MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

HINGHAM DERBY/WHITING STREET			
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	63
PROJECT FILE NO.	600518		

TITLE SHEET & INDEX

600518_HD1_TITLE SHEET & LEGEND.DWG 6-Nov-2017

RECONSTRUCTION OF

WHITING STREET (ROUTE 53) AND DERBY STREET

IN THE TOWN OF

HINGHAM

PLYMOUTH COUNTY

FEDERAL AID PROJECT NO.

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

INDEX

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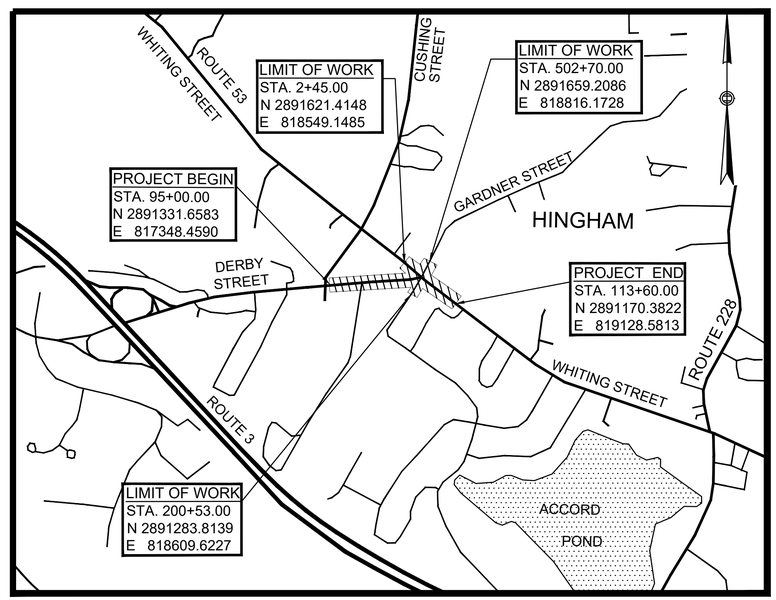
CONVENTIONAL SIGNS

COUNTY, CITY, OR TOWN BOUNDARY
COUNTY, CITY, OR TOWN SIDE LINE
FENCE LINE
BASE LINE OR SURVEY LINE — S36°04'20"W 53.578 — 2
RIGHT OF WAY LINE
CULVERT
RETAINING WALL
GUARD RAIL
STONE WALL
TREE LINE
POLE
ELEVATIONS — PROPOSED SURFACE — PRESENT SURFACE — 90.7 — 90.91 — 12+50



1000 0 1000 2000

SCALE 1" = 1000'

LENGTH OF PROJECT = 1860.00 FEET = 0.352 MILES

DESIGN DESIGNATION

	WHITING STREET (ROUTE 53) NORTH OF THE INTERSECTION	WHITING STREET (ROUTE 53) SOUTH OF THE INTERSECTION	DERBY STREET	GARDNER STREET NORTH OF THE INTERSECTION	GARDNER STREET 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	1,337	2,001	1,801	490	482
DDHV	735	1,107	938	235	253
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	URBAN MINOR ARTERIAL	URBAN COLLECTOR	LOCAL

100% SUBMISSION

DATE	DESCRIPTION	REV #

Nitsch Engineering
www.nitscheng.com
2 Center Plaza, Suite 430
Boston, MA 02108
T: (617) 338-0063
F: (617) 338-6472
Civil Engineering
Land Surveying
Transportation Engineering
Structural Engineering
Water Infrastructure
Planning
GIS

massDOT Massachusetts Department of Transportation Highway Division

ENGINEER DATE

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

APPROVED

HIGHWAY ADMINISTRATOR DATE

LEGEND

GENERAL SYMBOLS

EXISTING	PROPOSED	
JB OR BRJB	JB OR BRJB	JERSEY BARRIER ON BRIDGE OR JERSEY BARRIER
CB	CB	CATCH BASIN
CI	CI	CURB INLET
	BUOY	BUOY
		BORROW PIT OR CONSTRUCTION SITE
	FPL	FLAG POLE
		GOLF COURSE
		GAS PUMP
		GRAVEL PIT
DI	DI	DROP INLET
MB	MB	MAIL BOX
GR	GRAN POST	GRANITE POST
PLN	PLANTER	PLANTER
PST	POST	POST
TBH	TBH	TELEPHONE BOOTH
VLT	VLT	VAULT
VLV	VLV	VALVE
WELL	WELL	WELL
EHH	EHH	ELECTRIC MANHOLE (HANDHOLE)
FCGA		GATE POST
FL	FL	FLOW LINE
GG		GAS GATE
BH	BH	BORING HOLE
		MONITORING WELL
	TEP	TEST PIT
HC	CONC. HDWL	CONCRETE HEADWALL
HH		HANDHOLE
HS	STONE DHWL	STONE HEADWALL
HYD	HYD	HYDRANT
LPL	LPL	LIGHT POLE
CO. BO.	CO. BD.	COUNTY BOUND
GPS		GPS POINT
CMH		CABLE MANHOLE
DMH	DMH	DRAINAGE MANHOLE
EMH		ELECTRIC MANHOLE
GMH		GAS MANHOLE
MMH		MISC MANHOLE
OMH		OTHER MANHOLE
SMH	S	SEWER MANHOLE
TMH		TELEPHONE MANHOLE
WMH		WATER MANHOLE
MHB	MHB	MHD BOUND
MON	MON	MONUMENT
SB	SB	STONE BOUND
TOWN OR CITY BD.	TOWN OR CITY BD.	TOWN OR CITY BOUND
	TSN	TRAVERSE OR TRIANGULATION STATION
TPL OR GUY	TPL OR GUY	TROLLEY POLE OR GUY POLE
TRNP		TRANS. POLE
UFB	UFB	UP W ITH FIREBOX
LPDL	LPDL	POLE WITH DOUBLE LIGHT
ULT	ULT	UP W ITH 1 LIGHT
UPL	UPL	UTILITY POLE
	BUSH	BUSH
	TREE	TREE
STUMP		STUMP
		SWAMP / MARSH
		TREE PROTECTION
WG	WG	WATER GATE
		COMPOST FILTER TUBES
FA	FA	FIRE ALARM BOX
PM	PM	PARKING METER
		ELECTRICAL GROUND
	GV	GATE VALVE
		RIP RAP
OHW		OVERHEAD WIRE
		DIRECT BURIAL CABLE
		CURBING
185	185	CONTOURS
		DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
E		ELECTRIC DUCT " "
G		GAS MAIN " "
S		SEWER MAIN " "
T		TELEPHONE DUCT " "
W		WATER MAIN " "
		BALANCE STONE WALL
		CULVERT
GUARDRAIL		GUARD RAIL
		GUTTER LINE AT DRIVEWAYS
CLF		CHAIN LINK FENCE
		PICKET FENCE

GENERAL SYMBOLS (CONT.)

EXISTING	PROPOSED	
		COMPOST FILTER TUBES
		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
WF-#		BORDER OF WETLAND
		100 FT WETLAND OR 200 FT RIVERFRONT BUFFER
DATE OF LAYOUT		STATE HIGHWAY LAYOUT
DATE OF LAYOUT		TOWN OR CITY LAYOUT
DATE OF LAYOUT		COUNTY LAYOUT
R.R S/L		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
ℙ OR APPROX. ℙ		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
1	1	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
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	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)
	20'	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
		TRAFFFIC SIGNAL CONDUIT (TYPE AS NOTED)

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED	
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE - 12"
	CW	CROSSWALK
	SWLL	SOLID WHITE LANE LINE
	BWLL	BROKEN WHITE LANE LINE (10' LINE, 30' SPACE TYP.)
	SWEL	SOLID WHITE EDGE LINE
	YGL	YELLOW GORE LINE - 12"
	DYCL	DOUBLE YELLOW CENTER LINE
	SWCHL	SOLID WHITE CHANNELIZATION LINE - 8"
	WGL	WHITE GORE LINE - 12"
	SYEL	SOLID YELLOW EDGE LINE
	BYCL	BROKEN YELLOW CENTER LINE (10' LINE, 30' SPACE TYP.) - 4"
	SYCL	SOLID YELLOW CENTER LINE
	DWLL	DOTTED WHITE LANE LINE - 6" (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
LSA	LANDSCAPED AREA
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
PERM	PERMANENT
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

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	63
PROJECT FILE NO.	600518		

LEGEND & ABBREVIATIONS

GENERAL (CONT.)

PVMT	PAVEMENT
PWW	PAVED WATER WAY
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
FYV	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

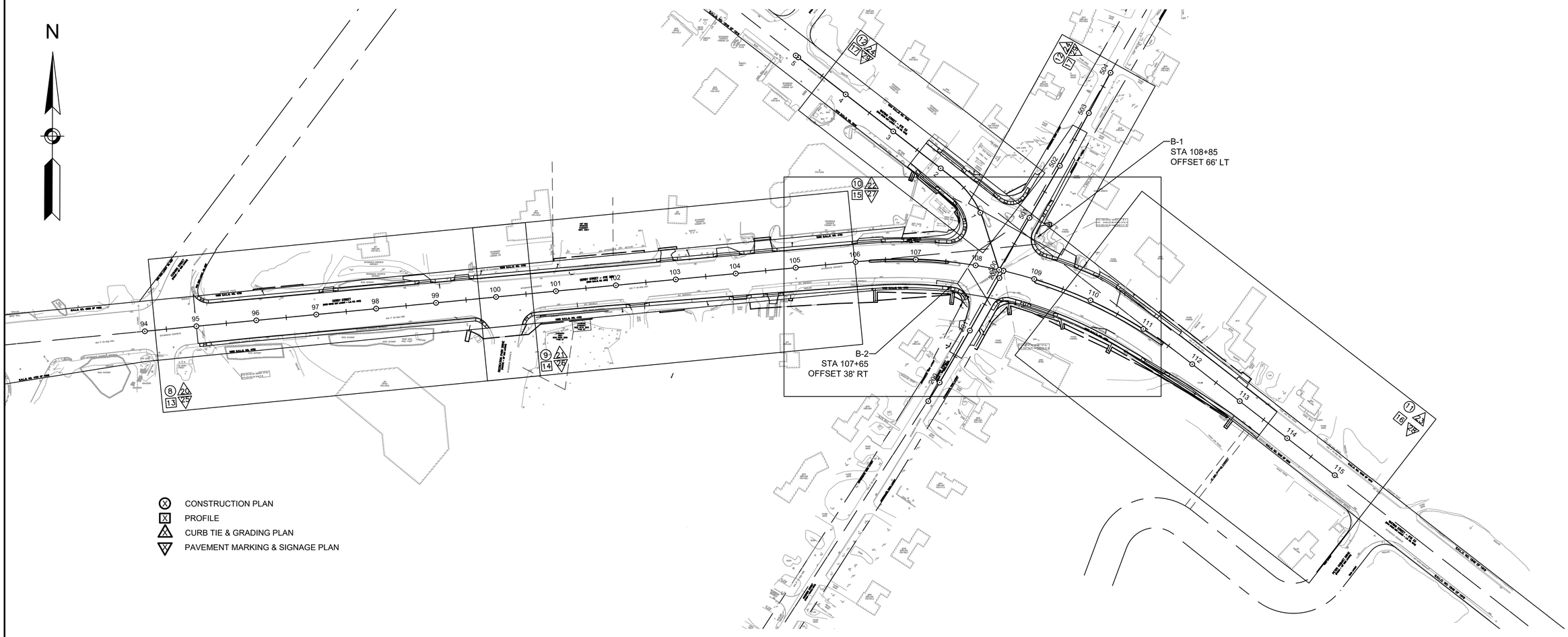
600518_HD1_TITLE SHEET & LEGEND.DWG 6-Nov-2017

MassDOT DWT Version1.0 09-01-2011

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	63
PROJECT FILE NO.		600518	

KEY PLAN



80 0 80 160
SCALE IN FEET

600518_HD2_KEY.DWG 6-Nov-2017

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-1
Page 1 of 1

Project: **Proposed Span Wire Pole Borings, Hingham, MA**
Client: **Nitsch Engineering, Inc.** LGCI Project No.: 1506

Drilling Subcontractor:	Northern Drill Service	Date Started:	05/05/2015
Drilling Foreman:	Tim Tucker	Date Completed:	05/05/2015
LGCI Engineer:	Alan Smith	Location:	Northern side of Gardner Street
Ground Surface El:	NA	Total Depth:	31 ft
Groundwater Depth:	~11 ft based on sample moisture	Drill Rig Type:	Mobile B48 ATV
		Drilling Method:	3" casing, drive and wash
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	N/A
Drop:	30 inches		

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0 - 1.5	S1	1	8	72		18	12		Topsoil 0.5'	S1 - Top 2": Topsoil Mid 4": Poorly Graded GRAVEL (GP), coarse, <5% sand, gray, dry (fill) Bottom 6": Bituminous pavement
	2 - 3.2	S2	15	12	100/3"		15	7		Fill 4'	S2: Poorly Graded GRAVEL with Silt and Sand (GP-GM), fine to coarse, 10-15% fines, 20-25% sand, brown, moist (fill) Advanced through cobble, 3.2 to 4 ft
5ft	4 - 6	S3	10	27	48	56	24	16			S3: Poorly Graded SAND with Silt (SP-SM), fine to medium, 10-15% fines, 10-15% gravel, brown, moist
										Boulder	Advanced with roller bit through granitic boulder, 6.5 to 11 ft
10ft	11 - 13	S4	13	29	32	29	24	18			S4: Silty SAND (SM), fine, trace medium, 15-20% fines, 5-10% gravel, brown, wet
										Sand	S5: Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, 5-10% gravel, gray, wet
15ft	14 - 16	S5	18	34	38	41	24	16			Difficult advancing boring, cobbles encountered
20ft	19-20.5	S6	40	82	105		18	18			S6: Silty SAND (SM), fine trace medium, 15-20% fines, 5-10% gravel, brown, wet
	24 - 25	S7	50	110			12	11			S7: Poorly Graded SAND with Silt and Gravel (SP-SM), fine to coarse, 10-15% fines, 20-25% gravel, brown, wet

Remarks:

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-1
Page 2 of 2

Project: **Proposed Span Wire Pole Borings, Hingham, MA**
Client: **Nitsch Engineering, Inc.** LGCI Project No.: 1506

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
										Sand	Difficult advancing boring, cobbles encountered
30ft	29 - 31	S8	27	35	38	42	24	16			S8: Silty SAND (SM), fine, 15-20% fines, brown, wet
											Bottom of boring at 31 ft, backfilled with cuttings
40ft											
50ft											
60ft											

Remarks:

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-2
Page 1 of 1

Project: **Proposed Span Wire Pole Borings, Hingham, MA**
Client: **Nitsch Engineering, Inc.** LGCI Project No.: 1506

Drilling Subcontractor:	Northern Drill Service	Date Started:	05/04/2015
Drilling Foreman:	Tim Tucker	Date Completed:	05/04/2015
LGCI Engineer:	Alan Smith	Location:	Southern side of Gardner Street
Ground Surface El:	NA	Total Depth:	30 ft
Groundwater Depth:	~9 ft based on sample moisture	Drill Rig Type:	Mobile B48 ATV
		Drilling Method:	4" and 3" casing, drive and wash
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Safety	Rock Core Barrel Size:	N/A
Drop:	30 inches		

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
	0 - 2	S1	3	5	10	5	24	16		Topsoil 0.5'	S1 - Top 6": Topsoil Bottom 10": Silty SAND (SM), fine to medium, 15-20% fines, 5-10% fine gravel, brown, moist (fill)
	2 - 4	S2	3	4	10	5	24	6		Fill 4'	S2: Poorly Graded SAND with Silt (SP-SM), fine to coarse, 10-15% fines, 10-15% gravel, brown, moist (fill)
5ft	4 - 6	S3	6	3	3	9	24	1			S3: Similar to S2, gravel in spoon tip
	6 - 7.3	S4	20	47	100/4"		16	14			S4: Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, brown, moist, fractured rock in tip
											Advanced through cobble
10ft	9 - 11	S5	30	50	33	23	24	16		Sand	S5: Similar to S4, except wet
											Due to dense material and high cobble content in soil 4" casing bent advancing to 14 ft, switched to 3" casing.
15ft	14 - 16	S6	42	70	45	40	24	15			S6: Silty SAND (SM), fine, trace medium, 15-20% fines, 5-10% gravel, brown, wet
20ft	19 - 21	S7	13	40	46	42	24	18			S7: Similar to S6
											Difficult advancing due to cobbles
	24 - 26	S8	26	38	27	55	24	14			S8: Similar to S6

Remarks:

LGCI
Lahlaf Geotechnical Consulting, Inc.

BORING LOG

Boring B-2
Page 2 of 2

Project: **Proposed Span Wire Pole Borings, Hingham, MA**
Client: **Nitsch Engineering, Inc.** LGCI Project No.: 1506

Depth Scale	Sample Depth (ft)	Sample No	Blows per 6 inches 0-6	6-12	12-18	18-24	Pen (in)	Rec (in)	Remarks	Strata	Sample Description
										Sand	Difficult advancing boring, cobbles encountered
30ft	29 - 30	S9	20	110			12	9			S8: Similar to S6
											Bottom of boring at 30 ft, backfilled with cuttings
40ft											
50ft											
60ft											

Remarks:

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	63
PROJECT FILE NO.	600518		

BORING LOGS

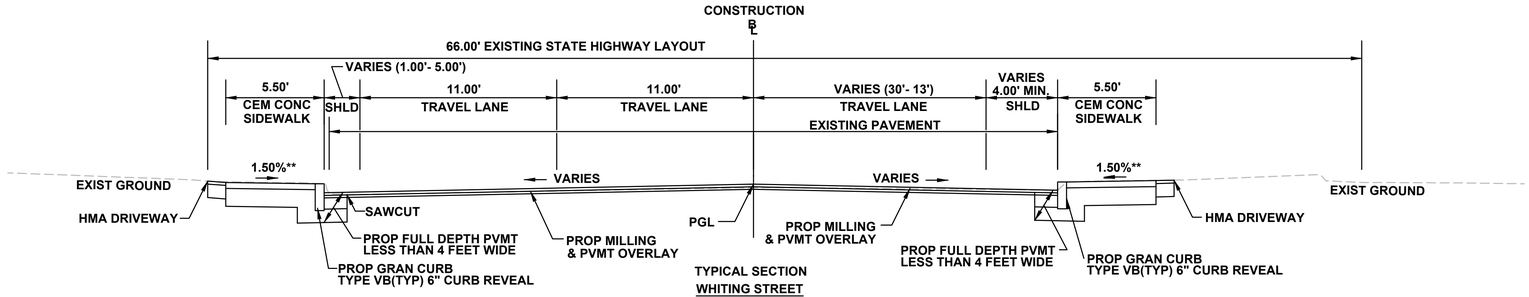
NOTES:
1. SEE SHEET 10 OF 63 FOR LOCATIONS.

600518_HD2_KEY.DWG 6-Nov-2017

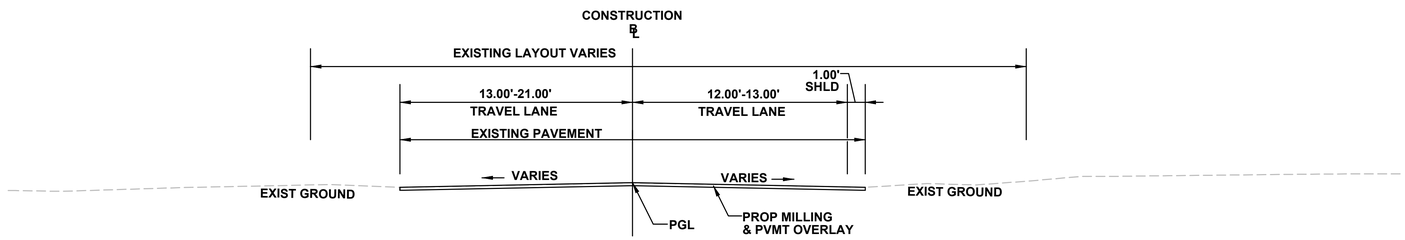
HINGHAM
DERBY/ WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	63
PROJECT FILE NO.	600518		

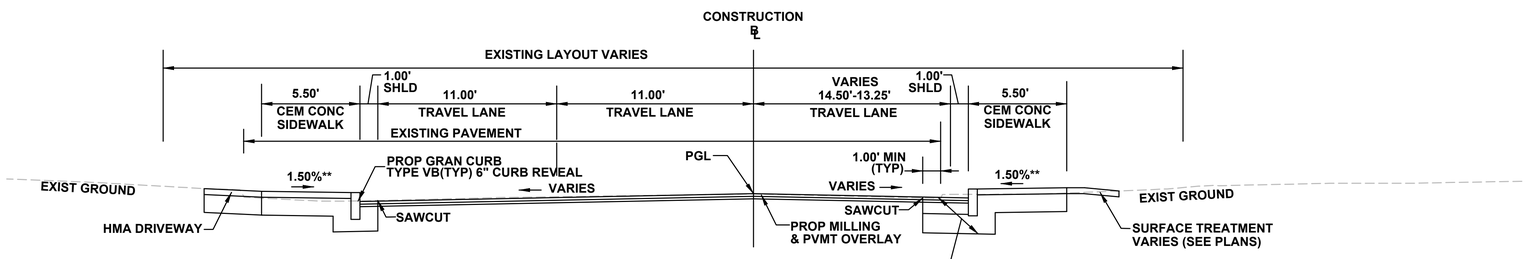
TYPICAL SECTIONS



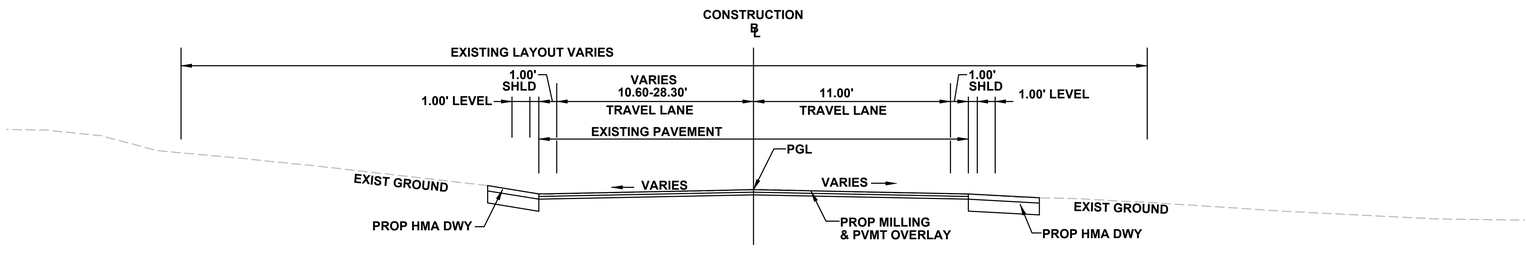
TYPICAL SECTION
WHITING STREET
STA 1+00± TO STA 2+45±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
GARDNER STREET
STA 501+76± TO STA 502+70±
NOT TO SCALE



TYPICAL SECTION
GARDNER STREET
STA 501+24± TO STA 501+76±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
GARDNER STREET
STA 200+53± TO STA 201+05±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%

PAVEMENT NOTES

PROPOSED MILLING & PAVEMENT OVERLAY

SURFACE:	1 3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
INTERMEDIATE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
MILLING:	2" PAVEMENT MILLING

PROPOSED MILLING & PAVEMENT OVERLAY (WITH VARIABLE DEPTH SHIM COURSE)

SURFACE:	1 3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
INTERMEDIATE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
SHIM:	SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) PLACED IN MULTIPLE LAYERS, 3" MAX DEPTH EACH LAYER OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
MILLING:	2" PAVEMENT MILLING

PROPOSED FULL DEPTH PAVEMENT

SURFACE:	1 3/4" SUPERPAVE SURFACE COURSE (SSC-12.5) PLACED IN ONE LAYER OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
INTERMEDIATE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC 12.5) PLACED IN ONE LAYER OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
BASE:	4 1/2" SUPERPAVE BASE COURSE 37.5 (SBC-37.5) PLACED IN ONE LAYER OVER
SUBBASE:	4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL BORROW, TYPE b OR APPROVED IN PLACE MATERIAL

PROPOSED FULL DEPTH PAVEMENT LESS THAN 4 FT WIDE

SURFACE:	1 3/4" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
INTERMEDIATE:	1 3/4" SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) OVER
BASE:	6" HIGH EARLY STRENGTH CEMENT CONCRETE BASE COURSE OVER
SUBBASE:	8" GRAVEL BORROW, TYPE b OR APPROVED IN PLACE MATERIAL

HOT MIX ASPHALT DRIVEWAY

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

NOTES:

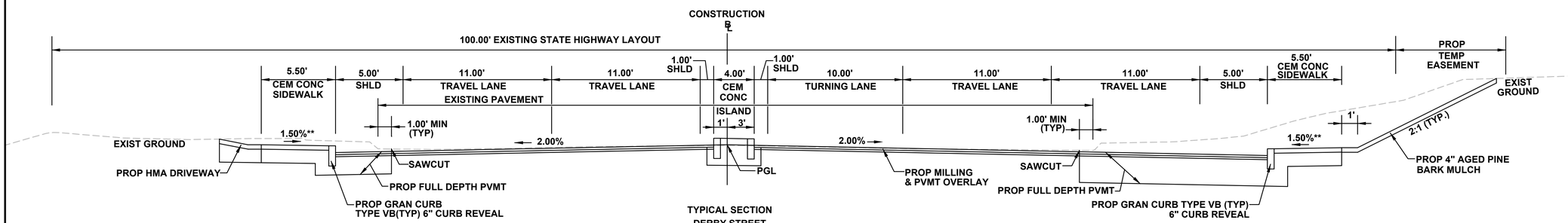
1. ASPHALT EMULSION FOR TACK COAT SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.07 GAL/SY OVER MILLED SURFACES AND 0.05 GAL/SY OVER SMOOTH SURFACES PER SPECIFICATIONS.
2. THE FINAL COURSE OF PAVEMENT SHALL BE PLACED IN ON CONTINUOUS OPERATION.

600518_HD3_TYP SECTIONS.DWG 6-Nov-2017

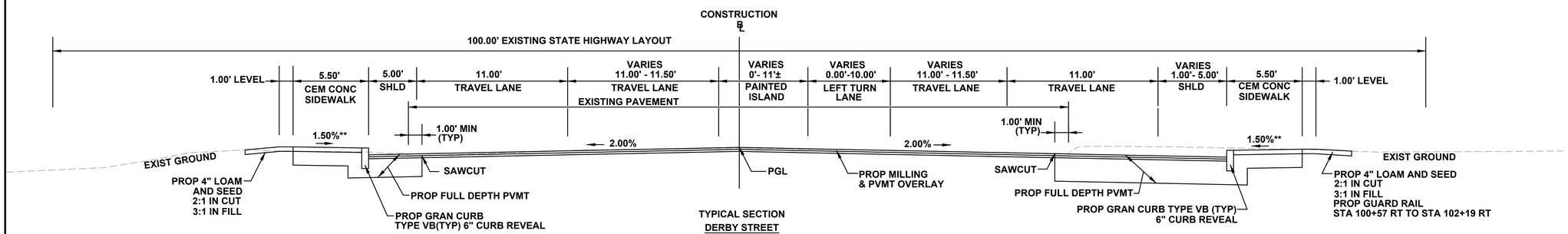
HINGHAM
DERBY/ WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	63
PROJECT FILE NO.	600518		

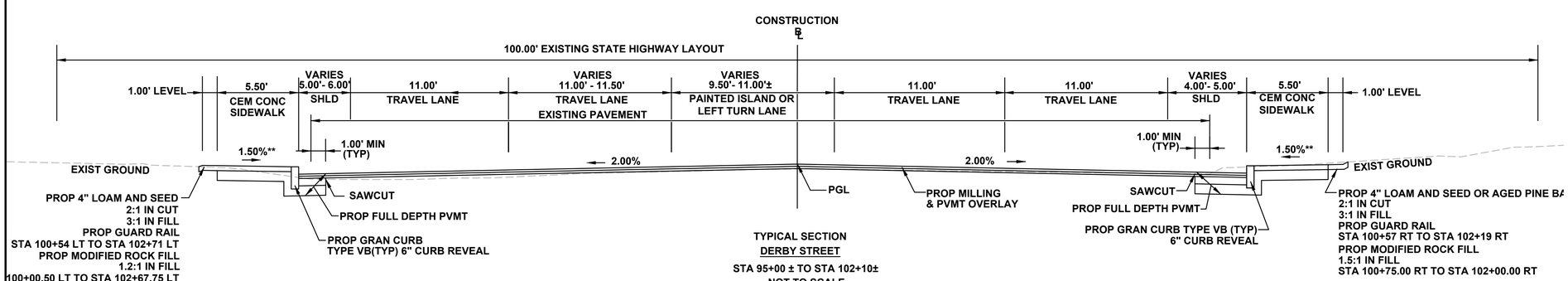
TYPICAL SECTIONS



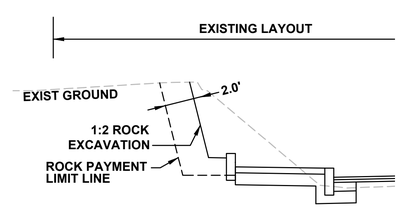
TYPICAL SECTION
DERBY STREET
STA 106+24± TO STA107+53±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
DERBY STREET
STA 102+10 ± TO STA 106+22±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
DERBY STREET
STA 95+00 ± TO STA 102+10±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



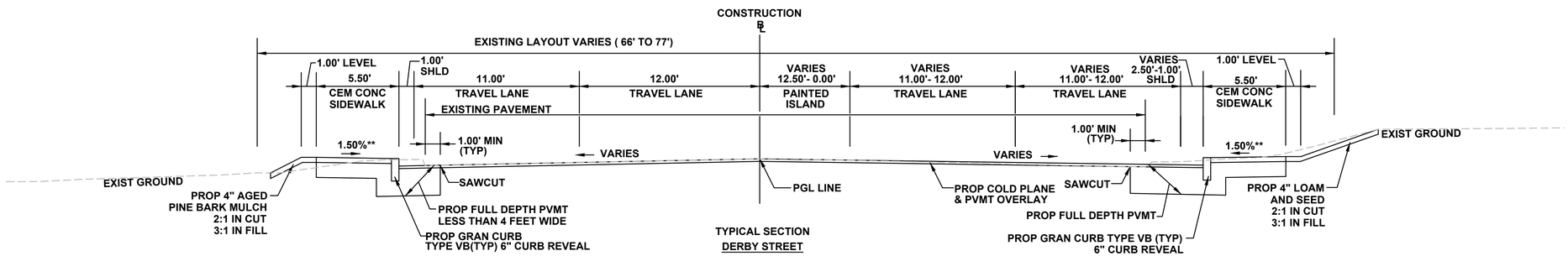
DERBY STREET
STA 97+41± TO STA 98+52±

600518_HD3_TYP SECTIONS.DWG 6-Nov-2017

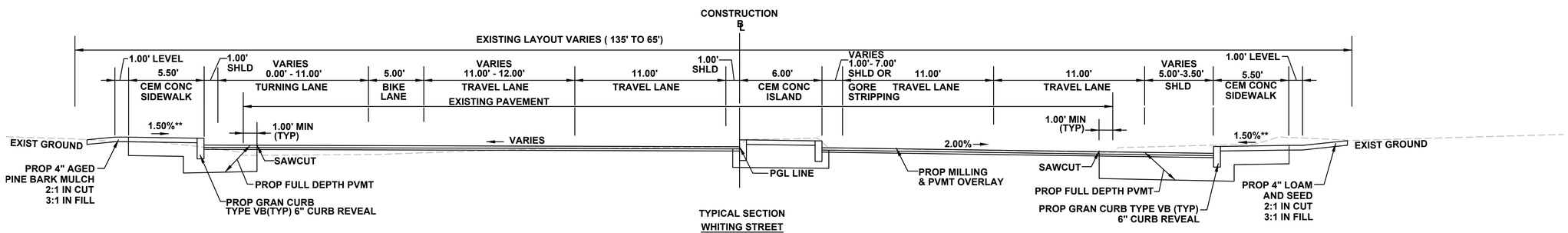
HINGHAM
DERBY/ WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	63
PROJECT FILE NO.	600518		

TYPICAL SECTIONS



TYPICAL SECTION
DERBY STREET
STA 111+42± TO STA113+60±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
WHITING STREET
STA 109+02± TO STA111+42±
NOT TO SCALE
**TOLERANCE FOR CONSTRUCTION ±0.5%

600518_HD3_TYP SECTIONS.DWG 6-Nov-2017

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	63
PROJECT FILE NO.	600518		

CONSTRUCTION PLAN

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

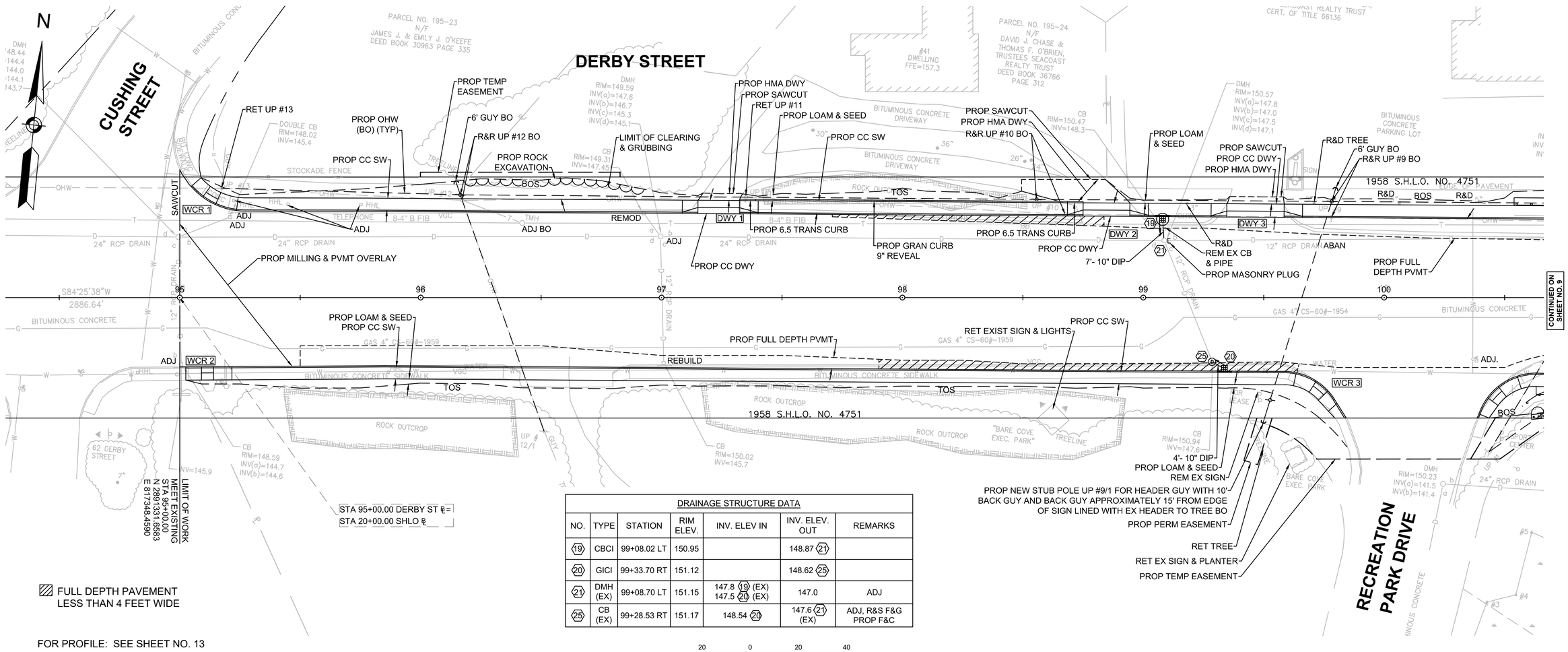
NONE

DRAINAGE DETAILS

SEE BELOW

GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. 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.
5. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
6. EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS.
7. TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
8. 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.
9. 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).
10. SURFACE JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDED.
11. ALL LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
12. 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.
13. 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.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING DIG SAFE BEFORE PERFORMING ANY EXCAVATION TO DETERMINE THE LOCATIONS OF ANY UNDERGROUND UTILITIES.
15. 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.
16. 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.
17. THE LAYOUT OF ALL PEDESTRIAN RAMPS SHALL CONFORM TO ADA/AAB STANDARDS AND CURRENT MASSDOT STANDARDS, AND DIRECTIVES.
18. ALL SOIL EROSION & SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY
19. ALL UTILITY AND DRAINAGE FRAMES, GRATES, AND COVERS SHALL BE INSTALLED FLUSH WITH SURROUNDING PAVEMENT.
20. 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.



FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE

FOR PROFILE: SEE SHEET NO. 13

DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV IN	INV. ELEV. OUT	REMARKS
19	CBCI	99+08.02 LT	150.95		148.87 21	
20	GICI	99+33.70 RT	151.12		148.62 25	
21	DMH (EX)	99+08.70 LT	151.15	147.8 19 (EX) 147.5 20 (EX)	147.0	ADJ
25	CB (EX)	99+28.53 RT	151.17	148.54 20	147.6 21 (EX)	ADJ, R&S F&G PROP F&C

20 0 20 40
SCALE IN FEET

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	9	63
PROJECT FILE NO.	600518		

CONSTRUCTION PLAN

600518_HDA_CONST&PROFILES.DWG 6-Nov-2017

HIGHWAY GUARD DETAILS

R&D EX GUARDRAIL STA 100+54 TO 102+68 LT
PROP STEEL W BEAM HIGHWAY GUARD BURIED END STA 100+54.70 LT TO STA 100+92.20 LT (ITEM 620.4)
PROP STEEL W BEAM HIGHWAY GUARD STA 100+92.20 LT TO STA 102+65.38 LT (ITEM 620.1)
PROP STEEL W BEAM HIGHWAY GUARD - CURVED (10' RADIUS) STA 102+65.38 LT TO STA 102+74.23 LT (ITEM 620.3)
PROP STEEL W BEAM TERMINAL SECTION (SINGLE FACED) STA 102+74.23 LT (ITEM 627.1)
R&D EX GUARDRAIL STA 100+53 TO 102+10 RT
PROP STEEL W BEAM TERMINAL SECTION (SINGLE FACED) STA 100+57.36 RT (ITEM 627.1)
PROP STEEL W BEAM HIGHWAY GUARD - CURVED (25' RADIUS) STA 100+57.36 RT TO STA 100+75.26 RT (ITEM 620.3)
PROP STEEL W BEAM HIGHWAY GUARD STA 100+75.26 RT TO STA 101+81.48 RT (ITEM 620.1)
PROP STEEL W BEAM HIGHWAY GUARD BURIED END STA 101+81.48 RT TO STA 102+18.98 RT (ITEM 620.4)

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

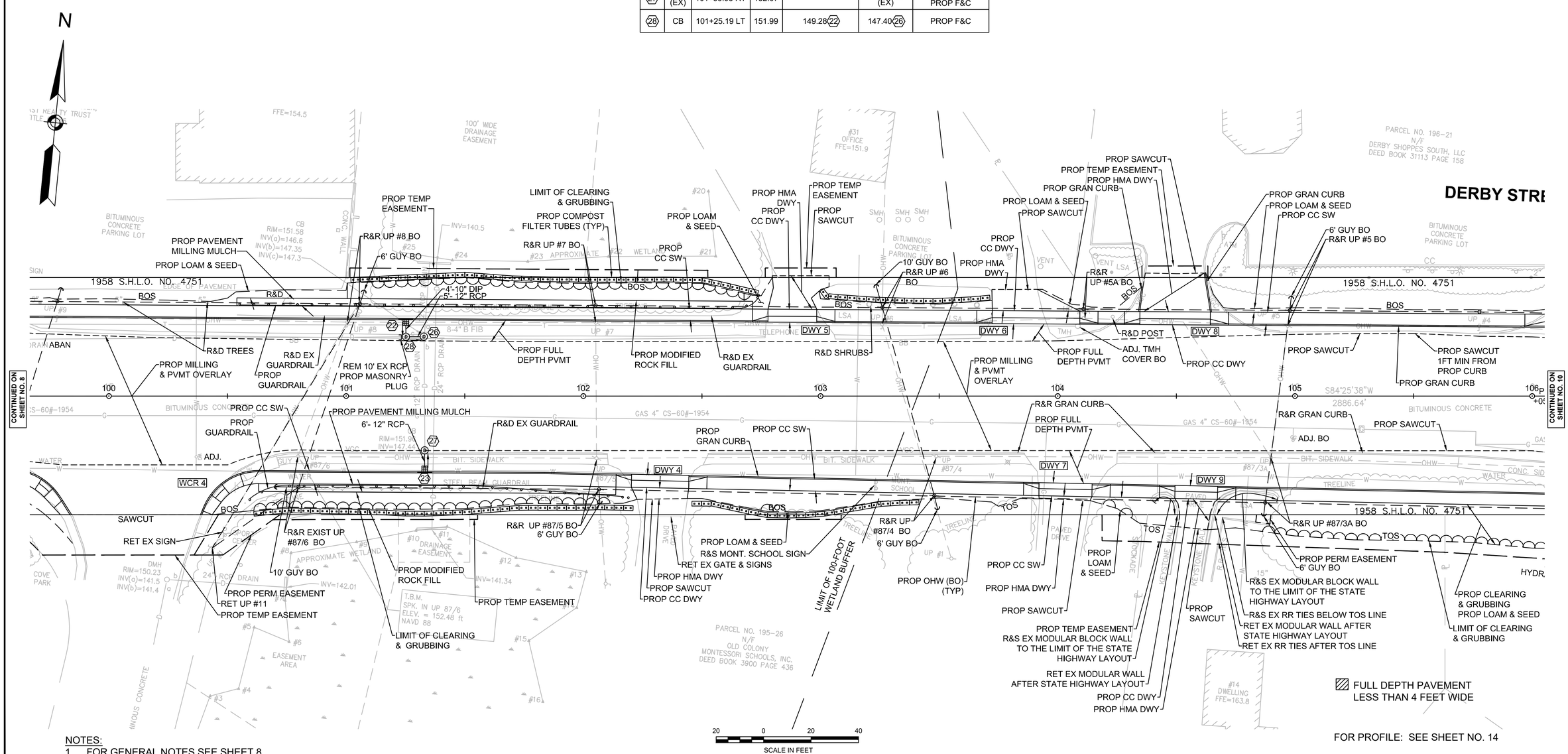
NONE

DRAINAGE DETAILS

SEE BELOW

DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV IN	INV. ELEV. OUT	REMARKS
22	GICI	101+25.18 LT	151.85		149.35 28	
23	GICI	101+33.13 RT	151.90		149.40 27	
26	CIT	101+32.75 LT	152.02	147.35 27 (EX) 147.30 28	146.6 (EX)	R&S F&G PROP F&C
27	CB (EX)	101+33.08 RT	152.07		147.44 26 (EX)	ADJ, R&S F&G PROP F&C
28	CB	101+25.19 LT	151.99	149.28 22	147.40 26	PROP F&C



NOTES:
1. FOR GENERAL NOTES SEE SHEET 8

FOR PROFILE: SEE SHEET NO. 14

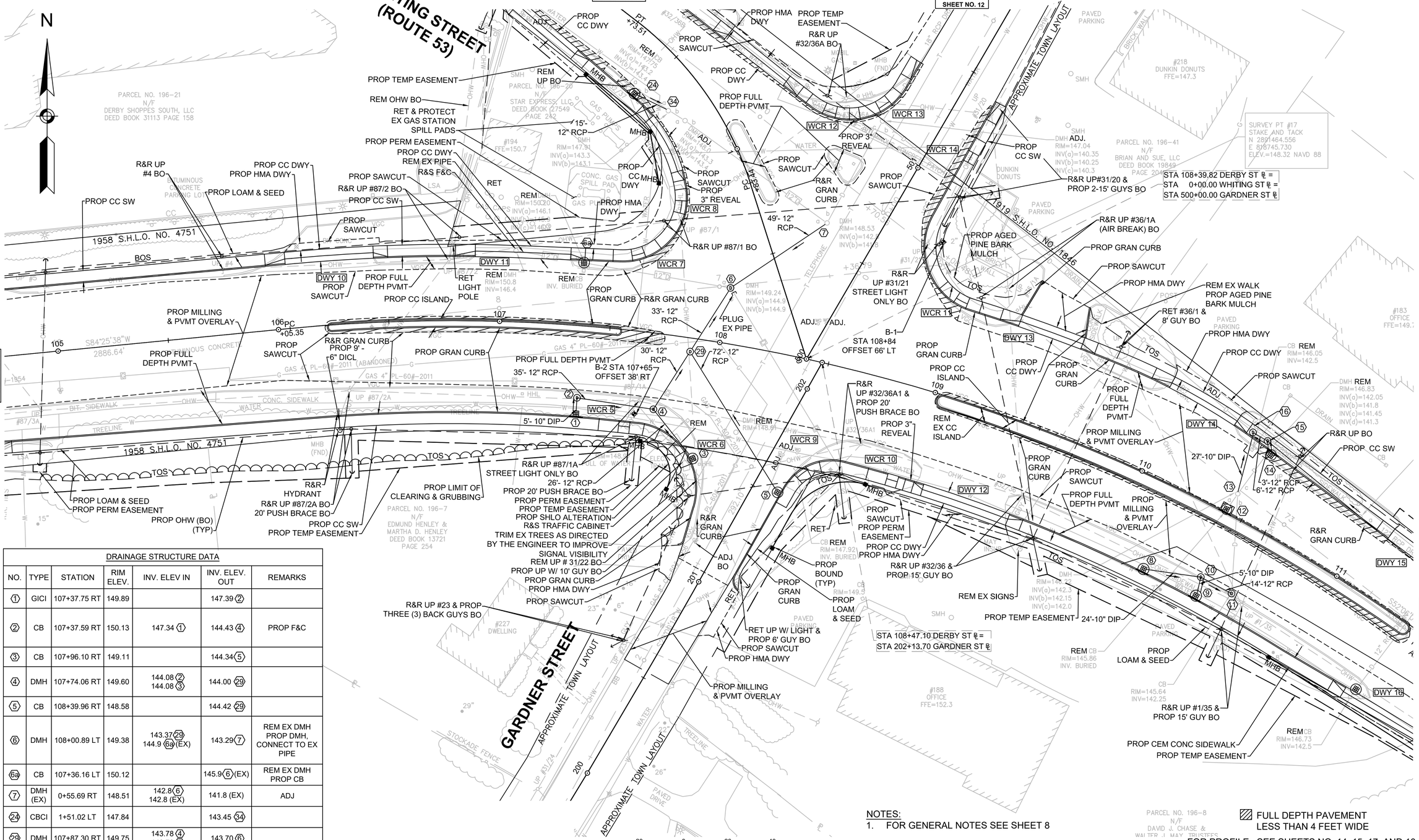
HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS
NONE	SEE TRAFFIC SIGNAL PLAN	NONE	SEE BELOW

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	10	63
PROJECT FILE NO.	600518		

CONSTRUCTION PLAN

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017



DRAINAGE STRUCTURE DATA						
NO.	TYPE	STATION	RIM ELEV.	INV. ELEV IN	INV. ELEV. OUT	REMARKS
1	GICI	107+37.75 RT	149.89		147.39 2	
2	CB	107+37.59 RT	150.13	147.34 1	144.43 4	PROP F&C
3	CB	107+96.10 RT	149.11		144.34 5	
4	DMH	107+74.06 RT	149.60	144.08 2 144.08 3	144.00 29	
5	CB	108+39.96 RT	148.58		144.42 29	
6	DMH	108+00.89 LT	149.38	143.37 29 144.9 6a (EX)	143.29 7	REM EX DMH PROP DMH, CONNECT TO EX PIPE
6a	CB	107+36.16 LT	150.12		145.9 6 (EX)	REM EX DMH PROP CB
7	DMH (EX)	0+55.69 RT	148.51	142.8 6 142.8 (EX)	141.8 (EX)	ADJ
24	CBCI	1+51.02 LT	147.84		143.45 34	
29	DMH	107+87.30 RT	149.75	143.78 4 143.78 5	143.70 6	
34	DMH (EX)	1+32.56 LT	147.92	143.5 24	143.4 (EX)	ADJ

NOTES:
1. FOR GENERAL NOTES SEE SHEET 8

FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE

FOR PROFILE: SEE SHEETS NO. 14, 15, 17, AND 18

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	11	63
PROJECT FILE NO.	600518		

CONSTRUCTION PLAN

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

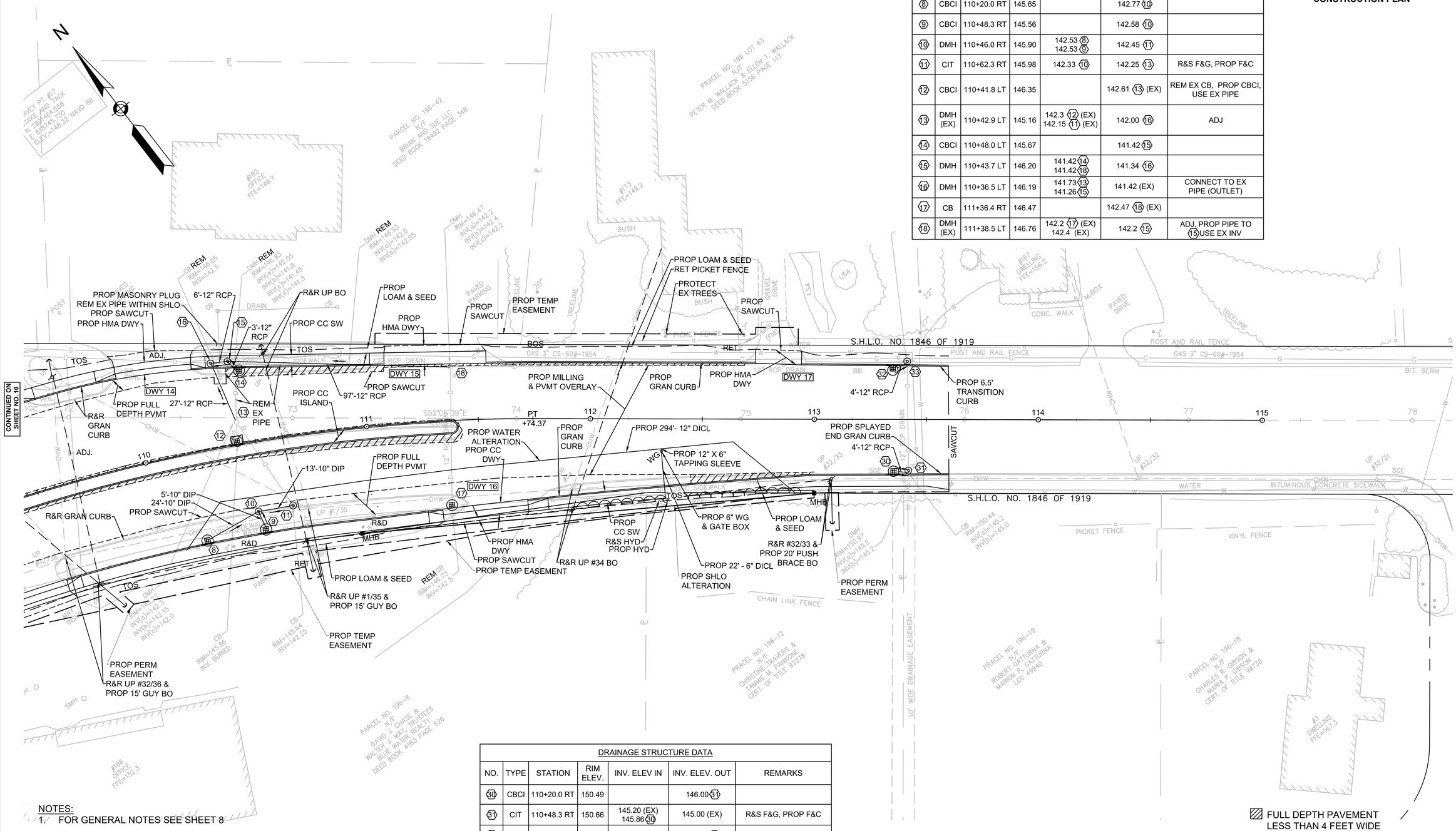
NONE

DRAINAGE DETAILS

SEE BELOW

DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV IN	INV. ELEV. OUT	REMARKS
8	CBCI	110+20.0 RT	145.65		142.77 (10)	
9	CBCI	110+48.3 RT	145.56		142.58 (10)	
10	DMH	110+46.0 RT	145.90	142.53 (8) 142.53 (9)	142.45 (11)	
11	CIT	110+62.3 RT	145.98	142.33 (10)	142.25 (13)	R&S F&G, PROP F&C
12	CBCI	110+41.8 LT	146.35		142.61 (13) (EX)	REM EX CB, PROP CBCI, USE EX PIPE
13	DMH (EX)	110+42.9 LT	145.16	142.3 (12) (EX) 142.15 (11) (EX)	142.00 (16)	ADJ
14	CBCI	110+48.0 LT	145.67		141.42 (15)	
15	DMH	110+43.7 LT	146.20	141.42 (14) 141.42 (18)	141.34 (16)	
16	DMH	110+36.5 LT	146.19	141.73 (13) 141.26 (15)	141.42 (EX)	CONNECT TO EX PIPE (OUTLET)
17	CB	111+36.4 RT	146.47		142.47 (18) (EX)	
18	DMH (EX)	111+38.5 LT	146.76	142.2 (17) (EX) 142.4 (EX)	142.2 (15)	ADJ, PROP PIPE TO (15) USE EX INV



DRAINAGE STRUCTURE DATA

NO.	TYPE	STATION	RIM ELEV.	INV. ELEV IN	INV. ELEV. OUT	REMARKS
30	CBCI	110+20.0 RT	150.49		146.00 (31)	
31	CIT	110+48.3 RT	150.66	145.20 (EX) 145.86 (30)	145.00 (EX)	R&S F&G, PROP F&C
32	CBCI	110+46.0 RT	150.72		146.22 (33)	
33	CIT	110+62.3 RT	151.35	145.00 (EX) 146.08 (32)	144.80 (EX)	R&S F&G, PROP F&C

NOTES:
1. FOR GENERAL NOTES SEE SHEET 8

FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE

FOR PROFILE: SEE SHEET NO. 16

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

NONE

WATER SUPPLY ALTERATIONS

NONE

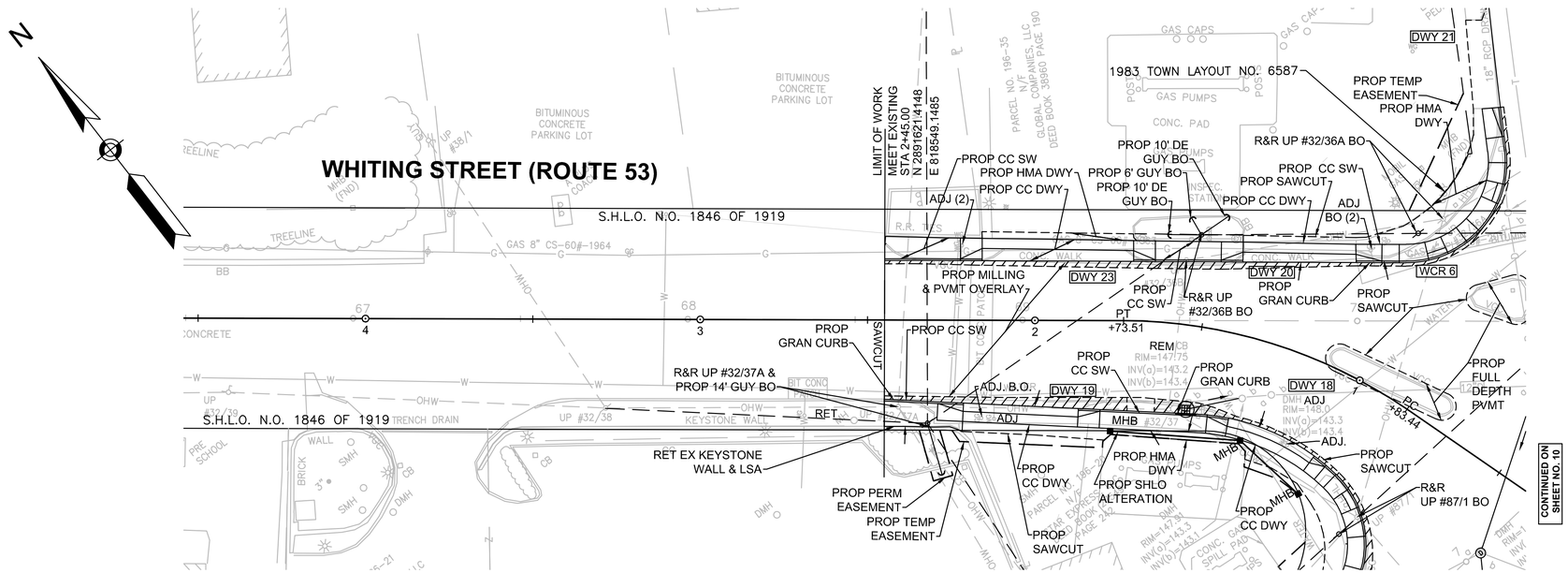
DRAINAGE DETAILS

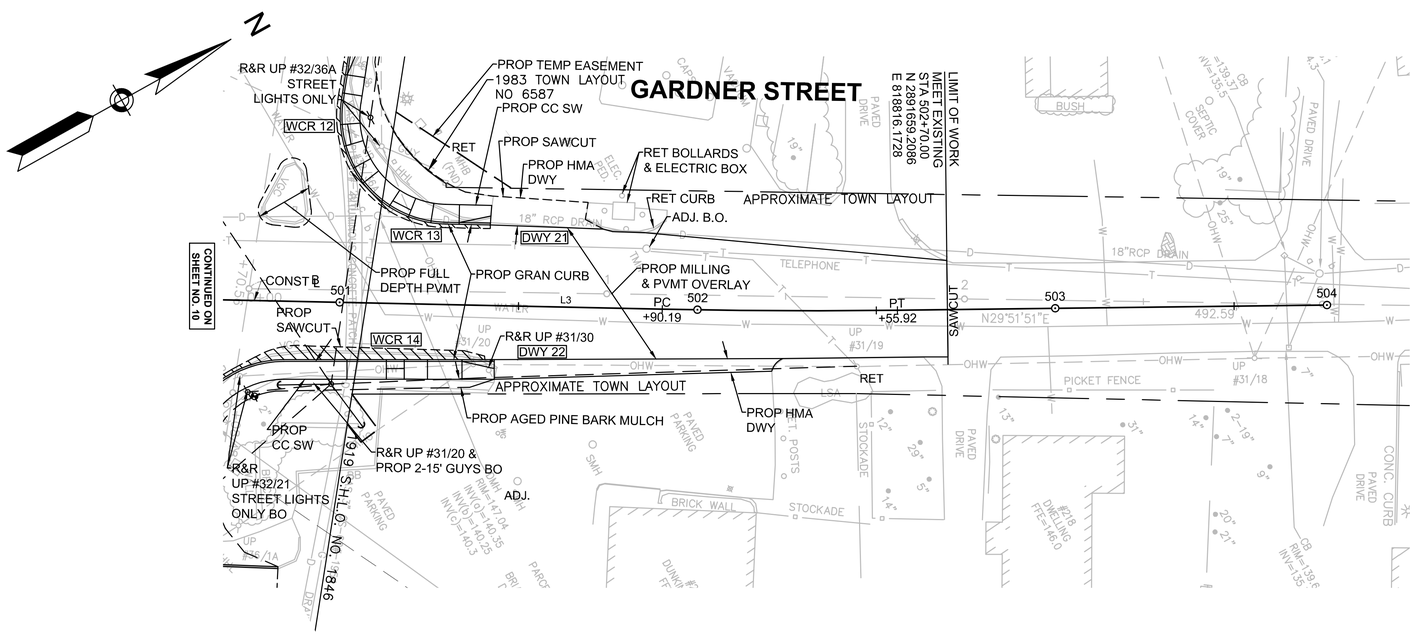
SEE BELOW

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	12	63
PROJECT FILE NO.	600518		

CONSTRUCTION PLAN





NOTES:
1. FOR GENERAL NOTES SEE SHEET 8

SCALE IN FEET (20 0 20 40)

FULL DEPTH PAVEMENT LESS THAN 4 FEET WIDE

FOR PROFILE: SEE SHEETS NO. 18 AND 19

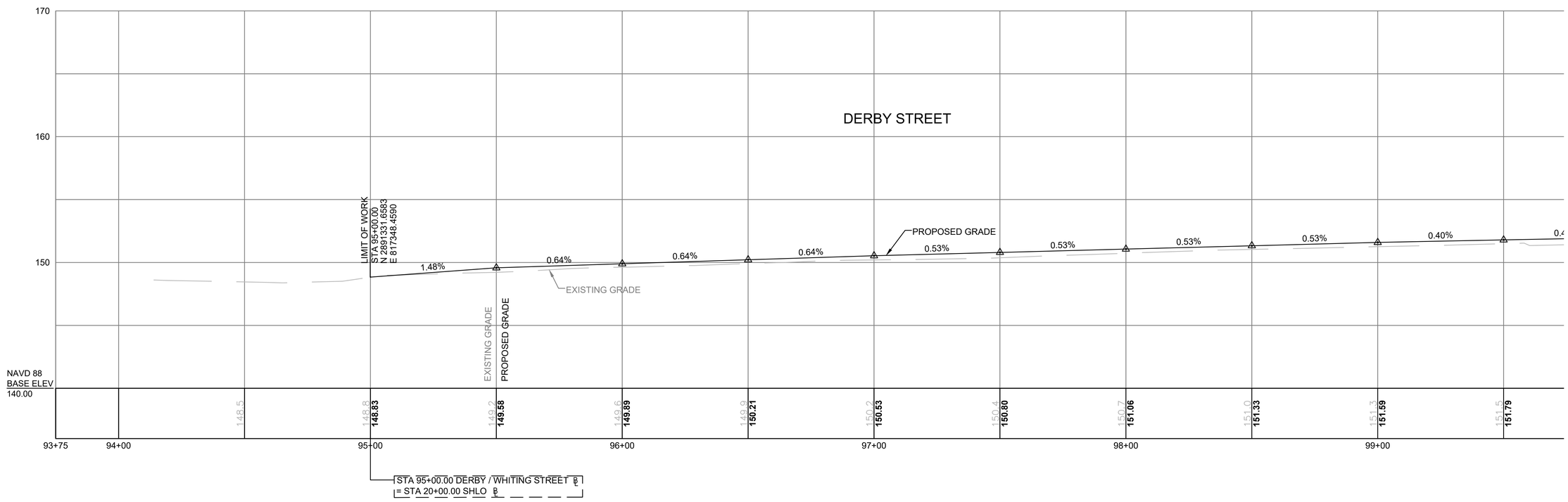
600518_HD4_CONST&PROFILES.DWG 6-Nov-2017

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	13	63
PROJECT FILE NO.	600518		

PROFILE
DERBY AND WHITING STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017



CONTINUED ON SHEET NO. 14

NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

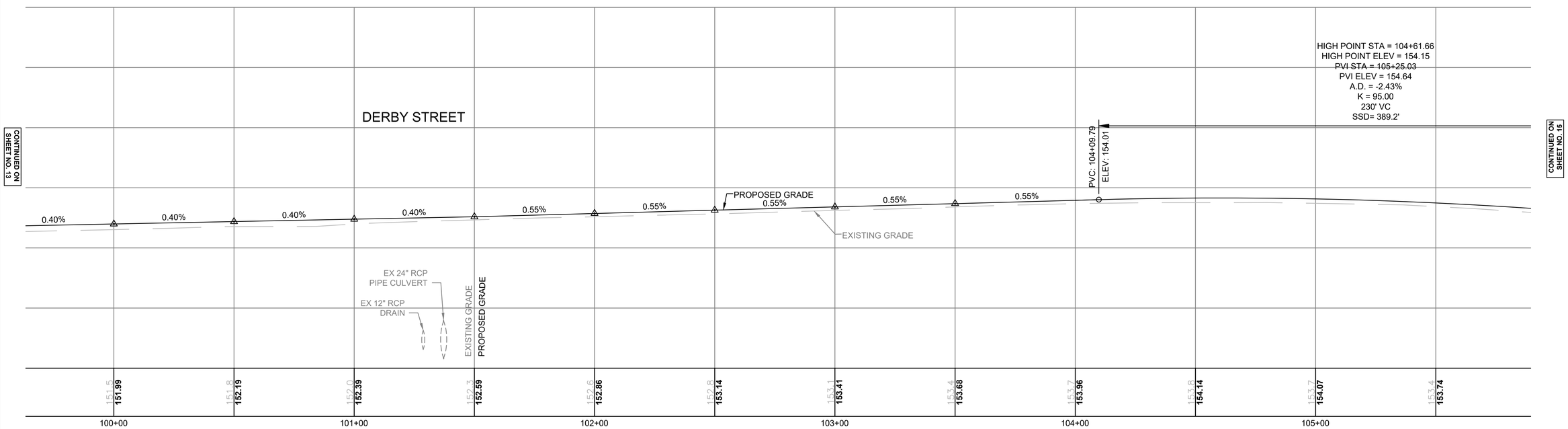
FOR CONSTRUCTION PLAN: SEE SHEET 8

HORIZONTAL
20 0 20 40
4 0 4 8
VERTICAL
SCALE IN FEET

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	14	63
PROJECT FILE NO.	600518		

PROFILE
DERBY AND WHITING STREET



NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

FOR CONSTRUCTION PLAN: SEE SHEET 9

HORIZONTAL
20 0 20 40
4 0 4 8
VERTICAL
SCALE IN FEET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017

HINGHAM
DERBY / WHITING STREET

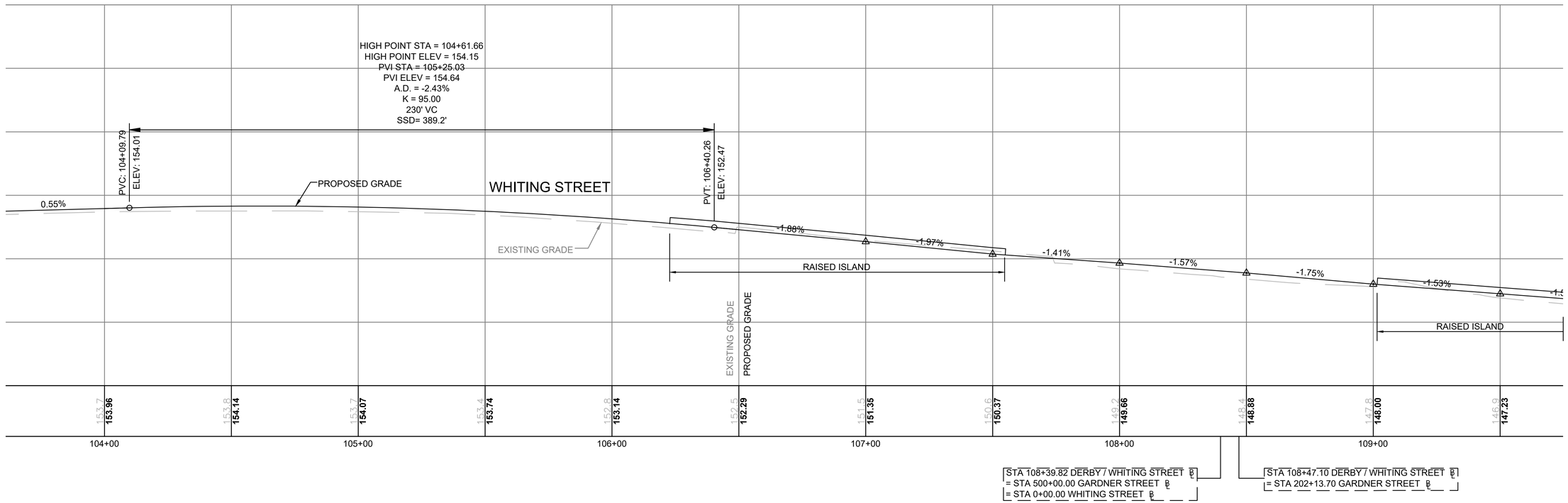
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	15	63
PROJECT FILE NO.	600518		

PROFILE
DERBY AND WHITING STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017

CONTINUED ON SHEET NO. 14

CONTINUED ON SHEET NO. 16



NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

FOR CONSTRUCTION PLAN: SEE SHEET 10

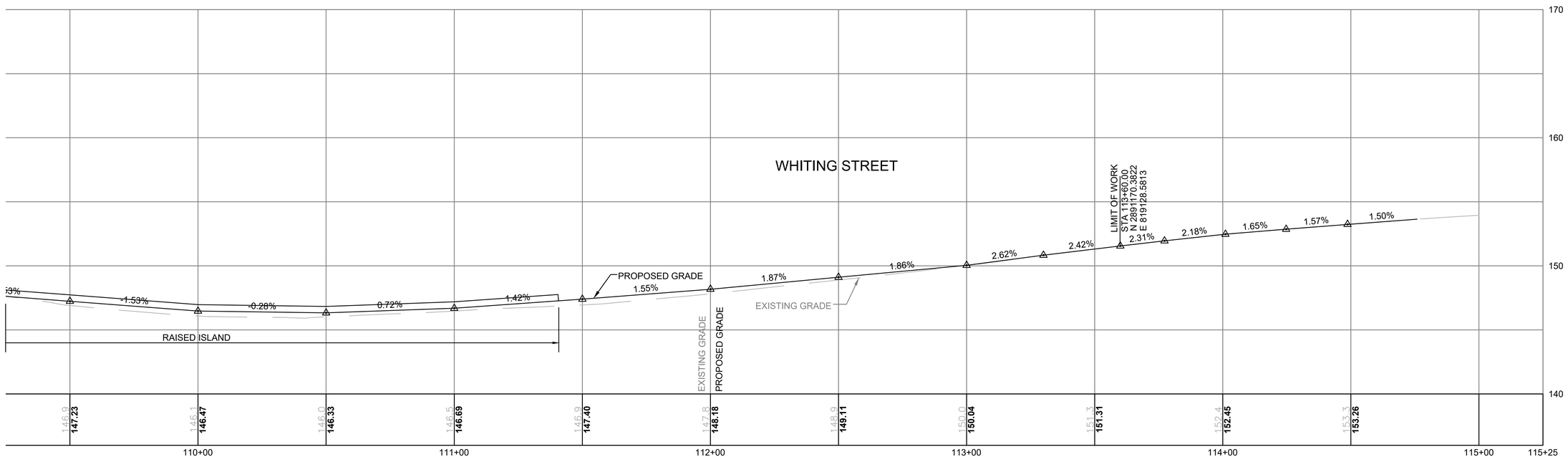
HORIZONTAL
20 0 20 40
4 0 4 8
VERTICAL
SCALE IN FEET

HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	16	63
PROJECT FILE NO.	600518		

PROFILE
DERBY AND WHITING STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017



CONTINUED ON SHEET NO. 15

NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH. PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

FOR CONSTRUCTION PLAN: SEE SHEET 11

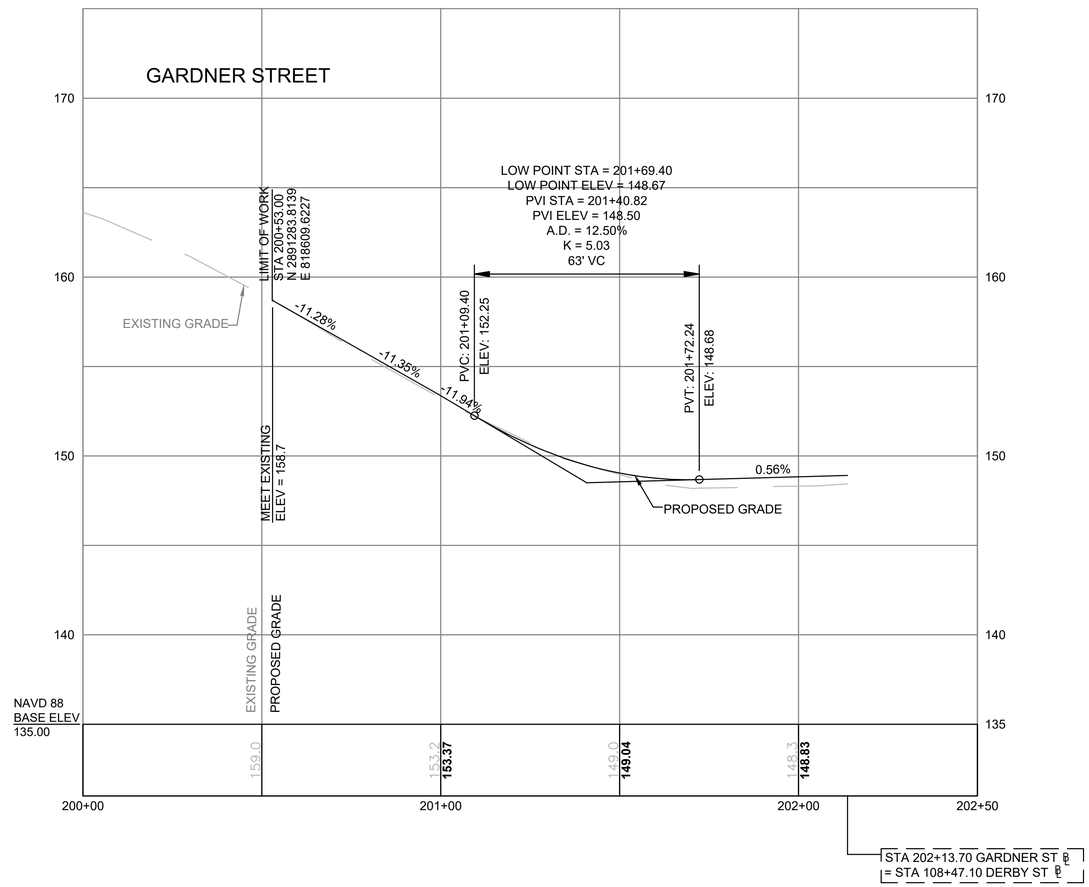
HORIZONTAL
20 0 20 40
4 0 4 8
VERTICAL
SCALE IN FEET

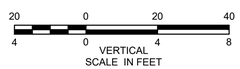
HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	17	63
PROJECT FILE NO.	600518		

