

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

PLAN AND PROFILE OF
ROUTE 2A (AYER ROAD)
IN THE TOWNS OF
LITTLETON/AYER
MIDDLESEX COUNTY

FEDERAL AID PROJECT NO.

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.

LITTLETON/AYER ROUTE 2A (AYER ROAD)			
STATE	FED. AID PROJ. NO.	sheet no.	total sheets
MA	-	1	76
PROJECT FILE NO.			608443

TITLE AND INDEX SHEET

Plotted on 8-Jul-2021 2:01 PM

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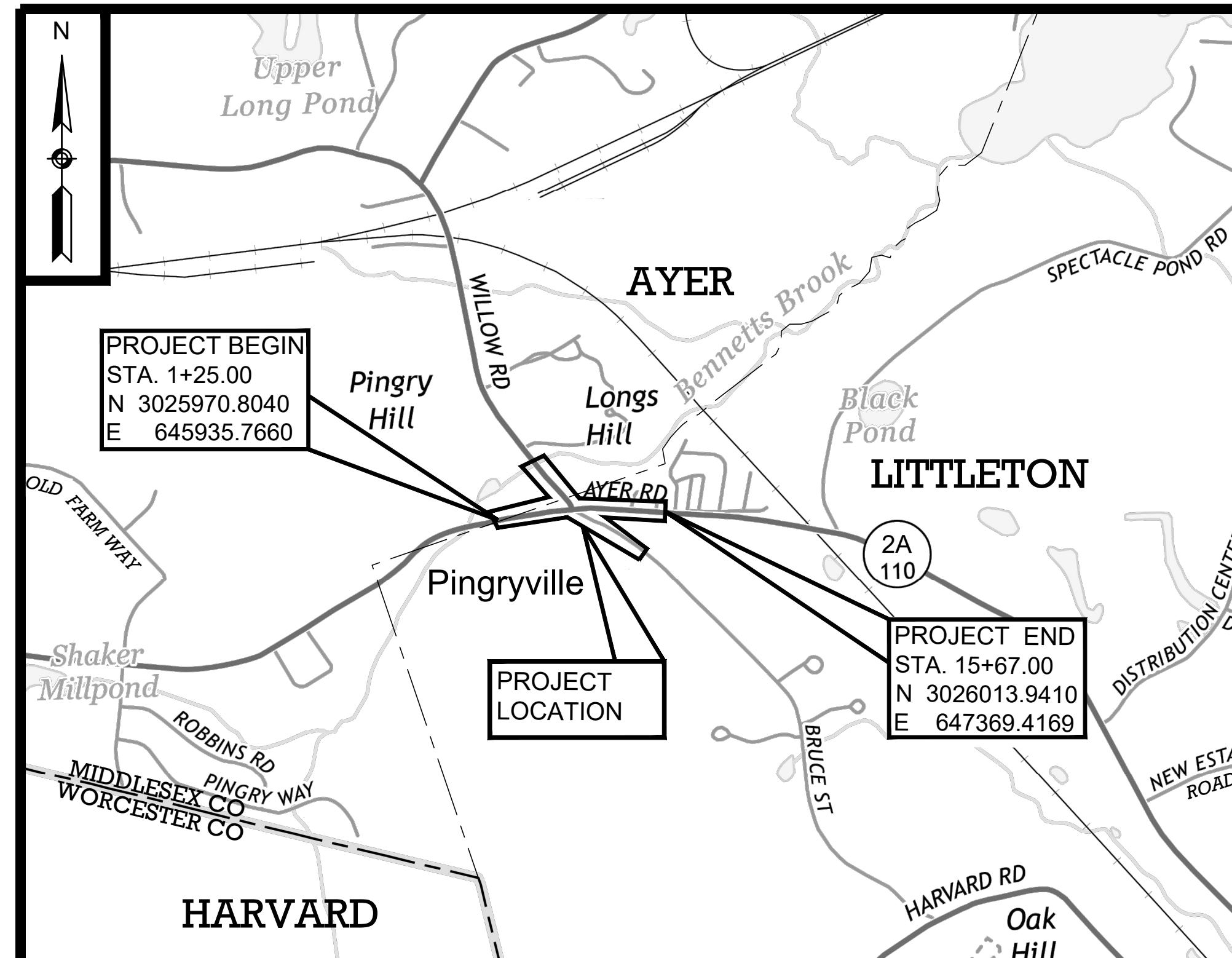
75% SUBMITTAL

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SHEETS TO BE INCLUDED IN THE 100% DESIGN SUBMISSION

BORING LOGS



0 2000 4000 6000 8000
SCALE: 1" = 2000'

LENGTH OF PROJECT = 1442.00 FEET = 0.273 MILES

DESIGN DESIGNATION (ROUTE 2A (AYER ROAD))

DESIGN SPEED	50 MPH
ADT (2017)	14,460
ADT (2037)	15,980
K	7.7%
D	65.7%
T (PEAK HOUR)	7.2%
T (AVERAGE DAY)	10.7%
DHV	1,230
DDHV	810
FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL

7/8/2021	75% SUBMISSION	REV 0
		
APPROVED		
CHIEF ENGINEER	DATE	

PREPARED BY
 GREEN INTERNATIONAL AFFILIATES, INC.
Civil and Structural Engineers Westford, Massachusetts

GENERAL SYMBOLS		DESCRIPTION
EXISTING	PROPOSED	
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
C	C	CABLE MANHOLE
D	D	DRAINAGE MANHOLE
E	E	ELECTRIC MANHOLE
G	G	GAS MANHOLE
M	M	MISC MANHOLE
S	S	SEWER MANHOLE
T	T	TELEPHONE MANHOLE
W	W	WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W/ 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100-99-		CONTOURS (ON-THE-GROUND SURVEY DATA)
100-99-		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
oooooooooooo	oooooooooooo	BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		EDGE OF PAVEMENT
		LIMIT OF MICROMILLING 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		DESCRIPTION
EXISTING	PROPOSED	
Ø1	Ø1	CONTROLLER PHASE ACTUATED
Ø1	Ø1	TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	•	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
	• ²⁰ •	HIGH MAST POLE OR TOWER
	○	SIGN AND POST
	○ ²⁰ •	SIGN AND POST (2 POSTS)
	• ²⁰ •	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
TRAFFIC SIGNAL CONDUIT		

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

LITTLETON/AYER ROUTE 2A (AYER ROAD)			
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MA	-	2	76
PROJECT FILE NO. 608443			
LEGEND & ABBREVIATIONS			

PAVEMENT MARKINGS SYMBOLS		DESCRIPTION
EXISTING	PROPOSED	
↑	↑	PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
SL	SL	STOP LINE - 12"
CW	CW	CROSSWALK
SWL	SWL	SOLID WHITE LINE - 6"
SYL	SYL	SOLID YELLOW LINE - 6"
BWL	BWL	BROKEN WHITE LINE - 6" (10' LINE SEGMENT AND 30' GAP)
BYL	BYL	BROKEN YELLOW LINE - 6" (10' LINE SEGMENT AND 30' GAP)
DWL	DWL	DOTTED WHITE LINE - 6" (3' LINE SEGMENT AND 9' GAP)
DYL	DYL	DOTTED YELLOW LINE - 6" (3' LINE SEGMENT AND 9' GAP)
DWLEX	DWLEX	DOTTED WHITE LINE EXTENSION - 6" (2' LINE SEGMENT AND 6' GAP)
DYLEX	DYLEX	DOTTED YELLOW LINE EXTENSION - 6" (2' LINE SEGMENT AND 6' GAP)
DBWL	DBWL	DOUBLE WHITE LINE - 6"
DBYL	DBYL	DOUBLE YELLOW LINE - 6"
	↖↖↖↖	12" SOLID YELLOW GORE LINES @ 10' O.C. @ 45°

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

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SCHEET NO.	TOTAL SHEETS
MA	-	3	76

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GENERAL NOTES

- THE LOCATIONS OF THE EXISTING UTILITIES SHOWN ARE APPROXIMATE AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SUBSURFACE STRUCTURES. THE CONTRACTOR IS RESPONSIBLE FOR MAKING FIELD INVESTIGATIONS AND OBTAINING INFORMATION FROM UTILITY COMPANIES AND INDIVIDUALS TO PINPOINT THE LOCATION AND ELEVATION OF ALL SUBSURFACE UTILITIES AND STRUCTURES. DIG-SAFE SHALL BE CONTACTED 72 HOURS PRIOR TO THE START OF CONSTRUCTION. DIG-SAFE TELEPHONE: 1-888-344-7233.
- ALL DRAINAGE STRUCTURES, WATER GATES, AND CURB STOPS ARE TO BE ADJUSTED TO FINISHED GRADE UNLESS OTHERWISE NOTED.
- ALL GAS GATES, TELEPHONE MANHOLES, ELECTRIC MANHOLES AND ELECTRIC HANDHOLES ARE TO BE ADJUSTED TO FINISHED GRADE BY OTHERS UNLESS OTHERWISE NOTED.
- ALL UTILITY POLES REQUIRING RELOCATION ARE TO BE RELOCATED BY OTHERS.
- MINIMUM CLEAR PATH ON THE SHARED USE PATHS SHALL BE 8'-0" EXCLUDING THE SURFACE OF THE CURB.
- WHEELCHAIR RAMPS AND DRIVEWAYS SHALL CONFORM TO THE CURRENT MASSDOT STANDARDS, ADA REQUIREMENTS AND MASSACHUSETTS ARCHITECTURAL ACCESS BOARD REQUIREMENTS.
- THE CONTRACTOR SHALL RETAIN ALL CURBS, FENCES, WALLS, TREES, SHRUBS, POSTS, LANDSCAPE FEATURES, AND OTHER MISCELLANEOUS ITEMS WITHIN ABUTTING PROPERTIES, UNLESS OTHERWISE NOTED. WHEN RETAINING THOSE ITEMS IS NOT PRACTICAL IN THE OPINION OF THE ENGINEER, THE CONTRACTOR SHALL REMOVE, STOCKPILE, PROTECT AND RESET THE ITEMS. THE CONTRACTOR SHALL REPLACE ITEMS DAMAGED DURING REMOVAL, STOCKPILING, OR RESETTING DUE TO NEGLIGENCE, CARELESSNESS, OR MISHANDLING WITH EQUIVALENT NEW ITEMS AT NO COST TO THE OWNER.
- ALL TREES WITHIN THE SLOPE LIMIT SHALL BE RETAINED AND PROTECTED UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PROTECT ALL PROPERTY MARKERS UNLESS OTHERWISE NOTED IN THE PLANS. THE CONTRACTOR IS HEREBY RESPONSIBLE FOR REPLACING ANY EXISTING MASSACHUSETTS HIGHWAY BOUND OR PRIVATE PROPERTY PIN DAMAGED OR DESTROYED DURING CONSTRUCTION TO ITS PRE-CONSTRUCTION LOCATION.
- TREATMENT OF SLOPE AREAS SHALL BE REPLACEMENT IN KIND UNLESS OTHERWISE NOTED.
- THE RIGHT OF WAY LINES SHOWN ON THIS PLAN ARE THE DIRECT RESULT OF AN INSTRUMENT SURVEY PERFORMED ON THE GROUND IN MAY OF 2016 BY GREEN INTERNATIONAL AFFILIATES, INC. (GREEN) WITH AN ERROR OF CLOSURE LESS THAN 1:15,000, AND FROM PLANS AND DEEDS OF RECORD. PROPERTY LINES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE BASED UPON RECORD DEEDS, PLANS AND ASSESSORS INFORMATION.
- HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED BY MASSDOT SURVEY, IN BOOK 41023, PAGE 109, ON MAY 31, 2016. HORIZONTAL DATUM IS BASED ON THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MAINLAND) NAD83 (2011), 2010.00 EPOCH. VERTICAL DATUM IS NAVD88. THE UNIT OF MEASUREMENTS IS US SURVEY FEET.
- OWNERSHIP AND DEED INFORMATION WAS OBTAINED FROM THE TOWNS OF LITTLETON AND AYER ASSESSORS OFFICES AND THE MIDDLESEX(SOUTH) COUNTY REGISTRY OF DEEDS. ALL INFORMATION WAS CURRENT AS OF THE DATE OF THE JUNE 2021 GREEN SURVEY.
- THE SAID PARCELS SHOWN HEREIN ARE SUBJECT TO RIGHTS AND EASEMENTS AS CONTAINED WITHIN THE VARIOUS DEEDS OF RECORD DESCRIBING SAID PREMISES. THE LOCATIONS AND EXTENT OF SAID RIGHTS AND EASEMENTS ARE NOT THE SUBJECT OF THIS SURVEY.
- EXTRA CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN PERFORMING WORK IN CLOSE PROXIMITY (I.E. EXCAVATION WITH HAND TOOLS) TO THE EXISTING SEPTIC SYSTEM AT 254 AYER ROAD TO PREVENT ANY DAMAGE TO THE SEPTIC SYSTEM. ANY DAMAGE TO THE EXISTING SEPTIC SYSTEM DUE TO THE NEGLIGENCE OR CARELESSNESS OF THE CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
- ALL CASTINGS AND HANDHOLES SHALL BE ADJUSTED SUCH THAT THE TOP MOST SURFACES OF THE STRUCTURE IS FLUSH WITH THE SIDEWALK, RAMP OR OTHER ACCESSIBLE SURFACES.

DRAINAGE NOTES

- ALL REINFORCED CONCRETE (RCP) PIPE SHALL BE CLASS III UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ALL CONFLICTS BETWEEN THE EXISTING UTILITIES AND THE PROPOSED WORK. THE ENGINEER RESERVES THE RIGHT TO MODIFY THE DESIGN TO REALIGN THE PIPE AND STRUCTURE LOCATIONS AND INVERTS TO SUIT ACTUAL FIELD CONDITIONS ENCOUNTERED AT NO ADDITIONAL COST.
- ALL OFFSETS TO THE CATCH BASINS ARE TO THE CENTER OF THE GRATE. THE LOCATION AND ORIENTATION OF THE BELOW GRADE STRUCTURE SHALL BE FIELD COORDINATED BY THE CONTRACTOR TO AVOID CONFLICTS WITH EXISTING UTILITIES.
- ALL EXISTING AND PROPOSED CATCH BASINS SHALL BE PROTECTED FROM SEDIMENT INUNDATION DURING ALL CONSTRUCTION ACTIVITIES.
- ALL EXISTING DRAIN PIPES UNDER THE PROPOSED ROAD OR SIDEWALK SHALL BE RETAINED UNLESS OTHERWISE NOTED. IF THE EXISTING PIPE IS TO BE REMOVED TO ACCOMMODATE THE WORK OR ABANDONED AND IT EXTENDS OUTSIDE THE PROPOSED ROADWAY OR SIDEWALK LIMIT IT SHALL BE CUT AND CAPPED AT THE RESPECTIVE LIMIT AT NO ADDITIONAL COST. REMOVAL AND DISPOSAL OF THESE PIPES ARE INCIDENTAL TO THE DRAINAGE ITEMS.
- ALL PROPOSED CATCH BASINS SHALL BE DEEP SUMP CATCH BASINS WITH HOOD.
- 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. FIELD ADJUSTMENTS WILL BE MADE AS APPROVED OR AS REQUIRED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO DRAIN LINE UP TO A DEPTH OF 5 FEET SHALL BE INCLUDED IN THE COST OF THE PIPE.
- ALL SINGLE GRATE CATCH BASINS AND DRAIN MANHOLE STRUCTURES ARE ECCENTRIC, UNLESS OTHERWISE NOTED.
- USE FLAT TOP SLAB MANHOLE AND CATCH BASIN WHERE NEEDED AND APPROVED BY THE ENGINEER.
- IN INSTANCES WHERE AN EXISTING MANHOLE, HANDHOLE OR "SURFACE" TYPE STRUCTURE THAT CANNOT BE REMOVED OR RESET IS WITHIN THE PROPOSED OR EXISTING ACCESSIBLE SURFACE, THE STRUCTURE SHALL BE CAREFULLY ADJUSTED SUCH THAT THE TOPMOST SURFACES OR THE STRUCTURE COVER SHALL BE FLUSH WITH THE CURB RAMP SURFACE.
- A MINIMUM OF 12" OF SEPARATION BETWEEN THE EXISTING 8" HP GAS MAIN AND ALL IMPROVEMENTS MUST BE MAINTAINED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF EXISTING FIELD CONDITIONS DO NOT ALLOW FOR THIS SEPARATION REQUIREMENT TO BE MAINTAINED.
- THE REMOVAL OF THE STONE WALL SHALL BE PAID FOR UNDER ITEM 120, EARTH EXCAVATION.
- ALL EXISTING CATCH BASINS TO BE RETAINED WITHIN THE LIMIT OF WORK SHALL BE CLEANED AS DIRECTED BY THE ENGINEER.
- BICYCLE SAFE CASCADE GRATE SHALL BE USED FOR ALL THE INLETS ON CONTINUOUS GRADES. AT LOW POINTS RECTANGULAR BAR GRATES SHALL BE USED.

UTILITY NOTES:

- THE CONTRACTOR IS HEREBY MADE AWARE THAT EXISTING UTILITIES, INCLUDING BUT NOT LIMITED TO EXISTING WATER AND DRAIN PIPES; DRAINAGE AND SEWER STRUCTURES; GAS LINES, COMMUNICATION LINES AND UTILITY POLES, MAY NEED TO BE PROTECTED AND/OR SHORED UP DURING THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS UNDER THIS PROJECT. THE COST OF THE WORK REQUIRED FOR THE PROTECTION, MAINTENANCE AND SUPPORT OF THESE OR OTHER EXISTING ABOVEGROUND OR UNDERGROUND UTILITIES IN THE VICINITY OF THE PROPOSED WORK SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED INCIDENTAL TO THE WORK UNDER THIS CONTRACT.
- THIS PLAN WAS PREPARED IN CONFORMANCE WITH AMERICAN SOCIETY OF CIVIL ENGINEERS STANDARD CI/ASCE 38-02 "STANDARD GUIDELINE FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA", QL "C". REFER TO UTILITY QUALITY LEVEL INFORMATION INDEX. ACCURACY OF UTILITY LOCATIONS IS NOT GUARANTEED.
- BELOW GROUND STRUCTURES, UNLESS DIMENSIONED, ARE SYMBOLIC ONLY.
- ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE NOTIFIED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN (SEE CHAPTER 370, ACTS OF 1963, MASSACHUSETTS) PRIOR TO DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORING, OR REPAVING.
- THE EXISTING CONDITIONS PLAN IS TO BE USED FOR THE SPECIFIED PROJECT ONLY AND IS NOT WARRANTED TO BE COMPLETE FOR ANY OTHER FUTURE PROJECTS.

SUMMARY OF UTILITY MAPPING QUALITY LEVELS:

THE FOLLOWING IS A SUMMARY OF THE SURVEY MAPPING LEVELS FOR UTILITIES AS DESCRIBED IN ASCE STANDARD 38-02, "STANDARD GUIDELINE FOR THE DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". THESE GUIDELINES ARE MORE FULLY DESCRIBED IN THE ASCE STANDARD.

UTILITY QUALITY LEVEL A:
PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15-MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.

UTILITY QUALITY LEVEL B:
INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL B DATA SHOULD BE REPRODUCIBLE BY SURFACE GEOPHYSICS AT ANY POINT OF THEIR DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.

UTILITY QUALITY LEVEL C:
INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL D INFORMATION.

UTILITY QUALITY LEVEL D:
INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.

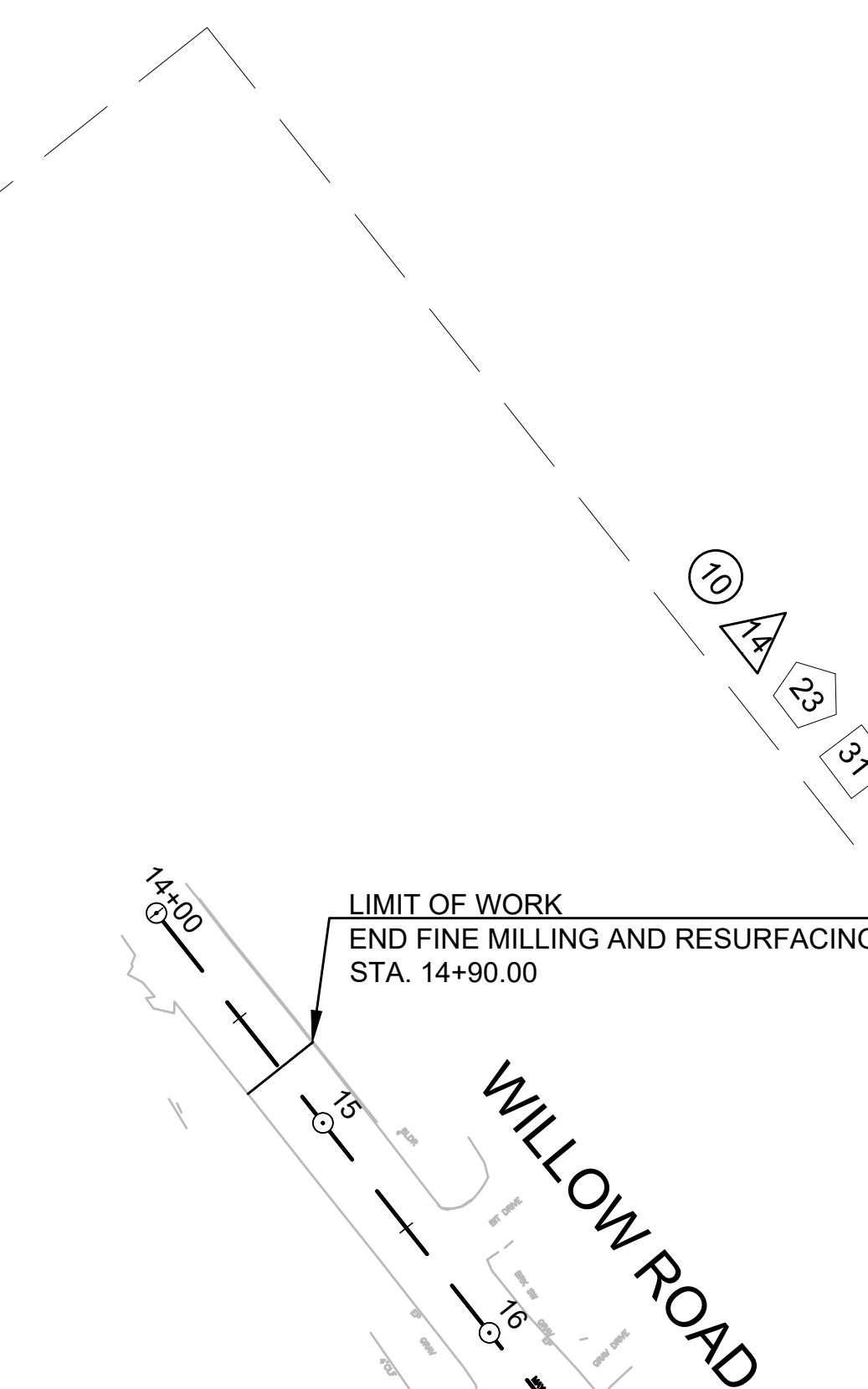
EROSION AND SEDIMENT CONTROL NOTES:

- ALL EROSION CONTROL MEASURES MUST BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBANCE / EARTHWORK ACTIVITIES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR, REPLACEMENT AND MAINTENANCE OF ALL SEDIMENTATION / EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

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KEY PLAN



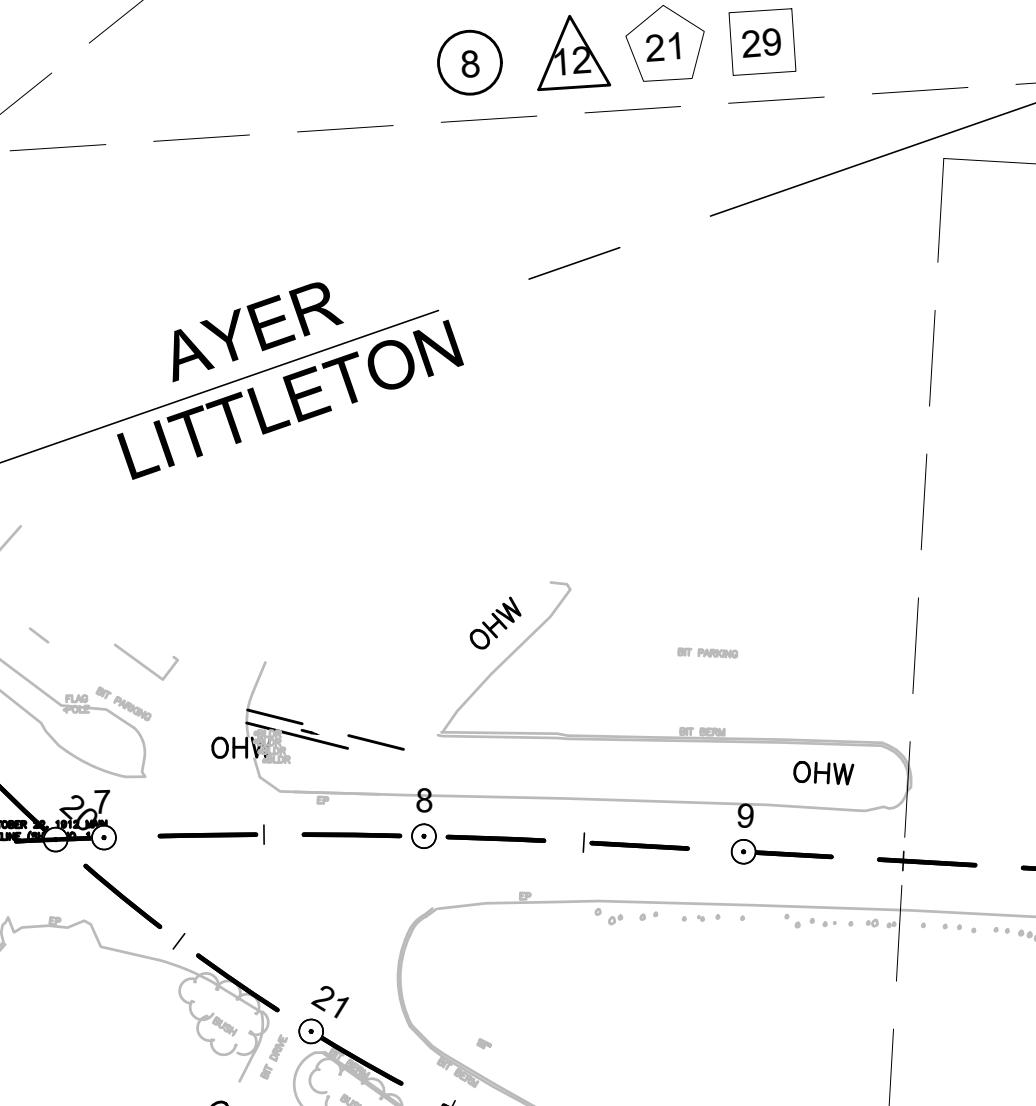
WILLOW ROAD

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00
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E 645935.7660]

ROUTE 2A/110
(AYER ROAD)

APPROX.
TOWN LINE

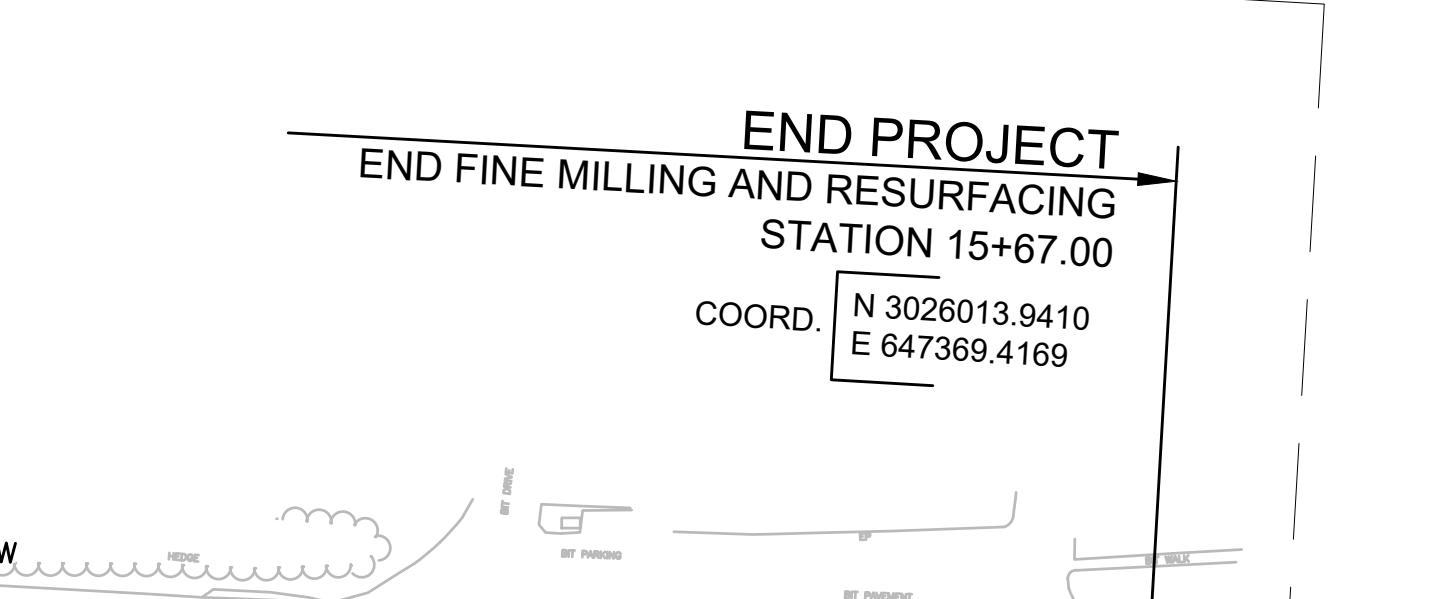
AYER
LITTLETON



LIMIT OF WORK
END FINE MILLING AND RESURFACING
STA. 14+90.00

ROUTE 2A/110
(AYER ROAD)

END PROJECT
END FINE MILLING AND RESURFACING
STATION 15+67.00
COORD. [N 3026013.9410
E 647369.4169]



