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March 28, 2013

Project 130274

Mr. Joseph T. Martella, II
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, RI 02908-5767

**Re: Status Report: February 2013 Activities
Former Gorham Manufacturing Facility
333 Adelaide Avenue, Providence, RI
Site Remediation Case No. 97-030**

Dear Mr. Martella:

Shaw Environmental, Inc., a CB&I company, has prepared this status report on behalf of Textron, Inc. (Textron). This status report is associated with the remediation of tetrachloroethene (PCE) contaminated groundwater at the former Gorham Manufacturing Facility at 333 Adelaide Avenue, Providence, Rhode Island (**Figure 1**).

PCE is the primary contaminant of concern for groundwater in this area. As discussed in the Remedial Action Work Plan (RAWP) and subsequent revisions, the PCE source area in the vicinity of the former building W is the area of concern with a site-specific remedial goal of 7,700 micrograms per liter (ug/L). This area was treated using in-situ applications of sodium permanganate. **Figure 2** shows the most recent treatment area.

This status report describes groundwater monitoring activities conducted in accordance with the proposed groundwater monitoring program submitted to the Rhode Island Department of Environmental Management (RIDEM) in February 2007 (Shaw – Groundwater Monitoring Program letter, dated February 1, 2007).

FIELD ACTIVITIES

The following field activities were conducted from February 13, 14, 15, and 22, 2013.

Monitoring Activities

Field parameters were measured in treatment area wells and compliance wells on February 13, 2013. Field measurements included oxidation/reduction potential (ORP), dissolved oxygen (DO), pH, temperature, and specific conductance (SC). Groundwater elevation and light non-aqueous phase liquid (LNAPL) thickness measurements were also collected. During the synchronous gauging, light non-aqueous phase liquid (LNAPL) was detected in MW-221S at a thickness of 0.03 feet. Field parameter and gauging results are presented in **Tables 1** and **2**.

Groundwater Sampling

Groundwater samples were collected for analysis for volatile organic compounds (VOCs) (EPA Method 8260C) from February 13, 14, 15, and 22, 2013 from 22 monitoring wells within and around the treatment area, including compliance wells. Duplicate samples were collected from, MW-101S (MW-101S DUP) for VOC analysis. One sample was collected for total petroleum hydrocarbon (TPH) analysis (modified EPA Method 8015 C) from monitoring well CW-6. One duplicate sample was collected from CW-6 (CW-6 DUP) for TPH analysis. Samples were also collected for lead analysis (EPA Method 6010C) from monitoring wells MW-109D and GZA-3. One duplicate sample was collected from GZA-3 (GZA-3 DUP) for lead analysis. Groundwater samples were delivered to Con-Test Analytical Laboratory in East Longmeadow, Massachusetts for analysis.

SUMMARY OF ANALYTICAL DATA

A summary of the analytical data associated with the groundwater sampling conducted in February 2013 is contained in **Table 3**. Due to snow cover at the time of the sampling event, some wells were sampled the week following the originally scheduled sampling event. This required samples to be analyzed at separate times, and generated two analytical reports. A copy of each laboratory analytical report is attached to this report. The measured PCE concentrations were below the treatment goal of 7,700 ug/L in all wells except for well MW-112, which had a PCE concentration of 25,000 ug/L.

A summary of the compliance well results is contained in **Table 4**. The results for the compliance wells indicate that exceedances occurred for the Adelaide Avenue wells MW-112 and MW-209D for PCE. (Note: due to sample dilution by the laboratory, the reporting limits for 1,1-dichloroethene and vinyl chloride were above the compliance standard for wells MW-112.)

Mr. Joseph T. Martella, II

March 28, 2013

Page 3 of 7

FUTURE ACTIVITIES

The next sampling event is scheduled for August 2013.

If you have any questions regarding this report, please contact Ed Van Doren at (617) 589-4030.

