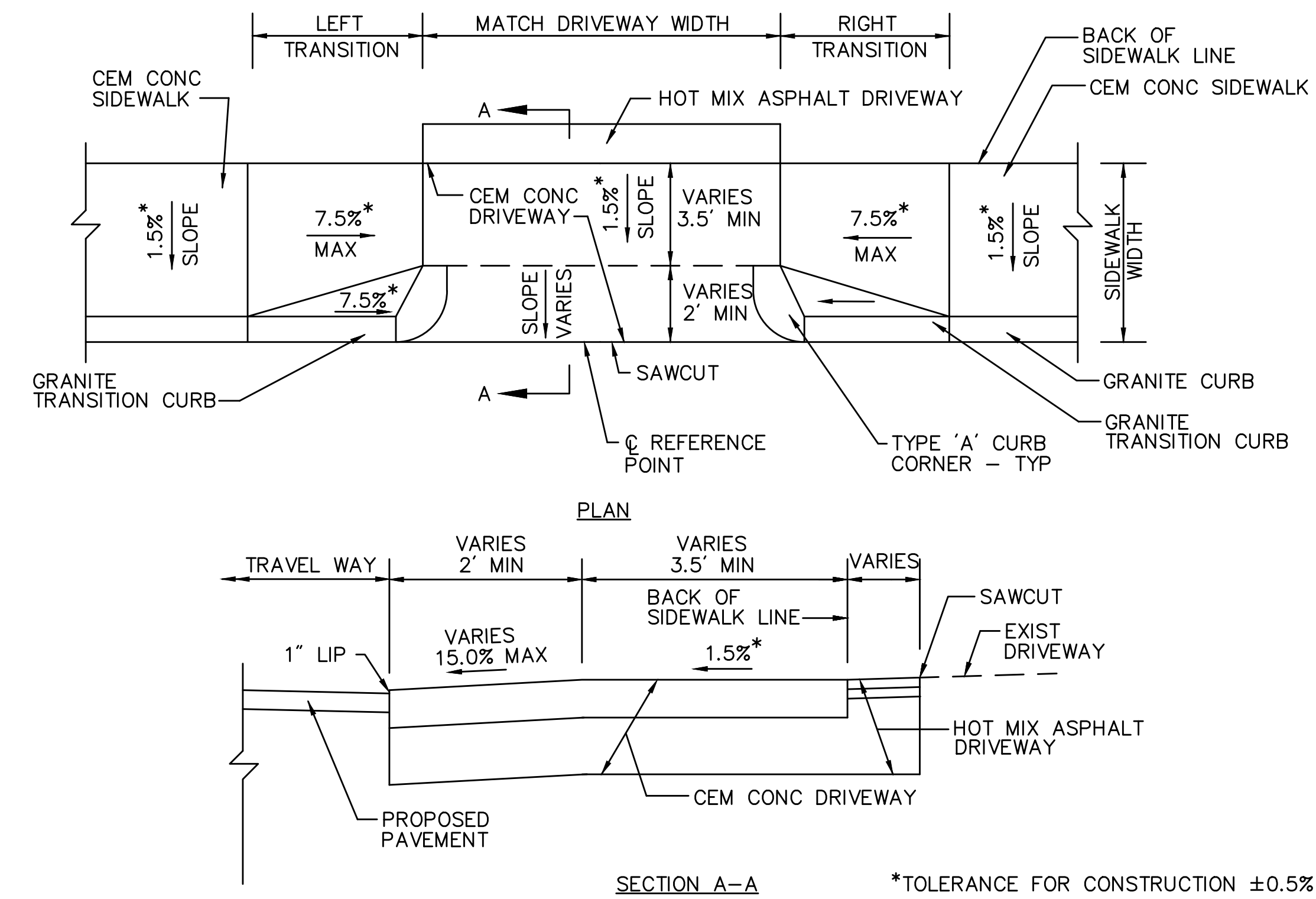
NOT TO SCALE



SECTION

COMPOST FILTER TUBE & SILT FENCE

NOT TO SCALE

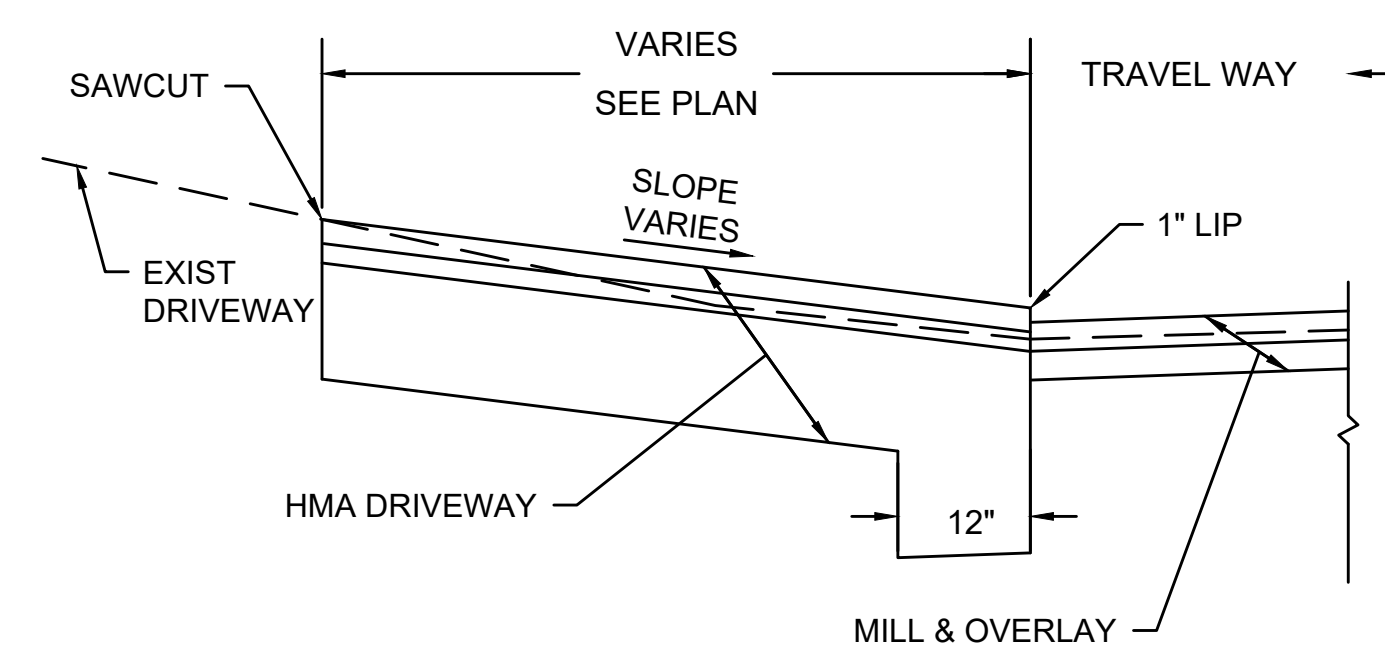


TYPICAL DRIVEWAY WITH SIDEWALK AND CURB CORNERS NO GRASS STRIP

SCALE: N.T.S.