BRUCE STREET

LEGEND

7 CONSTRUCTION PLANS

11 PROFILES

20 DRAINAGE AND UTILITY PLANS

28 TRAFFIC SIGNS & PAVEMENT MARKINGS PLANS

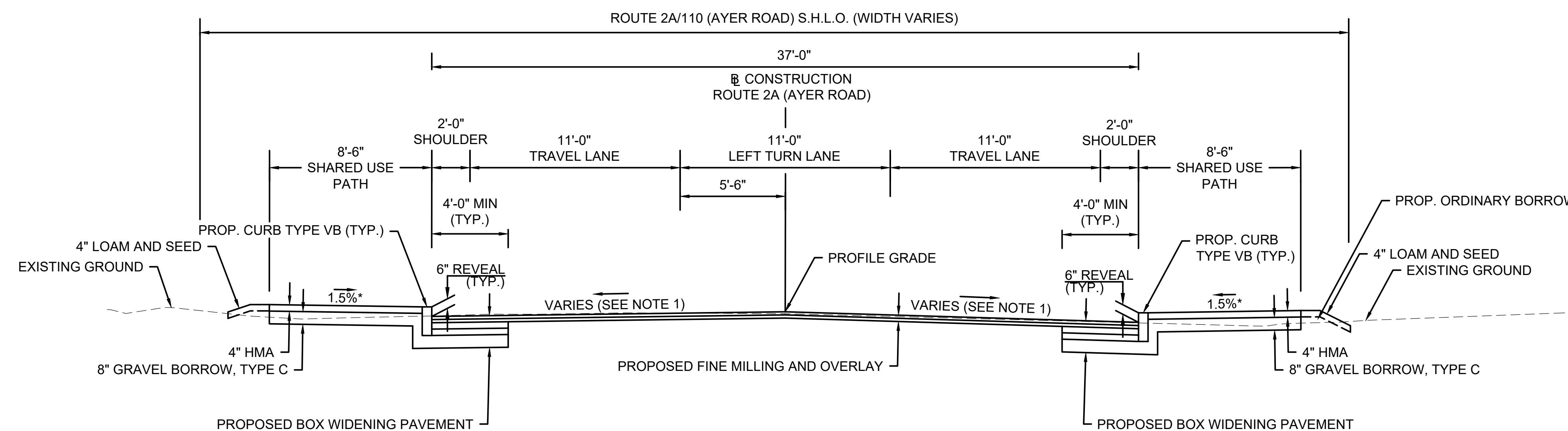
0 60 120 240
SCALE: 1"=60'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	5	76

PROJECT FILE NO. 608443

TYPICAL SECTIONS (1 OF 2)



PAVEMENT NOTES:

PROPOSED BOX WIDENING PAVEMENT

PAVEMENT: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT RS-1H AT 0.08 GAL/SY OVER 2.25" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT RS-1H AT 0.08 GAL/SY OVER

BASE: 4" SUPERPAVE BASE COURSE 37.5 (SBC-37.5)

SUBBASE: 4" DENSE GRADED CRUSHED STONE OVER EXISTING SUBBASE MEETING MATERIAL SPECIFICATION M1.03.0 GRAVEL BORROW, TYPE B OR 8" GRAVEL BORROW, TYPE B

PROPOSED FINE MILLING AND OVERLAY

PAVEMENT FINE MILLING: 3" VARIABLE PAVEMENT FINE MILLING (SEE NOTE 1)

SURFACE: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5-P) OVER ASPHALT EMULSION FOR TACK COAT RS-1H AT 0.08 GAL/SY OVER 2.25" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0) OVER ASPHALT EMULSION FOR TACK COAT RS-1H AT 0.09 GAL/SY

HMA SHARED USE PATH

SURFACE: 1.75" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.6) OVER ASPHALT EMULSION FOR TACK COAT (RS-1) AT 0.08 GAL/SY OVER 2.5" SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC-19.0)

SUBBASE: 8" GRAVEL BORROW, TYPE C

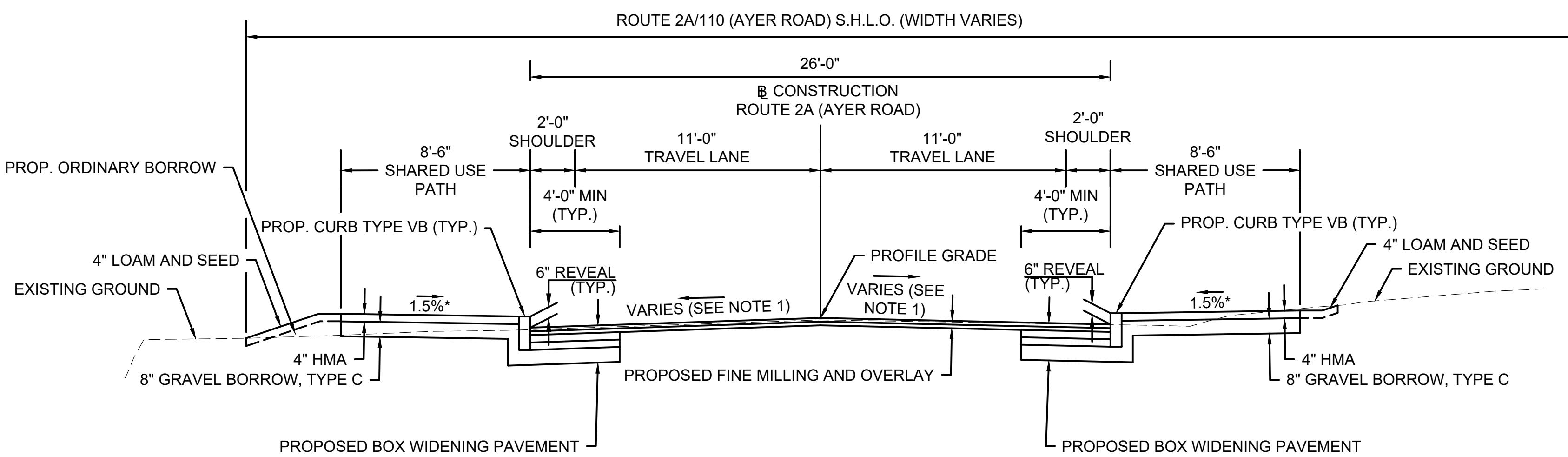
CEM. CONC. DRIVEWAY

TOP COURSE: 6" CEMENT CONCRETE
SUBBASE: 8" GRAVEL BORROW, TYPE C

NOTES:

1. PAVEMENT MILLING TO MATCH EXISTING CROSS SLOPE OR ESTABLISH 2% CROSS SLOPE WHERE POSSIBLE AS SHOWN ON THE CROSS SECTIONS.

2. ALL HMA SHALL BE PER SECTION 450 HOT MIX ASPHALT AND SECTION M3 ASPHALTIC MATERIALS.

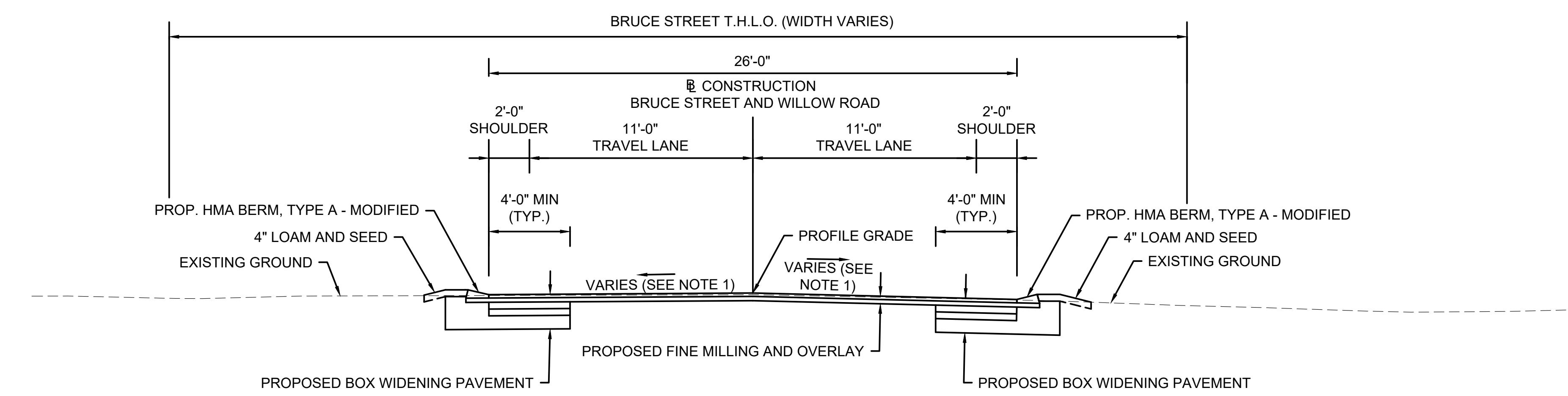


LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SCHEET NO.	TOTAL SHEETS
MA	-	6	76

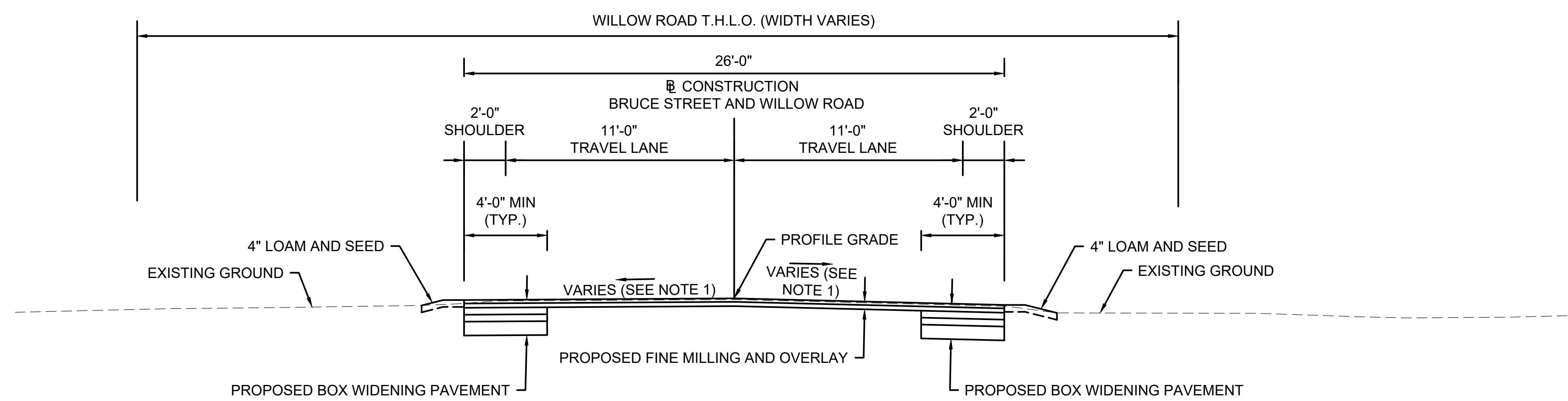
PROJECT FILE NO. 608443

TYPICAL SECTIONS (2 OF 2)



TYPICAL BRUCE STREET SECTION

STA. 20+30.00 - STA. 23+16.00
SCALE 1"=4'



TYPICAL WILLOW ROAD SECTION

STA. 14+90.00 - STA. 19+70.00
SCALE 1"=4'

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	8	76
PROJECT FILE NO.		608443	

CONSTRUCTION PLANS (2 OF 4)

608443_HB06(CONSTRUCTION PLAN),DWG
Plotted on 8-Jul-2021 2:02 PM

CONTINUED ON

**CONTINUED ON
SHEET NO. 10**

TRAFFIC SIGNAL CONDUIT

WATER SUPPLY ALTERATION

DRAINAGE DETAIL

SEE SHEET NO. 26

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
2015-07-22

N

FOR PROFILE: SEE SHEETS NO. 12, 15

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	9	76
PROJECT FILE NO.		608443	

CONSTRUCTION PLANS (3 OF 3)

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
245 AMER RD

N/F
RODGERS FAMILY HOLDINGS LLC
PARCEL ID U45 15 0
BOOK 64393 PAGE 32
239 AYFR RD

CONTINUED ON
SHEET NO. 8

HIGHWAY GUARD DETAIL

STA 13+03 - 13+40 RT (GUARDRAIL FLARED END TREATMENT, TL-2)
STA 13+40 - 15+56 RT (GUARDRAIL, TL-2(SINGLE FACED))
STA 15+56 - 15+65 RT (TRAILING ANCHORAGE)

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

N

DRAINAGE DETAILS

SEE SHEET NO. 2

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	9	76
PROJECT FILE NO.		608443	

CONSTRUCTION PLANS (3 OF 3)

N/F
FRANK W. MATHEIS
PARCEL ID U45
BOOK 64522 PAGE 2
BRUCE ST.

EAR

(AYER ROAD)

PUBLIC - VARIABLE W

A horizontal scale bar diagram. It features a thick black line with a total length of 100'. Above the line, numerical labels are placed at 20', 50', and 100'. Below the line, the text 'SCALE: 1" = 20' is centered. To the left of the scale bar, there are two small black and white checkered boxes.

FOR PROFILE: SEE SHEET NO. 13

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	10	76

PROJECT FILE NO. 608443

CONSTRUCTION PLANS (4 OF 4)

Plotted on 8-Jul-2021 2:03 PM
608443-HD06 CONSTRUCTION PLAN.DWG

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

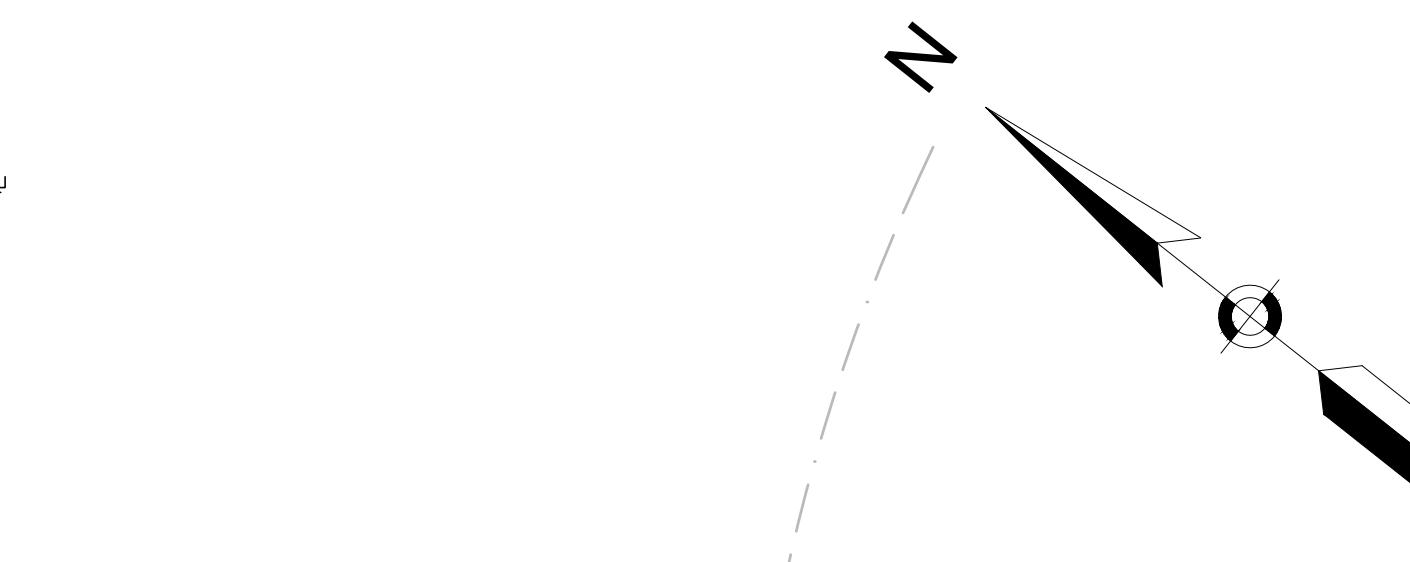
NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

SEE SHEET NO. 23



WILLOWS CONDOMINIUM
PARCEL ID 30-24
BOOK 50661 PAGE 255
WILLOW ROAD

100 FT BUFFER ZONE
1963 MIDDLESEX COUNTY LAYOUT

WILLOW ROAD
(PUBLIC - VARIABLE WIDTH)

1963 MIDDLESEX COUNTY LAYOUT

200 FT RIVERFRONT AREA

15' ROW EASEMENT

LIMIT OF WORK
BEGIN FINE MILLING
AND RESURFACING
STA. 14+90.00

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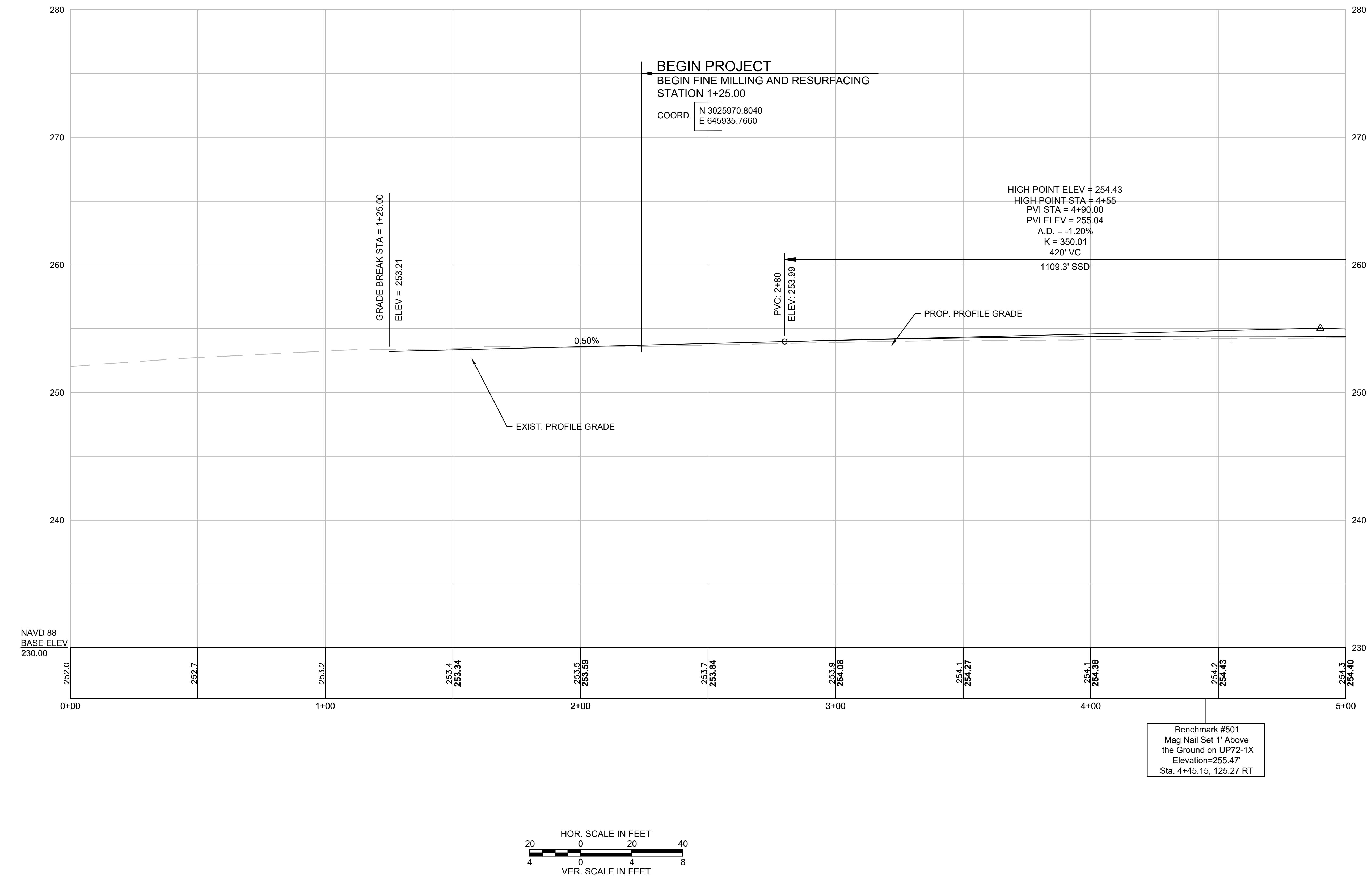
LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	11	76
PROJECT FILE NO. 608443			

PROFILES (1 OF 5)

608443_HD07/PROFILES.DWG Plotted on 8-Jul-2021 2:03 PM

ROUTE 2A/110 (AYER ROAD)



LITTLETON/AYER
ROUTE 2A (AYER ROAD)

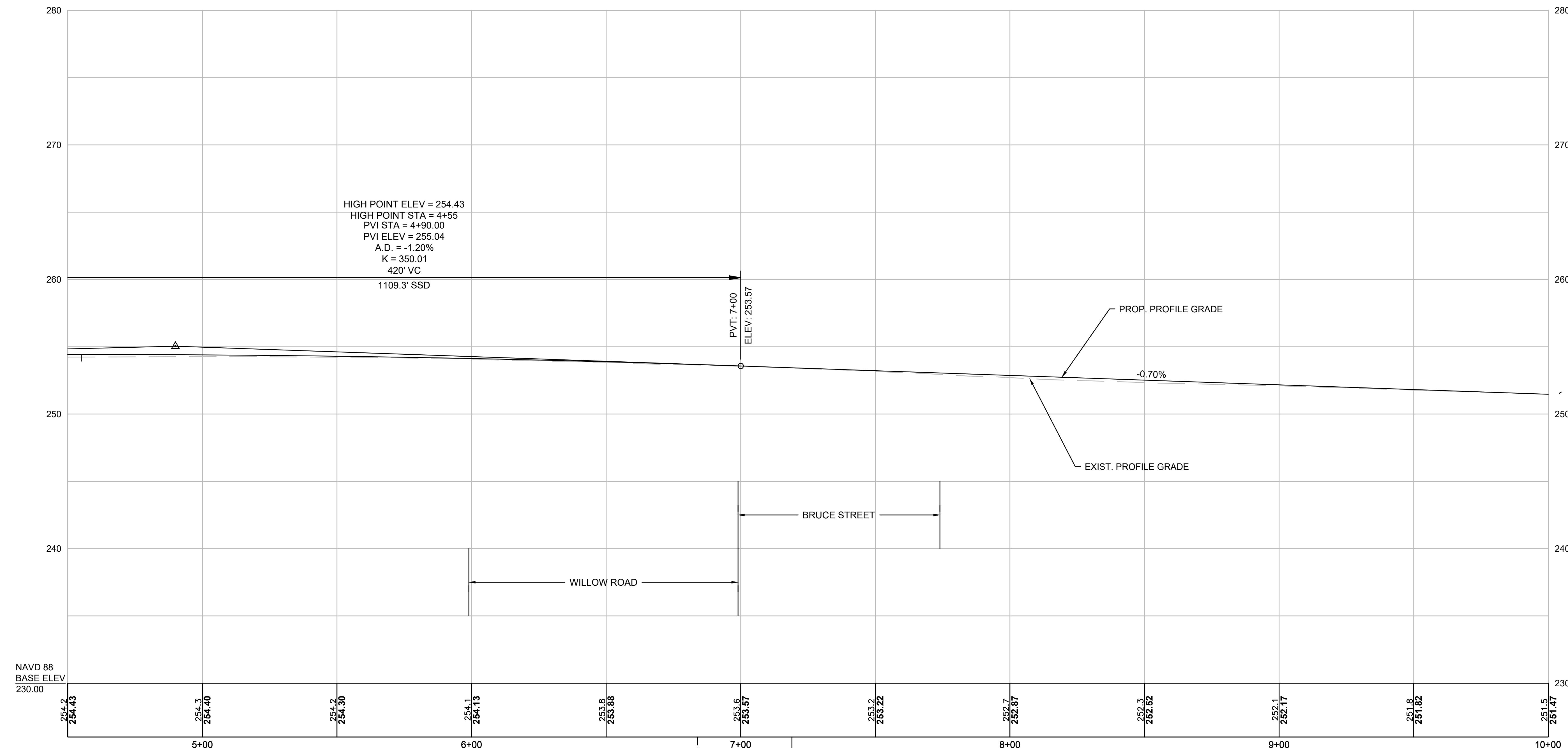
STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	12	76
PROJECT FILE NO. 608443			

PROFILES (2 OF 5)

608443_HD07/PROFILES.DWG Plotted on 8-Jul-2021 2:03 PM

ROUTE 2A/110 (AYER ROAD)

CONTINUED ON
SHEET NO. 11



CONTINUED ON
SHEET NO. 13

FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

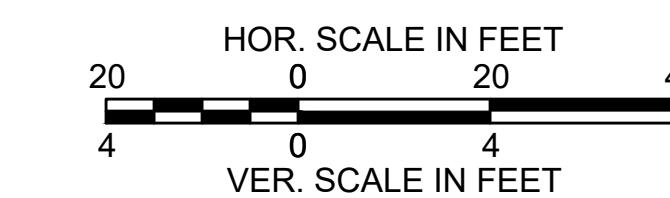
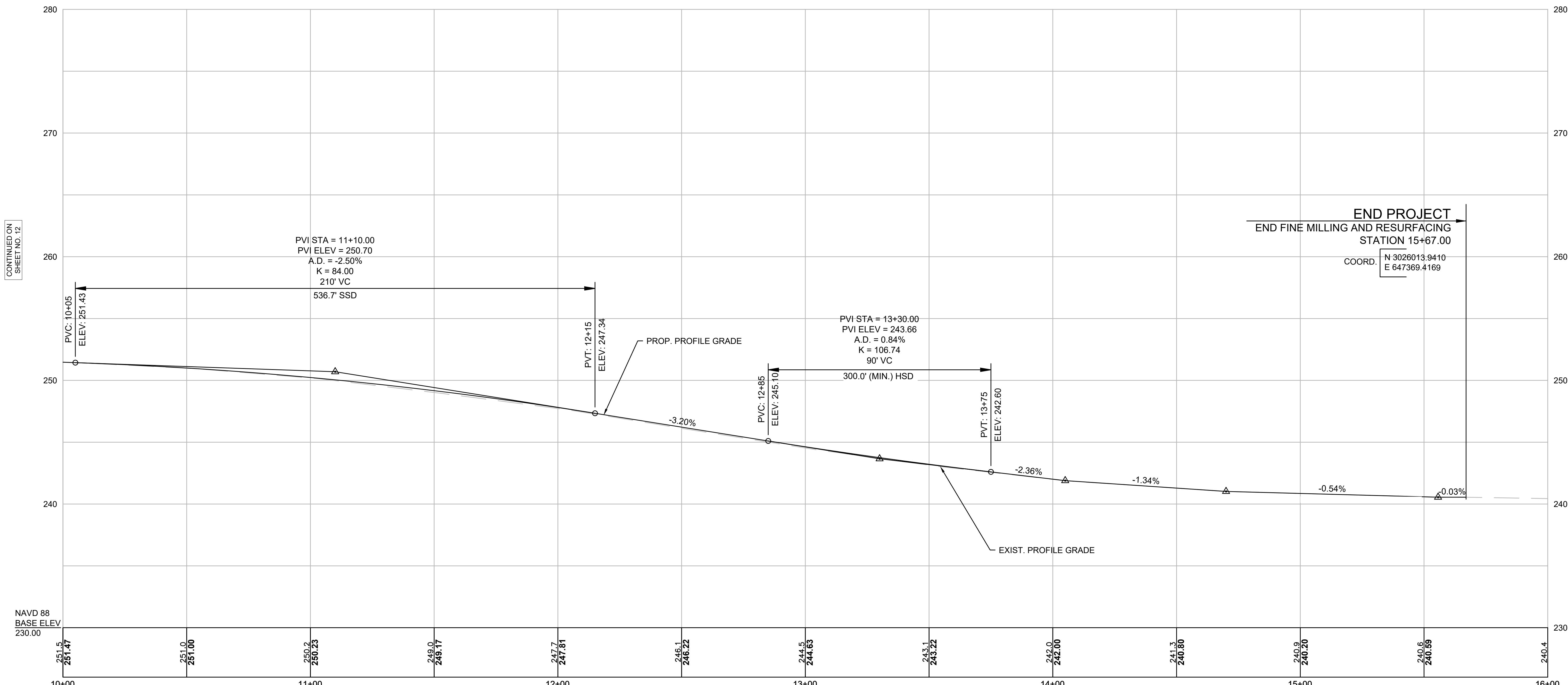
LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	13	76
PROJECT FILE NO.			608443

PROFILES (3 OF 5)

608443-HD07/PROFILES.DWG Plotted on 8-Jul-2021 2:03 PM

ROUTE 2A/110 (AYER ROAD)



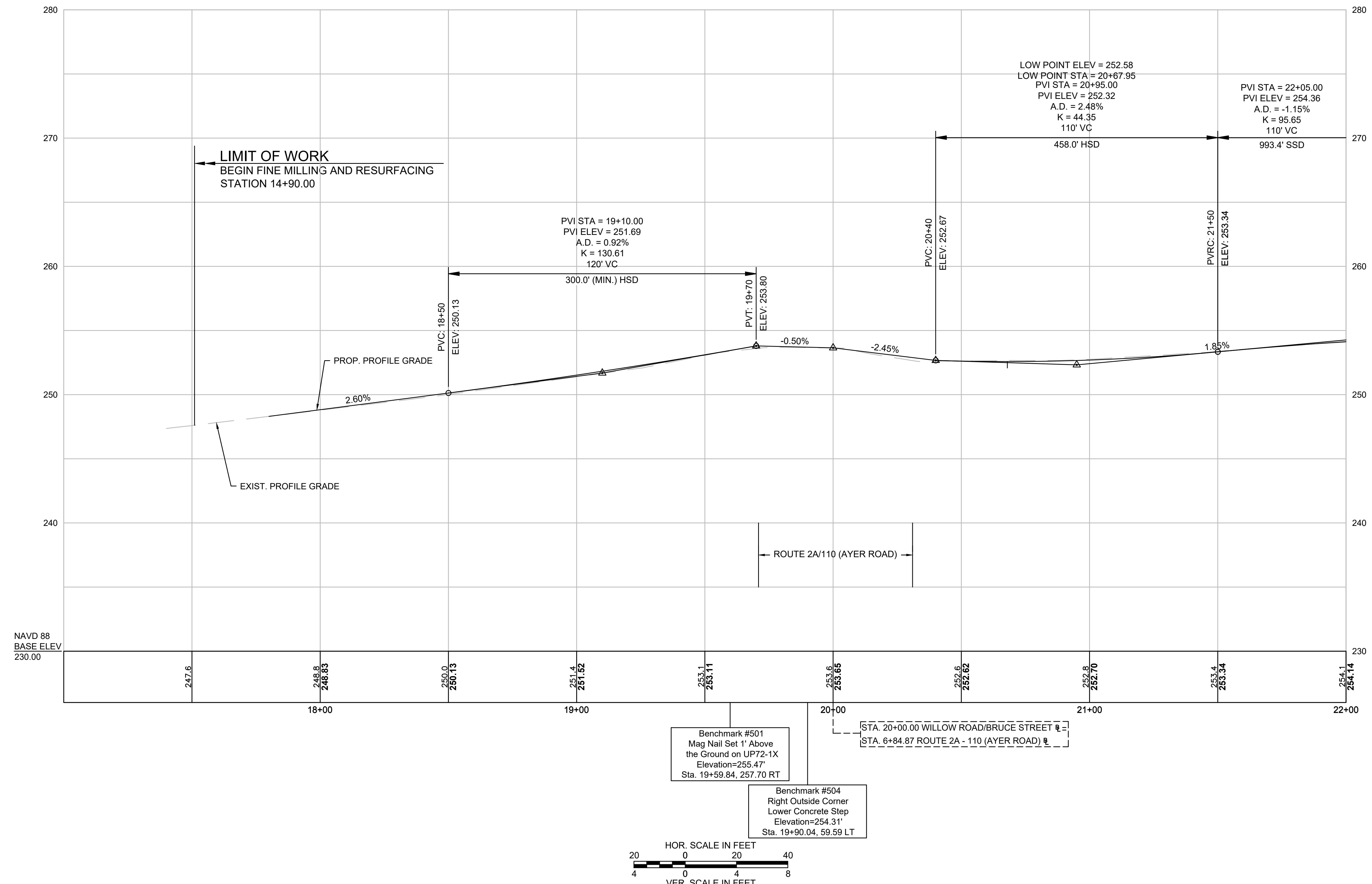
FOR CONSTRUCTION PLAN:
SEE SHEET NO. 9

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SCHEET NO.	TOTAL SHEETS
MA	-	14	76
PROJECT FILE NO. 608443			

