

# MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

## RECONSTRUCTION OF WHITING STREET (ROUTE 53) AND DERBY STREET

### IN THE TOWN OF HINGHAM PLYMOUTH COUNTY

FEDERAL AID PROJECT NO.

HINGHAM  
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	53

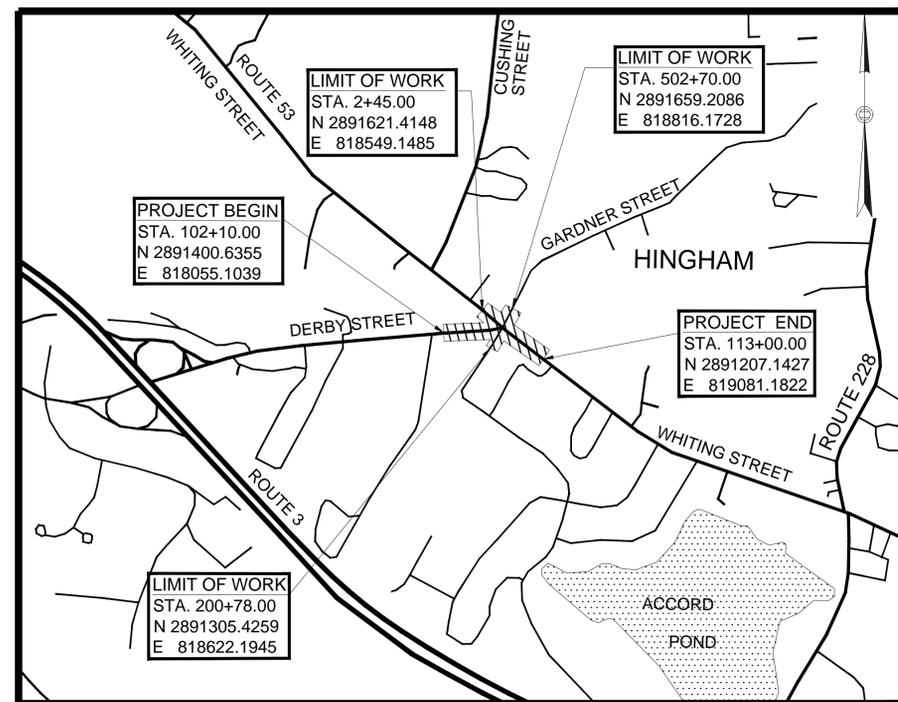
PROJECT FILE NO. 600518  
TITLE SHEET & INDEX

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JUNE 15, 2012, THE 2012 CONSTRUCTION STANDARD DETAILS, THE 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATES TO TRAFFIC STANDARD DETAILS ONLY), THE 2009 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.

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### CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY	-----
COUNTY, CITY, OR TOWN SIDE LINE	-----
FENCE LINE	-----
BASE LINE OR SURVEY LINE	S36°04'20"W 53.578
RIGHT OF WAY LINE	-----
CULVERT	=====
RETAINING WALL	-----
GUARD RAIL	-----
STONE WALL	-----
TREE LINE	-----
POLE	○
PROPOSED SURFACE	-----
PRESENT SURFACE	-----
ELEVATIONS	90.7 90.91 12+50



SCALE 1" = 1000'

LENGTH OF PROJECT = 1090.00 FEET = 0.206 MILES

### DESIGN DESIGNATION

	WHITING STREET (ROUTE 53)	WHITING STREET (ROUTE 53)	DERBY STREET	GARDNER STREET	GARDNER STREET
	NORTH OF THE INTERSECTION	SOUTH OF THE INTERSECTION		NORTH OF THE INTERSECTION	SOUTH OF THE INTERSECTION
DESIGN SPEED	30 MPH	45 MPH	40 MPH	30 MPH	30 MPH
ADT (2011)	11,704	22,633	20,876	4,566	4,080
ADT (2021)	12,928	25,315	23,478	5,106	4,549
K	0.100	0.080	0.08	0.10	0.11
D	55%NB	55% NB	52% WB	52% NB	53% NB
T (PEAK HOUR)	3%	3%	4%	3%	1%
T (AVERAGE DAY)	1%	2%	2%	2%	1%
DHV	1,210	1,789	1,601	432	438
DDHV	904	1,392	930	332	249
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	URBAN COLLECTOR	LOCAL

25% SUBMISSION

DATE	DESCRIPTION	REV #

 www.nitacheng.com 150 Lincoln Street, Suite 200 Boston, MA 02111-0025 T: (617) 538-0025 F: (617) 538-0178	 Massachusetts Department of Transportation Highway Division	RECOMMENDED FOR APPROVAL	
		ENGINEER	DATE
DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION		APPROVED	
APPROVED:			
DIVISION ADMINISTRATOR	DATE	HIGHWAY ADMINISTRATOR	DATE

# LEGEND

## GENERAL SYMBOLS

EXISTING PROPOSED

		JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
		CATCH BASIN
		CURB INLET
		BUOY
		BORROW PIT OR CONSTRUCTION SITE
		FLAG POLE
		GOLF COURSE
		GAS PUMP
		GRAVEL PIT
		DROP INLET
		MAIL BOX
		GRANITE POST
		PLANTER
		POST
		TELEPHONE BOOTH
		VAULT
		VALVE
		WELL
		ELECTRIC MANHOLE (HANDHOLE)
		GATE POST
		FLOW LINE
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		CONC. HDWL
		HANDHOLE
		STONE HDWL
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		OTHER MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MHD BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANS. POLE
		UP WITH FIREBOX
		POLE WITH DOUBLE LIGHT
		UP WITH 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		FIRE ALARM BOX
		PARKING METER
		ELECTRICAL GROUND
		GATE VALVE
		RIP RAP
		OVERHEAD CABLE
		DIRECT BURIAL CABLE
		CURBING
		CONTOURS
		DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		ELECTRIC DUCT
		GAS MAIN
		SEWER MAIN
		TELEPHONE DUCT
		WATER MAIN
		BALANCE STONE WALL
		CULVERT
		GUARD RAIL
		GUTTER LINE AT DRIVEWAYS
		CHAIN LINK FENCE
		PICKET FENCE

## GENERAL SYMBOLS (CONT.)

EXISTING PROPOSED

		HAY BALES/SILT FENCE
		RETAINING WALL
		TREE LINE OR LIMIT OF CLEARING AND GRUBBING
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR MILLING & OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND OR 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 SIGNAL SYMBOLS

EXISTING PROPOSED

		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6'X 6' TYPICAL UNLESS OTHERWISE SPECIFIED)
		VIDEO SURVEILLANCE CAMERA
		MICROWAVE DETECTOR
		MAGNETOMETER (2 SHOWN)
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		OPTICOM CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD (TYPE AS NOTED OR AS SPECIFIED)
		PEDESTRIAN SIGNAL HEAD, OPTICALLY PROGRAMMED
		PEDESTRIAN SIGNAL POST AND BASE
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		STEEL OR ALUMINUM MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (TWO POSTS)
		SIGNAL AND LIGHTING MAST ARM (OPTICOM)
		EMERGENCY PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL & METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"X12" (AND AS NOTED)
		ELECTRIC HANDHOLE 12" X 24"
		TRAFFIC SIGNAL INTERCONNECT CONDUIT
		TRAFFIC SIGNAL CONDUIT (TYPE AS NOTED)

## PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING PROPOSED

		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE - 12"
		CROSSWALK
		SOLID WHITE LANE LINE
		BROKEN WHITE LANE LINE (10' LINE, 30' SPACE TYP.)
		SOLID WHITE EDGE LINE
		YELLOW GORE LINE - 12"
		DOUBLE YELLOW CENTER LINE
		SOLID WHITE CHANNELIZATION LINE - 8"
		WHITE GORE LINE - 12"
		SOLID YELLOW EDGE LINE
		BROKEN YELLOW CENTER LINE (10' LINE, 30' SPACE TYP.) - 4"
		SOLID YELLOW CENTER LINE
		DOTTED WHITE LANE LINE - 4" (2' LINE, 4' SPACE)
		DIRECTION OF TRAFFIC FLOW

## ABBREVIATIONS

### GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADA	AMERICANS WITH DISABILITIES ACT
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	BENCH MARK
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
CIT	CHANGE IN TYPE
CI.	CLASS (CONCRETE, EXCAVATION, ETC.)
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
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
GWA	GUIDE WIRE
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACHING BASIN
LP	LIGHT POLE
LT	LEFT
MAAB	MASSACHUSETTS ARCHITECTURAL ACCESS BOARD
MAX	MAXIMUM
MB	MAIL BOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PGL	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

### GENERAL (CONT.)

R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REMOD	REMODEL
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
TANGENT	TANGENT DISTANCE OF CURVE/
T	TRUCK PERCENTAGE
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	WHEELCHAIR 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 - PORTLAND ORANGE
FDW	FLASHING DON'T WALK - PORTLAND ORANGE
FVY	FLASHING AMBER VERTICAL ARROW
FR	FLASHING CIRCULAR RED
FW	FLASHING WALK - LUNAR WHITE
FY	FLASHING CIRCULAR AMBER
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FRV	FLASHING RED VERTICAL 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
OP	OPTICOM
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM
R	STEADY CIRCULAR RED
RV	STEADY RED VERTICAL ARROW
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK - LUNAR WHITE
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW
YR	STEADY AMBER RIGHT ARROW
YV	STEADY AMBER VERTICAL ARROW

## HINGHAM

### DERBY/WHITING STREET

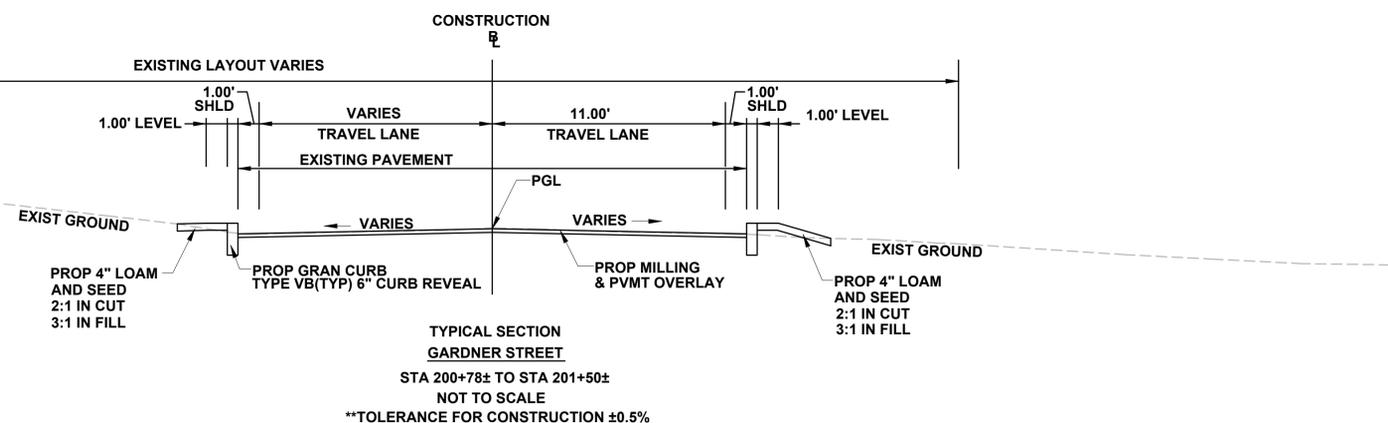
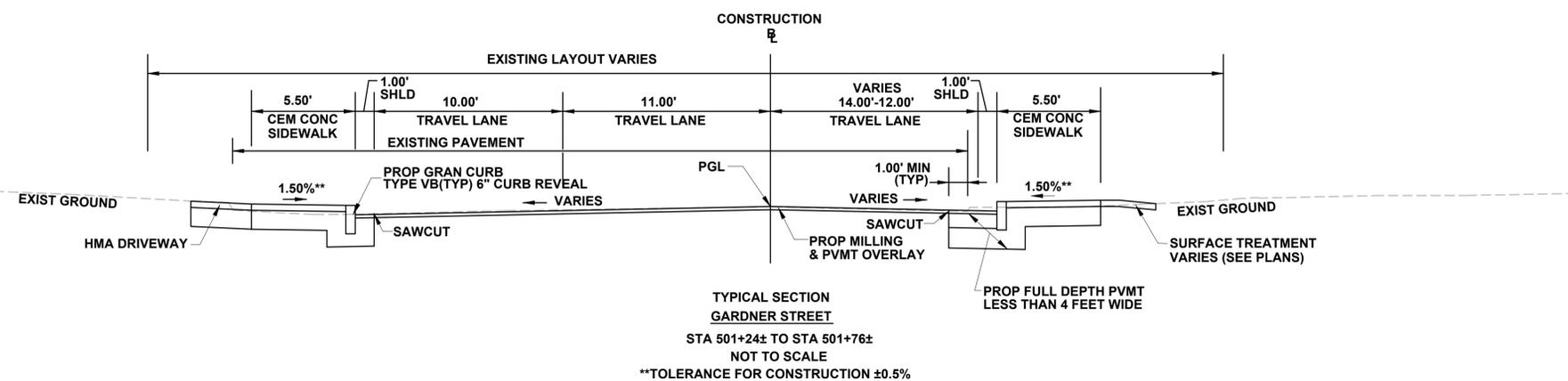
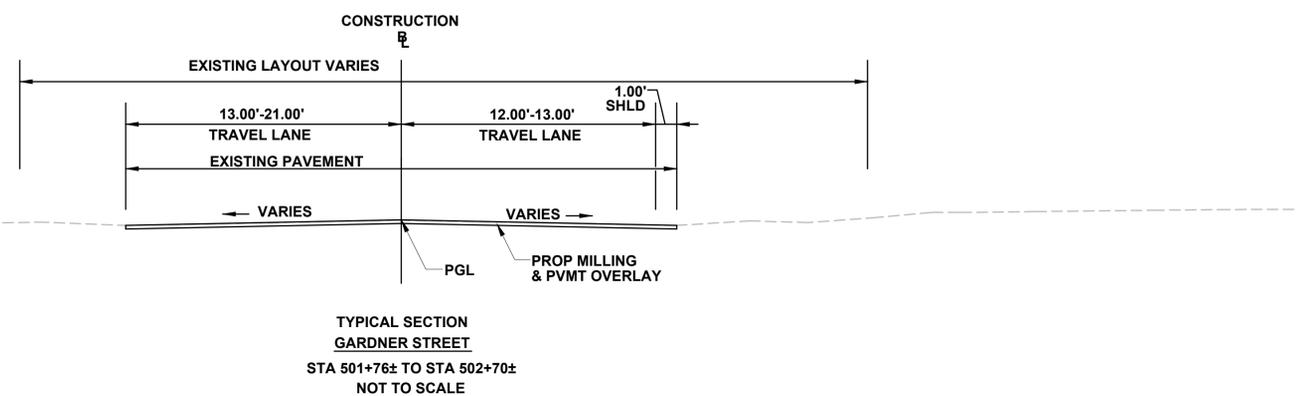
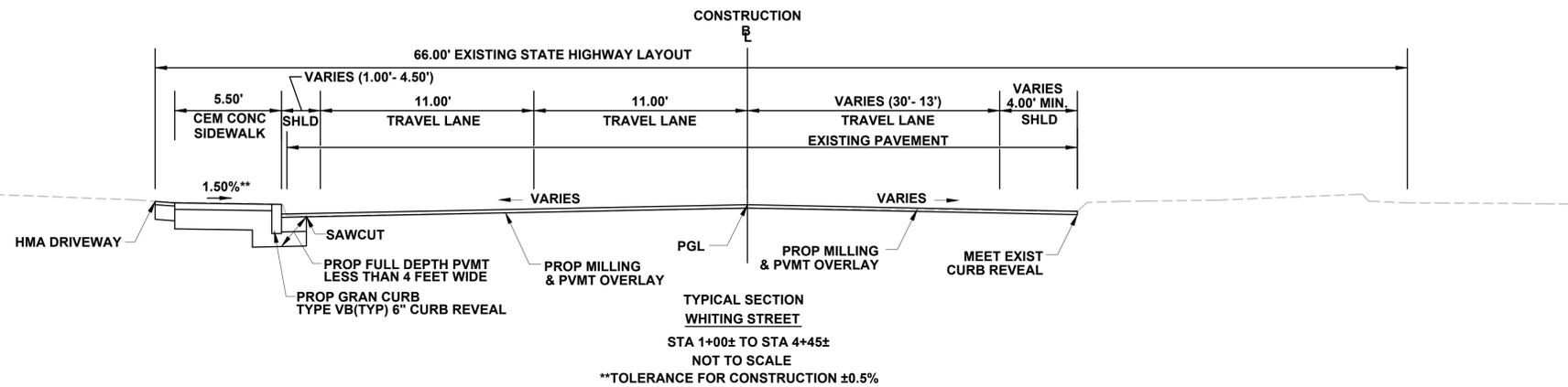
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	53
PROJECT FILE NO.		600518	

### LEGEND & ABBREVIATIONS

**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	53
PROJECT FILE NO.		600518	

**TYPICAL SECTIONS**



**PAVEMENT NOTES**

**PROPOSED MILLING & PAVEMENT OVERLAY**

**MILLING:** 2" DEPTH  
**SURFACE:** 3 1/2" HOT MIX ASPHALT SUPERPAVE SURFACE PLACED IN TWO LAYERS:  
1 3/4" SUPERPAVE SURFACE COURSE  
12.5 (SSC-12.5) OVER 1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)

**PROPOSED FULL DEPTH PAVEMENT**

**SURFACE:** 1 3/4" HOT MIX ASPHALT SUPERPAVE SURFACE COURSE (SSC-12.5)- PLACED IN ONE LAYER

**INTERMEDIATE:** 1 3/4" HOT MIX ASPHALT SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC 12.5)- PLACED IN ONE LAYER

**BASE:** 3 1/2" HOT MIX ASPHALT SUPERPAVE BASE COURSE (SBC- 25.0)- PLACED IN ONE LAYER

**SUBBASE:** 4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL BORROW, TYPE b

**PROPOSED FULL DEPTH PAVEMENT LESS THAN 4 FT WIDE**

**SURFACE:** 3 1/2" HOT MIX ASPHALT SUPERPAVE SURFACE PLACED IN TWO LAYERS:  
1 3/4" SUPERPAVE SURFACE COURSE  
12.5 (SSC-12.5) OVER 1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)

**BASE:** 6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE

**SUBBASE:** 8" GRAVEL BORROW, TYPE b

**HOT MIX ASPHALT DRIVEWAY**

**SURFACE:** 3 1/2" HOT MIX ASPHALT PAVEMENT PLACED IN TWO LAYERS: 1 1/2" SURFACE COURSE MATERIAL OVER 2" INTERMEDIATE COURSE MATERIAL

**SUBBASE:** 8" GRAVEL BORROW, TYPE b

**PROPOSED CEMENT CONCRETE WALK/ WHEELCHAIR RAMP/ ISLAND**

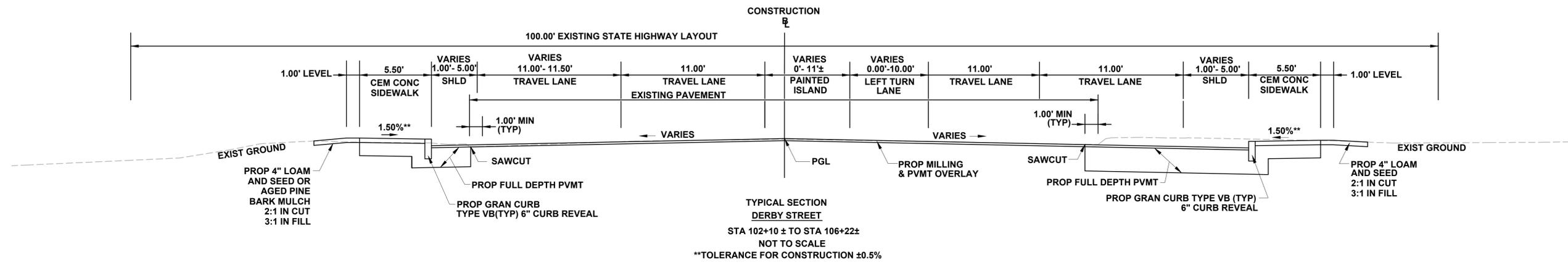
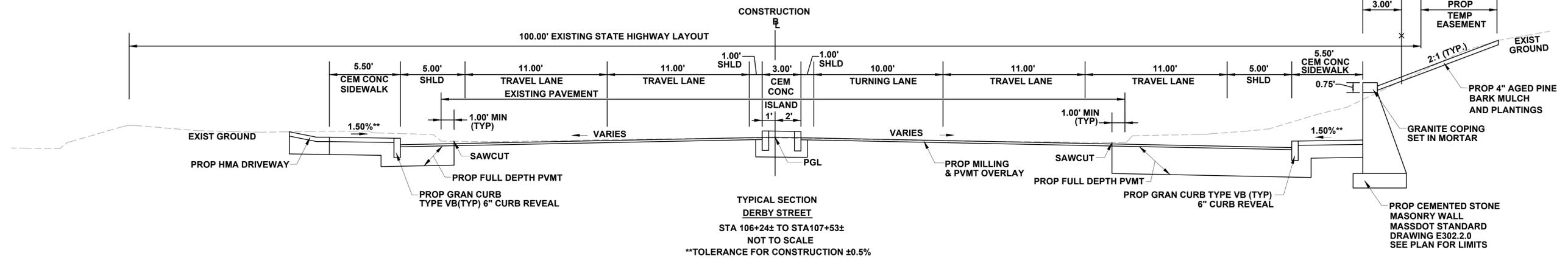
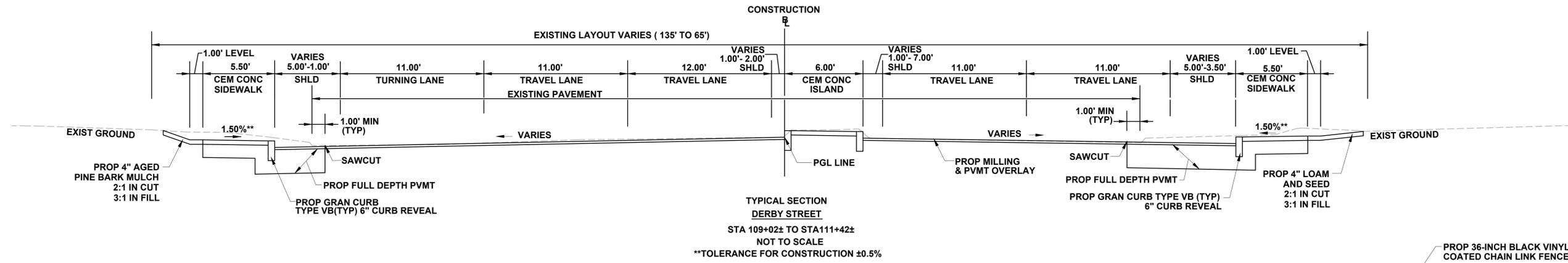
**SURFACE:** 4" CEMENT CONCRETE AIR ENTRAINED 4000 PSI, 3/4", 610

**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



HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

NONE

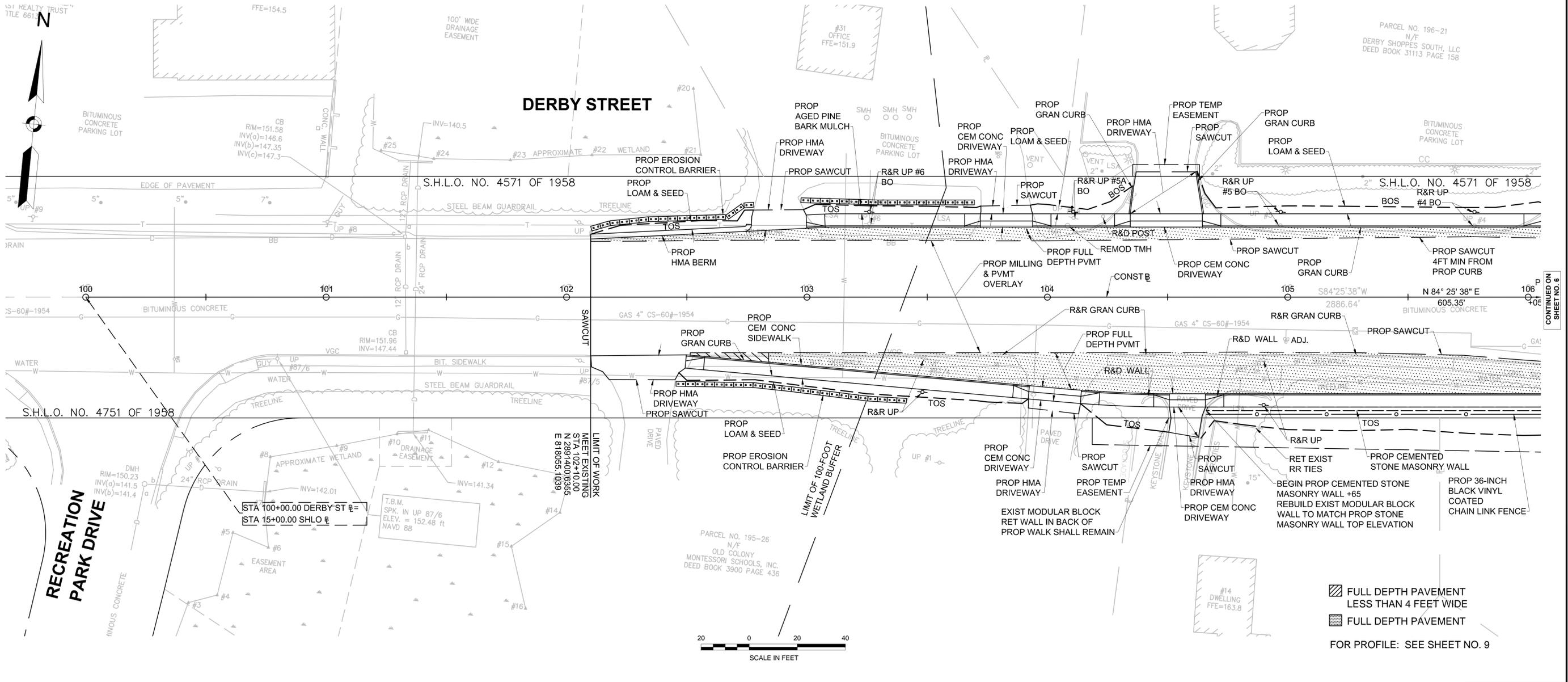
HINGHAM  
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	53
PROJECT FILE NO.		600518	

CONSTRUCTION PLAN

GENERAL NOTES

- TOPOGRAPHICAL INFORMATION FROM A SURVEY PROVIDED BY MASSDOT AND PERFORMED BY JC ENGINEERING, INC., ON SEPTEMBER 8, 2009. HORIZONTAL DATUM IS BASED ON MASS GRID SYSTEM NAD 1983. ELEVATIONS SHOWN ON THIS PLAN REFER TO THE NAVD OF 1988.
- LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY FROM VISUAL OBSERVATIONS AND AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULL 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.
- WHERE AN EXISTING UTILITY IS FOUND IN 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 DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET ALL WATER, SEWER, AND DRAINAGE FRAMES, GRATES, AND BOXES TO THE PROPOSED FINISHED SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS.
- 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 IN SUITABLE CONDITION IDENTIFIED AS "REMOVE AND RESET" (R&R).
- SURFACE JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
- ALL LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- ALL EXISTING GRANITE CURB & EDGING IN SUITABLE CONDITION AND LABELED "R&R" SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
- ALL 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING DIG SAFE BEFORE PERFORMING ANY EXCAVATION TO DETERMINE THE LOCATIONS OF ANY UNDERGROUND UTILITIES.
- IN AREAS OF FULL DEPTH PAVEMENT AND SIDEWALK RECONSTRUCTION WHERE PROPOSED MEETS EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE SAWCUT TO OBTAIN A CLEAN VERTICAL FACE.
- ANY EXISTING PAVEMENTS AND SOILS TO BE REMOVED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE TRANSPORTED TO A LEGAL DISPOSAL LOCATION. NO STOCKPILING WILL BE ALLOWED WITHIN THE PROJECT LIMITS.
- THE LAYOUT OF ALL PEDESTRIAN RAMPS SHALL CONFORM TO ADA/AAB STANDARDS AND CURRENT MASSDOT STANDARDS, AND DIRECTIVES.
- ALL SOIL EROSION & SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY
- ALL UTILITY AND DRAINAGE FRAMES, GRATES, AND COVERS SHALL BE INSTALLED FLUSH WITH SURROUNDING PAVEMENT.
- 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 AND GRADE UP TO A DEPTH OF 5 FEET SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5 FEET WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.



