Public Facilities Committee Report

City of Newton
In City Council

Wednesday, December 6, 2023

Present: Councilors Leary (Chair), Kelley, Gentile, Crossley, Danberg, Laredo and Kalis

Absent: Councilor Norton

City Staff: City Engineer Louis Taverna and Committee Clerk Evan Cudmore

For more information regarding this meeting, a video recording can be found at the following link: Public Facilities Committee December 6, 2023

Public Hearing

#321-23 **Request for a grant of location in Chestnut Hill Road**
NATIONAL GRID petition for a grant of location to install and maintain gas main in Chestnut Hill Road as follows:
• 325'+ of 8" plastic in Chestnut Hill Road from the existing 12" Cast Iron in Beacon St to replace 325' of 6" cast iron.
• 420' + of 4" plastic main in Chestnut Hill Ter from Chestnut Hill Rd and Gate House Rd to replace 420' of 6" cast iron.
• 40' + of 8" plastic in the intersection of Chestnut Hill Rd and Gate House Rd to replace 40' of 6" cast iron.
Public Facilities Held 7-0 (Councilor Danberg Not Voting); Public Hearing Opened on 10/04/23
Public Facilities Held 7-0; Public Hearing Closed on 10/18/23

Action: **Public Facilities Approved 5-0-2 (Councilors Leary and Kelley abstaining)**

Notes: Mary Mulroney of National Grid presented the above request to the Public Facilities
Committee.

The public hearing was opened.

Erik Dubovnik of 3 Meigh Road expressed to the committee that the residents of Gatehouse, Meigh and Chestnut Hill Terrace are interested in understanding the potential timing of this project, as the neighborhood is planning to re-pave these roads. Mary Mulroney from National Grid responded that this would depend on coordination with the City of Newton Engineers, but she would assume

then priority would be within a couple of months to coordinate with the repaving project. Mr. Dubovnik added that he is happy to coordinate this with National Grid as a representative for the neighborhood.

The public hearing was closed.

Councilor Laredo motioned to approve the item, which was approved 5-0-2 (Councilors Leary and Kelley abstaining).

Public Hearing

#413-23 **Request for water main extensions and granting of water easement in Tower Road**

NORTHLAND PATTERN DISTRICT LLC is petitioning for the extension of the City's water main from Tower Road which includes a variable width easement from Tower Road to Oak Street, and to the Greenway. A section of the new main will be installed from the Northland campus through the greenway and connected to Mechanic Street.

Action: **Public Facilities Approved 7-0**

Notes: Alan Schlesinger from Northland Pattern District LLC presented the above request to the Public Facilities Committee.

Mr. Schlesinger explained to the committee that this water line extension will provide a looping for the area of Newton Upper Falls and improves the capacity and flow in the area. Mr. Schlesinger also added that this plan also shows a spur going to Mechanics Street, going to the Greenway, opposite Mechanic Street, and this will allow the city to loop the Mechanic Street water into the same system Northland has provided going to the Greenway.

City Engineer Louis Taverna added that Public Works is in the process of working with the MBTA to obtain a permit to cross the Greenway with a new water main.

The public hearing was opened.

With no member of the public wishing to speak, the public hearing was closed.

Councilors asked the following questions

Q – This project creates an easement?

A – This is all within Northlands Property, so yes, Northland would be granting an easement, and the water main will be public.

Q – Will this be the first water main extension that is underneath the Greenway?

A – There is currently an old water main extension underneath the Greenway that is almost at the same location that has been out of service for many years. This project would replace the old water main with a new 8-inch water main, which will connect to Mechanic Street.

Q – Does putting a water main extension under the green way preclude the city from putting a trolley service above it in the future?

A – No, what the current plan is to install an exterior casing pipe, and then put the water main in within the casing pipe, so anything can be built on top of the green way at some future point.

Councilor Crossley motioned to approve the item which passed unanimously.

#372-23 **Appointment of Philip Hanser to the Citizens Commission on Energy**
HER HONOR THE MAYOR appointing Philip Hanser, 40 Cedar Street, Newton Centre to the Citizens Commission on Energy for a term of office to expire April 15, 2026. (60 days: 01/19/24)
Action: **Public Facilities Approved 7-0**

Notes: Mr. Hanser thanked the committee for their time. He explained to the committee that he has had a fairly long career and energy, and continued to say that he thought that I could be of help to the city of Newton, and so he decided to offer his services to the Energy Commission.

Vice Chair Kalis added to the committee that Mr. Hanser helped him with his project in the past, and he thinks he has a terrific knowledge and will make a terrific appointment to the Citizens Commission on Energy.

Councilor Danberg motioned to approve the item, which passed unanimously.

#414-23 **Reappointment of Miles Smith to the Sustainable Materials Management Commission**
HER HONOR THE MAYOR reappointing Miles Smith, 30 Webster Street, Newton 02465 to the Sustainable Materials Management Commission for a term of office to expire September 30, 2026. (60 days: 2/02/2024)
Action: **Public Facilities Approved 7-0**

Notes: With no questions or concerns from the committee, Councilor Kelley motioned to approve the item which passed unanimously.

#415-23 **Reappointment of Sunwoo Kahng to the Sustainable Materials Management Commission**

HER HONOR THE MAYOR reappointing Sunwoo Kahng, 60 Garland Road, Newton 02459 to the Sustainable Materials Management Commission for a term of office to expire November 15, 2026. (60 days: 2/02/2024)

Action: **Public Facilities Approved 7-0**

Notes: With no questions or concerns from the committee, Councilor Danberg motioned to approve the item which passed unanimously.

#416-23 **Reappointment of Marian Rambelle to the Sustainable Materials Management Commission**

HER HONOR THE MAYOR reappointing Marian Rambelle, 2 Harrington Street, Newton 02460 to the Sustainable Materials Management Commission for a term of office to expire October 31, 2026. (60 days: 2/02/2024)

Action: **Public Facilities Approved 7-0**

Notes: With no questions or concerns from the committee, Councilor Kelley motioned to approve the item which passed unanimously.

The Committee adjourned at 7:24 PM.

Respectfully Submitted,

Alison Leary, Chair

CITY OF NEWTON

Department of Public Works

ENGINEERING DIVISION

Memorandum

To: Councilor Alison Leary, Facilities Committee Chair.

From: John Daghlian, Associate City Engineer

Re: NGrid Gas Main Replacement Essex Rd and various locations

Date: September 13, 2023

CC: Jim Mcgonagle, Commissioner
Shawna Sullivan, Chief of Staff
Lou Taverna, PE City Engineer
Evan Cudmore, Committee Clerk

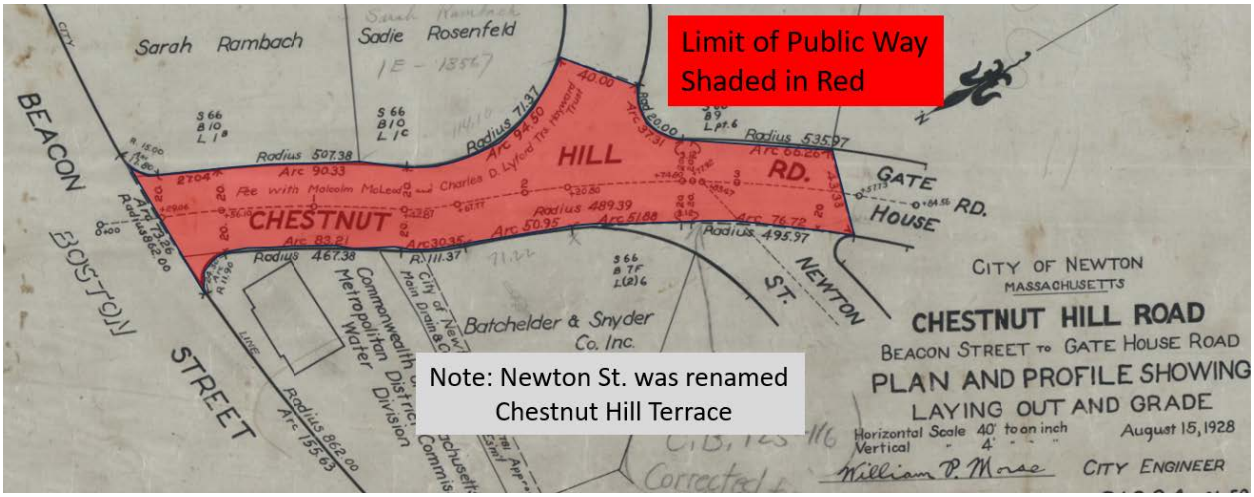
In reference to the above location, the following are my comments for a plan entitled:

1-109 Essex Road
Gas Min Replacement
Essex Rd, Chestnut Hill Rd, Chestnut Hill Terrace, Gate House Rd,
Nancy Rd, Meigh Rd, Newton MA
Cover – Location Map
Dated: 4/28/2023
Revised: 6/27/2023

Executive Summary:

This petition from NGrid has various locations within the Chestnut Hill area, however; most of the streets listed are private ways and the city has no jurisdiction over these privately owned streets.

Chestnut Hill Terrace is public way, and a short portion of Chestnut Hill Road is public, see the following plan that shows the limits of the public way. The remaining roads are all private ways as listed on the following table.



Note: Newton Street was renamed Chestnut Hill Road

Road	Public Way	Private Way
Chestnut Hill Terrace	467 ft	
Chestnut Hill Rd	325 ft	3,360 ft
Essex Rd		1,792 ft
Gate House Rd		1,529 ft
Meigh Rd		214 ft
Nancy Rd		723 ft

Prior to any construction a Traffic Management Plan will be required for review and approval by the Traffic Division & Police Department.

A preconstruction meeting will be required with the DPW, Newton Police & Utilities and the contractor of record prior to commencement. Appropriate construction ahead warning signs, variable message boards and neighborhood notifications shall be executed a minimum of two weeks prior to the start of construction.

Conditions & Special Provisions:

1. The contractor of record shall apply for a Street Opening & Trench Permits with the DPW prior to any construction with appropriate Bonds, Certificate of Insurance & Dig Safe clearance. The Utilities Division must be contacted for utility mark outs as the City is not a member of Dig Safe call 617-796-1640.

2. If any service connections or private utilities are disturbed by the contractor of record during construction, they shall be updated and replaced to the City's current Construction Standards.

3. All downstream catch basins shall be retrofitted with an approved type of siltation control devices, details of this shall be submitted to the City Engineer for approval. The contractor of record shall maintain these catch basins throughout the construction process and ensure that street and property flooding does not occur during construction.

4. Pedestrian access around the construction zone shall be accommodated by the contractor for the duration of the construction in accordance with the DPW requirements.

5. Upon final installation & activation of the gas main an As Built drawing [plan & profile] indicating depth of pipe shall be submitted in digital and hard copy format to the City Engineer.

6. The contractor of record shall contact the Newton Police Department 48 hours in advanced and arrange for Police detail to help residents & commuters navigate around the construction activity.

If you have any questions or concerns, please call me at 617-796-1023.

CITY OF NEWTON
MASSACHUSETTS

PETITION for GRANT OF LOCATION

To the Petitioner:

City of Newton Ordinance Section 23-52 requires that each petition for grant of location be submitted to the City Council before it is sent to the Public Works Department for a preliminary review. The comments of the Public Works Commissioner will be part of the record submitted to the City Council. Upon filing with the City Council, the petition will be scheduled for a public hearing before the Public Facilities Committee of City Council. **The petitioner is responsible for insuring that the petition is complete, and all required materials are in order for review.** Attached please find the City Engineer's Standard Requirements for Plans and the Department of Public Works Permit Processing brochure.

Grant of Location Process:

1. Applicant submits completed Petition Form and required materials to the City Council
2. Public Works Department conducts preliminary review and gives written comments to the applicant
3. Engineering Division files Petition Form with comments with the Clerk of the City Council
4. City Council schedules petition for a public hearing before the Public Facilities Committee of the City Council
5. Public Facilities Committee recommendations are forwarded to the City Council for a final decision

Questions may be directed to:

Lou Taverna, City Engineer, 617-796-1020
Cassidy Flynn, Clerk of the Public Facilities Committee 617-796-1213

I. IDENTIFICATION (Please Type or Print Clearly)

Company Name NATIONALGRID

Address 201 Rivermoor Street
West Roxbury, MA 02132

Phone Number 617-894-3896 Fax Number _____

Contact Person Mary Mulroney Title Permit Representative

Signature *Mary Mulroney* Date July 21, 2023
Person filing application

If a telecommunications company, indicate how certified by the Department of Telecommunications and Energy:

II. DESCRIPTION OF PROJECT: to be completed by petitioner

Write here or attach a description of the project including, location, proposed time frame for completion, type of materials to be used, benefit provided to the City, project mitigation plan as applicable, street reconstruction plan including timetable for completion.

As part of the Cast Iron Main Replacement Program on Leak Prone Pipe Nationlgrid recommends the relay of:
approximately 40 feet of 1.25- inch, Plastic (1998), approximately 1630 feet of 6- inch, Cast Iron (1927/1928) and approximately 5 feet of 6- inch, Plastic (1998) with approximately 1675 feet of 8-inch, plastic in Gate House Rd from the existing 12- inch, Cast Iron in Beacon St to Essex Rd,
approximately 420 feet of 6- inch, Cast Iron (1923) with approximately 420 feet of 4- inch, Plastic in Chestnut Hill Ter from Gate House Rd,
approximately 40 feet of 6- inch, Cast Iron (1928) with approximately 40 feet of 8-inch, Plastic stub in the intersection of Chestnut Hill Rd and Gate House Rd (cut and cap the existing 6- inch Cast Iron at #22 Chestnut Hill Rd),
approximately 210 feet of 6- inch, Cast Iron (1928) with approximately 210 feet of 4- inch, Plastic in Meigh Rd from Gate House Rd to end of main at #14 Meigh Rd,
approximately 50 feet of 4- inch/6- inch, Cast Iron (1905/1927) with approximately 50 feet of 6- inch, Plastic in the intersection of Nancy Rd and Gate House Rd (cut and cap the existing 4- inch Cast Iron at #85 Gate House Rd),
approximately 325 feet of 6- inch, Plastic (1998) and approximately 1110 feet of 6- inch, Cast Iron (1924/1928) with approximately 1435 feet of 6- inch, Plastic in Essex Rd from #3 Essex Rd to #109 Essex Rd.

A. Include or attach a sketch to provide a visual description of the project. If plans are attached, provide:
Title of Plan _____ Date of plan _____

III. PUBLIC WORKS DEPARTMENT REVIEW

Date received by Public Works Department _____

Check One:

Minor Project ☐ Major Project ☐ Lateral ☐

(Refer to City Engineer Standard Requirements for Plans for definition of minor and major project)

Plans Submitted:

Certified Plot Plan ☐ Stamped Plans ☐

DATE AND COMMENTS:	**RECOMMENDATIONS:**

V. RECOMMENDATION TO PUBLIC FACILITIES COMMITTEE:

_____ _____

Commissioner, Public Works Date

PETITION OF NATIONAL GRID FOR GAS MAIN LOCATIONS

City of Newton / City Council:

The Nationalgrid hereby respectfully requests your consent to the locations of mains as hereinafter described for the transmission and distribution of gas in and under the following public streets, lanes, highways and places of the **City of Newton** and of the pipes, valves, governors, manholes and other structures, fixtures and appurtenances designed or intended to protect or operate said mains and accomplish the objects of said Company; and the digging up and opening the ground to lay or place same:

As part of the Cast Iron Main Replacement Program on Leak Prone Pipe Nationlgrid recommends the relay of:

approximately 40 feet of 1.25- inch, Plastic (1998), approximately 1630 feet of 6- inch, Cast Iron (1927/1928) and approximately 5 feet of 6- inch, Plastic (1998) with approximately 1675 feet of 8-inch, plastic in Gate House Rd from the existing 12- inch, Cast Iron in Beacon St to Essex Rd,

approximately 420 feet of 6- inch, Cast Iron (1923) with approximately 420 feet of 4- inch, Plastic in Chestnut Hill Ter from Gate House Rd,

approximately 40 feet of 6- inch, Cast Iron (1928) with approximately 40 feet of 8-inch, Plastic stub in the intersection of Chestnut Hill Rd and Gate House Rd (cut and cap the existing 6- inch Cast Iron at #22 Chestnut Hill Rd),

approximately 210 feet of 6- inch, Cast Iron (1928) with approximately 210 feet of 4- inch, Plastic in Meigh Rd from Gate House Rd to end of main at #14 Meigh Rd,

approximately 50 feet of 4- inch/6- inch, Cast Iron (1905/1927) with approximately 50 feet of 6- inch, Plastic in the intersection of Nancy Rd and Gate House Rd (cut and cap the existing 4- inch Cast Iron at #85 Gate House Rd),

approximately 325 feet of 6- inch, Plastic (1998) and approximately 1110 feet of 6- inch, Cast Iron (1924/1928) with approximately 1435 feet of 6- inch, Plastic in Essex Rd from #3 Essex Rd to #109 Essex Rd.

Date: **July 21, 2023**

By: *Mary Mulroney*
Mary Mulroney
Permit Representative

City of Newton / City Council:

IT IS HEREBY ORDERED that the locations of the mains of the Nationalgrid for the transmission and distribution of gas in and under the public streets, lanes, highways and places of the **City of Newton** substantially as described in the petition date **July 21, 2023** attached hereto and hereby made a part hereof, and of the pipes, valves, governors, manholes and other structures, fixtures and appurtenances designed or intended to protect or operate said mains and/or accomplish the objects of said Company, and the digging up and opening the ground to lay or place same, are hereby consented to and approved.

The said Nationalgrid shall comply with all applicable provisions of law and ordinances of the **City of Newton** applicable to the enjoyment of said locations and rights.

Date this _____ day of _____, 20____.

I hereby certify that the foregoing order was duly adopted by the _____ of the City of _____, MA on the _____ day of _____, 20____.

WO # 1505036

By:

Questions for NGRID From the City Council:
1 – 109 Essex Road, Newton 1505036

Request/ Description of work:

Are the pipes leaking? If so, what is the grade of the leaks? Have these pipes been repaired before? If so, why can't they be repaired again? Is re-lining an option? If not, why?

There are two open leaks within the scope of wo#1505036 (1-109 ESSEX RD, NEW) as shown in table below (as of 7/25/2023). Please note the leaks are grade 2 and grade 3.

LEAK_NO	MAIN_SERVICE	CLASS	Date Reporte	Division	Leak Source	WONUM	RPT_TOWN	T_ST_NUM	PT_ST_NAM	RPT_ST_SFX	NT_ST_N	INT_ST_	ak Status
7375092	ACTIVE	2	12-May-22	Waltham	Public	1478830	NEW	88	ESSEX	RD	GATE HO	RD	Monitoring
305519	ACTIVE	3	23-Aug-07	Waltham	Walking Survey	572020	NEW	50	CHESTNUT	RD	GATE HO	RD	Monitoring

The cast iron gas mains within the scope of wo#1505036 (1-109 ESSEX RD, NEW) have been repaired several times and replacement is needed given all the factors, such as frequency of leaks. Lining is not an option in this case due to the concentration of service laterals in scope.

How was the decision to replace versus repair is made by Ngrid? Please be as specific as possible.

The decision to replace is primarily driven by public safety concerns. Pipes in scope of wo#1505036 have a history of leakage and should be replaced. In accordance with *CFR title 49 Subtitle B Chapter I Subchapter D Part 192 Subpart P § 192.1007 (c)* National Grid evaluate and rank risk to make determination and prioritization of replacement. Additionally, under the requirements of GSEP National Grid is obligated to replace all leak prone pipes which includes cast iron mains.

Are there new customers being hooked up? (expanded service?)

New customers are not connected as part of main replacement projects.

Have there been complaints of water intrusion or other problems?

The Company is not aware of water intrusion within scope of wo#1505036.

What is the condition of each of the streets' surface? Have the streets been paved recently? (For DPW)

Streets are not under moratorium

What is the plan for returning the street to its original condition or are there going to be long patches susceptible to degradation? (For DPW)

The standard process will be followed.

Have all the gate boxes been located and protected? Are they all operable and accessible?

Thank you,
Cassidy Flynn
Deputy City Clerk
City of Newton
(617) 796-1213

Newton questions from October 4, 2023, meeting:

1. Councilor Kalis had asked National Grid to provide documentation for the criteria of doing lining versus replacement of pipes. Would you be able to send me this documentation to provide to the Committee for future meetings?

Answer: **Is repair or relining an option? If not, why?**

The existing cast iron 4" and 6" main in Essex road will continue to be repaired in compliance with the obligation of National Grid to maintain a safe and reliability distribution system. The Company will not agree to continue to perform repair activities for an indefinite period as the main has been deemed a risk priority to the extent that replacement with new piping is to be pursued under the project subject to the permit application. The project scope represents a safety risk with replacement the single viable solution to resolve. National Grid has a regulatory obligation to replace all small diameter cast iron main in the distribution system within the duration of GSEP. Lining is not a viable option for the existing segments of main within scope of wo#1505036 or other like segments of small diameter cast iron from either a cost or construction activities logistics perspective. The existing configuration of gas main has a high concentration of service laterals that would prohibit a system shutdown that would be required to prior to application of the lining material.

The larger cast iron pipes are not typically replaced, but rather repaired or lined. The following is an excerpt from the Company's procedure titled, "Identification, Evaluation and Prioritization of Distribution Main Segments for Replacement", with a reference to work type selection methodology.

e. Large diameter remediation includes Lining and CISBOT of leak prone steel mains and cast iron mains greater than 12 inches in diameter
    1) Lining and replacement are the preferred remediation methods. Lining is not possible when there are too many services or there is presence of mitered bends or back to back 45s or main cannot be taken out of service (require expensive bypass), or main is too deep. CISBOT will be used when lining is not feasible.

2. *The additional costs information requested is not part of the GOL application process.*

*Questions submitted at 8:57am on 10/18/2023.

1. What is the priority score for this proposed project and why has it not appeared in GSEP plans? **This information is not part of the GOL application process.*

2. Why did National Grid choose to prioritize this expensive gas pipe replacement project?

**On 7/21/23 the GOL application was originally submitted and as stated:*

As part of the Cast Iron Main Replacement Program on Leak Prone Pipe National Grid recommends the relay of:

approximately 40 feet of 1.25- inch, Plastic (1998), approximately 1630 feet of 6- inch, Cast Iron (1927/1928) and approximately 5 feet of 6- inch, Plastic (1998) with approximately 1675 feet of 8-inch, plastic in Gate House Rd from the existing 12- inch, Cast Iron in Beacon St to Essex Rd,

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approximately 50 feet of 4- inch/6- inch, Cast Iron (1905/1927) with approximately 50 feet of 6- inch, Plastic in the intersection of Nancy Rd and Gate House Rd (cut and cap the existing 4- inch Cast Iron at #85 Gate House Rd),

approximately 325 feet of 6- inch, Plastic (1998) and approximately 1110 feet of 6- inch, Cast Iron (1924/1928) with approximately 1435 feet of 6- inch, Plastic in Essex Rd from #3 Essex Rd to #109 Essex Rd.

3. They have not responded to our standard question about the gate boxes being identified and that they are operable and accessible. This is a question we ask about each gas main project."

**Prior to the work beginning at this location, our Gas team conducts on-site meetings with municipalities to educate them on the Gate Box program. Typically, a Supervisor and Inspector introduces themselves, discusses with the municipality the importance of adequate notification prior to paving, defines inadequate notification, and highlights that raising gate boxes promotes public safety. The Company provides municipalities with a "Gate Box Policy & Contacts" handout (see Attachment B, Page 2) which summarizes the program and includes relevant Company contact information.*

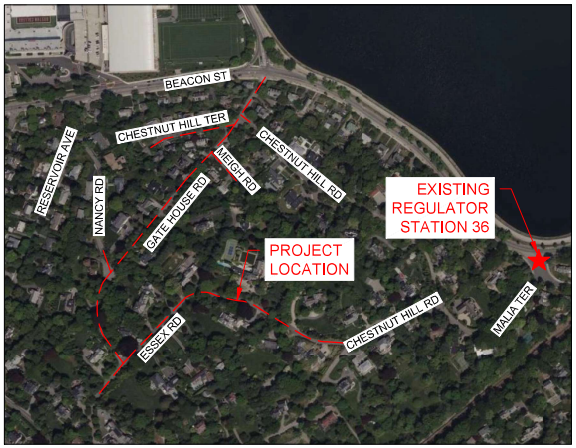
Additional information regarding leak prone pipe.

- *The primary purpose of replacing leak prone pipe is to improve safety and to reduce the risks associated with gas main breakage.*
- *Repairing leaks does not reduce these risks, and thus is not a substitute for pipe replacement necessary to ensure the integrity of the gas system and ensure public safety.*
- *The average cost per mile of pipe replacement is currently about $3M per mile.*
- *The average cost of a leak repair is about $6K. Cast iron pipe has a joint every twelve feet, which would require sealing to fix current leaks and prevent future leaks.*
- *For example, replacing 1.6 miles of pipe would cost approximately $4.8M which would eliminate all leaks, prevent future leaks, and reduce risk of a catastrophic event caused by a main break.*
- *Repairing all current leaks and preventing future leaks would cost $4.2 million – but would NOT reduce the safety risk. Therefore, pipe replacement is a more efficient solution to address both leaks and improve system safety.*

nationalgrid

1-109 ESSEX RD GAS MAIN REPLACEMENT
1.25" & 6" PL (LP) & 4" & 6" CI (LP) TO 4", 6", & 8" PL (22 PSIG)
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA
W.O. NO.: 1505036

PIPE TOTALS			
DIAMETER	MATERIAL	ABANDONED	INSTALLED
1.25"	PL	40 LF (LP)	--
4"/6"	CI	50 LF (LP)	--
6"	CI	3410 LF (LP)	--
4"	PL	--	630 LF (22#)
6"	PL	330 LF (LP)	1485 LF (22#)
8"	PL	--	1715 LF (22#)



LOCATION MAP

LAT/LON: 42°19'56.8"N, 71°09'51.4"W
NEWTON, MA
SCALE: 1:300

INDEX OF SHEETS		
SHEET	NAME	TITLE
1	DDS-NEW-71230080 G-001	COVER - LOCATION MAP
2	DDS-NEW-71230080 G-002	CONSTRUCTION NOTES
3	DDS-NEW-71230080 G-003	CONSTRUCTION NOTES & BILL OF MATERIALS
4	DDS-NEW-71230080 C-001	OVERALL SCOPE OF WORK
5	DDS-NEW-71230080 C-002	LAYOUT SHEET
6	DDS-NEW-71230080 C-003	LAYOUT SHEET
7	DDS-NEW-71230080 C-004	LAYOUT SHEET
8	DDS-NEW-71230080 C-005	LAYOUT SHEET
9	DDS-NEW-71230080 C-006	LAYOUT SHEET
10	DDS-NEW-71230080 C-007	LAYOUT SHEET
11	DDS-NEW-71230080 C-008	LAYOUT SHEET
12	DDS-NEW-71230080 C-009	LAYOUT SHEET
13	DDS-NEW-71230080 C-101	TIE-IN & ABANDONMENT DETAILS
14	DDS-NEW-71230080 C-201	STANDARD DETAILS
15	DDS-NEW-71230080 C-202	STANDARD DETAILS
16	DDS-NEW-71230080 C-203	STANDARD DETAILS
17	DDS-NEW-71230080 C-204	STANDARD DETAILS

811 DigSafe MA-ME-NH-RI-VT

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
FAX (585) 359-7541

BOSTON GAS COMPANY d/b/a nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA
COVER - LOCATION MAP

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

DRAWING NO.	SHEET NO.
G-001	01

SCOPE OF WORK:

NATIONAL GRID WORK ORDER NUMBER: 1505036

PROJECT NAME AND LOCATION: 1–109 ESSEX RD, NEWTON, MA

PROJECT SCOPE: AS PART OF THE CIMNRPL<10 PROGRAM, LPP INTEGRITY MANAGEMENT RECOMMENDS THE RELAY OF:

- APRX 40 FEET OF 1.25 INCH, LP PLASTIC (1998), APRX 1630 FEET OF 6 INCH, LP CAST IRON (1927/1928) AND APRX 5 FEET OF 6 INCH, LP PLASTIC (1998) WITH APRX 1675 FEET OF 8 INCH, 22 PSIG PLASTIC IN GATE HOUSE RD FROM THE EXST 12 INCH, 22 PSIG CAST IRON IN BEACON ST TO ESSEX RD.
- APRX 420 FEET OF 6 INCH, LP CAST IRON (1923) WITH APRX 420 FEET OF 4 INCH, 22 PSIG PLASTIC IN CHESTNUT HILL TER FROM GATE HOUSE RD.
- APRX 40 FEET OF 6 INCH, LP CAST IRON (1928) WITH APRX 40 FEET OF 8 INCH, 22 PSIG PLASTIC STUB IN THE INTERSECTION OF CHESTNUT HILL RD AND GATE HOUSE RD (CUT AND CAP THE EXST 6 INCH LP CAST IRON AT #22 CHESTNUT HILL RD).
- APRX 210 FEET OF 6 INCH, LP CAST IRON (1928) WITH APRX 210 FEET OF 4 INCH, 22 PSIG PLASTIC IN MEIGH RD FROM GATE HOUSE RD TO END OF MAIN AT #14 MEIGH RD.
- APRX 50 FEET OF 4 INCH/6 INCH, LP CAST IRON (1905/1927) WITH APRX 50 FEET OF 6 INCH, 22 PSIG PLASTIC STUB IN THE INTERSECTION OF NANCY RD AND GATE HOUSE RD (CUT AND CAP THE EXST 4 INCH LP CAST IRON AT #85 GATE HOUSE RD).
- APRX 325 FEET OF 6 INCH, LP PLASTIC (1998) AND APRX 1110 FEET OF 6 INCH, LP CAST IRON (1924/1928) WITH APRX 1435 FEET OF 6 INCH, 22 PSIG PLASTIC IN ESSEX RD FROM #3 ESSEX RD TO #109 ESSEX RD (DO NOT CONNECT TO THE EXST 6 INCH, LP CAST IRON IN CHESTNUT HILL RD).

