

**RELEASE ABATEMENT MEASURE  
STATUS REPORT**

**51 & 100 COMMERCIAL STREET  
MALDEN, MASSACHUSETTS**

**RELEASE TRACKING NUMBER 3-0362**  
June 2009

*Prepared For:*



National Grid  
25 Research Drive  
Westborough, MA 01582

*Prepared By:*



Innovative Engineering Solutions, Inc.  
25 Spring Street  
Walpole, Massachusetts 02081  
(508) 668-0033

**RELEASE ABATEMENT MEASURE STATUS REPORT**  
**51 COMMERCIAL STREET**  
**MALDEN, MASSACHUSETTS**

**RELEASE TRACKING NUMBER 3-0362**

June 2009

**Prepared for:** National Grid  
25 Research Drive  
Westborough, Massachusetts 01582

**Prepared by:** Innovative Engineering Solutions, Inc.  
25 Spring Street  
Walpole, Massachusetts 02081

---

Michael Lotti, L.S.P.  
Project Manager and LSP of Record  
License Number 4208

---

Joseph E. Higgins, P.E., L.S.P.  
Project Reviewer

**Release Abatement Measure Status Report  
51 & 100 Commercial Street  
Malden, Massachusetts 02148  
DEP Release Tracking Number: 3-0362**

This Release Abatement Measure (RAM) Status Report has been prepared by Innovative Engineering Solutions, Inc. (IESI) on behalf of Massachusetts Electric Company d/b/a National Grid (National Grid) in accordance with the requirements of the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000). This RAM is being conducted in accordance with the RAM Plan that was submitted to the Massachusetts Department of Environmental Protection (DEP) on August 9, 2007. The RAM is being conducted at the 51 Commercial Street and 100 Commercial Street portions of the former Malden manufactured gas plant (MGP) site (the "Site") located near the intersection of Commercial and Charles Streets in Malden, Massachusetts (hereinafter referred to as the RAM Areas). The DEP assigned Release Tracking Number (RTN) 3-0362 to the Malden MGP Site. Figure 1 depicts the site locus and Figure 2 depicts the location of the RAM Areas in relation to the disposal site boundary of the former MGP. Figures 3 and 4 provide RAM Area details for 51 and 100 Commercial Street, respectively.

The objectives of this RAM are to accomplish the following:

1. Install, start up, and conduct operation, maintenance, and monitoring (OMM) activities for a non-aqueous phase liquid (NAPL) recovery system at 51 Commercial Street.
2. Install a barrier beneath the proposed building at 51 Commercial Street.
3. Manage remediation waste generated during floor and foundation removal from the prior structure at 51 Commercial Street, construction of the new building foundation and Engineered Barrier under the foundation at 51 Commercial Street, and construction and operation of the NAPL recovery systems.
4. Restore, restart, and conduct OMM activities on an existing NAPL recovery system at 100 Commercial Street.

This report describes activities conducted between December 2, 2008 and May 31, 2009. As such, the content of this report has been structured to address the specific information requirements set forth in 310 CMR 40.0445 (2)(a) through (e). The RAM Status Report is presented below. The original RAM Transmittal Form (BWSC-106) was submitted electronically via eDEP and a copy of the RAM Transmittal Form is included in Appendix A.

**310 CMR 40.0445 (2)(a)      The status of response operations:**

During this reporting period, the activities have included well gauging at 51 Commercial, and operation of the NAPL recovery system at 100 Commercial Street. Additional information regarding the status of these activities is presented below.

*Well Gauging – 51 Commercial Street*

As reported in December 2008, construction of the equipment shed structure is complete and equipment installation (e.g., air compressor, down well pumps, controls, etc.) was halted due to the lack of recoverable NAPL. The extraction wells were gauged on February 11 during this reporting period. No measureable thicknesses of NAPL were observed in the extraction wells. Table 1 summarizes the well gauging data. IESI plans to continue to periodically gauge the wells to determine if recoverable NAPL is present.

*NAPL System Operation – 100 Commercial Street*

The NAPL recovery system located at the 100 Commercial Street parcel of the site was reactivated in August 2008. The system had been deactivated since 2003 because of slowed NAPL recovery. During each visit, the recovery well was gauged, the system's safety interlocks were checked, the amount of NAPL and water recovered was measured, and the thickness of NAPL in the recovery well was measured. Table 2 summarizes the data collected

during this reporting period. In addition, select site-related monitoring wells were gauged at the site on March 5<sup>th</sup> and 6<sup>th</sup>. Table 3 summarizes the well gauging data.

