

**SIGN LEGEND**

- (A) 36" ROAD WORK AHEAD W20-1  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)
- (B) 48" WORK ZONES SPEEDING FINES DOUBLED 36" MA-R2-10a  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE); WHITE (RETROREFLECTIVE)
- (C) 36" END ROAD WORK DOUBLE FINES END 48" MA-R2-10e  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE); WHITE (RETROREFLECTIVE)
- (D) 36" ONE LANE ROAD AHEAD W20-4  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)
- (E) 36" POLICE OFFICER AHEAD MA-W20-7B  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)

**LEGEND**

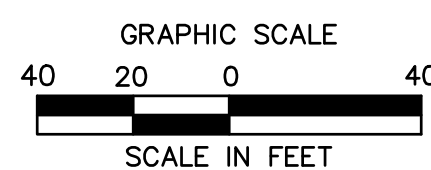
- WORK AREA
- CONSTRUCTION SIGN
- TRAFFIC DRUM
- TRAFFIC DRUM WITH MARKER
- DIRECTION OF TRAVEL
- POLICE OFFICER
- CONSTRUCTION FENCE
- TYPE III BARRICADE
- SIGN MOUNTED ON TYPE III BARRICADE
- PROPOSED MDPE 25# GAS MAIN

**GENERAL NOTES**

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. 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 CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS. ROAD PLATES SHALL BE USED AS REQUIRED TO MAINTAIN ACCESS TO RESIDENTIAL AND COMMERCIAL ABUTTERS. AT ALL OTHER TIMES, DRIVEWAY ACCESS SHALL BE MAINTAINED.
6. THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE EQUIPPED WITH SEQUENTIAL FLASHING LIGHTS.
7. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
9. SIGN PLACEMENT TO BE ADJUSTED TO NOT BLOCK INGRESS AND EGRESS FROM ALL DRIVEWAYS.
10. LANE CLOSURES AND WORK HOUR RESTRICTIONS SHALL BE COORDINATED WITH THE TOWN OF BELMONT AND WITH THE PERMIT CONDITIONS AND APPROVALS.
11. CONTRACTOR SHALL MAINTAIN MINIMUM ONE (1) TRAVEL LANE AT 11' WIDE WITHIN WORK ZONE.
12. CONTRACTOR SHALL COORDINATE WITH BELMONT DEPARTMENT OF PUBLIC WORKS HIGHWAY DIVISION REGARDING EMERGENCY NO PARKING (ENP) POSTING AND SIGNAGE.
13. MBTA BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH MBTA IF BUS STOPS ARE TO BE TEMPORARILY RELOCATED.
14. REFER TO TYPICAL DETAILS, SCHEMATICS, AND STANDARD PLATES ELSEWHERE FOR ADDITIONAL INFORMATION.

MPT TAPER LENGTHS					
STREET	POSTED SPEED (MPH)	LANE SHIFT (FT)	TAPER LENGTH REQUIRED (FT)	TAPER LENGTH PROVIDED (FT)	BUFFER (FT)*
BRIGHTON ST	30	12	100 MAX (1)	60	0
BRIGHTON ST SHOULDER	30	5	25 (2)	40	0

\* BUFFER ZONE NOTED AS OPTIONAL PER MASSDOT TMP PLATE FIGURE GEN-5  
 (1) TAPER LENGTH NOTED AS 100' MAX PER MASSDOT TMP PLATE FIGURE TLR-5  
 (2) TAPER LENGTH CALCULATED PER SHOULDER TAPER REQUIREMENTS



4/27/2022  
 SIGN & DATE

NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY
0	ISSUED FOR CONSTRUCTION	04/27/2022	VH	MK	MS

BOSTON GAS COMPANY  
d/b/a  
**nationalgrid**  
40 SYLVAN ROAD  
WALTHAM, MA 02451

**IFC**

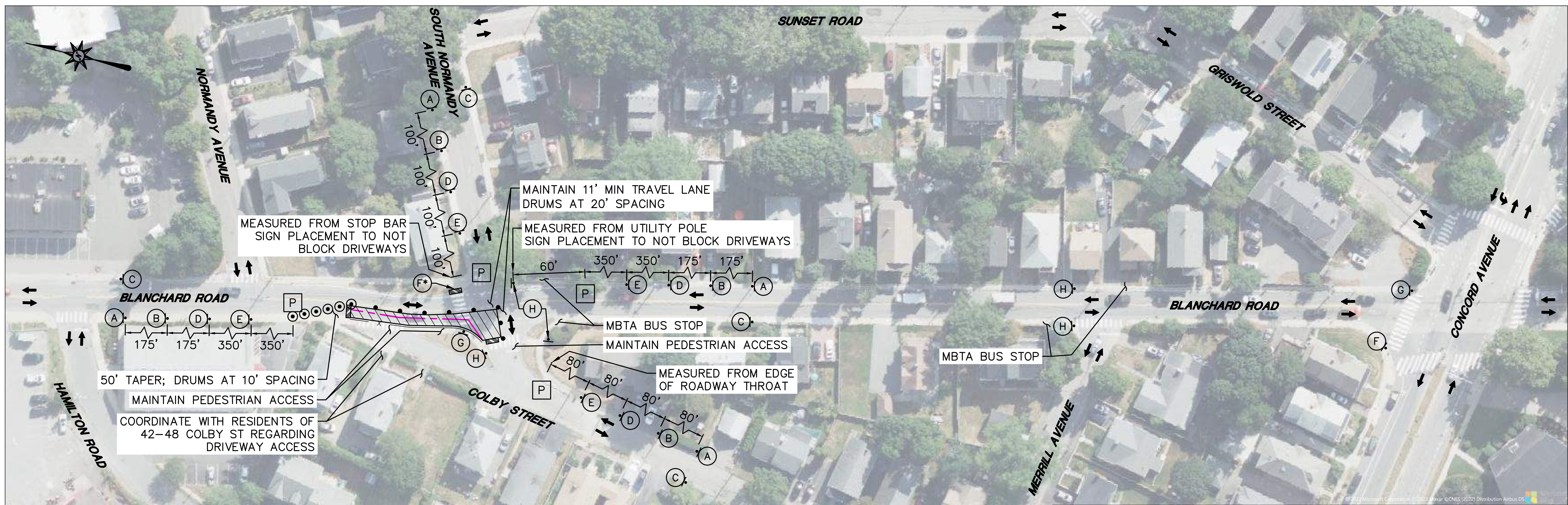
PROPOSED GAS MAIN INSTALLATION  
4" MDPE (LP TO 25 PSIG)  
BRIGHTON ST AND COLBY ST AND MERRILL AVE  
BELMONT, MA

**TMP PLAN - BRIGHTON ST AT HITTINGER ST - 1 OF 1**

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	V. HUANG	M. KURKER	04/27/2022	DISTRIBUTION	1399914

PAGE 01 OF 09

DRAWING NO.	SHEET NO.
BEL-1399914-TMP-01	TMP-01



MPT TAPER LENGTHS					
STREET	POSTED SPEED (MPH)	LANE SHIFT (FT)	TAPER LENGTH REQUIRED (FT)	TAPER LENGTH PROVIDED (FT)	BUFFER (FT)*
BLANCHARD RD	30	12	100 MAX (1)	50	0

\* BUFFER ZONE NOTED AS OPTIONAL PER MASSDOT TMP PLATE FIGURE GEN-5  
 (1) TAPER LENGTH NOTED AS 100' MAX PER MASSDOT TMP PLATE FIGURE TLR-5

**SIGN LEGEND**

(A)  36" W20-1 LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)	(F)  24" M4-9bL LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)
(B)  48" 36" MA-R2-10a LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE)	(G)  24" M4-9bR LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)
(C)  48" 36" MA-R2-10e LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE)	(H)  24" M4-9bV LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)
(D)  36" W20-4 LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)	
(E)  36" MA-W20-7B LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)	

GRAPHIC SCALE  
40 20 0 40  
SCALE IN FEET

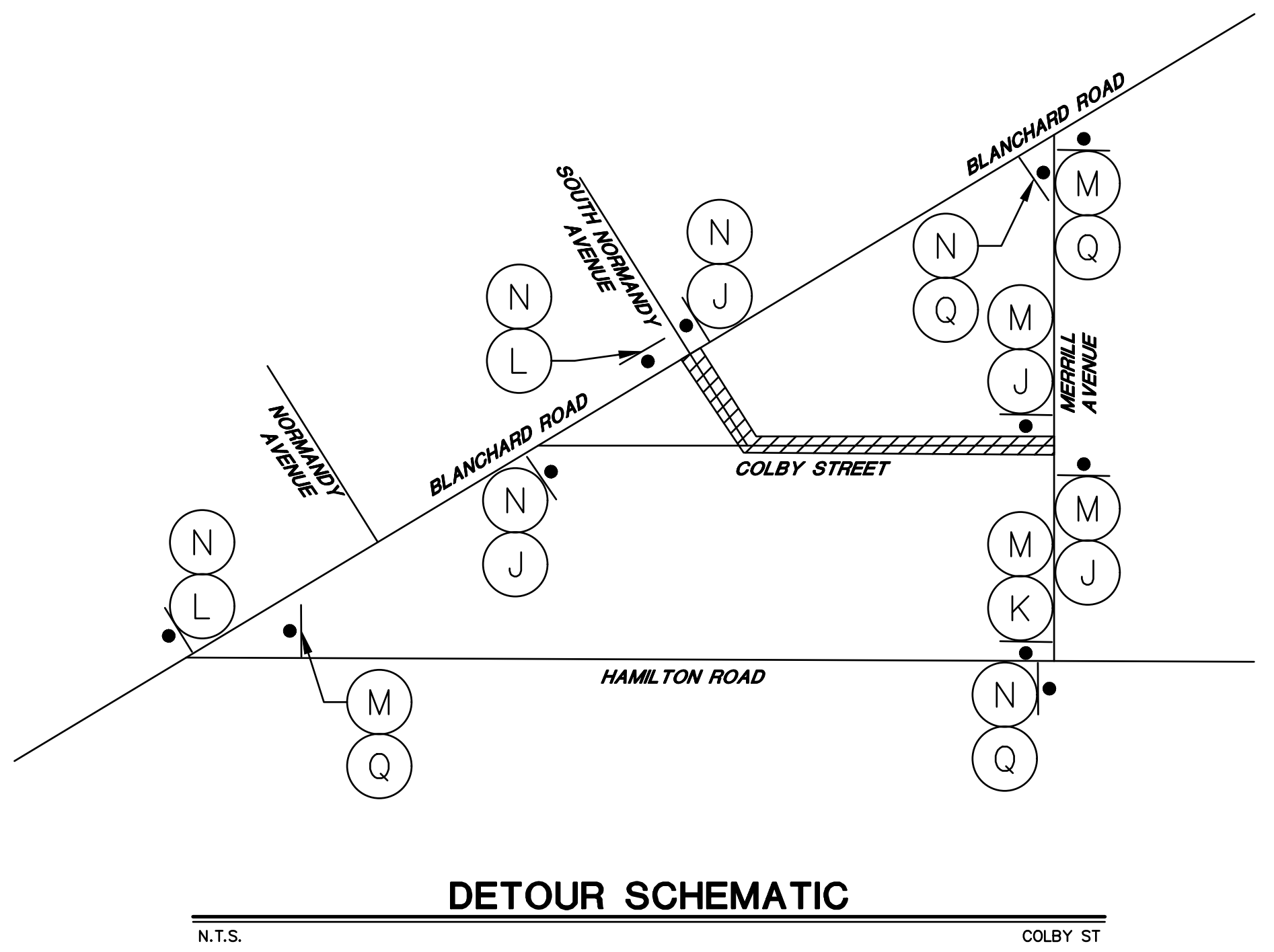
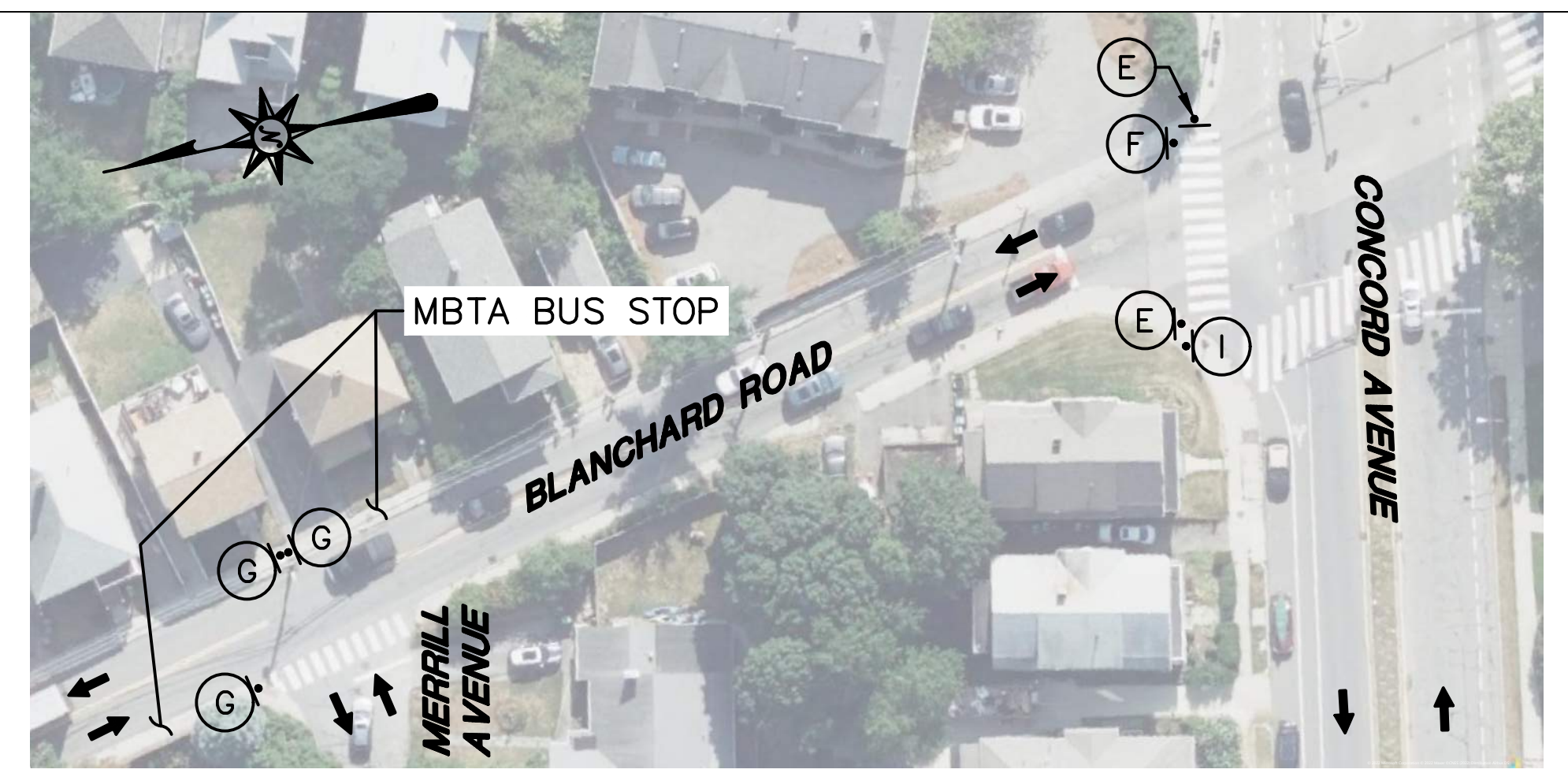
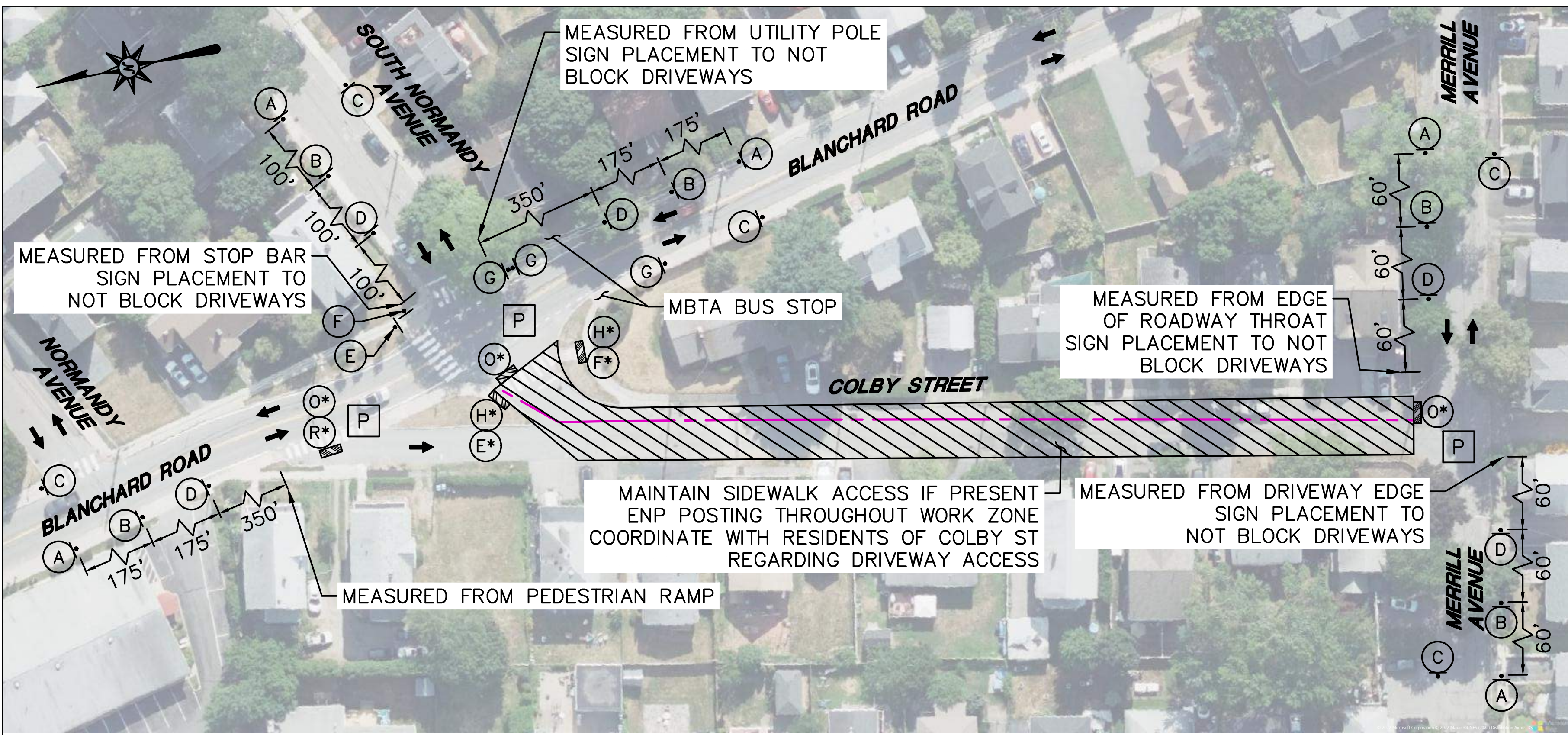
**LEGEND**

