ExxonMobil

Environmental Services

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Steve Trifiletti
Project Manager

May 31, 2011

Mr. Brian Davidson
New York State Department of Environmental Conservation
Remedial Bureau B
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016

Re: Bulkhead Sheen Investigation Work Plan
Former Pratt Oil Works
Waterfront Parcels (Tract II),
Long Island City, New York
NYSDEC Case No. 07-07418 (Parcel A)
NYSDEC Case No. 08-13060 (Parcel B)
NYSDEC Case No. 11-00246 (Newtown Creek)
Consent Order Case No. D2-1002-12-07AM
Document Tracking No. S241115

Dear Mr. Davidson:

ExxonMobil Oil Corporation ("ExxonMobil") is submitting for your review and comment the enclosed Bulkhead Seep Investigation Work Plan for the subject Project Area. One hard copy and an electronic copy are provided pursuant to Section VIII of the Consent Order (D2-1002-12-07AM) executed between ExxonMobil and New York State Department of Environmental Conservation (NYSDEC) and a letter from NYSDEC dated June 2, 2010. This report has been prepared on behalf of ExxonMobil by Kleinfelder East, Inc. of Bohemia, New York ("Kleinfelder").

Please do not hesitate to contact me at (718) 404-0652 if you have any questions.

Very truly yours,

Steve Trifiletti
Project Manager

Enclosure

Via FEDEX Overnight

cc: S. Caruso (NYSDEC – electronic copy only)
J. Kaplan (Waste Management of New York LLC – electronic and hard copy)
J. Periconi, Esq. (Periconi LLC – electronic copy)
K. Lumpe (Steel Equities – hard copy only)
J. Wolf (Kleinfelder)

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DELIVERED VIA ELECTRONIC MAIL

May 31, 2011

Mr. Steve P. Trifiletti
ExxonMobil Environmental Services Company
Global Remediation – Major Projects
38 Varick Street
Brooklyn, New York 11222

Re: Bulkhead Sheen Investigation Work Plan
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Long Island City, New York
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Dear Mr. Trifiletti:

On behalf of ExxonMobil Environmental Services Company (ExxonMobil), Kleinfelder East, Inc. (Kleinfelder) prepared this Bulkhead Sheen Investigation Work Plan (Work Plan) for New York State Department of Environmental Conservation (NYSDEC) review and approval. On April 7, 2011, ExxonMobil observed a sheen on Newtown Creek. When ExxonMobil observed the sheen, ExxonMobil voluntarily agreed to commence an investigation into the source of the sheen. Upon further inspection, a sheen and stained rip rap was observed coming from the bulkhead at the above-referenced Former Pratt Oil Works, herein referred to as the Project Area. This Work Plan proposes a supplemental subsurface investigation (SSI) and interim remedial measures (IRMs) in response to the sheen observed coming from the bulkhead. Although the source of the sheen and/or

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the potentially responsible parties have not yet been determined, subject to an express reservation of rights, ExxonMobil will voluntarily continue its ongoing investigation into the source of the sheen and its efforts to address this condition.

This Work Plan has been reviewed by Kleinfelder Engineering, P.C. for accuracy, content and quality of presentation as described in the engineering certification provided as Attachment A.

SITE DESCRIPTION

The Project Area is a former wax refinery that operated until approximately 1949. The Project Area is currently an approximately 18.5 acre commercial/industrial area located within the United States Geological Survey (USGS) 7.5-Minute Topographic Map, Brooklyn, New York, Quadrangle (USGS, 1979). The Project Area is approximately 10 to 25 feet (ft) above mean sea level (msl). The topography and elevation of the Project Area is illustrated on the Locus Plan provided on Figure 1. The Project Area has been subdivided into 16-lots of Block 312. The Project Area is divided north and south by the Long Island Railroad (LIRR). Properties north of the LIRR comprise the Inland Project Area (Tract I) and south of the LIRR comprise the Waterfront Project Area (Tract II). Each tract is further subdivided into parcels (Parcels A through K) based on property ownership. Pertinent site features including, but not limited to, block and lot, parcel identification, property boundaries, LIRR train tracks, current buildings, structure layouts and monitoring well locations are illustrated on Figures 2. Monitoring well locations in relation to historic site features related to the former wax refinery including, but not limited to buildings, structure layouts and former above ground storage tanks (ASTs) are illustrated on Figure 3.