1 MAIN CONNECTION, 3 CUT–OFFS

GENERAL CONSTRUCTION:

1. NO FIELD CHANGES SHALL BE MADE TO THIS PLAN WITHOUT APPROVAL OF ASSIGNED NATIONAL GRID PROJECT ENGINEER.
   ENGINEER: NICOLE ARABIE
   PHONE: (774) 406–9644
   EMAIL: NICOLE.ARABIE@NATIONALGRID.COM
2. NEW MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE TYPICAL TRENCH DETAIL INCLUDED IN THESE DRAWINGS, UNLESS NOTED OTHERWISE.
   A. 36 INCHES OF COVER FROM FINAL GRADE WHERE PRACTICAL
   B. STATE HIGHWAY MINIMUM COVER: 36 INCHES
   C. DISTRIBUTION MAIN MINIMUM COVER: 24 INCHES
   D. SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM.
   E. CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE.
3. SERVICES SHOULD BE INSTALLED WITH 24 INCHES OF COVER.
   A. MINIMUM IN PUBLIC ROW: 18 INCHES
   B. MINIMUM IN PRIVATE PROPERTY: 12 INCHES
   C. SAND PADDING IN ALL DIRECTIONS, 6 INCHES MINIMUM.
   D. CAUTION TAPE SHALL BE INCLUDED ONE FOOT BELOW GRADE.
4. REFER TO CNST–6030 FOR SHALLOW MAINS. PRIOR TO INSTALLING GAS MAINS WITH LESS THAN 24 INCHES OF COVER, COMPLETE REQUEST FOR WAIVER FORM AND CONTACT GAS PIPELINE SAFETY & COMPLIANCE FOR APPROVAL:
   A. JENNIFER GILLIS – (617) 594–5157 (MA EXCLUDING CAPE AND WEBSTER)
   B. LIEN GAUTHIER – (617) 438–9069 (MA EXCLUDING CAPE AND WEBSTER)
   C. IF A PROPOSED TOP TEE CONNECTION RESULTS IN A SHALLOW MAIN THAT CANNOT MEET THE WAIVER CRITERIA, A FULL TEE CONNECTION IS AN ACCEPTABLE ALTERNATIVE. A SPHERICAL TEE IS ONLY ACCEPTABLE WITH APPROVAL FROM NATIONAL GRID STRATEGIC ASSET AND SYSTEM PLANNING.
5. ALL MAINS SHOULD BE INSTALLED WITH A CLEARANCE OF 12 INCHES FROM OTHER FACILITIES.
   A. DISTRIBUTION MINIMUM CLEARANCE: 6 INCHES
   B. APPROPRIATE PROTECTIVE MEASURES SHALL BE USED TO PROTECT THE GAS FACILITY IF MINIMUMS CANNOT BE ATTAINED. APPROVAL IS REQUIRED BY GAS SYSTEMS ENGINEERING.
6. THE PIPE ALIGNMENT IS SHOWN FOR REFERENCE ONLY AS APPROXIMATELY 3 FEET FROM THE EXISTING MAIN (BASED ON AVAILABLE RECORD INFORMATION). THE ACTUAL ROUTE AND ALL VERTICAL AND HORIZONTAL OFFSETS ARE TO BE FIELD ROUTED WITHIN THE PUBLIC RIGHT–OF–WAY BASED ON THE ACTUAL LOCATION OF EXISTING UTILITIES. ADDITIONAL FITTINGS NOT SHOWN WILL BE REQUIRED.
   A. ELBOWS SHOWN ARE ASSUMED TO BE 45 DEGREES IN MOST APPLICATIONS. 90 DEGREE ELBOWS MAY BE NEEDED BASED ON FIELD CONDITIONS.
7. VALVES DEPICTED IN THE DESIGN ARE THE MINIMUM REQUIRED FOR SECTIONALIZING, ISOLATION, CRITICAL VALVES, AND/OR TO ACCOMMODATE TIE–INS. ADDITIONAL FULL PORT VALVES MAY BE ADDED TO ACCOMMODATE CONSTRUCTION.
   A. VALVES FOR BRANCHES AT INTERSECTIONS SHOULD BE FIELD LOCATED JUST OUTSIDE OF THE INTERSECTION WHERE EASILY ACCESSIBLE, PRIOR TO THE FIRST SERVICE.
8. ELECTROFUSION COUPLINGS MAY BE INTERCHANGED WITH BUTT FUSION WHERE APPLICABLE.
9. TIE–IN LOCATIONS MAY VARY UP TO 100 FEET OF THE PROPOSED LOCATION TO ACCOMMODATE CONSTRUCTION, EXCEPT FOR WHEN THE FOLLOWING CONDITIONS APPLY:
   A. REGULATOR STATION WITHIN THE SCOPE OF THE JOB OR WITHIN 200 FEET OF THE TIE–IN LOCATION.
   B. CHANGE TO THE NUMBER OF CONNECTIONS (ADDITIONAL ADDED FROM AN INTERSECTION OR OTHERWISE).
   C. MATERIAL/SIZE CHANGE AT NEW LOCATION.
10. NOT ALL BYPASSES, GAUGES, PURGES AND OTHER MISCELLANEOUS FITTINGS ARE SHOWN. CONSTRUCTION SHALL INSTALL THESE FITTINGS AS NEEDED IN ACCORDANCE WITH THE APPROVED SOP.
11. WHEN CONNECTING NEW 'DEAD' MAIN TO NEW 'DEAD' MAIN: AS LONG AS THE CONNECTION BRANCH SIZE SHOWN IN THE DRAWINGS CAN BE ACHIEVED, THE FOLLOWING CONNECTION TYPES ARE ACCEPTED AND INTERCHANGEABLE:
   A. INLINE TEE
   B. PLASTIC HIGH VOLUME TAPPING TEE (2" BRANCH SIZE OR LESS)
   C. PLASTIC BRANCH SADDLE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES)
   D. STEEL THREE–WAY TEE (WITH MAIN CUTTER SIZE SHOWN IN NATIONAL GRID POLICIES)
12. THE LIVE MAIN CONNECTION DETAIL SHOWN IN THE DRAWINGS SHALL BE FOLLOWED. ANY CHANGES TO THE TIE IN CONNECTION TYPE SHALL BE APPROVED BY THE NATIONAL GRID ENGINEER PRIOR TO CONSTRUCTION.
13. WHEN RELAYING A LOWER PRESSURE MAIN WITH A HIGHER PRESSURE MAIN, ALL SERVICES SHALL BE RELAYED OR INSERTED.
14. PIPE AND FITTING QUANTITY DESCRIBED IN SCOPE MAY VARY FROM AMOUNTS SHOWN ON THE BILL OF MATERIALS TO ACCOMMODATE FIELD CONDITIONS AND CONSTRUCTION.
15. CONTRACTOR TO REFER TO NATIONAL GRID SERVICE RECORD INFORMATION, ASSOCIATED CONSTRUCTION STANDARDS AND NATIONAL GRID INSTRUCTION FOR ALL SERVICE WORK WITHIN THE SCOPE OF LIMITS OF THIS PROJECT.
16. ANY FITTINGS (SUCH AS BUT NOT LIMITED TO, PURGES, VENTS & GAUGES) WHICH ARE REPRESENTED ON THESE PLANS AND DETAILS WITHOUT AN ASSOCIATED PART ON THE BILL OF MATERIALS ARE TO BE SIZED AND SELECTED PER CURRENT NATIONAL GRID STANDARDS BY THE CONTRACTOR.
17. THE CONTRACTOR SHALL CALL DIG–SAFE (DIAL 811) OR 888–344–7233 AT LEAST 72 HOURS PRIOR TO CONSTRUCTION. SATURDAYS, SUNDAYS AND HOLIDAYS ARE EXCLUDED.
18. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND STRUCTURES DEPICTED OR NOT DEPICTED ON THIS PLAN PRIOR TO COMMENCEMENT OF CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PHYSICALLY LOCATE ON–SITE UTILITIES THROUGH TEST PIT EXCAVATION OF SAID UTILITIES W/ PRIOR AUTHORIZATION FROM UTILITY OWNER.
19. NOTIFY NATIONAL GRID I&R IF THE PROJECT IS WITHIN 200 FEET OF A REGULATOR STATION.
20. DIMENSIONS SHOWN ILLUSTRATE THE INTENT OF MAIN PLACEMENT. SLIGHT VARIATIONS ARE EXPECTED. ANY SIGNIFICANT CHANGE NEEDS TO BE BROUGHT TO THE OWNERS (NATIONAL GRID) ATTENTION PRIOR TO PLACEMENT.
21. CONTRACTOR TO VERIFY PRESSURE AND GAS FEED DIRECTION OF EXISTING MAINS, NEW MAINS, AND MAINS TO BE ABANDONED PRIOR TO ANY AND ALL TIE INS BEING PERFORMED.
22. LOCATION OF ANY IDENTIFIED UNDERGROUND UTILITIES IS APPROXIMATE ONLY, AND IS NOT WARRANTED TO BE CORRECT. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT INDICATED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR FOR SERVICE, SIZE, INVERT ELEVATIONS, LOCATION, ETC.
23. THE CONTRACTOR SHALL PROTECT AND MAINTAIN DIG SAFE FIELD MARKS, ANY EXISTING PROPERTY LINE MONUMENTATION OR OTHER EXISTING SURVEY STAKES OR FIELD MARKS. THE CONTRACTOR SHALL REPLACE AT THEIR EXPENSE ANYTHING DISTURBED OR DESTROYED.
24. THE CONTRACTOR SHALL COMPLETE MISCELLANEOUS WORK NOT SPECIFICALLY SHOWN ON THE CONTRACT DRAWINGS SUCH AS PAVEMENT PATCHING, TRENCH & EQUIPMENT BLOCKING, TREE TRIMMING, ETC.
25. ANY SUBSURFACE UTILITIES, STRUCTURES AND/OR FIXED OBJECTS SHOWN AT, BELOW OR ABOVE GRADE SHOWN ON THESE PLANS HAVE BEEN PLACED BASED ON AVAILABLE RECORD MAPPING, AERIAL IMAGERY AND OTHER DESIGN RESOURCES. CONTRACTOR IS WARNED THAT EXACT OR APPROXIMATE LOCATION OF SUBSURFACE UTILITIES, STRUCTURES AND/OR FIXED OBJECTS SHOWN AT, BELOW OR ABOVE GRADE IN THE PROJECT AREA MAY DIFFER FROM THAT SHOWN OR MAY NOT BE SHOWN. IT IS THE CONTRACTORS RESPONSIBILITY TO PERFORM FIELD VERIFICATION PRIOR TO EXECUTING ANY WORK.
26. ALL TRENCH EXCAVATION AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH THE LATEST NATIONAL GRID, APPLICABLE STATE DOT AND LOCAL MUNICIPAL STANDARDS.
27. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC IN ALL AREAS IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
28. ALL NECESSARY PRECAUTION FOR THE SAFETY OF THE PUBLIC SHALL BE TAKEN. ALL BARRIERS, WARNING LIGHTS AND OTHER DEVICES AND EQUIPMENT REQUIRED BY FEDERAL, STATE AND LOCAL AUTHORITIES SHALL BE MAINTAINED.
29. CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO ALL OTHER EXISTING UTILITIES. DAMAGED UTILITIES SHALL BE IMMEDIATELY REPAIRED BY CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
30. CONTRACTOR MAY INSTALL ADDITIONAL VALVES NOT SHOWN IN THE PLANS IF DEEMED NECESSARY IN THE FIELD. NEW VALVES ASSOCIATED WITH TIE INS (SEE DETAILS ON SHEET 13) MUST BE INSTALLED PER THE DETAIL. FINAL LOCATION OF THE NEW VALVES IS TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR. ANY SIGNIFICANT CHANGE MUST BE BROUGHT TO THE OWNERS (NATIONAL GRID) ATTENTION PRIOR TO INSTALLATION.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUAINTING WITH THE CONDITIONS FOR THE SITE AND FOR ESTIMATING PROPERLY THE DIFFICULTY AND COST TO SUCCESSFULLY PERFORM THE WORK.
32. NATIONAL GRID RESERVES THE RIGHT TO EXAMINE ANY WORK DONE ON THIS PROJECT AT ANY TIME TO DETERMINE THE CONFORMANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OF THIS PROJECT, AS INTENDED AND INTERPRETED BY NATIONAL GRID.

DESIGN CRITERIA:

1. DESIGN IN ACCORDANCE WITH THE FOLLOWING:
   A. ENG02001: DESIGN OF GAS SERVICES
   B. ENG04001: DESIGN OF DISTRIBUTION MAINS
   C. ENG04010: DESIGN REQUIREMENTS FOR INSTALLATION OF CASINGS
2. PROPOSED PIPING:
   A. DESIGN CLASS LOCATION: 4
   B. NOMINAL SIZE: 4, 6, & 8 INCH
   C. MATERIAL: MDPE
   D. MAOP: 22 PSIG
3. PIPE SIZE DETERMINED BY NATIONAL GRID STRATEGIC ASSET AND SYSTEM PLANNING

PROJECT CONSTRUCTION REQUIREMENTS:

1. PER NATIONAL GRID GAS POLICY DOC# ENG05004, ALL COMPLEX PROJECTS ARE REQUIRED TO PREPARE AN SOP IN ACCORDANCE WITH THE STAMPED PLANS, WHICH MUST BE APPROVED BY A PROFESSIONAL ENGINEER. THE SOP MUST INCLUDE ALL PROPOSED PROJECT SPECIFIC STEPS AND PROCEDURES TO DEFINE AN ADEQUATE SEQUENCE FOR CONSTRUCTION OF THE MAIN.
2. IN ACCORDANCE WITH MASSACHUSETTS 220 MCR 105.00, THE STAMPED SOP IS CONSIDERED A REQUIRED PROJECT SPECIFIC PACKAGE TO PERFORM ANY COMPLEX PROJECT CONSTRUCTION. THEREFORE, FOR ANY COMPLEX PROJECT CONSTRUCTION WORK, THE CONTRACTOR MUST FOLLOW THE PE STAMPED SOP.
3. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 – SUPPLEMENTAL ODORIZATION FOR NEW PIPING.
4. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.

CODES & STANDARDS

1. WORK SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL CODES IN ADDITION TO NATIONAL GRID GAS POLICIES AND WORK METHODS. WHERE ANY CONFLICTS OF CODES, STANDARDS AND REGULATIONS MAY EXIST, THE MORE STRINGENT CODE, STANDARD, OR REGULATION SHALL APPLY.
2. ALL REFERENCES SHALL BE IN ACCORDANCE WITH THE MOST CURRENT REVISION AVAILABLE AT THE TIME OF CONSTRUCTION.
3. FEDERAL & STATE:
   A. TITLE 49: PART 192 TRANSPORTATION OF NATURAL AND OTHER GAS BY PIPELINE: MINIMUM FEDERAL SAFETY STANDARDS
   B. 220 CMR: DEPARTMENT OF PUBLIC UTILITIES
      100.00 – 113.00: MASSACHUSETTS GAS DISTRIBUTION CODE
   C. AMERICAN SOCIETY OF MECHANICAL ENGINEERS
      B31.8: GAS TRANSMISSION AND DISTRIBUTION PIPING SYSTEMS
   D. 248 CMR 4–7: MA FUEL GAS CODE
4. CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH NATIONAL GRID GAS POLICIES AND WORK METHODS, INCLUDING BUT NOT LIMITED TO:
   A. CNST01003: BACKFILL AND RESTORATION
   B. CNST01005: PREPARATION OF GAS FACILITY HISTORICAL RECORDS
   C. CNST01006: COMMERCIALLY AVAILABLE SHORING SYSTEMS
   D. CNST02014: ENCAPSULATING CAST IRON JOINTS
   E. CNST03001: SQUEEZE–OFF OPERATIONS
   F. CNST03002: STOP–OFF OPERATIONS ON LOW PRESSURE MAINS
   G. CNST03005: PURGING REQUIREMENTS FOR GAS PIPELINES
      a. CNST03006: PURGING OPERATIONS – DIRECT DISPLACEMENT
      b. CNST03007: PURGING OPERATIONS – COMPLETE INERT FILL
      c. CNST03008: PURGING OPERATIONS – SLUG METHOD
   H. CNST03014: STOP OFF OPERATIONS FOR KLEISS EQUIPMENT
   I. CNST04005: INSTALLING STEEL DISTRIBUTION MAINS
   J. CNST04007: FIELD COLD BENDING OF LINE PIPE
   K. CNST04008: INSTALLING PLASTIC MAINS
   L. CNST04011: ABANDONMENT OF MAINS
   M. CNST04012: GROUTING ABANDONED PIPELINES
   N. CNST04030: RAISING MAIN AND SERVICE GATE BOXES
   O. CNST05001: JOINING OF PLASTIC PIPE
   P. CNST5010: GENERAL CONSTRUCTION REQUIREMENTS AND PIPE HANDLING
   Q. DAM01011: EXCAVATION AND EXCAVATION NOTIFICATION REQUIREMENTS FOR UNDERGROUND FACILITIES FOR MASSACHUSETTS AND RHODE ISLAND
   R. DAM01015: LOCATE AND MARK–OUT REQUIREMENTS FOR UNDERGROUND GAS FACILITIES
   S. DAM01016: LOCATE AND MARK–OUT OF UNDERGROUND FACILITIES
   T. GCON02001: SYSTEM OPERATING PROCEDURE (SOP)
   U. GEN01100: OPERATOR QUALIFICATION PLAN
   V. GEN03002: PROCESSING GAS MAIN AND NEW SERVICE WORK PACKAGES
   W. GEN03004: CHANGE CONTROL PROCEDURE FOR STANDARD CONSTRUCTION PROJECTS
   X. INR06002: SUPPLEMENTAL ODORIZATION FOR NEW PIPING
      • NOTIFY I&R FOR PROJECTS IN EXCESS OF 2500 FEET. ODOR MONITORING AND/OR SUPPLEMENTAL ODORIZATION MAY BE REQUIRED
   Y. MAIN5030: INSTALLATION OF POLYETHYLENE PIPE
   Z. MECH5010: JOINTS OTHER THAN WELDED
   AA. 030018–CS: SPECIFICATION AND HANDLING OF TRAFFIC PLATES
   AB. CNST01001: HORIZONTAL DIRECTIONAL DRILLING
   AC. CNST03011: NO–INTERRUPT SERVICE TRANSFER
   AD. CNST6061: TRACER WIRE INSTALLATIONS FOR PLASTIC MAINS AND SERVICES
   AE. MECH6010: CONNECTION OF DISSIMILAR POLYETHYLENE PLASTIC PIPE WITH ELECTROFUSION OR MECHANICAL COUPLING
   AF. CS–CNST002: TYPICAL UTILITY CROSSING AND TRENCH GUIDELINES
5. SERVICE SPECIFIC CONSTRUCTION STANDARDS, GAS POLICIES AND WORK METHODS:
   A. CMS03002: CUSTOMER METER AND SERVICE REGULATOR DESIGN AND INSTALLATION POLICY
   B. CMS04002: PURGING PROCEDURES FOR CUSTOMER METER SERVICES
   C. CNST03011: NO–INTERRUPT SERVICE TRANSFER
   D. CNST06002: INSTALLING DISTRIBUTION SERVICES
   E. CNST06003: INSTALLATION & MAINTENANCE POLICY FOR CURB VALVES ON SERVICE LINES WITH INSTALLED METER CAPACITIES OVER 1,000 SCFH THAT DON'T HAVE EXCESS FLOW VALVES
   F. CNST06009: METER/SERVICE RELOCATION GUIDELINE
   G. CNST06020: COMPLETION AND PROCESSING OF GAS SERVICE RECORD CARDS
   H. CNST06030: NOTIFICATION OF CUSTOMERS INVOLVED IN THE INTERRUPTION OF GAS SERVICE
   I. CS–SERV001: TYPICAL 1/2" SERVICE OUTSIDE SETS
   J. CS–SERV002: TYPICAL 1" SERVICE OUTSIDE SETS
   K. CS–SERV003: TYPICAL 1–1/4" SERVICE OUTSIDE SETS
   L. CS–SERV004: TYPICAL 2" SERVICE
   M. CS–SERV005: EXCESS FLOW VALVE REQUIREMENTS ON HP SERVICES
   N. CS–SERV009: TYPICAL 1/2" SERVICE INSIDE SETS
   O. CS–SERV010: TYPICAL 1" SERVICE INSIDE SETS
   P. HTAP–6010: NO–INTERRUPT 1 INCH CTS AND 1–1/4 INCH CTS SERVICE TRANSFER (NIST) LP TO 60 PSIG MAINS
   Q. SERV–5075: RELOCATION OF METER SET ASSEMBLIES INSIDE TO OUTSIDE
   R. SERV6076: 1–1/4" LP PLASTIC SERVICE WITH 1 AL–250 TC METER
   S. SERV6077: 1–1/4" CTS LP PLASTIC INSERT WITH 1 AL–250 TC EQUIV. METER INSIDE
   T. SERV–6185: HOT TAPPING MD BRANCH SADDLES OFF 4IN – 12IN 60 PSIG MAOP LIVE PLASTIC GAS MAIN USING MCELROY HOT TAPPING TOOL
   U. VALV6110: 1/2 INCH – 3 INCH POLYETHYLENE GAS SERVICE VALVE INSTALLATION
6. SEE TIE IN DETAILS FOR APPLICABLE MAIN CONNECTION REFERENCES.
7. SEE BILL OF MATERIAL FOR MATERIAL SPECIFICATION, STANDARD AND/OR APPLICABLE NATIONAL GRID "FITS" REFERENCE.
   A. FOR THIS PROJECT, GRADE B, X42, X52 AND EQUIVALENT ARE ACCEPTABLE STEEL MATERIAL STRENGTHS IF APPLICABLE. ALTERNATES TO THE BOM ARE ALLOWED WITHIN THIS RANGE BASED ON MATERIAL AVAILABILITY.

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7340
FAX (585) 359-7341

BOSTON GAS COMPANY
d/b/a
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1–109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

CONSTRUCTION NOTES

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

DRAWING NO.	SHEET NO.
G-002	02

PRESSURE TESTING REQUIREMENTS:

1. PRESSURE TEST ALL DISTRIBUTION PIPING IN ACCORDANCE WITH:
   A. CNST04003: PRESSURE TESTING MAINS OPERATING BELOW 125 PSIG
   B. TEST PRESSURE (MINIMUM): 90 PSIG
   C. TEST DURATION BASED ON LENGTH AND DIAMETER IN ACCORDANCE WITH TABLE 1 OF CNST04003.
   D. TEST MEDIUM: AIR AND/OR NITROGEN

2. PRESSURE TEST SERVICES IN ACCORDANCE WITH:
   A. CNST06008: PRESSURE TESTING SERVICE LINES

WELDING:

1. NATIONAL GRID WELDING POLICIES AND PROCEDURES INCLUDE:
   A. CNST05002: WELDING POLICY
   B. CNST05003: PIPE WELDING SAFETY
   C. CNST05005: WELDING PROCEDURE SPECIFICATIONS
   D. MS-030: WELDING FILLER MATERIALS

2. PRIOR TO THE START OF ANY WORK THE CONTRACTOR SHALL SUBMIT WELDER CERTIFICATION DOCUMENTS FOR EACH OF THE WELDERS EMPLOYED ON THIS PROJECT.

3. WELDING PROCEDURE SPECIFICATIONS REQUIRED:
   A. BUTT WELDS (GROOVE): WPS-SMAW-E6010/7010 (LATEST REVISION)
   B. FILLET WELDS (BRANCH): WPS-SMAW-E6010/7010 (LATEST REVISION)

4. 10% (AT LEAST 1) OF WELDS SHALL BE SUBJECT TO NON-DESTRUCTIVE EXAMINATION (NDE):
   A. BUTT WELDS 2-INCH AND GREATER: 10% RADIOGRAPH
   B. BUTT WELDS < 2-INCHES: 10% MAGNETIC PARTICLE
   C. FILLET WELDS: 10% MAGNETIC PARTICLE

5. NDE AND WELD MAP SHALL BE PROVIDED BY SKYTESTING.

6. SKYTESTING SCHEDULING CONTACT:
   WILLIAM (BILL) CLARK
   CELL: 704-858-7794
   EMAIL: WCLARK@SKYTESTING.COM

CATHODIC PROTECTION:

1. IF EXISTING TEST STATIONS, WIRES, AND/OR MAGNESIUM ANODES ARE DISTURBED OR DAMAGED, NOTIFY THE NATIONAL GRID CORROSION DEPARTMENT:
   DAVE HALNEN: 781-379-7831 (CONSTRUCTION)
   ALANNA GRONDINE: 339-225-5378 (DESIGN REVIEW)
   ALISSIA APINIAN-MARGIOS: 781-296-7569 (ATMOSPHERIC)

2. 24 HOUR NOTICE IS REQUIRED PRIOR TO INSTALLATION OF INSULATED FITTINGS TO ALLOW FOR ACCEPTANCE TESTING.

3. NATIONAL GRID CORROSION GAS POLICIES AND WORK METHODS INCLUDE:
   A. CORO1100: CORROSION DESIGN CRITERIA
   B. CORO2001: APPLICATION OF COATING SYSTEMS
   C. CORO2020: INSPECTING EXPOSED STEEL PIPE FOR CORROSION
   D. CORO2021: INSPECTING EXPOSED CAST OR DUCTILE PIPING FOR GRAPHITIZATION
   E. CORO3001: TESTING OF PIPE COATING (JEEP TESTING)
   F. CORO4001: INSTALLATION OF MAGNESIUM ANODES
   G. CORO4003: INSTALLATION OF TEST STATIONS FOR CATHODIC PROTECTION
   H. CORO4004: INSTALLATION OF WIRE CONNECTIONS
   I. CORO4005: INSTALLATION OF INSULATING JOINTS FOR CATHODIC PROTECTION
   J. 030031-CS: FACILITY COATING GUIDE

4. CORROSION DESIGN:
   P. SEE TIE-IN DETAIL A ON SH 13
   - INSTALL A 1-WIRE TEST STATION TO EACH PROPOSED INSULATED COUPLING (PIPE END SPACER AND INSULATOR SLEEVE FACING THE CAST IRON) BY USING THE CLIP ON THE COUPLING. INCLUDE 1-17 LB ANODE FOR EACH INSULATED COUPLING SPACED AT LEAST 8 FT APART AND 1 FT BELOW THE MAIN. ROUTE ALL WIRES INTO ONE SHARED TEST BOX. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION.

   B. SEE TIE-IN DETAILS B, C, & D ON SH 13
   - INSTALL A 1-WIRE TEST STATION TO THE PROPOSED ACTIVE INSULATED STEEL MECHANICAL END CAP. INCLUDE 1-17 LB ANODE SPACED AT LEAST 1 FT BELOW THE MAIN. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION.

5. STEEL PIPE, FITTINGS, VALVES AND OTHER CARBON STEEL COMPONENTS TO BE BURIED WHICH ARE NOT FACTORY COATED FOR BURIED SERVICE SHALL BE FIELD COATED.

ENVIRONMENTAL:

1. WORK SHALL CONFORM TO THE NATIONAL GRID ENVIRONMENTAL POLICY.

2. NATIONAL GRID ENVIRONMENTAL CONTACT:
   NAME: JAIME WALKER
   PHONE: (978) 551-1156
   EMAIL: JAIME.WALKER@NATIONALGRID.COM

3. CONTRACTOR SHALL REVIEW THE PROJECT WORK ORDER PACKAGE FOR ENVIRONMENTAL GUIDANCE FORMS, FOR EXAMPLE EG-301, FOR THE RESPECTIVE STATE.

4. WHEN SOILS OR LIQUIDS ARE ENCOUNTERED THAT ARE BELIEVED TO BE CONTAMINATED WITH OIL AND/OR HAZARDOUS MATERIAL, EXCAVATION WORK SHALL BE HALTED AND FIELD PERSONNEL SHALL NOTIFY THEIR IMMEDIATE SUPERVISOR.

5. NO EXCAVATED SOIL THAT IS CONTAMINATED SHALL LEAVE THE WORK SITE UNTIL ENVIRONMENTAL HAS MADE A DETERMINATION FOR ITS PROPER DISPOSAL.

6. NATIONAL GRID ENVIRONMENT POLICIES AND PROCEDURES INCLUDE:
   A. SHE02001: HANDLING CONTAMINATED MATERIALS AND PIPING
   B. SHE02002: REMOVING MERCURY REGULATORS AND DEVICES
   C. SHE02003: ENCOUNTERING CONTAMINATION WHILE EXCAVATING
   D. EG303-NE: BEST MANAGEMENT PRACTICES
   E. EG140: USED GAS PIPE MANAGEMENT

7. ENVIRONMENTAL REQUIREMENTS:
   - PROPOSED WORK IS LOCATED WITHIN 100 FEET OF WETLANDS AND/OR BODIES OF WATER / WITHIN 200 FEET OF A RIVER OR A STREAM (+25 FEET IN BOSTON, BROCKTON, CAMBRIDGE, CHELSEA, EVERETT, FALL RIVER, LAWRENCE, LOWELL, MALDEN, NEW BEDFORD, SOMERVILLE, SPRINGFIELD, WINTHROP OR WORCESTER)/ WITHIN A FLOODPLAIN. ENVIRONMENTAL PERMIT AND/OR THE USE OF ENVIRONMENTAL BMPS MAY BE REQUIRED. SEE ENVIRONMENTAL MEMO FOR DETAILS.

SAFETY:

1. WORK SHALL CONFORM TO THE NATIONAL GRID EMPLOYEE SAFETY HANDBOOK AND OSHA REQUIREMENTS.

2. REQUIRED PPE SHALL BE WORN AND UTILIZED IN ACCORDANCE WITH THE CURRENT NATIONAL GRID SAFETY POLICY.

3. A NATIONAL GRID APPROVED CONTRACTOR HEALTH AND SAFETY PLAN (HASP) IS REQUIRED PRIOR TO CONSTRUCTION.

4. CONSTRUCTION SIGNING, DRUMS, BARRICADES, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) PART VI AND SHALL BE MAINTAINED BY THE CONTRACTOR.

5. NATIONAL GRID SAFETY PROCEDURES COVER THE FOLLOWING CATEGORIES:
   A- ADMINISTRATIVE; B- INSPECTIONS; C- WALKING WORKING SURFACES; D- MEANS OF EGRESS; E- MATERIAL HANDLING AND STORAGE; F- TOXIC AND HAZARDOUS SUBSTANCES; G- HAZARDOUS MATERIALS; H- PERSONAL PROTECTIVE EQUIPMENT; I- GENERAL ENVIRONMENTAL CONTROLS, J- ACCIDENT INVESTIGATION; K- MACHINERY AND GUARDING; L- WELDING/CUTTING/BRAZING; M- EXCAVATIONS; N- CONTRACTORS; FIRE PROTECTION; O- FLEET AND ROADWAY SAFETY

6. NATIONAL GRID SAFETY POLICIES AND PROCEDURES INCLUDE:
   A. SHE01001: GENERAL SAFETY REQUIREMENTS
   B. SHE01002: SUPPLIED-AIR RESPIRATORS
   C. SHE01003: USING AND MAINTAINING PORTABLE GAS MONITORS
   D. SHE01004: USING AND MAINTAINING FLAME IONIZATION UNITS
   E. SHE01005: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE
   F. SHE01006: ENTERING GAS UTILITY VAULTS
   G. SHE01008: USING AND MAINTAINING THE GAS EXPLORER
   H. SHE01009: DISSIPATING STATIC ELECTRICAL CHARGES ON PLASTIC PIPE
   I. SHE01010: THE APPLICATION OF FORMAL PROCESS SAFETY ASSESSMENTS TO HIGHER-RISK GAS ACTIVITIES PERFORMED IN THE FIELD

7. JOB BRIEFINGS, AT A MINIMUM, SHALL BE CONDUCTED BEFORE THE START OF THE FIRST JOB ON EACH DAY OR SHIFT. ADDITIONAL BRIEFINGS MAY BE REQUIRED AFTER EXTENDED WORK BREAKS.

8. ANY AND ALL WORKERS THAT HAVE ANY POTENTIAL TO COME INTO CONTACT WITH SOIL AND/OR GROUNDWATER MUST HAVE UP-TO-DATE OSHA 40-HOUR HAZWOPER TRAINING. COPIES OF OSHA CERTIFICATES/TRAINING REFRESHERS SHALL BE PROVIDED TO NATIONAL GRID FOR REVIEW PRIOR TO THE START OF WORK.

OTHER PERMITTING REQUIREMENTS:

1. CITY OF NEWTON STREET OPENING PERMIT
2. GRANT OF LOCATION
3. MWRA WATER PERMIT REQUIRED FOR WORK WITHIN BEACON ST
4. ENVIRONMENTAL PERMIT MAY BE REQUIRED

UTILITY OWNER INFORMATION:

SEWER:	NEWTON DPW – UTILITIES DIVISION #1000 COMMONWEALTH AVE. NEWTON CENTRE, MA 02459
DRAIN:	NEWTON DPW – UTILITIES DIVISION #1000 COMMONWEALTH AVE. NEWTON CENTRE, MA 02459
WATER:	NEWTON DPW – UTILITIES DIVISION #1000 COMMONWEALTH AVE. NEWTON CENTRE, MA 02459 MWRA #2 GRIFFIN WAY CHELSEA, MA 02150
ELECTRIC:	EVERSOURCE ELECTRIC "A" #1165 MASSACHUSETTS AVE. DORCHESTER, MA 02125
GAS:	NATIONAL GRID GAS #170 DATA DR. WALTHAM, MA 02451
TELEPHONE:	VERIZON #385 MYLES STANDISH BLVD. TAUNTON, MA 02780
CABLE:	RCN #956 MASSACHUSETTS AVE. ARLINGTON, MA 02476

REFERENCE DRAWINGS:

1. LOCATION OF IDENTIFIED UNDERGROUND UTILITIES ARE AN APPROXIMATE BASED ON AVAILABLE RECORD AND FIELD INFORMATION IN ACCORDANCE WITH CI/ASCE 38-02. ADDITIONAL UTILITIES MAY EXIST WHICH ARE NOT IDENTIFIED ON THESE PLANS. ALL EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR FOR SERVICE, SIZE, INVERT ELEVATIONS, LOCATIONS, ETC.

LEGEND

EXISTING WROUGHT IRON GAS MAIN, VALVE, REGULATOR, CAP
EXISTING CAST IRON GAS MAIN, VALVE, REGULATOR, CAP
EXISTING BARE STEEL GAS MAIN, VALVE, REGULATOR, CAP
EXISTING COATED STEEL GAS MAIN, VALVE, REGULATOR, CAP
EXISTING PLASTIC GAS MAIN, VALVE, REDUCER
EXISTING POLYBUTYLENE GAS MAIN, VALVE, REDUCER
EXISTING CRITICAL GAS MAIN
PROPOSED GAS MAIN, VALVE, COUPLING, TEE, OVER
RETIRED GAS MAIN
NEW GAS SERVICE, FLOW LIMITER, METER, VALVE
EXISTING GAS SERVICE, FLOW LIMITER, METER, VALVE
TREE, BUSH, TREE LINE
EXISTING ROW/PROPERTY LINE
EXISTING CENTERLINE W/ MARKER
EXISTING FIBER OPTIC LINE, CABLE BOX
EXISTING OVERHEAD ELECTRIC LINE, POWERPOLE, POLE W/ GUYWIRE, LIGHT POLE
EXISTING UNDERGROUND ELECTRIC LINE, HANDHOLE, PEDESTAL
EXISTING SANITARY SEWER LINE, CLEANOUT, MANHOLE
EXISTING STORM DRAIN/CULVERT, CATCH BASIN, MANHOLE
EXISTING WATER MAIN, VALVE, HYDRANT
EXISTING UNDERGROUND TELEPHONE
EXISTING STEAM MAIN
TOWN LINE

EXISTING MBTA DUCTS
EXISTING MWRA WATER MAIN
EXISTING MWRA SEWER/DRAIN MAIN
EXISTING UNKNOWN UTILITY
PROPOSED FIBER OPTIC LINE
PROPOSED OVERHEAD ELECTRIC LINE
PROPOSED UNDERGROUND ELECTRIC LINE
PROPOSED SANITARY SEWER LINE
PROPOSED STORM DRAIN/CULVERT
PROPOSED WATER MAIN
PROPOSED UNDERGROUND TELEPHONE
PROPOSED PERMANENT EASEMENT
EXISTING EASEMENT
EXISTING GUIDE RAIL
EXISTING FENCE
EXISTING STONE WALL
EXISTING STREAM/RIVER EDGE
EXISTING WETLAND
EXISTING WETLAND BUFFER
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
HAZARDOUS (HAZWOPER) AREA
RAILROAD

BILL OF MATERIALS

ITEM	QTY	UOM	DESCRIPTION	SIZE (IN.)	NATIONAL GRID REFERENCE	SAP ID NUMBER
1*	1,760	FT	PIPE, MEDIUM DENSITY, 40 FT LENGTHS	8	120026-MS	9340862
2*	1,480	FT	PIPE, MEDIUM DENSITY, 40 FT LENGTHS	6	120026-MS	9384339
3*	680	FT	PIPE, MEDIUM DENSITY, 40 FT LENGTHS	4	120026-MS	9340857
4	10	FT	PIPE, MEDIUM DENSITY, 40 FT LENGTHS	12	120026-MS	9340863
5*	4	EA	ELBOW, 45D, BUTT FUSE, MDPE	6	120026-MS	9341401
6*	1	EA	ELBOW, 45D, BUTT FUSE, MDPE	4	120026-MS	9341400
7*	1	EA	CAP, PLASTIC, BUTT FUSE	8	120026-MS	9339559
8*	3	EA	CAP, PLASTIC, BUTT FUSE	6	120026-MS	9339733
9*	2	EA	CAP, PLASTIC, BUTT FUSE	4	120026-MS	9339534
10	1	EA	TEE, PLASTIC, BUTT FUSE	12	120026-MS	9339581
11*	4	EA	TEE, PLASTIC, BUTT FUSE	8	120026-MS	9342070
12*	1	EA	TEE, PLASTIC, BUTT FUSE	6	120026-MS	9342522
13	1	EA	REDUCER, BUTT FUSE, MDPE	12x8	120026-MS	9342617
14*	4	EA	REDUCER, BUTT FUSE, MDPE	8x6	120026-MS	9342616
15*	2	EA	REDUCER, BUTT FUSE, MDPE	6x4	120026-MS	9342678
16*	3	EA	VALVE, BALL, FULL PORT, PLASTIC	8	VALV6020	9386594
17*	3	EA	VALVE, BALL, FULL PORT, PLASTIC	6	VALV6020	9323032
18*	3	EA	VALVE BOX, LOCKING COVER MARKED, "GAS", FOR 8" & 12" FULL PORT VALVES		VALV6020	9307586
19*	3	EA	VALVE BOX, LOCKING COVER MARKED, "GAS", FOR 6" FULL PORT VALVES		VALV6020	9339893
20	2	EA	COUPLING, COMPRESSION, RESTRAINING, INSULATED, FOR 12" IPS CI PIPE	12	FITS6025	9308362
21	2	EA	COUPLING, COMPRESSION, NON RESTRAINING, INSULATED, FOR 13.50 IN O.S. C.I.	12	FITS6015	9341459
22	4	EA	CAP, LINE, VENTED, RESTRAINING, BOLTED, COMPRESSION, INSULATED FOR 6.90 IN OD CI PIPE	6	FITS6024	9315169
23	4	EA	CAP, LINE, VENTED, RESTRAINING, BOLTED, COMPRESSION, INSULATED, FOR 7.10 IN O.D. CI PIPE	6	FITS6024	9339511
24	2	EA	CAP, LINE, VENTED, RESTRAINING, BOLTED, COMPRESSION, INSULATED FOR 4.80 IN OD CI PIPE	4	FITS6024	9315170
25	2	EA	CAP, LINE, VENTED, RESTRAINING, BOLTED, COMPRESSION, INSULATED, FOR 5.00 IN O.D. CI PIPE	4	FITS6024	9391275
26	2	EA	STIFFENER, INSERT	12	FITS6025	9308696
27	12	EA	PLUG, CAST IRON, CORED, SQUARE HEAD	1 1/2	120030-MS	9312285
28	2	EA	PLUG, CAST IRON, CORED, SQUARE HEAD, SQUARED	4	120030-MS	9308743
29	8	EA	SADDLE, CAST IRON PIPE	6 X 1 1/2	CS-FIT014	9315632
30	4	EA	SADDLE, CAST IRON PIPE	4 X 1 1/2	CS-FIT014	9315633
31	2	EA	SADDLE, CAST IRON PIPE	12 X 4	CS-FIT014	9308283
32	4	EA	9X9 TEST STATION BOX	9X9	030026-CS	9339391
33	4	EA	TEST BOX COVER	9	030026-CS	9339797
34	5	EA	ANODE, MAGNESIUM, 17LB, HIGH POTENTIAL	30	120004-MS	9311183
35	3,930	FT	WIRE, TRACER, DIRECT BURY USE		CNST6061	9315005
36	4	EA	TAPE, YELLOW CAUTION, GAS MAIN, 1000' ROLL	6	CNST6060	9341904
37	2	EA	PLUG, CAST IRON, CORED, SQUARE HEAD, SQUARED	2	120030-MS	9312173
38	2	EA	SADDLE, CAST IRON PIPE	12 X 2	CS-FIT014	9306737
39*	2	EA	VALVE, BALL, FULL PORT, PLASTIC	4	VALV6020	9341709
40*	2	EA	VALVE BOX, LOCKING COVER MARKED, "GAS", FOR 4" FULL PORT VALVES		VALV6020	9339892
41*	1	EA	ELBOW, 45D, BUTT FUSE, MDPE	8	120026-MS	9341402
42	2	EA	KLEISS LINE STOPPER FOR CAST IRON MAIN	12	FITS6055	9393645

