5/13/2008

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
VCP/BCP REMEDIAL ACTION WORK PLAN APPROVAL ROUTING SLIP

TO: Sal Ervolina, Assistant Division Director
FROM: Bob Schick, Bureau Director

NAME	APPROVAL SIGNATURE	DATE
Project Manager: William Ottaway		5/13/08
Section Chief/RHWRE: Gardiner Cross		5/13/08

DATE: 5/13/2008

RE: **Site Name** CE - W. 18th St. Gas Works **Site Code** V00530
City New York **County** New York

Attached is:
vSite Briefing Report
vNYSDOH Concurrence Letter

The selected remedy is protective of human health and the environment and complies with State requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable.

Approvals:

☒ Bureau Director Approval: _____ 5/15/08
Bureau Director's Name Date

☐ Division Director Approval:

A Briefing
☒ is not necessary for this project.
☐ has been scheduled for_____

_____ _____
Sal Ervolina Date

_____ _____
Dale Desnoyers Date

cc: Sal Ervolina
Dale Desnoyers

Final Distribution:
ec: Dale Desnoyers
Regional Director
Gardiner Cross
Project Attorney
DOH Project Manager
William Ottaway

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
Site Briefing Report

Site Code	V00530	**Site Name**	CE - W. 18th St. Gas Works		
Classification	A	**Address**	West 16th - West 20th Sts.		
Region	2	**City**	New York	**Zip**	10011
Latitude	40.75	**Town**	New York City	**Project Manager**	William Ottaway
Longitude	-74.01	**County**	New York	**Estimated Size**	
Significant Threat	- Yes	- No	- NA		
Intended Use:					

Site Description

The site is comprised of numerous properties between 16th St, 20th St, Tenth Avenue, and the Hudson River in Manhattan. One additional parcel is located on 18th Street, east of Tenth Avenue. The site is the location of the former 18th Street Gas Works, which operated between 1833 and circa 1900. The gas holders remained in operation until 1914.

A Site Characterization Work Plan was approved in February 2004. The SC Report was submitted in January 2006 and was approved in April 2006. A RI work plan was included with the SC report and was also approved in April 2006. Field work for the RI is ongoing and is expected to be completed in 2008, with a site-wide RI expected in 2009.

Several properties are under development within the site:

1)Georgetown Development: The West 19th street Site (C231017) has been remediated (partial excavation and containment)and has received its final Certificate of Completion in 2006.

2)West Chelsea Development: A property at 535 W 19th is being remediated as Operable Unit 2 to facilitate development. Remedial Action(partial excavation and containment) is largely completed, and a final engineering report is expected in 2008.

3)Gasser Property: Remediation of the property at 524 W. 19th Street is being tracked as Operable Unit 3. Remediation (partial excavation and containment) is underway and should be completed in 2008.

4) Edison Property (Highline Towers): The propety located between 17th and 18th Street, and 10th and 11th Avenues (currently an at-grade parking lot)is also to be developed. The investigation was completed in 2007 the Alternatives Analysis was approved in May 2008, which selected in-situ solidification, containment, and IC/ECs as the remedy. The remedial design is expected to be completed in 2008.

Materials Disposed at Site	**Quantity Disposed**
	UNKNOWN
NAPHTHALENE	UNKNOWN

5/13/2008

Analytical Data Available for :

Applicable Standards Exceeded for:

Assessment of Environmental Problems

A Site Characterization Report was received in January 2006. SC results along with previous investigations from this site along with results from the West 19th Development Site (V00624 and C231017)indicate extensive MGP contamination is present, including NAPL on many parcels.

Assessment of Health Problems

Public water is provided to the area, thereby preventing exposures to groundwater. The area is covered with buildings or pavement, thereby preventing direct contact with contamination. The investigation of the whole site is on-going and data will be evaluated as they become available.

Remedy Description and Cost

Remedy Description for Operable Unit 04

1. The western third of this property was historically part of the Hudson River and was filled using "cribbing," cages made from large timbers filled with rock and debris. Experience at nearby sites has shown this material to be very difficult to work through. In this area, a containment wall will be constructed to prevent migration of and exposure to the contamination in this area. The wall will have a low permeability, similar to a liner at a landfill).

2. Within the containment area, coal tar will be extracted to the extent possible by a series of active NAPL collection wells.