- WORK AREA
- CONSTRUCTION SIGN
- TRAFFIC DRUM
- TRAFFIC DRUM WITH MARKER
- DIRECTION OF TRAVEL
- POLICE OFFICER
- CONSTRUCTION FENCE
- TYPE III BARRICADE
- SIGN MOUNTED ON TYPE III BARRICADE
- PROPOSED MDPE 25# GAS MAIN

**GENERAL NOTES**

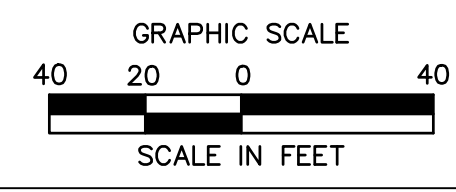
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		BOSTON GAS COMPANY d/b/a <b>nationalgrid</b> 40 SYLVAN ROAD WALTHAM, MA 02451	PROPOSED GAS MAIN INSTALLATION 4" MDPE (LP TO 25 PSIG) BRIGHTON ST AND COLBY ST AND MERRILL AVE BELMONT, MA		PAGE 02 OF 09
			<b>TMP PLAN - BLANCHARD RD AT COLBY ST - 1 OF 1</b>		DRAWING NO. BEL-1399914-TMP-02 SHEET NO. TMP-02
4/27/2022 SIGN & DATE		IFC	DWG SIZE: 22"x34" DESIGNER: V. HUANG ENGINEER: M. KURKER DATE: 04/27/2022 ASSET I.D.: DISTRIBUTION W.O. NO.: 1399914		



**SIGN LEGEND**

- |   |   |  |
|---|---|--|
| (A)  36" W20-1<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)                                 | (H)  24" 12" R9-9<br>LEGEND: BLACK WHITE (RETROREFLECTIVE)              | (O)  60" 30" R11-4<br>LEGEND: BLACK WHITE (RETROREFLECTIVE)              |
| (B)  48" 36" MA-R2-10a<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE) | (I)  24" 18" R9-11R<br>LEGEND: BLACK WHITE (RETROREFLECTIVE)            | (Q)  18" 24" M4-8a<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)  |
| (C)  36" 48" MA-R2-10e<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE) | (J)  24" 30" M4-9V<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) | (R)  18" 48" M4-10L<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) |
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| (E)  24" 30" M4-9bL<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)                            | (L)  24" 30" M4-9L<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) |  |
| (F)  24" 30" M4-9bR<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)                            | (M)  48" 10" D3-1<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)  |  |
| (G)  24" 30" M4-9bV<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)                            | (N)  48" 10" D3-1<br>LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)  |  |



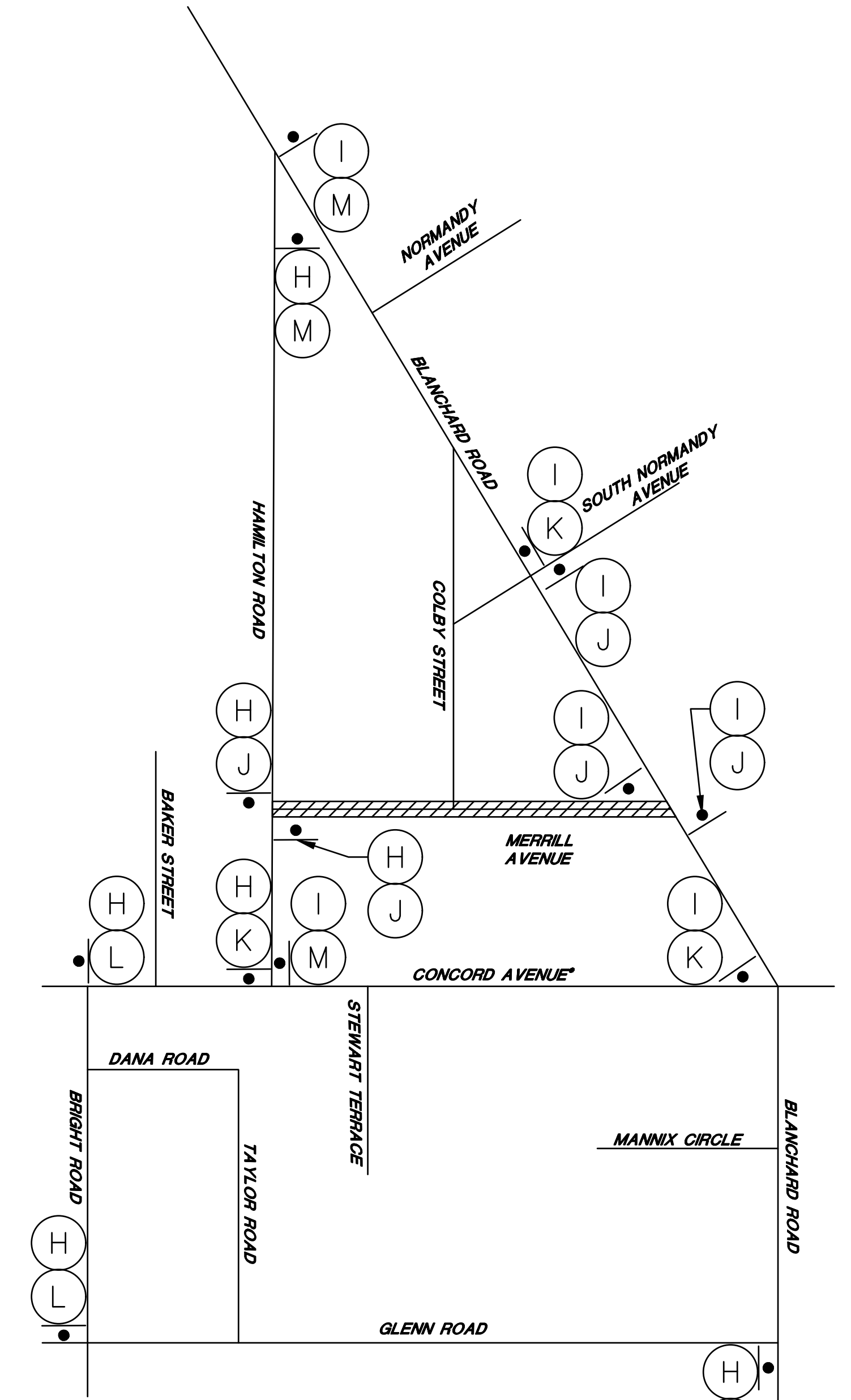
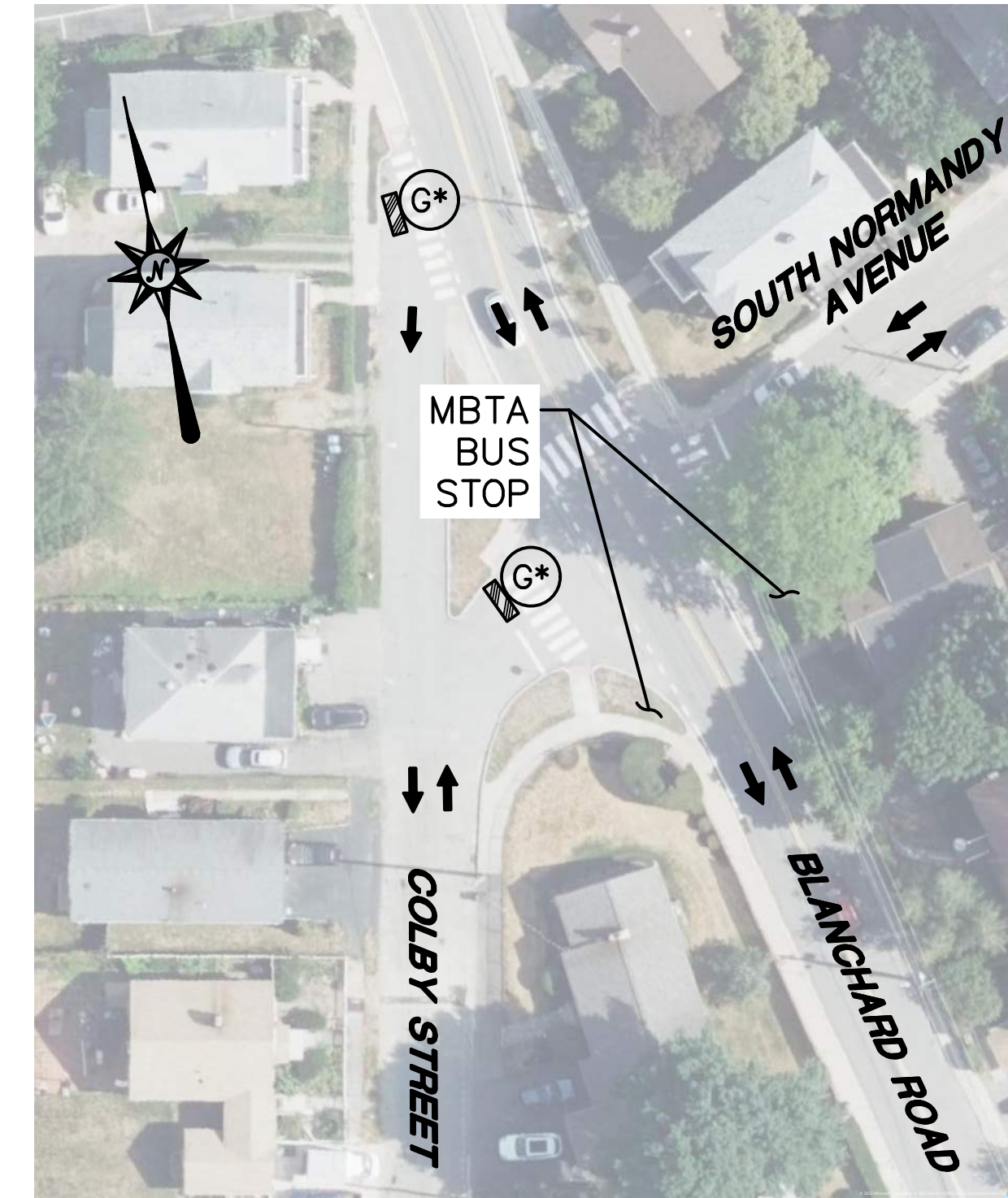
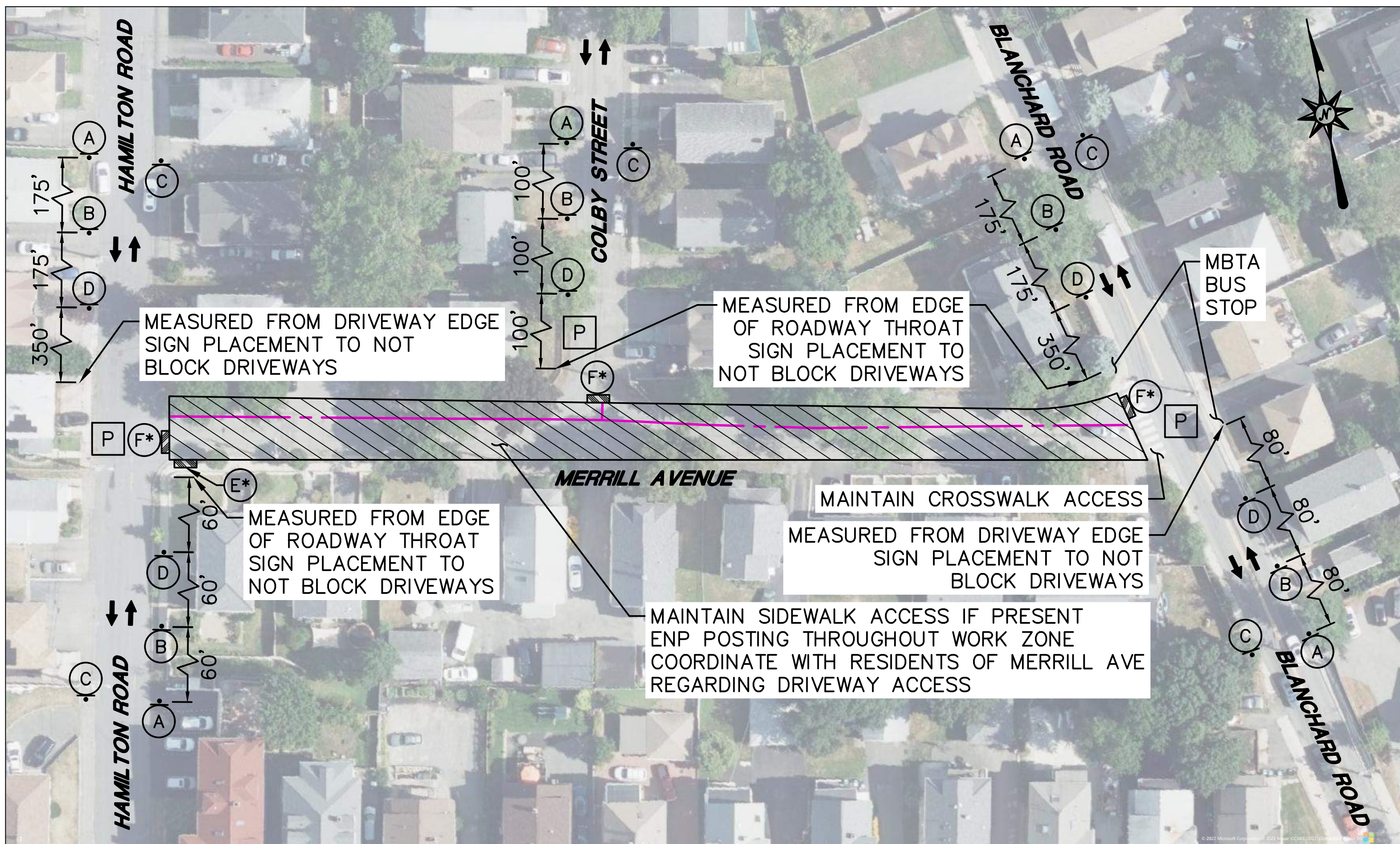
**LEGEND**