DWG: DRIVE-09

DATE: JUNE 2013

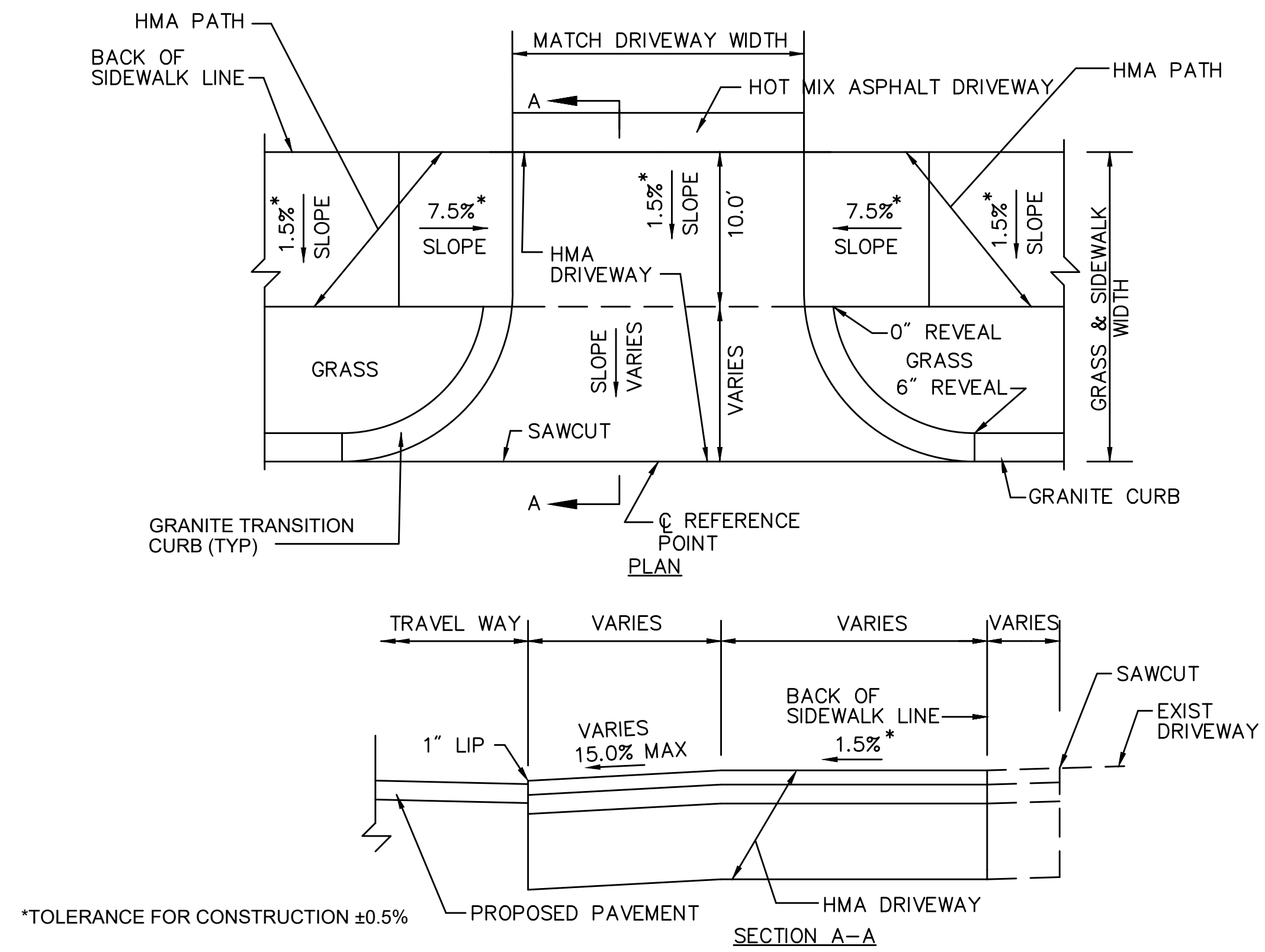


TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE II

SCALE: N.T.S.

DWG: DRIVE-03

DATE: JUNE 2013



TYPICAL DRIVEWAY WITH SIDEWALK AND CURVED TRANSITION CURB AND GRASS STRIP

SCALE: N.T.S.

DWG: DRIVE-09

DATE: JUNE 2013

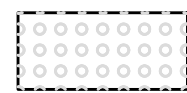
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	59	65
PROJECT FILE NO. 609219			
CONSTRUCTION DETAILS			

NOTES:

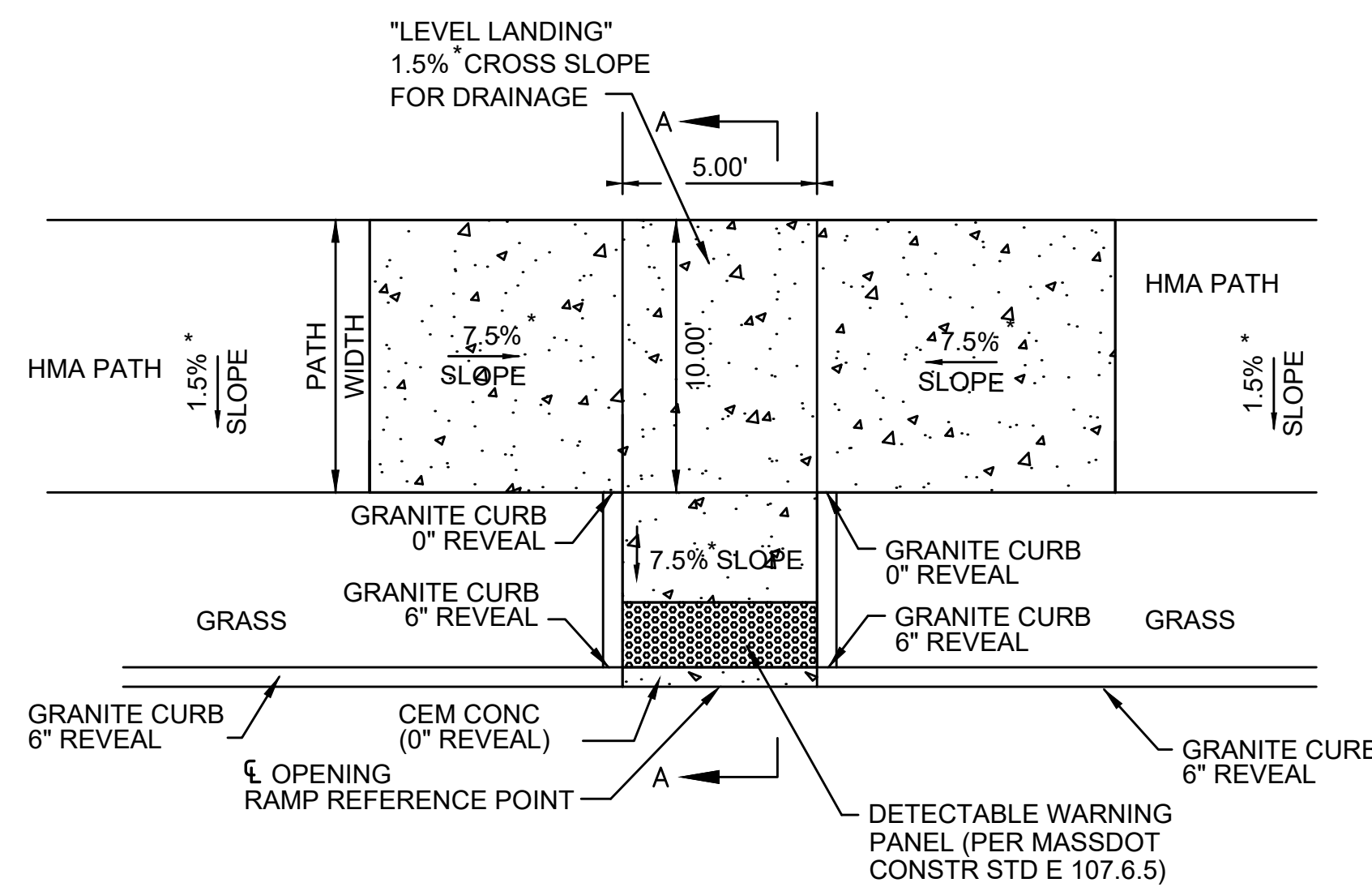
NTS

1. DETECTABLE WARNING PANELS ARE REQUIRED TO BE CONSTRUCTED ON ALL PROPOSED WHEELCHAIR RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD E 107.6.5.
2. PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. THERE MUST BE A MINIMUM 70% CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AND AN ADJOINING SURFACE.
3. NO SEPARATE PAYMENT SHALL BE MADE FOR DETECTABLE WARNING PANELS, BUT ALL COSTS IN CONNECTION THERE WITH SHALL BE INCLUDED WITH ITEM 701.2.

