

Katherine Vater  
Project Manager  
National Grid



February 17, 2015

Mr. Richard Dana  
Project Manager MGP Remedial Section  
New York State Department of Environmental Conservation  
Division of Environmental Remediation  
Bureau of Western Remedial Action, 11th Floor  
625 Broadway  
Albany, New York 12233-7010

**Re: 2<sup>nd</sup> Semi-Annual 2014 Interim Status Report – Interim Monitoring Program  
Former Clifton Manufactured Gas Plant  
Staten Island, New York  
NYSDEC Site # 2-43-023**

Dear Mr. Dana:

The purpose of this letter is to provide a status of the interim monitoring program occurring at the Former Clifton Manufactured Gas Plant (MGP) Site (site) located in Staten Island, New York (Figure 1). National Grid completed the remediation of this site in two phases; at Operable Unit 1 in 2010 and at Operable Unit 2 in 2013, in compliance with the New York State Department of Environmental Conservation (NYSDEC) Record of Decisions (RODs). Since then a draft Final Engineering Report (FER) and a draft Site Management Plan (SMP) have been developed for the site. The draft SMP outlines a number of Engineering Controls (ECs) to evaluate the performance and effectiveness of the site remedy for reducing and mitigating remaining impacts at the site and off-site areas. In particular, these ECs include vertical barrier walls, a containment cell, soil cover systems, composite cover systems, passive Dense Non-Aqueous Phase Liquid (DNAPL) collection systems, and monitored natural attenuation (MNA) of remaining contamination in groundwater. The interim status of all the ECs will be summarized in this letter report, but the main focus of the interim monitoring program and this letter report is the DNAPL gauging and collection at the site completed in the second half of calendar year 2014.

The site, as defined in the draft SMP, includes portions of or all of 25 Willow Avenue and 40 Willow Avenue (Figure 2). The off-site areas, as defined in the draft SMP, include portions of or all of 1 Edgewater Street, 89 Willow Avenue, 53 Lynhurst Avenue, properties east of 25 Willow Avenue (Block 2822, Lots 21, 22, 23, 24, and 26), and New York City right-of-ways along Willow Avenue, Bay Street, and Edgewater Street (Figure 2).

### **Cover System Monitoring**

Since completion of the remedial construction in 2013, there have been no changes to the soil cover systems and composite cover systems at the site and off-site areas as observed by AECOM. There has been no activity or event at either portion of the site that could potentially have impacted the subsurface remedial infrastructure (vertical barrier walls and the containment cell). In addition, no off-site property owners have contacted National Grid regarding potential modifications to their property usage.

## **Groundwater Monitoring**

The draft SMP calls for MNA of groundwater impacts and a monitoring well network has been proposed for the site. A majority of the wells in the monitoring program have not been sampled since the remedial investigations at the site. As such, National Grid proposes to collect one round of groundwater samples from the site well network (as described in the draft SMP, including the wells at 1 Edgewater Street) in 2015, if possible. National Grid will submit additional information at a later time to further detail the interim groundwater sampling plan.

## **Containment Pad Depressurization**

In order to maintain the integrity of the containment cell that was constructed on a portion of the 40 Willow Avenue property, a depressurization pump and treat system for groundwater control has been proposed for construction. This system will remove groundwater from the containment cell so that pressure does not build up within it and potentially cause a failure.

A Containment Pad Depressurization System Installation and Startup Work Plan (Work Plan), providing details of the proposed Depressurization System, was approved by the NYSDEC in Winter 2014. National Grid awarded EnviroTrac, a remedial contractor, the contract to perform the Depressurization System installation work in accordance with the Work Plan. Mobilization activities are anticipated to start in Spring 2015. In the interim, water from the containment cell has been pumped out periodically using 5,000 gallon vacuum trucks and disposed off-site at an approved treatment and disposal facility. Summary of water removed from the containment cell since July 2014 is included in Table 4.

## **DNAPL Collection System Monitoring**

The 2014 Interim Status Report dated July 25, 2014 provided details of the DNAPL collection system monitoring completed from 2010 through July 8<sup>th</sup> 2014 including:

- DNAPL Recovery Well Network;
- Pilot Test and removal on 40 Willow Avenue;
- Initial DNAPL Gauging on 25 Willow Avenue;
- Baildown Test on 25 Willow Avenue;
- Operation and Maintenance (O&M) DNAPL gauging; and
- O&M DNAPL removal, storage, and disposal.

The passive DNAPL collection program is being implemented in accordance with the Draft SMP for the site.

### ***DNAPL Recovery Well Network***

There are 26 DNAPL recovery wells at the site for gauging of DNAPL levels, and recovery of DNAPL if present. Details for the wells are summarized in Table 1, and details including construction logs and development logs are provided in the Construction Completion Report (AECOM, 2014) and draft SMP (AECOM, 2014). Three DNAPL recovery wells were installed in 2009 within the containment cell on the 40 Willow Avenue property and twenty-three DNAPL recovery wells were installed in 2013 along the subsurface barrier wall (slurry wall) along

Willow Avenue and Bay Street. The DNAPL recovery well network along Willow Avenue and within the containment cell, and along Bay Street is shown in Figures 3 and 4 respectively.

### ***O&M DNAPL Gauging***

As called for in the draft SMP, the DNAPL recovery wells are gauged bi-weekly or monthly to check for the presence of DNAPL. The recovery wells are gauged using a weighted stainless steel measuring tape as well as an Oil Water Interface probe. DNAPL thickness is calculated as an average of DNAPL coating observed on the measuring tape and the depth to DNAPL measured by the Oil Water Interface probe. Observations of blebs and sheens on the measuring tape are noted but not used to calculate DNAPL thickness. During some events the Oil Water Interface probe became coated with DNAPL and stopped working. For these events observations from the measuring tape are used to determine DNAPL thickness. The results from the regular gauging events are included in Table 2. DNAPL gauging will continue on at least a monthly basis, with more frequent monitoring of wells on a bi-weekly basis where measureable DNAPL is present.