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 <b>Architecture Engineering Environmental Land Surveying</b> Companies	 Michael R. Shepley 4/27/2022 SIGN & DATE	BOSTON GAS COMPANY d/b/a <b>nationalgrid</b> 40 SYLVAN ROAD WALTHAM, MA 02451 <b>IFC</b>	PROPOSED GAS MAIN INSTALLATION 4" MDPE (LP TO 25 PSIG) BRIGHTON ST AND COLBY ST AND MERRILL AVE BELMONT, MA <b>TMP PLAN - COLBY ST DETOUR - 1 OF 1</b>				PAGE 03 OF 09	
			DWG SIZE: 22"x34"    DESIGNER: V. HUANG    ENGINEER: M. KURKER    DATE: 04/27/2022    ASSET I.D.: DISTRIBUTION    W.O. NO.: 1399914				DRAWING NO. <b>BEL-1399914-TMP-03</b>	SHEET NO. <b>TMP-03</b>



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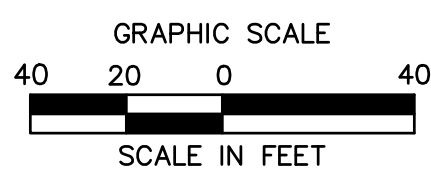
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**LEGEND**

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MICHAEL R. SHEPLEY  
 CIVIL ENGINEER  
 No. 5887  
 (Professional Seal)  
 4/27/2022  
 SIGN & DATE

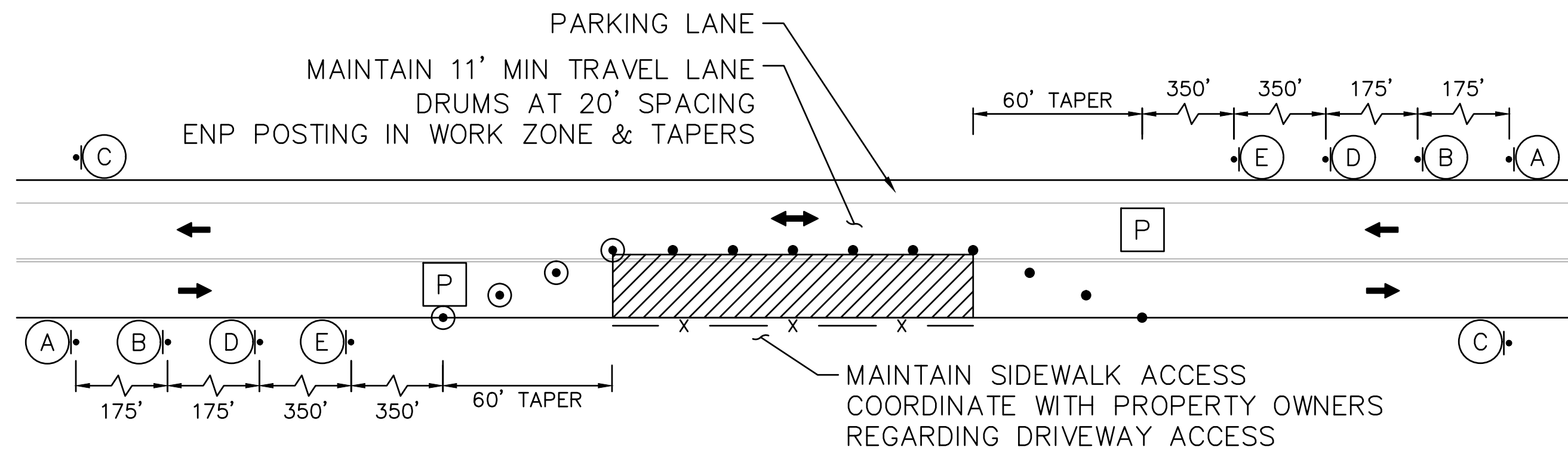
NO.	ISSUED FOR CONSTRUCTION	DATE	DR. BY	CK. BY	APP. BY
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BOSTON GAS COMPANY  
 d/b/a  
**nationalgrid**  
 40 SYLVAN ROAD  
 WALTHAM, MA 02451

PROPOSED GAS MAIN INSTALLATION  
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 BRIGHTON ST AND COLBY ST AND MERRILL AVE  
 BELMONT, MA  
**TMP PLAN - MERRILL AVE DETOUR - 1 OF 1**

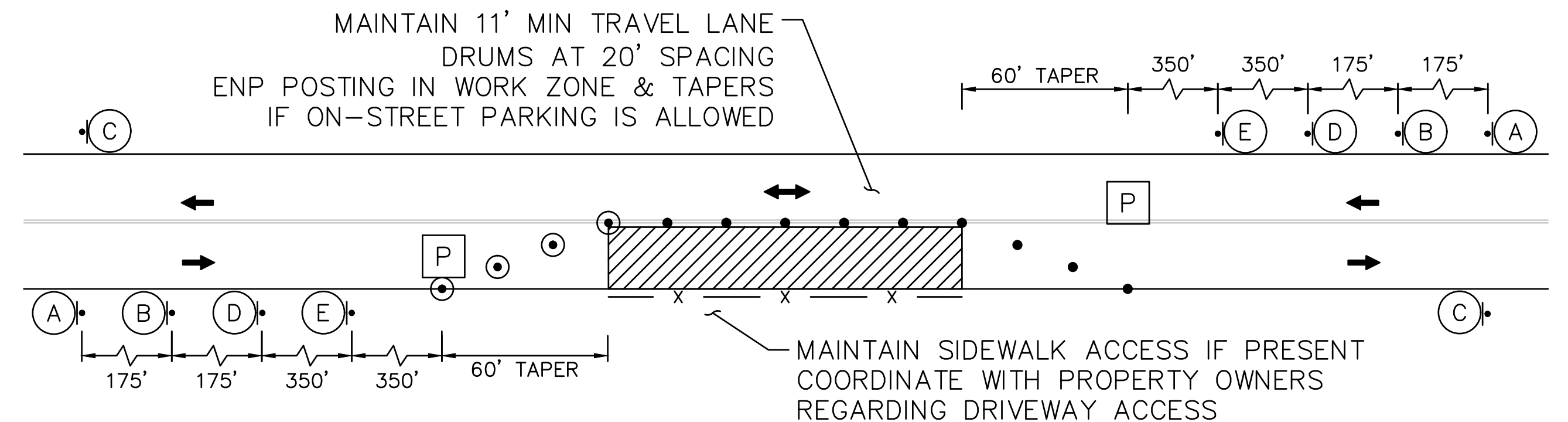
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22"x34"	V. HUANG	M. KURKER	04/27/2022	DISTRIBUTION	1399914