LIMITS OF CEMENT CONCRETE WHEELCHAIR RAMP

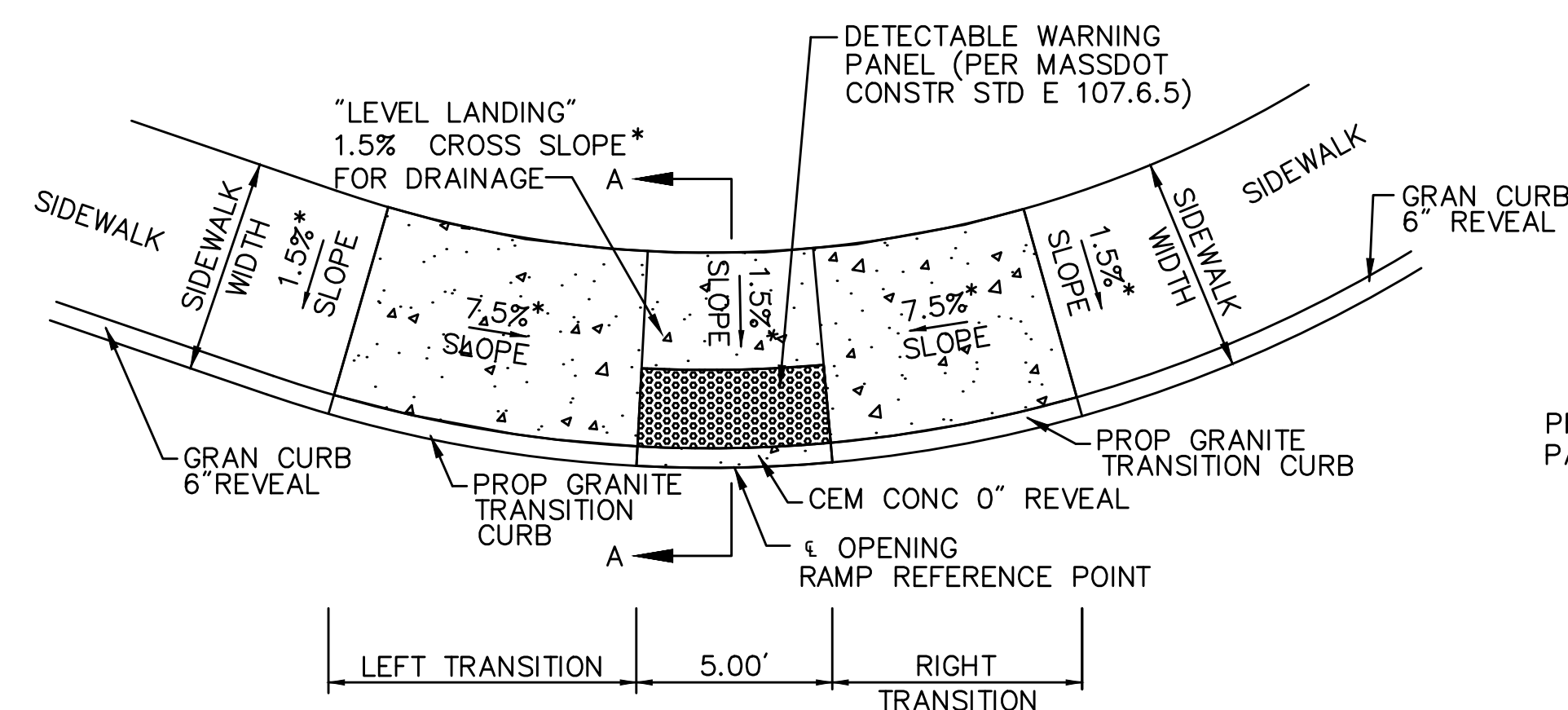


LIMITS OF DETECTABLE WARNING
PANEL (SEE SPECIFICATIONS FOR COLOR)



*TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

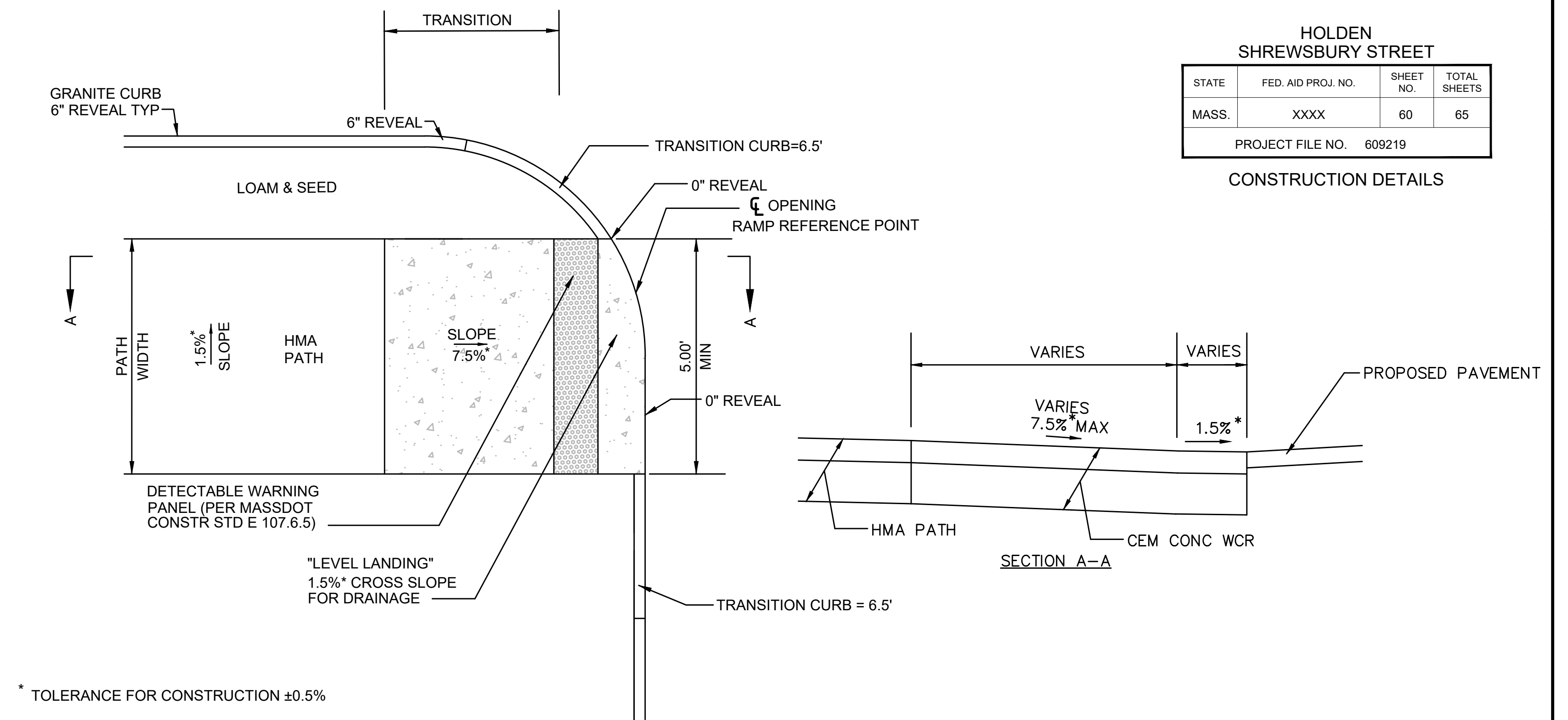
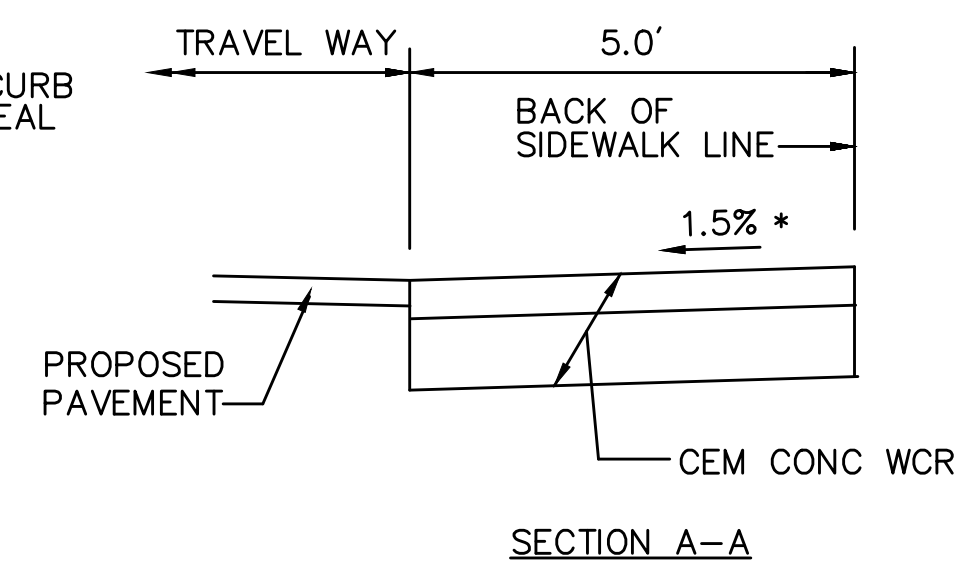
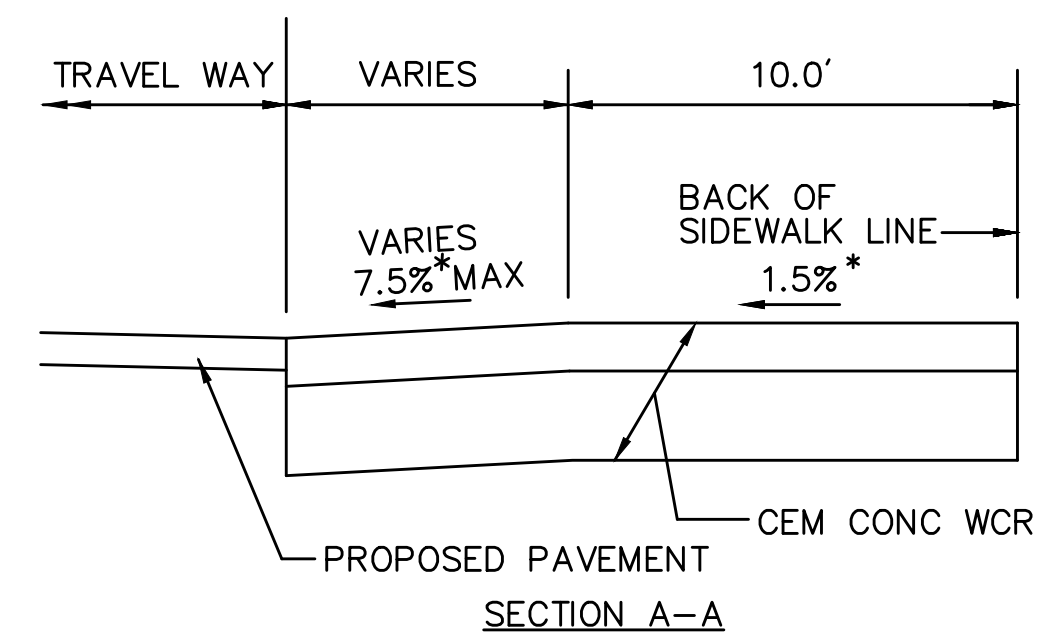
SCALE: N.T.S.