3. Coal tar impacted materials east of the cribbing and west of the highline will be treated/contained using in-situ solidification (ISS). This will create a low permeability cement monolith which will effectively isolate the MGP contamination from human contact and the environment, eliminating potential exposure pathways. Implementing ISS at this site requires conducting a treatability study, and pre-ISS excavation to clear obstructions and to allow for soil expansion. The Remedial Design will identify appropriate Construction Quality Assurance Protocols for the planned ISS activities, including mix design and testing.

4. The coal tar identified under the Highline appears to extend over a small area. This is being confirmed with additional investigation work. If additional NAPL impacted soils are encountered in this area, the information will be provided to NYC Parks Department, for use in their elevator pit design and construction planning. The SMP will also include this information for future excavation work (if any) in this area and will require appropriate handling and disposal of any material encountered. Contamination in this area is isolated; exposure to the contamination would be unlikely and any effective remediation will be difficult to implement. It is a minimum of 12 feet below grade and largely underneath piers supporting the Highline. There is no evidence of groundwater contamination from this contamination migrating off-site. No active remediation of this area is proposed, but institutional controls will be required to manage the contamination as described below.

5. Following remediation and prior to redevelopment, the entire site will be covered with a minimum of 18 inches of clean fill and 6 inches of cement-bentonite material (or a similar low-permeability layer). A demarcation layer will be provided between the cover and the underlying material.

6. Sub-slab depressurization systems will be installed for any buildings constructed during the development of the site.

7. Off-site groundwater or soil gas contamination will be addressed as part of the overall remedy for the larger West 18th Street MGP site.

8. Since the remedy results in contamination above unrestricted levels remaining at the site, an institutional control in the form of an environmental easement will be required for the site. The environmental easement will:

(a) restrict the use of the site to restricted residential use, which will also allow commercial or industrial use. Any specific future use of the site must comply with local laws and regulations;

(b) restrict the use of groundwater at the site;

(c) require the management of the site in accordance with the provisions of the site management plan, to be approved by the Department; and

(d) require the property owner complete and submit to the Department a periodic certification.

9. A site management plan (SMP) will be developed and implemented. The SMP will identify the institutional controls and engineering controls (IC/ECs) required for the remedial action plan (RAP) and detail their implementation. The SMP for the RAP will include:

(a) an IC/EC control plan to establish the controls and procedures necessary to; (i) manage remaining contaminated soils that may be excavated from the site during future activities, including procedures for soil characterization, handling, health and safety of workers and the community as well as, disposal/reuse in accordance with applicable NYSDEC regulations and procedures; (ii) evaluate the potential for vapor intrusion for any buildings developed on the site, including mitigation of any impacts identified; (iii) maintain use restrictions regarding site development or groundwater use identified in the environmental easement; and (iv) require the property owner to provide the Department an institutional control/engineering control (IC/EC) certification on a periodic basis;

(b) a monitoring plan to monitor the effectiveness of the ISS as well as the trend of contaminants concentrations in the groundwater; and

(c) an operation and maintenance plan to provide the detailed procedures necessary to operate and maintain the remedy, including coal tar recovery system. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

10. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submission will:

(a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications;

(b) allow the Department access to the site; and

(c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure

Total Cost

Capital Cost

OM&M Cost

Issues / Recommendations

TO: *Robert Schick, Director, Remedial Bureau C, DER*
FROM: *Gardiner Cross*
BY: *William Ottaway*
SUBJECT: **Remedial Action Work Plan**
Con Ed West 18th Street MGP OU4 - 17th Street Development Site

Approved 5/15/08 Date

DATE:

Attached is an Alternatives Analysis for the subject site. As discussed below, we believe the remedy will be protective of public health and the environment for the Contemplated Use.

Volunteers Name: Con Edison is the volunteer and also the PRP. Con Edison still owns a portion of the historic site. This project also includes an off-site area that is not owned by Con Edison where site contamination has migrated.

Site Location: See attached draft decision document

Date of Agreement: September 23, 2002

Project Description: See attached draft decision document for summary of the RI and description of the proposed alternative

Registry Status: No listing package has been prepared.

Quality Assurance/Quality Control: Appropriate QA/QC procedures have been followed and a DUSR documenting that data are useable is included in the May 2007 Site Investigation Report.

Citizen Participation: An ENB notice announcing the public comment period was published on April 2, 2008. The comment period ran from April 2, 2008 until May 2, 2008. A fact sheet was prepared and distributed to the mailing list, and a public meeting was held on April 17, 2008.

Health Department Concurrence: A letter recommending approval of the Work Plan was signed by the NYSDOH Director BEEI on March 20, 2008.