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HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

SEE BELOW

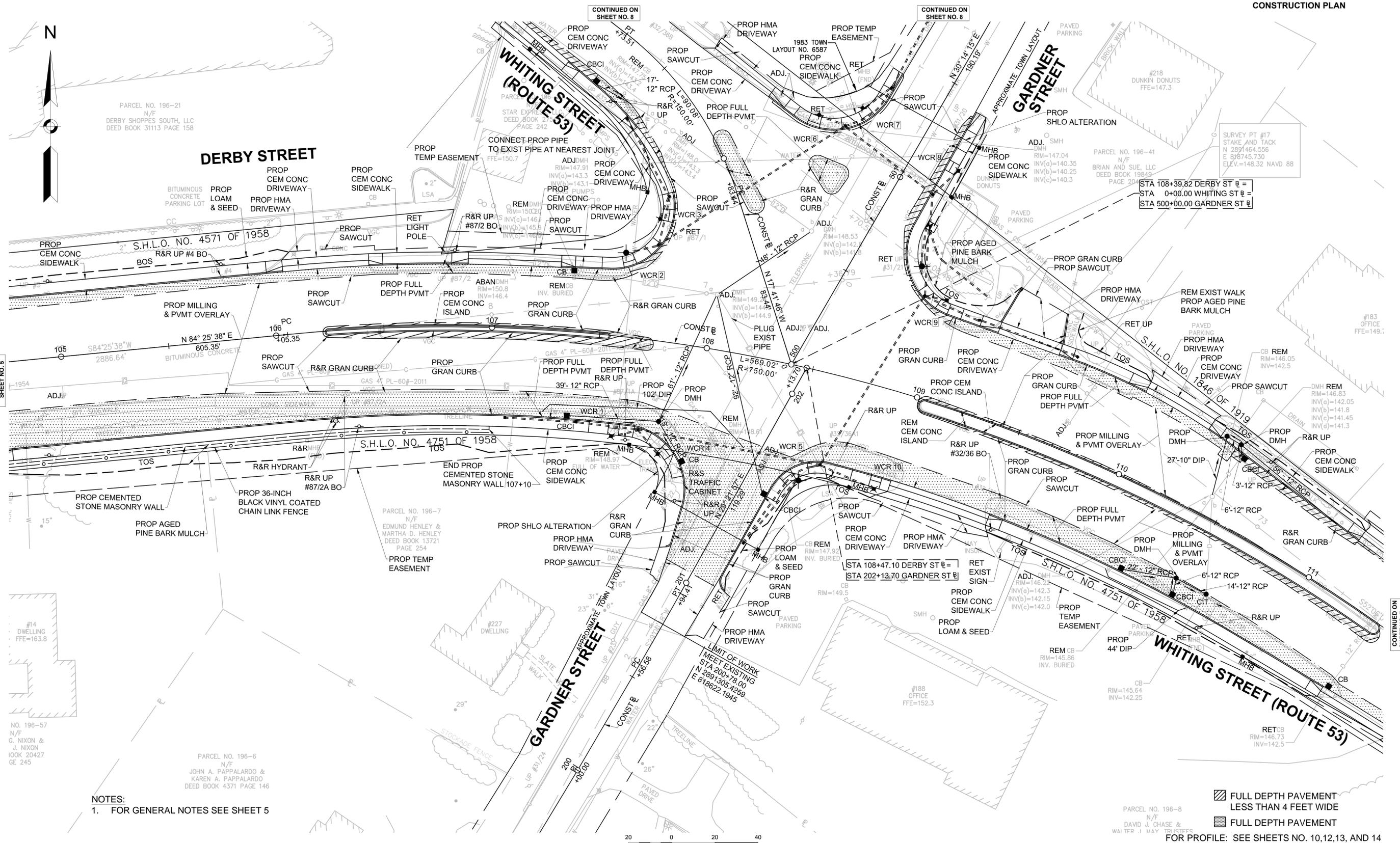
DRAINAGE DETAILS

SEE BELOW

HINGHAM  
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	53
PROJECT FILE NO.		600518	

CONSTRUCTION PLAN



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HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

SEE BELOW

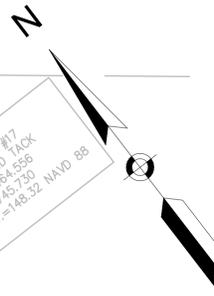
DRAINAGE DETAILS

SEE BELOW

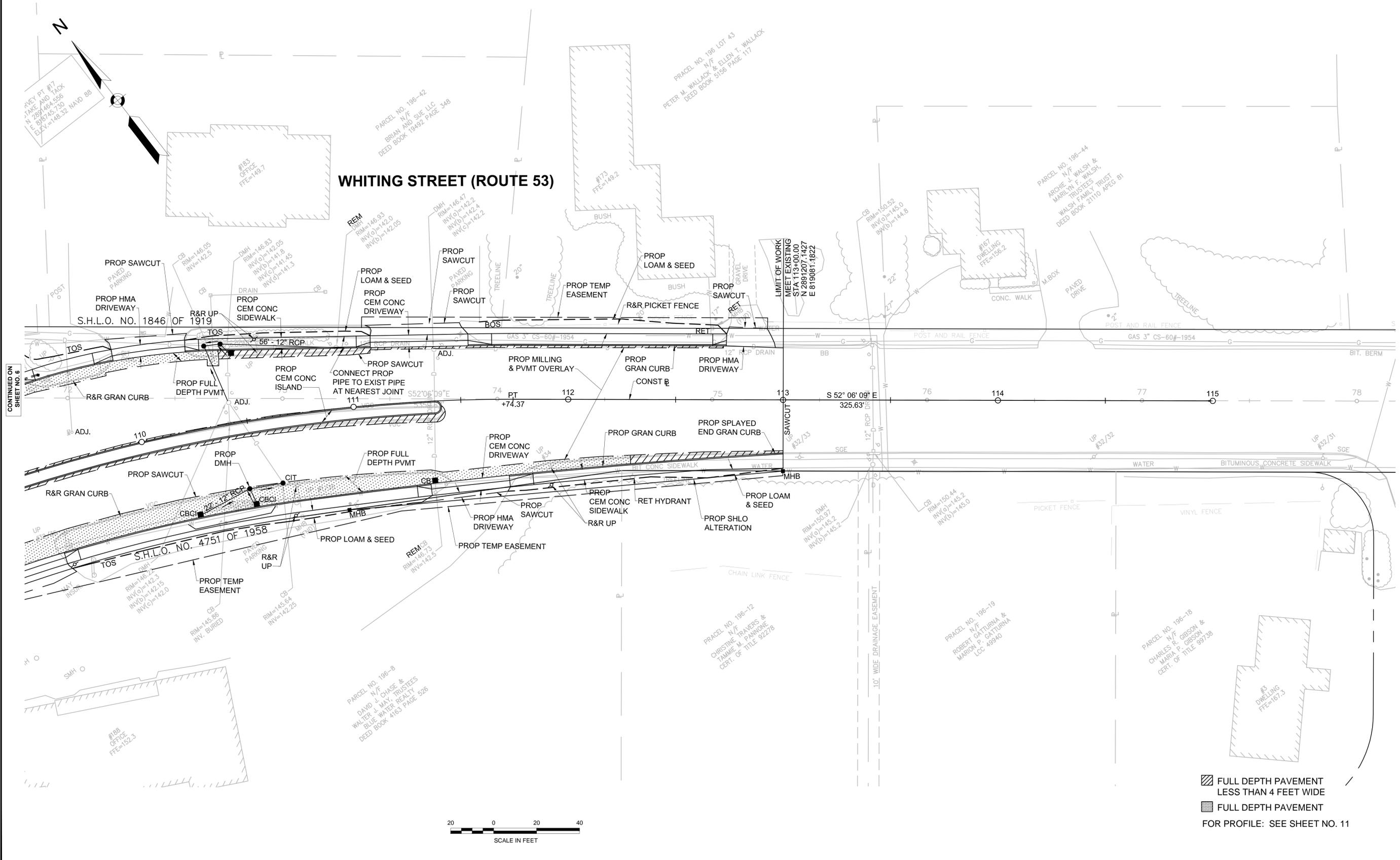
HINGHAM  
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	53
PROJECT FILE NO.		600518	

CONSTRUCTION PLAN



WHITING STREET (ROUTE 53)



CONTINUED ON SHEET NO. 6

Nitsch - P:\8126.19 DerbyWhiting-Hingham\Transportation\CAD\8126.19[25%]HD1\_Const&Profiles.dwg 10:06 AM



FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE  
 FULL DEPTH PAVEMENT  
 FOR PROFILE: SEE SHEET NO. 11

8126.19[25%]HD1\_Const&Profiles.dwg 26-Dec-2012

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE BELOW

WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

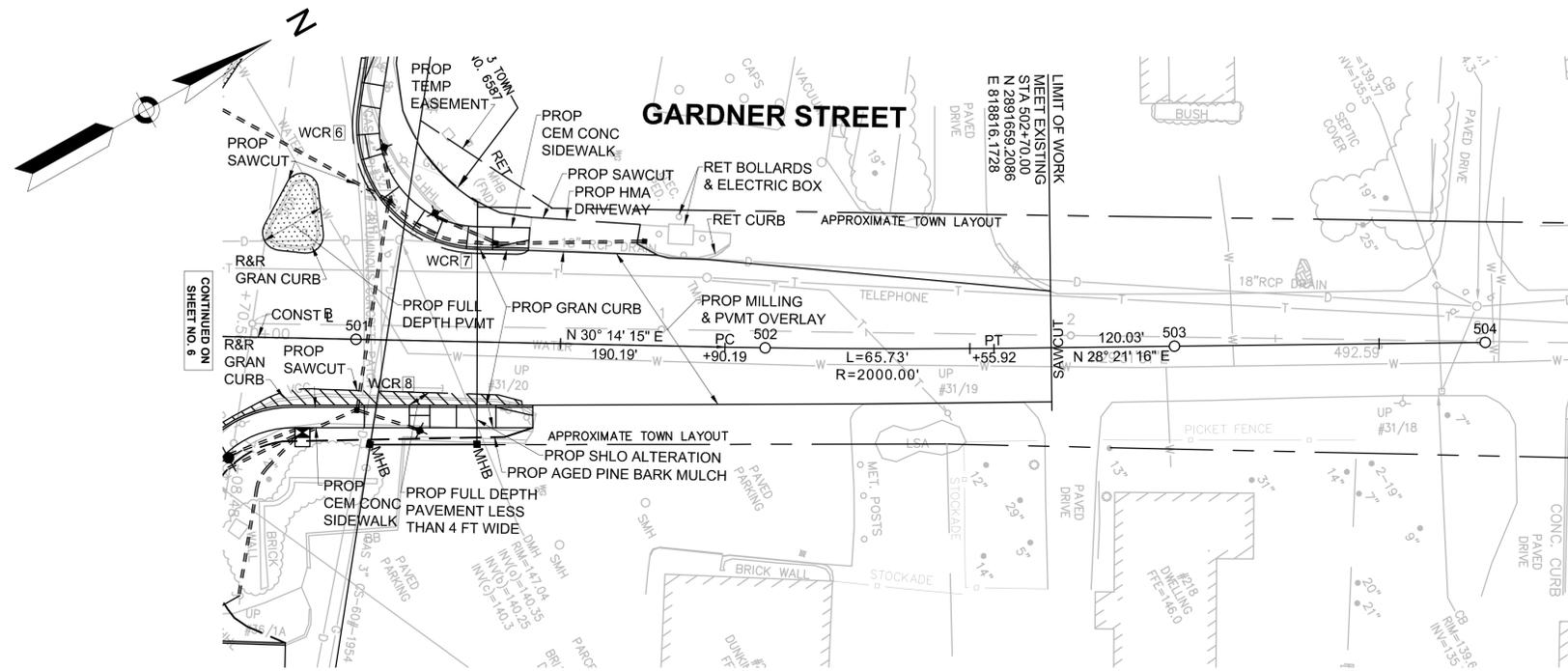
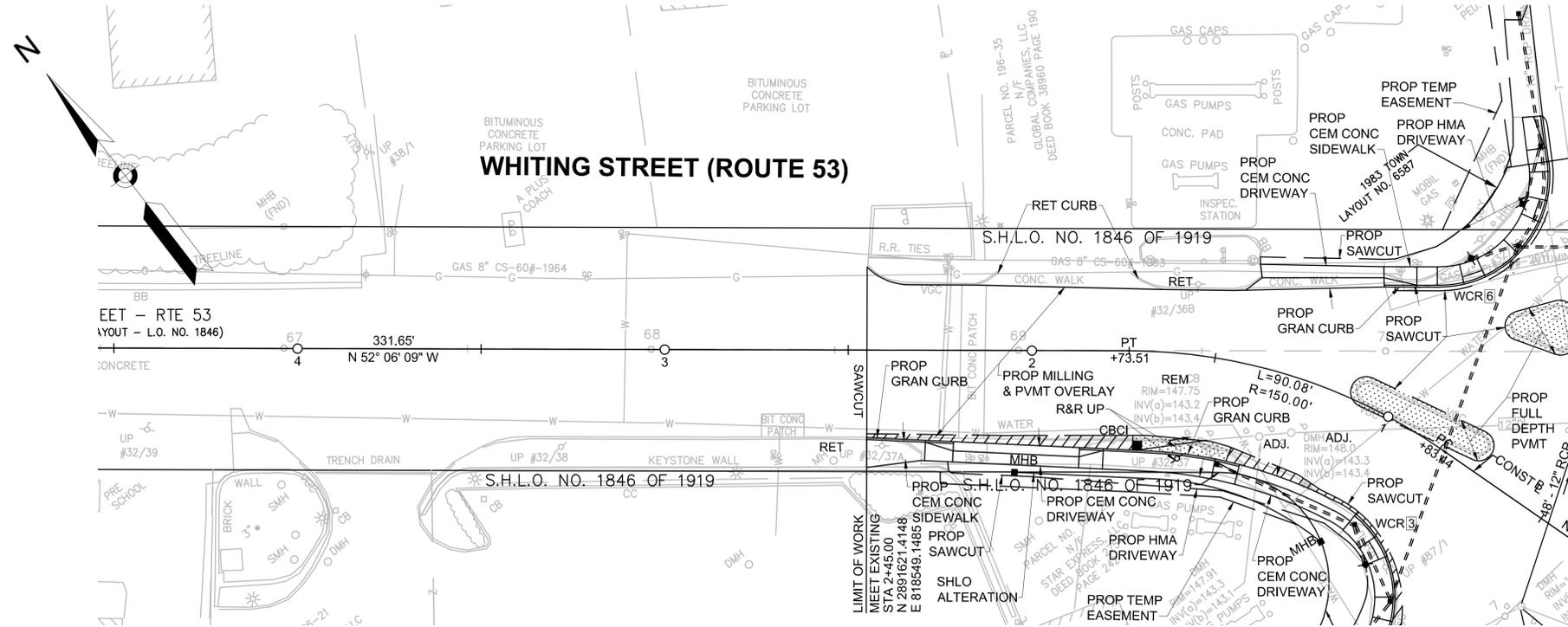
SEE BELOW

HINGHAM  
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	53

PROJECT FILE NO. 600518

CONSTRUCTION PLAN



NOTES:

1. FOR GENERAL NOTES SEE SHEET 5



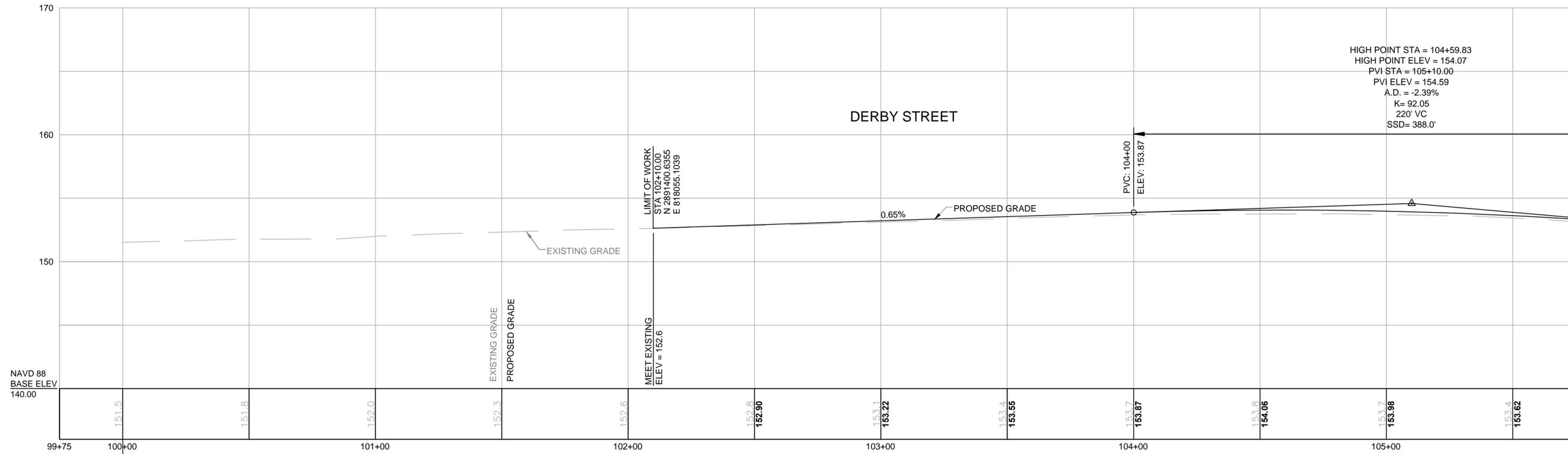
- FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE
- FULL DEPTH PAVEMENT

FOR PROFILE: SEE SHEETS NO. 13 AND 14

**HINGHAM  
DERBY / WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	53
PROJECT FILE NO.		600518	

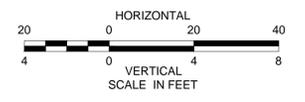
**PROFILE  
DERBY AND WHITING STREET**



HIGH POINT STA = 104+59.83  
HIGH POINT ELEV = 154.07  
PVI STA = 105+10.00  
PVI ELEV = 154.59  
A.D. = -2.39%  
K = 92.05  
220' VC  
SSD = 388.0'

LIMIT OF WORK  
STA 102+10.00  
N 2891400.6355  
E 818055.1039

STA 100+00.00 DERBY / WHITING STREET  
= STA 15+00.00 SHLO

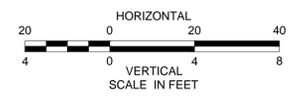
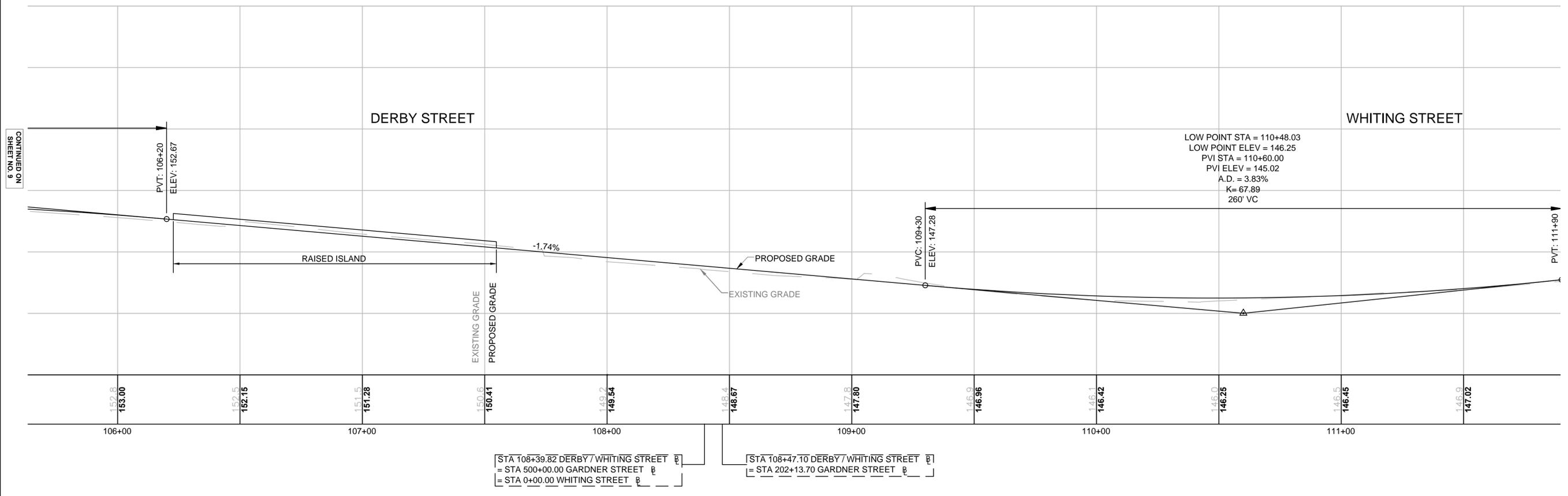


CONTINUED ON  
SHEET NO. 10

**HINGHAM**  
**DERBY / WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	53
PROJECT FILE NO.		600518	

**PROFILE**  
**DERBY AND WHITING STREET**



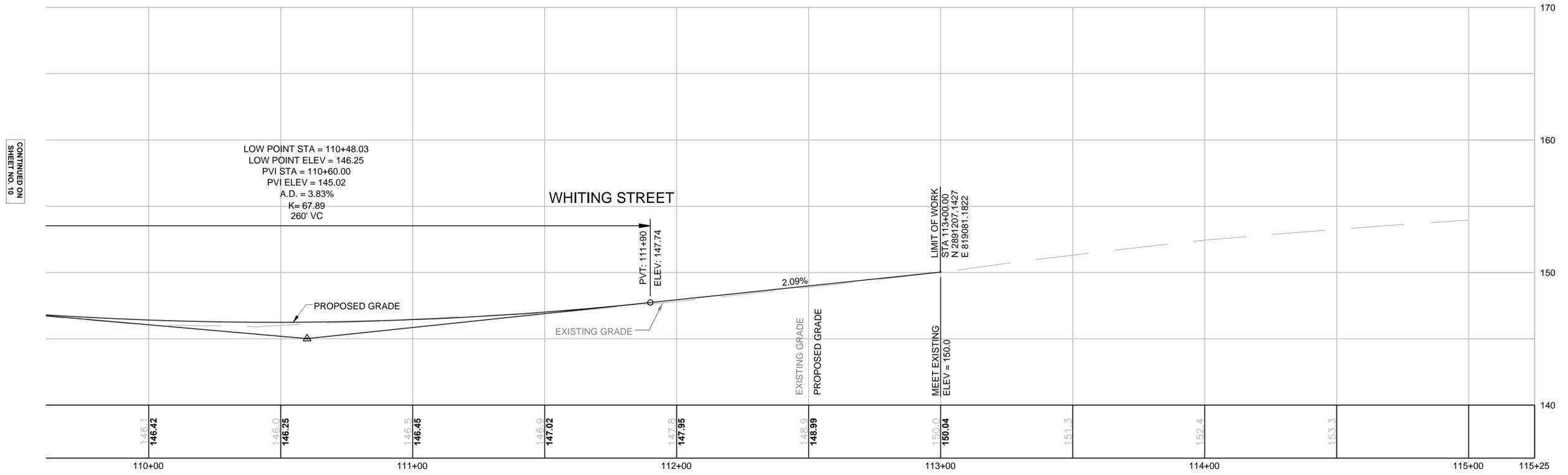
CONTINUED ON  
SHEET NO. 9

CONTINUED ON  
SHEET NO. 11

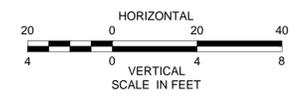
**HINGHAM**  
**DERBY / WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	53
PROJECT FILE NO.		600518	

**PROFILE**  
**DERBY AND WHITING STREET**



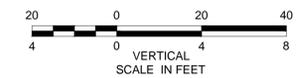
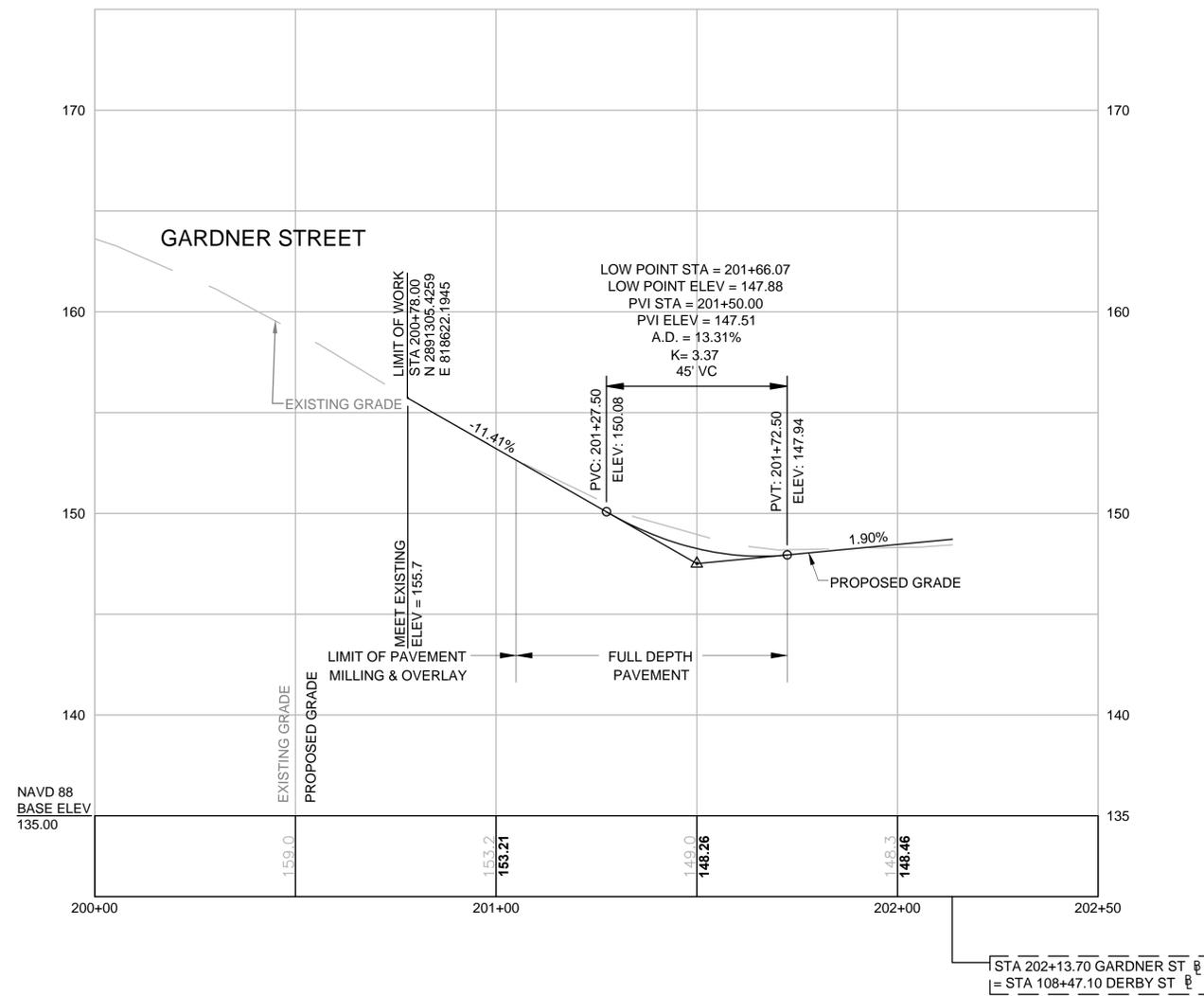
CONTINUED ON  
SHEET NO. 10



HINGHAM  
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	53
PROJECT FILE NO.		600518	

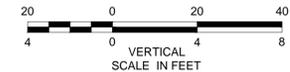
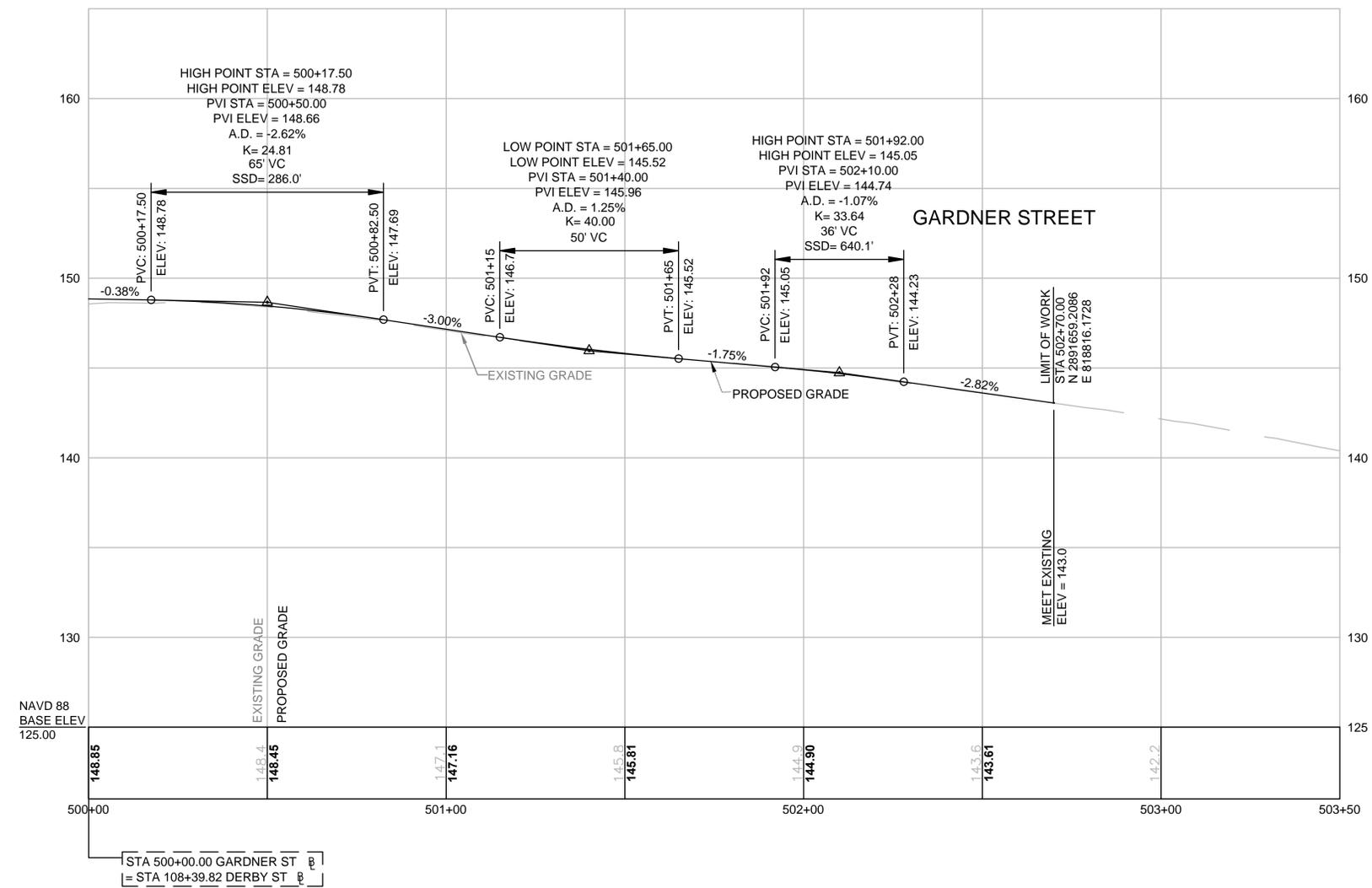
PROFILE  
GARDNER STREET



**HINGHAM  
DERBY / WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	53
PROJECT FILE NO.		600518	

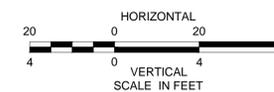
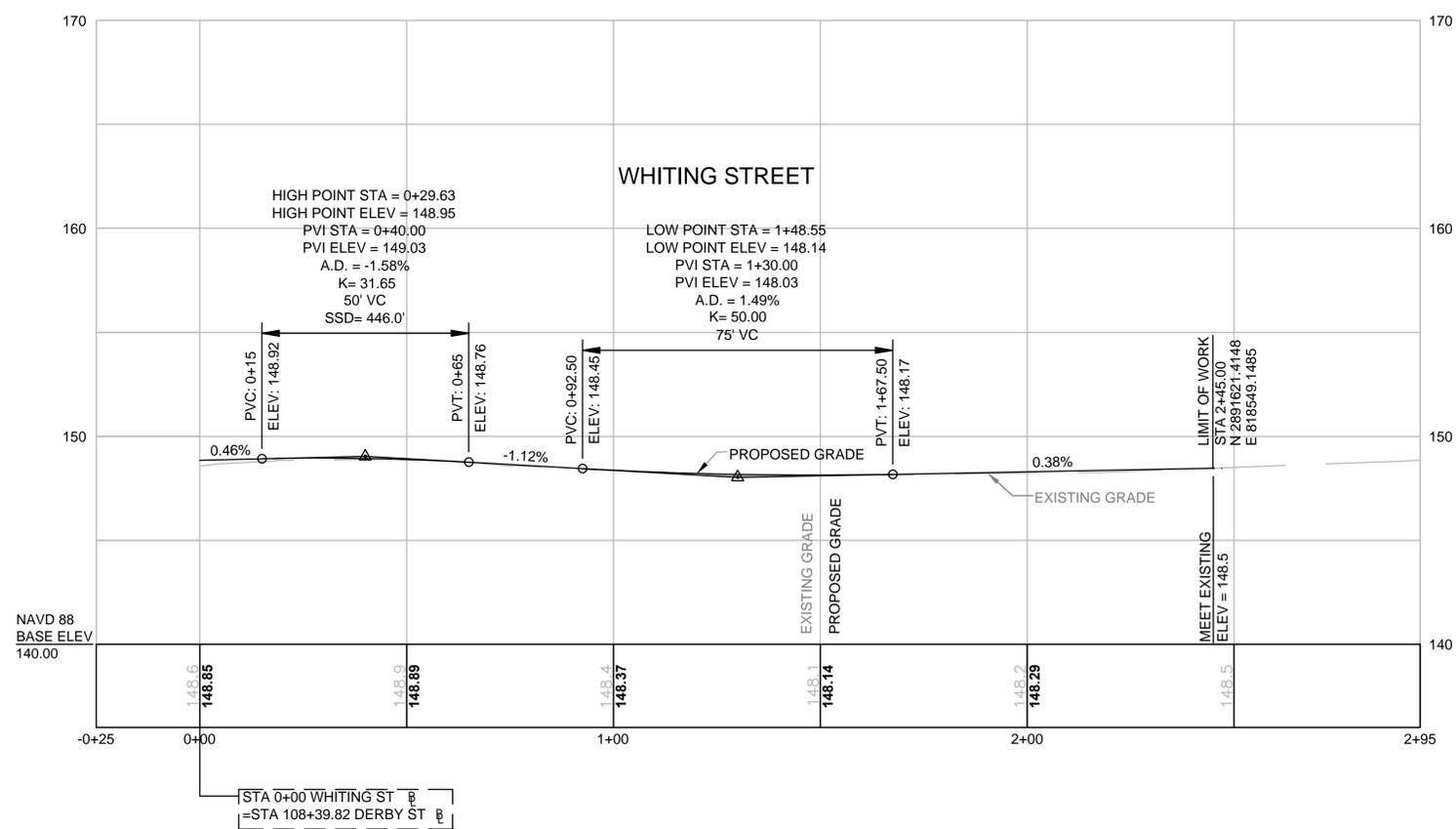
**PROFILE  
GARDNER STREET**