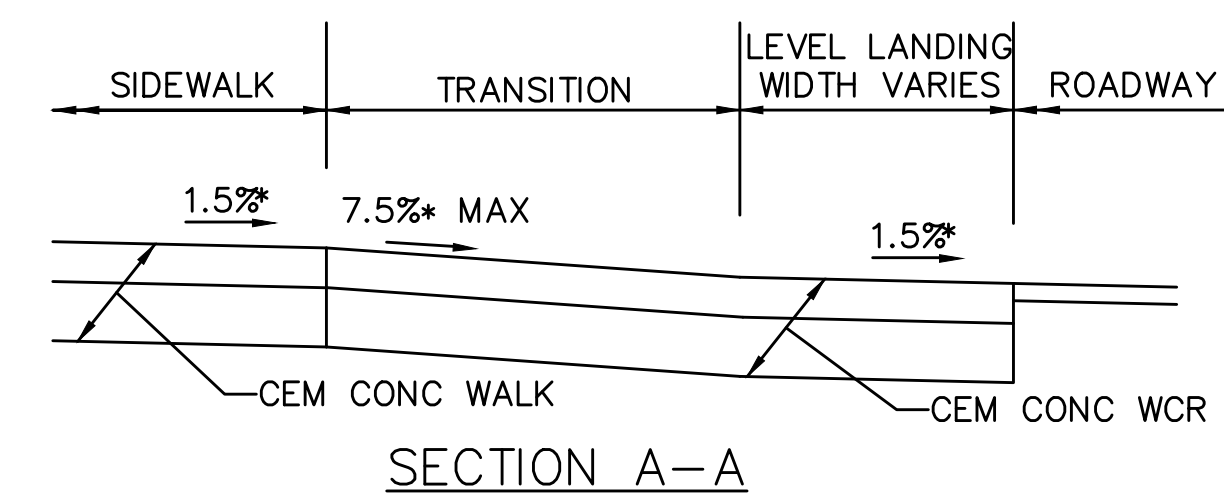
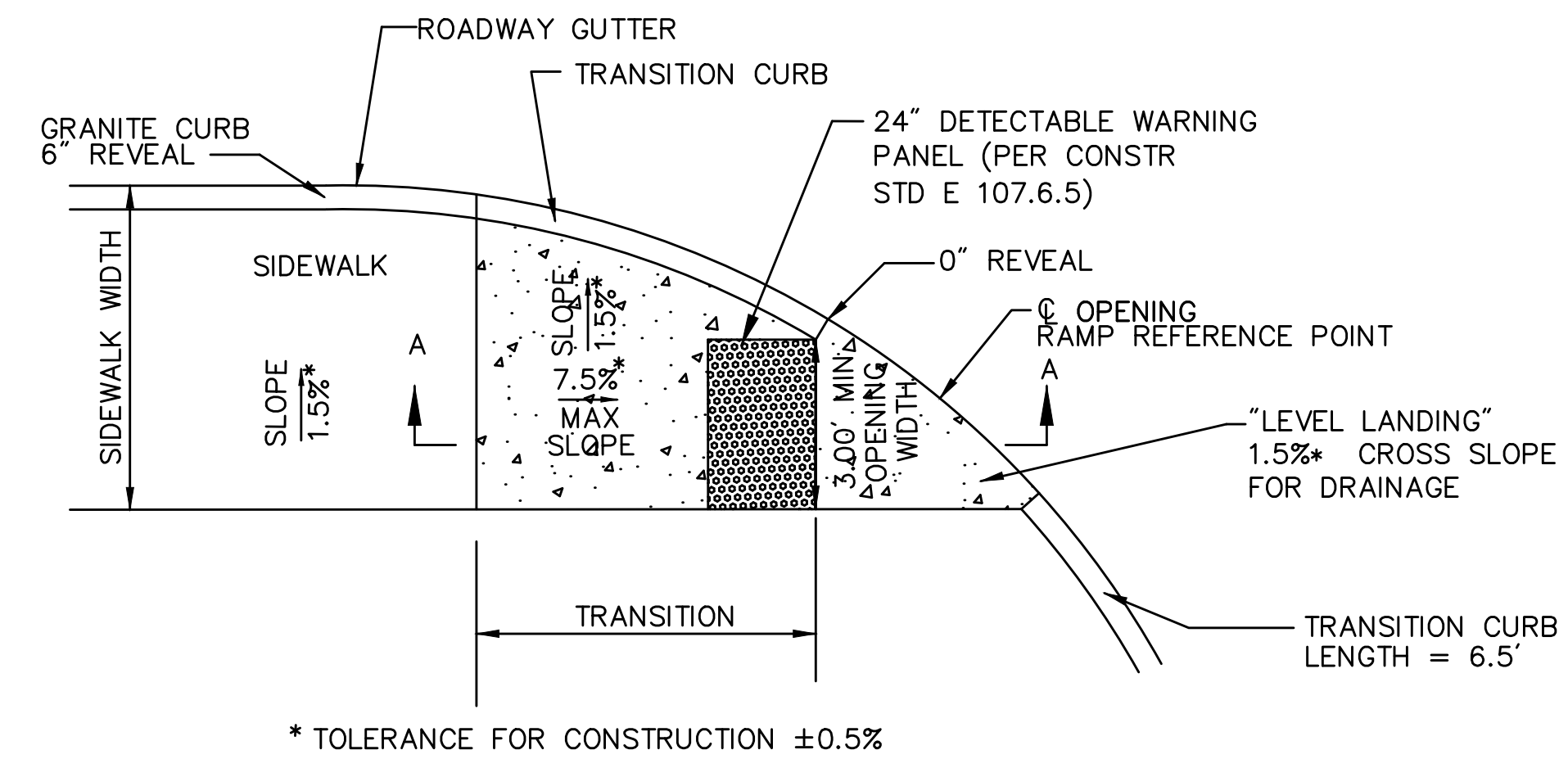
*TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

SCALE: N.T.S.

DWG: WCR-02



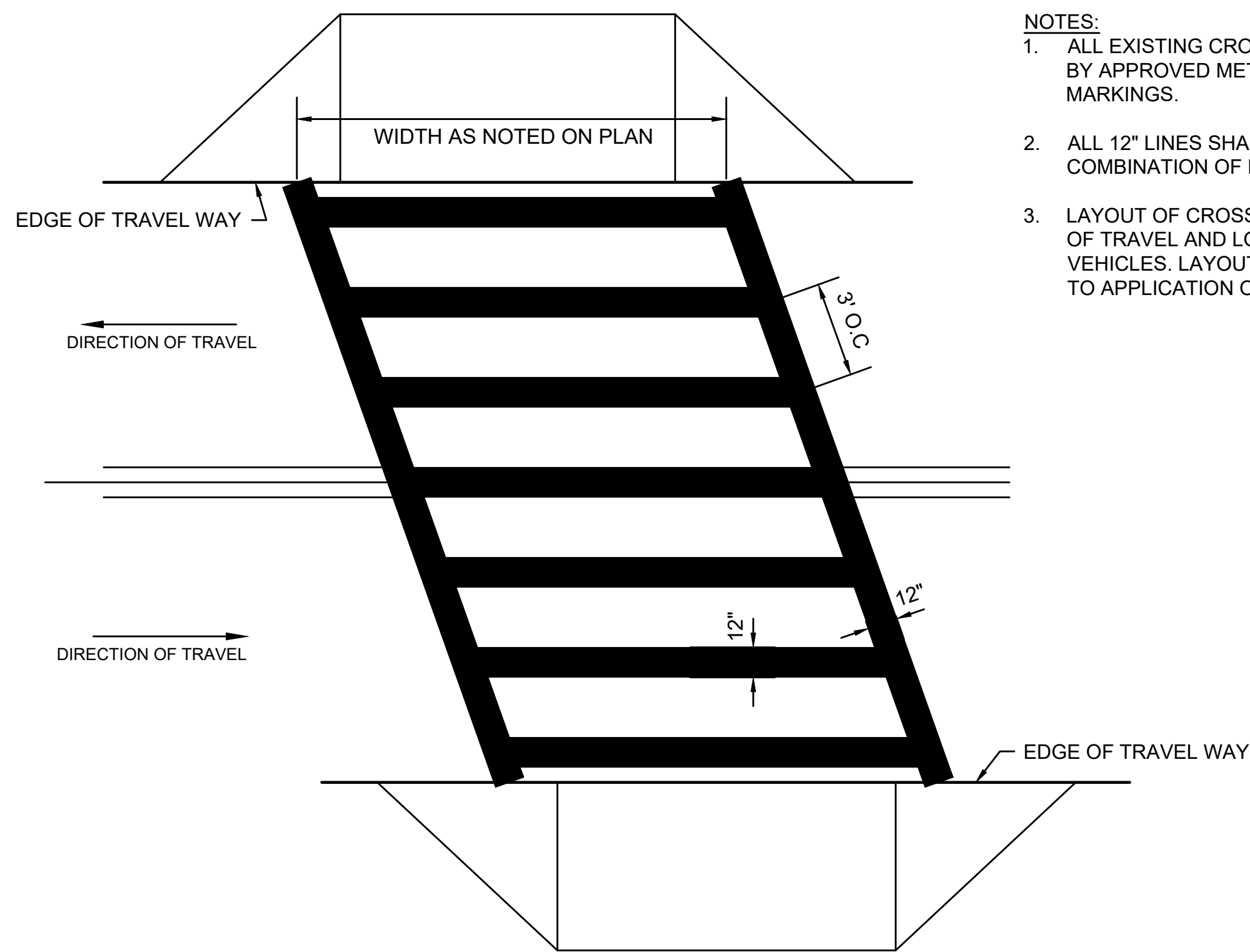
SCALE: N.T.S.