PROFILES (4 OF 5)

WILLOW ROAD AND BRUCE STREET



FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

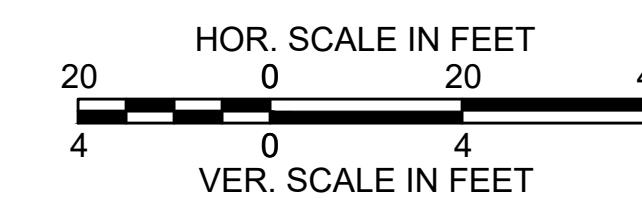
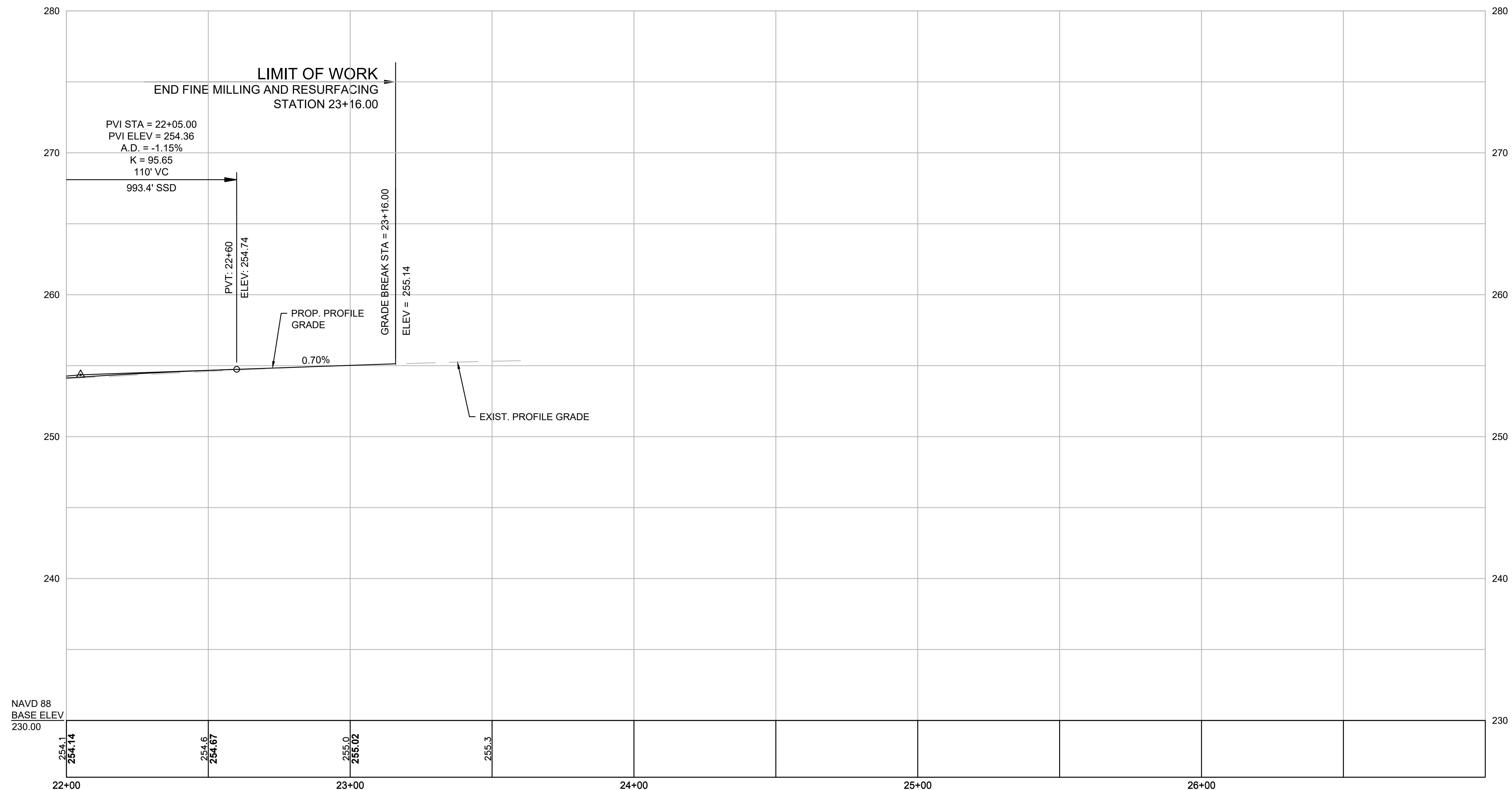
LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SCHEET NO.	TOTAL SHEETS
MA	-	15	76
PROJECT FILE NO. 608443			

PROFILES (5 OF 5)

WILLOW ROAD AND BRUCE STREET

CONTINUED ON
SHEET NO. 14



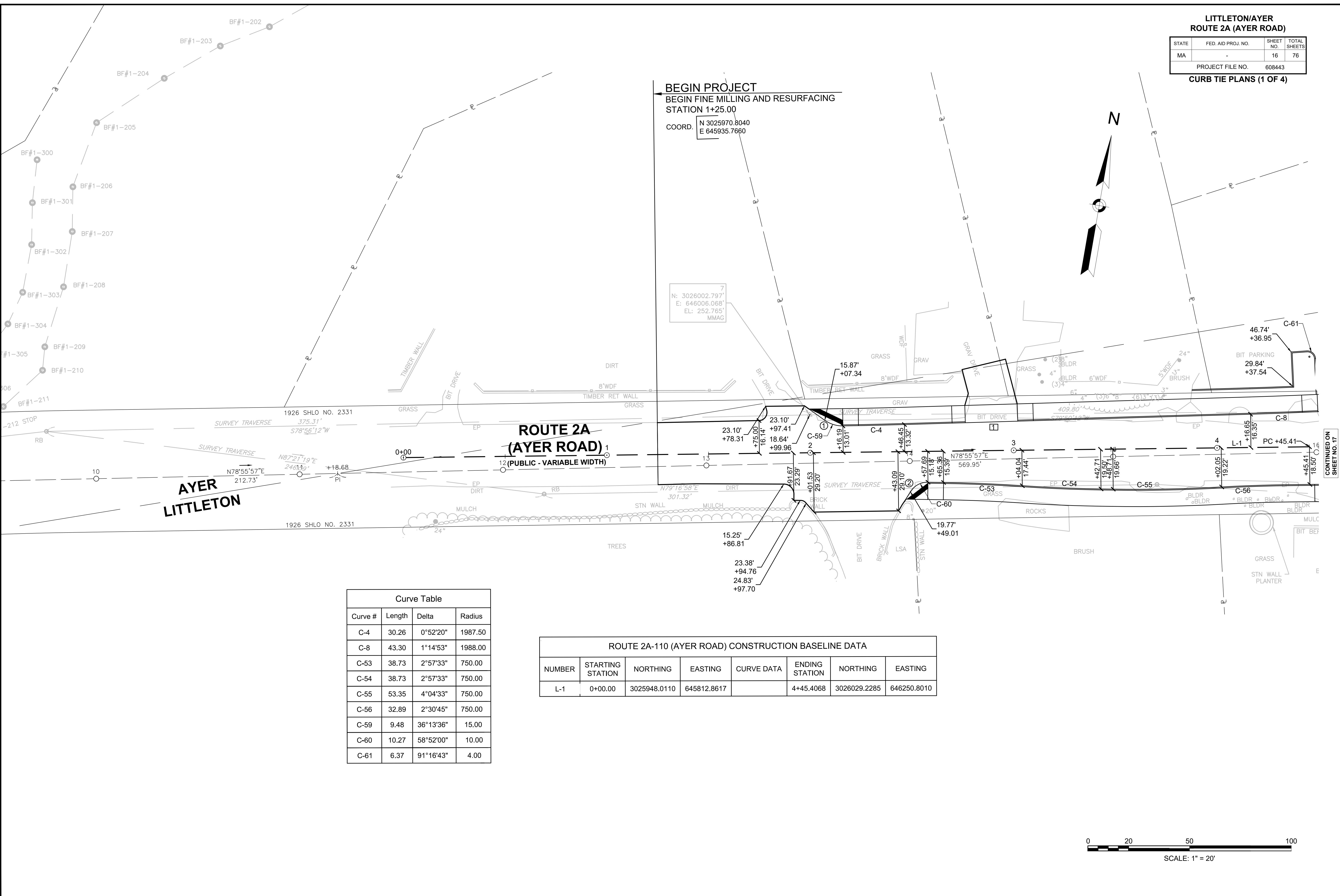
FOR CONSTRUCTION PLAN:
SEE SHEET NO. 8

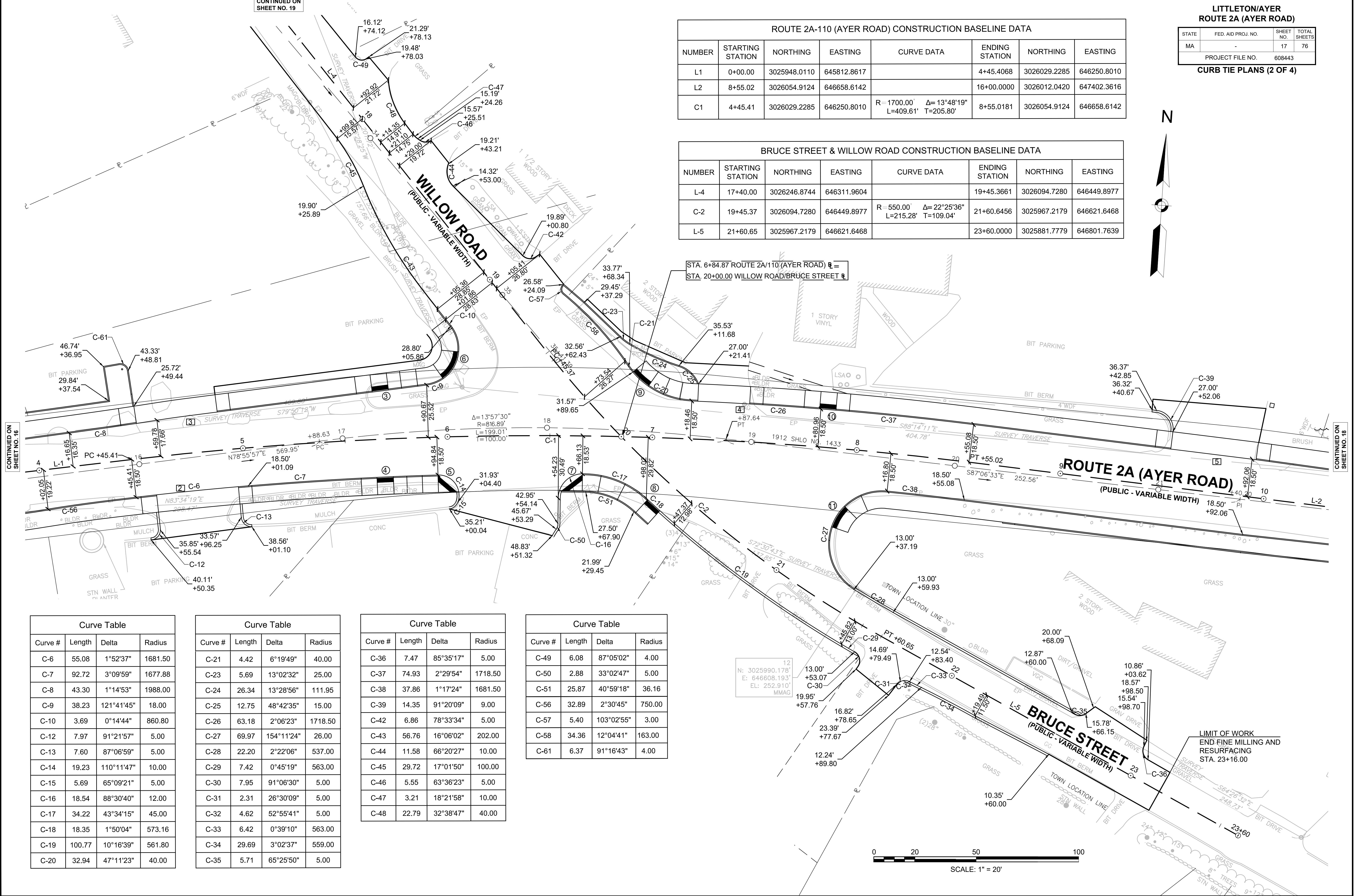
LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	16	76
PROJECT FILE NO.			608443

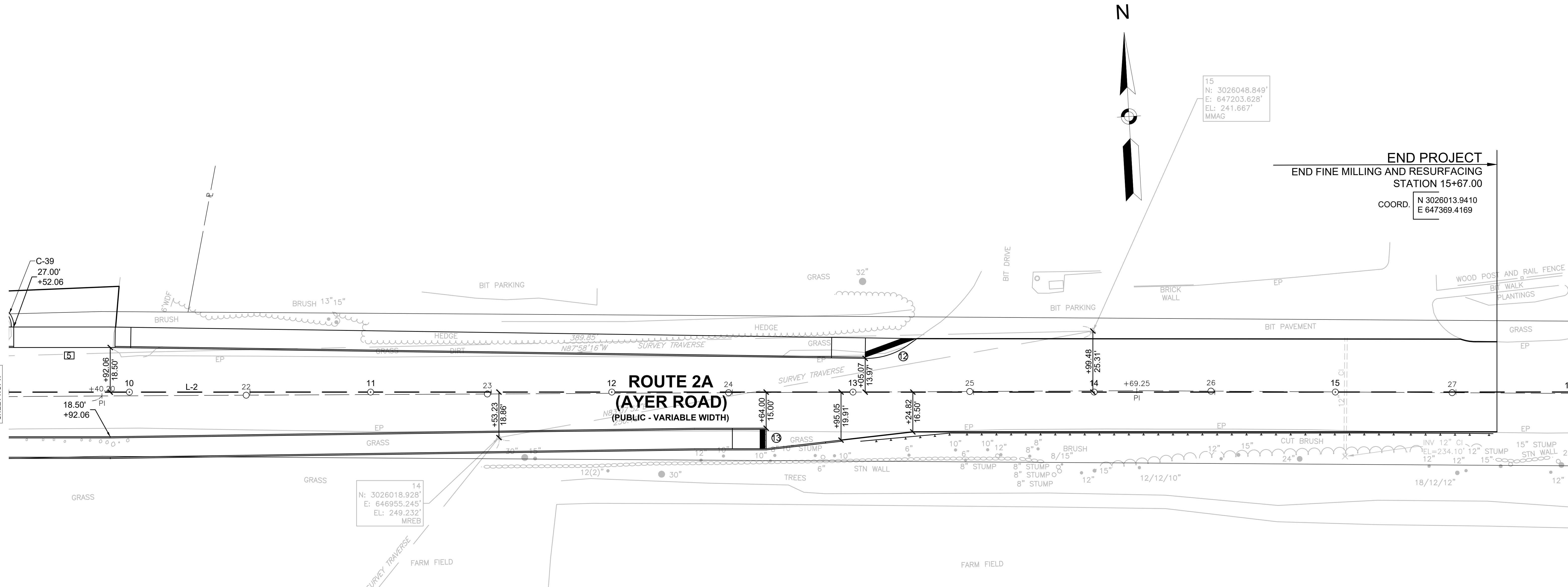
CURB TIE PLANS (1 OF 4)

608443_HD06/CURB TIE PLAN.DWG Plotted on 8-Jul-2021 2:04 PM





CONTINUED ON



Curve Table

Curve #	Length	Delta	Radius
C-39	14.35	91°20'09"	9.00

ROUTE 2A-110 (AYER ROAD) CONSTRUCTION BASELINE DATA							
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	ENDING STATION	NORTHING	EASTING
12	8+55.02	3026054.9124	646658.6142		16+00.0000	3026012.0420	647402.3616

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	ENDING STATION	NORTHING	EASTING
12	8+55.02	3026054.9124	646658.6142		16+00.0000	3026012.0420	647402.3616

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
14	3026018.928	646955.245	249.232	MMAG
15	3026048.849	647203.628	241.667	MMAG

Point #	Northing	Easting	Elevation	Raw Description
14	3026018.928	646955.245	249.232	MMAG
15	3026048.849	647203.628	241.667	MMAG

A horizontal scale bar diagram. It features a black line with a series of white and black segments. Above the line, the numbers 20, 50, and 100 are placed at regular intervals. Below the line, the text "SCALE: 1\" data-bbox="338 158 408 178" data-label="Text">" = 20' data-bbox="418 158 488 178" data-label="Text" is centered.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	20	76
PROJECT FILE NO.			608443

DRAINAGE AND UTILITY PLANS (1 OF 4)

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

N
F
JOSEPH P.A. ROUTHIER
PARCEL ID 30-9
BOOK 59354 PAGE 438
0 LITTLETON RD

BEGIN PROJECT
BEGIN FINE MILLING AND RESURFACING
STATION 1+25.00

COORD. N 3025970.8040
E 645935.7660
N/F
PINGRYVILLE REALTY TRUST
BRENT C. ROUTHIER, TRUSTEE
PARCEL ID 30-12
BOOK 70372 PAGE 268
186 LITTLETON RD

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-13
BOOK 70655 PAGE 130
190 LITTLETON RD
TOWN OF AYER

N/F
PINGRYVILLE REALTY TRUST
PARCEL ID 30-14
BOOK 70655 PAGE 133
192 LITTLETON RD
TOWN OF AYER

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	20	76
PROJECT FILE NO.			608443

DRAINAGE AND UTILITY PLANS (1 OF 4)

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

AYER
LITTLETON

ROUTE 2A (AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

LEGEND - UTILITIES

- EXISTING ELECTRIC
- OVERHEAD WIRE
- PROPOSED LIGHTING CONDUIT
- COMMUNICATION/CATV
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- EXISTING GAS
- EXISTING WATER
- PROPOSED WATER
- EXISTING SEWER
- EXISTING EQUIPMENT

N/F
THE THEODORE W. NUSSDORFER
2007 REVOCABLE TRUST,
THEODORE W. NUSSDORFER AND
MAUREEN M. NUSSDORFER TRUSTEES
PARCEL ID U45 8 0
BOOK 50576 PAGE 223
264 AYER RD

N/F
260 AYER RD. TRUST,
RONALD J. RAFFI TRUSTEE
PARCEL ID U45 8 A
BOOK 21527 PAGE 232
260 AYER RD

0 20 50 100
SCALE: 1" = 20'

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

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Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

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Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

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608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

Plotted on 8-Jul-2021 1:24 PM

608443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	21	76
PROJECT FILE NO.		608443	

DRAINAGE AND UTILITY PLANS (2 OF 4)

008443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG Plotted on 8-Jul-2021 1:24 PM

**LITTLETON/AYER
ROUTE 2A (AYER ROAD)**

CONTINUED ON SHEET NO. 23

STATE FED. AID PROJ. NO. SHEET NO. TOTAL SHEETS
MA - 21 76

PROJECT FILE NO. 608443

DRAINAGE AND UTILITY PLANS (2 OF 4)

ROUTE 2A (AYER ROAD)
(PUBLIC - VARIABLE WIDTH)

LEGEND - UTILITIES

- EXISTING ELECTRIC
- OVERHEAD WIRE
- PROPOSED LIGHTING CONDUIT
- COMMUNICATION/CATV
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- EXISTING GAS
- EXISTING WATER
- PROPOSED WATER
- EXISTING SEWER
- EXISTING EQUIPMENT

SCALE: 1" = 20'

0 20 50 100

CONTINUED ON SHEET NO. 20

CONTINUED ON SHEET NO. 22

LITTLETON/AYER ROUTE 2A (AYER ROAD)

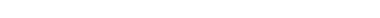
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	22	76
PROJECT FILE NO.		608443	

DRAINAGE AND UTILITY PLANS (3 OF 4)

08443_HDX(D&U PLAN) - COLORED UTILITY PLANS.DWG Plotted on 8-Jul-2021 1:24 PM

CONTINUED ON
SHEET NO. 2

LEGEND - UTILITIES

	EXISTING ELECTRIC
	OVERHEAD WIRE
	PROPOSED LIGHTING CONDUIT
	COMMUNICATION/CATV
	EXISTING DRAINAGE
	PROPOSED DRAINAGE
	EXISTING GAS
	EXISTING WATER
	PROPOSED WATER
	EXISTING SEWER
	EXISTING EQUIPMENT

A horizontal scale bar diagram. It features a black line with a series of white and black segments. Above the line, the numbers 20, 50, and 100 are placed at regular intervals. Below the line, the text "SCALE: 1'' = 20'" is centered.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	24	76

PROJECT FILE NO. 608443

DRAINAGE SCHEDULE

DRAINAGE PLAN 1

DRAINAGE STRUCTURE TABLE

NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. CB W FRAME AND COVER (1-24)	3+53.22	22.8 R	254.49	I=250.98' (PROP. GI (1-1))	I=247.25' (PROP. DMH (1-3))	
PROP. CBCI (1-2)	3+43.73	14.6 L	253.87		I=247.80' (PROP. DMH (1-3))	ECCENTRIC
PROP. DMH (1-3)	3+55.71	5.7 L	254.17	I=247.70' (PROP. CBCI (1-2)) I=247.00' (PROP. CB W FRAME AND COVER (1-24))	I=246.90' (PROP. DMH (1-4))	
PROP. GI (1-1)	3+46.35	18.5 R	253.94		I=251.43' (PROP. CB W FRAME AND COVER (1-24))	

DRAINAGE PLAN 2

DRAINAGE STRUCTURE TABLE

NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. 5' DIA DMH (1-15)	7+52.79	43.2 R	252.31	I=246.10' (PROP. CB (1-13)) I=246.10' (PROP. CB (1-14)) I=247.00' (PROP. DMH (1-12))	I=246.00' (PROP. DMH (1-16))	
PROP. 5' DIA DMH (1-19)	20+14.37	6.4 R	253.17	I=244.10' (PROP. DMH (1-16)) I=247.70' (PROP. CBCI (1-18)) I=246.40' (PROP. CBCI (1-17))	I=244.10' (PROP. 5' DIA. DMH (1-20))	
PROP. 5' DIA. DMH (1-20)	6+63.78	32.6 L	253.77	I=243.80' (PROP. 5' DIA DMH (1-19)) I=244.70' (PROP. DMH (1-4))	I=243.80' (PROP. DMH (1-21))	
PROP. CB (1-13)	20+90.53	12.0 R	252.37		I=246.30' (PROP. 5' DIA DMH (1-15))	
PROP. CB (1-14)	7+30.02	53.2 R	252.35		I=246.30' (PROP. 5' DIA DMH (1-15))	
PROP. CBCI (1-5)	9+22.64	17.5 L	251.66		I=246.00' (PROP. DMH (1-7))	
PROP. CBCI (1-6)	9+23.20	17.5 R	251.66		I=247.50' (PROP. DMH (1-7))	
PROP. CBCI (1-11)	21+13.85	23.6 L	253.22		I=249.20' (PROP. DMH (1-12))	
PROP. CBCI (1-17)	6+92.72	24.5 R	253.12		I=246.50' (PROP. 5' DIA DMH (1-19))	
PROP. CBCI (1-18)	6+71.02	16.8 R	253.20		I=247.90' (PROP. 5' DIA DMH (1-19))	ECCENTRIC
PROP. DMH (1-4)	5+99.60	10.7 L	254.19	I=245.20' (PROP. DMH (1-3))	I=245.20' (PROP. 5' DIA. DMH (1-20))	
PROP. DMH (1-7)	9+23.17	9.7 R	251.81	I=247.40' (PROP. CBCI (1-6)) I=245.80' (PROP. CBCI (1-5))	I=245.80' (PROP. DMH (1-10))	
PROP. DMH (1-10)	8+01.95	11.1 R	252.95	I=244.95' (PROP. DMH (1-7)) I=246.40' (PROP. LEACHING BASIN (1-9)) I=246.00' (PROP. LEACHING BASIN (1-8))	I=244.90' (PROP. DMH (1-16))	
PROP. DMH (1-12)	21+19.61	10.5 L	253.06	I=249.10' (PROP. CBCI (1-11)) I=248.09' ()	I=247.60' (PROP. 5' DIA DMH (1-15))	
PROP. DMH (1-16)	7+40.66	23.0 R	252.96	I=245.80' (PROP. 5' DIA DMH (1-15)) I=244.40' (PROP. DMH (1-10))	I=244.40' (PROP. 5' DIA DMH (1-19))	
PROP. LEACHING BASIN (1-8)	7+97.68	17.5 L	252.53		I=246.50' (PROP. DMH (1-10))	
PROP. LEACHING BASIN (1-9)	8+06.69	19.3 R	252.44		I=246.50' (PROP. DMH (1-10))	

DRAINAGE PLAN 3

DRAINAGE STRUCTURE TABLE

NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. CB W FRAME AND COVER (2-6)	15+04.19	9.6 R	240.65	I=237.35' (PROP. GI (2-7))	I=237.15' ()	TO INFILTRATION BASIN
PROP. CBCI (2-1)	12+16.70	14.2 L	247.00		I=241.80' (PROP. DMH (2-4))	
PROP. CBCI (2-3)	12+15.10	14.3 R	247.05		I=242.95' (PROP. DMH (2-4))	
PROP. DMH (2-4)	12+21.10	7.4 R	247.00	I=241.50' (PROP. CBCI (2-1)) I=242.85' (PROP. CBCI (2-3))	I=241.40' (PROP. DMH (2-5))	
PROP. DMH (2-5)	13+54.54	7.5 R	242.93	I=240.04' (PROP. DMH (2-4))	I=239.40' ()	TO INFILTRATION BASIN
PROP. GI (2-7)	15+04.44	22.4 L	239.91		I=237.50' (PROP. CB W FRAME AND COVER (2-6))	FLAT TOP

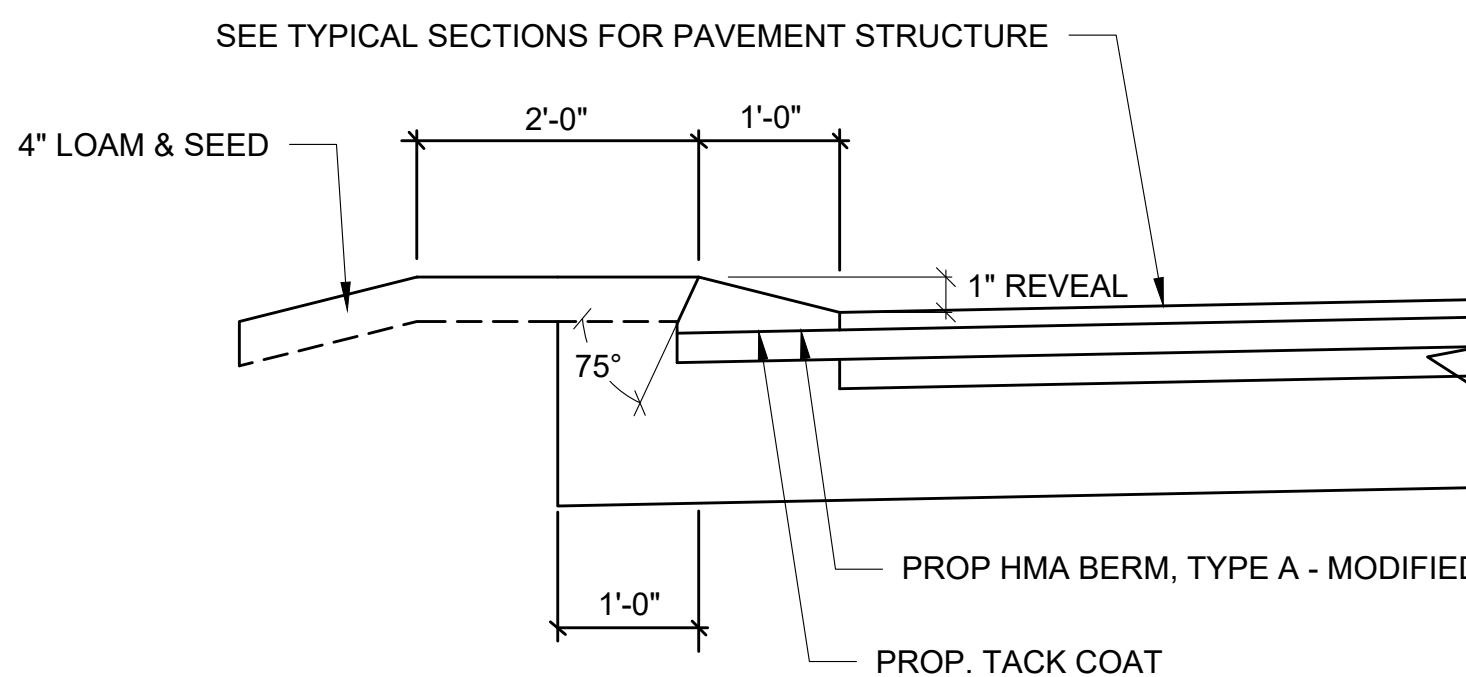
DRAINAGE PLAN 4

DRAINAGE STRUCTURE TABLE

NAME/TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
PROP. DMH (1-21)	16+76.52	5.1 L	246.00	I=242.20' (PROP. 5' DIA. DMH (1-20))	I=242.20' (PROP. DMH (1-22))	
PROP. DMH (1-22)	15+18.42	9.8 L	243.97	I=240.40' (PROP. DMH (1-21))	I=240.40' ()	
PROP. FES (1-23)	15+12.13	29.7 L	242.79			OUTFALL