**HINGHAM  
DERBY / WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	53
PROJECT FILE NO.		600518	

**PROFILE  
WHITING STREET**



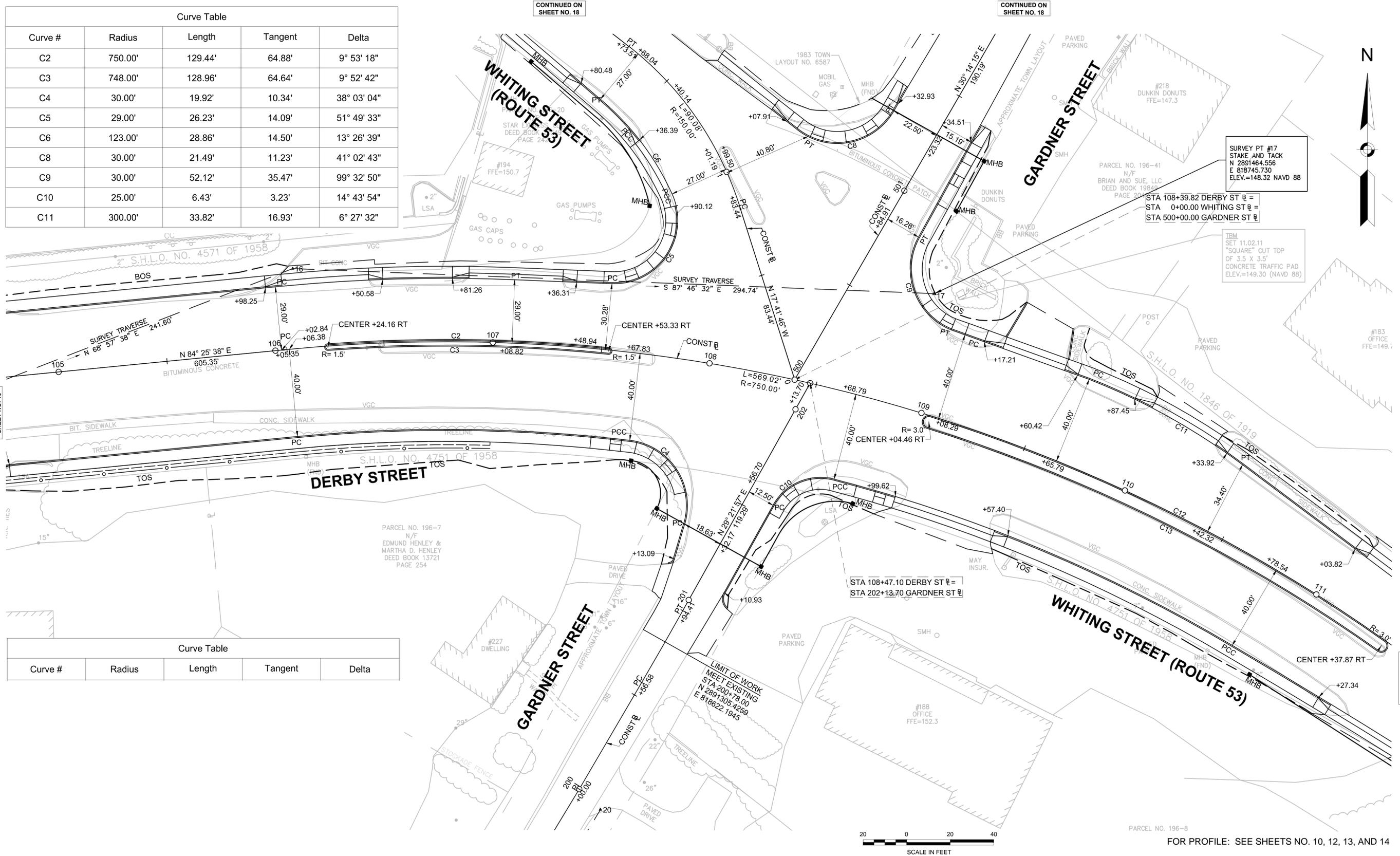


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	53
PROJECT FILE NO.		600518	

**CURB TIE & GRADING PLAN**

Curve #	Radius	Length	Tangent	Delta
C2	750.00'	129.44'	64.88'	9° 53' 18"
C3	748.00'	128.96'	64.64'	9° 52' 42"
C4	30.00'	19.92'	10.34'	38° 03' 04"
C5	29.00'	26.23'	14.09'	51° 49' 33"
C6	123.00'	28.86'	14.50'	13° 26' 39"
C8	30.00'	21.49'	11.23'	41° 02' 43"
C9	30.00'	52.12'	35.47'	99° 32' 50"
C10	25.00'	6.43'	3.23'	14° 43' 54"
C11	300.00'	33.82'	16.93'	6° 27' 32"



SURVEY PT #17  
STAKE AND TACK  
N 2891464.556  
E 818745.730  
ELEV.=148.32 NAVD 88

TBM  
SET 11.02.11  
"SQUARE" CUT TOP  
OF 3.5 X 3.5'  
CONCRETE TRAFFIC PAD  
ELEV.=149.30 (NAVD 88)

STA 108+39.82 DERBY ST  $\bar{E}$  =  
STA 0+00.00 WHITING ST  $\bar{E}$  =  
STA 500+00.00 GARDNER ST  $\bar{E}$



PARCEL NO. 196-8  
FOR PROFILE: SEE SHEETS NO. 10, 12, 13, AND 14

CONTINUED ON  
SHEET NO. 15

CONTINUED ON  
SHEET NO. 18

CONTINUED ON  
SHEET NO. 18

CONTINUED ON  
SHEET NO. 17

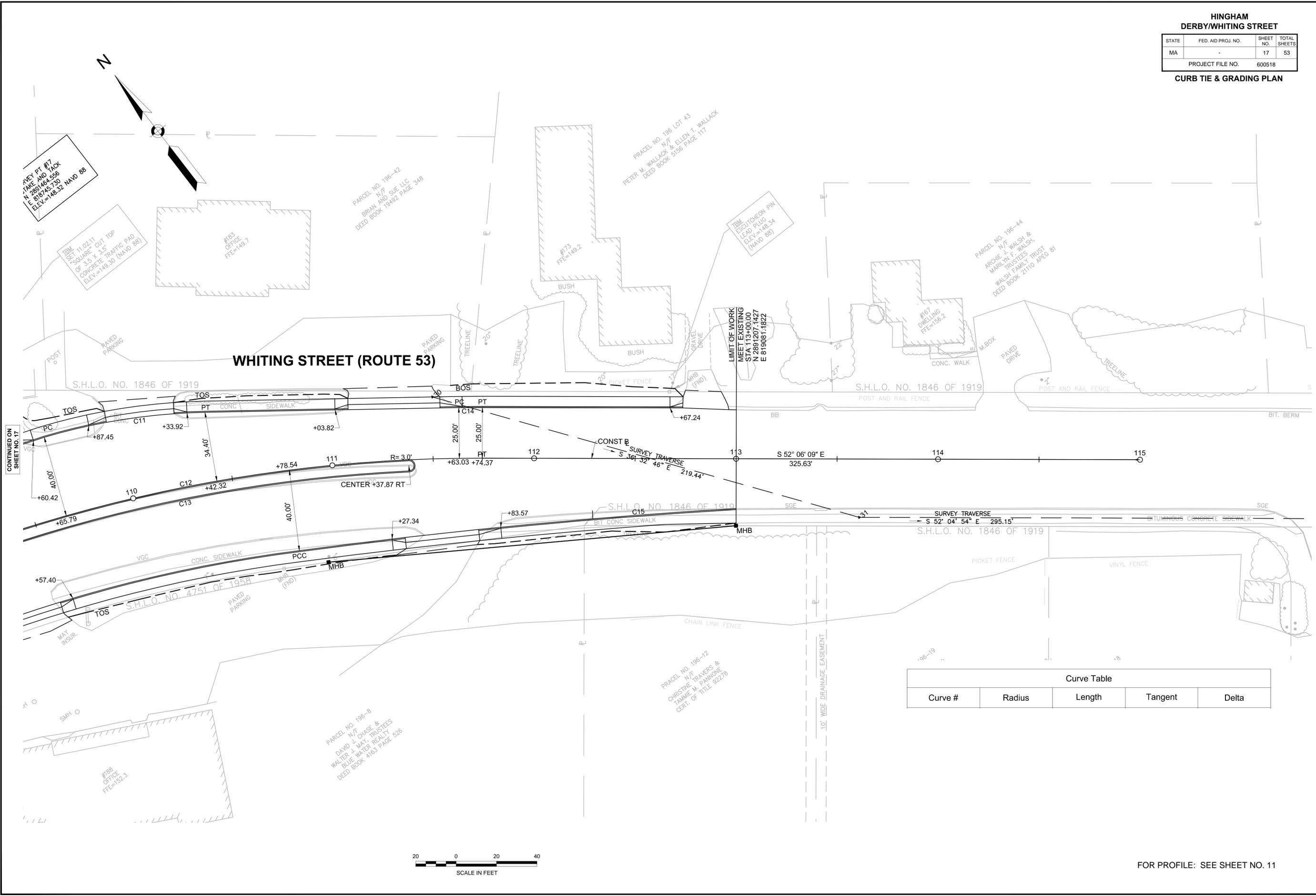
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8126.19\25% HD1\_Grading & CURB TIE.DWG 26-Dec-2012

**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	53
PROJECT FILE NO.		600518	

**CURB TIE & GRADING PLAN**



CONTINUED ON  
SHEET NO. 17

Curve #	Radius	Length	Tangent	Delta



FOR PROFILE: SEE SHEET NO. 11

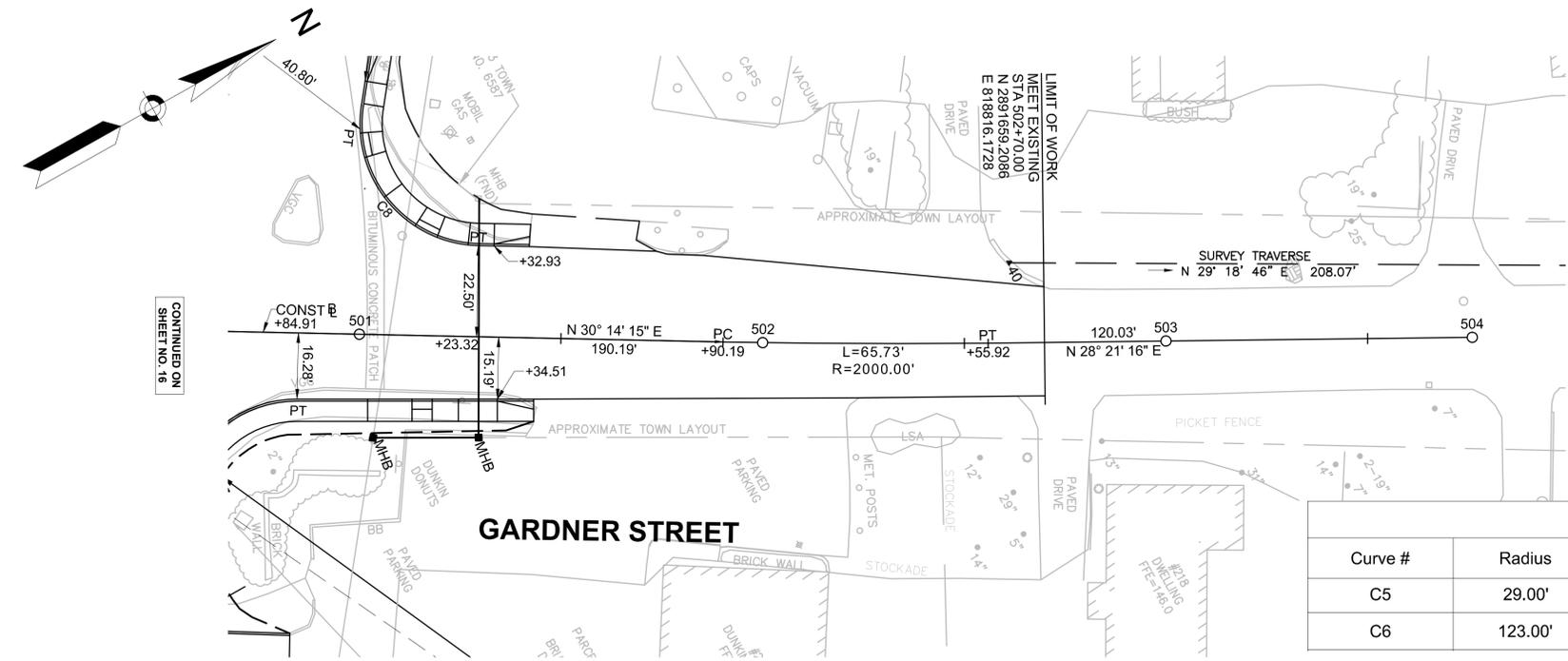
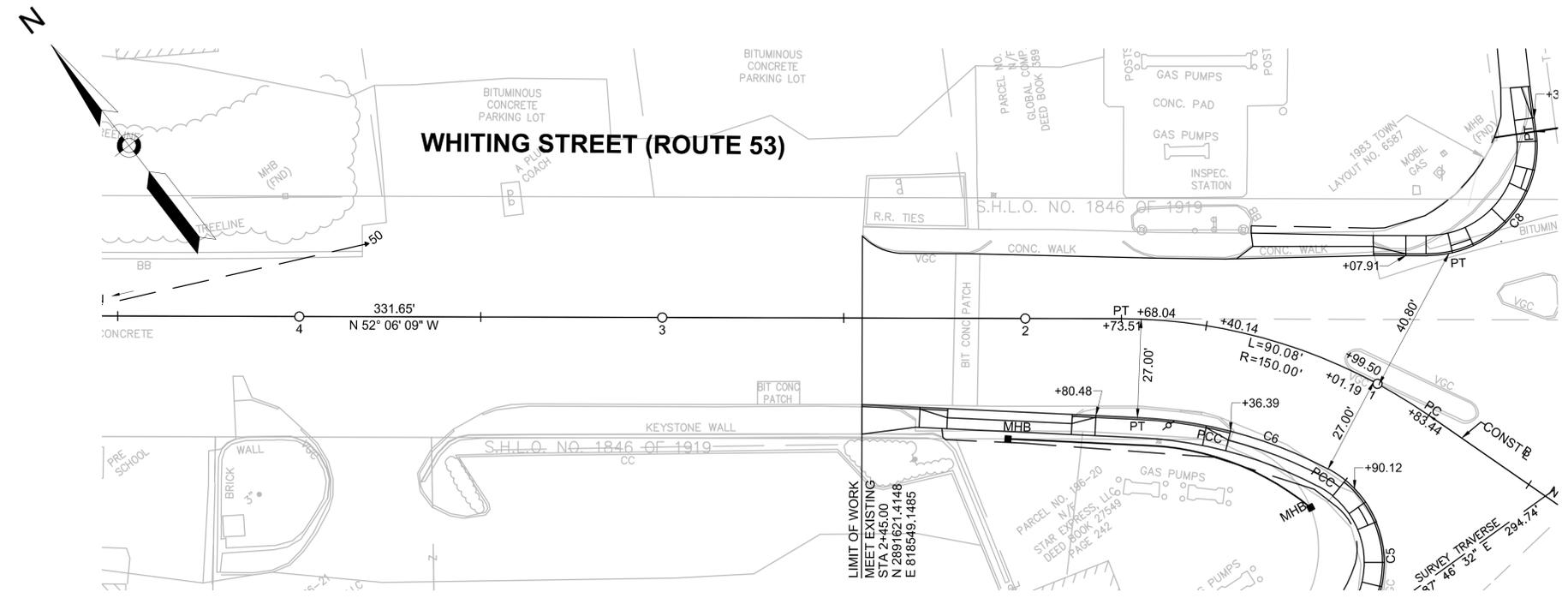
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8126.19\25%HD1\_Grading & CURB TIE.DWG 26-Dec-2012

**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	53
PROJECT FILE NO.		600518	

**CURB TIE & GRADING PLAN**



Curve Table

Curve #	Radius	Length	Tangent	Delta
C5	29.00'	26.23'	14.09'	51° 49' 33"
C6	123.00'	28.86'	14.50'	13° 26' 39"



FOR PROFILE: SEE SHEETS NO. 13 AND 14

Nitsch - P:\8126.19 DerbyWhiting-Hingham\Transportation\CAD\8126.19[25%]TR1\_SHEETS.dwg Dec 26, 2012 10:23 AM



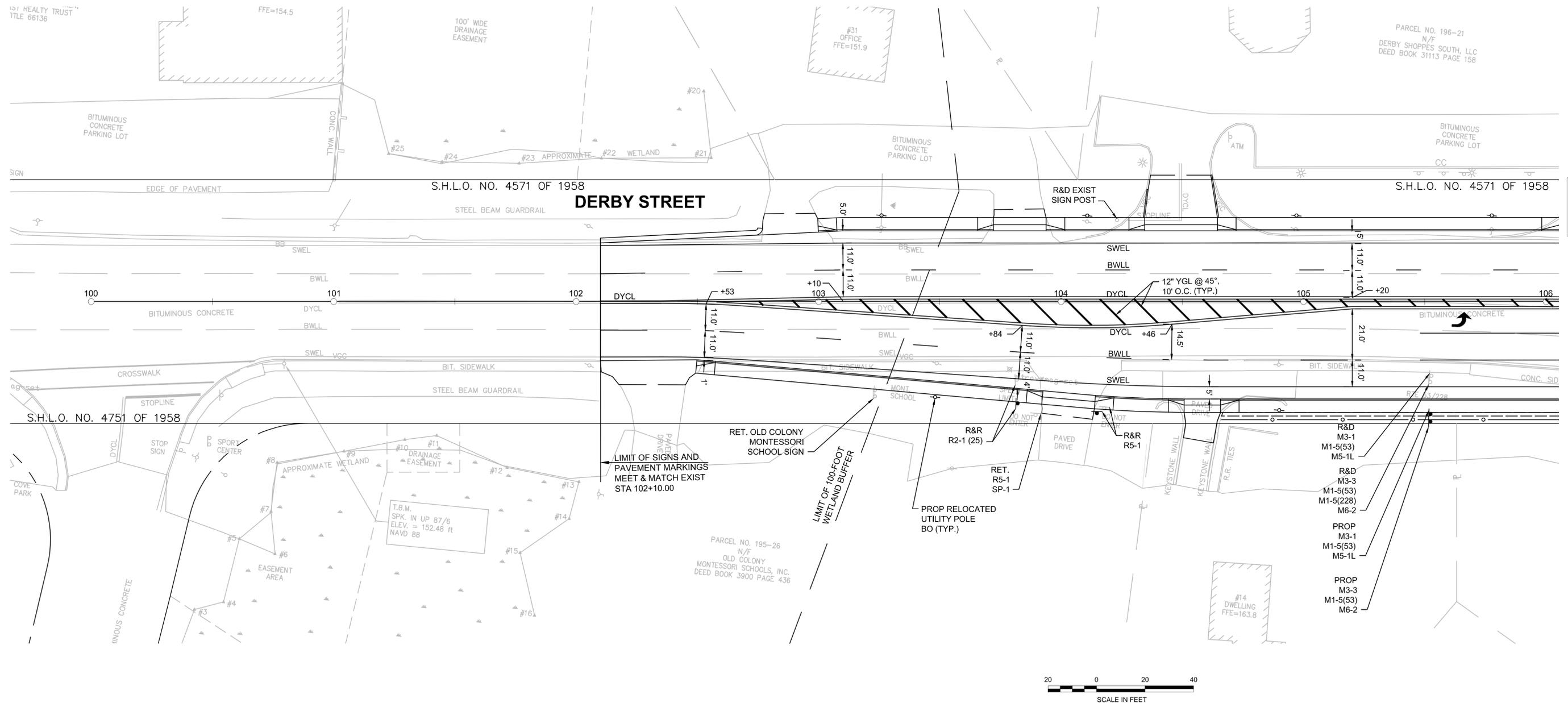
**TRAFFIC SIGNS AND PAVEMENT MARKINGS NOTES**

1. ALL EXISTING SIGNS AND SIGN POSTS WITHIN THE PROJECT LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL PROPOSED PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK SHALL BE THERMOPLASTIC. ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED.
3. PROPOSED PAVEMENT MARKINGS (LEGENDS & ARROWS) SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF MUTCD & MASSDOT STANDARD DRAWINGS.
4. EXACT LOCATIONS OF PROPOSED SIGNS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
5. ALL SIGN PANELS SHALL BE 90° TO THE CURB AND FACING THE FLOW OF TRAFFIC.
6. ALL SIGNS TO BE R&R SHALL BE MOUNTED ON NEW POSTS, UNLESS OTHERWISE NOTED.
7. SIGNS TO BE MOUNTED NEAR THE CURB LINE SHALL BE SET BACK FROM THE EDGE OF THE CURB SO THAT NO SIGN SHALL OVERHANG THE CURB LINE.
8. ALL SIGNS WITHIN A PEDESTRIAN SIDEWALK SHALL BE MOUNTED TO PROVIDE A 7.0' MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE SIGN AND FINISH GRADE.
9. SEE SHEET 23 FOR EXISTING SIGN LEGENDS.
10. SEE SHEET 24 FOR PROPOSED SIGN LEGENDS.
11. SEE SHEET 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL NOTES.

**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	53
PROJECT FILE NO.		600518	

**TRAFFIC SIGNS & PAVEMENT MARKINGS**



CONTINUED ON  
SHEET NO. 20

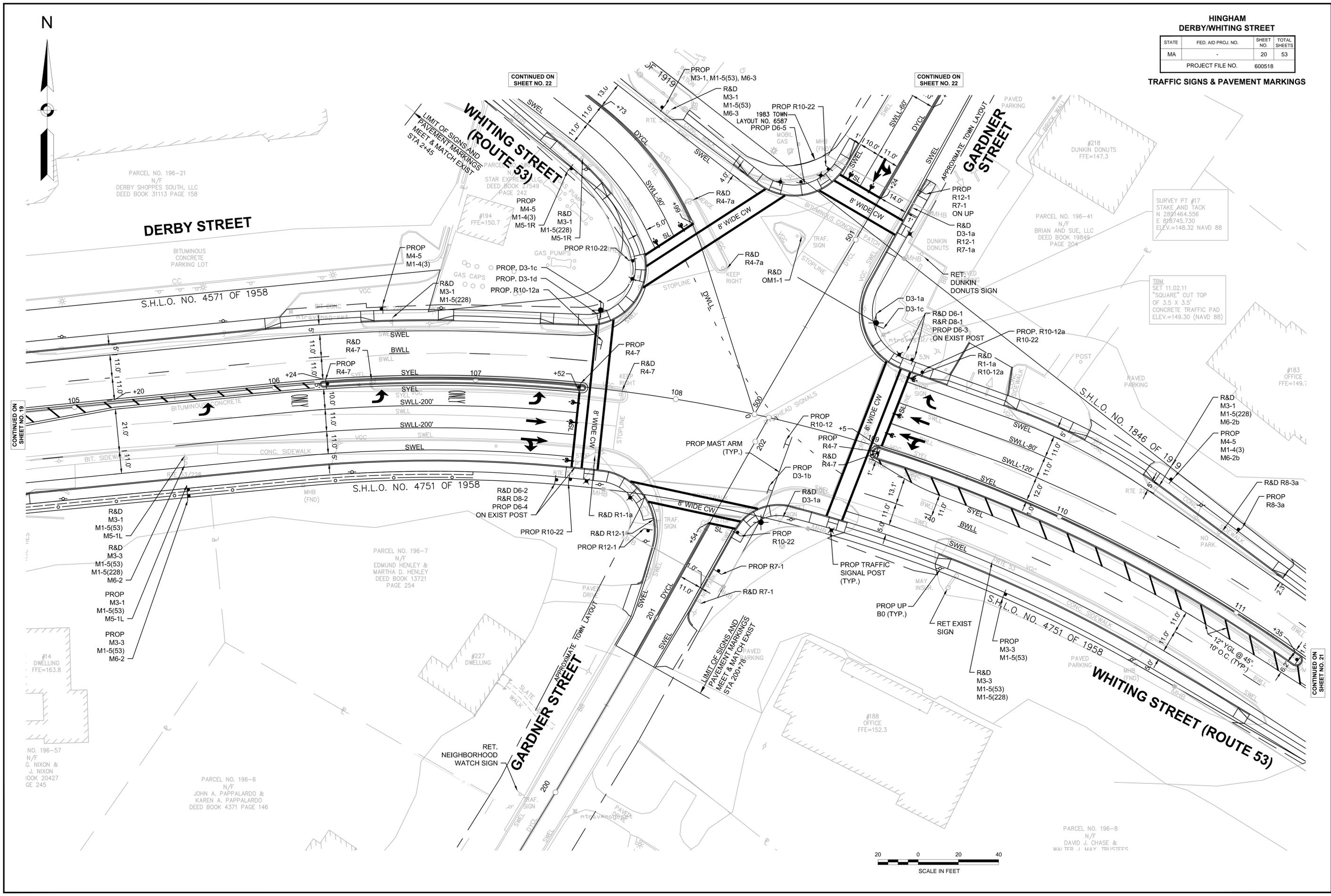
8126.19[25%]TR1\_SHEETS.DWG 26-Dec-2012



**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA		20	53
PROJECT FILE NO.		600518	

**TRAFFIC SIGNS & PAVEMENT MARKINGS**



PARCEL NO. 196-21  
N/F  
DERBY SHOPPES SOUTH, LLC  
DEED BOOK 31113 PAGE 158

**DERBY STREET**

S.H.L.O. NO. 4571 OF 1958

**WHITING STREET  
(ROUTE 53)**

**GARDNER STREET**

SURVEY PT #17  
STAKE AND TACK  
N 2891464.556  
E 83745.730  
ELEV.=148.32 NAVD 88

IBM  
SET 11.02.11  
"SQUARE" CUT TOP  
OF 3.5 X 3.5'  
CONCRETE TRAFFIC PAD  
ELEV.=149.30 (NAVD 88)

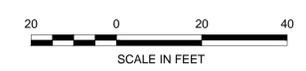
- R&D M3-1 M1-5(53) M5-1L
- R&D M3-3 M1-5(53) M1-5(228) M6-2
- PROP M3-1 M1-5(53) M5-1L
- PROP M3-3 M1-5(53) M6-2

NO. 196-57  
N/F  
C. NIXON &  
J. NIXON  
BOOK 20427  
GE 245

PARCEL NO. 196-6  
N/F  
JOHN A. PAPPALARDO &  
KAREN A. PAPPALARDO  
DEED BOOK 4371 PAGE 146

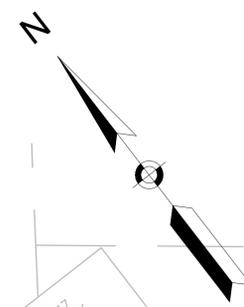
PARCEL NO. 196-7  
N/F  
EDMUND HENLEY &  
MARTHA D. HENLEY  
DEED BOOK 13721  
PAGE 254

PARCEL NO. 196-8  
N/F  
DAVID J. CHASE &  
WAI TFR. 1 MAY TRUSTEES

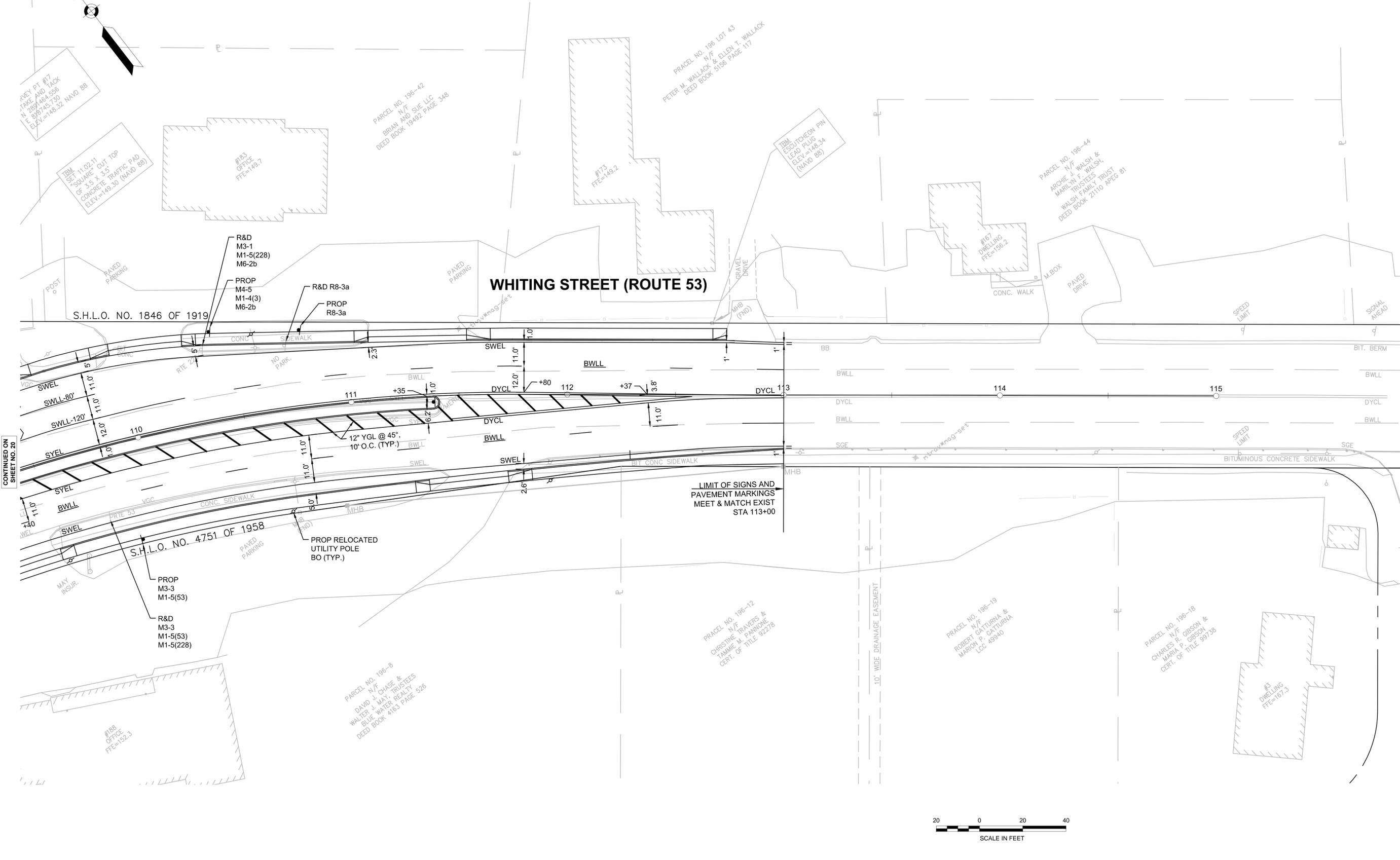


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8126.19[25%]TR1\_SHEETS.DWG 26-Dec-2012



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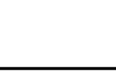


8126.19[25%]TR1\_SHEETS.DWG 26-Dec-2012



## EXISTING TRAFFIC SIGN LEGENDS

D3-1A	
R2-1 (25)	
R4-7	
R7-1	
R7-1A	
R8-3A	
R5-1	
R4-7A	
R1-1A	
R10-12A	
R12-1	
SP-1	
OM1-1	

D8-2	
D8-1	
D6-2	
D6-1	
M1-5(53)	
M1-5(228)	
M3-1	
M3-3	
M5-1L	
M5-1R	
M6-2	
M6-2B	
M6-3	

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	53
PROJECT FILE NO.		600518	

### TRAFFIC SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED ②	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
D3-1A (PBS)	VARIES	12"	Gardner st	①	①	①	1	①	①	①	1 MOUNT ON MAST ARM POST	EA	EA
D3-1B (PBS)	VARIES	18"	Gardner st				1				1 MOUNT ON MAST ARM	EA	EA
D3-1C (PBS)	VARIES	12"	Whiting st				2				2 MOUNT ON MAST ARM POST	EA	EA
D3-1D (PBS)	VARIES	12"	Derby st				1				1 MOUNT ON MAST ARM POST	EA	EA
M1-4(3)	36"	36"	3				3				P-5 3 REQ'D	9.00	27.00
M1-5(53)	24"	24"	53				4				P-5 4 REQ'D	4.00	16.00
M3-1	24"	12"	NORTH				2				2 MOUNT W/M1-5(53)	2.00	4.00
M3-3	24"	12"	SOUTH				2				1 MOUNT W/M1-5(53)	2.00	4.00
M4-5	24"	12"	TO				3				3 MOUNT W/M1-4(3)	2.00	6.00
M5-1R	21"	15"					1				1 MOUNT W/M1-4(3)	2.19	2.19
M5-1L	21"	15"					1				1 MOUNT W/M1-5(53)	2.19	2.19
M6-2	21"	15"					1				1 MOUNT W/M1-5(53)	2.19	2.19
M6-2B	21"	15"					1				1 MOUNT W/M1-4(3)	2.19	2.19
M6-3	21"	15"					1				1 MOUNT W/M1-5(53)	2.19	2.19
R4-7	24"	30"		↓	↓	↓	3	↓	↓	↓	P-5 3 REQ'D	5.00	15.00

PBS = PRINT BOTH SIDES

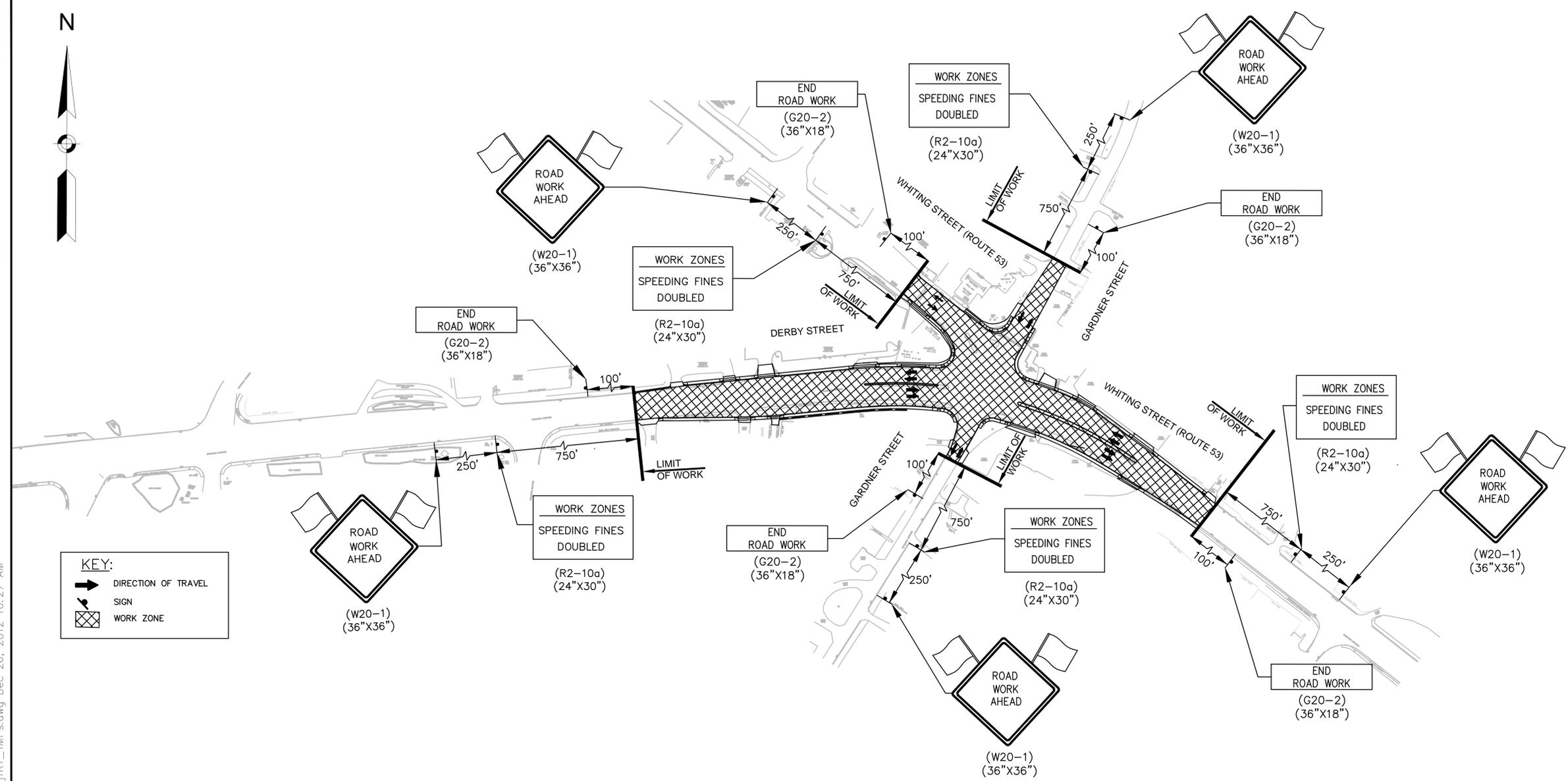
① SEE MUTCD 2009 EDITION, 1979 STD. HWY. SIGNS AND SECTION M9.30.0 TYPE III OF THE MASSDOT STANDARD SPECIFICATION FOR TEXT DIMENSIONS AND COLOR.

