



December 13, 2017

Town of Stoneham
35 Central Street, 1st Floor
Stoneham, MA 02180
Attn: Thomas Younger, Town Administrator

RE: Petition for Grant of Location in Public Ways

Dear Mr. Younger:

Pursuant to MGL Chapter 166 Section 22, NSTAR Electric Company d/b/a Eversource Energy (hereinafter the "Petitioner"), a company incorporated for the transmission of electricity for lighting, heating or power, hereby submits this Petition for a Grant of Location ("GOL") to the Town of Stoneham ("Town"), MA. See attached Exhibit A for the Petition. The Petitioner respectfully requests the Town, by order, to issue the GOL to the Petitioner for construction of a new electric transmission line within public ways as provided for herein. See attached Exhibit B for Petitioner's Draft Order.

Project Description

The project consists of a new subsurface 345 kilovolt transmission conduit duct bank with appurtenant communication/signal wires to be installed beneath various public ways in the Town. See attached Exhibit C for a locus map of the project. The duct bank is comprised of four eight-inch (8") High Density Polyethylene (HDPE) conduits, two four-inch (4") and two two-inch (2") PVC conduits.

Project Route

In the Town, the underground project route commences at a point under Montvale Avenue at the boundary line with the City of Woburn and proceeds easterly approximately 3,730 linear feet (LF) to the intersection with Main Street. Thence the project route continues northerly beneath Main Street approximately 1,705 LF to the intersection with Elm Street. Thence the project route continues easterly approximately 4,530 LF to the boundary line with the Town of Wakefield.

Project Design

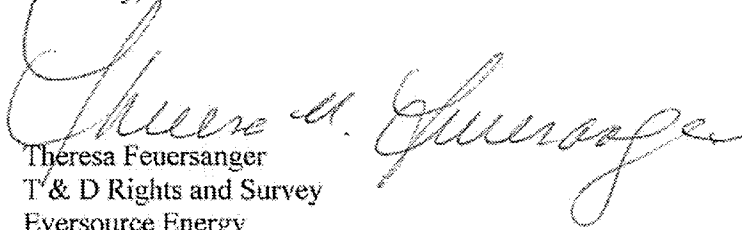
The HDPE and PVC conduits will be positioned in two different dimensions of "duct bank" infilled with thermal concrete material. Type one will be approximately 41" x 44" and type two shall be 82" x 22". The duct bank will be installed in an excavated trench, type one will be approximately 41" wide and 74" deep, type two will be approximately 82" wide and 40" deep. The duct bank will typically have approximately 30" of cover to finished grade. See attached Exhibit D for plan and profile drawings for the proposed duct bank, duct bank cross section data, trench backfill specifications.

Municipal Permits

Upon issuance of the requested GOL, Eversource's Project Contractor shall obtain all required local municipal permits prior to beginning work within the city (e.g. street opening, curb cut, trench permits, etc.). The Contractor shall work with the Town's Engineering and Public Works Departments to ensure that all disturbances to the public are avoided and/or minimized to the greatest extent possible. As part of the effort to reduce disturbance resulting from the proposed activities in the public way, temporary traffic control plans have been prepared. See attached Exhibit E for these plans. Additionally, Eversource will provide contact information for appropriate Eversource and Contractor personnel for use by Town officials and concerned citizens during construction activities.

As such, Eversource respectfully requests the city to issue a Grant of Location as set forth above. If you have any questions or require additional information, please contact me at your earliest convenience.

Sincerely,



Theresa Feuersanger
T & D Rights and Survey
Eversource Energy
One NSTAR Way, SE 210
Westwood, MA 02090

Email: Theresa.Feuersanger@eversource.com

Office: (781) 441-8909

Fax: (781) 441-8909

Grant of Location Request
345kV Conduit Project

Exhibit A
Grant of Location Petition

**PETITION FOR GRANT OF LOCATION FOR
WIRES, CABLES, POLES, PIERS, ABUTMENTS, CONDUITS OR
FIXTURES**

Town of Stoneham, Massachusetts

Board of Selectmen

Date: December 14, 2017

RESPECTFULLY REPRESENTS NSTAR Electric Company d/b/a/ Eversource Energy (hereinafter known as the PETITIONER), that it desires to construct upon, along, under or across the public way(s) of the Town of Stoneham, wires, cables, poles, piers, abutments, conduits or fixtures.

WHEREFORE, the PETITIONER prays that, after due notice and public hearing as provided by law, the Board of Selectmen may by Order grant to the PETITIONER permission to construct, in accordance with plan(s) dated March 20, 2017, the following:

Installation of a new subsurface 345 kilovolt transmission conduit duct bank with appurtenant communication/signal wires beneath Montvale Avenue (approximately 3,730 linear feet), Main Street (approximately 1,705 linear feet) and Elm Street (approximately 4,530 linear feet) The duct bank is comprised of four (4) eight-inch (8") HDPE conduit and two (2) four-inch and two (2) two-inch (2") PVC conduit. The conduit is encased in thermal duct bank concrete.

The PETITIONER understands and agrees that:

1. PETITIONER shall locate and complete all work as specified and approved by the City.
2. PETITIONER shall comply with the requirements of existing ordinances and such as may hereafter be adopted governing the construction.
3. PETITIONER shall perform all work to the requirements and satisfaction of the Department of Public Works or other such officer(s) as may be hereafter appointed by the City.

For the PETITIONER:

Signature: 

Name: Theresa Feuersanger

Title: Supervisor, T&D Rights & Survey

Mailing Address: 247 Station Drive Westwood, MA 02090

Telephone: 781-441-8277

Date: December 14, 2017

Grant of Location Request
345kV Conduit Project

Exhibit B
Order for Grant of Location

**ORDER FOR GRANT OF LOCATION FOR
WIRES, CABLES, POLES, PIERS, ABUTMENTS, CONDUITS OR FIXTURES**

Town of Stoneham, Massachusetts
Board of Selectmen

WHEREAS, NSTAR Electric Company d/b/a/ Eversource Energy (hereinafter known as the PETITIONER) has petitioned for permission to construct upon, along, under or across the public way(s) of the Town of Stoneham, the following:

Installation of a new subsurface 345 kilovolt transmission conduit duct bank with appurtenant communication/signal wires beneath Montvale Avenue (approximately 3,730 linear feet), Main Street (approximately 1,705 linear feet) and Elm Street (approximately 4,530 linear feet) The duct bank is comprised of four (4) eight-inch (8") HDPE conduit and two (2) four-inch (4") and two (2) two-inch (2") PVC conduit. The conduit is encased in thermal duct bank concrete.

AND WHEREAS, notice has been given and a hearing held on said petition as provided by law; NOW THEREFORE BE IT ORDERED that the PETITIONER be and hereby is granted permission by the Board of Selectmen to complete the construction described above, all in accordance with the following conditions:

1. PETITIONER shall locate and complete all work as shown by plan(s) dated March 20th 2017. and as may have been amended by the City.
2. PETITIONER shall comply with the requirements of existing ordinances and such as may hereafter be adopted governing the construction.
3. PETITIONER shall perform all work to the requirements and satisfaction of the Department of Public Works or other such officer(s) as may be hereafter appointed by the City.

Approved by the Board of Selectmen on the _____ day of _____, 20 ____

A True Record. Attest: _____ Date: _____

City Clerk

Certificate

I hereby certify that the foregoing Order was adopted by the Board of Selectmen on the _____ day of _____, 20____, after due notice and public hearing as prescribed by Section 22 of Chapter 166 of the General Laws and any additions or amendments thereto, said public hearing held in said City on the _____ day of _____, 20____, and recorded with the records of Grant of Location Orders of said City, in Book _____, Page _____

Certified. Attest: _____ Date: _____

City Clerk

Grant of Location Request
345kV Conduit Project

Exhibit C
Locus Map



Woburn to Wakefield Line Project

EVERSOURCE national grid

Preferred Route

Grant of Location Request
345kV Conduit Project

Exhibit D/E

PE Stamped Design Plans
PE Stamped Traffic Plans

EVERSOURCE

STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION 345kV LINE

ISSUED FOR CONSTRUCTION



BLACK & VEATCH CORPORATION
BURLINGTON, MASSACHUSETTS
PROJECT NO. 186463
SEPTEMBER 11, 2017

APPROVED FOR
CONSTRUCTION

4	ISSUED FOR CONSTRUCTION	-	09/17/17
3	TEST PRT ISSUE (REQ'D MODIFICATIONS)	-	09/27/17
2	TEST PRT ISSUE (REQ'D MODIFICATIONS)	-	10/27/16
1	TEST PRT ISSUE (REQ'D MODIFICATIONS)	-	10/27/16
N.O.	DESCRIPTION	BY	DATE



COVER			
STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION			
WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS			
COVER SHEET			
SCALE: unless noted	DATE: 09/09/15	DRW: CSM	REV: 4

DATE	DRW	C-HX	D.	A.P.P.R.	DRWING NO.	REV.
09/09/15	CSM	CSM	CSM	CSM	000	4

DWG	DRAWING TITLE	REV	REVISION TITLE
000	COVER SHEET	4	Issued for Construction
001	DRAWING INDEX		
002	LEGEND AND NOTES	2	Issued for Construction
003	GENERAL NOTES	0	Issued for Construction
004	CIRCUIT MAP	1	Issued for Construction
005	REV 1042 2 OF 1	2	Issued for Construction
040	PLAN & Profile: 1" = 20"	2	Issued for Construction
041	PLAN & Profile: 1" = 20"	2	Issued for Construction
042	PLAN & Profile: 1" = 20"	1	Issued for Construction
043	PLAN & Profile: 1" = 20"	3	Issued for Construction
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060	PLAN & Profile: 1" = 20"	3	Issued for Construction
120	TRENCH SECTIONS AND DETAILS	3	Issued for Construction
121	DUCT COUPLING AND MANHOLE DETAILS	0	Issued for Construction
122	DUCT BANK CLEARANCES TO UTILITIES	2	Issued for Construction
123	TRENCH SECTION AND DETAILS FOR MASSDOT	0	Issued for Construction
130	JACK AND BONE SECTIONS AND DETAILS	2	Issued for Construction
140	315KV MANHOLE LAYOUT DRAWING 1 OF 2	2	Issued for Construction
141	345KV MANHOLE LAYOUT DRAWING 2 OF 2	0	Issued for Construction
142	345KV MANHOLE GROUNDING DRAWING	0	Issued for Construction
143	345KV MANHOLE TYPICAL GEOTECHNICAL AND CONDUIT LAYOUT	0	Issued for Construction
144	COMMUNICATION MANHOLE DETAILS	2	Issued for Construction

EVERSOURCE

DRAWING INDEX

STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS

DRAWING INDEX

SCALE: unless noted

DATE: 09/05/15

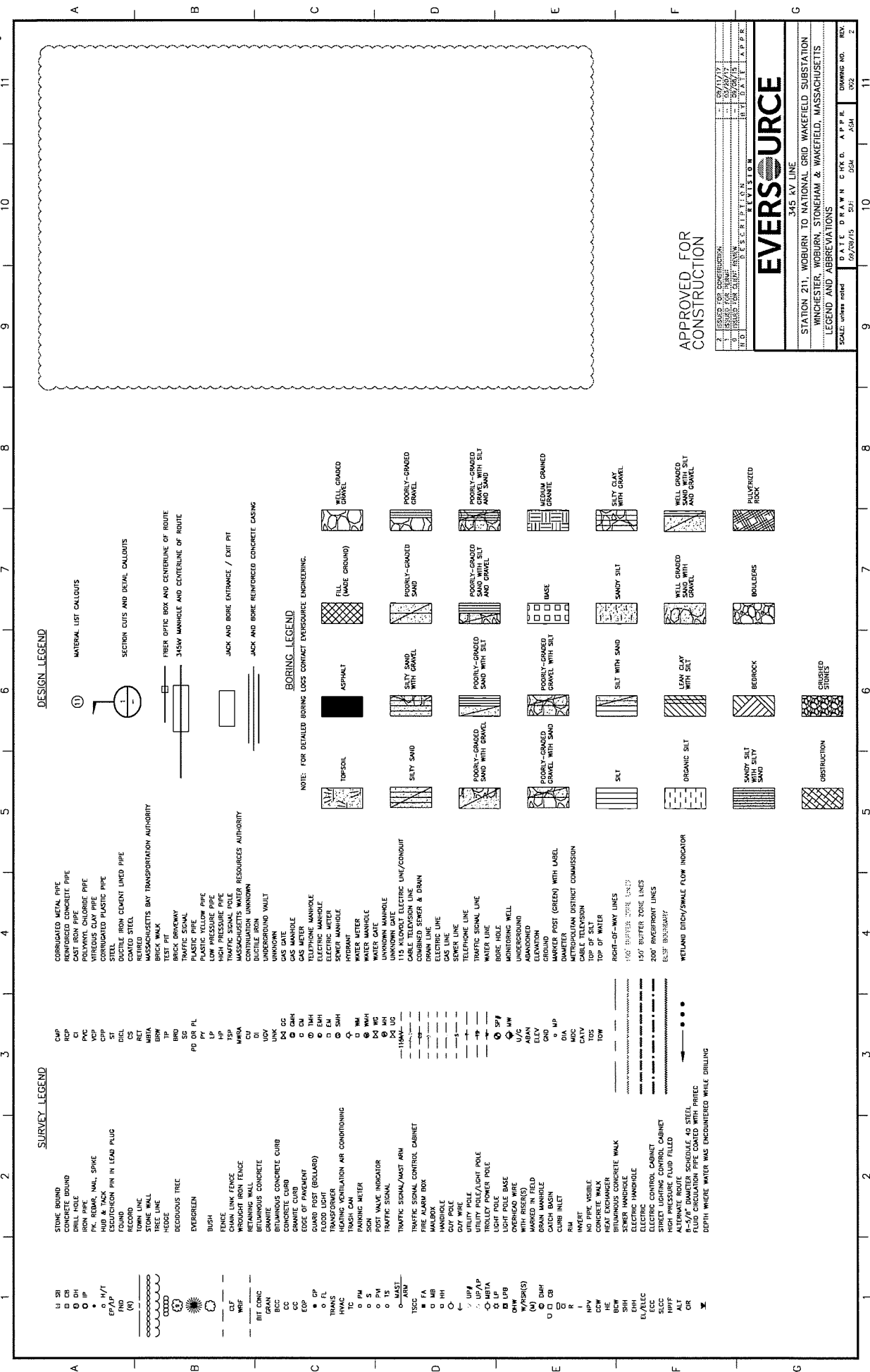
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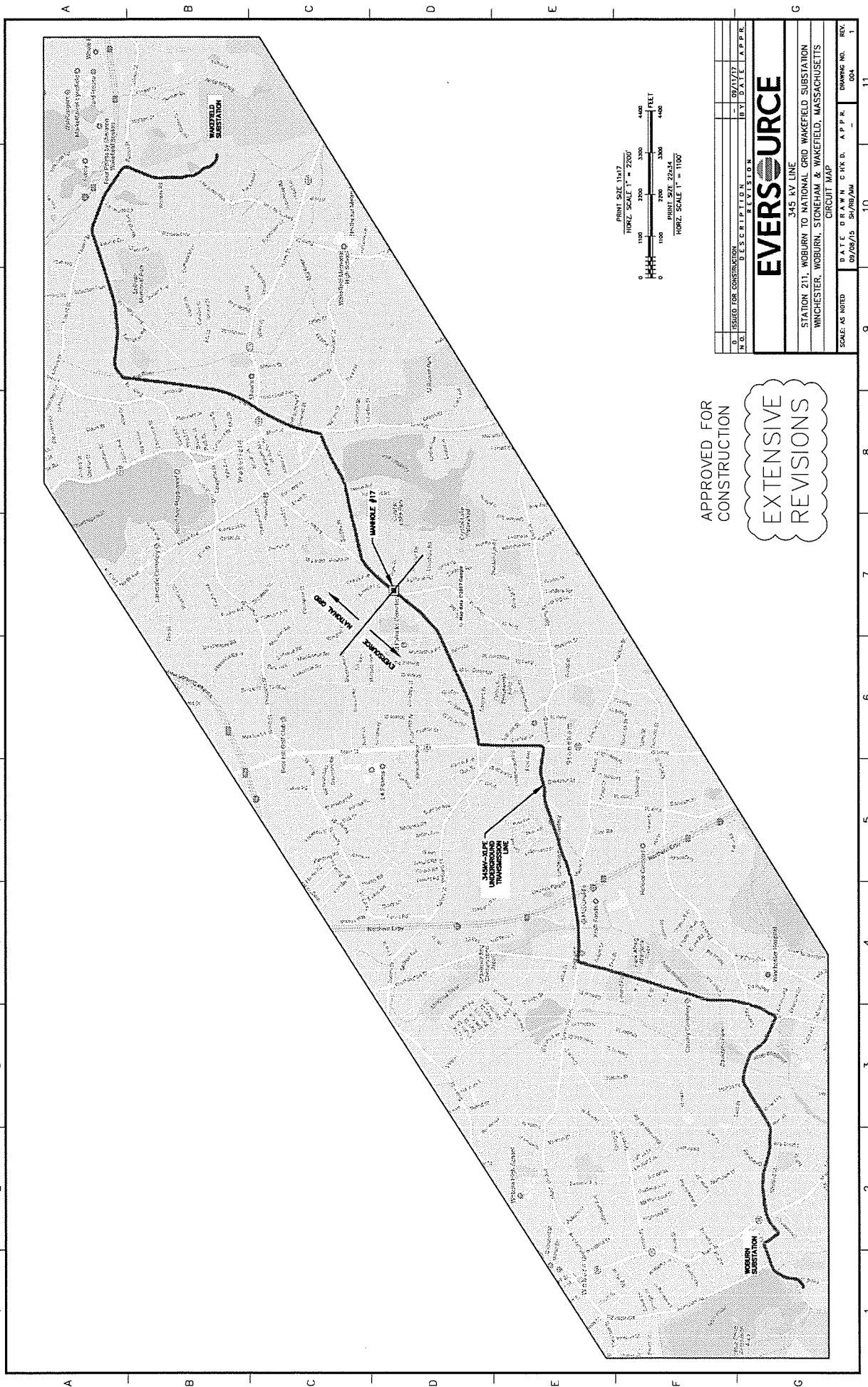
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APPROVED: ASD

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REV.: 5

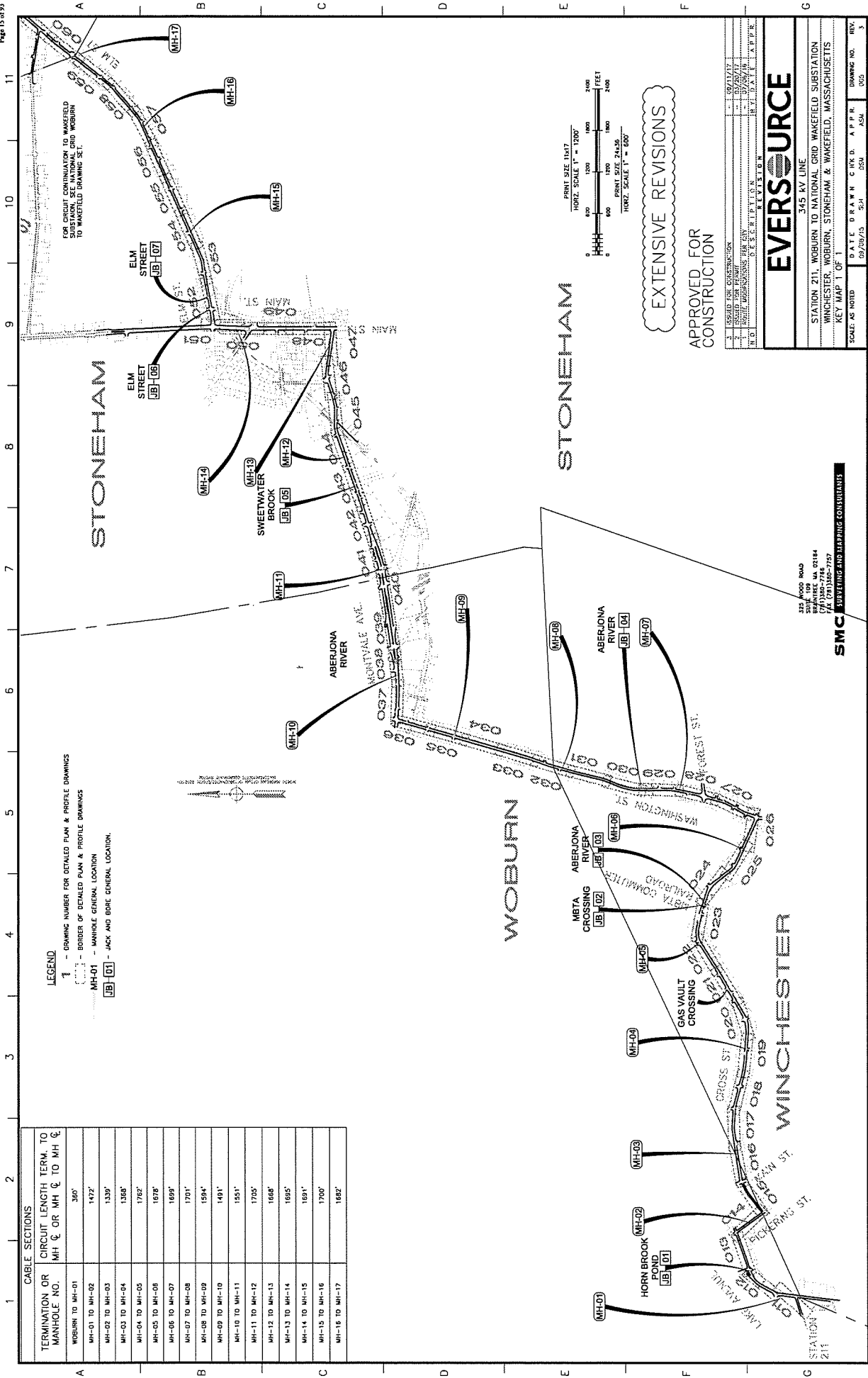




APPROVED FOR
CONSTRUCTION

EXTENSIVE
REVISIONS

ISSUED FOR CONSTRUCTION		REVISION	
N.O.	BY DATE	BY DATE	APPR.
0		09/11/19	APPR.
EVERSOURCE			
345 kV LINE			
STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION			
WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS			
CIRCUIT MAP			
SCALE AS NOTED	DATE 09/06/15	BY SH/MS/MA	APPR.
			DRAWING NO. 004
			REV. 1



CABLE SECTIONS	
TERMINATION OR MANHOLE NO.	CIRCUIT LENGTH TERM. TO MH OR MH TO MH
WOBURN TO MH-01	300'
MH-01 TO MH-02	1472'
MH-02 TO MH-03	1330'
MH-03 TO MH-04	1368'
MH-04 TO MH-05	1762'
MH-05 TO MH-06	1678'
MH-06 TO MH-07	1699'
MH-07 TO MH-08	1701'
MH-08 TO MH-09	1594'
MH-09 TO MH-10	1491'
MH-10 TO MH-11	1551'
MH-11 TO MH-12	1705'
MH-12 TO MH-13	1668'
MH-13 TO MH-14	1695'
MH-14 TO MH-15	1691'
MH-15 TO MH-16	1700'
MH-16 TO MH-17	1692'

LEGEND
 1 - DRAWING NUMBER FOR DETAILED PLAN & PROFILE DRAWINGS
 --- - BORDER OF DETAILED PLAN & PROFILE DRAWINGS
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 JB-01 - JACK AND BORE GENERAL LOCATION

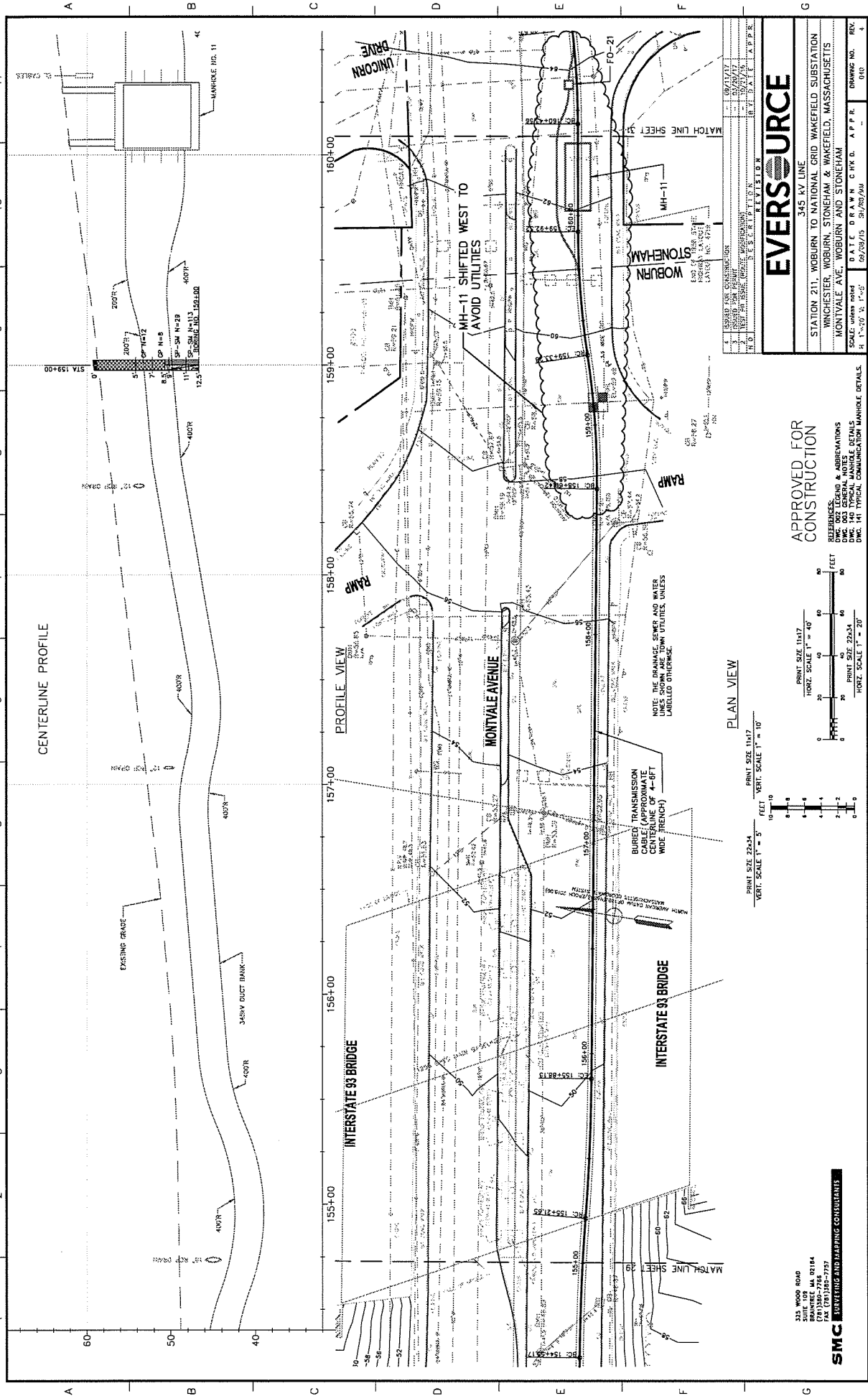
EXTENSIVE REVISIONS
 APPROVED FOR CONSTRUCTION

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EVERSOURCE
 345 KV LINE
 STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 KEY MAP 1 OF 1

SMC CONSULTING AND ENGINEERING
 332 WOOD ROAD
 SUITE 100
 WOBURN, MA 01801
 (781) 300-7757

DATE	DRAWN	CHECKED	APPROVED	REV.
07/05/18	SSA	SSA	SSA	3

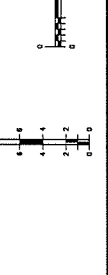
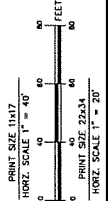


EVERSOURCE

REVISION	
NO.	DESCRIPTION
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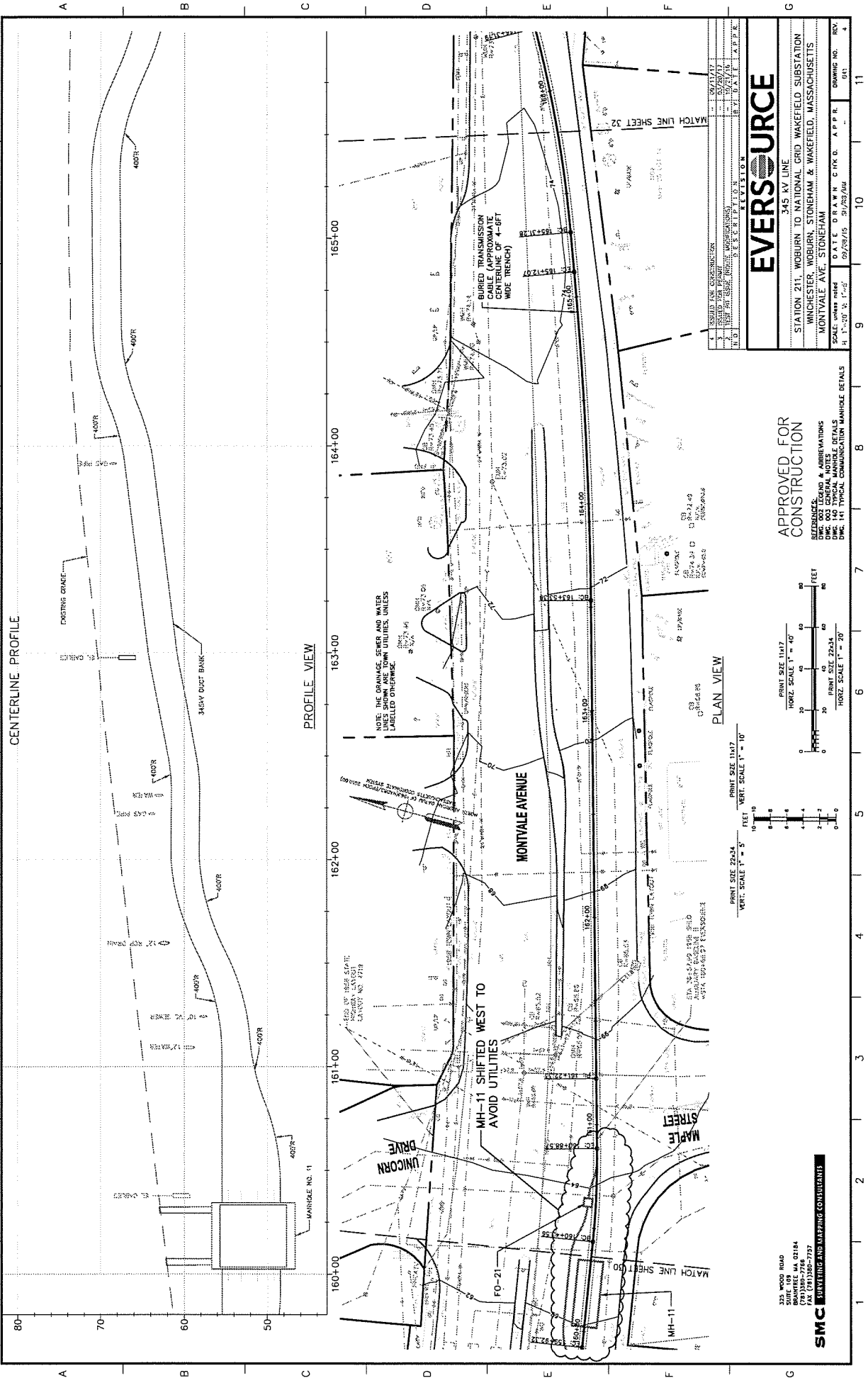
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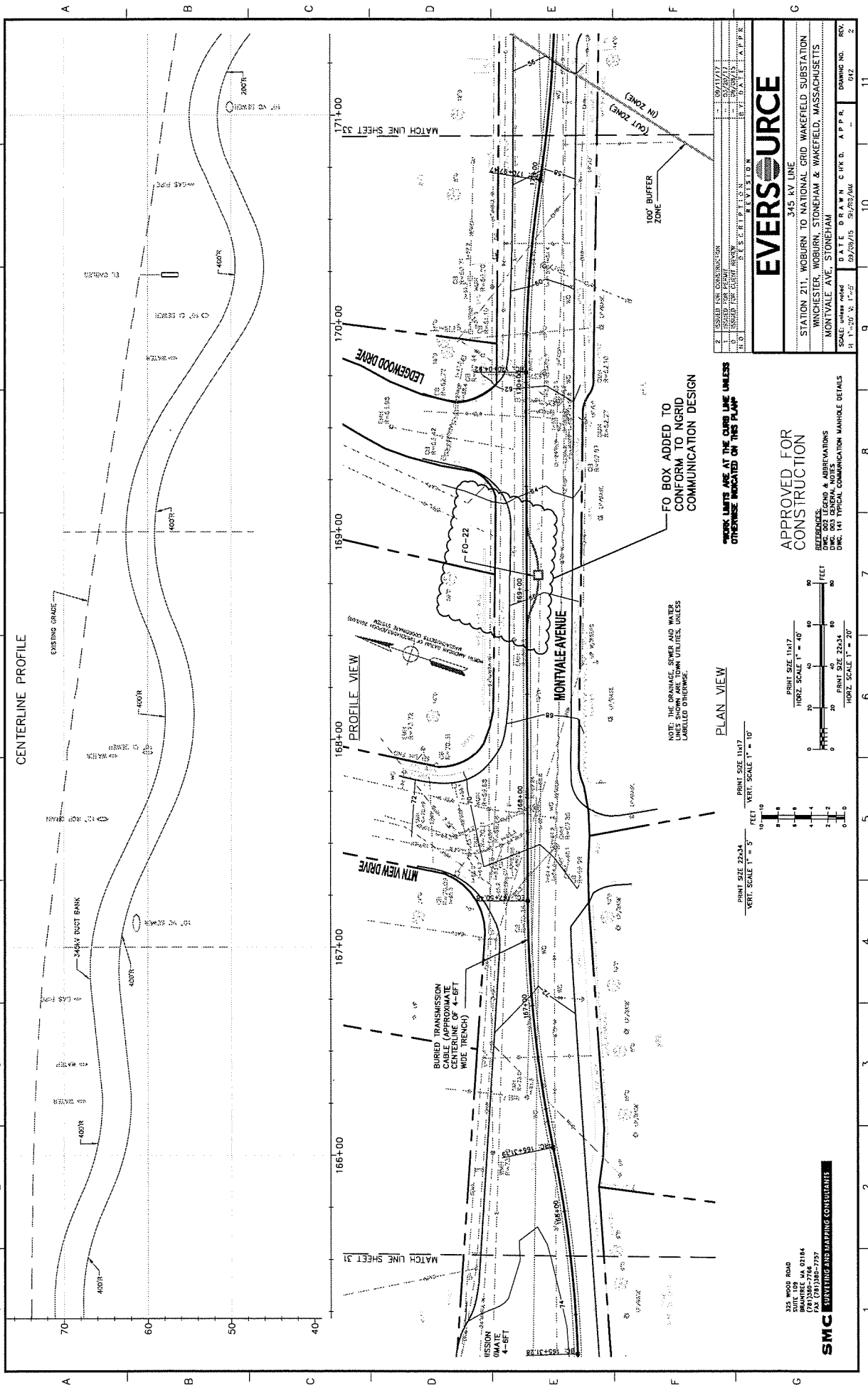
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 DMC 140 TYPICAL MANHOLE DETAILS
 DMC 141 TYPICAL COMMUNICATION MANHOLE DETAILS