PAGE 04 OF 09	
DRAWING NO.	SHEET NO.
BEL-1399914-TMP-04	TMP-04



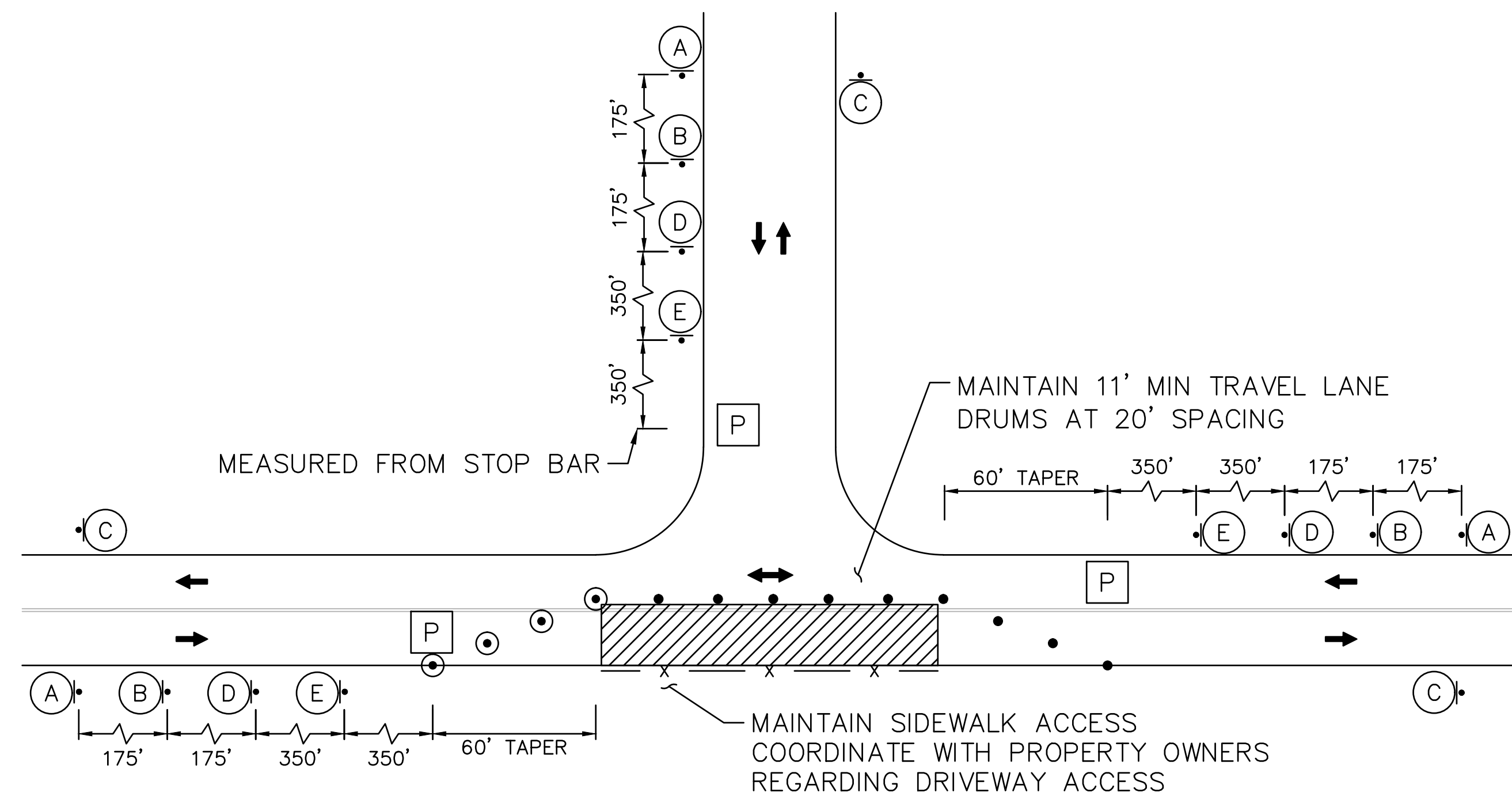
**MPT TYPICAL - ALTERNATING TWO-WAY ONE-LANE TRAFFIC WITH PARKING LANE**

N.T.S. BRIGHTON ST



**MPT TYPICAL - ALTERNATING TWO-WAY ONE-LANE TRAFFIC**

N.T.S. BLANCHARD RD, COLBY ST, AND MERRILL AVE



**MPT SCHEMATIC - ALTERNATING TRAFFIC OPPOSITE A THREE-LEG INTERSECTION**

N.T.S. BLANCHARD RD AT NORMANDY AVE

**LEGEND**

- WORK AREA
- CONSTRUCTION SIGN
- TRAFFIC DRUM
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- PROPOSED MDPE 25# GAS MAIN

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5. 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 CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS. ROAD PLATES SHALL BE USED AS REQUIRED TO MAINTAIN ACCESS TO RESIDENTIAL AND COMMERCIAL ABUTTERS. AT ALL OTHER TIMES, DRIVEWAY ACCESS SHALL BE MAINTAINED.
6. THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE EQUIPPED WITH SEQUENTIAL FLASHING LIGHTS.
7. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
8. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
9. SIGN PLACEMENT TO BE ADJUSTED TO NOT BLOCK INGRESS AND EGRESS FROM ALL DRIVEWAYS.
10. LANE CLOSURES AND WORK HOUR RESTRICTIONS SHALL BE COORDINATED WITH THE TOWN OF BELMONT AND WITH THE PERMIT CONDITIONS AND APPROVALS.
11. CONTRACTOR SHALL MAINTAIN MINIMUM ONE (1) TRAVEL LANE AT 11' WIDE WITHIN WORK ZONE.
12. CONTRACTOR SHALL COORDINATE WITH BELMONT DEPARTMENT OF PUBLIC WORKS HIGHWAY DIVISION REGARDING EMERGENCY NO PARKING (ENP) POSTING AND SIGNAGE.
13. MBTA BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH MBTA IF BUS STOPS ARE TO BE TEMPORARILY RELOCATED.
14. REFER TO TYPICAL DETAILS, SCHEMATICS, AND STANDARD PLATES ELSEWHERE FOR ADDITIONAL INFORMATION.

**TYPICAL DETAILS & SCHEMATICS NOTES**

1. SIGN SPACING AS SUGGESTED PER MASSDOT TMP PLATE FIGURE GEN-2. CONTRACTOR SHALL ADJUST SIGN SPACING AS NEEDED TO NOT BLOCK DRIVEWAYS OR INTERSECTIONS.
2. CONTRACTOR MAY SUBSTITUTE CONES FOR DRUMS IF NEEDED TO MAINTAIN 11' MIN TRAVEL LANES.

MPT TAPER LENGTHS					
STREET	POSTED SPEED (MPH)	LANE SHIFT (FT)	TAPER LENGTH REQUIRED (FT)	TAPER LENGTH PROVIDED (FT)	BUFFER (FT)*
BRIGHTON ST	30	12	100 MAX (1)	60	0
BLANCHARD RD	30	12	100 MAX (1)	60	0
COLBY ST	25	12	100 MAX (1)	60	0
MERRILL AVE	25	12	100 MAX (1)	60	0

\* BUFFER ZONE NOTED AS OPTIONAL PER MASSDOT TMP PLATE FIGURE GEN-5  
(1) TAPER LENGTH NOTED AS 100' MAX PER MASSDOT TMP PLATE FIGURE INT-2 AND TLR-5



4/27/2022  
SIGN & DATE

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
0	ISSUED FOR CONSTRUCTION	04/27/2022	VH	MK	MS

BOSTON GAS COMPANY  
d/b/a  
**nationalgrid**  
40 SYLVAN ROAD  
WALTHAM, MA 02451

**IFC**

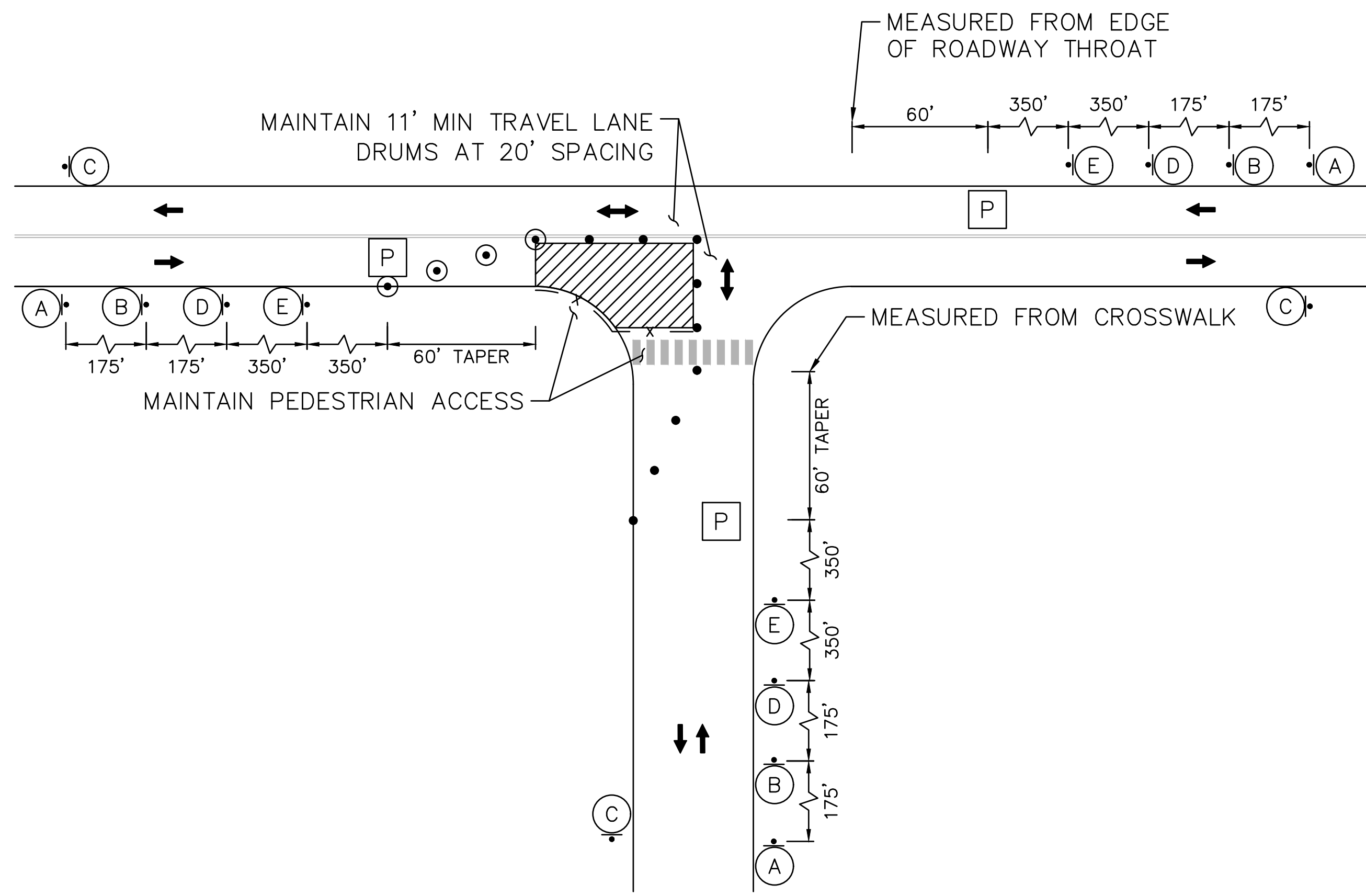
PROPOSED GAS MAIN INSTALLATION  
4" MDPE (LP TO 25 PSIG)  
BRIGHTON ST AND COLBY ST AND MERRILL AVE  
BELMONT, MA

**TMP PLAN - TYPICAL DETAILS & SCHEMATICS - 1 OF 3**

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	V. HUANG	M. KURKER	04/27/2022	DISTRIBUTION	1399914

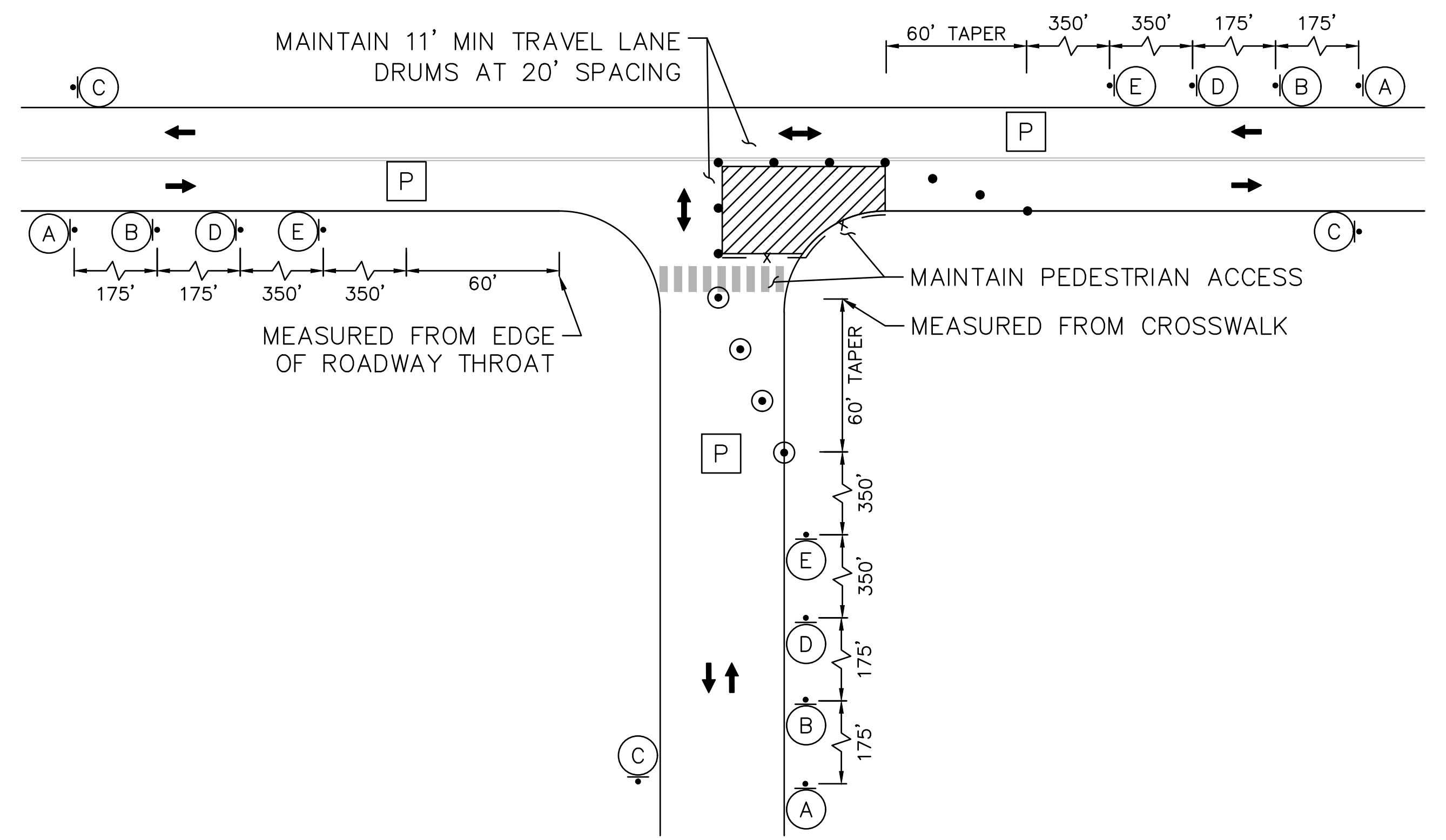
PAGE 05 OF 09

DRAWING NO.	SHEET NO.
BEL-1399914-TMP-05	TMP-05



**MPT SCHEMATIC - QUADRANT CLOSURE  
AT A THREE-LEG INTERSECTION**

N.T.S. BLANCHARD RD AT HAMILTON RD



**MPT SCHEMATIC - QUADRANT CLOSURE  
AT A THREE-LEG INTERSECTION**

N.T.S. BLANCHARD RD AT HAMILTON RD

**SIGN LEGEND**

- (A) 36" ROAD WORK AHEAD W20-1  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)
- (B) 48" WORK ZONES SPEEDING FINES DOUBLED 36" MA-R2-10a  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE); WHITE (RETROREFLECTIVE)
- (C) 36" END ROAD WORK DOUBLE FINES END 48" MA-R2-10e  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE); WHITE (RETROREFLECTIVE)
- (D) 36" ONE LANE ROAD AHEAD W20-4  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)
- (E) 36" POLICE OFFICER AHEAD MA-W20-7B  
LEGEND: BLACK BACKGROUND; FLORESCENT ORANGE (RETROREFLECTIVE)