The total amount of NAPL recovered this period is 27 gallons. The total volume of NAPL collected since 2001 from this system is approximately 1008 gallons.

**310 CMR 40.0445 (2)(b) Any significant new site information or data:**

There is no significant new site information and data this period.

**310 CMR 40.0445 (2)(c) Details of and/or plans for the management of Remediation Waste, Remedial Wastewater, and/or Remedial Additives:**

On January 30, 2009, six 55-gallon drums of recovered tar (with limited amounts of water) were shipped from the 100 Commercial Street recovery system to the Clean Harbors of Braintree facility as a hazardous waste under a Uniform Hazardous Waste Manifest; a copy of the Uniform Hazardous Waste Manifest is included as Appendix B.

**310 CMR 40.0445 (2)(d) Any other information that the Department during its review and evaluation of a Status Report determines to be necessary to complete said Status Report, in view of site specific circumstances and conditions; and:**

The DEP has not required additional information, and the DEP did not impose any conditions on the right to conduct the RAM.

**310 CMR 40.0445 (2)(e) An LSP Opinion as to whether the Release Abatement Measure is being conducted in conformance with the RAM Plan and any conditions of approval established by the Department.**

Having reviewed the requirements of the RAM Plan and the response actions completed to date, we are of the opinion that the RAM is being conducted in accordance with the RAM Plan.

If you require additional information or have any questions regarding this status report, please contact Michael S. Lotti, LSP of IESI at (508) 668-0033 (x 231) or Michele Leone at National Grid at 508-389-4296.

## FIGURES







Innovative Engineering Solutions, Inc.  
25 SPRING STREET  
WALPOLE, MASSACHUSETTS 02081  
(508) 668-0033