Sincerely,



Edward P. VanDoren
Project Manager
Shaw Environmental, Inc.
(A CB&I Company)

Attachments:

Tables

Table 1 – Summary Field Parameters

Table 2 – Groundwater Elevations

Table 3 – VOCs in Groundwater

Table 4 – Compliance Wells Analytical Results

Figures

Figure 1 – Site Plan

Figure 2 – Injection Well Locations

Laboratory Analytical Reports

cc: Craig Roy, RIDEM OWR
Greg Simpson, Textron
Jamieson Schiff, Textron
Dave Heislein, AMEC
Thomas Dellar, City of Providence
Jeff Morgan, Stop & Shop
Ronald Ruth, Sherin and Lodgen

TABLES

Table 1
Summary Field Parameters
February 2013

Former Gorham Manufacturing Facility
 Providence, Rhode Island

SITE_ID	DATE	pH	Temperature (deg.c)	Conductivity (ms/cm)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mv)
MW-101D	2/13/2013	6.49	16.08	0.264	2.02	199.7
MW-101S	2/13/2013	6.13	13.45	0.917	1.76	-0.2
MW-112	2/13/2013	6.14	15.85	0.572	2.81	110.5
MW-116D	2/14/2013	5.93	14.83	0.171	1.92	147.5
MW-116S	2/14/2013	5.83	13.87	0.298	6.25	174.4
MW-201D	2/13/2013	6.54	15.17	1.117	0.74	82.8
MW-202D	2/13/2013	6.04	15.87	0.919	1.84	148.1
MW-202S	2/13/2013	6.18	15.57	0.742	1.69	60.2
MW-207D	2/13/2013	6.91	16.25	0.469	2.85	206.7
MW-207S	2/13/2013	6.38	15.85	0.851	0.42	195.9
MW-209D	2/13/2013	6.43	14.49	0.442	0.56	170.4
MW-216D	2/22/2013	6.42	14.07	0.497	1.90	13.7
MW-216S	2/22/2013	6.65	13.29	0.950	0.76	-56.2
MW-217D	2/22/2013	6.69	15.28	0.632	3.60	24.3
MW-217S	2/22/2013	6.5	14.45	0.747	0.66	75.7
MW-218D	2/14/2013	6.19	14.54	0.160	0.71	187.4
MW-218S	2/14/2013	6.67	15.95	0.850	0.14	-122.4
Notes:						
C° = degrees Celsius						
mS/cm = millisiemens per centimeter						
mg/L = milligrams per liter						
mV = milli volts						

**Table 2
Groundwater Elevations
February 2013**

Former Gorham Manufacturing Facility
Providence, Rhode Island

Well ID	Date	Reference Elevation (Feet)	Depth to Water (Feet)	LNAPL Thickness (Feet)	Groundwater Elevation (Feet)
CW-01	2/13/2013	99.52	24.30	---	75.22
CW-02	2/13/2013	98.86	24.80	---	74.06
CW-06	2/13/2013	99.52	24.50	---	75.02
GZA-3	2/13/2013	NA	16.72	---	NA
MW-101D	2/13/2013	98.91	24.66	---	74.25
MW-101S	2/13/2013	98.90	24.01	---	74.89
MW-109D	2/13/2013	NA	18.70	---	NA
MW-112	2/13/2013	100.63	26.52	---	74.11
MW-116D	2/14/2013	98.92	24.80	---	74.12
MW-116S	2/14/2013	99.40	25.30	---	74.10
MW-201D	2/13/2013	98.80	24.68	---	74.12
MW-202D	2/13/2013	98.17	24.09	---	74.08
MW-202S	2/13/2013	98.06	23.96	---	74.10
MW-207D	2/13/2013	98.18	24.07	---	74.11
MW-207S	2/13/2013	98.28	24.23	---	74.05
MW-209D	2/13/2013	99.90	26.22	---	73.68
MW-216D	2/22/2013	98.69	25.27	---	73.42
MW-216S	2/22/2013	99.58	25.38	---	74.20
MW-217D	2/22/2013	98.65	24.60	---	74.05
MW-217S	2/22/2013	98.71	24.70	---	74.01
MW-218D	2/14/2013	99.67	25.53	---	74.14
MW-218S	2/14/2013	99.61	25.60	---	74.01
MW-220S	2/13/2013	99.41	24.68	---	74.73
MW-221S	2/13/2013	98.92	25.01	0.03	73.94

Notes:
NA = Not Available
Groundwater elevations are based on an arbitrary reference datum established for the site.