### ***O&M DNAPL Removal and Disposal***

As called for in the draft SMP and ROD, DNAPL is removed from wells where present and removable. From the completion of the Baildown Test, DNAPL accumulated within the recovery wells has been removed bi-weekly, monthly, or quarterly. Following gauging, DNAPL was removed from the wells with sufficient DNAPL. DNAPL is removed with a steel bailer or using the AECOM air lift™ (compressed air vacuum) approach. DNAPL removed from the recovery wells is containerized in 55-gallon drums which are staged on-site in a drum containment shed until transportation and off-site disposal.

A cumulative volume of DNAPL and water (fluid mixture) recovered from each recovery well between January 2010 and December 2014 is provided in Table 3. As shown in Table 3, DNAPL has been removed from nine (9) recovery wells:

- RW-201I – An average of 11 gallons of fluid mixture has been recovered on a biweekly basis for a total of 235 gallons to date;
- RW-205D – A total of 146 gallons of fluid mixture has been recovered to date;
- RW-206IB – A total of 22 gallons of fluid mixture has been recovered to date;
- RW-207I – A total of 41 gallons of fluid mixture has been recovered to date;
- RW-208I – An average of 19 gallons of fluid mixture has been recovered on a bi-weekly basis for a total of 494 gallons to date;
- RW-209S – A total of 18 gallons of fluid mixture has been recovered to date;
- RW-211I – A total of 26 gallons of fluid mixture has been recovered to date;
- NRW-02I – A total of 39 gallons of fluid mixture has been recovered to date; and
- NRW-03D – A total of 23 gallons of fluid mixture has been recovered to date.

National Grid will continue gauging all 26 recovery wells on a monthly basis and complete DNAPL recovery when called for based on the gauging.

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## Summary

National Grid is conducting interim monitoring program activities at the site until the FER and SMP are approved by the NYSDEC. Separate information will be provided to the NYSDEC regarding proposed groundwater sampling activities. In the meantime, DNAPL gauging and recovery will continue as described herein. National Grid will provide another semi-annual interim status report in mid-2015 following the completion of early 2015 activities.

If you have any questions, comments, or require any additional information, please do not hesitate to contact me at (608) 826-3663 or at [Katherine.Vater@nationalgrid.com](mailto:Katherine.Vater@nationalgrid.com).

Sincerely,



Katherine Vater  
Project Manager

Enclosures

Cc – R. Doshi, AECOM  
S. Pandya, AECOM  
File: 60137363-600

## Tables

**Table 1  
DNAPL Recovery Well Construction Details  
National Grid Former Clifton MGP Site  
Clifton, New York**

DNAPL Recovery Well I.D.	Ground Surface Elevation <sup>1</sup>	Top of Vault Elevation	Top of Riser Pipe Elevation	Depth of Well (feet bgs)	Screen Interval	Top of Screen (feet bgs)	Bottom of Screen (feet bgs)	Diameter (inches)	Top of Screen Elevation	Bottom of Screen Elevation	Protective Casing	Riser Type	Screen Type	Screen Slotted size/diameter (inches)	Sump Type	Sump Length (feet)
RW-200S	9.2	9.57	NM	23	10.0 - 20.0	10	20	4.0	-0.8	-10.8	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-200I	9.2	9.58	NM	37	24.0 - 34.0	24	34	4.0	-14.8	-24.8	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-201S	9.2	9.57	8.77	29	14.0 - 24.0	14	24	6.0	-4.8	-14.8	Flush-Mount	PVC	Wire Wrap SS	0.02/6.0	SS	5.0
RW-201I	8.9	9.37	8.6	37.5	22.5-32.5	23	33	6.0	-13.6	-23.6	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-202S	9.85	9.94	9.64	25	10.0 - 20.0	10	20	6.0	-0.2	-10.2	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-202I	9.85	9.85	9.48	42	27.0 - 37.0	27	37	6.0	-17.2	-27.2	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-203S	9.3	9.16	8.67	27	14.0 - 24.0	14	24	4.0	-4.7	-14.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-203I	9.3	9.14	8.54	37	24.0 - 34.0	24	34	4.0	-14.7	-24.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-204I	9.12	9.35	8.6	43	30.0 - 40.0	30	40	4.0	-20.9	-30.9	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-205D	8.75	8.82	8.18	77	64.0 - 74.0	64	74	4.0	-55.3	-65.3	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206S	8.6	9.02	8.26	28	15.0 - 25.0	15	25	4.0	-6.4	-16.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206IA	8.6	9.05	8.15	48	35.0 - 45.0	35	45	4.0	-26.4	-36.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-206IB	8.55	9.13	7.63	58	45.0 - 55.0	45	55	4.0	-36.5	-46.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-207S	8.5	8.8	8.15	23	10.0 - 20.0	10	20	4.0	-1.5	-11.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-207I	8.5	8.77	8.23	33	20.0 - 30.0	20	30	4.0	-11.5	-21.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-208S	8.27	8.53	7.81	23	10.0 - 20.0	10	20	4.0	-1.7	-11.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-208I	8.27	8.52	7.23	42	29.0 - 39.0	29	39	4.0	-20.7	-30.7	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-209S	8	8.48	7.63	30	15.0 - 25.0	15	25	6.0	-7.0	-17.0	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-209I	8	8.28	7.69	40	25.0 - 35.0	25	35	6.0	-17.0	-27.0	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	5.0
RW-210S	7.6	7.85	7.3	28	15.0 - 25.0	15	25	4.0	-7.4	-17.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-210I	7.6	7.93	7.32	38	25.0 - 35.0	25	35	4.0	-17.4	-27.4	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-211S	8.5	8.74	7.15	29	6.0 - 26.0	6	26	4.0	2.5	-17.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
RW-211I	8.5	8.76	7.23	43	30.0 - 40.0	30	40	4.0	-21.5	-31.5	Flush-Mount	PVC	Wire Wrap SS	0.02/4.0	SS	3.0
NRW-01S	14.18	15.28	14.86	19	9.0 - 19.0	9	19	4.0	5.2	-4.8	Flush-Mount	SS	SS	0.02/4.0	--	--
NRW-02I	14.27	--	--	49	34.0 - 44.0	34	44	4.0	-19.7	-29.7	Flush-Mount	SS	SS	0.02/4.0	SS	5.0
NRW-03D	14.28	--	--	84	69.0 - 79.0	69	79	4.0	-54.7	-64.7	Flush-Mount	SS	SS	0.02/4.0	SS	5.0