0 2000



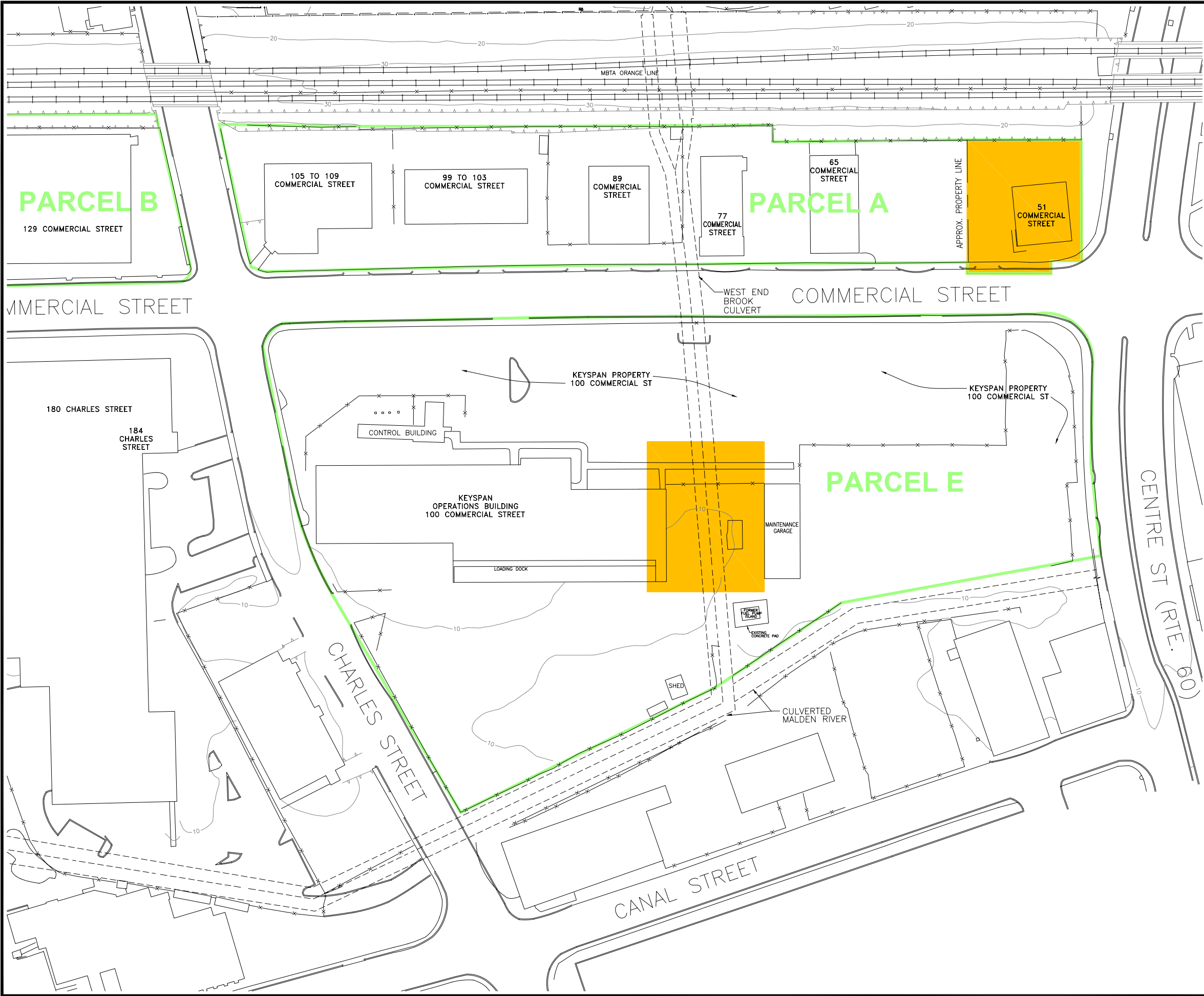
SCALE IN FEET  
1:24000

SITE LAT/LONG: 42°25'30"N 71°04'30"W  
UTM: 329,298E 4,699,051N ZONE 19  
USGS Topographic Map:  
Boston North, Massachusetts 1991

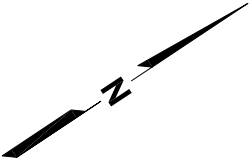
FIGURE 1  
**SITE LOCATION MAP**

Former Malden MGP Site  
Malden, Massachusetts





 APPROXIMATE RAM AREA



THIS PLAN BASED ON THE SITE PLAN DATED DECEMBER 2001  
BY HALEY & ALDRICH, INC.

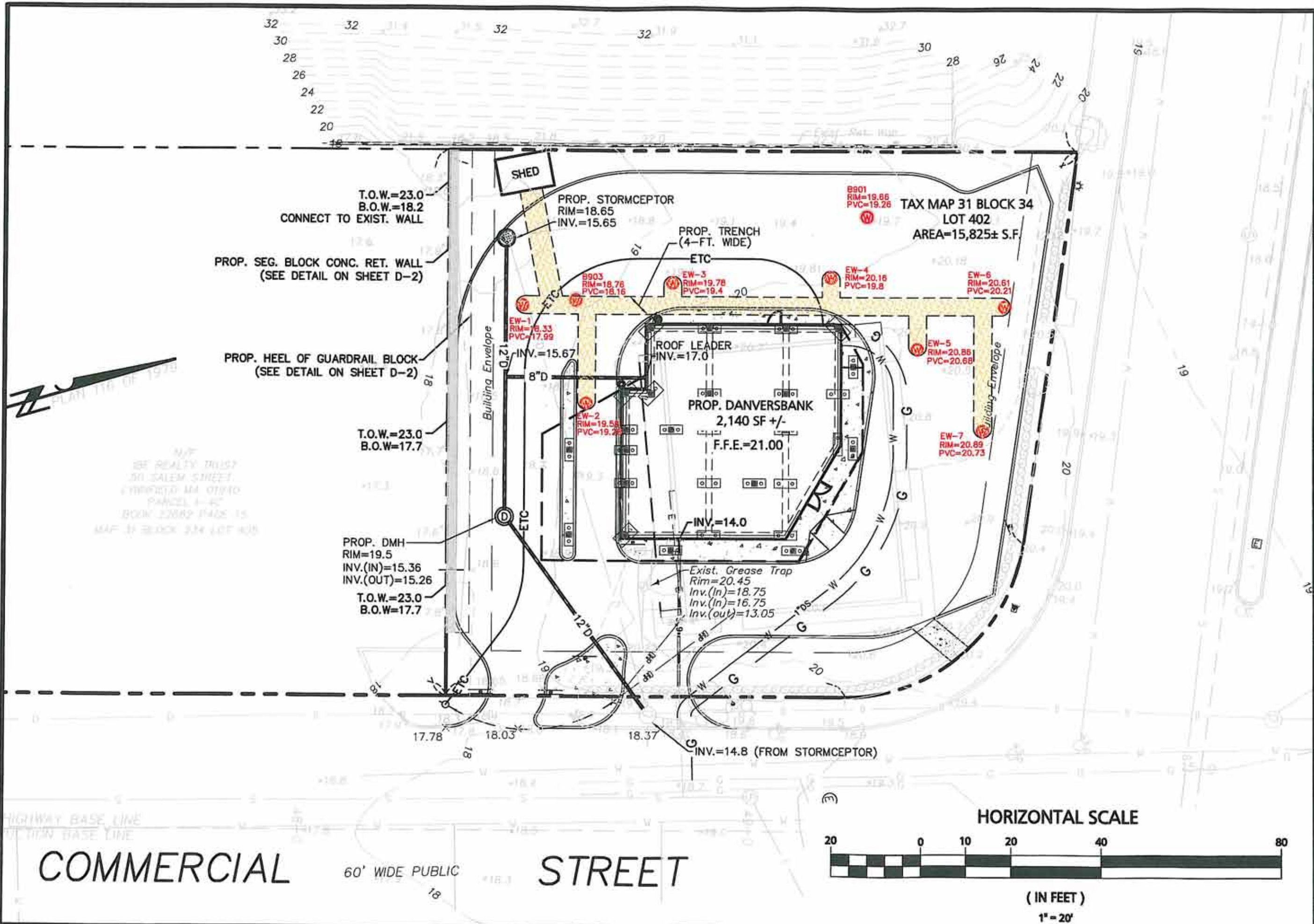
HALEY & ALDRICH, INC. NOTES:

