WEST STREET OVER HOPPING BROOK BRIDGE NO. M-13-013(7W9)

IN THE TOWN OF **MEDWAY** NORFOLK COUNTY COMMONWEALTH OF MASSACHUSETTS

INDEX

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

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181 Ba Tel: (http://	Illardvale Street, 978) 570-2999 www.gpinet.co	Suite 202, Wilm Fax: (978) 6 m	ington, MA 01887 558-3044
PREF	PARED FOF TOWN 155 VILL MED	R OF MED AGE ST WAY, M	WAY REET A
	BRIDGE NO. M-13-013(7W9)	WEST STREET OVER HOPPING BROOK	MEDWAY, MASSACHUSELLS
	RE	VISIONS	5
	REV	ISION 5/03/21	DATE
NO.	0 WN/DESIGN SPM	N BY CH	ECKED BY
NO. DRA\	0 NN/DESIGN SPM	SHE IDEX	ECKED BY GJH

GENERAL S	SYMBOLS		PAVE
EXISTING	PROPOSED	DESCRIPTION EXISTIN	<u>IG</u> <u>I</u>
JB	JB	JERSEY BARRIER	
⊞ ⊕ ⊞ CB	CB		
© FP	© FP	FLAG POLE	
G GP	G GP	GAS PUMP	
□ MB		MAIL BOX	
⊕ WELL	O O WELL	WELL	
• EHH	□ EHH	ELECTRIC HANDHOLE	
0	0	FENCE GATE POST	
O GG	OGG		
\oplus MW #	Φ MW #	MONITORING WELL	
TP #	TP #	TEST PIT	
Ŷ ₩	ф v	HYDRANT	
- 宋 □ CO BD	來		
$\bigcirc \triangle$		GPS POINT	
C	©	CABLE MANHOLE	
\bigcirc	D	DRAINAGE MANHOLE	
G	(L) (C)	GAS MANHOLE	
(M)) M	MISC MANHOLE	
S	\$	SEWER MANHOLE	
(T)	(T) (W)	TELEPHONE MANHOLE	
MHB	■ MHB	MASSACHUSETTS HIGHWAY BOUND	
D MON		MONUMENT	
□ SB		STONE BOUND	
		TOWN OR CITY BOUND TRAVERSE OR TRIANGULATION STATION	
⊸ TPL or GUY	- TPL or GUY	TROLLEY POLE OR GUY POLE	
• HTP		TRANSMISSION POLE	
-&- UFB		UTILITY POLE W/ FIREBOX	
-S- OPDL -& UIT	-y= updl _k_ uit	UTILITY POLE WITH DOUBLE LIGHT	
UPL	UPL	UTILITY POLE	
0		BUSH	
•SIZE & IYPE		TREE	
		SWAMP / MARSH	
• WG	• WG	WATER GATE	
• PM	• PM	PARKING METER	
		= CURBING	
_10099		- CONTOURS (ON-THE-GROUND SURVEY DATA)	
<u> </u>	-		
		- UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)	
		- UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)	
		- UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER))
		– UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER – UNDERGROUND WATER MAIN (DOUBLE I INE 24 INCH AND OVER)	<)
000000000000000000000000000000000000000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	BALANCED STONE WALL	
<u> </u>	- <u></u>	- GUARD RAIL - STEEL POSTS	
x	_ <u> </u>	- GUARD RAIL - WOOD POSTS - CHAIN LINK OB METAL FENCE	
0	a	- WOOD FENCE	
(p= 6(p = 6(p = 6)p = 6(p = 6(p = 6)p = 6(p = 6(p = 6)p = 6(p = 6)		• HAY BALES/SILT FENCE	
		- SAVVOUT LINE - TOP OR BOTTOM OF SLOPE	
		- LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY	
	_	BANK OF RIVER OR STREAM	
	_	BORDER OF WETLAND	
	-	200 FT RIVERFRONT BUFFER	
		- STATE HIGHWAY LAYOUT	
		- TOWN OR CITY LAYOUT	
		TOWN OR CITY BOUNDARY LINE	
e	-	PROPERTY LINE OR APPROXIMATE PROPERTY LINE	
		- EASEMENT	