*** SOME QUANTITIES LABELED ON LAYOUT SHEETS**

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7340
FAX (585) 359-7341

BOSTON GAS COMPANY
d/b/a
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

CONSTRUCTION NOTES & BILL OF MATERIALS

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505936

DRAWING NO.	SHEET NO.
G-003	03

DESIGN PARAMETERS:
WO #1505036 - 1-109 ESSEX RD - NEW
SYSTEM NUMBER: BOSTON IP 22#
SYSTEMS' MOPS (PSIG , OR "LP "): 22 PSIG
EXPECTED OPERATING PRESSURE RANGE: 3 PSIG - 22 PSIG
DESIGN DAY TEMPERATURE (°F): 0°F
MIN & MAX OPERATING TEMPERATURE RANGE (°F): -20°F TO +73°F

STREET NAME: GATE HOUSE RD, CHESTNUT HILL RD
SIZING RECOMMENDATION: 8IN PL
NEW MAINS' DESIGN PRESSURE: 22 PSIG
DESIGN DAY FLOW IN NEW PIPELINE SEGMENTS (MCFH): 15
SINGLE FEED SYSTEM: NO

STREET NAME: CHESTNUT HILL TER, MEIGH RD
SIZING RECOMMENDATION: 4IN PL
NEW MAINS' DESIGN PRESSURE: 22 PSIG
DESIGN DAY FLOW IN NEW PIPELINE SEGMENTS (MCFH): 2
SINGLE FEED SYSTEM: YES

STREET NAME: NANCY RD, ESSEX RD
SIZING RECOMMENDATION: 6IN PL
NEW MAINS' DESIGN PRESSURE: 22 PSIG
DESIGN DAY FLOW IN NEW PIPELINE SEGMENTS (MCFH): 5
SINGLE FEED SYSTEM: NO

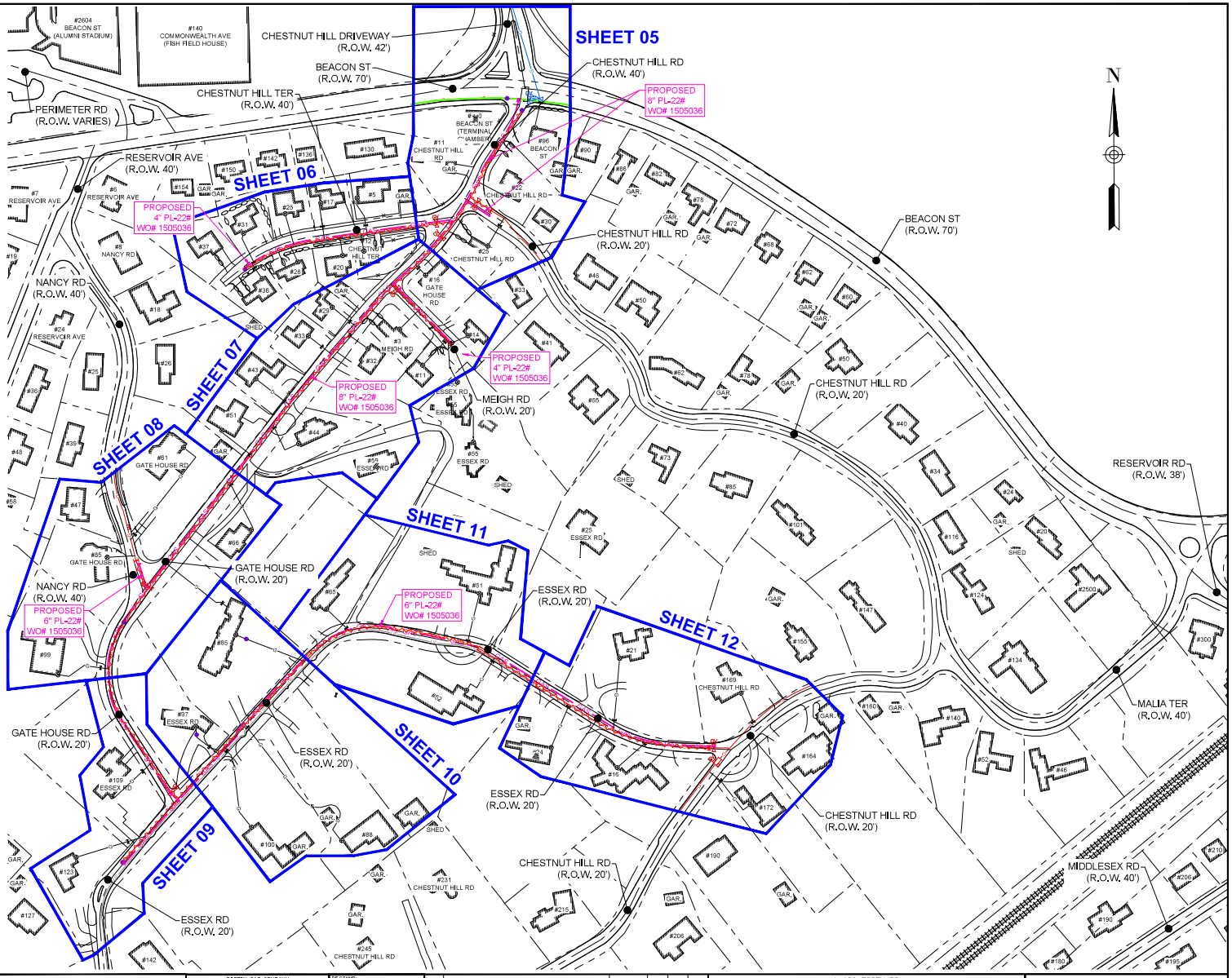
NOTE: ENSURE ALL SERVICES WITHIN SCOPE OF WORK HAVE BEEN RELAYED TO NEW MAIN PRIOR TO ABANDONMENT.

REVIEWED BY: KASEY ELKIN. REVIEW DATE: 10/24/2022

PROJECT SCOPE:

AS PART OF THE CIMNRPL<10 PROGRAM, LPP INTEGRITY MANAGEMENT RECOMMENDS THE RELAY OF:

- APRX 40 FEET OF 1.25 INCH, LP PLASTIC (1998), APRX 1630 FEET OF 6 INCH, LP CAST IRON (1927/1928) AND APRX 5 FEET OF 6 INCH, LP PLASTIC (1998) WITH APRX 1675 FEET OF 8 INCH, 22 PSIG PLASTIC IN GATE HOUSE RD FROM THE EXST 12 INCH, 22 PSIG CAST IRON IN BEACON ST TO ESSEX RD.
- APRX 420 FEET OF 6 INCH, LP CAST IRON (1923) WITH APRX 420 FEET OF 4 INCH, 22 PSIG PLASTIC IN CHESTNUT HILL TER FROM GATE HOUSE RD.
- APRX 40 FEET OF 6 INCH, LP CAST IRON (1928) WITH APRX 40 FEET OF 8 INCH, 22 PSIG PLASTIC STUB IN THE INTERSECTION OF CHESTNUT HILL RD AND GATE HOUSE RD (CUT AND CAP THE EXST 6 INCH LP CAST IRON AT #22 CHESTNUT HILL RD).
- APRX 210 FEET OF 6 INCH, LP CAST IRON (1928) WITH APRX 210 FEET OF 4 INCH, 22 PSIG PLASTIC IN MEIGH RD FROM GATE HOUSE RD TO END OF MAIN AT #14 MEIGH RD.
- APRX 50 FEET OF 4 INCH/6 INCH, LP CAST IRON (1905/1927) WITH APRX 50 FEET OF 6 INCH, 22 PSIG PLASTIC STUB IN THE INTERSECTION OF NANCY RD AND GATE HOUSE RD (CUT AND CAP THE EXST 4 INCH LP CAST IRON AT #85 GATEHOUSE RD).
- APRX 325 FEET OF 6 INCH, LP PLASTIC (1998) AND APRX 1110 FEET OF 6 INCH, LP CAST IRON (1924/1928) WITH APRX 1435 FEET OF 6 INCH, 22 PSIG PLASTIC IN ESSEX RD FROM #3 ESSEX RD TO #109 ESSEX RD (DO NOT CONNECT TO THE EXST 6 INCH, LP CAST IRON IN CHESTNUT HILL RD).



THE DDS COMPANIES
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WALTHAM, MA 02451

IFC

PE STAMP 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
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1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

OVERALL SCOPE OF WORK

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

PAGE 04 OF 17

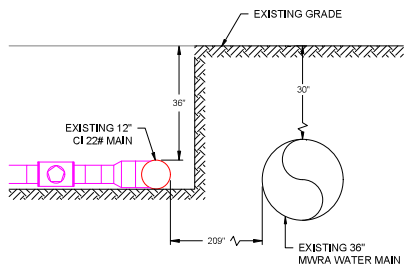
DRAWING NO.	SHEET NO.
C-001	04

NOTE:

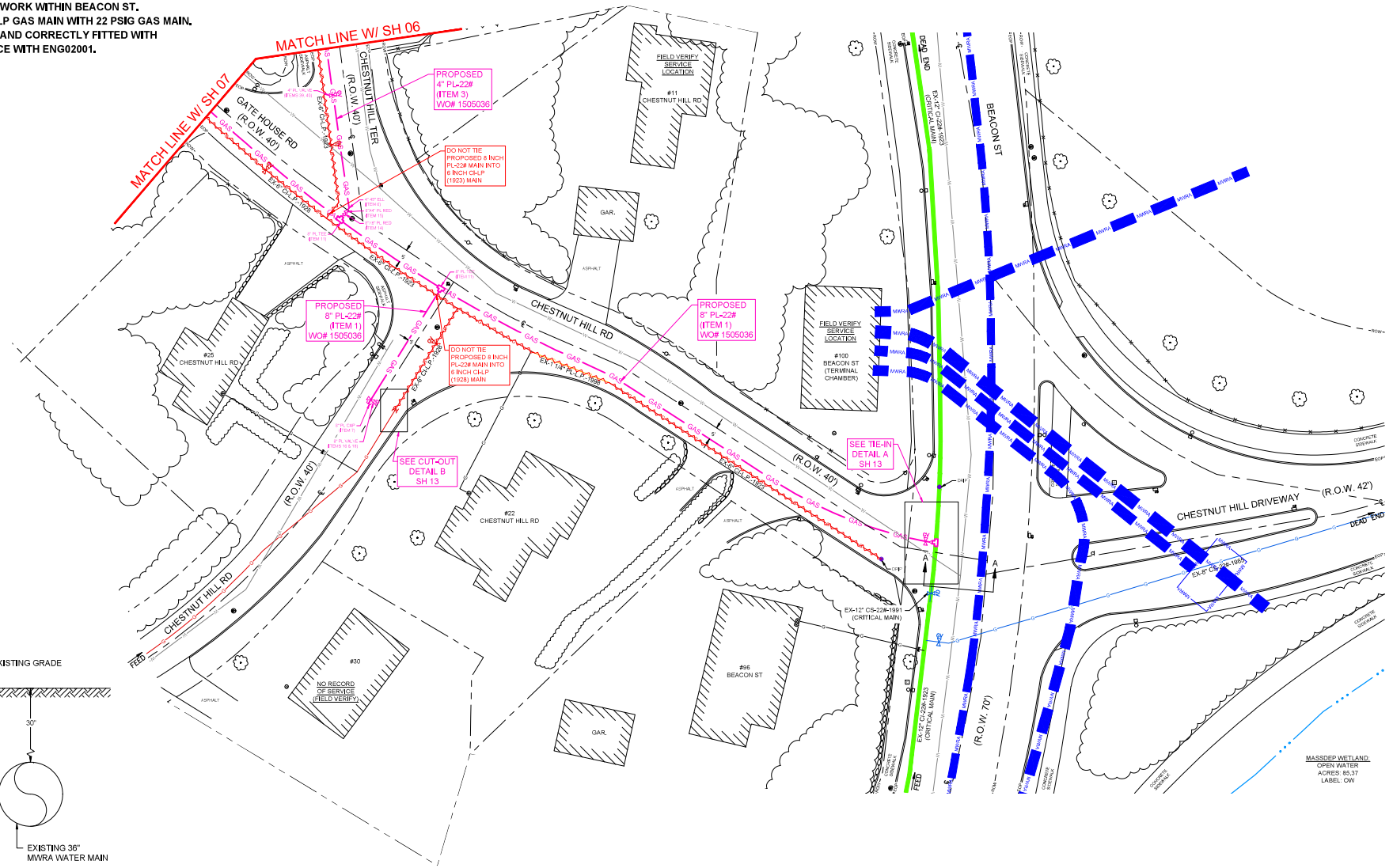
1. **PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING**
2. **MWRA WATER PERMIT REQUIRED FOR WORK WITHIN BEACON ST.**
3. **THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.**

MWRA NOTES:

1. PROPOSED GAS MAIN TO BE INSTALLED PER NATIONAL GRID STANDARDS, AS SHOWN ON PLANS.
2. NATIONAL GRID TO MAINTAIN A MINIMUM OF 3 FT OF HORIZONTAL CLEARANCE BETWEEN THE PROPOSED GAS MAIN(S) AND MWRA MAIN(S).
3. NATIONAL GRID TO MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL CLEARANCE BETWEEN THE TOP OF THE PROPOSED GAS MAIN(S) AND THE BOTTOM OF THE MWRA MAIN(S).
4. NATIONAL GRID'S CONTRACTOR TO PERFORM TEST PITS AT MWRA CROSSING LOCATIONS TO DETERMINE ELEVATIONS OF MWRA MAIN(S) PRIOR TO INSTALLATION OF GAS MAIN(S).
5. CROSSINGS OF MWRA SEWER MAINS SHALL BE LOCATED A MINIMUM HORIZONTAL DISTANCE OF AT LEAST FOUR (4) FEET FROM ANY JOINTS OF THE AUTHORITY'S MAINS.



TYPICAL ADJACENT DETAIL:
SECTION A-A AT MWRA
NTS



20' 0' 20' 40'
1"=20'

THE DDS COMPANIES
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IFC

PE STAMP 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

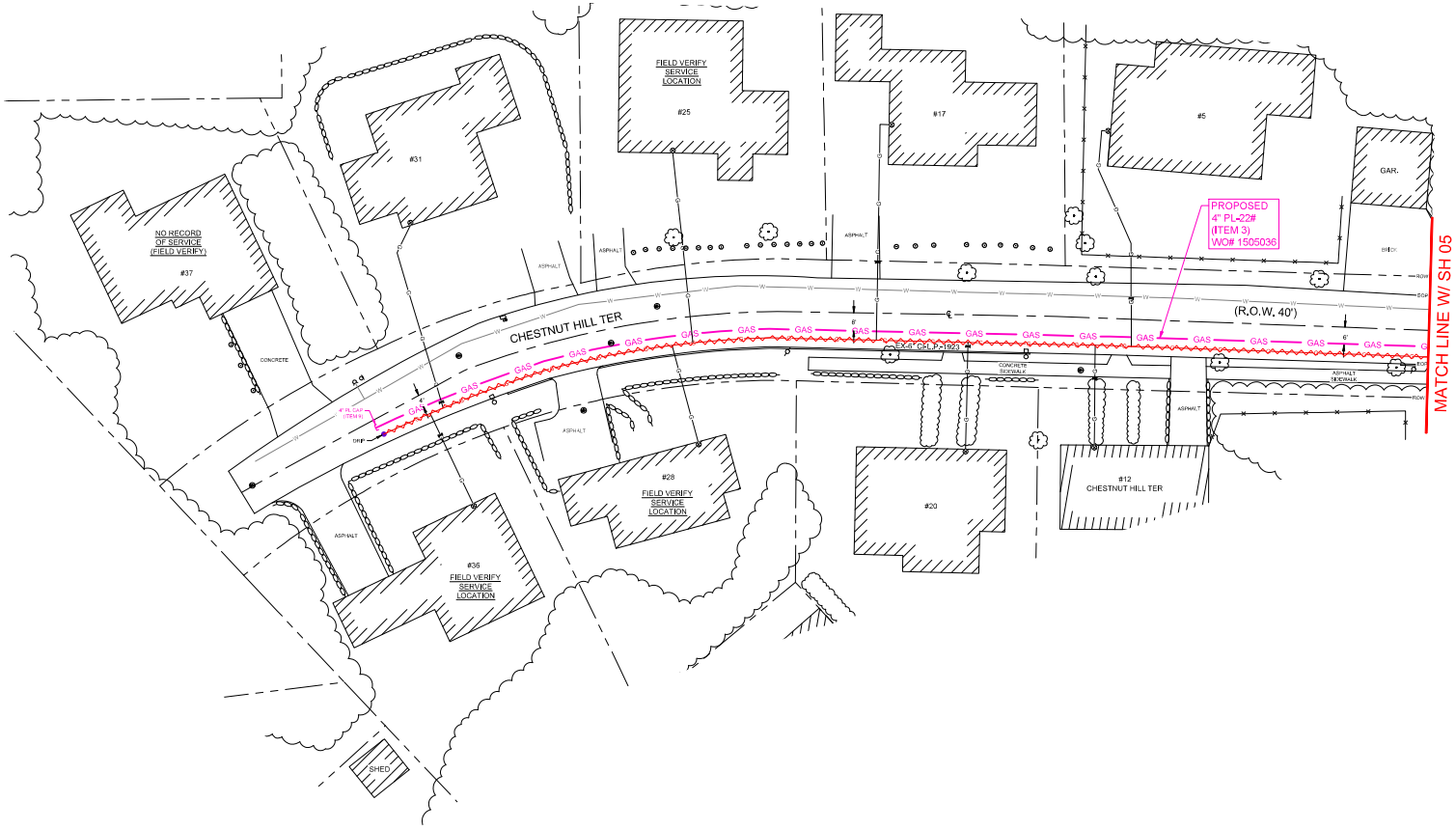
DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

PAGE 05 OF 17

DRAWING NO.	SHEET NO.
C-002	05

NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING
2. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.



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PE STAMP 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
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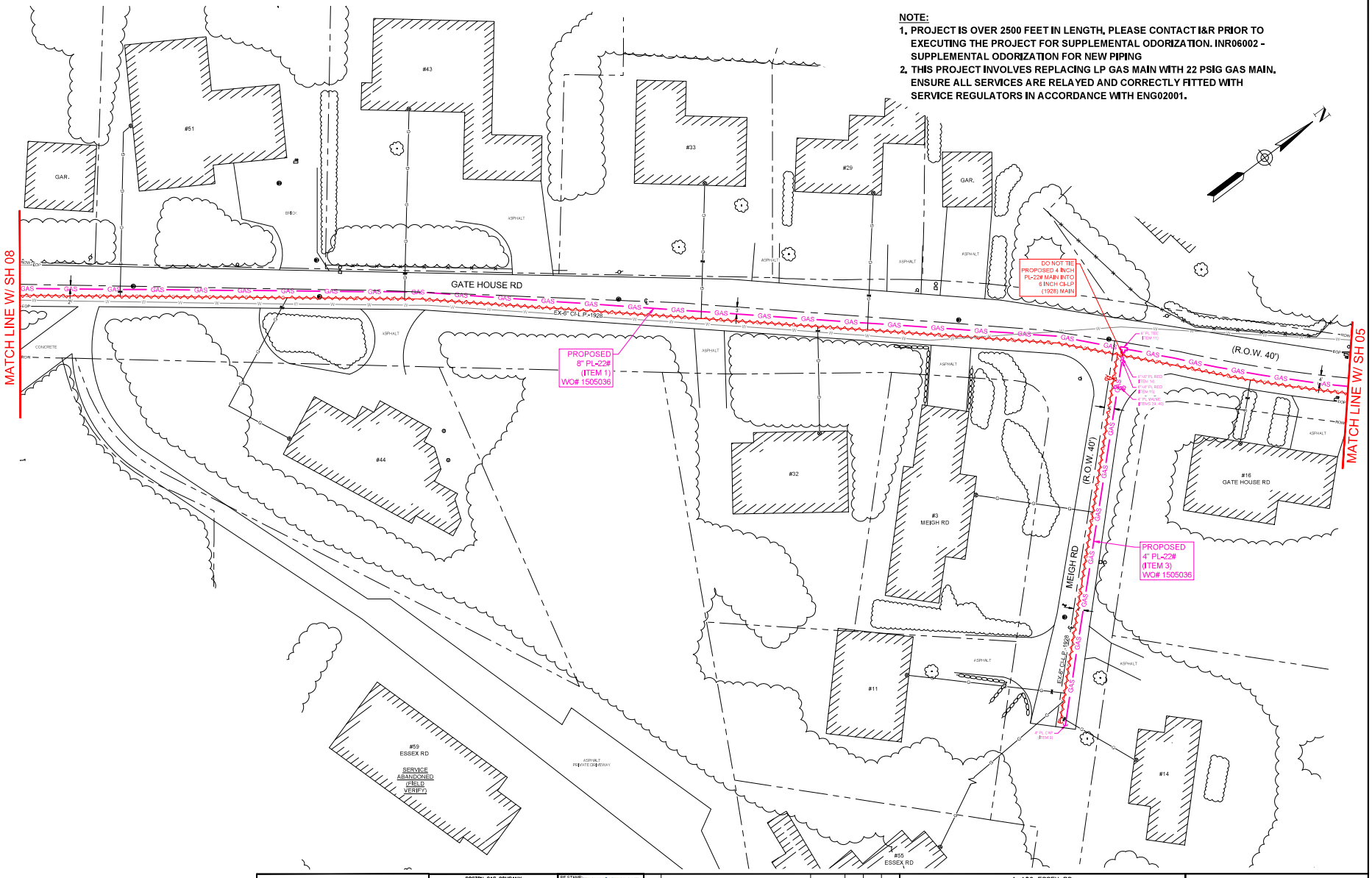
1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

PAGE 06 OF 17

DRAWING NO.	SHEET NO.
C-003	06



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PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
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1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

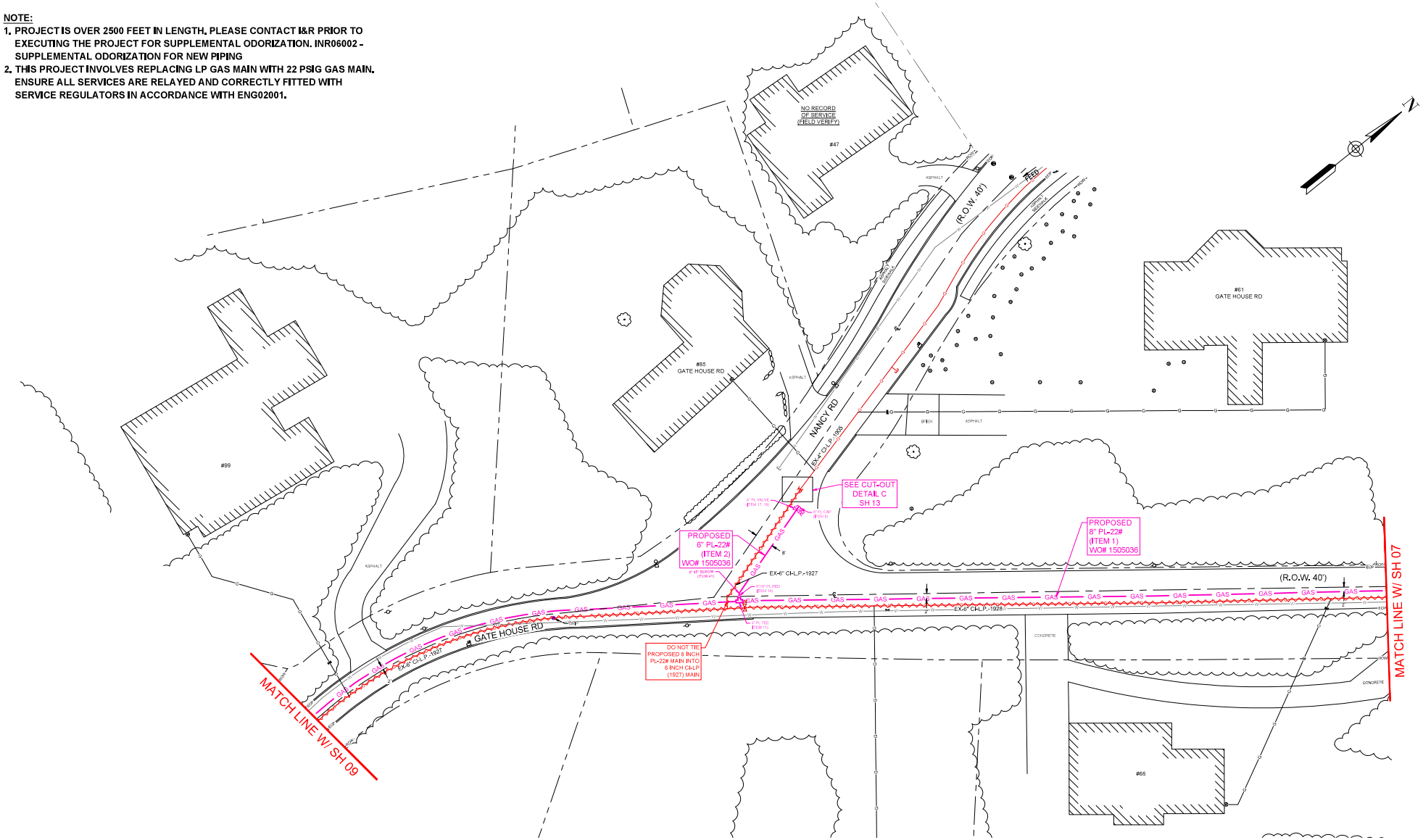
DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

PAGE 07 OF 17

DRAWING NO.	SHEET NO.
C-004	07

NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING
2. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.



20' 0' 20' 40'
1"=20'

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IFC

PE STAMP: 4/28/23

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1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

PAGE 08 OF 17

DRAWING NO.	SHEET NO.
C-005	08

NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING
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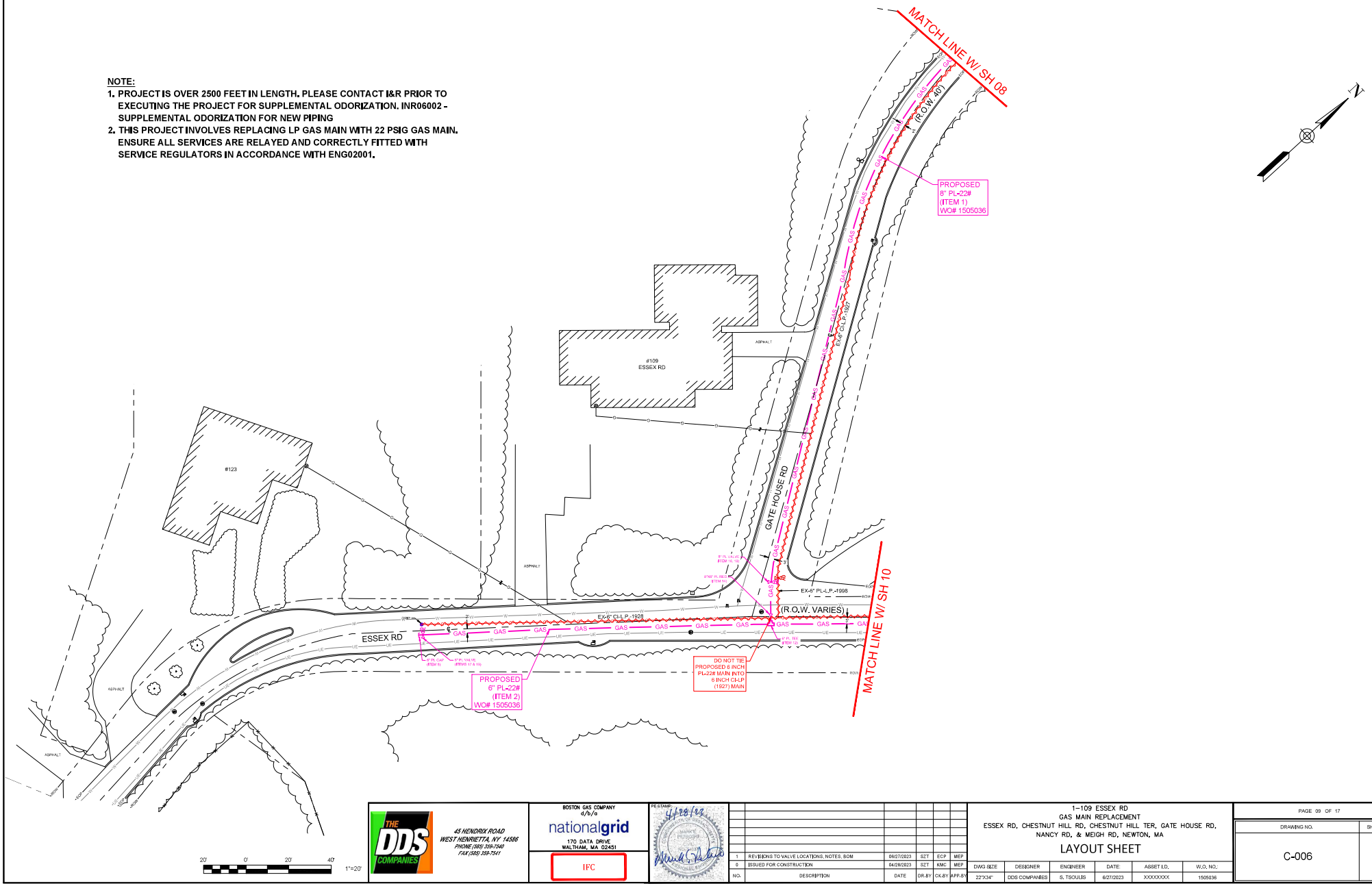

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BOSTON GAS COMPANY
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PE STAMP: 4/28/23

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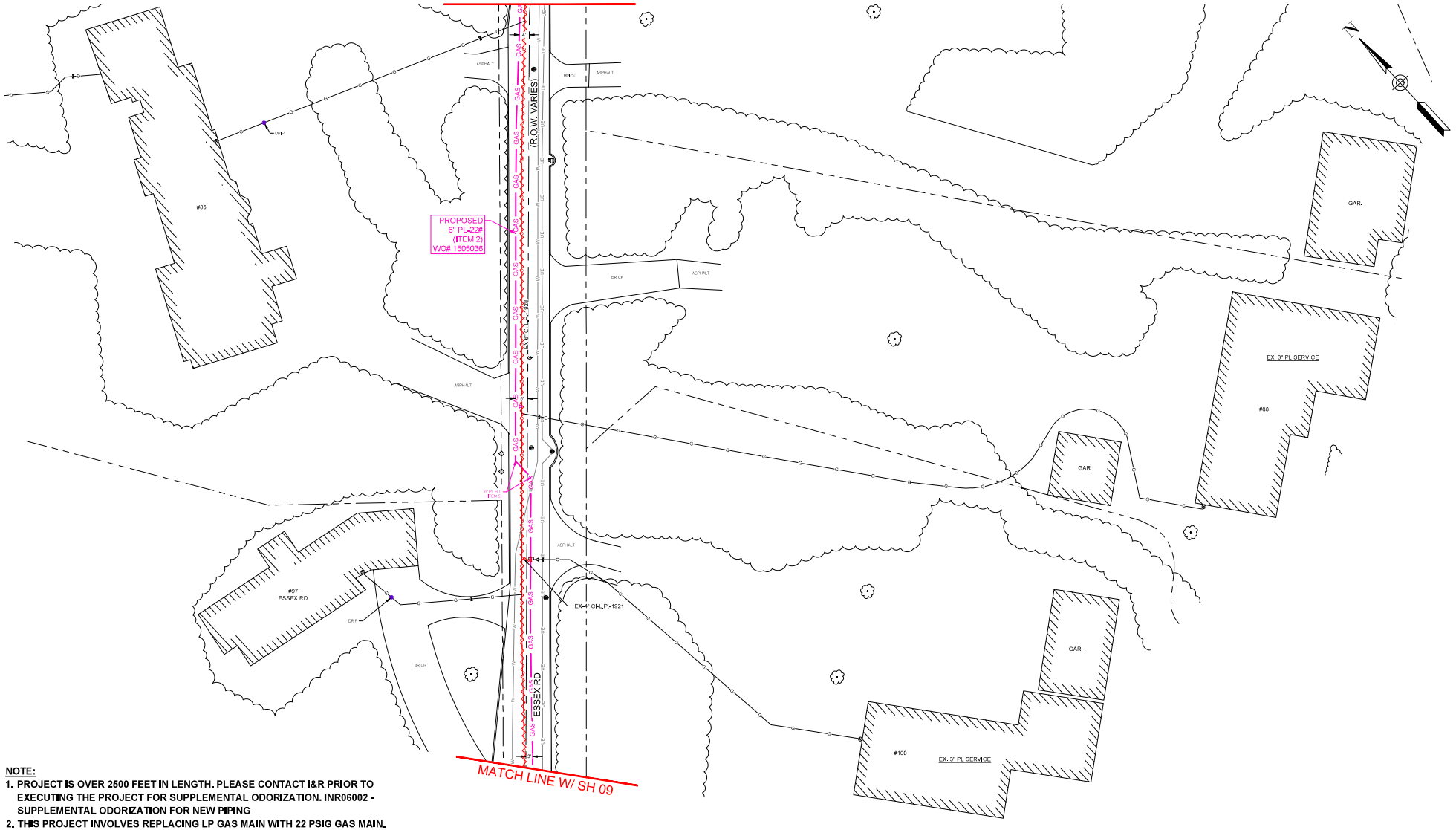
1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

PAGE 09 OF 17

DRAWING NO.	SHEET NO.
C-006	09



NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING
2. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.