1. BASE PLAN ADAPTED FROM "TOPOGRAPHIC WORKSHEET  
OF THE MANUFACTURED GAS PLANT, MALDEN, MA"  
FOR MASSACHUSETTS ELECTRIC COMPANY,  
WESTBOROUGH, MA, BY EASTERN TOPOGRAPHICS,  
WOLFEBORO, NH, SHEETS 1 AND 2, AT A SCALE OF 1 IN.  
EQUALS 40 FT., JUNE 1995, AND CITY OF MALDEN  
ASSESSOR'S PLAN SHEET NO. 53, BY FAY, SPOFFORD &  
THORNDIKE, INC., BOSTON, MA, AT A SCALE OF 1 IN.  
EQUALS 40 FT., UPDATED JUNE 1976 AND REVISED  
30 JULY 1979.
2. LOCATION OF TEST BORINGS AND TEST PITS WERE  
DETERMINED BY HALEY & ALDRICH, INC.



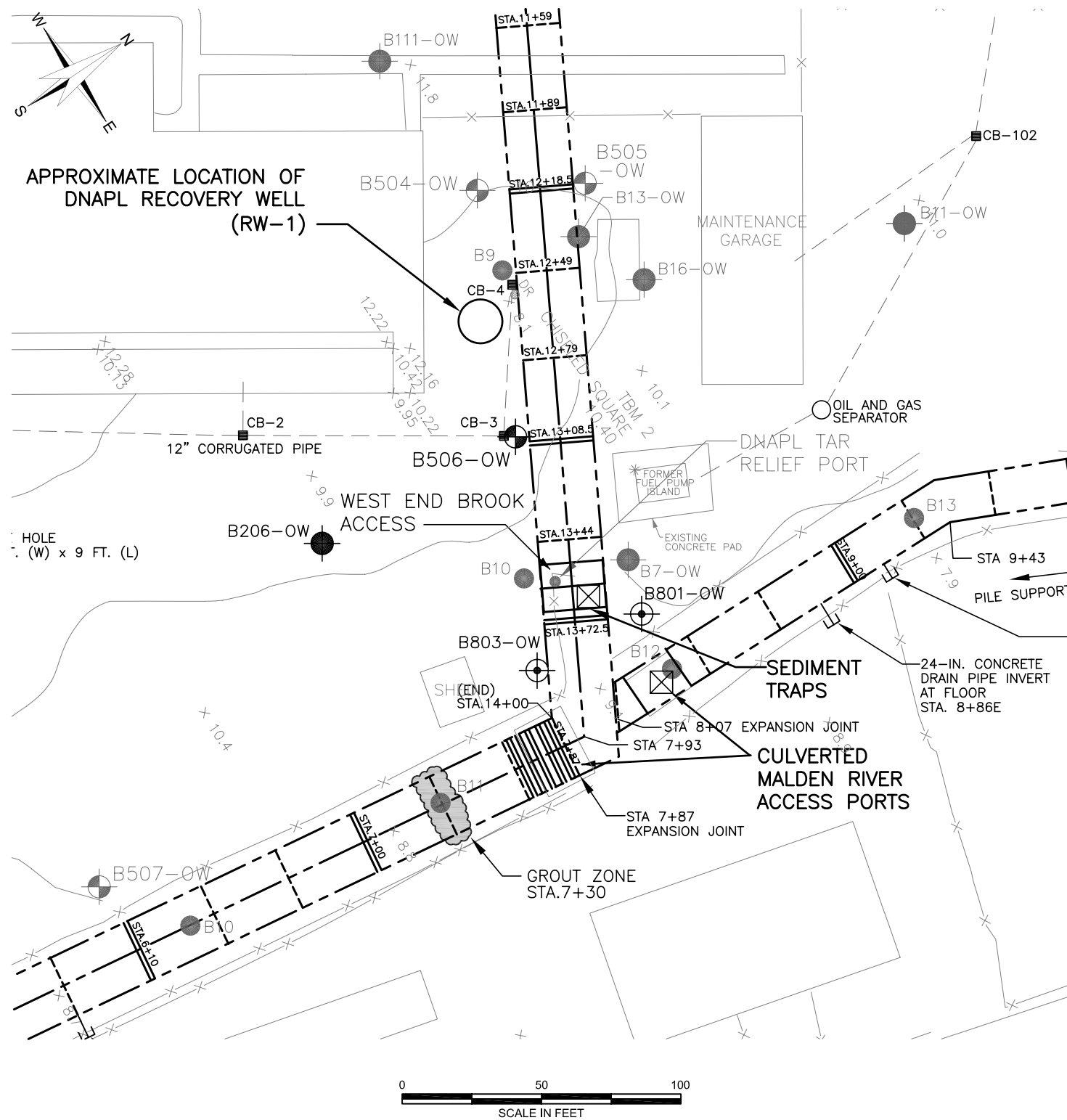
Innovative Engineering Solutions, Inc.  
25 SPRING STREET  
WALPOLE, MASSACHUSETTS 02081  
(508) 668-0033