Table 3
Groundwater Analytical Results
February 2013

Former Gorham Manufacturing Facility
Providence, Rhode Island

CONSTITUENT	CW-01 2/15/2013 Primary	CW-02 2/14/2013 Primary	CW-06 2/15/2013 Primary	CW-06 2/15/2013 Duplicate 1	GZA-3 2/13/2013 Primary	GZA-3 2/13/2013 Duplicate	MW-101D 2/13/2013 Primary	MW-101S 2/13/2013 Primary	MW-101S 2/13/2013 Duplicate 1	MW-109D 2/13/2013 Primary	MW-112 2/13/2013 Primary	MW-116D 2/14/2013 Primary	MW-116S 2/14/2013 Primary	MW-201D 2/13/2013 Primary	MW-202D 2/13/2013 Primary
VOC (ug/L)															
1,1,1-Trichloroethane	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	4.6	<1.0
1,1-Dichloroethane	<1.0	<1.0	---	---	1.1	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
1,1-Dichloroethene	<1.0	<1.0	---	---	1.1	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
1,2,4-Trimethylbenzene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
1,3,5-Trimethylbenzene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
4-Isopropyltoluene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
Acetone	<50	<50	---	---	<50	---	<50	200	<50	<50	<25000D	<50	<50	<50	<50
Chloroform	<2.0	<2.0	---	---	<2.0	---	<2.0	<2.0	<2.0	<2.0	<1000D	<2.0	<2.0	9.9	12
cis-1,2-Dichloroethene	<1.0	<1.0	---	---	58	---	<1.0	2.2	2.3	<1.0	<500D	<1.0	<1.0	3.4	3.7
Ethylbenzene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
m/p-xylene	<2.0	<2.0	---	---	<2.0	---	<2.0	<2.0	<2.0	<2.0	<1000D	<2.0	<2.0	<2.0	<2.0
Methyltert-butylether	<1.0	<1.0	---	---	6.6	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	1.2	<1.0
Naphthalene	<2.0	<2.0	---	---	<2.0	---	<2.0	<2.0	<2.0	<2.0	<1000D	<2.0	<2.0	<2.0	<2.0
n-Butylbenzene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
o-Xylene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
Tetrachloroethene	<1.0	<1.0	---	---	<1.0	---	14	3.1	3	<1.0	25000D	<1.0	<1.0	6000D	430D
Toluene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
trans-1,2-Dichloroethene	<1.0	<1.0	---	---	<1.0	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	<1.0	<1.0
Trichloroethene	<1.0	<1.0	---	---	3.2	---	<1.0	<1.0	<1.0	<1.0	<500D	<1.0	<1.0	130	2.4
Vinyl chloride	<2.0	<2.0	---	---	27	---	<2.0	<2.0	<2.0	<2.0	<1000D	<2.0	<2.0	<2.0	<2.0
Xylene (total)	<2.0	<2.0	---	---	<2.0	---	<2.0	<2.0	<2.0	<2.0	<1000D	<2.0	<2.0	<2.0	<2.0
TPH (mg/L)															
TPH	---	---	5.8	6	---	---	---	---	---	---	---	---	---	---	---
Dissolved Metals (ug/L)															
Lead	---	---	---	---	<10	<10	---	---	---	<10	---	---	---	---	---

Notes:

- < = Less than the laboratory reporting limit
- ug/L = Micro grams per liter, parts per billion
- mg/L = Milligrams per liter, parts per million
- TPH = Total Petroleum Hydrocarbons
- = Not analyzed for.
- D = Result reported from a diluted sample.