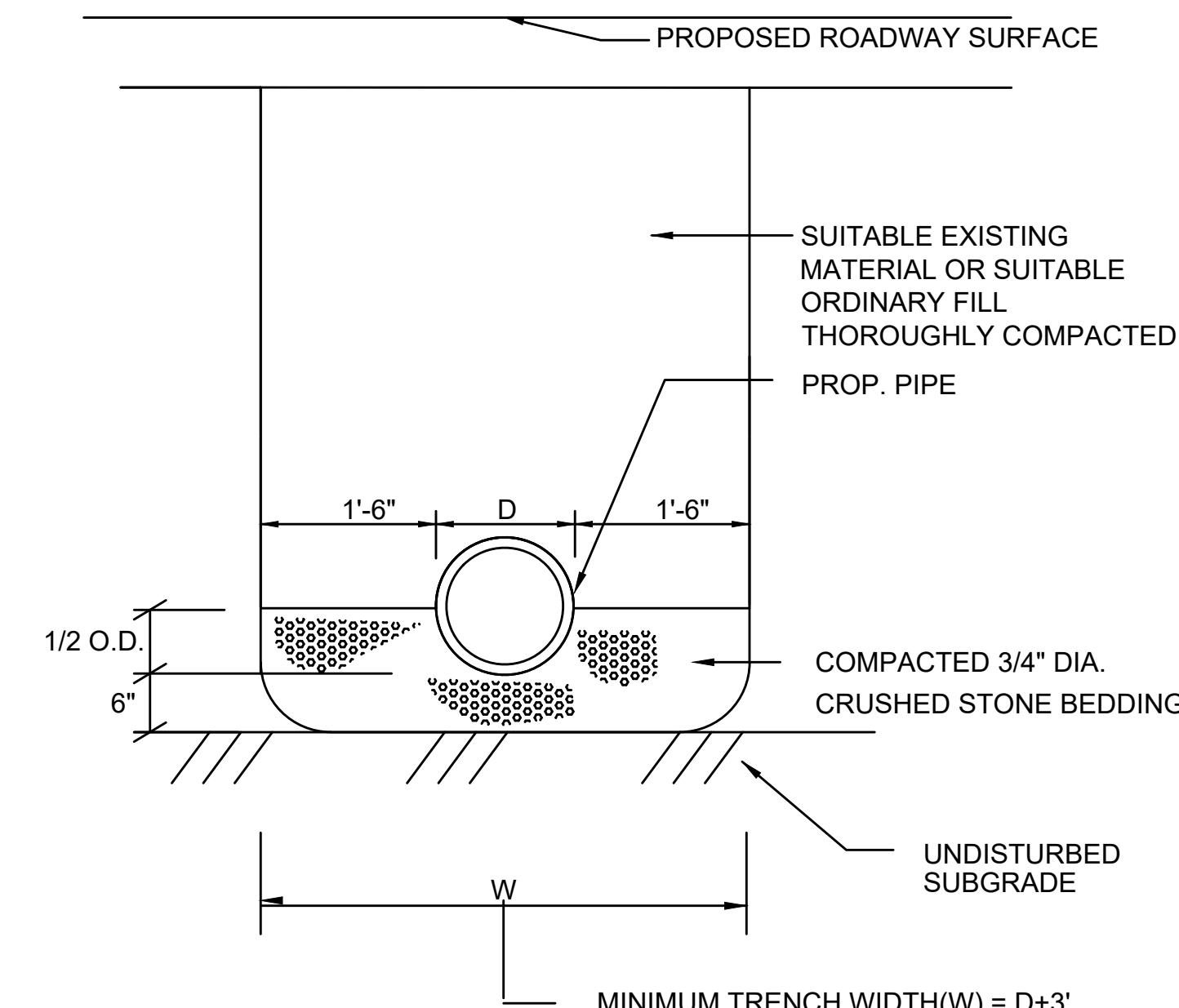
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	25	76
PROJECT FILE NO.		608443	

CONSTRUCTION DETAILS (1 OF 3)



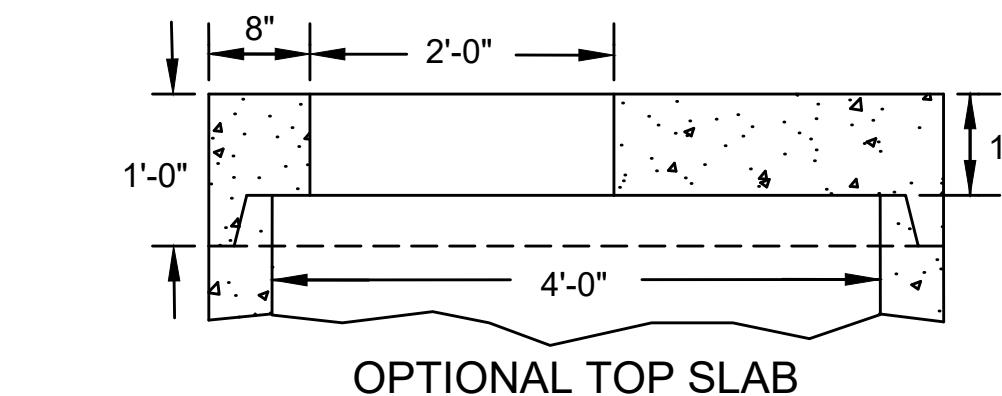
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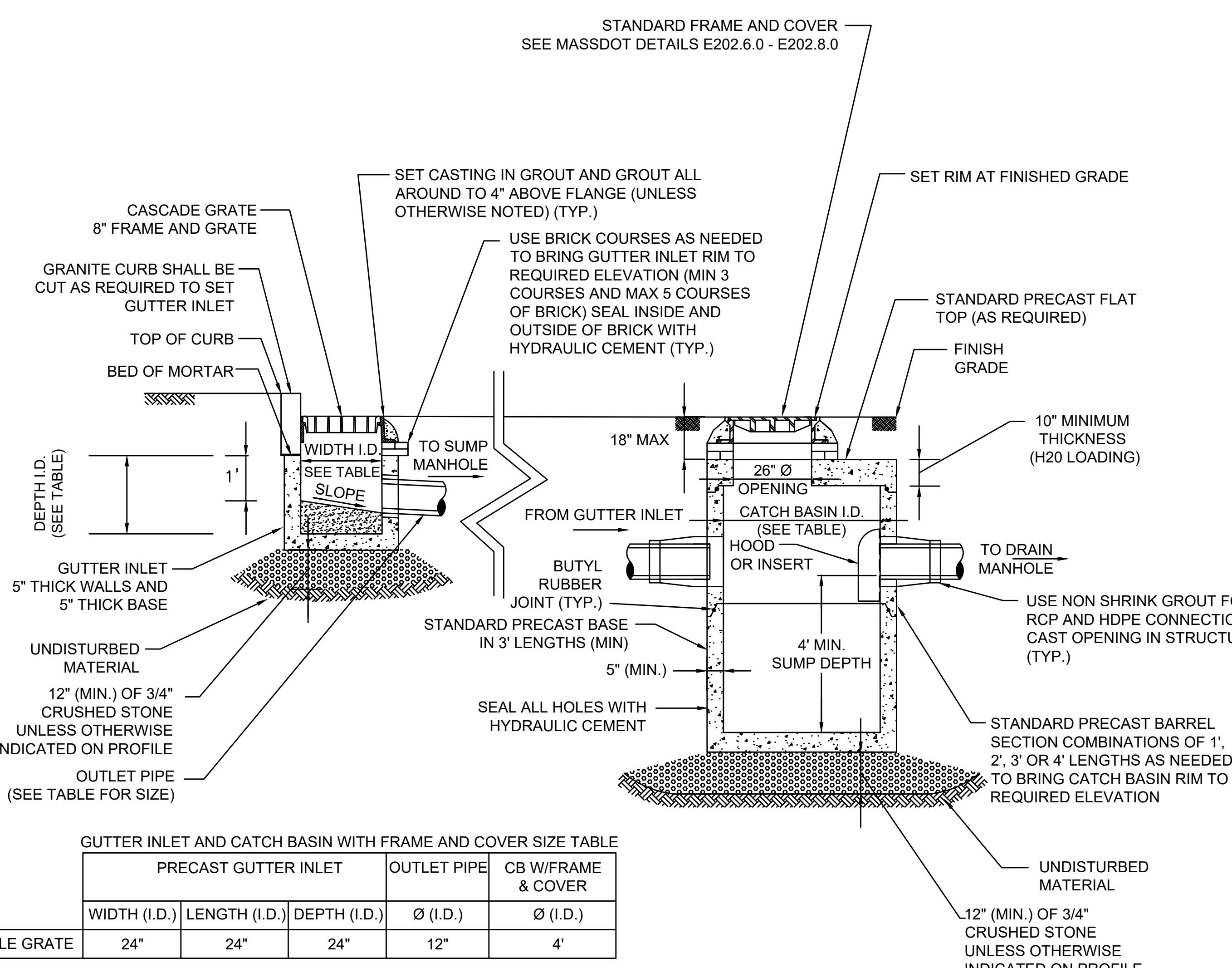


TYPICAL PIPE TRENCH

NOT TO SCALE

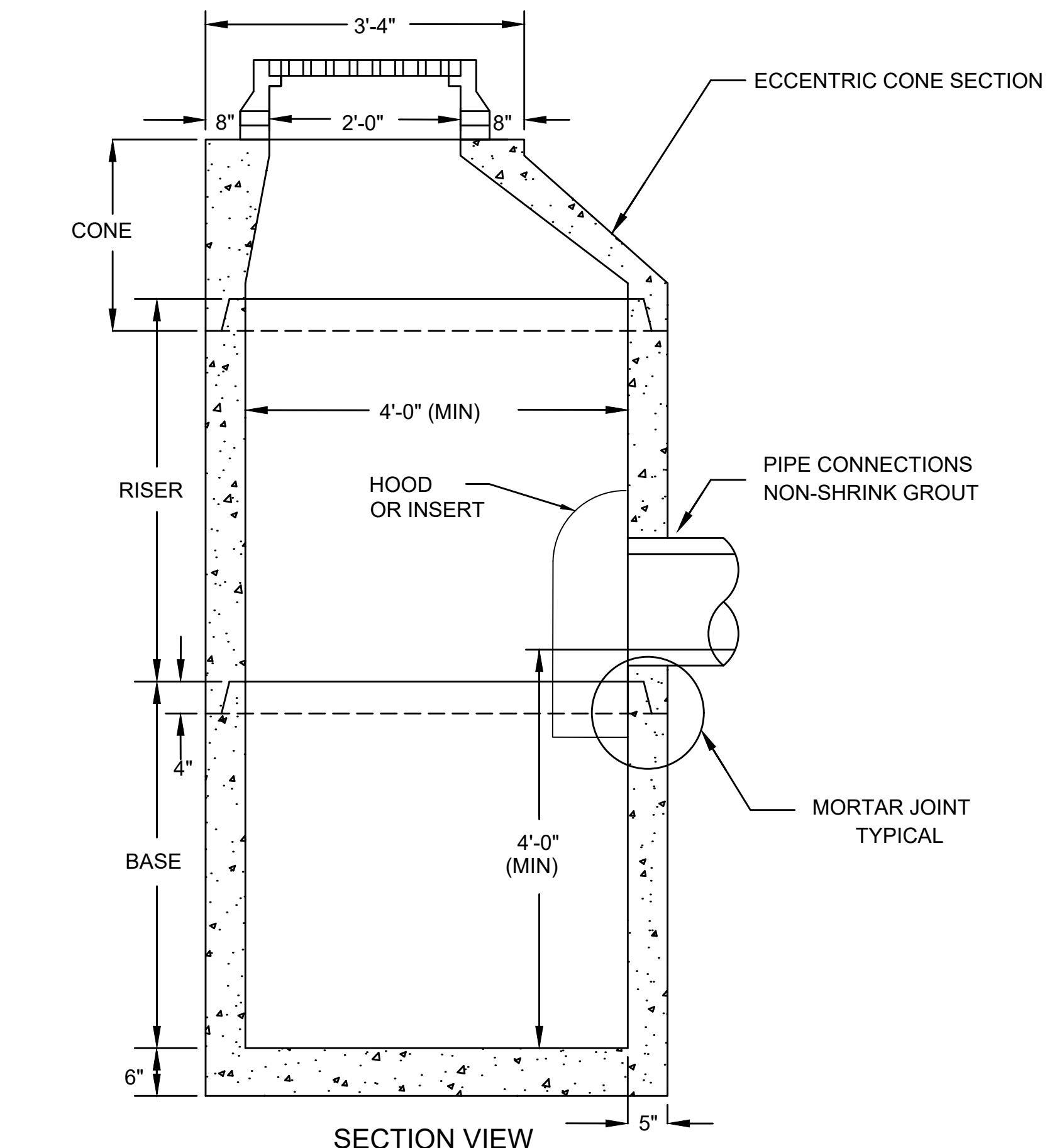


OPTIONAL TOP SLAB



GUTTER INLET AND CATCH BASIN WITH FRAME AND COVER

NOT TO SCALE



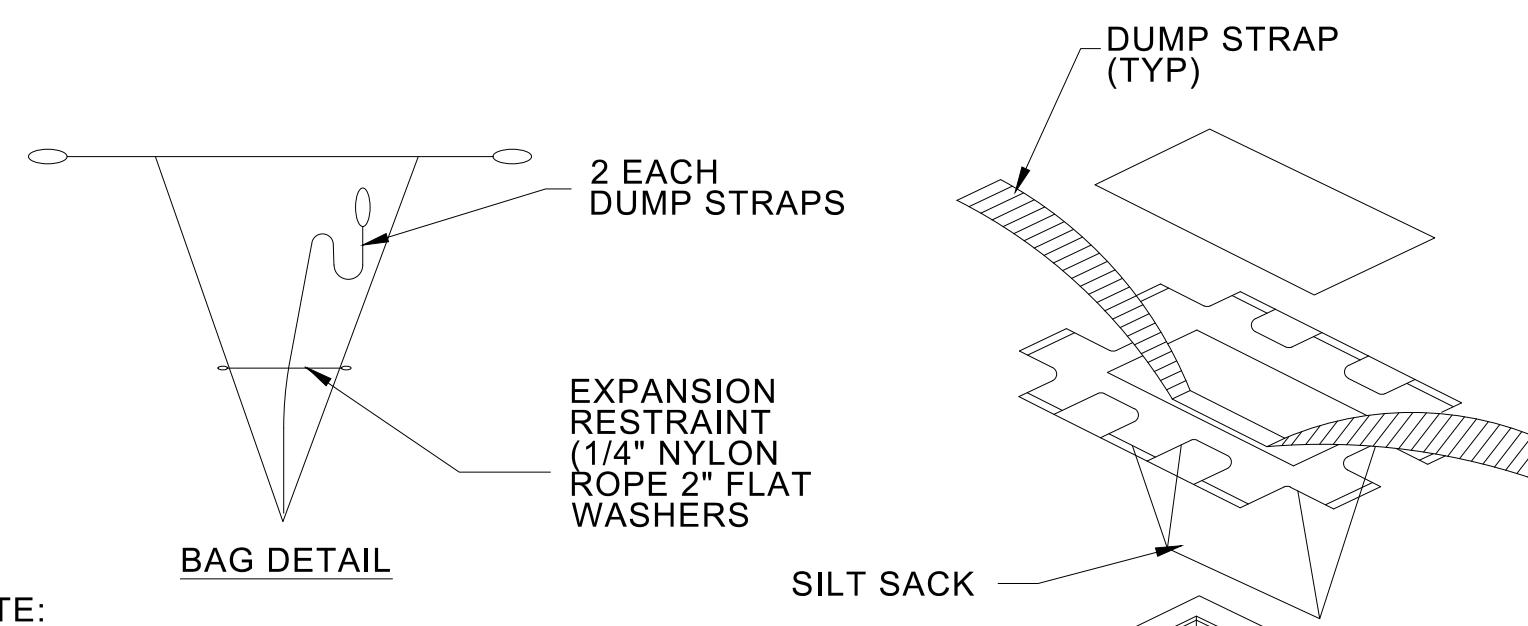
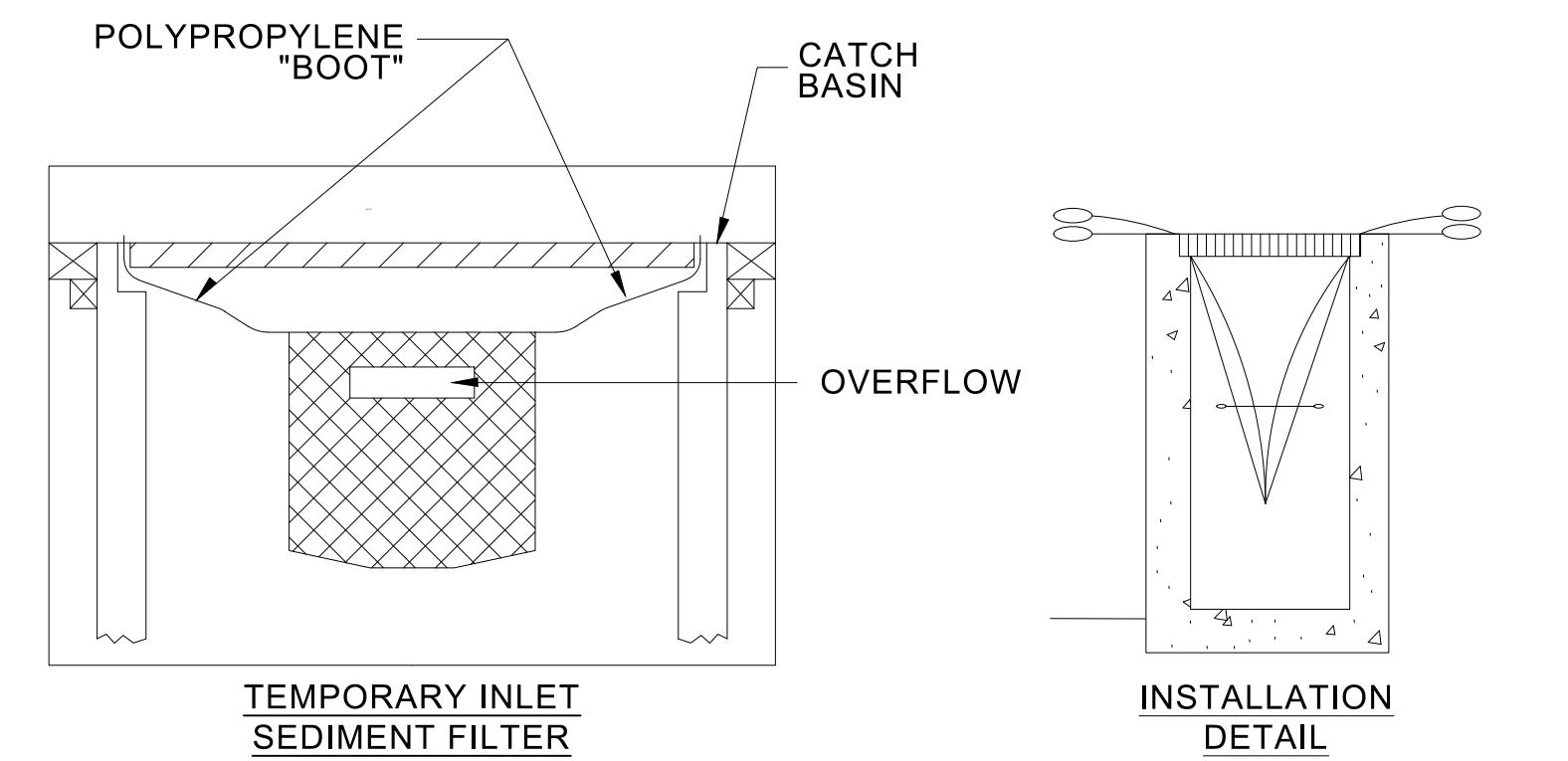
SECTION VIEW

1. CONCRETE: 4,000PSI MINIMUM AFTER 28 DAYS.
2. REINFORCED STEEL CONFORMS TO LATEST ASTM A185 SPEC. 0.12 SQ. IN/LINEAL FT. AND 0.12 SQ. IN. (BOTH WAYS) BASE BOTTOM.
3. H-20 DESIGN LOADING PER AASHTO HS-20-44; ASTM C478 SPEC FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
4. BASED ON ACTUAL FIELD CONDITIONS; THE CONTRACTOR SHALL DETERMINE WHICH TYPE OF TOP SECTION SHOULD BE USED. FLAT TOP SECTIONS SHALL ONLY BE INSTALLED WHEN APPROVED BY THE ENGINEER

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	26	76

PROJECT FILE NO. 608443

CONSTRUCTION DETAILS (2 OF 3)

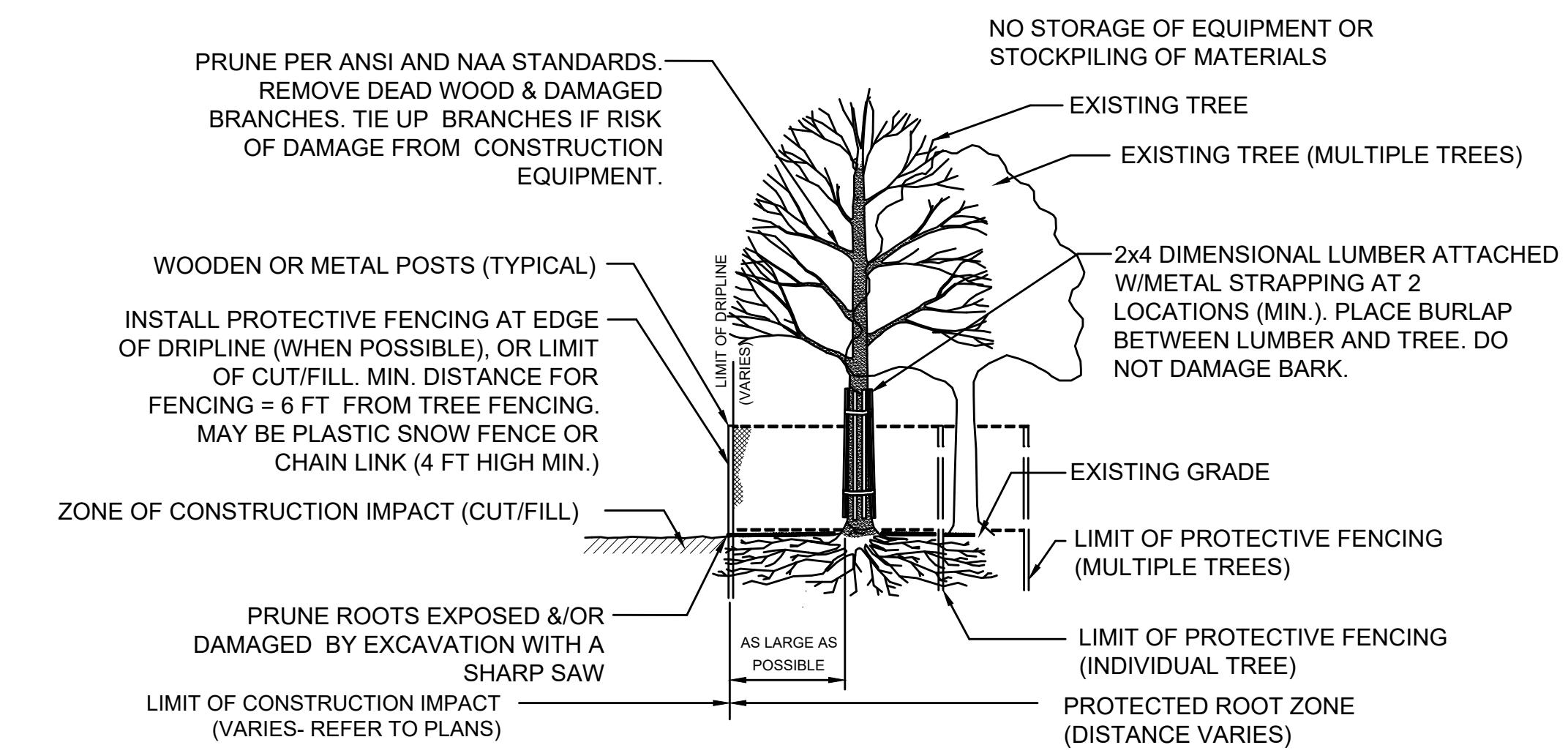
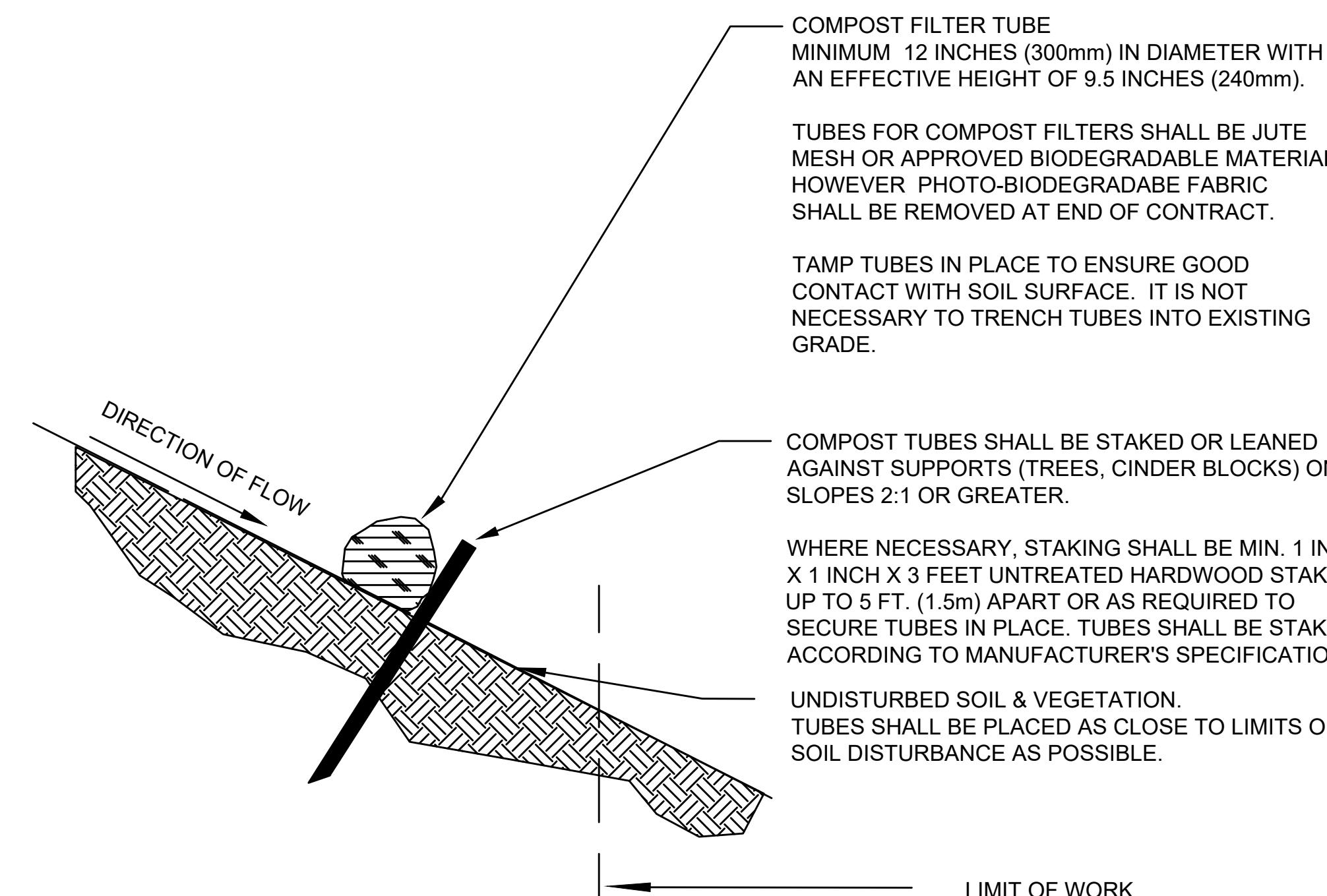


NOTE:

1. INSTALL INLET PROTECTION IN EXISTING CATCH BASIN, BEFORE COMMENCING WORK.
2. GRATE TO BE PLACED OVER INLET PROTECTION.
3. INLET PROTECTION SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.

INLET PROTECTION FILTER BAG

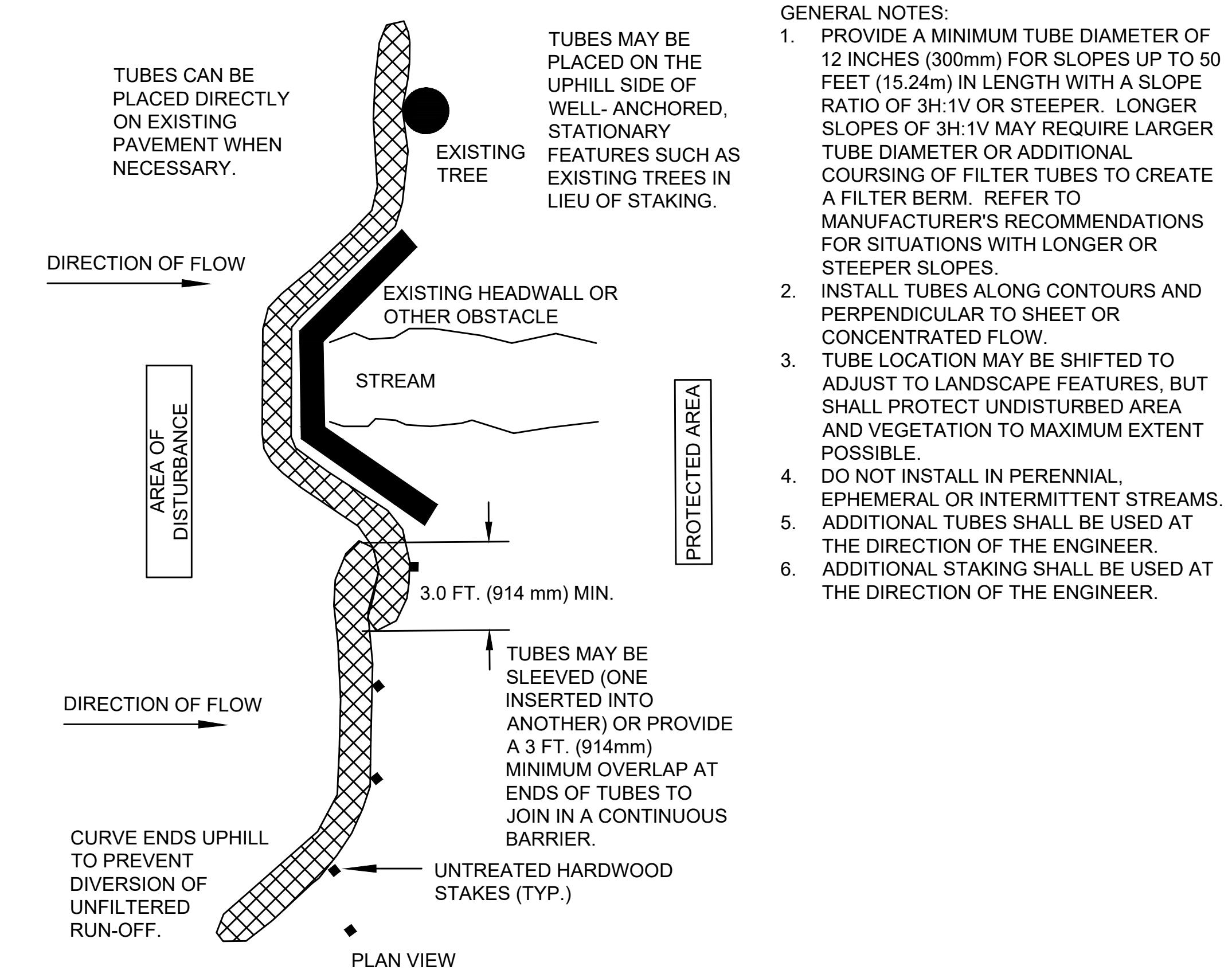
NOT TO SCALE



NOTE:
CONTRACTOR SHALL DO ALL WORK WITHIN THE DRIP LINE OF EXISTING TREES TO BE PROTECTED BY HAND. FOLLOWING ANY REQUIRED EXCAVATION, TEMPORARY FENCE SHALL BE INSTALLED BETWEEN THE PROPOSED WORK AND THE TREE. THE FENCE SHALL BE LOCATED AT THE EDGE OF PROPOSED CONSTRUCTION AND AS CLOSE TO THE DRIP LINE AS POSSIBLE.