TITLE				
RAM AREAS				
SITE				
FORMER MALDEN MGP SITE				
CLIENT				
NATIONAL GRID				
DRAWN	CHECKED	FILENAME	DATE	FIGURE
DMR	ML	NG MALDEN RAM AREAS	12/27/07	2



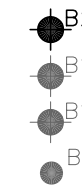




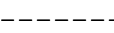
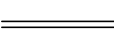
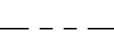



<b>Engineering Alliance, Inc.</b> Civil Engineering & Land Planning Consultants 100 Commercial Street Danvers, MA 01923 Tel: (781) 331-1340 Fax: (781) 417-0020	
DATE	
PREPARED BY:	
PROJECT: <b>Proposed Site Plan</b> <b>51 COMMERCIAL STREET</b> (Tax Map 31 Block 34 Lot 402) Malden, Massachusetts	
PROJECT # 07-16702	DATE: October 17, 2007
SCALE: AS NOTED	DWG FILE NAME: 07-16702.dwg
DESIGN BY: Andrew Swart	CHECKED BY: Richard A. Salvo, P.E.
Professional Engineer for Engineering Alliance, Inc.	
APPLICANT: <b>Danversbank</b> 1 Court Street Danvers, MA 01923	DRAWING TITLE: <b>Combined Site and Remediation Plan</b>
DWG. NO. <b>1 of 1</b>	





# **LEGEND:**

-  **B803** DESIGNATION AND APPROXIMATE LOCATION OF 8-IN. DIA. DNAPL RECOVERY OBSERVATION WELL INSTALLED BY GEOLOGIC INC. IN NOVEMBER 1998
-  **B504** DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING AND OBSERVATION WELL INSTALLED BY GUILD DRILLING DURING THE PERIOD 25 TO 30 JULY 1996
-  **B206** DRILLED 27-29 JULY AND 1-11 AUGUST 1988
-  **B111** DRILLED 2-7 MAY 1988
-  **B11** DRILLED 23-25 NOVEMBER AND 1-3 DECEMBER 1987
-  **B10** WEST END BROOK MALDEN RIVER CULVERT DESIGN BORINGS
-  **OW** INDICATES GROUNDWATER MONITORING WELL WAS INSTALLED IN THE COMPLETED BOREHOLE
-  DESIGNATES LOCATION OF CONSTRUCTION JOINT
-  DESIGNATES LOCATION OF EXPANSION JOINT
-  WEST END BROOK/ MALDEN RIVER CULVERT
-  12" DRAINAGE PIPES CONNECTING EXISTING CATCH BASINS