**Notes:**

1 - Derived from the nearest surface elevation from final as-built survey

NM - Not measured

ft bgs - feet below ground surface

DNAPL - Dense Non-Aqueous Phase Liquid

MGP - Manufactured Gas Plant

SS - stainless steel

RW-200S = Shallow recovery wells

RW-200I = Intermediate recovery wells

RW-205D = Deep recovery wells

**Table 2  
DNAPL Thickness During Gauging Events  
National Grid Former Clifton MGP Site  
Clifton, New York**

Parcel Well ID	Bay Street	Willow Avenue						Containment Cell			Comments
	RW-2011	RW-205D	RW-206IB	RW-2071	RW-2081	RW-209S	RW-2111	NRW-01S	NRW-02I	NRW-03D	
Date	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet	feet
5/7/2013	7.20	NM	0.08	NM	1.00	1.00	0.50	NM	NM	NM	
7/15/2013	7.30	4.35	1.50	1.30	8.70	1.40	2.50	NM	NM	NM	
7/24/2013	7.50	6.56	2.00	1.50	17.42	1.40	2.50	NM	NM	NM	
7/29/2013	6.94	7.30	1.80	0.00	21.30	0.00	0.00	NM	NM	NM	
8/13/2013	7.40	11.80	3.50	1.50	17.50	1.80	3.80	NM	NM	NM	
9/6/2013	7.46	9.20	2.90	1.80	21.00	1.70	0.00	NM	NM	NM	
10/14/2013	NM	NM	3.10	2.45	NM	NM	NM	NM	NM	NM	
10/15/2013	NM	5.00	0.00	0.00	9.75	NM	4.00	NM	NM	NM	
10/16/2013	7.81	0.00	0.00	0.00	NM	2.20	NM	NM	NM	NM	
10/18/2013	0.00	0.00	0.00	0.00	9.60	1.80	0.00	NM	NM	NM	
10/21/2013	4.00	0.00	0.00	0.00	8.00	2.20	0.00	NM	NM	NM	
10/24/2013	4.30	0.00	0.00	0.00	8.20	1.40	0.00	NM	NM	NM	
11/4/2013	7.50	0.00	0.00	0.00	8.70	1.80	2.90	NM	NM	NM	
12/16/2013	8.80	6.50	0.00	0.00	18.00	2.90	2.40	NM	NM	NM	
1/28/2014	NM	4.50	NM	NM	NM	NM	NM	NM	NM	NM	
1/29/2014	7.80	NM	1.00	1.00	8.80	2.40	2.00	NM	NM	NM	
2/25/2014	7.10	4.51	1.20	1.40	10.07	2.56	2.49	NM	NM	NM	
3/6/2014	6.80	2.10	1.00	2.60	7.01	2.50	2.20	NM	NM	NM	
3/24/2014	6.70	NM	1.40	NM	10.60	2.50	NM	NM	NM	NM	
3/25/2014	NM	2.50	NM	3.40	NM	NM	4.40	NM	NM	NM	
4/17/2014	5.93	7.55	1.75	0.00	11.52	3.54	2.80	NM	NM	NM	
5/2/2014	4.10	0.00	2.00	0.00	7.20	0.40	0.00	NM	NM	NM	
5/15/2014	3.80	3.50	2.40	0.00	13.80	0.60	0.00	NM	NM	NM	
5/29/2014	2.43	1.00	0.00	0.00	7.45	0.50	0.00	NM	NM	NM	
6/12/2014	2.38	0.71	3.40	0.00	16.51	1.00	2.50	NM	NM	NM	
6/25/2014	2.15	1.60	3.50	2.10	14.90	0.90	0.00	NM	NM	NM	
7/8/2014	4.76	2.50	0.00	2.90	14.80	1.00	0.20	0.10	4.84	3.70	
7/16/2014	1.10	0.75	0.00	6.00	4.92	0.00	0.84	NM	6.00	3.95	
7/30/2014	3.35	0.00	0.72	1.75	7.55	0.00	0.48	0.00	13.00	6.52	RW-205D and NRW-01S had trace DNAPL
8/13/2014	2.80	1.01	1.01	2.11	7.26	1.20	0.93	0.17	1.00	NM	Could not get probe past 84" btoc at location NRW-03D.
8/28/2014	1.90	1.80	1.00	0.33	7.32	1.05	0.00	0.00	0.25	6.31	RW-2111 and NRW-01S had DNAPL blebs on the probe but no measurable DNAPL.
9/9/2014	2.00	1.10	1.30	0.80	10.00	1.30	0.66	0.50	1.60	9.05	
9/23/2014	5.55	1.75	0.00	2.90	11.50	1.60	1.60	0.00	0.00	NM	Blebs were observed on the probe at NRW-01S and NRW-02I. One foot of stringers at RW-206IB, but no coating
10/9/2014	2.50	2.50	1.00	0.20	7.85	1.70	0.00	NM	0.00	6.00	2111 - Only blebs were observed on bottom 1.7 ft of the steel tape, 4 ft stringers at RW-206IB, few blebs on the probe at NRW-02I, a peizometer was gauges instead of NRW-01S
10/23/2014	3.10	0.00	0.00	0.00	5.00	1.10	0.00	0.00	0.00	7.01	205D & 2071 - Only blebs were observed 206IB & 2111 - Only stringers were observed NRW-01S - DNAPL in tip of probe. Not measurable
11/5/2014	3.15	0.00	0.00	0.00	6.81	1.60	0.00	0.17	0.00	6.44	205D, 2071, and 2111 - Only blebs were observed.
11/17/2014	1.75	2.50	0.00	1.24	10.08	0.00	0.00	0.00	0.00	NM	206IB - Only stringers were observed
12/4/2014	4.42	3.60	0.00	1.60	11.00	1.80	1.70	0.25	0.00	7.19	NRW-01S - Only stringers were observed.
12/18/2014	2.41	0.00	0.00	3.00	10.38	1.00	2.00	0.00	0.00	5.20	206IB and NRW-02I - Only blebs were observed. No measurable product.
12/29/2014	3.80	2.00	2.20	3.50	12.60	2.00	1.60	0.00	0.00	7.06	205D and NRW-02I had blebs on the probe, 206IB had 1.4' of stringers, and NRW-01S had one very viscous bleb on probe and inside tip of probe.
											NRW-01S - Only blebs were observed.
<b>Min Thickness (ft)</b>	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	3.70	
<b>Max Thickness (ft)</b>	8.80	11.80	3.50	6.00	21.30	3.54	4.40	0.50	13.00	9.05	
<b>Avg Thickness (ft)</b>	4.67	2.73	1.05	1.23	10.67	1.44	1.25	0.10	1.91	6.22	