Table 3
Groundwater Analytical Results
February 2013

Former Gorham Manufacturing Facility
 Providence, Rhode Island

CONSTITUENT	MW-202S 2/13/2013 Primary	MW-207D 2/13/2013 Primary	MW-207S 2/13/2013 Primary	MW-209D 2/13/2013 Primary	MW-216D 2/22/2013 Primary	MW-216S 2/22/2013 Primary	MW-217D 2/22/2013 Primary	MW-217S 2/22/2013 Primary	MW-218D 2/14/2013 Primary	MW-218S 2/14/2013 Primary
VOC (ug/L)										
1,1,1-Trichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0D
1,1-Dichloroethane	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0D
1,1-Dichloroethene	<1.0	<1.0	<1.0	3.4	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0D
1,2,4-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	10	<1.0	<1.0	<1.0	<5.0D
1,3,5-Trimethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	7.6	<1.0	<1.0	<1.0	<5.0D
4-Isopropyltoluene	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<5.0D
Acetone	<50	<50	<50	<50	<50	<50	<50	<50	<50	<250D
Chloroform	2.2	<2.0	10	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10D
cis-1,2-Dichloroethene	<1.0	<1.0	12	19	<1.0	50	5.2	2.8	<1.0	<5.0D
Ethylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	<1.0	<1.0	<1.0	<5.0D
m/p-xylene	<2.0	<2.0	<2.0	<2.0	<2.0	5.6	<2.0	<2.0	<2.0	<10D
Methyltert-butylether	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0D
Naphthalene	<2.0	<2.0	<2.0	<2.0	<2.0	27	<2.0	<2.0	<2.0	<10D
n-Butylbenzene	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0	<5.0D
o-Xylene	<1.0	<1.0	<1.0	<1.0	<1.0	8.5	<1.0	<1.0	<1.0	<5.0D
Tetrachloroethene	38	2.5	190D	880D	<1.0	<1.0	<1.0	7.8	99	<5.0D
Toluene	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<5.0D
trans-1,2-Dichloroethene	<1.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0D
Trichloroethene	<1.0	<1.0	2.6	190D	1.4	<1.0	7.2	1.4	7.6	<5.0D
Vinyl chloride	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10D
Xylene (total)	<2.0	<2.0	<2.0	<2.0	<2.0	14	<2.0	<2.0	<2.0	<10D
TPH (mg/L)										
TPH	---	---	---	---	---	---	---	---	---	---
Dissolved Metals (ug/L)										
Lead	---	---	---	---	---	---	---	---	---	---

Notes:

- < = Less than the laboratory reporting limit
- ug/L = Micro grams per liter, parts per billion
- mg/L = Milligrams per liter, parts per million
- TPH = Total Petroleum Hydrocarbons
- = Not analyzed for.
- D = Result reported from a diluted sample.

**Table 4
Compliance Wells Analytical Results
February 2013**

**Former Gorham Manufacturing Facility
Providence, Rhode Island**

Mashapaug Pond Compliance Wells				
Sample ID	GZA-3	GZA-3	MW-109D	Compliance
Date Collected	2/13/2012	2/13/2012	2/13/2012	Standard ¹
CONSTITUENT		Duplicate		
Metals (mg/L)				
Lead	<0.010	<0.010	<0.010	0.03
VOCs (ug/L)				
1,1-Dichloroethane	1.1	NA	<1.0	50,000
1,1-Dichloroethene	1.1	NA	<1.0	50,000
cis-1,2-Dichloroethene	58	NA	<1.0	50,000
Methyl tert-butyl ether	6.6	NA	<1.0	50,000
Tetrachloroethene	<1.0	NA	<1.0	5,000
Trichloroethene	3.2	NA	<1.0	20,000
Vinyl chloride	27	NA	<2.0	1,200

TPH Remediation Area Well			
Sample ID	CW-6	CW-6	Compliance
Date Collected	2/15/2013	2/15/2013	Standard ¹
CONSTITUENT		Duplicate	
TPH (mg/L)	5.8	6	20