INDIVIDUAL TREE PROTECTION

NOT TO SCALE



GENERAL NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES (300mm) FOR SLOPES UP TO 50 FEET (15.24m) IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATIONS WITH LONGER OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. TUBE LOCATION MAY BE SHIFTED TO ADJUST TO LANDSCAPE FEATURES, BUT SHALL PROTECT UNDISTURBED AREA AND VEGETATION TO MAXIMUM EXTENT POSSIBLE.
4. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
5. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. ADDITIONAL STAKING SHALL BE USED AT THE DIRECTION OF THE ENGINEER.

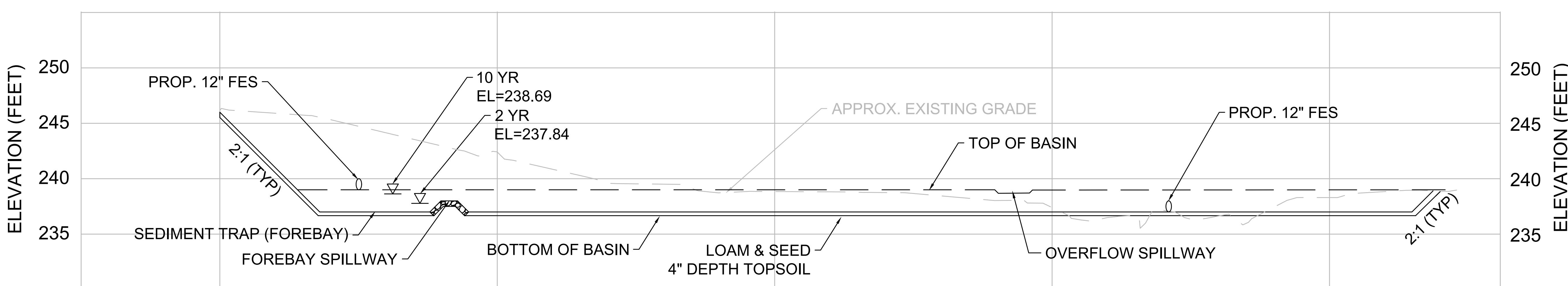
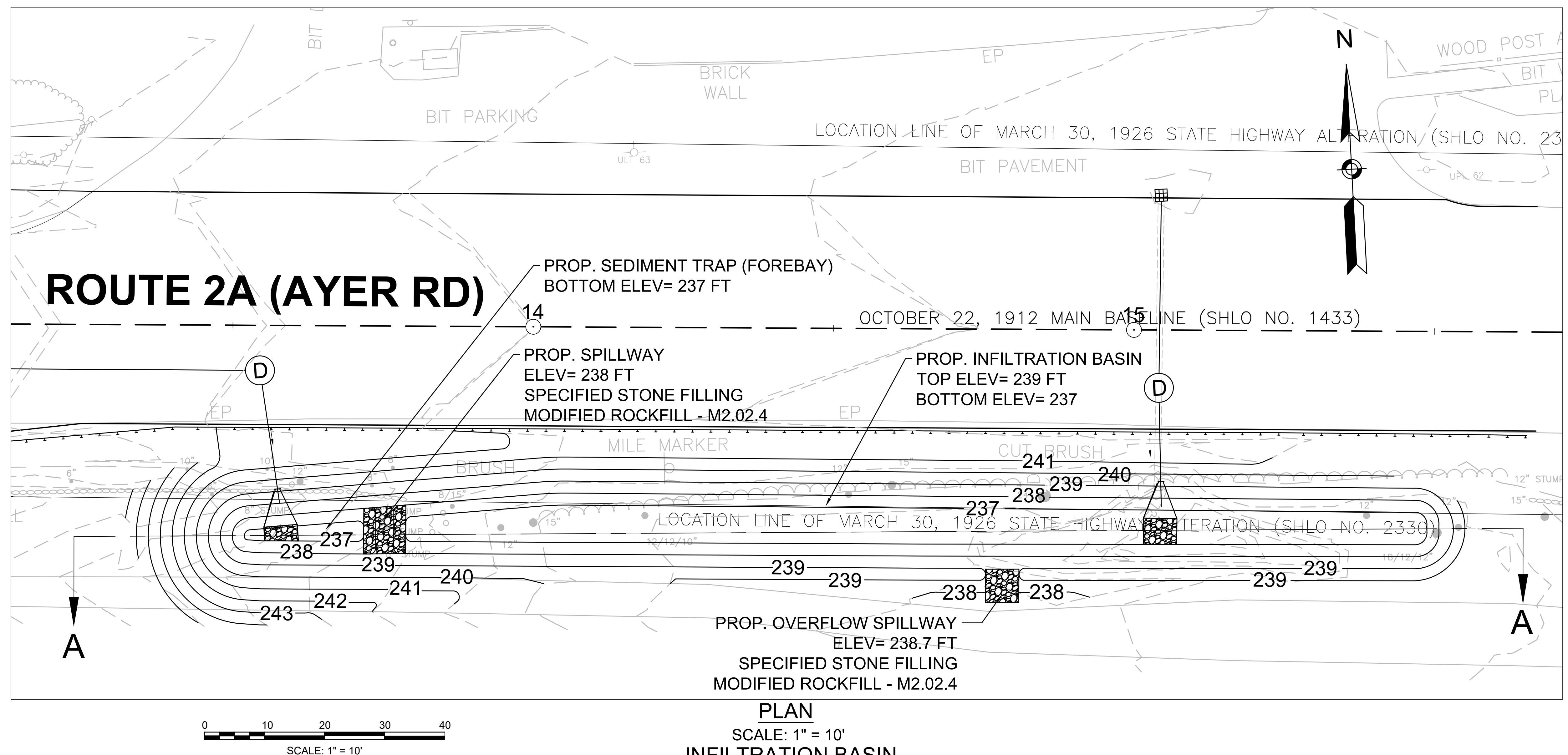
TYPICAL COMPOST FILTER TUBE DETAIL

NOT TO SCALE

STATE	FED. AID PROJ. NO.	SHEET NO.	TO SHEET
MA	-	27	7

CONSTRUCTION DETAILS (3 OF 3)

ROUTE 2A (AYER RD)



SECTION A - A

SCALE: HOR: 1" = 10'
 VERT: 1" = 5'

**LITTLETON / AYER
ROUTE 2A (AYER ROAD)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	29	76
PROJECT FILE NO.		608443	

TRAFFIC SIGNS AND PAVEMENT MARKINGS (2 OF 4)

608443_TR1(SIGN & PVMT MARKS).DWG Plotted on 8-Jul-2021 2:08 PM

**LITTLETON / AYER
ROUTE 2A (AYER ROAD)**

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	29	76
PROJECT FILE NO. 608443			

TRAFFIC SIGNS AND PAVEMENT MARKINGS (2 OF 4)

CONTINUED ON SHEET NO. 28

CONTINUED ON SHEET NO. 30

SCALE: 1" = 20'

CONTINUED ON
SHEET NO. 29

N/F
CHIP SHOTS REALTY LLC
PARCEL ID U45 14 0
BOOK 46676 PAGE 280
245 AYER RD

N/F
RODGERS FAMILY HOLDINGS LLC
PARCEL ID U45 15 0
BOOK 64393 PAGE 32
239 AYER RD

LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	30	76

PROJECT FILE NO. 608443

TRAFFIC SIGNS AND PAVEMENT MARKINGS (3 OF 4)

END PROJECT

END FINE MILLING AND RESURFACING
STATION 15+67.00

COORD. N 3026013.9410
E 647369.4169

608443-TR1(SIGN & PVMT MARKS).DWG | Plotted on 8-Jul-2021 2:39 PM

ROUTE 2A (AYER ROAD)

0 20 50 100
SCALE: 1" = 20'

N

NAD 83

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (INCH)	HEIGHT (INCH)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK-GROUND	LEGEND	BORDER			
SEE SIGN DETAIL ON THIS SHEET													
MA-D3-1_1	48	12	Willow Rd				1(PBS)	RETRO-REFLECTIVE GREEN	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE WHITE	0 1 MTD ON MAST ARM POLE	4.00	4.00
MA-D3-1_2	42	12	Bruce St				1(PBS)	RETRO-REFLECTIVE GREEN	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE WHITE	0 1 MTD ON MAST ARM POLE	3.50	3.50
MA-M1-5	24	24	2A	MASSDOT STANDARD SIGN BOOK			2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 2 MTD W/ M3-2 OR M3-4	4.00	8.00
MA-M1-5a	30	24	110				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 2 MTD W/ M3-2 OR M3-4	5.00	10.00
M3-2	24	12	EAST	SEE MUTCD STD. DETAIL			1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	2.00	2.00
M3-4	24	12	WEST				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	2.00	2.00
R2-1 (30)	24	30	SPEED LIMIT 30				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R2-1 (35)	24	30	SPEED LIMIT 35				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R3-7L	30	30	LEFT LANE MUST TURN LEFT				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50
R3-7R	30	30	RIGHT LANE MUST TURN RIGHT				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50

TRAFFIC SIGN SUMMARY (CONTINUED)

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (INCH)	HEIGHT (INCH)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK-GROUND	LEGEND	BORDER			
SEE MUTCD STD. DETAIL													
R3-8	30	30	ONLY				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	2	6.25	12.50
R4-1	24	30	DO NOT PASS				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	5.00	5.00
R8-3a	24	30	NO PARKING				2	RETRO-REFLECTIVE WHITE	RETRO-REFLECTIVE RED	RETRO-REFLECTIVE RED	2	5.00	10.00
R10-6a	24	30	STOP RED				4	RETRO-REFLECTIVE WHITE	BLACK	BLACK	4	5.00	20.00
R10-11b	36	36	NO TURN ON RED				4	RETRO-REFLECTIVE WHITE	BLACK	BLACK	0 3 MTD ON MAST ARM 1 MTD ON MAST ARM POLE	9.00	36.00
W3-3	36	36	W3-3				4	RETRO-REFLECTIVE YELLOW	RETRO-REFLECTIVE RED & GREEN	BLACK	4	9.00	36.00
R12-3	24	36	NO TRUCKS OVER 5000 LBS ENTER				1	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	6.00	6.00
R9-5	12	18	USE PEDESTRIAN SIGNAL				2	RETRO-REFLECTIVE WHITE	BLACK	BLACK	1	1.50	3.00
												TOTAL	208.00

NOTES:

1. UNLESS OTHERWISE NOTED, ALL POSTS TO BE P-5.
2. PER THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND REVISIONS, THE 1990 MASSDOT HIGHWAY DIVISION STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 2012 MASSDOT MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD, 2012 SUPPLEMENT TO THE 2004 STANDARD HIGHWAY SIGN, AND 2016 MASSDOT STANDARD SIGN BOOK.
3. PBS="PRINTED BOTH SIDES".



1.50" Radius, 0.50" Border, White on Green;
[Willow] D 2K; [Rd] D 2K.

Table of distances between letter and object lefts.

W	I	II	III	IV	V	VI	VII	VIII	VII	IX	X
7.33	6.12	2.16	1.92	0.44	11.28	3.16	2.40	7.33	4.5	5.56	1.50

MA-D3-1_1 DETAIL
NOT TO SCALE



1.50" Radius, 0.50" Border, White on Green;

[Bruce] D 2K; [St] D 2K.

Table of distances between letter and object lefts.

B	C	D	E	F	G	H	I	J	K	L	
6.45	4.98	4.24	4.50	5.03	5.04	2.96	1.60	6.45	4.2	4.56	6.45

MA-D3-1_2 DETAIL
NOT TO SCALE

LITTLETON / AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	31	76
PROJECT FILE NO.		608443	

TRAFFIC SIGNS AND PAVEMENT MARKINGS (4 OF 4)

Scanned on 8-Jul-2021 2:09 PM

608443_TR1(SIGN & PVMT MARKS).DWG

CONTINUED ON

RE1
DEM

10

1963 MIDDLESEX COUNTY LAY

1963 MIDDLESEX COUNTY LA

WILLOW ROAD

LIMIT OF WORK
BEGIN FINE MILLING
AND RESURFACING
STA. 14+90.00

MATCH EXISTING
MARKINGS AT
STA. 11+90.00

WILLOW RO

**LITTLETON / AYER
ROUTE 2A (AYER ROAD)**

TRAFFIC SIGNS AND PAVEMENT MARKINGS

STATE MA	FED. AID PROJ. NO. -	HEET NO. 31	TOTAL SHEETS 76
PROJECT FILE NO. 608443			

1963 MIDDLESEX COUNTY LAYOUT

WILLOW ROAD

LIMIT OF WORK
BEGIN FINE MILLING
AND RESURFACING
STA. 14+90.00

**MATCH EXISTING
MARKINGS AT
STA. 14+90.00**

15' ROW EASEMENT

SCALE: 1" = 20'

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	32	76
PROJECT FILE NO.		608443	

TRAFFIC SIGNAL PLAN

6084433_R3(|SIG PLANS),DWG
Plotted on 8-Jul-2021 2:10 PM

**LITTLETON/AYER
ROUTE 2A (AYER ROAD)**

TRAFFIC SIGNAL PLAN

STATE FED. AID PROJ. NO. SHEET TOTAL SHEETS
MA - 32 76
PROJECT FILE NO. 608443

ROUTE 2A (AYER ROAD)

ROUTE 2A (AYER ROAD)

WILLOW ROAD

ROUTE 2A (AYER ROAD)

BRUCE STREET

ROUTE 2A (AYER ROAD)

CONTINUED ABOVE

CONTINUED BELOW

CONTINUED BELOW

CONTINUED ABOVE

CONTINUED BELOW

NOTE:

1. REMOVE AND STACK ALL EXISTING TRAFFIC SIGNAL EQUIPMENT.

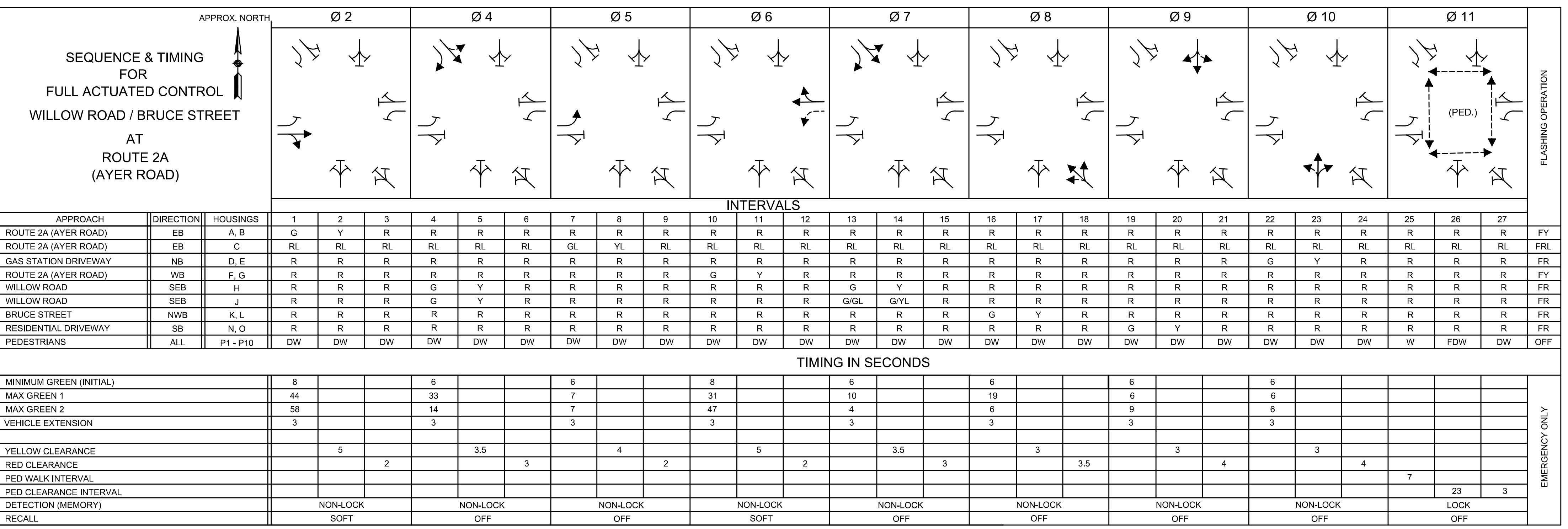
SCALE: 1" = 20'

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	33	76

PROJECT FILE NO. 608443

SIGNAL TIMING SEQUENCING



LOOP DETECTOR DATA						
DETECTOR NUMBER	LOOP SIZE	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRE.	DELAY TIME	EXT. TIME
1	6'X23'	6	6	B	0	-
2	6'X23'	6	6	B	0	-
4	6'X23'	7	7	B	0	-
5	6'X23'	4	4	B	0	-
6	6'X23'	5	5	B	0	-
7	6'X23'	2	2	B	0	-
9	6'X6'	-	6	A	0	3
10	6'X6'	-	2 & 5	A	0	3
11	6'X23'	8	8	B	0	-

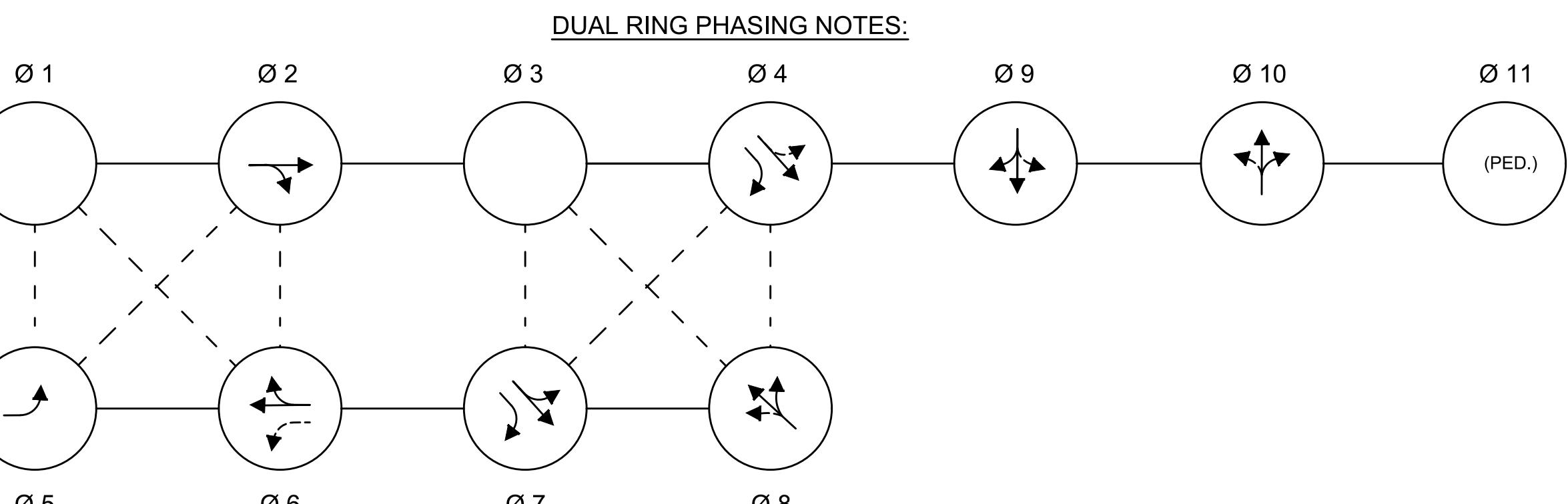
VIDEO DETECTION DATA

DETECTOR NUMBER	Ø CALLED	Ø EXT.	OPERATIONS	DELAY TIME	EXT. TIME
3	9	9	PRESENCE	-	-
8	10	10	PRESENCE	-	-

MAJOR ITEMS REQUIRED

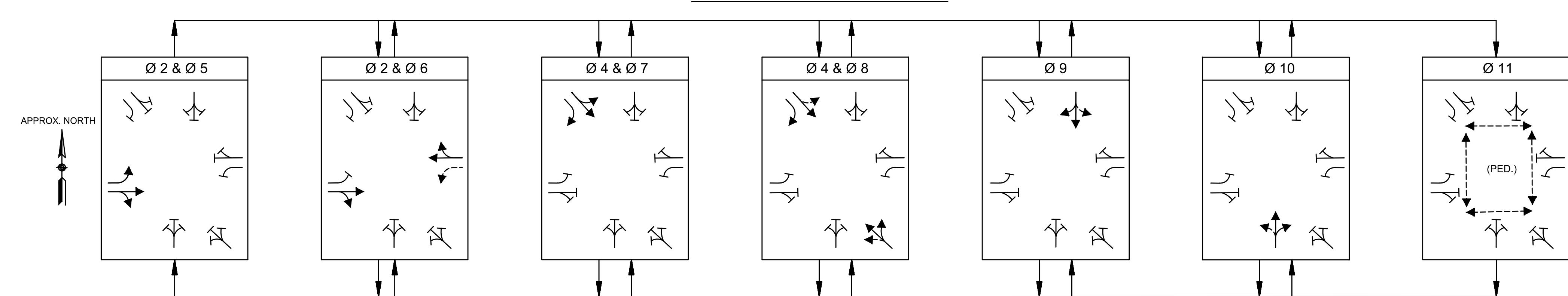
PAY ITEM	QUANTITY	ITEM
816.01	1	SERVICE CONNECTION (OVERHEAD)
	1	ATC CONTROLLER, CAB. & FDN
	2	35 FT GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN
	1	55 FT GALV. STEEL MAST ARM ASSEMBLY, BASE & FDN
	5	8 FT PEDESTRIAN SIGNAL POST, BASE & FDN
	3	10 FT SIGNAL POST, BASE & FDN
	13	12 INCH 1 WAY 5-SECTION LED VEHICLE SIGNAL INDICATION
	1	12 INCH 1 WAY 5-SECTION LED VEHICLE SIGNAL INDICATION
	10	16 INCH LED PEDESTRIAN SIGNAL INDICATION WITH COUNTDOWN
	10	APS DEVICE, SIGN & SADDLE
	1	PREEMPTION PHASE SELECTOR MODULE-FOUR CHANNEL
	1	PREEMPTION CARD RACK
	1	EMERGENCY PRE-EMPTION CONFIRMATION STROBE LIGHT
	4	EMERGENCY PRE-EMPTION RECEIVER (DETECTOR) - ONE WAY
	2	VIDEO DETECTION CAMERA
	23	WIRE LOOP INSTALLED IN ROADWAY

PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION OF A FULLY OPERATIONAL SIGNAL SYSTEM AS INTENDED ON THESE PLANS



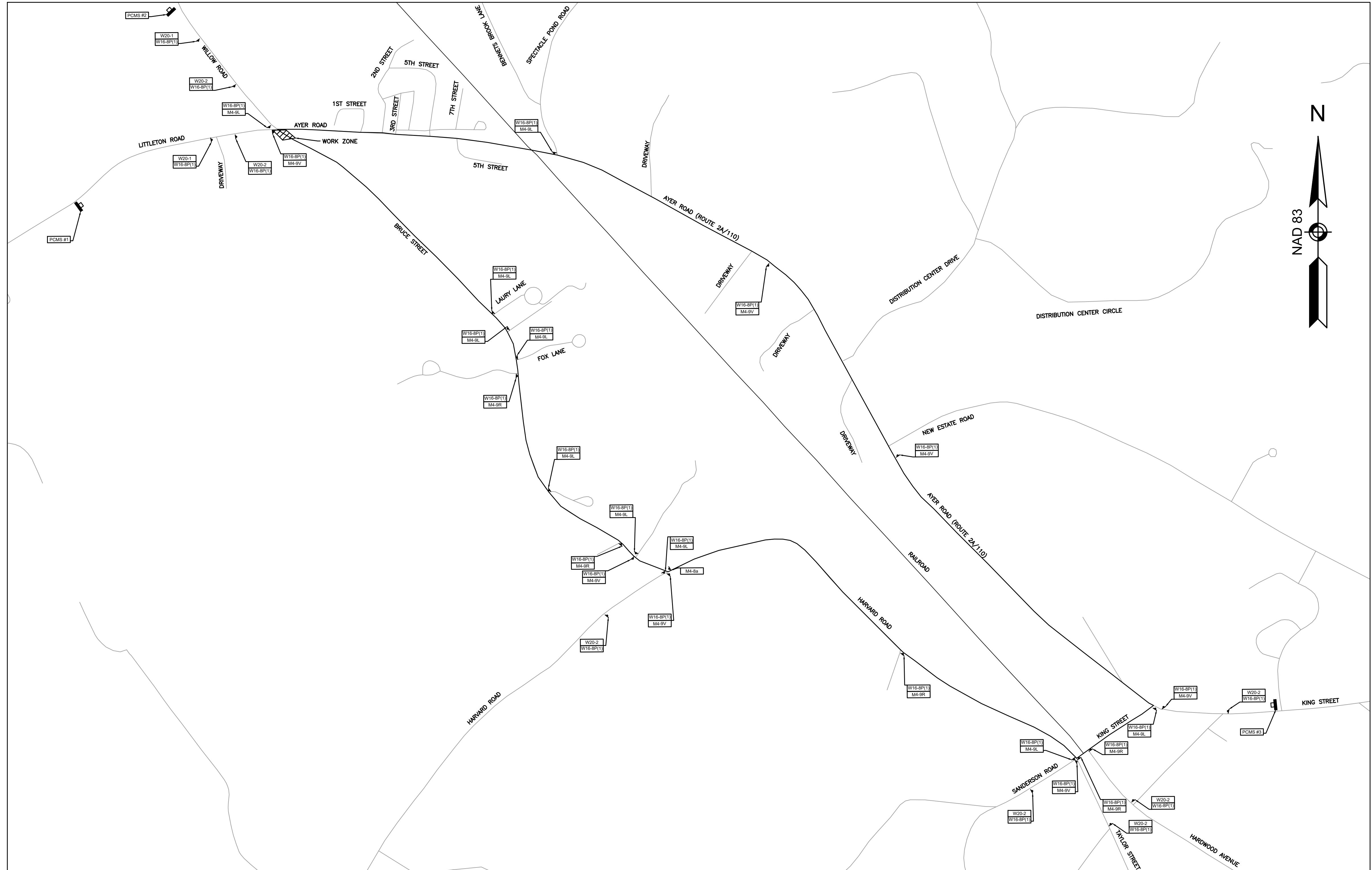
1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

PREFERENTIAL PHASING SEQUENCE



SIGNAL IDENTIFICATION						
ALL 12' LENS	ALL 12' LENS	ALL 12' LENS	ALL 12' LENS	ALL 12' LENS	ALL 12' LENS	16' LED P1-P10
R	R	Y	Y	G	G	
Y	Y	G	G	R	R	
G	G	R	R	Y	Y	
A, B, D, E, F, G, H, K, L, M, N, O	C	J				

1. ALL VEHICLE LENSES SHALL BE LED TYPE.
2. ALL VEHICLE SIGNAL HEADS SHALL BE 12 INCHES.
3. ALL HOUSINGS TO BE PROVIDED WITH TUNNEL VISORS AND 5-INCH NON-Louvered BACKPLATES WITH 3-INCH RETROREFLECTIVE BORDER.
4. ALL HOUSINGS TO BE FIXED MOUNTED.



**BRUCE STREET
DETOUR PLAN**
NOT TO SCALE

SEE SHEET 37 FOR GENERAL NOTES

TRAFFIC DEVICE LEGEND



WORK AREA



SIGN



PORTABLE CHANGEABLE MESSAGE SIGN
(PCMS)

DETOUR NOTES:

1. THE CONTRACTOR SHALL COORDINATE IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION PRIOR TO CONSTRUCTION ACTIVITIES.
2. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. THE CONTRACTOR SHALL NOTIFY APPLICABLE MassDOT AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
4. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
5. ALL CONFLICTING SIGNAGE SHALL BE COVERED OR REMOVED FOR THE DURATION OF THE DETOUR.
6. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DEPLOYED FOURTEEN (14) DAYS PRIOR TO THE FIRST DAY THE DETOUR IS IN EFFECT. THE MESSAGE SHALL CHANGE UPON THE START OF CONSTRUCTION. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE REMOVED AFTER CONSTRUCTION WORK IS COMPLETED. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF REMOVING TEMPORARY TRAFFIC CONTROL SIGNS.