SCALE: N.T.S.

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	60	65
PROJECT FILE NO. 609219			

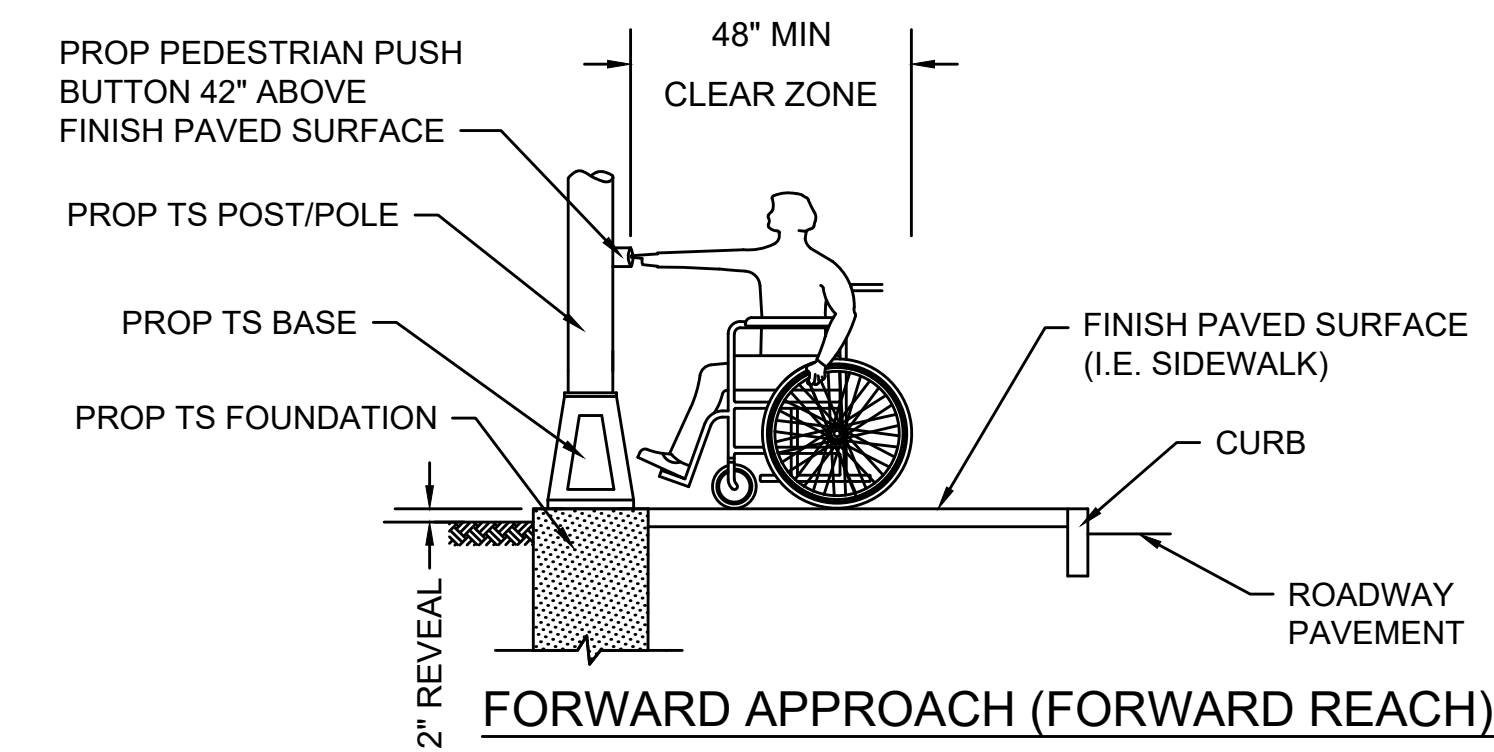
CONSTRUCTION DETAILS



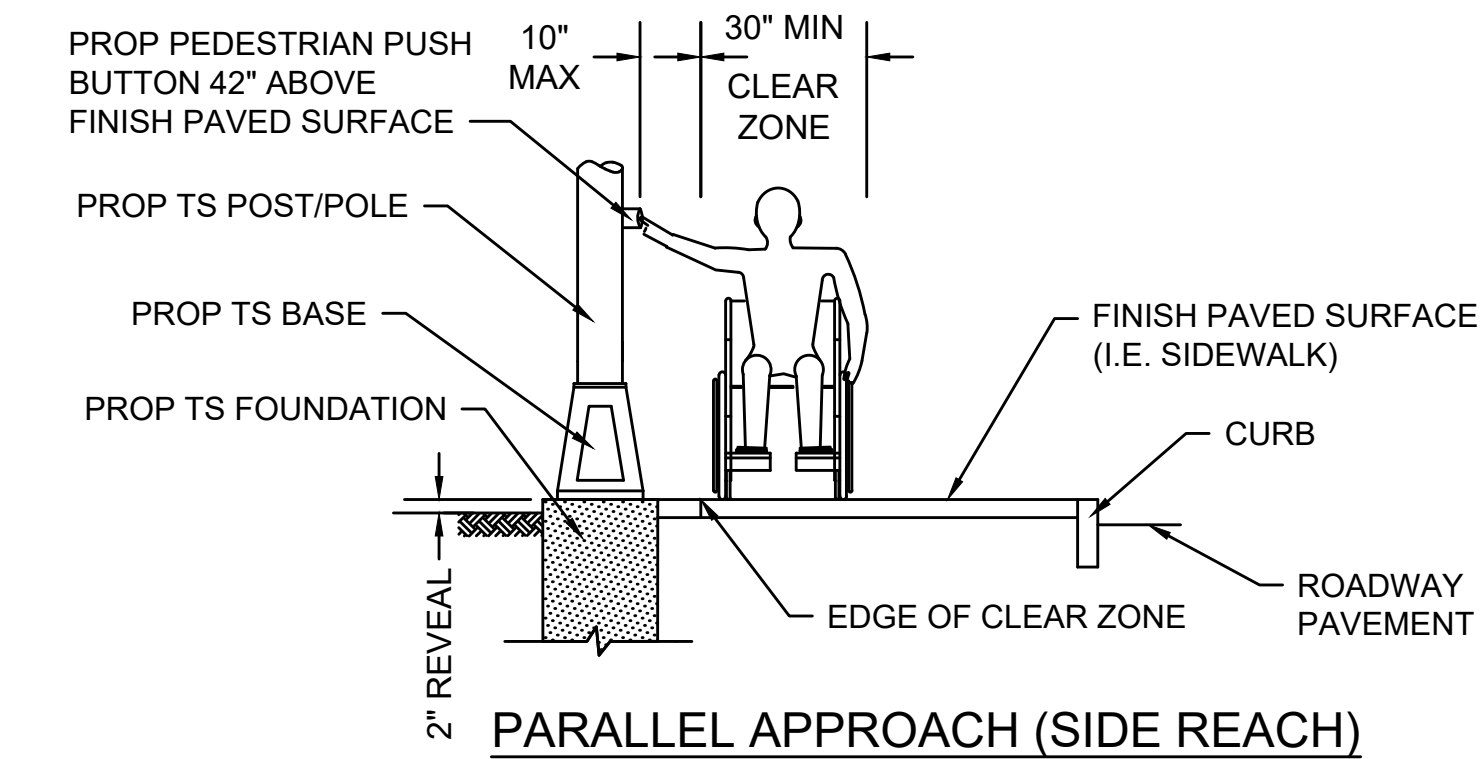
- NOTES:
1. ALL EXISTING CROSSWALK MARKINGS SHALL BE FULLY ERADICATED BY APPROVED METHOD PRIOR TO THE APPLICATION OF PROPOSED MARKINGS.
 2. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
 3. LAYOUT OF CROSSWALKS SHALL BE ORIENTATED IN THE DIRECTION OF TRAVEL AND LOCATED OUTSIDE OF THE WHEEL PATH OF VEHICLES. LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION OF MARKING MATERIAL.