Sewer Interceptor Area Wells			
Sample ID	CW-1	CW-2	Compliance
Date Collected	2/15/2013	2/14/2013	Standard ²
CONSTITUENT			
VOCs (ug/L)			
1,1-Dichloroethane	<1.0	<1.0	120,000
1,1-Dichloroethene	<1.0	<1.0	23,000
cis-1,2-Dichloroethene	<1.0	<1.0	69,000
trans-1,2-Dichloroethene	<1.0	<1.0	79,000
Tetrachloroethene	<1.0	<1.0	NS
Trichloroethene	<1.0	<1.0	87,000

Adelaide Avenue Wells					
Sample ID	MW-112	MW-209D	MW-218D	MW-218S	Compliance
Date Collected	2/13/2013	2/13/2013	2/14/2013	2/14/2013	Standard ³
CONSTITUENT					
VOCs (ug/L)					
cis-1,2-Dichloroethene	<500D	19	<1.0	<5.0D	2,400
1,1-Dichloroethene	<500D	3.4	<1.0	<5.0D	7
Chloroform	<1000D	<2.0	<2.0	<10D	1,900
Methyl tert-butyl ether	<500D	1.5	<1.0	<5.0D	5,000
Tetrachloroethene	25000D	880D	99	<5.0D	150
Trichloroethene	<500D	140D	7.6	<5.0D	540
Vinyl chloride	<1000D	<2.0	<2.0	<10D	2

Notes:

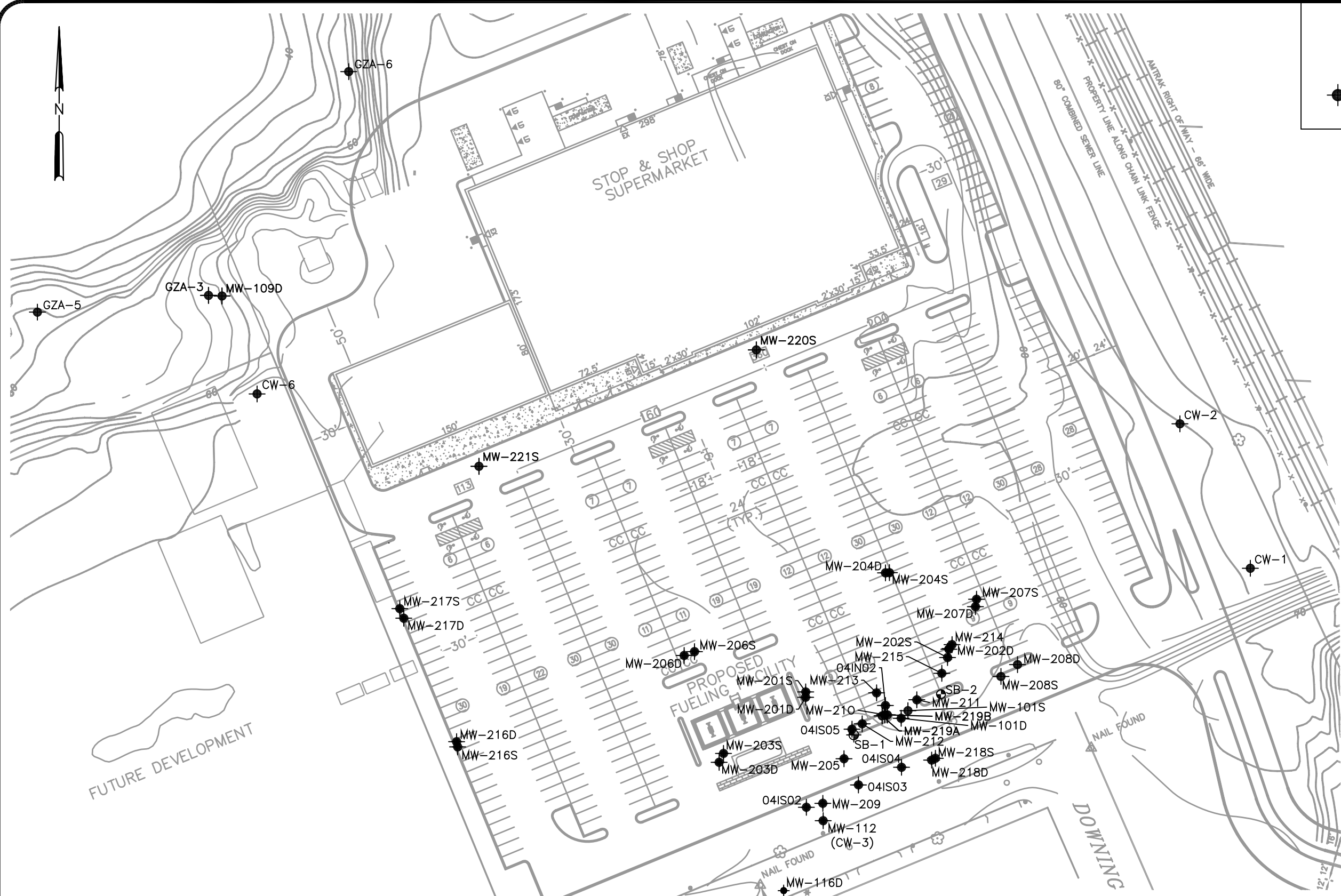
- These Site specific compliance standards were taken from the approved RAWP dated April 1, 2001 and/or the RIDEM Remediation Regulations.
Note: the standard for Methyl tert-butyl ether is the Massachusetts Department of Environmental Protection (MassDEP) Method 1 GW-3 standard (310 CMR 40.0974 (2), 12/14/07. The use of the MassDEP Method 1 GW-3 standard is consistent with the approach used in the April 1, 2001 RAWP.
 - These compliance standards taken from Table 5 - Upper Concentration Limits for GB Groundwater, RIDEM Remediation Regulations.
 - These compliance standards taken from Table 4 -GB Groundwater Objectives of the RIDEM Remediation Regulations or in the case of vinyl chloride the compliance standard was taken from Table 3 of the Remediation Regulations and for chloroform the compliance standard was calculated from the algorithm in Appendix F of the Remediation Regulations (calculations attached as Appendix C of Status Report dated September 18, 2007).
- mg/L - milligrams per liter
ug/L - micrograms per liter
< - compound was not detected below the laboratory reporting limit, concentration shown is the reporting limit.
VOCs - volatile organic compounds
TPH - total petroleum hydrocarbons
NA - Indicates that the analysis was not performed.
NS - Indicates that no applicable standard exists. Compound does not have a lower explosive limit (LEL).
D = Result reported from a diluted sample.