② SEE STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, 1990.

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED ②	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R4-7A	24"	30"				①	1	①	①	①	P-5 1 REQ'D	5.00	5.00
R7-1	12"	18"					3				1 MOUNT ON LP 2 MOUNT ON EXIST POST 1-P-5 REQ'D	3.00	9.00
R8-3A	24"	30"					1				P-5 1 REQ'D	5.00	5.00
R10-12	30"	36"					1				1 MOUNT ON MAST ARM	7.50	7.50
R10-12A	24"	30"					2				P-5 1 REQ'D 1 MOUNT MAST ARM	3.00	6.00
R10-22	18"	24"					5				P-5 4 REQ'D 1 MOUNT W/R10-12a	3.00	15.00
R12-1	24"	30"					2				P-5 1 REQ'D 1 MOUNT ON UP	5.00	10.00
D6-3	60"	60"		18	6		1				MOUNT ON R&R EXIST 5" STEEL POST	25.00	25.00
D6-4	48"	48"		9	6		1				MOUNT ON R&R EXIST 5" STEEL POST	16.00	16.00
D6-5	48"	48"		18	6		1				MOUNT ON NEW 5" STEEL POST	16.00	16.00

NOTE: ALL STOP AND YIELD SIGNS PROPOSED IN THIS CONTRACT ARE SUBJECT TO FIELD INVESTIGATION BY THE DISTRICT OFFICE OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION TO JUSTIFY WARRANTS BEFORE INSTALLATION.

NUMERICAL LIMITS AND JUSTIFICATION FOR SPEED & ADVISORY EXIT SPEED SIGNS SHALL BE OBTAINED FROM THE SPEED ZONING UNIT OF THE TRAFFIC ENGINEERING SECTION, MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, BEFORE FABRICATION AND/OR ERECTION.



**TEMPORARY TRAFFIC CONTROL— ADVANCE SIGNING**  
NOT TO SCALE

GENERAL NOTES FOR ENTIRE PROJECT DURATION

1. ABUTTER ACCESS SHALL NOT BE CLOSED EXCEPT FOR SHORT PERIODS AND ONLY WITH THE APPROVAL OF THE ENGINEER.
2. GRADE DIFFERENCES IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF DRUMS.
3. GRADE DIFFERENCES IN EXCESS OF 4" DURING NON-WORKING HOURS SHALL BE PROTECTED BY BACKFILLING WITH A TRANSITION OF GRAVEL OR HOT MIX ASPHALT TO BE COMPACTED AT A 4:1 SLOPE, AND DELINEATED BY DRUMS.
4. CONSTRUCTION SIGNS NOT APPLICABLE TO VARIOUS STAGES OF CONSTRUCTION SHALL BE REMOVED OR COVERED.
5. USE W20-8 SIGNS ONLY WHEN POLICE OFFICER IS DIRECTING TRAFFIC. THEY SHALL BE TAKEN DOWN OR COVERED AT THE CLOSE OF EACH OPERATION.
6. MAINTAIN PEDESTRIAN ACCESS THROUGH THE WORK AREA AT ALL TIMES. THE POLICE DETAIL SHALL PROVIDE CONTROL TO CROSS PEDESTRIANS ON ROADWAY TO SIDEWALK. PROVIDE TEMPORARY CROSSWALKS AND RAMPS AS NEEDED AND AS DIRECTED BY THE ENGINEER.
7. ALL CONSTRUCTION SIGNING AND OTHER TRAFFIC MAINTENANCE DEVICES SHALL CONFORM WITH THE 2009 MUTCD AS AMENDED, NCHRP 350, AND MASSDOT STANDARDS.
8. ADVANCE WARNING SIGNS NO LONGER APPLICABLE, WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS, SHALL EITHER BE COVERED OR REMOVED. NO SIGN SHALL BE VISIBLE TO TRAFFIC THAT MAY CONFLICT WITH ACTUAL ROADWAY CONDITIONS.
9. ALL DISTANCES MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.
10. THE CONTRACTOR SHALL USE TEMPORARY PATCHING OR BEVELED STEEL PLATES TO COVER PIPE TRENCHES AND OTHER EXCAVATED HOLES NOT COMPLETED BY THE END OF EACH WORK DAY.
14. ALL DRUMS WITH FLASHERS, SIGNS AND SIGN SUPPORTS MUST PASS THE CRITERIA SET FORTH IN NCHRP 350 RECOMMENDED PROCEDURES FOR THE SAFETY EVALUATION OF HIGHWAY FEATURES.
15. MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH WILL BE MEASURED FROM THE EDGE OF DRUMS OR CONES.
16. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID PLACING TEMPORARY TRAFFIC CONTROL DEVICES ON PRIVATE PROPERTY. IF SUCH PLACEMENT ON PRIVATE PROPERTY IS UNAVOIDABLE, IT SHALL BE DONE WITH THE APPROVAL OF THE ENGINEER.
17. ORANGE CONSTRUCTION FLAGS MAY BE USED ON ADVANCE WARNING SIGNS AS DIRECTED BY THE ENGINEER. FLAGS SHALL BE A MINIMUM OF 16" X 16".
18. AT THE END OF EACH WORK DAY, NO TRAFFIC CONTROL DEVICES SHALL REMAIN IN THE ROADWAY AND ALL LANES SHALL BE OPEN FOR TRAFFIC FLOW.
19. THE CONTRACTOR MAY PROPOSE TO USE A DIFFERENT SEQUENCE OF WORK AREAS THAN WHAT IS BEING PROPOSED IN THESE DOCUMENTS. THE CONTRACTOR SHALL SUBMIT PHASING AND TRAFFIC MANAGEMENT PLANS FOR APPROVAL BY THE ENGINEER.
20. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.

NOTES

1. SEE SHEET 26, FOR TYPICAL TEMPORARY TRAFFIC CONTROL MEASURES THAT WILL APPLY TO DIFFERENT WORK ZONE CONSTRUCTION REQUIREMENTS.

### TAPER LENGTH

SPEED LIMIT	FORMULA
40 MPH or Less	$L = WS/60$
45 MPH or Greater	$L = WS$

$L$  = Taper Length in feet  
 $W$  = Width of offset in feet  
 $S$  = Posted speed or off-peak 85 percentile speed in MPH

\* MAXIMUM DRUM SPACING, IN FEET, SHALL EQUAL POSTED SPEED LIMIT (MPH).

### LEGEND:

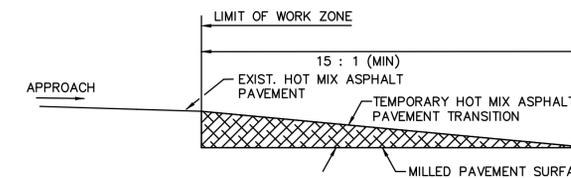
- L =  $WS^2/60$
- L = LENGTH OF TAPER
- S = SPEED LIMIT
- W = WIDTH OFFSET
- REFLECTORIZED DRUMS OR CONES
- TT TYPE III PORTABLE BREAKAWAY BARRICADE SIGNS
- ⊞ WORK AREA
- ➔ DIRECTION OF TRAFFIC
- Ⓟ POLICE DETAIL

### HINGHAM DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	53

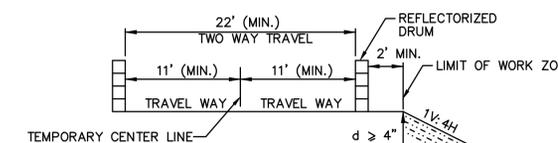
PROJECT FILE NO. 600518

### TEMPORARY TRAFFIC CONTROL PLAN



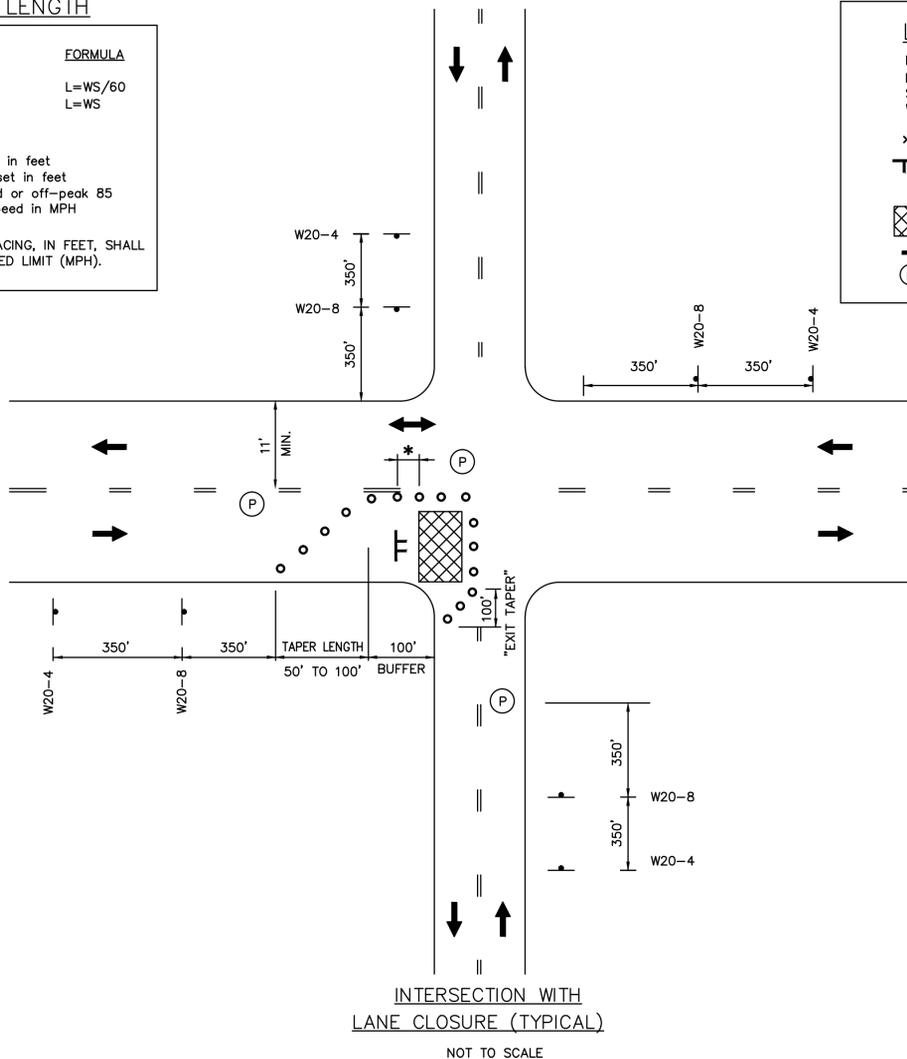
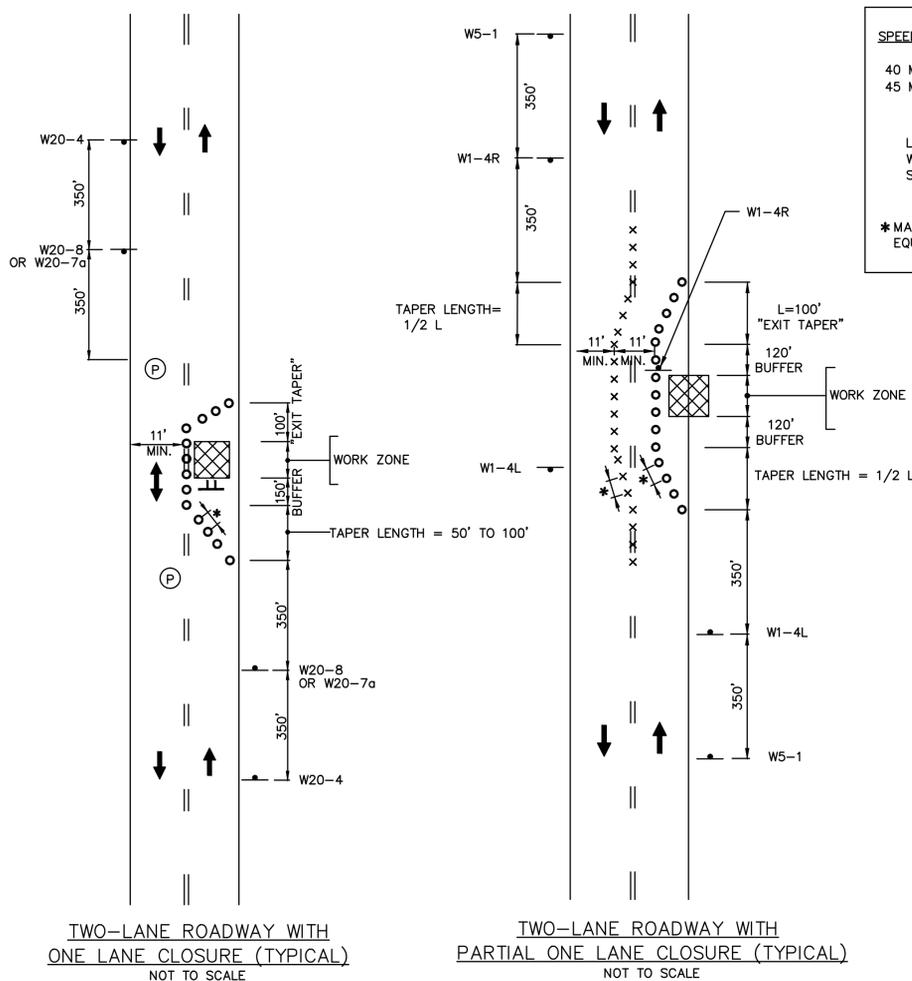
### TEMPORARY PAVEMENT TRANSITION

NOT TO SCALE



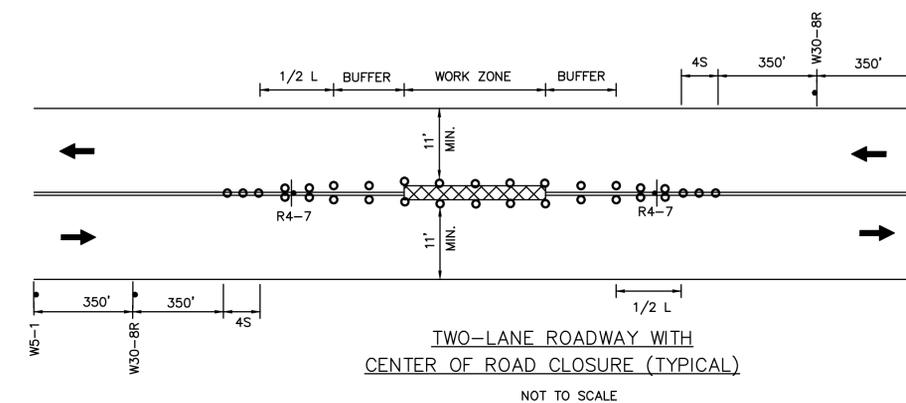
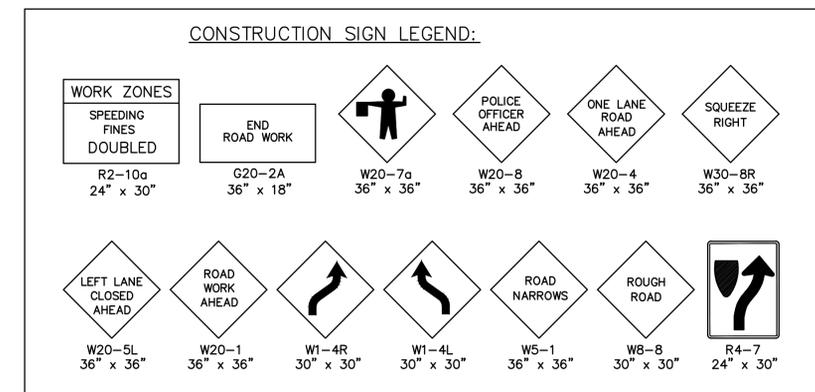
### TEMPORARY TRAVEL WAY AND LATERAL PAVEMENT SLOPE

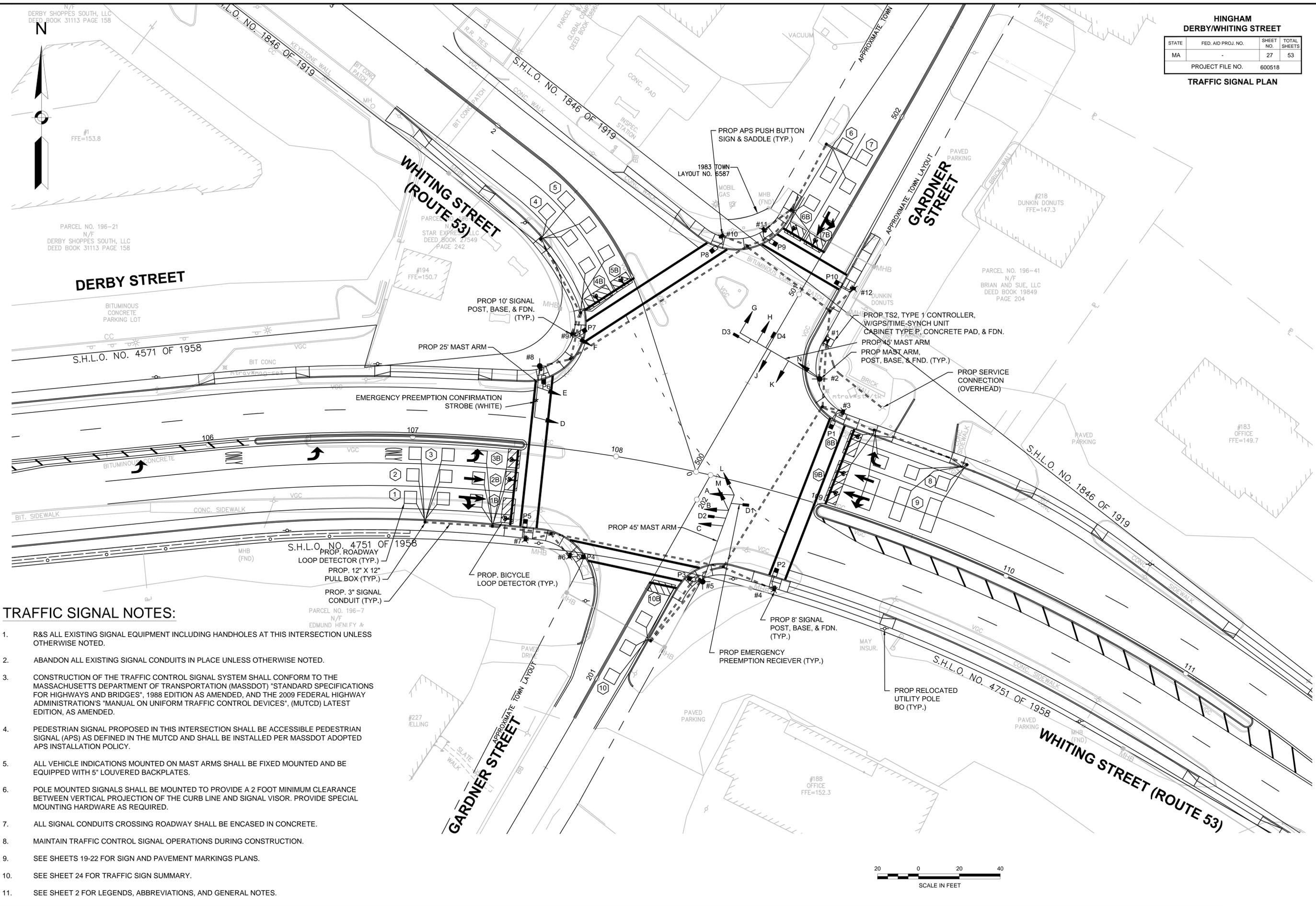
(AFTER WORK HOUR SETUP)  
 NOT TO SCALE



SAFETY SIGNING FOR CONSTRUCTION OPERATIONS				
LEGEND	TYPE	SIZE	NO. SIGNS*	AREA (SF)
ROAD WORK AHEAD	W20-1	36" x 36"	5	45
END ROAD WORK	G20-2A	36" x 18"	5	22.5
POLICE OFFICER AHEAD/FLAGGER AHEAD	W20-8/W20-7a	36" x 36"	3	27
ONE LANE ROAD AHEAD	W20-4	36" x 36"	2	18
ROAD NARROWS	W5-1	36" x 36"	2	18
LEFT LANE CLOSED AHEAD	W20-5L	36" x 36"	2	18
ROUGH ROAD	W8-8	30" x 30"	2	12.5
LANE SHIFT LEFT	W1-4L	30" x 30"	2	12.5
LANE SHIFT RIGHT	W1-4R	30" x 30"	2	12.5
WORK ZONES SPEEDING FINES DOUBLED	R2-10a	24" x 30"	5	25
BEAR RIGHT	R4-7	24" x 30"	2	10
SQUEEZE RIGHT	W30-8R	36" x 36"	2	18

\* NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY





**TRAFFIC SIGNAL NOTES:**

- R&S ALL EXISTING SIGNAL EQUIPMENT INCLUDING HANDHOLES AT THIS INTERSECTION UNLESS OTHERWISE NOTED.
- ABANDON ALL EXISTING SIGNAL CONDUITS IN PLACE UNLESS OTHERWISE NOTED.
- CONSTRUCTION OF THE TRAFFIC CONTROL SIGNAL SYSTEM SHALL CONFORM TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES", 1988 EDITION AS AMENDED, AND THE 2009 FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", (MUTCD) LATEST EDITION, AS AMENDED.
- PEDESTRIAN SIGNAL PROPOSED IN THIS INTERSECTION SHALL BE ACCESSIBLE PEDESTRIAN SIGNAL (APS) AS DEFINED IN THE MUTCD AND SHALL BE INSTALLED PER MASSDOT ADOPTED APS INSTALLATION POLICY.
- ALL VEHICLE INDICATIONS MOUNTED ON MAST ARMS SHALL BE FIXED MOUNTED AND BE EQUIPPED WITH 5" LOUVERED BACKPLATES.
- POLE MOUNTED SIGNALS SHALL BE MOUNTED TO PROVIDE A 2 FOOT MINIMUM CLEARANCE BETWEEN VERTICAL PROJECTION OF THE CURB LINE AND SIGNAL VISOR. PROVIDE SPECIAL MOUNTING HARDWARE AS REQUIRED.
- ALL SIGNAL CONDUITS CROSSING ROADWAY SHALL BE ENCASED IN CONCRETE.
- MAINTAIN TRAFFIC CONTROL SIGNAL OPERATIONS DURING CONSTRUCTION.
- SEE SHEETS 19-22 FOR SIGN AND PAVEMENT MARKINGS PLANS.
- SEE SHEET 24 FOR TRAFFIC SIGN SUMMARY.
- SEE SHEET 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL NOTES.



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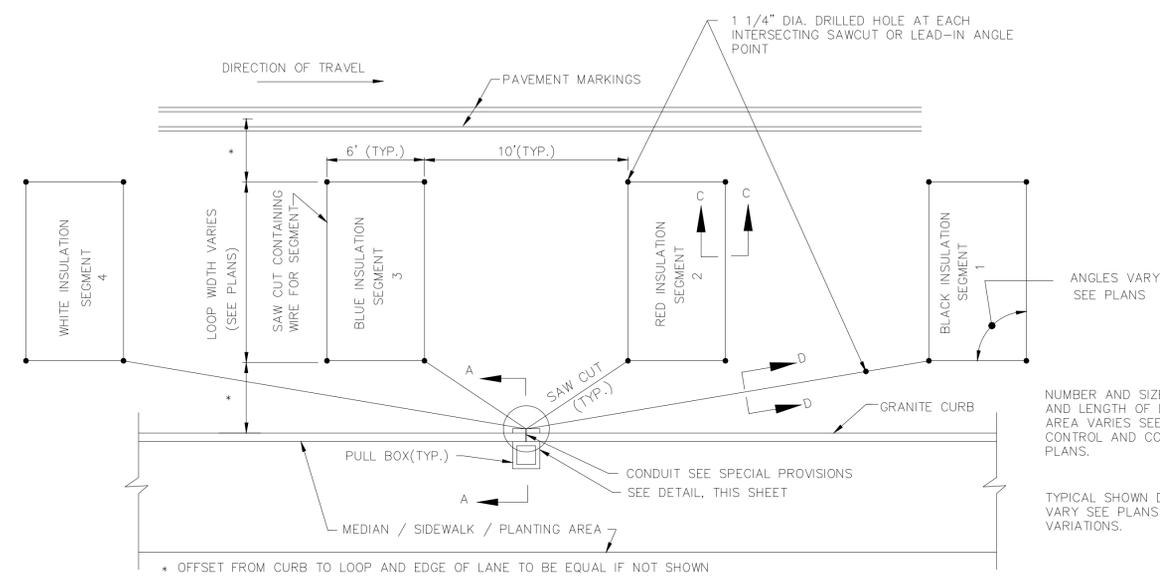
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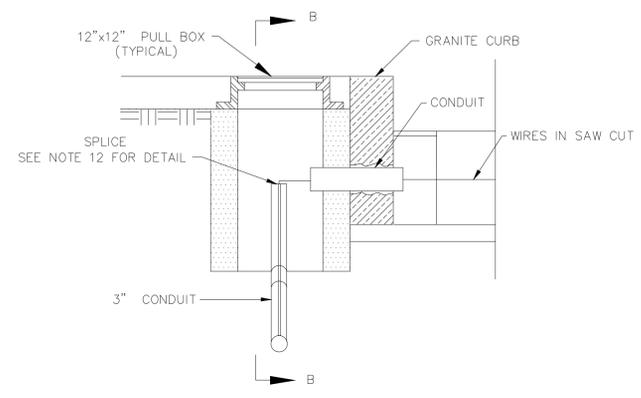
**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	53
PROJECT FILE NO.		600518	

**TRAFFIC SIGNAL DETAILS  
VEHICLE LOOP DETECTOR DETAILS**



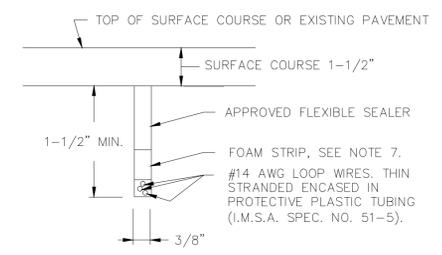
**PLAN OF SEGMENTED DETECTOR DETAIL**  
NOT TO SCALE



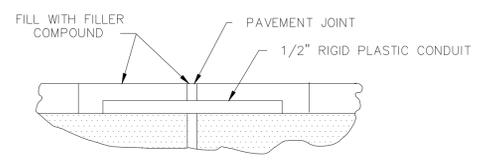
**SECTION A-A**  
NOT TO SCALE

**DETECTOR NOTES**

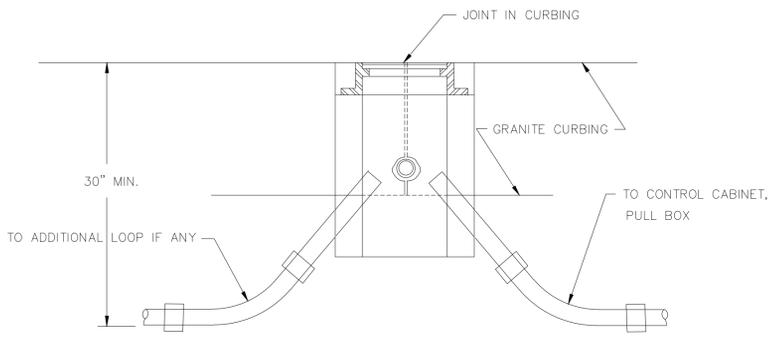
- IN HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II-SHIELDED LOOP DETECTOR LEAD-IN CABLE. SEGMENTS SHALL BE SPLICED IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.
- SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER.
- LEAD IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE. FIVE TURNS PER FOOT. LEAD-IN SHALL BE TYPE II (M8.16, II).
- BEFORE STARTING ANY SPLICING, THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS, SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.
- THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) TO THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL NOT BE GROUNDED TO THE EARTH GROUNDING BUS IN THE CONTROLLER, AND THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL OTHER POINTS ALONG ITS LENGTH. SPECIFICALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.
- FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
- AFTER SAW CUTS ARE COMPLETE, BLOW OUT WATER WITH OIL-FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY, INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND-EDGED TOOL OF WOOD OR PLASTIC SUCH AS PAINT STIRRER. DO NOT USE A SCREWDRIVER, THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM SB. STRIPS SHALL BE ABOUT 2\"/>
- THE COMBINED ROADWAY LOOP, TWISTED LEAD-IN WIRES, SPLICE AND SHIELDED LEAD-IN CABLE SHALL HAVE A RESISTANCE TO GROUND AT LEAST 100 MEGA OHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
- DETAIL IS THE SAME FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR.
- CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
- DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL.
- SPLICING PATTERN P= SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.
- SPLICING PATTERN S= SERIES: SPLICE ALL SEGMENTS (TYPICALLY FOUR, BUT MAY BE LESS) OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.