PROFILE
GARDNER STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017





FOR CONSTRUCTION PLAN: SEE SHEET 10

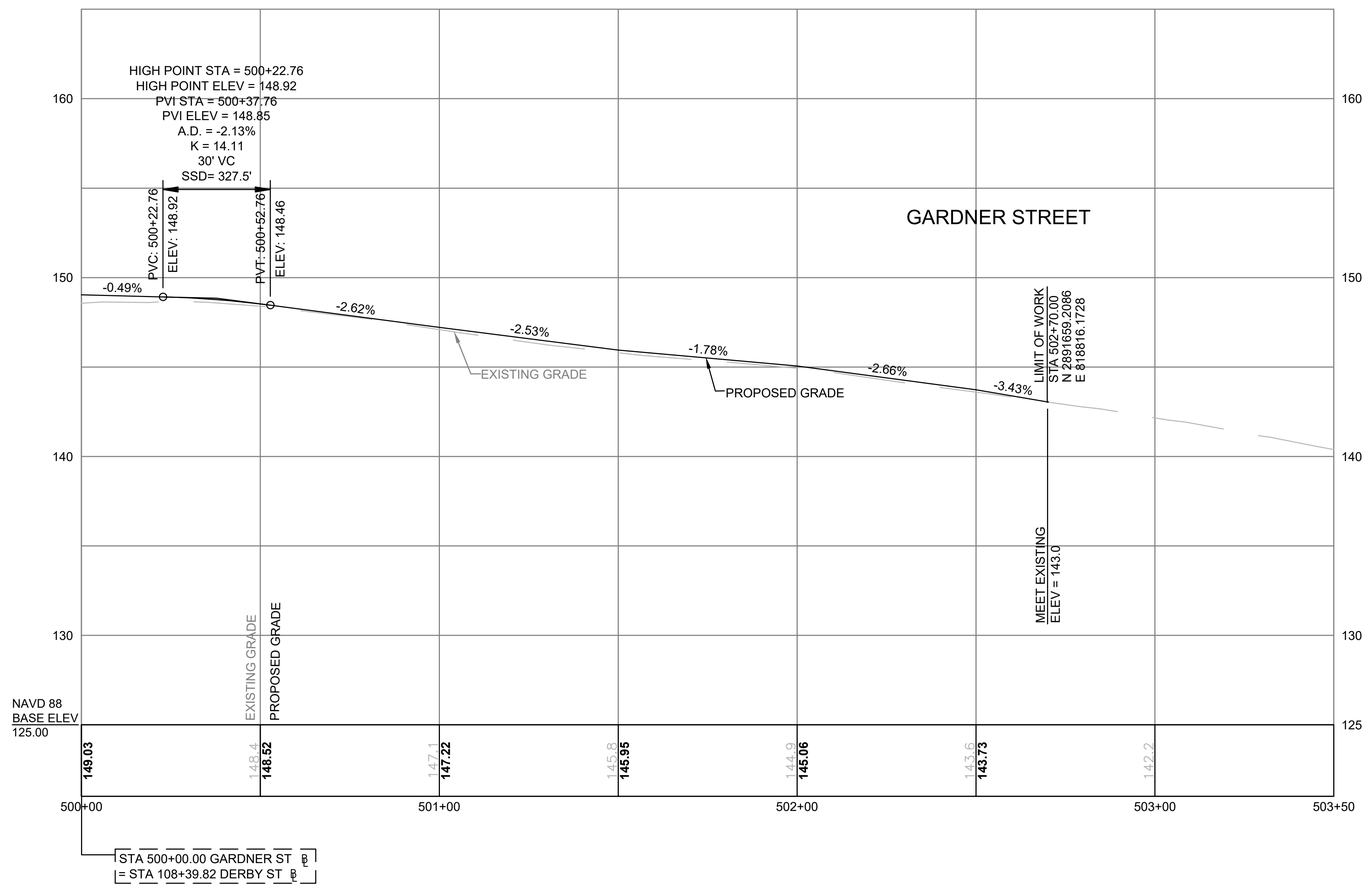
NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

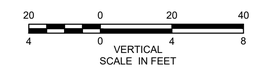
HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	18	63
PROJECT FILE NO.	600518		

PROFILE
GARDNER STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017





FOR CONSTRUCTION PLAN: SEE SHEETS 10 & 12

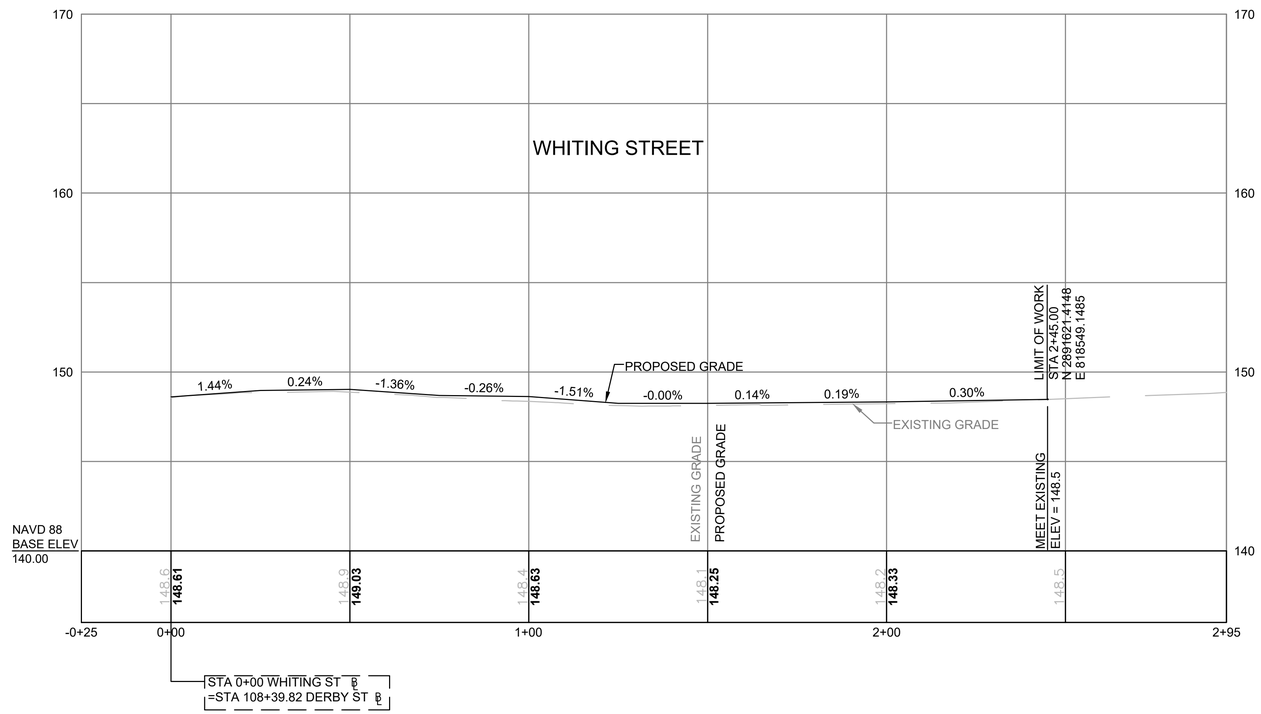
NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

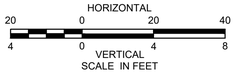
HINGHAM
DERBY / WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	19	63
PROJECT FILE NO.	600518		

PROFILE
WHITING STREET

600518_HD4_CONST&PROFILES.DWG 6-Nov-2017





FOR CONSTRUCTION PLAN: SEE SHEETS 10 & 12

NOTE:
PROPOSED PROJECT ASSUMES A UNIFORM MILLING DEPTH.
PROFILE SHOWN IS FOR GRAPHICAL PURPOSES ONLY AND
WILL BE OMITTED FOR THE PS&E DESIGN SUBMISSION.

HINGHAM
DERBY/WHITING STREET

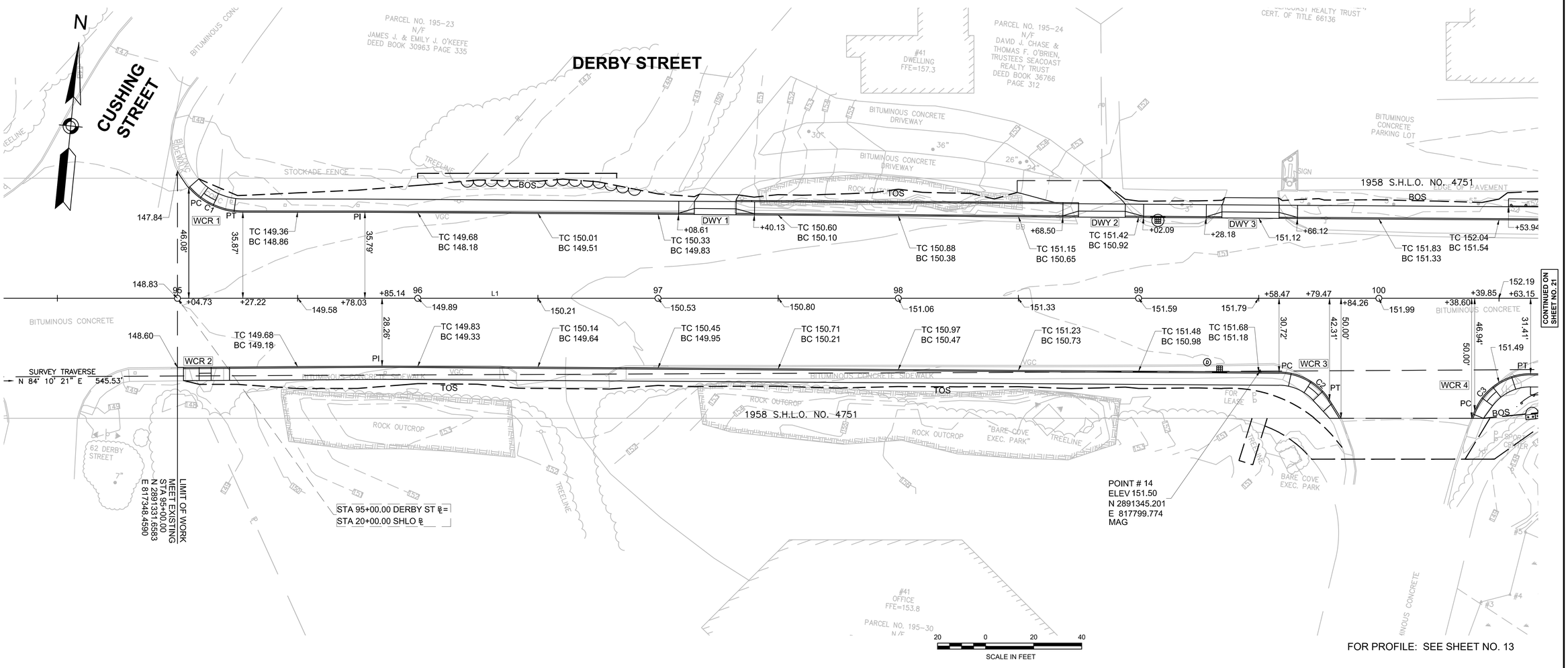
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	20	63
PROJECT FILE NO.	600518		

CURB TIE & GRADING PLAN

600518_HDS_GRADING & CURB TIE.DWG 6-Nov-2017

Curve Table				
Curve #	Radius	Length	Tangent	Delta
C1	30.00'	25.45'	13.55'	48° 36' 22"

DERBY-WHITING STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	94+14.00	2891323.3356	817262.8630		N84° 25' 38"E 1191.35'	106+05.35	2891439.0272	818448.5783
C1	106+05.35	2891439.0272	818448.5783	R=750.00' Δ=43°28'13" L=569.02' T=298.99'		111+74.37	2891284.4055	818982.0984
L2	111+74.37	2891284.4055	818982.0984		S52° 06' 09"E 325.63'	115+00.00	2891084.3874	819239.0566



FOR PROFILE: SEE SHEET NO. 13

HINGHAM
DERBY/WHITING STREET

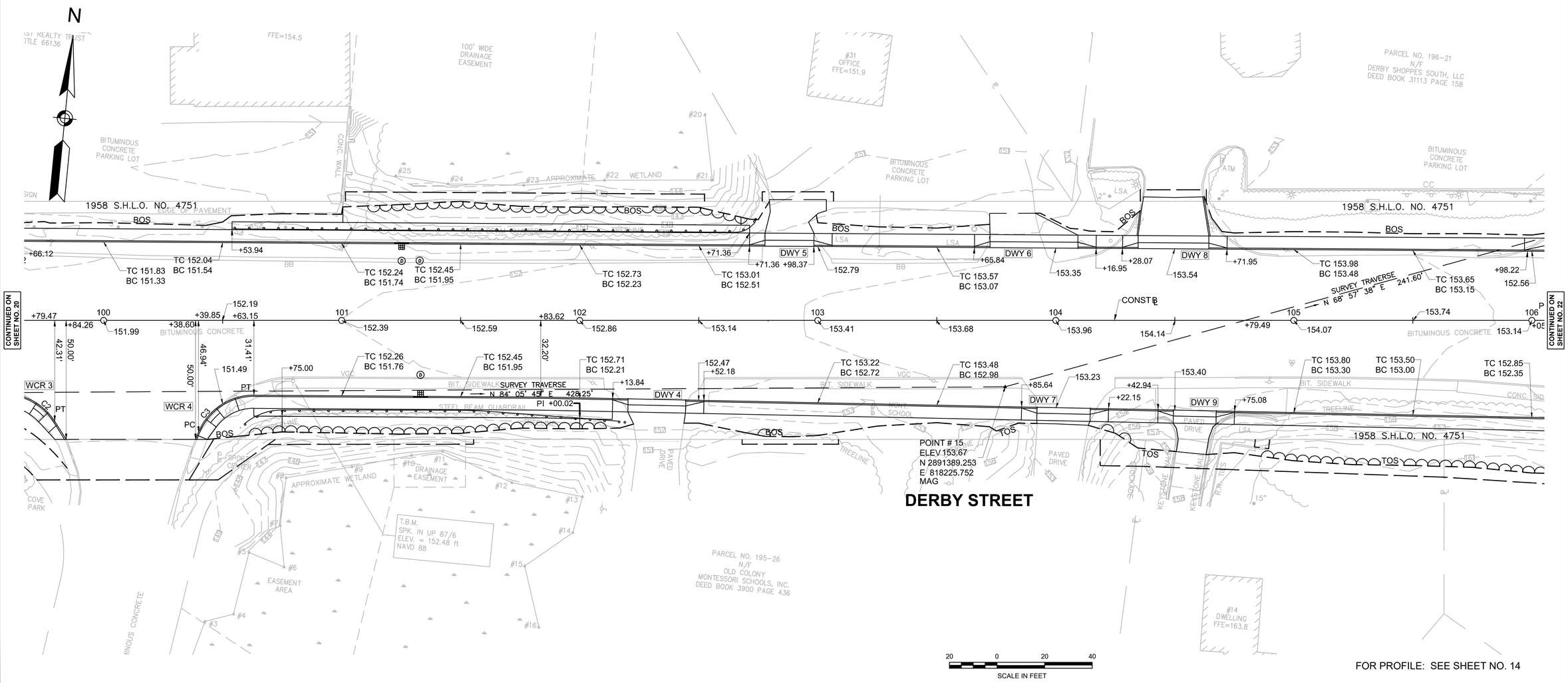
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	21	63
PROJECT FILE NO.	600518		

CURB TIE & GRADING PLAN

600518_HDS_GRADING & CURB TIE.DWG 6-Nov-2017

Curve Table				
Curve #	Radius	Length	Tangent	Delta
C2	25.00'	25.03'	13.68'	57° 21' 33"
C3	25.00'	29.72'	16.90'	68° 06' 28"

DERBY-WHITING STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	94+14.00	2891323.3356	817262.8630		N84° 25' 38"E 1191.35'	106+05.35	2891439.0272	818448.5783
C1	106+05.35	2891439.0272	818448.5783	R=750.00' Δ=43°28'13" L=569.02' T=298.99'		111+74.37	2891284.4055	818982.0984
L2	111+74.37	2891284.4055	818982.0984		S52° 06' 09"E 325.63'	115+00.00	2891084.3874	819239.0566



FOR PROFILE: SEE SHEET NO. 14

DERBY-WHITING STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	94+14.00	2891323.3356	817262.8630		N84° 25' 38"E 1191.35'	106+05.35	2891439.0272	818448.5783
C1	106+05.35	2891439.0272	818448.5783	R=750.00' Δ=43°28'13" L=569.02' T=298.99'		111+74.37	2891284.4055	818982.0984
L2	111+74.37	2891284.4055	818982.0984		S52° 06' 09"E 325.63'	115+00.00	2891084.3874	819239.0566

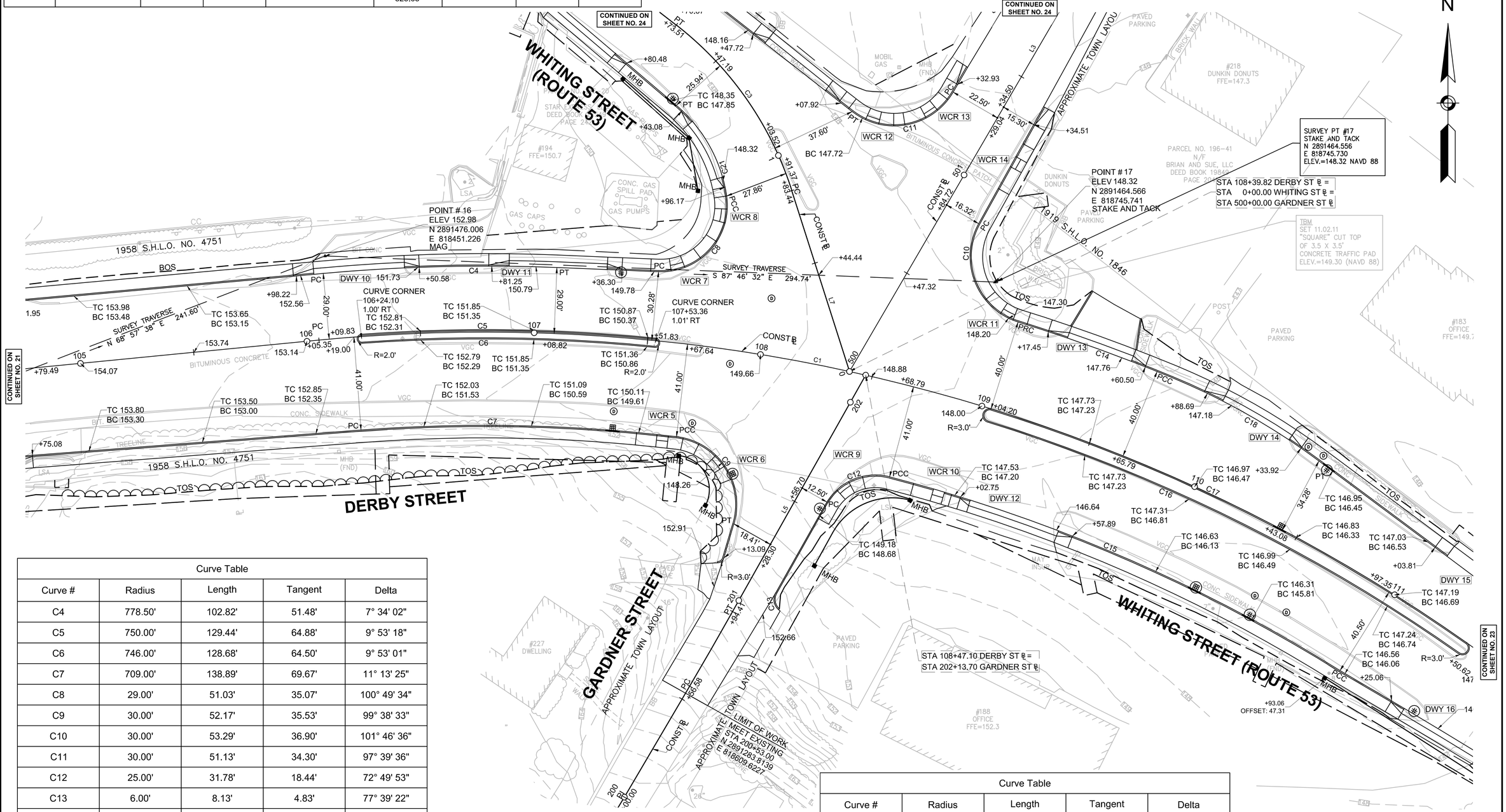
GARDNER STREET SOUTH CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L5	200+94.41	2891319.6928	818630.2995		N29° 21' 57"E 119.29'	202+13.70	2891423.6546	818688.7974

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	22	63
PROJECT FILE NO.	600518		

CURB TIE & GRADING PLAN

600518_HDS_GRADING & CURB TIE.DWG 6-Nov-2017



Curve Table				
Curve #	Radius	Length	Tangent	Delta
C4	778.50'	102.82'	51.48'	7° 34' 02"
C5	750.00'	129.44'	64.88'	9° 53' 18"
C6	746.00'	128.68'	64.50'	9° 53' 01"
C7	709.00'	138.89'	69.67'	11° 13' 25"
C8	29.00'	51.03'	35.07'	100° 49' 34"
C9	30.00'	52.17'	35.53'	99° 38' 33"
C10	30.00'	53.29'	36.90'	101° 46' 36"
C11	30.00'	51.13'	34.30'	97° 39' 36"
C12	25.00'	31.78'	18.44'	72° 49' 53"
C13	6.00'	8.13'	4.83'	77° 39' 22"
C14	790.00'	71.97'	36.01'	5° 13' 11"
C15	709.00'	216.34'	109.02'	17° 28' 59"
C16	744.00'	231.80'	116.85'	17° 51' 04"

Curve Table				
Curve #	Radius	Length	Tangent	Delta
C17	750.00'	233.67'	117.79'	17° 51' 04"
C18	300.00'	74.44'	37.41'	14° 12' 58"
C21	65.00'	46.57'	24.34'	41° 03' 16"

FOR PROFILE: SEE SHEETS NO. 15,16,17,18, AND 19

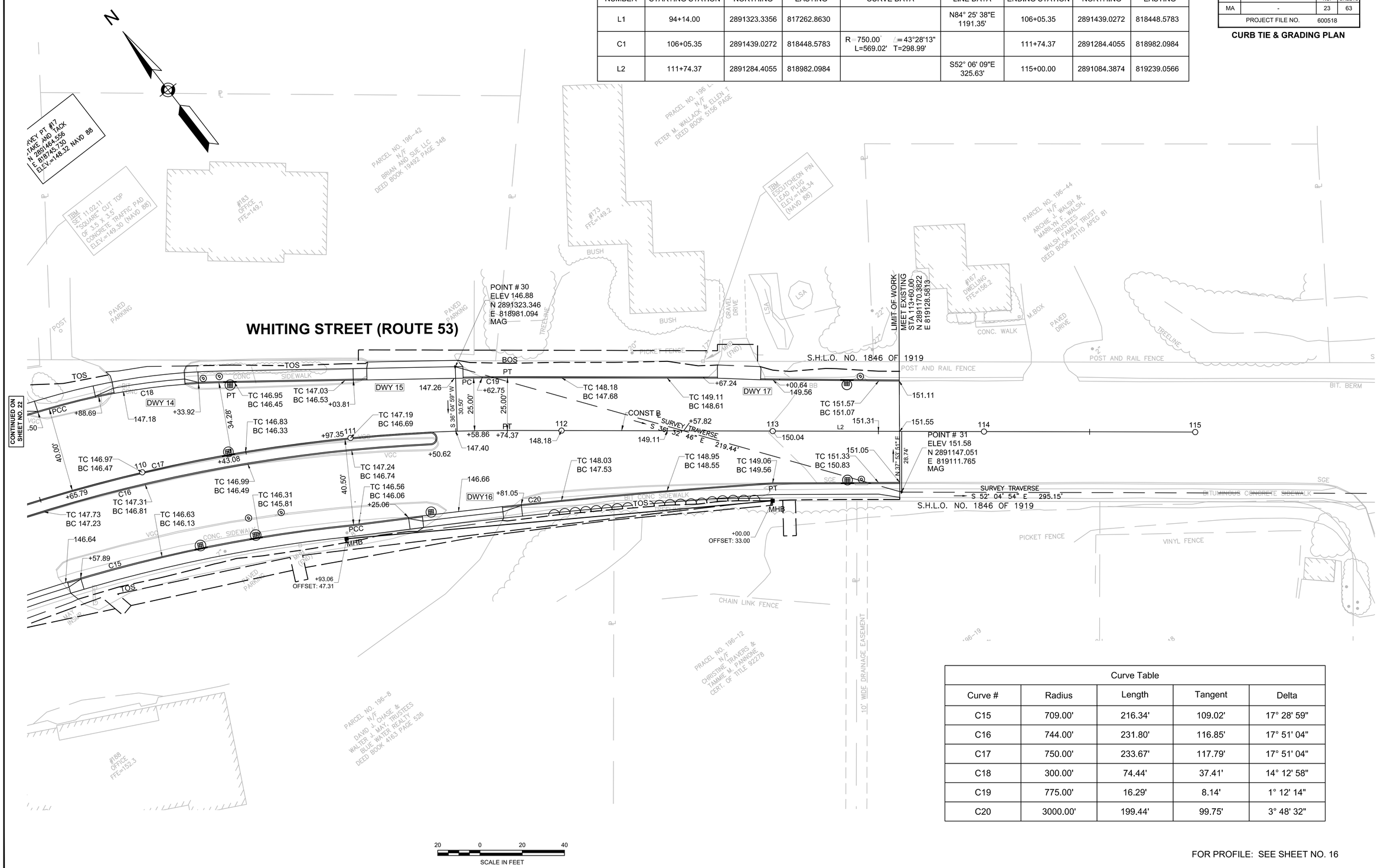
DERBY-WHITING STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	94+14.00	2891323.3356	817262.8630		N84° 25' 38"E 1191.35'	106+05.35	2891439.0272	818448.5783
C1	106+05.35	2891439.0272	818448.5783	R=750.00' Δ=43°28'13" L=569.02' T=298.99'		111+74.37	2891284.4055	818982.0984
L2	111+74.37	2891284.4055	818982.0984		S52° 06' 09"E 325.63'	115+00.00	2891084.3874	819239.0566

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	63
PROJECT FILE NO.	600518		

CURB TIE & GRADING PLAN

600518_HDS_GRADING & CURB TIE.DWG 6-Nov-2017



Curve Table				
Curve #	Radius	Length	Tangent	Delta
C15	709.00'	216.34'	109.02'	17° 28' 59"
C16	744.00'	231.80'	116.85'	17° 51' 04"
C17	750.00'	233.67'	117.79'	17° 51' 04"
C18	300.00'	74.44'	37.41'	14° 12' 58"
C19	775.00'	16.29'	8.14'	1° 12' 14"
C20	3000.00'	199.44'	99.75'	3° 48' 32"

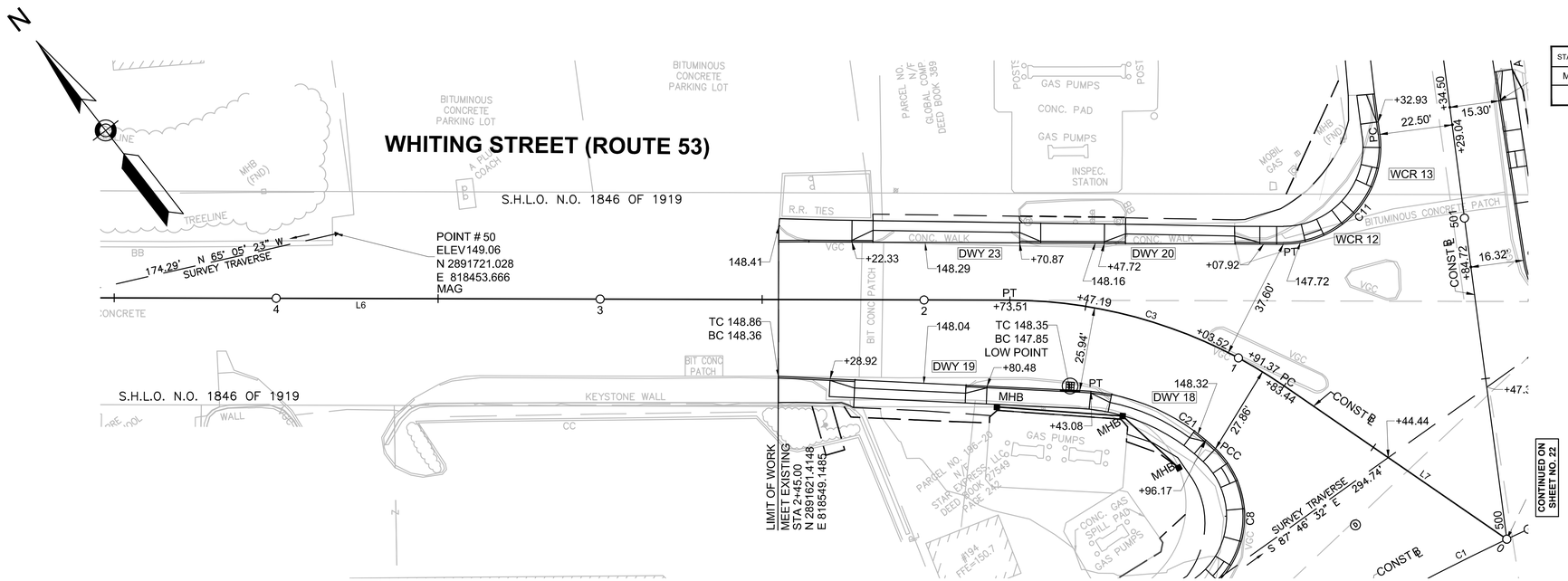
FOR PROFILE: SEE SHEET NO. 16

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	24	63
PROJECT FILE NO.	600518		

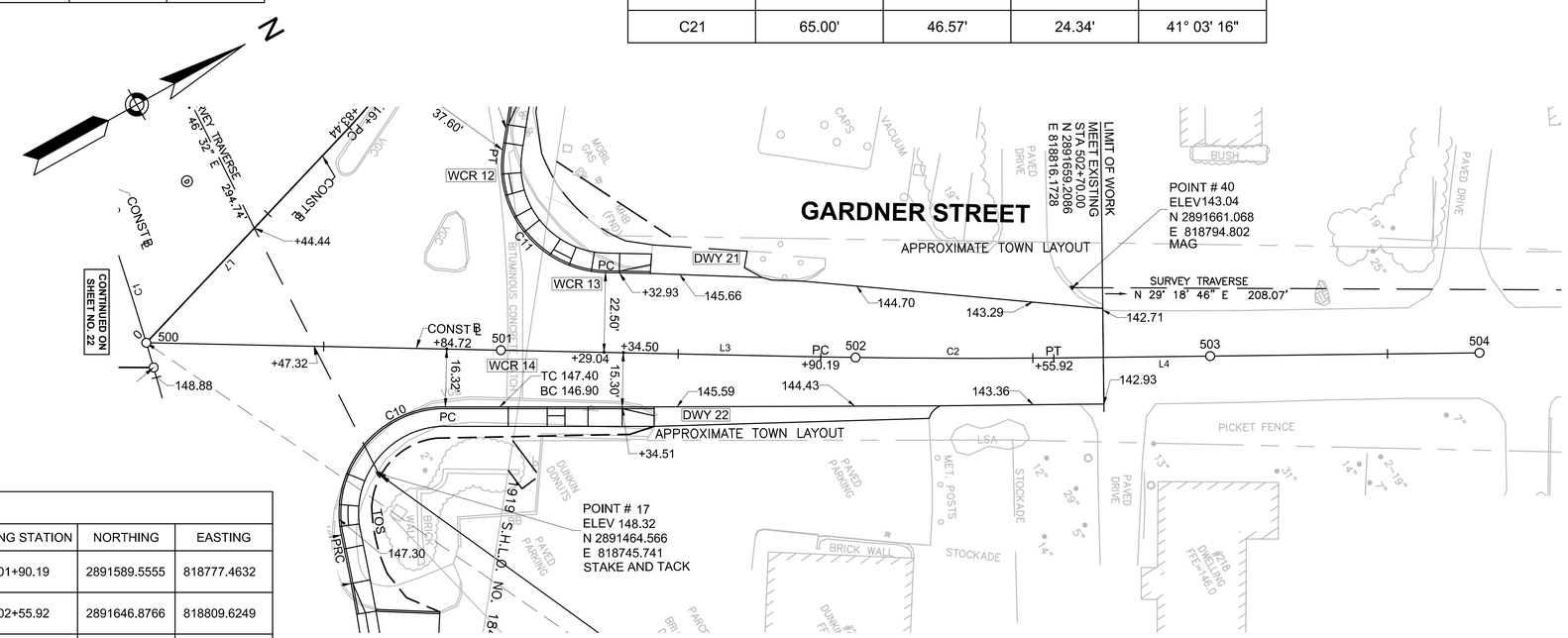
CURB TIE & GRADING PLAN

600518_HDS_GRADING & CURB TIE.DWG 6-Nov-2017



WHITING STREET (ROUTE 53) CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L7	0+00.00	2891425.2458	818681.6887		N17° 41' 46"W 83.44'	0+83.44	2891504.7334	818656.3269
C3	0+83.44	2891504.7334	818656.3269	R=150.00' Δ=34°24'23" L=90.08' T=46.44'		1+73.51	2891577.5052	818605.5619
L6	1+73.51	2891577.5052	818605.5619		N52° 06' 09"W 331.65'	5+05.16	2891781.2205	818343.8545

Curve Table				
Curve #	Radius	Length	Tangent	Delta
C8	29.00'	51.03'	35.07'	100° 49' 34"
C10	30.00'	53.29'	36.90'	101° 46' 36"
C11	30.00'	51.13'	34.30'	97° 39' 36"
C21	65.00'	46.57'	24.34'	41° 03' 16"



GARDNER STREET NORTH CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	500+00.00	2891425.2458	818681.6887		N30° 14' 15"E 190.19'	501+90.19	2891589.5555	818777.4632
C2	501+90.19	2891589.5555	818777.4632	R=2000.00' Δ=1°52'59" L=65.73' T=32.87'		502+55.92	2891646.8766	818809.6249
L4	502+55.92	2891646.8766	818809.6249		N28° 21' 16"E 120.03'	503+75.95	2891752.5064	818866.6303

FOR PROFILE: SEE SHEETS NO. 18 AND 19

TRAFFIC SIGNS AND PAVEMENT MARKINGS NOTES

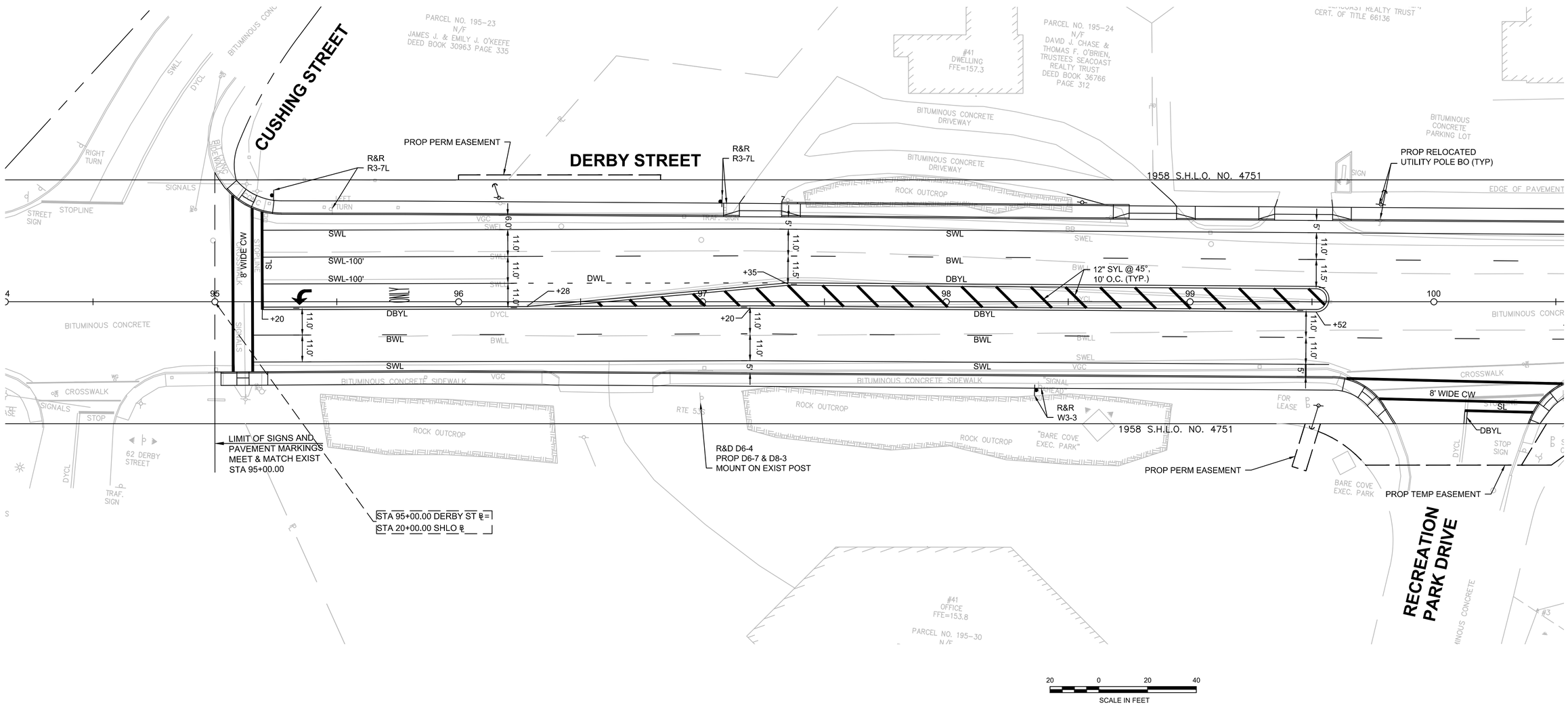
1. ALL EXISTING SIGNS AND SIGN POSTS WITHIN THE PROJECT LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED ON THE PLANS.
2. ALL PROPOSED PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK SHALL BE THERMOPLASTIC. ALL EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE PROPOSED PAVEMENT MARKINGS SHALL BE REMOVED.
3. PROPOSED 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 PROPOSED SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD & MASSDOT STANDARDS.
6. ALL SIGNS TO BE R&R SHALL BE MOUNTED ON NEW POSTS, UNLESS OTHERWISE NOTED.
7. SEE SHEET 31 FOR PROPOSED SIGN LEGENDS.
8. SEE SHEET 2 FOR LEGENDS, ABBREVIATIONS, AND GENERAL NOTES.