20' 0' 20' 40'
1"=20'

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
FAX (585) 359-7541

BOSTON GAS COMPANY
d/b/a
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

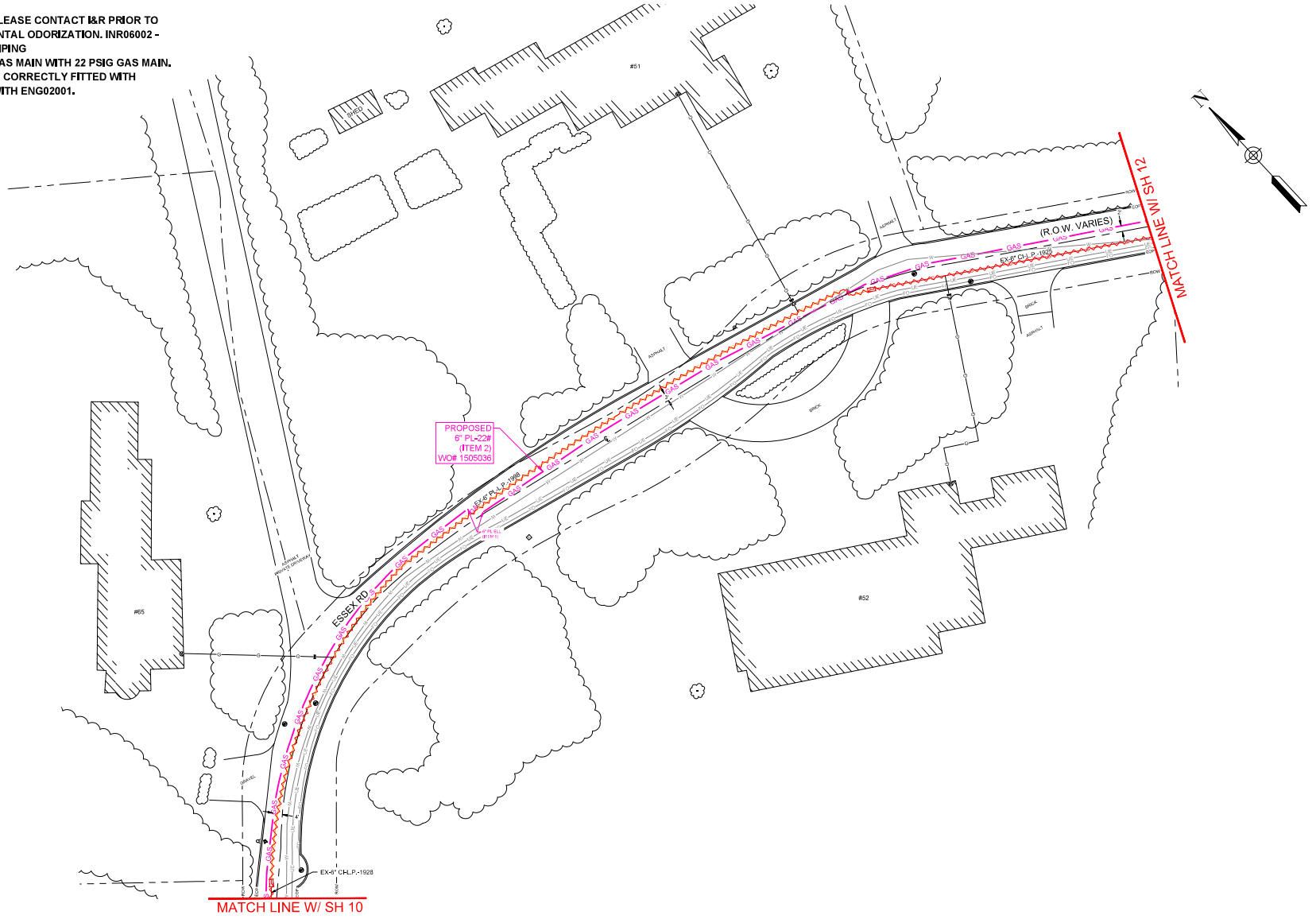
LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

DRAWING NO.	SHEET NO.
C-007	10

NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING
2. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.



20' 0' 20' 40'
1"=20'

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7340
FAX (585) 359-7341

BOSTON GAS COMPANY d/b/a nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

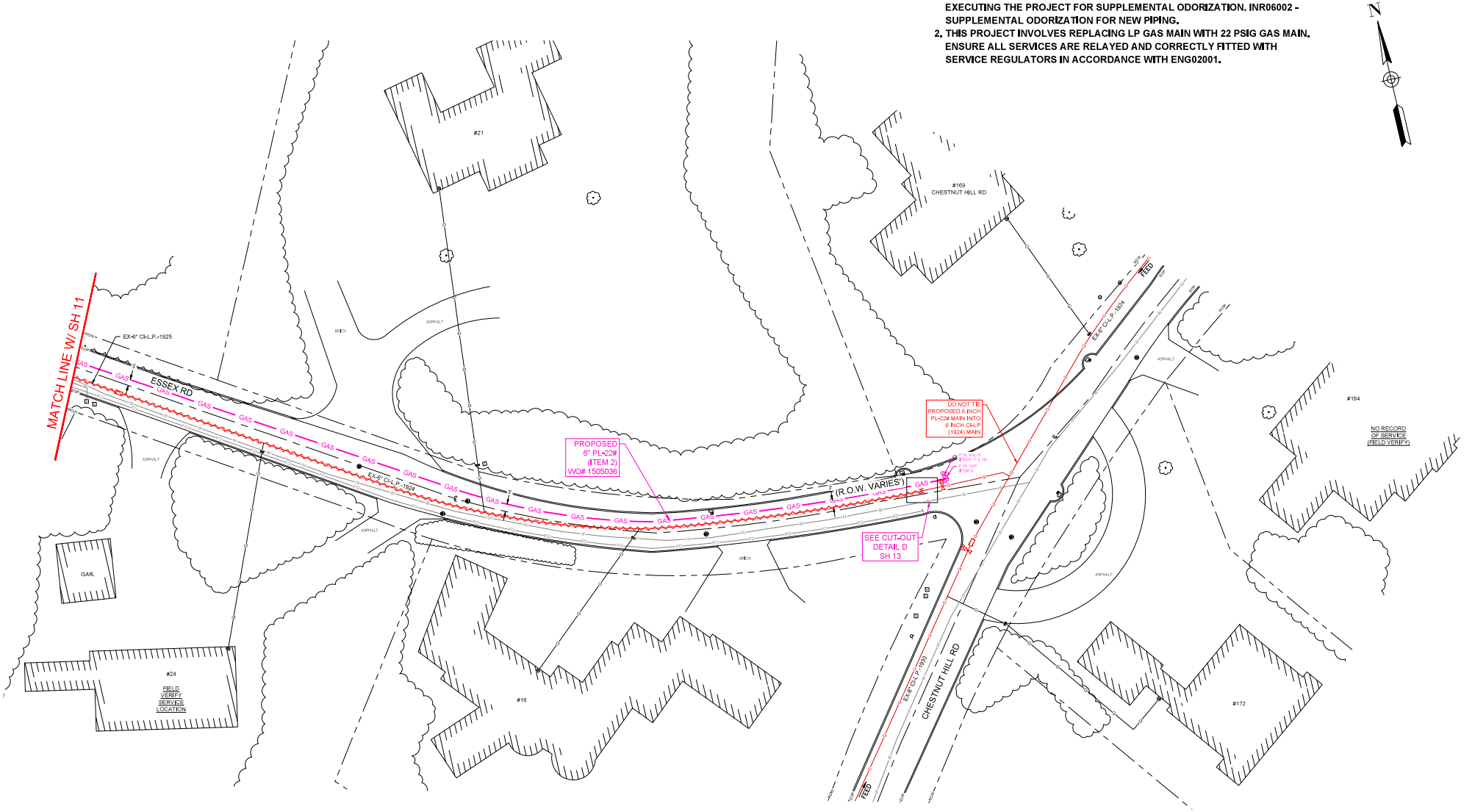
LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

DRAWING NO.	SHEET NO.
C-008	11

NOTE:

1. PROJECT IS OVER 2500 FEET IN LENGTH. PLEASE CONTACT I&R PRIOR TO EXECUTING THE PROJECT FOR SUPPLEMENTAL ODORIZATION. INR06002 - SUPPLEMENTAL ODORIZATION FOR NEW PIPING.
2. THIS PROJECT INVOLVES REPLACING LP GAS MAIN WITH 22 PSIG GAS MAIN. ENSURE ALL SERVICES ARE RELAYED AND CORRECTLY FITTED WITH SERVICE REGULATORS IN ACCORDANCE WITH ENG02001.



20' 0' 20' 40'
1"=20'

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7340
FAX (585) 359-7341

BOSTON GAS COMPANY d/b/a nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

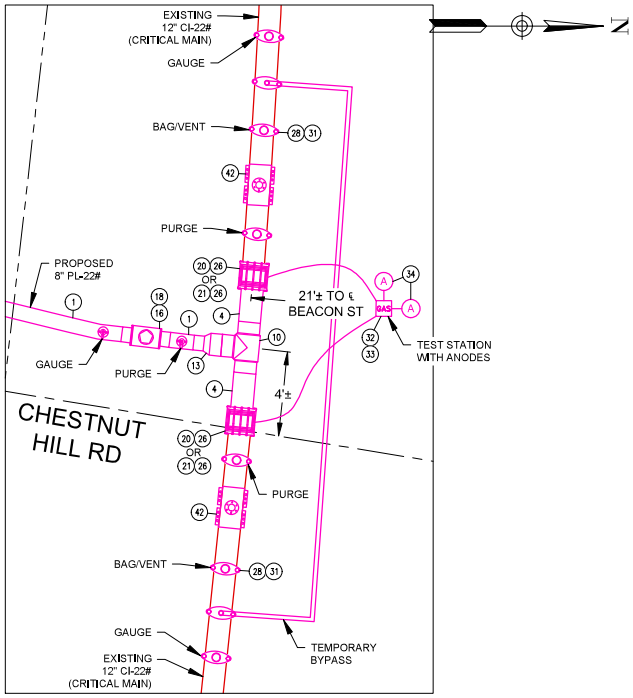
NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

LAYOUT SHEET

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505036

DRAWING NO.	SHEET NO.
C-009	12

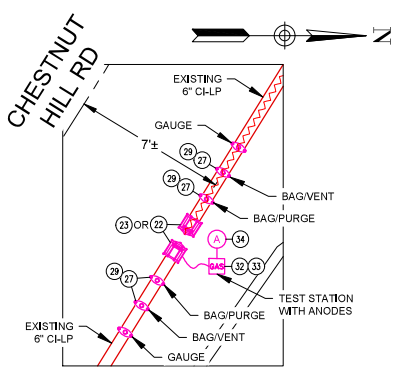


DETAIL A: TIE-IN

(BEACON ST & CHESTNUT HILL RD)

SCALE - 1:3

SEE NOTES 1, 2, & 4

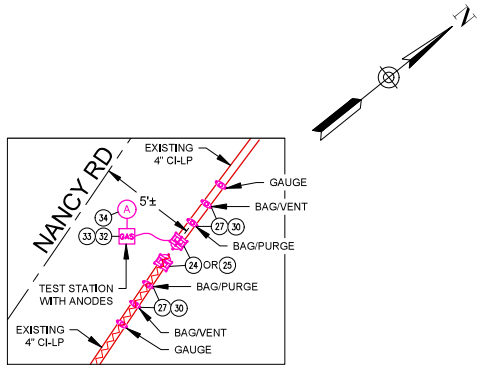


DETAIL B: CUT-OFF

(CHESTNUT HILL RD)

SCALE - 1:3

SEE NOTES 3 & 4

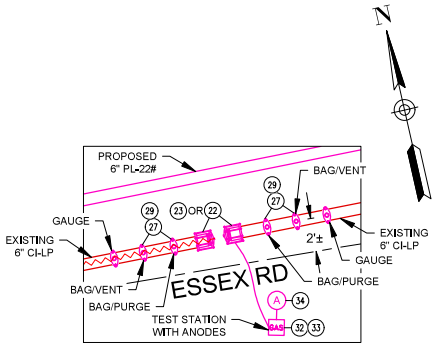


DETAIL C: CUT-OFF

(NANCY RD)

SCALE - 1:3

SEE NOTES 3 & 4



DETAIL D: CUT-OFF

(ESSEX RD)

SCALE - 1:3

SEE NOTES 3 & 4

NOTE:

1. **BYPASS REQUIREMENT TO BE DETERMINED AND SIZED BY NATIONAL GRID, AND INCLUDED IN SOP.**
2. **INSTALL A 1-WIRE TEST STATION TO EACH PROPOSED INSULATED COUPLING (PIPE END SPACER AND INSULATOR SLEEVE FACING THE CAST IRON) BY USING THE CLIP ON THE COUPLING. INCLUDE 1-17 LB ANODE FOR EACH INSULATED COUPLING SPACED AT LEAST 8 FT APART AND 1 FT BELOW THE MAIN. ROUTE ALL WIRES INTO ONE SHARED TEST BOX. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION.**
3. **INSTALL A 1-WIRE TEST STATION TO THE PROPOSED ACTIVE INSULATED STEEL MECHANICAL END CAP. INCLUDE 1-17 LB ANODE SPACED AT LEAST 1 FT BELOW THE MAIN. INSTALL THE 9X9 TEST STATION IN AN ACCESSIBLE LOCATION.**
4. **IF USING A NON-RESTRAINING COUPLING OR CAP, THE COUPLING OR CAP SHALL BE RESTRAINED IN ACCORDANCE WITH MAIN-6190.**

3' 0' 3' 6'

1"=3'

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
FAX (585) 359-7541

BOSTON GAS COMPANY
d/b/a
nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP 4/28/23

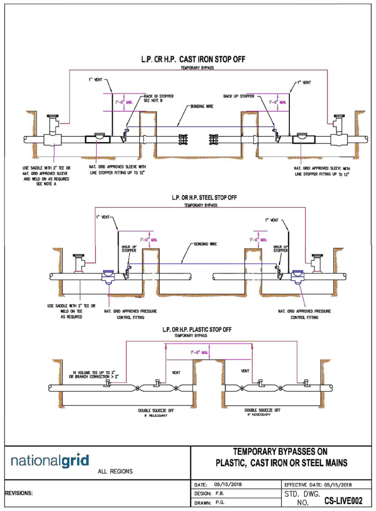
NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

TIE-IN & ABANDONMENT DETAILS

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXX	1505936

DRAWING NO.	SHEET NO.
C-101	13



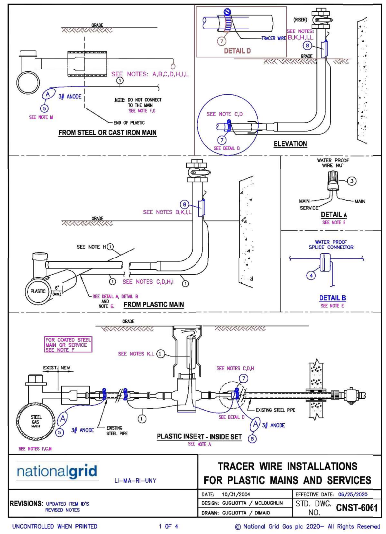
NOTES:

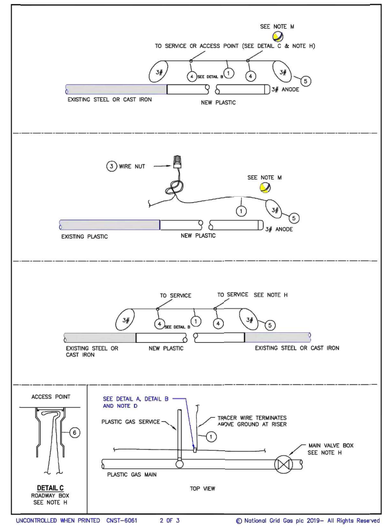
A. FOR BYPASSES ON THE LP SYSTEM ONLY SCREW TEES AND BAGHOLES MAY BE TAPPED DIRECTLY INTO THE MAIN.

B. BACK UP STOPPERS WILL BE REQUIRED IF INSUFFICIENT STOP OFF CAN BE ACHIEVED OR IF WELDING BETWEEN THE STOPPERS WILL BE REQUIRED.

C. STOP OFF CAN BE PERFORMED USING MUELLER, T.D WILLIAMSON, KLIESS, BAGS, OR OTHER APPROVED STOP OFF SYSTEMS.

SHT. 2 OF 2 CS-LIVE002





		LI/NYC/ MASS	UNY/RI
8	TRACER WIRE SNAP, 2" (represents steel size)	9386134	9386134
8	TRACER WIRE SNAP, 1 ½" (represents steel size)	9386156	9386156
8	TRACER WIRE SNAP, 1" (represents steel size)	9386150	9386150
8	TRACER WIRE SNAP, ¾" (represents steel size)	9385568	9385568
7	CLAMP, STAINLESS	9331708	9307873
6	VALVE BOX, ROADWAY	9339890	9312344 UNY 9311208 RI
5	ANODE, 3 LB MAGNESIUM	9315645	9315645
4	WIRE SPLICE CONNECTOR, WATERPROOF	9308036	9308036
3	WIRE NUT, PLASTIC, WATERPROOF	9331644	9314631
2	WIRE, DIRECTIONAL DRILL, STAINLESS, STRANDED 10 AWG	9314187	9314187
1	TRACER WIRE, DIRECT BURY, COPPER, 12 AWG	9315005	9315005
NO.	ITEM	SAP ITEM ID	
BILL OF MATERIAL			

A. Inside sets: Terminate tracer wire in the curb valve box. Allow enough wire to extend 18” to 24” above grade.

B. Outside Sets: Tracer wire should be extended approximately 18” above grade at riser. Connect tracer wire to the riser using a “tracer snap”, Item #8. If the appropriate tracer snap is not available, wrap or tie the tracer wire to the riser. Do not permanently attach tracer wire to the riser. Tracer wire should not exceed 6” above the point where it is secured to the riser.

C. Partially tubed services: When the abandoned portion of an existing steel service pipe is used as a sleeve for the new plastic, all cut out sections of the steel pipe to be inserted with plastic, shall be connected using a section of tracer wire to maintain continuity. If the existing service is coated steel , see Installation of Test Stations for Cathodic Protection [030026-CS] and Installation of Test Stations for Cathodic Protection [COR04003] or contact corrosion department for more guidance.

D. Thermite welding of tracer wire to abandoned steel service is only acceptable prior to insertion of the plastic tubing. See Installation of Test Stations for Cathodic Protection [030026-CS].

E. Plastic Mains: The service tracer wire shall be connected to the plastic main tracer wire using item #3 detail A or item #4 (detail B - preferred) in accordance with Installing Wire Connections [COR04004].

F. Coated Steel Mains: Do not connect the tracer wire to the steel main. See Installation of Test Stations for Cathodic Protection [030026-CS] and Installation of Test Stations for Cathodic Protection [COR04003] or contact corrosion department for more guidance.

G. Cast Iron or Bare steel Mains: Do not connect the tracer wire to the main. It is required in LI and MA, and suggested in all other areas to terminate the tracing wire with a 3# anode.

Tracer Wire Installation Notes

H. Install tracer wire in close proximity to the plastic pipe. Approximately 4” to 6” away from the pipe. LI & MA- Above or alongside, UNY- alongside, RI-Under or alongside. Exception: For trenchless pipe installations, the minimum clearance is waived.

I. Maintain separation of approximately 4” from service riser. Do not permanently connect the tracer wire to the riser.

J. For horizontal directional drill installations, use stainless wire, item #2.

K. Tracer wire installed in boxes should allow enough wire to extend 18” to 24” above grade.

L. Verification: upon completion, the installer shall verify the location of the main or service using the tracer wire and locating device and perform a mark out using the conductive method.

M. LI and MA: Required to terminate the tracing wire with a 3# anode. This is to ground the tracer wire and increase signal strength when locating. This practice is recommended in all areas where signal strength is an issue.

Regional Notes

NYC ONLY: refer to Installation of Marker Tapes and EMS Pipeline Locators for Mains and Services [CNST6060-NYC] for installation of electronic marker ball in place of tracer wire.

UNCONTROLLED WHEN PRINTED
Effective Date 06/25/2020
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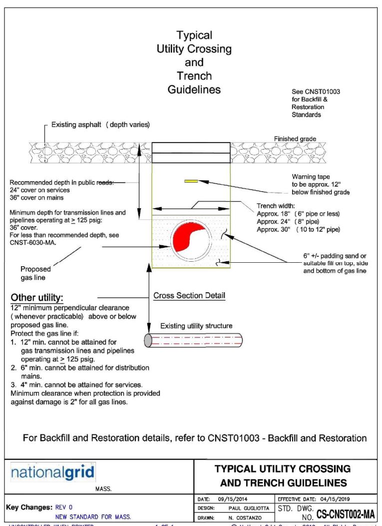
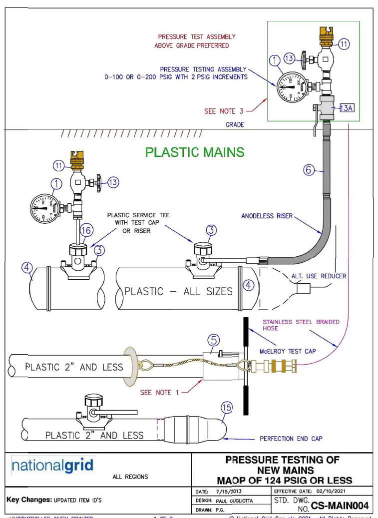
CNST-6061





NOTES:

1. INSTALL PER MCELROY MANUFACTURER'S INSTRUCTIONS.
2. WHEN USING MECHANICAL COUPLINGS (AS SHOWN IN DETAIL A), NON-RESTRAINING COUPLING SHALL BE STRAPPED AND THE ENDS SHALL BE BLOCKED PER APPROVED STANDARD DRAWINGS. RESTRAINING COUPLINGS NEED TO BE EITHER STRAPPED OR BLOCKED. **WHEN USING RESTRAINING COUPLINGS, STRAPPING NUTS SHOULD BE HAND TIGHT.**

2A. ON EXISTING STEEL SYSTEMS: REFER TO THE TABLE BELOW FOR THE MINIMUM SAFE DISTANCE FROM THE EXCAVATION WALL. IF A BURIED, UNSTRAPPED COUPLING EXISTS AT A DISTANCE LESS THAN THE MINIMUM SAFE EMBEDMENT DISTANCE FROM THE WALL, THEN BLOCKING IS REQUIRED FOR THE PRESSURE TEST. IF AN ALL WELDED SYSTEM CAN NOT BE CONFIRMED, THE WELDED OR FLANGED ENDS SHALL BE BLOCKED

PIPE SIZE	MINIMUM SAFE DISTANCE FROM THE EXCAVATION WALL
(INCHES)	(FEET)
2	5
3	8
4	12
6	24
8	41
12	70

REFER TO CONSTRUCTION STANDARD FITS-6025 AND FITS-6015 FOR LIST OF COUPLINGS.

3. IT IS RECOMMENDED THAT THE GAUGE ASSEMBLY BE ABOVE GRADE TO PREVENT PERSONNEL FROM ENTERING THE TRENCH WHILE THE PRESSURE TEST IS UNDERWAY.
4. ONE PRESSURE TEST GAUGE AT EACH PIPE END IS RECOMMENDED TO VERIFY THE PRESSURE. ALL GAUGES SHALL BE 0-100 OR 0-200 PSIG RANGE (2 PSIG INCREMENTS REQ'D IN NY STATE ONLY).
5. REFER TO CNST04003 "***PRESSURE TESTING OF MAINS OPERATING BELOW 125 PSIG***" FOR TESTING AND DESIGN REQUIREMENTS.

ITEM	DESCRIPTION	SAP ITEM ID LI / MA / NYC	SAP ITEMS RI AND UNY
1	**PRESSURE GAUGE 0-100 OR 0-200 PSIG – 2 PSI INCREMENTS**		
	0-200 PSIG STAINLESS STEEL ¼" NPT 3-1/2" DIAL	9354865	TOOL ITEM
	0-200 PSIG STAINLESS STEEL ¼" NPT 2-1/2" DIAL	9358390	TOOL ITEM
	0-100 PSIG STAINLESS STEEL ¼" NPT	NON STOCK	TOOL ITEM
2	**SIGN – WARNING PRESSURE TEST (AS REQUIRED IN FIELD)**	9332240	NON STOCK
3	**TEE SERVICE – ELECTROFUSION YELLOW MD 1/2” CTS BUTT FUSE OUTLET**		
	2" MAIN X ½" BUTT FUSE OUTLET LI/MA/NY/NYC	9342517 2X1/2	NON STOCK
	4" MAIN X ½" BUTT FUSE OUTLET LI/MA/NY/NYC	9342518 4X1/2	NON STOCK
	6" MAIN X ½" BUTT FUSE OUTLET LI/MA/NY/NYC	9342516 6X1/2	NON STOCK
	8" MAIN X ½" BUTT FUSE OUTLET LI/MA/NY/NYC	9342371 8X1/2	NON STOCK
	TEE SERVICE – ELECTROFUSION YELLOW MD 1” CTS BUTT FUSE OUTLET	-	
	1-1/4" MAIN X 1" OUTLET LI	9342332 1-1/4 X 1	NON STOCK
	2" MAIN X 1" OUTLET LI	9342519 2X1	NON STOCK
	4" MAIN X 1" OUTLET LI	9342521 4X1	NON STOCK
	6" MAIN X 1" OUTLET LI	9342328 6X1	NON STOCK
	8" MAIN X 1" OUTLET LI	9342372 8X1	NON STOCK
	TEE SERVICE – ELECTROFUSION BLACK HD 1” IPS BUTT FUSE OUTLET		
	2" MAIN X 1" IPS OUTLET MASS	9322653 2X1	NON STOCK
	3" MAIN X 1" IPS OUTLET MASS	9322628 3X1	NON STOCK
	4" MAIN X 1" IPS OUTLET MASS	9322620 4X1	NON STOCK
	6" MAIN X 1" IPS OUTLET MASS	9322626 6X1	NON STOCK
	8" MAIN X 1" IPS OUTLET MASS	9323497 8X1	NON STOCK
	12" MAIN X 1" IPS OUTLET LI, NYC, MA	9351831 12X1	NON STOCK
	TEE SERVICE – SADDLE FUSION HIGH DENSITY BLACK 1/2” CTS BUTT FUSE		
	2" MAIN X 1/2" OUTLET LI	9342405 2X1/2	NON STOCK
	4" MAIN X 1/2" OUTLET LI	9342406 4X1/2	NON STOCK
	6" MAIN X 1/2" OUTLET LI	9342407 6X1/2	NON STOCK
	8" MAIN X 1/2" OUTLET LI	9342408 8X1/2	NON STOCK
	TEE SERVICE – SADDLE FUSION HIGH DENSITY BLACK 1" CTS BUTT FUSE		
	2" MAIN X 1" OUTLET LI	9342409 2X1 SDR 9	9315907 2X1
	4" MAIN X 1" OUTLET LI	9342429 4X1 SDR 9	9315964 4X1
	6" MAIN X 1" OUTLET LI	9342430 6X1 SDR 9	9315963 6X1
	8" MAIN X 1" OUTLET LI	9342431 8X1 SDR 9	9315962 8X1
	12" MAIN X 1" OUTLET	NON STOCK	9314629 12X1
	TEE SERVICE MECHANICAL X PERFECTION OUTLET		
	2" MAIN X 1/2" OUTLET	NON STOCK	9308584 2X1/2
	4" MAIN X 1/2" OUTLET	NON STOCK	9308583 4X1/2
	6" MAIN X 1/2" OUTLET	NON STOCK	9308472 6X1/2
	8" MAIN X 1/2" OUTLET	NON STOCK	9308471 8X1/2
	2" MAIN X 1" OUTLET	9315492 2X1	9315492 2X1
	3" MAIN X 1" OUTLET	9382123 3X1	N/A
	4" MAIN X 1" OUTLET	9315490 4X1	9315490 4X1
	6" MAIN X 1" OUTLET	9308473 6X1	9308473 6X1
	8" MAIN X 1" OUTLET	9306178 8X1	9306178 8X1

UNCONTROLLED WHEN PRINTED
Effective Date 7/15/2013
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CS-MAIN004

ITEM	DESCRIPTION	ORACLE ITEM ID LI / MA/ NYC	PEOPLESOFT ITEM RI AND UNY
4	**CAP END PLASTIC MEDIUM DENSITY YELLOW BUTT FUSE**		
	2" SDR11	2" 9339540	NON STOCK
	3" SDR 11	3" 9339541	NON STOCK
	4" SDR 11	4" 9339534	NON STOCK
	6" SDR 11	6" 9339733	NON STOCK
	8" SDR 13.5	8" 9339559	NON STOCK
	12" SDR.11.5	12" 9339560	NON STOCK
	CAP END PLASTIC HIGH DENSITY BLACK BUTT FUSION		
	2" SDR 9	2" 9339538	NON STOCK
	4" SDR 9	4" 9339535	NON STOCK
	6" SDR 9	6" 9339536	NON STOCK
	8" SDR 9	8" 9339537	NON STOCK
		-	-
	2" SDR 11 MASS RI & UNY	2" 9312686	2" 9312686
	3" SDR 11 MASS RI & UNY	3" 9310276	3" 9310276
	4" SDR 11 MASS RI & UNY	4" 9312685	4" 9312685
	6" SDR 11 MASS RI & UNY	6" 9312684	6" 9312684
	8" SDR 11 MASS RI	8" 9310272	8" 9310272
	12" SDR 11 RI UNY	NON STOCK	12" 9308729
		-	-
	8" SDR 13.5 RI	NON STOCK	8" 9312683
	12" SDR 13.5 RI	NON STOCK	12" 9314605
5	**McELROY TEST CAPS** (165 PSIG MAX)	NON STOCK	NON STOCK
	1-1/4" MODEL TP	TP-308	TP-308
	2" MODEL TP-310	TP-310	TP-310
	RISER	-	-
6	1" CTS MEDIUM DENSITY X ¾" NPT OUTLET	9344366	NON STOCK
	1" CTS MEDIUM DENSITY X 1-1/4" IPS OUTLET	9340874	NON STOCK
	1" HIGH DENSITY X 1-1/4" OUTLET	9340853	NON STOCK
	1" CST SERVASET X 1" OUTLET	9322627	NON STOCK
	1" CTS HIGH DENSITY .090" WALL X 1" IPS STEEL OUTLET	NON STOCK	9316405
	½" CTS .090" WALL PERFECTION END X ¾" NPT STEEL	NON STOCK	9310295
	1-1/4" CTS .090" WALL PERFECTION END X 1-1/4" NPT STEEL	NON STOCK	9306180
	OR TEST CAPS WITH STEEL OR PLASTIC PIPE TO TEST TREE	00311110 OR TOOL	TOOL ROOM
	TEST CAP FOR CENTRAL PLASTIC ELECTROFUSE TAPPING TEE	ROOM ITEM	ITEM
7	**FLANGE 150# WELD END FLAT FACE**		
	2"	9314322 2"	9314322
	3"	9314431 3"	9314431
	4"	9314430 4"	9314430
	6"	9308659 6"	9308659
	8"	9308748 8"	9308748
	12"	9308660 12"	9308660
	16"	9322363 MA 16"	NON STOCK
	20"	9322362 MA 20"	NON STOCK
8	**BLIND FLANGE CLASS 150# ASTM A-105**		
	2" FLAT FACE WITH ¾" CENTER NPT TAP	9341434 2"	NON STOCK
	3" FLAT FACE WITH ¾" CENTER NPT TAP	9341014 3"	NON STOCK
	4" FLAT FACE WITH ¾" CENTER NPT TAP	9341435 4"	NON STOCK
	6" FLAT FACE WITH ¾" CENTER NPT TAP	9340942 6"	NON STOCK
	2" FLAT FACE	9382074 2"	9308662
	3" FLAT FACE	9307751 3"	9307751
	4" FLAT FACE	9306252 4"	9306252
	6" FLAT FACE	9385747 6"	9306518
	8" FLAT FACE	9307750 8"	9307750
	12" FLAT FACE	9308749 12"	9308749
9	**GASKETS**	-	-
	2" FULL FACE 150#	9333167 2"	9315688
	3" FULL FACE 150#	9341158 3"	9312067
	4" FULL FACE 150#	9341159 4"	9312569
	6" FULL FACE 150#	9332599 6"	9312568
	8" FULL FACE 150#	9341168 8"	9315689
	12" RING TYPE 150#	9341165 12"	NON STOCK

UNCONTROLLED WHEN PRINTED
Effective Date 7/15/2013 CS-MAIN004
5 OF 6

ITEM	DESCRIPTION	ORACLE ITEM ID LI / MA / NYC	PEOPLESOFT ITEM RI AND UNY
10	**END CAPS – STEEL WELD END STANDARD WALL –GRADE B**		
	2"	9312095 2"	9312095
	3"	9308719 3"	9308719
	4"	9312096 4"	9312096
	6"	9312094 6"	9312094
	8"	9312093 8"	9312093
	10"	9315182 10"	9315182
	12"	9312092 12"	9312092
	16"	9314824 16"	9314824
	20"	9339687 20"	9314823
11	**THOR FITTING**	-	-
	½" MALE NPT X HOSE CONNECTION	00504089	NON STOCK
	¾" FEMLAE X HOSE CONNECTION	00504301	NON STOCK
12	**THRED-O-LET**	-	-
	12" - 6" X ¾" 3000# PER ASTM A-105 GRADE B	9341652 12-6X3/4	NON STOCK
	10" – 6" X 1" 3000# PER ASTM A-105 GRADE B	9341656 10-6X1	NON STOCK
	36" – 12" X 1" 3000# PER ASTM A-105 GRADE B	9342052 36-12X1	NON STOCK
	2" X 1" 3000# PER ASTM A-105 GRADE B	NON STOCK	9307678 2X1
	10" – 6" X 1" 3000# PER ASTM A-105 GRADE B	NON STOCK	9307695 10-6X1
	36"-14" X ¾" 3000# PER ASTM A-105 GRADE B	NON STOCK	9307677 36-14X3/4
13	**VALVE**		
13A	**VALVE (OPTIONAL – TO SHUT OFF TEST ASSEMBLY)**		
14	**LUG ASSEMBLY**		
	7/8" x 24" LONG (LI ONLY - SEE MAIN-6210)	9342211	NON STOCK
	7/8"X 44"LONG (LI ONLY - SEE MAIN-6210)	9342212	NON STOCK
	LUG GREEN 3"- 8"MAIN 7/8" DIAM. (NYC ONLY – SEE MAIN-6230 & MAIN-6230)	9357904	NON STOCK
	LUG YELLOW 10"- 30" MAIN 1-1/16" DIAM. (NYC ONLY – SEE MAIN-6230& MAIN-6230)	9357905	NON STOCK
	ROD ¾" X 12' LONG (NYC ONLY	9328152	NON STOCK
	ROD 1" X 12' LONG (NYC ONLY)	9328150	NON STOCK
	LUG ASSEMBLY ¾"X 30" LONG	NON STOCK	9315741
15	**COUPLING – END 2” PERFECTION**	NON STOCK	0803641
16	**TEST CAP**	-	TOOL ROOM ITEM
	FOR SADDLE FUSION TEE – CENTRAL PLASTICS	9325109	
	FOR SADDLE FUSION TEE– JM EAGLE / POLY / UPONOR	9325017	
	FOR SADDLE FUSION TEE – PERFORMANCE PIPE TEES	9341368	
	FOR HVTT (HIGH VOLUME TAPPING TEE) SADDLE FUSION CENTAL PLASTICS	9384268	
	FOR HVTT (HIGH VOLUME TAPPING TEE) SADDLE FUSION– JM EAGLE / POLY/ UPONOR	9384174	
	FOR HVTT (HIGH VOLUME TAPPING TEE) SADDLE FUSION PERFORMANCE PIPE TEES	9323715	
	FOR HVTT ELECTROFUSION TEE	9382494	
	FOR ELECTROFUSION TEE	9381846	
	FOR PERFECTION PMTT MECHANICAL TEE (CAP FITS ALL MAIN SIZE & OUTLET SIZES OF PMTTS)	9339561	