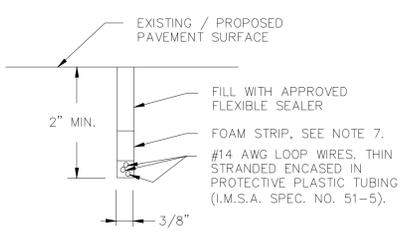
**SECTION C-C & D-D**  
LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACED.  
NOT TO SCALE



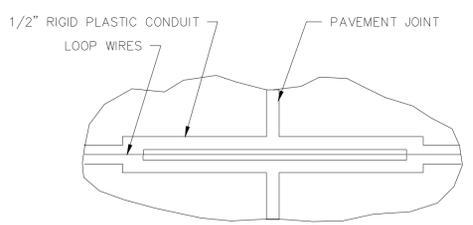
**VERTICAL SECTION**  
TREATMENT AT PAVEMENT JOINTS  
NOT TO SCALE



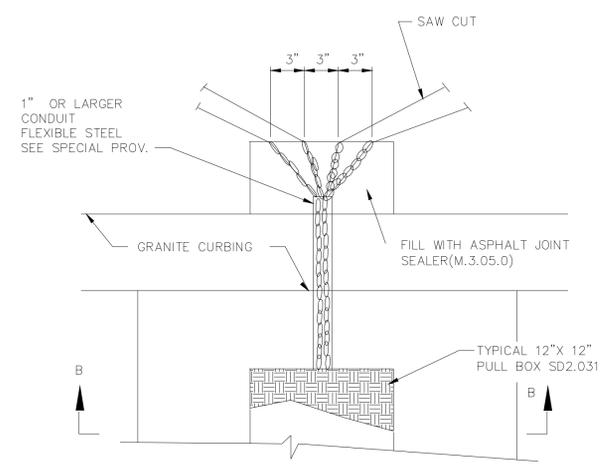
**SECTION B-B**  
NOT TO SCALE



**SECTION C-C & D-D**  
LOOPS IN SURFACE COURSE  
(FOR AREAS OUTSIDE LIMITS OF PAVEMENT WORK ONLY)  
NOT TO SCALE



**PLAN**  
TREATMENT AT PAVEMENT JOINTS  
NOT TO SCALE



**DETAIL - PLAN VIEW**  
NOT TO SCALE

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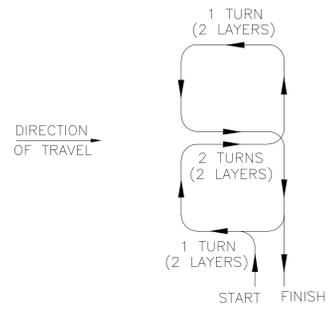
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**HINGHAM  
DERBY/WHITING STREET**

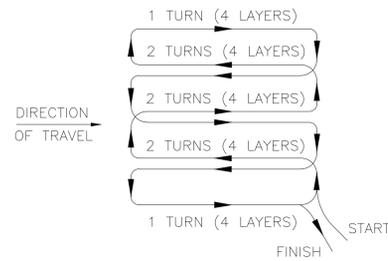
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	53
PROJECT FILE NO.		600518	

**TRAFFIC SIGNAL DETAILS  
BICYCLE LOOP DETECTOR DETAILS**

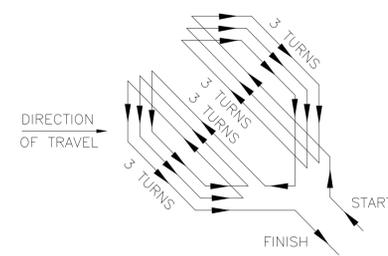
WINDING DETAILS



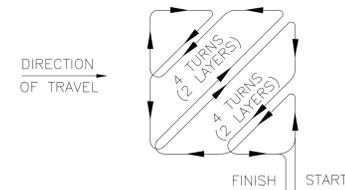
TYPE Q DETECTOR



TYPE D-Q DETECTOR

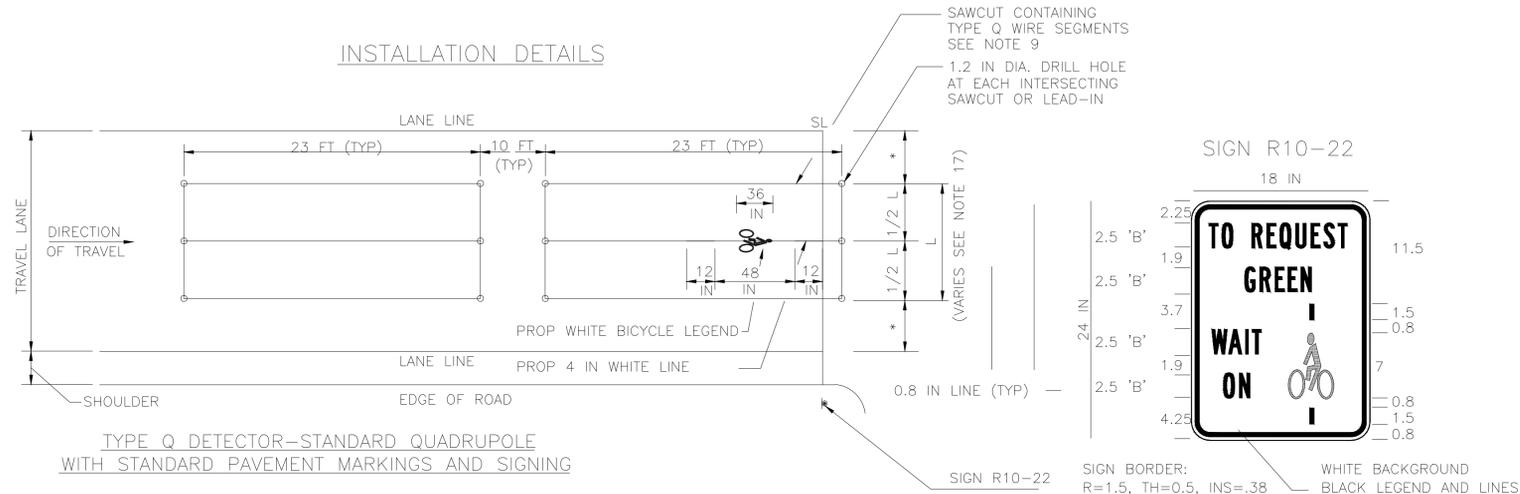


TYPE D-1 DETECTOR

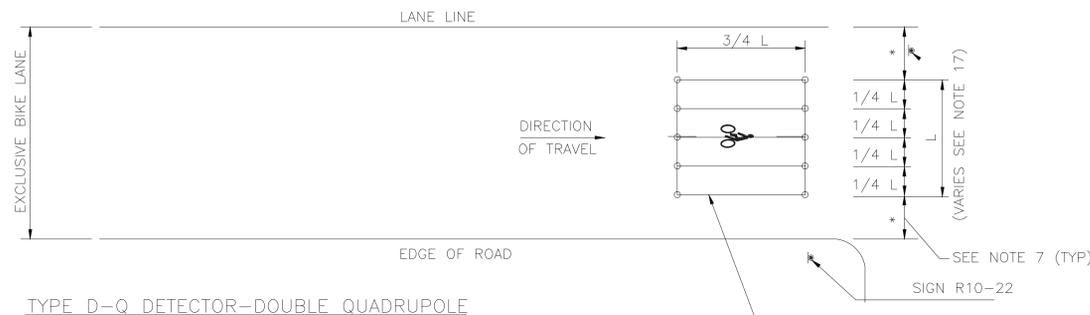


TYPE D-2 DETECTOR

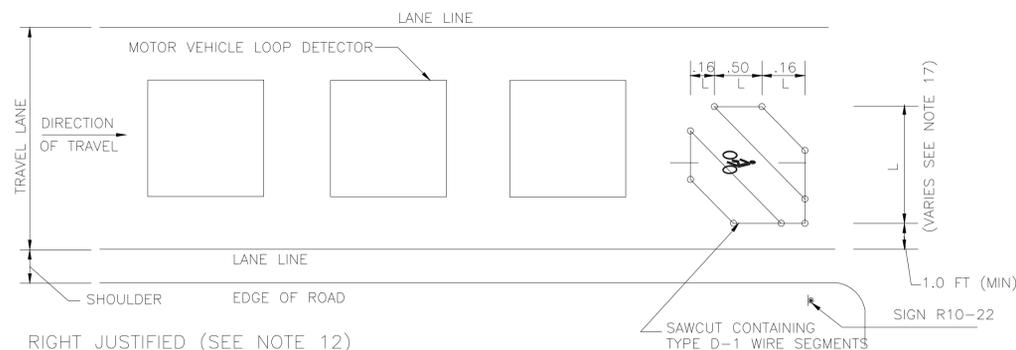
INSTALLATION DETAILS



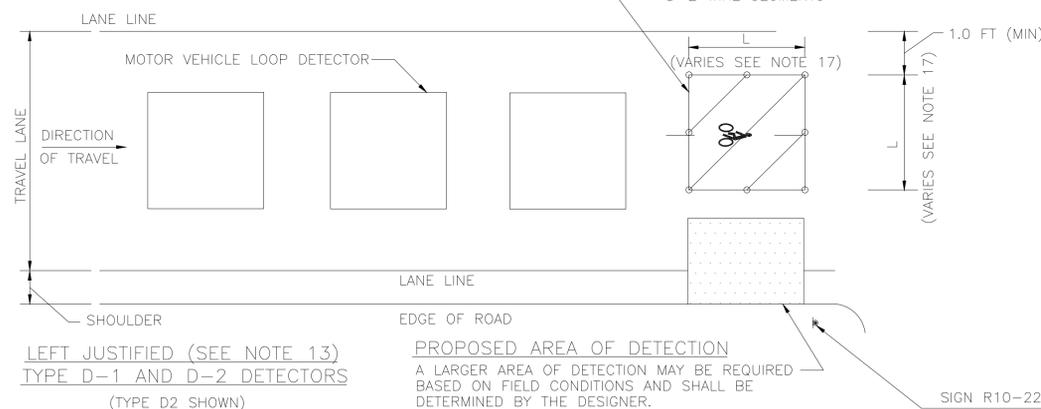
TYPE Q DETECTOR-STANDARD QUADRUPOLE WITH STANDARD PAVEMENT MARKINGS AND SIGNING



TYPE D-Q DETECTOR-DOUBLE QUADRUPOLE



RIGHT JUSTIFIED (SEE NOTE 12)  
TYPE D-1 AND D-2 DETECTORS  
(TYPE D1 SHOWN)



LEFT JUSTIFIED (SEE NOTE 13)  
TYPE D-1 AND D-2 DETECTORS  
(TYPE D2 SHOWN)

PROPOSED AREA OF DETECTION  
A LARGER AREA OF DETECTION MAY BE REQUIRED BASED ON FIELD CONDITIONS AND SHALL BE DETERMINED BY THE DESIGNER.

SIGN R10-22

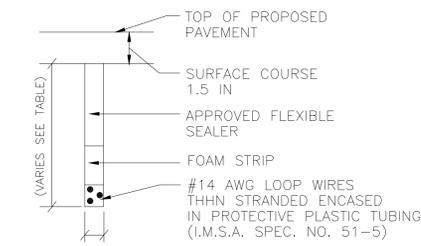


SIGN BORDER: R=1.5, TH=0.5, INS=.38

WHITE BACKGROUND BLACK LEGEND AND LINES

NOTE: ALL SIGN DIMENSIONS IN INCHES

NOTE: SIGN PANEL NOT SHOWN TO SCALE



SECTION THRU LOOP DETECTOR

TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

NOTES:

- REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
- ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
- THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
- BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
- BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
- SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
- OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
- TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN (2-4-2") WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
- BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D-Q DETECTORS.
- PROVIDE 3 TURNS FOR TYPE D-1 DETECTORS.
- INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D-2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
- RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
  - BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
  - BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
- LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
  - BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
  - BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO-LANE ROADWAY.
- RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO-LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
- PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
- THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
- THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D-Q, D-1 & D-2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

# MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION

HINGHAM DERBY/WHITING STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	53
PROJECT FILE NO.		600518	

TRAFFIC SIGNAL DETAILS  
STANDARD DRAWING  
TYPE II MAST ARMS

## INDEX

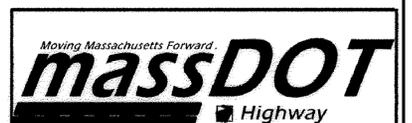
SHEET NO.	DESCRIPTION
1	Title Sheet
2	Light, Medium & Short Span Load Diagrams
3	Heavy Load Diagrams
4	Details
5	Cored Pier Foundations

THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, THE ENGLISH EDITION OF SUPPLEMENTAL SPECIFICATIONS DATED JUNE 6, 2006, THE AMENDMENTS TO THE STANDARD AND SUPPLEMENTAL SPECIFICATIONS, THE 1977 CONSTRUCTION STANDARDS, THE ENGLISH EDITION OF SUPPLEMENTAL DRAWINGS DATED APRIL 2003, THE 2001 "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS" WITH LATEST REVISIONS, THE 2003 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" WITH LATEST REVISIONS, THE 1990 "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS," AND THE 2004 EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

## MAST ARM & FOUNDATION Details Standard Drawings

### NOTES

- For these standard drawings the Design Wind Speed for all Mast Arm Structures shall be **130 MPH**.
- For these standard drawings the Design Wind Speed for mast arm foundations located in the following counties: Plymouth, Bristol, Barnstable, Dukes, and Nantucket counties in District 5 and Berkshire county in District 1 shall be **130 MPH**. The design wind speed for mast arm foundations for the remainder of the state shall be **110 MPH**.
- For these standard drawings the mast arm structure design life shall be 25 years.
- For these standard drawings the Fatigue Category no. 2 was used and truck induced gusts were excluded in the design.
- These standard drawings do not apply for mast arm structures at intersections with an ADT greater than 40,000 vehicles and a truck percentage of greater than 10%. The responsibility for the design of mast structures and foundations will rest with the design engineer. The structure design life will be 50 years and the fatigue category shall be no. 1. The design wind speed criteria shall be as shown in Notes Nos. 1 & 2. The design will be submitted to MassDOT for review and comment.
- For strain pole, dual mast arm designs, or mast arms longer than 45 feet, notes 1, 2, 3 and 4 will apply, if ADT (>40,000 vehicles) and truck percentage (10%) criterion is met, note 5 design criteria (50 year design life, fatigue category no. 1, wind design speed notes 1 and 2) will apply. The responsibility for the design of these structures and foundations will rest with the design engineer. The design will be submitted to MassDOT for review and comment.

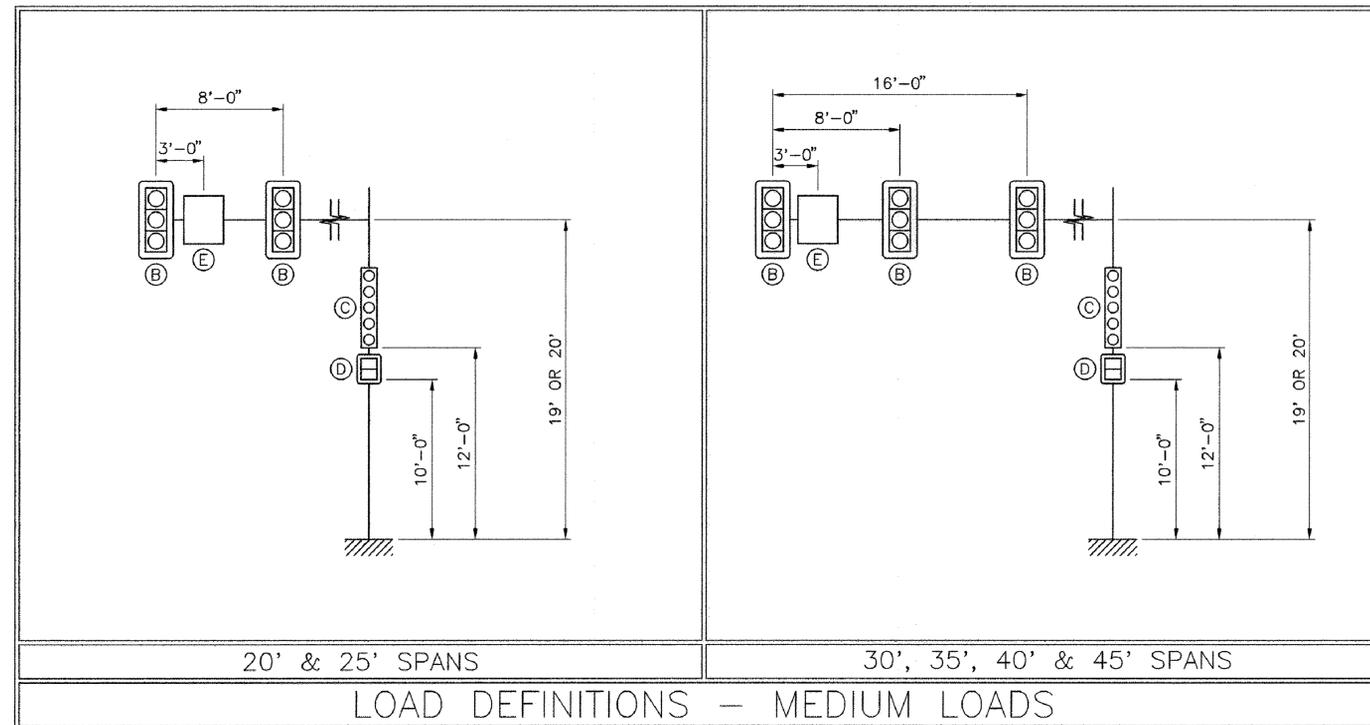
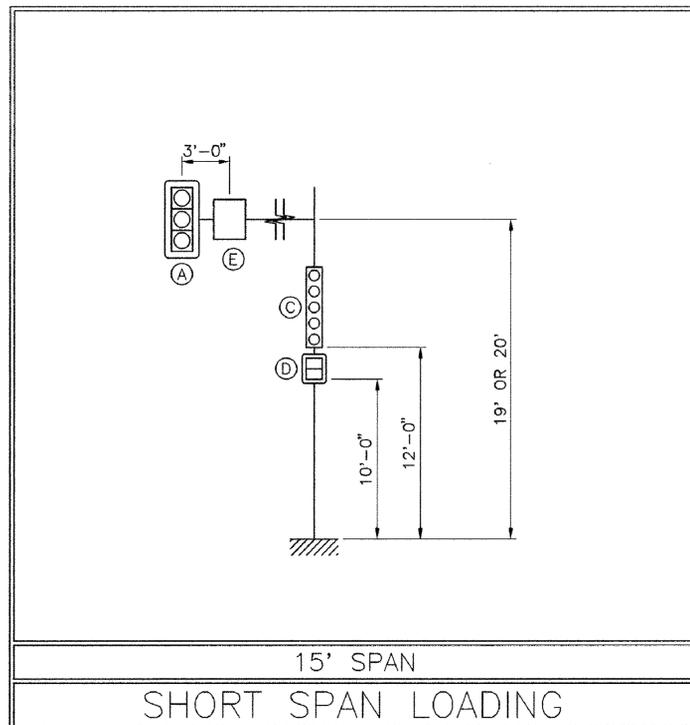
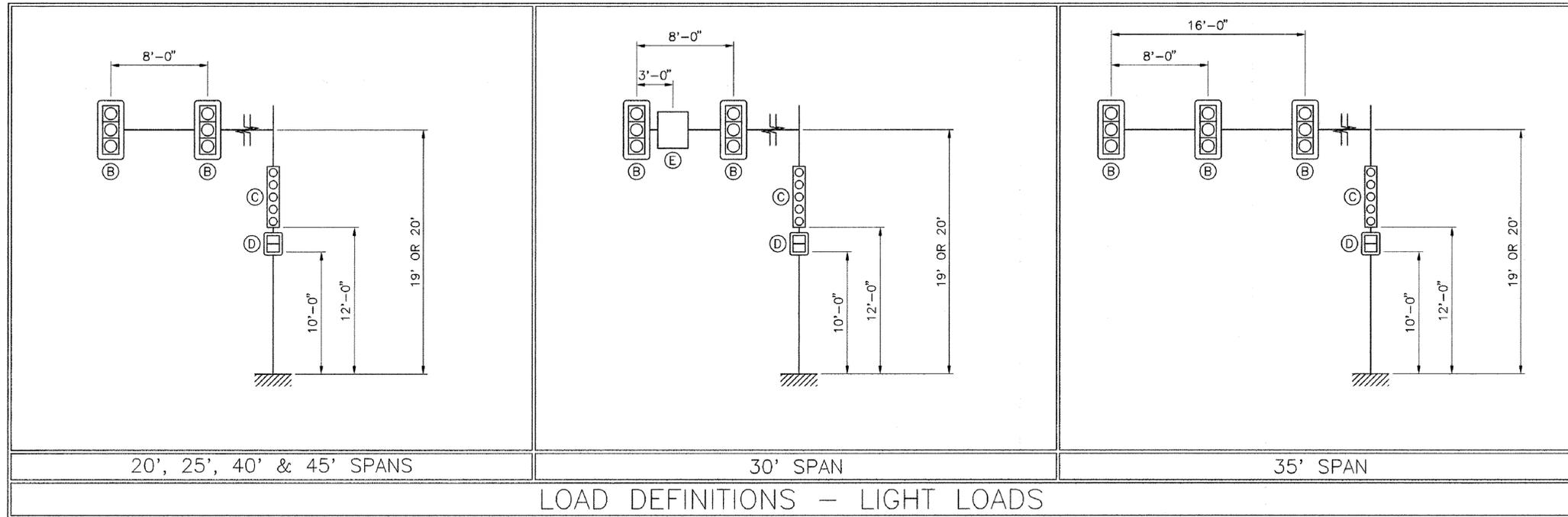


NO.	REVISION	DATE	MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION	
			RECOMMENDED FOR APPROVAL	
			<i>Neil E. Bordueau</i>	2/11/11
			TRAFFIC ENGINEER	DATE
			<i>Robert W. Conway, P.E.</i>	2/12/11
			BRIDGE ENGINEER	DATE
			<i>Frank A. Amundson</i>	2/24/2011
			CHIEF ENGINEER	DATE

HINGHAM  
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	53
PROJECT FILE NO.		600518	

TRAFFIC SIGNAL DETAILS  
STANDARD DRAWING  
TYPE II MAST ARMS



DEVICE	DESCRIPTION	PROJ. AREA (FT <sup>2</sup> )	WEIGHT (LBS)
(A)	3 SECTION, 3 WAY SIGNAL	13.50	202
(B)	3 SECTION, 1 WAY SIGNAL	8.67	74
(C)	5 SECTION, 1 WAY SIGNAL	13.33	110
(D)	DUAL PEDESTRIAN SIGNAL	8.00	80
(E)	30" X 36" REGULATORY SIGN	7.50	23

NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES

MONTH\_DD\_YYYY ISSUED FOR CONSTRUCTION

**massDOT**  
Highway

STANDARD DRAWINGS  
TYPE II MAST ARMS  
LIGHT, MEDIUM & SHORT SPAN  
LOAD DIAGRAMS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

*Richard A. Tommety* 2/24/2011  
CHIEF ENGINEER

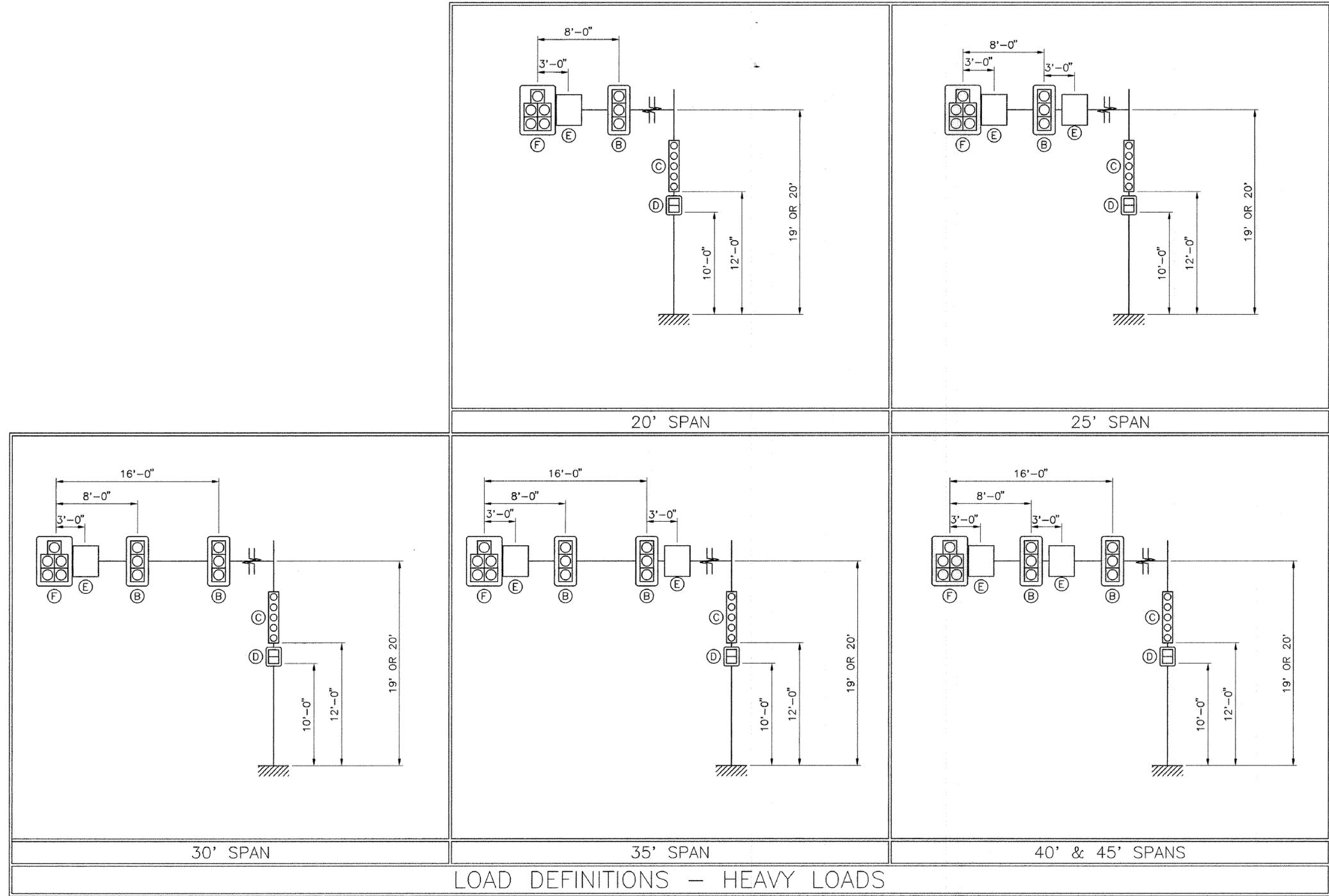
*Richard W. [Signature]*  
BRIDGE ENGINEER

*Neil E. [Signature]*  
TRAFFIC ENGINEER

HINGHAM  
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	53
PROJECT FILE NO.		600518	

TRAFFIC SIGNAL DETAILS  
STANDARD DRAWING  
TYPE II MAST ARMS



LOAD DEFINITIONS - HEAVY LOADS

DEVICE	DESCRIPTION	PROJ. AREA (FT <sup>2</sup> )	WEIGHT (LBS)
(A)	3 SECTION, 3 WAY SIGNAL	18.29	202
(B)	3 SECTION, 1 WAY SIGNAL	8.67	74
(C)	5 SECTION, 1 WAY SIGNAL	13.33	110
(D)	DUAL PEDESTRIAN SIGNAL	8.00	80
(E)	30" X 36" REGULATORY SIGN	7.50	23
(F)	5 SECTION, 2 WAY SIGNAL	21.95	215

NOTE: ALL SIGNALS HAVE 5.0" BACKPLATES

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**massDOT**  
Highway

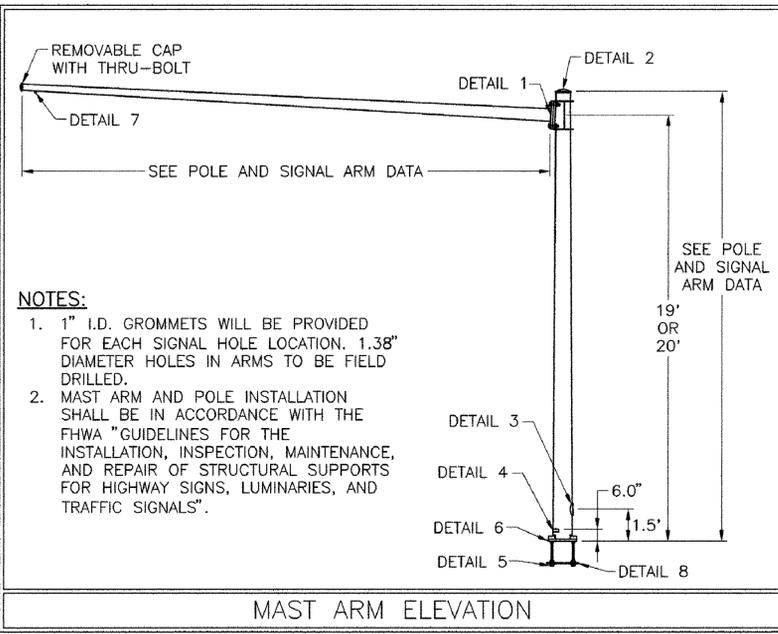
STANDARD DRAWINGS  
TYPE II MAST ARMS  
HEAVY LOAD DIAGRAMS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

*Frank A. Tamminga* 2/24/2011  
CHECK ENGINEER

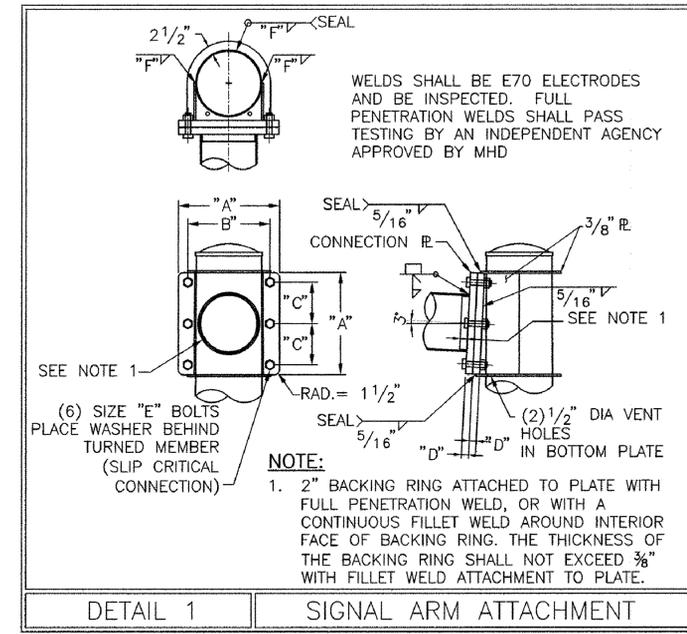
*Donald W. ...*  
BRIDGE ENGINEER

*Neil E. ...*  
TRAFFIC ENGINEER

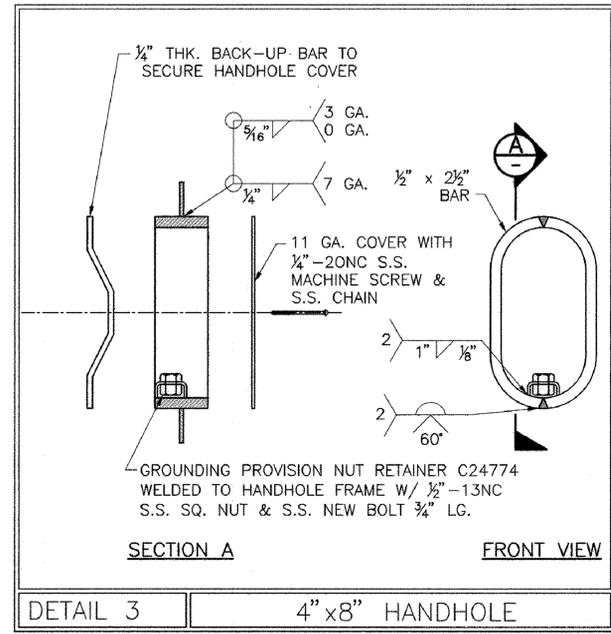


MAST ARM ELEVATION

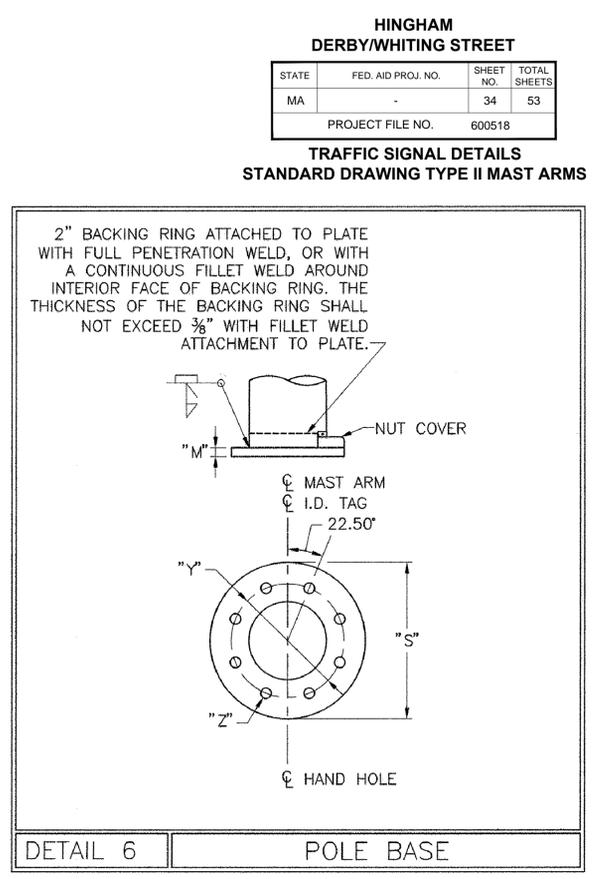
- NOTES:**
- 1" I.D. GROMMETS WILL BE PROVIDED FOR EACH SIGNAL HOLE LOCATION. 1.38" DIAMETER HOLES IN ARMS TO BE FIELD DRILLED.
  - MAST ARM AND POLE INSTALLATION SHALL BE IN ACCORDANCE WITH THE FHWA "GUIDELINES FOR THE INSTALLATION, INSPECTION, MAINTENANCE, AND REPAIR OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS".