LITTLETON / AYER ROUTE 2A (AYER ROAD)			
STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	34	76
PROJECT FILE NO. 608443			
BRUCE ST. DETOUR PLAN			

TR020DETOUR PLAN.DWG Plotted on 8-Jul-2021 7:52 AM



**WILLOW ROAD NORTHBOUND
DETOUR PLAN
NOT TO SCALE**

SEE SHEET 37 FOR GENERAL NOTES

TRAFFIC DEVICE LEGEND



WORK AREA



SIGN



PORTABLE CHANGEABLE MESSAGE SIGN
(PCMS)

DETOUR NOTES:

1. THE CONTRACTOR SHALL COORDINATE IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION PRIOR TO CONSTRUCTION ACTIVITIES.
2. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. THE CONTRACTOR SHALL NOTIFY APPLICABLE MassDOT AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
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**LITTLETON / AYER
ROUTE 2A (AYER ROAD)**

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	35	76

PROJECT FILE NO. 608443

WILLOW RD. SB DETOUR PLAN

TR020DETOUR PLAN.DWG Plotted on 8-Jul-2021 7:52 AM

**MESSAGES FOR
PCMS #1 & #2**

**ADVANCE
NOTIFICATION**

MESSAGE 1
WILLOW RD
N-BND
CLOSED

MESSAGE 2
MM/DD
TO
MM/DD

**DURING
CONSTRUCTION**

MESSAGE 1
WILLOW RD
N-BND
CLOSED

MESSAGE 2
FOLLOW
DETOUR

**MESSAGES FOR
PCMS #3**

**ADVANCE
NOTIFICATION**

MESSAGE 1
WILLOW RD
N-BND
CLOSED

MESSAGE 2
MM/DD
TO
MM/DD

**DURING
CONSTRUCTION**

MESSAGE 1
WILLOW RD
N-BND
CLOSED

MESSAGE 2
SEEK
DETOUR



WILLOW ROAD SOUTHBOUND

DETOUR PLAN

NOT TO SCALE

SEE SHEET 37 FOR GENERAL NOTES

TRAFFIC DEVICE LEGEND



WORK AREA

PORTRABLE CHANGEABLE MESSAGE SIGNS (PCMS)

DETOUR NOTES

1. THE CONTRACTOR SHALL COORDINATE IMPLEMENTATION OF THIS DETOUR PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION PRIOR TO CONSTRUCTION ACTIVITIES.
2. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS. THE CONTRACTOR SHALL NOTIFY APPLICABLE MassDOT AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER NECESSARY WORK ZONE TRAFFIC DEVICES SHALL BE REMOVED FROM THE ROADWAY WHEN THEY ARE NOT REQUIRED FOR TRAFFIC CONTROL.
4. THE CONTRACTOR SHALL COORDINATE WITH ANY ABUTTING PROJECTS.
5. ALL CONFLICTING SIGNAGE SHALL BE COVERED OR REMOVED FOR THE DURATION OF THE DETOUR.
6. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DEPLOYED FOURTEEN (14) DAYS PRIOR TO THE FIRST DAY THE DETOUR IS IN EFFECT. THE MESSAGE SHALL CHANGE UPON THE START OF CONSTRUCTION. THE PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE REMOVED AFTER CONSTRUCTION WORK IS COMPLETED. THE CONTRACTOR SHALL NOTIFY APPLICABLE STATE AND LOCAL AGENCIES TWO (2) WEEKS IN ADVANCE OF REMOVING TEMPORARY TRAFFIC CONTROL SIGNS.

LITTLETON / AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	76
PROJECT FILE NO.		608443	

WILLOW RD. NB DETOUR PLAN

Plotted on 8-Ju-2021 7:52 AM
102(BE) OUR PLAN, BWG

MESSAGES FOR PCMS #1

ADVANCE
NOTIFICATION

MESSAGE 1

WILLOW RD CLOSED AT RT 2A

MESSAGE 2

MM/DD TO MM/DD

DURING
CONSTRUCTION

MESSAGE 1

WILLOW RD CLOSED AT RT 2A

MESSAGE 2

FOLLOW DETOUR

MESSAGES FOR PCMS #2

ADVANCE NOTIFICATION	
MESSAGE 1	WILLOW RD CLOSED AT RT 2A
MESSAGE 2	MM/DD TO MM/DD
DURING CONSTRUCTION	
MESSAGE 1	WILLOW RD CLOSED AT RT 2A
MESSAGE 2	SEEK DETOUR

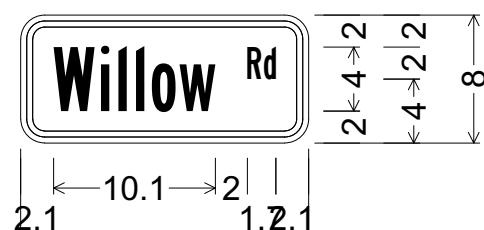
LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	sheet no.	total sheets
MA	-	37	76

PROJECT FILE NO. 608443

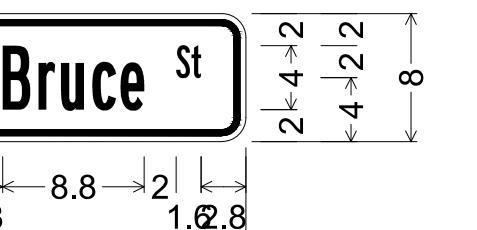
TEMPORARY TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR		POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET	
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACKGROUND	LEGEND				
M4-8a	2'-0"	1'-6"	END DETOUR	SEE MUTCD	(2)		5	FLUORESCENT ORANGE	BLACK	BLACK	MASSDOT SPEC. MOUNT ON POST	3.00	15.00
M4-8	2'-0"	1'-0"	DETOUR				1	FLUORESCENT ORANGE	BLACK	BLACK		2.00	2.00
M4-9R	2'-6"	2'-0"	DETOUR 				10	FLUORESCENT ORANGE	BLACK	BLACK		5.00	50.00
M4-9L	2'-6"	2'-0"	DETOUR 				13	FLUORESCENT ORANGE	BLACK	BLACK		5.00	65.00
M4-9sL	2'-6"	2'-0"	DETOUR 				1	FLUORESCENT ORANGE	BLACK	BLACK		5.00	5.00
M4-9sR	2'-6"	2'-0"	DETOUR 				4	FLUORESCENT ORANGE	BLACK	BLACK		5.00	20.00
M4-9V	2'-6"	2'-0"	DETOUR 				20	FLUORESCENT ORANGE	BLACK	BLACK		5.00	100.00
W20-1	3'-0"	3'-0"	ROAD WORK AHEAD				9	FLUORESCENT ORANGE	BLACK	BLACK		9.00	90.00
W20-2	3'-0"	3'-0"	DETOUR AHEAD				10	FLUORESCENT ORANGE	BLACK	BLACK		9.00	90.00
M5-3	1'-9"	1'-3"					1	FLUORESCENT ORANGE	BLACK	BLACK		2.19	2.19
W16-8P(1)	1'-6"	8"	Bruce St	SEE SIGN DETAIL ON THIS SHEET			28	FLUORESCENT ORANGE	BLACK	BLACK		1.00	28.00
W16-8P(2)	1'-6"	8"	Willow Rd				32	FLUORESCENT ORANGE	BLACK	BLACK		1.00	32.00
											TOTAL	499.19	



1.5" Radius, 0.4" Border, 0.4" Indent, Black on, Yellow;
"Willow Rd", B 2K 90% spacing;
Table of distances between letter and object lefts

W	i	l	l	o	W	R	d	2.1
2.1	2.9	1.1	1.1	1.0	1.7	4.3	1.0	0.7



1.5" Radius, 0.4" Border, 0.4" Indent, Black on, Yellow;
"Bruce St", B 2K;
Table of distances between letter and object lefts

B	r	u	c	e	S	t	2.8
2.8	2.2	1.4	2.0	1.8	3.4	1.0	0.6

W16-8P(2) DETAIL

NOT TO SCALE

W16-8P(1) DETAIL

NOT TO SCALE

SIGN SUMMARY NOTES:

1. SIGN SUPPORTS MUST CONFORM TO THE CRITERIA SET FORTH IN THE NCHRP 350 REPORT AND/OR MASH.

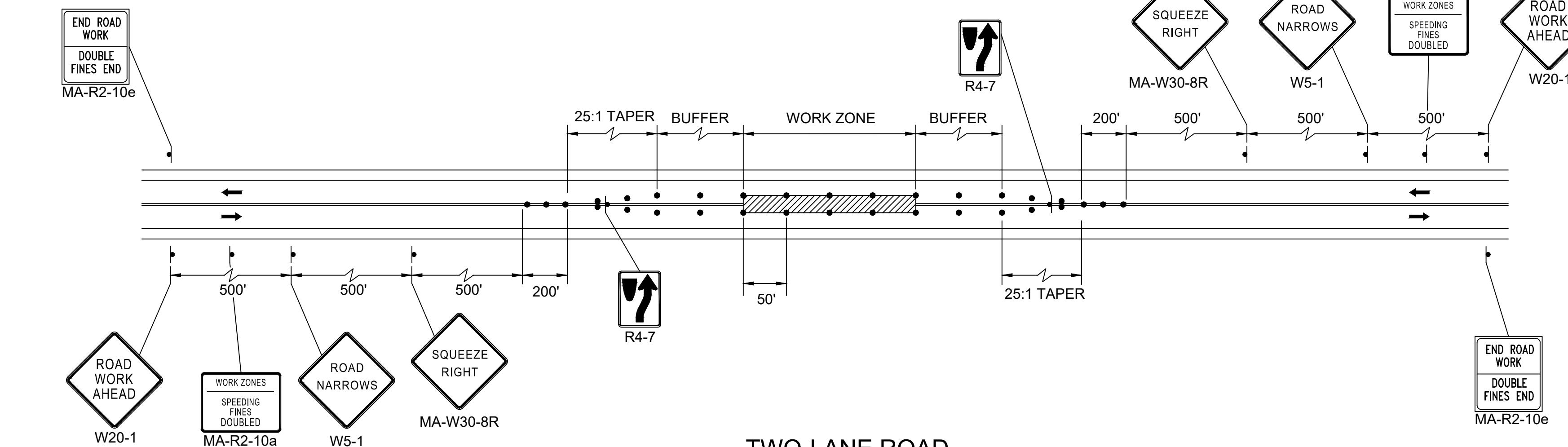
2. TEXT DIMENSIONS AND COLOR SHALL BE PER MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2009 EDITION AND ALL REVISIONS, THE 2012 MASSACHUSETTS AMENDMENTS TO THE 2009 MUTCD, THE MASSDOT AMENDMENTS STANDARD SIGNS BOOK AND THE STANDARD MUNICIPAL TRAFFIC CODE.

TEMPORARY TRAFFIC CONTROL NOTES:

1. MINIMUM LANE WIDTH OF 11 FEET SHALL BE MAINTAINED ALL THE TIME.
2. THE CONTRACTOR SHALL COORDINATE APPROVAL OF ANY CHANGES TO THE TEMPORARY TRAFFIC CONTROL PLAN WITH MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) PRIOR TO CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL ALSO NOTIFY MASSDOT AND THE TOWNS OF LITTLETON AND AYER TWO (2) WEEKS IN ADVANCE OF PLACING TEMPORARY TRAFFIC CONTROL SIGNS.
3. THESE PLANS ARE NOT INTENDED TO LIMIT THE CONTRACTOR'S APPROACH TO SCHEDULE THE WORK BUT TO OUTLINE ONE WAY OF PROGRESSING. THE CONTRACTOR IS EXPECTED TO USE KNOWLEDGE AND EXPERIENCE TO PERFORM THE WORK IN THE MOST EFFICIENT AND SAFE MANNER IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS.
4. PLACE ALL SAFETY DEVICES AND CONSTRUCTION SIGNING BEFORE ACTUAL CONSTRUCTION WORK BEGINS.
5. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS WITH THE APPROVAL OF THE ENGINEER.
6. WHEN EXISTING SIGNS ARE NO LONGER APPLICABLE THEY SHALL BE TEMPORARILY COVERED DURING CONSTRUCTION OR REMOVED AND RESET UPON COMPLETION OF CONSTRUCTION.
7. ALL SIGNS SHALL BE REFLECTORIZED, WITH REFLECTIVE SHEETING CONFORMING TO M9.30. ALL SIGN COLORS SHALL BE PER THE CONSTRUCTION SIGN SUMMARY TABLE AND CURRENT MUTCD.
8. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN THE NCHRP 350 REPORT.
9. WHEN TEMPORARY PAVEMENT MARKINGS ARE NO LONGER APPLICABLE THEY SHALL BE REMOVED. CONTRACTOR SHALL RECORD EXISTING PAVEMENT MARKINGS AND RESTORE ALL MARKINGS TO EXISTING CONDITIONS AT THE CONCLUSION OF CONSTRUCTION.
10. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED IMMEDIATELY WHEN NO LONGER NEEDED.
11. UNLESS OTHERWISE NOTED, ALL PAVEMENT MARKINGS, SIGNS AND OTHER TRAFFIC EQUIPMENT REMOVED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
12. CONTRACTOR SHALL INSTALL, RENEW, AND MAINTAIN ALL TRAFFIC CONTROL DEVICES AS SHOWN ON THE DRAWINGS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
13. ACCESS/EGRESS TO ALL ABUTTERS SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
14. CONTRACTOR SHALL MAINTAIN EMERGENCY PASSAGE AT ALL TIMES TO BUILDINGS WITHIN AND ADJACENT TO THE PROJECT LIMITS AS WELL AS A LARGER AREA IF AFFECTED BY CONSTRUCTION CONDITIONS. CONTRACTOR SHALL MAINTAIN 24 HOUR EMERGENCY VEHICLE ACCESS TO CONSTRUCTION AREAS.
15. CONTRACTOR SHALL COORDINATE WITH ABUTTERS FOR THE PROPOSED WORK AND SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF THE WORK THAT WILL REQUIRE TEMPORARY CLOSURE OF ACCESS TO THEIR PROPERTY.
16. THE CONTRACTOR SHALL COORDINATE THE WORK WITH ALL ABUTTING PROJECTS.
17. CONSTRUCTION ACTIVITIES REQUIRING LANE CLOSURES SHALL NOT BE PERFORMED DURING AM AND PM PEAK TRAVEL TIMES (6:30AM AND 4:30 PM).
18. THE FIRST TEN DRUMS OF A TAPER SHALL BE MOUNTED WITH SEQUENTIAL FLASHING TYPE A LIGHTS. SEE FIGURE GEN-1 OF THE MASSACHUSETTS TTCP.

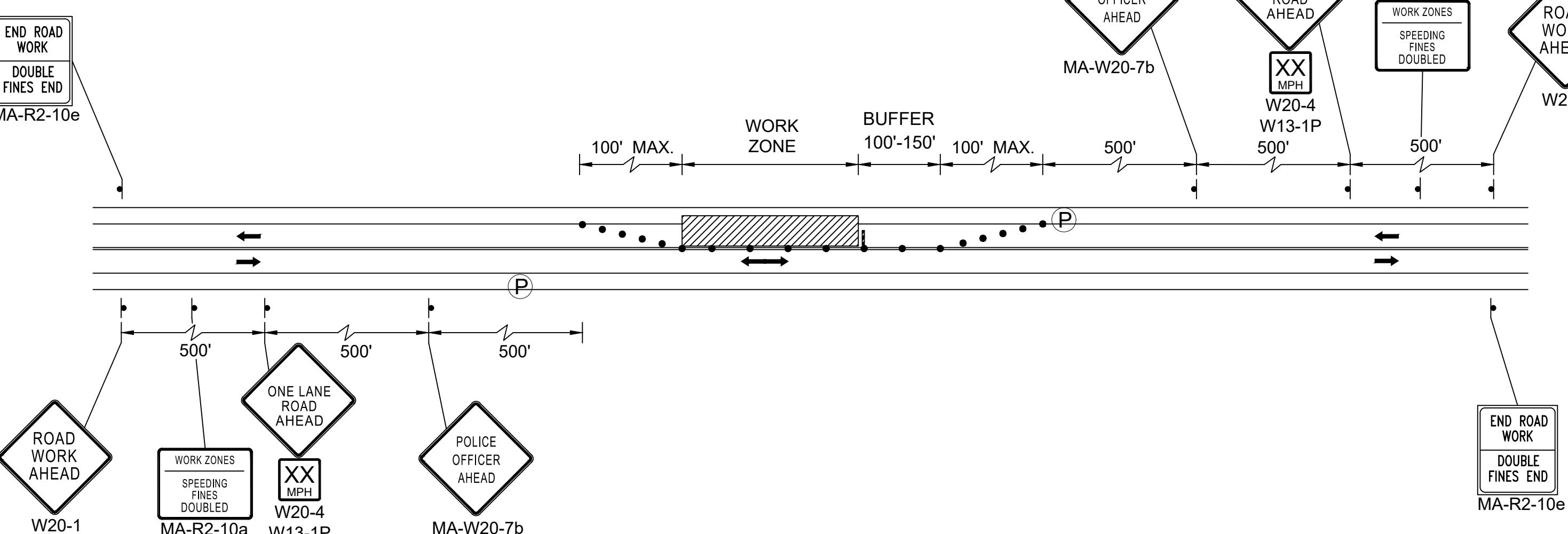
LEGEND

- DIRECTION OF TRAFFIC
- SIGN
- (P) POLICE OFFICER
- REFLECTORIZED DRUM
- ▨ WORK ZONE
- ▨ TYPE III BARRICADE
- ▨ ARROW BOARD



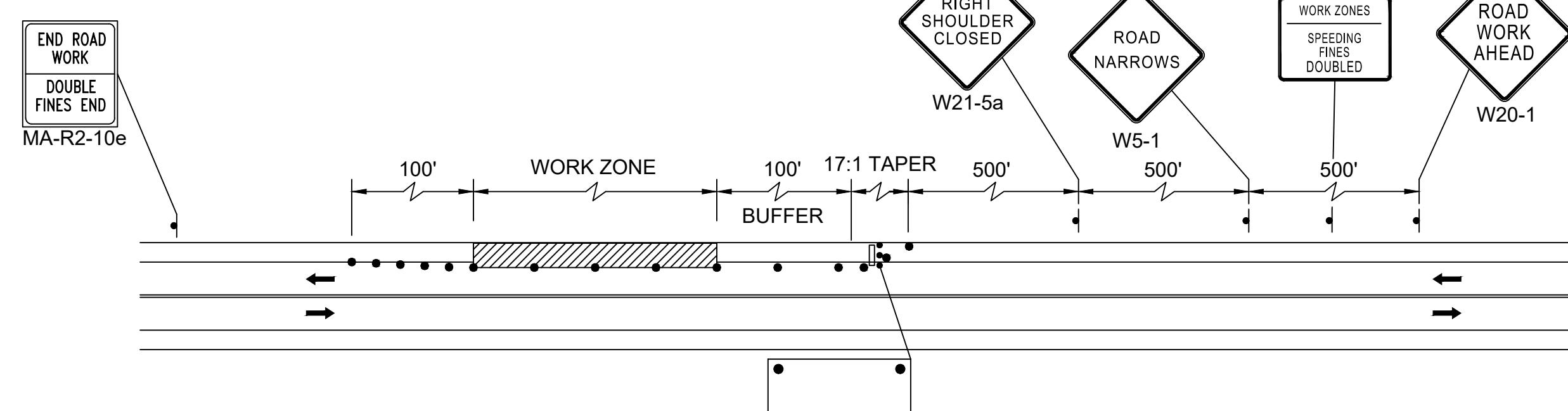
TWO-LANE ROAD
CENTER OF ROAD CLOSURE

NOT TO SCALE



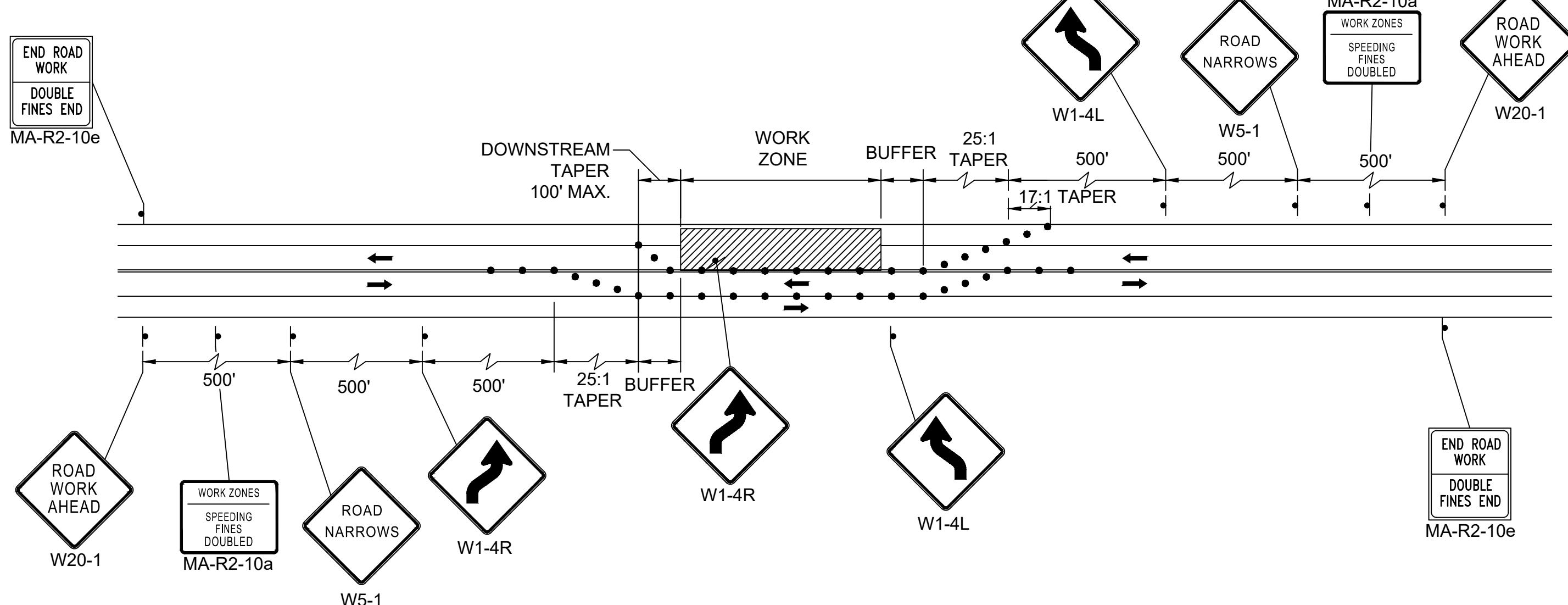
TWO-LANE ROAD
ONE LANE ALTERNATING TRAFFIC

NOT TO SCALE



TWO-LANE ROAD
SHOULDER CLOSED

NOT TO SCALE



TWO-LANE ROAD
SHOULDER AND TRAVEL LANE CLOSED

NOT TO SCALE

LITTLETON/AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	38	76

PROJECT FILE NO. 608443

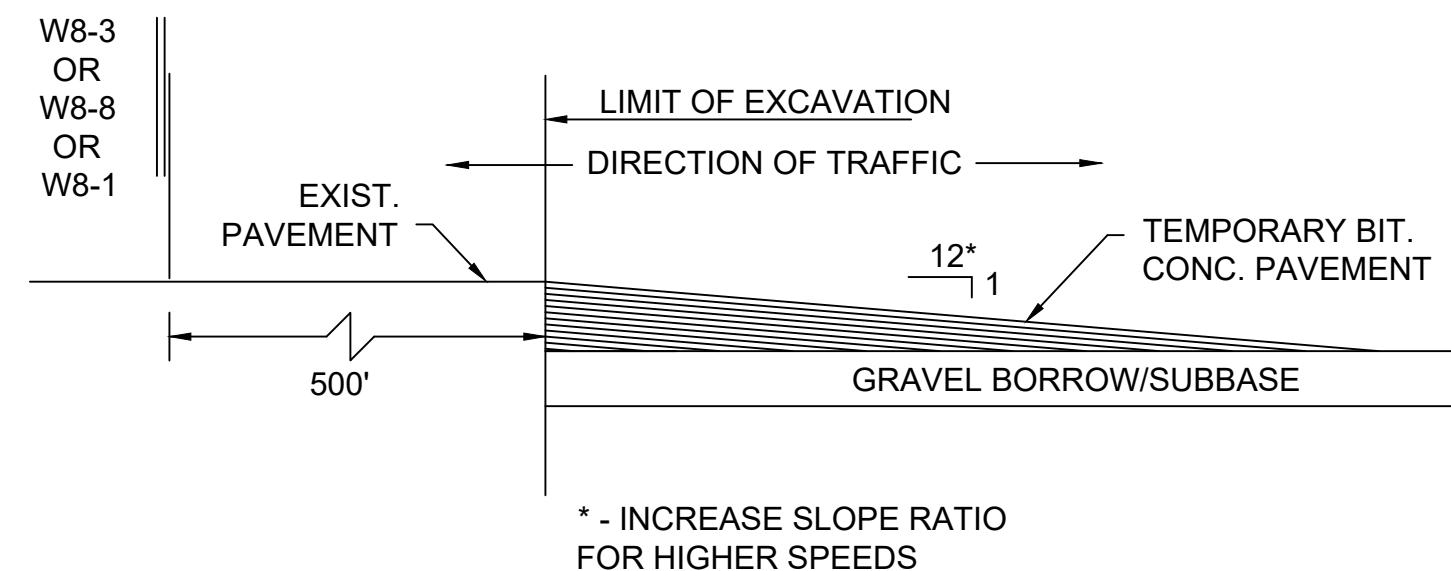
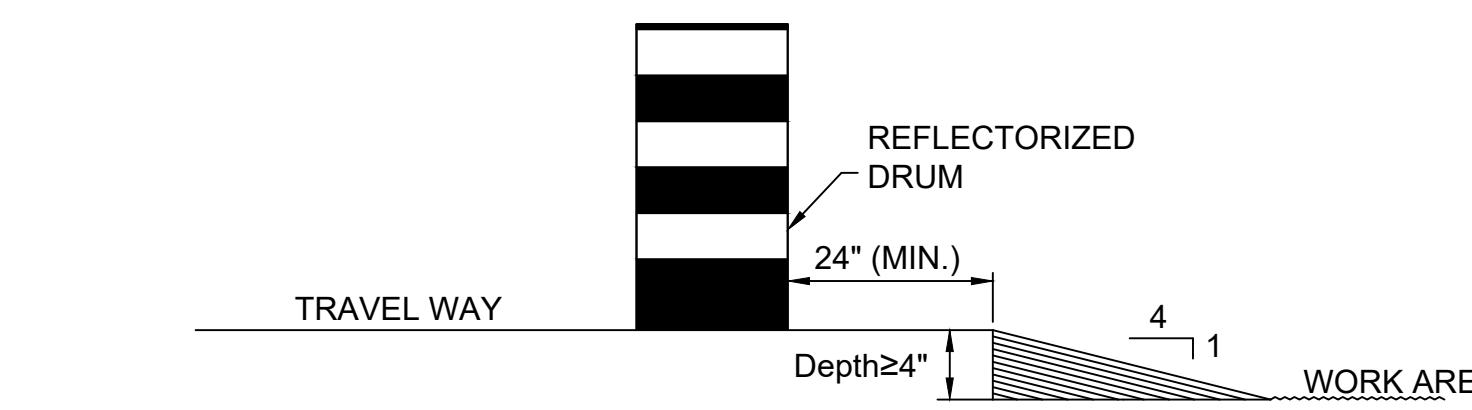
TEMPORARY TRAFFIC CONTROL PLANS (1 OF 9)

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	39	76

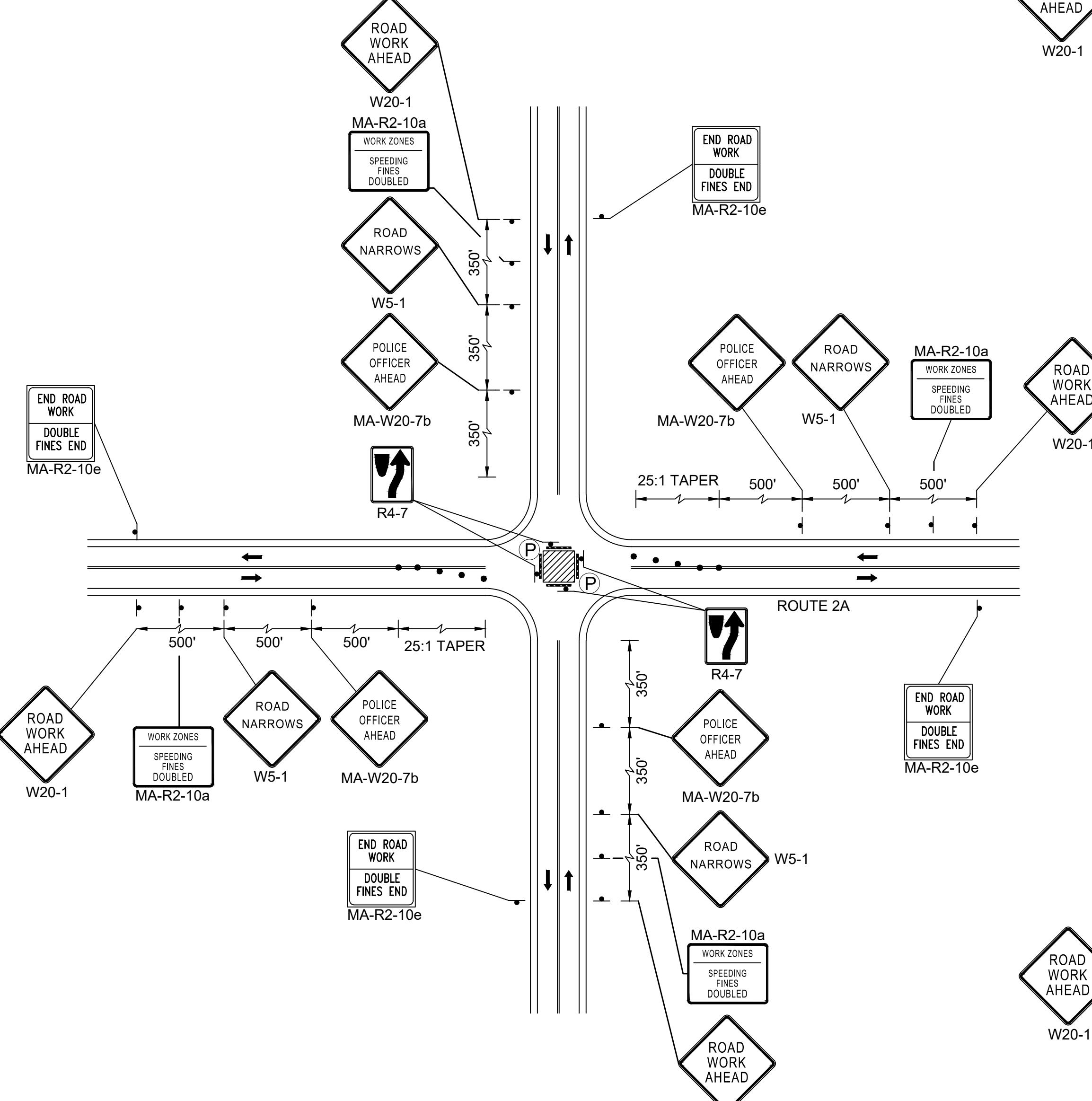
PROJECT FILE NO. 608443

TEMPORARY TRAFFIC CONTROL PLANS (2 OF 9)