VEMENT MARKINGS SYMBOLS

PROPOSED
€]
ONLY
SL
SWL
SYL
BWL
BYL
<u>DWL</u>
<u>DYL</u>
DWLEx
DYLEx
DBWL
DBYL

DESCRIPTION
PAVEMENT ARROW - WHITE
_EGEND "ONLY" - WHITE
STOP LINE
CROSSWALK
SOLID WHITE LINE
SOLID YELLOW LINE
BROKEN WHITE LINE
BROKEN YELLOW LINE
DOTTED WHITE LINE
DOTTED YELLOW LINE
DOTTED WHITE LINE EXTENSION
DOTTED YELLOW LINE EXTENSION
DOUBLE WHITE LINE

DOUBLE YELLOW LINE

GENERAL NOTES

- 1. TOPOGRAPHICAL INFORMATION WAS PROVIDED BY MHF DESIGN CONSULTANTS, INC. (NOW GREENMAN-PEDERSEN, INC.), OCTOBER 2018 (603-893-0720). VERTICAL DATUM IS BASED ON NAVD88. HORIZONTAL DATUM IS BASED ON NAD83.
- 2. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE
- 4. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- 5. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- AS "REMOVE & RESET" (R&R).
- 7. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS NOTED OTHERWISE.
- 8. ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
- THEIR EXACT LOCATIONS ARE NOT GUARANTEED.
- WITH A HOT POURED RUBBERIZED ASPHALT SEALANT MEETING THE REQUIREMENTS OF ITEM 453.
- OF 4 INCHES AND SHALL BE PLACED FLUSH WITH THE TOP OF THE ADJACENT CURB, EDGING, BERM OR PAVEMENT SURFACE.
- 12. THE LIMIT OF WORK AREA SHALL BE THE STREET RIGHT OF WAY UNLESS SHOWN OTHERWISE.
- NOTIFIED IMMEDIATELY SHOULD ANY DISCREPANCIES OCCUR.
- 14. ALL CASTINGS SHALL BE SET FLUSH WITH FINISHED GRADE.
- CROSS-SECTIONS.
- 18. CONTRACTOR TO CONTACT ENGINEER PRIOR TO INSTALLATION OF BOUNDS FOR FINAL LOCATIONS.
- ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.

GENERAL ABBREVIATIONS

AADT	ANNUAL AVERAGE DAILY TRAFFIC	EXC	EXCAVATION	PVI	POIN
ABAN	ABANDON	F&C	FRAME AND COVER		POIN
ADJ	ADJUST	F&G	FRAME AND GRATE		CUR∖
APPROX.	APPROXIMATE	FDN.	FOUNDATION PVT		POIN
A.C.	ASPHALT CONCRETE	FLDSTN	FIELDSTONE	PVMT	PAVE
ACCM	ASPHALT COATED CORRUGATED METAL	GAR	GARAGE	PWW	PAVE
PIPE	PIPE	GD	GROUND	R	RADI
BIT.	BITUMINOUS	GG	GAS GATE	R&D	REMO
BC	BOTTOM OF CURB	GI	GUTTER INLET	RCP	REIN
BD.	BOUND	GIP	GAI VANIZED IRON PIPE	RD	ROAD
BL	BASELINE	GRAN	GRANITE	RDWY	ROAD
BLDG	BUILDING	GRAV	GRAVEL	REM	REMO
BM	BENCHMARK	GRD	GUARD	RET	RETA
во	BY OTHERS			RET	DETA
BOS	BOTTOM OF SLOPE	нма		WALL	
BR.	BRIDGE			ROW	RIGH
СВ	CATCH BASIN			RR	RAILF
CBCI	CATCH BASIN WITH CURB INLET		INVERT	R&R	REMO
CC	CEMENT CONCRETE			R&S	REMO
ССМ	CEMENT CONCRETE MASONRY	JCT		RT	RIGH
CEM	CEMENT			SB	STON
Cl	CURB INLET	LB		SHLD	SHOU
CIP	CAST IRON PIPE			SMH	SEWE
CLE				ST	STRE
		MAX		STA	STAT
		MB	MAILBOX	SSD	STOF
CSP		MH	MANHOLE	SHLO	STAT
00	COUNTY	MHB	MASSACHUSETTS HIGHWAY BOUND	SW	SIDE\
CONC	CONCRETE	MIN		т	TANG
CONT	CONTINUOUS	NIC		I	IANC
CONST	CONSTRUCTION	NO.	NUMBER	TAN	TANG
		PC	POINT OF CURVATURE	TEMP	TEMF
		PCC	POINT OF COMPOUND CURVATURE	ТС	TOP
עחע		P.G.L.	PROFILE GRADE LINE	TOS	TOP
		PI	POINT OF INTERSECTION	TYP	TYPIC
		POC	POINT ON CURVE	UP	UTILI
DIP		POT	POINT ON TANGENT	VAR	VARII
DW	ORANGE	PRC	POINT OF REVERSE CURVATURE	VERT	VERT
DWY	DRIVEWAY	PROJ	PROJECT	VC	VERT
ELEV (or		PROP	PROPOSED	WCR	WHE
EL.)	ELEVATION	PSB	PLANTABLE SOIL BORROW	WG	WATE
ÉMB	EMBANKMENT	PT	POINT OF TANGENCY	WIP	WRO
EOP	EDGE OF PAVEMENT	PVC	POINT OF VERTICAL CURVATURE	WM	WATE
EXIST (or EX)	EXISTING	PVCC	POINT OF VERTICAL COMPOUND CURVATURE	X-SECT	CROS

OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO LOCATE EXACTLY AND TO PRESERVE ANY AND ALL UNDERGROUND UTILITIES. CALL "DIG-SAFE" 1-888-DIGSAFE (344-7233) AT LEAST 72 HOURS BEFORE COMMENCING CONSTRUCTION.

3. WHERE AN EXISTING UNDERGROUND UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

6. THE TERM "PROPOSED" (PROP.) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS, OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED

9. ALL EXISTING STATE, COUNTY, CITY AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND

10. ALL TRANSVERSE JOINTS, AND ALL LONGITUDINAL JOINTS BETWEEN NEW SURFACE PAVEMENT AND EXISTING SURFACE PAVEMENT TO REMAIN SHALL BE COATED

11. ALL DISTURBED AREAS NOT DESIGNATED TO BE PAVED SHALL HAVE LOAM BORROW PLACED AND SEEDED. THE LOAM BORROW SHALL HAVE A MINIMUM DEPTH

13. PRIOR TO THE START OF ANY NEW UTILITY WORK, ALL ELEVATIONS OF EXISTING UTILITIES IN THOSE AREAS ARE TO BE VERIFIED. THE ENGINEER IS TO BE

15. ALL PUBLICLY OWNED GATE BOXES, SERVICE BOXES, MANHOLE FRAMES AND COVERS SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR. 16. ALL NEW SIDEWALKS AND DRIVEWAY GRADES SHALL MATCH EXISTING GRADES AT BACK OF SIDEWALK LINE UNLESS SHOWN OTHERWISE ON THE PLANS AND

17. THE CONTRACTOR SHALL TAKE EVERY PRECAUTION TO PROTECT ALL EXISTING TREES AND ROOTS THAT ARE NOT DESIGNATED FOR REMOVAL.

19. 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

> NT OF VERTICAL INTERSECTION NT OF VERTICAL REVERSE VATURE NT OF VERTICAL TANGENCY EMENT ED WATER WAY IUS OF CURVATURE IOVE AND DISPOSE IFORCED CONCRETE PIPE D DWAY OVE AIN AINING WALL HT OF WAY ROAD IOVE AND RESET IOVE AND STACK 1T NE BOUND ULDER ER MANHOLE EET ΓΙΟΝ PPING SIGHT DISTANCE TE HIGHWAY LAYOUT LINE EWALK GENT DISTANCE OF CURVE/TRUCK % GENT PORARY OF CURB OF SLOPE CAL ITY POLE IES TICAL TICAL CURVE EL CHAIR RAMP ER GATE DUGHT IRON PIPE ER METER/WATER MAIN SS SECTION

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	NO. REVISION DATE 05/03/21		
	SPM GJH		
	LEGEND & ABBREVIATIONS		
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	18064		

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FULL DEPTH HMA CONSTRUCTION

- SURFACE COURSE: 1 ³/₄" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER 1 ³/₄ " SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER
 - 3 1/2 " SUPERPAVE BASE COURSE 25.0 (SBC-25.0) OVER
 - 4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL BORROW TYPE B (OR SUITABLE EXISTING MATERIAL)

FULL DEPTH HMA CONSTRUCTION <4 FEET

- 1³/₄" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER 1 ³/₄ " SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER
- 3 ½ " SUPERPAVE BASE COURSE 25.0 (SBC-25.0) OVER
- **6" HIGH EARLY STRENGTH CEMENT CONCRETE OVER** 8" GRAVEL BORROW TYPE B

PAVEMENT FINE MILLING W/ HMA OVERLAY

- SURFACE COURSE: 1 ³/₄" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER
 - 1 $\frac{3}{4}$ " PAVEMENT FINE MILLING (TO REMOVE EXISTING SURFACE COURSE AND PROVIDE A SMOOTH RIDE QUALITY)

1 ¹/₂" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5) OVER 2¹/₂ " SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5) OVER 8" GRAVEL BORROW TYPE B

1. ALL HMA, PAVEMENT MICROMILLING, HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT AND HMA JOINT SEALANT SHALL BE IN ACCORDANCE WITH SECTION 450.