MPT TAPER LENGTHS					
STREET	POSTED SPEED (MPH)	LANE SHIFT (FT)	TAPER LENGTH REQUIRED (FT)	TAPER LENGTH PROVIDED (FT)	BUFFER (FT)*
BLANCHARD RD	30	12	100 MAX (1)	60	0
HAMILTON RD	25	12	100 MAX (1)	60	0

\* BUFFER ZONE NOTED AS OPTIONAL PER MASSDOT TMP PLATE FIGURE GEN-5  
(1) TAPER LENGTH NOTED AS 100' MAX PER MASSDOT TMP PLATE FIGURE INT-2

**LEGEND**

- WORK AREA
- CONSTRUCTION SIGN
- TRAFFIC DRUM
- TRAFFIC DRUM WITH MARKER
- DIRECTION OF TRAVEL
- POLICE OFFICER
- CONSTRUCTION FENCE
- TYPE III BARRICADE
- SIGN MOUNTED ON TYPE III BARRICADE
- PROPOSED MDPE 25# GAS MAIN

**GENERAL NOTES**

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS UNLESS SUPERCEDED BY THESE PLANS.
- ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
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- THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE EQUIPPED WITH SEQUENTIAL FLASHING LIGHTS.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- SIGN PLACEMENT TO BE ADJUSTED TO NOT BLOCK INGRESS AND EGRESS FROM ALL DRIVEWAYS.
- LANE CLOSURES AND WORK HOUR RESTRICTIONS SHALL BE COORDINATED WITH THE TOWN OF BELMONT AND WITH THE PERMIT CONDITIONS AND APPROVALS.
- CONTRACTOR SHALL MAINTAIN MINIMUM ONE (1) TRAVEL LANE AT 11' WIDE WITHIN WORK ZONE.
- CONTRACTOR SHALL COORDINATE WITH BELMONT DEPARTMENT OF PUBLIC WORKS HIGHWAY DIVISION REGARDING EMERGENCY NO PARKING (ENP) POSTING AND SIGNAGE.
- MBTA BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH MBTA IF BUS STOPS ARE TO BE TEMPORARILY RELOCATED.
- REFER TO TYPICAL DETAILS, SCHEMATICS, AND STANDARD PLATES ELSEWHERE FOR ADDITIONAL INFORMATION.

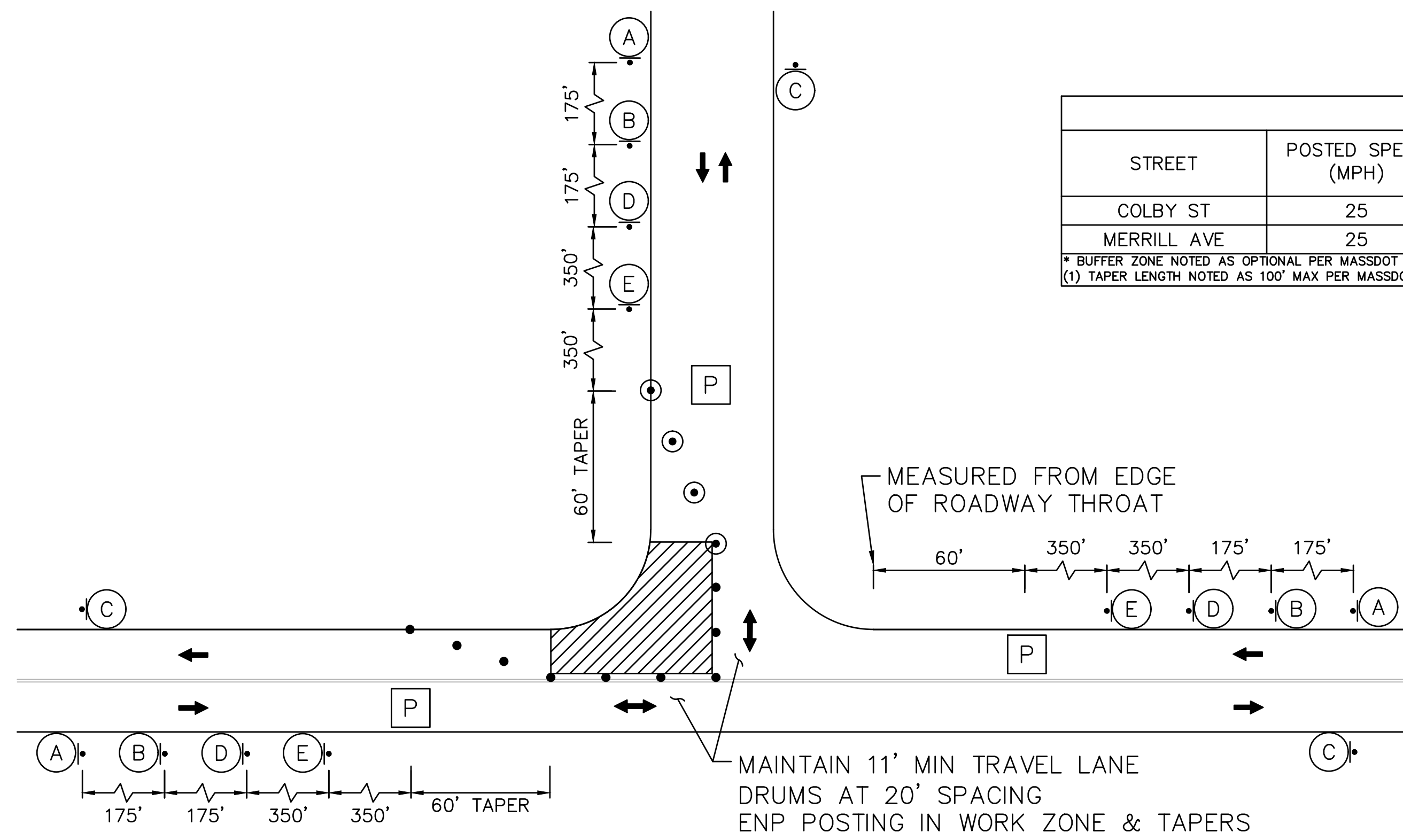
**TYPICAL DETAILS & SCHEMATICS NOTES**

- SIGN SPACING AS SUGGESTED PER MASSDOT TMP PLATE FIGURE GEN-2. CONTRACTOR SHALL ADJUST SIGN SPACING AS NEEDED TO NOT BLOCK DRIVEWAYS OR INTERSECTIONS.
- CONTRACTOR MAY SUBSTITUTE CONES FOR DRUMS IF NEEDED TO MAINTAIN 11' MIN TRAVEL LANES.

		BOSTON GAS COMPANY d/b/a <b>nationalgrid</b> 40 SYLVAN ROAD WALTHAM, MA 02451 <b>IFC</b>	PROPOSED GAS MAIN INSTALLATION 4" MDPE (LP TO 25 PSIG) BRIGHTON ST AND COLBY ST AND MERRILL AVE BELMONT, MA		PAGE 06 OF 09
			<b>TMP PLAN - TYPICAL DETAILS &amp; SCHEMATICS - 2 OF 3</b>		DRAWING NO. BEL-1399914-TMP-06 SHEET NO. TMP-06
4/27/2022 SIGN & DATE		NO. 0 ISSUED FOR CONSTRUCTION DATE: 04/27/2022 DR. BY: V.H. CK. BY: M.K. APP. BY: M.S.	DWG SIZE: 22"x34" DESIGNER: V. HUANG ENGINEER: M. KURKER DATE: 04/27/2022 ASSET I.D.: DISTRIBUTION W.O. NO.: 1399914		

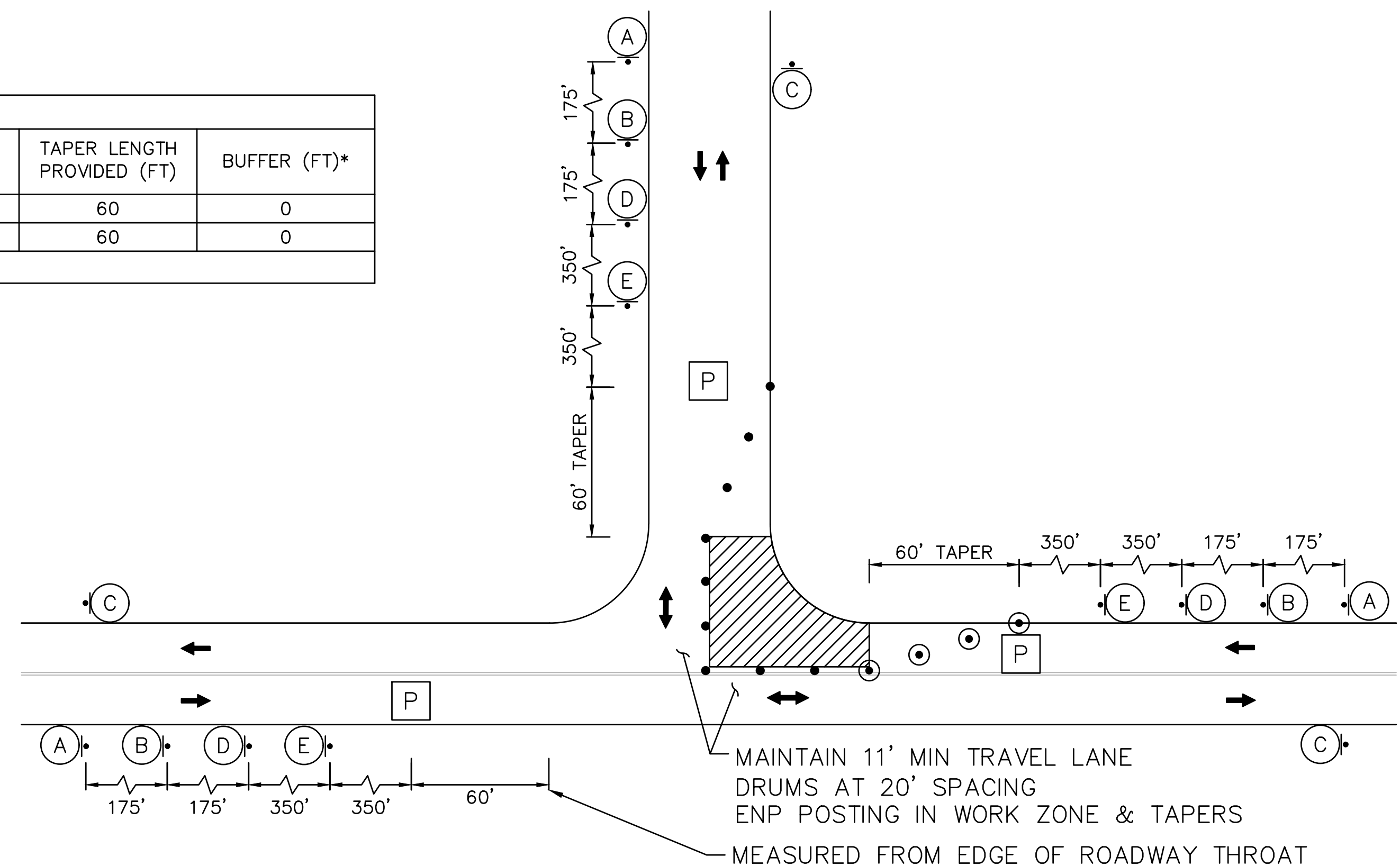
MPT TAPER LENGTHS					
STREET	POSTED SPEED (MPH)	LANE SHIFT (FT)	TAPER LENGTH REQUIRED (FT)	TAPER LENGTH PROVIDED (FT)	BUFFER (FT)*
COLBY ST	25	12	100 MAX (1)	60	0
MERRILL AVE	25	12	100 MAX (1)	60	0

\* BUFFER ZONE NOTED AS OPTIONAL PER MASSDOT TMP PLATE FIGURE GEN-5  
(1) TAPER LENGTH NOTED AS 100' MAX PER MASSDOT TMP PLATE FIGURE INT-2



**MPT SCHEMATIC - QUADRANT CLOSURE AT A THREE-LEG INTERSECTION**

N.T.S. COLBY ST AT MERRILL AVE



**MPT SCHEMATIC - QUADRANT CLOSURE AT A THREE-LEG INTERSECTION**

N.T.S. COLBY ST AT MERRILL AVE

**SIGN LEGEND**

- (A) 36" W20-1  
LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)
- (B) 48" 36" MA-R2-10a  
LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE)
- (C) 36" 48" MA-R2-10e  
LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE) WHITE (RETROREFLECTIVE)
- (D) 36" W20-4  
LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)
- (E) 36" MA-W20-7B  
LEGEND: BLACK FLORESCENT ORANGE (RETROREFLECTIVE)