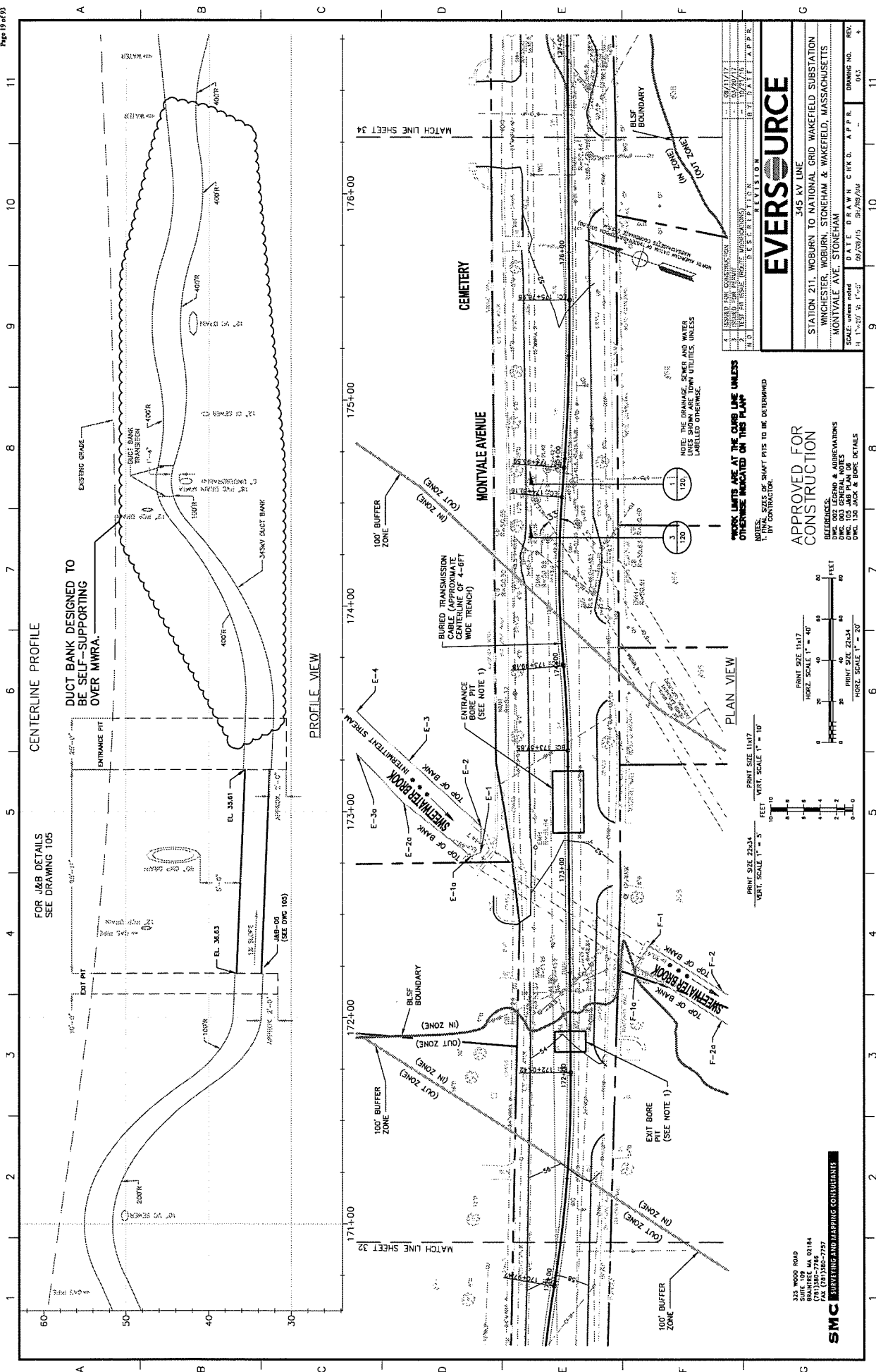


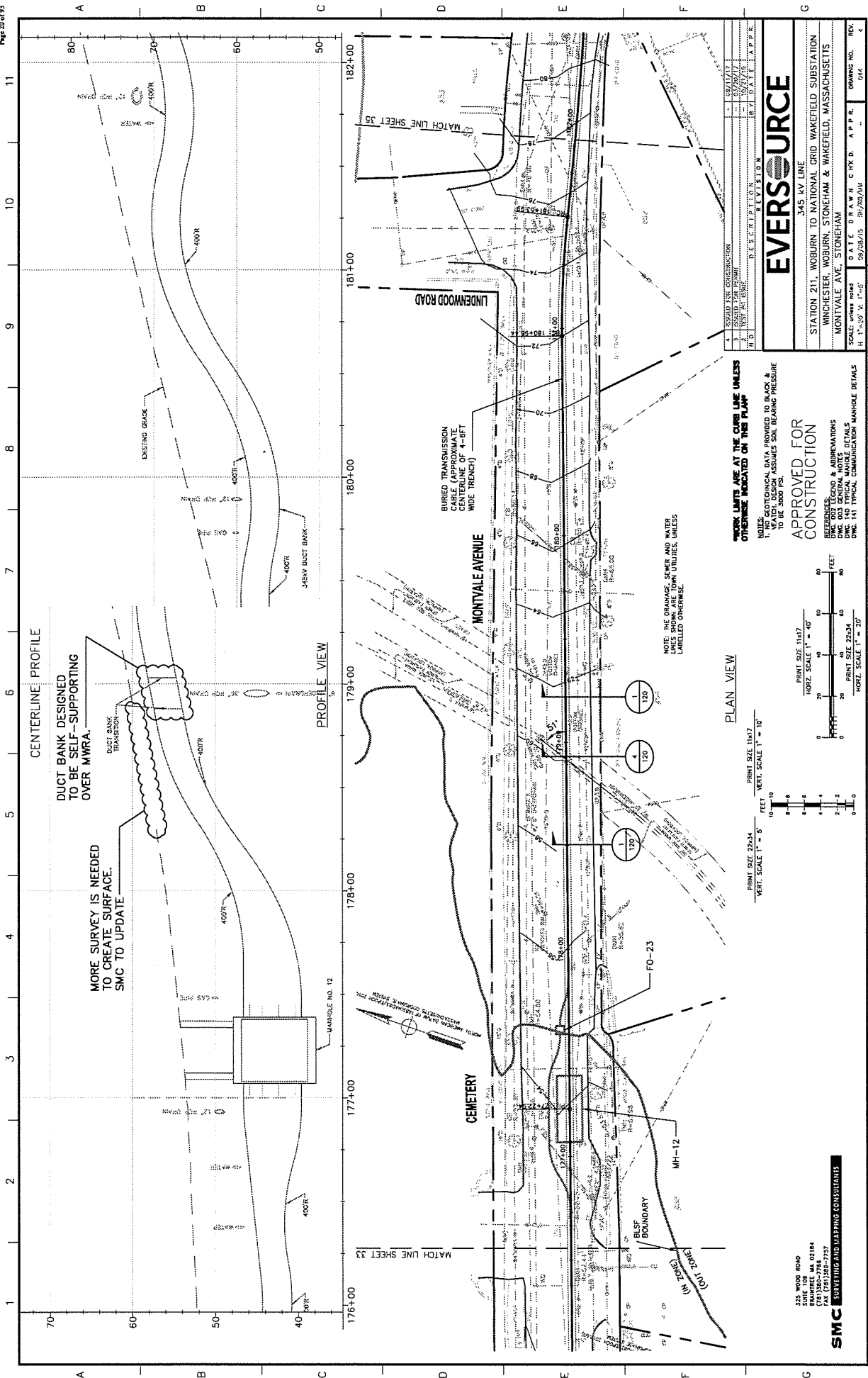
3215 WOOD ROAD
 SUITE 100
 WOBURN, MA 01801
 (781) 585-7784
 FAX (781) 585-7737
SMC SURVEYING AND DRAINAGE CONSULTANTS

STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 MONTVALE AVE, WOBURN AND STONEHAM
 SCALE: unless noted
 H 1"=20' V 1"=5'
 DATE: 09/29/15
 DRAWN: C.H.K.B.
 CHECKED: J.H.K.B.
 APPR.: J.H.K.B.
 DRAWING NO.: 010
 REL.: 4









REVISION	
1	ISSUED FOR CONSTRUCTION
2	REVISED FOR COMMENTS
3	REVISED FOR COMMENTS
4	REVISED FOR COMMENTS

REVISION	
1	ISSUED FOR CONSTRUCTION
2	REVISED FOR COMMENTS
3	REVISED FOR COMMENTS
4	REVISED FOR COMMENTS

EVERSOURCE

345 kV LINE
 STATION 211, WOBURN TO NATIONAL GRID, WAKEFIELD SUBSTATION
 WILMINGTON, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 MONTVALE AVE, STONEHAM

SCALE: UNLESS NOTED
 H: 1"=20' V: 1"=20'

DATE: 08/14/18
 BY: JRM
 CHECKED: JRM
 APPROVED: JRM

APPROVED FOR CONSTRUCTION

NOTES: SEE GEOTECHNICAL DATA PROVIDED TO BLACK & VEATCH. DESIGN ASSUMES SOIL BEARING CAPACITY TO BE 3000 PSF.

NOTE: SEE GEOTECHNICAL DATA PROVIDED TO BLACK & VEATCH. DESIGN ASSUMES SOIL BEARING CAPACITY TO BE 3000 PSF.

NOTE: SEE GEOTECHNICAL DATA PROVIDED TO BLACK & VEATCH. DESIGN ASSUMES SOIL BEARING CAPACITY TO BE 3000 PSF.

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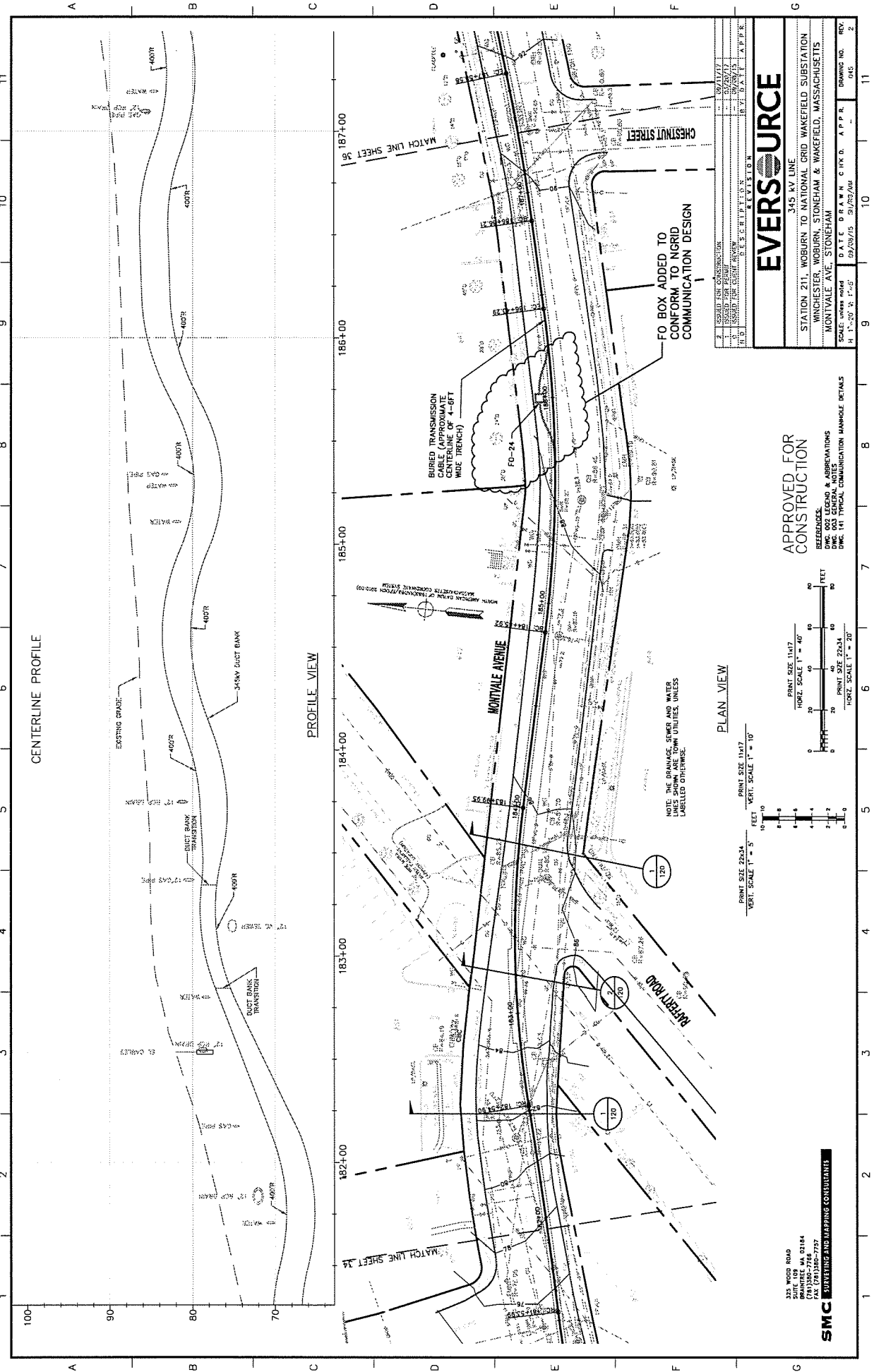
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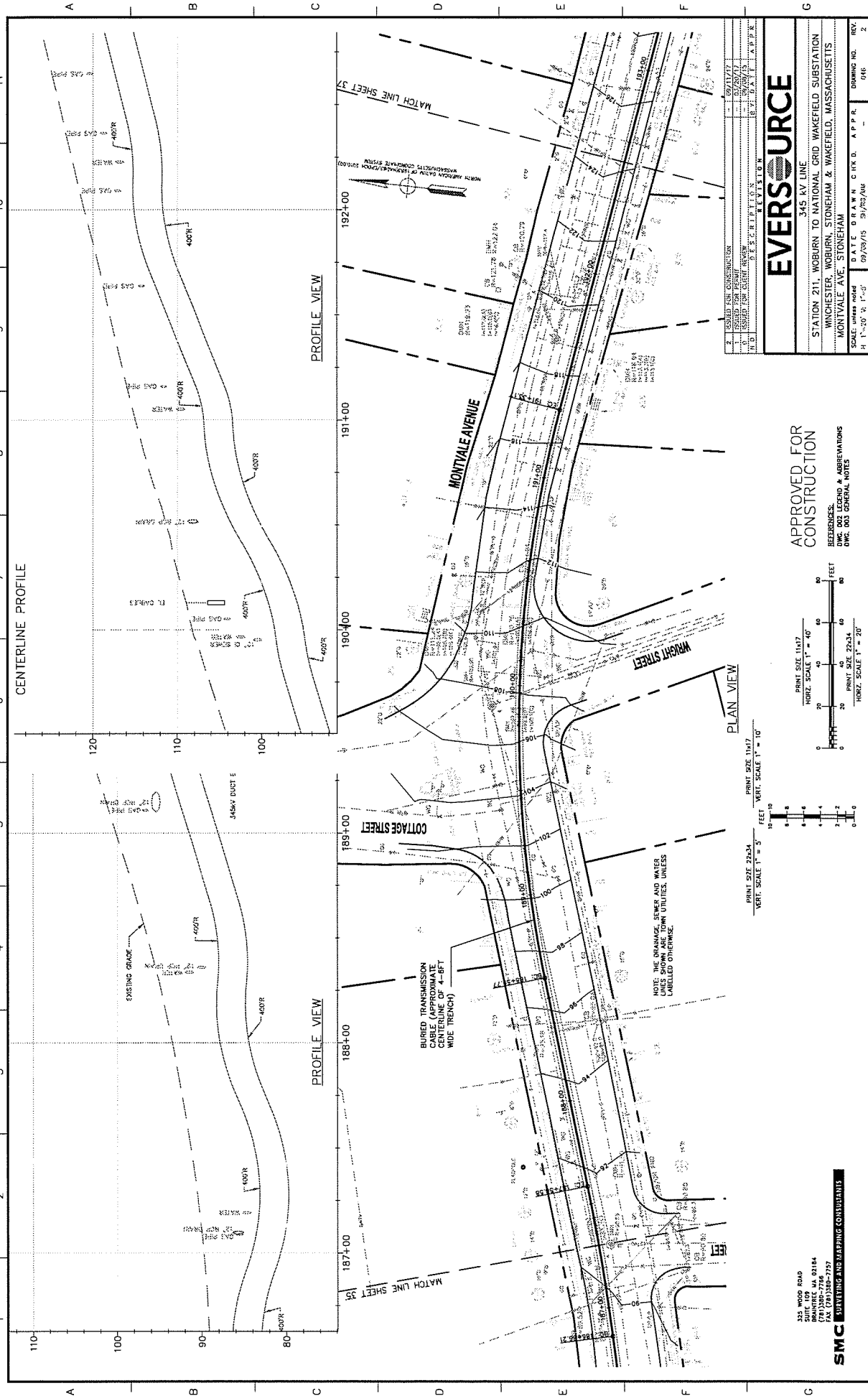
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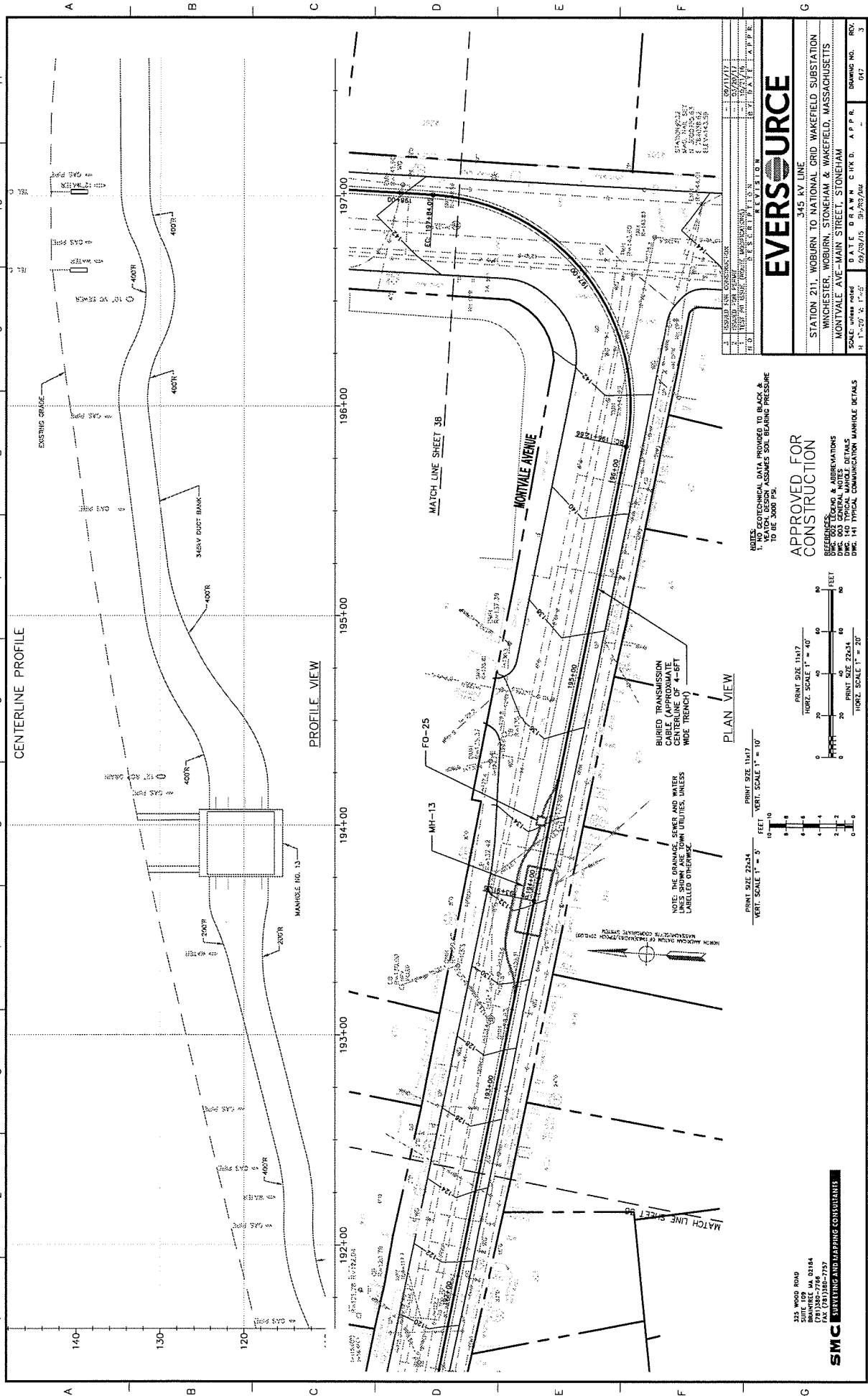
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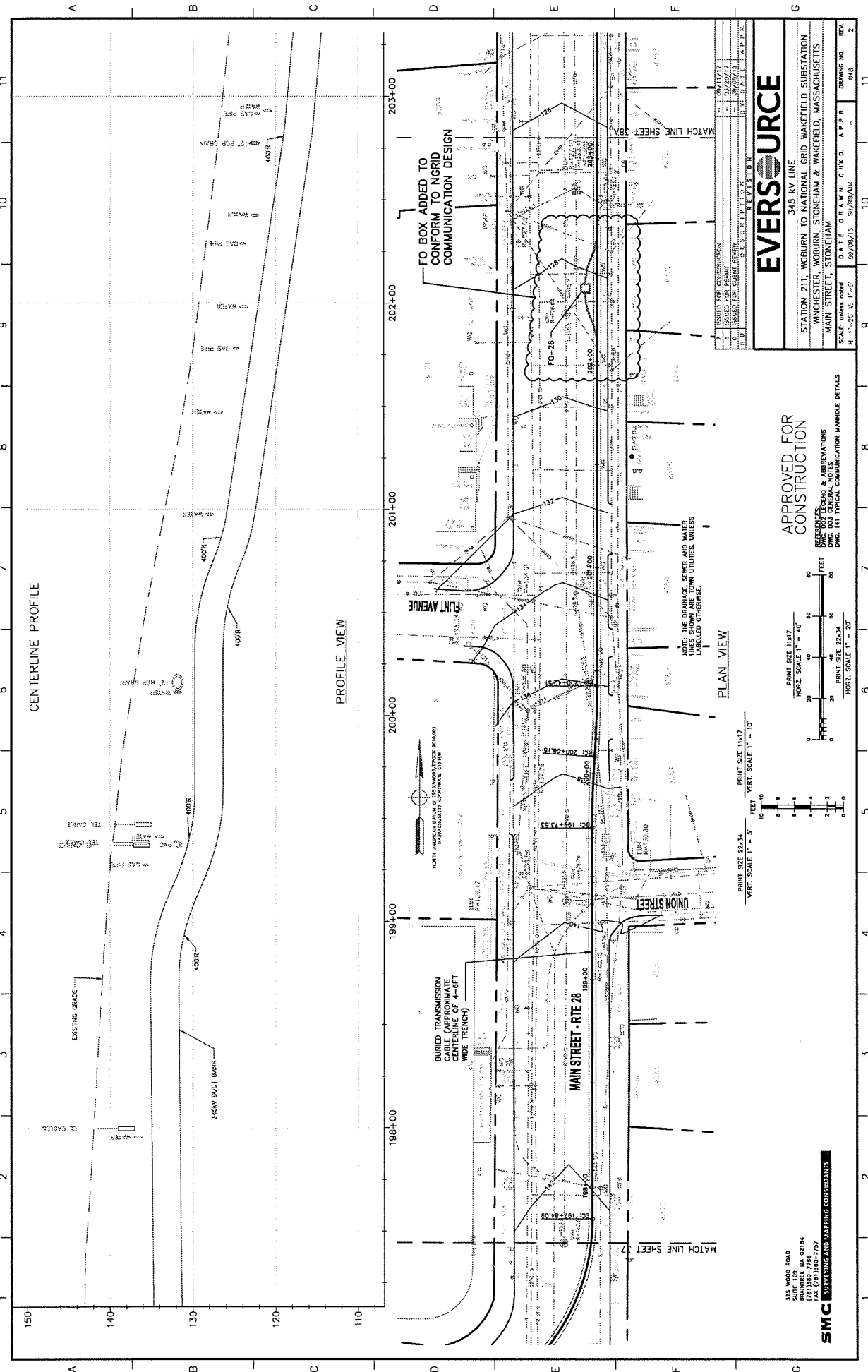
325 WOOD ROAD
 SUITE 100
 WOBURN, MA 01801
 (781) 380-7784
 FAX (781) 380-7785