2. THE SECTIONS OF PROPOSED ROADWAY NOT COVERED IN THE RANGE OF STATIONS ASSOCIATED WITH THE TYPICAL SECTIONS ARE EITHER AT INTERSECTIONS OR ARE IN AREAS OF TRANSITION AND THEREFORE HAVE NOT BEEN SHOWN. THESE SECTIONS ARE:

STA. 14+98	WE
STA 16+85	WF

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TOWN OF MEDWAY 155 VILLAGE STREE MEDWAY, MA	-

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GPI Greenman-Pedersen, Ind

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http://www.gpinet.com

	BRIDGE	MEDWA	
	REVIS	IONS	
NO.	REVISION	N	DATE
	05/03	8/21	
DRAV	DRAWN/DESIGN BY CHECKED BY SPM GJH		KED BY

TYPICAL SECTIONS
SCALE: 1"=4'
18064
3 of 19

HOR. SCALE IN FEET

VER. SCALE IN FEET





240 LOW POINT ELEV = 209.03 230 LOW POINT STA = 14+45.85 PVI STA = 14+60.00 PVI ELEV = 208.69 A.D. = 2.37% K = 50.56 120' VC BEGIN PROJECT -[HSD=545.5 FT] STA. 14+00.00 MEET EXISTING N 2876800.7300 E 668083.9319 220 EXISTING GRADE 210 -0.91% _____ 200 PROP. PAVEMENT FINE MILLING W/ HMA OVERLAY 190 +20.00 NAVD 88 <u>BASE ELEV</u> 185.00 209.03 209.2 209.24 14+00 13+00 L BENCHMARK: MAGNAIL IN UP ELEVATION=208.88 STA. 14+24.53, 26.03' LT