DETAIL 1 SIGNAL ARM ATTACHMENT



DETAIL 3 4" x 8" HANDHOLE

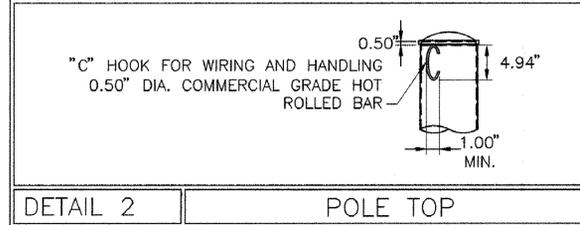


DETAIL 6 POLE BASE

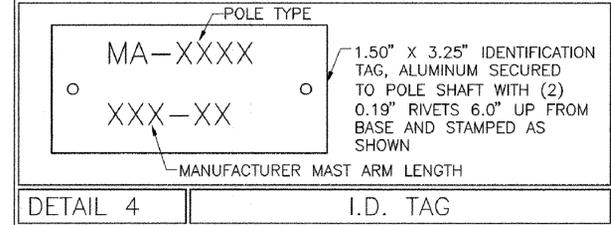
**MATERIAL DATA**

COMPONENT	DESIGNATION	YIELD (KSI)	COMPONENT	DESIGNATION	YIELD (KSI)
POLE TUBE	ASTM A595 GR. A	55	ARM TUBE	ASTM A595 GR. A	55
POLE BASE PLATE	AASHTO M270	50	ARM CONNECTION PLATE	AASHTO M270	50
ANCHOR BOLTS	AASHTO M314	55	ARM CONNECTING BOLTS	AASHTO M164 **	
GALVANIZING	AASHTO M111 OR M232				

\*\* BOLTS WHICH ACCUMULATE RUST OR DIRT SHALL BE DISCARDED.



DETAIL 2 POLE TOP



DETAIL 4 I.D. TAG

**POLE AND SIGNAL ARM DATA - LIGHT LOADS**

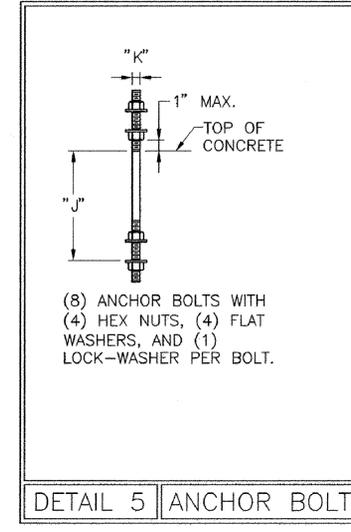
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	9.00	6.20	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	25.00	10.00	6.50	7 GA.	13.00	10.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.188
	30.00	12.50	8.30	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	13.00	8.10	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	40.00	13.00	7.40	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.50	20.00	10.00	1.25	1.25	0.250
	45.00	13.50	7.20	3 GA.	16.50	13.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.313

**POLE AND SIGNAL ARM DATA - MEDIUM LOADS**

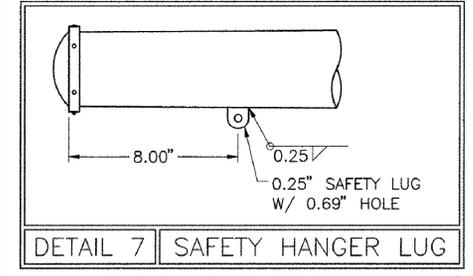
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	10.00	7.20	3 GA.	13.00	10.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	20.00	16.00	8.00	1.00	1.00	0.250
	25.00	11.00	7.50	3 GA.	14.00	11.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	30.00	13.00	8.80	3 GA.	16.00	13.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	23.50	19.00	9.50	1.25	1.25	0.250
	35.00	14.00	9.10	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	40.00	15.00	9.40	3 GA.	18.00	15.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	45.00	16.00	9.70	0 GA.	19.00	16.06	21.00	0 GA.	29.50	24.00	1.50	1.813	1.50	36.00	29.50	24.00	12.00	1.75	1.50	0.313

**POLE AND SIGNAL ARM DATA - HEAVY LOADS**

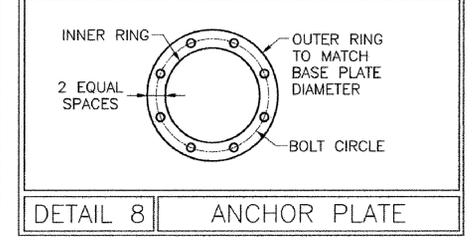
LOCATIONS	SIGNAL ARM TUBE				POLE TUBE				POLE BASE				ANCHOR BOLT		SIGNAL ARM ATTACHMENT DATA					
	SPAN (FT)	FIXED END DIA. (IN)	FREE END DIA. (IN)	WALL THK.	BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	WALL THK.	PLATE CIRCLE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	EMBED. LENGTH "J" (IN)	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"F" (IN)
	15.00	9.00	6.90	7 GA.	12.00	9.06	21.00	7 GA.	29.50	24.00	1.50	1.813	1.50	36.00	19.00	15.00	7.50	1.00	1.00	0.188
	20.00	12.50	9.70	3 GA.	15.50	12.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	24.00	19.00	9.50	1.25	1.25	0.250
	25.00	14.00	10.50	3 GA.	17.00	14.06	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	30.00	15.50	11.30	3 GA.	18.50	15.56	21.00	3 GA.	29.50	24.00	1.50	1.813	1.50	36.00	27.50	22.00	11.00	1.50	1.50	0.250
	35.00	16.50	11.60	0 GA.	19.50	16.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	40.00	17.50	11.90	0 GA.	20.50	17.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	29.50	24.00	12.00	1.75	1.50	0.313
	45.00	18.50	12.20	0 GA.	21.50	18.56	21.00	0 GA.	34.50	28.00	1.75	2.063	1.75	36.00	31.50	26.00	13.00	2.00	1.50	0.313



DETAIL 5 ANCHOR BOLT



DETAIL 7 SAFETY HANGER LUG



DETAIL 8 ANCHOR PLATE

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**massDOT**  
Highway  
STANDARD DRAWINGS  
TYPE II MAST ARMS  
DETAILS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

*Frank A. Tomlinson* 2/21/2011  
CHIEF ENGINEER

*Michael E. Bordeau*  
BRIDGE ENGINEER

*Neil E. Bordeau*  
TRAFFIC ENGINEER

HINGHAM  
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	53
PROJECT FILE NO.		600518	

TRAFFIC SIGNAL DETAILS  
STANDARD DRAWING TYPE II MAST ARMS

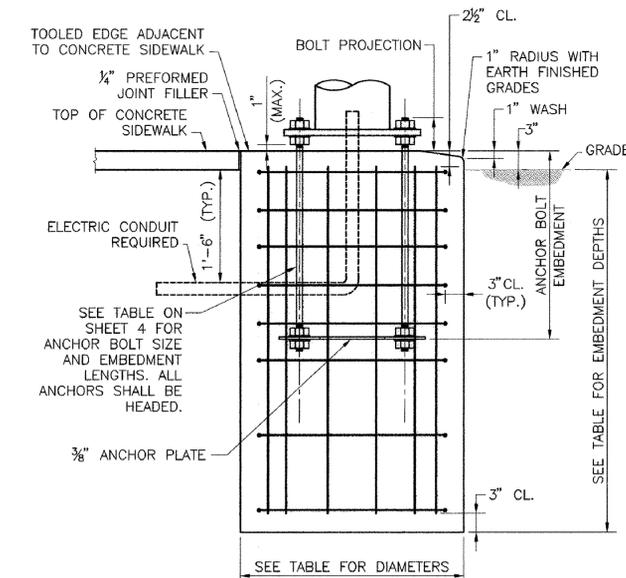
PIER FOUNDATIONS FOR 110 MPH WIND SPEED ZONE												
LIGHT LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	6'-0"	18-#8	3'-6"	8'-0"	18-#8	3'-6"	8'-0"	18-#8	3'-6"	9'-0"	18-#8
WET SAND	3'-6"	7'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	9'-0"	18-#8
CLAY (MEDIUM STIFF)	3'-6"	11'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8
ALLUVIAL	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	11'-0"	18-#8

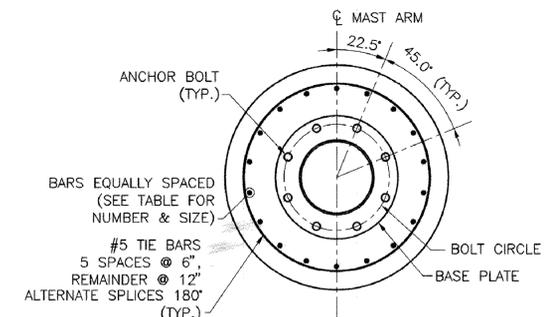
MEDIUM LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	7'-0"	18-#8	3'-6"	9'-0"	18-#8	4'-0"	9'-0"	18-#9	4'-6"	8'-0"	18-#10
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	9'-0"	18-#8	4'-0"	10'-0"	18-#9	4'-6"	9'-0"	18-#10
CLAY (MEDIUM STIFF)	3'-6"	11'-0"	18-#8	3'-6"	12'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	14'-0"	18-#10
ALLUVIAL	3'-6"	9'-0"	18-#8	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	10'-0"	18-#10

HEAVY LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	8'-0"	18-#8	4'-0"	9'-0"	18-#9	4'-6"	10'-0"	18-#10	5'-0"	9'-0"	23-#10
WET SAND	3'-6"	8'-0"	18-#8	4'-0"	10'-0"	18-#9	4'-6"	10'-0"	18-#10	5'-0"	10'-0"	23-#10
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	4'-0"	14'-0"	18-#9	4'-6"	15'-0"	18-#10	5'-0"	16'-0"	23-#10
ALLUVIAL	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	12'-0"	18-#10	5'-0"	12'-0"	23-#10



PIER FOUNDATION DETAIL  
NO SCALE



PIER FOUNDATION PLAN  
NO SCALE

PIER FOUNDATIONS FOR 130 MPH WIND SPEED ZONE												
LIGHT LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	7'-0"	18-#8	3'-6"	9'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	10'-0"	18-#8
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	3'-6"	11'-0"	18-#8	3'-6"	11'-0"	18-#8
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	3'-6"	13'-0"	18-#8	3'-6"	13'-0"	18-#8	3'-6"	13'-0"	18-#8
ALLUVIAL	3'-6"	9'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	12'-0"	18-#8	3'-6"	13'-0"	18-#8

MEDIUM LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	8'-0"	18-#8	3'-6"	10'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	10'-0"	18-#10
WET SAND	3'-6"	8'-0"	18-#8	3'-6"	11'-0"	18-#8	4'-0"	12'-0"	18-#9	4'-6"	11'-0"	18-#10
CLAY (MEDIUM STIFF)	3'-6"	12'-0"	18-#8	3'-6"	14'-0"	18-#8	4'-0"	15'-0"	18-#9	4'-6"	15'-0"	18-#10
ALLUVIAL	3'-6"	10'-0"	18-#8	3'-6"	13'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	12'-0"	18-#10

HEAVY LOADING CONDITIONS												
SOIL TYPE	15' & 20' MAST ARMS			25' & 30' MAST ARMS			35' & 40' MAST ARMS			45' MAST ARMS		
	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS	DIAMETER	DEPTH	VERTICAL BARS
DRY SAND	3'-6"	9'-0"	18-#8	4'-0"	11'-0"	18-#9	4'-6"	12'-0"	18-#10	5'-0"	11'-0"	23-#10
WET SAND	3'-6"	10'-0"	18-#8	4'-0"	12'-0"	18-#9	4'-6"	13'-0"	18-#10	5'-0"	12'-0"	23-#10
CLAY (MEDIUM STIFF)	3'-6"	14'-0"	18-#8	4'-0"	15'-0"	18-#9	4'-6"	16'-0"	18-#10	5'-0"	17'-0"	23-#10
ALLUVIAL	3'-6"	11'-0"	18-#8	4'-0"	13'-0"	18-#9	4'-6"	15'-0"	18-#10	5'-0"	14'-0"	23-#10

- NOTES:
- FOUNDATIONS SHALL BE 4000 PSI, 1 1/2", 565 CEMENT CONCRETE.
  - REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
  - ANCHOR BOLTS SHALL BE SET BY TEMPLATE.
  - PROVIDE FOR ELECTRICAL CONDUIT.
  - EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATIONS WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7, AND 8.
  - THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSHIGHWAY. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
  - IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
  - SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE. THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASINGS SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
  - DETERMINATION OF EXISTING SOIL CONDITIONS SHALL BE MADE BY THE DESIGN ENGINEER.
  - IF LEDGE OR POOR SOIL IS ENCOUNTERED (i.e. ONE WHICH DOES NOT APPLY TO THE DESIGN TABLES SHOWN ON THIS SHEET), AN ALTERNATIVE DESIGN SHALL BE PROVIDED BY THE DESIGN ENGINEER. DECISIONS MADE IN NOTES 8 AND 9 SHALL BE SUBMITTED TO MASSHIGHWAY FOR APPROVAL. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE ENGINEER.

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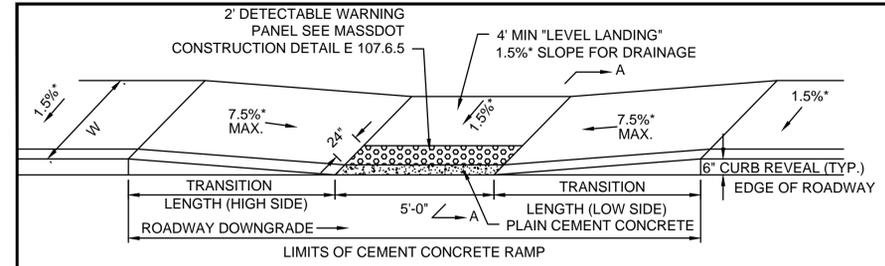
**massDOT**  
Standard Drawings  
TYPE II MAST ARMS  
CORED PIER FOUNDATIONS

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION  
10 PARK PLAZA BOSTON, MASS

*Frank A. [Signature]* 3/24/2011  
CHIEF ENGINEER

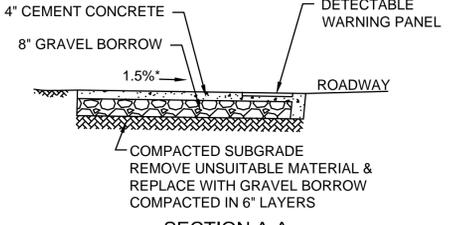
*Neil E. [Signature]*  
BRIDGE ENGINEER

*Neil E. [Signature]*  
TRAFFIC ENGINEER



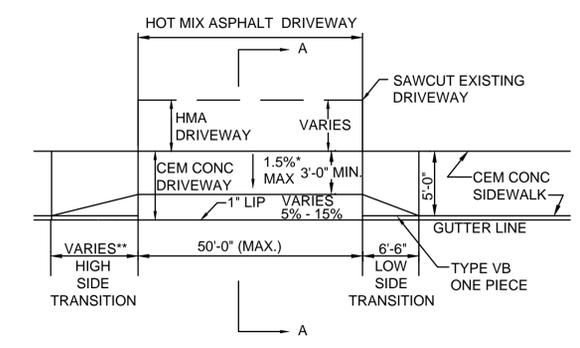
**LEGEND**  
W = SIDEWALK WIDTH  
\* = TOLERANCE FOR CONSTRUCTION (± 0.5%)

**NOTE:**  
1. SEE DRAWING E107.2.1R OF THE MASSDOT CONSTRUCTION STANDARDS.

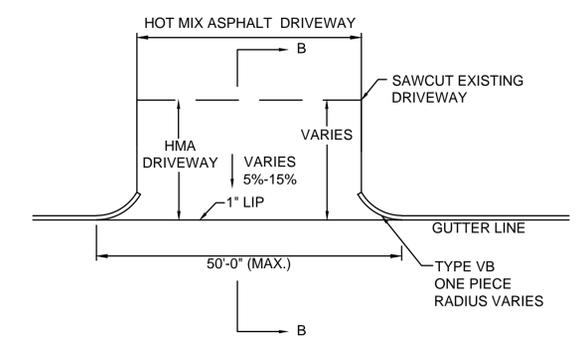


**WHEELCHAIR RAMP DETAIL**  
NOT TO SCALE

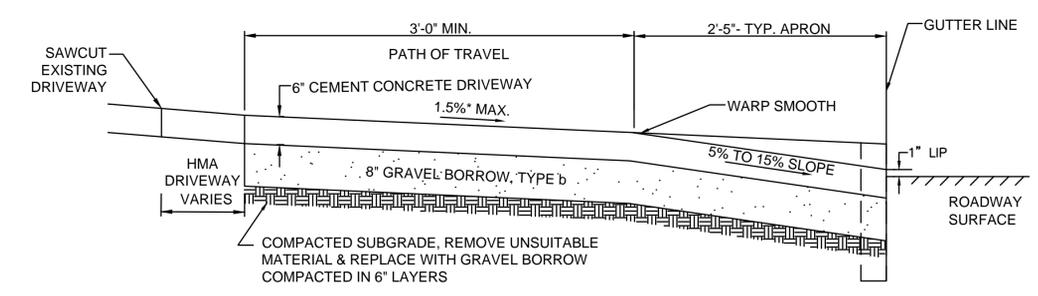
WCR#	RAMP REFERENCE POINT			WIDTH OF SIDEWALK (W)	WIDTH OF RAMP ENTRANCE	DEPTH OF LEVEL LANDING 4.0' (MIN)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STREET	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
1	DERBY ST	107+61.18	40.00' RT						
2	DERBY ST	107+60.91	32.52' LT						
3	WHITING ST	0+81.50	30.74' LT						
4	GARDNER ST	201+50.47	36.92' LT						
5	GARDNER ST	201+66.57	14.51' RT						
6	WHITING ST	0+97.14	42.05' RT						
7	GARDNER ST	501+16.09	23.59' LT						
8	GARDNER ST	501+15.96	15.64' RT						
9	WHITING ST	108+99.14	40.74' LT						
10	WHITING ST	108+92.84	39.98' RT						
11	WHITING ST	109+25.12	48.54' LT						
12	WHITING ST	109+53.85	47.23' LT						



**SIDEWALK THROUGH DRIVEWAY**  
NOT TO SCALE

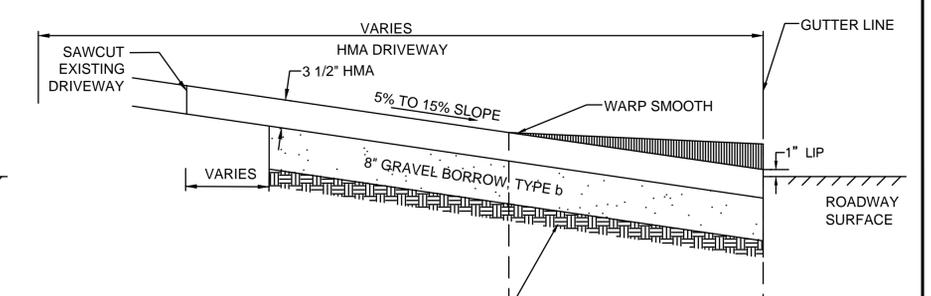


**HMA DRIVEWAY WITHOUT SIDEWALK**  
NOT TO SCALE



**SECTION A-A CEM CONC DRIVEWAY**  
NOT TO SCALE

\* = TOLERANCE FOR CONSTRUCTION (± 0.5%)  
\*\* = HIGH SIDE TRANSITION LENGTH SEE DRAWING E107.9.0 OF THE MASSDOT CONSTRUCTION STANDARDS



**SECTION B-B DRIVEWAY**  
NOT TO SCALE

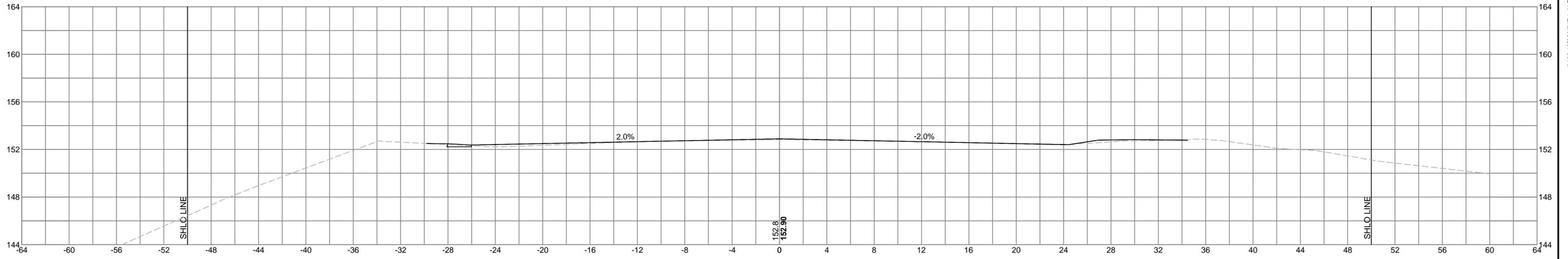
\* = TOLERANCE FOR CONSTRUCTION (± 0.5%)

**HINGHAM  
DERBY/WHITING STREET**

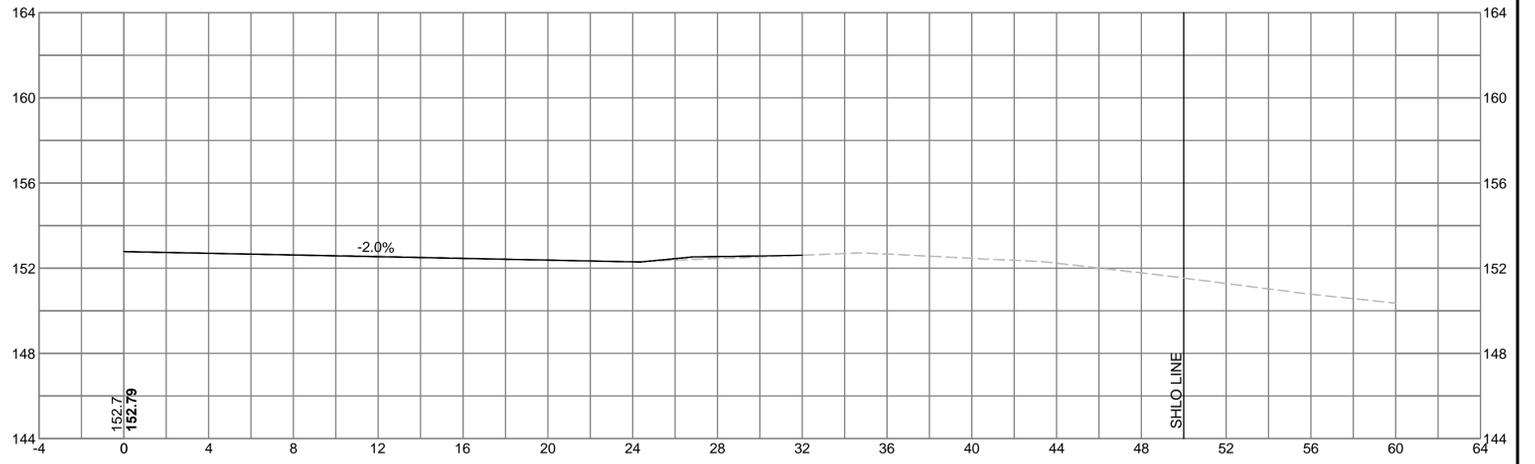
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	37	53
PROJECT FILE NO.		600518	

**DERBY STREET**

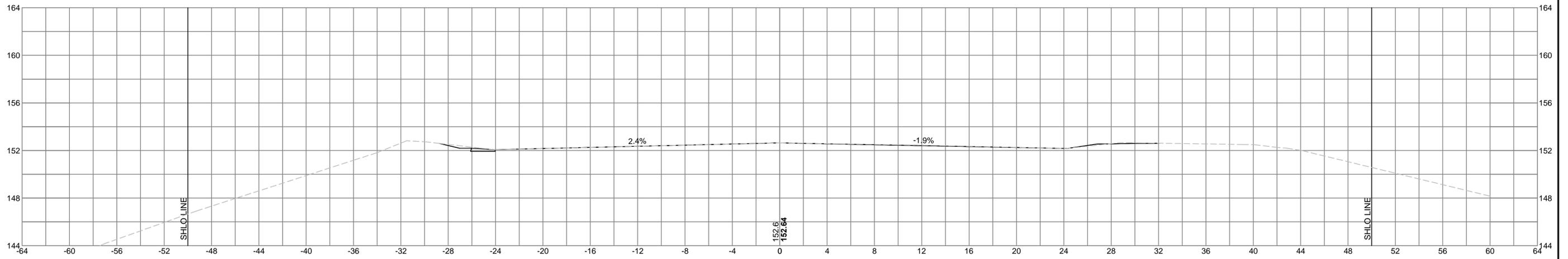
102+50



102+32.78



102+10

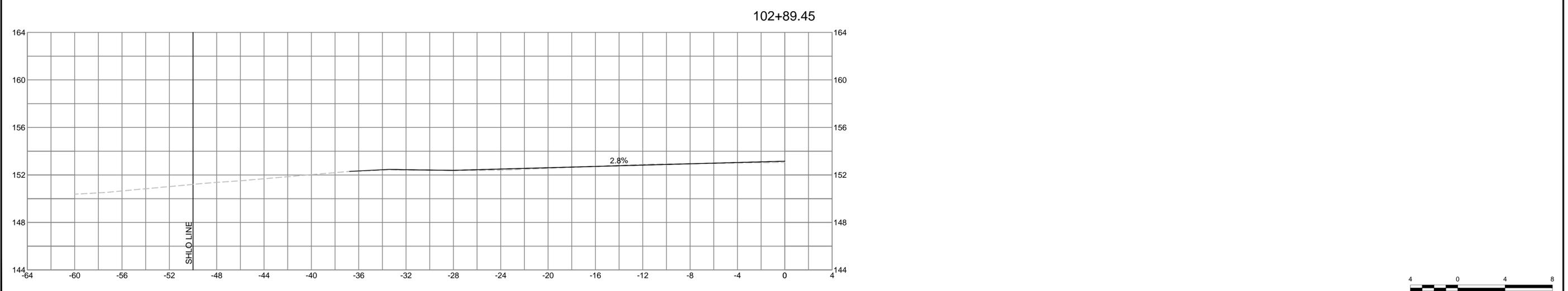
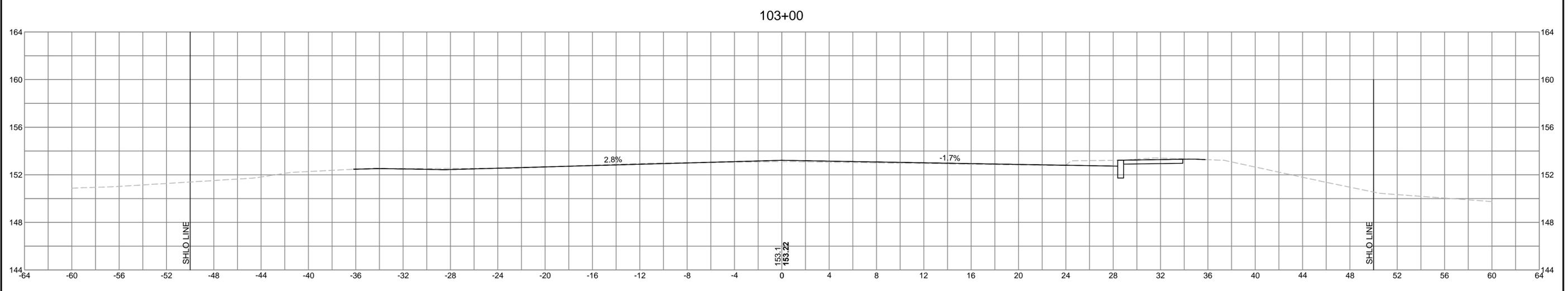
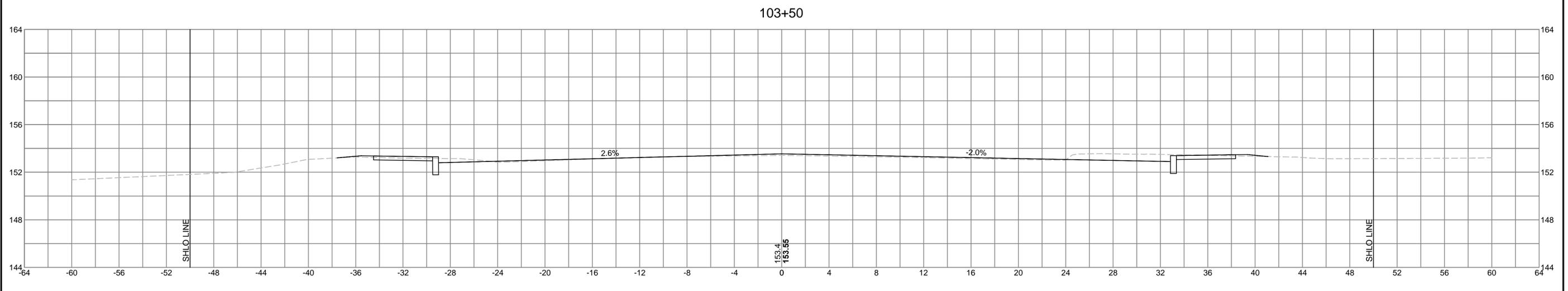


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	53
PROJECT FILE NO.		600518	

**DERBY STREET**

8126:1025%HP1\_X SECTIONS.DWG 26-Dec-2012

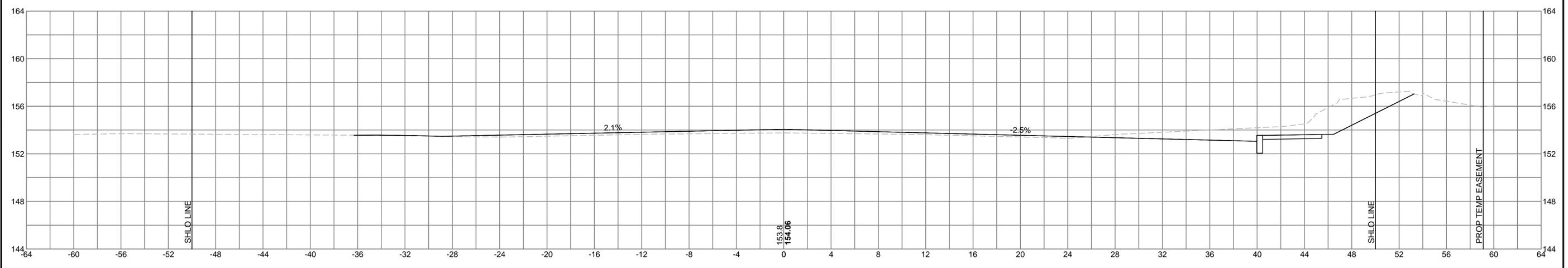


**HINGHAM  
DERBY/WHITING STREET**

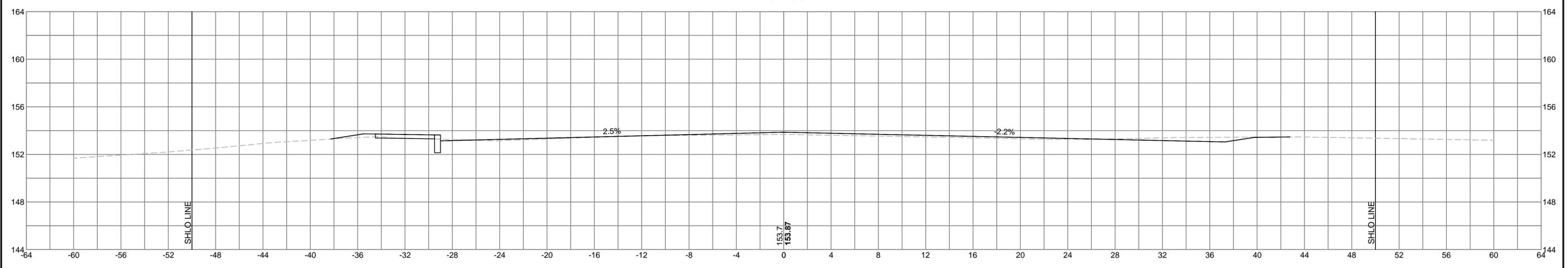
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	53
PROJECT FILE NO.		600518	