**Note:**

ft - feet

DNAPL - dense non aqueous phase liquid

NM- not measured, not accessible

Only recovery wells with measurable DNAPL thickness have been included.

**Table 3  
Summary of DNAPL Removal  
National Grid Former Clifton MGP Site  
Clifton, New York**

Parcel	Bay Street	Willow Avenue						Containment Cell			Event
Well ID	RW-2011	RW-205D	RW-206IB	RW-2071	RW-2081	RW-209S	RW-2111	NRW-01S	NRW-02I	NRW-03D	Volume
Date	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons	Gallons
1/6/2010	NI	NI	NI	NI	NI	NI	NI	--	2	--	2
1/20/2010	NI	NI	NI	NI	NI	NI	NI	--	3	--	3
1/21/2010	NI	NI	NI	NI	NI	NI	NI	--	--	5	5
2/18/2010	NI	NI	NI	NI	NI	NI	NI	--	1	4	5
3/21/2010	NI	NI	NI	NI	NI	NI	NI	--	1	5	5
7/15/2010	NI	NI	NI	NI	NI	NI	NI	--	3	5	8
9/13/2010	NI	NI	NI	NI	NI	NI	NI	--	--	5	5
10/14/2013	--	--	2	2	--	--	--	NM	NM	NM	4
10/15/2013	--	5	--	--	18	--	7	NM	NM	NM	29
10/16/2013	20	--	--	--	--	3	--	NM	NM	NM	23
10/18/2013	--	--	--	--	10	--	--	NM	NM	NM	10
10/24/2013	--	--	--	--	8	--	--	NM	NM	NM	8
12/16/2013	13	6	--	--	18	--	--	NM	NM	NM	37
1/28/2014	--	5	--	--	--	--	--	NM	NM	NM	5
1/29/2014	12	--	--	--	15	--	--	NM	NM	NM	27
2/25/2014	9	5	--	--	21	--	--	NM	NM	NM	35
3/6/2014	11	--	--	--	8	--	--	NM	NM	NM	19
3/24/2014	12	--	--	--	21	--	--	NM	NM	NM	33
3/25/2014	--	6	--	8	--	--	10	NM	NM	NM	24
4/17/2014	9	20	--	--	8	15	4	NM	NM	NM	56
5/2/2014	7	--	--	--	8	--	--	NM	NM	NM	15
5/15/2014	7	6	--	--	10	--	--	NM	NM	NM	23
5/29/2014	6	7	--	--	12	--	--	NM	NM	NM	25
6/12/2014	6	6	--	--	50	--	--	NM	NM	NM	62
6/25/2014	--	--	8	--	32	--	5	NM	NM	NM	45
7/8/2014	20	20	--	--	52	--	--	--	--	--	92
7/16/2014	--	--	--	6	--	--	--	--	6	--	12
7/30/2014	10	--	--	3	8	--	--	--	13	--	34
8/14/2014	8	--	--	3.5	15	--	--	--	--	--	27
8/28/2014	--	28	--	--	30	--	--	--	--	--	58
9/9/2014	10	--	12	--	27	--	--	--	12	--	61
9/23/2014	18	--	--	12	18	--	--	--	--	--	48
10/9/2014	17	12	--	--	16	--	--	--	--	--	46
10/23/2014	10	--	--	--	16	--	--	--	--	--	26
11/5/2014	10	--	--	--	10	--	--	--	--	--	20
11/17/2014	--	5	--	--	10	--	--	--	--	--	15
12/4/2014	15	15	--	--	27	--	--	--	--	--	57
12/18/2014	--	--	--	6	20	--	--	--	--	--	26
12/29/2014	5.8	--	--	--	8	--	--	--	--	--	13.8
<b>Total Gallon To Date</b>	235	146	22	41	494	18	26	0	39	23	1,045
<b>Percent of Total</b>	23%	14%	2%	4%	47%	2%	2%	0%	4%	2%	100%