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	25	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNS & PAVEMENT MARKINGS

600518_TR1_SHEETS.DWG 6-Nov-2017

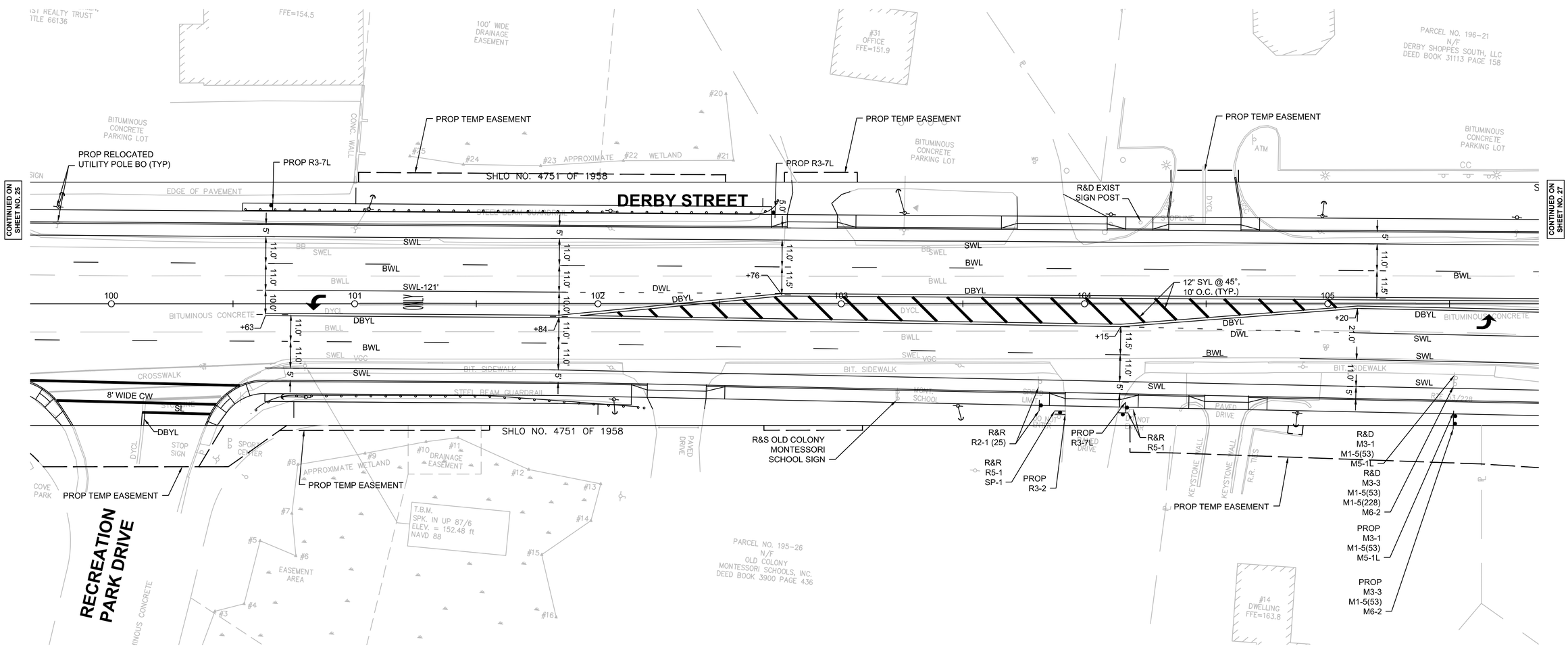


HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	26	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNS & PAVEMENT MARKINGS

600518_TR1_SHEETS.DWG 6-Nov-2017



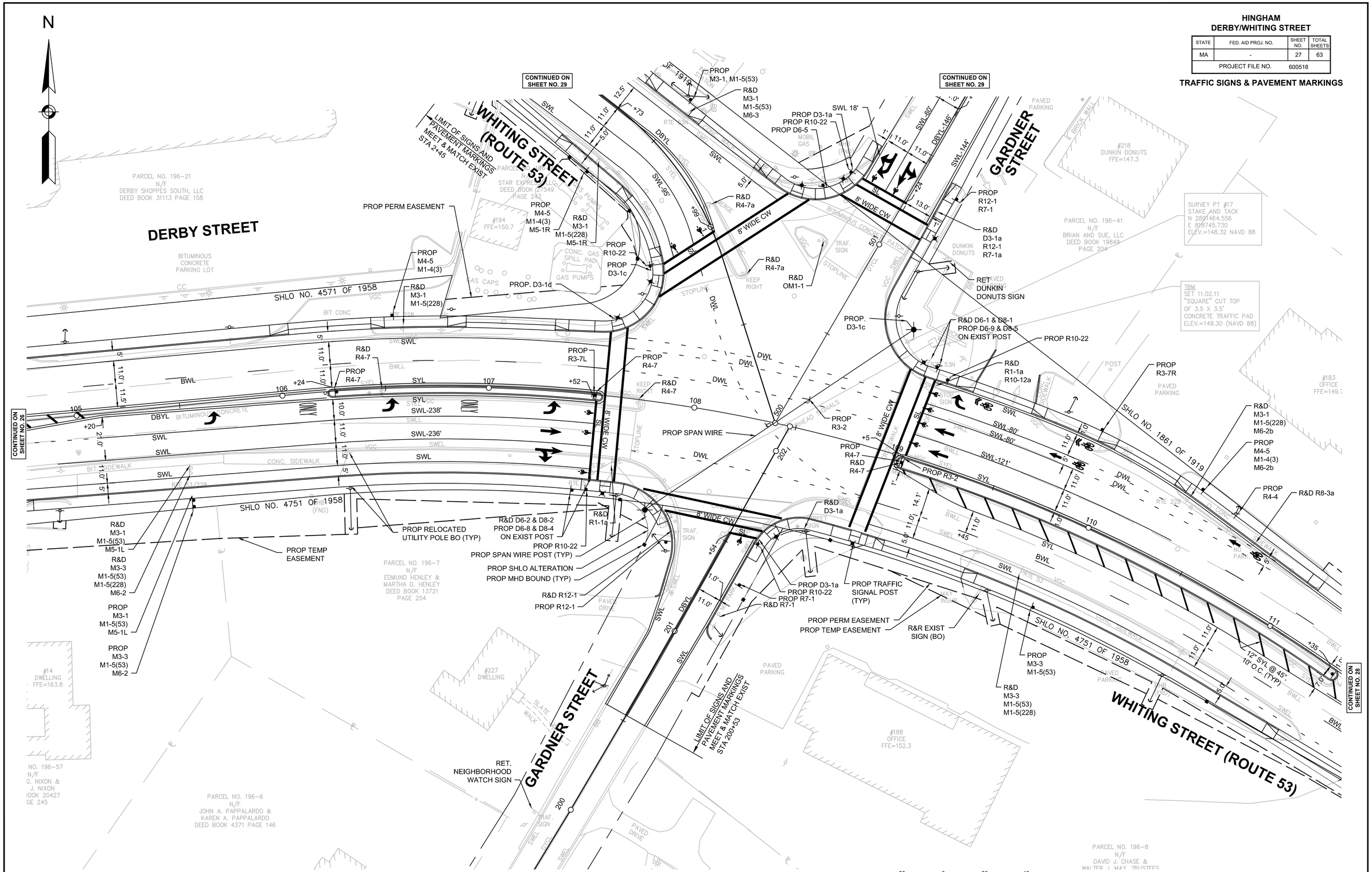
NOTES:
1. FOR TRAFFIC SIGNS AND PAVEMENT MARKING NOTES SEE SHEET 25.

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	27	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNS & PAVEMENT MARKINGS

600518_TR1_SHEETS.DWG 6-Nov-2017



NOTES:

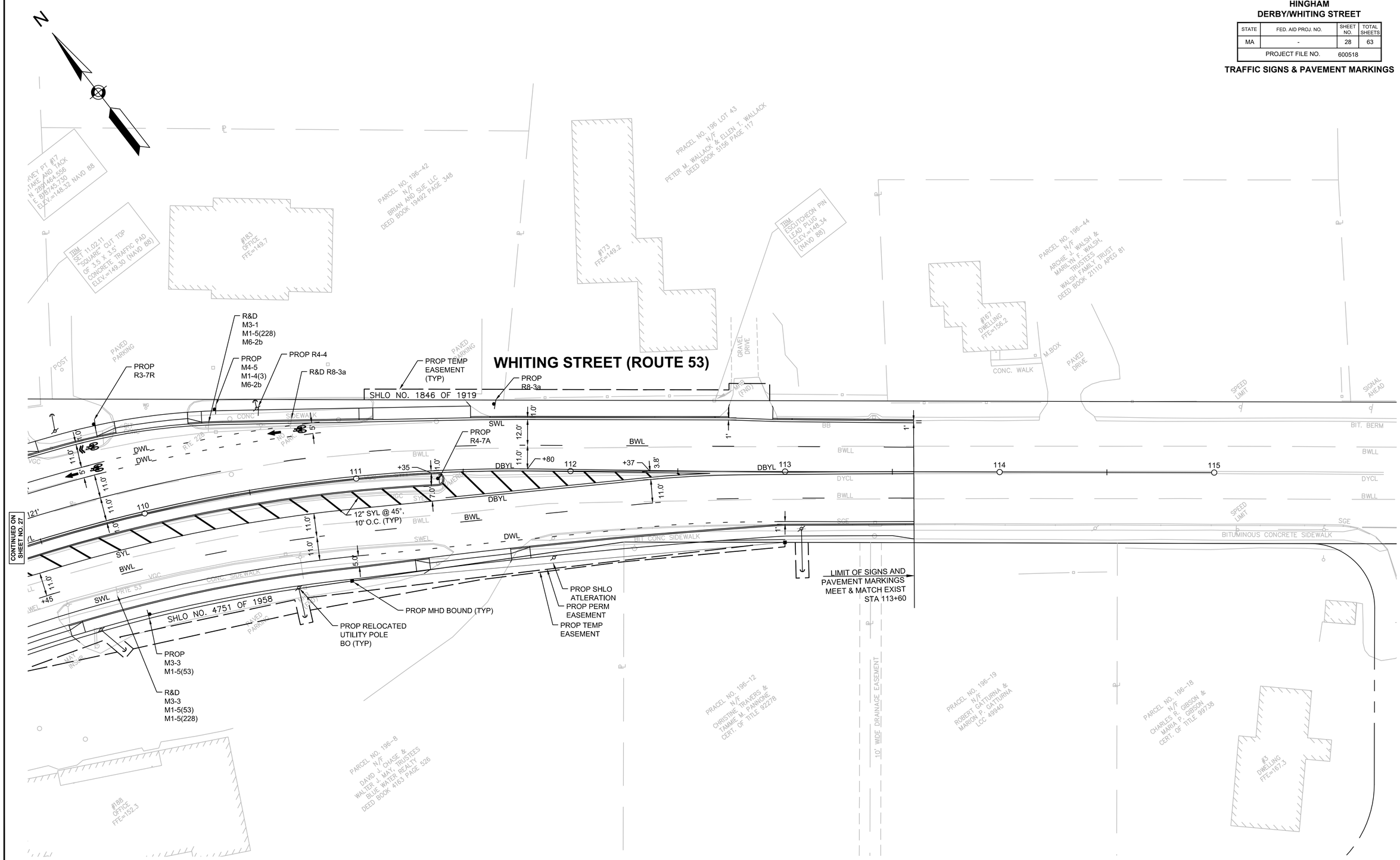
1. FOR TRAFFIC SIGNS AND PAVEMENT MARKING NOTES SEE SHEET 25.

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	28	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNS & PAVEMENT MARKINGS

600518_TR1_SHEETS.DWG 6-Nov-2017

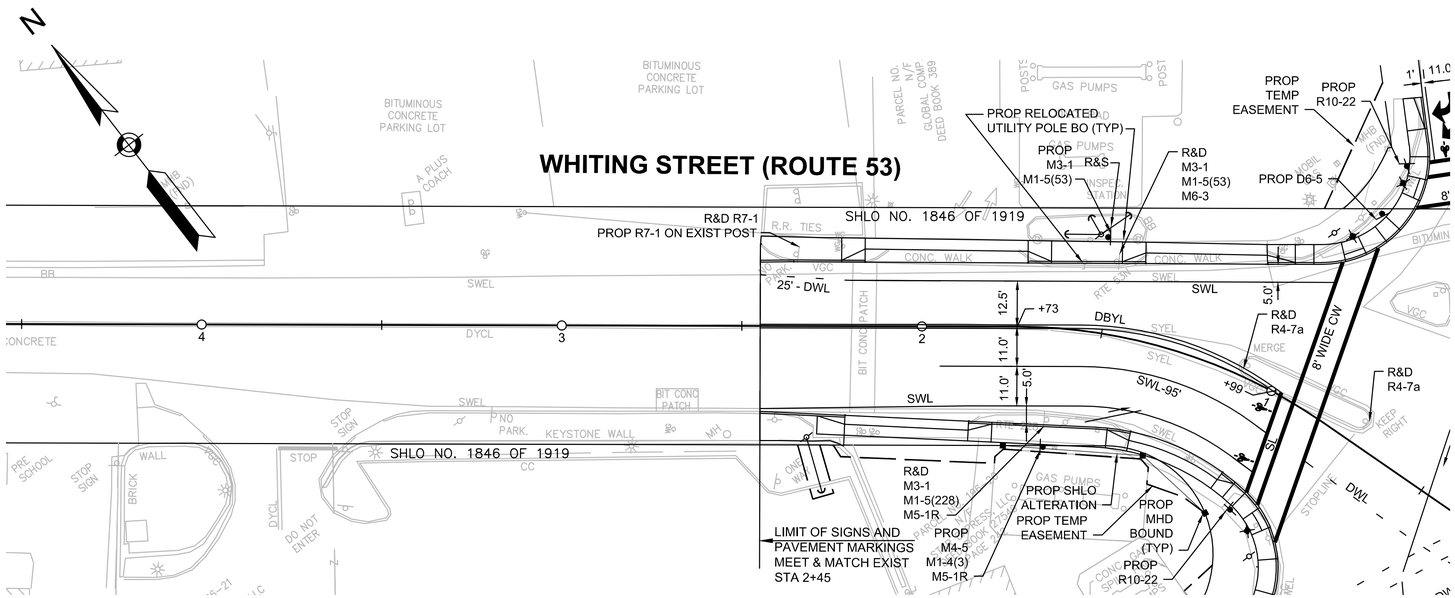


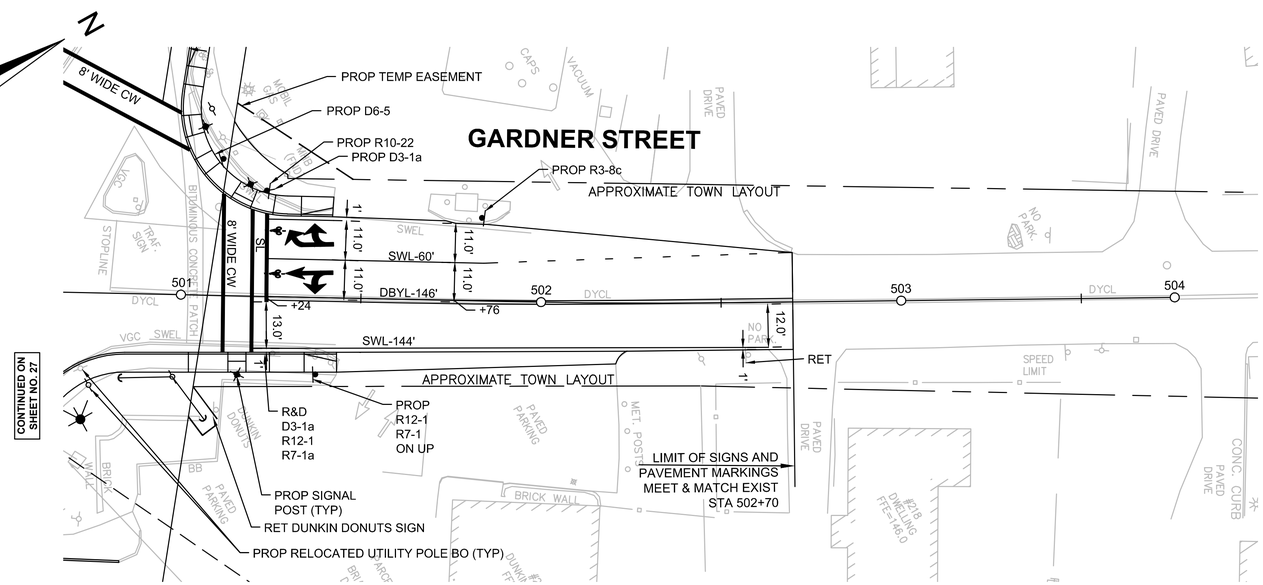
NOTES:
1. FOR TRAFFIC SIGNS AND PAVEMENT MARKING NOTES SEE SHEET 25.

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	29	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNS & PAVEMENT MARKINGS





NOTES:
1. FOR TRAFFIC SIGNS AND PAVEMENT MARKING NOTES SEE SHEET 25.

20 0 20 40
SCALE IN FEET

600518_TR1_SHEETS.DWG 6-Nov-2017

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	30	63
PROJECT FILE NO.	600518		

EXISTING TRAFFIC SIGN LEGENDS

600518_TR1_SHEETS.DWG 6-Nov-2017

EXISTING TRAFFIC SIGN LEGENDS

D3–1A	GARDNER ST
R2–1 (25)	SPEED LIMIT 25
R4–7	
R7–1	NO PARKING ANY TIME
R7–1A	NO PARKING BETWEEN SIGNS
R8–3A	NO PARKING
R5–1	DO NOT ENTER
R4–7A	KEEP RIGHT
R1–1A	STOP LINE
R10–12A	WAIT FOR DELAYED GREEN
R12–1	WEIGHT LIMIT 2½ TONS
SP–1	NO Trespassing Violators WILL BE PROSECUTED
OM1–1	
W3–3	
R3–7L	LEFT LANE MUST TURN LEFT

D8–2	53 NORTH WEYMOUTH
D8–1	53 NORTH WEYMOUTH
D6–2	SOUTH 53 228 HANOVER
D6–1	DERBY STREET TO ROUTE 3 S. WEYMOUTH
D6–4	53 SOUTH HANOVER KINGSTON KEEP RIGHT
M1–5(53)	53
M1–5(228)	228
M3–1	NORTH
M3–3	SOUTH
M5–1L	
M5–1R	
M6–2	
M6–2B	
M6–3	

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 JUSTIFCATION 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.

TRAFFIC SIGN SUMMARY

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	31	63
PROJECT FILE NO.	600518		

TRAFFIC SIGN SUMMARY

IDENTIFI-CATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	LEGEND	BORDER	POST SIZE AND NUMBER REQUIRED ②	UNIT AREA (S.F.)	AREA IN SQUARE FEET
D3-1A (PBS)	VARIES	12"	Gardner ST	①	①	①	2	GREEN	WHITE	WHITE	2 MOUNT W/ R10-22	EA	EA
D3-1C (PBS)	VARIES	12"	Whiting ST				2	GREEN	WHITE	WHITE	1 MOUNT W/ R10-22 1 MOUNT ON SIGNAL POST	EA	EA
D3-1D (PBS)	VARIES	12"	Derby ST				1	GREEN	WHITE	WHITE	1 MOUNT ON SIGNAL POST	EA	EA
M1-4(3)	36"	36"	3				3	WHITE	BLACK	BLACK	P-5 3 REQ'D	9.00	27.00
M1-5(53)	24"	24"	53				4	WHITE	BLACK	BLACK	P-5 4 REQ'D	4.00	16.00
M3-1	24"	12"	NORTH				2	WHITE	BLACK	BLACK	2 MOUNT W/M1-5(53)	2.00	4.00
M3-3	24"	12"	SOUTH				2	WHITE	BLACK	BLACK	2 MOUNT W/M1-5(53)	2.00	4.00
M4-5	24"	12"	TO				3	WHITE	BLACK	BLACK	3 MOUNT W/M1-4(3)	2.00	6.00
M5-1R	21"	15"					1	WHITE	BLACK	BLACK	1 MOUNT W/M1-4(3)	2.19	2.19
M5-1L	21"	15"					1	WHITE	BLACK	BLACK	1 MOUNT W/M1-5(53)	2.19	2.19
M6-2	21"	15"					1	WHITE	BLACK	BLACK	1 MOUNT W/M1-5(53)	2.19	2.19
M6-2B	21"	15"					1	WHITE	BLACK	BLACK	1 MOUNT W/M1-4(3)	2.19	2.19
R3-2	36"	36"					3	WHITE	BLACK	BLACK	1 MOUNT W/ EX R5-1 1 MOUNT ON SPAN WIRE 1 MOUNT W/R4-7	9.00	27.00
R3-7R	36"	36"	RIGHT LANE MUST TURN RIGHT				1	WHITE	BLACK	BLACK	P-5 1 REQ'D	9.00	9.00
R3-7L	36"	36"	LEFT LANE MUST TURN LEFT				4	WHITE	BLACK	BLACK	P-5 4 REQ'D	9.00	36.00
R3-8C	30"	30"					1	WHITE	BLACK	BLACK	P-5 1 REQ'D	6.25	6.25
R4-4	36"	30"	BEGIN RIGHT TURN LANE YIELD TO BIKES				1	WHITE	BLACK	BLACK	P-5 1 REQ'D	7.50	7.50
R4-7	24"	30"					3	WHITE	BLACK	BLACK	P-5 2 REQ'D 1 MOUNT W/ R3-7L	5.00	15.00

PBS = PRINT BOTH SIDES

IDENTIFI-CATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	LEGEND	BORDER	POST SIZE AND NUMBER REQUIRED ②	UNIT AREA (S.F.)	AREA IN SQUARE FEET
R4-7A	24"	30"	KEEP → RIGHT	①	①	①	1	WHITE	BLACK	BLACK	P-5 1 REQ'D	5.00	5.00
R7-1	12"	18"	NO PARKING ANY TIME ↔				3	WHITE	RED	RED	P-5 1 REQ'D 1 MOUNT ON EX POST 1 MOUNT W/ R12-1	3.00	9.00
R8-3A	24"	30"	NO PARKING				1	WHITE	RED	RED	P-5 1 REQ'D	5.00	5.00
R10-22	18"	24"	TO RESPECT GREEN THAT WE ☮				5	WHITE	BLACK	BLACK	P-5 4 REQ'D 1 MOUNT W/R10-12a	3.00	15.00
R12-1	24"	30"	WEIGHT LIMIT 2 1/2 TONS				2	WHITE	BLACK	BLACK	P-5 1 REQ'D 1 MOUNT ON UP	5.00	10.00
D6-5	60"	66"	53 NORTH Weymouth			8X18 45°	1	GREEN	WHITE	WHITE	MOUNT ON NEW 5" STEEL POST	27.50	27.50
D6-7	60"	66"	SOUTH TO 53 228 HANOVER STRAIGHT AHEAD				1	GREEN	WHITE	WHITE	MOUNT ON EX. POST	27.50	27.50
D6-8	60"	66"	SOUTH TO 53 228 HANOVER			8X18 315°	1	GREEN	WHITE	WHITE	MOUNT ON R&R'D EX 5" STEEL POST	27.50	27.50
D6-9	60"	66"	Derby St To Route 3 S. Weymouth			8X18 45°	1	GREEN	WHITE	WHITE	MOUNT ON NEW 5" STEEL POST	27.50	27.50
D8-3	48"	42"	53 NORTH Weymouth Next Left				1	GREEN	WHITE	WHITE	MOUNT W/ D6-7	14.00	14.00
D8-4	48"	42"	53 NORTH Weymouth ←			18X8 90°	1	GREEN	WHITE	WHITE	MOUNT W/ D6-8	14.00	14.00
D8-5	48"	42"	53 NORTH Weymouth ↗			8X18 315°	1	GREEN	WHITE	WHITE	MOUNT W/ D6-9	14.00	14.00

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

② SEE STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, 1990.

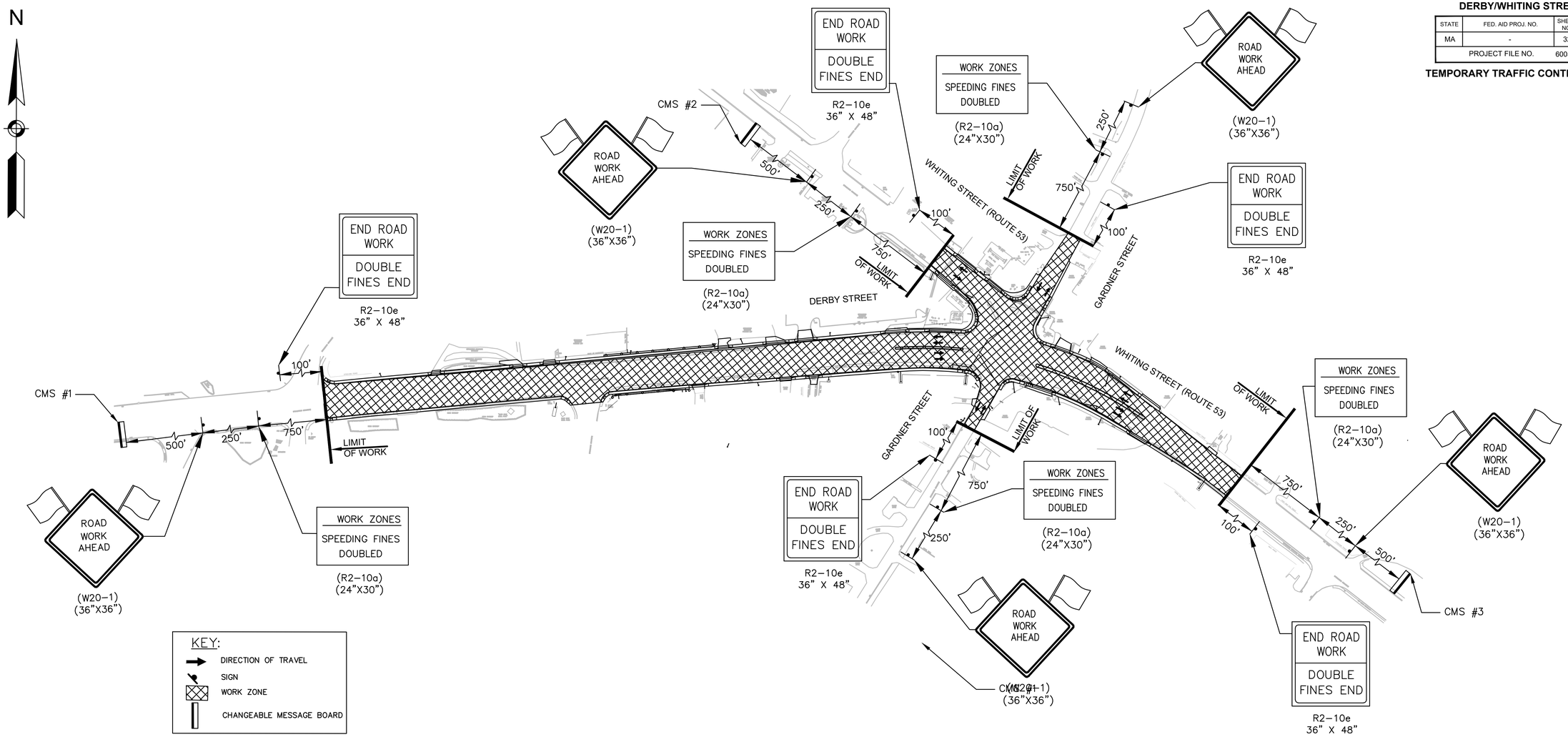
600518_TR1_SHEETS.DWG 6-Nov-2017

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	32	63
PROJECT FILE NO.		600518	

TEMPORARY TRAFFIC CONTROL PLAN

600518_TR2_TMPS.DWG 6-Nov-2017



TEMPORARY TRAFFIC CONTROL– ADVANCE SIGNING

NOT TO SCALE

CHANGEABLE MESSAGE SIGNS #1, #2 & #3		
	PRIOR TO CONSTRUCTION:	DURING CONSTRUCTION:
MESSAGE 1		
DISPLAY 1:	ROAD WORK BEGINS	ROAD WORK AHEAD
DISPLAY 2:	DATE TIME	BE PREPARED TO STOP

NOTES

1. SEE SHEET 33, FOR TYPICAL TEMPORARY TRAFFIC CONTROL MEASURES THAT WILL APPLY TO DIFFERENT WORK ZONE CONSTRUCTION REQUIREMENTS.

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 UNNECESSARY 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.

HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	33	63
PROJECT FILE NO.	600518		

TEMPORARY TRAFFIC CONTROL PLAN

600518_TR2_TMPS.DWG 6-Nov-2017

TAPER LENGTH

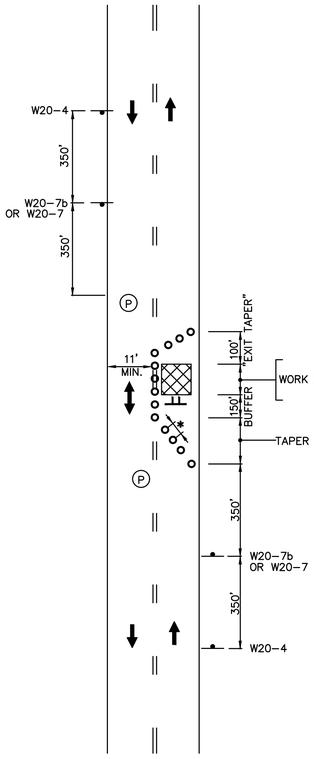
SPEED LIMIT	FORMULA
40 MPH or Less	L=WS/60
45 MPH or Greater	L=WS

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

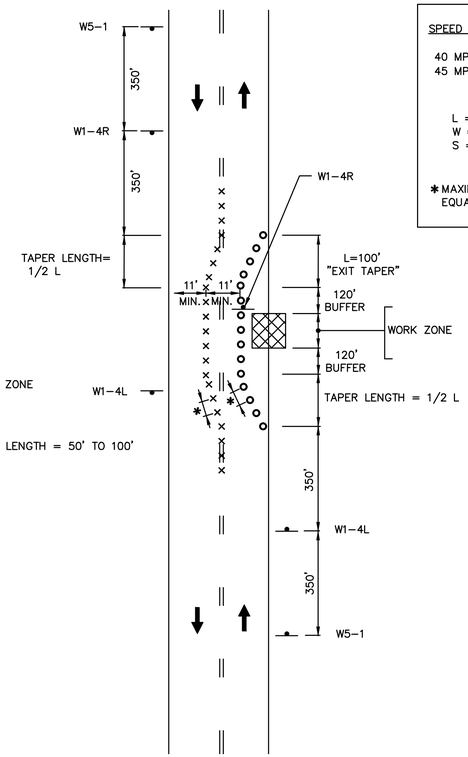
✱ MAXIMUM DRUM SPACING, IN FEET, SHALL EQUAL POSTED SPEED LIMIT (MPH).

LEGEND:

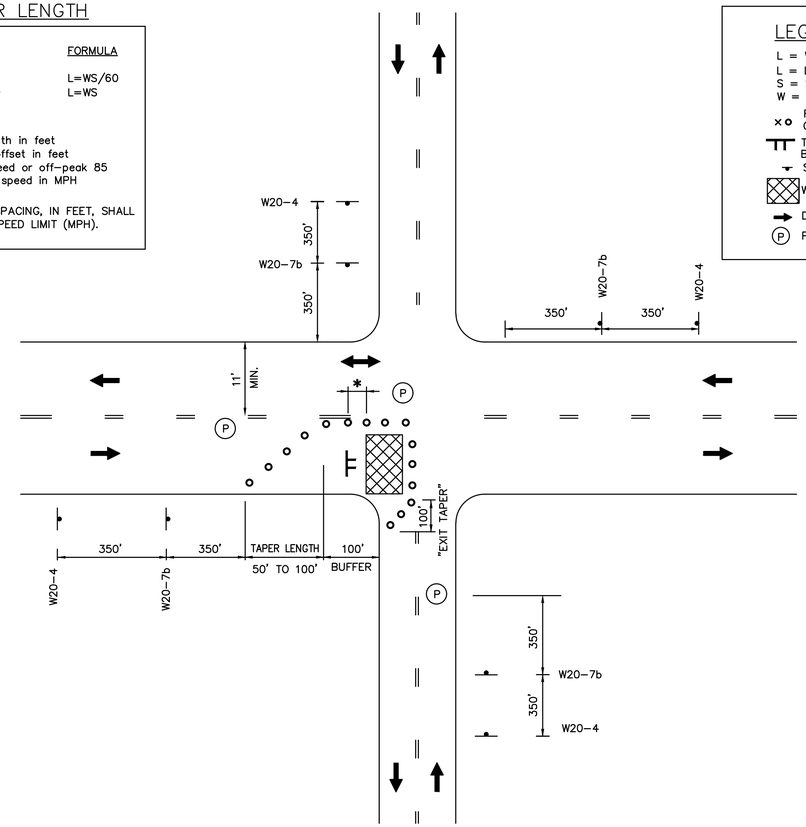
- L = $WS^2/60$
- L = LENGTH OF TAPER
- S = SPEED LIMIT
- W = WIDTH OFFSET
- REFLECTORIZED DRUMS OR CONES
- TYPE III PORTABLE BREAKAWAY BARRICADE
- SIGNS
- WORK AREA
- DIRECTION OF TRAFFIC
- (P) POLICE DETAIL



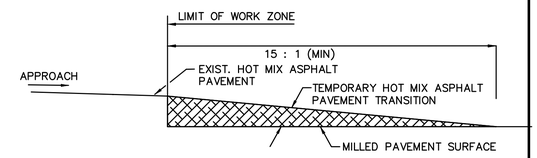
TWO-LANE ROADWAY WITH
ONE LANE CLOSURE (TYPICAL)
NOT TO SCALE



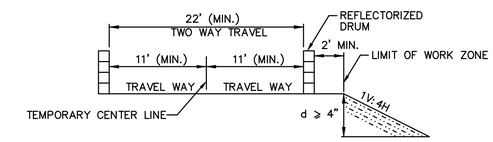
TWO-LANE ROADWAY WITH
PARTIAL ONE LANE CLOSURE (TYPICAL)
NOT TO SCALE



INTERSECTION WITH
LANE CLOSURE (TYPICAL)
NOT TO SCALE

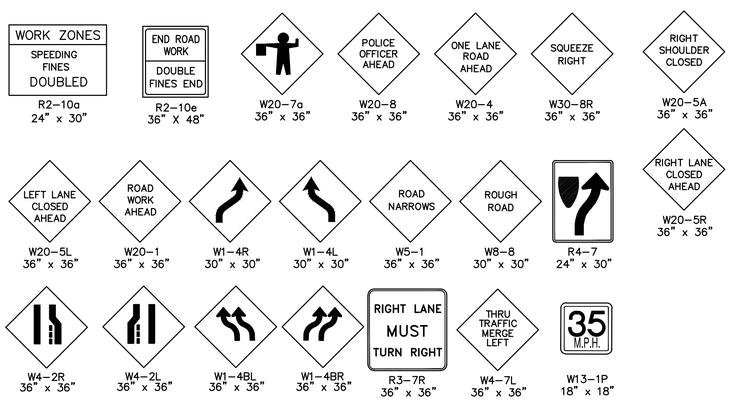


TEMPORARY PAVEMENT TRANSITION
NOT TO SCALE



TEMPORARY TRAVEL WAY AND LATERAL PAVEMENT SLOPE
(AFTER WORK HOUR SETUP)
NOT TO SCALE

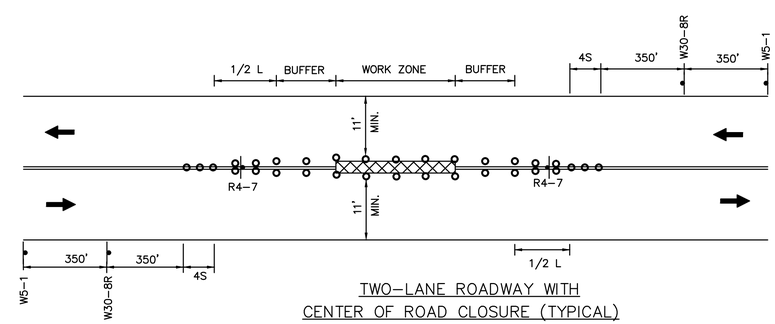
CONSTRUCTION SIGN LEGEND:



✱ NO. OF SIGNS ARE ESTIMATED FOR BIDDING PURPOSES ONLY

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 DOUBLE FINES END	R2-10e	36" x 48"	5	60
POLICE OFFICER AHEAD/FLAGGER AHEAD	W20-7b/W20-7	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
RIGHT SHOULDER CLOSED	W20-5A	36" x 36"	1	9
LEFT LANE ENDS	W4-2L	36" x 36"	2	18
RIGHT LANE ENDS	W4-2R	36" x 36"	1	9
LEFT LANE CLOSED AHEAD	W20-5L	36" x 36"	2	18
RIGHT LANE CLOSED AHEAD	W20-5R	36" x 36"	1	9
TWO LANE SHIFT LEFT	W1-4BL	36" x 36"	1	9
TWO LANE SHIFT RIGHT	W1-4BR	36" x 36"	1	9
XX MPH	W13-1P	18" x 18"	2	4.50
THRU TRAFFIC MERGE LEFT	W4-7L	36" x 36"	1	9
ROAD NARROWS	W5-1	36" x 36"	1	9



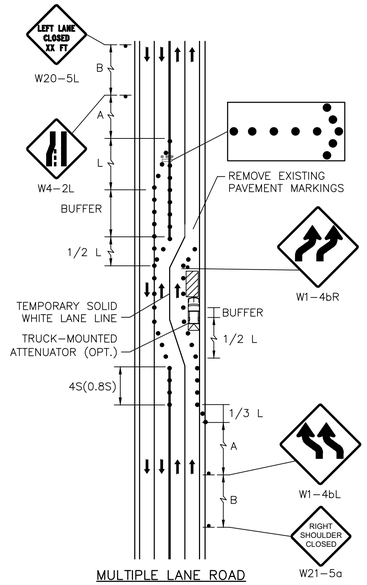
TWO-LANE ROADWAY WITH
CENTER OF ROAD CLOSURE (TYPICAL)
NOT TO SCALE

HINGHAM
DERBY/WHITING STREET

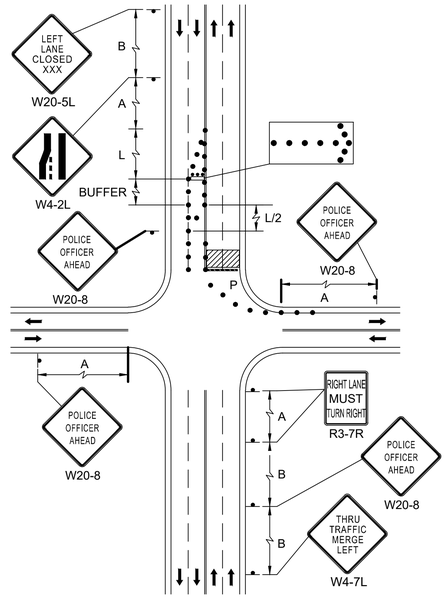
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	34	63
PROJECT FILE NO.	600518		