UNCONTROLLED WHEN PRINTED
Effective Date 2/15/2021
6 OF 6

CS-MAIN004

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
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BOSTON GAS COMPANY
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nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

STANDARD DETAILS

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

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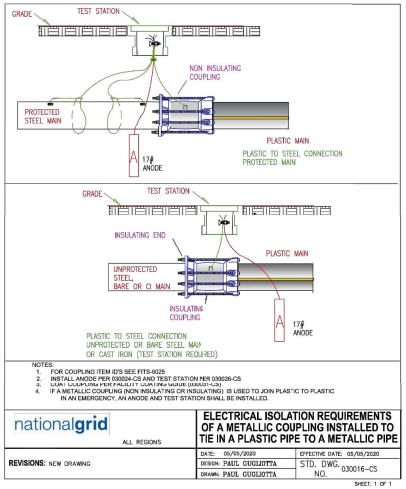
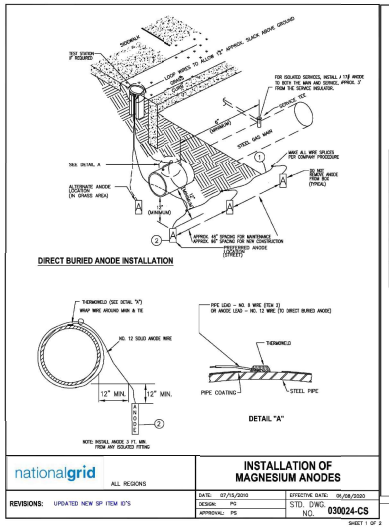
DRAWING NO.	SHEET NO.
C-201	14



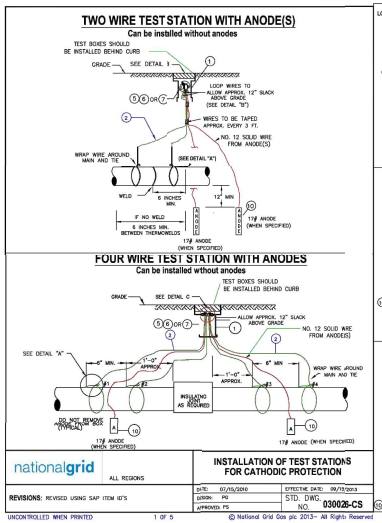


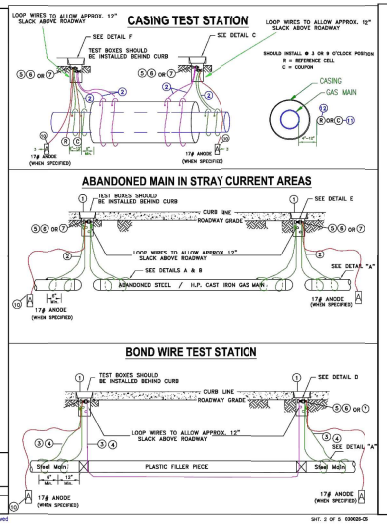
MATERIAL LIST

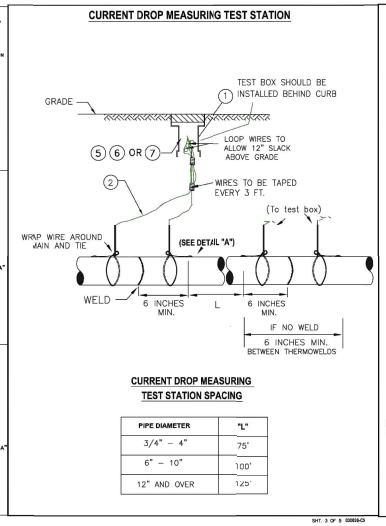
	Description	Down State NY Item I.D	Upstate NY Item I.D	New England Item I.D	Rhode Island Item I.D	MATERIAL NOTES
1	CABLE NO. 8 – 1/C	9334425	9311214	9334425	9311214	Upstate and RI cable has 19 strands
2	ANODE, MAGNESIUM 17 LB.	9311183	9311183	9311183	9311183	
3	ANODE, MAGNESIUM 3 LB.	9315645	9315645	9315645	9315645	Use on Tracer wire and all isolated fittings.
4	ANODE, MAGNESIUM SPIKE 9 LB	9308624	9308624	9308624	9308624	Use on Service Risers ONLY
*	CLAMP, GROUNDING 1/2IN - 1IN DIA.	9386544	9386544	9386544	9386544	Grounding clamp for attaching spike anode lead wire to service riser
*	CLAMP, GROUNDING 1-1/4IN - 2IN DIA.	9386559	9386559	9386559	9386559	Grounding clamp for attaching spike anode lead wire to service riser

* Spike Anode Ground Clamp

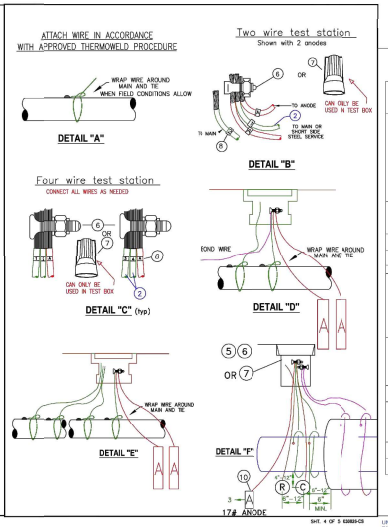
SHT. 2 OF 2. 030024-CS







PIPE DIAMETER	"L"
3/4" – 4"	75'
6" – 10"	100'
12" AND OVER	125'



MATERIAL LIST

	Description	Down State SAP Item I.D	Upstate SAP Item I.D	Nev Englnd SAP Item I.D	Rhode Island SAP Item I.D	MATERIAL NOTES
1	TEST BOX WITH COVER	9339952	9312291 UPSTATE BOXES COME IN ONE	9339992 PIECE	(Grn - 445) 9311209 or (Lg - 556) in Prov. 9311208	NON LOCKING COVER. DISCARD FOOT PIECE.
	TEST BOX 9" SQUARE HEAVY DUTY	9339391		9339391		WEIGHS 95 LBS, STREET USE, WITHOUT COVER
	COVER FOR 9" SQUARE BOX	9339797		9339797		NON-LOCKING COVER
2	WIRE, NO. 6, 7 STRAND	9307539	9307539	9307539	9307539	TEST WIRE ONLY, NOT FOR GROUND BEDS. UPSTATE AND RI WIRE HAS 19 STRANDS.
3	WIRE, NO. 6, 7 STRAND	9311795	9311795	9311795	9311795	BOND WIRE ONLY, NOT FOR GROUND BEDS
4	WIRE 1/0 – 19 STRAND 600 V –1/C	9334171	NON STOCK	9334171	NON STOCK	USE IN STRAY CURRENT AREAS
5	TAPE, PVC - ¾" WIDE	9334056	9316070	9334056	9316070	NOT FOR PIPE COATING.
6	CONNECTOR, SPLIT BOLT, TYPE 6	9331578	9316630	9331578	NON STOCK	USE WITH NO. 6 CABLE
	CONNECTOR, SPLIT BOLT, TYPE 1/0 1	9331612		9331612		USE WITH 1/0 CABLE
7	CONNECTOR, TWIST-ON WIRE NUT	9330683	9314631	9330683	9314631	
8	TAG, ADHESIVE NUMBER 1	9307918	9307918	9307918	9307918	LABEL WITH #1 (N) OR (E), CONSECUTIVELY TO (S) OR (W)
	NUMBER 2	9307896	9307896	9307896	9307896	SEE DETAILS "B" AND "C"
	NUMBER 3	9307895	9307895	9307895	9307895	
	NUMBER 4	9307894	9307894	9307894	9307894	
	LETTER A	9307893	9307893	9307893	9307893	USE TO LABEL ANODES
9	GROUNDING CELL	NON STOCK	9315642	NON STOCK	NON STOCK	AS SPECIFIED BY CORROSION ENGINEERING
10	ANODE, NAGNESIUM 17LBS	9311183	9311183	9311183	9311183	SATURATE WITH WATER BEFORE BACKFILL. ANODE MAY BE INSTALLED VERTICALLY OR HORIZONTALLY
11	COUPON	9386100	By Corrosion	9386100	By Corrosion	MC MILLER OR EQUAL
12	REFERENCE CELL	9300706	By Corrosion	9300706	By Corrosion	BORIN MFGR INC OR EQUAL

UNCONTROLLED WHEN PRINTED
Effective Date: 06/08/2020
5 OF 5
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030026-CS

NOTE:

1. CATHODIC PROTECTION DETAILS ARE NOT COVERED UNDER PE STAMP.

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BOSTON GAS COMPANY
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1–109 ESSEX RD
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ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

STANDARD DETAILS

DWG SIZE	DESIGNER	ENGINEER	DATE	ASSET I.D.	W.O. NO.
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

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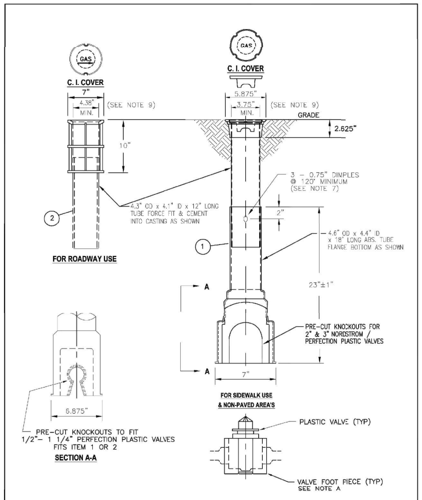
DRAWING NO.	SHEET NO.
C-202	15

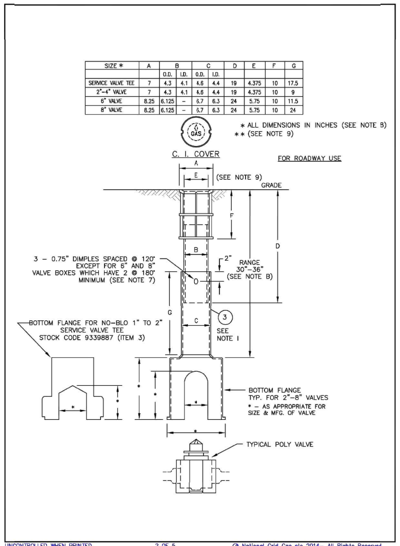


VALVE BOXES UP TO 8" VALVES AND ALL RISER RINGS

nationalgrid LI–MA–NYC

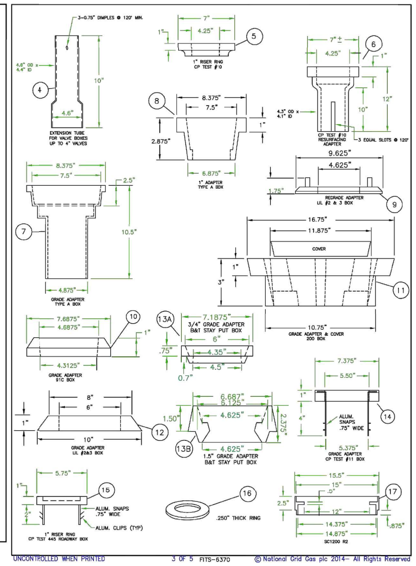
REVISIONS: ADDED ITEM 16. REVISED #445 COVERS WITH ARROW TERMINOLOGY. ADDED UNIDIRECTIONAL ARROW ON ITEM 1.

DATE: 07/01/2003 | EFFECTIVE DATE: 09/15/2014 | DESIGN: A. GIULIANI/MAM | DRAWN: J. CASTALUCO, P. DIMAIO | STD. DWG. NO. FITS-6370



SIZE *	A	B O.D.	B I.D.	C O.D.	C I.D.	D	E	F	G
SERVICE VALVE TEE	7	4.3	4.1	4.6	4.4	19	4.375	10	17.5
2"–4" VALVE	7	4.3	4.1	4.6	4.4	19	4.375	10	9
6" VALVE	8.25	6.125	–	5.7	6.3	24	5.75	10	11.5
8" VALVE	8.25	6.125	–	5.7	6.3	24	5.75	10	24

* ALL DIMENSIONS IN INCHES (SEE NOTE 9)
** (SEE NOTE 9)



INSTALLATION NOTES:

A. VALVE FOOT PIECE TO BE INSTALLED AROUND THE VALVE THEN INSERTED INTO THE BOTTOM FLANGE OF THE VALVE BOX.

B. THE RANGE OF THE VALVE BOX, FROM TOP OF GRADE TO TOP OF VALVE, IS 24" TO 38". FOR DEEPER VALVES USE EXTENSION TUBE STOCK CODE 00308023.

C. THESE BOXES CAN ALSO BE USED WITH THE APPROPRIATE SIZE STEEL VALVE. IF USED WITH A STEEL VALVE THE "VALVE FOOT PIECE" IS NOT TO BE USED; HOWEVER, PRIOR TO BACKFILLING INSTALL THE LOWER PORTION OF THE VALVE KEY ON THE VALVE OPERATING NUT. THEN PLACE THE LOWER SECTION OF THE BOX ON THE VALVE. WHEN THE BOTTOM SECTION IS BACKFILLED TO WITHIN 6" FROM ITS TOP REMOVE THE VALVE KEY & INSTALL THE TOP SECTION OF THE BOX.

D. ITEM 2 SHALL ONLY BE USED IN SIDEWALK AND NON-PAVED, NON TRAFFIC AREA EXCEPT DRIVEWAYS.

E. USE ITEM 1 ON MAIN LINE VALVES INSTALLED IN PAVED AND NON PAVED AREAS.

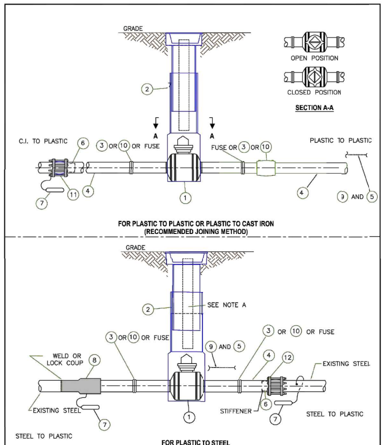
F. AFTER INSTALLATION OF MAIN LINE VALVE & BOX NOTIFY GSO OF COMPLETION.

MANUFACTURING NOTES:

1. ALL TOPS & BOTTOMS SHALL BE INTERCHANGEABLE.
2. THE TOP OF THE BOX ASSEMBLY SHALL BE FABRICATED SO AS TO FIT INSIDE THE BOTTOM SECTION.
3. MATERIAL SHALL CONFORM TO ASTM SPECIFICATIONS FOR GREY CAST IRON CASTINGS, DESIGNATED A48, CLASS 25.
4. COVER SHALL CREATE A TIGHT FIT WITH TOP OF CASTING TO PREVENT RATTLING. FOR CODES 00308054 & 00308055 COVER SHALL BE OF VENTED DESIGN. FOR OTHER STOCK CODES THE COVER SHALL INCLUDE A DIRECTIONAL ARROW. THIS SHALL BE DESIGNED TO ALLOW THE ARROW TO BE POSITIONED AT 60 INTERVALS.
5. ALL SURFACES SHALL BE COVERED WITH ONE COAT OF FLINTKOTE HYDALT PROTECTIVE COATING, C-13-E OR APPROVED EQUAL.
6. THE PLASTIC USED FOR THE TUBES SHALL BE PROTECTED FROM UV RAYS & AND HAVE THE PROPER INHIBITORS TO PROTECT FROM BRITTLENESS AT ZERO DEGREES.
7. DIMPLES SHALL BE FORMED SO AS TO EXERT ENOUGH PRESSURE ON INNER TUBE TO SUPPORT ENTIRE ASSEMBLY IN EXTENDED POSITION.
8. DIMENSIONAL TOLERANCES: MANUFACTURE SHALL ADHERE TO THE FOLLOWING DIMENSIONAL TOLERANCES ALL PLASTIC TUBING SHALL BE +/- 0.015" TO THOSE SHOWN ON THE DRAWING. ALL CASTINGS SHALL BE MANUFACTURED TO WITHIN +/- 0.0625" TO THE DIMENSIONS SHOWN ON THE DRAWING.
9. DIMENSIONS SHALL BE CONSISTENT THROUGHOUT THE CASTING.
10. TOP SECTION OF VALVE BOX SHALL HAVE THE PLASTIC TUBE FORCED FIT AND CEMENTED INTO THE CASTING. THIS JOINT SHALL BE CAPABLE OF WITHSTANDING A PULL OUT FORCE OF 20 POUNDS.
11. MANUFACTURER SHALL SUBMIT SAMPLES TO THE ENGINEER FOR APPROVAL PRIOR TO BID ACCEPTANCE.
12. STREET BOXES SHALL BE DESIGNED TO HANDLE TO AN H-20 ROADWAY LOADING.
13. TOP FLANGE OF ROADWAY BOX SHALL BE FLAT AND WIDE ENOUGH TO ACCOMMODATE A 3/8" METAL NUMBER STAMP EMBEDDED INTO THE CASTING BY CKD IN THE FIELD.
14. THE VALVE FOOT PIECE SHALL BE DESIGNED TO FIT THE FOLLOWING MANUFACTURER'S VALVES.
    ½"- 1 ¼" - PERFECTION
    2" - NORDSTROM OR PERFECTION UNIVERSAL FOOT PC FOR BOTH MFG.
    4" - 8" NORDSTROM

No.	ITEM	N.G. CODE No.
18	PENTAGON KEY FOR ITEMS 8B AND 11B (NOT SHOWN)	9354644
17	2" REGRADE ADAPTER FOR 12" LOCKING BOX SC1200 R2	9384175
16	VALVE BOX ADAPTER RING, 1/4 INCH THICK X 7-5/8 INCH I.D. X 10-1/2 IN O.D. FLAT RING TO RAISE OLD LEGACY OBSOLETE LILCO ROUND CASTINGS	9353359
15	ONE INCH GRADE ADAPTER & COVER FOR CP TEST#445 ROADWAY BOX - NH ONLY	9383913
*	REPLACEMENT COVER FOR LIL #2 BOX - LI ONLY COVER MARKED "GAS" FOR 445 BOX (WITH UNIDIRECTIONAL ARROW) COVER MARKED "GAS" FOR 445 BOX (WITHOUT UNIDIRECTIONAL ARROW) COVER MARKED "GAS" FOR 4" STAY PUT BOX - NYC ONLY COVER MARKED "GAS" FOR #11B BOX COVER MARKED "GAS" FOR #10 BOX RESURFACE REPAIR SLEEVE RING	9339829 9339828 9388350 9339759 9339858 9339762
14	1" REGRADE ADAPTER WITH COVER FOR CP TEST # 11B BOX - SEE NOTE B	9382611
13A 13B	¾" REGRADE ADAPTER FOR B&T STAY PUT SERVICE BOX WITH SLOTS NYC ONLY 1-½" REGRADE ADAPTER FOR B&T STAY PUT SERVICE BOX WITH SLOTS NYC ONLY	9339800 9339725
12 *	1" REGRADE ADAPTER FRAME FOR THE LIL# 2 & 3 VALVE BOX. COVER FOR ABOVE (NOT SHOWN) - LI ONLY	9339859 9339860
11B	COVER, REPLACEMENT, LOCKING, MARKED "GAS" FOR EXISTING LOCK TYPE 200 BOX, WITH PENTHEAD BOLT - LI ONLY (NOT SHOWN)	9384338
11A	COVER, REPLACEMENT, NON-LOCK, MARKED "GAS" FOR EXISTING NON-LOCK TYPE 200 BOX - LI ONLY (NOT SHOWN)	9339798
11	1" REGRADE ADAPTER FRAME & COVER FOR 200 VALVE BOX - LI ONLY	9339826
*	2-1/2" REGRADE ADAPTER FOR 200 VALVE BOX. FITS EXISTING COVER. (NOT SHOWN) - LI ONLY	9339799
10	1" REGRADE ADAPTER & COVER FOR 91C BOX - LI ONLY	9339761
9	1 ¾" REGRADE ADAPTER FOR LIL 2&3 BOX - LI ONLY	9339758
8B	COVER, REPLACEMENT, LOCKING, MARKED "GAS" FOR 7-1/2" EXISTING TYPE "A" LOCK VALVE BOXES, WITH PENTHEAD BOLT - LI ONLY (NOT SHOWN)	9339760
8A	COVER, REPLACEMENT, MARKED "GAS" FOR 7-1/2" EXISTING TYPE "A" NON-LOCK VALVE BOXES AND ALL TYPE "A" ADAPTER RINGS - LI ONLY (NOT SHOWN)	9384430
8	1" REGRADE ADAPTER FOR TYPE "A" VALVE BOX. FITS EXISTING COVER. - LI ONLY	9339827
7	2-½" REGRADE ADAPTER FOR TYPE "A" VALVE BOX . 2-1/2 IN MIN TO 8 IN MAX RISE. FITS EXISTING COVER. - LI ONLY	9339763
6	1" REGRADE ADAPTER RING EXTENSION WITH 10" PLASTIC SKIRT TO REPAIR TOPS OF CP TEST #10 BOX	9381407
5	1" REGRADE ADAPTER FOR CP TEST #10 BOX	9339823
4	EXTENSION TUBE – FOR CP TEST #11 BOX EXTENSION TUBE - FOR CP TEST #10 BOX	9382619 9339824
*	EXTENSION TUBE, FOR CP TEST #558 BOX, 18" LONG – (NOT SHOWN) - NE ONLY EXTENSION TUBE, FOR CP TEST #334 BOX, 24" LONG – (NOT SHOWN) - NE ONLY	9383199 9383198
3	ROADWAY BOX ASSEMBLY AND COVER FOR 8" POLYVALVE CP TEST #11B OR APPV'D EQUAL ROADWAY BOX ASSEMBLY AND COVER FOR 6" POLYVALVE CP TEST 11B OR APPV'D EQUAL ROADWAY BOX ASSEMBLY AND COVER FOR 4" POLYVALVE CP TEST #10 OR APPV'D EQUAL ROADWAY BOX ASSEMBLY AND COVER FOR 2" AND 3" POLYVALVES CP TEST #10 OR APPR'D EQUAL ROADWAY BOX ASSEMBLY AND COVER FOR 1"- 2" MUELLER SERVICE VALVE TEE CP TEST #10 OR APPV'D EQUAL	9339893 9339892 9339891 9339890 9339887
2	ROADWAY SERVICE BOX AND COVER FOR ½" TO 1" PLASTIC VALVE NE ONLY CP TEST #10 OR APPV'D EQUAL	9382767
1	SIDEWALK VALVE BOX ASSEMBLY AND UNIDIRECTIONAL ARROW COVER FOR ½" TO 1 ¼" PLASTIC VALVES CP TEST #445 OR APPR'D EQUAL SIDEWALK VALVE BOX ASSEMBLY AND UNIDIRECTIONAL ARROW COVER FOR 2" TO 3" PLASTIC VALVES CP TEST #445 OR APPROVED EQUAL	9339888 9339889

BILL OF MATERIAL



2"-12" PE VALVE TYPICAL INSTALLATION

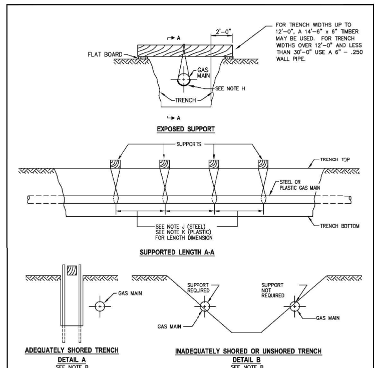
nationalgrid ALL REGIONS

REVISIONS: UPDATED ITEM ID'S

DATE: 07/01/2003 | EFFECTIVE DATE: 06/09/2020 | DESIGN: AJG / MAM | DRAWN: P. DIMAIO | STD. DWG. NO. VALV-6020

NOTES:
A. IN DNY LI REGION, INSTALL A LENGTH OF 2" DIAMETER PE OR SMALLER TUBING IN THE VALVE BOX TO IDENTIFY THE VALVE AS PLASTIC.
B. INSTALL TRACER WIRE OR BALL MARKERS AS REQUIRED IN YOUR REGION FOR PE INSTALLATIONS.
C. NOT USED ON THE DNY LI 99 & 124 PSI PE SYSTEM.
D. REFER TO REGIONAL STANDARDS FOR MATERIAL IDS NOT GIVEN BELOW.

No.	ITEM	SAP ID	SAP ID	SAP ID
1	VALVE, PE (PORT CONFIGURATION AS NOTED)	**UNY AND RI** **LP TO 100 PSIG HD** 9311203 12" DR 11 FULL PORT W/ GEAR OPERATOR **RI ONLY** 9307909 12" DR 13.5 FULL PORT W/ GEAR OPER **UNY ONLY** 9311173 8" DR 11 FULL PORT **RI ONLY** 9315189 8" DR 13.5 FULL PORT **UNY ONLY** 9312116 6" DR 11 FULL PORT 9312058 4" DR 11 FULL PORT 9308561 3" DR 11 FULL PORT **RI ONLY** 9312060 2" DR 11 FULL PORT 9311146 2" DR 11 FULL PORT WITH PERMASERT ENDS	**LI ONLY** **99 AND 124 PSIG HD** 9341706 8" RED PORT DR 9 9341705 6" RED PORT DR 9 9341700 4" RED PORT DR 9 9341699 2" FULL PORT DR 9	**LI, NYC AND NE** **LP TO 60 PSIG MEDIUM DENSITY** 9341704 12" FULL PORT DR 13.5 9386594 8" FULL PORT DR 13.5 9323032 6" FULL PORT DR 11.5 9341709 4" FULL PORT DR 11.5 9323299 3" FULL PORT DR 11 9341784 2" FULL PORT DR 11 9341408 8" RED PORT DR 13.5 9341757 6" RED PORT DR 11.5 9341693 4" RED PORT DR 11.5 9341756 3" RED PORT DR 11 **100 PSIG HIGH DENSITY (NE ONLY)** 9323610 4" RED PORT DR 11 9323611 6" RED PORT DR 11 9323612 8" RED PORT DR 11 9312060 2" FULL PORT DR 11 9312058 4" FULL PORT DR 11 9312116 6" FULL PORT DR 11
2	ROADWAY VALVE BOX WITH COVER	**SAP ID** SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN SEE DWG FITS 6360 (FOR 12" VALVE) 9311208 (FOR 2" THRU 8" VALVE)	**SAP ID** SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN 9341706 8" RED PORT 9341705 6" RED PORT 9341700 4" RED PORT 9341699 2" FULL PORT	**SAP ID** SELECT ROADWAY VALVE BOX BELOW TO MATCH SIZED VALVE GIVEN 9382626 FOR 12" FULL PORT 9382626 FOR 8" FULL PORT 9339893 FOR 6" FULL PORT 9339892 FOR 4" FULL PORT 9339890 FOR 3" FULL PORT 9339890 FOR 2" FULL PORT 9339893 FOR 8" RED PORT 9339892 FOR 6" RED PORT 9339891 FOR 4" RED PORT 9339891 FOR 3" RED PORT
3	COUPLING ELECTROFUSE			
4	PLASTIC PIPE			
5	BURIAL TAPE			
6	INSERT STIFFENER (SEE NOTE C)			
7	ANODE, 17 LB			
8	TRANSITION FITTING STL TO PE			
9	TRACER WIRE OR (BALL MARKER IF USED IN REGION)			
10	COUPLING 2" PERFECTION PERMASERT (SEE NOTE C)			
11	COUPLING, PE TO CI, LOCKING INSULATING, MECHANICAL			
12	COUPLING, PE TO STL, LOCKING, NON-INSULATING MECHANICAL (SEE NOTE C)			



SUPPORT REQUIREMENTS FOR EXPOSED & UNDERMINED STEEL OR PLASTIC GAS FACILITIES

nationalgrid LI–MA–NYC

REVISIONS: UPDATED SAP ID# AND NOTE N

DATE: 07/01/2003 | EFFECTIVE DATE: 03/07/2018 | DESIGN: A. GIULIANI | DRAWN: P. DIMAIO | STD. DWG. NO. CNST-6045 | SHT. 1 OF 2

NOTES:

A. THIS CONSTRUCTION STANDARD SHALL BE USED TO SUPPORT PLASTIC OR STEEL GAS FACILITIES WHICH ARE UNDERMINED AND EXPOSED BY CONSTRUCTION ACTIVITY.

B. IF AN EXCAVATION IS MADE AT ANY DISTANCE PARALLEL TO THE GAS FACILITY WITH ADEQUATE OSHA STRUCTURAL SHORING, AS SHOWN IN DETAIL "A", OR IF A STABLE SOIL CONDITION WITH SUFFICIENT COVER ABOVE THE PIPE'S CENTERLINE EXISTS AS SHOWN IN DETAIL "B", THEN SUPPORTS ARE NOT REQUIRED. UNSTABLE SOIL IS DEFINED AS A SOIL WHICH CAN CAUSE "SOIL RUN OUT" FROM BENEATH THE PIPE (e.g., WASHOUT, SOFT CLAY, etc.,) OR CAN SHIFT DUE TO CONSTRUCTION ACTIVITY, VIBRATIONS, etc.; AND CAUSE A SOIL SCENARIO TO OCCUR AS SHOWN IN DETAIL "B" TO REQUIRE PIPE SUPPORT.

C. IF AN EXCAVATION CROSSES OR RUNS PARALLEL TO A GAS FACILITY, SUPPORTS MAY NOT BE REQUIRED IF THE EXPOSED SECTION OF PLASTIC PIPES IS 3' OR LESS AND STEEL PIPES 7' OR LESS.

D. ALL EXCAVATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ONE CALL DIG SAFE PROGRAM USING THE APPROPRIATE MARK OUT, TEST HOLES AND EXCAVATION TO AVOID DAMAGE TO PIPE OR PIPE COATINGS:
- NEW YORK STATE CODE RULE 753
- MA CHAPTER 82 - SECTION 40, GENERAL LAWS, REGULATING NOTICE REQUIREMENTS FOR EXCAVATION IN PUBLIC WAYS

E. USE OF THIS CONSTRUCTION STANDARD DOES NOT RELIEVE THE CONSTRUCTION AGENCY OR AUTHORITY OR THEIR RESPECTIVE CONTRACTORS OF RESPONSIBILITY FOR DAMAGES. ALL DAMAGES WILL BE REPAIRED IN ACCORDANCE WITH EXISTING STANDARDS AND THE APPROPRIATE PARTY SHALL BE BILLED FOR ALL EXPENSES.

F. GAS FACILITIES SHOULD NOT BE UNDERMINED WITHOUT ADEQUATE SUPPORT (DETAIL A). ALL SUPPORT LINES SHALL BE TENSIONED SO THAT NO DEFLECTION WILL OCCUR WHEN THE FACILITY IS UNDERMINED. THIS TENSION SHALL BE CHECKED AT THE START AND END OF EACH DAY AND ADJUSTED AS NECESSARY.

G. WHERE A COUPLING, GAS SERVICE, CLAMP, VALVE, DRIP LINE OR OTHER APPURTENANCE EXISTS ON THE EXPOSED SECTION OF MAIN, AN ADDITIONAL SUPPORT SHALL BE INSTALLED AT THE LOCATION.

H. WHEN SUPPORTING AN EXPOSED FACILITY, THE PIPE COATING SHALL BE PROTECTED WITH ROCK SHIELD (ITEM ID 9340226), OR OTHER LIKE MATERIAL CUT TO A MINIMUM WIDTH OF ½ THE SUPPORTED PIPE DIAMETER. SUPPORT LINES SHALL BE A MINIMUM OF ¾" POLYPROPYLENE OR BETTER. FRP SHEILDS MAY ALSO BE USED FOR THIS PURPOSE PROVIDED THEY EXTEND A MINIMUM OF ½ WAY UP THE PIPE TO PROTECT FROM SIDE LOADING.

I. SUPPORTS FOR GAS TRANSMISSION FACILITIES SHALL BE REVIEWED WITH GAS ENGINEERING PRIOR TO INSTALLATION.

J. THE MAXIMUM SPACING BETWEEN SUPPORTS FOR STEEL FACILITIES SHALL BE AS FOLLOWS:
   7' SPACING FOR ¾" AND 1 ¼" STEEL
   10' SPACING FOR 2" STEEL
   15' SPACING FOR 3" AND 4" STEEL
   20' SPACING FOR 6" AND LARGER STEEL

K. THE MAXIMUM SPACING BETWEEN SUPPORTS FOR PLASTIC FACILITIES SHALL BE AS FOLLOWS :
   3' SPACING FOR 2" AND SMALLER PLASTIC
   6' SPACING FOR 4" AND LARGER PLASTIC

L. VIBRATING MACHINES ARE ALLOWED OVER STEEL OR PLASTIC FACILITIES WITH 24" OR GREATER COVER. HAND HELD MECHANICAL. TAMPER IS ACCEPTABLE OVER ANY FACILITY WITH 12" OR GREATER COVER.

M. WHEN CONSTRUCTION ACTIVITY IS COMPLETED, CLEAN FILL SHALL BE COMPACTED AROUND AND UNDER THE GAS FACILITY BEFORE REMOVING SUPPORTS.

N. SEE REGIONAL DAM01007-NYC-LI-UNY OR DAM-MA-RI PROCEDURES FOR **REPLACEMENT** REQUIREMENTS OF CAST IRON PIPE.

No.	ITEM	CODE No.