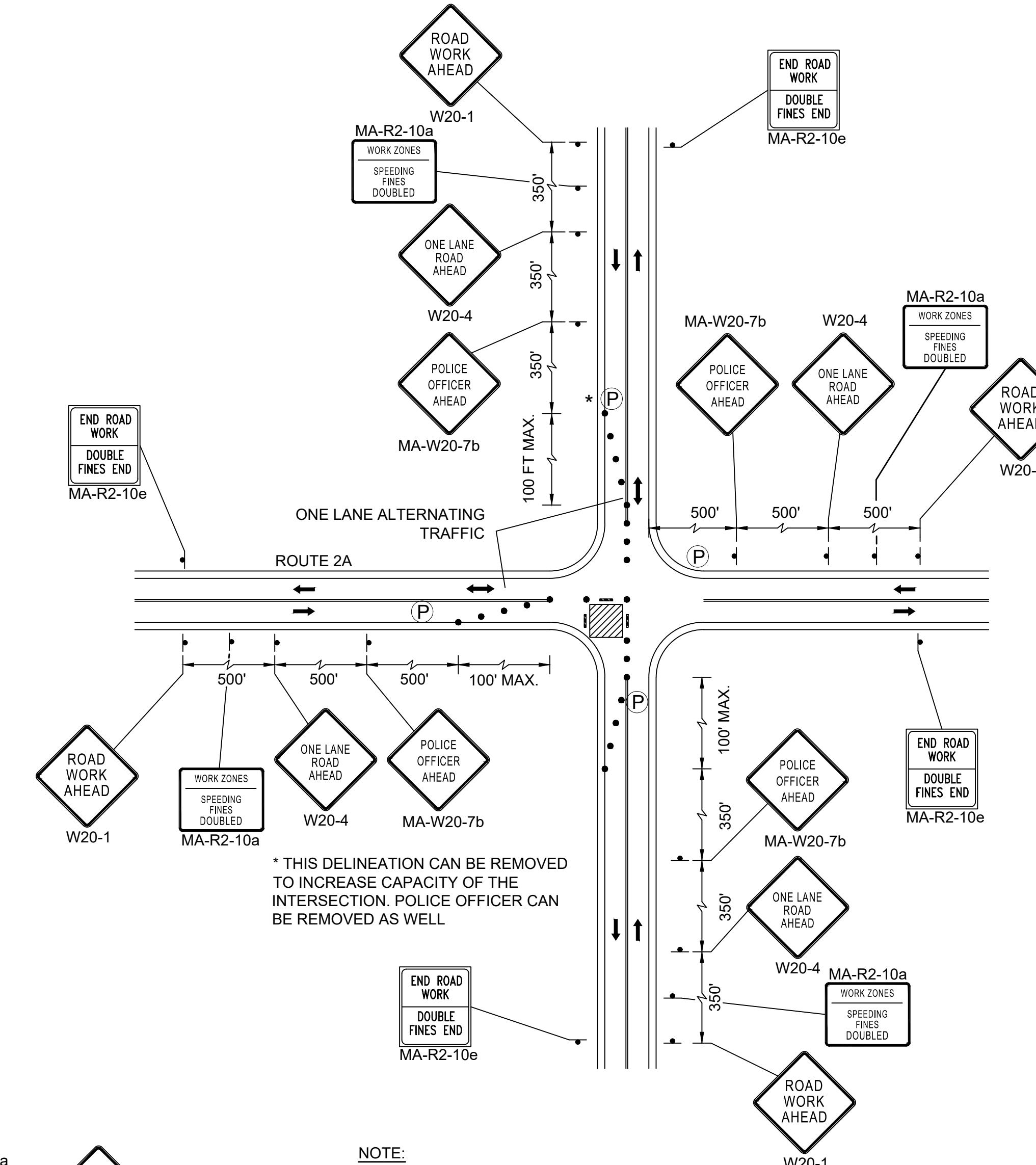
LATERAL AND LONGITUDINAL DROP-OFF DETAILS

NOT TO SCALE



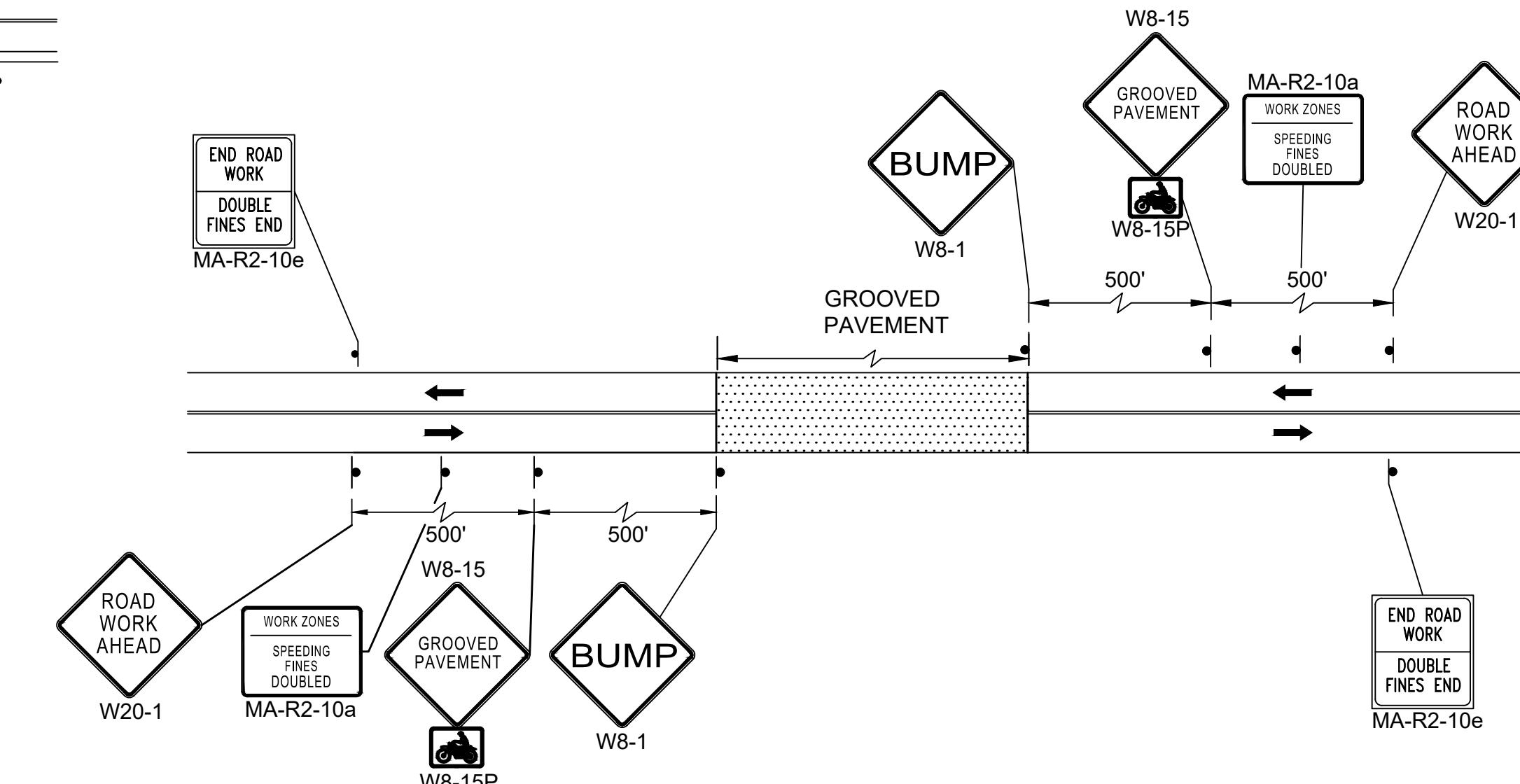
SINGLE LANE APPROACH CENTER CLOSURE

NOT TO SCALE



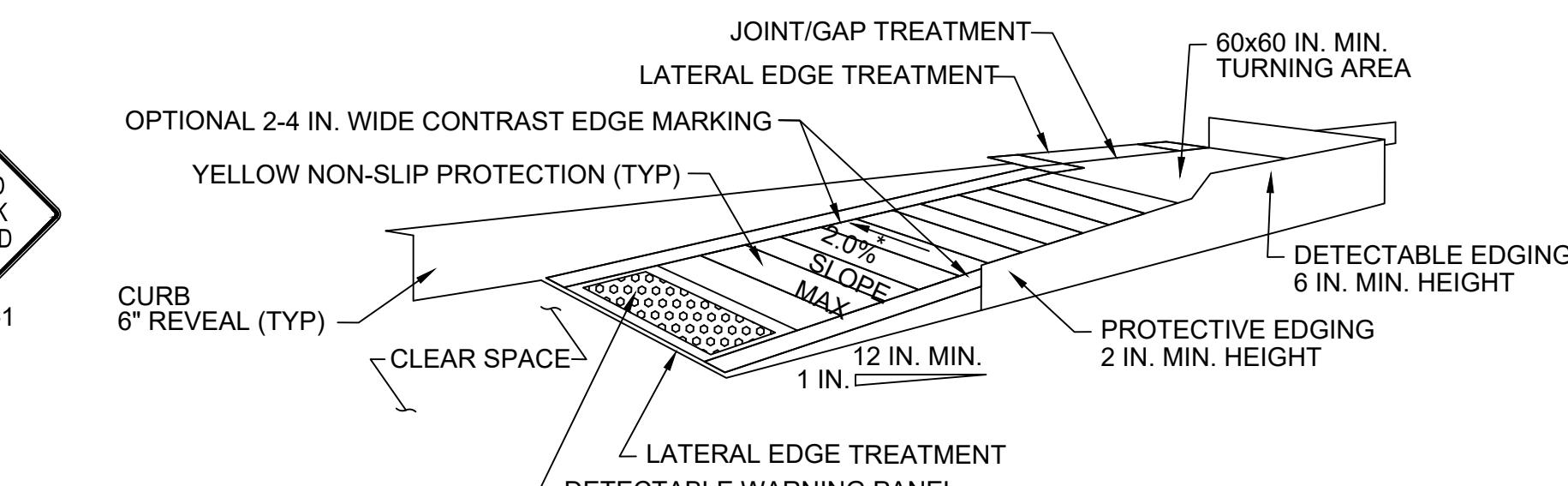
QUADRANT CLOSURE AT INTERSECTION

NOT TO SCALE



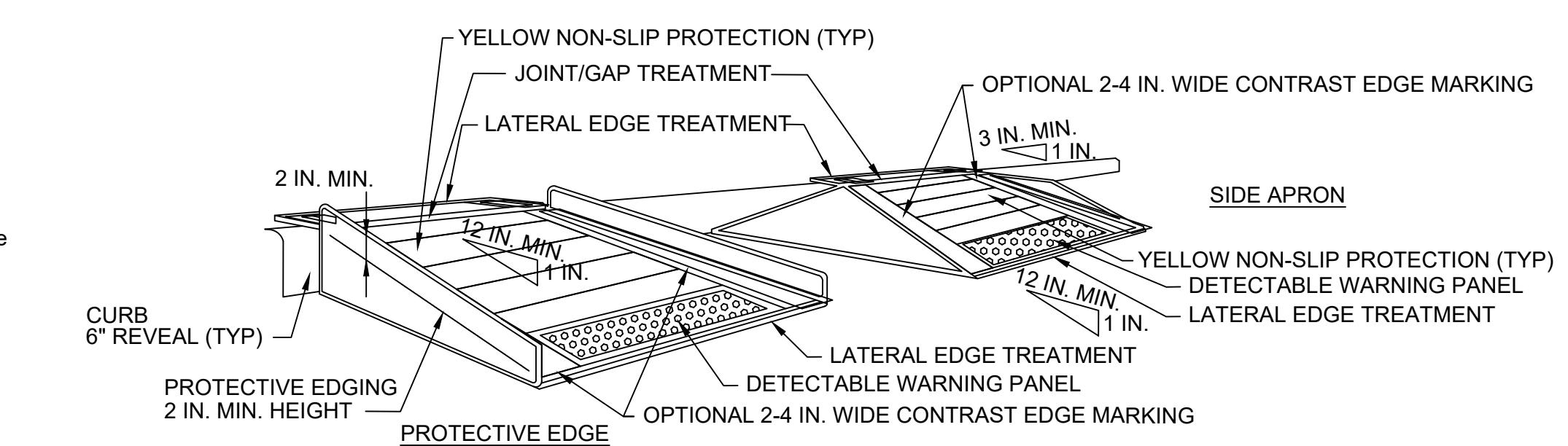
TYPICAL APPLICATION
GROOVED PAVEMENT

NOT TO SCALE



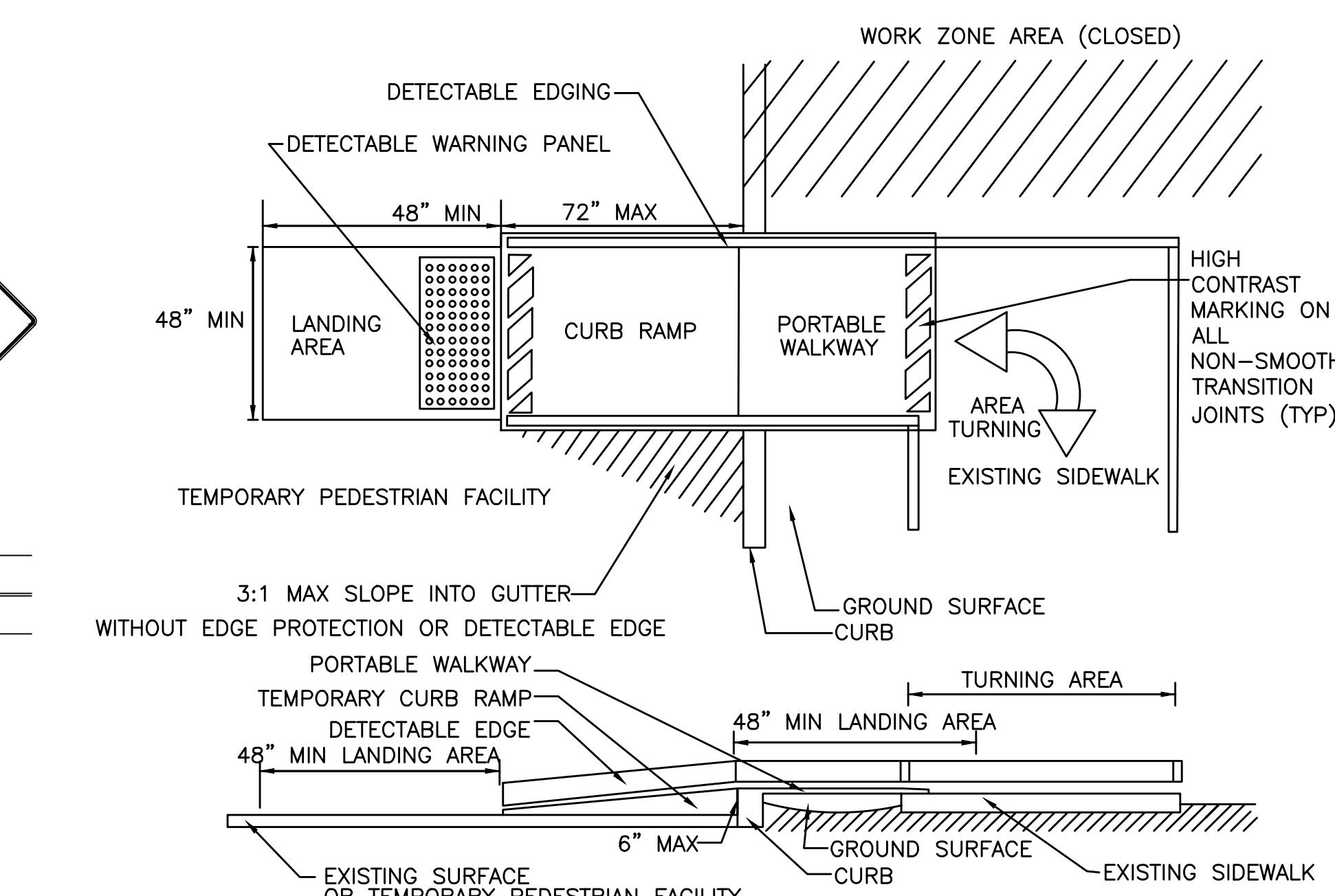
TEMPORARY CURB RAMP - PARALLEL TO CURB

NOT TO SCALE



TEMPORARY CURB RAMP - PERPENDICULAR TO CURB

NOT TO SCALE



TEMPORARY CURB RAMP-TYPE 2

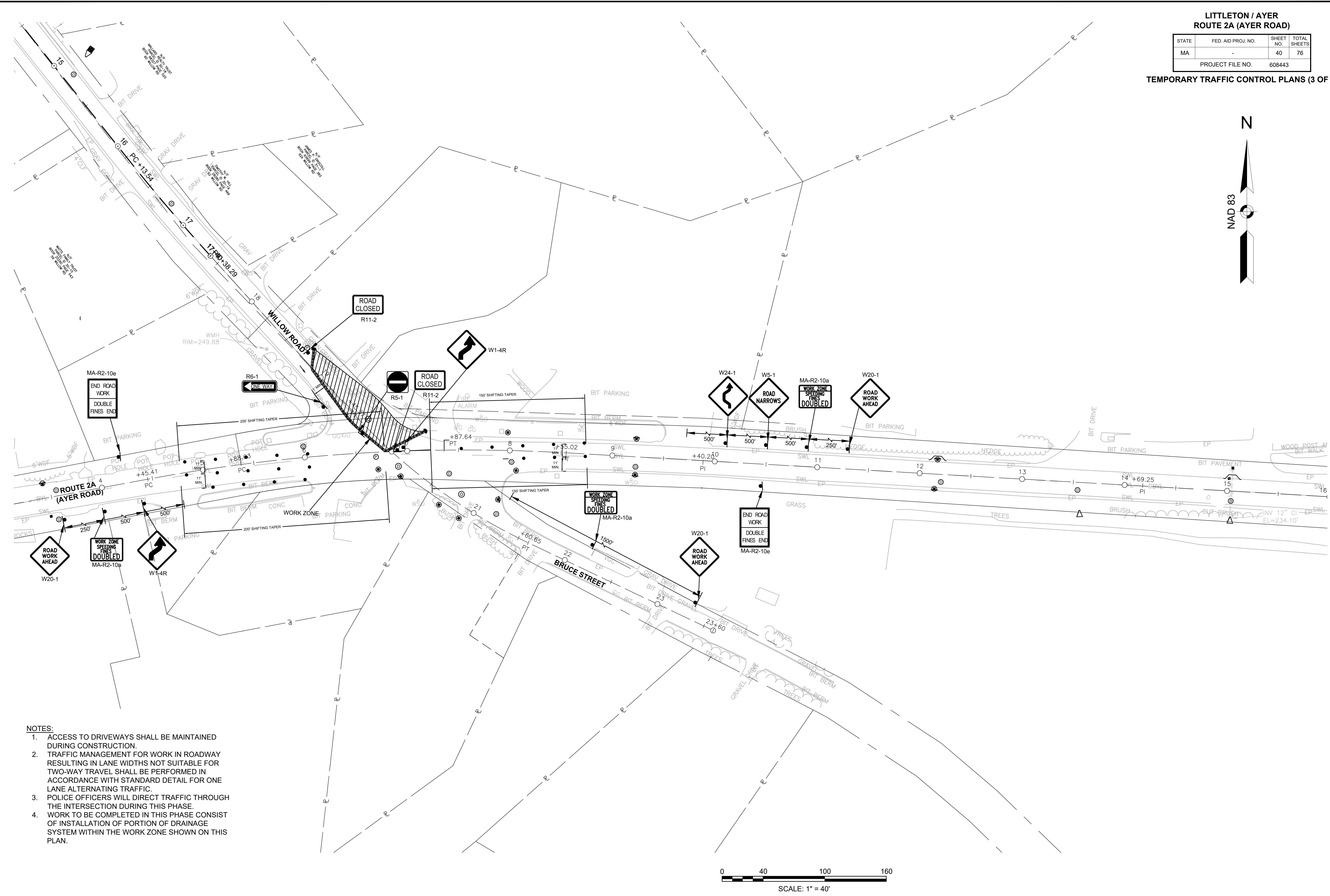
NOT TO SCALE

LITTLETON / AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	40	76
PROJECT FILE NO.		608443	

TEMPORARY TRAFFIC CONTROL PLANS (3 OF 9)

608443_TRF8(TMP WILLOW2).DWG Plotted on 13-Sep-2018 5:31 PM



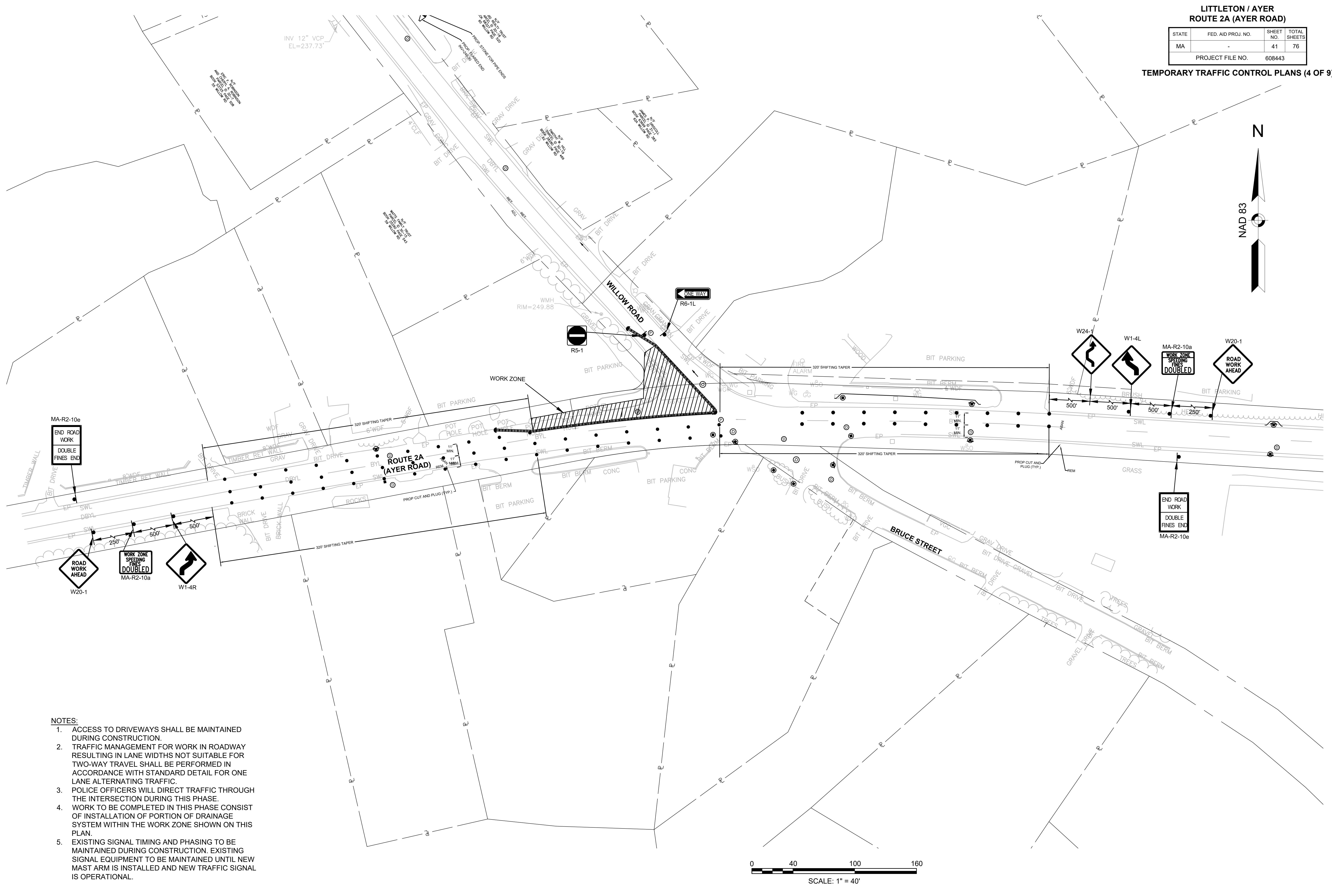
LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	41	76

PROJECT FILE NO. 608443

TEMPORARY TRAFFIC CONTROL PLANS (4 OF 9)

Plotted on 13-Sep-2018 5:31 PM
608443.TR8UTMP.WILLOW1.DWG



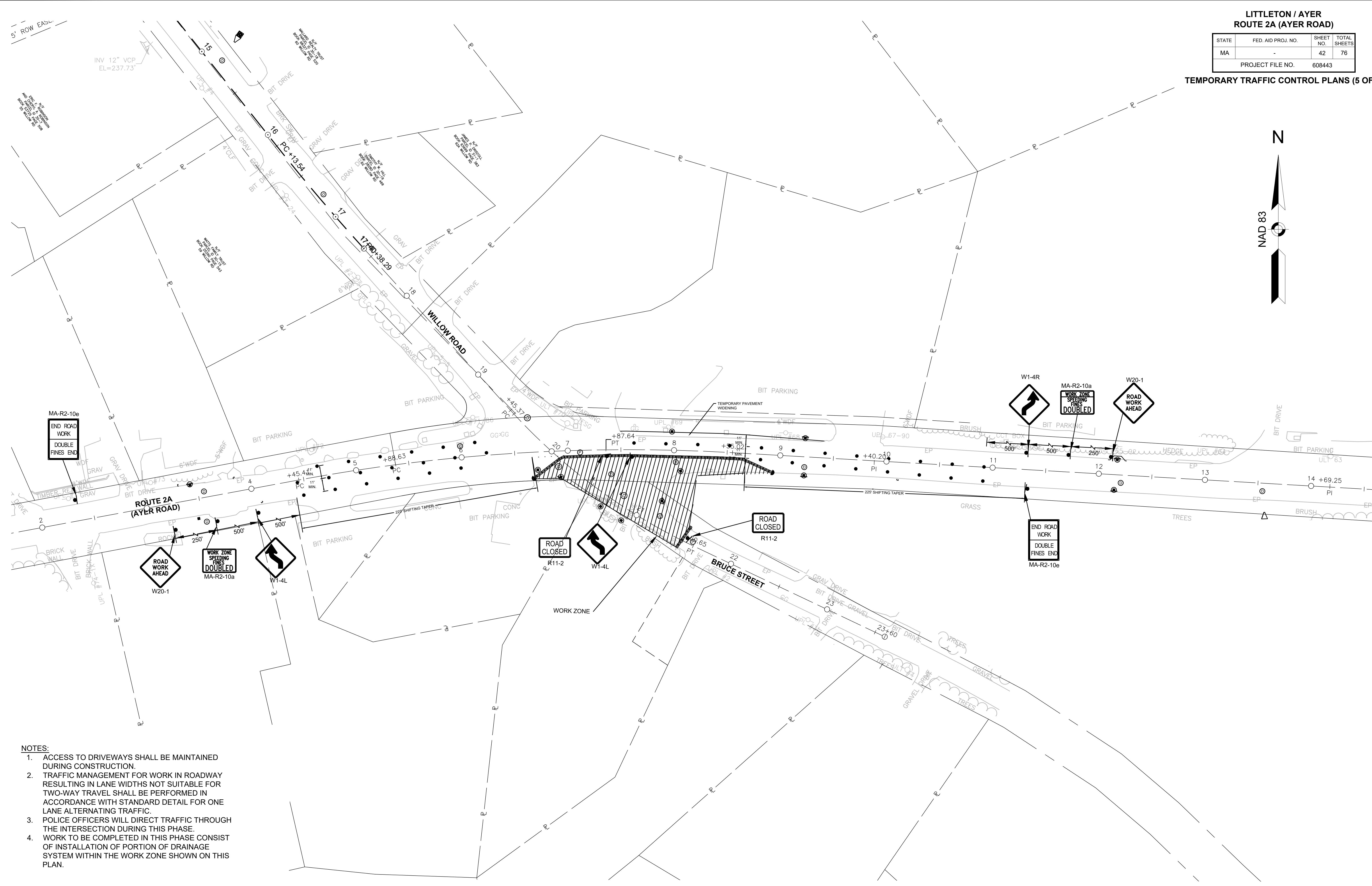
LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	42	76

PROJECT FILE NO. 608443

TEMPORARY TRAFFIC CONTROL PLANS (5 OF 9)

Plotted on 13-Sep-2018 5:31 PM
608443.TR8UTMP.BRUCEDWG

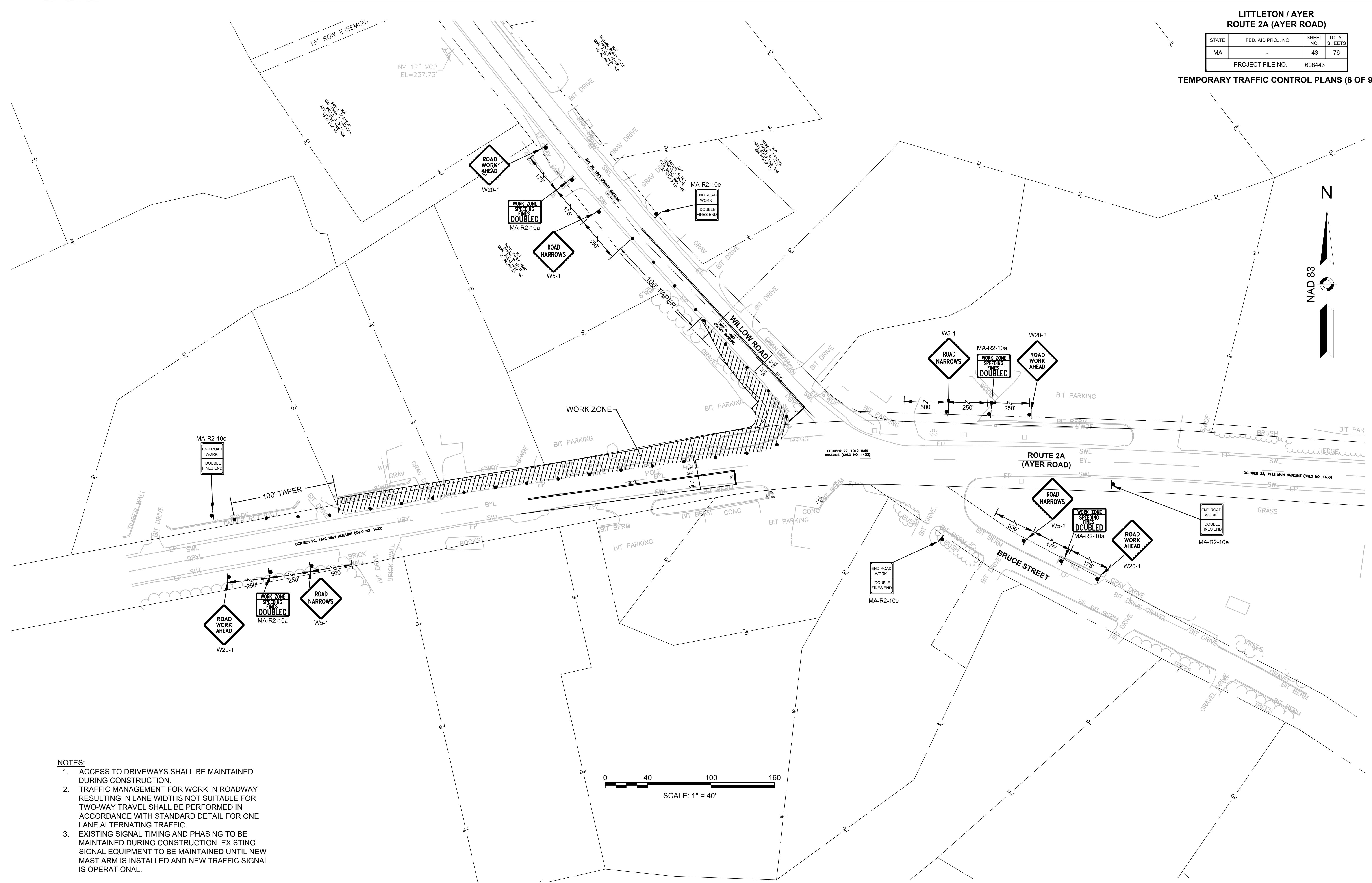


LITTLETON / AYER ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEET
MA	-	43	76
PROJECT FILE NO.		608443	