## **NOTES:**

1. BASE PLAN ADAPTED FROM THE FOLLOWING SOURCES:
  - "TOPOGRAPHIC WORKSHEET OF THE MANUFACTURED GAS PLANT, MALDEN, MA" FOR MASSACHUSETTS ELECTRIC COMPANY, WESTBOROUGH, MA, BY EASTERN TOPOGRAPHICS, WOLFEBORO, NH, SHEETS 1 AND 2, AT A SCALE OF 1 IN. EQUALS 40 FT., JUNE 1995.
  - CITY OF MALDEN ASSESSOR'S PLAN SHEET NO. 53, BY FAY, SPOFFORD & THORNDIKE, INC., BOSTON, MA, AT A SCALE OF 1 IN. EQUALS 40 FT., UPDATED JUNE 1976 AND REVISED 30 JULY 1979.
2. CULVERT LOCATION SHOWN WAS OBTAINED FROM THE FOLLOWING SOURCES:
  - \* RECORD PLANS "MALDEN RIVER FLOOD CONTROL PROJECT IN THE CITY OF MALDEN" CONTRACT E77-3FC, REF. E-503. PREPARED FOR COMMONWEALTH OF MASSACHUSETTS METROPOLITAN DISTRICT COMMISSION (MDC) , DATED DECEMBER 1977.
  - \* RECORD PLANS "WEST END BROOK FLOOD CONTROL PROJECT, STADIUM ROAD TO MALDEN RIVER; CONTRACT C-375 PREPARED FOR THE COMMONWEALTH OF MASSACHUSETTS, METROPOLITAN DISTRICT COMMISSION (MDC), DATED JUNE 1970.

**HALEY & ALDRICH** RAM PLAN  
FORMER MALDEN MGP SITE  
MALDEN, MASSACHUSETTS

**SITE PLAN:**  
**100 COMMERCIAL STREET RW-1 AREA**

SCALE: AS SHOWN  
AUGUST 2007

**FIGURE 5**

## TABLES

---

---

**Table 1**  
**Monitoring Well Gauging Data**  
**51 Commercial Street**  
**Malden, Massachusetts**

Well Location	Date	Depth to LNAPL <sup>2</sup> (ft)	Depth to Water <sup>1</sup> (ft)	Depth to DNAPL <sup>2</sup> (ft)	DNAPL Thickness (ft)	Well Bottom Depth (ft)
EW-1	05-Sep-07	ND	8.00	ND <sup>3</sup>	-	12.50
	05-Oct-07	ND	8.30	ND	-	12.40
	01-May-08	ND	6.40	ND	-	11.45
	10-Sep-08	ND	7.00	ND	-	11.99
	11-Feb-09	ND	6.81	ND	-	12.35
EW-2	05-Sep-07	ND	9.25	ND	-	14.20
	05-Oct-07	ND	9.55	ND	-	14.20
	01-May-08	ND	7.81	ND	-	13.50
	10-Sep-08	ND	9.22	ND	-	13.59
	11-Feb-09	ND	8.05	ND	-	13.69
EW-3	05-Sep-07	ND	9.55	ND	-	14.40
	05-Oct-07	ND	9.66	ND	-	14.45
	01-May-08	ND	7.51	ND	-	11.80
	10-Sep-08	ND	7.87	ND	-	11.9
	11-Feb-09	ND	7.8	ND	-	13.52
EW-4	05-Sep-07	ND	9.90	ND	-	15.25
	05-Oct-07	ND	10.06	ND	-	14.90
	01-May-08	ND	7.89	ND	-	12.00
	10-Sep-08	ND	8.21	ND	-	13.77
	11-Feb-09	ND	8.17	ND	-	14.35
EW-5	05-Sep-07	ND	10.80	ND	-	14.10
	05-Oct-07	ND	10.94	ND	-	14.00
	01-May-08	ND	7.80	ND	-	11.65
	10-Sep-08	ND	8.14	ND	-	11.71
	11-Feb-09	ND	8.09	ND	-	12.3
EW-6	05-Sep-07	ND	10.35	ND	-	14.36
	05-Oct-07	ND	10.50	ND	-	14.20
	01-May-08	ND	8.16	ND	-	13.00
	10-Sep-08	ND	8.61	ND	-	12.77
	11-Feb-09	ND	8.46	ND	-	13.09
EW-7	05-Sep-07	-	DRY	-	-	9.92
	05-Oct-07	-	DRY	-	-	10.00
	01-May-08	ND	6.50	ND	-	7.20
	10-Sep-08	ND	6.99	ND	-	7.81
	11-Feb-09	ND	7.09	ND	-	7.28
00A-B903-OW	01-May-08	ND	7.85	ND	-	19.00
	10-Sep-08	ND	8.28	ND	-	15.2

**Notes:**

1. Depth to liquid measurements are obtained using a water level indicator and/or an oil-water interface probe.
2. DNAPL = Dense Non-Aqueous Phase Liquids. LNAPL = Light Non-Aqueous Phase Liquids.
3. ND=Not detected.