TRAFFIC CONTROL NOTES

GENERAL

- ALL TEMPORARY TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL MEASURES SHALL CONFORM TO THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) MASSDOT'S "STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS", THE STANDARD SPECIFICATIONS, AND THE FOLLOWING NOTES
- 2. THE TEMPORARY TRAFFIC CONTROL PLANS CONTAINED HEREIN ARE GIVEN AS A GUIDE FOR TYPICAL WORK ZONE TRAFFIC CONTROL APPLICATIONS FOR THE TYPES OF WORK ANTICIPATED FOR THIS PROJECT. THEY ARE NOT INTENDED TO COVER ALL POSSIBLE CONSTRUCTION OPERATIONS WHICH THE CONTRACTOR MAY CHOOSE TO EMPLOY. WORK ZONE TRAFFIC CONTROL FOR OTHER CONSTRUCTION OPERATIONS OR OTHER TRAFFIC SITUATIONS IF APPLICABLE SHALL BE IN ACCORDANCE WITH THE REFERENCES LISTED IN NOTE NO. 1 AND AS APPROVED OR DIRECTED BY THE ENGINEER.
- 3. LANE RESTRICTIONS MAY NOT REMAIN OVERNIGHT OR DURING NON-WORKING HOURS UNLESS UNDER TEMPORARY SIGNAL CONTROL. AFTER EACH WORKING DAY, TRAFFIC CONTROL DEVICES THAT ARE NOT REQUIRED SHALL BE MOVED OFF THE ROADWAY OR FULL DEPTH CONSTRUCTION AREA AND PLACED SO AS NOT TO IMPEDE PEDESTRIAN AREAS, ABUTTER ACCESS OR CAUSE CONFUSION TO MOTORISTS. IN CERTAIN CIRCUMSTANCES, AND ONLY WITH THE APPROVAL OF MASSDOT AND THE ENGINEER, CAN LANE RESTRICTIONS REMAIN OVERNIGHT
- 4. CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT AND SIMILAR OPERATIONS.
- 5. PLACE ALL CONSTRUCTION SIGNING, TRAFFIC CONTROL DEVICES AND TEMPORARY PAVEMENT MARKINGS FOR EACH PHASE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 6. TAPER LENGTH FORMULAE FOR CHANNELIZATION DEVICES: ENGLISH UNITS: L = WxS FOR SPEED EQUAL TO OR GREATER THAN 45 M.P.H. $L = WS^{2}/60$ FOR SPEED EQUAL TO OR LESS THAN 40 M.P.H. WHERE: L = MIN. LENGTH OF TAPER, S = POSTED SPEED, W = OFFSET WIDTH
- 7. ADVISORY SPEED LIMIT, IF USED, SHALL BE SET IN THE FIELD BY THE ENGINEER. W13-1 PLATES SHALL BE USED WHERE APPROPRIATE.
- 8. DISTANCES SHOWN ON THE TEMPORARY TRAFFIC CONTROL PLANS ARE A GUIDE ONLY, AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- GRADE DIFFERENCES
- 9 WHERE THERE IS A LONGITUDINAL DIFFERENCE IN ELEVATION BETWEEN EXISTING PAVEMENT AND ADJACENT TRAVEL SURFACE (UNDER REPAIR OR RECONSTRUCTION), THE CONTRACTOR SHALL PATCH A TEMPORARY HMA WEDGE WITH A 12:1 (OR FLATTER) SLOPE FOR SMOOTH TRANSITION. SEE DETAIL, THIS SHEET.
- 10. CROSS-SECTIONAL GRADE DIFFERENCES IN EXCESS OF 2" DURING NON-WORKING HOURS WILL REQUIRE DELINEATION BY USE OF REFLECTORIZED DRUMS.
- CROSS-SECTIONAL GRADE DIFFERENCES IN EXCESS OF 4" DURING NON-WORKING HOURS SHALL BE PROTECTED BY BACKFILLING WITH A WEDGE OF EARTHWORK TO BE COMPACTED AT 4:1 SLOPE AND WILL ALSO REQUIRE DELINEATION BY USE OF DRUMS
- 12. A MINIMUM SLOPE OF 4:1 MUST BE MAINTAINED AFTER WORKING HOURS DURING SUBBASE AND BASE COURSE INSTALLATION ALONG EDGE OF THE TRAVELWAY (SEE DETAIL, THIS SHEET). A MAXIMUM SLOPE OF 8:1 MUST BE MAINTAINED ON ALL ABUTTER ACCESS DRIVES AND A MAXIMUM SLOPE OF 12:1 MUST BE MAINTAINED ON ALL SIDEWALKS.

CONSTRUCTION SIGNING

- 13. THE FIRST CONSTRUCTION SIGN IN A SERIES ON EACH APPROACH TO THE PROJECT SHALL BE FLUORESCENT ORANGE, HIGH PERFORMANCE (OR HIGH INTENSITY) SHEETING,
- 14. ALL CONSTRUCTION SIGNS SHALL BE BLACK LEGEND ON A REFLECTORIZED ORANGE BACKGROUND UNLESS OTHERWISE NOTED.
- 15. CONSTRUCTION SIGNING SHOWN ON THE ADVANCE SIGNING PLAN SHALL REMAIN IN PLACE FOR THE ENTIRE PROJECT DURATION, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- 16. STANDARD ORANGE OR FLUORESCENT RED-ORANGE FLAGS (16"x16" MIN.) MAY BE ATTACHED TWO (2) EACH ON ALL ADVANCE WARNING SIGNS. FLAGS SHALL NOT INTERFERE WITH A CLEAR VIEW OF THE SIGN FACE.
- 17. EXISTING GUIDE SIGNS SHALL BE TEMPORARILY RESET AS DIRECTED BY THE ENGINEER
- 18. ALL SIGNS, INCLUDING EXISTING, THAT ARE NOT REPRESENTATIVE OF ACTUAL WORK CONDITIONS SHALL BE EITHER COVERED OR REMOVED WHEN NOT APPLICABLE.
- 19. IF USED, ALL W20-4 AND W20-5 SIGNS SHALL BE TAKEN DOWN OR COVERED AT THE CLOSE OF EACH DAY UNLESS LANE RESTRICTIONS ARE PERMITTED TO REMAIN OVERNIGHT IN ACCORDANCE WITH NOTE NO. 3 ABOVE.
- 20. USE W20-8 AND W20-7a SIGNS ONLY WHILE POLICE OR FLAGGERS ARE DIRECTING TRAFFIC. THEY SHALL BE TAKEN DOWN OR COVERED AT THE CLOSE OF EACH DAY OR WHEN NOT IN USE.