HIGH-VISIBILITY CROSSWALK - 12" WIDE LINES

SCALE: N.T.S. DWG: PM-27 DATE: MAY 2017

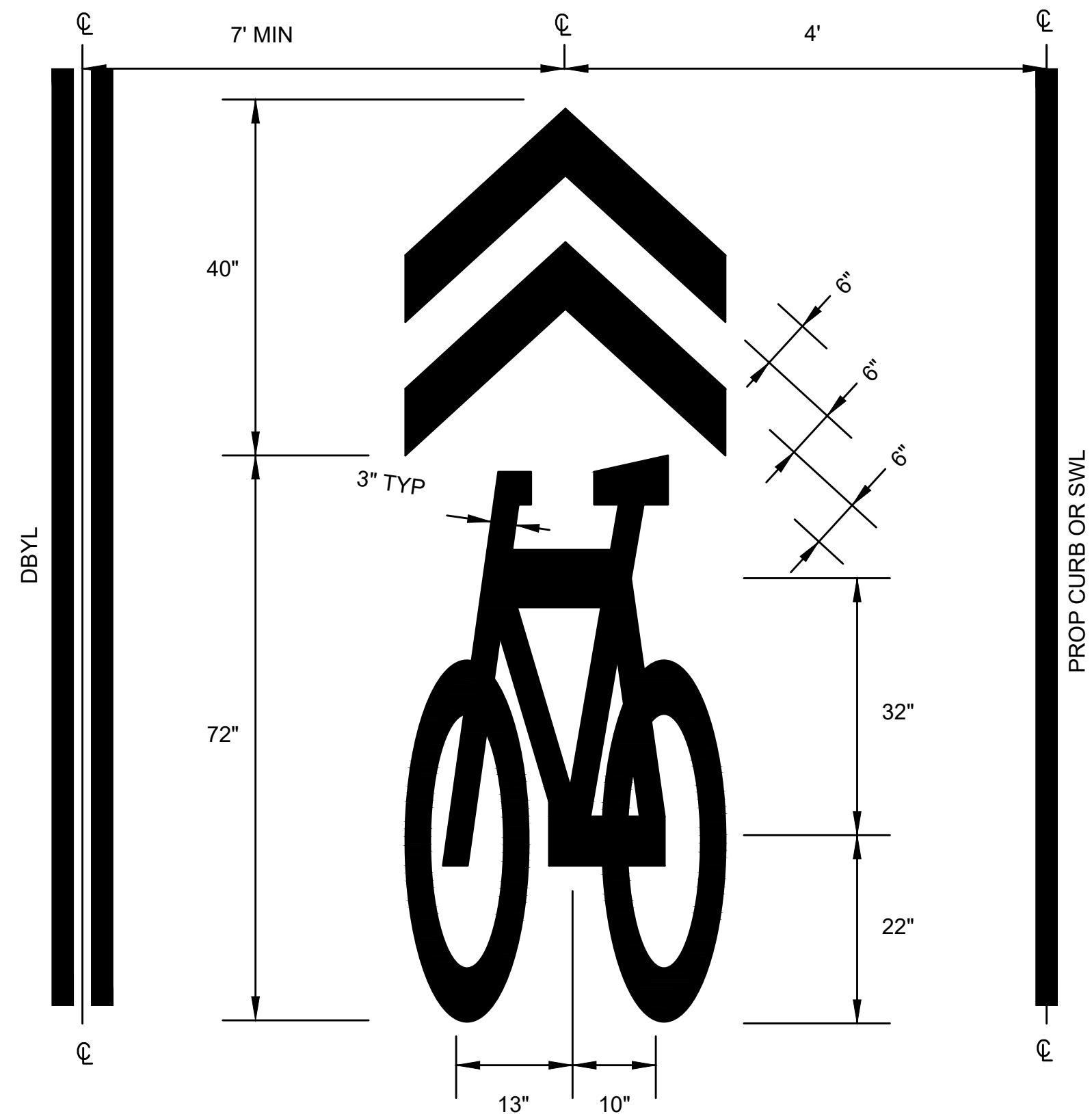


- NOTE:
A CLEAR GROUND SPACE SHALL CONSIST OF A STABLE AND FIRM AREA, COMPLYING WITH 521 CMR 6.5 (FORWARD REACH) OR 521 CMR 6.6 (SIDE REACH) AND SHALL BE PROVIDED AT EACH OF THE PEDESTRIAN PUSH BUTTONS.
- a) WHERE A FORWARD APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL ABUT AND BE CENTERED ON THE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



PEDESTRIAN PUSH BUTTON CLEAR ZONE

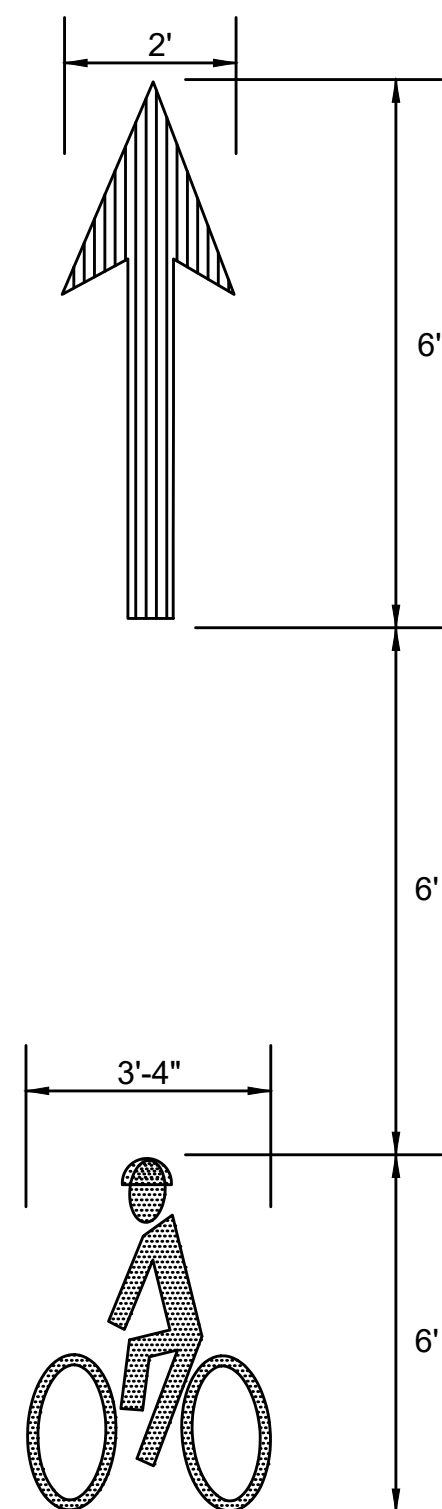
SCALE: N.T.S. DWG: PM-10 DATE: APRIL 2013



- NOTES:
1. SEE MUTCD FIGURE 9C-9 FOR MORE INFORMATION.
 2. SHARED LANE MARKINGS SHALL BE PREFORMED THERMOPLASTIC.

SHARROW PAVEMENT MARKING LAYOUT

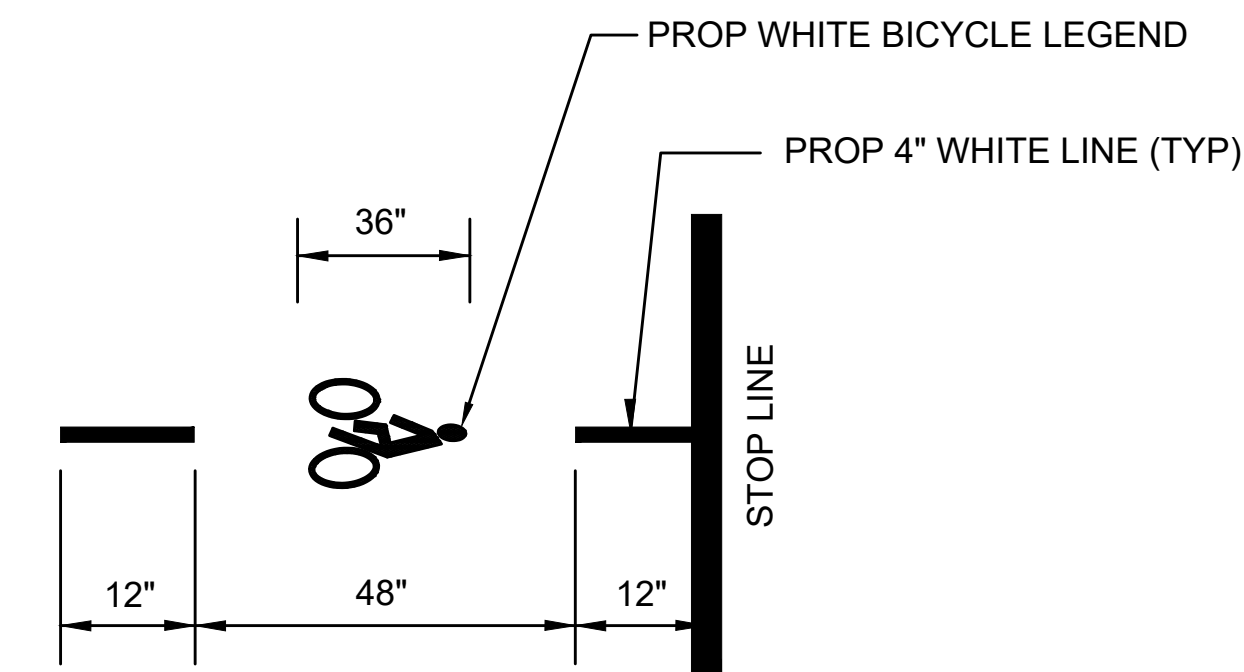
SCALE: N.T.S. DWG: PM-14 DATE: MARCH 2015



- NOTES:
1. SEE MUTCD FIGURE 9C-6 FOR MORE INFORMATION.
 2. BIKE LANE MARKINGS SHALL BE REFLECTORIZED PREFORMED THERMOPLASTIC.