**LEGEND**

- WORK AREA
- CONSTRUCTION SIGN
- TRAFFIC DRUM
- TRAFFIC DRUM WITH MARKER
- DIRECTION OF TRAVEL
- POLICE OFFICER
- CONSTRUCTION FENCE
- TYPE III BARRICADE
- SIGN MOUNTED ON TYPE III BARRICADE
- PROPOSED MDPE 25# GAS MAIN

**GENERAL NOTES**

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS UNLESS SUPERCEDED BY THESE PLANS.
- ALL SIGN LEGENDS, BORDERS AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRICADES AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
- 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 CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS. ROAD PLATES SHALL BE USED AS REQUIRED TO MAINTAIN ACCESS TO RESIDENTIAL AND COMMERCIAL ABUTTERS. AT ALL OTHER TIMES, DRIVEWAY ACCESS SHALL BE MAINTAINED.
- THE FIRST TEN (10) PLASTIC DRUMS OF A TAPER SHALL BE EQUIPPED WITH SEQUENTIAL FLASHING LIGHTS.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- SIGN PLACEMENT TO BE ADJUSTED TO NOT BLOCK INGRESS AND EGRESS FROM ALL DRIVEWAYS.
- LANE CLOSURES AND WORK HOUR RESTRICTIONS SHALL BE COORDINATED WITH THE TOWN OF BELMONT AND WITH THE PERMIT CONDITIONS AND APPROVALS.
- CONTRACTOR SHALL MAINTAIN MINIMUM ONE (1) TRAVEL LANE AT 11' WIDE WITHIN WORK ZONE.
- CONTRACTOR SHALL COORDINATE WITH BELMONT DEPARTMENT OF PUBLIC WORKS HIGHWAY DIVISION REGARDING EMERGENCY NO PARKING (ENP) POSTING AND SIGNAGE.
- MBTA BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. THE CONTRACTOR SHALL COORDINATE WITH MBTA IF BUS STOPS ARE TO BE TEMPORARILY RELOCATED.
- REFER TO TYPICAL DETAILS, SCHEMATICS, AND STANDARD PLATES ELSEWHERE FOR ADDITIONAL INFORMATION.

**TYPICAL DETAILS & SCHEMATICS NOTES**

- SIGN SPACING AS SUGGESTED PER MASSDOT TMP PLATE FIGURE GEN-2. CONTRACTOR SHALL ADJUST SIGN SPACING AS NEEDED TO NOT BLOCK DRIVEWAYS OR INTERSECTIONS.
- CONTRACTOR MAY SUBSTITUTE CONES FOR DRUMS IF NEEDED TO MAINTAIN 11' MIN TRAVEL LANES.

		BOSTON GAS COMPANY d/b/a <b>nationalgrid</b> 40 SYLVAN ROAD WALTHAM, MA 02451				PROPOSED GAS MAIN INSTALLATION 4" MDPE (LP TO 25 PSIG) BRIGHTON ST AND COLBY ST AND MERRILL AVE BELMONT, MA				PAGE 07 OF 09	
		4/27/2022 SIGN & DATE				IFC				DRAWING NO. SHEET NO. BEL-1399914-TMP-07 TMP-07	
0 ISSUED FOR CONSTRUCTION		04/27/2022	VH	MK	MS	DWG SIZE DESIGNER ENGINEER DATE ASSET I.D. W.O. NO.: 22"x34" V. HUANG M. KURKER 04/27/2022 DISTRIBUTION 1399914					

**NOTES:**

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
- ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRIAGES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- CONTRACTORS SHALL NOTIFY EACH AGENCIES AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
- THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A SEQUENTIAL FLASHING LIGHTS.
- THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
- MINIMUM LANE WIDTH IS TO BE 11 FEET UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

**LEGEND:**

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- WORK ZONE
- WORK VEHICLE
- DIRECTION OF TRAFFIC
- TRUCK MOUNTED ATTENUATOR
- P/F POLICE/FLAGGER DETAIL
- IMPACT ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- TYPE III BARRICADE
- MEDIAN BARRIER
- CHANGEABLE MESSAGE SIGN
- MEDIAN BARRIER WITH WARNING LIGHTS
- ARROW BOARD

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

**MEASURED AVERAGE WORK ZONE CAPACITIES**

NUMBER OF LANES NORMAL (EXISTING)	OPEN (TO TRAFFIC)	NUMBER OF STUDIES	AVERAGE CAPACITY	
			VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
2	2	8	2,340	1,340
3	2	9	2,880	1,480
4	3	4	4,560	1,520

Source: Durock, C., *Notes on Work Zone Capacity and Level of Service*, Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.



Notes for Traffic Management

FIGURE GEN-1  
GENERAL GUIDELINES

**SUGGESTED WORK ZONE WARNING SIGN SPACING**

ROAD TYPE	DISTANCE BETWEEN SIGNS**		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350	350	350
MOST OTHER ROADWAYS*	500	500	500
FREEDWAYS AND EXPRESSWAYS*	1,000	1,500	2,640

\* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

\*\* DISTANCES ARE SHOWN IN FEET. THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCZ SETUP. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (I.E. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (I.E. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

MA-R2-10a, MA-R2-10b, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

**STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED**

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	210
35	270
40	340
45	420
50	510
55	610
60	720
65	840
70	970
75	1,110

\*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED.

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION



Notes for Traffic Management

FIGURE GEN-2  
NOTES ON WORK ZONE DISTANCES

- CONVENTIONAL ROADWAY - A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.
- EXPRESSWAY - A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.
- FREEWAY - A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.
- LOW-VOLUME ROAD - A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 ADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGING RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

**TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES**

TYPE OF TAPER	TAPER LENGTH (L) <sup>1</sup> FEET
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.5L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN. 100 FT MAX.
DOWNSTREAM TAPER	50 FT MIN. 100 FT MAX. PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

**FORMULAS FOR DETERMINING TAPER LENGTHS**

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	L = WS
45 MPH OR MORE	L = WS

WHERE: L = TAPER LENGTH IN FEET

W = WIDTH OF OFFSET IN FEET

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH (MAY/MI)

Source: Table 6C-4 MUTCD LATEST EDITION



Notes for Traffic Management

FIGURE GEN-3  
NOTES ON WORK ZONE DISTANCES

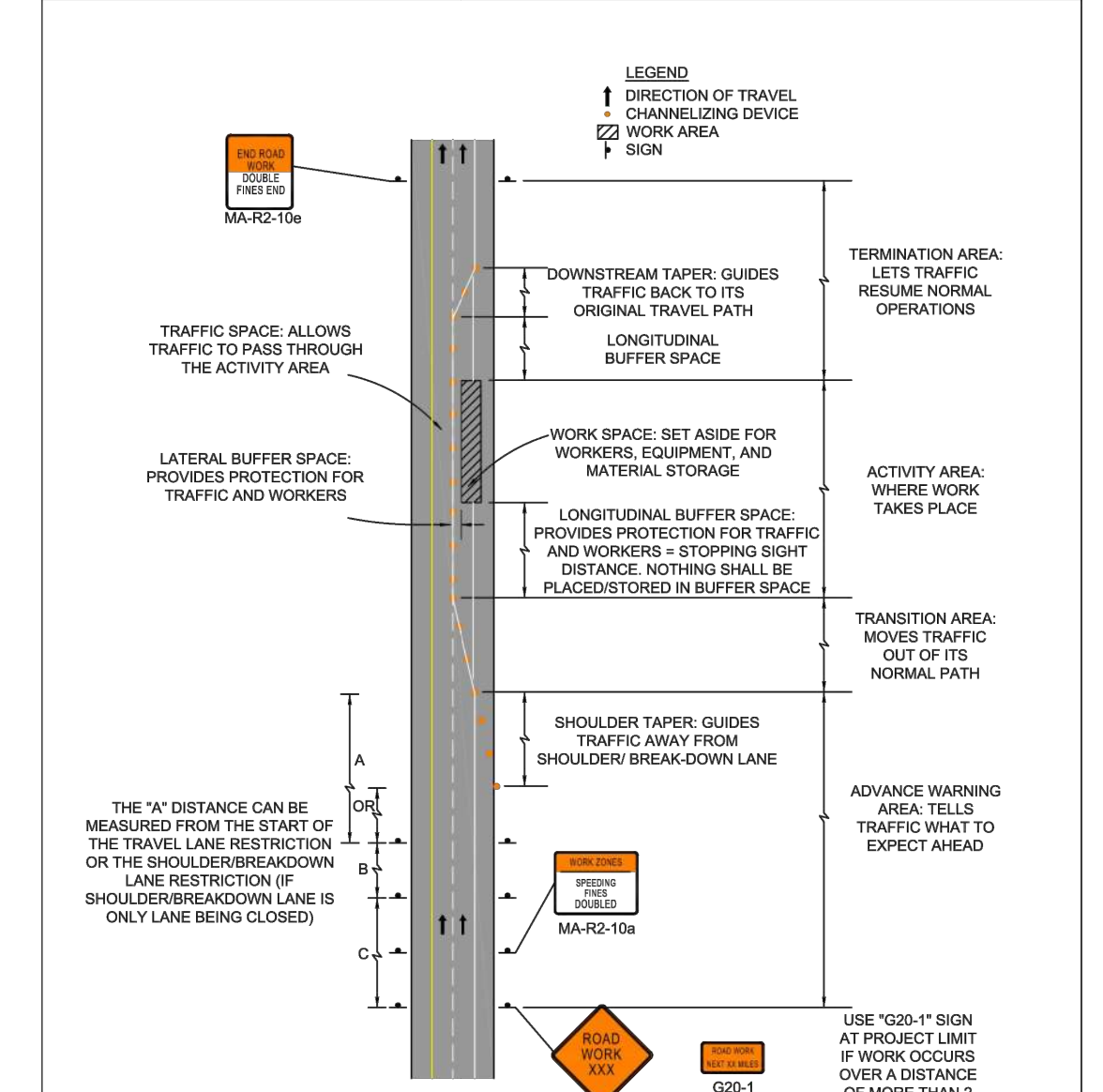


FIGURE GEN-4  
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE  
NOT TO SCALE



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE GEN-4  
COMPONENT PARTS OF A TEMPORARY TRAFFIC CONTROL (TTC) ZONE  
NOT TO SCALE