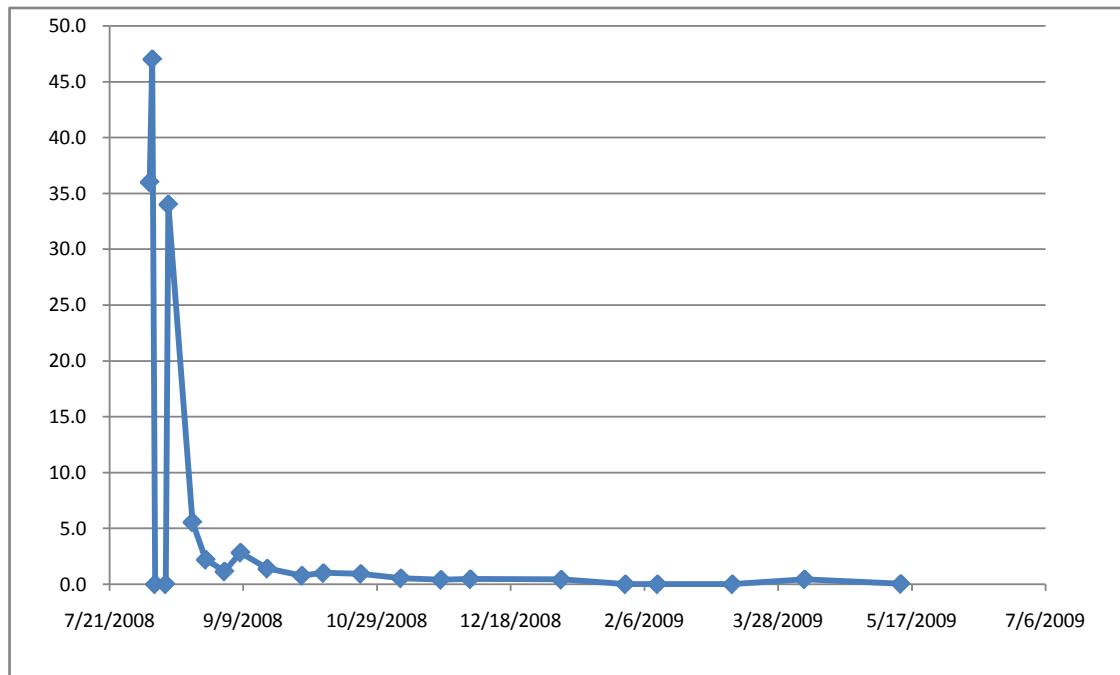


**Table 2**  
**Recovery Well RW-1 Gauging Data**  
**100 Commercial Street**  
**Malden, MA**

Date	Depth to Water	Depth to NAPL	Depth to Bottom	Thickness NAPL	Total Gallons Recovered	Gallons Per Day
8/5/2008	1.68	8.80	14.30	5.50	36	36.0
8/6/2008	1.75	11.00	14.30	3.30	83	47.0
8/7/2008	1.70	12.00	14.30	2.30	83	0.0
8/11/2008	1.43	13.10	14.30	1.20	83	0.0
8/12/2008	1.43	13.10	14.30	1.20	117	34.0
8/21/2008	1.86	12.70	14.30	1.60	167	5.6
8/26/2008	1.85	11.55	14.30	2.75	178	2.2
9/2/2008	2.00	10.60	14.30	3.70	186	1.1
9/8/2008	2.60	11.80	14.30	2.50	203	2.8
9/18/2008	1.95	11.10	14.30	3.20	217	1.4
10/1/2008	1.35	14.30	14.30	0.00	227	0.8
10/9/2008	1.72	13.48	14.30	0.82	235	1.0
10/23/2008	2.10	13.26	14.30	1.04	248	0.9
11/7/2008	2.40	13.80	14.30	0.50	256	0.5
11/22/2008	2.05	13.75	14.30	0.55	262	0.4
12/3/2008	1.62	14.30	14.30	0.00	267	0.5
1/6/2009	1.60	14.10	14.30	0.20	281	0.4
1/30/2009	1.41	13.97	14.30	0.33	281	0.0
2/11/2009	1.90	14.29	14.30	0.01	281	0.0
3/11/2009	1.60	13.30	14.30	1.00	281	0.0
4/7/2009	0.50	14.11	14.30	0.19	293	0.4
5/13/2009	1.00	14.21	14.30	0.09	294	0.03