BIKE LANE PAVEMENT MARKINGS

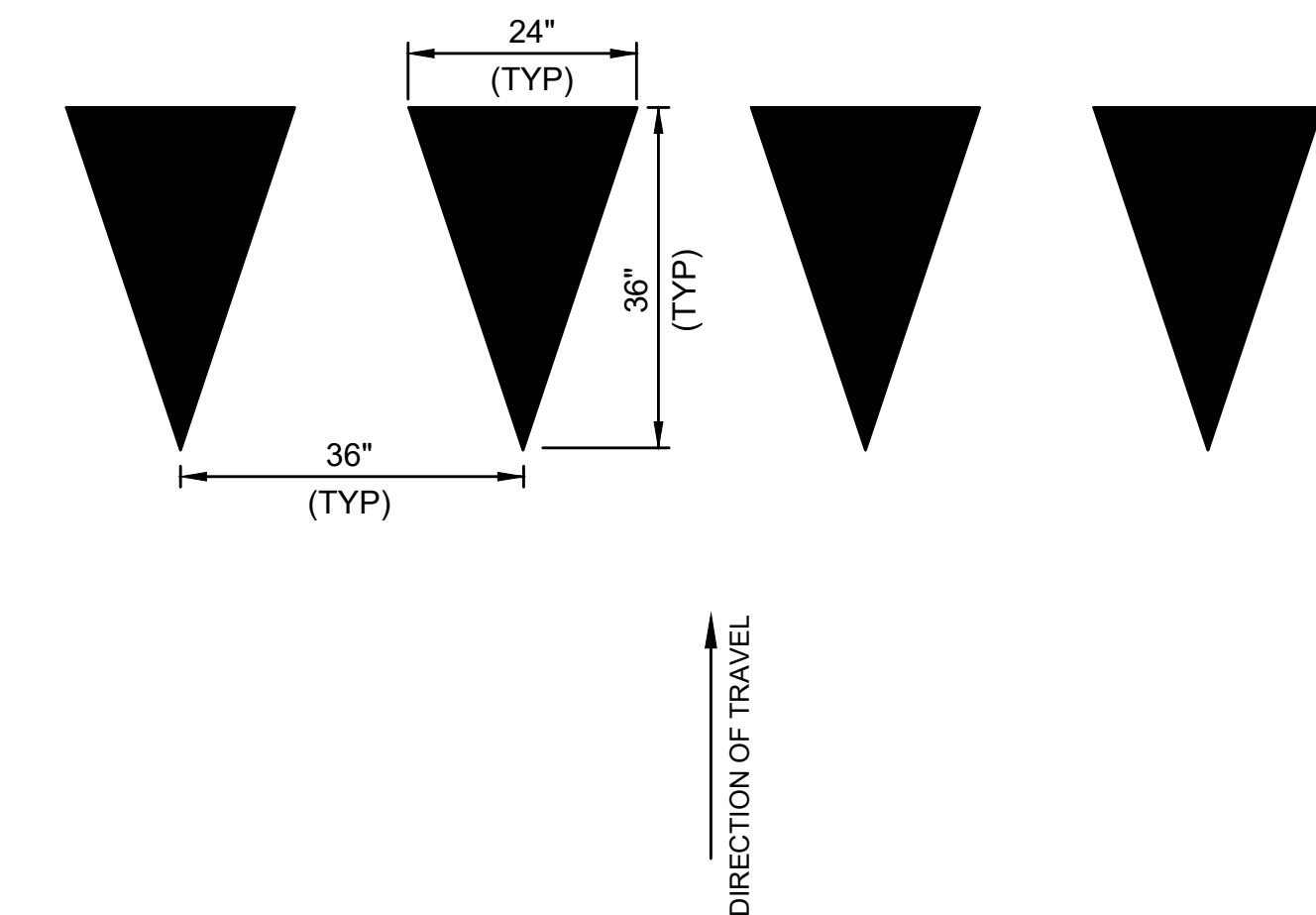
SCALE: N.T.S. DWG: PM-11 DATE: NOV 2015



NOTE:
BICYCLE LEGEND SHALL CONFORM TO THE 2004 EDITION OF STANDARD HIGHWAY SIGNS AND SCALED APPROPRIATELY TO OBTAIN REQUIRED HEIGHT OF MARKINGS.

BICYCLE LEGEND DETAIL

SCALE: N.T.S.



- NOTES:
1. YIELD LINES SHALL CONSIST OF A ROW OF SOLID WHITE TRIANGLES.
 2. IF APPLICABLE, YIELD LINES SHALL BE PLACED 4-FEET IN ADVANCE OF THE NEAREST CROSSWALK LINE.
 3. IN THE ABSENCE OF A MARKED CROSSWALK, YIELD LINES SHALL BE PLACED AS SHOWN ON THE PLANS.

YIELD LINE TRIANGLES

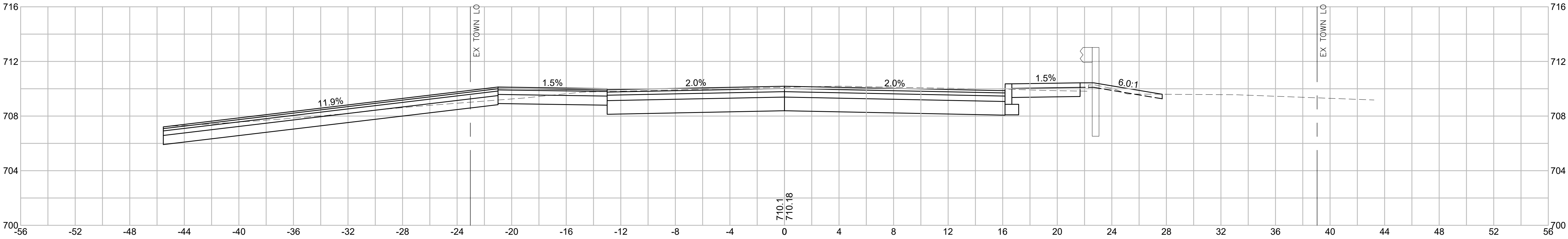
SCALE: NTS

HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	61	65
PROJECT FILE NO. 609219			
CONSTRUCTION DETAILS			

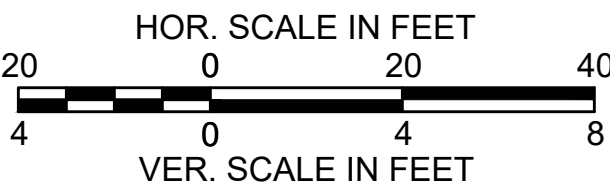
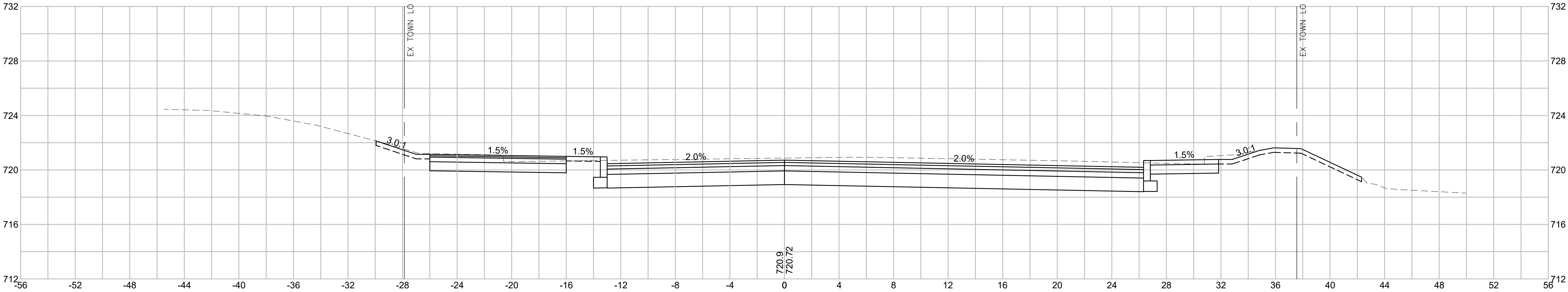
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	62	65
PROJECT FILE NO. 609219			