**Note:**

NI - Well not installed at time of event

NM- not measured, not accessible

-- DNAPL was not pumped as the DNAPL level was below the sump

Volumes recorded consist of DNAPL and water mixture



**Table 4**  
**Post-Remediation Containment Cell Pumping Events (After July 2014)**  
**National Grid Clifton Former MGP Site**  
**Clifton, New York**

Containment Cell Pumpout from COU1-RWA Date		Gauging of Wells on the Containment Cell						Containment Cell Pumpout			Event Volume Gallons
		COU1-RWA	COU1-RWB	COU1-RWC	NRW-01S	NRW-02I	NRW-03D	From	Truck #1	Truck #2	
		DTW (ft btc)	DTW (ft btc)	DTW (ft btc)	DTW (ft btc)	DTW (ft btc)	DTW (ft btc)	Well	Gallons	Gallons	
7/25/2014 <sup>(1)</sup>	Before Pumpout	--	--	--	--	--	--	COU1-RWA	4800	4700	9500
	After Pumpout	--	--	--	--	--	--				
8/28/2014	Before Pumpout	4.44	1.40	3.05	3.56	5.11	3.48	COU1-RWA	4700	4800	9500
	After Pumpout	11.51	1.54	3.00	2.00	5.41	3.41				
9/30/2014 <sup>(2)</sup>	Before Pumpout	6.80	1.57	3.45	1.53	NM	NM	COU1-RWA	5000	4900	9900
	After Pumpout	13.88	1.57	3.42	1.33	NM	NM				
11/17/2014	Before Pumpout	6.70	1.75	0.50	5.67	5.79	3.80	COU1-RWA COU1-RWB COU-1 RWC	5000	5000	10000
	After Pumpout	10.45	12.58	11.08	6.85	5.79	NM				
12/29/2014*	Before Pumpout	3.08	1.63	1.23	2.31	5.20	3.54	COU1-RWA	5000	--	5000
	After Pumpout	7.43	NM	NM	NM	NM	NM				
12/30/2014*	Before Pumpout	7.01	1.79	1.50	6.80	5.90	3.36	COU1-RWA	5000	--	5000
	After Pumpout	9.85	1.85	1.59	8.10	5.96	3.42				
<b>Total Gallon To Date</b>											<b>48,900</b>

**Note:**

NM- not measured, not accessible

DTW (ft btc) - Depth to Water , feet below top of casing

(1) - This pump out event was conducted by GEI and measurements can be found in GEI Reports

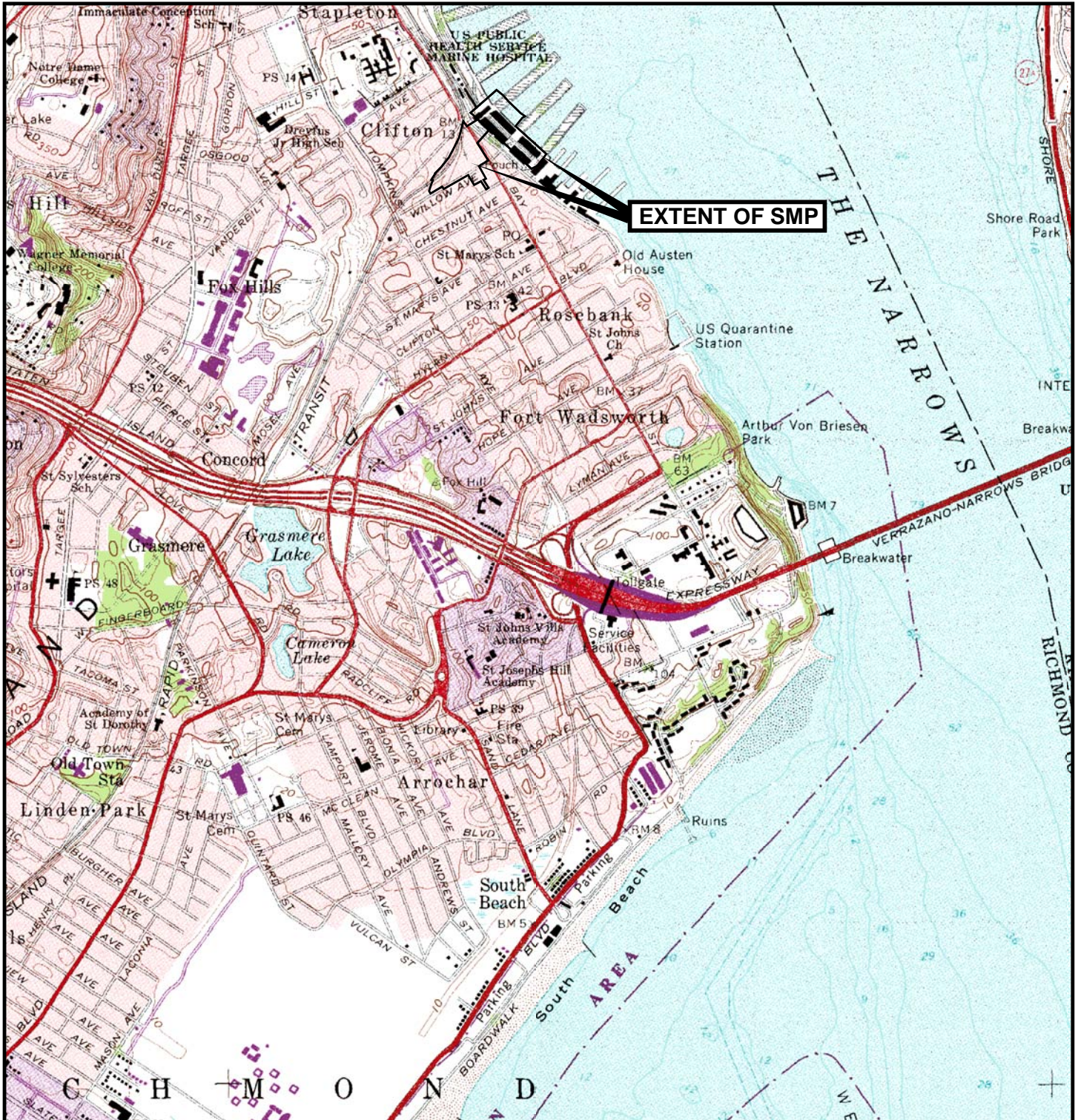
(2) - Water levels were measured using Kolor Kut on steel tape and DNAPL wells were not gauged