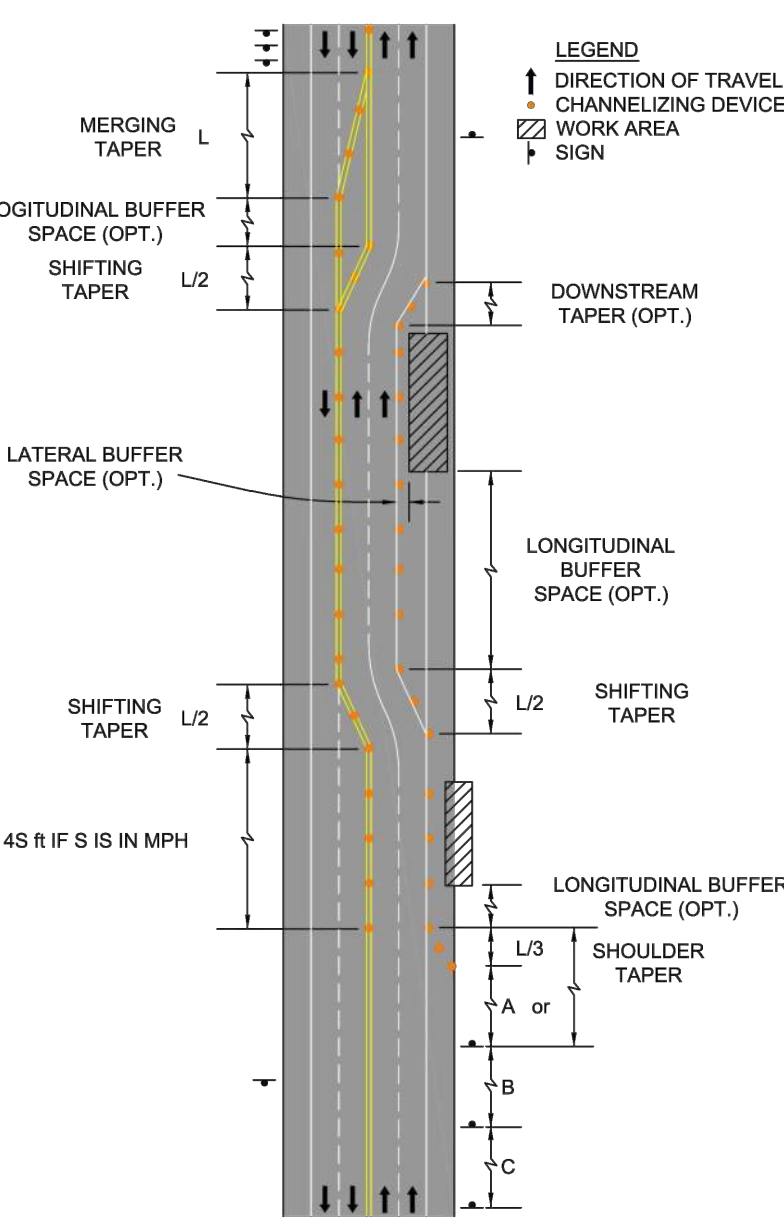


FIGURE GEN-5  
TYPES OF TAPERS AND BUFFER SPACES  
NOT TO SCALE



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE GEN-5  
TYPES OF TAPERS AND BUFFER SPACES  
NOT TO SCALE

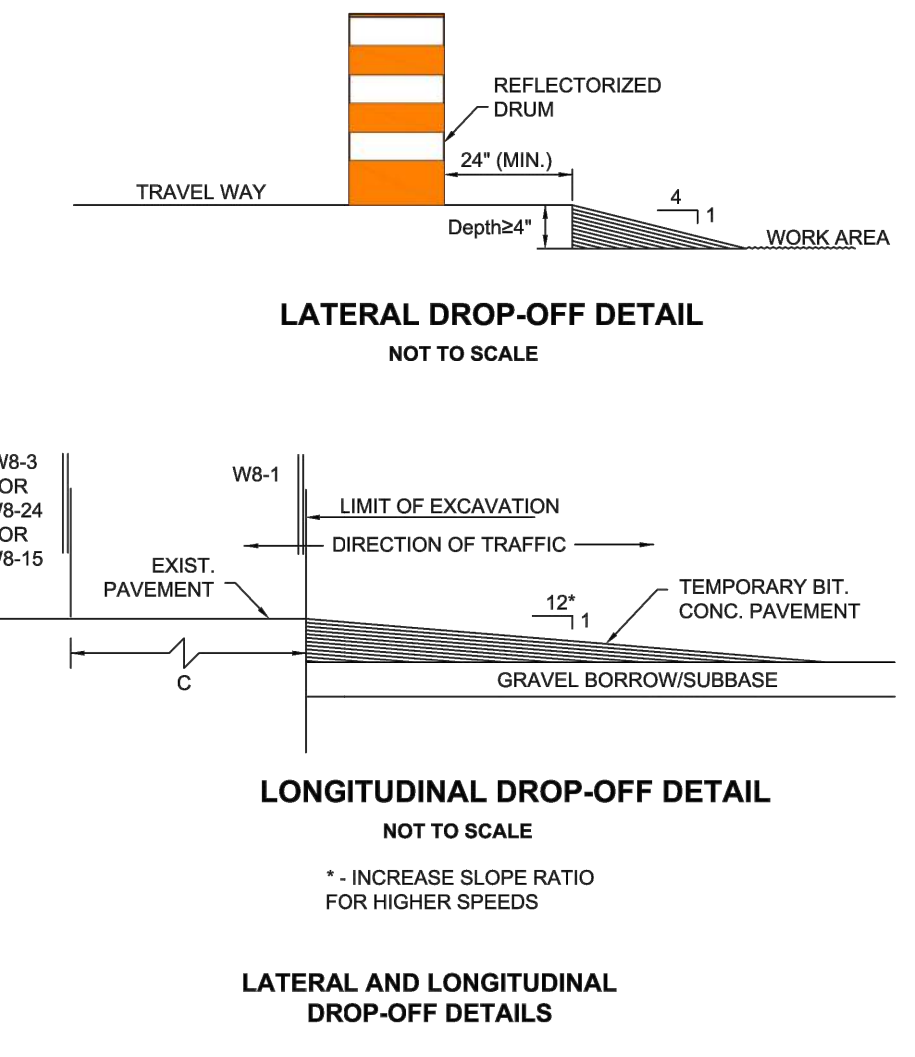
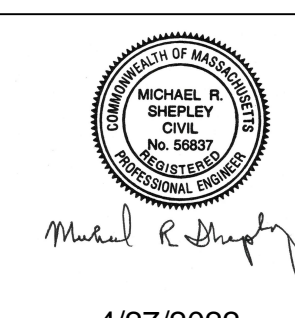


FIGURE GEN-6  
LATERAL AND LONGITUDINAL DROP-OFF DETAILS  
NOT TO SCALE



Standard Details and Drawings for the Development of Temporary Traffic Control Plans

FIGURE GEN-6  
LATERAL AND LONGITUDINAL DROP-OFF DETAILS  
NOT TO SCALE



4/27/2022  
SIGN & DATE

NO.	DESCRIPTION	DATE	DR. BY	CK. BY	APP. BY
0	ISSUED FOR CONSTRUCTION	04/27/2022	VH	MK	MS

BOSTON GAS COMPANY  
d/b/a  
**nationalgrid**  
40 SYLVAN ROAD  
WALTHAM, MA 02451