CRITICAL CROSS SECTIONS
SHREWSBURY STREET

14+40

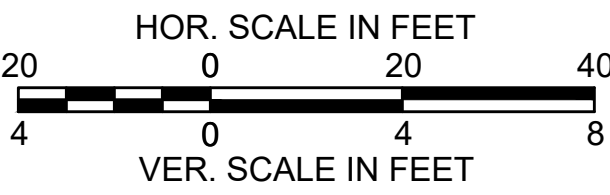
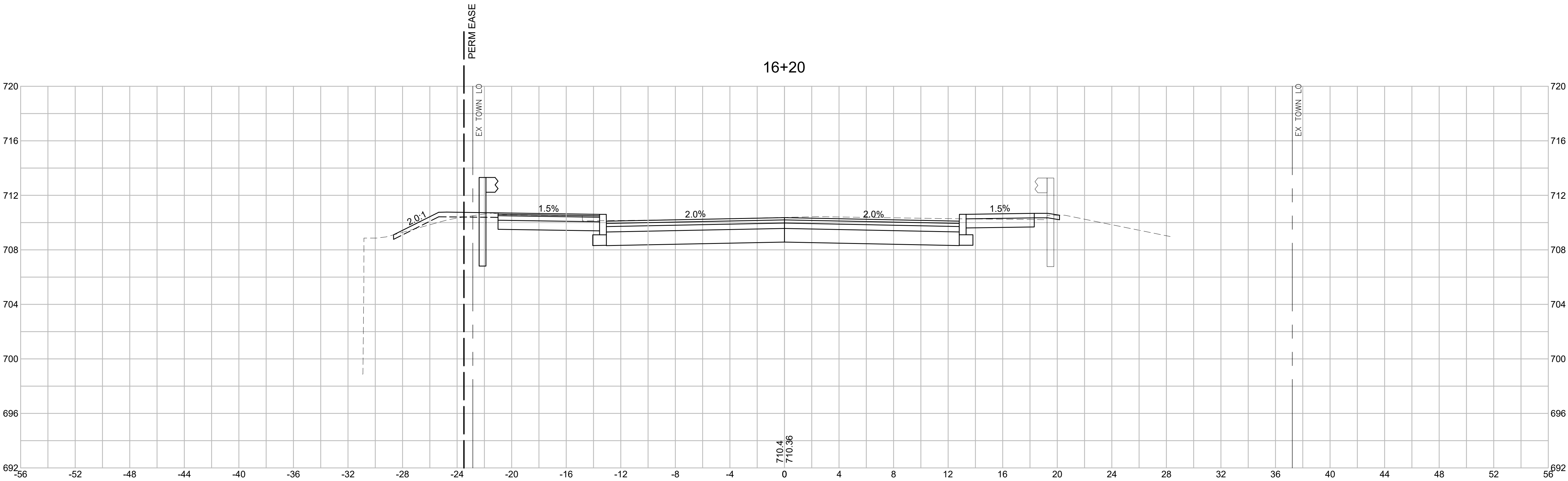
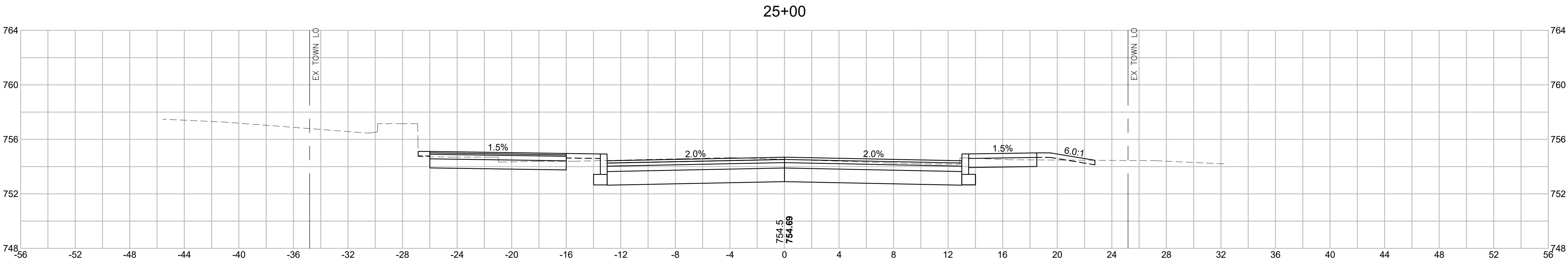


11+80



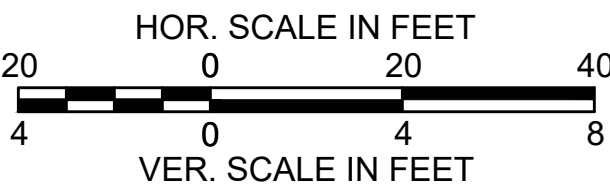
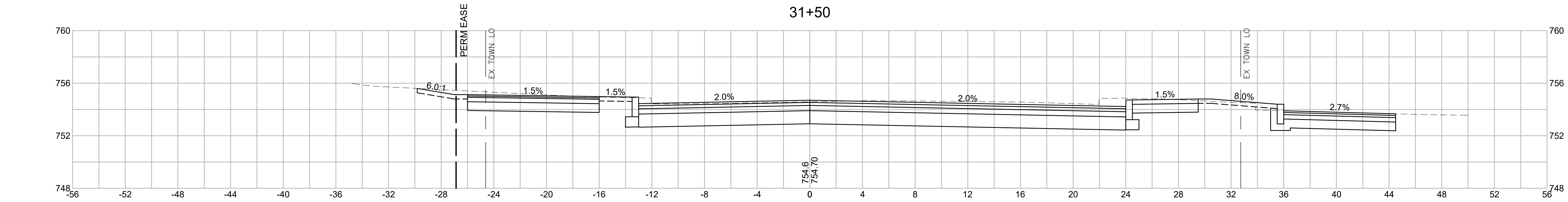
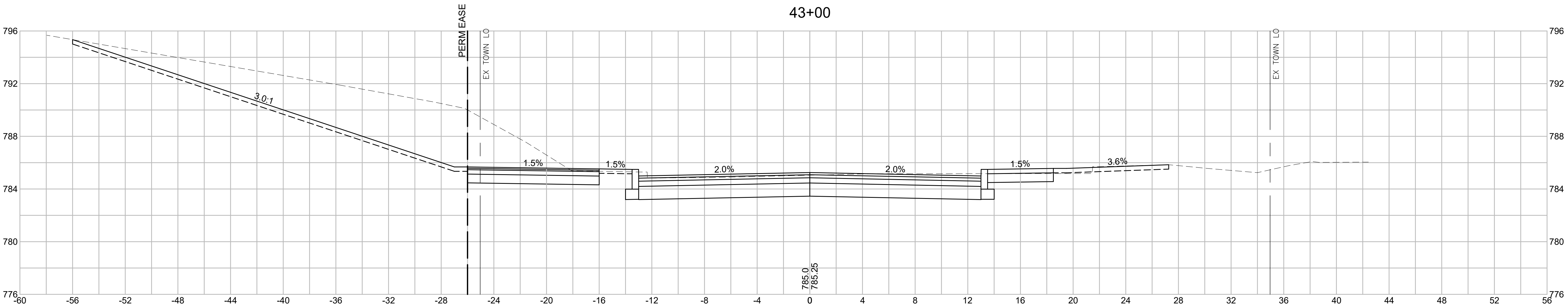
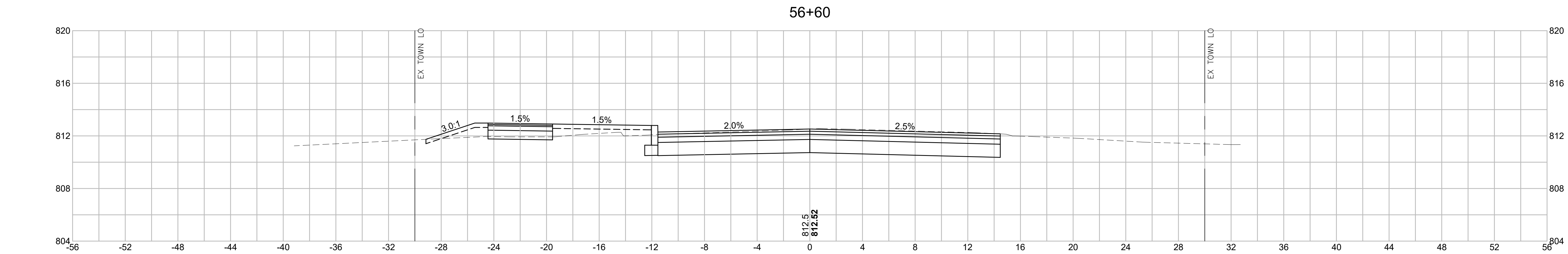
HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	63	65
PROJECT FILE NO. 609219			

CRITICAL CROSS SECTIONS
SHREWSBURY STREET



HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	64	65
PROJECT FILE NO. 609219			

CRITICAL CROSS SECTIONS
SHREWSBURY STREET



HOLDEN SHREWSBURY STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	65	65
PROJECT FILE NO. 609219			

CRITICAL CROSS SECTIONS
DOYLE AND CHAPEL-HOLDEN STREET