PAVEMENT MARKINGS

- 21. PAVEMENT MARKINGS WHICH ARE NO LONGER APPLICABLE SHALL BE REMOVED. APPLY TEMPORARY MARKINGS WHERE SHOWN ON THE TEMPORARY TRAFFIC CONTROL PLANS.
- 22. ON PROJECTS WHERE PAVEMENT OVERLAY IS NOT DESIGNATED, EXISTING PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH TEMPORARY TRAFFIC CONTROLS SHOULD BE COVERED TEMPORARILY WITH BLACKOUT TAPE, AS DIRECTED BY THE ENGINEER, FOR THE FULL DURATION OF THE PHASE IN PROGRESS. TEMPORARY PAINTED OR REMOVABLE TAPE MARKINGS SHALL BE USED AS NECESSARY FOR ALL PHASES OF CONSTRUCTION.

CHANNELIZATION

- 23. THE MAXIMUM SPACING BETWEEN CHANNELIZATION DEVICES (DRUMS OR CONES) SHALL BE APPROXIMATELY EQUAL IN FEET TO THE POSTED SPEED LIMIT. THE MINIMUM SPACING SHALL BE 20' O.C.
- 24. REFLECTORIZED CONES SHALL BE 36" HIGH.
- 25. FLASHING OR STEADY BURN WARNING LIGHTS SHALL ALSO BE USED ON BARRICADES, JERSEY BARRIERS OR WHERE DIRECTED BY THE ENGINEER. IF USED THEY SHALL MEET THE CRITERIA SET FORTH IN NCHRP 350 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION IF HIGHWAY FEATURES.
- 26. PLASTIC DRUMS WITH SOME FORM OF LIGHTING DEVICE MOUNTED ON THEM MUST PASS THE CRITERIA SET FORTH OF NCHRP 350 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES." IF THEY DO NOT MEET THESE CRITERIA, THEY MUST BE REMOVED FROM THE PROJECT.
- 27. SIGNS AND SIGN SUPPORT LOCATED ON OR NEAR THE TRAVELED WAY MUST PASS THE CRITERIA SET FORTH IN NCHRP 350 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES." IF THEY DO NOT MEET THIS CRITERIA, THEY MUST BE REMOVED FROM THE PROJECT.

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IDENTIFI-	SIZE OF SIGN			TEXT DIMENSIONS (INCHES)		NUMBER	COLOR			AREA IN	
CATION NUMBER	WIDTH	HEIGHT	TEXT	LETTER HEIGHT	VERTICAL SPACING	OF SIGNS REQUIRED	BACK- GROUND	LEGEND	BORDER	SQUARE FEET	SQUARE FEET
R11-2c*	48"	30"	BRIDGE CLOSED			2				10.00	20.00
R11-4*	60"	30"	ROAD CLOSED TO THRU TRAFFIC			4				12.50	50.00
M4-8a	24"	18"	END DETOUR	MUTCD STANDARD		2	MUTCD STANDARD		3.00	6.00	
M4-9L*	30"	24"				6				5.00	30.00
M4-9R*	30"	24"				4				5.00	20.00
M4-9V	30"	24"	DETOUR		1	2		V		5.00	10.00
SP-1	24"	12"	West St	6"D/ 4"D	3" 3"	3	ORANGE	BLACK	BLACK	2.00	6.00
W8-1	30"	30"	BUMP			2				6.25	12.50
W8-3	36"	36"	PAVEMENT ENDS			2				9.00	18.00
W8-8	30"	30"	ROUGH ROAD			2				6.25	12.50
W8-15	36"	36"	GROOVED PAVEMENT			2				9.00	18.00
W13-1p	24"	30"	XX M.P.H.	MUT STAN	rcd Dard	2	S	MUTCD)	5.00	10.00
W20-1 (AHEAD)	36"	36"	ROAD WORK AHEAD			2				9.00	18.00
W20-4	36"	36"	ONE LANE ROAD XX FT			2				9.00	18.00
W20-7	36"	36"				2				9.00	18.00
MA-W20-7b	36"	36"	POLICE OFFICER AHEAD		1	2		V		9.00	18.00
*MOUNT ON TYPE III BARRICADE							'	ТС	DTAL SF =	285.00	