Notes NAPL - non-aqueous phase liquid  
All data collected by IESI personnel

Recovery Rate - Gallons per Day



**Table 3**  
**Monitoring Well Gauging Data**  
**Former MGP Malden**  
**Malden, Massachusetts**

Well	Date	Depth to LNAPL	Depth to Water	Thickness of LNAPL	Depth to DNAPL	Depth to Bottom	Thickness of DNAPL	Comments
B1-OW	5-Mar-09	ND	5.05	ND	ND	13.35	ND	Filled in at 13.35'
B14-OW	5-Mar-09	-	-	-	-	-	-	Paved over
B108-OW	5-Mar-09	-	-	-	-	-	-	Not found
B206-OW	5-Mar-09	ND	5.12	ND	ND	5.90	ND	Filled in at 5.9'
B301L-OW	5-Mar-09	ND	5.01	ND	ND	54.00	ND	Not found
B502-OW	5-Mar-09	ND	7.22	ND	14.74	14.80	0.06	Viscous liquid
B505-OW	5-Mar-09	-	-	-	-	-	-	Filled in to surface
B506-OW	5-Mar-09	ND	4.93	ND	ND	8.85	ND	Cut down PVC 0.07'
97A-B601-OW	5-Mar-09	8.30	9.10	0.80	ND	14.05	ND	LNAPL detected
97A-B610-OW	5-Mar-09	ND	6.74	ND	ND	13.60	ND	Probe bottom stained with tar
99E-B822-OW	5-Mar-09	-	-	-	-	-	-	Not found
00A-B903-OW	5-Mar-09	ND	7.88	ND	ND	18.90	ND	
00A-B913-OW	5-Mar-09	-	-	-	-	-	-	Not found
00A-B914-OW	5-Mar-09	-	-	-	-	-	-	Not found
RW-1	5-Mar-09	ND	1.60	ND	13.30	14.30	1.00	
Upstream Culvert	5-Mar-09	ND	13.15	ND	NA	NA	NA	Standpipe frozen, measurement from edge of culvert
Downstream Culvert	5-Mar-09	ND	11.15	ND	NA	NA	NA	No standpipe, measurement from edge of culvert

Notes:

1. Depth to liquid measurements are obtained using an oil-water interface probe by IESI.
2. LNAPL = Light Non-Aqueous Phase Liquids
3. DNAPL = Dense Non-Aqueous Phase Liquids
4. ND = Not detected.
5. (ft) = feet
6. "-" = Well not located, destroyed, or filled in with debris



APPENDIX A

---

**COPY OF RELEASE ABATEMENT MEASURE (RAM) TRANSMITTAL FORM (BWSC-106)**



APPENDIX B

---

COPY OF UNIFORM HAZARDOUS WASTE MANIFEST

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>MAC300008125</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800)483-3718</b>	4. Manifest Tracking Number <b>002206356 FLE</b>	
5. Generator's Name and Mailing Address <b>Massachusetts Electric Company 25 Research Drive Attn Sue Brochu Westborough, MA 02148</b>			Generator's Site Address (if different than mailing address) <b>100 Commercial Street Malden, MA 02148</b>			
Generator's Phone: <b>(508)389-4293</b> <b>ATTN: Susan Brochu</b>			U.S. EPA ID Number <b>MAD039322250</b>			
6. Transporter 1 Company Name <b>Clean Harbors Environmental Services Inc</b>			U.S. EPA ID Number			
7. Transporter 2 Company Name			U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>Clean Harbors of Braintree Inc 1 Hill Avenue Braintree, MA 02184</b>			U.S. EPA ID Number <b>MAD053452637</b>			
Facility's Phone: <b>(781)380-7100</b>						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. <b>HA3077, HAZARDOUS WASTE, SOLID, N.O.S., (BENZENE), 9, PG III</b>	6	DM	330	G	<b>0018</b>
	2.					
	3.					
	4.					
14. Special Handling Instructions and Additional Information <b>1. CH075269N</b> <b>ERG#171 (6X55)</b>						
15. <b>GENERATOR'S/OFFEROR'S CERTIFICATION:</b> I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offeror's Printed/Typed Name <b>PAUL RICHARD</b>		Signature <i>Paul Richard</i>		Month Day Year <b>01 30 09</b>		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Transporter signature (for exports only): _____ Date leaving U.S.: _____						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name <b>PAUL RICHARD</b>		Signature <i>Paul Richard</i>		Month Day Year <b>01 30 09</b>		
Transporter 2 Printed/Typed Name		Signature		Month Day Year		
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number:						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. <b>H141</b>		2.		3.		4.
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name <b>Rich McInerney</b>		Signature <i>Rich McInerney</i>		Month Day Year <b>11 30 09</b>		