(\*) - have not received volumes with manifests from disposal facility as of 1/2/15. Volumes provided are as approximated in the field.

## Figures



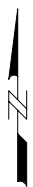
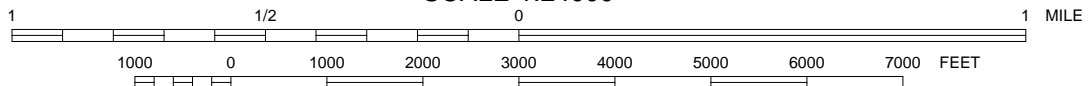
File: | | usnycs01 | Environment | National Grid | Clifton | 60137363 | CADD | OM&M | Site Location Map.dwg Layout: ANSL-AM-LV User: warren Plotted: Jul 23, 2014 - 3:26pm Xref's:



UNITED STATES GEOLOGIC SURVEY  
 THE NARROWS QUADRANGLE  
 NEW YORK - NEW JERSEY  
 7.5 MINUTE SERIES (TOPOGRAPHY)

THE NARROWS, NY. - NJ.  
 1966  
 PHOTOREVISED 1981

SCALE 1:24000



NATIONAL GRID  
 FORMER CLIFTON MANUFACTURED GAS PLANT  
 INTERIM MONITORING REPORT















SITE LOCATION MAP

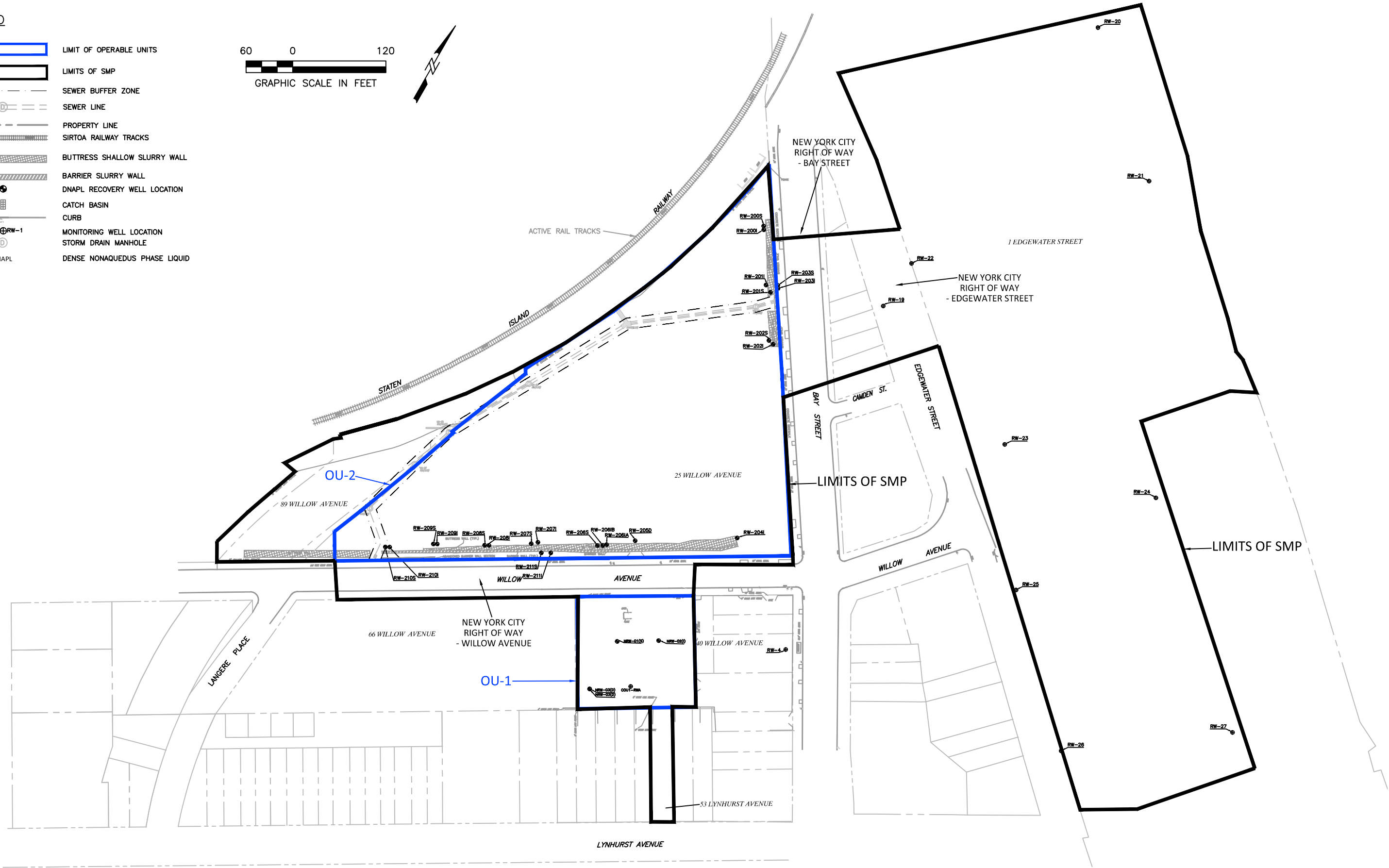
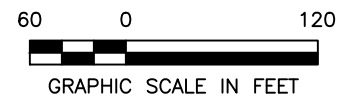
DATE: 07/25/14 | DRWN: RCW | JOB NO.: 60137363-540