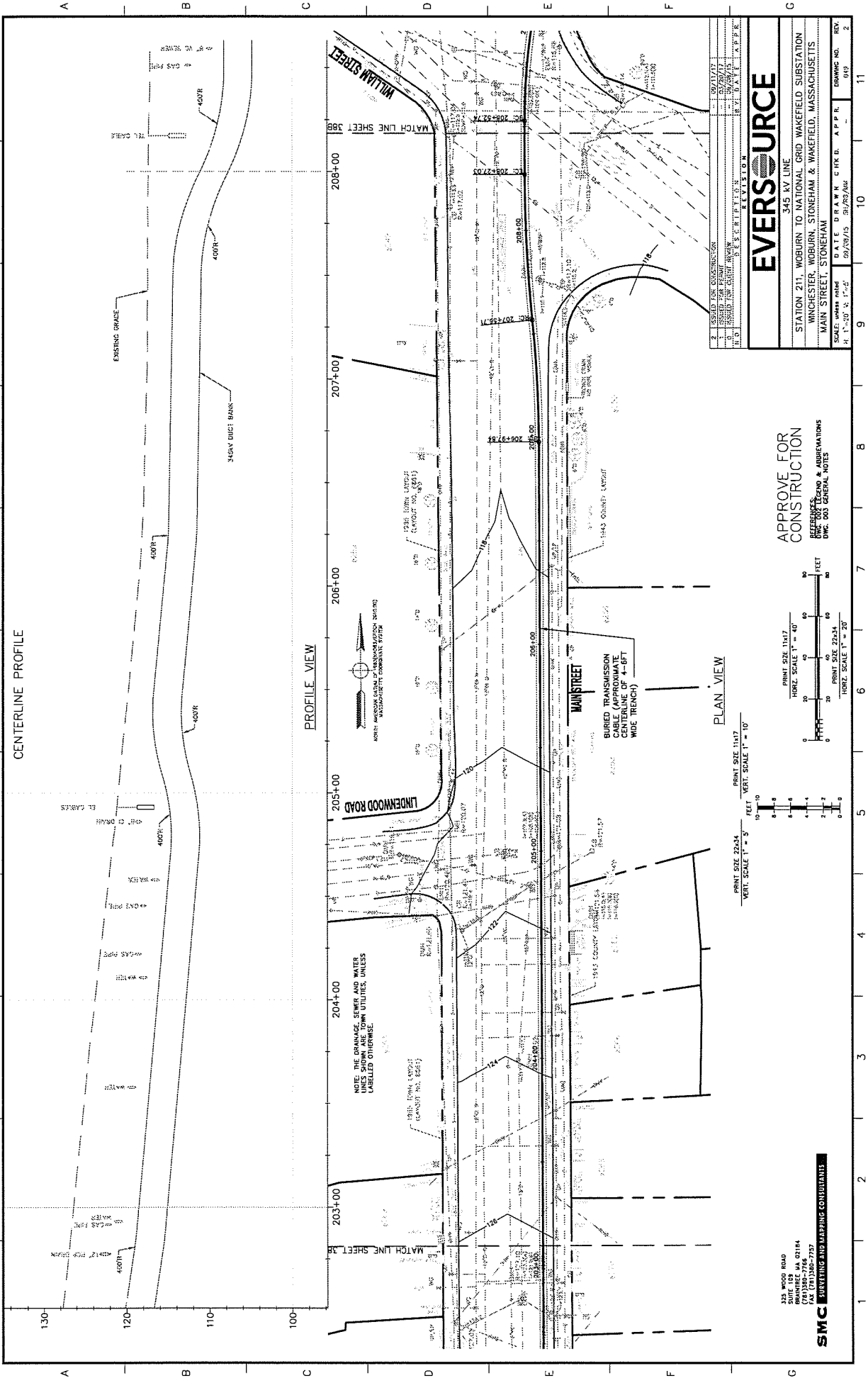
SMC FORTIFYING THE SHAPING COMMUNITIES

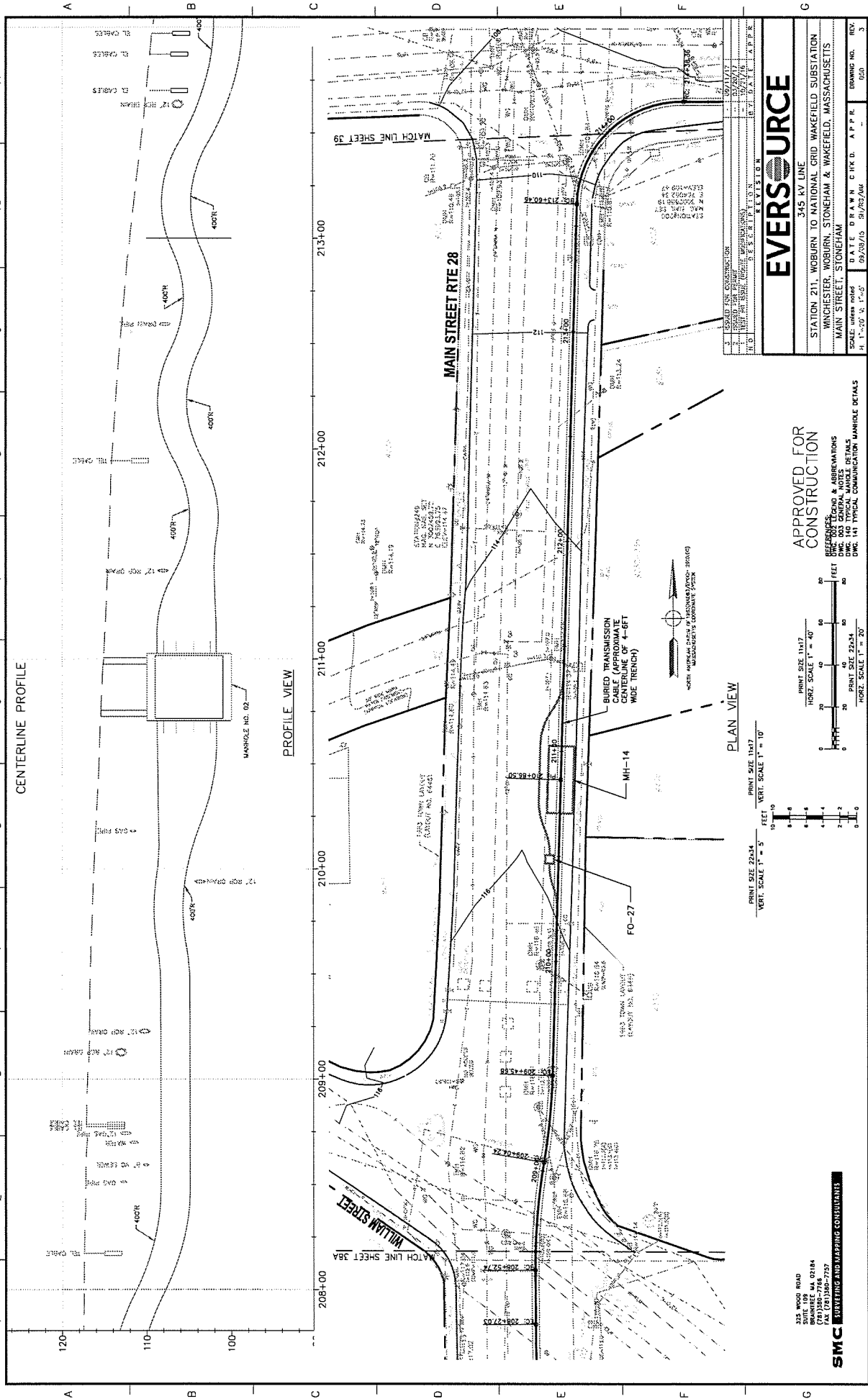


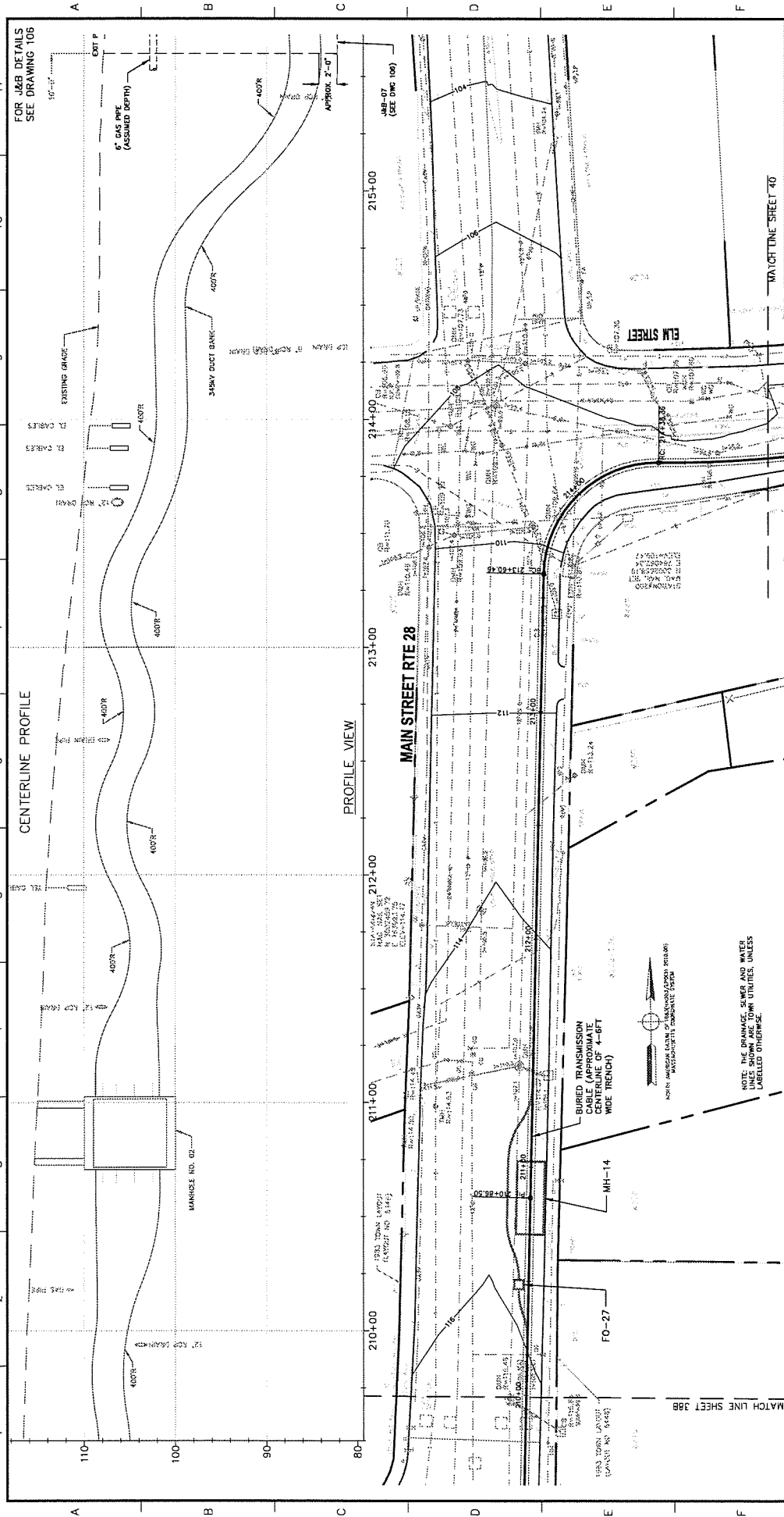












FOR U&B DETAILS SEE DRAWING 105

APPROVE FOR CONSTRUCTION

REVISION

NO.	DESCRIPTION	DATE	BY	APP.
1	ISSUED FOR CONSTRUCTION	06/17/17		
2	REVISED TO ADD 345 KV LINE	07/05/18		

**STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 MAIN STREET/ELM STREET, STONEHAM**

SCALE: UNLESS NOTED
 H 1"=20' V 1"=5'

DATE: 07/05/18
 DRAWN: C.H.K.D.
 CHECKED: S.P.A./J.M.
 REV. 3

EVERSOURCE

345 KV LINE

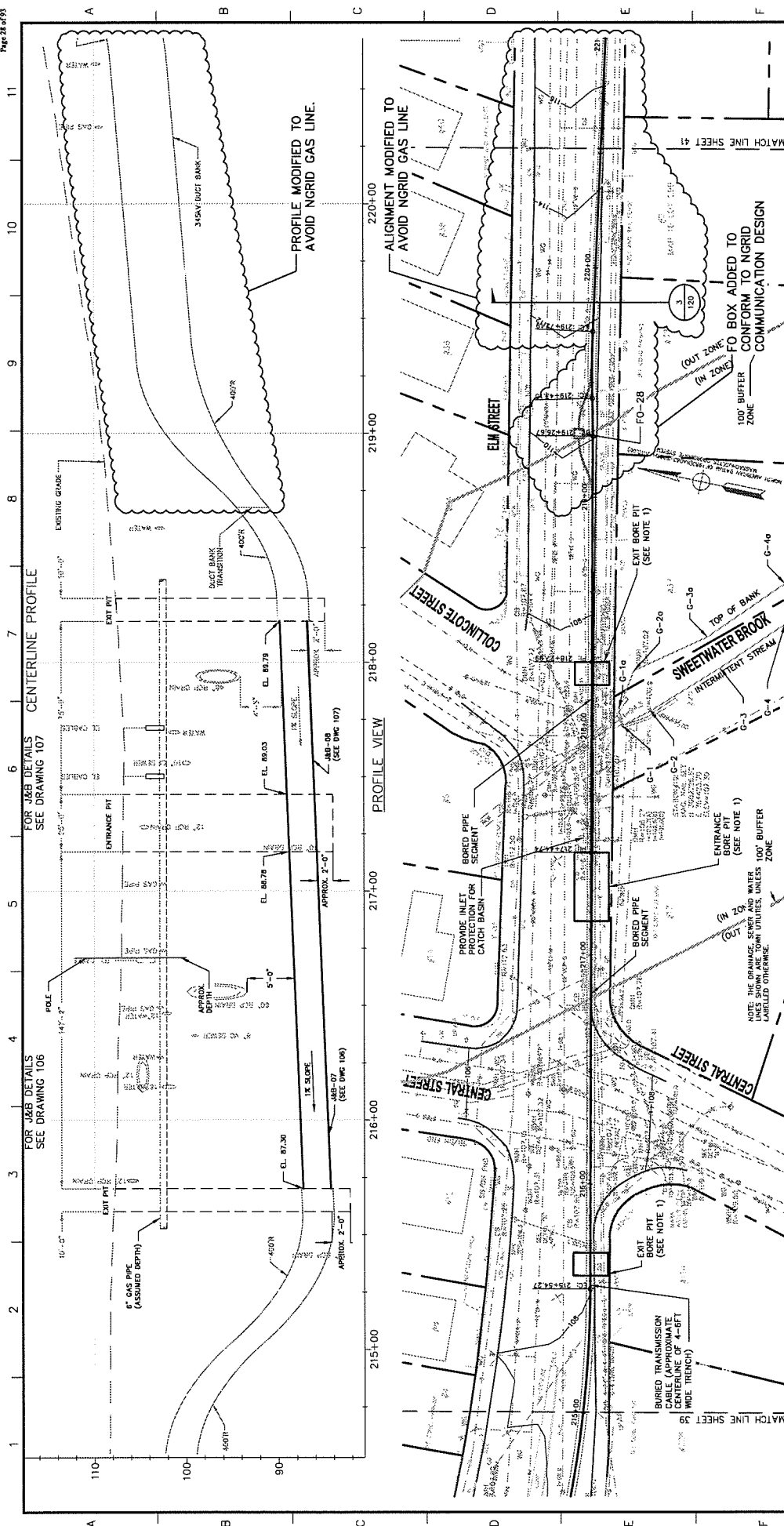
STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 MAIN STREET/ELM STREET, STONEHAM

SCALE: UNLESS NOTED
 H 1"=20' V 1"=5'

DATE: 07/05/18
 DRAWN: C.H.K.D.
 CHECKED: S.P.A./J.M.
 REV. 3

SMC ENGINEERING AND SURVEYING CONSULTANTS

325 WOOD ROAD
 FRAMINGHAM, MA 01884
 (781) 380-7766
 FAX (781) 380-7767



4	ESTAB FOR CONSTRUCTION	1	10/11/17	
5	ISSUED FOR PERMIT	2	05/20/17	
6	RECEIVED FOR RECORD	3	05/22/17	
7	NOT IN EXIST. RECORDS	4	05/22/17	APPR.
8	RECEIVED FOR RECORD	5	05/22/17	APPR.
REVISION				

EVERSOURCE

345 KY LINE

STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
ELM STREET, STONEHAM

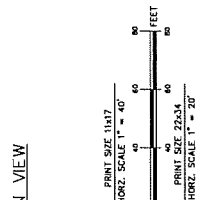
DATE	DRAWN	CHECK	APPROVE	REVISION
09/26/15	DAWN	DAWN	DAWN	002
SCALE: 1"=40' 1"=20'				

OTHERWISE INDICATED ON THIS PLAN

NOTES:
1. FINAL SIZES OF SHAFT PITS TO BE DETERMINED BY CONTRACTOR.

APPROVED FOR
CONSTRUCTION

REVISIONS:
1. 01/10/2000 * ADDENDUMS
2. 02/03/2000 * GENERAL NOTES
3. 03/03/2000 * GENERAL NOTES
4. 07/08/2000 * PLAN 07
5. 08/08/2000 * PLAN 07
6. 12/08/2000 * BORE DETAILS
7. 13/08/2000 * JACK
8. 14/08/2000 * JACK
9. 14/08/2000 * TYPICAL COMMUNICATION MANHOLE DETAILS



PRINT SIZE 22x34
VERT. SCALE 1" = 5'

10 10
8 8
6 6
4 4
2 2
0 0

FEET

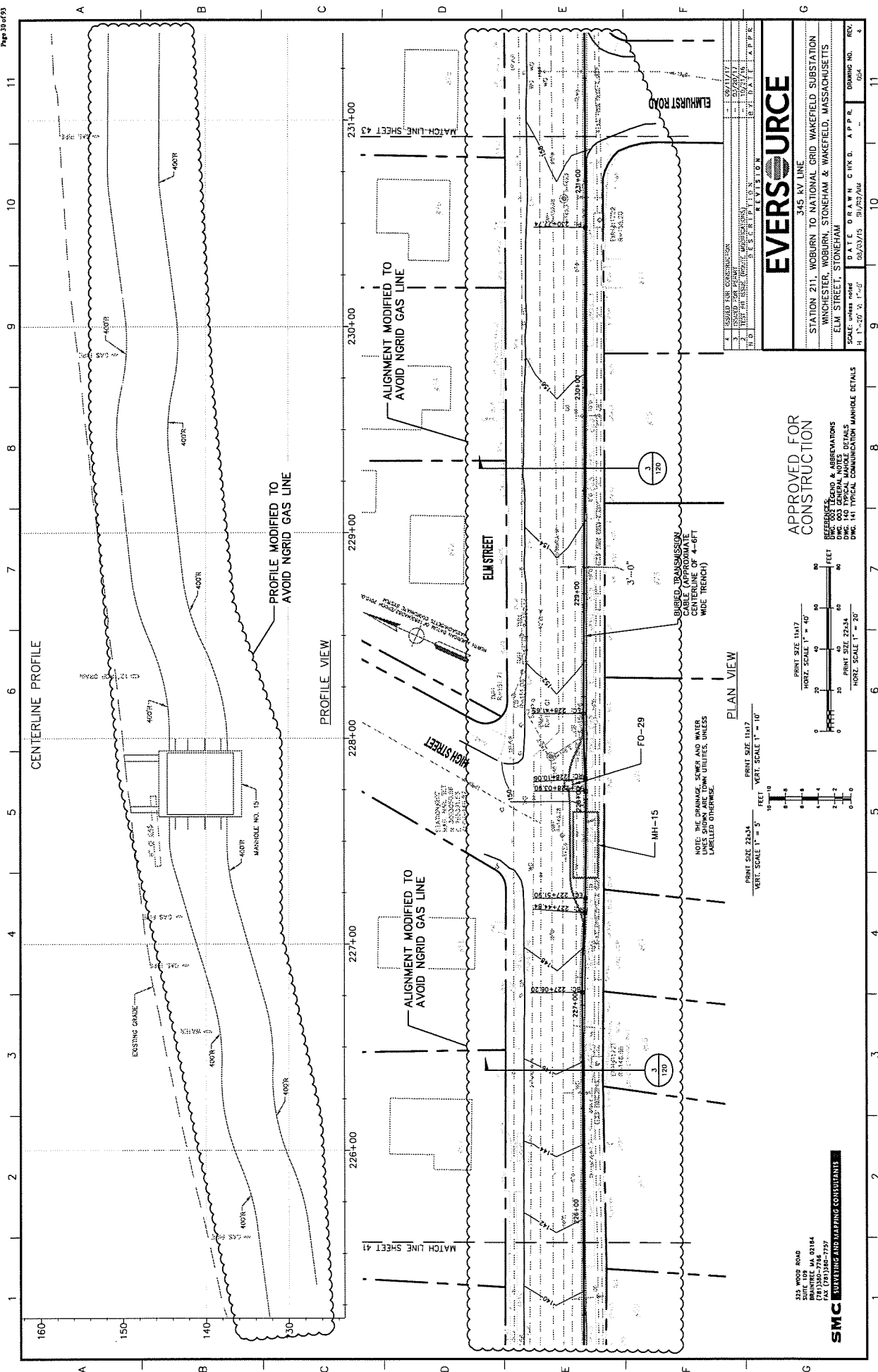
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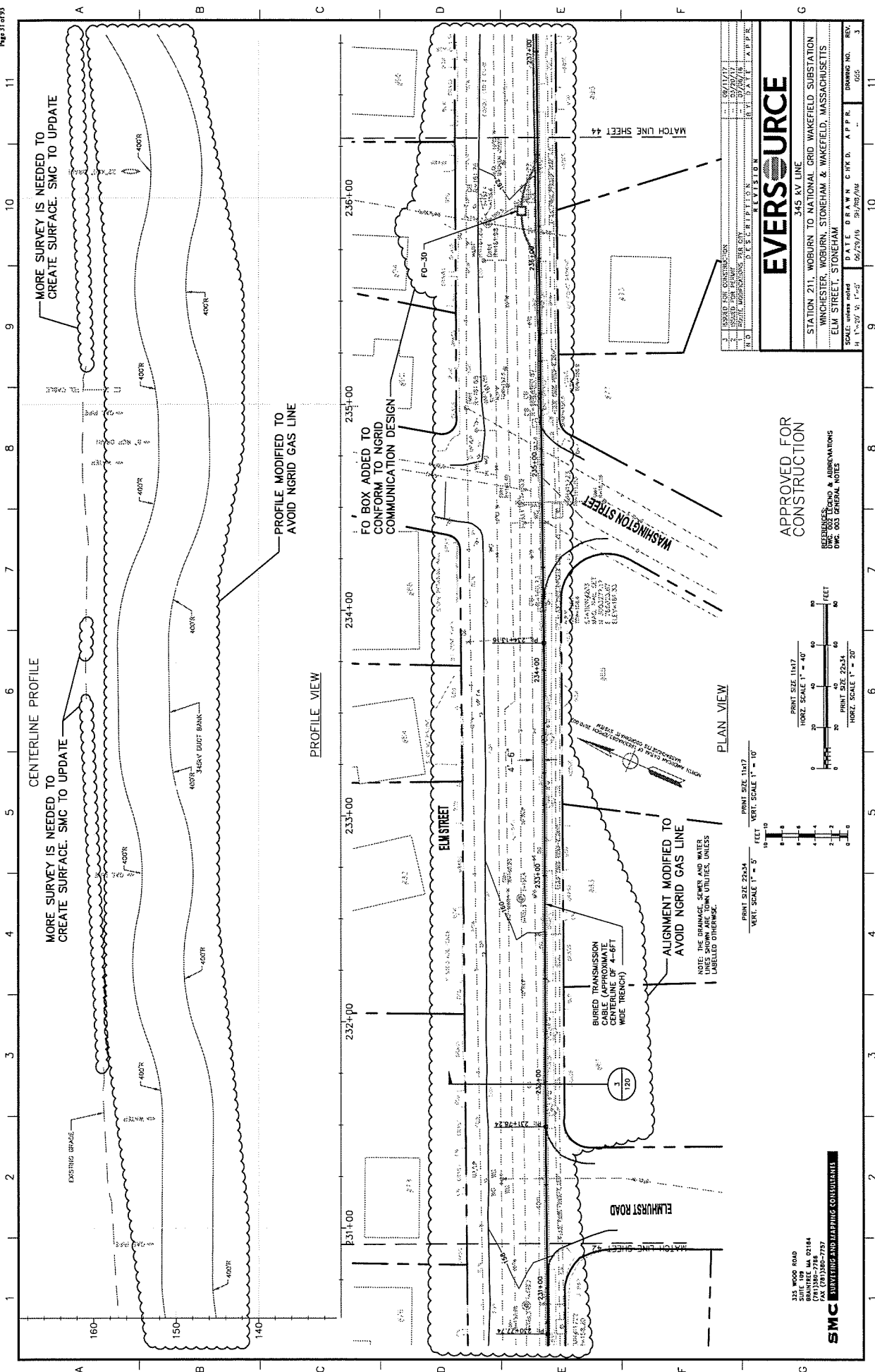
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6 6
4 4
2 2
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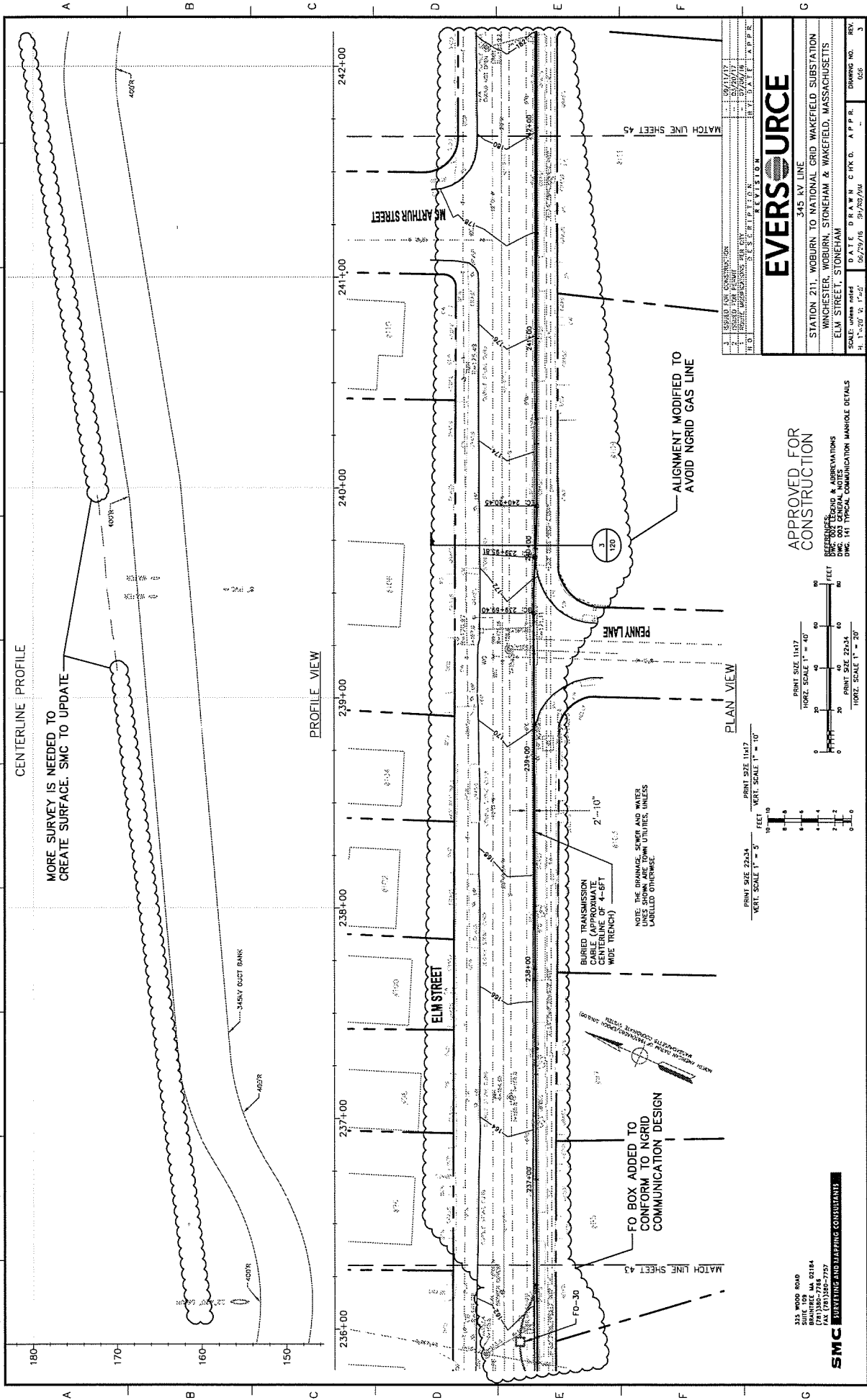
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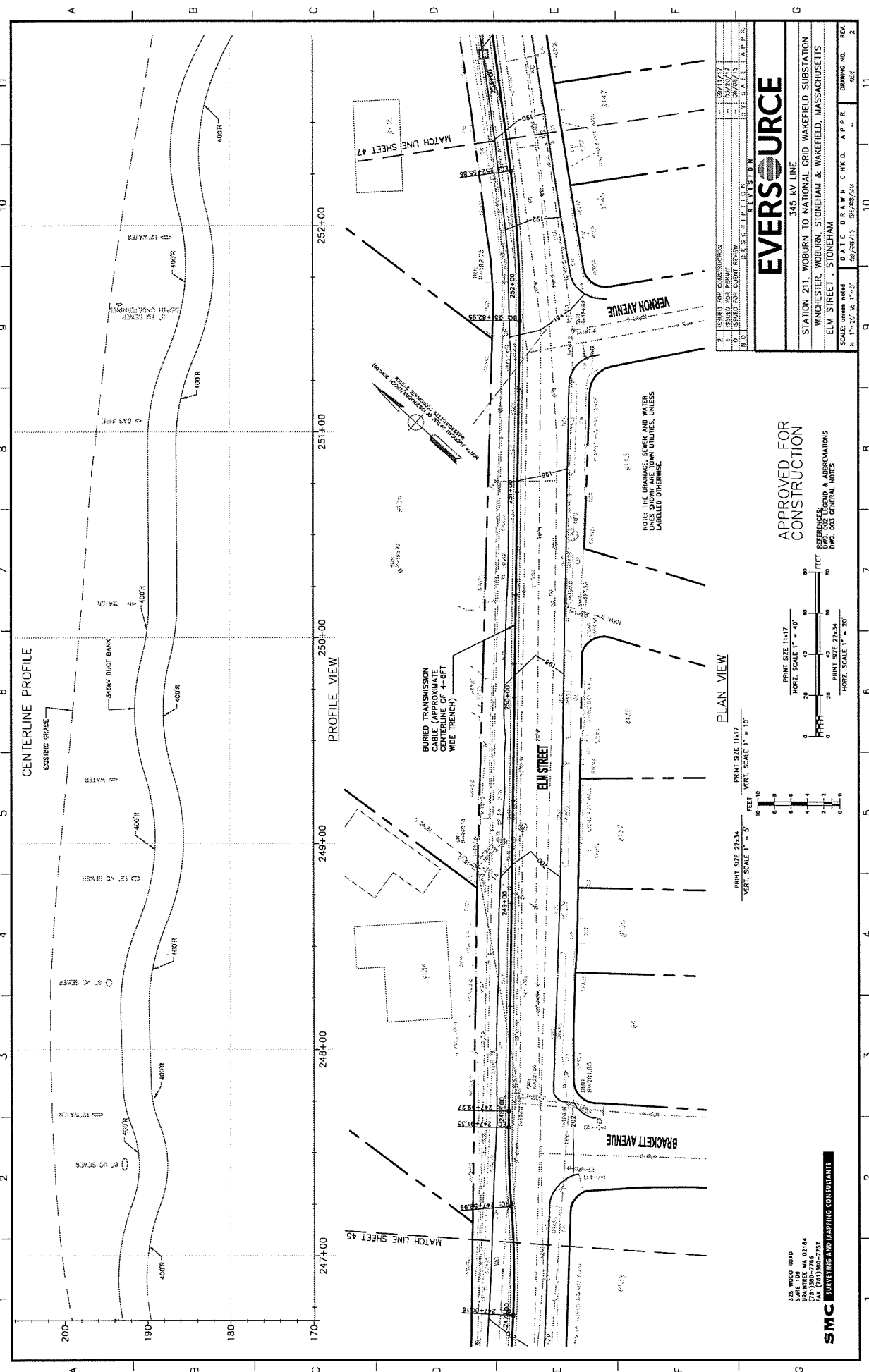
25 WOOD ROAD
SUITE 109
RAINTREE MA 02184
(781)380-7766
FAX (781)380-7757

SMC
SURVEYING AND MAPPING CONSULTANTS
FAX (761) 350-7757









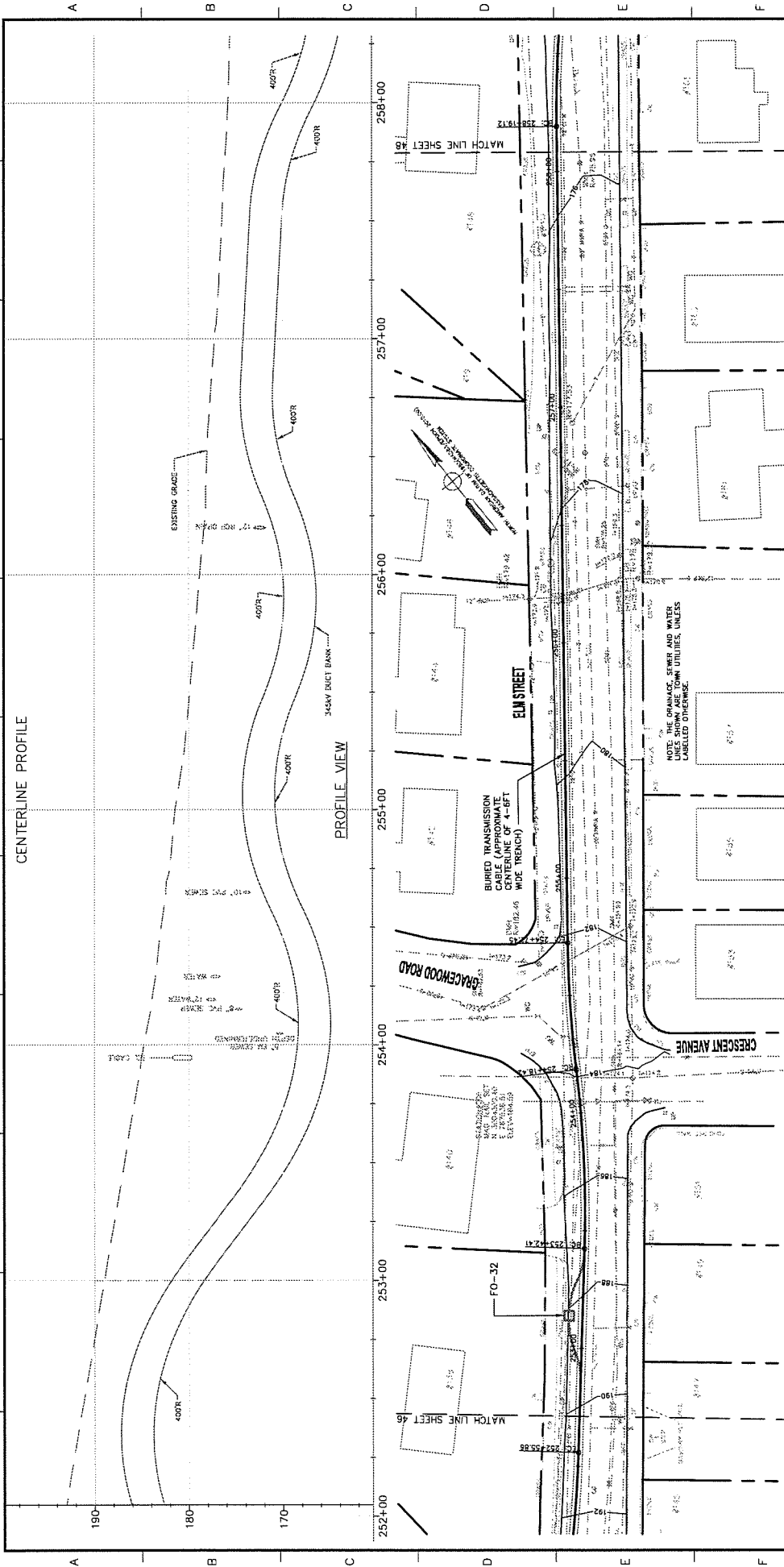
325 WOOD ROAD
SUITE 109
BRAINTREE MA 02184

SMC
SURVEYING AND MAPPING CONSULTANTS
FAX (781) 380-7757

EVERSOURCE
REVISION

345 kV LINE
STATION 211, WOUBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
WINCHESTER, WOUBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
ELM STREET - STONEHAM

SCALE: unless noted	DATE DRAWN	CHK'D	APPR.	DRAWING NO.	REV.
1" = 10' 0"	12/1/88	12/1/88	12/1/88	12/1/88	12/1/88



NO.	DESCRIPTION	DATE	APP.
1	SUBMITTAL FOR CONSTRUCTION	06/11/17	APP.
2	REVISION	07/05/18	APP.
3	REVISION	07/05/18	APP.