BILL OF MATERIAL

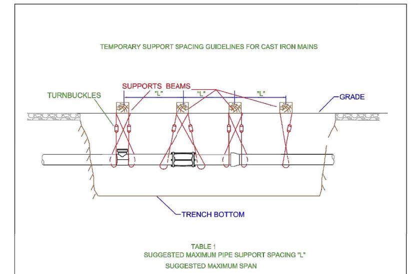


TABLE I
SUGGESTED MAXIMUM PIPE SUPPORT SPACING "L"
SUGGESTED MAXIMUM SPAN

PIPE SIZE (INCHES)	CAST IRON (FEET)
1	-
2	-
3	4
4	4
6	4
8	4
12	6
16	6
20	6
24	6

NOTES:
1. WHERE A COMPRESSION COUPLING, GAS SERVICE, REPAIR CLAMP, VALVE, DRIP LINE OR ANY OTHER APPURTENANCE IS FOUND INSTALLED ON THE GAS MAIN, ADDITIONAL SUPPORT SHALL BE INSTALLED TO REINFORCE THE PIPING A THIS LOCATION.
2. CONTACT ENGINEERING FOR ALTERNATE OR ADDITIONAL SUPPORT REQUIREMENTS.

TEMPORARY SUPPORT SPACING GUIDELINES FOR CAST IRON MAINS

nationalgrid ALL REGIONS

Key Changes:

DATE: 2/15/2018 | EFFECTIVE DATE: 2/15/2018 | DESIGN: ED MARIAN | DRAWN: PAUL GUGLIOTTA | STD. DWG. NO. CNST6046

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
FAX (585) 359-7541

BOSTON GAS COMPANY d/b/a nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23

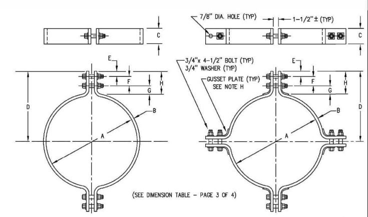
NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KMC	MEP

1–109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

STANDARD DETAILS

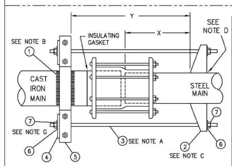
DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

DRAWING NO.	SHEET NO.
C-203	16



ANCHORAGE BAND - 4" TO 12" MAIN

ANCHORAGE BAND - 16" TO 30" MAIN



MAIN SIZE	SPACING X	SPACING Y	STEEL LUGS # REQ'D	STEEL LUGS COLOR CODE	THREADED RODS DIA.	THREADED RODS MIN. LENGTH	THREADED RODS # REQ'D
4"	11"	19"	2	GREEN	3/4"	28"	2
6"	11"	19"	2	YELLOW	1"	31"	2
8"	11"	19"	2	YELLOW	1"	31"	2
10"	11"	19"	2	YELLOW	1"	31"	2
12"	11"	19"	2	YELLOW	1"	31"	2
16"	20"	31"	4	YELLOW	1"	44"	4
20"	20"	31"	4	YELLOW	1"	45"	4
24"	20"	31"	4	YELLOW	1"	45"	4
30"	20"	31"	4	YELLOW	1"	45"	4
CONSULT GAS ENGINEERING FOR SIZES ABOVE 30"							

CAST IRON TO STEEL NON-RESTRAINING INSULATED COUPLING ANCHORAGE

2 SECTION VERSION SHOWN (4" – 12" MAINS)

nationalgrid ALL REGIONS

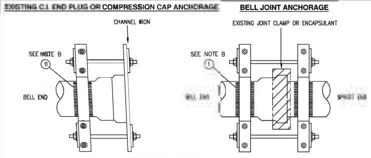
ANCHORAGE FOR CAST IRON BELL JOINTS, NON -RESTRAINING C.I. COUPLINGS AND CAPS

REVISIONS: ADDED PAGES 5–8

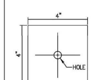
DATE: 11/15/2011 | DESIGN: B. FOSTER | DRAWN: B. FOSTER | EFFECTIVE DATE: 12/10/2021 | STD. DWG. NO. MAIN-6190

EXISTING C.I. END PLUG OR COMPRESSION CAP ANCHORAGE

BELL JOINT ANCHORAGE

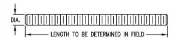


2 SECTION VERSION SHOWN (4" – 12")
GREATER THAN 12" REQUIRES 4 SECTIONS



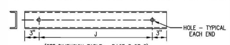
PIPE SIZE	HOLE
4"	7/8"
6" TO 30"	1-1/8"
32" TO 42"	1-1/4"
48"	1-3/8"

1/2" THICK WASHER PLATE



PIPE SIZE	ROD DIA.
4"	3/4"
6" TO 30"	1"
32" TO 42"	1-1/8"
48"	1-1/4"

THREADED ROD



PIPE SIZE	HOLE	C – CHANNEL SIZE
4"	7/8"	4" – 24" USE 4" [5.4 LB/FT]
6" TO 30"	1-1/8"	30" – 36" USE 4" [7.5 LB/FT]
32" TO 42"	1-1/4"	42" – 48" USE 6" [8.2 LB/FT]
48"	1-3/8"	

CHANNEL IRON END PIECE FOR USE ON EXISTING C.I. END PLUGS OR OR NON-RESTRAINING COMPRESSION CAPS

ANCHORAGE BAND DIMENSIONS

ALL DIMENSIONS ARE IN INCHES									
PIPE SIZE	A	B	C	D	E	F	G	H	J
4"	4-3/4	1/4	2	8-7/8	1-1/2	3	2	6-1/2	12
6"	7	1/4	2	10	1-1/2	3	2	6-1/2	14-1/2
8"	9-1/8	1/4	2	11-1/16	1-1/2	3	2	6-1/2	16-1/2
10"	11-1/8	1/4	2	12	1-1/2	3	2-1/2	6-5/16	N/A
12"	13-1/4	1/4	2	13-1/8	1-1/2	3	2-1/2	7	21-3/4
16"	17-5/8	3/8	3	16-13/16	1-1/2	3	3-1/2	8	28-3/8
20"	21-5/8	1/2	4	18-13/16	1-1/2	3	3-1/2	8	32-5/8
24"	25-3/4	1/2	4	21-3/8	1-1/2	3	4	8-1/2	37-3/4
30"	31-3/4	1/2	4	24-7/8	1-1/2	3	4-1/2	9	44-3/4
36"	38	1/2	4	28-1/2	1-1/2	3	5	9-1/2	52
42"	44-1/4	1/2	4	32	1-1/2	3-1/4	5-1/4	10	58-1/4
48"	50-1/2	1/2	4	34-1/2	2	3-1/4	7-1/4	11-3/4	66-1/2

No.	ITEM		NGRID ID
7	NUT, HEX ALLOY STEEL (SEE NOTE G)	3/4"	9328587
		1"	9328589
6	WASHER, STEEL	3/4"	9328236
		1"	9328207
5	BAND, STEEL (EACH SET COMPLETE WITH BAND NUTS, BOLTS & WASHERS)	4" MAIN	9342533
		6" MAIN	9342535
		8" MAIN	9342536
		10" MAIN	9393346
		12" MAIN	9342512
		16" MAIN	9342513
		20" MAIN	9342514
		24" MAIN	9342531
		30" MAIN	9342537
4	WASHER PLATE (4" X 4" X 1/2" THICK)		9357672
3	ROD, THREADED, 12FT. LENGTH (SEE TABLE ON SHEET 1 FOR LENGTH REQUIRED) SEE NOTE A	3/4"	9328152
		1"	9328150
2	LUG, STEEL	GREEN (FOR 3/4")	9357904
		YELLOW (FOR 1")	9357905
1	SYNTHOGLASS TAPE, 4" WIDE X 20 FT. ROLL (SEE NOTES B & I)		9357928

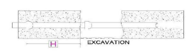
BILL OF MATERIAL

NOTES:

A. ROD THREADS TO BE NATIONAL COARSE, SNUG FIT IN STANDARD NUT. RODS TO CONFORM TO ASTM A-306 GRADE 45, MINIMUM YIELD STRENGTH OF 22,000 PSI.
B. MINIMUM TWO WRAPS OF SYNTHOGLASS TAPE (ITEM 1) SHALL BE INSTALLED TO INSULATE AND ANCHOR ANCHORAGE BANDS FROM CAST IRON MAIN.
C. SEE STANDARD DRAWING MAIN-6230 FOR DETAILS OF LUG DESIGN.
D. LUG WELDING TO CONFORM TO CURRENT WELDING SPECIFICATIONS.
E. CATHODIC PROTECTION / COATING TO CONFORM TO CURRENT SPECIFICATIONS.
F. USE 12" BAND ON 10" MAIN. BAND SHALL BE MODIFIED AND CONTOURED TO MATCH 10" PIPE PRIOR TO INSTALLATION.
G. ALL ANCHOR NUTS SHALL BE MADE UP TIGHT.
H. GUSSET PLATE (1/2" THICK) TO BE WELDED ON SIZES 30" AND OVER.
I. PROCEDURE FOR INSTALLING ANCHORAGE BAND IN SYNTHOGLASS:
   1) MAIN MUST BE CLEANED FROM FOREIGN MATTER SIMILAR TO PREPARATION FOR COATING
   2) ASSEMBLE BAND LOOSELY IN PLACE ON MAIN
   3) CUT ENOUGH SYNTHOGLASS TO DOUBLE WRAP THE MAIN
   4) DOUBLE WRAP SYNTHOGLASS AROUND MAIN – FULL WIDTH OF ANCHORAGE BAND
   5) SLIDE BAND OVER SYNTHOGLASS AND MAKE UP BOLTS
   6) AFTER TIGHTENING BOLTS, WET SYNTHOGLASS TO CURE FINAL ASSEMBLY IN PLACE
J. **CAST IRON JOINT HUBS** - (FOR 7.5 PSIG THRU 25 PSIG CAST IRON ONLY)
   1) IF A CAST IRON MAIN BELL AND SPIGOT 45 OR 90 DEGREE BEND WILL BE EXPOSED FOR ENCAPSULATION, EXPOSE ONLY THE FIRST HALF OF THE BEND AND ANCHOR, THEN PROCEED TO EXPOSE THE SECOND HALF AND ANCHOR.
   2) IF CAST IRON WILL BE CAPPED IN AN OPEN EXCAVATION (PERMANENTLY OR TEMPORARILY) THEN PRIOR TO GASSING IN, CAST IRON BELL AND SPIGOT HUBS SHALL BE STRONG BACKED TO PREVENT POSSIBLE HUB PULL OUT DUE TO THE INTERNAL GAS PRESSURE EXERTED ON THE CAP AT:
      - ALL EXPOSED CAST IRON BELL AND SPIGOT HUBS WITHIN LIMITS OF THE OPEN EXCAVATION
      - ALL BURIED BELL AND SPIGOT HUBS THAT ARE AT LESS THAN THE MINIMUM PIPE EMBEDMENT DISTANCE "H" AS MEASURED FROM THE FACE OF THE EXCAVATION TOWARDS THE HUB FOR THE GIVEN PIPE DIAMETER AS SHOWN IN TABLE A:

TABLE A (* These Sizes operate at HP in NE only)

PIPE DIA. (INCHES)	MINIMUM PIPE EMBEDMENT DISTANCE "H" (FT) 7.5 PSIG MAOP C.I.	9 PSIG MAOP C.I.	12 PSIG MAOP C.I.	15 PSIG MAOP C.I.	22 thru 25 PSIG MAOP C.I.
4 *	1	n/a	n/a	n/a	3
6 *	n/a	n/a	1	n/a	4
8 *	n/a	1	2	n/a	6
10 *	n/a	n/a	n/a	n/a	9
12	n/a			6	10
16	n/a			9	15
20	n/a			12	20
24	n/a			15	25
30	n/a			19	31
36	n/a			22	36
42	n/a			28	46
48	n/a			30	50



K. **COUPLINGS AND CAPS** - NON-RESTRAINING ONLY
CAST IRON TO STEEL COUPLINGS (AND COMPRESSION CAPS IF CAST IRON WILL BE DEAD ENDED) MUST BE STRONGBACKED AS FOLLOWS:

LOW PRESSURE (< 7.5 PSIG)
- ANCHORAGE FOR CAST IRON TO STEEL COMPRESSION COUPLING CONNECTIONS SHOULD BE CONSIDERED WHEN EXCAVATION AND SIGNIFICANT UNDERMINING IN CLOSE PROXIMITY TO THESE CONNECTIONS ARE ANTICIPATED.
- ANCHOR COUPLINGS ON OFFSETS AND CAPS 16" AND LARGER IN DIAMETER.
- ANCHOR ANY ADDITIONAL COUPLINGS WHERE FIELD CONDITIONS MAY WARRANT.

HIGH PRESSURE (7.5 PSIG THRU 25 PSIG)
- ANCHOR ALL COUPLINGS AT DROP-IN OFFSETS.
- ANCHOR ALL COMPRESSION CAPS PRIOR TO GAS IN.
- ANCHOR COUPLINGS ON STRAIGHT LENGTHS WHERE FIELD CONDITIONS MAY WARRANT.

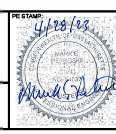
FOR DIAMETERS OF 24" AND LESS AND PRESSURES OF 22 PSIG AND LESS, SEE ALTERNATE ANCHORING METHODS ON PAGES 5 – 8. CONTACT ENGINEERING FOR LARGER DIAMETERS.

THE DDS COMPANIES
45 HENDRIX ROAD
WEST HENRIETTA, NY 14586
PHONE (585) 359-7540
FAX (585) 359-7541

BOSTON GAS COMPANY d/b/a nationalgrid
170 DATA DRIVE
WALTHAM, MA 02451

IFC

PE STAMP: 4/28/23



NO.	DESCRIPTION	DATE	DR.BY	CK.BY	APP.BY
1	REVISIONS TO VALVE LOCATIONS, NOTES, BOM	06/27/2023	SZT	ECP	MEP
0	ISSUED FOR CONSTRUCTION	04/28/2023	SZT	KNC	MEP

1-109 ESSEX RD
GAS MAIN REPLACEMENT
ESSEX RD, CHESTNUT HILL RD, CHESTNUT HILL TER, GATE HOUSE RD, NANCY RD, & MEIGH RD, NEWTON, MA

STANDARD DETAILS

DWG SIZE	DESIGNER	ENGINEER	DATE:	ASSET I.D.	W.O. NO.:
22"X34"	DDS COMPANIES	S. TSOULIS	6/27/2023	XXXXXXXX	1505036

DRAWING NO. C-204

SHEET NO.

321-23

LAUGHLIN CONAN & BROOKE H
109 ESSEX RD
CHESTNUT HILL, MA 02467

WALKER DAVID E & LISA A
123 ESSEX RD
CHESTNUT HILL, MA 02467

225 TURNPIKE INVESTMENT
555 HIGH ST SUITE 101
WESTWOOD, MA 02090

GROVE HILARY TR
HILARY GROVE TRUST
85 GATE HOUSE RD
CHESTNUT HILL, MA 02467

GATE HOUSE CHESTNUT HILL
2150 WASHINGTON ST
NEWTON, MA 02462

TRUSTEES OF BOSTON
42 GLEN AVE
NEWTON, MA 02459

ALPER MICHAEL M & KARIN
MICHAEL M ALPER TRUST
5 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

DIARBAKERLY LAURANCE
17 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

BACHMAN ROBERT F
BERGER LAURETTE E
25 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

SINGER DAVA TR
DAVA SINGER REVOCABLE
31 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

MCLAUGHLIN MARION D
37 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

SONMEZ TANYFUN
SONMEZ BANU
36 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

LIEBOWITZ RONALD D &
RONALD LIEBOWITZ TRUST
28 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

LEVANGIE PETER
LEVANGIE ENID
20 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

RANSBOTHAM SAMUEL B III
JERNIGAN STEPHANIE A
12 CHESTNUT HILL TER
CHESTNUT HILL, MA 02467

MALALUR PARESH
MALIN ELISABETH S T/C
29 GATE HOUSE RD
CHESTNUT HILL, MA 02467

EPSTEIN MATTHEW & ELLEN
33 GATE HOUSE RD
CHESTNUT HILL, MA 02467

WALLEN JEFFREY DAVID
SCHAEFFER MARY HELEN T/C
43 GATE HOUSE RD
CHESTNUT HILL, MA 02467

SINHA JAYANT
KUMAR-SINHA PUNITA TRS
51 GATE HOUSE RD
CHESTNUT HILL, MA 02467

MARTIN TIMOTHY
XUE LAN
61 GATE HOUSE RD
CHESTNUT HILL, MA 02467

ALLEN SARAH A TR
SARAH A ALLEN TRUST
96 BEACON ST
CHESTNUT HILL, MA 02467

LIN SHU-YEN
SU KEVIN K
30 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

RASKIN KEVIN A
CHACKO SABEENA K
22 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

MCCULLEN ELEANOR H TR
ELEANOR H MCCULLEN REV
97 ESSEX RD
NEWTON, MA 02467

BRENNAN ELIZABETH
P O BOX 962049
BOSTON, MA 02196

THE ESSEX HOUSE LLC
65 ESSEX RD
CHESTNUT HILL, MA 02467

PELZ JANE M TR
JANE M PELZ TRUST
66 GATE HOUSE RD
CHESTNUT HILL, MA 02467

HUANG XIAOXIA
59 ESSEX RD
CHESTNUT HILL, MA 02467

SUGARMAN NEIL & MARSHA
44 GATE HOUSE RD
CHESTNUT HILL, MA 02467

RIVERA-BUJOSA MERNAYSA TR
32 GATE HOUSE KK TRUST
32 GATE HOUSE RD
CHESTNUT HILL, MA 02467

DUBOVIK ERIK-JAN
CHUNG SHIRLEY WEN
3 MEIGH RD
CHESTNUT HILL, MA 02467

GORMAN GARETH F
GORMAN KATHERINE J
11 MEIGH RD
CHESTNUT HILL, MA 02467

ZHANG FEIXUE
14 MEIGH RD
CHESTNUT HILL, MA 02467

KRAUSS RAUL
16 GATE HOUSE RD
CHESTNUT HILL, MA 02467

DONOVAN JAMES M
25 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

GIFFORD CHARLES K JR &
169 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

WESTCOTT SUZANNE L
21 ESSEX RD
CHESTNUT HILL, MA 02467

IACOI JOHN M TR
THE 51 ESSEX RD REALTY
51 ESSEX RD
CHESTNUT HILL, MA 02467

FARB SHOSHANA TR
100 ESSEX RD TRUST
100 ESSEX RD
CHESTNUT HILL, MA 02467

IACOI JOHN M TR
THE 88 ESSEX RD REALTY
88 ESSEX RD
CHESTNUT HILL, MA 02467

CROLL DAVID D TR
FIFTY-TWO ESSEX ROAD
52 ESSEX RD
CHESTNUT HILL, MA 02467

WEINSTOCK AMIEL Z TR
ESSEX REAL ESTATE TRUST
155 GARDNER RD
BROOKLINE, MA 02445

LIWERANT GAD
ZICHLIN REBECA
16 ESSEX RD
CHESTNUT HILL, MA 02467

1895 PROPERTY LLC
164 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

PLUKAS HANS RUSSELL TR
CW NEWTON PARTNERS
172 CHESTNUT HILL RD
CHESTNUT HILL, MA 02467

CITY OF NEWTON

Department of Public Works

ENGINEERING DIVISION

Memorandum

To: Councilor Alison Leary, Facilities Committee Chair.

From: John Daghlian, Associate City Engineer

Re: Northland Development Water Easement

Date: November 16, 2023

CC: Jim Mcgonagle, Commissioner
Shawna Sullivan, Deputy Commissioner
Lou Taverna, PE City Engineer
Thomas Fitzgerald, Director of Utilities
Doug Valovcin, Deputy Director
Andrew Lee, Assistant City Solicitor
Evan Cudmore, Committee Clerk

In reference to the above location, the following are my comments for a plan entitled:

Easement Plan of Land in Newton, MA
Prepared for Northland Pattern District LLC
Prepared by: VHB Inc.
Dated: October 26, 2023
Sheets 1& 2 of 2

Executive Summary:

As part of the Special Permit of the Northland Development the water main is to be installed at 100% cost by the developer and accepted by the City upon completion, which includes a variable width easement from Tower Road to Oak Street, and to the Greenway. A section of new main will be installed from the Northland campus through the greenway and connected to Mechanic Street; both of these alignments will provide a continuous looped system which will benefit the neighborhoods with better pressure and water quality. The easement will allow the Utilities

Division to enter upon the property from time to time to exercise valves and flush hydrants and preform future maintenance.

Once the City Council votes to accept the easement and new water main, the plan referenced shall be recorded at the Middlesex Registry of Deeds, proof of the recording shall be submitted to both the City Clerk & City Engineer.

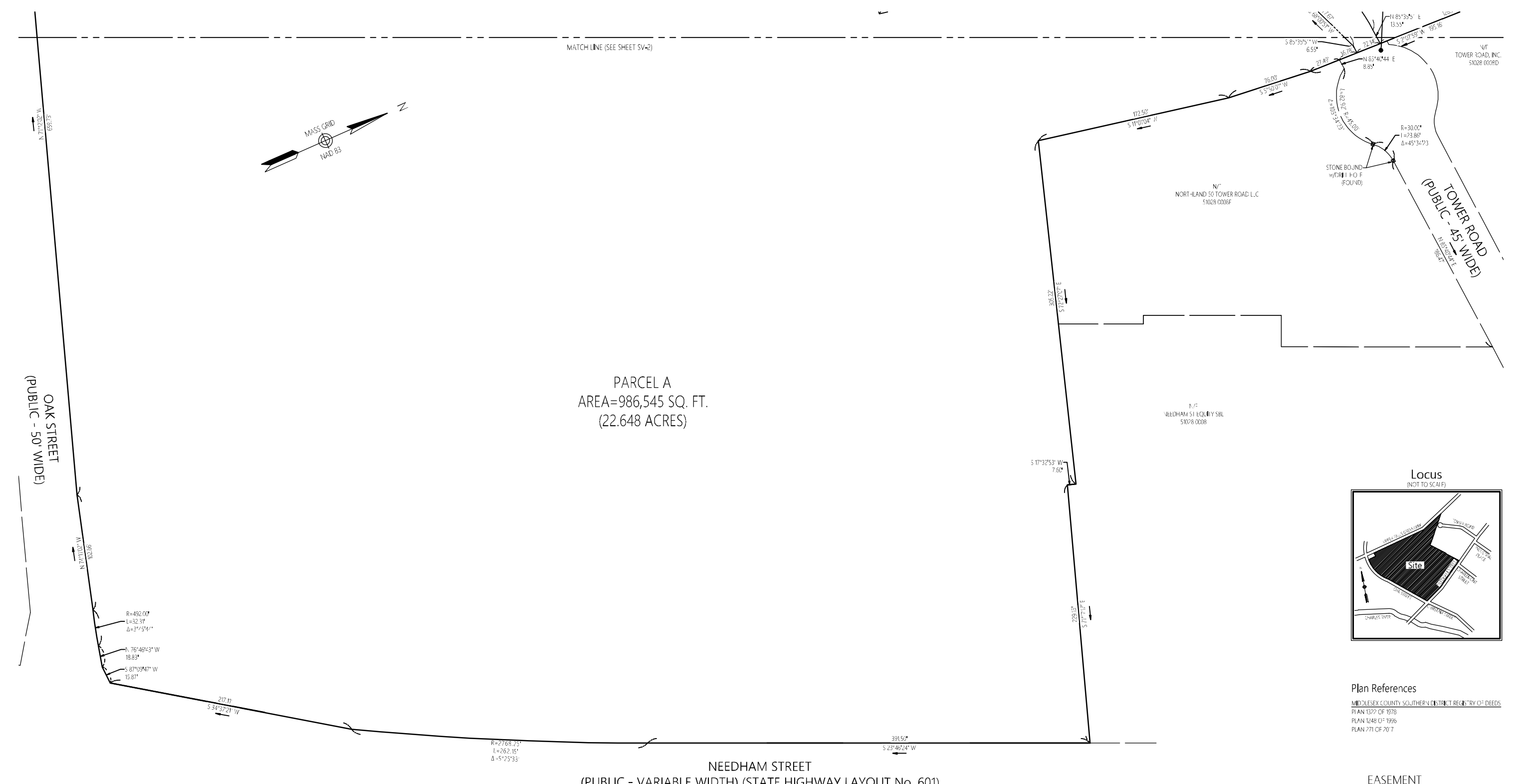
Conditions & Special Provisions:

1. Upon final installation & testing of the water main an As Built drawing [plan & profile] shall be submitted in digital and hard copy (Mylar) format to the City Engineer & Utilities Division.

2. The applicant's contractor shall apply for a Utility Connection and Street Permit with the DPW prior to any construction.

3. The contractor of record shall contact the Newton Police Department 48 hours in advanced and arrange for Police detail to help residents & commuters navigate around the construction activity.

If you have any questions or concerns, please call me at 617-796-1023.



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SCALE IN FEET

General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON A PLAN ENTITLED "EXISTING CONDITIONS PLAN IN NEWTON, MA (MIDDLESEX COUNTY)" - OAK ST. & NEEDHAM ST. - BY PERCISION LAND SURVEYING, INC., DATED JANUARY 8, 2013 AT A SCALE OF 1"=50' AND VERIFIED BY VHB, INC. IN JUNE, 2017. SEE CONSOLIDATION PLAN BY VHB, DATED AUGUST 23, 2023, SEE PLAN RECORDED IN PLAN BOOK XXXX, PAGE XXXX.

2) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED WATERLINE EASEMENT AS DEPICTED HEREON.

Record Owner

NORTHLAND PATTERN DISTRICT, LLC,
A DELAWARE LIMITED LIABILITY COMPANY
DEED BOOK 82064, PAGE 5?0
DEED BOOK 82064, PAGE 557
DEED BOOK 82064, PAGE 563

Certification

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

I HEREBY CERTIFY THAT THIS PLAN SHOWS THE PROPERTY LINES THAT ARE THE LINES OF EXISTING OWNERSHIPS, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND THAT NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN. (MASS. GEN. LAWS CHAPTER 41, SEC. 81-X).

COMMONWEALTH OF MASSACHUSETTS
RUSSELL J. BOUSQUET
NO. 35389
REGISTERED PROFESSIONAL LAND SURVEYOR

1?-?3-2023
DATE

PROFESSIONAL LAND SURVEYOR

Plan References

MIDDLESEX COUNTY SOUTHERN DISTRICT REGISTRY OF DEEDS
PLAN 1322 OF 1978
PLAN 1248 OF 1996
PLAN 271 OF 2017

EASEMENT
PLAN OF LAND
IN
NEWTON
MASSACHUSETTS

PREPARED FOR: NORTHLAND PATTERN DISTRICT, LLC

PREPARED BY: VHB, Inc.
Engineers | Scientists | Planners | Designers
101 Walnut Street, P.O. Box 9151
Watertown, MA 02471-9151
(617) 924-1770

SCALE: 1 INCH = 40 FEET
SHEET 1 OF 2

DATE: OCTOBER 26, 2023

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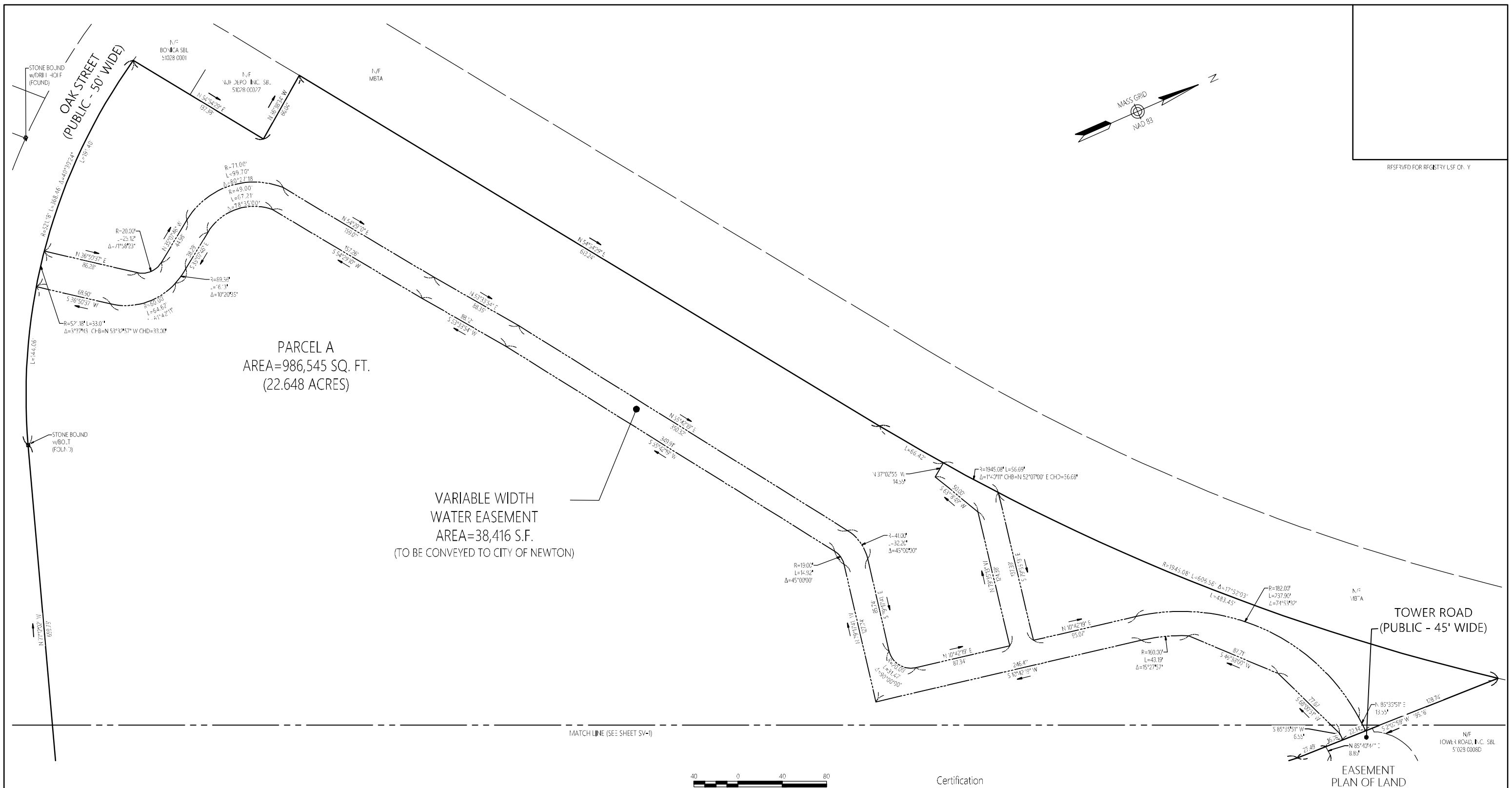

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COMMONWEALTH OF MASSACHUSETTS
RUSSELL J. BOUSQUET
NO. 35389
REGISTERED PROFESSIONAL LAND SURVEYOR

11-13-2023
DATE

PROFESSIONAL LAND SURVEYOR

General Notes

1) THE PROPERTY LINES SHOWN ON THIS PLAN ARE BASED UPON A PLAN ENTITLED "EXISTING CONDITIONS PLAN IN NEWTON, MA (MIDDLESEX COUNTY)" - OAK ST. & NEEDHAM ST. - BY PERCISION LAND SURVEYING, INC., DATED JANUARY 8, 2013 AT A SCALE OF 1"=50' AND VERIFIED BY VHB, INC. IN JUNE, 2017. SEE CONSOLIDATION PLAN BY VHB, DATED AUGUST 23, 2023. SEE PLAN RECORDED IN PLAN BOOK XXXX, PAGE XXXX.

2) THE PURPOSE OF THIS PLAN IS TO SHOW A PROPOSED WATERLINE EASEMENT AS DEPICTED HEREON.

EASEMENT
PLAN OF LAND
IN

NEWTON

MASSACHUSETTS

PREPARED FOR: NORTHLAND PATTERN DISTRICT, LLC

PREPARED BY: VHB, Inc.
Engineers | Scientists | Planners | Designers
101 Walnut Street, P.O. Box 9151
Watertown, MA 02471-9151
(617) 924-1770

SCALE: 1 INCH = 40 FEET
DATE: OCTOBER 26, 2023
SHEET 2 OF 2

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NORTHLAND PATTERN
2150 WASHINGTON ST
NEWTON, MA 02462

VOLOSHIN YEVGENIY TR
CATALYST VENTURES REALTY
945 GREAT PLAIN AVE STE 18
NEEDHAM, MA 02492

108 OAK STREET LLC
960 COMMONWEALTH AVE
NEWTON, MA 02459

NUF DEPOT INCORPORATED
1225 CHESTNUT ST
NEWTON, MA 02464

NORTHLAND PATTERN
2150 WASHINGTON ST
NEWTON, MA 02462

NORTHLAND PATTERN
2150 WASHINGTON ST
NEWTON, MA 02462

TOWER ROAD INC
7 BULLFINCH PL
BOSTON, MA 02114

NORTHLAND 50 TOWER ROAD
2150 WASHINGTON ST
NEWTON, MA 02462

COLA REALTY LLC
44 MECHANIC ST
NEWTON, MA 02464

MAB COMMUNITY SERVICES
200 IVY ST
BROOKLINE, MA 02446

MELNICK PATRICIA A
52 WETHERELL ST
NEWTON, MA 02464

MALKASIAN M M & S TRS
MARTIN MANUEL MALKASIAN
46 WETHERELL ST
NEWTON, MA 02464

MAURUURU PROPERTIES LLC
1234 CHESTNUT ST #211
NEWTON UPR FLS, MA 02464

MAURUURU PROPERTIES LLC
1234 CHESTNUT ST #211
NEWTON UPR FLS, MA 02464

MAURUURU PROPERTIES LLC
1234 CHESTNUT ST
NEWTON, MA 02464

1220 CHESTNUT ST LLC
2565 SO. OCEAN BLVD #107N
HIGHLAND BEACH, FL 33487

1209 CHESTNUT LLC
1215 CHESTNUT ST
NEWTON, MA 02464

1215 CHESTNUT LLC
1215 CHESTNUT ST
NEWTON, MA 02464

CEC OAK RLTY LLC
109 OAK ST AND 5 SWEET ST
NEWTON, MA 02464

109 OAK STREET
1234 CHESTNUT ST
NEWTON UPR FLS, MA 02464

DENG JIAN
XIAO LIANG PING
1 SACO ST 1
NEWTON UPR FLS, MA 02464

YE XUAN
JIN YAN
3 SACO ST 3
NEWTON UPR FLS, MA 02464

YUN CHANGHONG
4-6 SACO ST 4
NEWTON, MA 02464

KHAN RIZWAN AMIR
KHAN AISHA
4-6 SACO ST #6
NEWTON, MA 02464

LI ZHAODONG
YU YUE
135 OAK ST 3
NEWTON, MA 02464

NOLAN ELENA TR
137 OAK ST UN TWO TRUST
137 OAK ST UNIT 2
NEWTON, MA 02464

LAI DIANA
139 OAK ST UN 1
NEWTON, MA 02464

BOSSELMAN JOSEPH
GOLLEDGE DOROTHY ANN
145 OAK ST
NEWTON, MA 02464

GAN JOEANE XIUBING
LIANG YAOWEN
149 OAK ST
NEWTON, MA 02464

STOFF MAX
153 OAK ST
NEWTON, MA 02464

HICKEY THOMAS J
HICKEY ISABEL L TRS
20 ROUNDTREE LANE
SCITUATE, MA 02066

HIGHVIEW PROP
6 HIGHVIEW ST
NEEDHAM, MA 02492

300 NEEDHAM STREET LLC
P O BOX 191
WAYZATA, MN 55391

Ruthanne Fuller
Mayor

City of Newton, Massachusetts

Office of the Mayor

Telephone
(617) 796-1100
Fax
(617) 796-1113
TDD/TTY
(617) 796-1089
Email
rfuller@newtonma.gov

372-23

November 13, 2023

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459

To the Honorable City Councilors:

I am pleased to appoint Philip Hanser of 40 Cedar Street, Newton Centre 02459 as a member of the Citizens Commission on Energy. Their term of office shall expire on April 15, 2026 and their appointment is subject to your confirmation. Philip Hanser will be completing Halina Brown's previous term which ends on April 15, 2026.