TEMPORARY TRAFFIC CONTROL PLAN

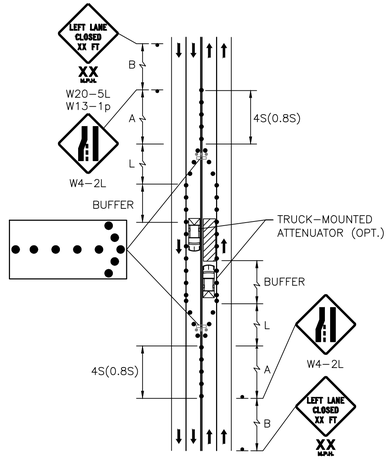
600518_TR2_TMPS.DWG 6-Nov-2017



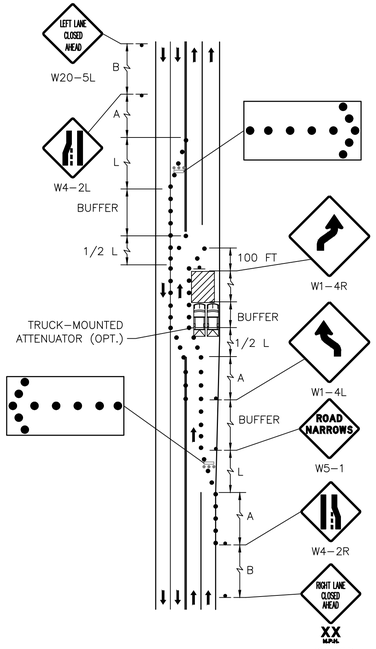
MULTIPLE LANE ROAD
INTERIOR LANE CLOSURE W/ UNEVEN VOLUMES
NOT TO SCALE



DOUBLE LANE APPROACH
FAR SIDE CLOSURE RIGHT SIDE
NOT TO SCALE



MULTIPLE LANE ROAD
INTERIOR LANE CLOSURE
NOT TO SCALE



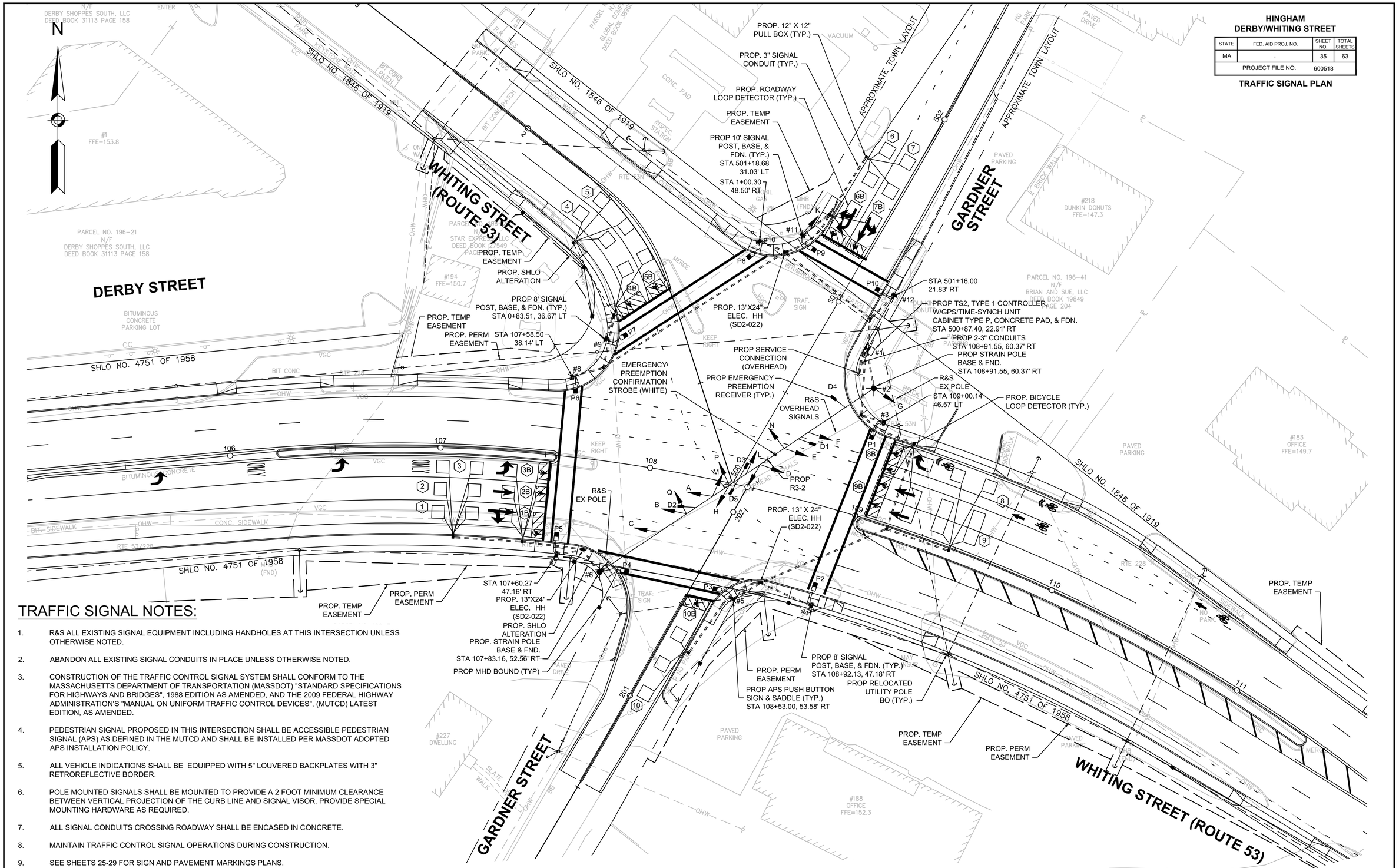
MULTIPLE LANE ROAD
HALF ROAD CLOSURE
NOT TO SCALE

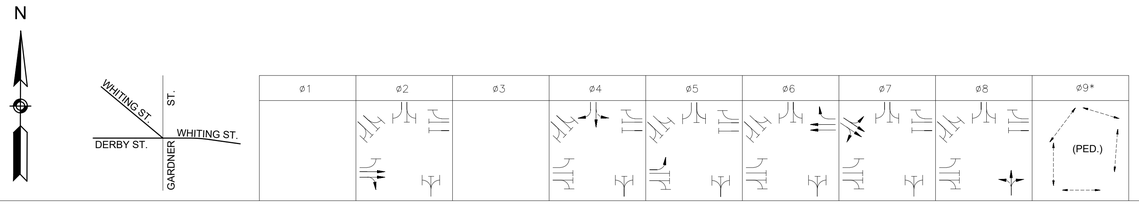
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	35	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNAL PLAN

600518_TR1_SHEETS.DWG 6-Nov-2017





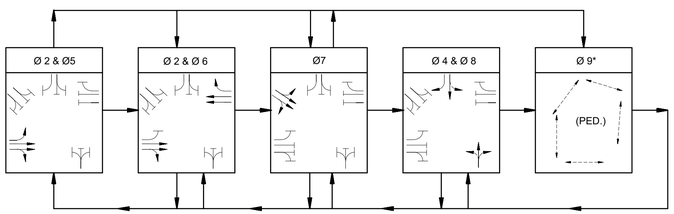
SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH OPER.
DERBY STREET	EB-LT	A				RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	RL	FRL
DERBY STREET	EB	B,C				G	Y	R				R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
WHITING STREET	WB	D,E,F,G				R	R	R				R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
GARDNER STREET	NB	H,J				R	R	R				R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
GARDNER STREET	SB	K,L,M				R	R	R				G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
WHITING STREET	SEB	N,P,Q				R	R	R				R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FR
PEDESTRIAN CROSSING	NB-SB	P1-P2				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN CROSSING	EB-WB	P3-P4				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN CROSSING	NB-SB	P5-P6				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN CROSSING	NB-SB	P7-P8				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
PEDESTRIAN CROSSING	EB-WB	P9-P10				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OFF
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)						4						4			4			4			4			4			-			EMERGENCY ONLY
PASSAGE TIME (VEHICLE)						3						3			3			3			3			3			-			
MAXIMUM 1						48						43			10			32			9			43			-			
MAXIMUM 2						38						18			13			19			14			18			-			
YELLOW CLEARANCE							3.5						3.5			4			3.5			4			5.5			-		
RED CLEARANCE								1.5						2.5			2			1.5			1.5			1.5			3	
WALK (W)																											7			
PEDESTRIAN CLEARANCE																												21		
RECALL						SOFT						OFF			OFF			SOFT			OFF			OFF			OFF			
MEMORY						NON-LOCKING						NON-LOCKING			NON-LOCKING			NON-LOCKING			NON-LOCKING			NON-LOCKING			LOCKING			

* PEDESTRIAN PHASE PUSH BUTTON ACTUATED ONLY.

TP1 M-F (6AM-9AM) USE MAX 1
TP2 M-F (3PM-7PM) USE MAX 2
TP3 ALL OTHER TIMES USE MAX 2

PREFERENTIAL PHASING SEQUENCE



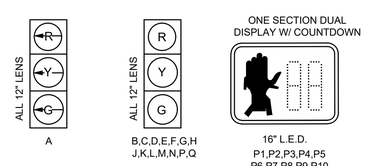
FIRE PREEMPTION SCHEDULE

APPROACH	PREEMPTION RECIEVER	PREEMPTION PHASE	NEXT PHASE CALLED
WESTBOUND	D1	6	2+6
EASTBOUND	D2	2+5	2+6
SOUTHBOUND	D3	4	4+8
SOUTH-EASTBOUND	D4	7	4+8
NORTHBOUND	D5	8	4+8

EMERGENCY VEHICLE PREEMPTION OPERATION:

1. EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
2. PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
3. IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED) OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
4. PREEMPTION MINIMUM GREENS SHALL BE SIX SECONDS.
5. NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
6. ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT AND SHALL BE APPROVED BY MASSDOT PRIOR TO OPERATION.

SIGNAL IDENTIFICATION



NOTES:

1. ALL SIGNALS SHALL HAVE TUNNEL VISORS.
2. ALL SIGNALS SHALL BE 12" LED WITH 5" LOUVERED BACK PLATES.
3. ALL BACK PLATES SHALL HAVE A 3" RETROREFLECTIVE BORDER.

	MAJOR ITEMS REQUIRED	
PAY ITEM	QUANTITY	ITEM
816.01	1	CONTROLLER NEMA 8 PHASE TS2-TYPE 1, CAB., CONCRETE PAD, & FDN.
	1	SERVICE CONNECTION, TYPE OVERHEAD
	8	8' SIGNAL POLE, BASE, & FDN.
	1	10' SIGNAL POLE, BASE, & FDN.
	2	GALV. STEEL SPAN WIRE POLE ASSEMBLY , BASE & FDN.
	5	2 WAY, 3 SECTION, SIGNAL HOUSING (12" L.E.D.)
	5	1 WAY, 3 SECTION, SIGNAL HOUSING (12" L.E.D.)
	10	16" PEDESTRIAN COUNTDOWN HOUSING, TYPE L.E.D. (INT'L SYMBOL)
	10	ACCESSIBLE PEDESTRIAN SIGNAL PUSH BUTTON SYSTEM, SIGN & SADDLES
	9	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
	40	ROADWAY LOOP DETECTOR (SEE LOOP DETECTOR DATA TABLE)
	5	EMERGENCY PRE-EMPTION RECEIVER-SINGLE CHANNEL
	2	EMERGENCY PRE-EMPTION PHASE SELECTOR MODULE-DUAL CHANNEL
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION CONFIRMATION STROBE (WHITE)
	1	155' SPAN WIRE SYSTEM WITH TETHER WIRE
811.22	3	13" X 24" ELECTRIC HANDHOLE - SD2-022
811.31	13	12" X 12" PULL BOX
		Plus all necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

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STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	36	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNAL DATA

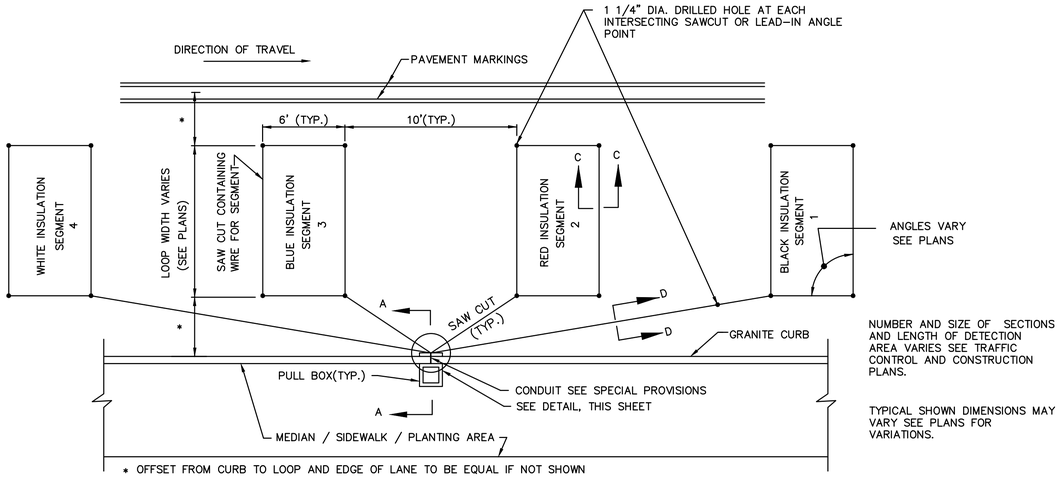
LOOP DETECTOR DATA

SEE PLAN SHEET-LOOP DETECTOR DETAILS FOR LOOP CONSTRUCTION, SPLICING, DETAILS & NOTES. DELAY TIME EFFECTIVE ONLY DURING CALLED Ø RED. TIME IN SEC.

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM. OF TURNS	Ø CALLED	Ø EXT.	MODE A=PULSE B=PRES.	DELAY TIME	EXT. TIME
1	1	1	3@6'X6'	3	2	2	B	-	-
2	1	2	3@6'X6'	3	2	2	B	-	-
3	2	1	3@6'X6'	3	5	2	B	-	-
4	2	2	3@6'X6'	3	7	7	B	-	-
5	3	1	3@6'X6'	3	7	7	B	-	-
6	3	2	3@6'X6'	3	4	4	B	-	-
7	4	1	3@6'X6'	3	4	4	B	-	-
8	4	2	3@6'X6'	3	6	6	B	-	-
9	5	1	3@6'X16'	3	6	6	B	-	-
10	5	2	3@6'X6'	3	8	8	B	-	-
1B	6	1	1@6'X12' D2 TYPE BIKE LOOP	3	2	2	B	-	-
2B	6	1	1@6'X7' D2 TYPE BIKE LOOP	3	2	2	B	-	-
3B	6	2	1@6'X8' D2 TYPE BIKE LOOP	3	5	2	B	-	-
4B	7	1	1@6'X13' D2 TYPE BIKE LOOP	3	7	7	B	-	-
5B	7	1	1@6'X8' D2 TYPE BIKE LOOP	3	7	7	B	-	-
6B	7	2	1@6'X9' D2 TYPE BIKE LOOP	3	4	4	B	-	-
7B	7	2	1@6'X8' D2 TYPE BIKE LOOP	3	4	4	B	-	-
8B	8	1	1@6'X14' D2 TYPE BIKE LOOP	3	6	6	B	-	-
9B	8	1	1@6'X20' D2 TYPE BIKE LOOP	3	6	6	B	-	-
10B	8	1	1@6'X11' D2 TYPE BIKE LOOP	3	8	8	B	-	-
SPARE	9	1 & 2	-	-	-	-	-	-	-

600518_TR1_SHEETS.DWG 6-Nov-2017

600518_TR1_SHEETS.DWG 6-Nov-2017

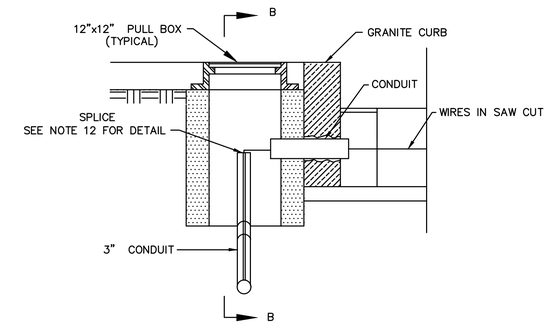


NUMBER AND SIZE OF SECTIONS AND LENGTH OF DETECTION AREA VARIES SEE TRAFFIC CONTROL AND CONSTRUCTION PLANS.

TYPICAL SHOWN DIMENSIONS MAY VARY SEE PLANS FOR VARIATIONS.

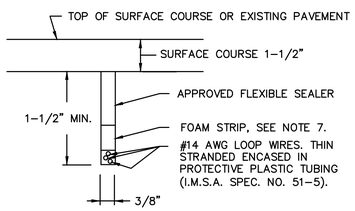
PLAN OF SEGMENTED DETECTOR DETAIL

NOT TO SCALE



SECTION A–A

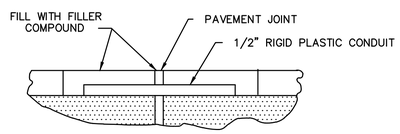
NOT TO SCALE



SECTION C–C & D–D

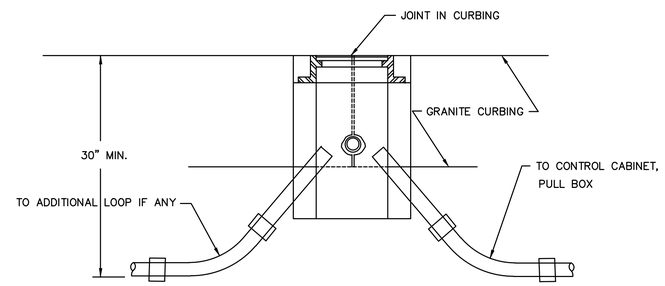
LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACED.

NOT TO SCALE



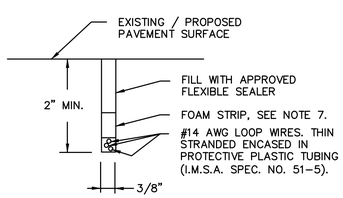
VERTICAL SECTION

TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



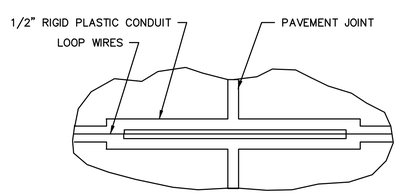
SECTION B–B

NOT TO SCALE



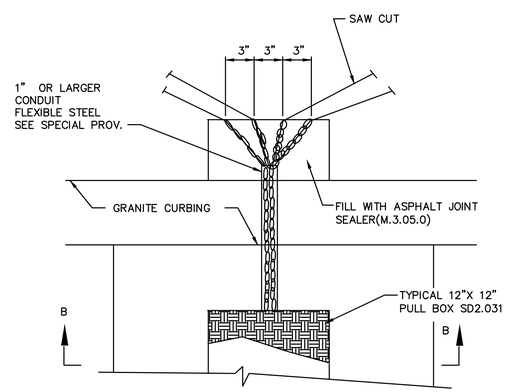
SECTION C–C & D–D

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

DETECTOR NOTES

1. 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.
2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER.
3. 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).
4. 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.
5. 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.
6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
7. 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" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.
8. THE COMBINED ROADWAY LOOP, TWISTED LEAD–IN WIRES, SPLICE AND SHIELDED LEAD–IN CABLE SHALL HAVE A RESISTANCE TO GROUND AT LEAST 100 MEGAOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
9. DETAIL IS THE SAME FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR.
10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL.
12. 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.

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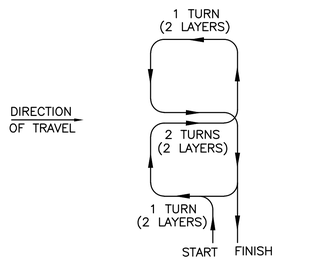
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	38	63
PROJECT FILE NO.	600518		

TRAFFIC SIGNAL DETAILS
BICYCLE LOOP DETECTOR DETAILS

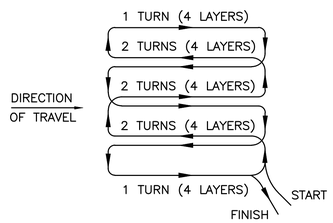
6-Nov-2017

600518_TR1_SHEETS.DWG

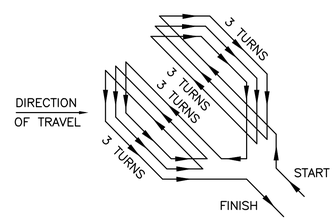
WINDING DETAILS



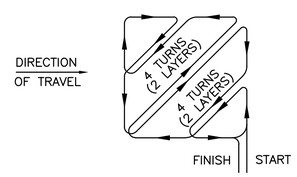
TYPE Q DETECTOR



TYPE D–Q DETECTOR

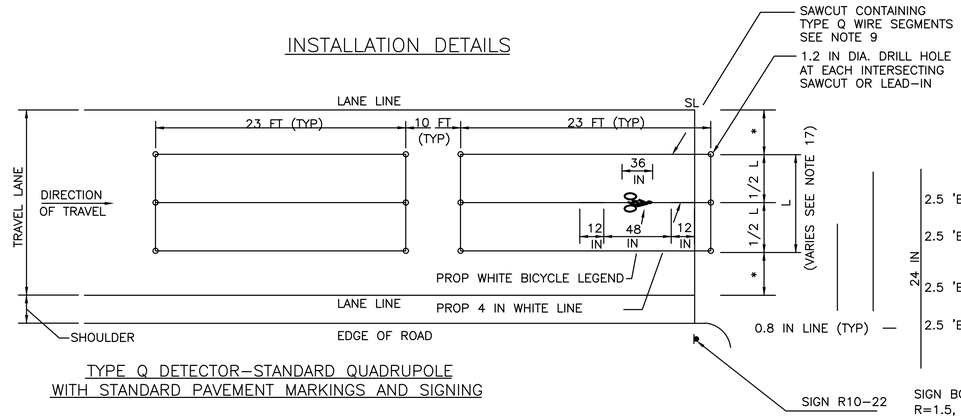


TYPE D–1 DETECTOR



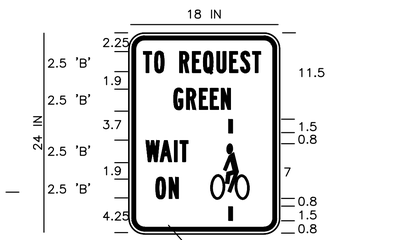
TYPE D–2 DETECTOR

INSTALLATION DETAILS



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

SIGN R10–22

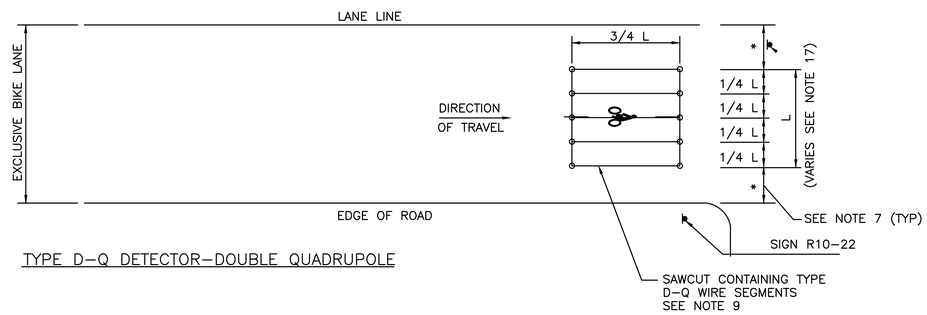


SIGN BORDER:
R=1.5, TH=0.5, INS=.38

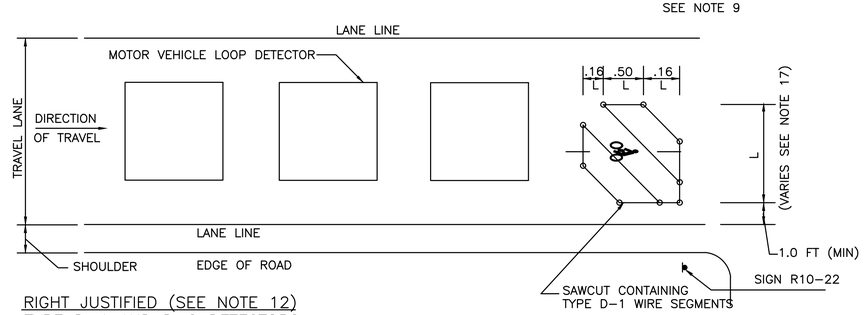
WHITE BACKGROUND
BLACK LEGEND AND LINES

NOTE: ALL SIGN DIMENSIONS IN INCHES

NOTE: SIGN PANEL NOT SHOWN TO SCALE

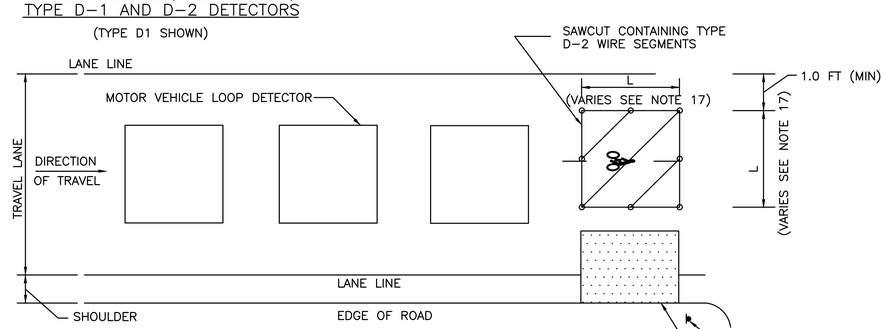


TYPE D–Q DETECTOR–DOUBLE QUADRUPOLE



RIGHT JUSTIFIED (SEE NOTE 12)
TYPE D–1 AND D–2 DETECTORS

(TYPE D1 SHOWN)

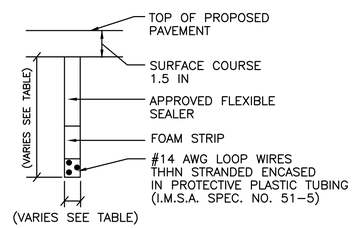


LEFT JUSTIFIED (SEE NOTE 13)
TYPE D–1 AND D–2 DETECTORS

(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.



SECTION THRU LOOP DETECTOR

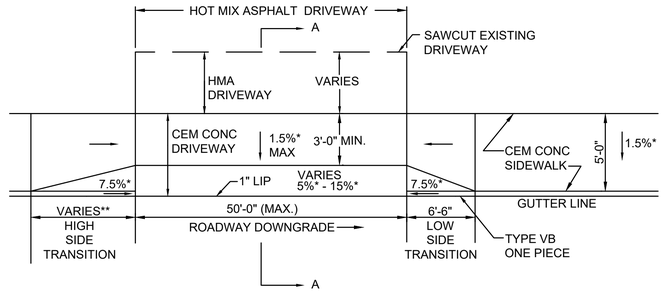
SAWCUT SLOT DEPTH GUIDE		
TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

NOTES:

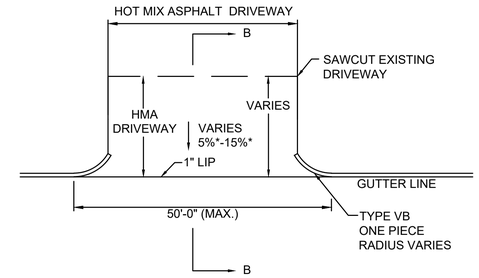
1. REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
2. ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
3. THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
4. BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
5. 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.
6. SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
7. * OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
8. 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.
9. BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D–Q DETECTORS.
10. PROVIDE 3 TURNS FOR TYPE D–1 DETECTORS.
11. 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.
12. RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
    b) BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
13. LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
    b) BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO–LANE ROADWAY.
14. 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.
15. 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.
16. THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
17. 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.

DRIVEWAY #	REFERENCE POINT			GUTTER SLOPE	TRANSITION LENGTH	
	STREET	STATION	OFFSET		LEFT SIDE	RIGHT SIDE
1	DERBY	97+23.79	34.83 LT	0.54%	6.50'	7.67'
2	DERBY	98+84.71	33.78 LT	0.54%	6.50'	7.67'
3	DERBY	99+46.57	33.36 LT	0.40%	6.50'	7.67'
4	DERBY	102+32.41	33.21 RT	0.52%	7.67'	6.50'
5	DERBY	102+88.10	31.11 LT	0.56%	6.50'	7.67'
6	DERBY	103+90.81	30.43 LT	0.33%	6.50'	7.67'
7	DERBY	104+03.31	36.71 RT	0.50%	7.67'	6.50'
8	DERBY	104+49.43	30.05 LT	0.38%	6.50'	7.67'
9	DERBY	104+58.43	37.84 RT	0.34%	7.67'	6.50'
10	DERBY	106+25.10	29.00 LT	-1.66%	9.00'	6.50'
11	DERBY	107+09.35	29.00 LT	-2.02%	9.00'	6.50'
12	DERBY	109+29.31	41.00 RT	-1.12%	6.50'	4.50' *
13	DERBY	109+40.03	40.00 LT	-0.88%	9.00'	6.50'
14	DERBY	110+11.87	38.22 LT	-1.46%	9.00'	6.50'
15	DERBY	111+32.04	25.48 LT	-1.46%	6.50'	9.00'
16	DERBY	111+52.00	37.95 RT	1.74%	9.00'	6.50'
17	DERBY	112+83.84	24.63 LT	2.04%	6.50'	9.00'
18	WHITING	1+18.43	24.93 LT	-1.18%	4.50' *	6.50'
19	WHITING	2+04.12	25.52 LT	0.64%	6.50'	7.67'
20	WHITING	1+27.65	25.62 RT	0.56%	6.50'	7.67'
21	GARDNER	501+57.45	22.26 LT	-1.98%	8.76'	N/A
22	GARDNER	501+83.81	14.09 RT	-1.75%	N/A	9.00'
23	WHITING	1+93.19	17.75 RT	0.28%	7.67'	6.50'

NOTE:
1. * 3" CURB REVEAL, 1/2 TRANSITION LENGTH FROM MASSDOT STANDARD DETAIL 107.9.0 OR 3'-3" MIN.



SIDEWALK THROUGH DRIVEWAY
NOT TO SCALE



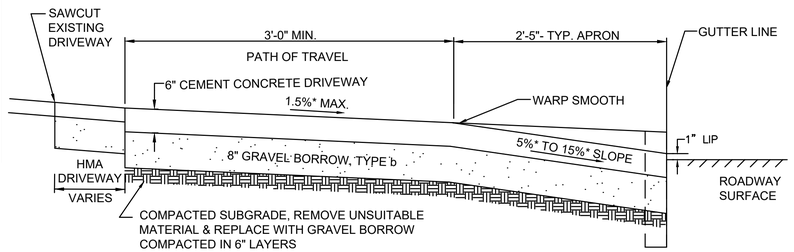
HMA DRIVEWAY WITHOUT SIDEWALK
NOT TO SCALE

HINGHAM
DERBY/ WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	63
PROJECT FILE NO.	600518		

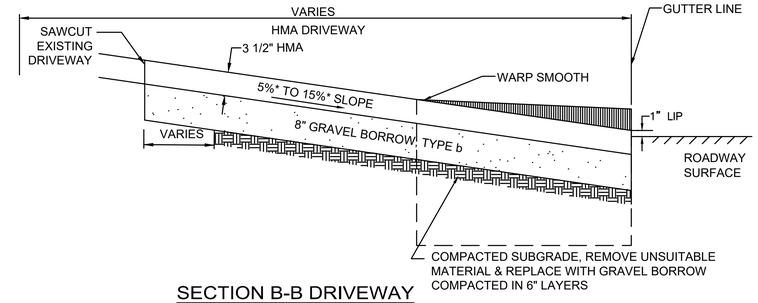
CONSTRUCTION DETAILS

600518_HD6_CONST DETAILS.DWG 6-Nov-2017



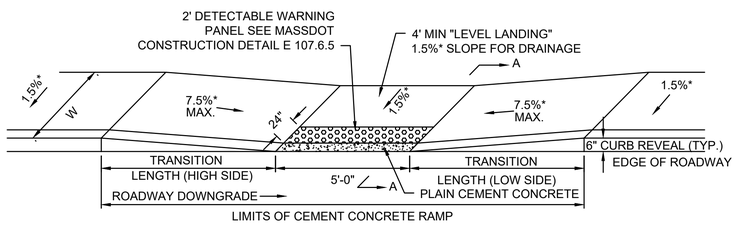
SECTION A-A CEM CONC DRIVEWAY
NOT TO SCALE

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



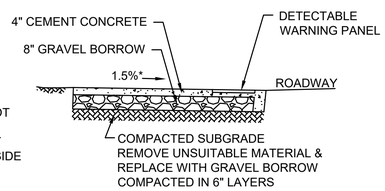
SECTION B-B DRIVEWAY
NOT TO SCALE

* = TOLERANCE FOR CONSTRUCTION (± 0.5%)



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

NOTE:
1. SEE DRAWING E107.2.1R OF THE MASSDOT CONSTRUCTION STANDARDS.
2. SEE DRAWING E107.9.0 OF THE MASSDOT CONSTRUCTION STANDARDS FOR HIGH SIDE TRANSITION LENGTHS.

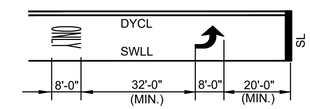


SECTION A-A

WHEELCHAIR RAMP DETAIL
NOT TO SCALE

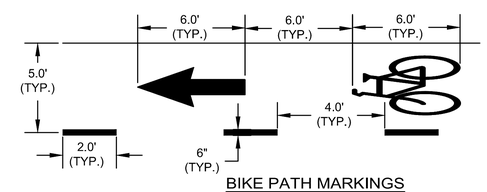
WCR #	REFERENCE POINT			SIDEWALK WIDTH (W)	ENTRANCE WIDTH	LANDING DEPTH	GUTTER SLOPE	TRANSITION LENGTH	
	STREET	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
1	DERBY	95+12.11	40.00 LT	5.50'	6.17'	5.50'	1.74%	6.50'	9.00'
2	DERBY	95+11.50	28.72 RT	5.50'	5.00'	5.50'	0.86%	7.67'	6.50'
3	DERBY	99+74.93	36.55 RT	5.50'	6.33'	5.50'	1.00%	6.50'	9.00'
4	DERBY	100+45.00	39.05 RT	5.50'	6.40'	5.50'	-1.80%	9.00'	7.70'
5	DERBY	107+61.18	41.00 RT	5.50'	5.00'	5.50'	-1.41%	6.62'	9.00'
6	DERBY	107+89.53	48.76 RT	5.50'	6.17'	5.50'	-1.50%	6.50'	9.00'
7	DERBY	107+59.94	32.10 LT	5.50'	6.27'	5.50'	-1.74%	9.00'	8.00'
8	WHITING	0+81.50	30.75 LT	5.50'	6.18'	5.50'	1.38%	9.00'	5.76' *
9	DERBY	108+48.06	49.59 RT	5.50'	6.43'	5.50'	-3.30%	6.50'	15.00'
10	WHITING	108+92.39	41.00 RT	5.50'	5.00'	5.50'	-1.90%	9.00'	3.30'
11	WHITING	108+98.98	40.50 LT	5.50'	6.18'	5.50'	-1.08%	9.00'	6.50'
12	WHITING	0+97.35	43.54 RT	5.50'	6.13'	5.50'	1.77%	9.00'	6.50' *
13	GARDNER	501+15.90	25.53 LT	5.50'	6.13'	5.50'	-3.69%	9.80' *	6.50'
14	GARDNER	501+15.90	15.70 RT	5.50'	5.00'	5.50'	-2.78%	6.50'	11.00'

NOTE:
1. * 3" CURB REVEAL, 1/2 TRANSITION LENGTH FROM MASSDOT STANDARD DETAIL 107.9.0 OR 3'-3" MIN.

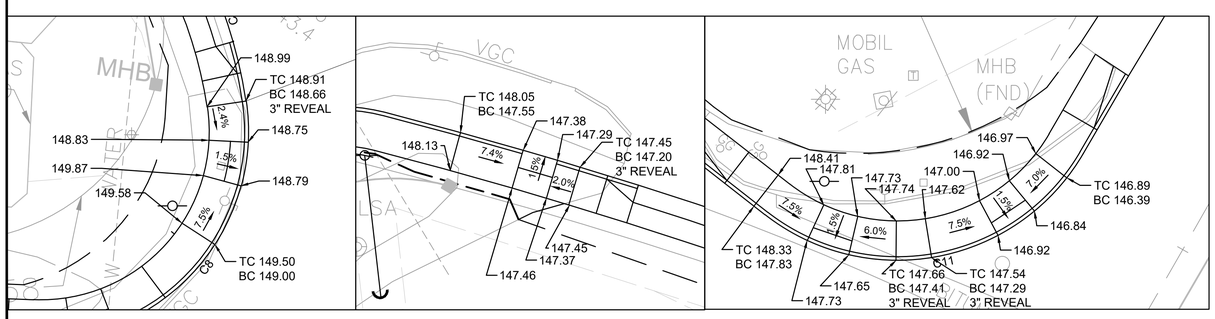


ARROW SHALL BE POINTED RIGHT FOR RIGHT TURN ONLY.