GPT Greenman-Pedersen, Inc. Engineering & Construction Services 181 Ballardvale Street, Suite 202, Wilmington, MA 01887 Tel: (978) 570-2999 Fax: (978) 658-3044 http://www.gpinet.com						
PREPARED FOR TOWN OF MEDWAY 155 VILLAGE STREET MEDWAY, MA						
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TOWN C 155 VILL/ MED	OF MEDWAY AGE STREET WAY, MA				
BRIDGE NO. M-13-013(7W9)	WEST STREET OVER HOPPING BROOK MEDWAY, MASSACHUSETTS				
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SPM	GJH				
CONSTRUCTION DETAILS					
SCALE:	N.T.S				
18064					
11	of 19				







GENERAL NOTES

DESIGN:

RELIEVING SLAB DESIGN IN ACCORDANCE WITH THE 2017 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

WITH ADDITION OF A RELIEVING SLAB, THE CULVERT RATED IN ACCORDANCE WITH MASSDOT BRIDGE LOAD RATING GUIDANCE AND THE 2017 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING. THE CONTROLLING CULVERT RATING CAPACITY FOR THE HL-93 TRUCK IS 36.74 TONS (INVENTORY).

EXISTING BRIDGE PLANS:

THERE ARE NO EXISTING PLANS FOR THE BRIDGE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION.

MASSDOT BENCH MARK:

#1 - MAG NAIL IN UTILITY POLE #43, EL. 208.88 #2 - MAG NAIL IN UTILITY POLE #37, EL. 216.39

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988. MASSDOT SURVEY NOTEBOOKS:

COPIES OF ELECTRONIC SURVEY FILES MAY BE OBTAINED FROM GREENMAN-PEDERSEN, INC.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALES BY 2 FOR HALF-SIZE PRINTS (A3).

UNSUITABLE MATERIALS:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE SLAB, AS DIRECTED BY THE ENGINEER.

SEISMIC GROUND SHAKING HAZARD:

DESIGN SPECTRA: AS = 0.136SDS = 0.224SD1 = 0.084SITE CLASS = DSEISMIC DESIGN CATEGORY (SDC) = A

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION:	<u>#4 BARS</u>	<u>#5 BARS</u>
 NONE 12 INCHES OF CONCRETE BELOW BAR COATED BARS, COVER <3db, OR CLEAR SPACING < 6db 	47" 61" 71"	59" 77" 88"
 COATED BARS, ALL OTHER CASES CONDITION 2 AND 3 CONDITION 2 AND 4 	57" 80" 73"	71" 100" 91"

IF THE ABOVE BARS ARE SPACED 6 INCHES OR MORE ON CENTER, THE LAP LENGTH SHALL BE 40% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

CONCRETE MIXES:

(2) (3) (1)

<u>3</u>" 4000 585 HP RELIEVING SLAB, SAFETY CURBS, SPANDREL WALL REPLACEMENT

(1) 28 DAY COMPRESSIVE STRENGTH (PSI)

(2) MAXIMUM AGGREGATE SIZE (INCH)

(3) CEMENTITIOUS CONTENT (POUNDS/CY)

RELIEVING SLAB

- 1. TOP OF RELIEVING SLAB SURFACE SHALL MAINTAIN A 1.47% TANGENT, AND PAVEMENT BASE COURSE SHALL BE SHIMMED TO ACCOMMODATE VERTICAL CURVE. IF CONTRACTOR ELECTS TO ACCOMMODATE VERTICAL CURVE IN CONCRETE, ITEM 992.1 - ALTERATION TO STRUCTURE NO. M-13-013 (7W9) MUST BE ADJUSTED ACCORDINGLY.
- 2. RELIEVING SLAB SHALL BE POURED ENTIRELY IN ONE POUR, WITHOUT THE ADDITION OF ANY CONSTRUCTION JOINTS. AS SHOWN ON THE PLANS.

UTILITIES

- 1. LOCATION OF ALL UNDERGROUND UTILITIES ARE APPROXIMATE AS SHOWN ON PLANS. WATERLINE ENCASEMENT IS SHOWN ON THE PLANS BASED ON LIMITS FOUND BY TEST PITS DURING DESIGN. GAS LINE LOCATION IS NOT VERIFIED. CONTRACTOR SHALL PERFORM A TEST PIT AT EACH LIMIT OF THE MOMENT SLAB OR CULVERT TO VERIFY EXACT LOCATION OF GAS LINE PRIOR TO CONSTRUCTION.
- 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATIONS OF UTILITIES TO ENSURE THAT THEY WILL NOT BE DISTURBED DURING EXCAVATION OF EXISTING ROADWAY, FILL, AND CONCRETE ITEMS AS REQUIRED TO COMPLETE THE WORK AS SHOWN ON THESE PLANS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND SUPPORT ALL UTILITIES DURING CONSTRUCTION. CARE SHALL BE TAKEN TO STABILIZE THE GAS LINE AT ALL TIMES. ANY DAMAGE TO THE EXISTING UTILITIES WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