Thank you for your attention to this matter.

Warmly,

Ruthanne Fuller

Ruthanne Fuller
Mayor

RECEIVED
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CITY CLERK
NEWTON, MA. 02459

372-23

Newton, MA Boards & Commissions

Submit Date: Oct 19, 2023

Application Form

Profile

Philip — First Name
Q — Middle Initial
Hanser — Last Name

[redacted] — Email Address

40 Cedar Street — Home Address
Suite or Apt

Newton Centre — City
MA — State
02459 — Postal Code

What Ward do you live in?

☑ Ward 2

[redacted] — Primary Phone
[redacted] — Alternate Phone

The Brattle Group — Employer
Principal Emeritus — Job Title

Which Boards would you like to apply for?

Citizens Commission on Energy: Submitted

Ethnicity

☑ Caucasian/Non-Hispanic

Gender

☑ Male

Interests & Experiences

Please tell us about yourself and why you want to serve.

Why are you interested in serving on a board or commission?

There are opportunities to improve energy usage and enhance sustainability that I believe Newton could usefully take advantage of and which I would like to help Newton do so.

Hanser_Brattle_Resume_July_2023.pdf
Upload a Resume

PHILIP Q HANSER
Principal Emeritus

Boston, MA +1.617.864.7900 Philip.Hanser@affiliate.brattle.com

Philip Q Hanser is a principal emeritus of The Brattle Group and has over forty years of consulting and litigation experience in the energy industry. He specializes in regulatory and financial economics, especially for electric and gas utilities, in areas such as retail tariffs, transmission pricing, marginal and avoided costs, and integrated resource planning. In addition, he is experienced in environmental issues, forecasting, marketing, demand-side management, and other complex management and financial matters. He also assists in statistical matters, including sample design and data analysis.

He has appeared as an expert witness before the U.S. Federal Energy Regulatory Commission (FERC) and numerous state public utility commissions, environmental agencies, Canadian utility boards, arbitration panels, and federal and state courts. From 2008 to 2019, Mr. Hanser taught industry professionals about the principles and practice of cost of service calculations and rate design on behalf of the Edison Electric Institute in its Advanced Rates Course. In addition, he served for six years on the American Statistical Association's Advisory Committee to the Energy Information Administration (EIA). He is a Life Member of the Institute of Electronics and Electrical Engineers (IEEE), the American Statistical Association (ASA), and the International Association for Energy Economics (IAEE).

Before joining The Brattle Group, Mr. Hanser held teaching positions at the University of the Pacific, the University of California at Davis, and Columbia University. He was a guest lecturer at the Massachusetts Institute of Technology, Stanford University, and the University of Chicago. Mr. Hanser was a Senior Associate in the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School. He co-led the Business and Government Policy Analysis Concentration's seminar in public policy analysis. Mr. Hanser was a Lecturer in Boston University's Questrom School of Business's Markets, Public Policy, and Law department and a Senior Fellow at B.U.'s Institute for Sustainable Energy. He is a lecturer in the Economics Department at Northeastern University. He has also served as the manager of the Demand-Side Management Program at the Electric Power Research Institute (EPRI). He has been published widely in leading industry and economic journals. He also serves as a Newton(MA) Citizens Commission on Energy member.

EDUCATION

Ph.D. Candidacy Requirements Completed, Columbia University, NY 1975

Phil.M. (Economics and Mathematical Statistics) Columbia University 1975

A.B. (Economics and Mathematics) The Florida State University, FL 1971

The University of California at Berkeley Engineering Extension Course
Time Series and Econometric Forecasting September 1979

Data Analysis and Regression, American Statistical Association
Short Course, San Diego, CA August 1978

ACADEMIC POSITIONS

Northeastern University, Department of Economics
Lecturer 2020-present

Boston University, Questrom School of Business, Institute for Sustainable Energy
Senior Fellow 2017-2020

Boston University, Questrom School of Business, Markets, Public Policy, and Law
Lecturer 2017-2020

Harvard Kennedy School
Senior Associate in the Mossavar-Rahmani Center for Business and Government
Co-Leader BGP-150Y Business and Government Policy Analysis Concentration Seminar 2012-2017

Massachusetts Institute of Technology, Cambridge, MA
Guest Lecturer, Energy Laboratory Short Courses 1997-1998

University of California, Davis; Davis, CA
Visiting Lecturer, Department of Economics 1981-1982

University of the Pacific, Stockton, CA
Assistant Professor, Departments of Economics and Mathematics 1975-1980

EXPERIENCE

Analysis of Electricity Generation, Contracts, and Wholesale Markets

- Provided expert testimony in Massachusetts state court on the impacts of alleged violations of a wholesale power contract on a supplier in ISO-NE.

- For the California Department of Water Resources, provided expert testimony in federal bankruptcy court concerning the public interest standard to apply to Calpine Corporation's rejection of its contracts. This assignment included a valuation of the contract over time through an original simulation model of the California market and an assessment of the potential reliability implications for the California market.
- For the California Department of Water Resources and the California Attorney General's Office provided expert testimony on damages resulting from Sempra Energy Resources' breaches of its power purchase agreement in both arbitration hearings and before the California state court. In addition, he analyzed two years of hourly data on energy deliveries, market prices, ISO charges, and invoice charges to identify and evaluate performance violations and invoice overcharges. Assisted counsel in developing the case theory and provided general litigation support in preparation for and during the arbitration.
- For Dominion Electric Marketing, Inc. (DEMI) assisted in responding to a complaint by United Illuminating (UI) regarding their wholesale supply contract. The dispute centered on allocating reliability must-run costs between UI as a load-serving entity and DEMI as a wholesale supplier.
- For The California Department of Water Resources, reviewed the California ISO's proposed implementation of locational marginal pricing (LMP) and analyzed its implications for "seller's choice" supply contracts. Developed a framework for quantifying the incremental congestion costs that ratepayers would face if suppliers delivered power to the lowest-priced nodes and estimated potential additional contract costs using a third party's GE-MAPS market simulations. Provided recommendations to the CAISO regarding how to address the issue.
- Provided expert testimony in Massachusetts state court on the damages incurred by a power plant developer due to alleged contractual violations by a supplier for a plant constructed in ISO-NE.
- For a Florida utility, providing a confidential expert report evaluating the benefits of the power from a co-generator and its potential rate implications and assisting in negotiating a co-generation contract with a large industrial customer.
- Assisted a U.S. electric utility in preparing a bid proposal to an industrial firm for leasing a new power plant. The assignment included a risk analysis of the proposal, an assessment of financial and rate impacts, and a market assessment of competitors' potential offerings.
- For a merchant generation company, provided testimony on the fairness of a resource procurement action.

Resource Planning and Procurement

- For the Edison Electric Institute, he co-authored a report on the general inapplicability of standard financial portfolio theory to the resource portfolios of utilities.
- For the investor-owned utilities of Wisconsin, provided testimony before the Public Service Commission of Wisconsin on cost of capital issues for use in its statewide resource planning exercise.
- For an international development bank, he evaluated generation resource needs for an Eastern European country and determined alternative means to meet those generation needs. This assignment included an analysis of the impact of privatization on the country's economy, its import and export sectors, and the future development of electricity and gas resources.
- For a Western utility, developed an assessment of its resource options, with a particular view towards future environmental regulation.
- For a southern utility, assessed the value of adding a gas-fired generating station.

Environment

- For an eastern U.S. utility with substantial coal-generating facilities, provided advice concerning maintenance procedures and risk exposure to New Source Review standards under the Clean Air Act Amendments.
- For a western generator with substantial coal-generating facilities, assisted its response to allegations by the Environmental Protection Agency of failure to comply with the New Source Review standards under the Clean Air Act Amendments.
- For Illinois Power Company, provided expert testimony in federal court on the regulatory and rate base implications of the Clean Air Act Amendments in support of the calculation of noncompliance economic damages arising from New Source Review.
- For a gas utility, assisted in assessing potential manufactured gas liabilities for use in insurance recovery and estimating possible recovery under various insurance allocation theories and estimated risk distributions.
- For a gas utility, assisted in assessing the announcement effect of environmental liabilities on its cost of capital. This assignment included estimating changes in market betas for pre- and post-environmental liability announcements.

Energy Efficiency, Demand-Side Management, and Renewables

- For a large utility in the southern United States, prepared an expert report investigating alternative cost allocation approaches for generation capacity, fuel, and demand-side management (DSM) costs through a review of the methods, surveys of practice, and the financial impacts on the utility. The cost allocation assessment included cost allocation across jurisdictions and within a jurisdiction.
- For Central Vermont Public Service provided expert testimony on the impact of its DSM programs before the Vermont Public Service Board.
- For Ameren/UE's Illinois subsidiaries, provided expert testimony on the potential for gas DSM and resulting potential rate implications.
- For a northeastern utility, developed an assessment of the potential penetration rate of microturbines. In addition, for the utility service territories under consideration, evaluated the backup generation rates and connection charges likely to be incurred for such systems to determine customer costs and benefits.
- For a utility located in the Western Electric Coordinating Council (WECC), procuring renewable resources provided a system integration study for various renewable project proposals. First, production costing and power flow modeling estimated the "deliverability" of various proposals. This assessment included estimating locational marginal prices (LMPs) and potential congestion costs. Finally, the proposed renewable power projects were ranked by their estimated benefits and costs and delivered a formal presentation to the utility's executives at completion.
- For a power marketer and developer of independent power projects in Great Britain, assisted in preparing comments on proposals by the UK pool regarding the role of demand-side bidding and the pricing of transmission losses.
- For a Texas utility provided expert testimony regarding breach of contract claims made against it by an industrial participant in an energy efficiency project. Reviewed the energy efficiency impacts of the program. The project's net present value was calculated under various rate options and market prices.
- For Connecticut Light and Power provided testimony in support of its application for a Certificate of Environmental Compatibility and Public Need for constructing a 345-kV electric transmission line and reconstructing an existing 115-kV electric transmission line. At issue was using distributed resources to substitute for the proposed lines.

Analysis of Market Power

- For the California Parties, provided litigation support and testimony regarding manipulation of energy and ancillary service market prices and the outage behavior of gas-fired power plants during 2000-01. Before the Federal Energy Regulatory Commission, the proceeding involved Enron, Dynegy, Mirant, Reliant, Williams, and other suppliers in the U.S. and Canada. The analyses focused on the use by suppliers of generation outages to affect market prices through physical withholding, as well as the use of pricing to yield economic withholding.
- For the California Parties provided litigation support and testimony regarding Enron's transmission and ancillary services market manipulation strategies, including 'Death Star' and 'Get Shorty.'
- For Southern California Edison, submitted testimony before the FERC describing the implications of manipulating gas market prices for the electricity market.
- For Sierra Pacific Resources Company, provided expert testimony before the Public Utilities Commission of Nevada and the FERC regarding the market power implications of generation asset divestiture required for the merger of Sierra Pacific Power and Nevada Power Company and developed a Cournot market model to assess the market power implications of selling off alternative groupings of generation.
- For the Pennsylvania-New Jersey-Maryland Interconnection, LLC (PJM), co-authored the first annual report on the state of its markets. The report included an assessment of the market's competitiveness and potential structural deficiencies and identified potential instances of market abuse.
- For PJM, developed an ensemble of metrics for assessing market power in its markets. The metrics included an early warning system to permit PJM interventions into market abuse at the most initial possible stage.
- For PJM, developed software for unilateral market power assessment and assisted PJM in its preliminary implementation. Its use was validated through an incident involving potential market power abuse by PJM members.

RTO Design and Participation

- For Northeast Utilities, provided testimony before the FERC about the economics of imposing local installed capacity (LICAP) requirements on ISO-NE. Also provided expert testimony before the FERC in support of its applications for market-based rate authority.

- For NSTAR, provided testimony before the FERC on several matters: first, the necessity of imposing bid caps on the New England electricity market; second, replacement energy rates for generators when the transfer capability into a transmission-constrained zone was reduced because of system upgrades; and third, the appropriateness of granting market-based rate authority to a generator in a transmission-constrained zone. In addition, developed a Cournot market model to forecast the potential impact on market prices in the transmission-constrained zone where most of NSTAR's service territory is located.
- For Nevada Power Company, provided expert testimony before the FERC for its market-based rate authority application.
- For Otter Tail Power Company, provided an affidavit to the FERC assessing how the Midwest ISO's proposed Transmission and Energy Market Tariff would affect Otter Tail Power operationally and financially. Based on the strategies that some market participants pursued during the 2001 California electricity market crisis demonstrated the potential to pursue similar strategies in MISO and harm Otter Tail and its customers.
- For Edison Mission Energy's subsidiary, Midwest Gen provided expert testimony to the FERC for its market-based rate authority application.
- For a Midwest utility, examined the implications of alternative configurations of the independent system operator (ISO) on potential market power concerns. The issue particularly examined was the question of seams and how different ISO configurations affected the costs of transactions.
- Co-authored a report for the New York Independent System Operator assessing the reliability implications of modifying its rules regarding installed capacity.
- Submitted testimony to the Public Utilities Commission of Texas (PUCT) regarding a proposed rule to allocate the costs of procuring replacement reserves to market participants in ERCOT.
- For the Edison Electric Institute, authored a report on standard market design and its implications for utilities within regional transmission organizations.

Forecasting and Weather Normalization

- For the Pennsylvania-New Jersey-Maryland Interconnection, LLC (PJM), co-authored an assessment of its forecasting model.
- For Florida Power and Light Co., provided testimony before the Florida Public Service Commission concerning its forecasting methodology.
- For an electric utility in the Southeast, reviewed the existing weather normalization process and diagnosed problems with weather data and regression models. Developed alternative daily and monthly normalization models, improved degree-day specification, selection of weather stations, and regression specification to double prediction accuracy and enhance the stability of the weather-normalization process.
- For PJM, reviewed models for forecasting peak demand and re-estimated new models to validate recommendations. As a result, developed models for 18 individual transmission zones and the entire PJM system.
- For a Southwestern utility, developed models for forecasting monthly sales and loads for residential, commercial, and industrial customer classes using primary data on customer loads, weather conditions, and economic activity.
- For the Public Service Company of New Mexico, provided expert testimony before the Public Utilities Commission of New Mexico regarding the forecasted growth of the El Paso, Texas, and Juarez, Mexico markets and their electricity requirements.
- For a Southeastern utility, he developed a model for forecasting monthly demand that incorporated the impacts of its significantly declining housing market and served as the basis for its treasurer's revenue forecast.

Rate Design and Related Issues

- Performed Cost of Service study for Barbados Light and Power Company and provided testimony before the Barbados Fair Trade Commission. Also provided testimony on what constituted retroactive ratemaking, September 2022
- Currently an advisor to the Omaha Public Power District's Board of Directors.
- Served as an advisor to Salt River Projects's Board of Directors for its 2019 general rate case.
- Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Review of Existing and Proposed Network Additions Policies for

Newfoundland and Labrador Hydro, with Agustin Ros and Pearl Donohoo-Vallet, November 19, 2019

- Testimony before the Virginia Corporation Commission, Case No. PUR-2019-00104, on behalf of the Virginia Electric Power Company on cost allocation of utility-scale solar projects, July 1, 2019, with Agustin Ros.
- Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Embedded and Marginal Cost of Service Review, with Agustin Ros, T. Bruce Tsuchida, Pearl Donohoo-Vallet, and Lynn Zhang, May 3, 2019.
- Performed locational marginal cost of service studies to serve as the basis for customer-owned demand management reimbursement rates for Consolidated Edison of New York and Orange and Rockland Utilities, 2018.
- For a Midwest utility, provided support for its rate designs, including its cost of service development and certification of conformance with state regulations.
- For an industrial customer, provided testimony before a state public utility commission on the appropriate cost allocation and rate design approach for a municipal water utility.
- For a utility in PJM, performed a marginal cost/avoided cost study to evaluate its demand-side management energy efficiency programs, demand-responsive rates, and seasonal and time-of-use rates. The study included a geographic-specific assessment of its marginal distribution and transmission costs.
- For intervenors in Toronto Hydro-Electric System Limited (THESL), provided testimony on cost allocation issues concerning THESL's suite metering program.
- For Ameren/UE's Missouri subsidiary provided expert testimony on its rate design before the Missouri Public Utility Commission. Assisted the development of company witnesses' rationale for the choice of cost of service allocation method, developed benchmarks for the rate increase against similarly situated utilities and other commodities' escalations, and evaluated proposed demand-side management programs and rate options.
- For Ameren/UE's Illinois subsidiaries, provided expert testimony on the potential for gas demand-side management. In addition, the testimony discussed the potential rate implications of such programs on the utilities' revenue.

- For the Edison Electric Institute, co-authored a series of papers concerning issues facing utilities. The reports covered the topics of fuel adjustment clauses, mitigating significant rate increase impacts, and the Energy Policy Act of 2005.
- For the City of Vernon, California, submitted testimony to the FERC regarding its revenue requirements for transmission and provided testimony regarding its formula rates.
- For the Edison Electric Institute, he was an instructor in the Advanced Rates School on cost allocation, rate design, and marginal cost calculation.
- For the ISO-NE, served as an instructor on retail cost allocation and ratemaking.
- For Hydro Québec, provided testimony before the Régie d'Énérgie regarding the conformance of its Open Access Transmission Tariff with U.S. FERC regulations.
- Before staff members of the FERC, assisted in developing a review of the implications of market restructuring on transmission assets' cost of capital and wholesale transmission rates.
- For a power marketer and developer of independent power projects in Great Britain, assisted in preparing comments on proposals by the UK pool regarding the pricing of transmission losses and the role of demand-side bidding.
- For a utility in PJM with multiple jurisdictions provided an assessment of alternative demand and energy cost allocation procedures. The report included separate assessments for each jurisdiction and an assessment for generation and transmission assets commonly shared by all jurisdictions.
- For a European transmission company, provided an analysis of the likely development of the European electricity market. Also assessed market implications for the transmission company of modifications to the transmission grid.
- For Hydro Québec, provided expert testimony before the Régie d'Énérgie regarding whether a set of privately held transmission facilities constituted a looped transmission system and, thus, was subject to requests for transmission service.
- For Omaha Public Power District, assisted in the performance of its cost of service study, retail, and wholesale rate designs. Also redesigned its cost of service models. Also provided support in the redesign of its formula rates for the Southwest Power Pool.
- For Arizona Public Service, provided assistance in the development of a cost-of-service basis for separating its residential customers with rooftop solar photovoltaics into a separate rate class.
- For Nevada Power, assisted in developing a cost-of-service basis for separating its residential customers with rooftop solar photovoltaic into a separate rate class.

- For Pacific Gas and Electric, redesigned the marginal cost of service models and their software implementation for revenue cycle services and distribution system costs.
- For Wolverine Power Cooperative, provided testimony to the FERC supporting its request for formula transmission rates.
- For the Hawaii Electric Company, assessed alternative performance incentive mechanisms in a report which was submitted to the Hawaii Public Utility Commission.
- For FirstEnergy/Jersey Central Power and Light, assisted in developing their cost of service study submitted to the New Jersey Board of Public Utilities.
- For National Grid, alternative performance incentive mechanisms were assessed in a report submitted to the Massachusetts Department of Public Utilities.
- For Salt River Project, assisted with its current OATT compliance with FERC regulations.

Plant Performance and Strategy

- For the Keystone-Conemaugh Project Office, performed a benchmarking analysis to identify the areas in which Keystone and Conemaugh coal units were better performing or underperforming compared to other units with similar characteristics. The study involved comparing the historical operational and cost performance of the Keystone and Conemaugh coal units against their peer groups, identifying the areas where the performance of the Keystone and Conemaugh coal units was above and below the average quartile of their peer groups, and developing metrics and methodologies to combine the results of individual comparisons across the operational and cost performance assessments.
- For a U.S. electric utility, assisted in developing a legislative and regulatory strategy concerning restructuring. This assignment included generation asset valuation in a competitive market, development of stand-alone transmission and distribution rates under cost-of-service and performance-based regulation, and estimation of stranded costs.

Utility Financial Issues

- For the Edison Electric Institute, he co-authored a report on the general inapplicability of standard financial portfolio theory to the resource portfolios of utilities.
- For a gas utility, assisted in assessing the announcement effect of environmental liabilities on its cost of capital. This assignment included estimating changes in market betas pre- and post-environmental liability announcement.

- For the investor-owned utilities of Wisconsin, provided testimony before the Public Service Commission of Wisconsin on cost of capital issues for use in its statewide resource planning exercise.
- For the developer of a synthetic natural gas plant in Indiana, provided testimony before the Indiana Utility Regulatory Commission on the appropriate approach to assessing financial risk for the plant.
- For the developer of a synthetic natural gas plant in Illinois provided a series of testimonies before the Illinois Commerce Commission on the appropriate cost of equity for the plant.
- For the developer of a synthetic natural gas plant in Illinois, provided testimony before the Illinois Construction Development Board on the appropriate range of capital costs and operations and maintenance expenses.

Other Energy Experience

- For the Edison Electric Institute, conducted its annual workshop for the Electric Rate Advanced Course, "Introduction to Efficient Prices," University of Wisconsin, Madison, July 2009 - 2019.
- For the Edison Electric Institute, conducted its annual workshop for the Electric Rate Advanced Course, "Rate Class Cost Allocation," University of Wisconsin, Madison, July 2009 - 2019.
- For the Edison Electric Institute, conducted its annual workshop for Electric Rate Advanced Course, "Ratemaking by Objective: It Can Be Done," University of Wisconsin, Madison, July 2009 - 2019.
- For the Edison Electric Institute, conducted Pre-Course Workshop for Electric Rate Advanced Course, "Traditional Embedded Costing and Pricing Concepts," University of Wisconsin, Madison, July 26, 2009.
- For the Edison Electric Institute, conducted a workshop for its Electric Rate Advanced Course, "Unbundling Methodologies," University of Wisconsin, Madison, July 26, 2009.
- For the Edison Electric Institute, conducted the webinar "Long-Term Energy Forecasts: Challenges and Approaches" on June 17, 2009.
- For the Indiana Energy Conference, presented "It Ain't Your Father's IRP, Meeting Today's Challenges," October 2, 2008.
- For the NEPOOL Forecasting Committee Summer Meeting, presented "I'm a Forecaster – And You Can Too!," July 17, 2008.

- For the Electric Power Research Institute (EPRI), he developed and directed a research program to provide electric utilities with the following capabilities: marketing research, pricing and rate design, integrated resource planning, capital budgeting, environmental impacts of electric utilities and end-use technologies, load research, forecasting, and demand-side management through software tools, database development, and technology development. Assisted in developing the Load Management Strategy Testing Model (LMSTM) and served as its project manager. In addition, served as the project manager for developing DSManager, a software for assessing efficiency programs for electric, gas, and water utilities, and enhancements to the Electric Generation Expansion Analysis Model (EGEAS). Co-wrote reports on the environmental impacts of electric technologies, environmental externalities, cost-benefit analysis of DSM programs, rate design, and costing, integrated resource planning, operational impacts of interruptible and curtailable rates, product differentiation, activity-based costing, DSM program evaluation, efficiency program development for electric, gas, and water utilities and others.
- For EPRI, served as project manager of the Edison Electric Institute (EEI), National Rural Electric Cooperatives Association (NRECA), American Public Power Association (APPA), and National Association of Regulatory Utility Commissioners (NARUC) jointly sponsored Electric Utility Rate Design Study (EURDS). In addition, represented the Institute before various regulatory commissions, federal agencies, and utility executives. Also, for EPRI, he served on the Environmental Protection Agency's advisory committee for the Clean Air Act Amendments. He also served as the operating agent for Annex IV, Improved Methods for Integrating Demand-Side Options into Utility Resource Planning, of the International Energy Agency Agreement on Demand-Side Management.
- For a California utility, supervised short- and long-term forecasts of sales and peak demand for use in resource and corporate planning. Supervised and helped prepare forecast documentation for public hearings before the California Energy Commission and represented the utility to the Commission on the forecast. Managed the design and implementation of long-term strategic planning and financial models, prepared both marginal and embedded cost of service studies for the utility and assisted in their use to design customer rates. Evaluated the impact of energy conservation programs and legislation on long-term system resource requirements. Designed and implemented the residential survey of appliance holdings and commercial customer equipment survey.

Statistics and Sampling

- Designed a statistically valid database sampling procedure for assessing the validity of insurance claims arising from mass tort actions. The database contained summary information on the claims, and, for each claim, there was, at times, voluminous information on the individual cases. The sampling procedure was used to determine which records would be chosen and assess the individual's claim eligibility. That would then be a basis for calculating an appropriate rate per dollar claim.
- Assessed the liability risk of an insurance company that provided coverage relevant to a mass tort suit. First, a Markov chain model was developed to estimate the size of the potential population, and then a risk model was developed to calculate potential exposure.
- Developed a time-to-failure model to test the claims of generators during the California Electricity Crisis that their outage rates were not abnormal.
- Submitted testimony in bankruptcy court regarding the inventory estimation subject to reclamation by a wholesale pharmaceuticals supplier, which was sold to a bankrupt retail drug chain. The retail chain failed to maintain proper inventory records. Developed a statistical approach to estimate inventory levels, combining comprehensive inventory data and the supplier's shipment and replenishment records.

TESTIMONY AND REGULATORY FILINGS

Cost of Service study on behalf of Barbados Light and Power Company in support of its general rate case before the Barbados Fair Trade Commission, September 2022.

Expert report on behalf of Barbados Light and Power Company concerning retroactive ratemaking in support of its general rate before the Barbados Fair Trade Commission, September, 2022.

Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Review of Existing and Proposed Network Additions Policies for Newfoundland and Labrador Hydro, with Agustin Ros and Pearl Donohoo-Vallet, November 19, 2019.

Before the New York Department of Public Service, Granular Distribution Marginal Costs for Orange and Rockland Utilities, July 2019

Testimony before the Virginia Corporation Commission, Case No. PUR-2019-00104, on behalf of the Virginia Electric Power Company on cost allocation of utility-scale solar projects, July 1, 2019, with Agustin Ros. (Incorporates previously unfiled report for Virginia Electric Power.)

Expert report on behalf of the Newfoundland and Labrador Board of Commissioners of Public Utilities: Embedded and Marginal Cost of Service Review, with Agustin Ros, T. Bruce Tsuchida, Pearl Donohoo-Vallet, and Lynn Zhang, May 3, 2019.

Before the Salt River Project Board of Directors, Board Advisor report regarding SRP management's proposed rates, December 2018

Before the New York Department of Public Service, Granular Distribution Marginal Costs for Consolidated Edison with T. Bruce Tsuchida, July 2018

Before the Pennsylvania Public Utility Commission, Class Cost of Service Analysis for Philadelphia Gas Works, February 2017.

Before The Minnesota Public Utilities Commission, Docket No. E017/CG-16-1021, Expert Testimony on Behalf of Otter Tail Power, In the Matter of a Complaint by Red Lake Falls Community Solar Hybrid, LLC Regarding Potential Purchased Power Agreement (PPA) Terms and Pricing with Otter Tail Power Company.

Prepared Expert Report on Behalf of Nova Scotia Power Incorporated (NSPI), regarding the review and assessment of performance measures, July 13, 2016.

Before the New Jersey Board of Public Utilities, filed "Prepared Direct Testimony of Philip Q Hanser on behalf of Jersey Central Power & Light Company," regarding Cost of Service/Class Allocation, April 2016.

Before the United States District Court for The District of Montana Billings Division, Case no: CV 13-32-BLG-DLC-JCL, filed "Expert Report of Philip Q Hanser on Behalf of Defendants," regarding the evaluation of potential impacts of capital maintenance, repair, and replacement projects on emissions from four Colstrip Units, November 14, 2014.

Before the Hawai'i Public Utilities Commission, Docket No. 2013-0141, filed "Targeted Performance Incentives: Recommendations to the Hawaiian Electric Companies" with William P. Zarakas regarding the analysis of the application of performance incentives to electric utilities, September 15, 2014.

Before the Federal Energy Regulatory Commission, Docket No. ER15-249-000, filed "Prepared Direct Testimony of Philip Q Hanser on behalf of Wolverine Power Supply Cooperative, Inc." regarding a Request for Change in Rates to Distribution Cooperative Member-Owners, October 30, 2014.

Before the Public Utilities Commission of the State of Colorado, Proceeding No. 13F-0145E, "Answer Testimony and Exhibits of Philip Q Hanser on behalf of Tri-State Generation and Transmission Association, Inc.," regarding an Analysis of Complaining Parties' Responses to Tri-State Generation and Transmission Association, Inc., September 10, 2014.

Before the Public Service Commission of Wisconsin, Docket No. 3720-WR-108, filed "Direct Rebuttal and Surrebuttal Testimony of Philip Q Hanser on behalf of MillerCoors L.L.C." regarding the Application of Milwaukee Water Works for Authority to Increase Water Rates, June 2014.

Before the District Court for the Eastern District of Missouri, Civil Action No. 4:11-cv-00077-RWS filed "Expert Report of Philip Q Hanser on behalf of Ameren Missouri" regarding the New Source Review enforcement case on May 16, 2014.

Before the Illinois Commerce Commission of the State of Illinois, Docket No. 13-0387, filed "Rebuttal Testimony of Philip Q Hanser on behalf of Commonwealth Edison Company," regarding their tariff filing to present the Illinois Commerce Commission with an opportunity to consider revenue-neutral tariff changes related to rate design authorized by subsection 16-108.5(e) of the Public Utilities Act, August 19, 2013.

Before the Public Utilities Commission of the State of South Dakota, EL 11-006, filed "Wind Integration Services - Summary of Industry Practices in North America, on behalf of NorthWestern Energy," in the Matter of the Complaint by Oak Tree Energy LLC against NorthWestern Energy for refusing to enter into a Purchase Power Agreement, July 8, 2013.

Before the Régie de l'énergie, R-3848-2013, filed "Direct Testimony of Philip Q Hanser on Behalf of Hydro-Québec Distribution" regarding their Application for approval of characteristics of Wind Integration Services and acquisition analysis of other wind integration services, June 2013, January 2014.

Before the Federal Energy Regulatory Commission, "Prepared Direct Testimony of Philip Q Hanser on behalf of NV Energy Operating Companies," regarding whether the use of a 12-CP cost allocation method is appropriate for the NV Energy transmission system from a cost allocation perspective, May 2013.

Before the Federal Energy Regulatory Committee, Prepared Direct and Rebuttal Testimony and Exhibits of Philip Q Hanser in Support of the Refund Claims of the City of Seattle, Washington, for the Period January 1, 2000 through December 24, 2000, on behalf of the City of Seattle, Washington, EL01-10-085, March 12, 2013, June 3, 2013, July 26, 2013.

Before the Commonwealth of Massachusetts Department of Public Utilities, "Review and Analysis of Service Quality Plan Structure In the Massachusetts Department of Public Utilities Investigation Regarding Service Quality Guidelines for Electric Distribution Companies and Local Gas Distribution Companies," with David E. M. Sappington and William P. Zarakas, as part of the Initial Comments of National Grid, DPU12-120, March 2013.

Before the Bonneville Power Administration, Direct and Rebuttal Testimony of Philip Q Hanser, John D. Martinsen, Felicienne NG, James M. Russell, and Paul Wrigley on Behalf of Benton County Public Utility District No. 1, Iberdrola Renewables, LLC, Tacoma Power, Seattle City Light, and Snohomish County Public Utility District No. 1, Docket No. BP-14-E-JP12-01, January 28, 2013, March 11, 2013.

Before the Illinois Commerce Commission, Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Cost of Equity, October 2011; Supplemental Report on Behalf of Chicago Clean Energy, LLC, November 2011; Response Report of Philip Q Hanser on Behalf of Chicago Clean Energy, November 2011, Certified Affidavit on Behalf of Chicago Clean Energy, LLC, December 2011.

Before the Louisiana Public Service Commission, Direct Testimony of Philip Q Hanser on Behalf of Calpine Corporation, Docket No. U-31971, November 22, 2011. (Testimony was withdrawn as part of the settlement between Calpine and Entergy.)

Before the Illinois Construction Development Board, Supplemental Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Estimate of Capital Costs, November 2011. Supplemental Report of Philip Q Hanser on Behalf of Chicago Clean Energy, LLC, on the Reasonableness of Chicago Clean Energy's Estimate of Operations and Maintenance Expenses, November 2011.

Before the Indiana Utility Regulatory Commission, Rebuttal Testimony of Philip Q Hanser on Behalf of Indiana Gasification, LLC, IURC Cause No. 43976, June 2011.

Before the State of Illinois Commerce Commission, Prepared Direct Testimony of Philip Q Hanser on behalf of Interstate Power and Light Company with regard to their Petition For Approval Of Sale of Utility Assets Pursuant to Sections 7-102 Of The Public Utilities Act; and Approve the Discontinuance of Service Pursuant to 8-508 of the Public Utilities Act, 2011.

Before the Federal Energy Regulatory Commission, Supplemental Comments, Re: Notice of Proposed Rulemaking regarding Demand Response Compensation in Organized Wholesale Energy Markets," Docket Nos. RM10-17-000 and EL09-68-0, October 4, 2010, and May 13, 2010.

Before the Régie de l'énergie, Prepared Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie ("HQT"), Regarding HQT's Methodology for ATC Coordination, June 2010.

Before the Commonwealth of Massachusetts Trial Court, testified on behalf of MMWEC regarding the management and ownership of investor-owned utilities ("IOUs"), MMWEC, and municipal light departments ("Municipals") in Massachusetts before and after the passage of the Electric Industry Restructuring Act of 1997, as well as the impact of electric industry restructuring in Massachusetts on IOUs, MMWEC, and Municipals with respect to contract buyouts in the matter of MASSPOWER v. Massachusetts Municipal Wholesale Electric Company (MMWEC), Civil Case No. 07-3243 BLS2, March 2010.

Before the Ontario Energy Board, Prepared Witness Statement on Behalf of the Smart Sub-Metering Working Group in the Matter of Toronto Hydro-Electric System Limited's 2010 Electricity Distribution Rate Application, December 15, 2009.

Before the Superior Court of the State of California for the County of San Diego, Prepared Second Addendum Report to Expert Report of Philip Q Hanser for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Case No. GIC 789291, September 30, 2009.