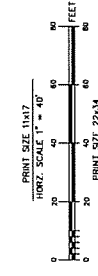
EVERSOURCE

STATION 211. WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WILCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 ELM STREET, STONEHAM

SCALE: UNLESS NOTED
 H 1"=20' V 1"=20'

APPROVED FOR
 CONSTRUCTION

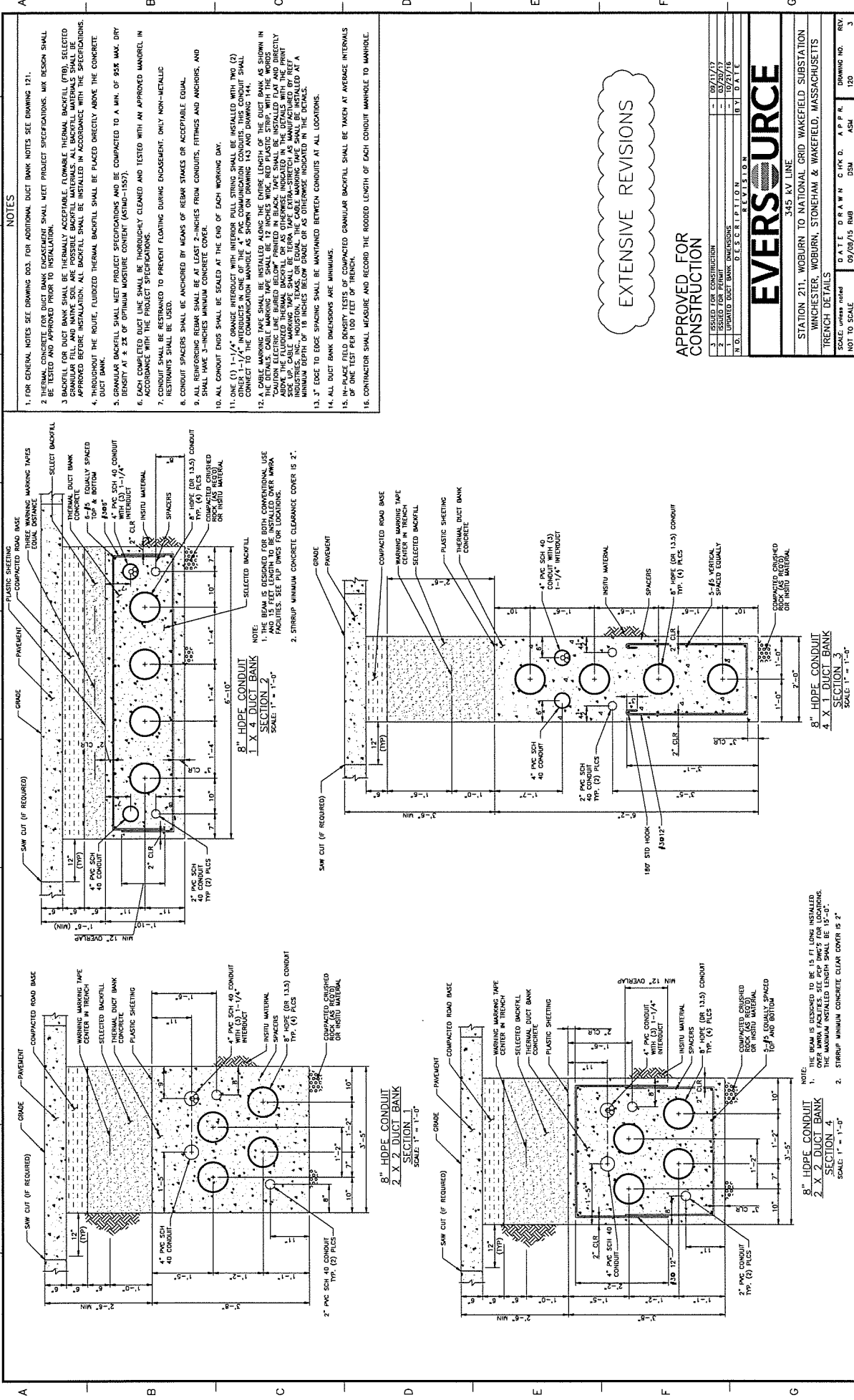
SEE DRAWING FOR TYPICAL COMMUNICATION MANHOLE DETAILS



325 WOOD ROAD
 SUITE 100
 WILCHESTER, MA 02154
 (781) 380-7786
 FAX (781) 380-7757

SMC SURVEYING AND MAPPING CONSULTANTS

DATE 07/05/18
 DRAWN C.H.K.D.
 CHECKED
 DESIGNED
 PROJECT MANAGER



NOTES

- FOR GENERAL NOTES SEE DRAWING 003. FOR ADDITIONAL DUCT BANK NOTES SEE DRAWING 121.
- THERMAL CONCRETE FOR DUCT BANK ENCASUREMENT SHALL MEET PROJECT SPECIFICATIONS. MIX DESIGN SHALL BE TESTED AND APPROVED PRIOR TO INSTALLATION.
- BACKFILL FOR DUCT BANK SHALL BE THERMALLY ACCEPTABLE, FLUORIDE THERMAL BACKFILL (FTB), SELECTED THERMAL BACKFILL (STB), OR THERMALLY ACCEPTABLE BACKFILL (TAB). BACKFILL SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS, APPROVED BEFORE INSTALLATION. ALL BACKFILL SHALL BE PLACED DIRECTLY ABOVE THE CONCRETE DUCT BANK.
- THROUGHOUT THE ROUTE, FLUORIDE THERMAL BACKFILL SHALL BE PLACED DIRECTLY ABOVE THE CONCRETE DUCT BANK.
- CONCRETE BACKFILL SHALL MEET PROJECT SPECIFICATIONS AND BE COMPACTED TO A MIN. OF 95% MAX. DRY DENSITY AT ± 2% OF OPTIMUM MOISTURE CONTENT (ASTM-1557).
- EACH COMPLETED DUCT LINE SHALL BE THOROUGHLY CLEANED AND TESTED WITH AN APPROVED MANHOLE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- CONDUIT SHALL BE RESTRAINED TO PREVENT FLOATING DURING ENCASEMENT. ONLY NON-METALLIC RESTRAINTS SHALL BE USED.
- CONDUIT SPACERS SHALL BE ANCHORED BY MEANS OF REBAR STAKES OR ACCEPTABLE EQUAL.
- ALL REINFORCING REBAR SHALL BE AT LEAST 2-INCHES FROM CONDUITS, FITTINGS AND ANCHORS, AND SHALL HAVE 3-INCHES MINIMUM CONCRETE COVER.
- ALL CONDUIT ENDS SHALL BE SEALED AT THE END OF EACH WORKING DAY.
- ONE (1) 1-1/4" GRADE INTERSECT AND INTERSECT PULL STRONG SHALL BE INSTALLED WITH TWO (2) OTHER 1-1/4" INTERSECTS IN ONE OF THE 4" PVC COMMUNICATION CONDUITS THIS CONDUIT SHALL CONNECT TO THE COMMUNICATION MANHOLE AS SHOWN ON DRAWING 143 AND DRAWING 144.
- A CABLE MARKING TAPE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE DUCT BANK AS SHOWN IN DRAWING 143 AND DRAWING 144. THE TAPE SHALL BE INSTALLED IN BLACK TAPE SHALL BE INSTALLED CLAY AND DIRECTLY ABOVE THE FLUORIDE THERMAL BACKFILL OR AS OTHERWISE INDICATED IN THE DETAILS WITH THE PRINT INDUSTRY, INC., HOUSTON, TEXAS OR EQUAL. THE CABLE MARKING TAPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 18 INCHES BELOW GRADE OR AS OTHERWISE INDICATED IN THE DETAILS.
- 3" EDGE TO EDGE SPACING SHALL BE MAINTAINED BETWEEN CONDUITS AT ALL LOCATIONS.
- ALL DUCT BANK DIMENSIONS ARE MINIMUM.
- IN-PLACE FIELD DENSITY TESTS OF COMPACTED GRANULAR BACKFILL SHALL BE TAKEN AT AVERAGE INTERVALS OF ONE TEST PER 100 FEET OF TRENCH.
- CONTRACTOR SHALL MEASURE AND RECORD THE RODED LENGTH OF EACH CONDUIT MANHOLE TO MANHOLE.

EXTENSIVE REVISIONS

APPROVED FOR CONSTRUCTION

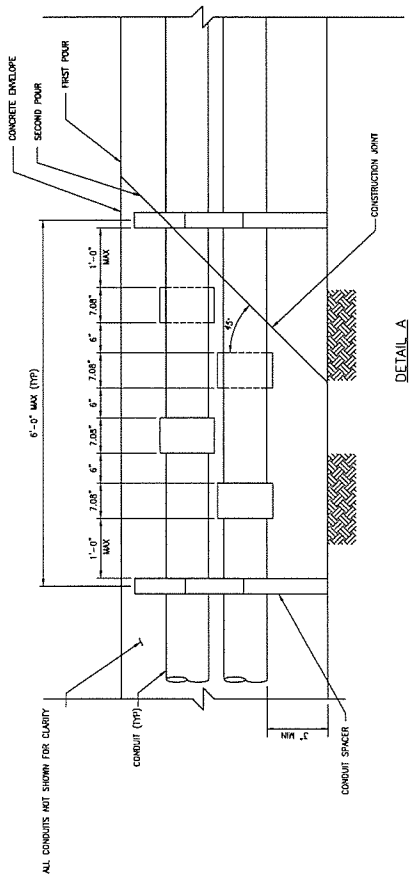
NO.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	08/17/17
2	ISSUED FOR PERMIT	03/20/17
3	UPDATED DUCT BANK DIMENSIONS	07/27/18
4	BY DATE	

EVERSOURCE

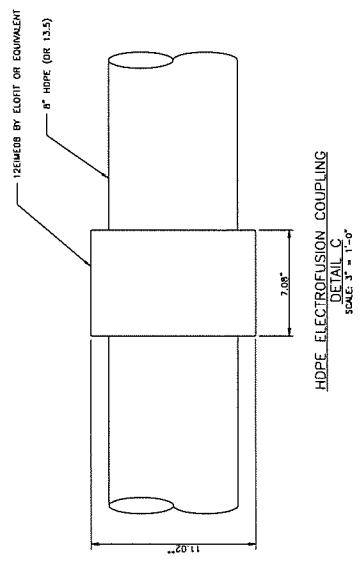
345 kV LINE
 STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
 WINCHESTER, WOBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS
 TRENCH DETAILS

DATE	DRAWN	CHECKED	APP'D	DRAWING NO.	REV.
08/20/18	DSM	DSM	DSM	123	3
NOT TO SCALE					

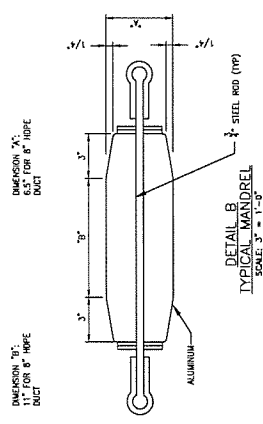
- NOTES
1. FOR GENERAL NOTES, SEE DWG 000. FOR DUCT BANK NOTES SEE DWG 120.
 2. THE DUCT BANK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF AGENCY HAVING JURISDICTION.
 3. 4" AND 2" CONDUITS SHALL BE UTILITY GRADE SCH40 PVC WITH INTEGRATED LONG BELL COUPLERS. WHEN BELL IS NOT AVAILABLE AT THE JOINT, LONG STRAIGHT-LINE COUPLERS SHALL BE USED.
 4. SPACERS SHALL BE INSTALLED AT MAXIMUM DISTANCE OF 6 FEET APART AND PER MANUFACTURER'S RECOMMENDATIONS.
 5. DUE TO THE DEPTH OF THE TRENCH (GREATER THAN 5 FEET AND VARYING SOIL CONDITIONS, CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING THE ENTIRE LENGTH OF TRENCH. SHORING SHALL COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS.



DETAIL A
TYPICAL COUPLING DETAIL FOR DUCT BANK
SCALE: 1/2" = 1'-0"



HDPE ELECTROFUSION COUPLING
DETAIL C
SCALE: 3" = 1'-0"



DETAIL B
TYPICAL MANHOLE
SCALE: 3" = 1'-0"

EXTENSIVE REVISIONS

APPROVED FOR
CONSTRUCTION

NO.	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
1	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
2	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
3	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
4	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
5	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
6	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
7	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
8	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
9	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
10	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE
11	ISSUED FOR CONSTRUCTION	DESCRIPTION	BY	DATE

EVERSOURCE

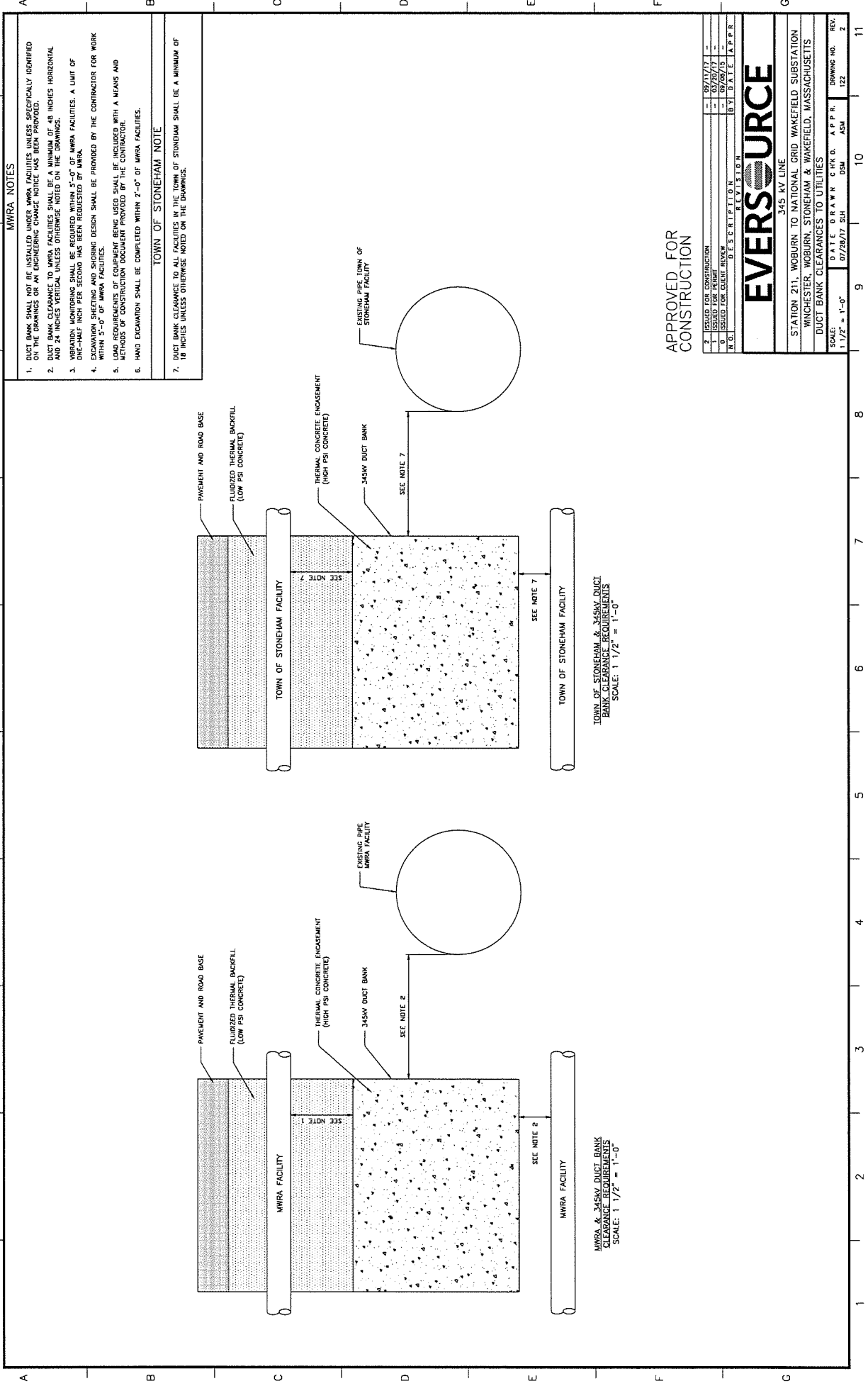
345 KV LINE

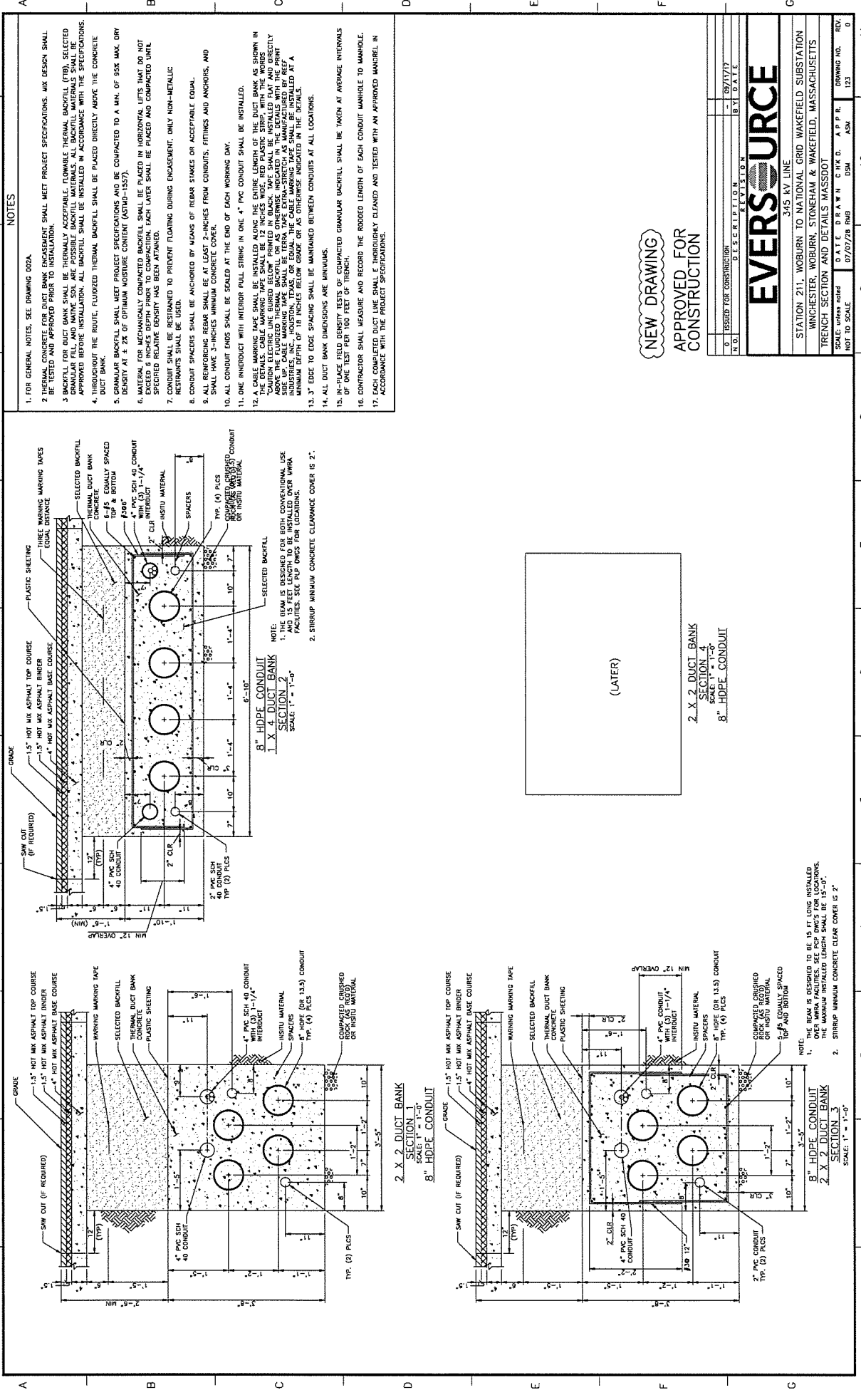
STATION 211, WOBBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
WINCHESTER, WOBBURN, STONEHAM & WAKEFIELD, MASSACHUSETTS

DUCT COUPLING AND MANHOLE DETAILS

DATE: 07/05/18
DRAWN: C.H.R. D.
CHECKED: A.P.R.
DESIGNED: J.S.H.

DRAWING NO. 121
REV. 0





PIPE CROSSING DATA SHEET

ITEMS	CARRIER PIPE	CASING PIPE
CONTENTS TO BE HANDLED	8", 4" & 2" PVC	REINFORCED CONCRETE PIPE
NORMAL OPERATING PRESSURE	NONE	"NONE"
NORMAL SIZE OF PIPE	8", 4" AND 2"	36"
OUTSIDE DIAMETER	8.625", 4.5" AND 2.375"	45 1/2"
INSIDE DIAMETER	7.625", 4.026" AND 2.087"	36"
WALL THICKNESS	.500", .237" AND .154"	4"
WEIGHT PER FOOT MATERIAL	8.05, 2.00E AND .682 LBS/FT	63.3 LBS/FT
PROCESS OF MANUFACTURE	EXTRUDED	PRESS-CAST
GRADE OR CLASS	SCH 80 FOR 8" SCH 40 FOR 4" & 2"	CLASS V, WALL C
TEST PRESSURE	COUPLING FOR PVC NONE	NONE
TYPE OF JOINT	COUPLING FOR PVC NONE	MORTAR JOINT EXTERNALLY - WAMPED
TYPE OF COATING	NONE	"LATER"
DETAILS OF CATHODIC PROTECTION	NONE	"LATER"
DETAILS OF SEAL OR PROTECTION AT CROSSING LOCATION	"LATER"	"LATER"
CHARACTER OF SUBSURFACE MATERIAL AT THE CROSSING LOCATION	"LATER"	GEOTECH BORING
APPROXIMATE GROUND WATER LEVEL	3FT - 13FT	AS NOTED
SOURCE OF INFORMATION ON SUBSURFACE CONDITIONS (TEST PITS, BORINGS OR OTHER)	"LATER"	GEOTECH BORING

DETAIL A
8" PVC TO 8" HOLE CONNECTION
SCALE: 1" = 1'-0"

DETAIL B

EDGE OF CASING

8" SCH 80 PVC

SOLID PVC ROD TO BE WELDED

7.625"

5"

7.35"

6.375"

6" MIN

6" MIN

30"

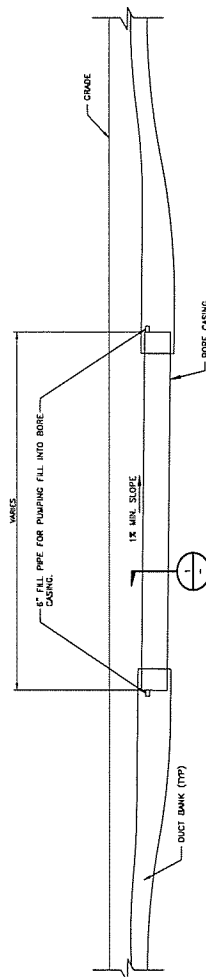
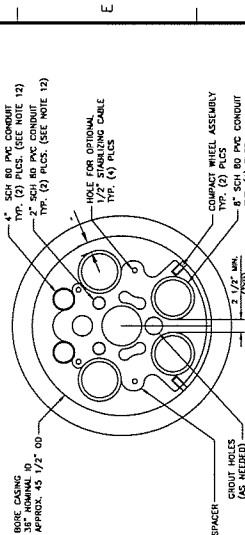
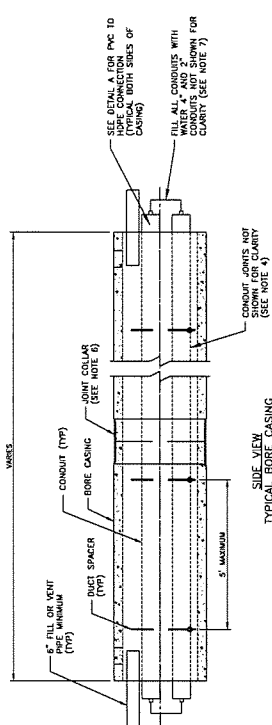
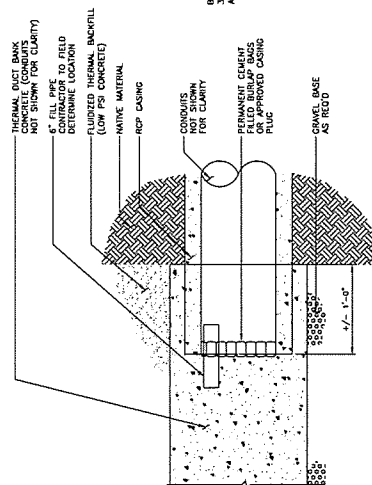
18" MIN

24"

8" ØR 13.5 HOPE

1" RADIUS

- [illegible]



N.O.	DESCRIPTION	BY	DATE	APPR.
2	ISSUED FOR CONSTRUCTION	-	09/11/17	
1	ISSUED FOR PERMIT	-	03/20/17	
0	ISSUED FOR CLIENT REVIEW		09/08/15	

REVISION

EVERSOURCE

STATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
WINCHESTER WOBURN STONEHAM & WAKEFIELD MASSACHUSETTS

JACK & BORE DETAILS							
SCALE:	unless noted	DATE	DRAWN	C H'K D.	A P R.	DRAWING NO.	R.F.
		09/08/15	SUH	-		130	2

APPROVED FOR
CONSTRUCTION

TYPICAL JACK AND BORE INSTALLATION

NOTES

1. THE CABLE VENDOR SHALL PROVIDE DETAILED BONDING REQUIREMENTS, INCLUDING LINK BOX SIZE, LOCATION AND AMOUNTS. THIS DRAWING IS FOR REFERENCE ONLY AS SPECIFIC TO CABLE VENDOR MANUFACTURERS.
2. ALL GROUND CONNECTIONS SHALL BE EXOTHERMIC WELD UNLESS OTHERWISE NOTED.
3. THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL GROUND CABLE WITH THE USE OF "NO-OX-ID" BRUSH TO REMOVE ALL CHEMICAL COAT, OR ACCEPTABLE EQUAL, BEFORE MAKING ANY EXOTHERMIC CONNECTIONS.
4. A BARE COPPER CONDUCTOR GROUND RING SHALL BE FURNISHED AND INSTALLED AND CLOSURE TO BE MOUNTED BETWEEN 8" AND 12" ABOVE THE WALL FINISHED FLOOR AND AS CLOSE TO THE WALL W/AS POSSIBLE.
5. EACH LINK BOX SHALL CONTAIN THREE 5/8" OR THREE DISCONNECTING LINKS (OR AS OTHERWISE SPECIFIED) WHICH SHALL BE COMPLETELY ENCLOSED AND WATER TIGHT (OR SUBMERGIBLE) INCLUDING PENETRATIONS.
6. LINK BOX ATTACHMENT METHOD SHALL BE SIZED TO PROVIDE SUFFICIENT HOLDING STRENGTH.
7. AN ISOLATOR COPPER GROUND COMMUNITY CONDUCTOR SHALL BE INSTALLED THE FULL LENGTH OF THE DUCT SYSTEM.
8. GROUNDING RODS SHALL NOT BE ENCASED IN CONCRETE.
9. GROUNDING:
 - A. TWO (2) COPPER CABLES SHALL BE CAST INTO THE MANHOLE END WALLS FOR CONNECTION TO THE GROUND RODS OUTSIDE THE MANHOLE. COPPER SHALL BE NON-INSULATED INSIDE CONCRETE WALLS.
 - B. TWO (2) GROUND RODS SHALL BE INSTALLED OUTSIDE THE MANHOLE END WALLS, A MAXIMUM OF 5'-0" AWAY FROM THE MANHOLE. EACH ROD SHALL BE STEEL CORE WITH COPPER COVERING.
 - C. COPPER GROUND CABLES SHALL BE CAST INTO THE CONCRETE MANHOLE SECTIONS AND GROUNDING RODS SHALL BE INSTALLED OUTSIDE THE MANHOLE. COPPER SHALL BE NON-INSULATED INSIDE THE MANHOLE. COPPER CABLES SHALL BE CONTINUOUS WITHIN THE MANHOLE WALLS, ONLY JOINT WELDING WHEN NECESSARY.
 - D. THE MANHOLE SECTIONS SHALL BE CONNECTED USING BRUNYD FLUSH MOUNTED GROUNDING CONNECTORS.
 - E. PRIOR TO CASTING CONCRETE FOR THE MANHOLES AN EVERGREEN REPRESENTATIVE SHALL BE PRESENT TO VERIFY THE LOCATION OF THE GROUND WIRE AND CAST IN PLACE FEATURES. MANUFACTURER SHALL NOTIFY THE EVERGREEN REPRESENTATIVE AT LEAST ONE WEEK PRIOR TO CASTING.

BILL OF MATERIALS

ITEM NO.	ITEM DESCRIPTION	MANUFACTURER & CATALOG NO.	MIN QTY	PROVIDER	INSTALLED
1	LINK BOX	AS REQUIRED	18	CABLE CON.	CABLE CON.
2	ISOLATED GROUND CABLE	AS REQUIRED	18	CABLE CON.	CABLE CON.
3	BARE GROUND CABLE	AS REQUIRED	18	CABLE CON.	CABLE CON.
4	STEEL WIRE ROPE	BRUNYD TYPE 3879	18	CABLE CON.	CABLE CON.
5	STAINLESS STEEL WEDGE CON. ANCHOR	RED HEAD SWW-1254	4	CABLE CON.	CABLE CON.
6	EXOTHERMIC WELD 1-CONNECTION	TERMOWELDED CR-2	3	CABLE CON.	CABLE CON.
7	EXOTHERMIC WELD PARALLEL CONNECTION	TERMOWELDED CR-1	2	CABLE CON.	CABLE CON.
8	EXOTHERMIC WELD TO GROUND ROD	TERMOWELDED CR-2	2	CABLE CON.	CABLE CON.
9	3/4" X 10'-0" THREADED GROUND ROD	AS REQUIRED	2	CIVIL CON.	CIVIL CON.
10	3/4" GROUND ROD COUPLING	AS REQUIRED	2	CIVIL CON.	CIVIL CON.
11	GROUND GROUND FLATE LUG	TERMOWELDED CR-1	2	CABLE CON.	CABLE CON.
12	NEMA 4-HOLE WELD GROUND PAD	TERMOWELDED CR-27	2	VAULT	VAULT
13	LINK BOX EXPANSION ANCHORS	INITL KKKY BOLT II	18	CABLE CON.	CABLE CON.
14	LINK GROUND PLATE	W2729-48	18	VAULT	VAULT
15	BRUNYD FLEXIBLE COPPER BRAND	BD24N	4	CABLE CON.	CABLE CON.
16	BRUNYD COPPER BAND	AS REQUIRED	4	VAULT	VAULT
17	GROUND PATE	AS REQUIRED	4	VAULT	VAULT
18	GROUND PATE	AS REQUIRED	4	VAULT	VAULT

NOTES: APPROVED EQUAL MATERIAL MAY BE SUBMITTED FOR REVIEW AND APPROVAL.

2. QUANTITIES ARE MINIMUM - CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL, ITEMS AND QUANTITIES.

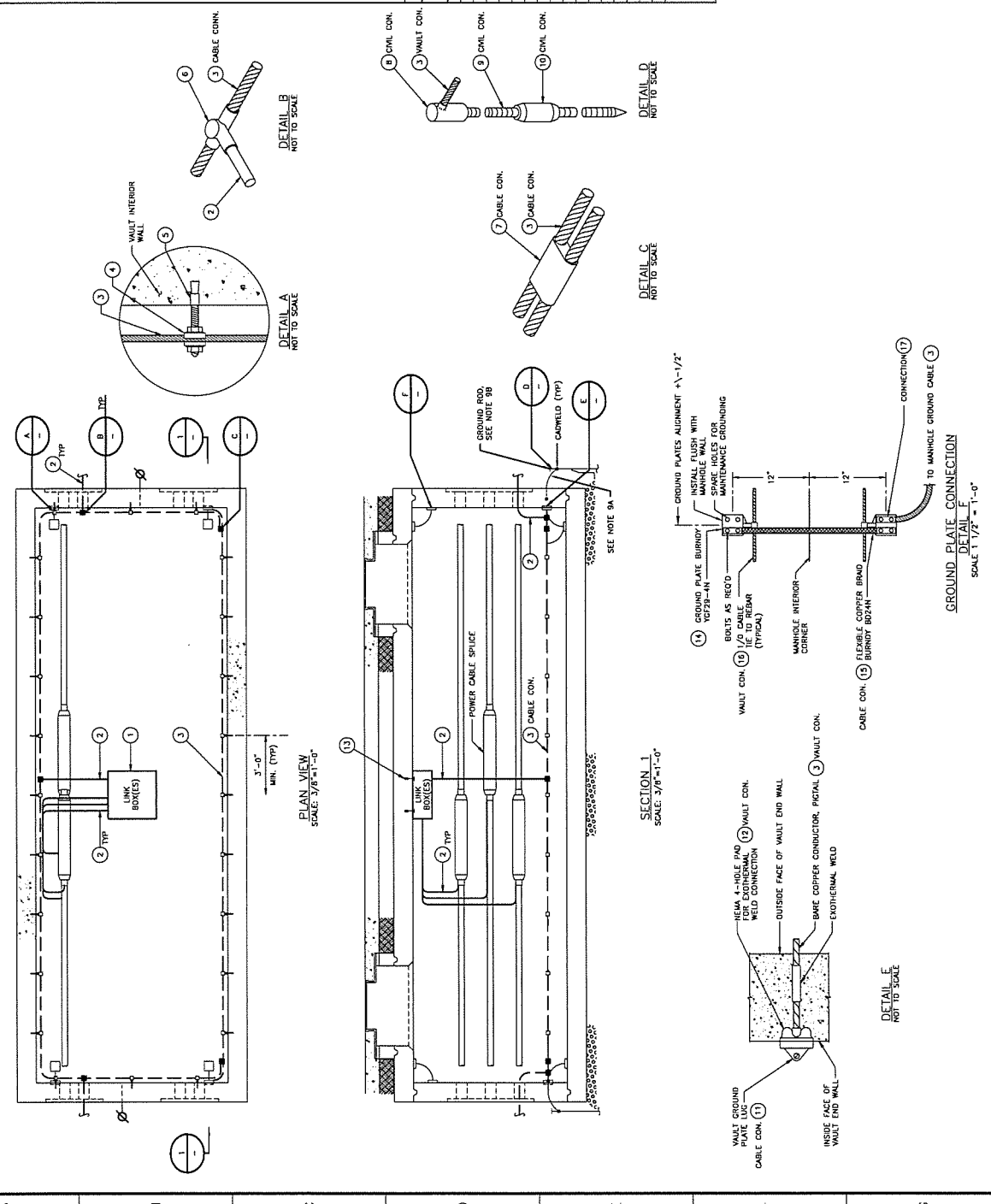
3. THIS BILL OF MATERIALS IS BASED ON 470 GROUND CABLE SIZE. THE ACTUAL SIZE OF ALL GROUNDING CABLES WILL BE DETERMINED BY THE CABLE VENDOR.