**IFC**

PROPOSED GAS MAIN INSTALLATION  
4" MDPE (LP TO 25 PSIG)  
BRIGHTON ST AND COLBY ST AND MERRILL AVE  
BELMONT, MA

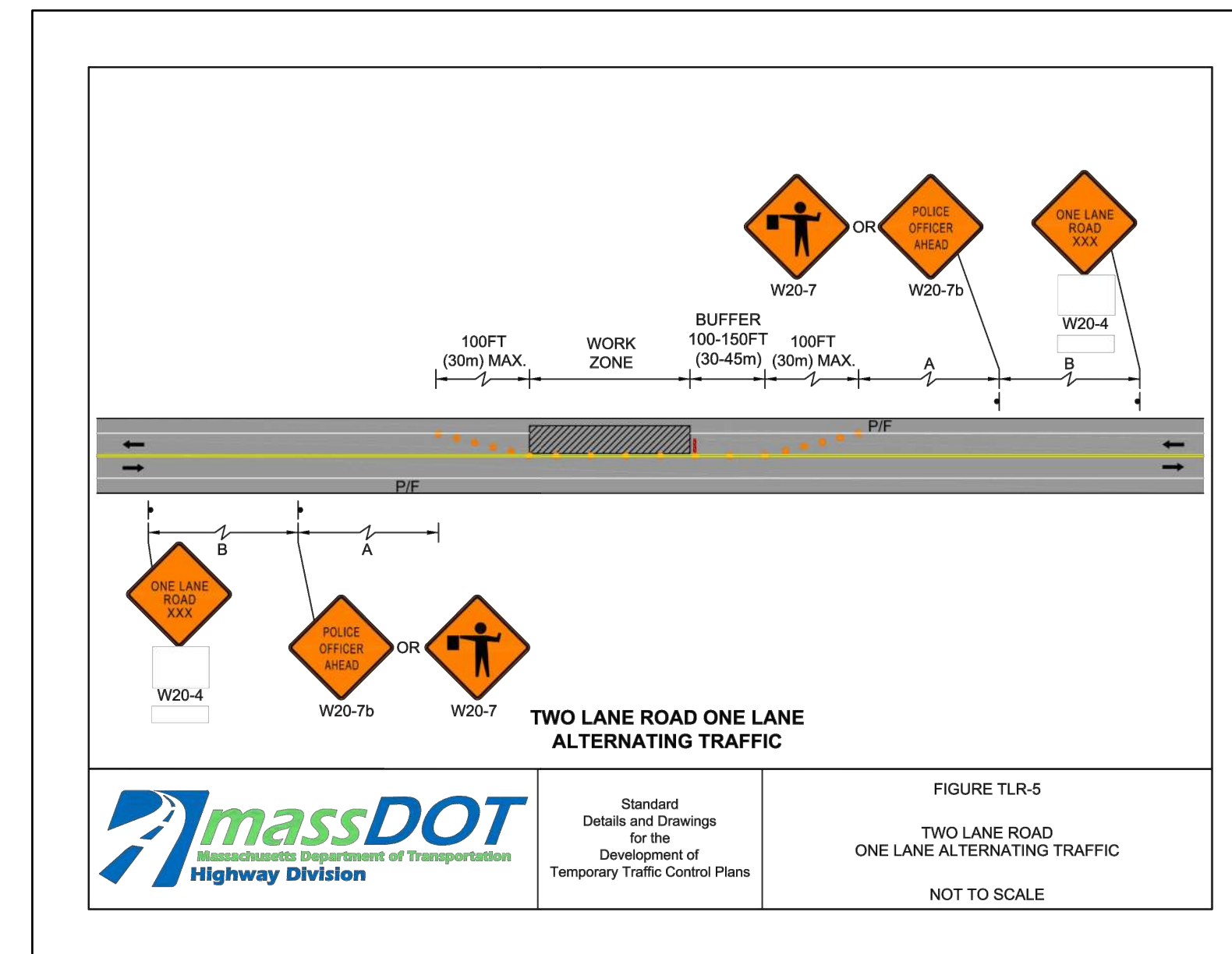
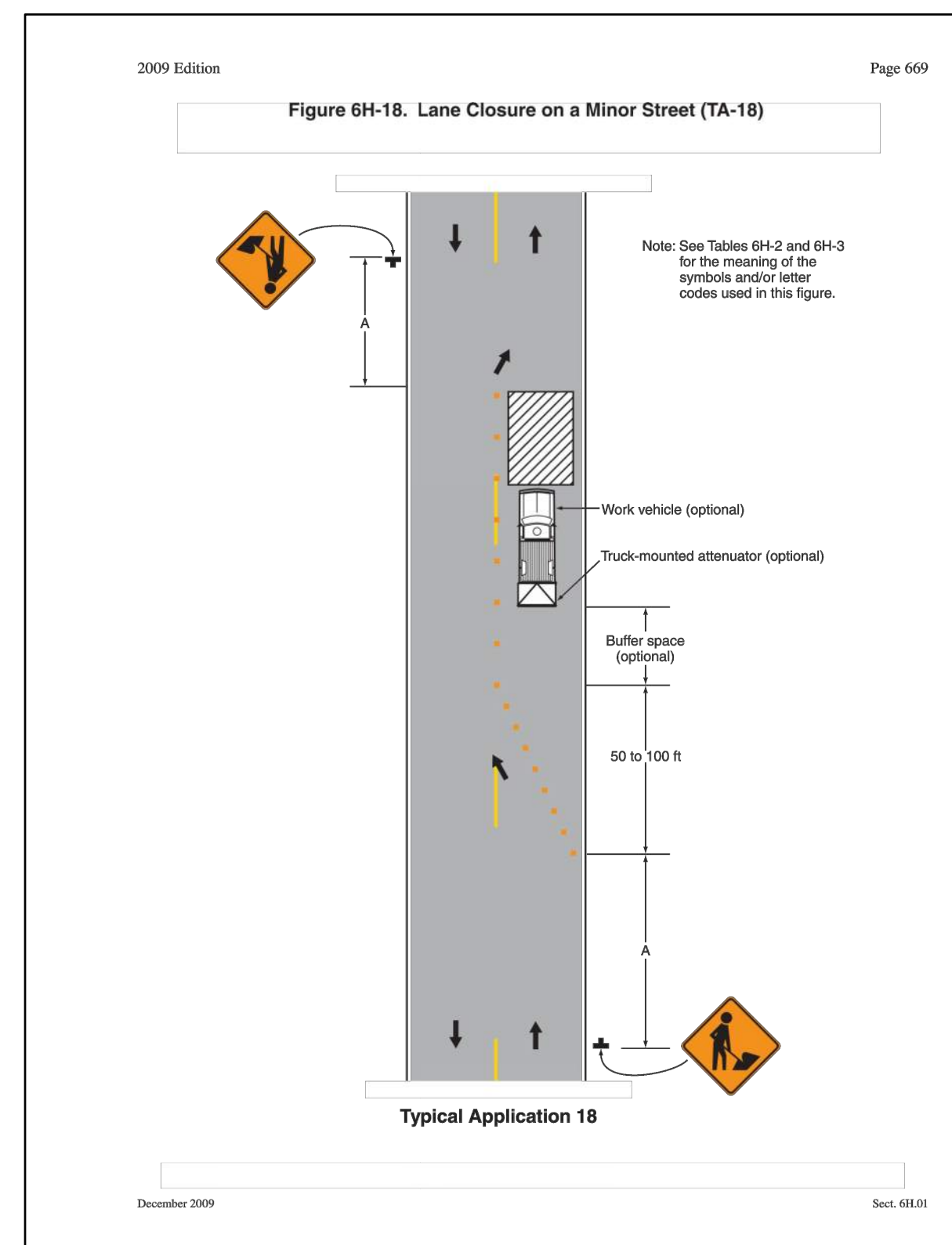
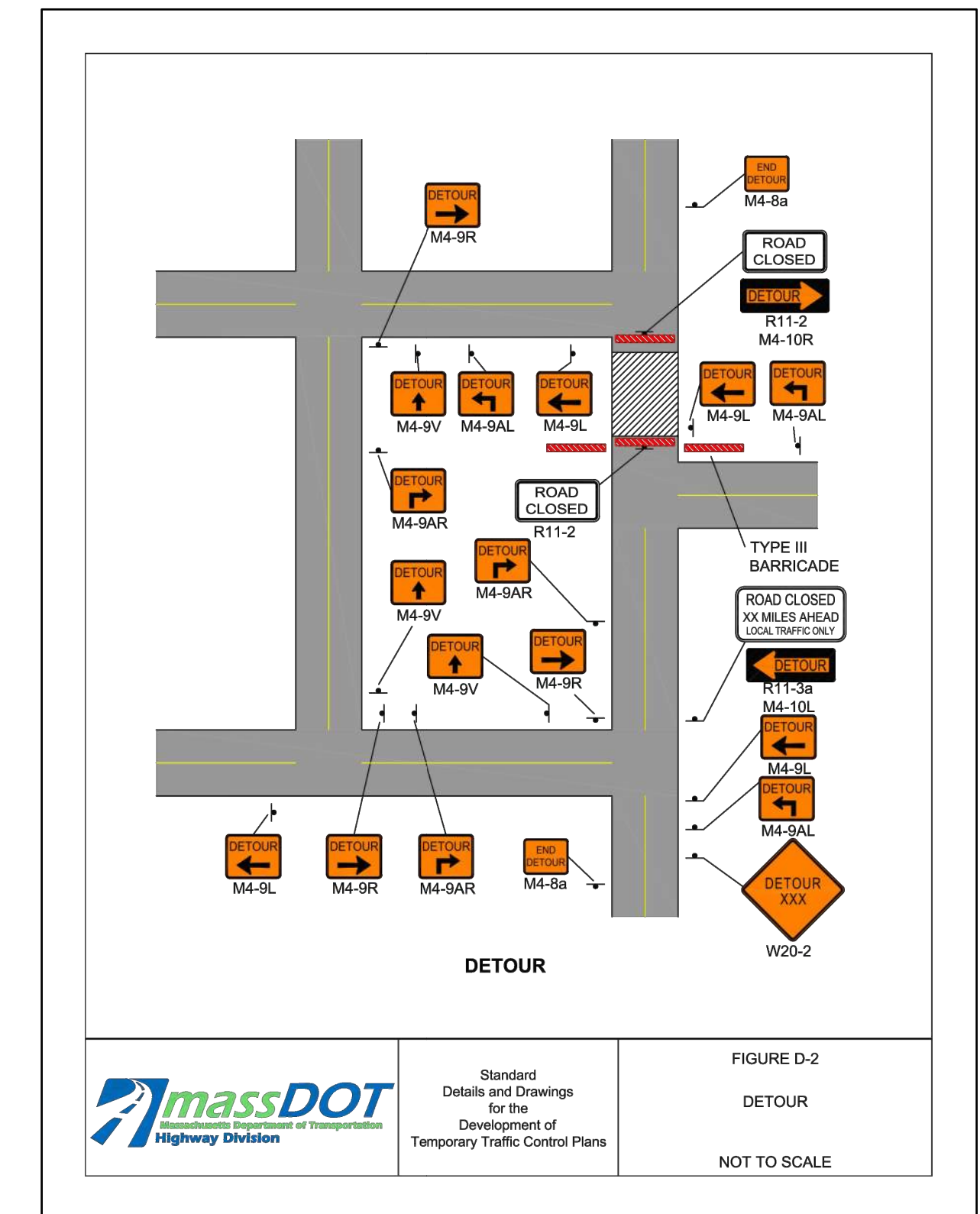
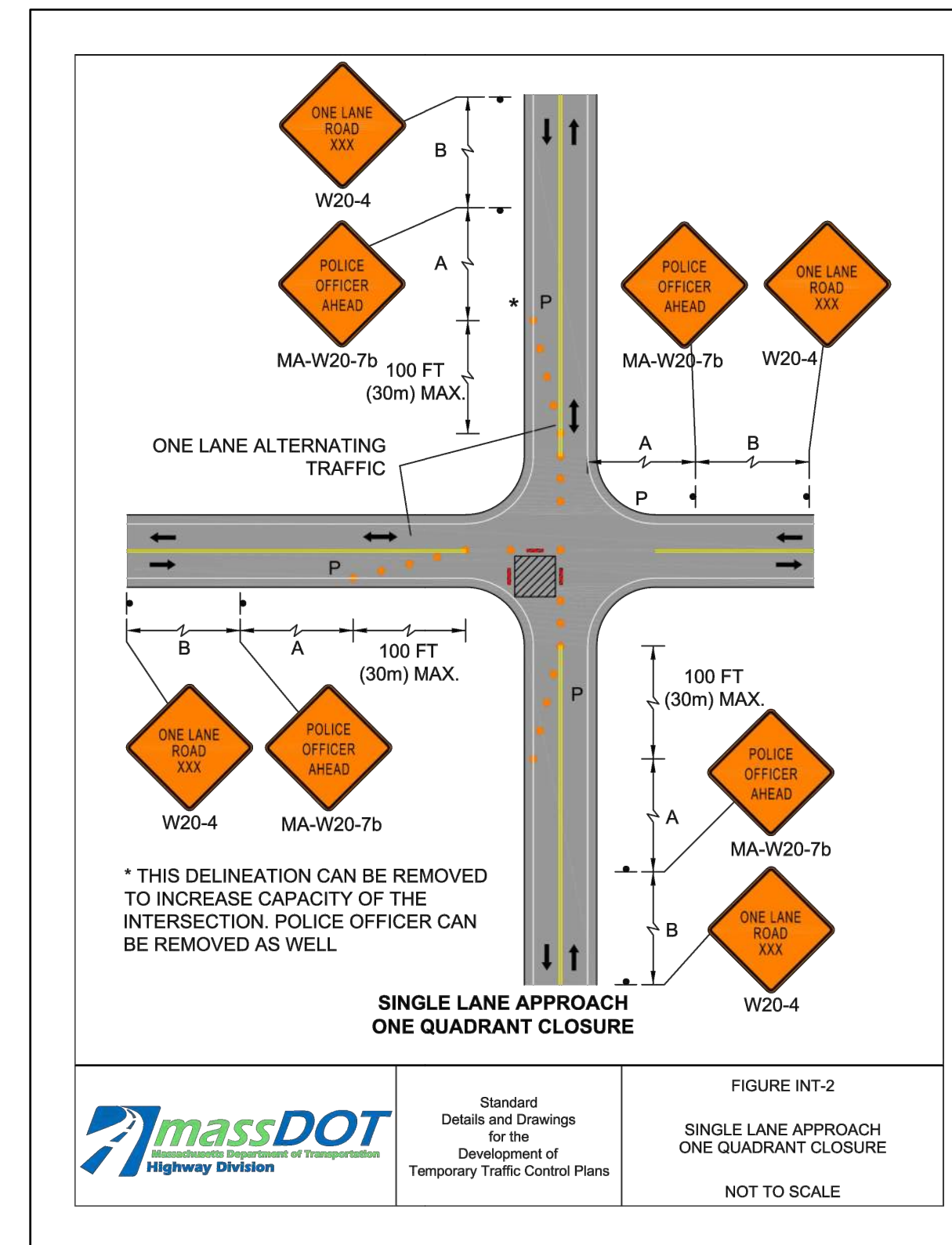
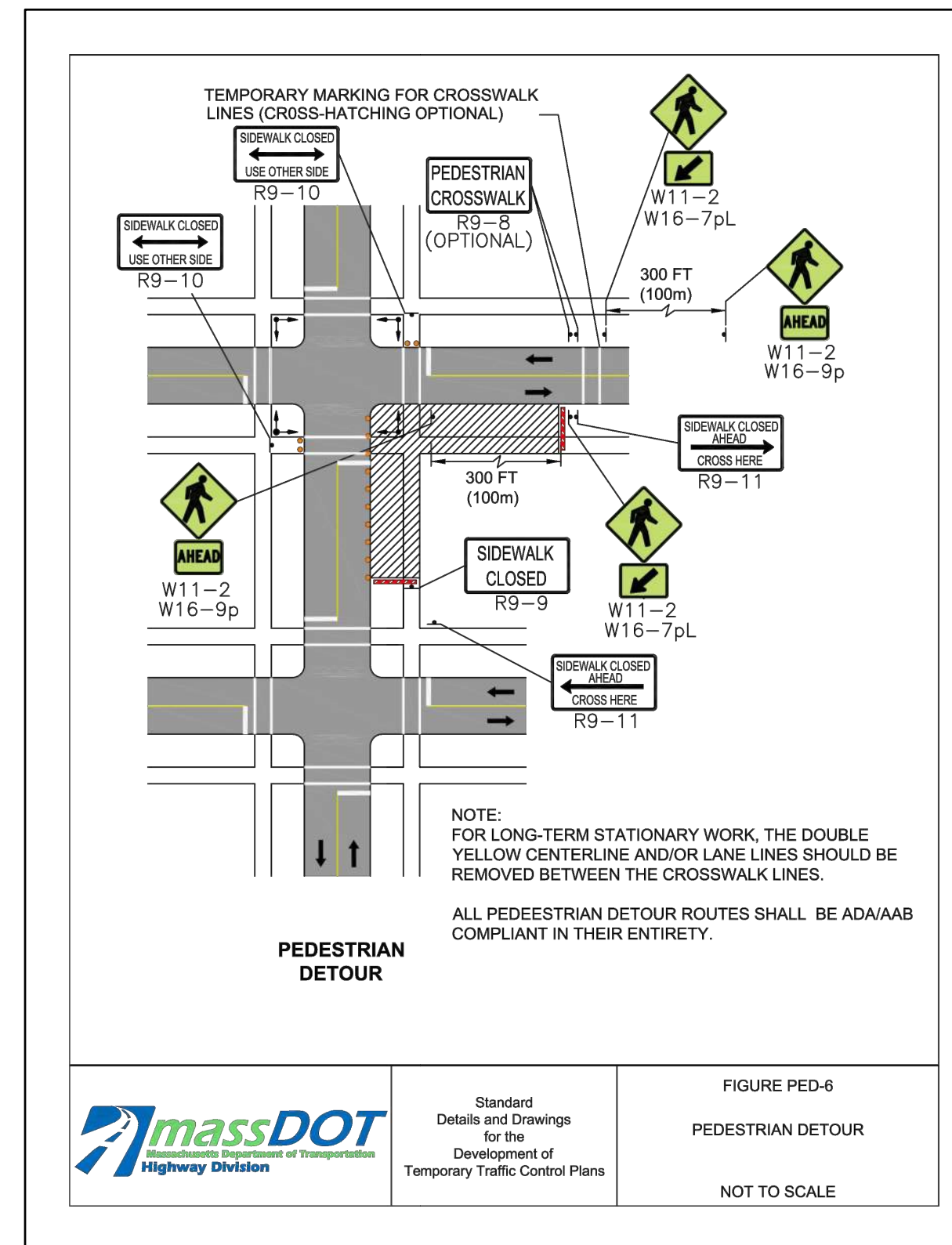
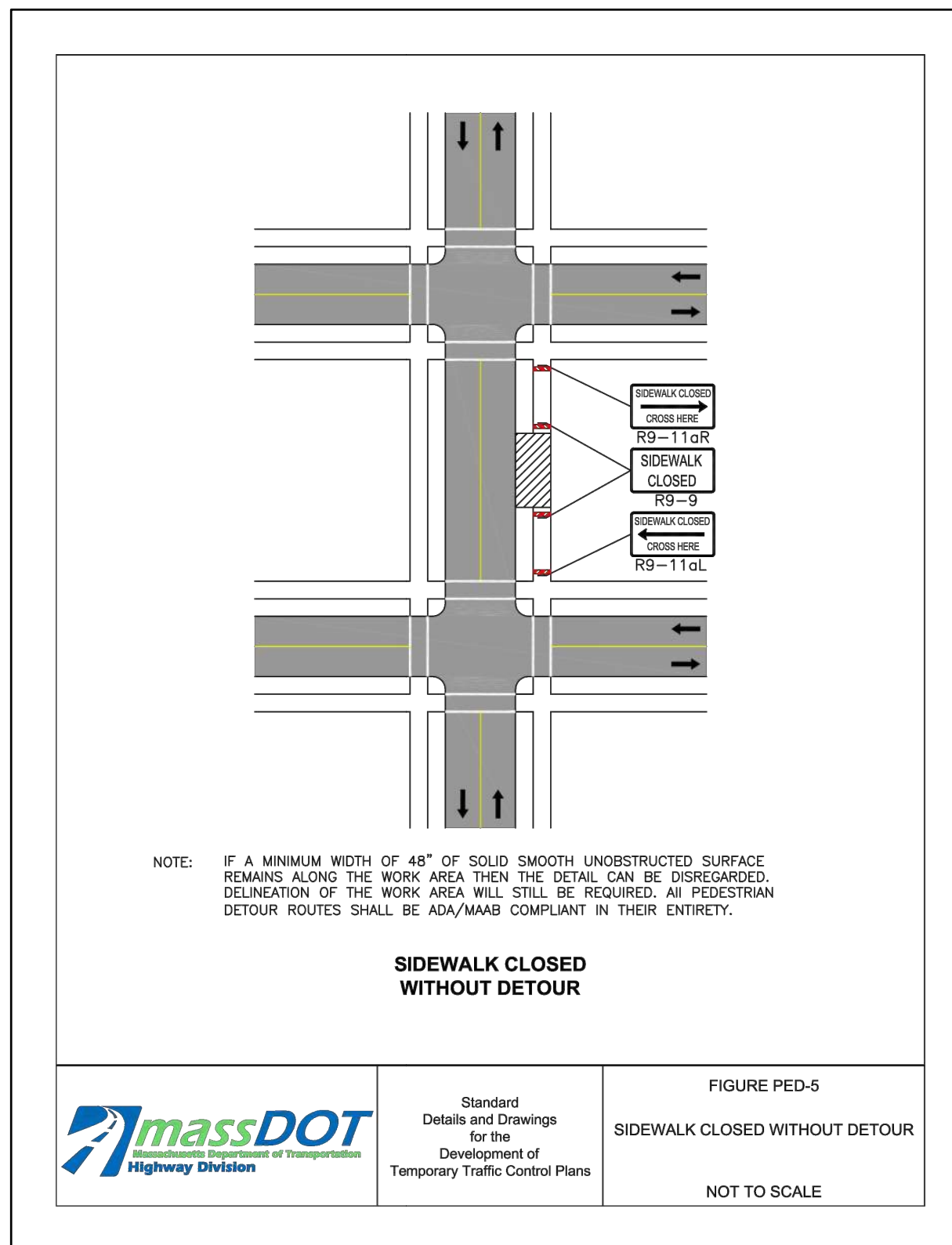
**TMP STANDARD PLATES - 1 OF 2**

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	V. HUANG	M. KURKER	04/27/2022	DISTRIBUTION	1399914

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BEL-1399914-TMP-08	TMP-08





**Architecture Engineering Environmental Land Surveying**

**Companies**

**MICHAEL R. SHEPLEY**  
CIVIL ENGINEER  
No. 5987  
Professional Seal

*Michael R. Shepley*

4/27/2022  
SIGN & DATE

NO.	ISSUED FOR CONSTRUCTION	04/27/2022	VH	MK	MS
NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY

BOSTON GAS COMPANY  
d/b/a  
**nationalgrid**  
40 SYLVAN ROAD  
WALTHAM, MA 02451

**IFC**

PROPOSED GAS MAIN INSTALLATION  
4" MDPE (LP TO 25 PSIG)  
BRIGHTON ST AND COLBY ST AND MERRILL AVE  
BELMONT, MA

**TMP STANDARD PLATES - 2 OF 2**

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	V. HUANG	M. KURKER	04/27/2022	DISTRIBUTION	1399914

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