**DERBY STREET**

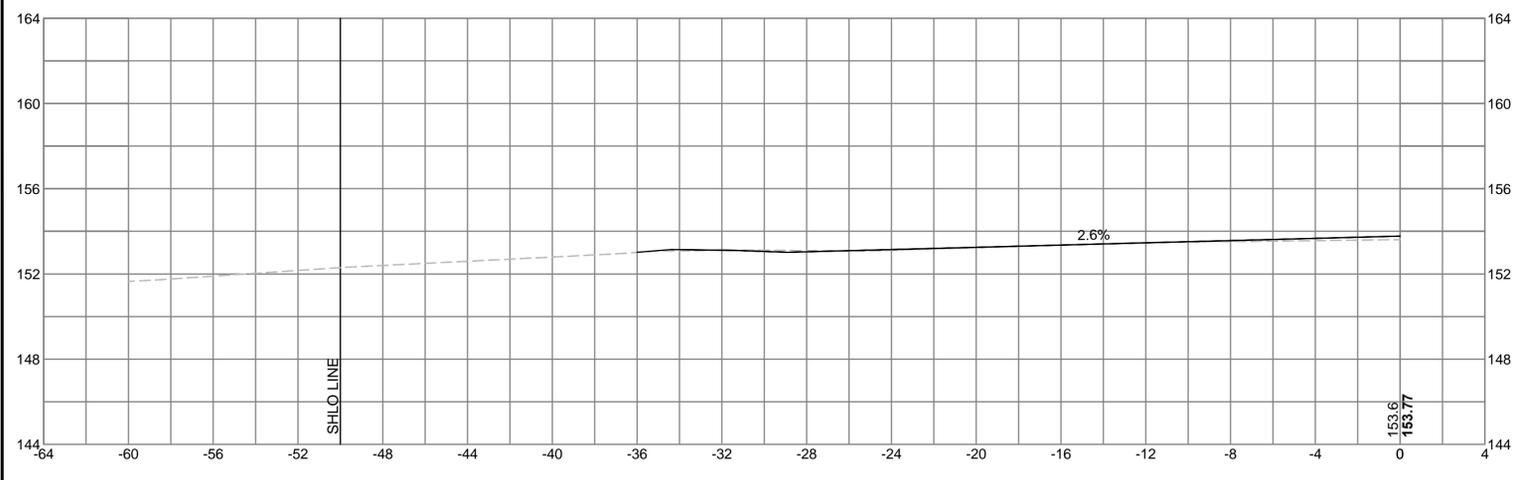
104+50



104+00



103+84.31

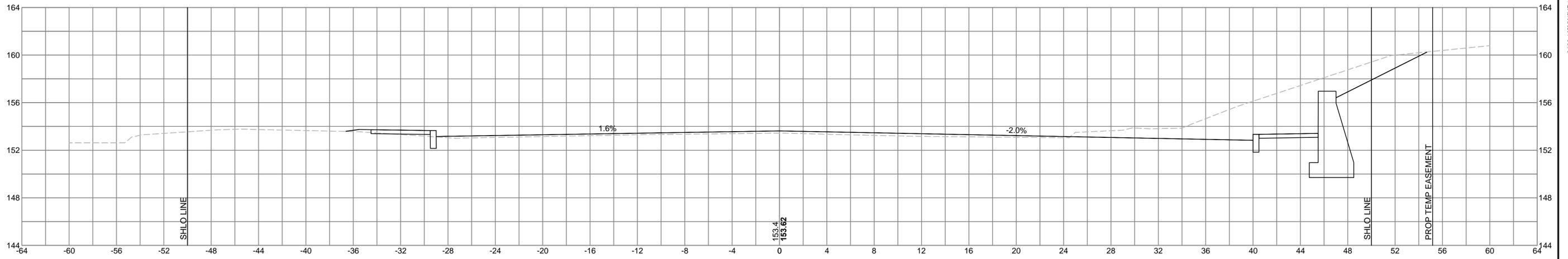


**HINGHAM  
DERBY/WHITING STREET**

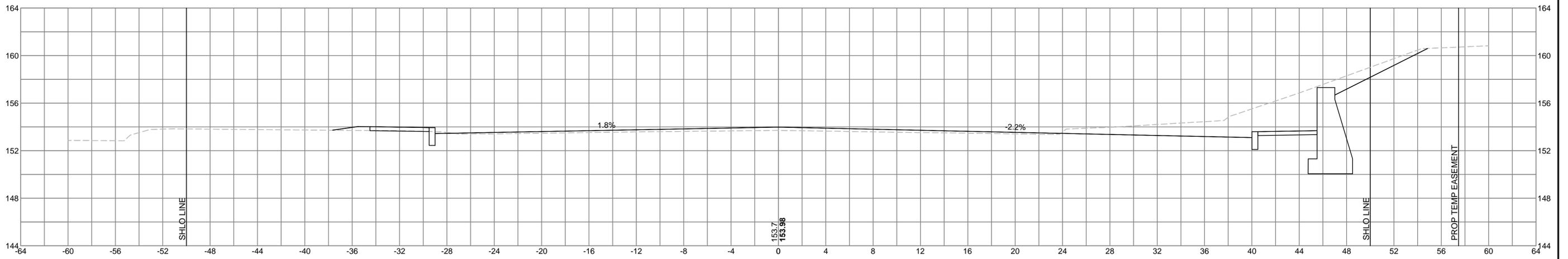
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	53
PROJECT FILE NO.		600518	

**DERBY STREET**

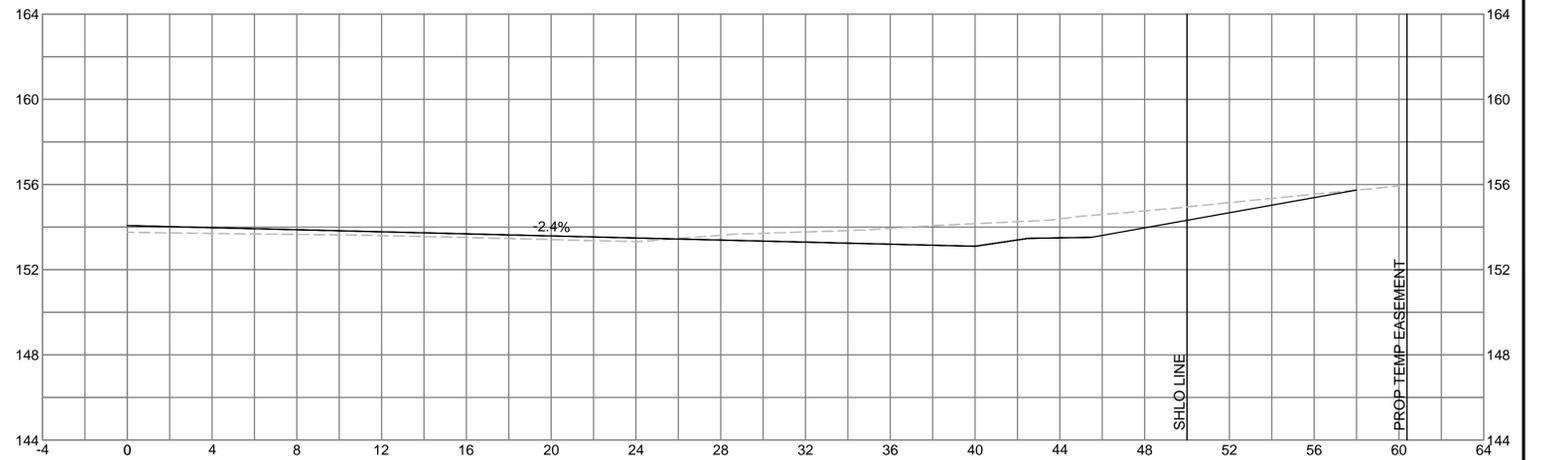
105+50



105+00



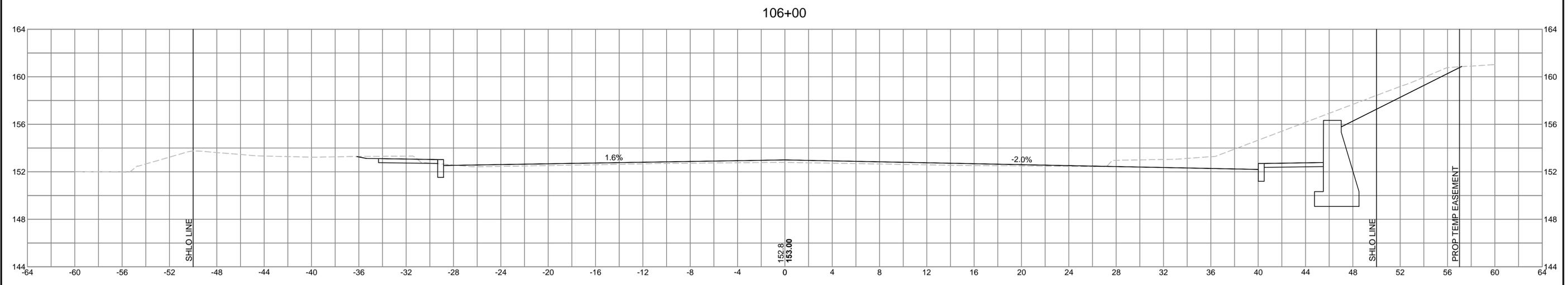
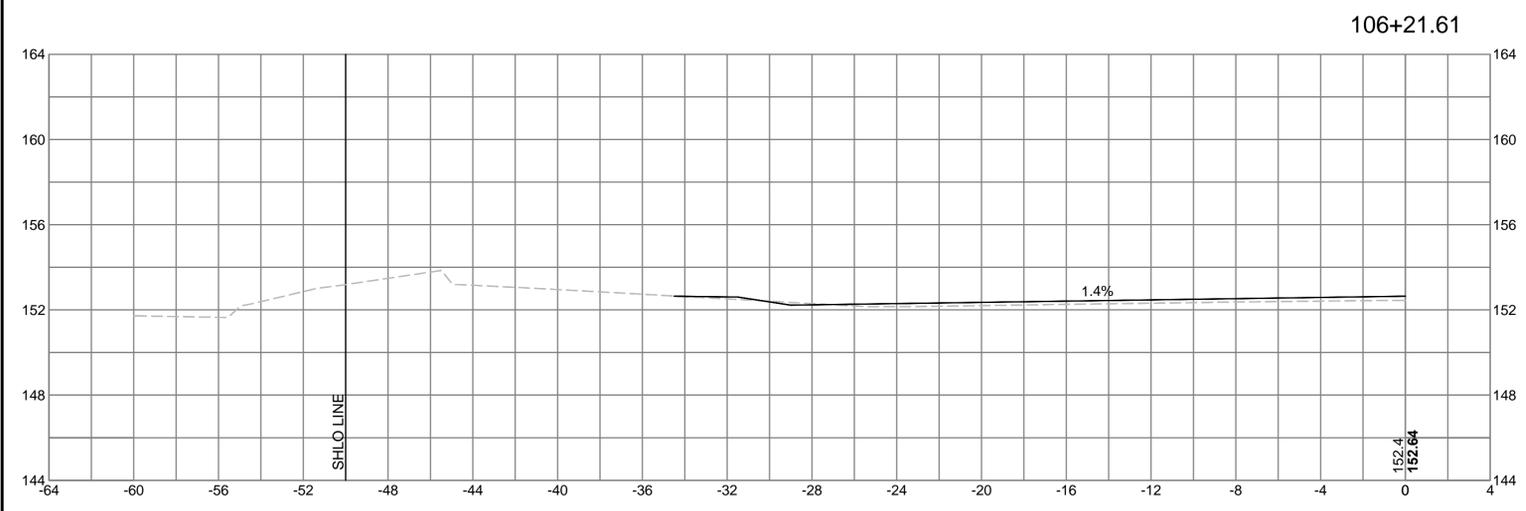
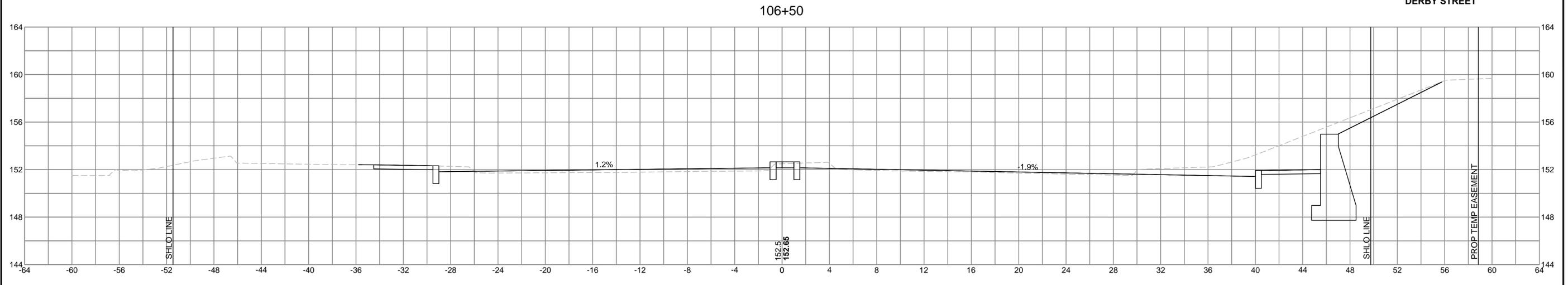
104+58.35



**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	53
PROJECT FILE NO.		600518	

**DERBY STREET**

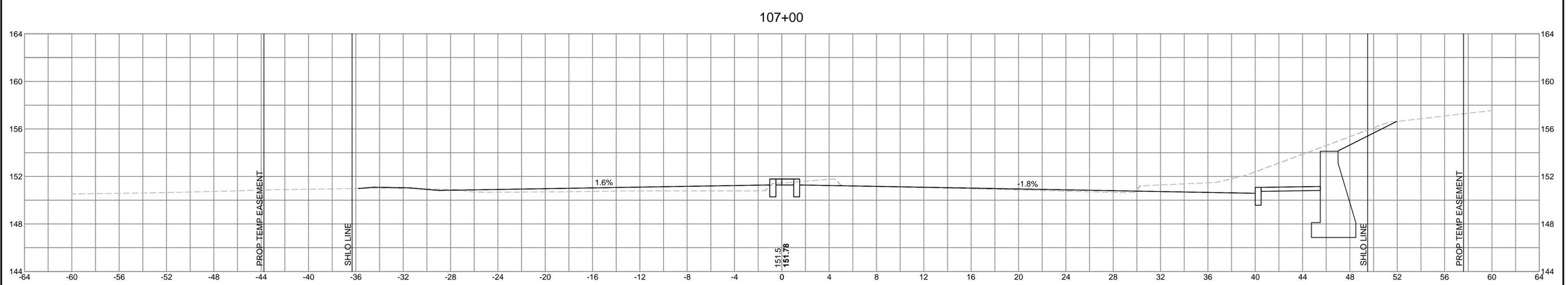
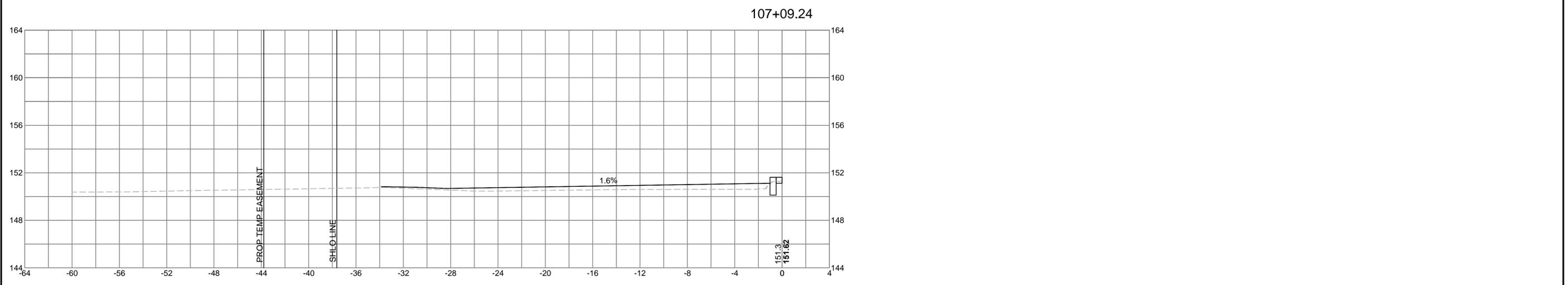
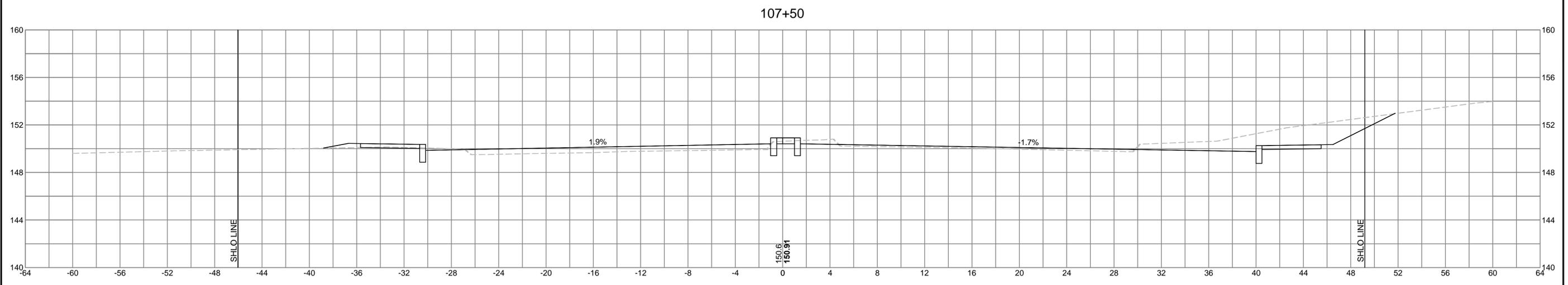


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	53

PROJECT FILE NO. 600518  
**DERBY STREET**

8/26:1025%HP1\_X SECTIONS.DWG 26-Dec-2012

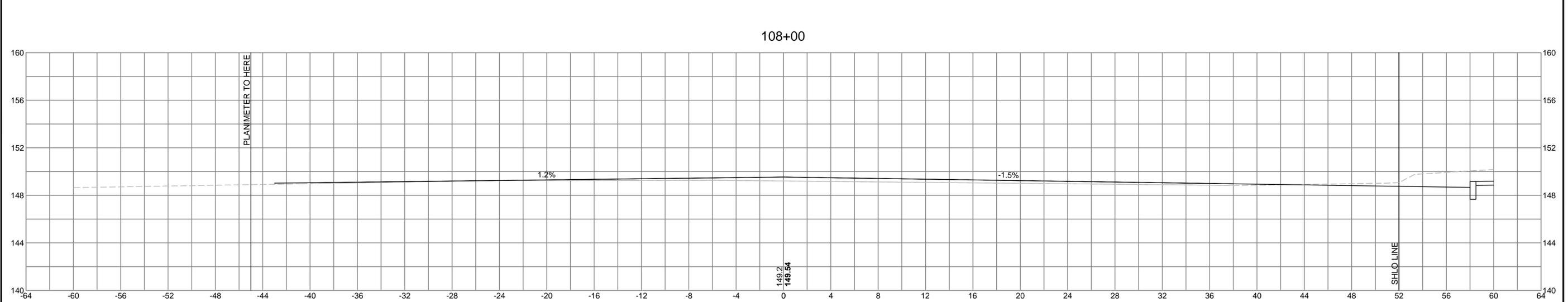
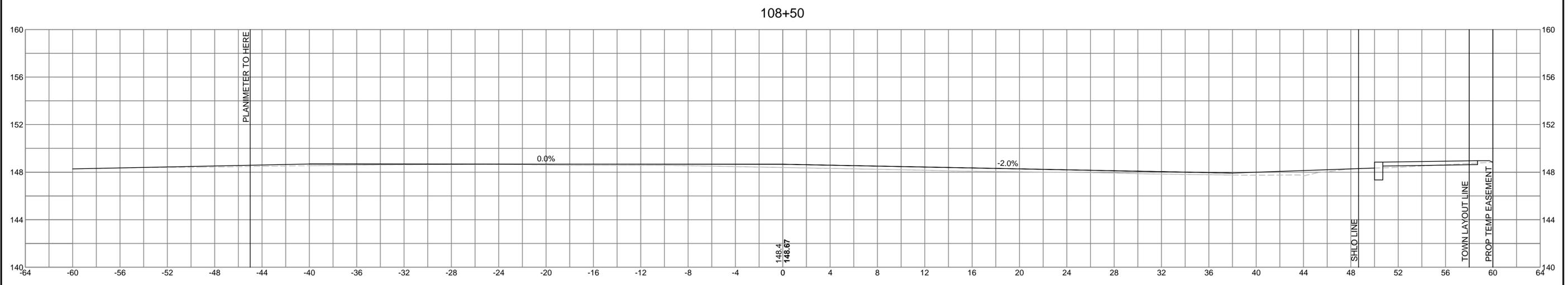
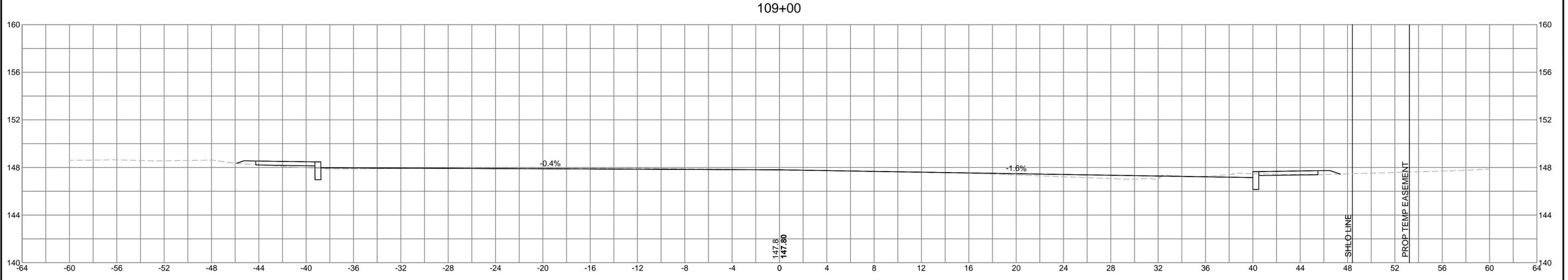


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	53
PROJECT FILE NO. 600518			

**WHITING STREET**

8/26:1025%HP1\_X SECTIONS.DWG 26-Dec-2012

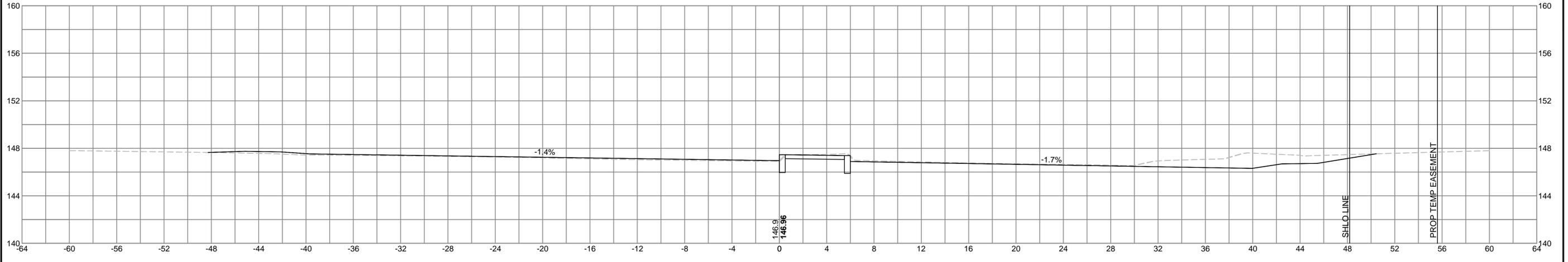


**HINGHAM  
DERBY/WHITING STREET**

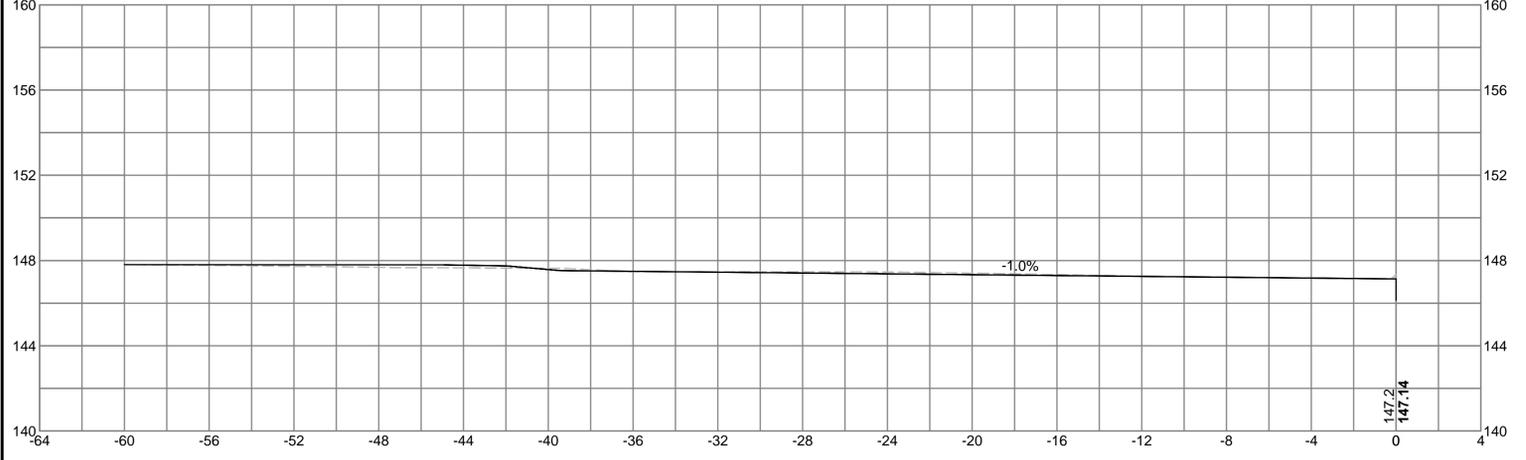
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	53
PROJECT FILE NO.		600518	

**WHITING STREET**

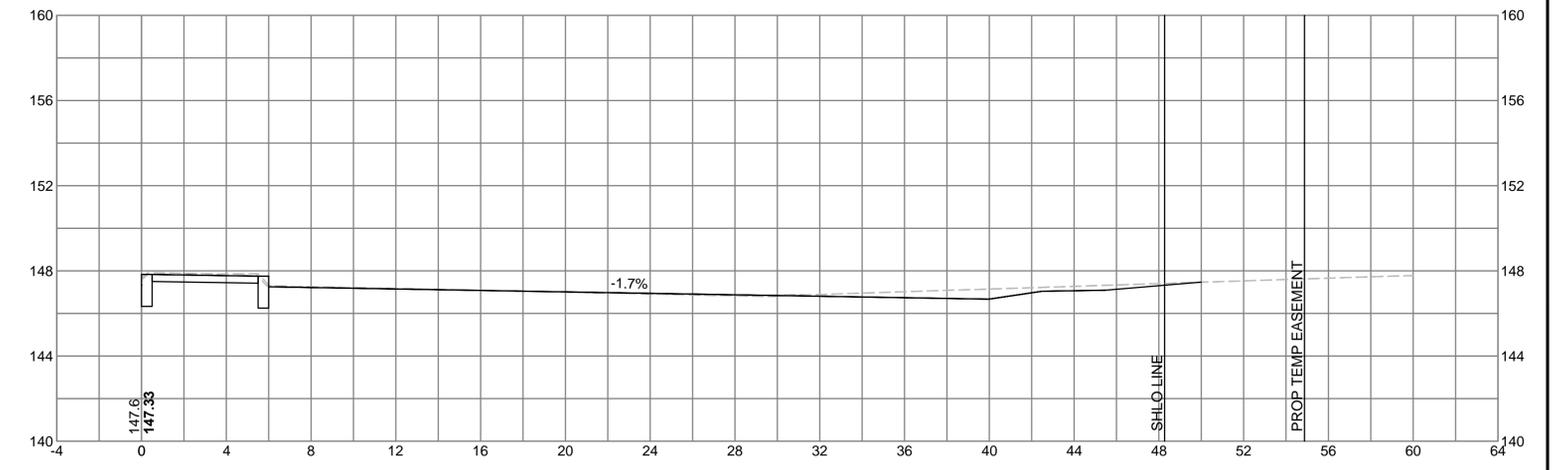
109+50



109+38.29



109+27.16

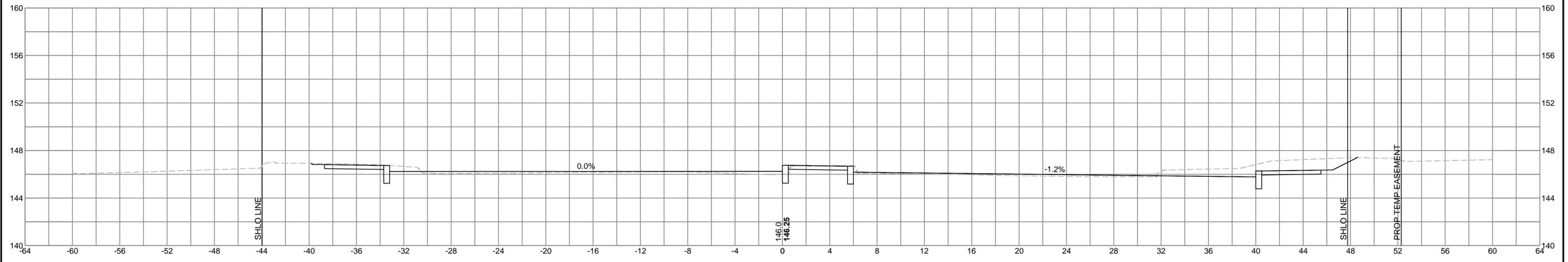


**HINGHAM  
DERBY/WHITING STREET**

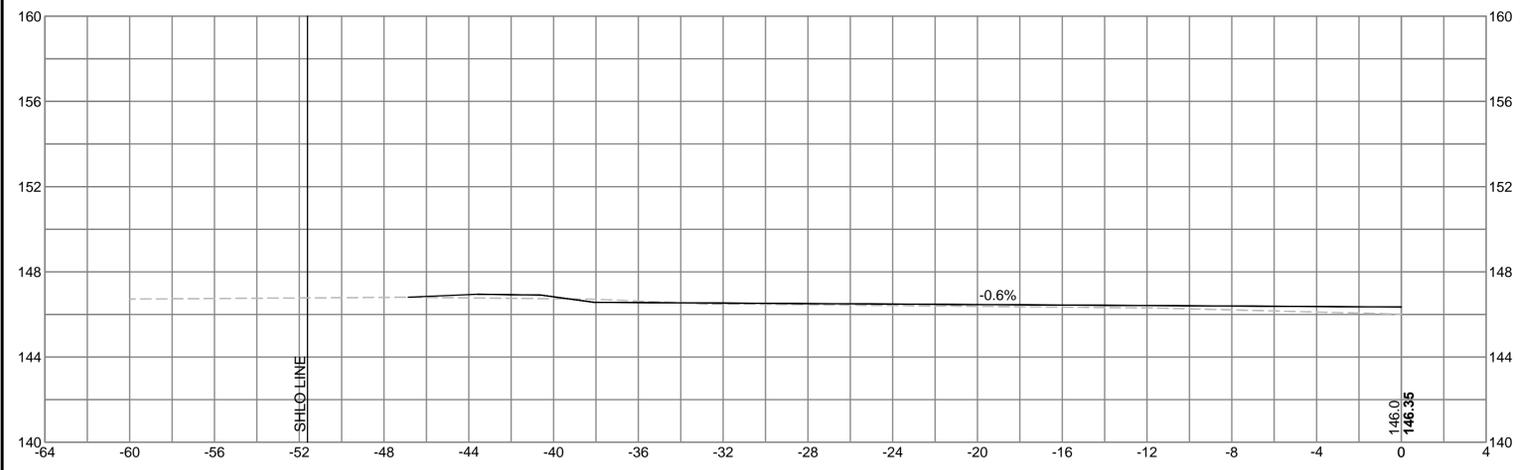
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	53
PROJECT FILE NO.		600518	