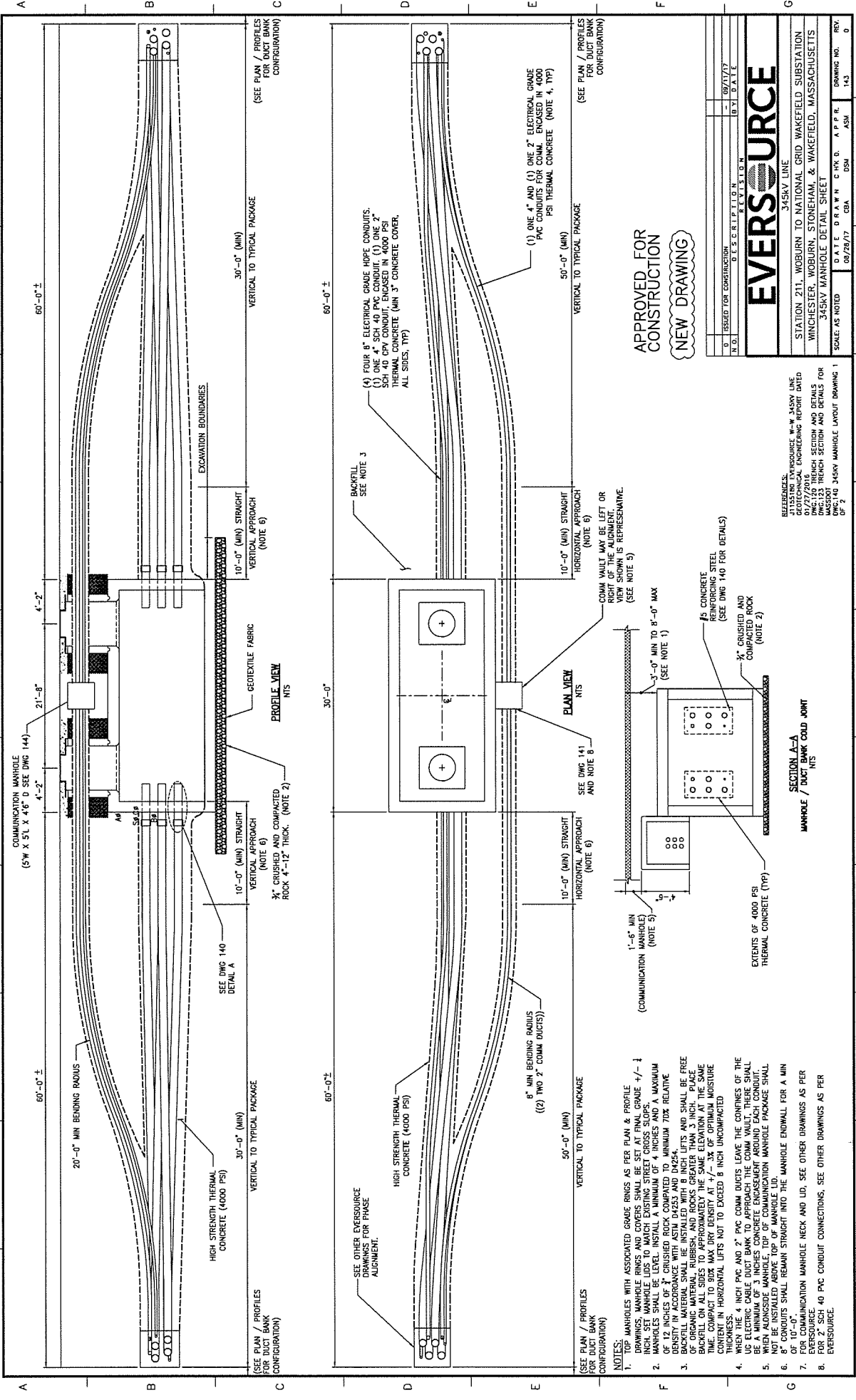
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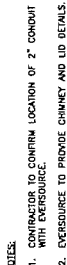
1. APPROVED EQUAL MATERIAL MAY BE SUBMITTED FOR REVIEW AND APPROVAL.
2. QUANTITIES ARE MINIMUM - CONTRACTOR IS RESPONSIBLE FOR ALL MATERIAL.
3. THIS BILL OF MATERIALS IS BASED ON 4/0 GROUND CABLE SIZE. THE ACTUAL MATERIALS SHALL BE PROVIDED BY EVERSOURCE.

APPROVED FOR
CONSTRUCTION

0	ISSUED FOR CONSTRUCTION				09/17/77	
N.O.	DESCRIPTION	BY	DATE	APPR		
REVISION  EVERSOURCE						
STATION 211. WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION WINCHESTER, WOBURN, STONEHAM, & WAKEFIELD, MASSACHUSETTS 345KV MANHOLE, GROUNDING DRAWING 345KV LINE						
SCALE: AS SHOWN	DATE: 09/08/75	SH:	CSH	APP'R:	CSH	ROWING NO. 147







APPROVED FOR
CONSTRUCTION

NO.	DESCRIPTION	BY	DATE
2	ISSUED FOR CONSTRUCTION	-	09/11/17
1	ISSUED FOR PERMIT	-	03/20/17
0	ISSUED FOR CLIENT REVIEW	-	09/08/15

EVERSOURCE

345kV LINE

TATION 211, WOBURN TO NATIONAL GRID WAKEFIELD SUBSTATION
NCHES-TER, WOBURN, STONEHAM, & WAKEFIELD, MASSACHUSETTS
COMMUNICATION MANHOLE DETAILS

COMMUNICATION MANIPULATION DETAILS				
SCALE:	DATE	DRAWN	CHK D.	APPR.
NTS	09/08/15	SLH	-	
				DRAWING NO.
				144
				REV.
				2

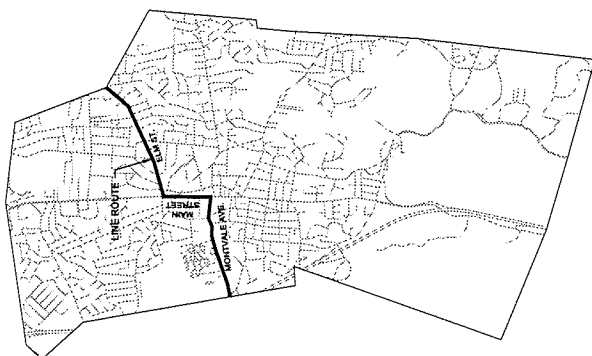


TRAFFIC MANAGEMENT NOTES:

- [illegible]

LEGEND:

- | | |
|---|-------------------------------------|
|  | SIGN |
|  | DIRECTION OF TRAFFIC |
|  | POLICE OFFICER WITH VEHICLE |
|  | REFLECTORIZED PLASTIC DRUM (TYPE C) |
|  | TRAFFIC CONE |
|  | WORK ZONE |
|  | SPECIAL LIGHTING UNIT |
|  | CHANGEABLE MESSAGE SIGN (CMS) |
|  | TRUCK MOUNTED ATTENUATOR |
|  | TYPE III BARRICADE |



LOCUS MAP
NOT TO SCALE

APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD MASSACHUSETTS 02090

REPAIRED BY:

[illegible]

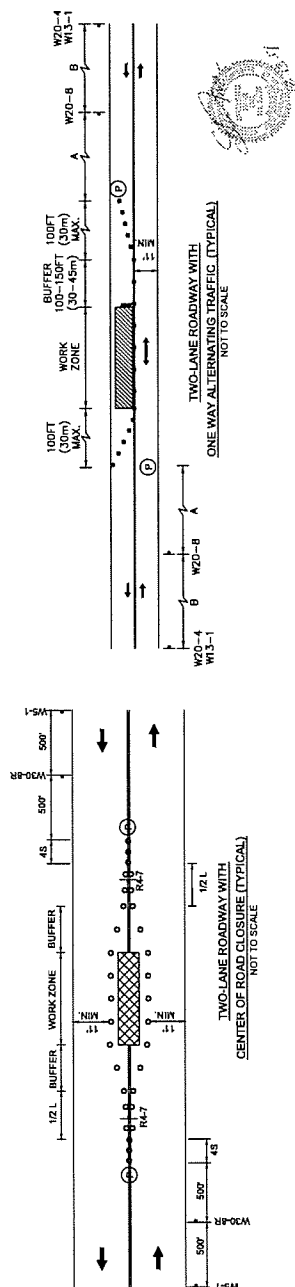
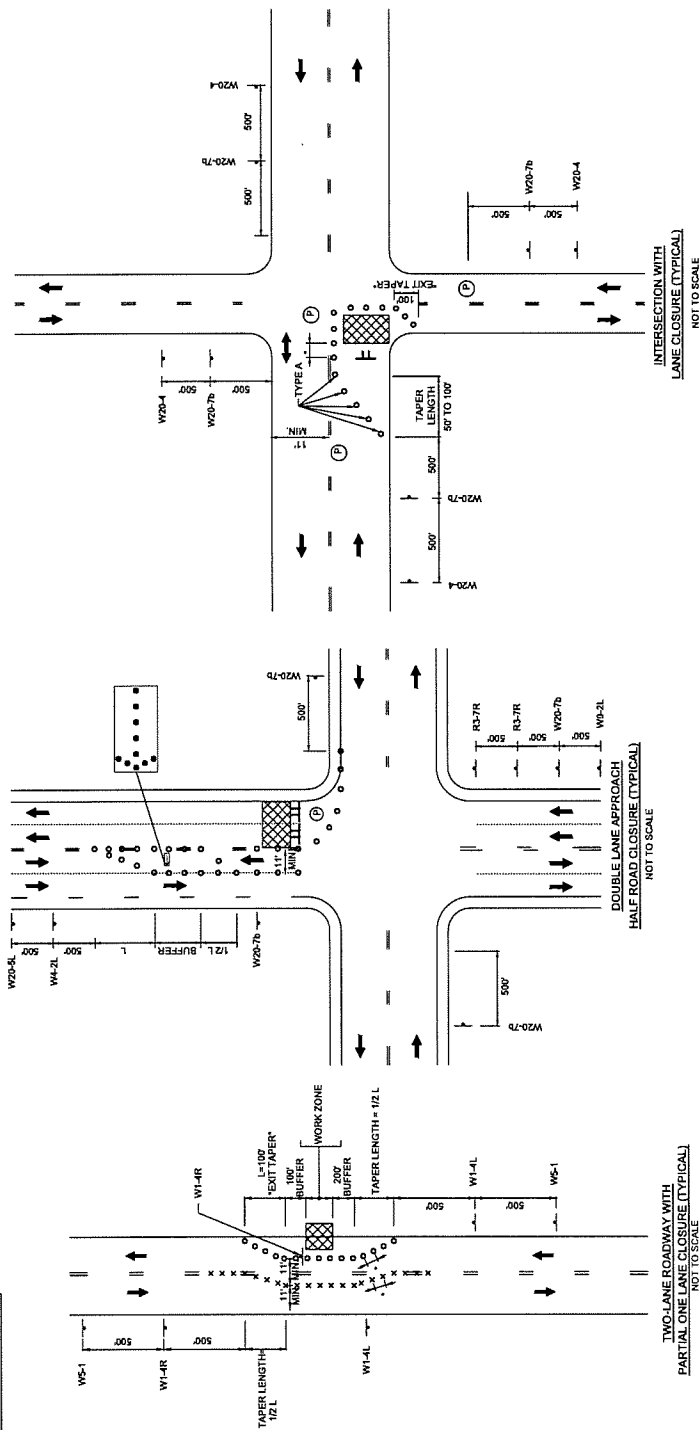
EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

STATION

SHEET 1 OF 47

2



DETAILS

DETAILS

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

SHEET 3 OF 47

DATE	NOTES

12/15/2012	
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TITLE OF PRESENTATION:

[illegible]

DESCRIPTION OF ALTERNATIVE

[illegible][illegible][illegible]

LOTTERY	LAST SAVE	RAWNCH
---------	-----------	--------

PREPARED BY: 

APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

Shaw-Woodward
100 Park, Suite 430
Boston, MA 02106
E: (617) 338-0263
F: (617) 338-6472

PREPARED BY:  Jack B. Boush

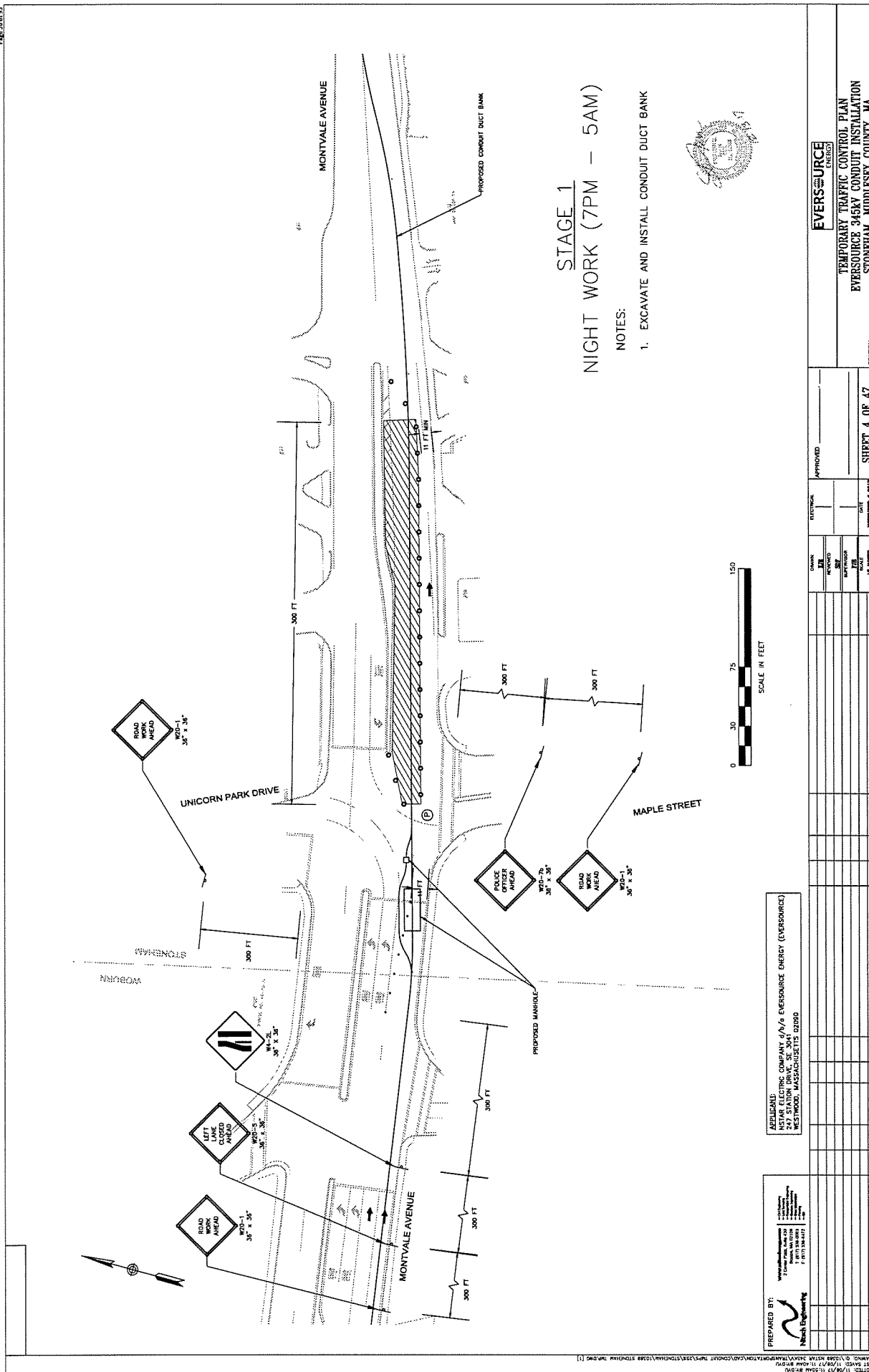
THROSNYLVKSE
KACAS MY
KACAS

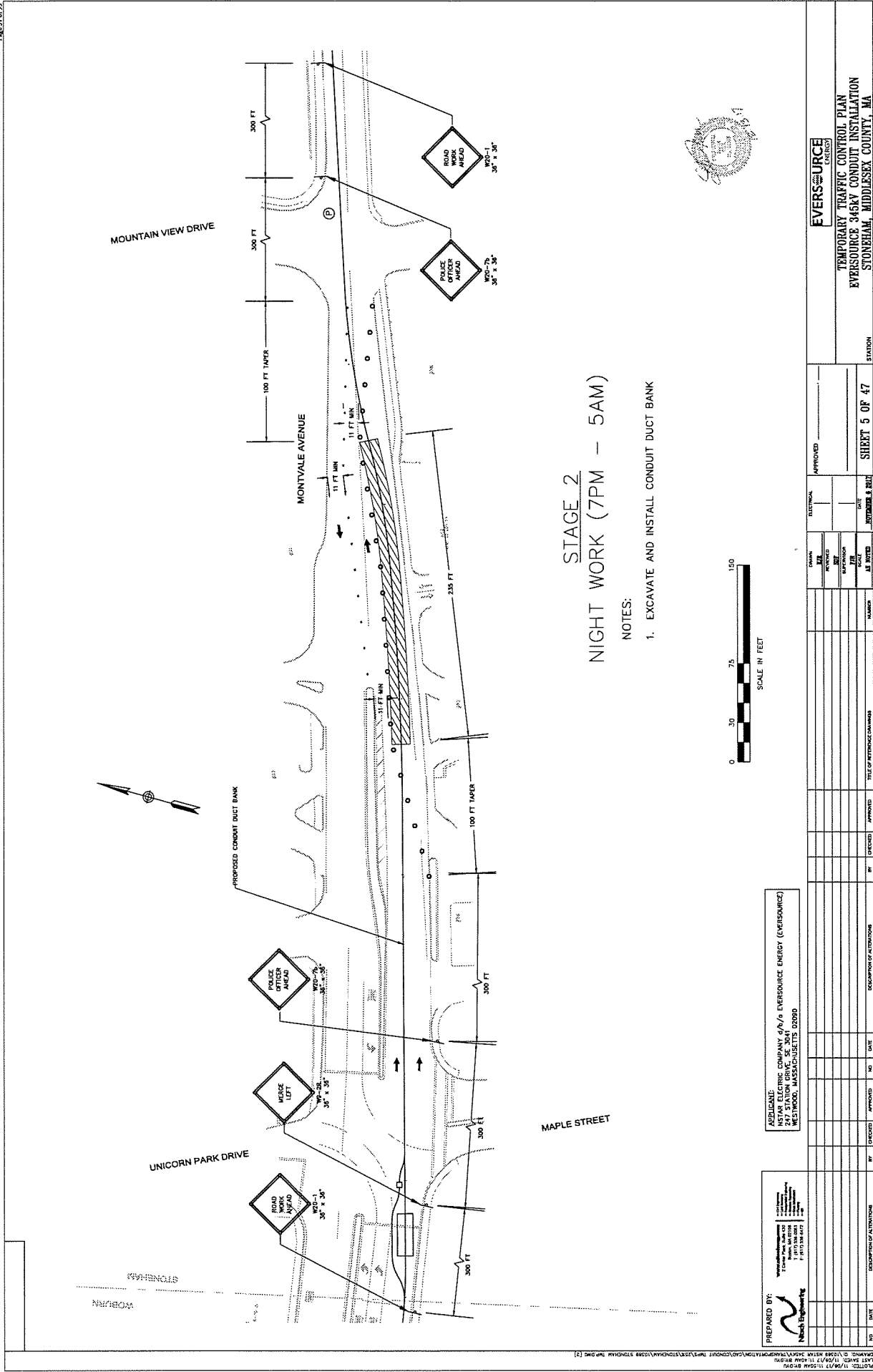
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SPENCER 17 20 1904

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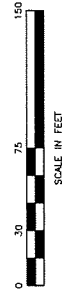
LOTTED: 11/08/17 11:45AM
 LAST SAVED: 11/08/17 2:31PM
 DRAWING: Q:\10088 NSTATE





STAGE 2 NIGHT WORK (7PM - 5AM)

- NOTES:
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
 NETAR ELECTRIC COMPANY dba EVERSOURCE ENERGY (EVSOURCE)
 247 STATION DRIVE, SE 3041
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
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 [Title]
 [Company]
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 [Email]

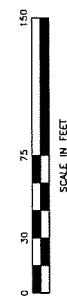
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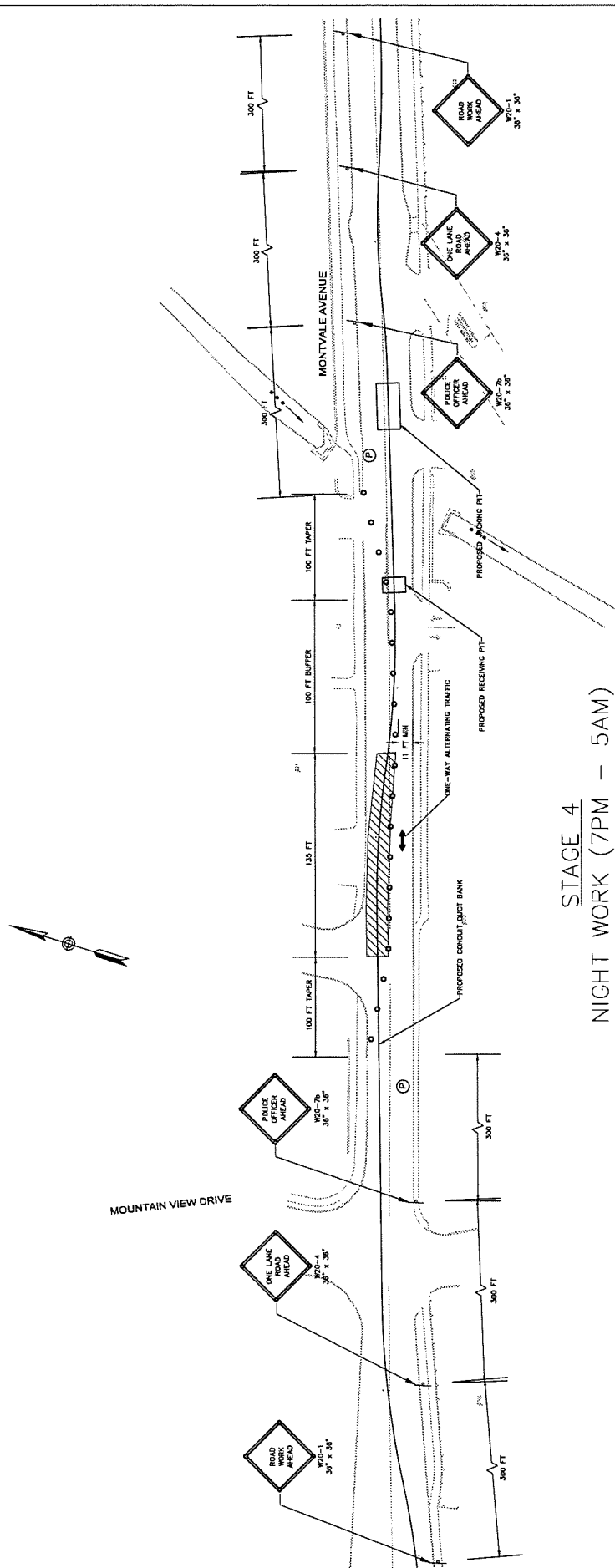


STAGE 3
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

[illegible]



STAGE 4

NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

REPAIRED BY:

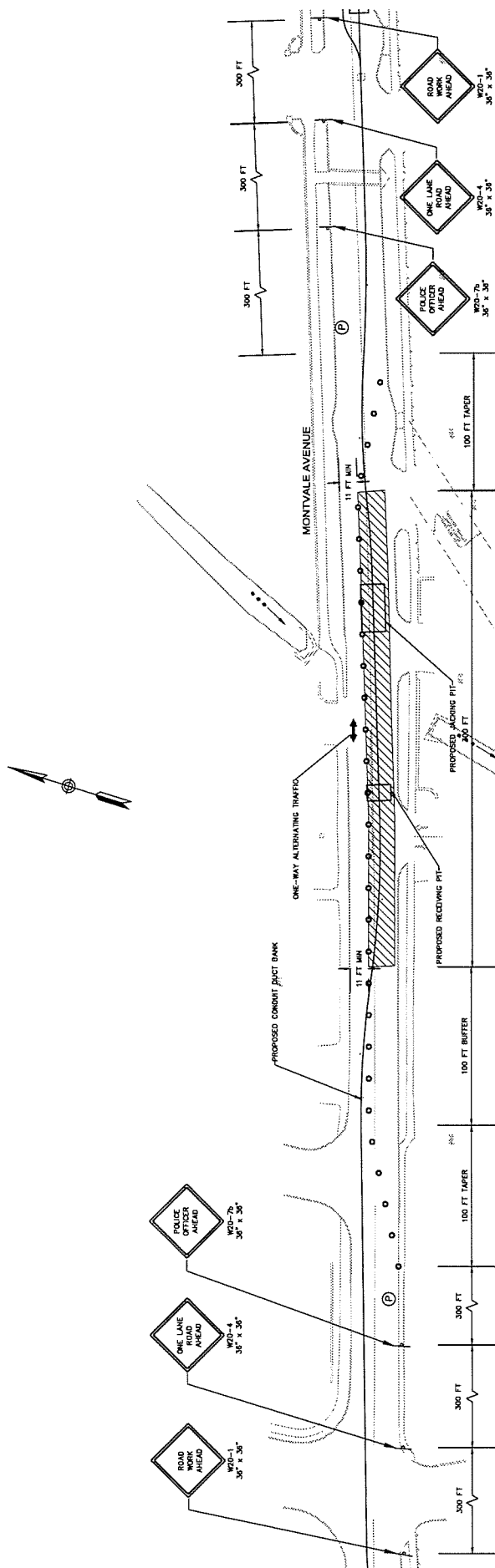


Each Engineer has

Various additional qualifications
 2 Carter P&H, GUY 132
 Boston, MA 02108
 T (617) 338-0083
 F (617) 338-6172

or Call Engineers
 in Last Issues
 advertisement / specify
 advertisement frequency
 including
 #40

[illegible]



STAGE 5

NOTES:

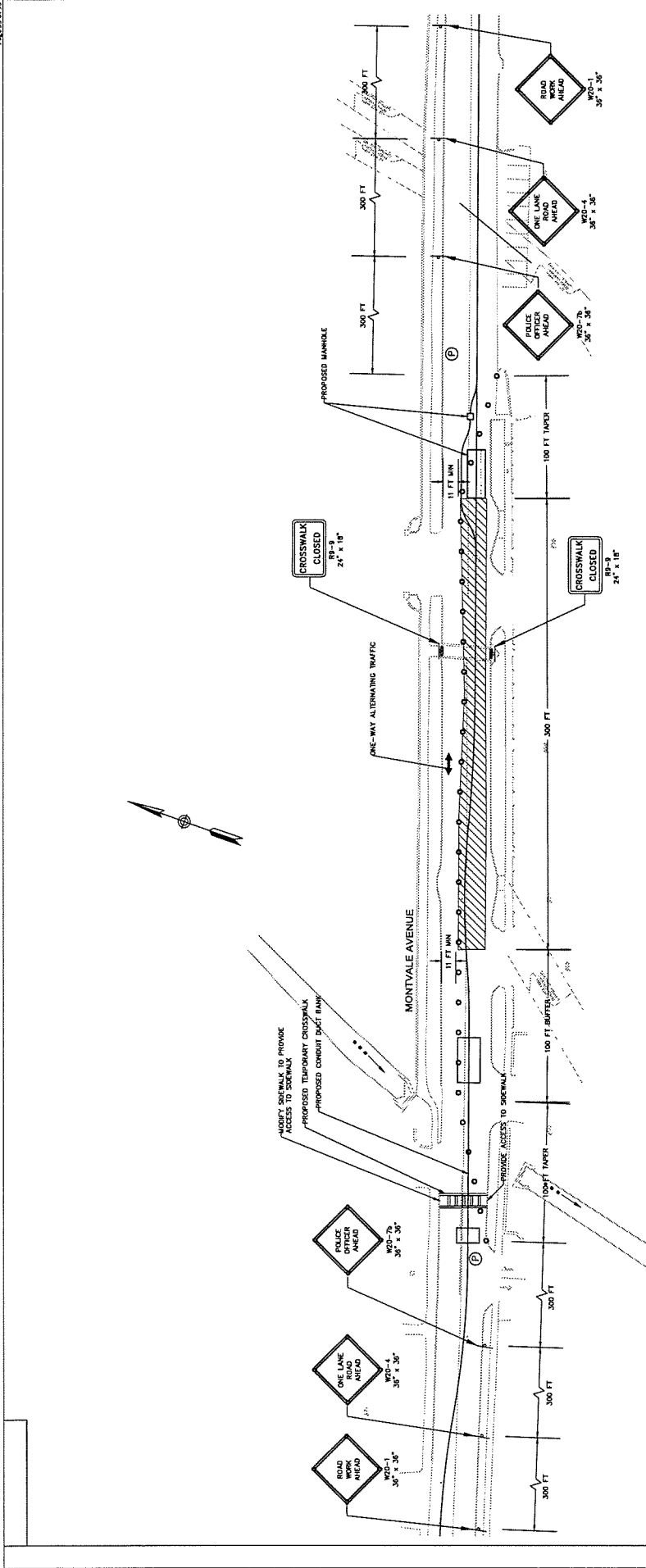
1. EXCAVATE JACKING AND RECEIVING PIT
2. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

REPAIRED BY:

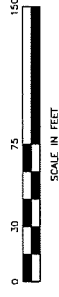
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STAGE 6 NIGHT WORK (7PM - 5AM)

NOTES:

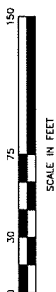
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



DESIGNED BY:
 NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
 247 STATION DRIVE, SE 3041
 WESTON, MASSACHUSETTS 02090

PREPARED BY:
 Michael J. Murphy
 Professional Engineer
 License No. 10000
 State of Massachusetts
 Exp. 12/31/2020

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NOTES:

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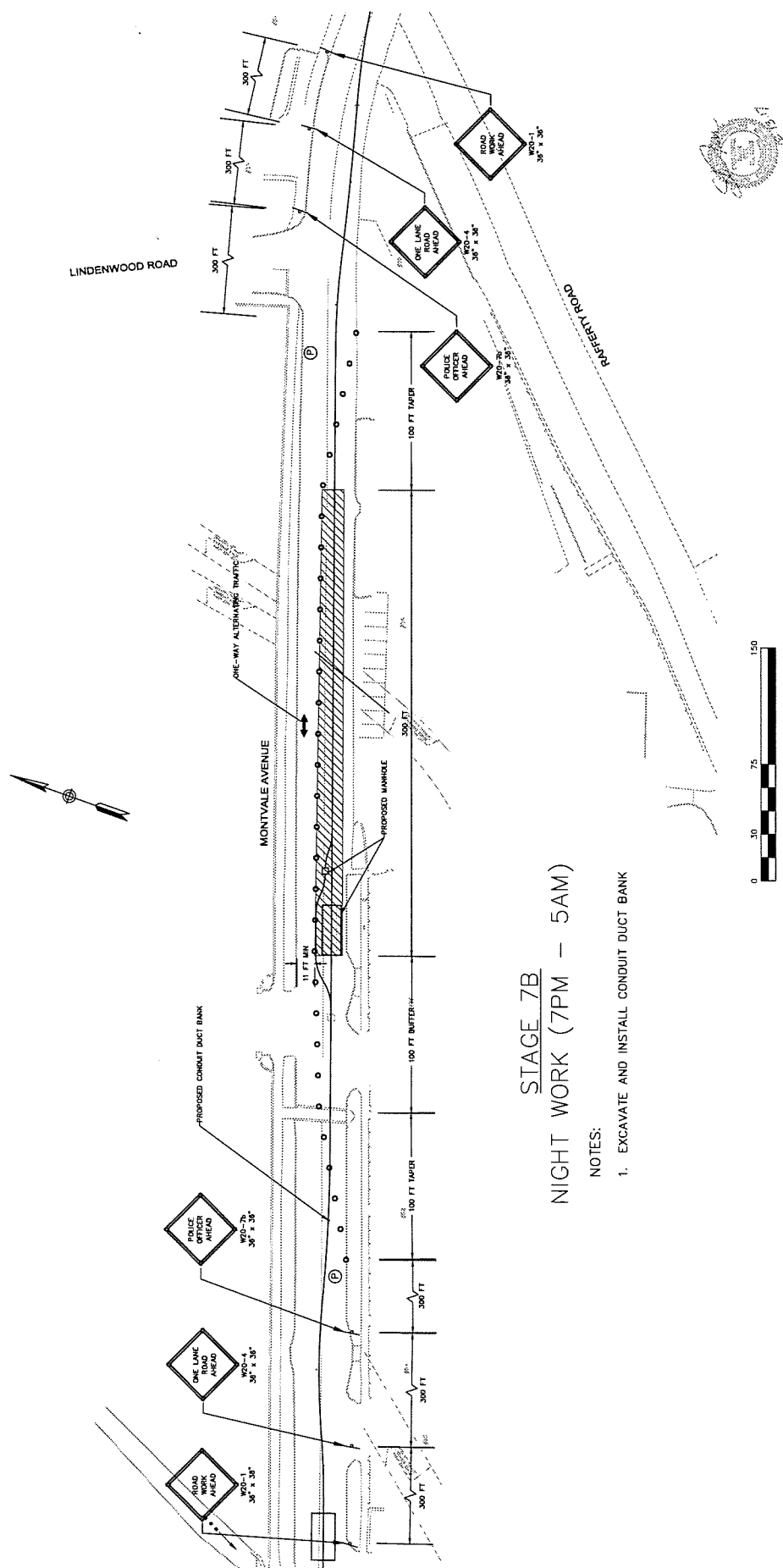
APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD MASSACHUSETTS 02090