Recommendation: The Remedial Action Work Plan has been reviewed and is acceptable. The Remedial Work Plan for the site was provided to the public for review and comment for a 30 day period. We recommend approval of the Remedial Action work Plan for this site.

Attachment

cc: w/o att. D. Desnoyers
L. Eckhaus
D. Walsh, Region 2
D. Hettrick/J. Crua, DOH

VOLUNTARY CLEANUP PROGRAM
DECISION DOCUMENT

CE-West 18th Street MGP Site
Manhattan, New York
Site No. V00530
Operable Unit 4
May 2008

Statement of Purpose and Basis

This Voluntary Cleanup Program (VCP) Final Decision Document presents the remedy approved by the Department of Environmental Conservation (Department) for Operable Unit #4 (OU4) of the ConEdison West 18th Street MGP site.

Description of the Site The site is located in Manhattan, and is comprised of numerous properties bounded by the Hudson River to the west, 16th Street to the south, 20th Street to the north and Tenth Avenue to the east. One additional parcel is located on 18th Street, east of Tenth Avenue.

OU4 is defined as the lot bounded by 17th Street to the south, 18th street to the north, Tenth Avenue to the east and the West Side Highway (aka 11th Avenue or Route 9A). The Highline, a former elevated railroad which is being converted into an elevated green way/park, crosses above the eastern portion of the site. This property originally housed the retorts used to generate the gas from coal, as well as scrubbers and purifiers used purify the gas prior to distribution.

Nature and Extent of Contamination

Contamination was identified by the Remedial Investigation (RI) of this site, which represents a threat to public health and the environment, requiring a remedial program to address the contamination identified on Figure 7-1 and below.

Nature of contamination: The RI identified the presence of coal tar in the subsurface soil. Contaminants of concerns in the tar include polycyclic aromatic hydrocarbons (PAHs) and the volatile compounds benzene, toluene, ethylbenzene and xylene (BTEX).

Extent of contamination: Significant amounts of coal tar, a non-aqueous phase liquid (NAPL), is present in the subsurface of the OU4 property in the area of the former retorts (the western half of the property). Some coal tar also extends south of the retorts. Another small area of coal tar contamination was identified under the Highline.

Groundwater sampling identified groundwater contamination in close proximity to the coal tar. Groundwater impacts beyond the OU4 property will be addressed as part of the overall West 18th Street MGP site remediation.

Description of Selected Remedy

Based on the results of the Alternatives Analysis and the criteria identified for evaluation of alternatives, the NYSDEC has selected a remedy for this VCP site. The components of the remedy set forth in the Remedial Work Plan and shown on the attached Figure 7-1, are as follows:

1. The western third of this property was historically part of the Hudson River and was filled using "cribbing" (cages made from large timbers filled with rock and debris). Experience at nearby sites has shown this material to be very difficult to work through. In this area, a containment wall will be constructed to prevent migration of and exposure to the contamination in this area. The wall will have a low permeability, similar to a liner at a landfill.

2. Within the containment area, coal tar will be extracted to the extent possible by a series of active NAPL collection wells.

3. Coal tar impacted materials east of the cribbing and west of the highline will be treated/contained using in-situ solidification (ISS). This will create a low permeability (less permeable than $1x10^{-6}$ cm/sec.) cement monolith which will effectively isolate the MGP contamination from human contact and the environment, eliminating potential exposure pathways. Implementing ISS at this site requires conducting a treatability study, and pre-ISS excavation to clear obstructions and to allow for soil expansion as the mixing takes place. The Remedial Design will identify appropriate Construction Quality Assurance Protocols for the planned ISS activities, including mix design and testing.

4. The coal tar identified under the Highline appears to extend over a small area. This is being confirmed with additional investigation work. If additional NAPL impacted soils are encountered in this area, the information will be provided to NYC Parks Department, for use in their elevator pit design and construction planning. The SMP will also include this information for future excavation work (if any) in this area and will require appropriate handling and disposal of any material encountered. Contamination in this area is isolated; exposure to the contamination would be unlikely and any effective remediation will be difficult to implement. It is a minimum of 12 feet below grade and largely underneath piers supporting the Highline. There is no evidence of groundwater contamination from this contamination migrating off-site. No active remediation of this area is proposed, but institutional controls will be required to manage the contamination as described below.

5. Following remediation and prior to redevelopment, the entire site will be covered with a minimum of 18 inches of clean fill and 6 inches of cement-bentonite material (or a similar low-permeability layer). A demarcation layer will be provided between the cover and the underlying material.