**WHITING STREET**

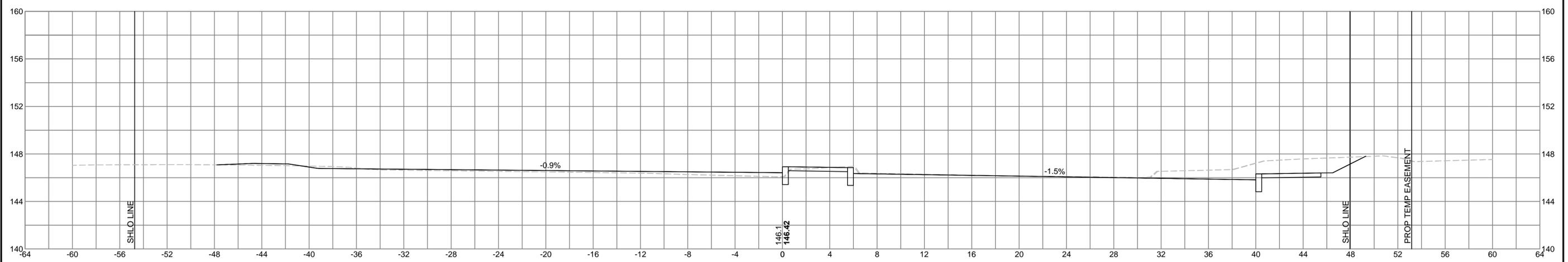
110+50



110+12.83



110+00

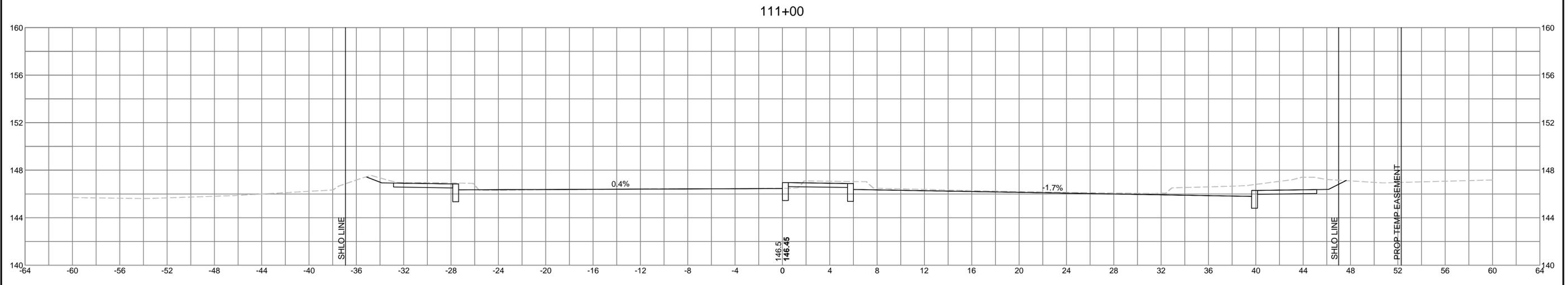
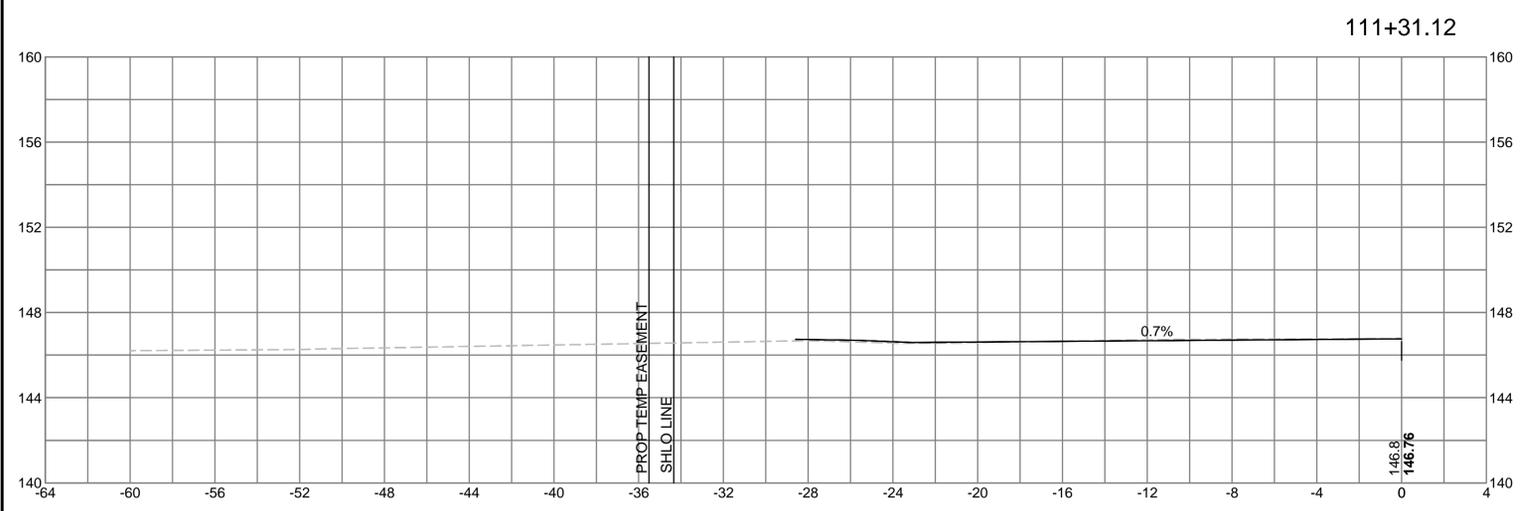
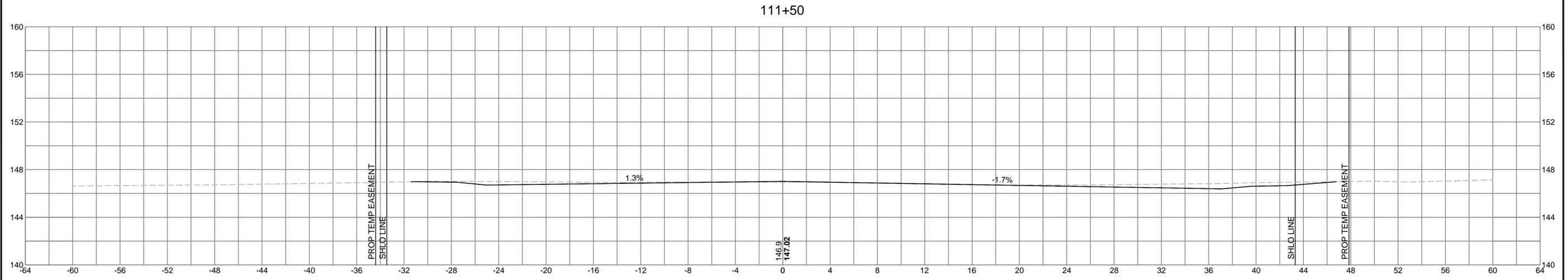


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	53
PROJECT FILE NO.		600518	

**WHITING STREET**

8/26:1025%HP1\_X SECTIONS.DWG 26-Dec-2012

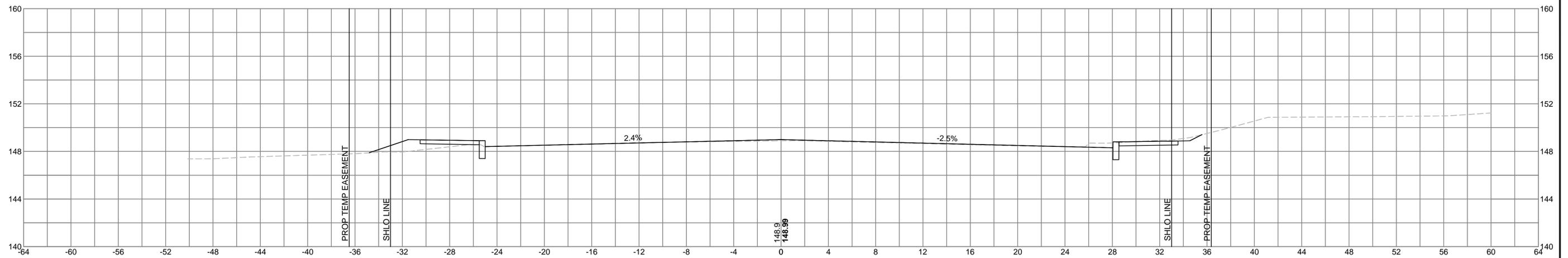


HINGHAM  
DERBY/WHITING STREET

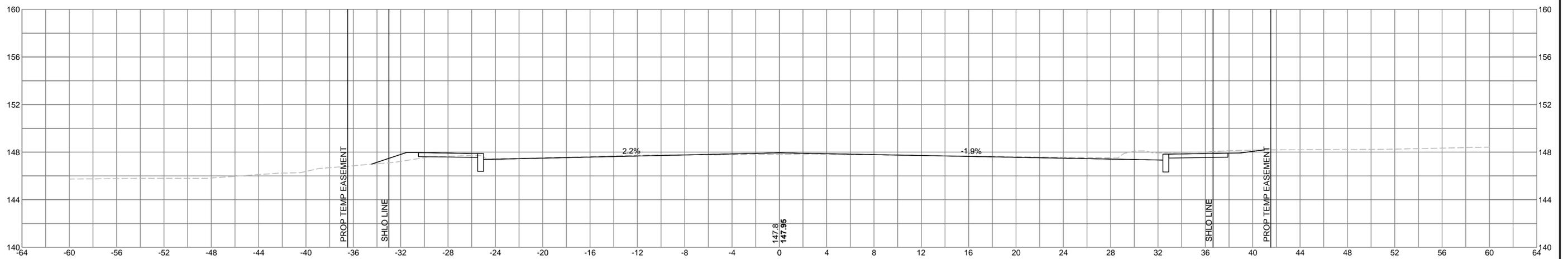
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	53
PROJECT FILE NO.		600518	

WHITING STREET

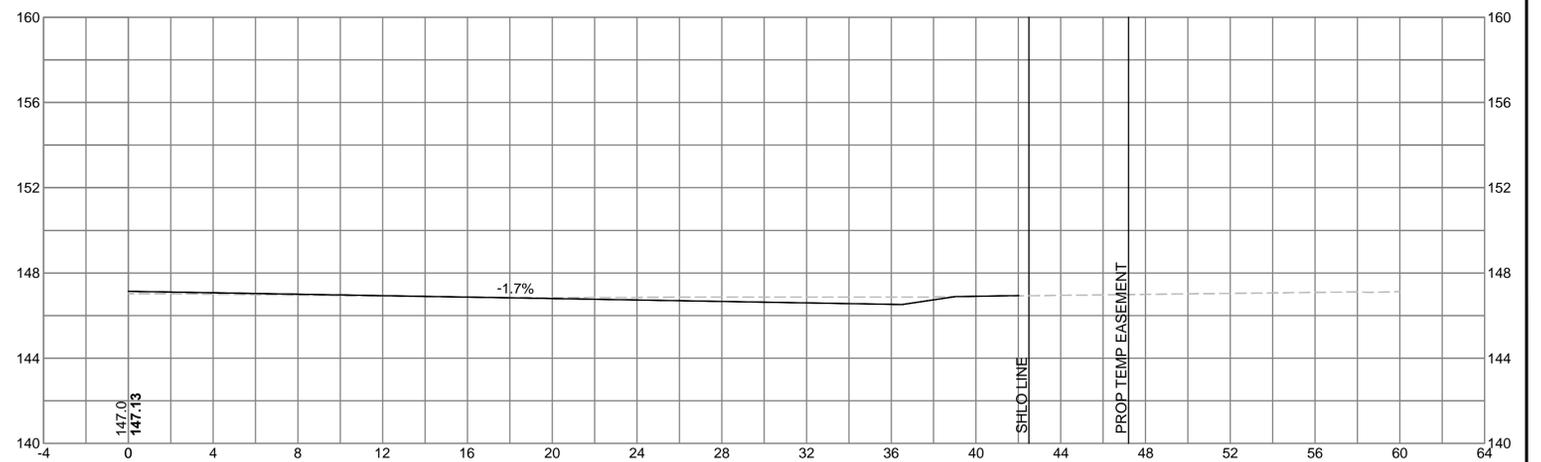
112+50



112+00



111+57.39

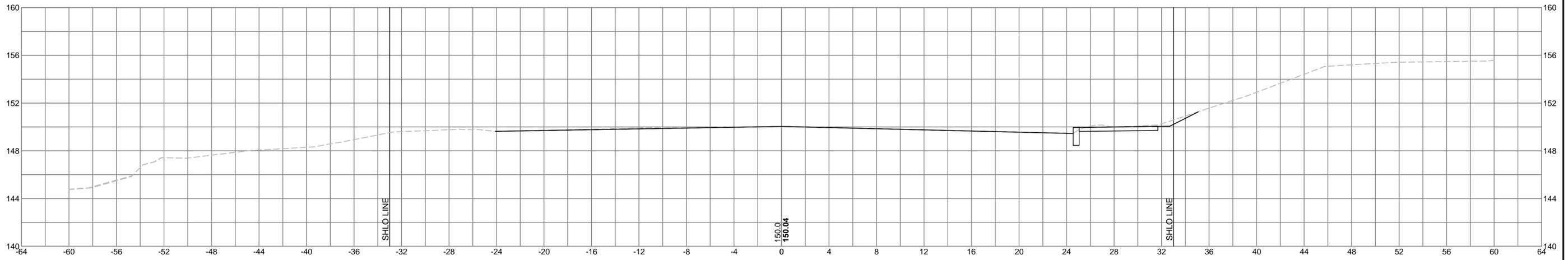


**HINGHAM  
DERBY/WHITING STREET**

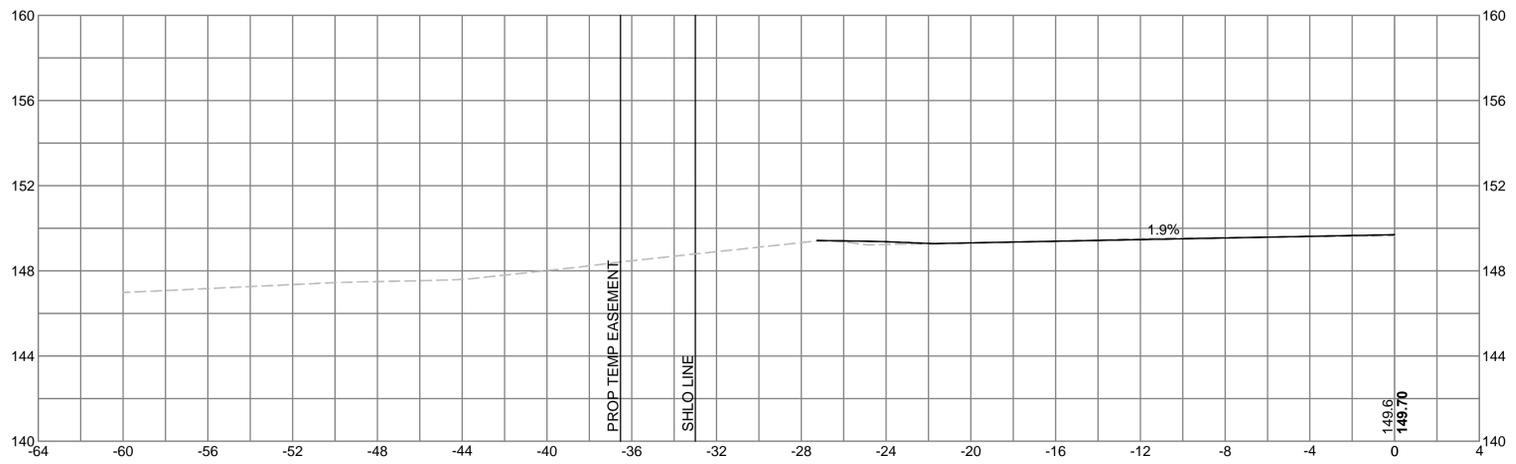
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	53
PROJECT FILE NO.		600518	

**WHITING STREET**

113+00



112+83.84



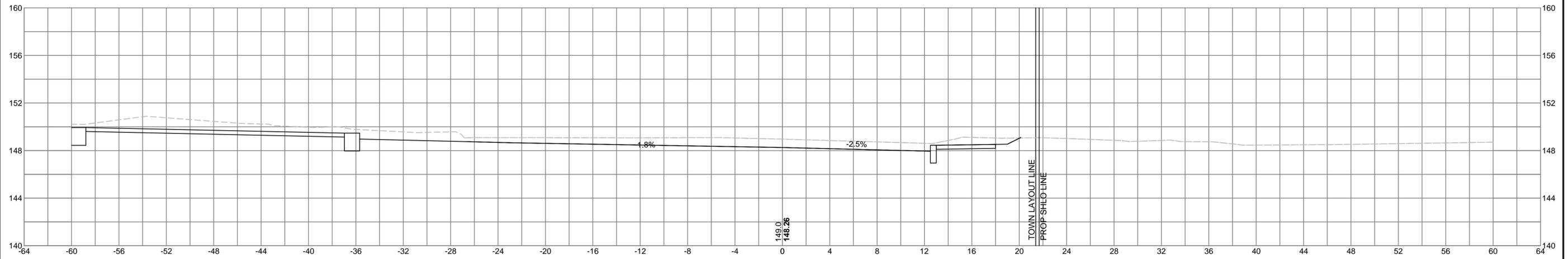
**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	53
PROJECT FILE NO.		600518	

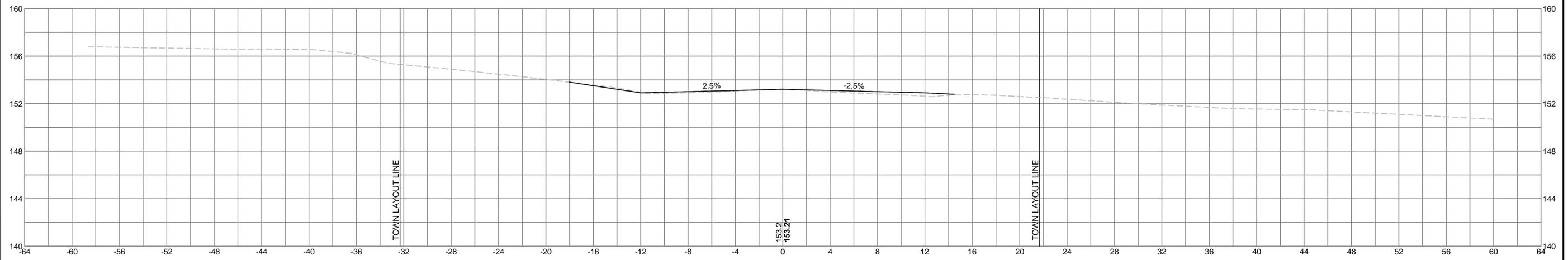
**GARDNER STREET**

8/26/10 10:25%JHD1\_X SECTIONS.DWG 26-Dec-2012

201+50



201+00

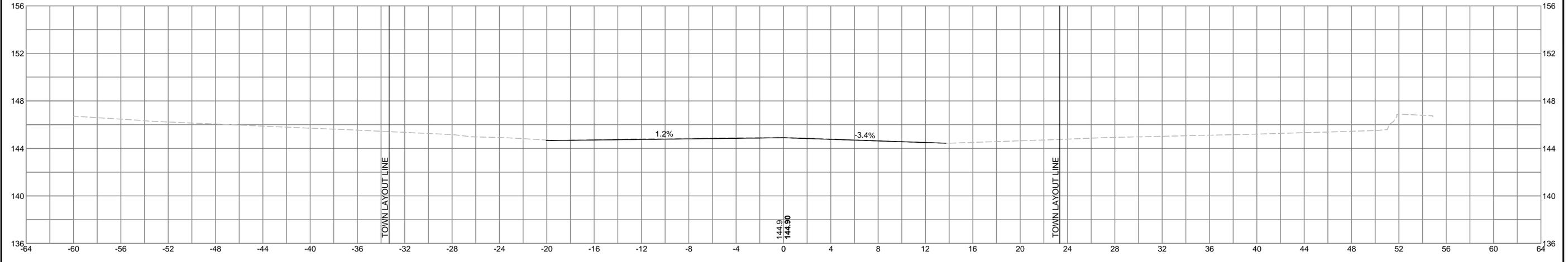


**HINGHAM  
DERBY/WHITING STREET**

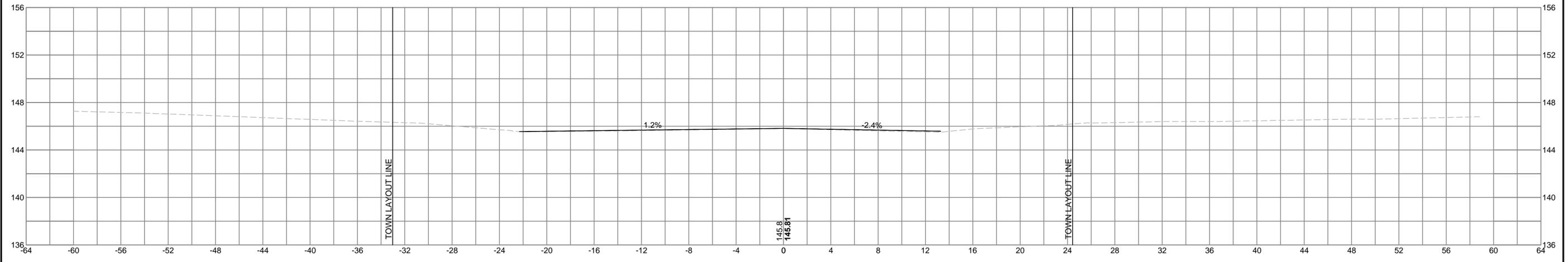
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	53
PROJECT FILE NO.		600518	

**GARDNER STREET**

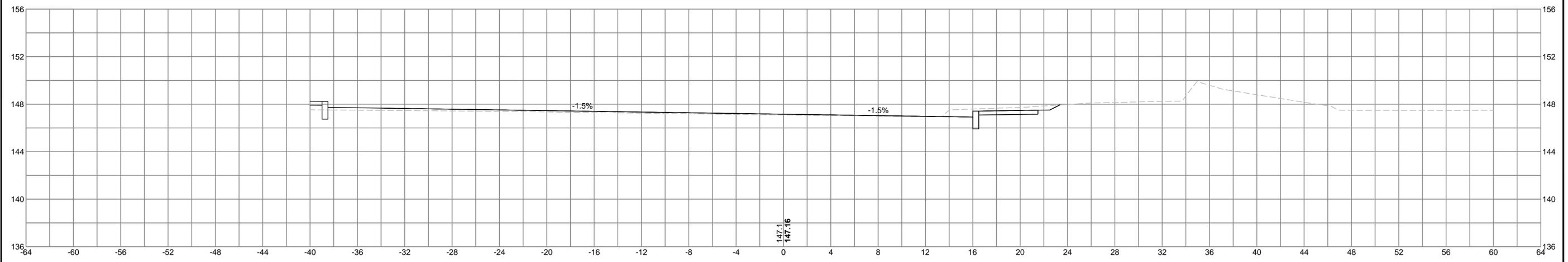
502+00



501+50



501+00



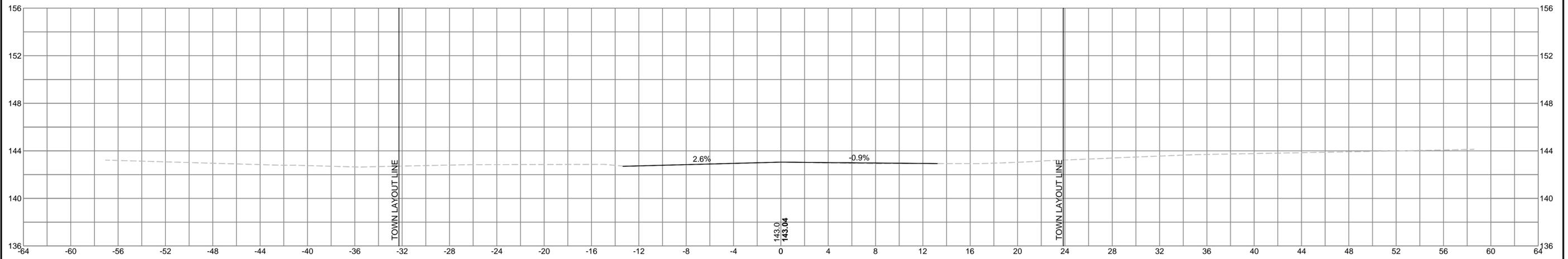
HINGHAM  
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	53
PROJECT FILE NO.		600518	

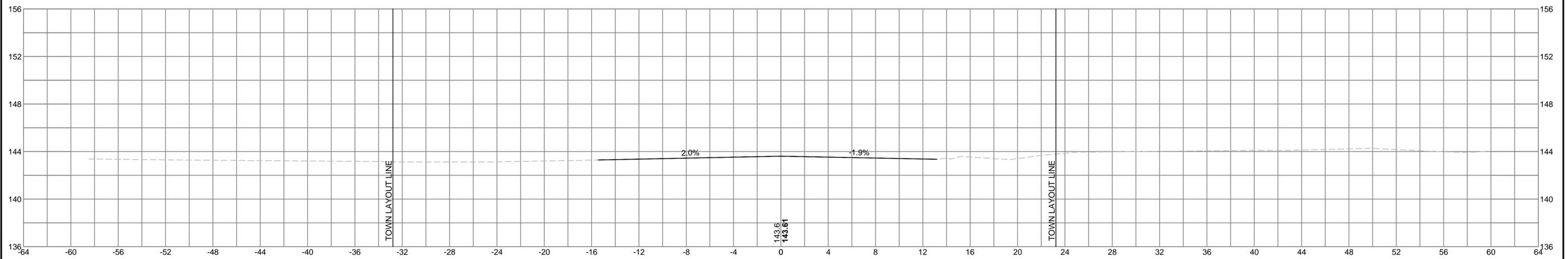
GARDNER STREET

8/26/10 2:58 PM JHD1\_X SECTIONS.DWG 26-Dec-2012

502+70



502+50

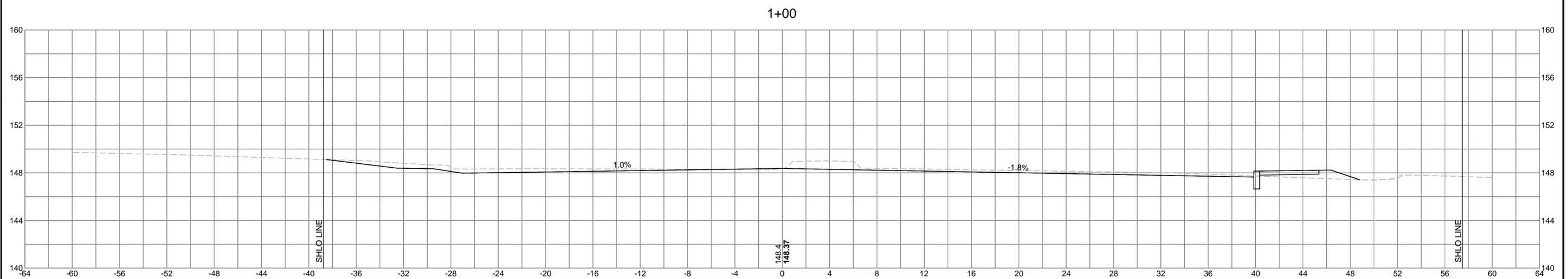
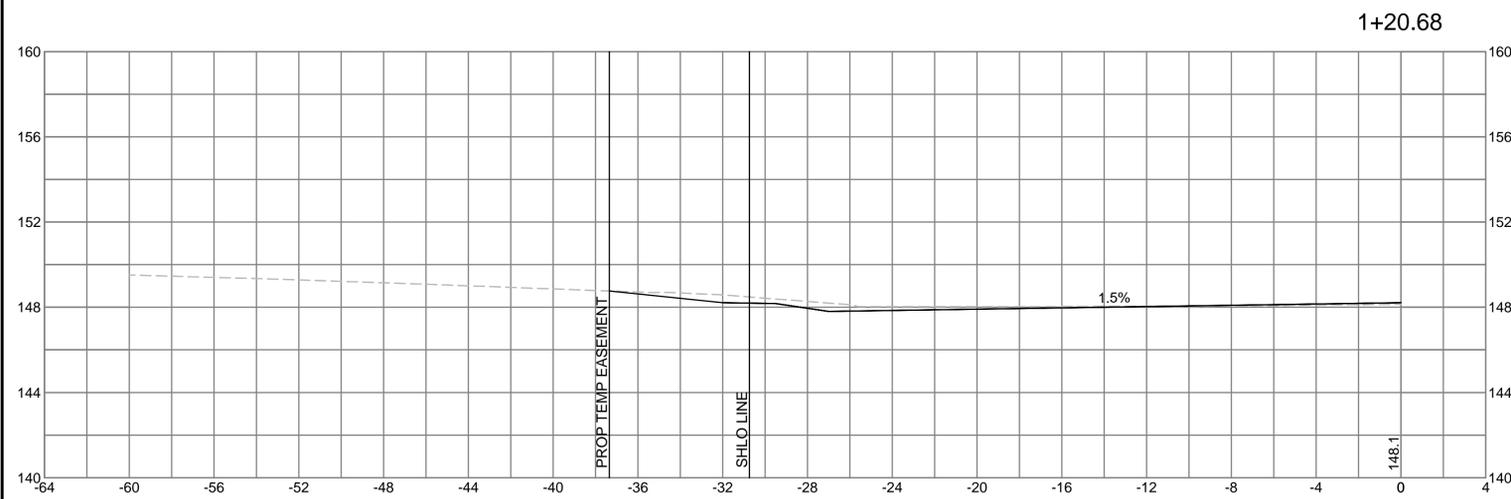
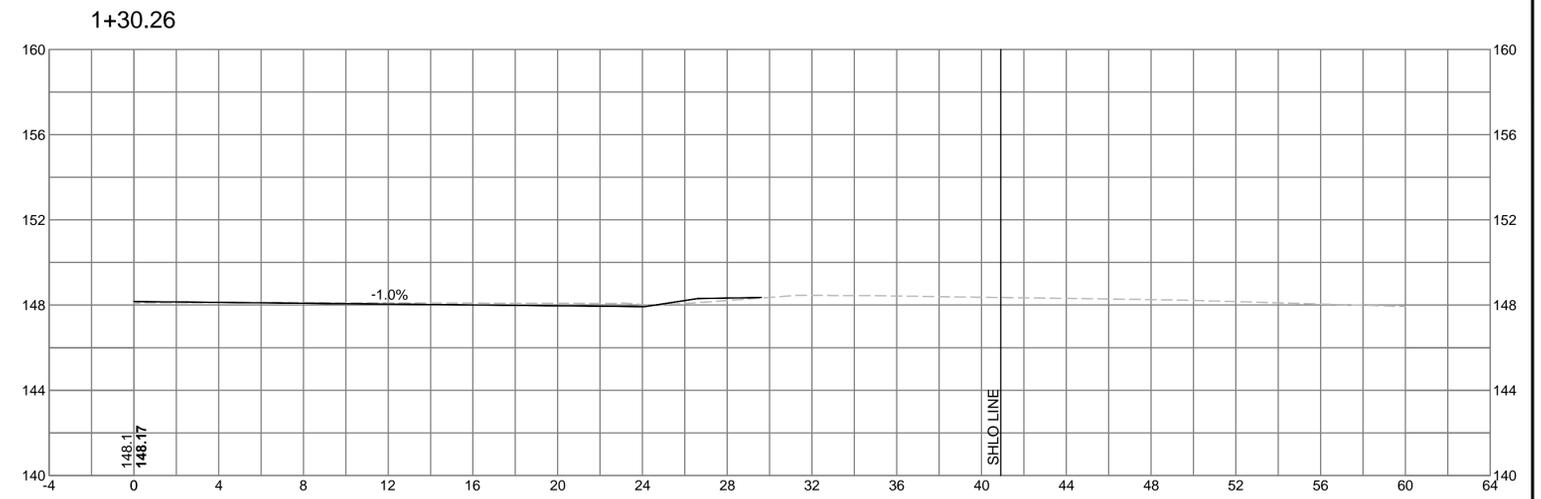


SCALE IN FEET

**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	53
PROJECT FILE NO.		600518	

**WHITING STREET**

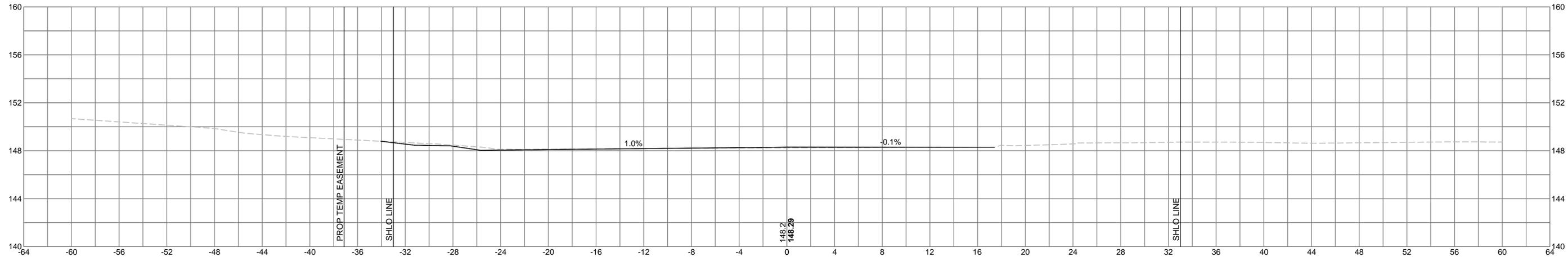


**HINGHAM  
DERBY/WHITING STREET**

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	53
PROJECT FILE NO.		600518	

**WHITING STREET**

2+00



1+50