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EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
VERSOURCE 345KV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

STATION



STAGE 7B
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

[illegible]

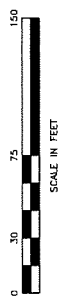


STAGE 8
NIGHT WORK (7PM - 5AM)

NOTES:

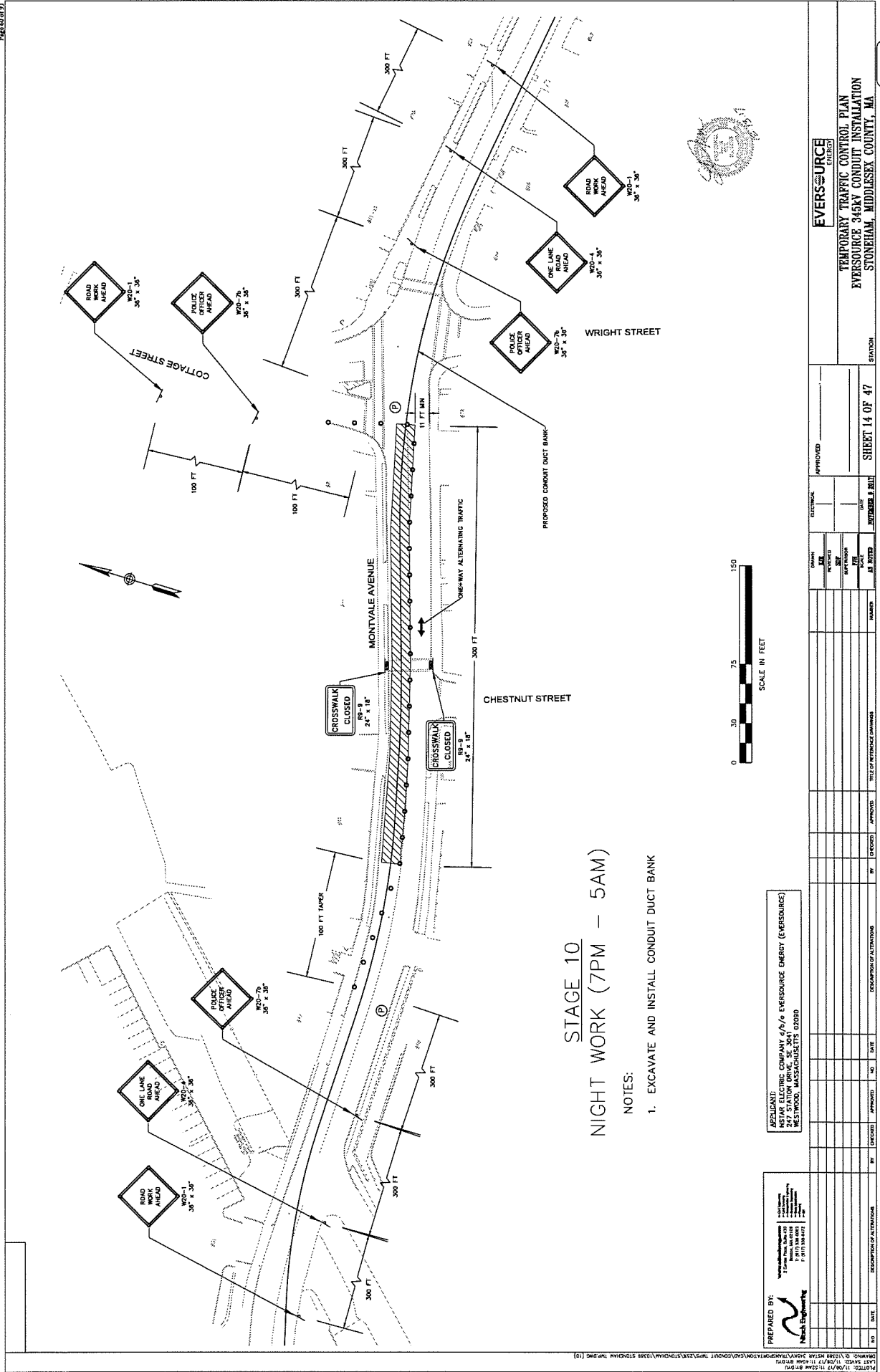
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

[illegible]



NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



STAGE 10 NIGHT WORK (7PM - 5AM)

- NOTES:
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

APPLICANT:
 EVERSOURCE ENERGY (EVSOURCE)
 247 STATION DRIVE, SE 3041
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
 NTSAR Electric Company
 1000 Main Street
 2nd Floor
 Westwood, MA 02090
 P: 617.338.1111
 F: 617.338.1112



EVSOURCE ENERGY				TEMPORARY TRAFFIC CONTROL PLAN EVERSOURCE 345KV CONDUIT INSTALLATION STONEHAM, MIDDLESEX COUNTY, MA			
NO.	DATE	DESCRIPTION OF ALTERATION	BY	CHECKED	APPROVED	TITLE OF ATTENDING ENGINEER	STATION
1	11/29/17	11:52AM 8:20PM					SHEET 14 OF 47
2	11/29/17	11:52AM 8:20PM					
3	11/29/17	11:52AM 8:20PM					
4	11/29/17	11:52AM 8:20PM					
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7	11/29/17	11:52AM 8:20PM					
8	11/29/17	11:52AM 8:20PM					
9	11/29/17	11:52AM 8:20PM					
10	11/29/17	11:52AM 8:20PM					
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12	11/29/17	11:52AM 8:20PM					
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14	11/29/17	11:52AM 8:20PM					
15	11/29/17	11:52AM 8:20PM					
16	11/29/17	11:52AM 8:20PM					
17	11/29/17	11:52AM 8:20PM					
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19	11/29/17	11:52AM 8:20PM					
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100	11/29/17	11:52AM 8:20PM					



SCALE IN FEET

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NOTES:

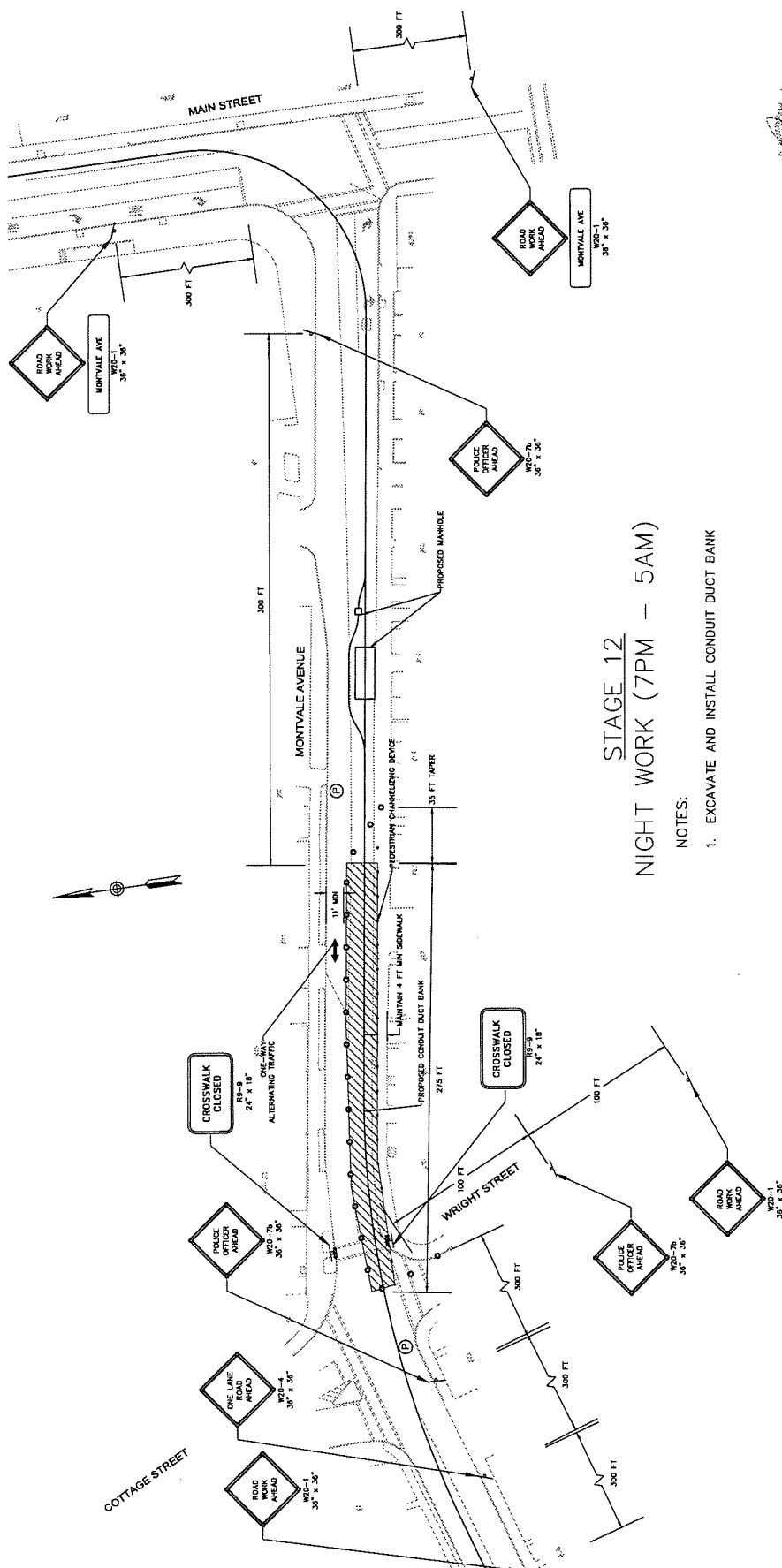
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

PREPARED BY: 

Robert J. Lippert
2 Carter Place, Suite 430
Roslindale, MA 02126
T: (617) 326-0063

cc-Diligence
cc-Environ
cc-Health
cc-Regulatory
cc-Risk
cc-Security

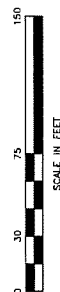
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STAGE 12
NIGHT WORK (7PM – 5AM)

NOTES:

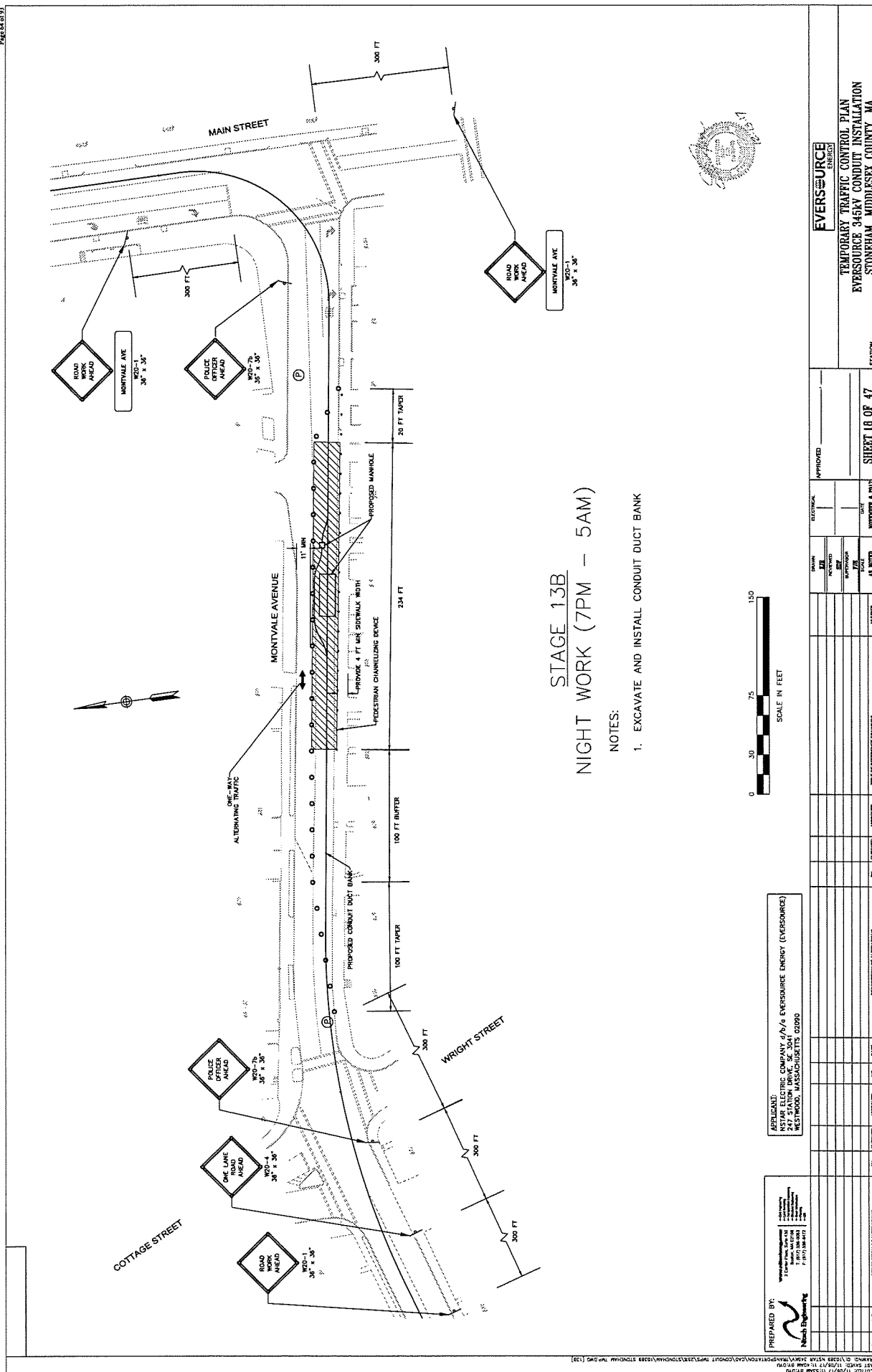
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

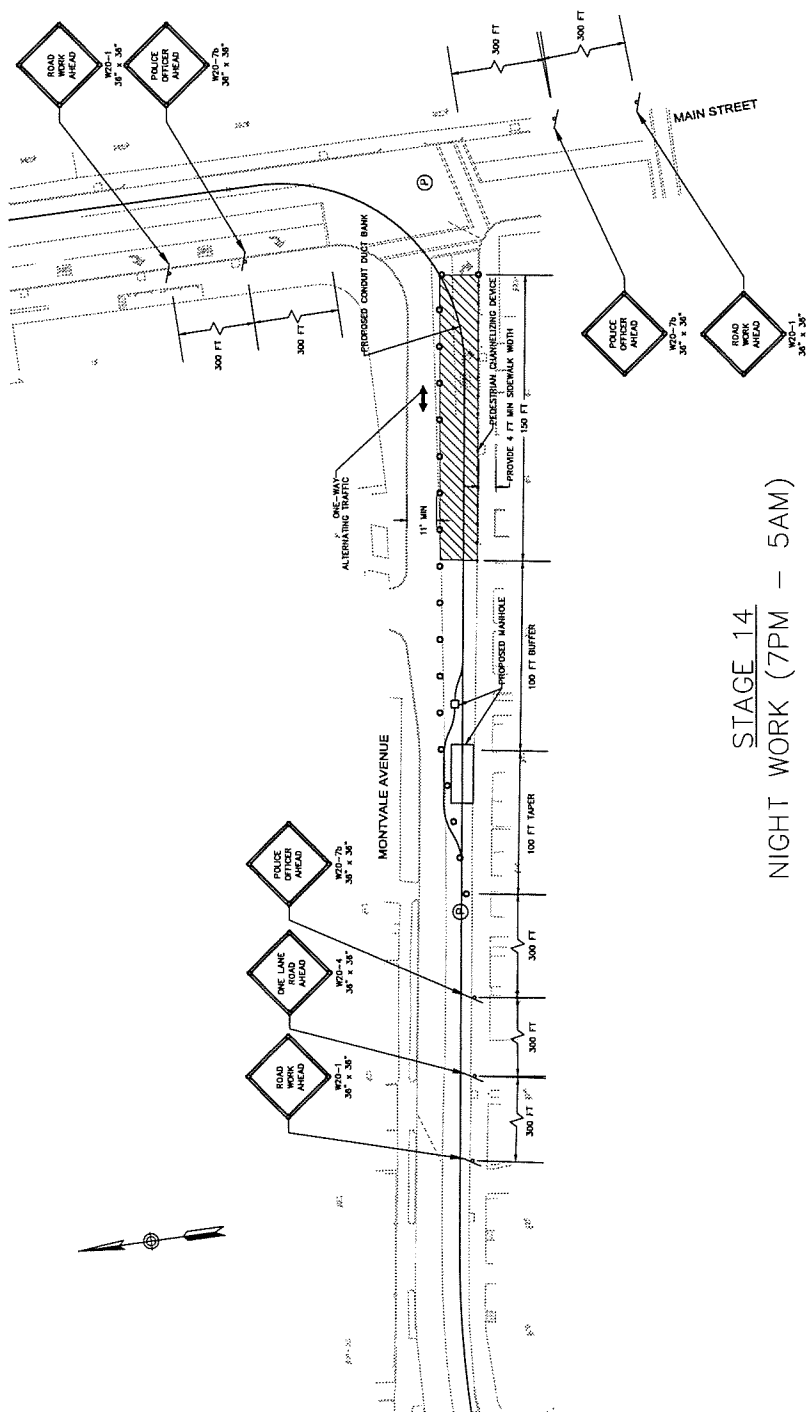


APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY: 

[illegible]





STAGE 14
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



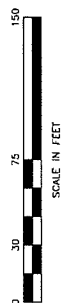
APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY: 

Working Relationship:
2 Center Place, Suite 430
Boulder, CO 80501
T: (817) 338-0543

• Oil Spillage
• Leak Service
• Temperature Loggers
• Industrial Spillage
• Environmental
• EPC/OSHA

[illegible]



NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

PREPARED BY:

Vertical Engineering Associates
2 Corporate Plaza, Suite 402
Roslindale, MA 02126
T: 617-338-0943

APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

[illegible][illegible]

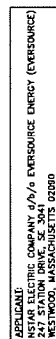
EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

STATION:

SHEET 20 OF 47

2



STAGE 16
NIGHT WORK (7PM – 5AM)

NOTES:

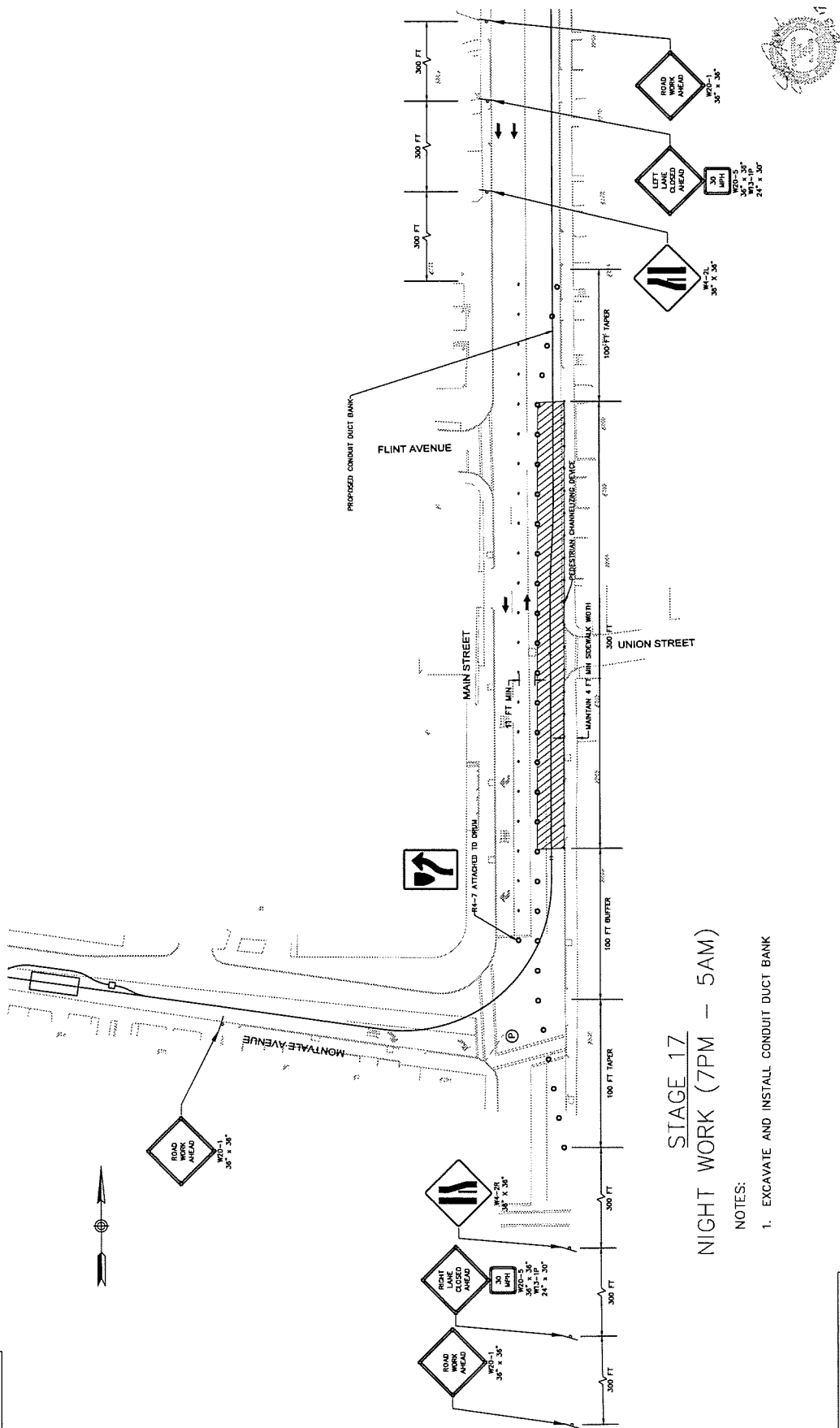
9. EXCAVATE AND INSTALL CONDUIT DUCT BANK

PREPARED BY:

www.mechanisms.com
 2 Carter Place, Suite 430
 Boston, MA 02108
 T: (617) 338-0063
 F: (617) 338-6472

APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

[illegible]



STAGE 17
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

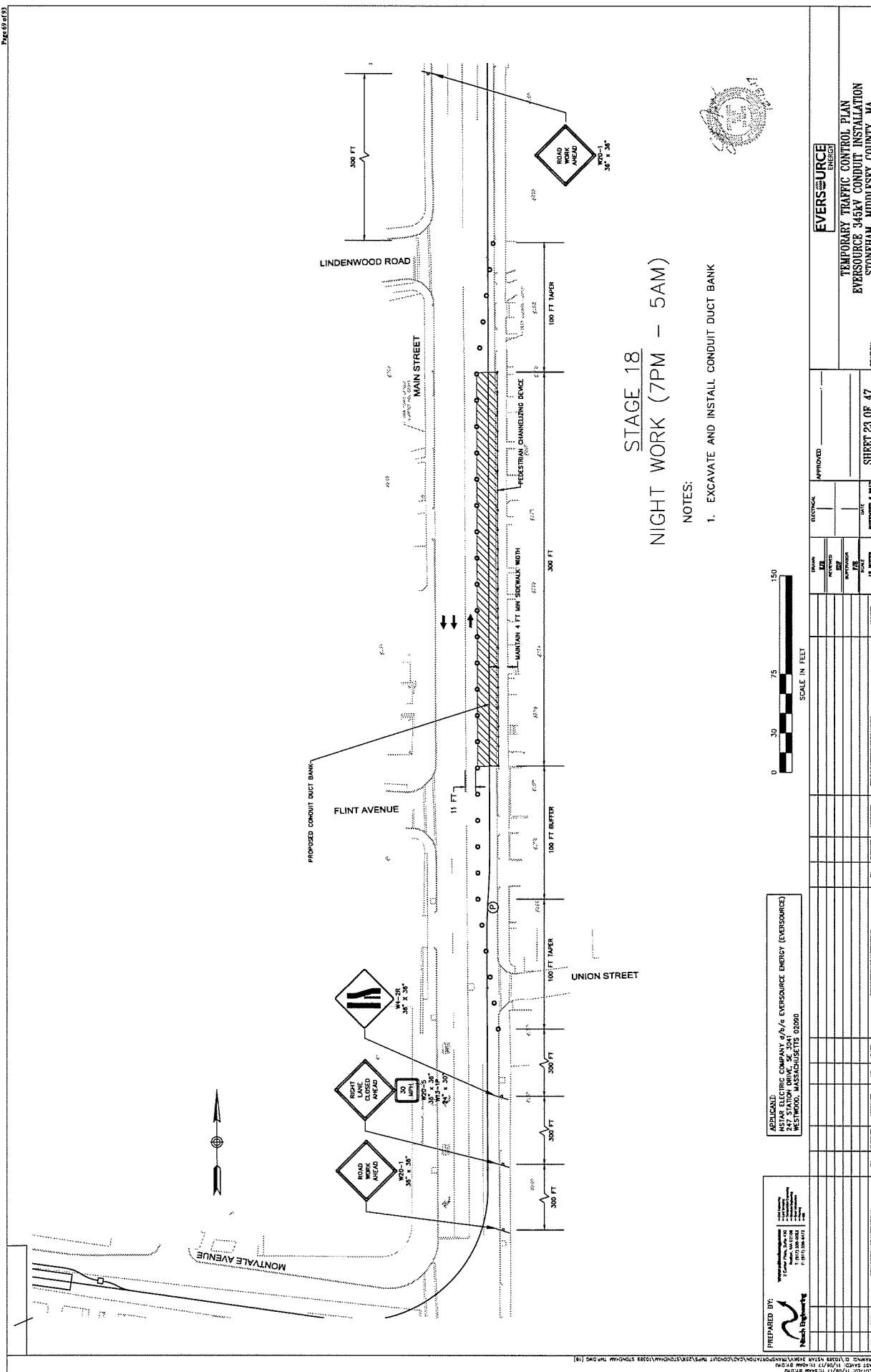
PREPARED BY:



Robert J. Lippert
2 Carter Point, Suite 430
Boston, MA 02108
T: (617) 338-0063

-L&E Technology
-L&E Systems
-Transportation Technology
-Industrial Engineering
-Real Estate

North Engineering										EVERSOURCE ENERGY									
11001 108 4101 108"										TEMPORARY TRAFFIC CONTROL PLAN									
SCALE IN FEET										EVERSOURCE 345KV CONDUIT INSTALLATION									
										STONEHAM, MIDDLESEX COUNTY, MA									
										APPROVED _____									
										SHEET 22 OF 47									



STAGE 18
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:

The logo of the National Association of Broadcasters (NAB) is a stylized, bold, black letter 'N' with a curved line extending from the top right of the vertical stroke, ending in a small circle.