Before the Florida Public Service Commission, on behalf of Florida Power and Light Company, Prepared Rebuttal Testimony of Philip Q Hanser, Docket No. 080677-EI, August 6, 2009.

Before the Federal Energy Regulatory Commission on behalf of the City of Vernon, California, Prepared Petition for Declaratory Order and Request for Waiver of Filing Fee of City of Vernon, California, Docket No. EL09-___-000, July 15, 2009.

Before the Régie de l'énergie, Prepared Supplemental Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie, in Response to Newfoundland and Labrador Hydro's Complaint P-110-1692, June 2009.

Before the Federal Energy Regulatory Commission, on behalf of The People of the State of California, ex rel. Edmund G. Brown Jr., Direct Testimony of Philip Q Hanser regarding emergency purchases the state authorized the California Energy Resources Scheduling Division of the California Department of Water Resources ("CERS") to make when the California investor-owned utilities (IOUs) could not purchase the power needed to serve their customers, Docket No. EL09- __ ("Brown Complaint"), May 22, 2009.

Before the Florida Public Service Commission, on behalf of Florida Power and Light Company, Prepared Direct Testimony of Philip Q Hanser, Docket No. 080677-EI, April 23, 2009.

Before the Superior Court of the State of California for the County of San Diego, for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Prepared Addendum to Expert Report of Philip Q Hanser, Case No. GIC 789291, March 31, 2009.

Before the Pennsylvania Public Utility Commission on Behalf of Pennsylvania Electric Company, Prepared Rebuttal Testimony of Philip Q Hanser and Metin Celebi Concerning the Causes and Pricing of Transmission Congestion, Docket No. P-2008-2020257, January 16, 2009, March 10, 2009.

Before the Régie de l'énergie, Prepared Expert Report of Philip Q Hanser on Behalf of Hydro-Québec TransÉnergie, in Response to Newfoundland and Labrador Hydro's Complaints P-110-1565, P-110-1566, P-110-1597, P-110-1678, and P-110-1692, December 2008.

Before the Pennsylvania Public Utility Commission, on Behalf of Pennsylvania Electric Company, Prepared Direct Testimony of Philip Q Hanser Concerning the Causes and Pricing of Transmission Congestion, Docket No. P-2008-2020257, July 30, 2008.

Before the Régie de l'énérgie, Prepared Affidavit on Behalf of Hydro-Québec Regarding the Public Availability of SIS Reports Performed by a Transmission Provider, June 19, 2008.

Before the Federal Energy Regulatory Commission, Prepared Direct Testimony on Behalf of the City of Vernon's Revised Transmission Revenue Requirement Filing with the FERC, Docket No. EL08-__-000, April 3, 2008.

Before the Régie de l'énérgie, Prepared Expert Report on Behalf of Hydro-Québec TransÉnérgie to Assess Whether the Transmission Facilities Owned by ELL may be considered as a "Radial Generator Lead," Case No. R-3636-2007, March 13, 2008.

Before the Illinois Commerce Commission, Prepared Direct Testimony on Behalf of the Illinois Power Company d/b/a AmerenIP in regard to the energy efficiency programs implemented by natural gas distribution utilities in the U.S., Docket No. 07-__, November 2, 2007.

Before the American Arbitration Association, Prepared Rebuttal Report on Behalf of the California Department of Water Resources to Evaluate the Reports that William Hogan, Jeffrey Tranen, and Ellen Wolfe Provided on Behalf of Sempra Generation, Case No. 74Y1980019606MAVI, June 4, 2007.

Before the American Arbitration Association, Prepared Expert Report on Behalf of the California Department of Water Resources to evaluate certain claims made by the California Department of Water Resources ("DWR") in its Demand for Arbitration regarding the performance of Sempra Energy Resources, now known as Sempra Generation, under the Energy Purchase Agreement between the parties, and to calculate amounts that Sempra would owe to DWR assuming liability is established, Case No. 74Y1980019606MAVI, May 14, 2007.

Before the United States Bankruptcy Court, Northern District of Ohio, Eastern Division, Prepared Expert Report in regard to McKesson's Inventory Reclamation in the Phar-Mor Bankruptcy, Case Nos. 01-44007 Through 01-44015, March 9, 2007.

Before the Public Utility Commission of Texas, Prepared Rebuttal Testimony on Behalf of Constellation New Energy, Inc.'s Appeal and Complaint of ERCOT Decision to Approve PRR 676, PRR 674 and Request for Expedited Relief, Docket No. 33416, January 11, 2007.

Before the Public Utility Commission of Texas, Prepared Direct Testimony on Behalf of Constellation NewEnergy, Inc. to analyze and discuss the flaws and potential negative impacts of the allocation methods under Protocol Revision Request ("PRR") 676, which relates to procurement costs for Replacement Reserve Service ("RPRS") and Out of Merit Capacity, Docket No. 33416, November 22, 2006.

Before the American Arbitration Association, Prepared Rebuttal Report on Behalf of the California Department of Water Resources vs. Sempra Energy Resources, Case No. GIC 789291, July 11, 2006.

Before the State Office of Administrative Hearings, Prepared Expert Report on Behalf of TXU Energy Solutions, Regarding their Demand-side Management Program and the Difference Between the Actual and Projected Savings in the Energy Bill of the University of Texas, July 7, 2006.

Before the Missouri Public Service Commission, Prepared Direct Testimony on Behalf of Union Electric Company with regard to Ameren UE's Rate Design Proposals, Case No. ER-2007-0002, July 5, 2006.

Before the Superior Court of the State of California for the County of San Diego, for the Office of the Attorney General of the State of California on Behalf of California Department of Water Resources, Prepared Expert Report, Case No. GIC 789291, June 9, 2006.

Before the Superior Court of the State of California, Prepared Declaration in Support of California State Agencies' Opposition to Motion on Shortened Time and Motion in Support of Preliminary Approval of Class Action Settlement, J.C.C.P. Nos. 4221, 4224, 4226, and 4228, June 8, 2006.

Before the Superior Court of the State of California, Prepared Declaration in Support of California State Agencies' Opposition to Proposed Publication Notice, J.C.C.P. Nos. 4221, 4224, 4226, and 4228, January 13, 2006.

Before the United States Bankruptcy Court, Prepared Declaration on Behalf of Calpine Corporation with regard to the Public Interest Standard for the Rejection of the Contract, Case No. 05-60200 (BRL), December 30, 2005.

Before the FERC, Prepared Direct Testimony on Behalf of Dominion Energy Marketing, Inc. (DEMI), regarding a dispute between DEMI and The United Illuminating Company as to which party is responsible for paying certain costs associated with Reliability Must-Run agreements under a December 28, 2001, Power Supply Agreement between the two parties, Docket No. EL05-76-001, December 5, 2005.

Before the American Arbitration Association, Prepared Expert Report on behalf of the California Department of Water Resources vs. Sempra Energy Resources with regard to Damages from Multiple Contract Breaches, Case No. 74Y1980019304VSS, May 2005.

Before the Federal Energy Regulatory Commission (FERC), Comment - "A Marginal - Value Approach to Pricing Reactive Power Services in Principles for Efficient and Reliable Reactive Power Supply and Consumption," Docket No. AD05-1-000, April 4, 2005 (with Martin Baughman and Philip Hanser).

Before the FERC, Prepared Supplemental Testimony on Behalf of the California Parties with regard to Enron's Circular Scheduling and Paper Trading Gaming Practices, Docket No. EL03-180-000, January 31, 2005.

Before the FERC, Prepared Affidavit on Behalf of Northeast Utilities Service Company and Affiliated Companies' Market-based Rate Authorization, Docket No. ER96-496-010 et al., September 27, 2004, Revised December 9, 2004.

Before the Connecticut Siting Board, Prepared Testimony on Behalf of Connecticut Light and Power in support of its application for a Certificate of Environmental Compatibility and Public Need for the construction of a 345-kV electric transmission line and reconstruction of an existing 115-kV electric transmission line between Connecticut Light and Power Company's Plumtree Substation in Bethel, through the Towns of Redding, Weston, and Wilton, and to Norwalk Substation in Norwalk, Connecticut, Docket No. 217, November 2004.

Before the FERC, Prepared Affidavit on Behalf of Otter Tail Power Company (OTP) Regarding Problems that May Result from the Implementation of MISO's Markets Tariff in OTP's Region, Docket No. ER04-691-000, May 7, 2004.

Before the FERC, Prepared Joint Affidavit with Judy W. Chang on Behalf of Devon Power LLC, et al., Docket No. ER03-563-030, March 24, 2004.

Before the FERC, Prepared Direct Testimony on Behalf of the California Parties with Regard to Enron's Circular Scheduling and Paper Trading Gaming Practices, Docket No. EL03-180-000, February 27, 2004.

Before the Commonwealth of Massachusetts, Prepared Expert Report on Behalf of Alstom Corporation and Black and Veatch vs. Meriden Corporation, LLC, Review of *"Value of the Meriden Power Project,"* Case No. 99-6016, January 9, 2004.

Before the FERC, Prepared Declaration on Behalf of The California Parties, Re: Gaming Activities Of Modesto Irrigation District, Docket No. EL03-159-000, October 2003.

Before the FERC, Prepared Affidavit on Behalf of Otter Tail Power Company For Otter Tail Power Company, Assessing how the Midwest ISO's Proposed Transmission and Energy Market Tariff will Affect Otter Tail Power both Operationally and Financially, Docket No. ER03-118-000, September 15, 2003.

Before the Pennsylvania Environmental Hearing Board, Prepared Expert Report on Behalf of Pennsylvania Power and Light, New Jersey Department of Environmental Protection vs. Pennsylvania Department of Environmental Protection and Lower Mount Bethel Energy, LLC, Docket No. 2001-280-C, May 2, 2003.

Before the FERC, Prepared Rebuttal Testimony on Behalf of Southern California Edison for the California Parties Regarding Manipulation of Energy and Ancillary Service Market Prices and the Outage Behavior of Gas-Fired Power Plants, Docket No. EL00-95-069, March 20, 2003.

Before the FERC, Prepared Testimony on Behalf of Southern California Edison for the California Parties Regarding Manipulation of Energy and Ancillary Service Market Prices and the Outage Behavior of Gas-Fired Power Plants, Docket No. EL00-95-069, February 24, 2003.

Before Southern District Court of Illinois, Prepared Expert Report for Department of Justice, Environmental Protection Agency vs. Illinois Power Company and Dynegy Midwest Generation Regarding the Likely Rate Treatment of Pollution Control Equipment Expenditures, Docket No.99-833-MBR, July 29, 2002.

Before the FERC, Prepared Direct Testimony on Behalf of Edison Mission Energy and Edison Mission Marketing and Trading, Inc. on Behalf of Midwest Generation's Application for Market-based Rate Authority, Docket No. ER99-3693-000, April 1, 2002.

Before the FERC, Prepared Rebuttal Testimony on Behalf of NSTAR on the Appropriate Rates for Generators During Transmission Upgrades or Enhancements Requiring Substantial and Sustained Reduction in Transfer Capability, Docket No. ER01-890-000, September 21, 2001.

Before the FERC, Prepared Affidavit on Behalf of NSTAR, in its Intervention of the Granting of Market-based Rate Authority to Sithe, Docket No. EL01-79-000, May 2001.

Before the FERC and the Public Utilities Commission of Nevada, Prepared Affidavit on Behalf of Sierra Pacific Resources Company, Regarding the Market Power Implication of Generation Asset Divestiture Required for the Merger of Sierra Pacific Power and Nevada Power Company, Docket No. EC0-173-000, February 23, 2001.

Before the California Energy Commission, Prepared Expert Report on Behalf of Calpine Corporation, Socioeconomic Resources: Economic Benefits of the Metcalf Energy Center, October 27, 2000.

Before the FERC, Prepared Affidavit on Behalf of NSTAR with regard to the Necessity of Imposing Bid Caps on the New England Electricity Market, Docket No. EL00-83-000, June 23, 2000.

Before the FERC, Prepared Direct Testimony on Behalf of Nevada Power Company in Support of the Divestiture of its Generation Assets, Docket No. ER99-2338-001, June 24, 1999.

Before the FERC, Prepared Direct Testimony on Behalf of Nevada Power Company in Support of the Divestiture of its Generation Assets, Docket No. ER99-2338-001, March 30, 1999.

Before the Vermont Public Service Board, Prepared Rebuttal Testimony on Behalf of Central Vermont Public Service Corporation on the Impact of its Demand-side Management Programs, Docket No. 6018, April 10, 1998.

Before the New Mexico Public Utility Commission, Prepared Direct Testimony on Behalf of the Public Service Company of New Mexico Regarding Forecasted Growth of the El Paso and Juarez, Mexico Markets, Case No. 2769, 1997.

Before the FERC, Prepared Affidavit on Behalf of Southern California Edison Describing the Implications for the Electricity Market of the Manipulation of Gas Market Prices, Docket No. RP95-363-015, 1996.

Before the Public Service Commission of Wisconsin, Prepared Direct Testimony on Behalf of Investor-owned Utilities of Wisconsin on the Utilities Cost of Capital, Docket No. 05-EP-7, May 8, 1995.

PROFESSIONAL AFFILIATIONS

Association of Energy Service Professionals, Board Member	1991-1995
Journal of ADSMP, Editor	1995
American Statistical Association	1974-current
Member of ASA Committee on Energy Statistics	1993-1999
Conseil International des Grands Reseaux Electriques (CIGRE)	2005-current
Working Group C5-8, Working Group on Renewables and Energy Efficiency in a Deregulated Market	2008-2009
Institute of Electrical and Electronics Engineers (IEEE)	1986-current (Life Member)

International Association for Energy Economics 2000-current

ACADEMIC HONORS AND FELLOWSHIPS

Teaching Incentive Award, University of the Pacific 1979

Teaching Assistantship in Econometrics, Columbia University 1974

National Science Foundation Research Traineeship 1972 – 1974

Undergraduate and Graduate Research Assistantships, Florida State University 1968 – 1972

Omicron Delta Epsilon, Economics Honor Society 1971

PUBLICATIONS

"A Brief Comment on 'Percent Change as a Measure of Price Escalation in Water and Energy Utilities' by Jordi Honey-Rosés and Claudio Pareja," Journal of Public Works Management and Policy, (October 2019).

"Re-evaluating the implied Cost of CO_2 by clean energy investments" (with Mariko Geronimo and Onur Aydin) *The Electricity Journal* 30 (2017) 17-22.

"The Practicality of Distributed PV-Battery Systems to Reduce Household Grid Reliance," (with Roger Lueken, Will Gorman, and James Mashal), *Utilities Policy,* 2017.

"The Repurposed Distribution Utility: Roadmaps to Getting there," with Kai E. Van Horn, in *Future Utilities - Utilities of the Future.* F. P. Sioshansi, ed. (New York, Academic Press, 2016)

"The Next Evolution of the Distribution Utility," with Kai E. Van Horn in *Distributed Generation and its Implications for the Utility Industry*, F. P. Sioshansi, ed. (New York: Academic Press, 2014.)

"Annual Report on Wholesale Market Prices and Trends in the Metropolitan Edison Company, Pennsylvania Electric Company, Pennsylvania Power Company, and West Penn Power Company Service

Area" (with Mariko Geronimo Aydin), prepared for Met-Ed, Penelec, Penn Power, and West Penn Power, November 2015.

"Reducing Utility Rate Shocks," (with Lawrence Kolbe), *Public Utilities Fortnightly*, June 2013.

"Redefining Normal Temperatures," (with Robert E. Livezey), *Public Utilities Fortnightly*, May 2013.

"Rates, Reliability, and Region: Customer satisfaction and electric utilities," (with William P. Zarakas and Kent Diep), *Public Utilities Fortnightly*, January 2013.

"What Price, GHGs?: Calculating the implied value of CO2 abatement in green energy policies," (with Mariko Geronimo), *Public Utilities Fortnightly*, Volume 150, October 2012.

"Rate Design by Objective: A purposeful approach to setting energy prices," *Public Utilities Fortnightly*, September 2012.

"State Regulatory Hurdles to Utility Environmental Compliance," *The Electricity Journal*, Vol. 25, Issue 3, April 2012.

"Riding the Wave: Using Demand Response for Integrating Intermittent Resources," (with Kamen Madjarov, Warren Katzenstein, and Judy Chang in *Smart Grid: Integrating Renewable, Distributed and Efficient Energy*, F.P. Sioshansi, ed. (New York: Academic Press, 2011).

"Marginal Cost Analysis in Evolving Power Markets: The Foundation of Innovative Pricing, Energy Efficiency Programs, and Net Metering Rates," (with Metin Celebi), *The Brattle Group, Inc. 2010 No. 2 (Energy).*

"Assessing Ontario's Regulated Price Plan: A White Paper," (with Ahmad Faruqui, Ryan Hledik, and Jenny Palmer), *The Brattle Group, Inc.*, December 8, 2010.

"On Dynamic Prices: A Clash of Beliefs?" *The Electricity Journal*, Vol. 23, Issue 6, July 2010.

"Virtual Bidding: The Good, the Bad, and the Ugly," (with Metin Celebi and Attila Hajos), *The Electricity Journal*, Vol. 23, Issue 5, June 2010.

"Utility Supply Portfolio Diversity Requirements," (with Frank Graves), *The Electricity Journal*, Vol. 20, Issue 5, June 2007.

"Electric Utility Automatic Adjustment Clauses Revisited: Why They Are Needed More Than Ever," (with Frank Graves and Greg Basheda), *The Electricity Journal*, Vol. 20, Issue 5, June 2007.

"Rate Shock Relief," (with Frank Graves and Greg Basheda), *Electric Perspectives*, May/June 2007.

"Rate Shock Mitigation," (with Frank Graves and Greg Basheda), prepared for Edison Electric Institute, May 2007.

"Electric Utility Automatic Adjustment Clauses: Benefits and Design Considerations," (with Frank Graves and Greg Basheda), Edison Electric Institute, August 2006.

"Can Wind Work In An LMP Market?" (with Serena Hesmondhalgh and Dan Harris), *Natural Gas & Electricity*, November 2005.

"The CAISO'S Physical Validation Settlement Service: A Useful Tool for All LMP-Based Markets," (with Jared des Rosiers, Metin Celebi, Joseph Wharton), *The Electricity Journal*, September 2005.

"LMPs/FTRs Alone Will Not Solve Transmission Problems Blackout Showed," *Natural Gas and Electricity*, Volume 20, Number 4, November 2003.

"A Summary of FERC's Standard Market Design NOPR," Edison Electric Institute, August 2002.

"The Design of Tests for Horizontal Market Power in Market-Based Rate Proceedings" (with James Bohn and Metin Celebi), *The Electricity Journal*, May 2002.

"The State of Performance-Based Regulation in the U.S. Electric Industry" (with David Sappington, Johannes Pfeifenberger, and Greg Basheda), *The Electricity Journal*, October 2001.

"Deregulation and Monitoring of Electric Power Markets" (with Robert Earle and James Reitzes), *The Electricity Journal*, October 2000.

"Shortening the NYISO's Installed Capacity Procurement Period: Assessment of Reliability Impacts," NYISO, May 2000.

"PJM Market Competition Evaluation White Paper," (with Frank Graves), prepared for PJM, L.L.C., October 1998.

"Lessons from the First Year of Competition in the California Electricity Market" (with Robert Earle, W.C. Johnson, and James Reitzes), *The Electricity Journal*, October 1999.

Comments to the FERC concerning Regional Transmission Organizations Notice of Proposed Rule Making, RM99-2, (with Peter Fox-Penner), September 17, 1999.

"In What Shape is Your ISO?" (with Johannes Pfeifenberger, Greg Basheda, and Peter Fox-Penner), *The Electricity Journal*, Vol. 11, No. 6, July 1998.

"What's in the Cards for Distributed Resources?" (with Johannes Pfeifenberger and Paul Ammann), in Special Issue of *The Energy Journal, Distributed Resources: Towards a New Paradigm of the Electricity Business*, January 1998.

"One-Part Markets for Electric Power: Ensuring the Benefits of Competition," (with Frank Graves, E.G. Read, and Robert Earle), in *Power Systems Restructuring: Engineering and Economics*, ed. M. Ilic, F. Galiana, and L. Fink, Boston, MA: Kluwer Academic Publishers, 1998.

"Insurance Recovery for Manufactured Gas Plant Liabilities," (with Gayle Koch and Kenneth Wise), *Public Utilities Fortnightly*, April 1997.

"Real-Time Pricing - Restructuring's Big Bang?" (with Joseph Wharton and Peter Fox-Penner), *Public Utilities Fortnightly*, March 1997.

"Reengineering DSM: Opportunities Through Integration and Information" (with Wade Malcolm and Roger Levy) *Electricity Journal*, (November 1993)

"Load Impact of Interruptible and Curtailable Rate Programs," (with D.W. Caves, J.A Herriges, and R.J. Windle), *IEEE Transactions on Power Systems*, Vol. 3, No. 4, November 1988.

"Estimating Hourly Electric Load with Generalized Least Squares Procedures," (With N. Toyama and C.K. Woo.), *The Energy Journal*, April 1986.

"Transfer Function Estimation Using TARIMA," *SAS User's Group International*, 1982 Proceedings, Cary, North Carolina: SAS Institute, Inc., 1982.

"Invited Editorial Response to Behavioral Community Psychology: Integrations and Commitments," by Richard Winett, *The Behavior Therapist 4(5)*, Convention, 1981.

Statistics Through Laboratory Experiences (with D. Christianson and D. Hughes), Stockton, CA: University of the Pacific 1976-1977.

"Unsolved Advanced Problem," *American Mathematical Monthly*, May 1975.

"Introduction to Multivariate Data Analysis Techniques," Bureau of Applied Social Research, Columbia University, New York, NY, 1973.

Ten EPRI reports and approximately 20 articles in EPRI Reports and Conference Proceedings, including:

Environmental Externalities: An Overview of Theory and Practice

Environmental Impacts of Electric Technologies

Environmental Impacts of Electric Vans (TEVan) in the Los Angeles Air Basin (South Coast Air Quality Management District)

Technical Assessment Guide (TAG), Vol.4: Cost-Benefit Analysis of End-Use Technologies

Impact and Process Assessment of Energy Efficiency Technologies

Innovative Rate Design

Integrated Value-based Resource Planning

SELECTED PRESENTATIONS

"The Impact of Global Warming on Electric Utility Operations," National Climate Data Center, National Oceanic and Atmospheric Administration Conference on "The New Weather Normals," Asheville, North Carolina, November 2016

"Smart EDU: Smart Technology, Smart Data, Smart Prices," SGIP Inaugural Conference Progress through Collaboration, Palm Beach Gardens, Florida, November 6, 2013.

"Customer-Facing Developments of the Smart Grid," (with Ahmad Faruqui and Sanem Sergici), Massachusetts Department of Public Utilities Electric Grid Modernization Workshop, Boston, Massachusetts, November 14, 2012.

"The Midwest ISO Capacity Market: Wither It Goest," Bruder, Gentile & Marcoux's 18th Annual FERC Briefing Midwest Edition, Chicago, Illinois, October 23, 2012.

"ISO Markets, Operations, and Settlements," SNL Inside Utility Accounting Program, Charlotte, North Carolina, October 17, 2012.

"Revenue Sources," SNL Inside Utility Accounting Program, Charlotte, North Carolina, October 16, 2012.

"Impact of U.S. LNG on International Gas Prices," EIA International Natural Gas Workshop, Washington, DC, August 23, 2012.

"Framework for Assessing Capex and Opex Forecasts as Part of a "Building Blocks" Approach to Revenue/Price Determinations," (with Paul R. Carpenter, Toby Brown, and Pinar Bagci), Australian Energy Market Commission, June 2012.

"Policy Challenges Associated with Renewable Energy Integration," 2011 MITEI Symposium: Managing Large-Scale Penetration of Intermittent Renewables, (with Judy Chang, Kamen Madjarov, and Peter Fox-Penner).

"Renewable Integration Model Presentation," (with Judy Chang), California Public Utilities Commission (CPUC) California Long-Term Procurement Plan Workshop, San Francisco, California, August 25, 2010.

"Renewable Integration Model and Analysis," (with Judy Chang, Kamen Madjarov, Ross Baldick, and Antonio Alvarez), IEEE 2010 Transmission and Distribution Conference and Exposition, New Orleans, Louisiana, April 21, 2010.

"Wire We Here? Coal in the West," Law Seminars International, Coal in the West Conference, Denver, Colorado, March 30, 2007.

"Does SMD Need a New Generation of Market Models? Or How I Learned to Stop Worrying and Enjoy Carrying a Pocket Protector," SMD Conference, Washington, D.C., December 5, 2002.

"Standard Market Design in the Electric Market: Some Cautionary Thoughts," SMD Conference, May 10, 2002, Chicago, Illinois.

"Multiattribute Utility Theory and Earthquake Mitigation Policy," (with T. Munroe), Western Economic Association Conference, June 1978.

414-23

Ruthanne Fuller
Mayor

City of Newton, Massachusetts

Office of the Mayor

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TDD/TTY
(617) 796-1089
Email
rfuller@newtonma.gov

October 10, 2023

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459

To the Honorable City Councilors:

I am pleased to reappoint Miles Smith of 30 Webster Street, Newton 02465 as a member of the Sustainable Materials Management Commission. His term of office shall expire on September 30, 2026 and his appointment is subject to your confirmation.

Thank you for your attention to this matter.

Warmly,

Ruthanne Fuller
Mayor

414-23
Submit Date: Aug 30, 2023

Newton, MA Boards & Commissions

Application Form

Profile

Miles
First Name

Middle Initial

Smith
Last Name

[redacted]
Email Address

30 Webster Street
Home Address

Suite or Apt

Newton
City

MA
State

02465
Postal Code

What Ward do you live in?

☑ Ward 3

[redacted]
Primary Phone

[redacted]
Alternate Phone

Freelance
Employer

Audio Engineer
Job Title

Which Boards would you like to apply for?

Sustainable Materials Management Commission: Submitted

Ethnicity

☑ Caucasian/Non-Hispanic

Gender

☑ Male

Interests & Experiences

Please tell us about yourself and why you want to serve.

Why are you interested in serving on a board or commission?

Continue membership on the Solid Waste Commission. Thanks!

MilesSmith_Bio.pdf
Upload a Resume

Miles B. Smith
Audio Engineer
30 Webster St.
West Newton, MA 02465
m_soundsmith@yahoo.com

Miles B. Smith is a freelance audio engineer based in the Boston area. He has engineered live radio broadcasts and live-to-stereo recordings in literally hundreds of East coast venues, including three Grammy nominated albums. Miles has been tech director of several radio conferences and music festivals. He has worked on award winning live music broadcasts (such as Newport Jazz Festival, Newport Folk Festival, New Music America, New Orleans Jazz & Heritage Festival), satellite broadcasts from marathon Bloomsday readings, demonstrations, National Political Conventions and theaters. He is the recording engineer for the NPR program Selected Shorts, and Audio Supervisor for The Moth recordings done around the world.

He has worked on many radio dramas including The Midwest Radio Theatre Workshop, WBAI's live Shakespeare productions WNYC's 'Radio Stages' series, the serialized radio drama "Our Life Together Amongst The Works of Art", L.A. Classical Radio Theatre Productions, and the SciFi channel's 'Seeing Ear Theatre'.

Miles has also done stereo sound gathering for radio production in Wyoming, Texas, Vermont, Kenya, Zimbabwe, Ethiopia, Pakistan, India, and many other locales.

Miles Smith has been involved in the design and construction of dozens of studios, including radio broadcast studios, recording studios, and post-production facilities in New York, Boston, Washington DC, Haiti and Grenada, including This American Life's studios in NYC, and the PRX Podcast Garage in Boston.

Miles' day gig is as a tech at WGBH Radio in Boston. In 2019 he won the National Corwin Award for Excellence in Audio Theatre.

415-23

Ruthanne Fuller
Mayor

City of Newton, Massachusetts

Office of the Mayor

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rfuller@newtonma.gov

October 10, 2023

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459

To the Honorable City Councilors:

I am pleased to reappoint Sunwoo Kahng of 60 Garland Road, Newton 02459 as a member of the Sustainable Materials Management Commission. Her term of office shall expire on November 15, 2026 and her appointment is subject to your confirmation.

Thank you for your attention to this matter.

Warmly,

Ruthanne Fuller
Mayor

Application Form

Profile

Sunwoo
First Name

Middle Initial

Kahng
Last Name

[redacted]
Email Address

60 Garland Road
Home Address

Suite or Apt

Newton
City

MA
State

02459
Postal Code

What Ward do you live in?

☑ Ward 6

[redacted]
Primary Phone

Alternate Phone

Employer

Job Title

Which Boards would you like to apply for?

Sustainable Materials Management Commission: Submitted

Ethnicity

☑ Asian or Pacific Islander

Gender

☑ Female

Interests & Experiences

Please tell us about yourself and why you want to serve.

Why are you interested in serving on a board or commission?

Reappointment for 3rd term. I am deeply committed to reduction of waste and promotion of reuse and recycling in the city. I hope to continue my work on the commission towards a 'zero waste' policy for the city.

Solid_Waste_Commission-Sunwoo_kahng.pdf
Upload a Resume

SUNWOO KAHNG

774-286-1259
skahng11@gmail.com

60 Garland Road
Newton, MA 02459

Objective

Member of the City of Newton Solid Waste Commission.

Experience

Board Member, Green Newton; Newton, MA — 2010-Present
Responsible for organizing Organic Garden Tours, connecting 'green teams' at various schools in the Newton Public Schools, organizing Green Expo in Newton Centre, fundraising, website development, and weekly communication to members.

Website Manager and E-Newsletter Editor, Green Newton; Newton, MA — 2016-Present
Member of team that redesigned the Green Newton website and established a weekly e-newsletter that publishes posts about sustainable events and news in Newton and surrounding areas. Currently manage content of Website and e-newsletter.

PTO Co-President, Mason-Rice Elementary; Newton, MA — 2011-2013
With two co-presidents, responsible for coordinating various PTO functions for the community of 300 plus families, fundraising, and communications to faculty and parents. Also represented school community at Newton PTO Council.

Green Team, Mason-Rice Elementary; Newton, MA — 2009-2016
Founding member of the school PTO 'green team'. Created and maintained a program for composting and recycling at large PTO events (500 plus people)—diverting over 80% of waste generated. Awarded grant to rebuild school garden.

Education

University of Michigan, M.A. in Information Studies 1997-1998
University of Michigan, B.A. in History and East Asian Studies 1984-1989

References

Marcia Cooper, President of Green Newton - marcia@greennewton.org

Julia Hamilton, Former Co-President Mason-Rice Elementary School - jbhorjmh@yahoo.com

Ruthanne Fuller
Mayor

City of Newton, Massachusetts

Office of the Mayor

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rfuller@newtonma.gov

416-23

October 10, 2023

Honorable City Council
Newton City Hall
1000 Commonwealth Avenue
Newton, MA 02459

To the Honorable City Councilors:

I am pleased to reappoint Marian Rambelle of 2 Harrington Street, Newton 02460 as a member of the Sustainable Materials Management Commission. Her term of office shall expire on October 31, 2026 and her appointment is subject to your confirmation.

Thank you for your attention to this matter.

Warmly,

Ruthanne Fuller
Mayor

Newton, MA Boards & Commissions

Submit Date: Oct 02, 2023

Application Form

Profile

Marian
First Name

Middle Initial

Rambelle
Last Name

[redacted]
Email Address

2 Harrington St.
Home Address

Suite or Apt

Newton
City

MA
State

02460
Postal Code

What Ward do you live in?

☑ Ward 3

[redacted]
Primary Phone

[redacted]
Alternate Phone

CDW Consultants, Inc.
Employer

Senior Permitting Specialist
Job Title

Which Boards would you like to apply for?

Sustainable Materials Management Commission: Submitted

Ethnicity

☑ Caucasian/Non-Hispanic

Gender

☑ Female

Interests & Experiences

Please tell us about yourself and why you want to serve.

Marian Rambelle

2 Harrington Street, Newton MA 02460 ~ 617-527-4590
marian@cobelle.org

QUALIFICATIONS

Ms. Rambelle has over 23 years of wide-ranging experience in environmental engineering consulting and planning for both public and private sector clients. She is currently responsible for all aspects of federal, state and local permitting and regulatory compliance for planning, construction, and long-term operation of industrial facilities, including stormwater management, hazardous waste management, wetlands/floodplains, rare and endangered species, and historic resources/open space.

Ms. Rambelle's experience also includes the management of complex environmental sampling programs, preparation of environmental construction specifications, environmental due diligence/site assessments, Superfund and MA hazardous waste site investigations/remediation, and MA waste bans compliance.

- Permit analysis and federal, state and local permits/approvals
- Permit/regulatory compliance, including management of stormwater monitoring and inspection programs
- NPDES Notices of Intent (NOIs) and Storm Water Pollution Prevention Plans (SWPPPs) for industrial facilities and construction projects
- Spill Prevention, Control, and Countermeasures (SPCC) Plans
- EPA Oversight Representative at Superfund (CERCLA) site investigations and cleanup (including 1st 'Construction Completed' site in Region I (Cannon Bridgewater Site))
- ASTM/21E environmental site assessments of commercial/industrial properties
- 3rd party reviews of MCP and RCRA Corrective Action submittals
- MA waste ban compliance plans and Third-Party Inspector reports
- Investigative file reviews and preparation of documents for public hearings testimony

REPRESENTATIVE PROJECTS MANAGED

- Environmental Compliance/Stormwater Management/Permitting – Keolis Commuter Services/MBTA: Manage compliance programs at 15+ commuter rail maintenance and layover facilities in MA and RI, including inspections, discharge monitoring, reporting to agencies, and regulatory compliance evaluations.
- Environmental Permitting – Regional transit authority, MA: Bank stabilization project at a tidal river with significant endangered fish species considerations.
- Environmental Sampling Programs – Boston Water and Sewer Commission, Urban Water Quality Study, Boston, MA: 1-year weekly/monthly sampling program to determine indicators and sources of bacterial and other stormwater pollutants of concern. Wet weather and dry weather sampling at outfalls, manholes and catch basins throughout Boston, involving multiple sampling teams, field test kit analyses, and shipments to several laboratories across the country.

EDUCATION/AFFILIATIONS

B.S., Civil and Environmental Engineering, Cornell University, Ithaca, NY
MassDEP - Waste Ban Compliance Third Party Inspector training
Society of Women Environmental Professionals (SWEP)
City of Newton (MA) Sustainable Materials Management Commission (formerly Solid Waste Commission)

PUBLICATIONS

Development of MassDEP "Best Management Practices" for the Gardening Pathway Condition – LSPA newsletter (June 2013): http://archive.constantcontact.come/fs114/1102602054171/archive/1113927127702.html

The New ASTM E 1417-13 Standard Practice for Phase I Environmental Site Assessments (and the MassDEP Zeitgeist) – LSPA newsletter (two-part series, 2014-15)

WORK HISTORY

2014 - Present	CDW Consultants, Inc., Framingham, MA
2011-2014	Environmental Consultant, Newton, MA
1990-1998	Raytheon Engineers and Constructors, Cambridge, MA
1986-1990	ENSR, Acton, MA