INSTALLATION OF GAS UTILITY PROTECTION

1. THE EXISTING UNDERGROUND GAS UTILITY LOCATED UNDER THE PROPOSED RELIEVING SLAB SHALL BE EXPOSED WITH CARE, AND THE SURROUNDING SOIL SHALL BE REMOVED FOR THE INSTALLATION OF A PROTECTIVE SLEEVE. AS DIRECTED BY THE UTILITY OWNER.

CONCRETE REPAIRS

- 1. REPAIRS SHOWN ON THESE DRAWINGS REFLECT THE CONDITION OF THE CONCRETE DURING INSPECTION (OCTOBER 2018). AT THAT TIME, ONLY THE FASCIA OF EACH TOP SLAB, WEST CULVERT CORNERS, AND THE WEST WINGWALLS DISPLAYED SPALLING.
- 2. THE CONTRACTOR SHALL ESTABLISH LIMITS OF REPAIRS AT THE DIRECTION OF THE ENGINEER. THE EXTENT, LOCATIONS, AND REPAIR TYPE ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT ALL REPAIR AREAS. REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE, PREFERABLY WITH SQUARE CORNERS.
- 3. THE LIMITS OF REPAIRS SHALL BE SAWCUT ALONG NEAT LINES TO A DEPTH OF 1" WHERE PRACTICAL TO PRODUCE A CLEAN EDGE.
- 4. REMOVE DETERIORATED AND UNSOUND CONCRETE, REMOVAL SHALL NOT EXCEED 4" IN DEPTH. IF REINFORCEMENT BARS ARE OVER 50% EXPOSED, REMOVAL SHALL EXTEND A MINIMUM OF 1" BEYOND THE BAR. UNDERCUT EXPOSED REINFORCING STEEL TO PROVIDE A MINIMUM CLEARANCE OF 1" AROUND BARS. REMOVE ADDITIONAL CONCRETE AS NECESSARY TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL. CARE SHALL BE TAKEN TO PROTECT REINFORCING. ANY REINFORCING DAMAGED AS A RESULT OF CONTRACTORS OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.
- 5. THE REINFORCING WAS FOUND TO BE IN SATISFACTORY CONDITION DURING THE 2018 INSPECTION. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER, IF REQUIRED.
- 6. FOR CRACKS HAVING A WIDTH LESS THAN OR EQUAL TO 0.03" REPAIR IS NOT REQUIRED. CRACKS WHERE THE WIDTH EXCEEDS 0.03" SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2) OR AS DIRECTED BY THE ENGINEER.
- 7. CONCRETE SPALLS SMALLER THAN 2" DEEP SHALL BE REPAIRED USING CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2). CONCRETE SPALLS GREATER THAN 2" DEEP, USE 4000 PSI, 3/8 IN., 660 LB CEMENT CONCRETE (ITEM 905.).
- 8. ALL EXPOSED REINFORCING STEEL SHALL BE CLEANED BY MECHANICAL CLEANING AND HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED (RUSTING OF DELETERIOUS MATERIAL WHICH WOULD INHIBIT BONDING) SANDBLAST STEEL TO WHITE METAL FINISH. ANY REINFORCING WITH 25% OR MORE SECTION LOSS, SHALL BE SUPPLEMENTED.
- 9. AFTER REMOVAL AND EDGE PREPARATION ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGRATE) BY ABRASION BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO INSURE THAT THE SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGRATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT. SEE SPECIAL PROVISIONS.
- 10. WHERE NEW CONCRETE IS PLACED IN CONTACT WITH EXISTING CONCRETE, EXISTING CONCRETE SURFACE SHALL BE SATURATED SURFACE WET PRIOR TO PLACEMENT OF REPAIR MATERIAL. ALTERNATELY EPOXY BONDING COMPOUND CAN BE USED.
- 11. ONCE ALL CONCRETE REPAIRS ARE COMPLETED TO THE SATISFACTION OF THE ENGINEER, ALL CONCRETE SURFACES. TO THE LIMITS SHOWN ON THE PLANS SHALL BE PREPARED AND COATED IN ACCORDANCE WITH ITEM 964.3 IN THE SPECIAL PROVISIONS.