NAB
National Association of Broadcasters
11 Dupont Circle, N.W.
Washington, D.C. 20036
T: (202) 462-6787
F: (202) 462-6788
www.nab.org

[illegible]



NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



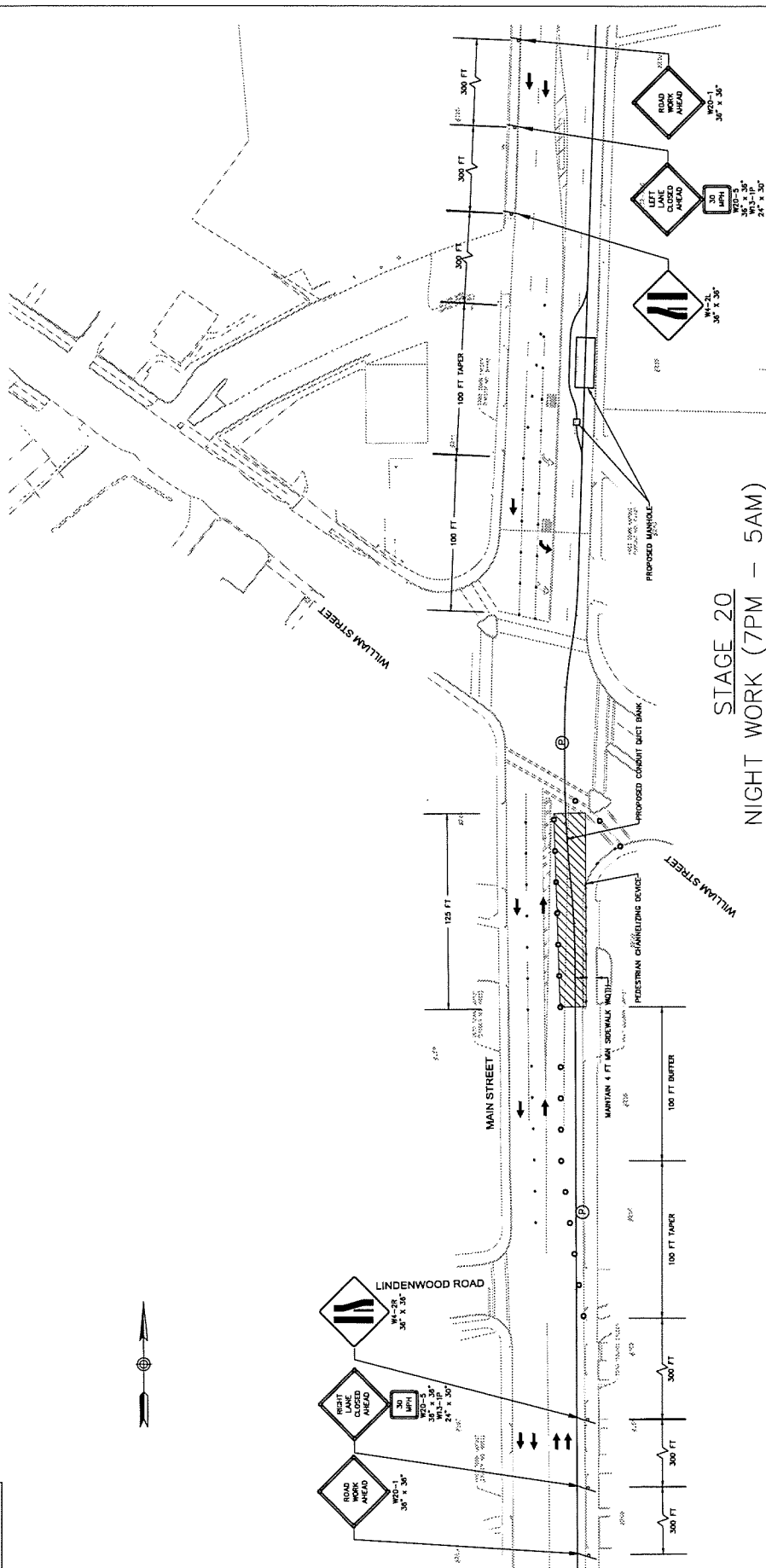
APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:  **NOTED BY:**

Vertical Addressing Service
2 Carter Point, Suite 433
Seattle, WA 98108
T: (817) 338-0063
F: (817) 338-0472

—Call Vantage
—Call Service
—Call Support
—Call Training
—Call Sales
—Call Marketing
—Call Finance
—Call HR
—Call IT

[illegible]



STAGE 20
NIGHT WORK (7PM – 5AM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



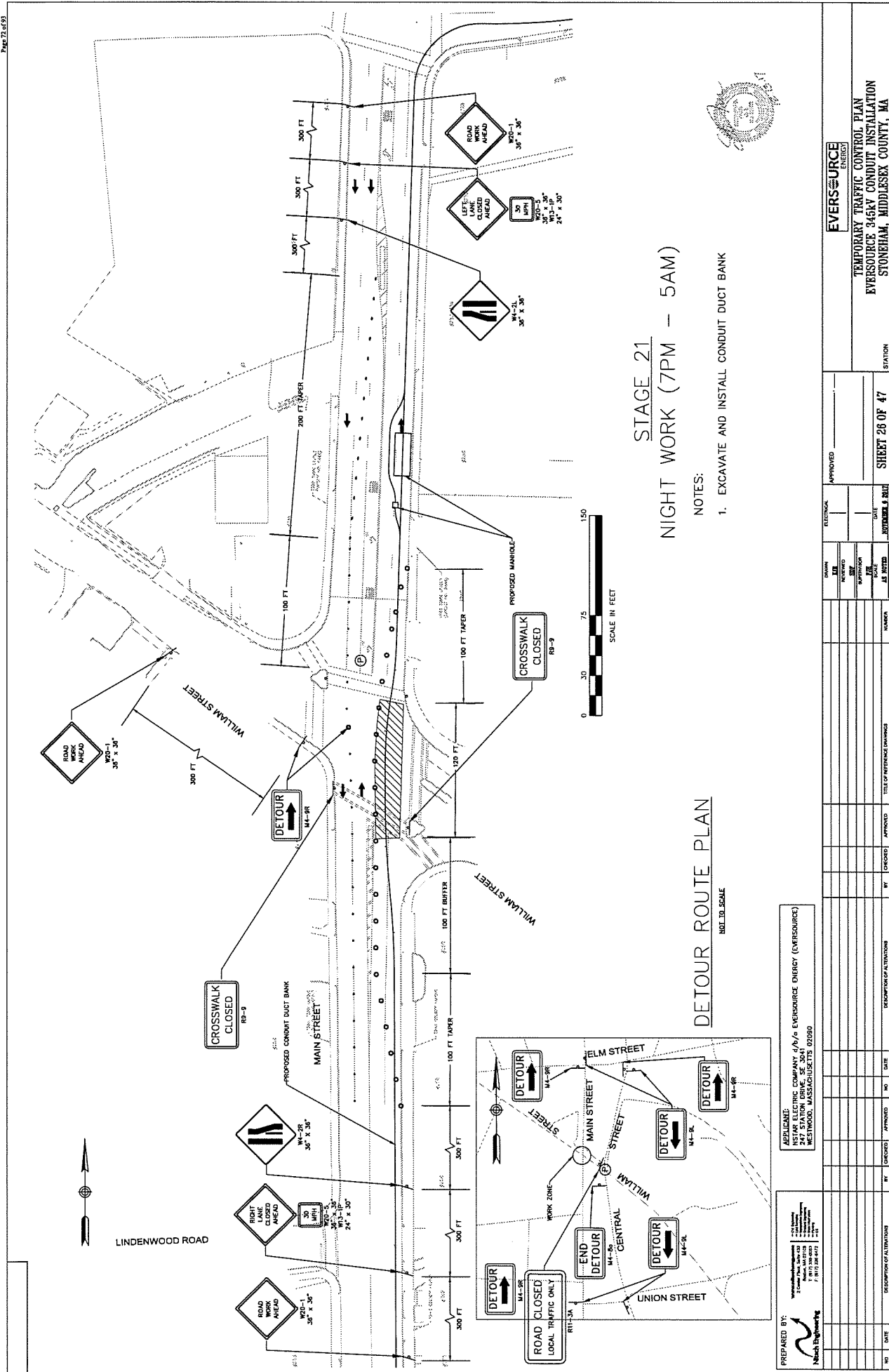
APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

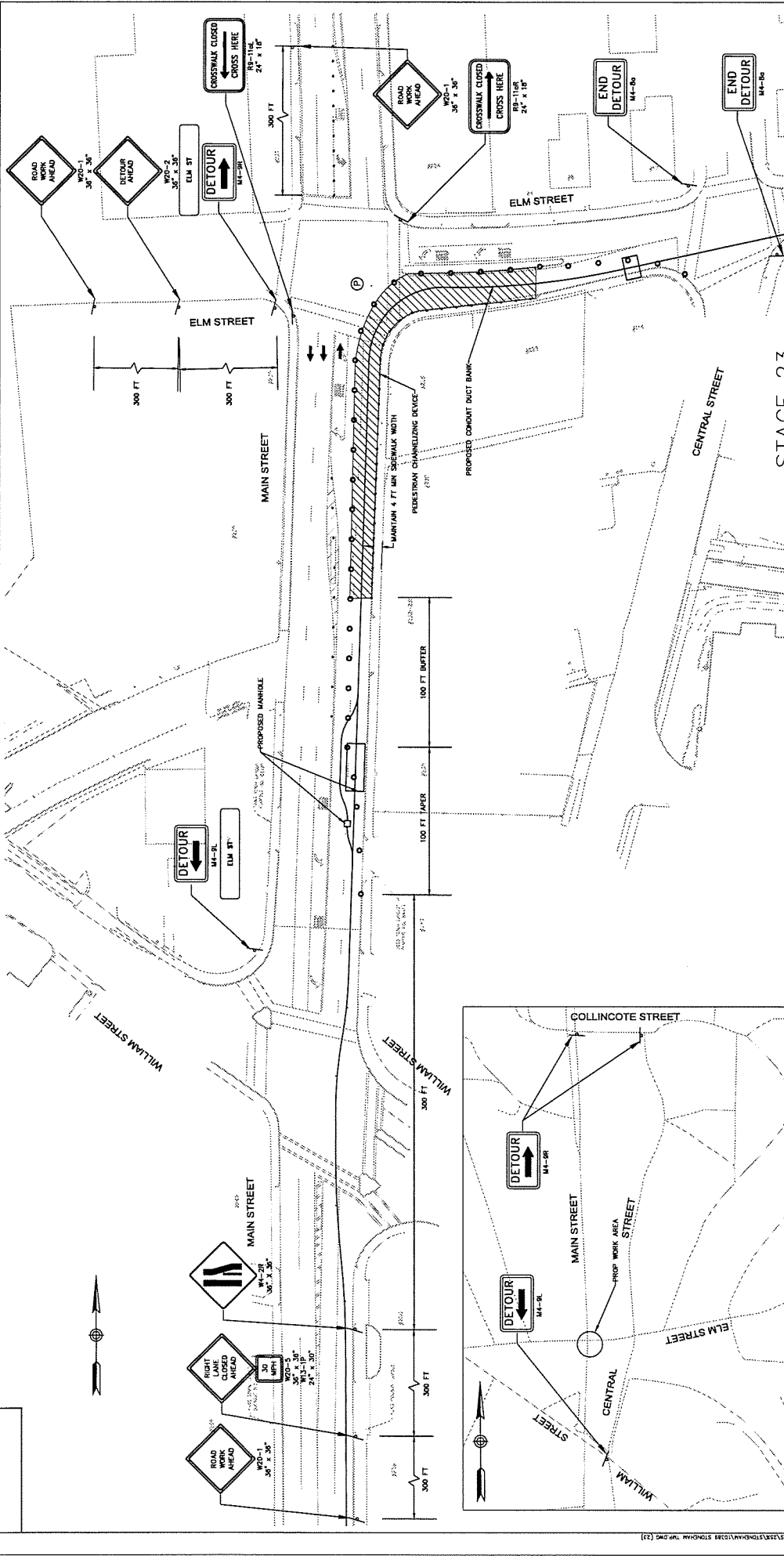
PREPARED BY:



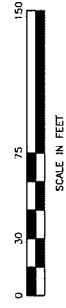
Universal Life Insurance Company
2 Center Plaza, Suite A-30
Boston, MA 02108
T: (617) 236-0953
F: (617) 338-4449
www.universal-life.com

PROJECT INFORMATION		DATE		DRAWN BY		CHECKED BY		APPROVED BY		DATE		PROJECT INFORMATION		DATE		DRAWN BY		CHECKED BY		APPROVED BY		DATE	
NO.	DESCRIPTION	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE	NO.	DESCRIPTION	DATE	BY	DATE	BY	DATE	BY	DATE	BY	DATE
1	TEMPORARY TRAFFIC CONTROL PLAN												1	TEMPORARY TRAFFIC CONTROL PLAN									
2	EVERSOURCE 345KV CONDUIT INSTALLATION												2	EVERSOURCE 345KV CONDUIT INSTALLATION									
3	STONEHAM, MIDDLESEX COUNTY, MA												3	STONEHAM, MIDDLESEX COUNTY, MA									
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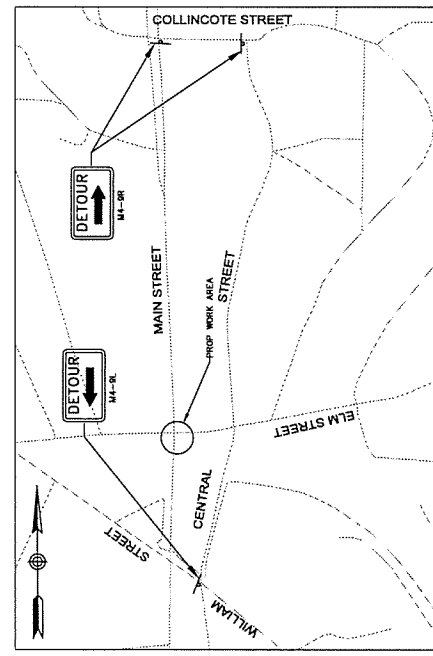


STAGE 23
NIGHT WORK (7PM - 5AM)



NOTES:
 1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

DETOUR ROUTE PLAN



APPLICANT:
 INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
 100 Main Street
 South Plainfield, NJ 07080
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
 [Signature]
 [Name]
 [Title]
 [Company]
 [Address]
 [Phone]
 [Fax]
 [Email]

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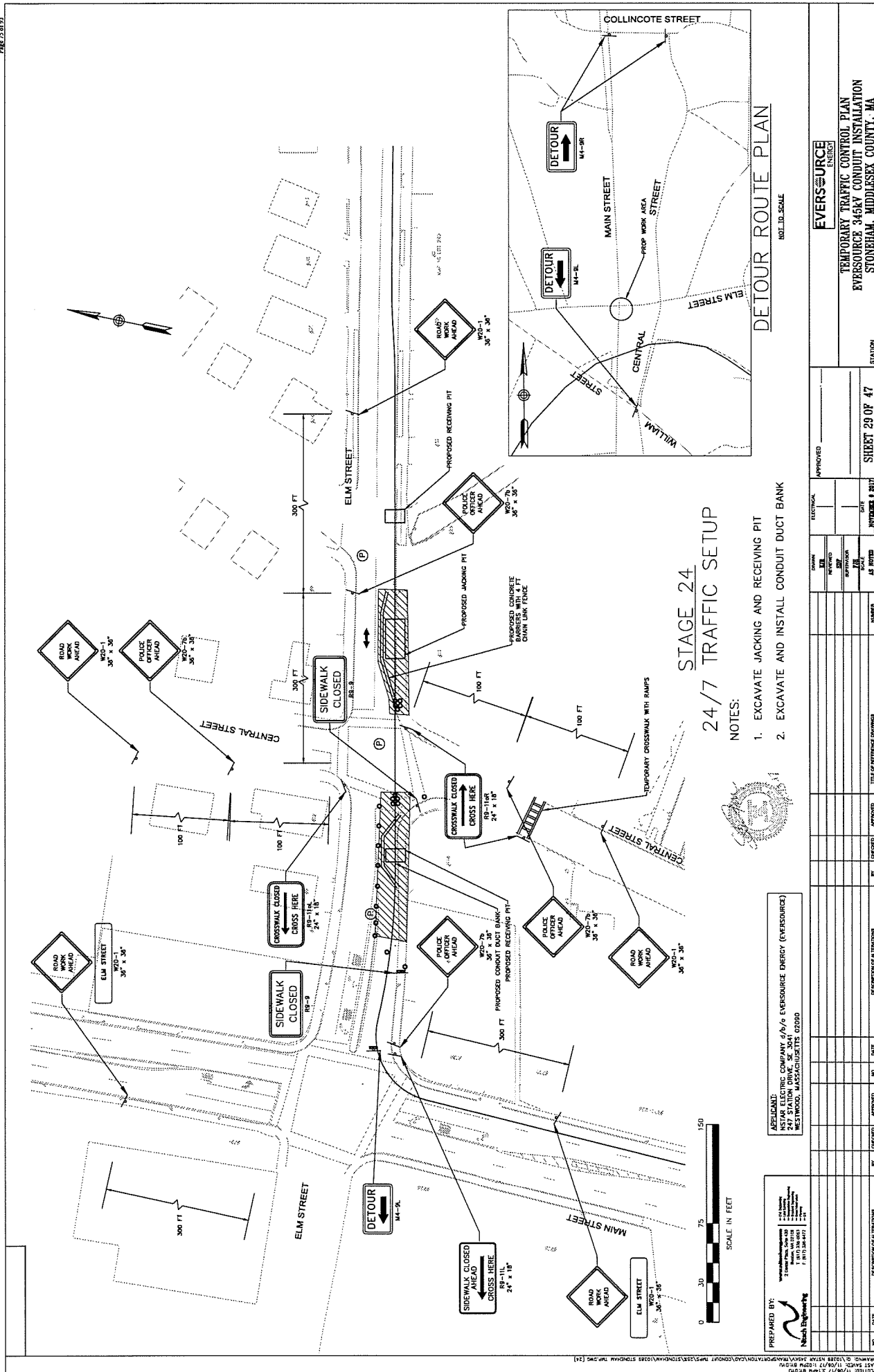
EVERSOURCE ENERGY

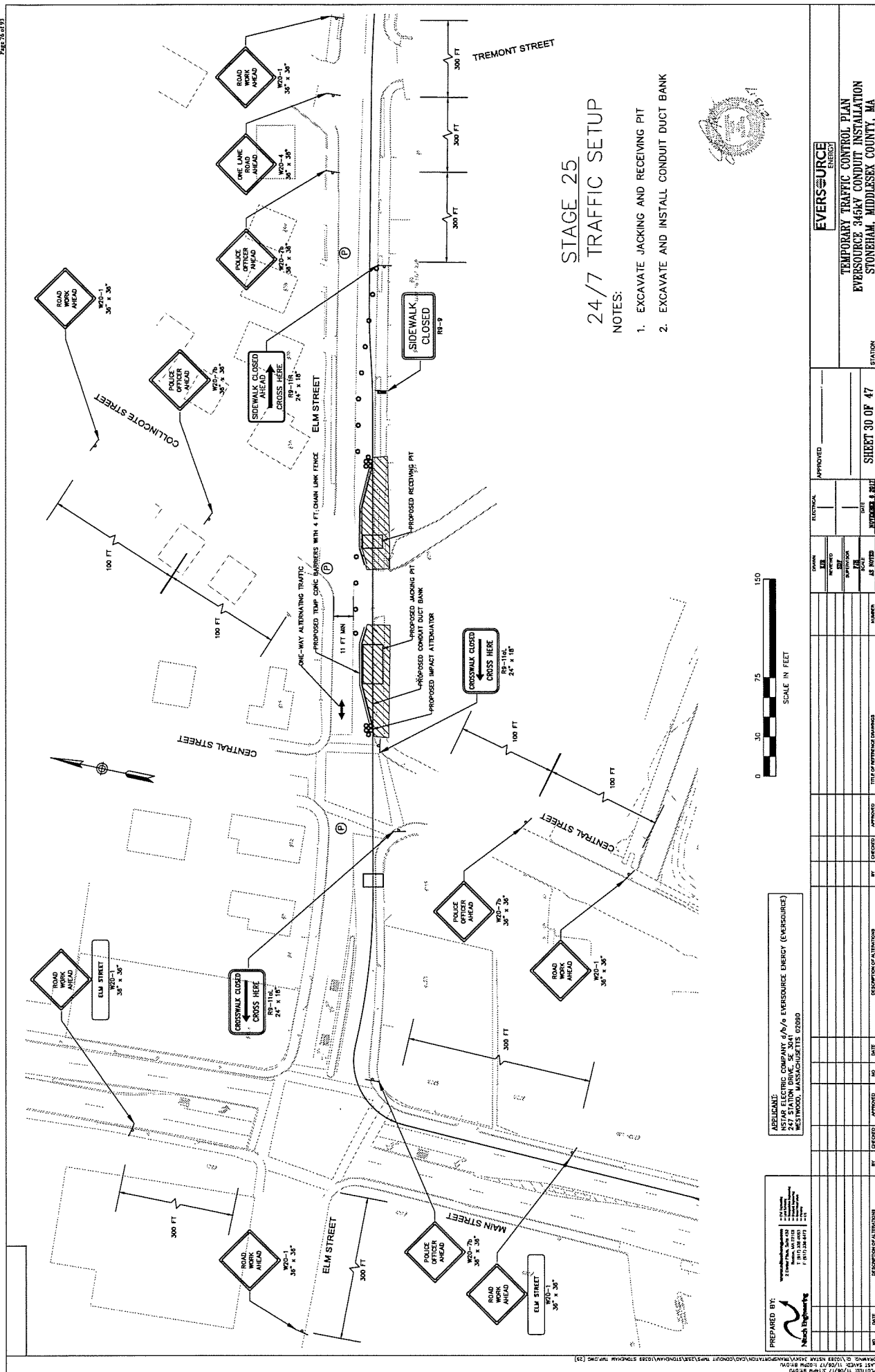
TEMPORARY TRAFFIC CONTROL PLAN
 EVERSOURCE 345KV CONDUIT INSTALLATION
 STONEHAM, MIDDLESEX COUNTY, MA

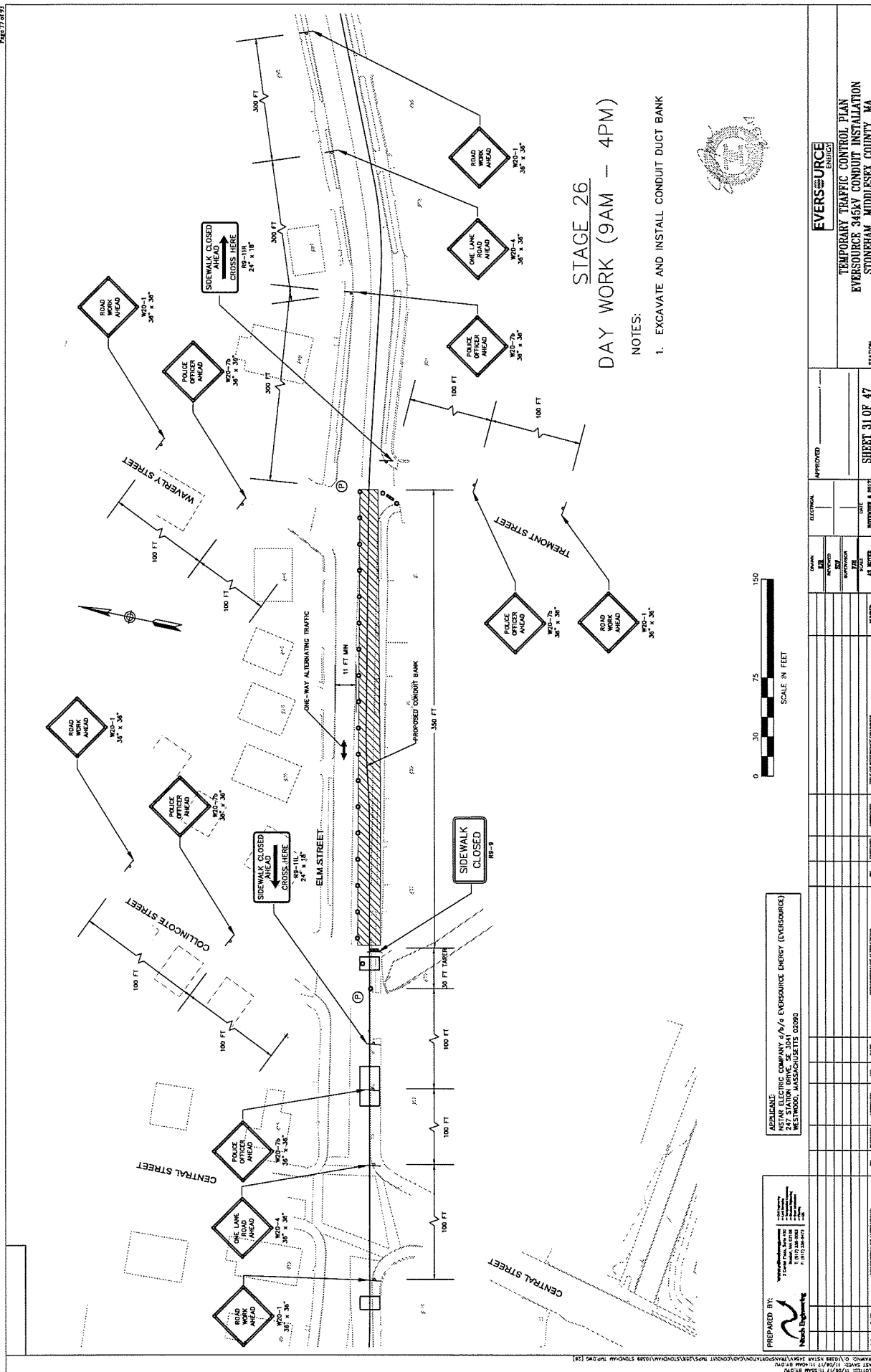
SHEET 28 OF 47

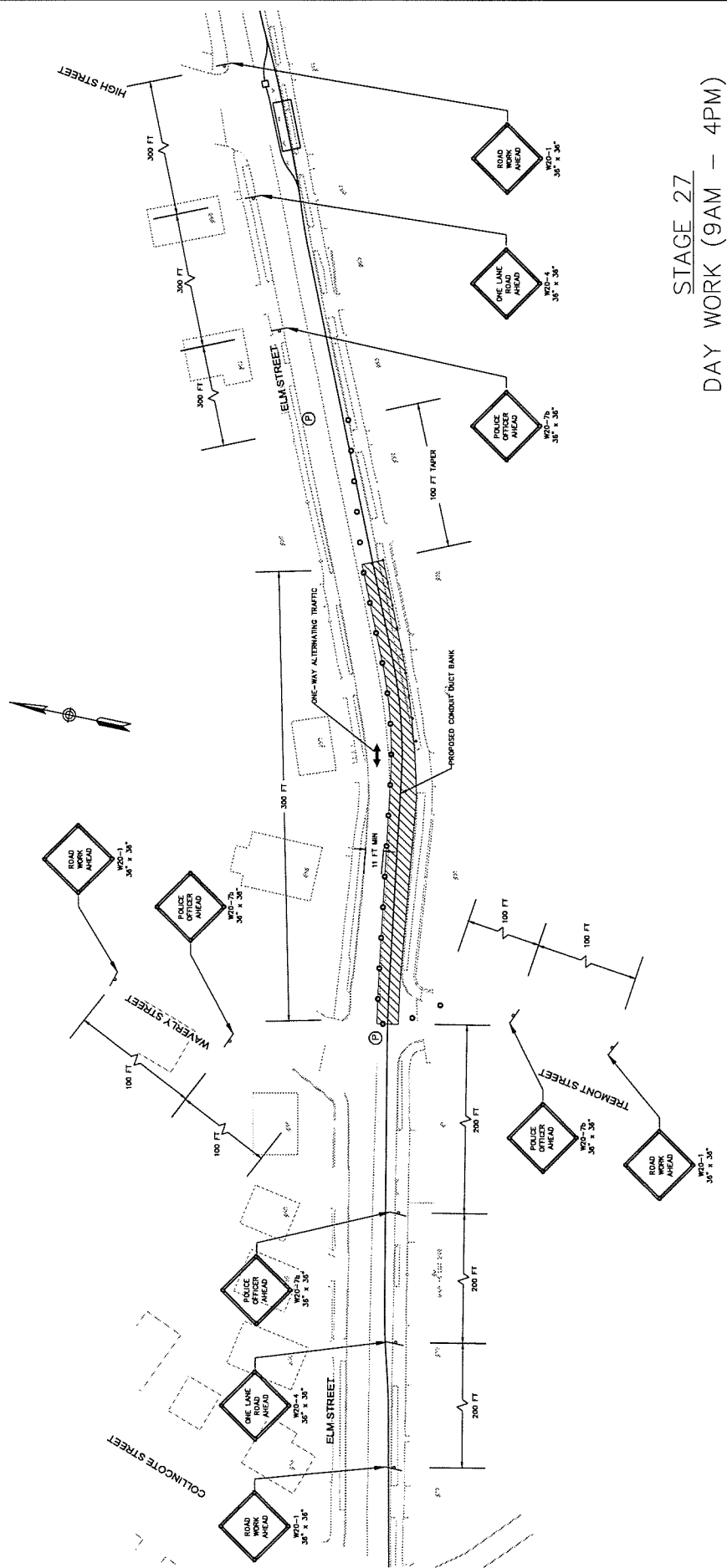
STATION

10









STAGE 27
DAY WORK (9AM – 4PM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

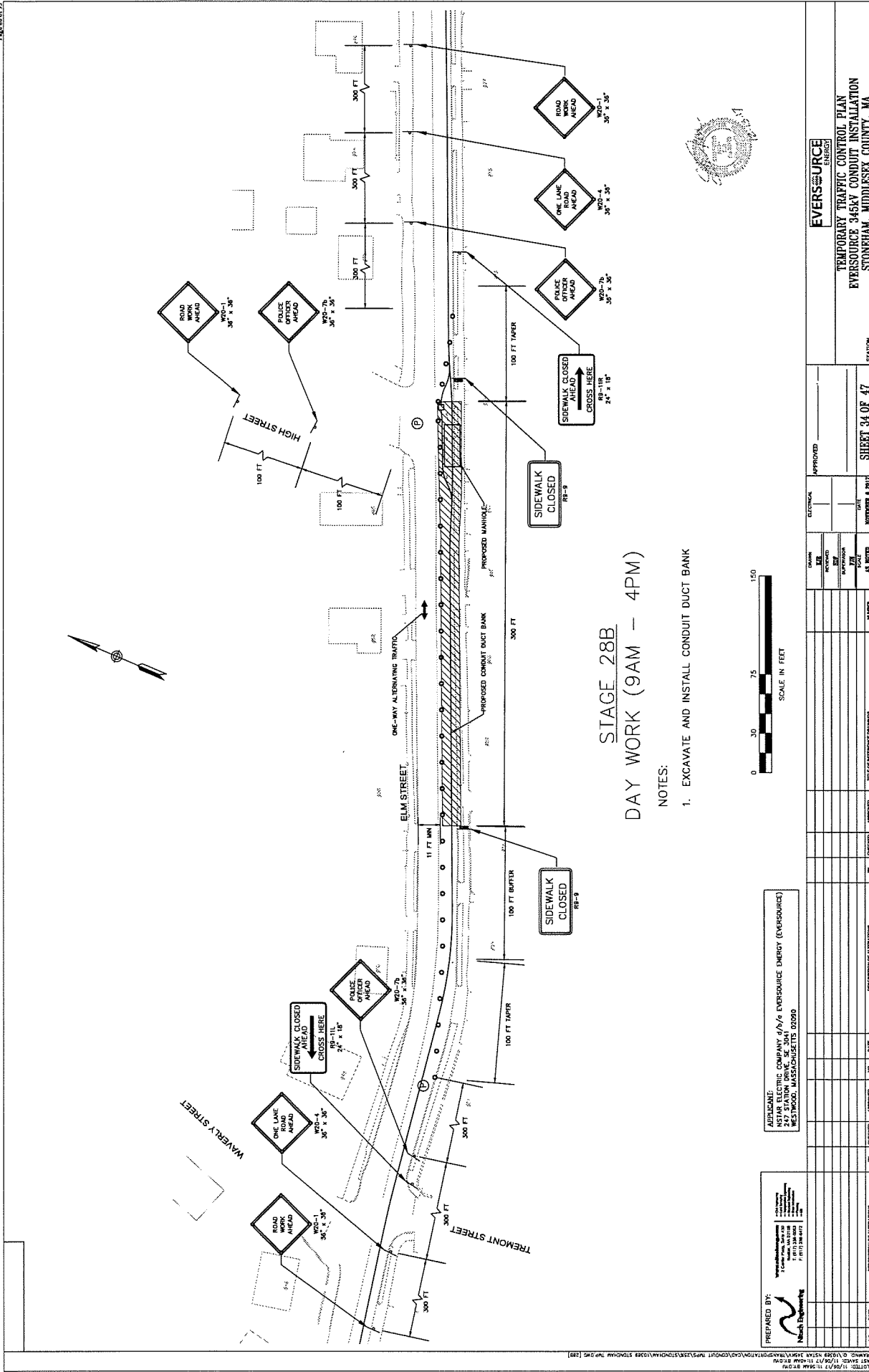
PREPARED BY:



General Information
2 Cedar Point, Suite 130
Boulder, MA 07108
T: (817) 536-0263

On-Site Inquiry
• On-Site Survey
• Inspection Reports
• Inspection Expense
• Project Estimates
• Project Management

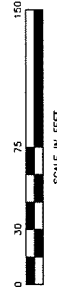
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STAGE 28B
DAY WORK (9AM - 4PM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

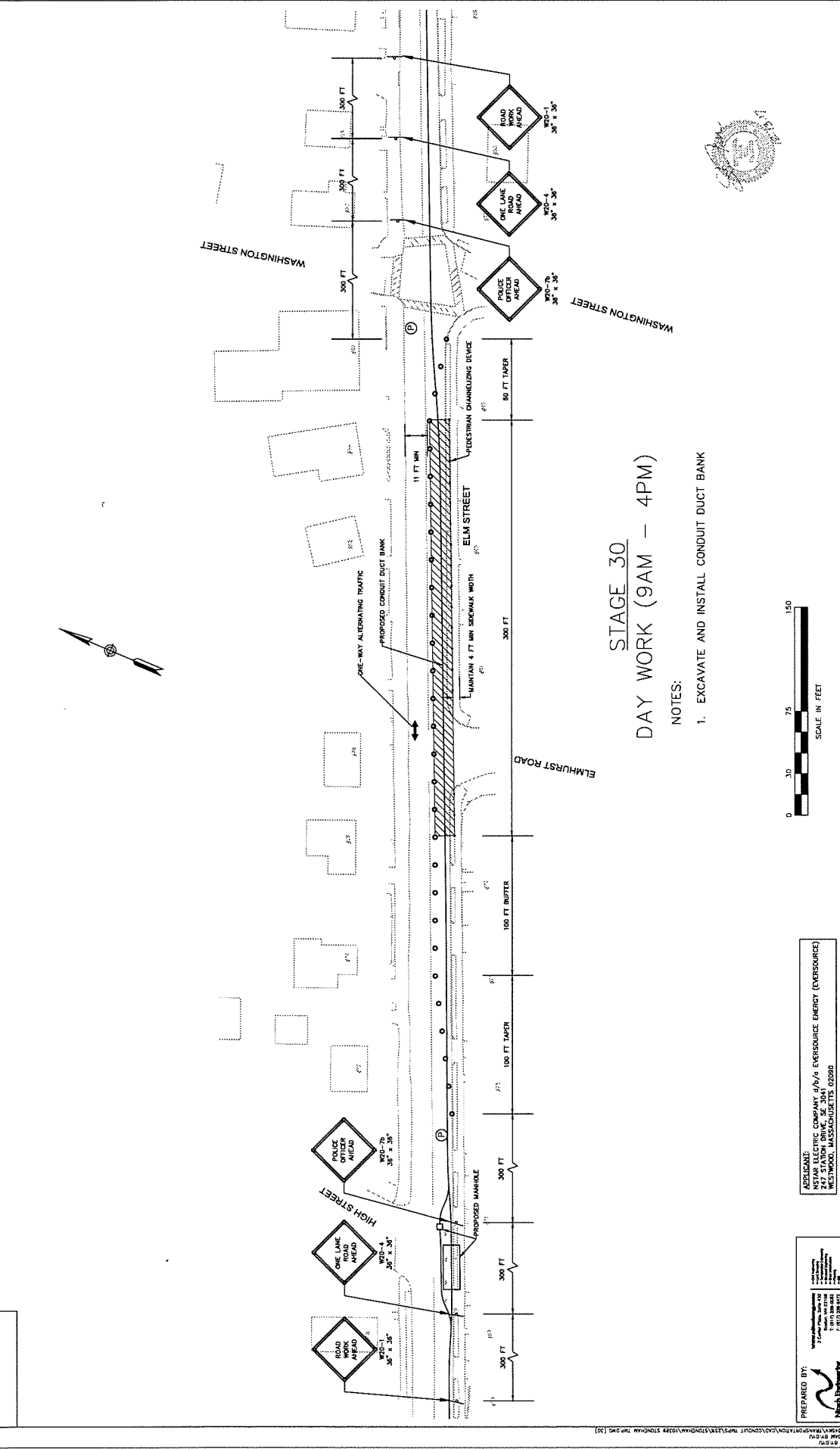


APPROVED BY: 
JUSTIN G. SMITH
INSTANT ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SUITE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY: 
MARK A. SMITH
INSTANT ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SUITE 3041
WESTWOOD, MASSACHUSETTS 02090