6. Sub-slab depressurization systems will be installed beneath any buildings constructed during the development of the site. These systems will eliminate the potential for upward migration of soil vapors into these buildings.

7. Off-site groundwater or soil gas contamination will be addressed as part of the overall remedy for the larger West 18th Street MGP site.

8. Since the remedy results in contamination above unrestricted levels remaining at the site, an institutional control in the form of an environmental easement will be required for the site. The environmental easement will:

(a) restrict the use of the site to restricted residential use, which will also allow commercial or industrial use. Any specific future use of the site must comply with local laws and regulations;
(b) restrict the use of groundwater at the site;
(c) require the management of the site in accordance with the provisions of the Site Management Plan, to be approved by the Department; and
(d) require the property owner complete and submit to the Department a periodic certification.

9. A Site Management Plan (SMP) will be developed and implemented. The SMP will identify the institutional controls and engineering controls (IC/ECs) required for the Remedial Action Plan (RAP) and detail their implementation. The SMP will include:

(a) an IC/EC control plan to establish the controls and procedures necessary to; (i) manage remaining contaminated soils that may be excavated from the site during future activities, including procedures for soil characterization, handling, health and safety of workers and the community as well as, disposal/reuse in accordance with applicable NYSDEC regulations and procedures; (ii) evaluate the potential for vapor intrusion for any buildings developed on the site, including mitigation of any impacts identified; (iii) maintain use restrictions regarding site development or groundwater use identified in the environmental easement; and (iv) require the property owner to provide the Department an institutional control/engineering control (IC/EC) certification on a periodic basis;
(b) a monitoring plan to monitor the effectiveness of the ISS as well as the trend of contaminants concentrations in the groundwater; and
(c) an operation and maintenance plan to provide the detailed procedures necessary to operate and maintain the remedy, including coal tar recovery system. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

10. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submission will:

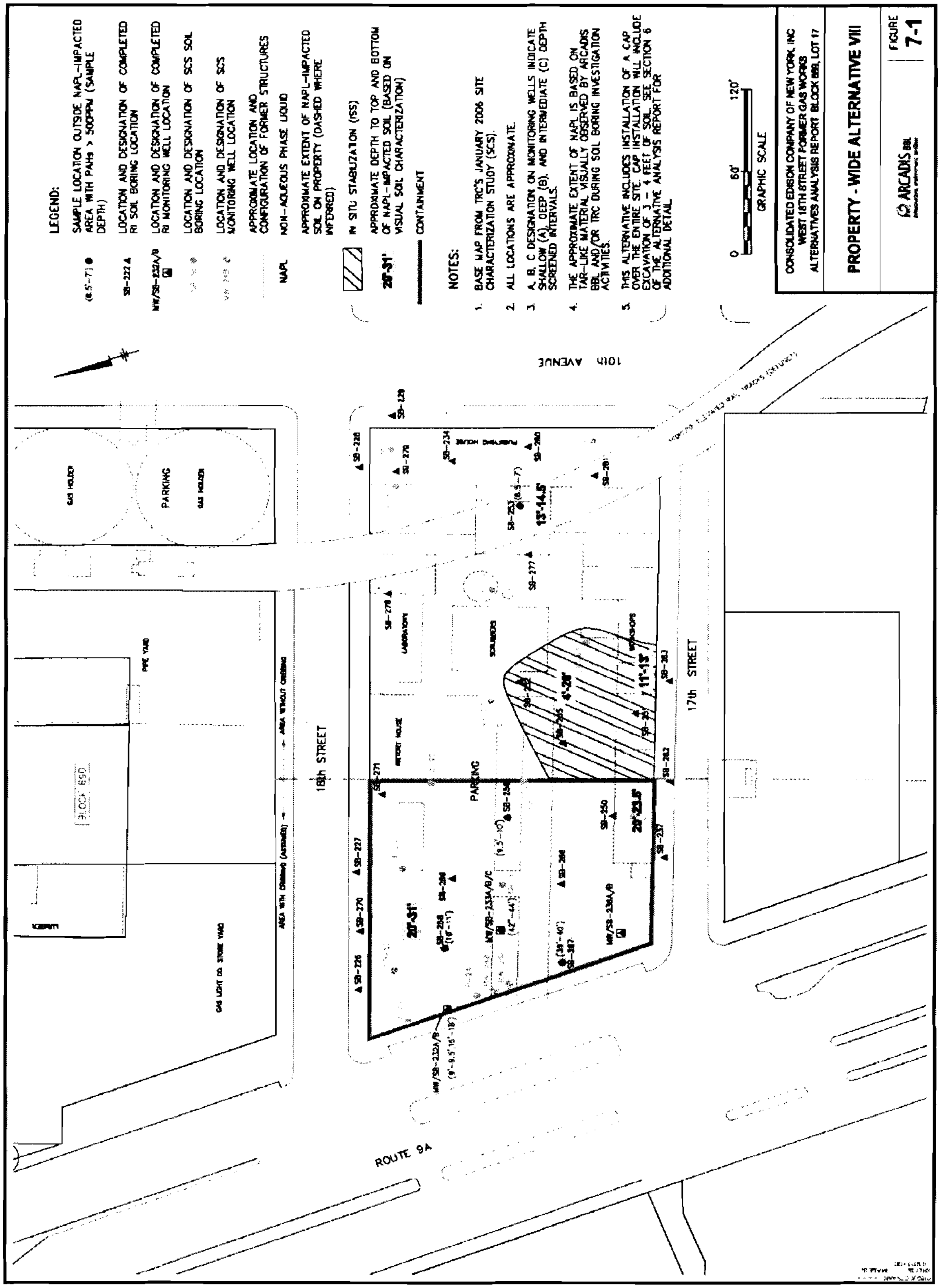
(a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications;
(b) allow the Department access to the site; and
(c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action and will allow for the identified use of the site. This remedy utilizes permanent solutions and alternative treatment to the maximum extent practicable, and satisfies the preference for remedies that reduce remove or otherwise treat or contain sources of contamination and protection of groundwater.