TEMPORARY TRAFFIC CONTROL PLANS (6 OF 9)

608443_128(MP1).DWG Plotted on 13-Sep-2018 5:31 PM

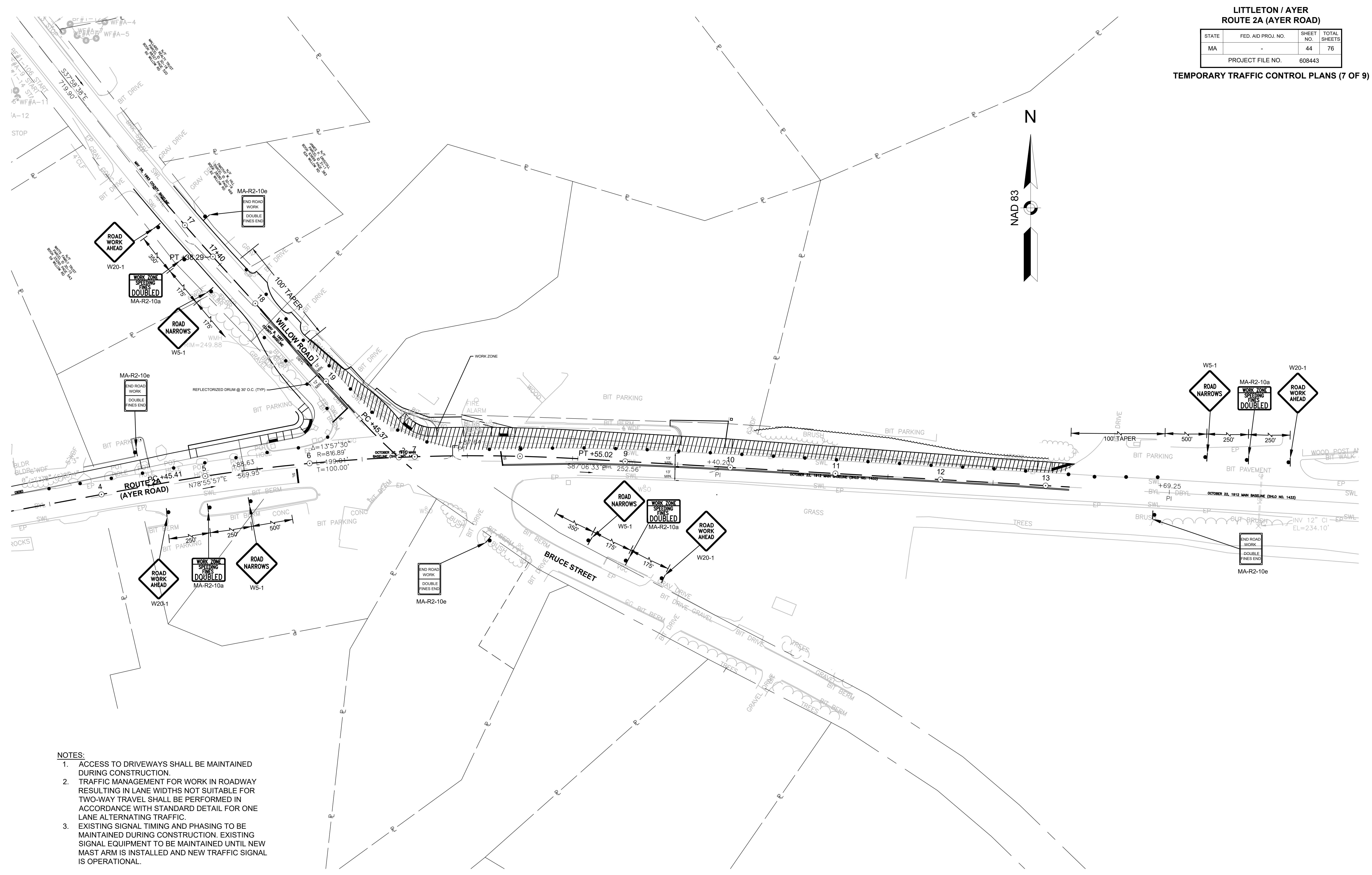


**LITTLETON / AYER
ROUTE 2A (AYER ROAD)**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	76
PROJECT FILE NO.		608443	

TEMPORARY TRAFFIC CONTROL PLANS (7 OF 9)

608443_TR7(TMP2).DWG Plotted on 13-Sep-2018 5:31 PM



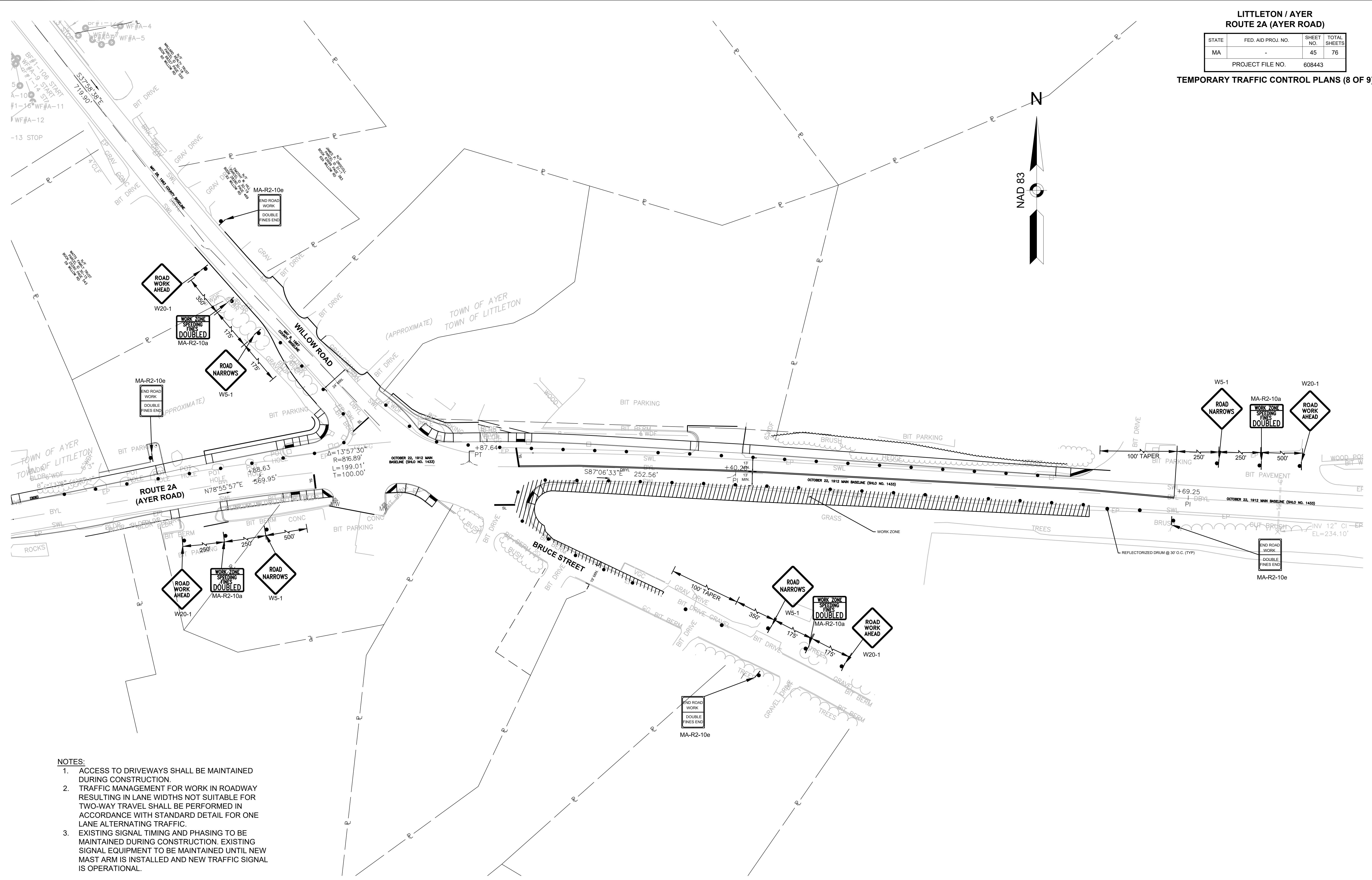
LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	45	76

PROJECT FILE NO. 608443

TEMPORARY TRAFFIC CONTROL PLANS (8 OF 9)

608443_TR8(TMP3).DWG Plotted on 13-Sep-2018 5:31 PM



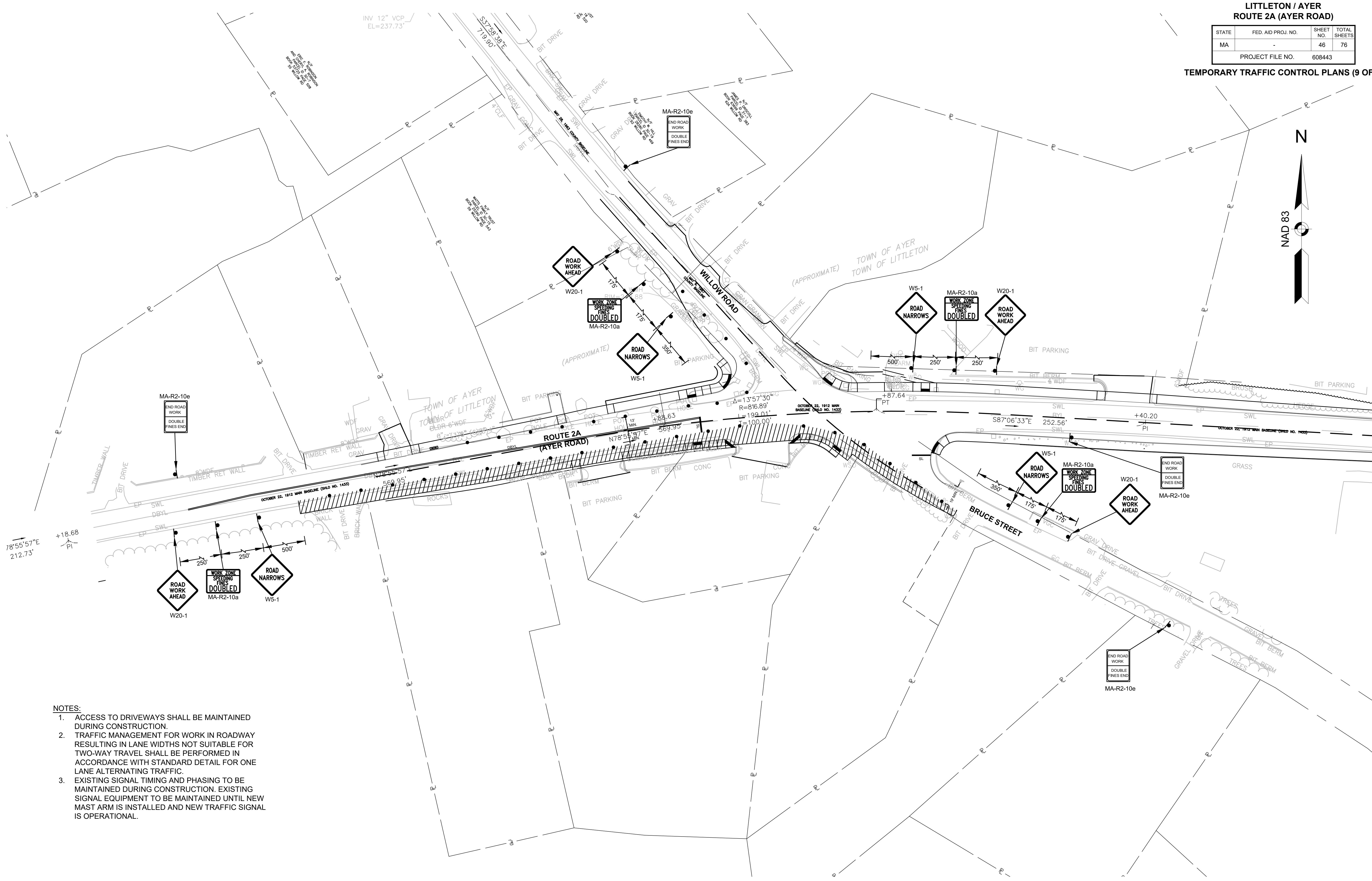
LITTLETON / AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	46	76

PROJECT FILE NO. 608443

TEMPORARY TRAFFIC CONTROL PLANS (9 OF 9)

Plotted on 13-Sep-2018 5:31 PM
608443_TR9(TMP4).DWG

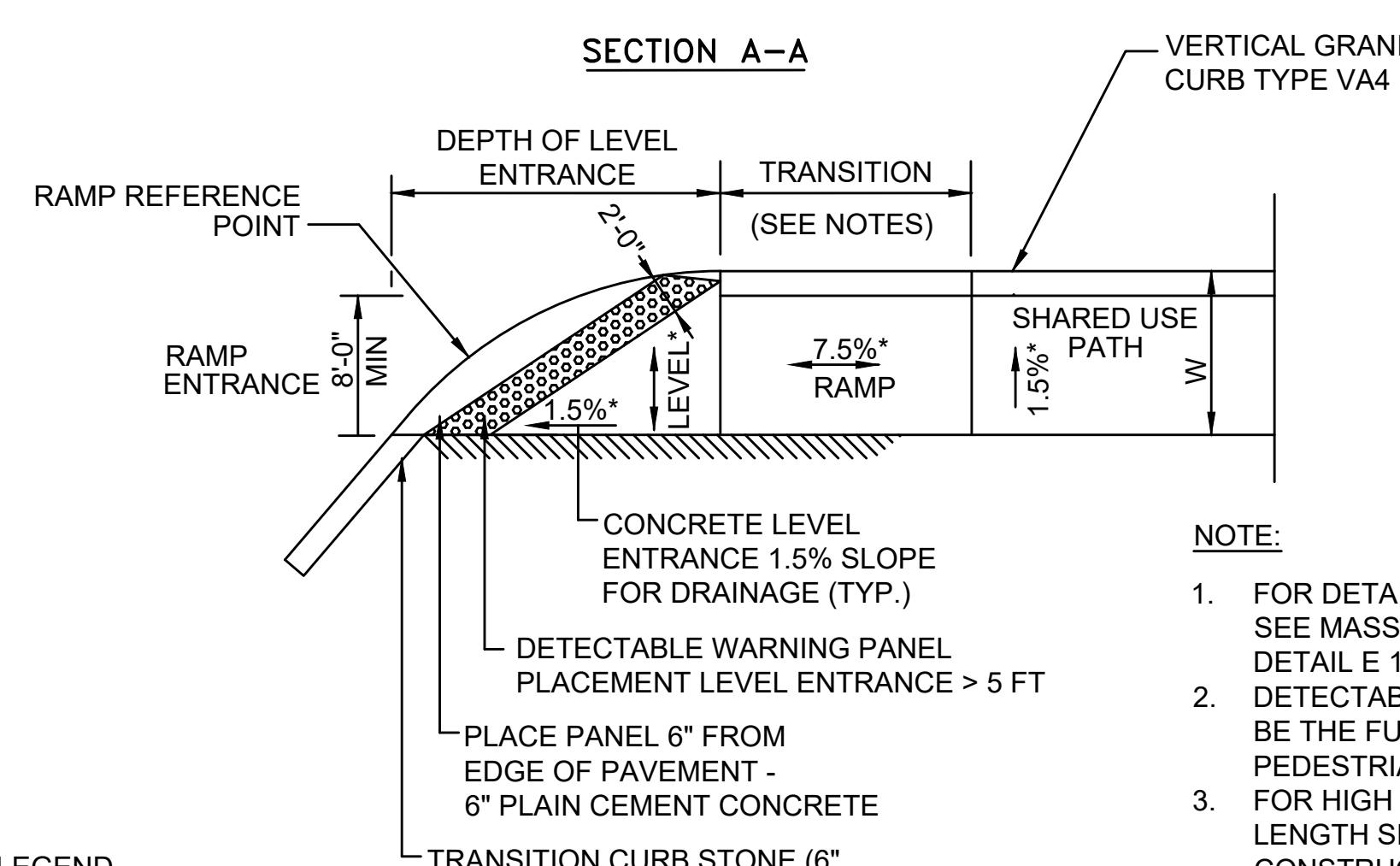
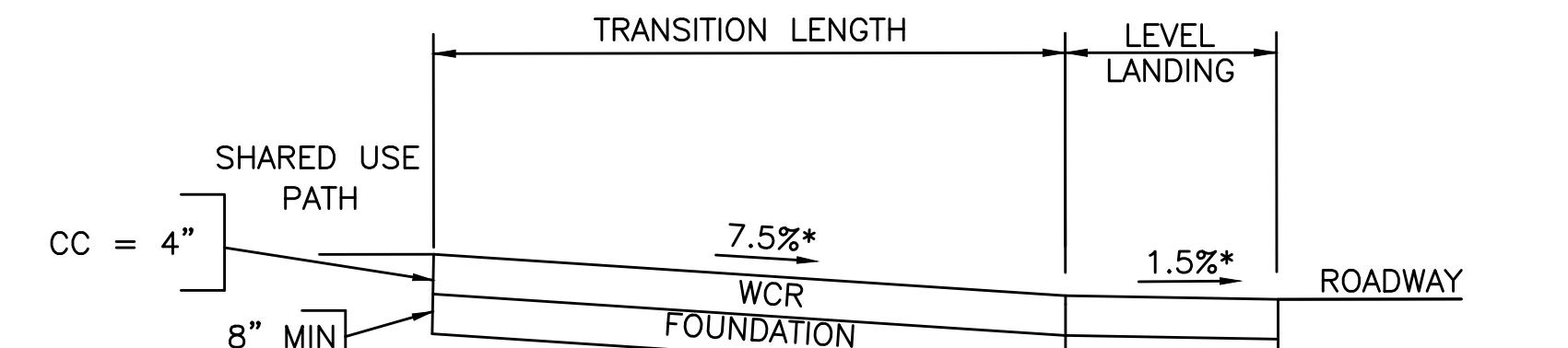


LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	HEET NO.	TOTAL SHEETS
MA	-	47	76

PROJECT FILE NO. 608443

WHEELCHAIR RAMP AND DRIVEWAY DETAILS
(1 of 2)



LEGEND
W = SIDEWALK WIDTH

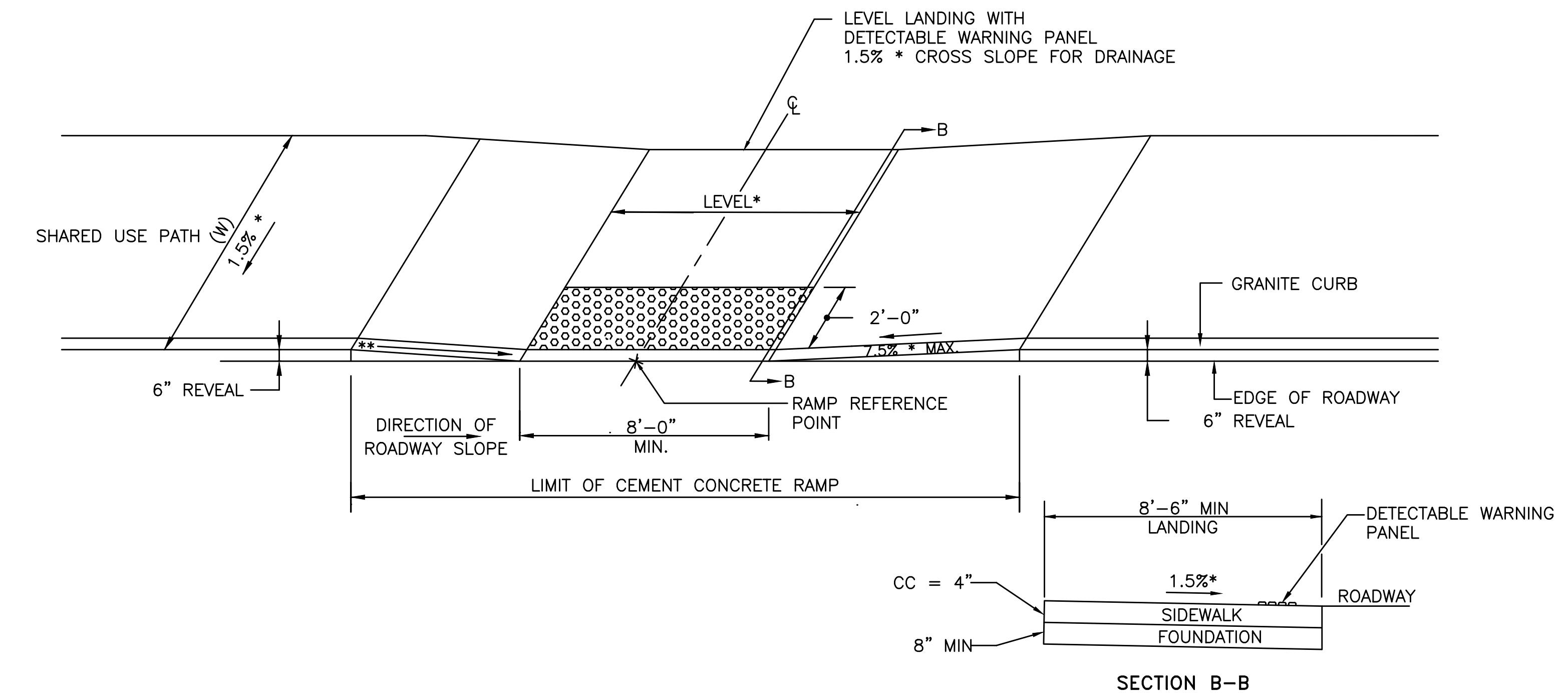
* TOLERANCE FOR CONSTRUCTION $\pm 0.5\%$

** HIGH SIDE TRANSITION LENGTH SEE MASSDOT STANDARD DRAWING NO. E 107.9.0

NOTE:

1. FOR DETAILS OF TRUNCATED DOMES SEE MASSDOT CONSTRUCTION DETAIL E 107.6.5.
2. DETECTABLE WARNING PANEL SHALL BE THE FULL LENGTH OF THE PEDESTRIAN TRAVEL LANE.
3. FOR HIGH SIDE TRANSITION CURB LENGTH SEE MASSDOT CONSTRUCTION DETAIL E 107.9.0.
4. FOR LOW SIDE TRANSITION CURB LENGTH USE 6.5'.
5. LEFT SIDE/RIGHT SIDE DETERMINED WHEN STANDING IN ROADWAY LOOKING AT RAMP OR DRIVEWAY

WCR NO.	STATION	OFFSET	WIDTH OF SIDEWALK (W)	DEPTH OF LEVEL LANDING MIN. 4.0'	ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION LENGTH	RIGHT SIDE TRANSITION LENGTH
1	2+05.47	LT	8.50	-	-0.50%	-	7.67
2	2+49.22	RT	8.50	-	0.50%	7.67	-
5	6+03.09	RT	8.50	-	0.50%	-	7.67
7	6+56.96	RT	8.50	-	0.33%	7.67	-
12	13+20.93	LT	8.50	-	-3.00%	14.00	-



WCR NO.	STATION	OFFSET	WIDTH OF SIDEWALK (W)	DEPTH OF LEVEL LANDING MIN. 4.0'	ROADWAY GUTTER SLOPE	LEFT SIDE TRANSITION LENGTH	RIGHT SIDE TRANSITION LENGTH
3	5+68.27	LT	8.50	8.50	-0.50%	7.67	6.50
4	5+68.74	RT	8.50	8.50	0.50%	6.50	7.67
6	6+03.96	LT	8.50	8.50	-1.17%	9.00	6.50
8	7+01.81	RT	8.50	8.50	-2.45%	-	11.00
9	6+93.25	LT	8.50	8.50	-0.33%	-	6.50
10	7+84.32	LT	8.50	8.50	-0.70%	7.67	6.50
11	7+93.05	RT	8.50	8.50	-0.70%	6.50	-
13	11+64.01	RT	8.50	9.00	-3.20%	-	11.50

**CURB CUT RAMP DETAIL
WITH DETECTABLE WARNING PANEL**

NOT TO SCALE

**WHEELCHAIR RAMP FOR ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL
WHERE LEVEL ENTRANCE EXCEEDS 5'**

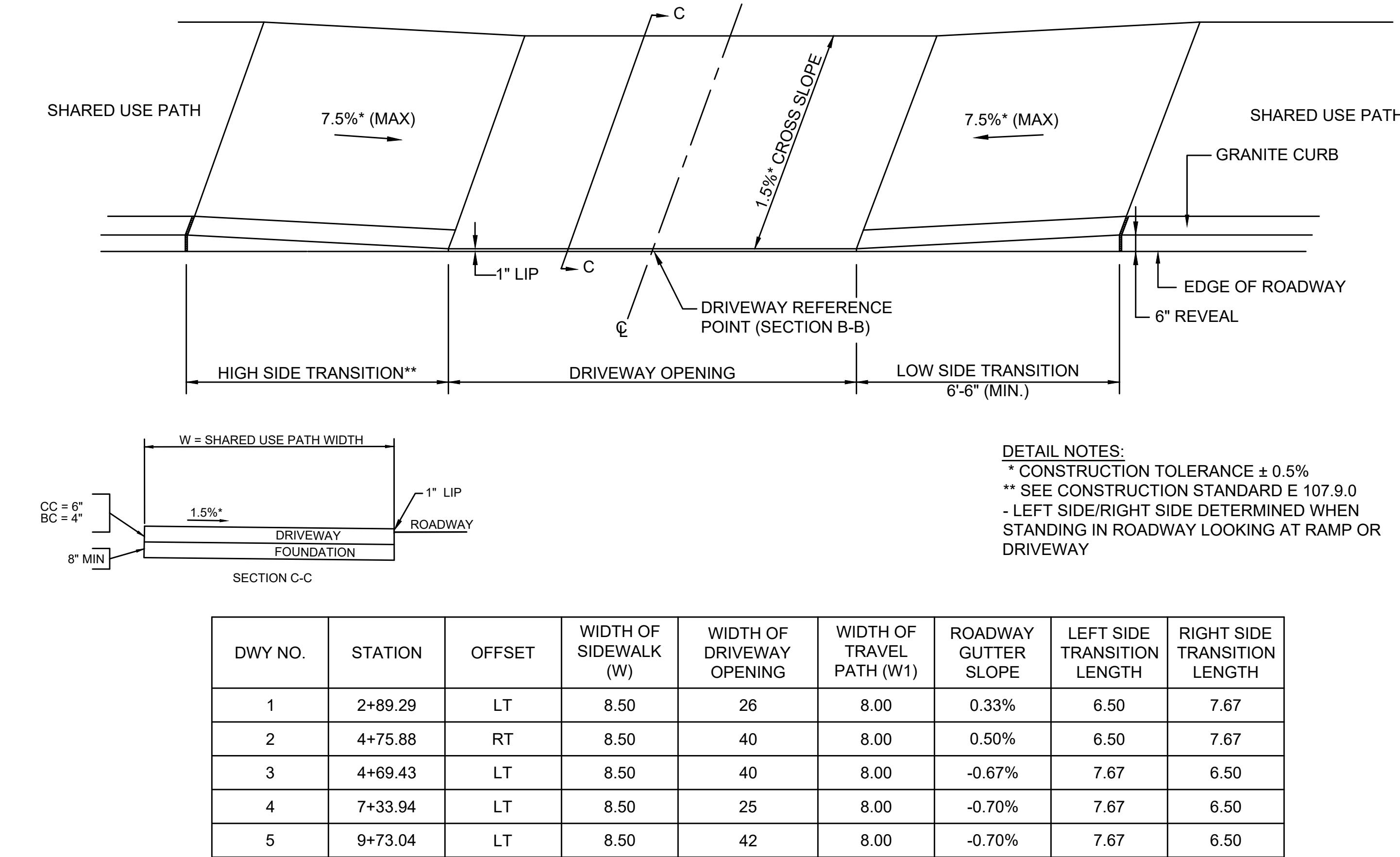
NOT TO SCALE

NOTES:
 * CONSTRUCTION TOLERANCE $\pm 0.5\%$
 - SEE CONSTRUCTION STANDARD E 107.2.1
 ** SEE CONSTRUCTION STANDARD E 107.9.0 - DETECTABLE WARNING PANELS SHALL BE INSTALLED IN ACCORDANCE WITH CONSTRUCTION STD E 107.6.5 - CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR CONSTRUCTING RAMPS COMPLIANT WITH ADA/AAB RULES, REGULATIONS AND STANDARDS. CONTRACTOR SHALL VERIFY RAMPS ARE ADA/AAB COMPLIANT BEFORE POURING CEMENT CONCRETE.
 - LEFT SIDE/RIGHT SIDE DETERMINED WHEN STANDING IN ROADWAY LOOKING AT RAMP OR DRIVEWAY.

LITTLETON/AYER
ROUTE 2A (AYER ROAD)

STATE	FED. AID PROJ. NO.	SCHEET NO.	TOTAL SHEETS
MA	-	48	76
PROJECT FILE NO.			608443

WHEELCHAIR RAMP AND DRIVEWAY DETAILS
(2 of 2)



DEPRESSED DRIVEWAY DETAILS
NOT TO SCALE