FIGURE 1



**LEGEND**














-  LIMIT OF OPERABLE UNITS
-  LIMITS OF SMP
-  SEWER BUFFER ZONE
-  SEWER LINE
-  PROPERTY LINE
-  SIRTOA RAILWAY TRACKS
-  BUTTRESS SHALLOW SLURRY WALL
-  BARRIER SLURRY WALL
-  DNAPL RECOVERY WELL LOCATION
-  CATCH BASIN
-  CURB
-  MONITORING WELL LOCATION
-  STORM DRAIN MANHOLE
-  DENSE NONAQUEOUS PHASE LIQUID

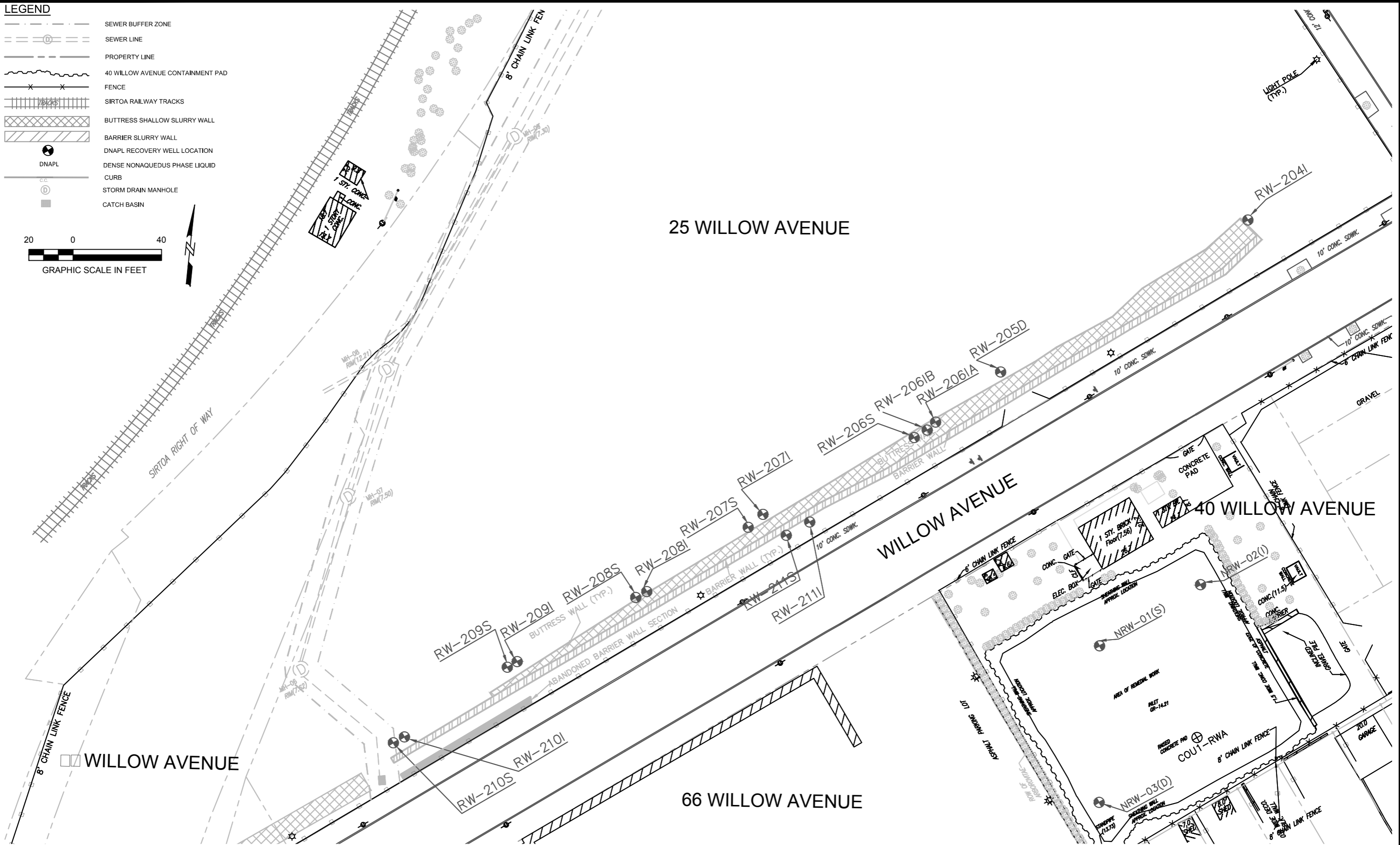
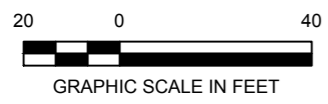


<p>NATIONAL GRID FORMER CLIFTON MANUFACTURED GAS PLANT INTERIM STATUS REPORT</p>		<p>SITE LAYOUT</p>	
DATE: 01/23/2015	DRWN: RCW	JOB NO.: 60137363-540	FIGURE 2