MAY 15, 2008
Date

Robert W. Schick, P.E., Director
Remedial Bureau C
Division of Environmental Remediation


LEGEND:
SAMPLE LOCATION OUTSIDE NAPL-IMPACTED AREA WITH PAHs > 500PPM (SAMPLE DEPTH)
LOCATION AND DESIGNATION OF COMPLETED RI SOIL BORING LOCATION
LOCATION AND DESIGNATION OF COMPLETED RI MONITORING WELL LOCATION
LOCATION AND DESIGNATION OF SCS SOIL BORING LOCATION
LOCATION AND DESIGNATION OF SCS MONITORING WELL LOCATION
APPROXIMATE LOCATION AND CONFIGURATION OF FORMER STRUCTURES
NAPL
NON-AQUEOUS PHASE LIQUID
APPROXIMATE EXTENT OF NAPL-IMPACTED SOIL ON PROPERTY (DASHED WHERE INFERRED)
IN SITU STABILIZATION (ISS)
APPROXIMATE DEPTH TO TOP AND BOTTOM OF NAPL-IMPACTED SOIL (BASED ON VISUAL SOIL CHARACTERIZATION)
CONTAINMENT
NOTES:
1. BASE MAP FROM TRC'S JANUARY 2006 SITE CHARACTERIZATION STUDY (SCS).
2. ALL LOCATIONS ARE APPROXIMATE.
3. A, B, C DESIGNATION ON MONITORING WELLS INDICATE SHALLOW (A), DEEP (B), AND INTERMEDIATE (C) DEPTH SCREENED INTERVALS.
4. THE APPROXIMATE EXTENT OF NAPL IS BASED ON TAR-LIKE MATERIAL VISUALLY OBSERVED BY ARCADIS BBL AND/OR TRC DURING SOIL BORING INVESTIGATION ACTIVITIES.
5. THIS ALTERNATIVE INCLUDES INSTALLATION OF A CAP OVER THE ENTIRE SITE. CAP INSTALLATION WILL INCLUDE EXCAVATION OF 3 - 4 FEET OF SOIL. SEE SECTION 6 OF THE ALTERNATIVE ANALYSIS REPORT FOR ADDITIONAL DETAIL.
0
60'
120'
GRAPHIC SCALE
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC
WEST 18TH STREET FORMER GAS WORKS
ALTERNATIVES ANALYSIS REPORT BLOCK 689, LOT 17
PROPERTY - WIDE ALTERNATIVE VIII
ARCADIS BBL
FIGURE
7-1
10th AVENUE
18th STREET
17th STREET
ROUTE 9A
PARKING
GAS HOLDER
PIPE YARD
BLOCK 690
GAS LIGHT CO. STORE YARD
LABORATORY
SCRUBBERS
WORKSHOPS
PUMPING HOUSE
20'-31'
13'-14.5'
11'-13'
4'-28'
20'-23.5'