FIGURES

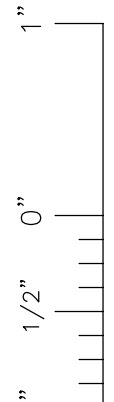


LEGEND

MW-101S MONITORING WELL






File: N:\dwg\Gorham\smtgf-02.dwg Layout: SP User: James.O'Donnell Mar 07, 2008 - 10:14am

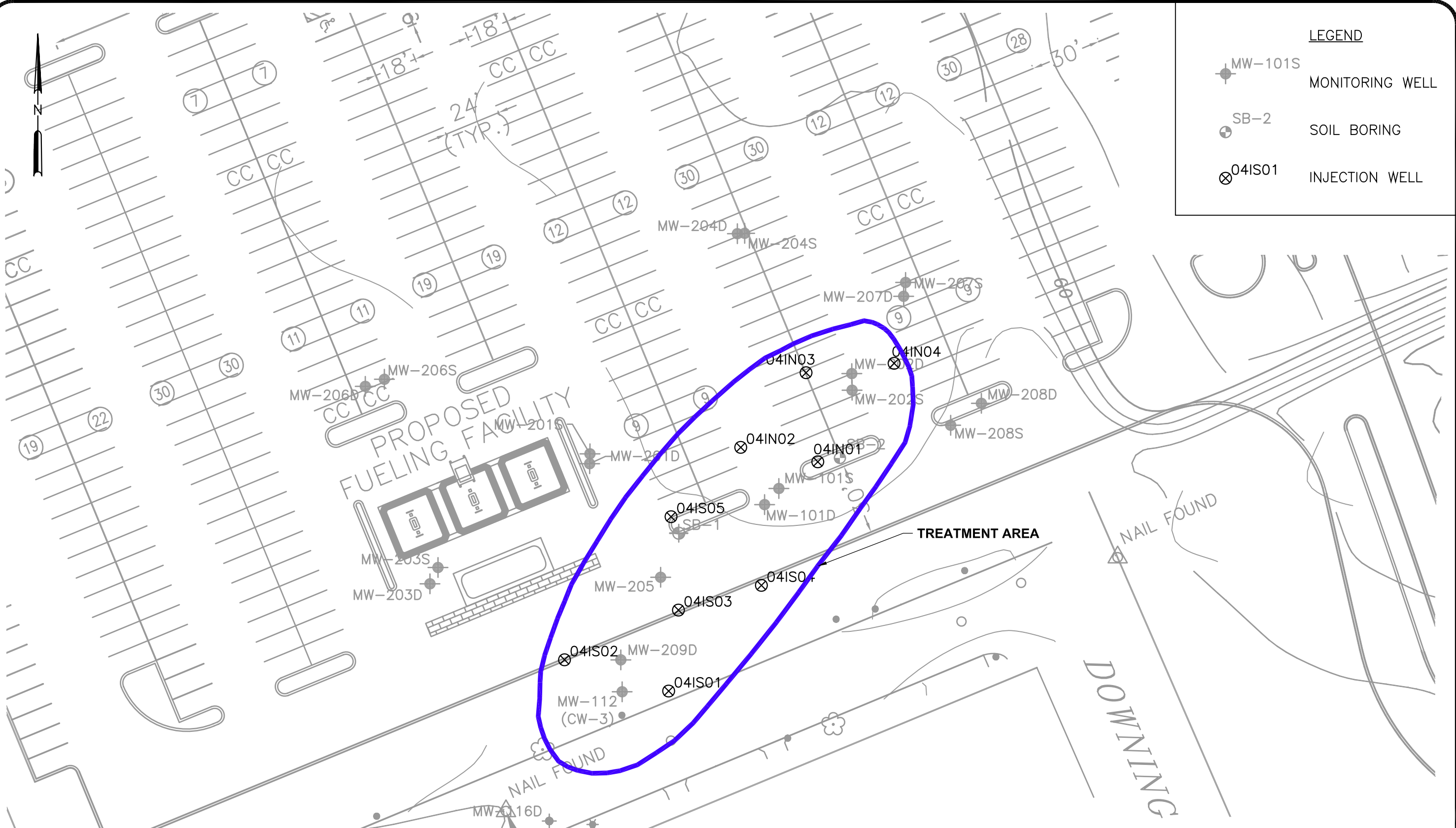


DATE	3/7/08
DWN	J.O'D.
APP	
REV	
PROJECT NO.	101960

FIGURE 1
TEXTRON PROVIDENCE
333 ADELAIDE AVENUE
PROVIDENCE, RHODE ISLAND
SITE PLAN

LEGEND

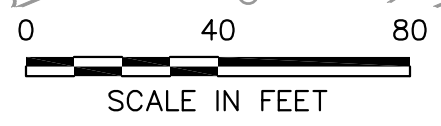
-  MW-101S
MONITORING WELL
-  SB-2
SOIL BORING
-  04IS01
INJECTION WELL



File: N:\dwg\Gorham\smtgf-01.dwg User: James.O'Donnell Mar 07, 2008 - 10:08am
 Layout: Inj_well
 1" 1/2" 0" 1"



Shaw™ Shaw Environmental, Inc.



DATE	3/7/08
DWN	J.O'D.
APP	E.P.V.
REV	
PROJECT NO.	101960

FIGURE 2
TEXTRON PROVIDENCE
 333 ADELAIDE AVENUE
 PROVIDENCE, RHODE ISLAND
INJECTION WELL LOCATIONS

LABORATORY REPORT