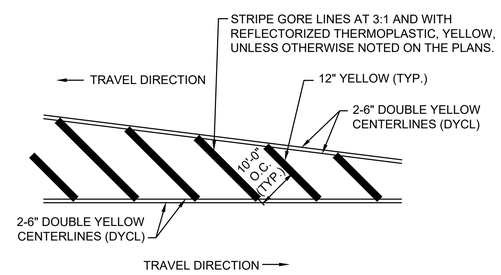
DIMENSION FOR TYPICAL PAVEMENT MARKINGS
NOT TO SCALE



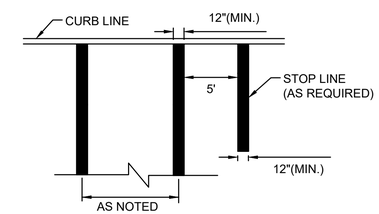
BIKE PATH MARKINGS
NOT TO SCALE



WCR 8 WCR 10 WCR 12 & 13



TYPICAL GORE MARKINGS
NOT TO SCALE

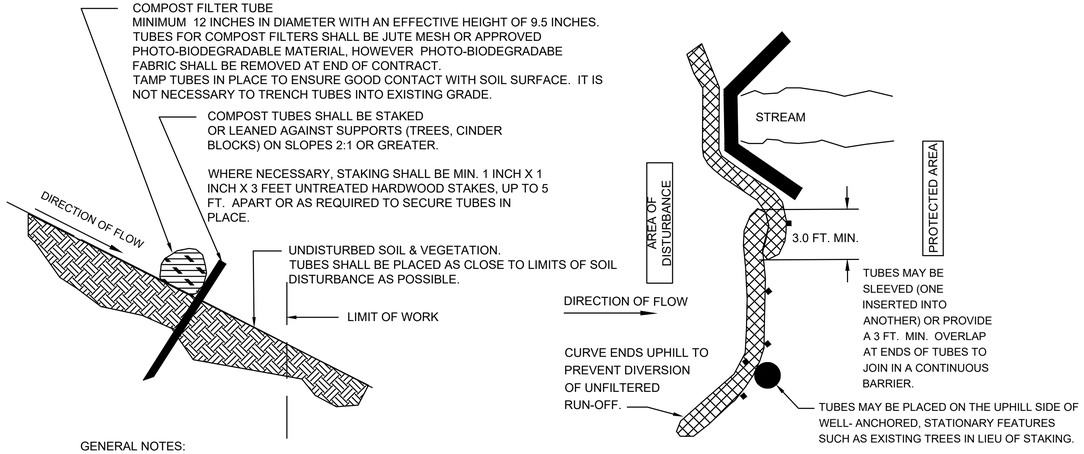


NOTES:
1. ALL PROPOSED STOP LINES AND CROSSWALKS SHALL BE REFLECTORIZED THERMOPLASTIC.

CROSSWALK & STOP LINE
NOT TO SCALE

SEDIMENTATION AND EROSION CONTROL NOTES:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH PUBLISHED EROSION CONTROL AND SEDIMENT GUIDELINES FOR MASSACHUSETTS (SEE REFERENCE BELOW, NOTE #6).
2. ANY EROSION AND SEDIMENT CONTROL MEASURES FOR THE STABILIZATION OF SLOPES ARE TEMPORARY FOR CONSTRUCTION PHASES ONLY. SEE GRADING PLAN FOR FINAL STABILIZATION OF SLOPES.
3. SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF AND DURING ALL PHASES OF CONSTRUCTION AND BE CONSTRUCTED PRIOR TO AND IMMEDIATELY AFTER ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
4. PERIODIC INSPECTION AND MAINTENANCE OF ALL SEDIMENT CONTROL STRUCTURES SHALL BE PROVIDED TO ENSURE THAT THE INTENDED PURPOSE IS ACCOMPLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEDIMENT LEAVING THE LIMIT OF WORK. SEDIMENT CONTROL MEASURES SHALL BE IN WORKING CONDITION AT THE END OF EACH WORK DAY.
5. ALL SEDIMENT WILL BE PREVENTED FROM ENTERING ANY STORM DRAINAGE SYSTEM (I.E. THROUGH THE USE OF STRAW BALES, CATCH BASIN SEDIMENT TRAPS, GRAVEL, BOARDS OR OTHER APPLICABLE METHODS).
6. THE CONTRACTOR INSTALLING THE SEDIMENT AND EROSION CONTROL MEASURES SHALL OBTAIN AND FOLLOW THE "MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES FOR URBAN AND SUBURBAN AREAS" PREPARED BY DEPARTMENT OF ENVIRONMENTAL PROTECTION, BUREAU OF RESOURCE PROTECTION, DATED MAY 1997, REPRINTED MAY 2003 (OR LATEST EDITION) AND THE 2012 NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES, OR LATEST EDITION.
7. ALL DRAINAGE SWALES AND GROUND SURFACES WITHIN THE LIMIT OF WORK SHALL BE PROTECTED.
8. AFTER ANY SIGNIFICANT RAINFALL (0.25" OR GREATER), SEDIMENT CONTROL STRUCTURES SHALL BE INSPECTED FOR INTEGRITY. ANY DAMAGED DEVICES SHALL BE CORRECTED IMMEDIATELY.
9. ALL STOCKPILES SHALL BE PROTECTED AND LOCATED A MINIMUM OF 100' AWAY FROM EXISTING WATER BODIES OR WETLANDS & WITHIN THE LIMIT OF WORK. SOIL STOCKPILES SHALL BE PROTECTED FROM CONTACT WITH ONSITE STORMWATER RUNOFF USING TEMPORARY PERIMETER SEDIMENT BARRIERS. A COVER (TARP) OR APPROPRIATE TEMPORARY STABILIZATION SHALL BE PROVIDED BY THE CONTRACTOR TO MINIMIZE SEDIMENT DISCHARGE.
10. STABILIZED PORTIONS OF THE SITE SHALL BE INSPECTED AT LEAST ONCE PER MONTH.
11. ANY SEDIMENT TRACKED ONTO PAVED AREAS SHALL BE SWEPT AT THE END OF EACH WORK DAY.
12. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL EROSION AND SEDIMENT CONTROLS AT THE COMPLETION OF THE PROJECT.
13. MEANS OF EROSION AND SEDIMENT PROTECTION AS NOTED ON THE DRAWINGS INDICATE THE MINIMUM PROVISIONS NECESSARY. ADDITIONAL MEANS OF PROTECTION SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED FOR CONTINUED OR UNFORESEEN EROSION PROBLEMS.



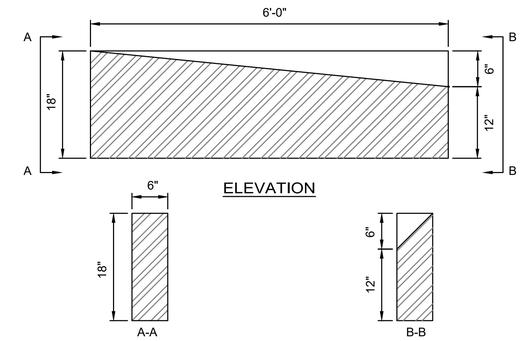
GENERAL NOTES:
1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR 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. TUBES MAY BE PLACED DIRECTLY ON PAVED SURFACES WHEN NECESSARY.
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.

COMPOST FILTER TUBE
NOT TO SCALE

HINGHAM
DERBY/ WHITING STREET

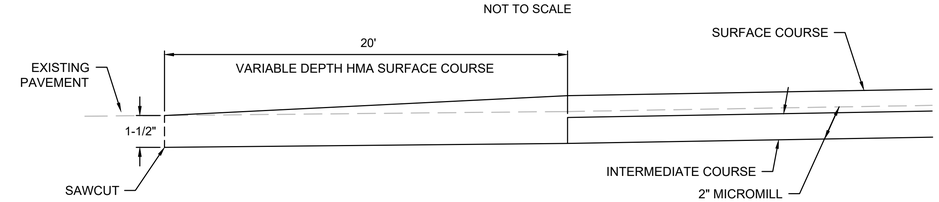
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	40	63
PROJECT FILE NO.	600518		

CONSTRUCTION DETAILS

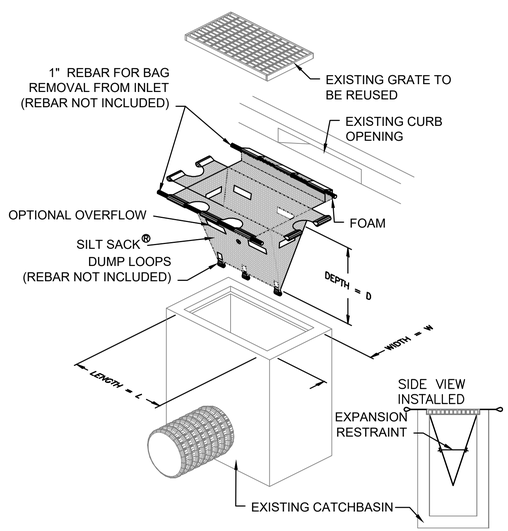


GRANITE CURB - SPLAYED END DETAIL
NOT TO SCALE

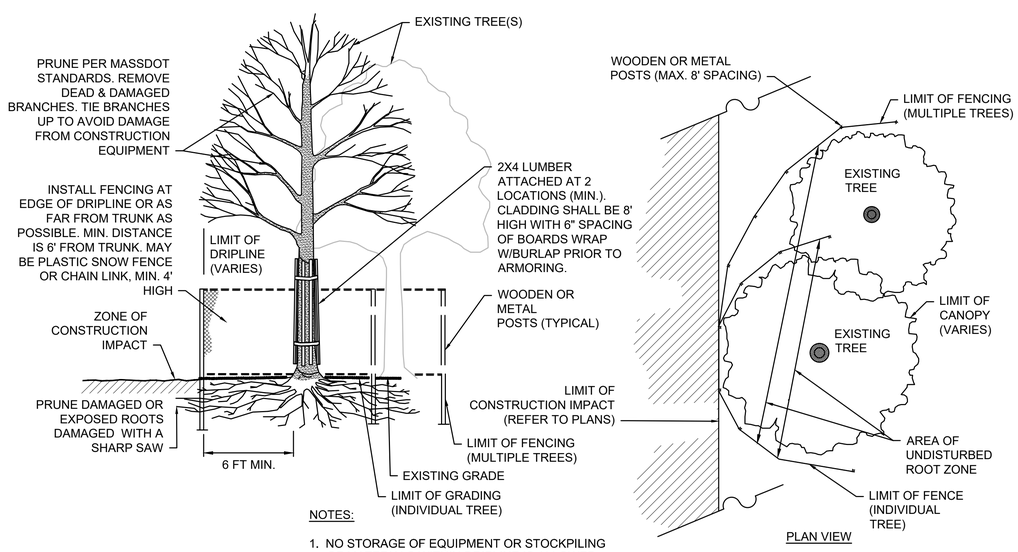
NOT TO SCALE



PAVEMENT TRANSITION AT LIMITS OF PAVING
NOT TO SCALE

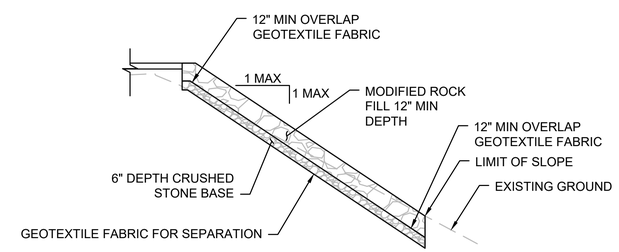


CATCH BASIN W/ SILTSACK
INLET PROTECTION
NOT TO SCALE



NOTES:
1. NO STORAGE OF EQUIPMENT OR STOCKPILING OF MATERIALS WITHIN DRIPLINE IS ALLOWED.

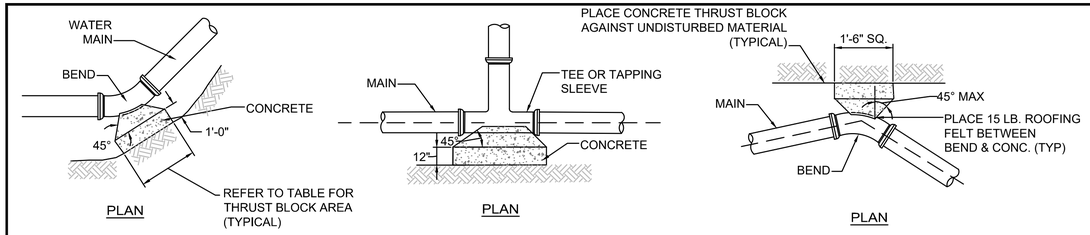
TREE PROTECTION
NOT TO SCALE



NOTES:
1. MODIFIED ROCK FILL SHALL BE PLACED AND MACHINE GRADED AND HAND GRADED AS NEEDED
2. CRUSHED STONE SHALL BE 1-1/2" - M2.01.2

MODIFIED ROCK FILL SLOPE PROTECTION
NOT TO SCALE

600518_HD6_CONST DETAILS.DWG 6-Nov-2017



THRUST BLOCK DETAILS

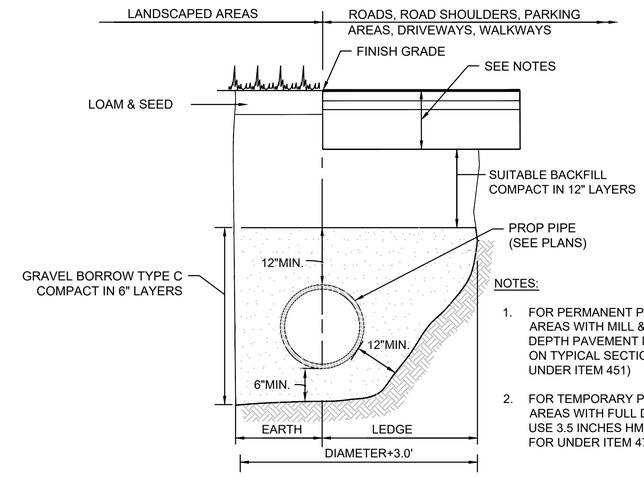
NOT TO SCALE

TABLE OF BEARING AREAS IN SQUARE FEET AGAINST UNDISTURBED MATERIAL FOR FITTING. *

SIZE OF MAIN (INCHES)	90° BEND (S.F.)	45° BEND (S.F.)	DEAD END (S.F.)
≤ 8	6.0	3.0	4.0
10 & 12	12.0	7.0	9.0
16	21.0	12.0	16.0

NOTES:

1. THRUST BLOCKS TO BE USED ON ALL PIPES AT HORIZONTAL AND VERTICAL BENDS GREATER OR EQUAL TO 45°, TEES AND DEAD ENDS.
2. FOR FITTINGS WITH LESS THAN 45° DEFLECTION USE BEARING AREAS FOR 45° BEND. BEARING AREAS FOR 45° BEND.
3. BEARING AREAS BASED ON HORIZONTAL PASSIVE SOIL PRESSURE OF 2000 PSF AND A MINIMUM INTERNAL WATER PRESSURE OF 175 PSIG. JOINTS SHALL NOT BE ENCASED IN CONCRETE, BEARING AREAS MAY BE DISREGARDED FOR TRENCHES IN ROCK WHERE THE TOP OF THE ROCK FACE IS AT OR ABOVE THE CROWN OF THE PIPE. HOWEVER, CONCRETE BACKING SHALL BE PLACED BETWEEN THE PIPE AND THE ROCK FACE.



NOTES:

1. FOR PERMANENT PATCH IN ROADWAY AREAS WITH MILL & OVERLAY USE FULL DEPTH PAVEMENT MATERIALS SHOWN ON TYPICAL SECTIONS (PAID FOR UNDER ITEM 451)
2. FOR TEMPORARY PATCH IN ROADWAY AREAS WITH FULL DEPTH PAVEMENT USE 3.5 INCHES HMA BINDER MIX (PAID FOR UNDER ITEM 472)

STANDARD TRENCH DETAIL

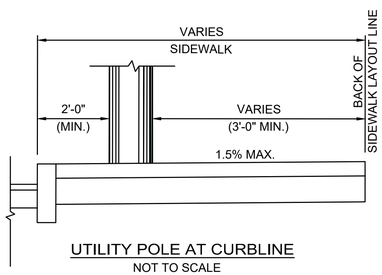
NOT TO SCALE

HINGHAM
DERBY/ WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	63
PROJECT FILE NO.	600518		

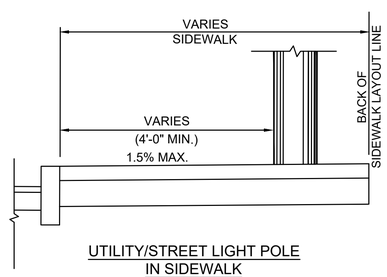
CONSTRUCTION DETAILS

600518_HD6_CONST DETAILS.DWG 6-Nov-2017



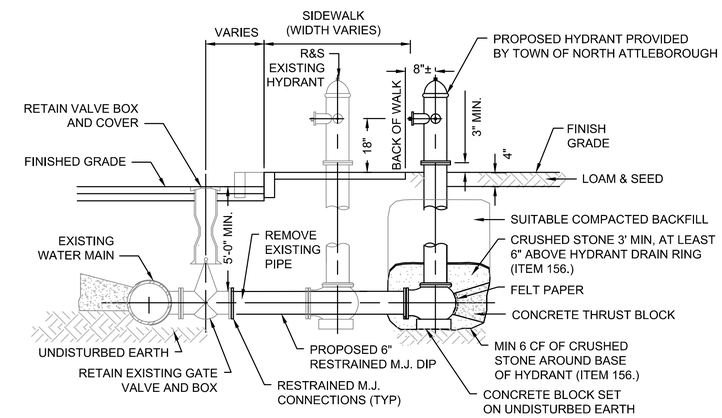
UTILITY POLE AT CURBLINE

NOT TO SCALE

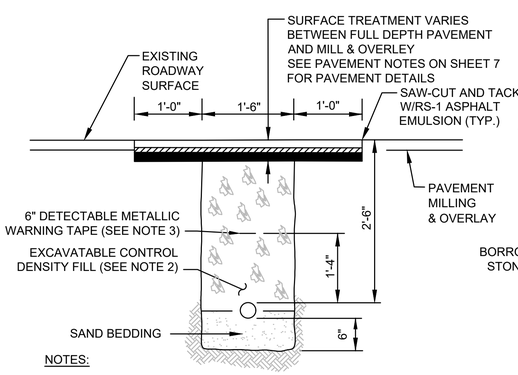


UTILITY/STREET LIGHT POLE IN SIDEWALK

NOT TO SCALE



HYDRANT DETAIL

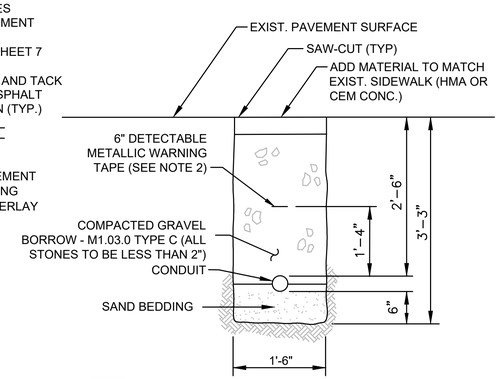


NOTES:

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

CONDUIT CROSSING ROADWAY

NOT TO SCALE

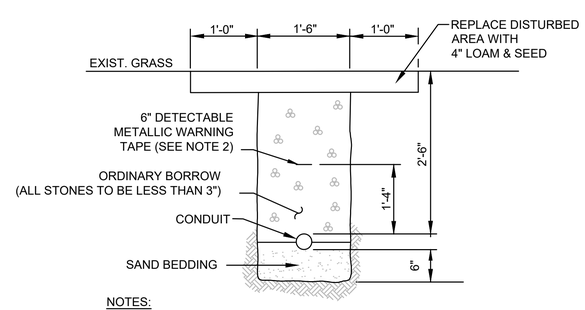


NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. WARNING TAPE SHALL BE PER CURRENT MASSDOT STANDARDS.

CONDUIT UNDER SIDEWALK

NOT TO SCALE

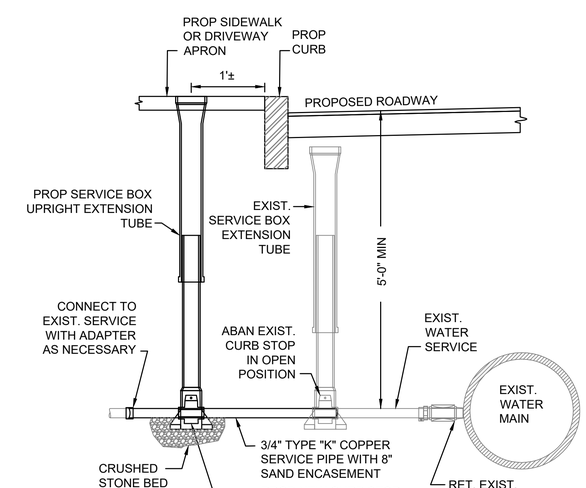


NOTES:

1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL), WITH PULL ROPE, UNLESS OTHERWISE APPROVED BY MASSDOT.
2. WARNING TAPE SHALL BE PER CURRENT MASSDOT STANDARDS.

CONDUIT UNDER GRASS AREAS

NOT TO SCALE



CURB STOP DETAIL

NOT TO SCALE

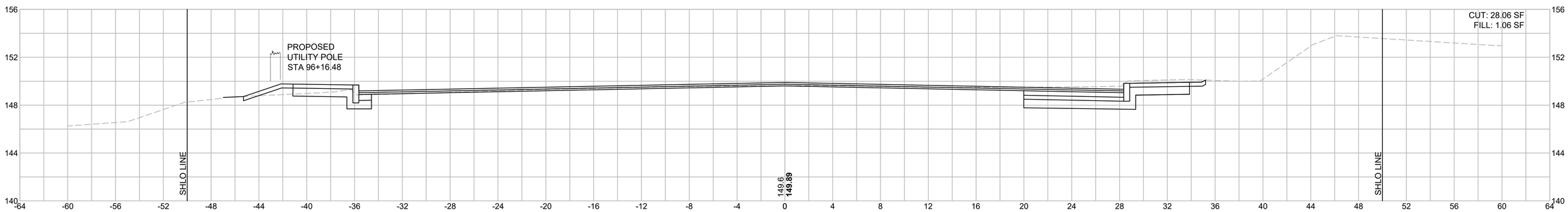
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	42	63
PROJECT FILE NO.	600518		

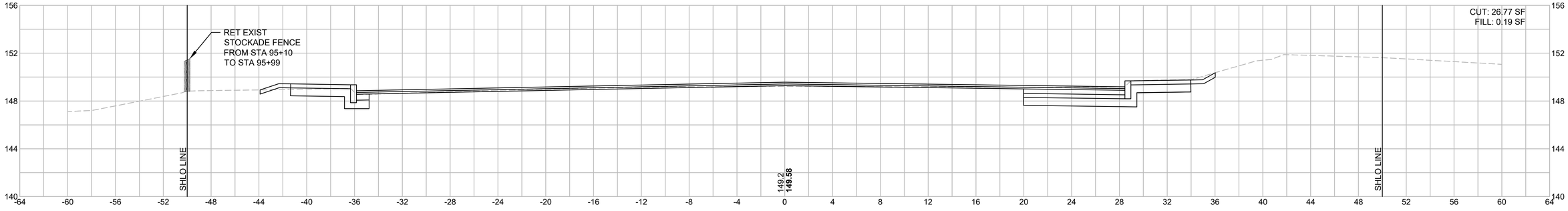
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

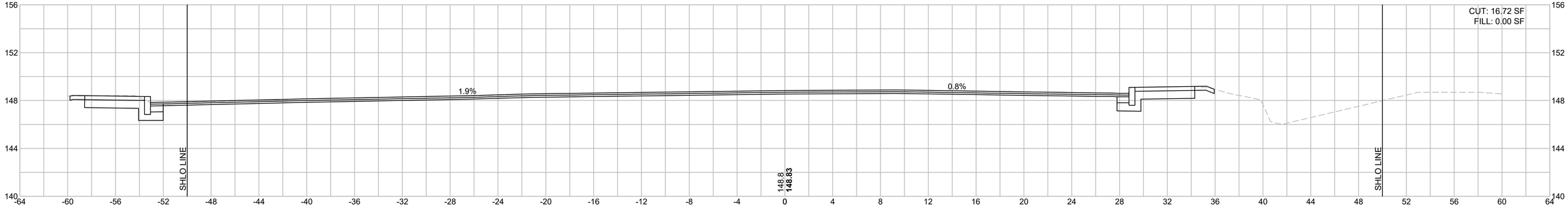
96+00



95+50



95+00



SCALE IN FEET

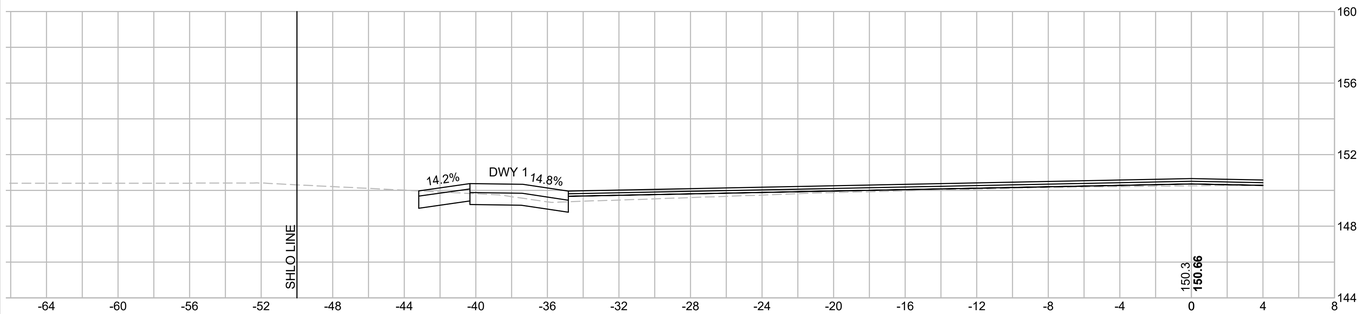
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	63
PROJECT FILE NO.	600518		

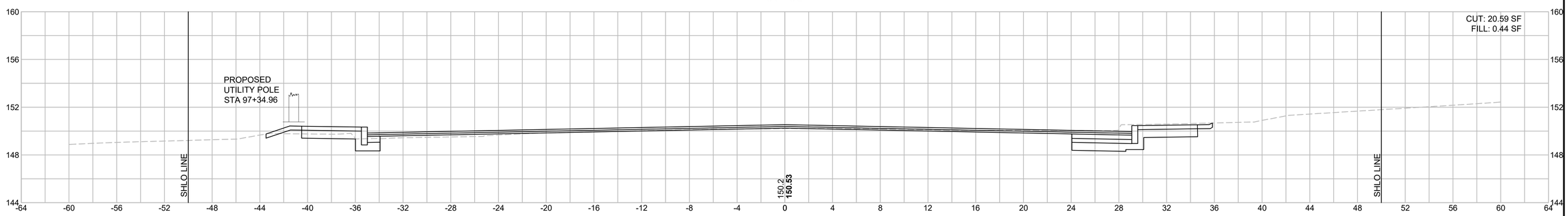
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

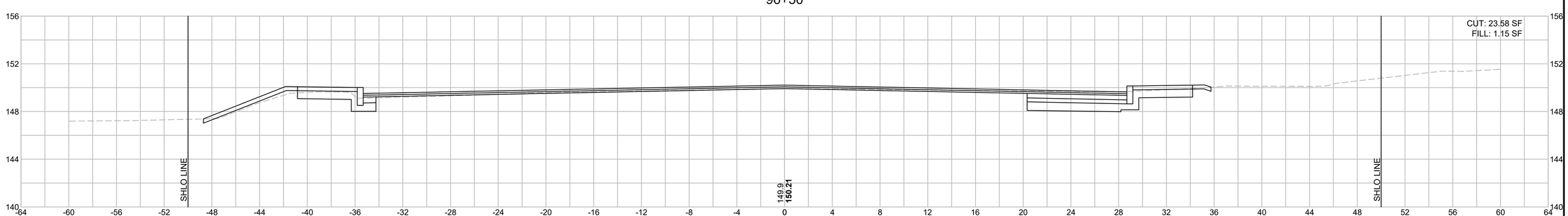
97+23.79



97+00



96+50



4 0 4 8
SCALE IN FEET

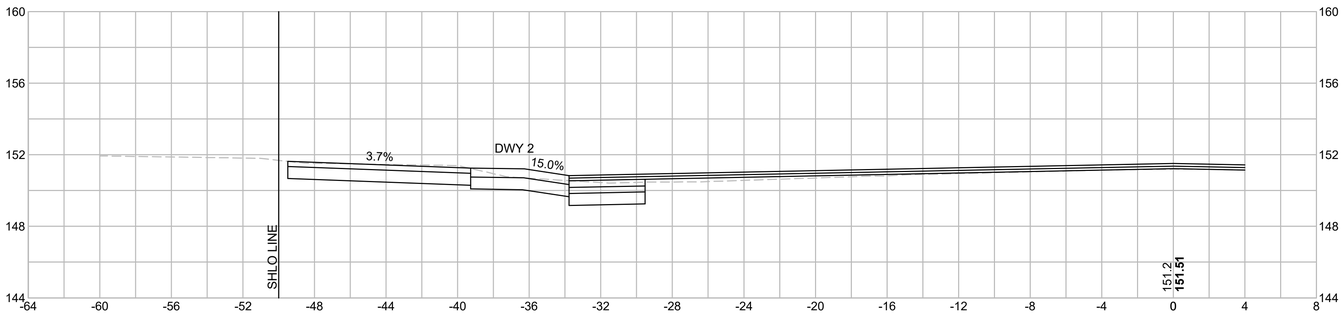
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	44	63
PROJECT FILE NO.	600518		

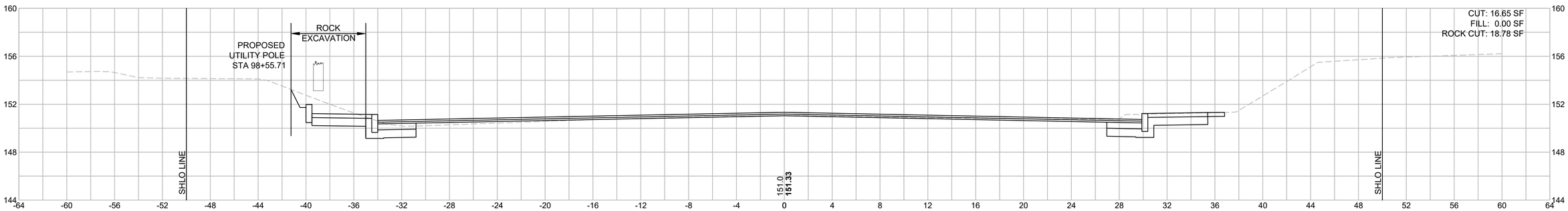
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

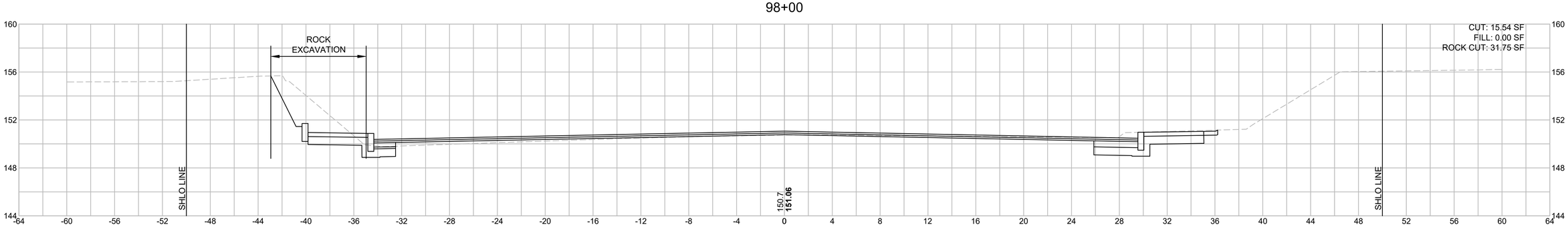
98+84.71



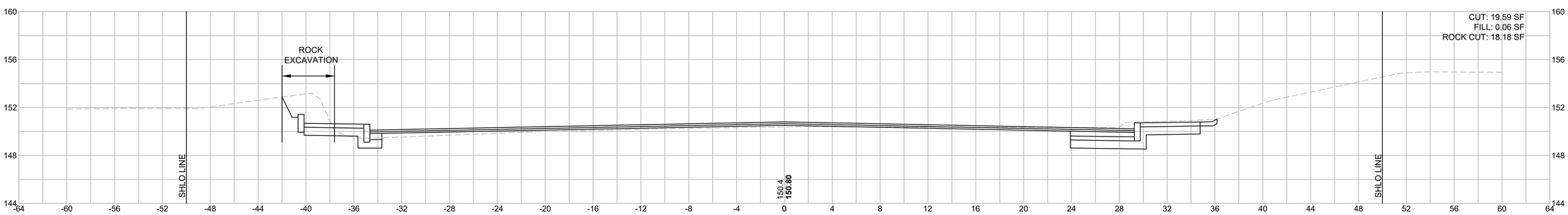
98+50



98+00



97+50



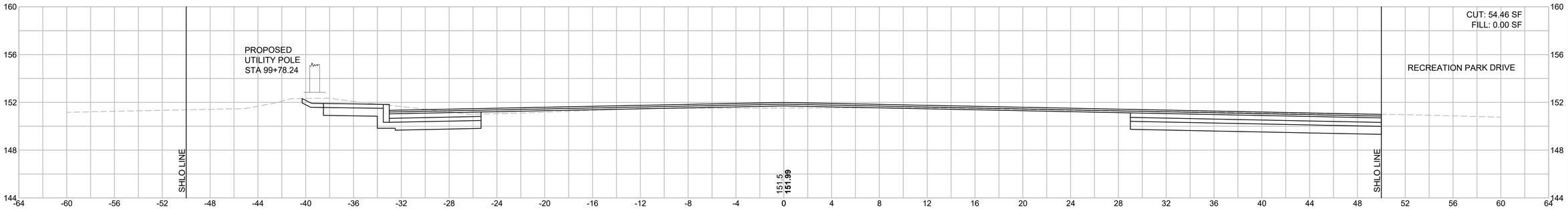
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	45	63
PROJECT FILE NO.	600518		

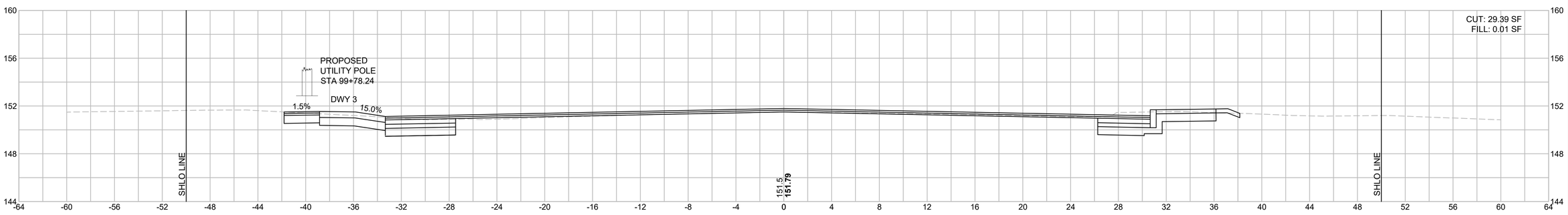
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

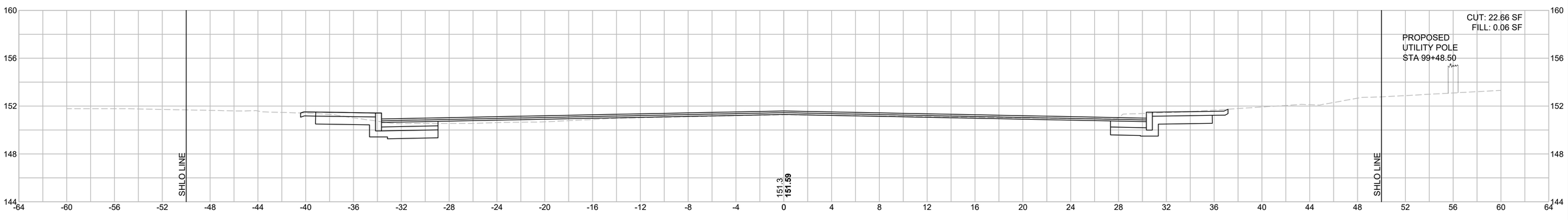
100+00



99+50



99+00



4 0 4 8
SCALE IN FEET

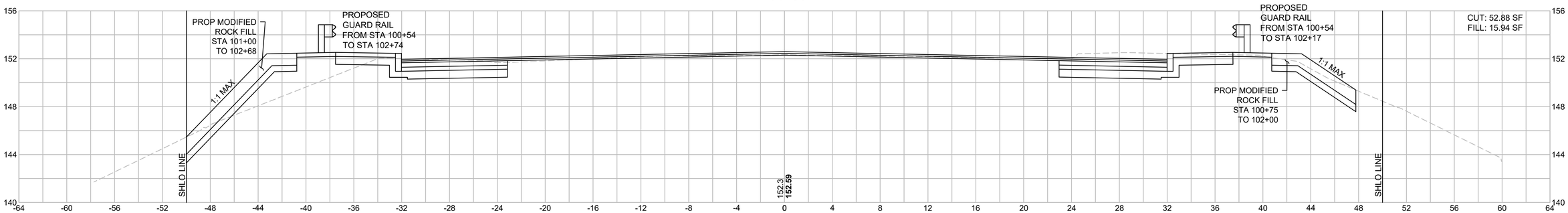
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	63
PROJECT FILE NO.	600518		