7/10/17 134 0017 1 - 100										7/10/17 134 0017 1 - 100									
REVISIONS										REVISIONS									
NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE	NO	DATE				



STAGE 30
DAY WORK (9AM - 4PM)

- NOTES:
 1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
 EVERSOURCE ENERGY
 200 STATE STREET
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
 [Signature]
 [Name]
 [Title]
 [Company]
 [Address]
 [Phone]
 [Fax]
 [Email]

REVISIONS				APPROVALS				ELECTRICAL				APPROVED			
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TEMPORARY TRAFFIC CONTROL PLAN
 EVERSOURCE 345KV CONDUIT INSTALLATION
 STONEHAM, MIDDLESEX COUNTY, MA

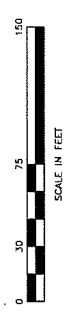
SHEET 36 OF 47

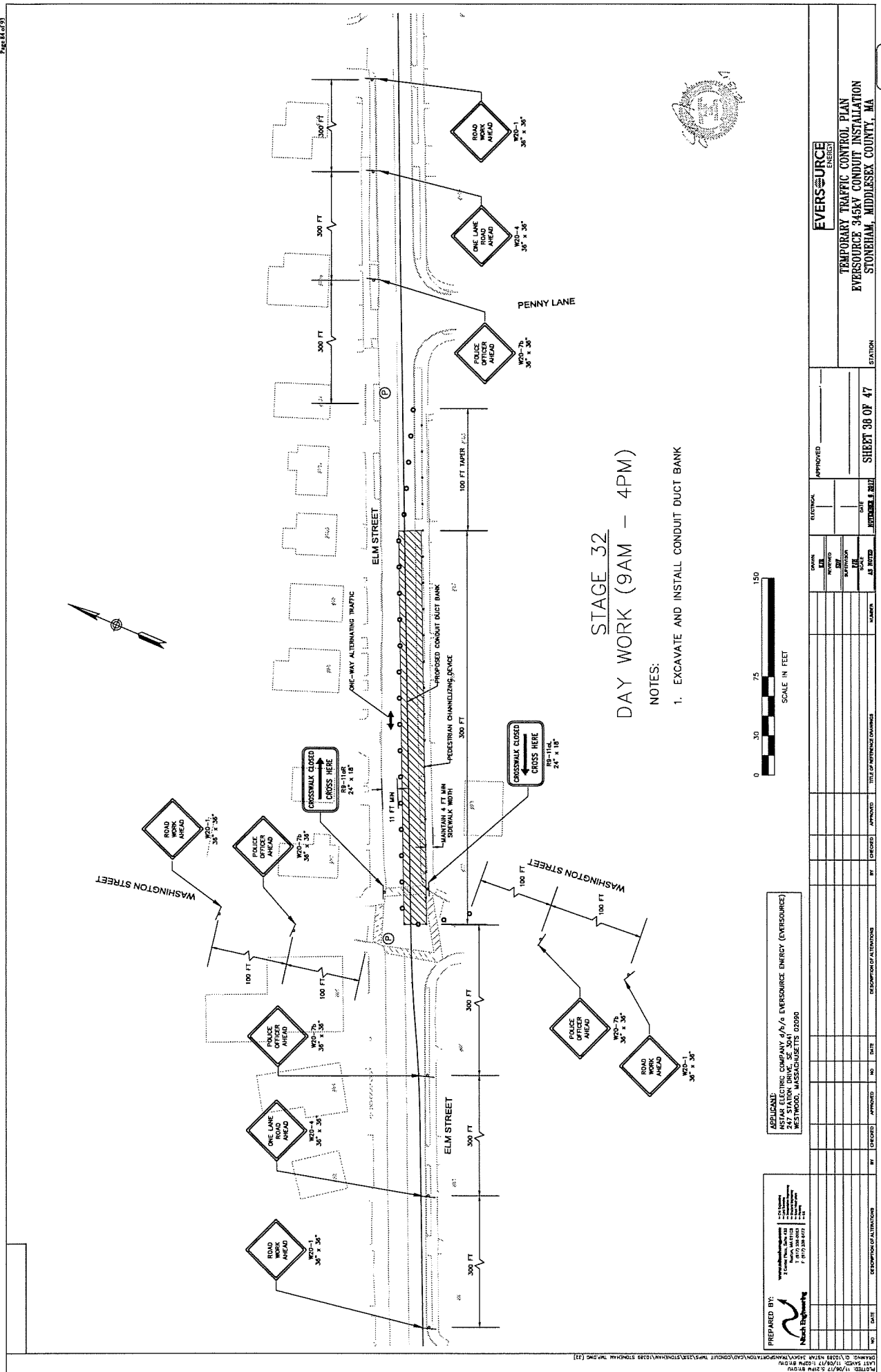
STATION

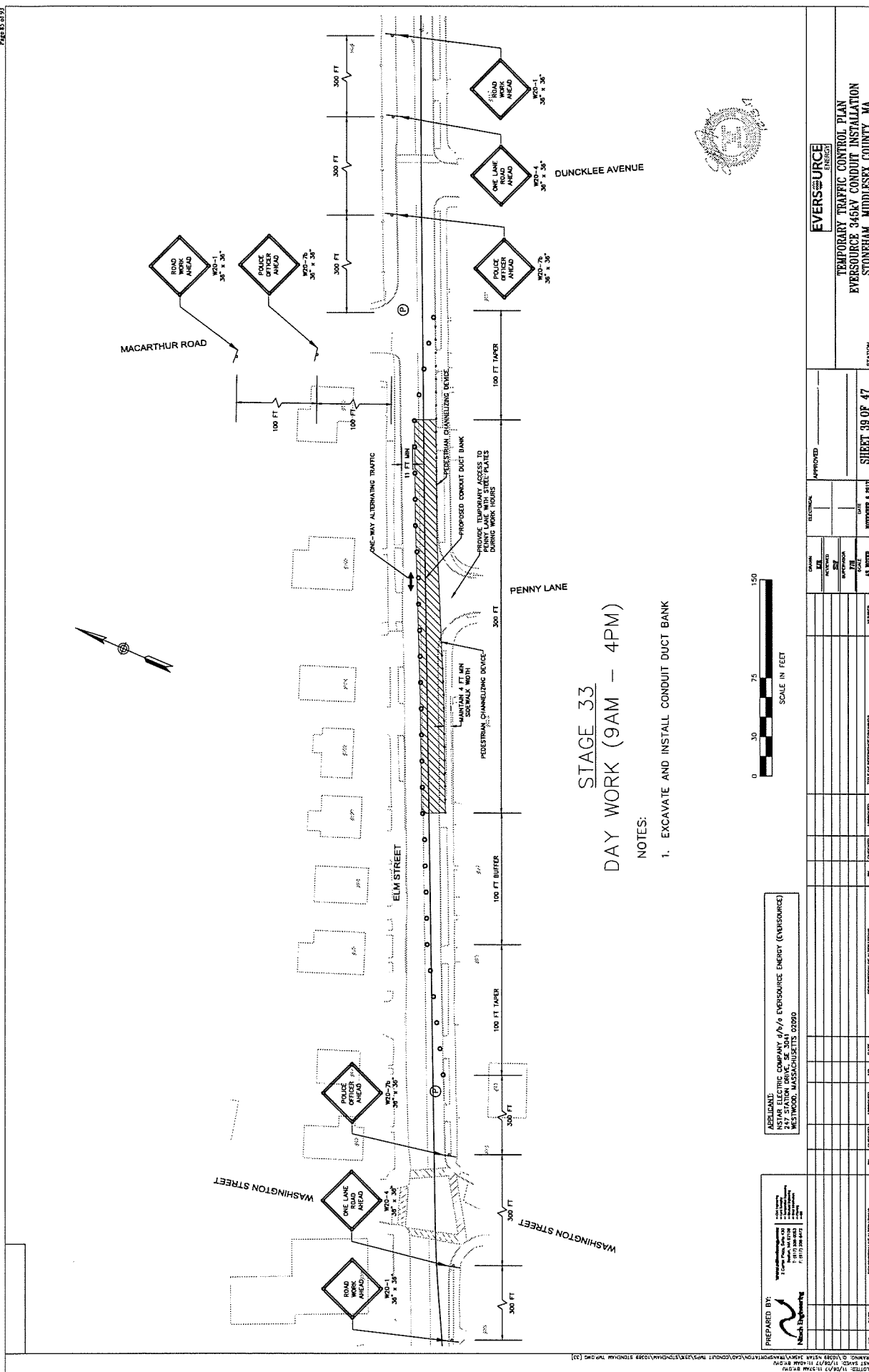


NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

[illegible]



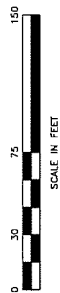




NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

- NOTES:
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

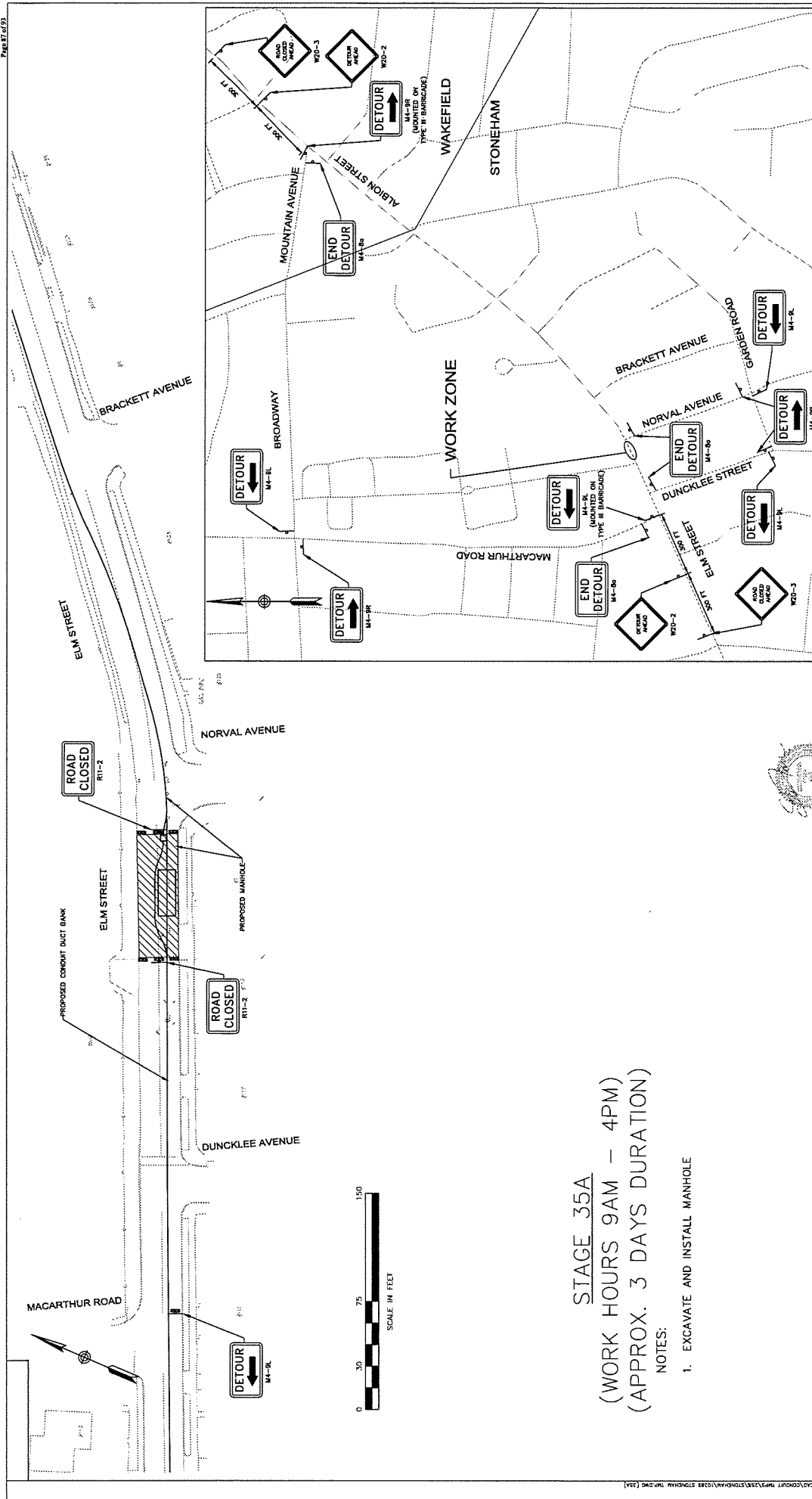


PREPARED BY: 

[illegible]

EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA



STAGE 35A
(WORK HOURS 9AM – 4PM)
(APPROX. 3 DAYS DURATION)

NOTES:

- 1. EXCAVATE AND INSTALL MANHOLE**

APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)

PREPARED BY:



Medical Software Management
 2 Center Plaza, Suite 433
 Bedford, MA 01818
 T. (617) 338-0253
 F. (617) 338-8472

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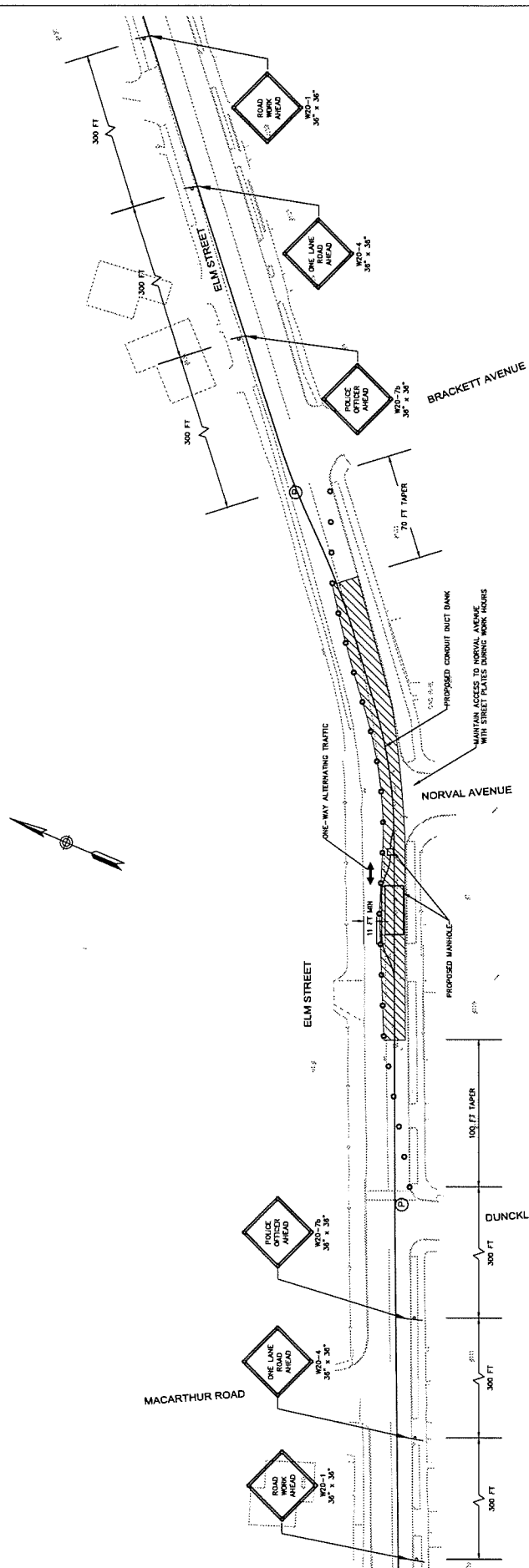
DETOUR ROUTE PLAN

NOT TO SCALE

EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345KV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

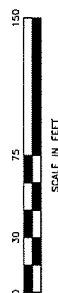
19



STAGE 35B
DAY WORK (9AM - 4PM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:

 Stash Engineering

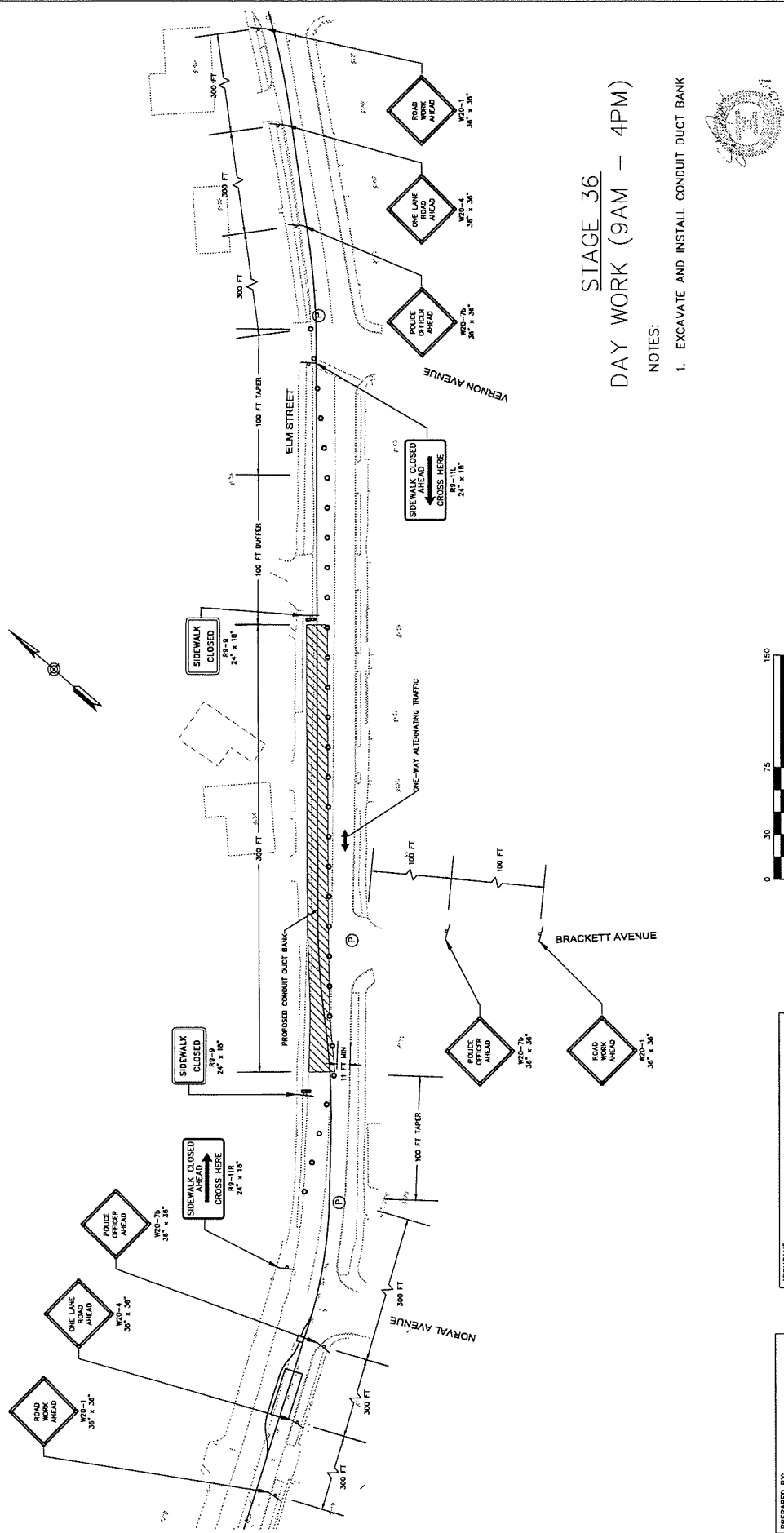
Internet: www.stash.com
2 Carter Plaza, Suite 430
Needham, MA 02160
T: (617) 338-0053
F: (617) 338-8472

• Old Inventory
• Lost Inventory
• Expired Inventory
• Expired Inventory
• Expired Inventory
• Expired Inventory

[illegible]

EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA



STAGE 36 DAY WORK (9AM - 4PM)

NOTES:

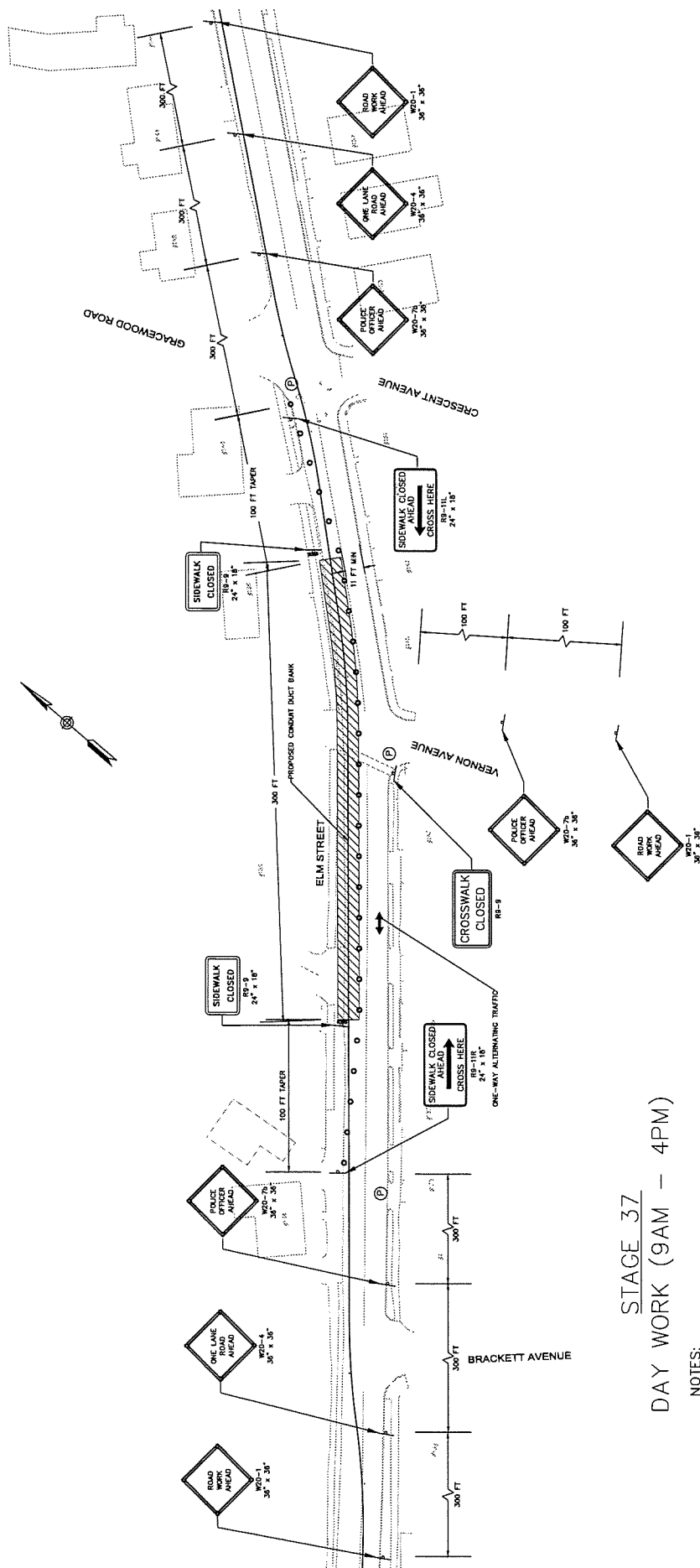
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



APPROVED BY:
 EVERSOURCE ENERGY
 247 STATION DRIVE, SE 3041
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
 EVERSOURCE ENERGY
 247 STATION DRIVE, SE 3041
 WESTWOOD, MASSACHUSETTS 02090

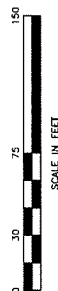
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REVIEWED BY _____											
SUPERVISOR _____											
SCALE _____											
AS NOTED											
DATE _____											
SHEET 43 OF 47											
STATION											
EVERTS SOURCE ENERGY											
TEMPORARY TRAFFIC CONTROL PLAN											
EVERTS SOURCE 345KV CONDUIT INSTALLATION											
STONEHAM, MIDDLESEX COUNTY, MA											



STAGE 37
DAY WORK (9AM – 4PM)

NOTES:

1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



PREPARED BY:



APPLICANT:

INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SC 3041
WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:

EVERSOURCE ENERGY
3 Corporate Center, Suite 300
Boston, MA 02108
T: (617) 398-0043

APPLICANT:
NSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SC 30401
WESTWOOD, MASSACHUSETTS 02090

[illegible][illegible]

EVERSOURCE
ENERGY

TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA

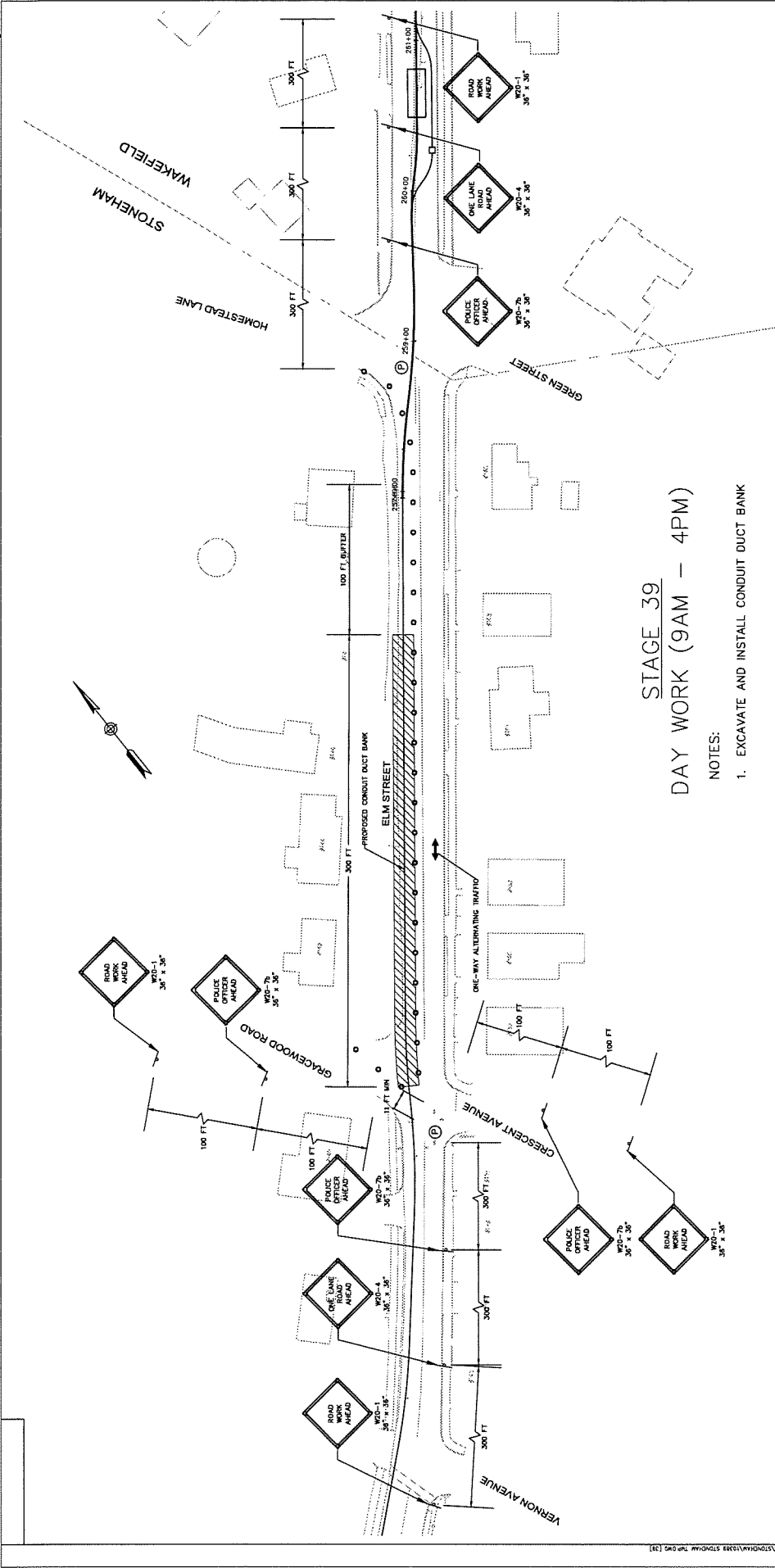


1. EXCAVATE AND INSTALL CONDUIT DUCT BANK

APPLICANT:
INSTAR ELECTRIC COMPANY d/b/a EVERSOURCE ENERGY (EVERSOURCE)
247 STATION DRIVE, SE 3041

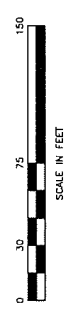
EVERSOURCE
ENERGY SERVICES

**TEMPORARY TRAFFIC CONTROL PLAN
EVERSOURCE 345kV CONDUIT INSTALLATION
STONEHAM, MIDDLESEX COUNTY, MA**



STAGE 39
 DAY WORK (9AM - 4PM)

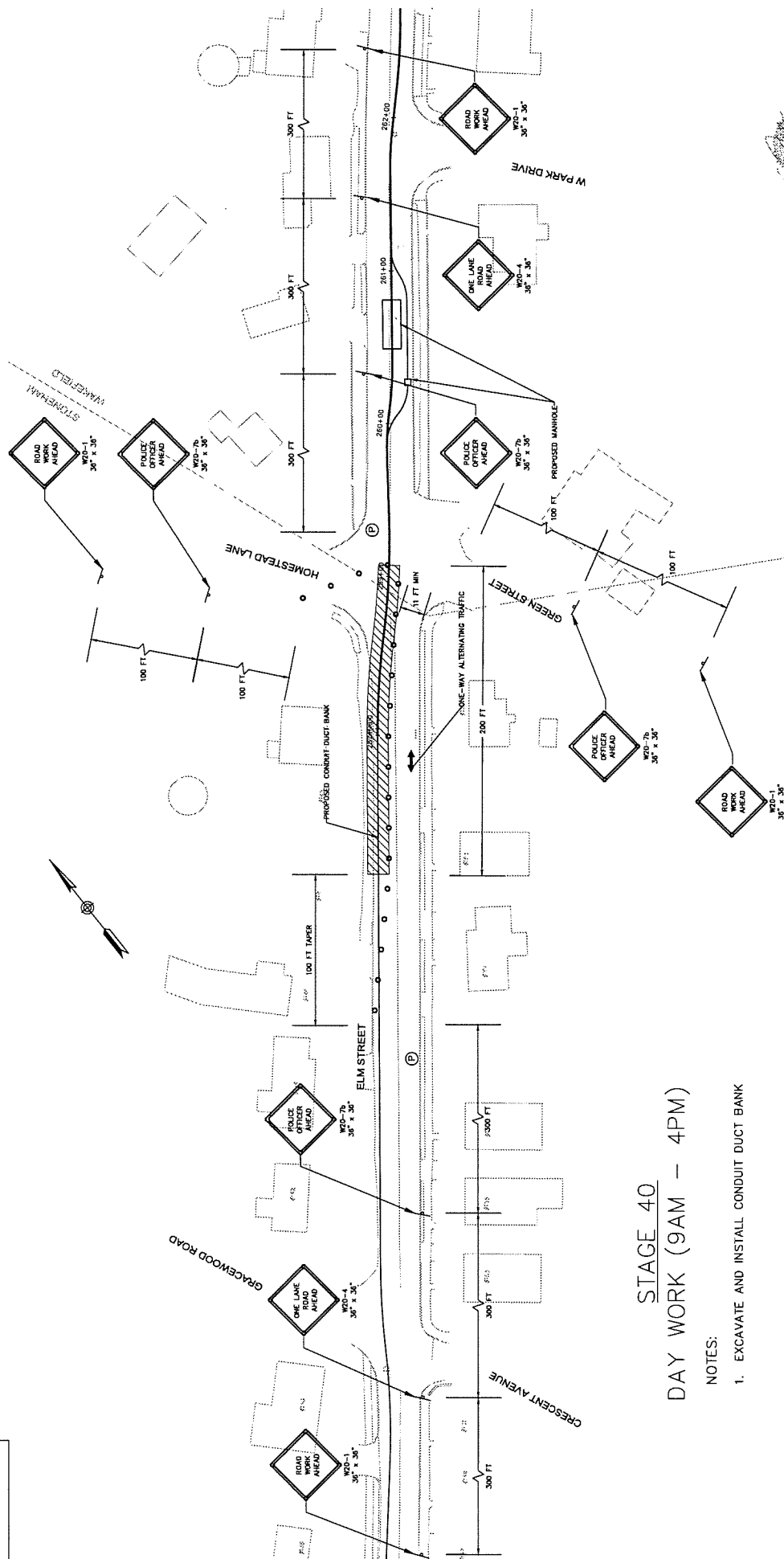
- NOTES:
1. EXCAVATE AND INSTALL CONDUIT DUCT BANK



AERIALS: NSTAR ELECTRIC COMPANY dba EVERSOURCE ENERGY (EVERSOURCE)
 227 STATION DRIVE, SE 304
 WESTWOOD, MASSACHUSETTS 02090

PREPARED BY:
 Nick DeLuca
 Eversource Energy

Norsk Engineering										P: 810.336.8475 F: 810.336.8476																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												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