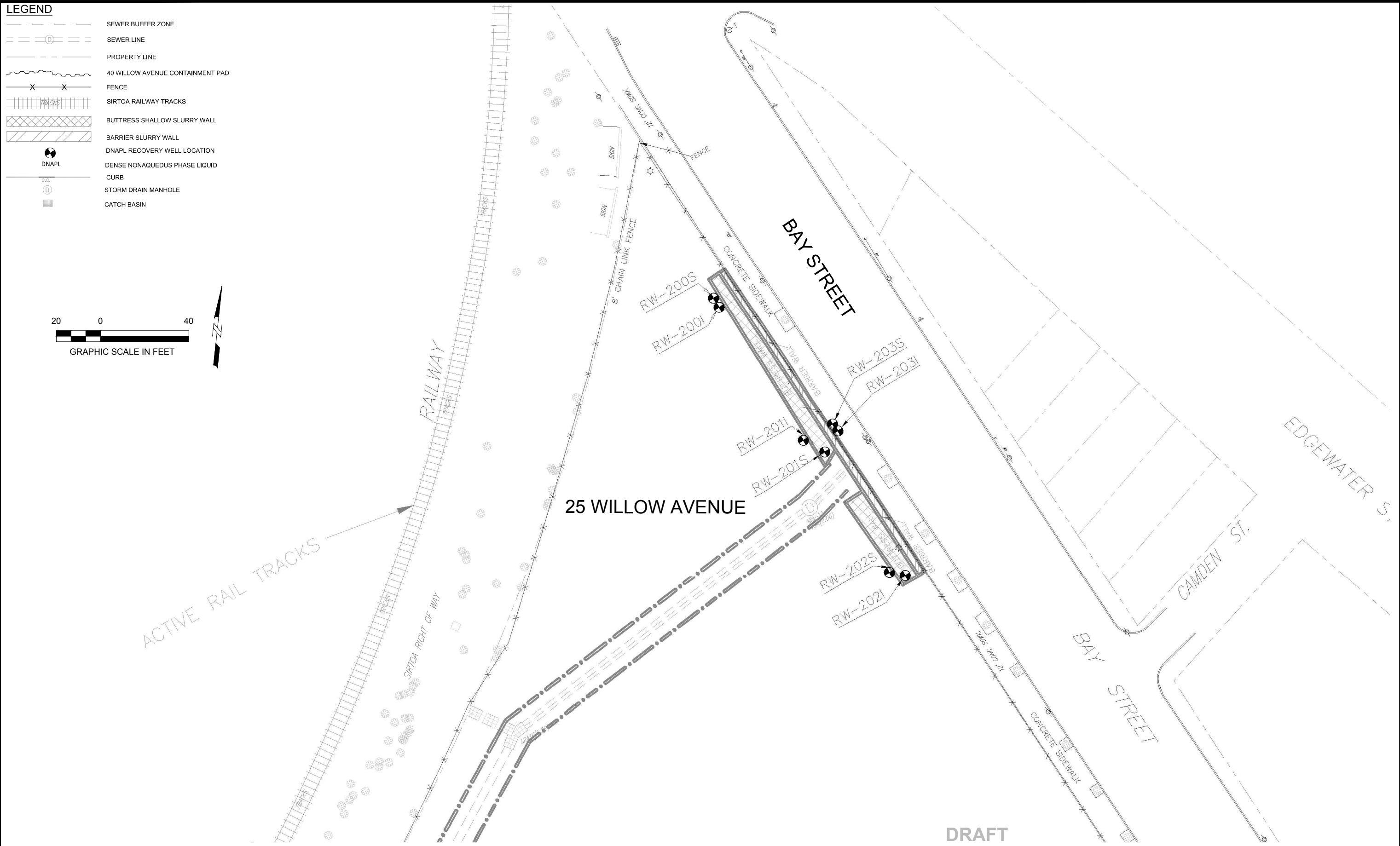
File: \\nrc\proj\01\Environment\National\_Grid\Clifton\60137363\GIS\Layouts\2015-01-23.dwg Layout: 1-2 Interim Status Report - Site Layout - 6/20/15 10:45 AM

**LEGEND**

-  SEWER BUFFER ZONE
-  SEWER LINE
-  PROPERTY LINE
-  40 WILLOW AVENUE CONTAINMENT PAD
-  FENCE
-  SIRTOA RAILWAY TRACKS
-  BUTTRESS SHALLOW SLURRY WALL
-  BARRIER SLURRY WALL
-  DNAPL RECOVERY WELL LOCATION
-  DENSE NONAQUEOUS PHASE LIQUID
-  CURB
-  STORM DRAIN MANHOLE
-  CATCH BASIN

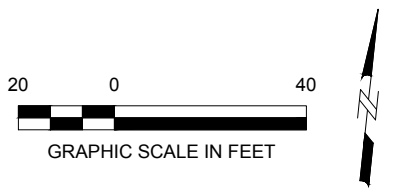


NATIONAL GRID FORMER MGP SITE CLIFTON, RICHMOND COUNTY, NEW YORK 60137363-600		DNAPL RECOVERY WELL LOCATIONS ALONG WILLOW STREET
DATE: 01/23/2015	DRWN: SNP	FIGURE 3



**LEGEND**

	SEWER BUFFER ZONE
	SEWER LINE
	PROPERTY LINE
	40 WILLOW AVENUE CONTAINMENT PAD
	FENCE
	SIRTOA RAILWAY TRACKS
	BUTTRESS SHALLOW SLURRY WALL
	BARRIER SLURRY WALL
	DNAPL RECOVERY WELL LOCATION
	DNAPL
	DENSE NONAQUEOUS PHASE LIQUID CURB
	STORM DRAIN MANHOLE
	CATCH BASIN



DRAFT

NATIONAL GRID FORMER MGP SITE CLIFTON, RICHMOND COUNTY, NEW YORK 60137363-600		DNAPL RECOVERY WELL LOCATIONS ALONG BAY STREET
DATE: 01/23/2015	DRWN: SNP	FIGURE 4