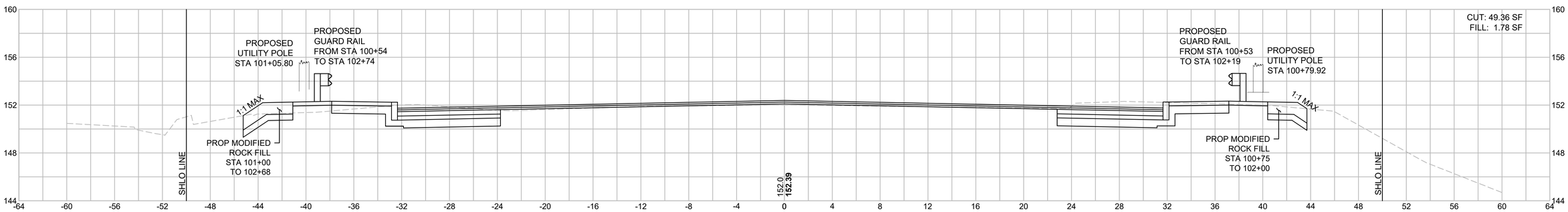
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

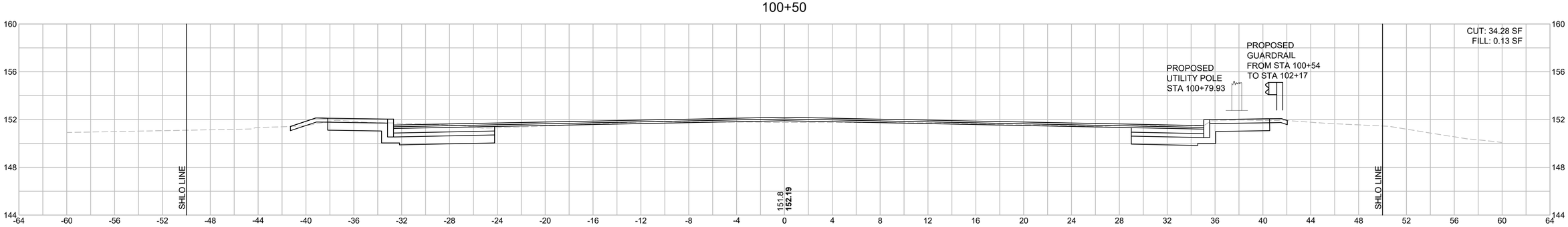
101+50



101+00



100+50



SCALE IN FEET

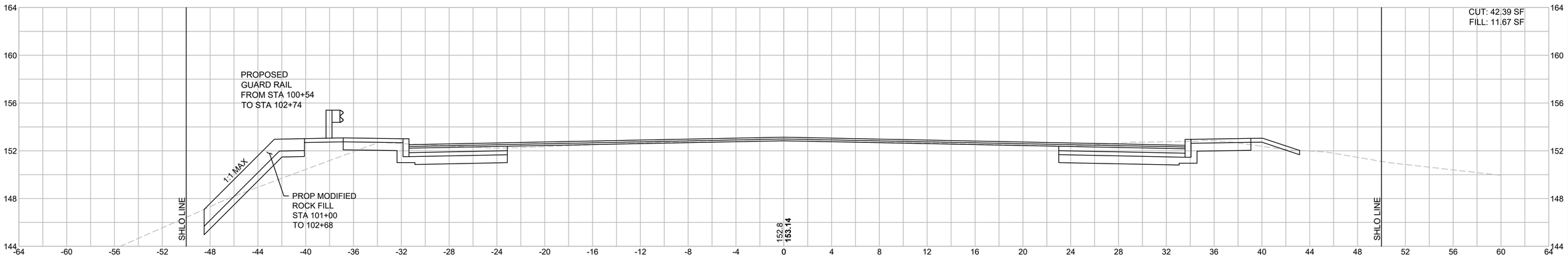
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	47	63
PROJECT FILE NO.	600518		

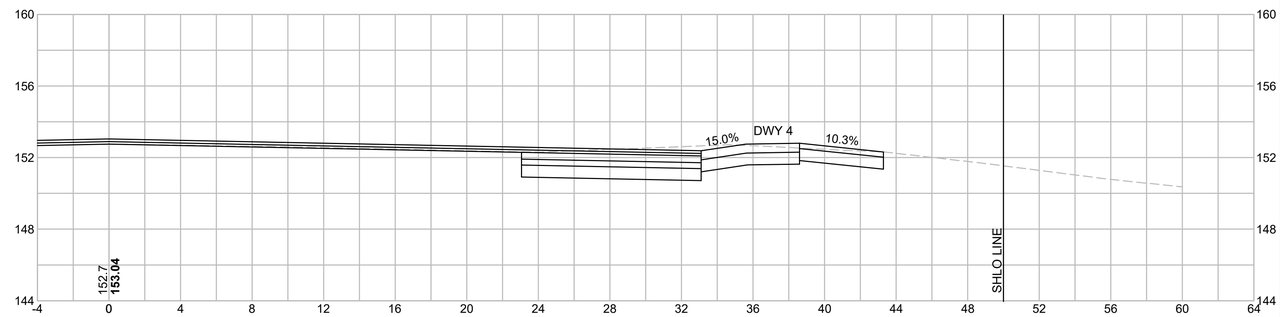
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

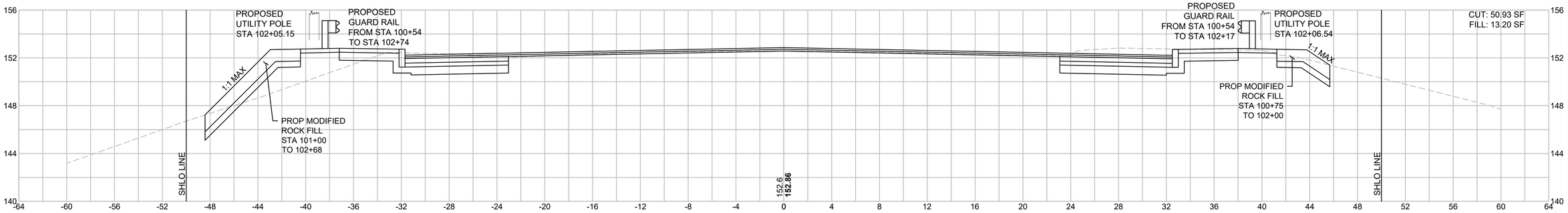
102+50



102+32.21



102+00



SCALE IN FEET

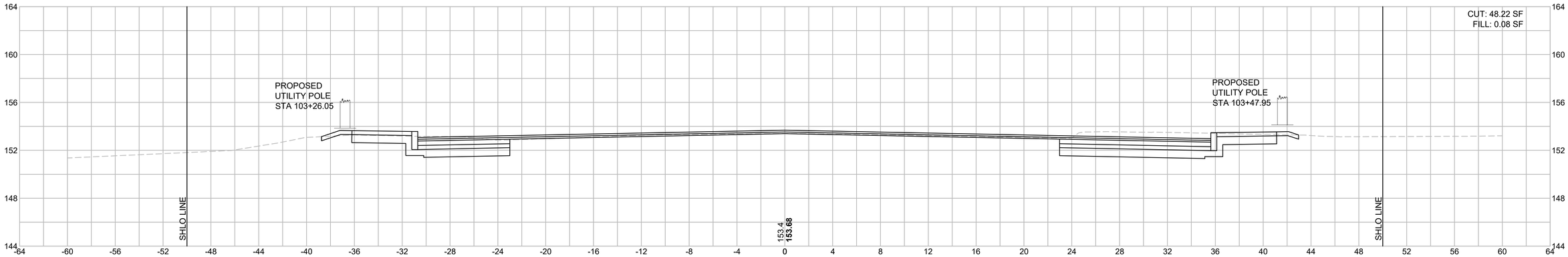
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	48	63
PROJECT FILE NO.	600518		

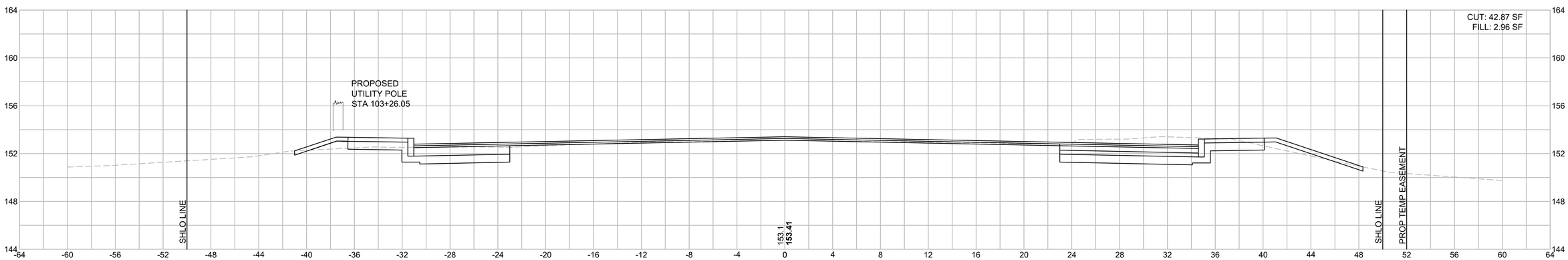
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

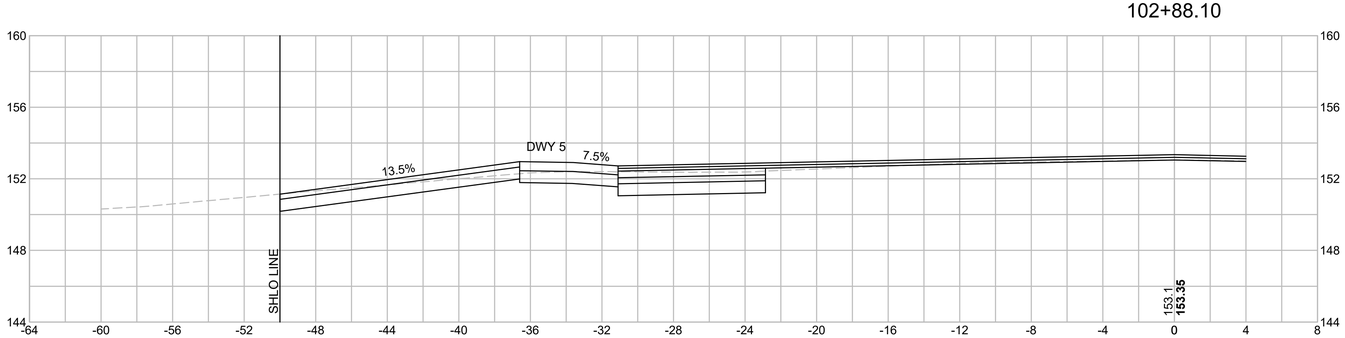
103+50



103+00



102+88.10



4 0 4 8
SCALE IN FEET

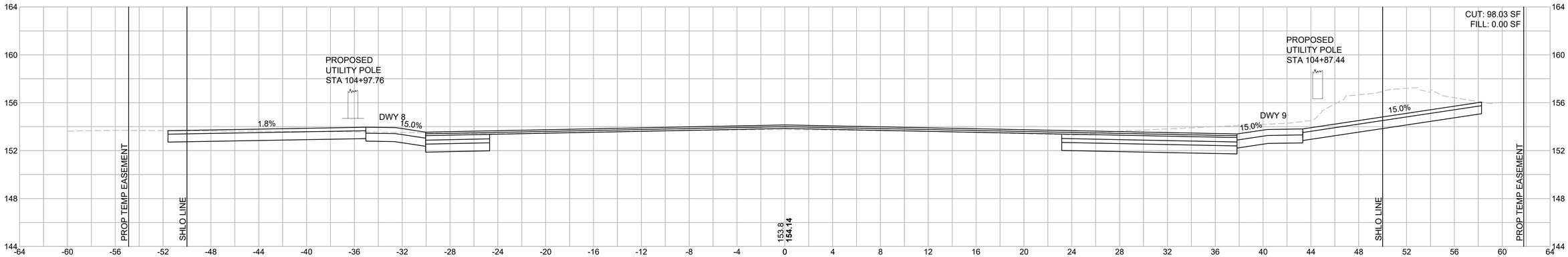
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	49	63
PROJECT FILE NO.	600518		

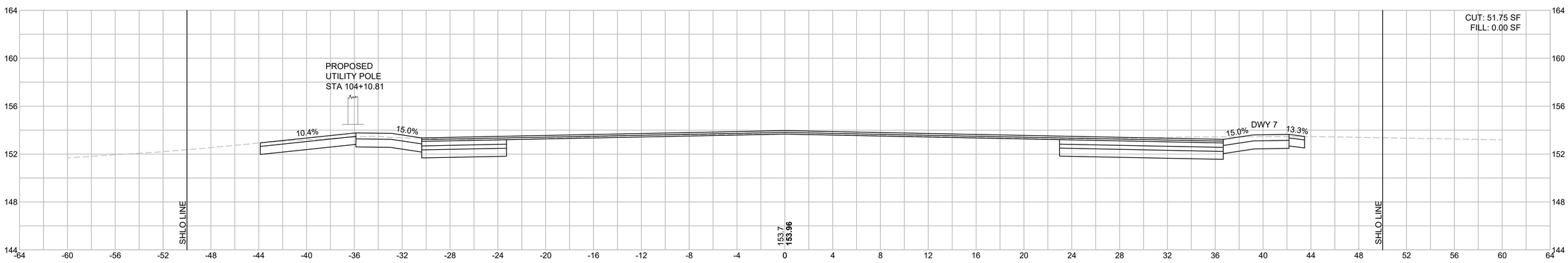
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

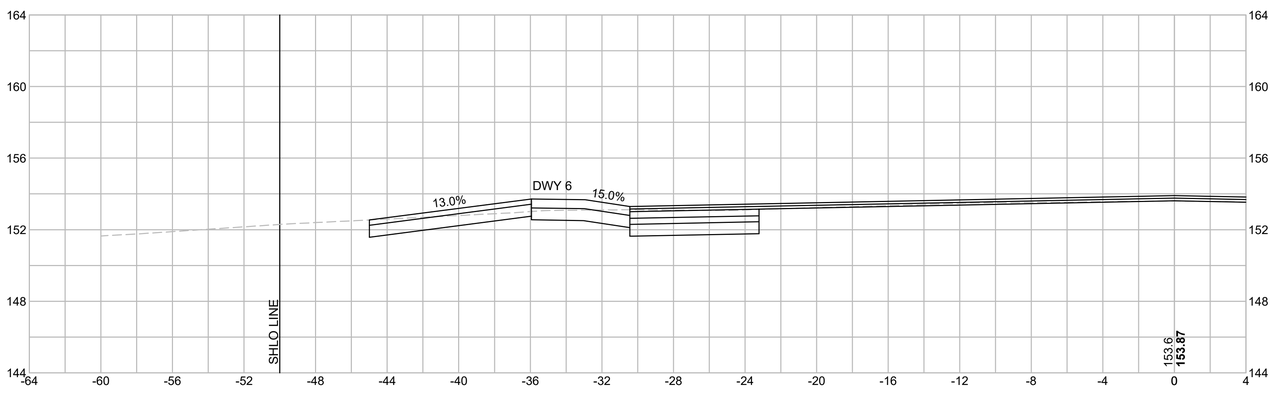
104+50



104+00



103+90.81



4 0 4 8
SCALE IN FEET

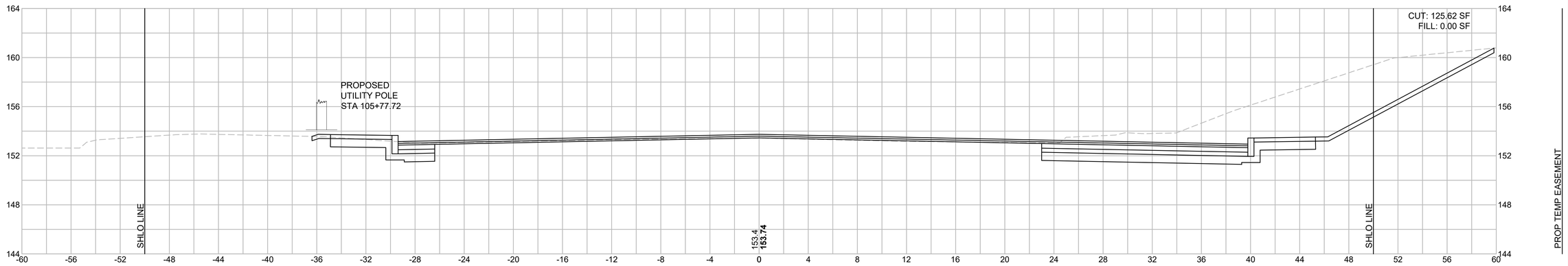
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	50	63
PROJECT FILE NO.	600518		

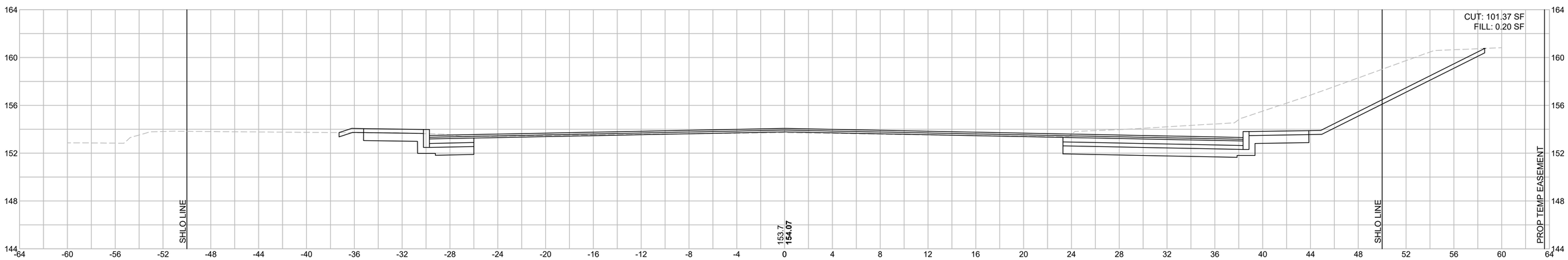
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

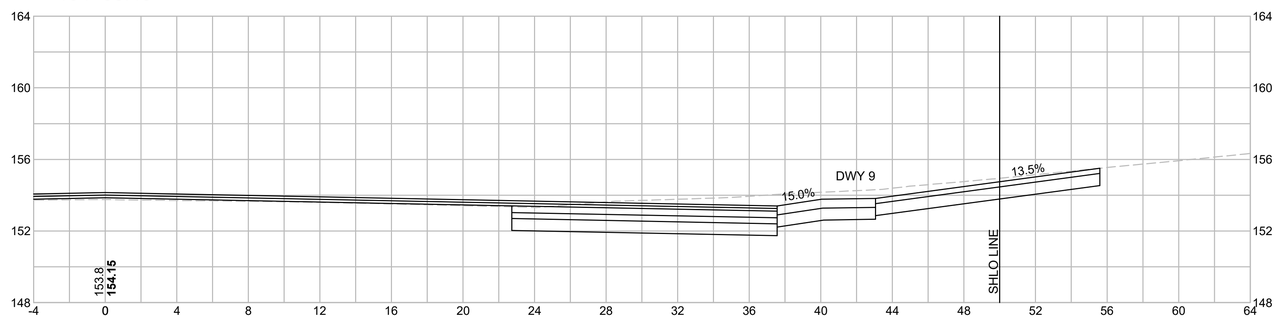
105+50



105+00



104+58.43



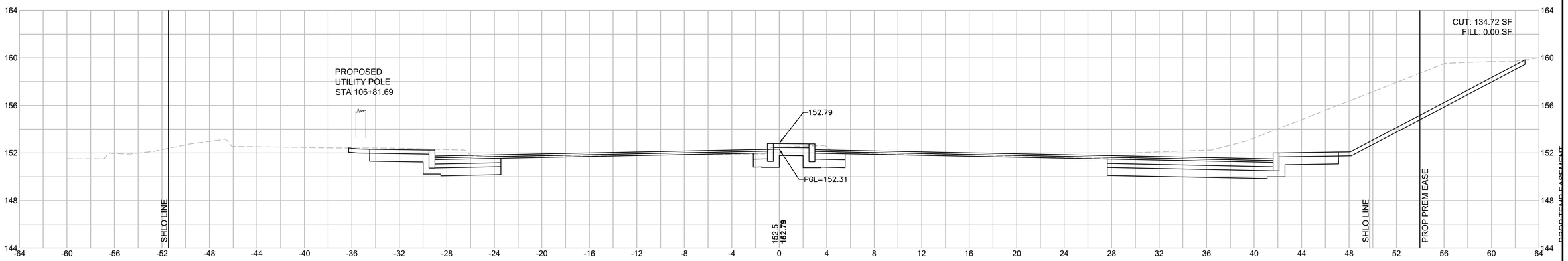
4 0 4 8
SCALE IN FEET

HINGHAM
DERBY/WHITING STREET

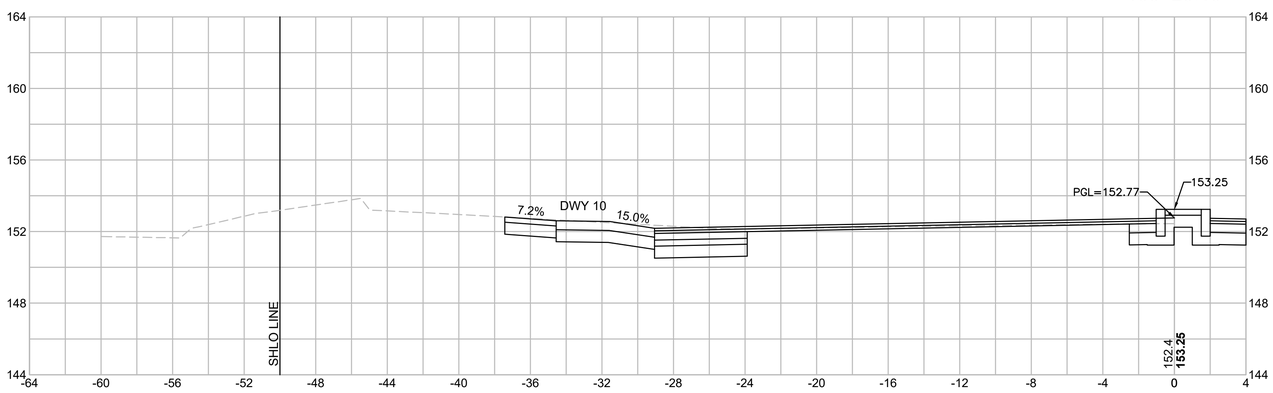
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	51	63
PROJECT FILE NO.	600518		

CROSS SECTIONS
DERBY STREET

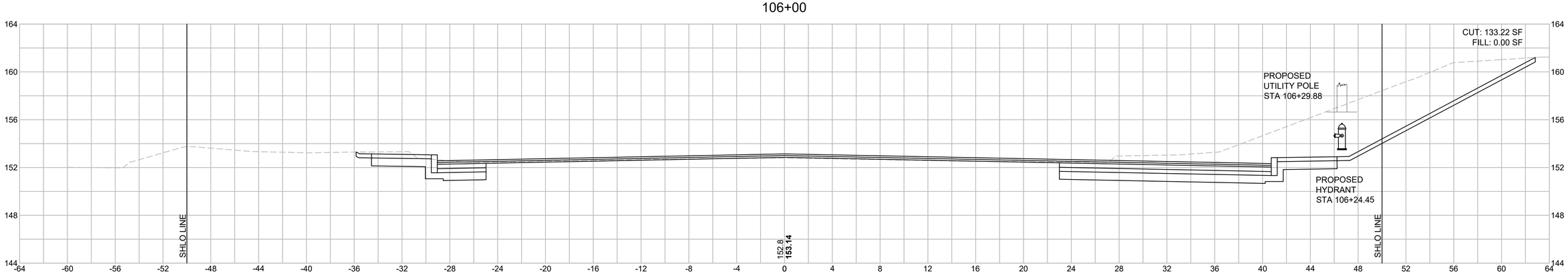
106+50



106+25.10



106+00



4 0 4 8
SCALE IN FEET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

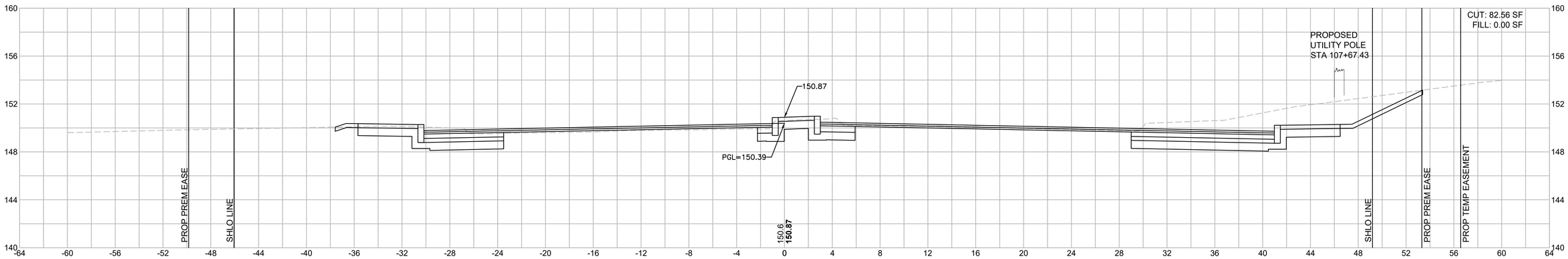
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	52	63
PROJECT FILE NO.	600518		

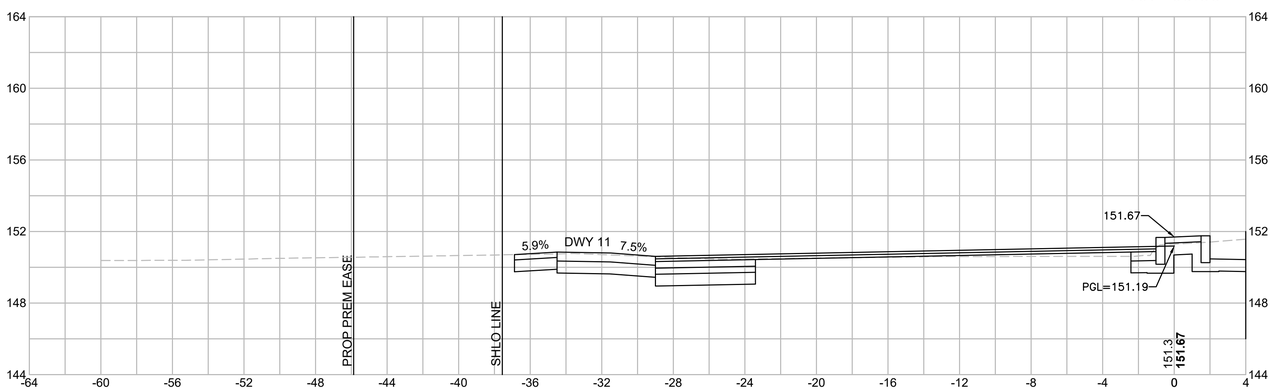
CROSS SECTIONS
DERBY STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

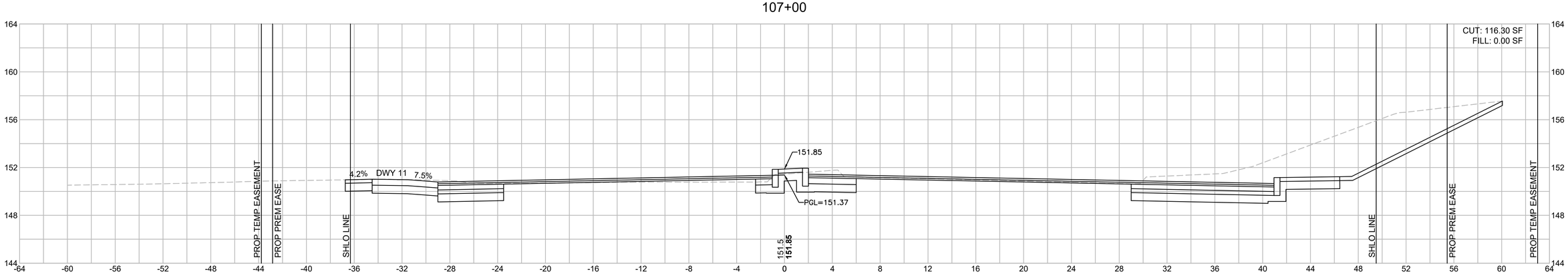
107+50



107+09.35



107+00



4 0 4 8
SCALE IN FEET

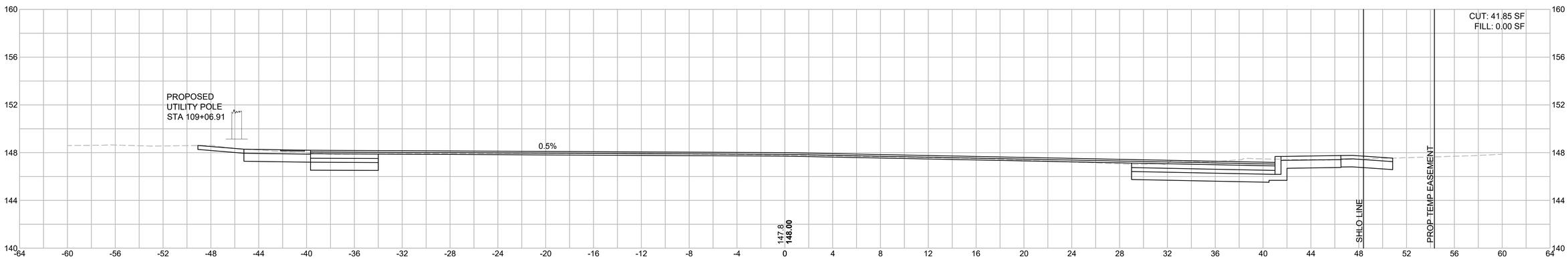
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	53	63
PROJECT FILE NO.	600518		

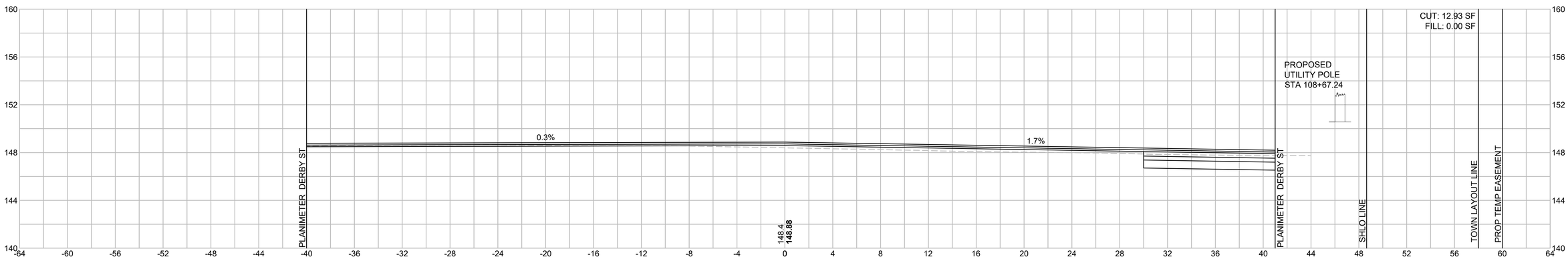
CROSS SECTIONS
DERBY STREET / WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

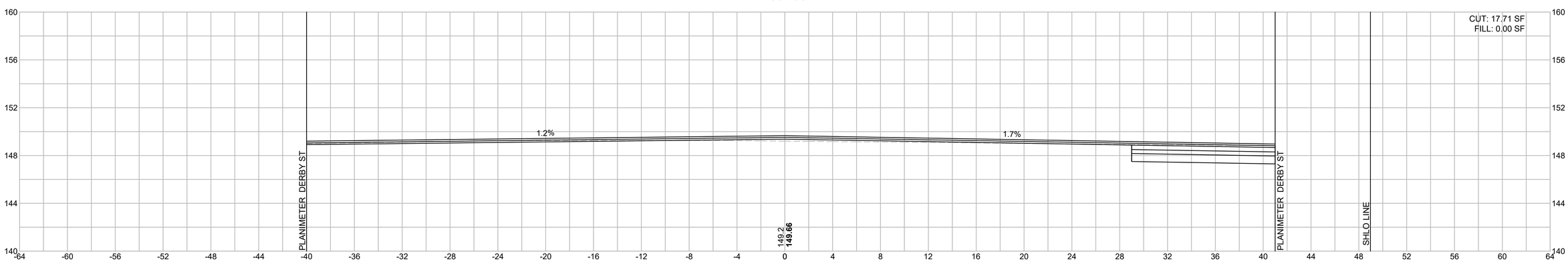
109+00



108+50



108+00



4 0 4 8
SCALE IN FEET

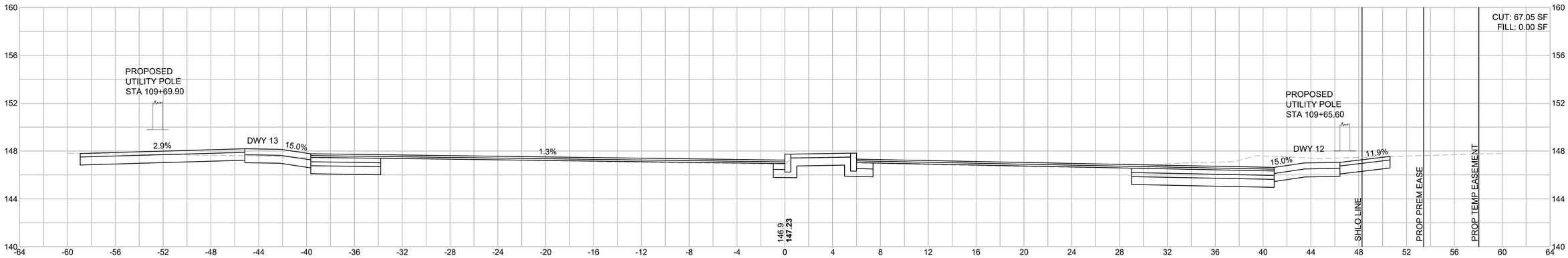
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	54	63
PROJECT FILE NO.	600518		

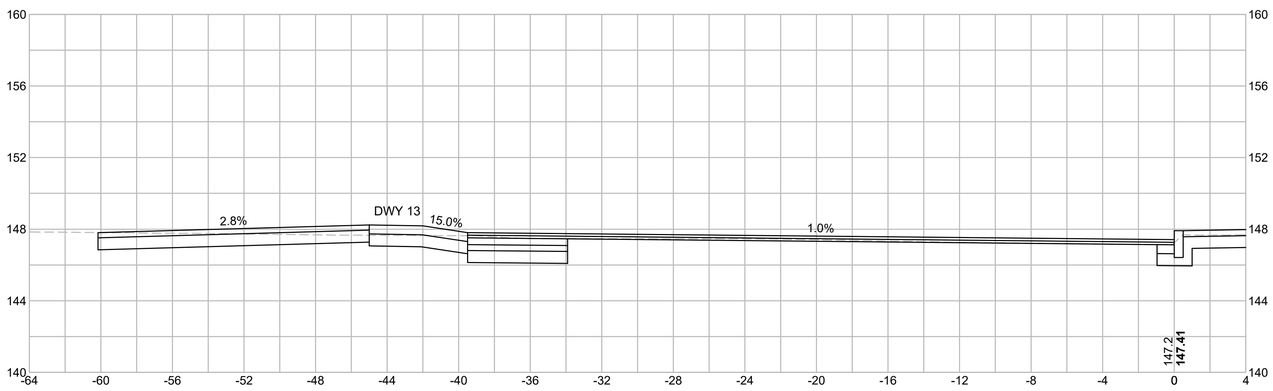
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

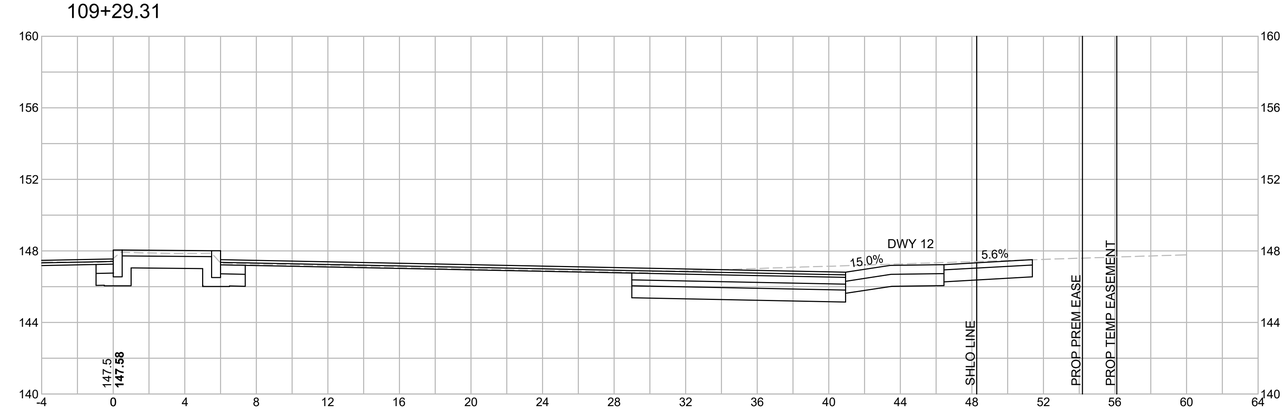
109+50



109+40.03



109+29.31



4 0 4 8
SCALE IN FEET

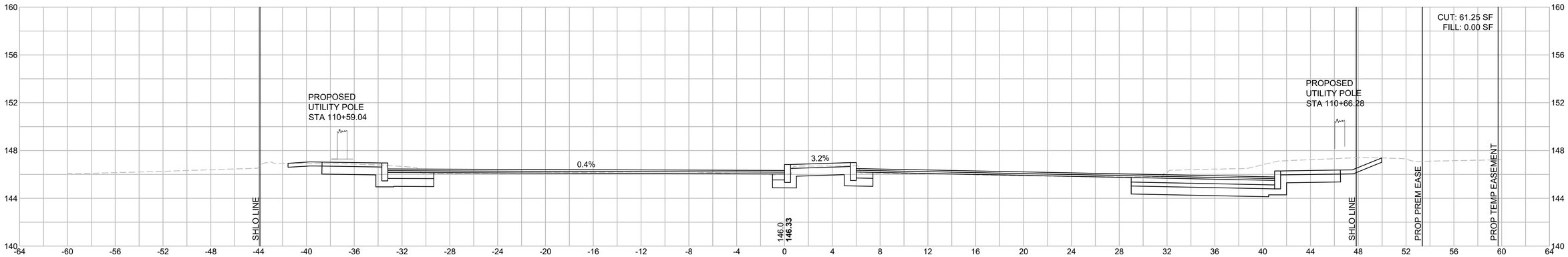
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	55	63
PROJECT FILE NO.	600518		

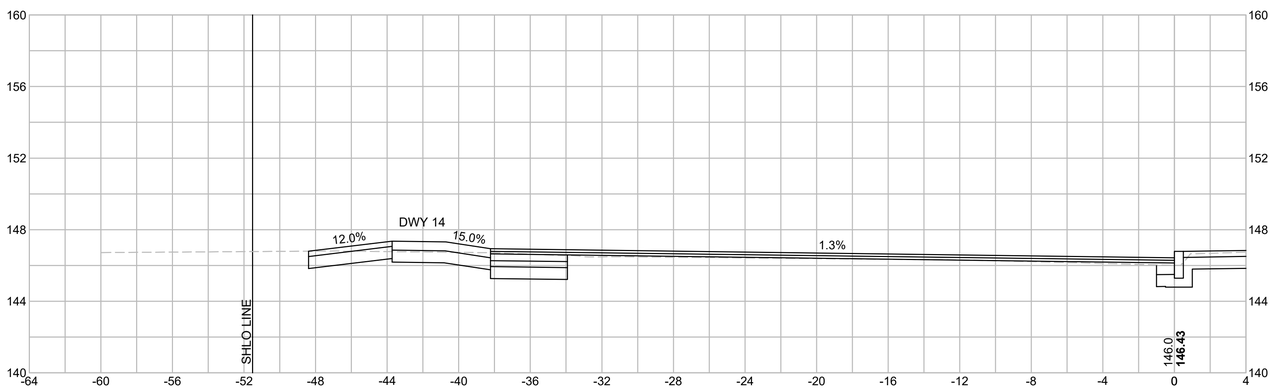
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

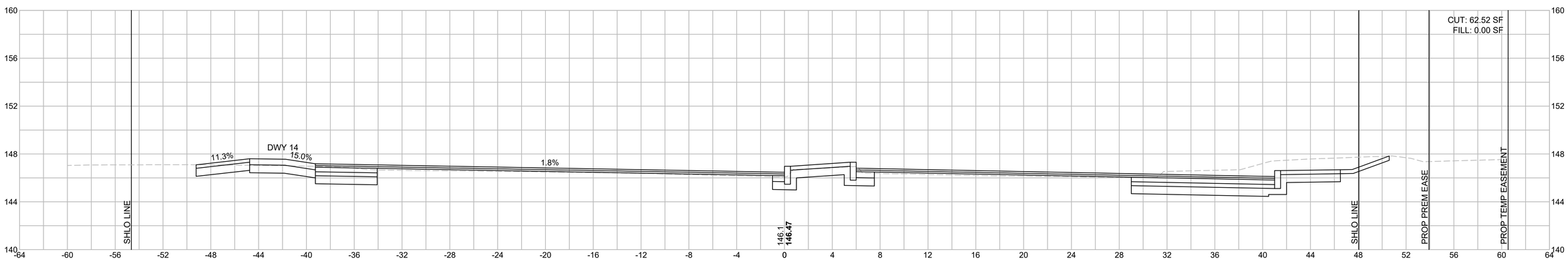
110+50



110+11.87



110+00



4 0 4 8
SCALE IN FEET

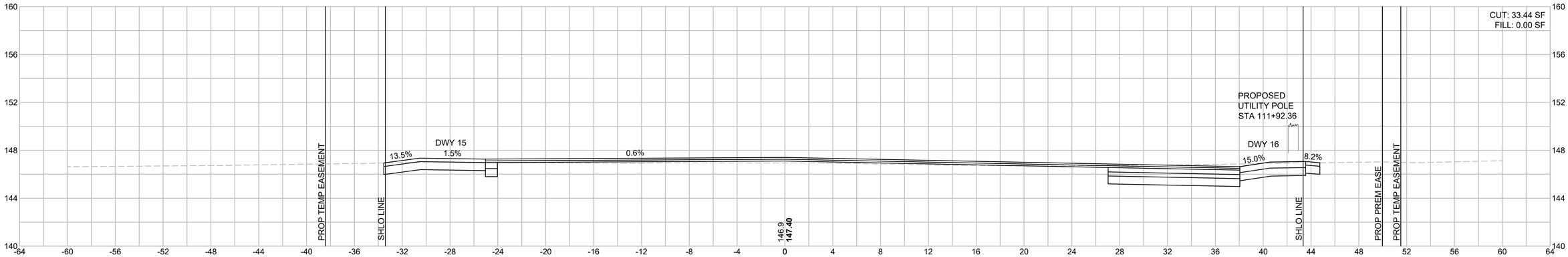
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	56	63
PROJECT FILE NO.	600518		

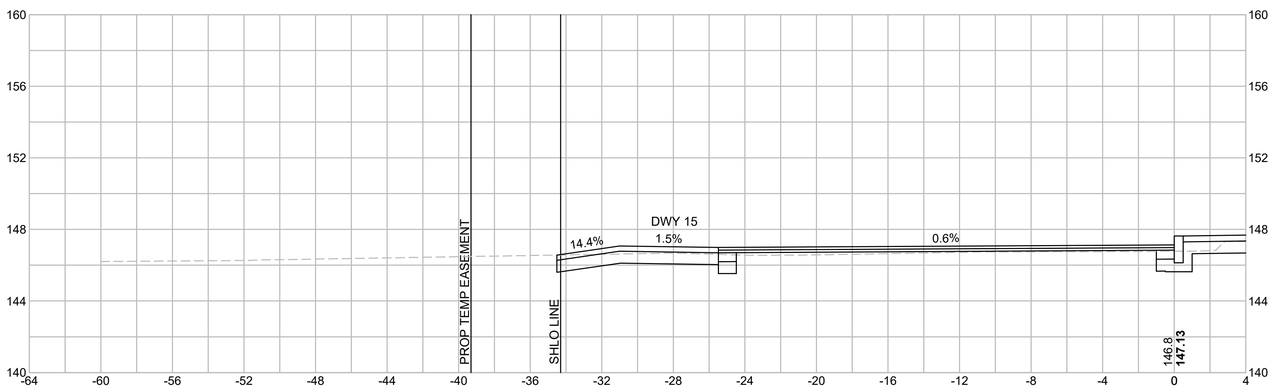
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

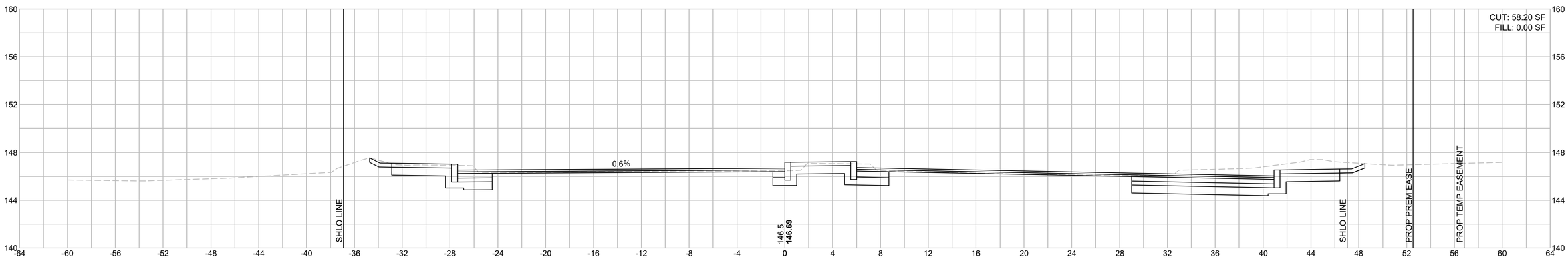
111+50



111+32.04



111+00



4 0 4 8
SCALE IN FEET

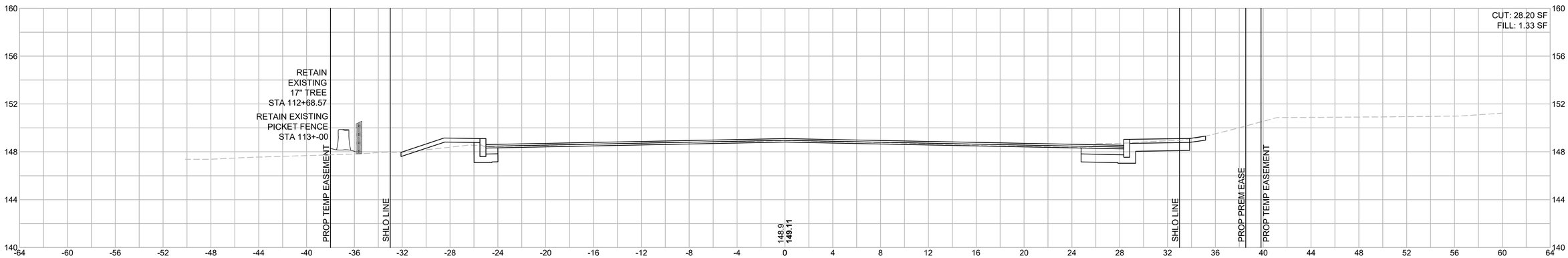
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	57	63
PROJECT FILE NO.	600518		

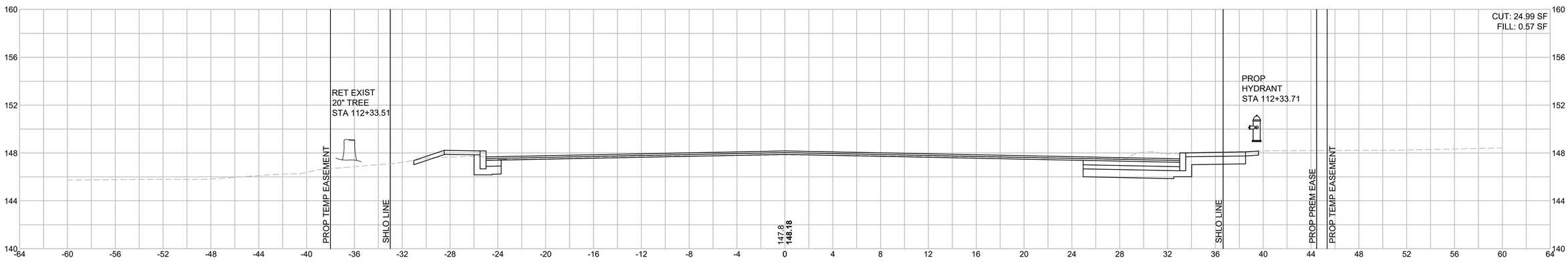
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

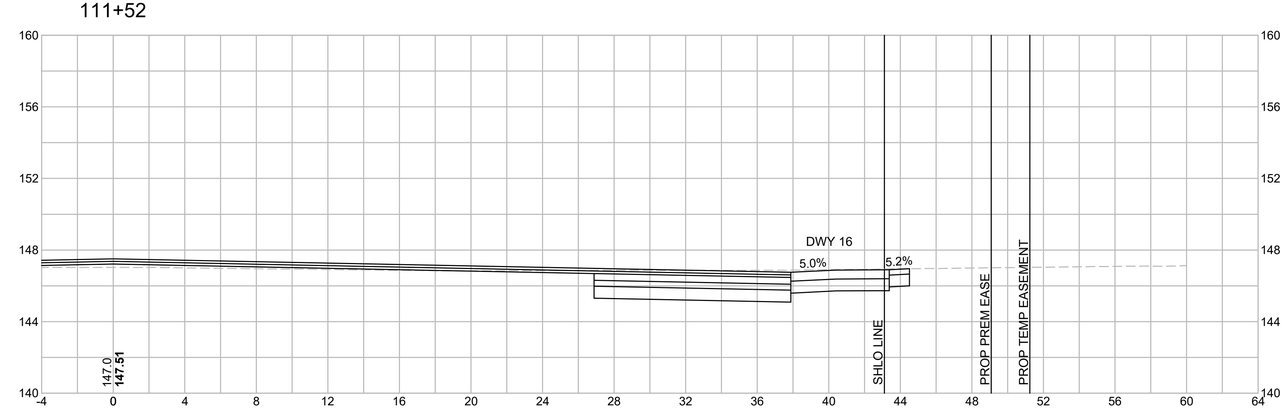
112+50



112+00



111+52



4 0 4 8
SCALE IN FEET

HINGHAM
DERBY/WHITING STREET

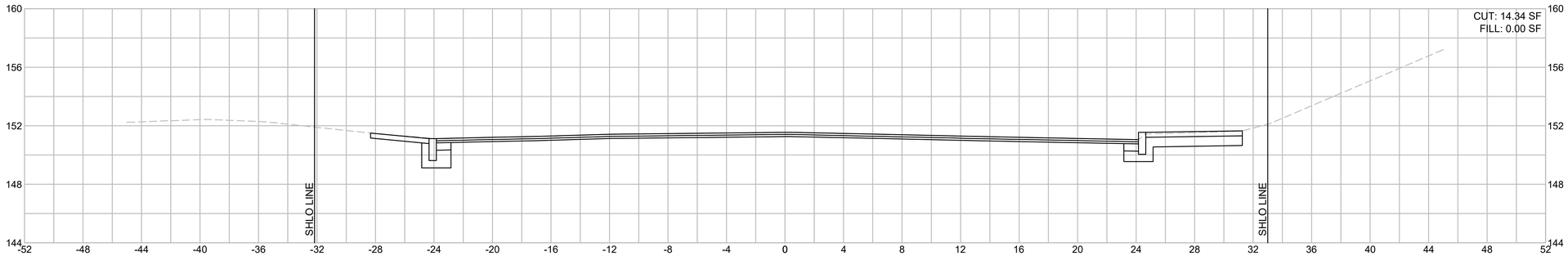
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	58	63
PROJECT FILE NO.	600518		

CROSS SECTIONS
WHITING STREET

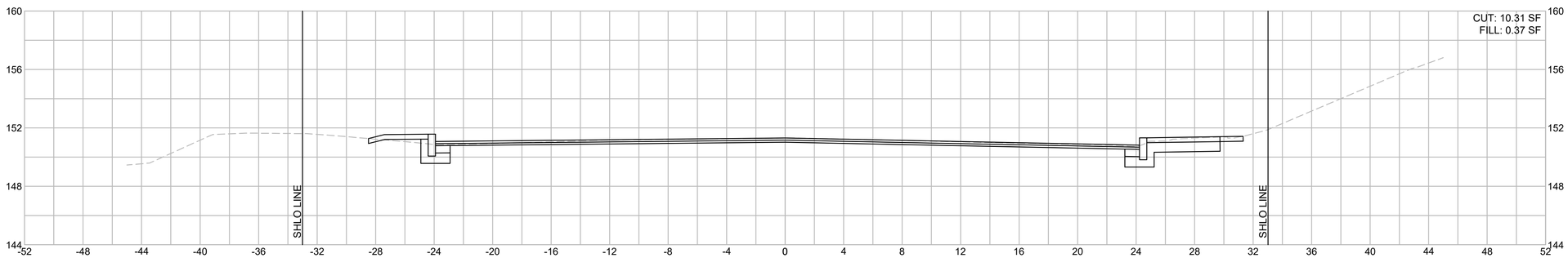
6-Nov-2017

600518_HD7_X SECTIONS.DWG

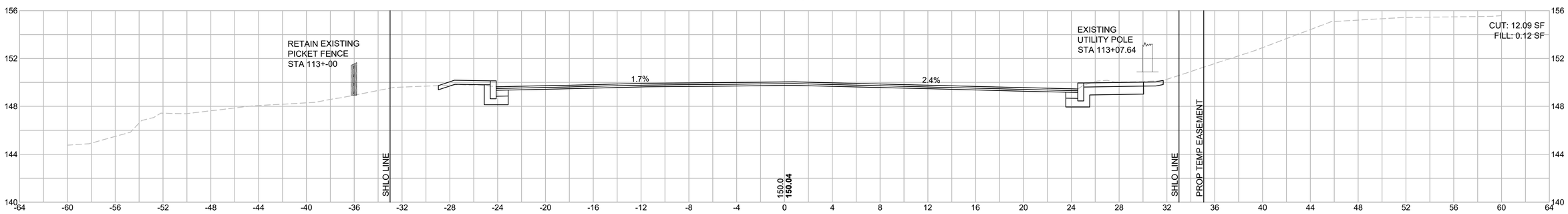
113+60



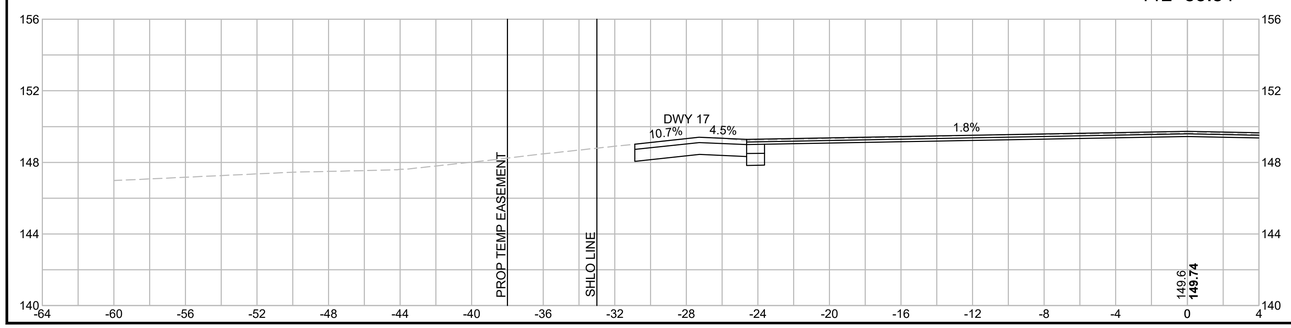
113+50



113+00



112+83.84



4 0 4 8
SCALE IN FEET

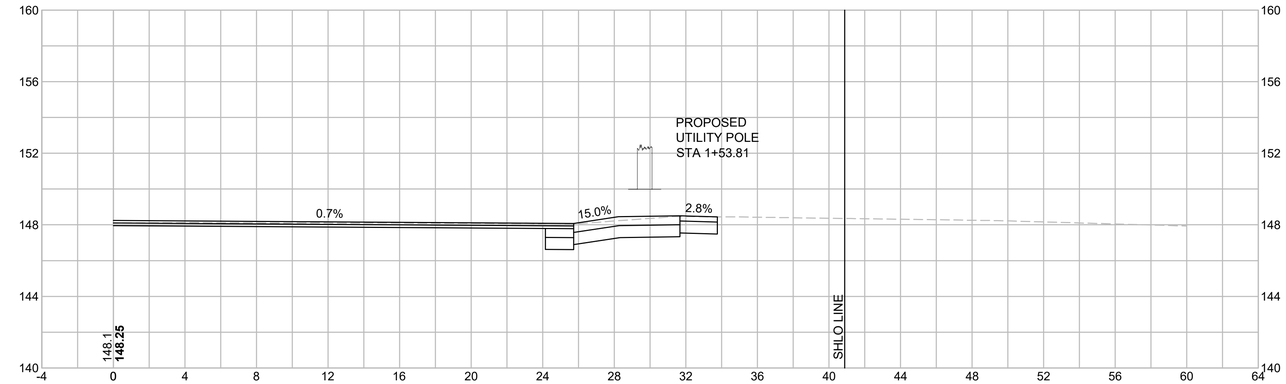
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	59	63
PROJECT FILE NO.	600518		

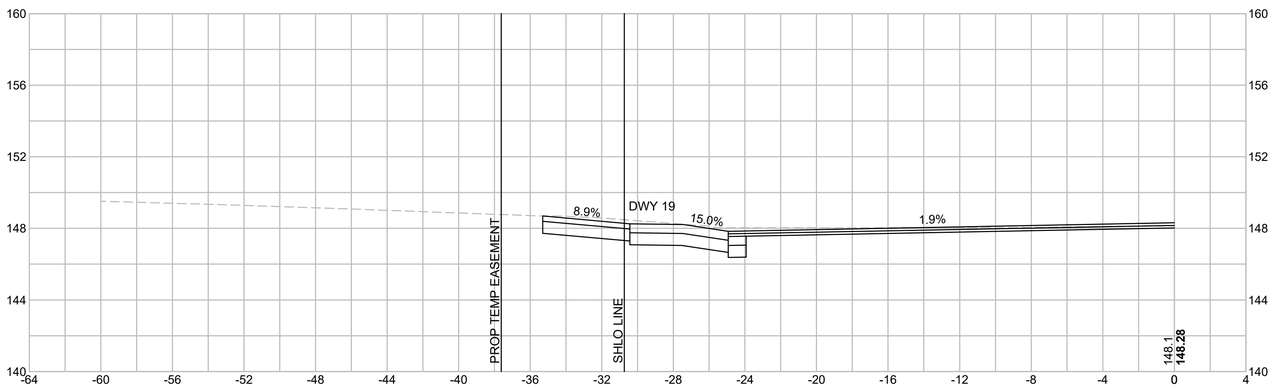
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

1+27.65



1+18.43



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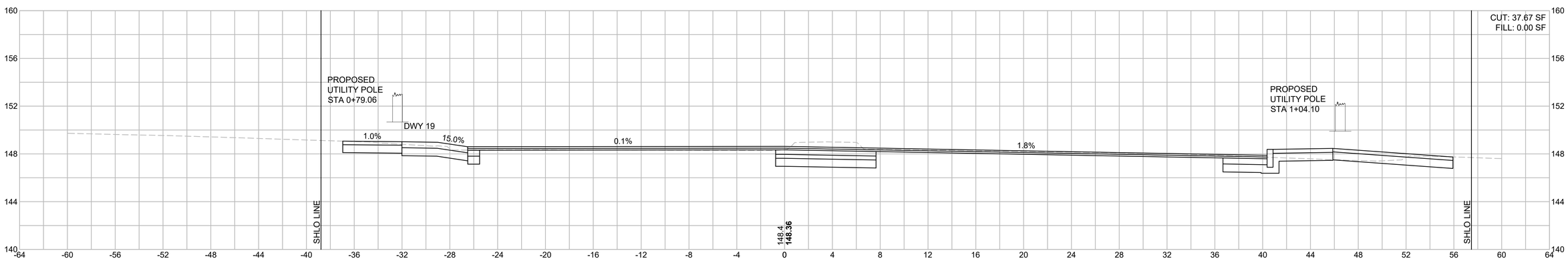


4 0 4 8
SCALE IN FEET

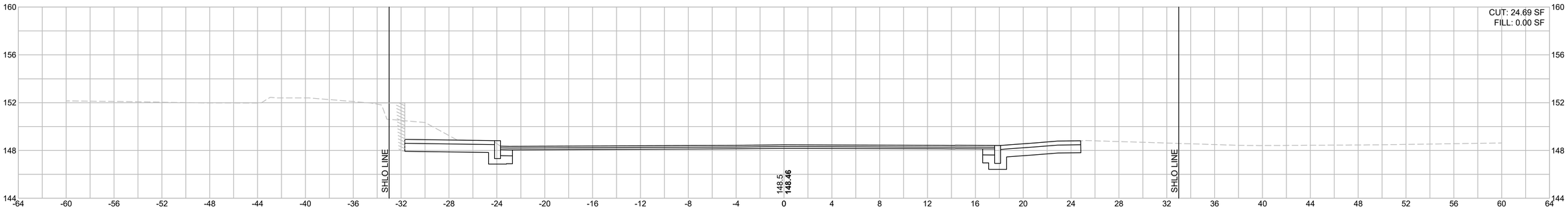
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	60	63
PROJECT FILE NO.	600518		

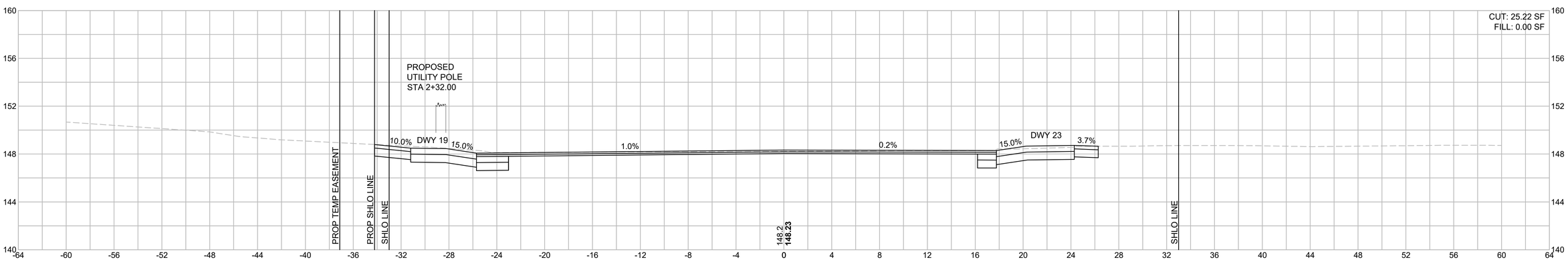
CROSS SECTIONS
WHITING STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

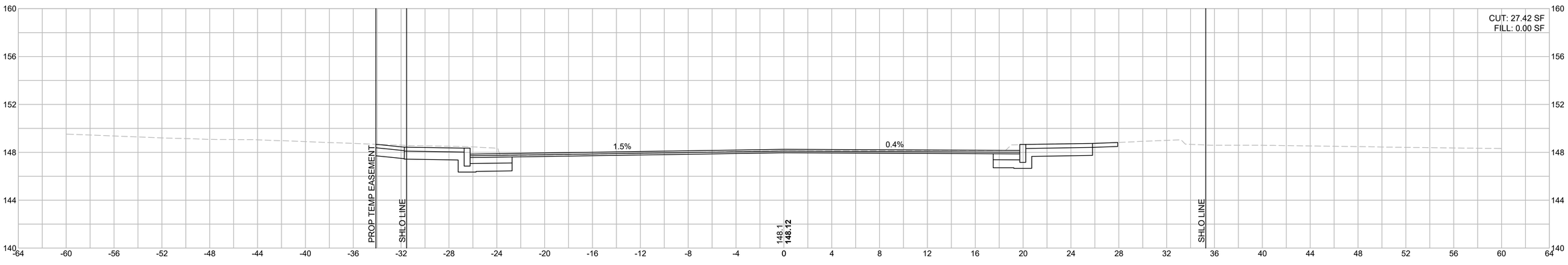
2+45



2+00



1+50



4 0 4 8
SCALE IN FEET

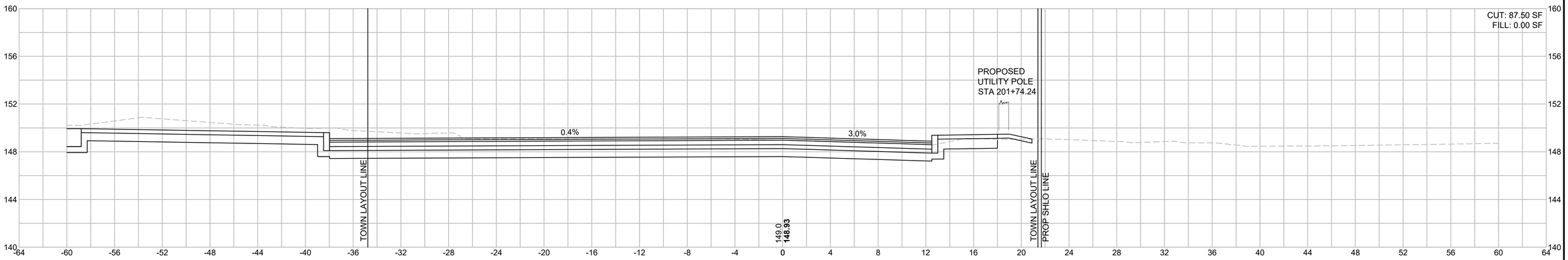
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	61	63
PROJECT FILE NO.	600518		

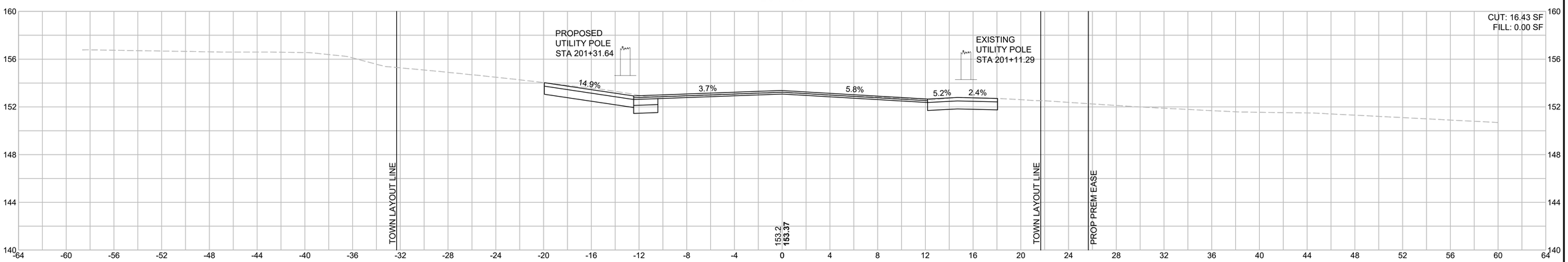
CROSS SECTIONS
GARDNER STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

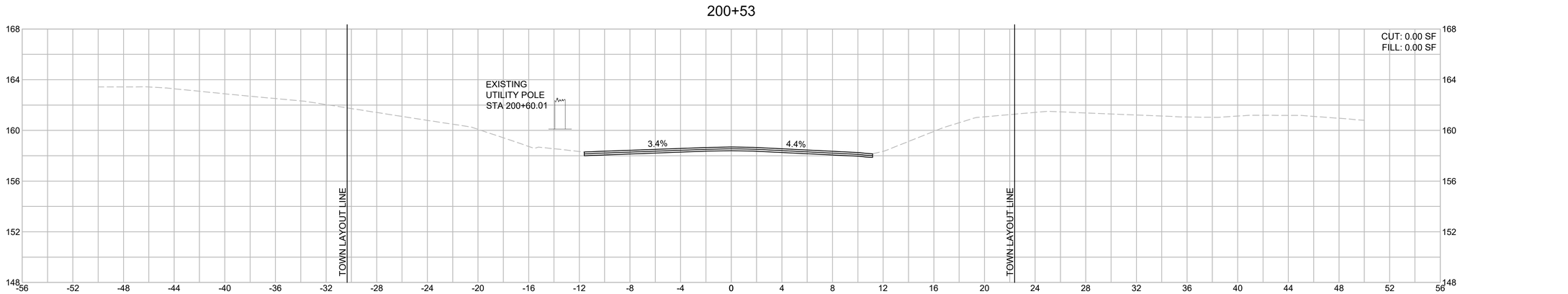
201+50



201+00



200+53



4 0 4 8
SCALE IN FEET

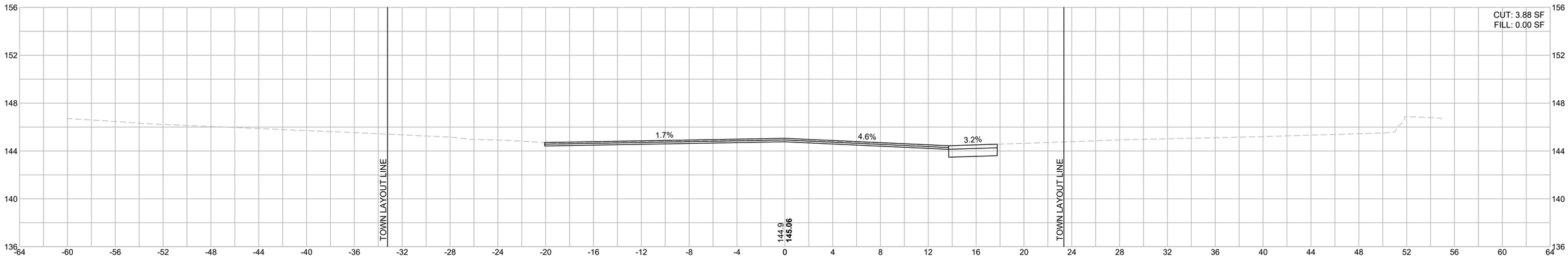
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	62	63
PROJECT FILE NO.	600518		

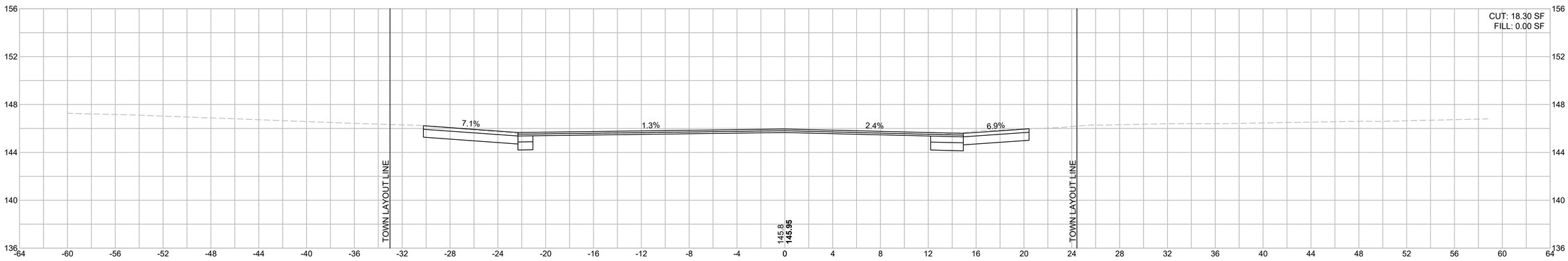
CROSS SECTIONS
GARDNER STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

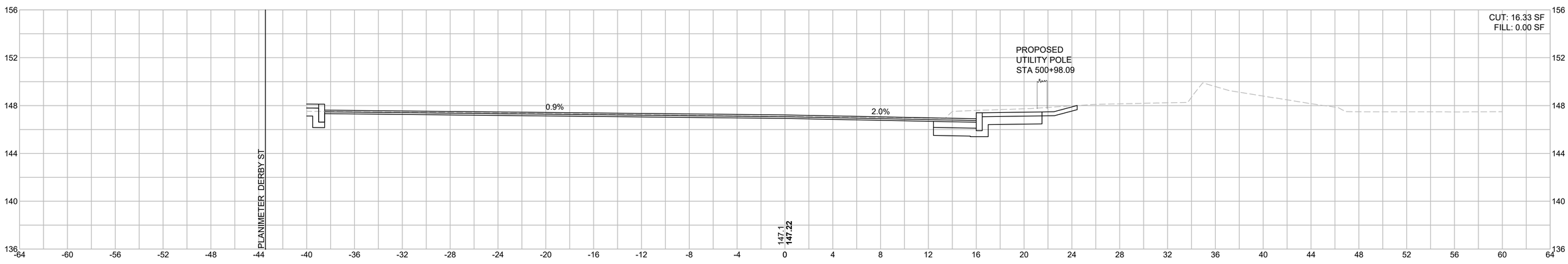
502+00



501+50



501+00



4 0 4 8
SCALE IN FEET

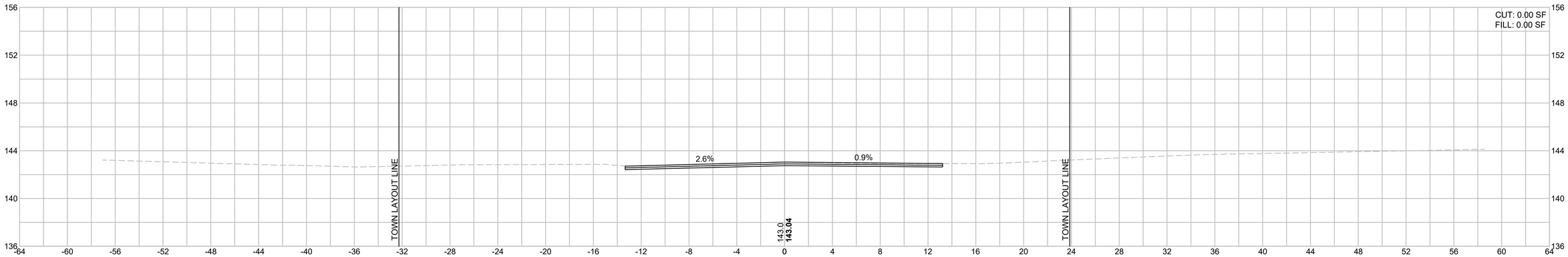
HINGHAM
DERBY/WHITING STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	63	63
PROJECT FILE NO.	600518		

GARDNER STREET

600518_HD7_X SECTIONS.DWG 6-Nov-2017

502+70



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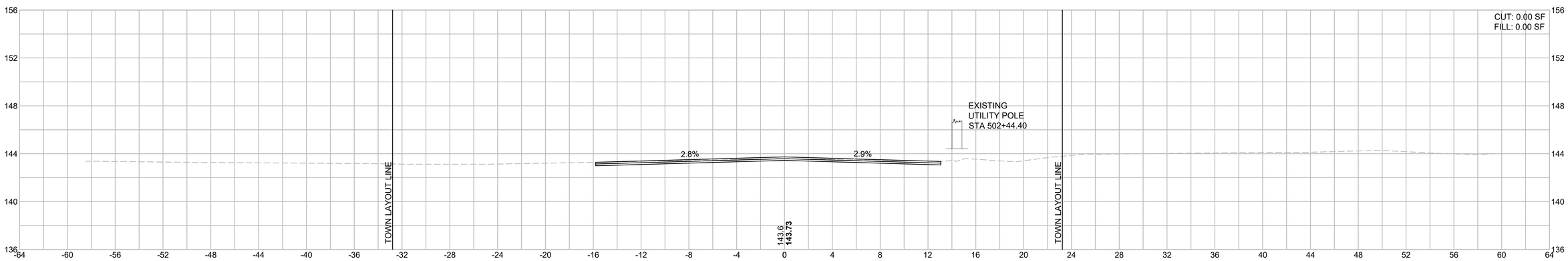

4 0 4 8
SCALE IN FEET