BULKHEAD BACKGROUND

On April 7, 2011, ExxonMobil observed a sheen on Newtown Creek. Upon further inspection, a sheen and stained rip rap was observed where the steel bulkhead terminates

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to the west. The NYSDEC was notified and NYSDEC Case No. 11-00246 was generated. The location of the observed sheen is illustrated on Figure 2.

By way of background relative to the bulkhead and related investigations, a bulkhead extends along the south side of Parcels A and B as illustrated on Figure 2. The bulkhead is constructed of 12-inch square horizontal timbers reinforced with 12-inch square vertical timber pilings along the water and 12-inch square timber tie-backs to the north.

An investigation of piping along the bulkhead was conducted as part of initial site characterization activities in December 2008. Eight pipes (Pipe-1 through Pipe-8) were identified on Parcel A and ten pipes (Pipe-1 through Pipe-10) were identified on Parcel B. Where accessible, the pipes were traced using geophysical investigation methods. Pipes identified in the vicinity of the sheen included Pipe-7 on Parcel A and Pipe-1 on Parcel B. The findings of the bulkhead and pipe investigation are summarized in the *Interim Site Characterization Report, The Waterfront Parcels (Tract II*), (ISCR) prepared by Kleinfelder, dated August 10, 2009. The ISCR reported that Pipe 7 was determined to be a broken section of 4-inch steel pipe lying in a deteriorated section of bulkhead that may not have originated where it was located. Pipes 1 through 7 on Parcel B were traced up to the south side of the buildings on Parcel B and may be attributed to roof drains or other drainage structures. Pipe locations are illustrated on Figure 2.

Between January 2010 and January 2011, a replacement steel sheet piling bulkhead was installed along Parcel B by Steel Equities, the property owner. This bulkhead was installed outside the existing timber bulkhead with the exception of the ends which were installed inland perpendicular to the bulkhead for support. From May 21 to June 1, 2010, Kleinfelder installed 96 monitoring points between the steel bulkhead and the timber bulkhead, prior to the space being backfilled. The wells were constructed of 10 to 20-feet of 0.05 slot schedule 40 polyvinyl chloride (PVC) well screen and 2-feet of

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schedule 40 PVC riser. The wells were spaced approximately 9-feet apart and alternated 2 and 4-inch diameter wells along the length of the bulkhead.

INITIAL REMEDIAL MEASURES

The following is a summary of initial remedial measures and containment activities conducted in response to the sheen on and after April 7, 2011:

- Approximately 30-feet of sorbent boom was installed across the observed sheen area on April 7, 2011;
- The sorbent boom was inspected, adjusted as necessary and/or replaced on April 8, 9, 10, 11, 12, 13, 15, 18, 19, 21, 23 and 26, 2011;
- Approximately 30-feet of containment boom was installed across the observed sheen area on the Creek on April 8, 2011;
- The containment boom was inspected and adjusted as necessary on April 9, 10, 11, 12 and 13, 2011.
- Approximately 60-feet of 24-inch high PVC belted black boom (hard boom) was temporarily installed on the Creek on April 15, 2011 using cables attached to the steel bulkhead and rope and timbers on the timber bulkhead;
- The hard boom was secured using tide slides tack welded to the steel bulkhead and with bolts to the timber bulkhead on April 26, 2011 following property owner approval; and
- Sorbent boom within the hard boom is inspected on a weekly basis and replaced as necessary.

Cross sections of the sheen location including geologic descriptions, hard boom location; and bulkhead details are illustrated on Figure 4.

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SUPPLEMENTAL SUBSURFACE INVESTIGATION WORK SCOPE

The purpose of the SSI is to investigate potential sources of light non-aqueous phase liquid (LNAPL) contributing to the sheen. LNAPL has previously been detected in monitoring well MW-4S, soil boring SB-9 and test pit TP-8 located hydraulically upgradient (north-northeast) of the observed sheen area. In addition, LNAPL has previously been detected in monitoring well MW-7 located west of the observed sheen area. However, LNAPL has not been detected in monitoring well MW-8 located between MW-7 and the observed sheen. Based on a review of Figure 3, monitoring well MW-4S is located in the vicinity of three former ASTs. Soil boring SB-9 and test pit TP-8 are located in the vicinity of four former ASTs. The proposed SSI scope of work includes the following activities proposed to be implemented in the following order:

- Drill up to five soil borings (SB-20 to SB-24) along the bulkhead;
- Drill one soil boring (SB-25) hydraulically upgradient of the observed sheen area within a vacant building;
- Drill two soil borings (SB-26 and SB-27) northeast of monitoring well MW-7 within the vacant building;
- Drill three monitoring wells (MW-25 to MW-27) along the bulkhead;
- Drill two monitoring wells (MW-28 and MW-29) in the vicinity of the former AST locations north of the buildings;
- Drill two monitoring wells (MW-30 and MW-31) within the buildings between the former ASTs and bulkhead;
- Collect soil samples during the soil boring and monitoring well drilling for laboratory analysis; and
- Add the seven monitoring wells to the routine groundwater monitoring and sampling schedule.

Proposed soil boring and monitoring well locations are illustrated on Figure 5. The locations of proposed soil borings and monitoring wells are illustrated relative to historic site features including former ASTs on Figure 6. Prior to initiating field activities, the work area will be secured with approximately 120-feet of orange snow fence south of

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the vacant building. The proposed fence location is illustrated on Figure 5. The proposed scope of work is further described in the following subsections:

Subsurface Clearance

Prior to drilling soil borings and installing monitoring wells, the following subsurface clearance activities are proposed, including but not limited to, the following:

- Public utilities will be contacted through the New York City One Call Center in accordance with Industrial Code 53.
- A private utility locating contractor is proposed to conduct a geophysical survey to investigate and mark potential underground utilities or obstructions;
- A geophysical survey was completed on Parcel A on April 21, 2011. The methods and findings of the geophysical survey are included as Attachment B.
- Proposed drilling locations MW-28, MW-29 and MW-31 will be hand-cleared or vacuum excavated to a minimum depth of approximately 5 feet below grade (fbg) and a maximum of 8 fbg using a tow-behind vactron unit and/or a box truck and a tow-behind air compressor and box truck.

Soil Boring Installation

Up to five soil borings SB-20 to SB-24 are proposed to be drilled in a transect along the bulkhead in an effort to investigate the presence and distribution of LNAPL, if present. The proposed soil borings will be advanced using a direct push technology rig (DPT). The soil borings will be advanced to approximately 20 fbg. The soil borings will be drilled as follows:

- Soil boring SB-20 will be drilled in the vicinity of the observed sheen area;
- Soil borings SB-21 and SB-22 will be drilled approximately 30-feet east and west respectively of SB-20;
- If LNAPL is observed in soil samples collected from a soil boring an additional soil boring may be drilled approximately 30-feet further away from the direction of the observed sheen area; and

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- If LNAPL is not observed in soil samples collected from a soil boring an additional soil boring may be drilled approximately 15-feet closer to the direction of the observed sheen area.

One soil boring (SB-25) is proposed to be installed hydraulically upgradient from the observed sheen area within the vacant building, approximately 25-feet north of SB-20. Soil boring SB-25 is proposed to investigate the geology and presence and distribution of LNAPL, if present, between soil boring SB-20 and proposed monitoring wells MW-30 and MW-31 discussed in the subsequent subsection.

Two soil borings (SB-26 and SB-27) are proposed to be installed within the vacant building between MW-7 and the former ASTs to the northeast to investigate LNAPL distribution, if present. Soil boring SB-26 is proposed along a centerline between the former ASTs and MW-7. Soil boring SB-27 is proposed between SB-26 and proposed monitoring well MW-30 for additional delineation. Additional soil borings may be drilled based on the findings of soil borings SB-20 to SB-27. The soil borings will be grouted to the surface following completion and surface patched with concrete unless converted to monitoring wells.

Monitoring Well Installation

Seven monitoring wells a (MW-25 to MW-31) are proposed in an effort to investigate LNAPL thicknesses, if present. The locations of the monitoring wells may be modified based on the findings of soil borings SB-20 to SB-27. The proposed locations and purpose of each monitoring well are described as follows:

- Monitoring wells MW-25, MW-26 and MW-27 are proposed to investigate whether measureable LNAPL is present south of the buildings. Monitoring well locations will be biased to locations of LNAPL observed in soil borings;
- Monitoring wells MW-28 and MW-29 are proposed to investigate whether measurable LNAPL is present along the north side of the buildings hydraulically

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down gradient of the former ASTs in the vicinity of MW-4S and SB-9 respectively; and

- Monitoring wells MW-30 and MW-31 are proposed along the centerlines between the former ASTs in the vicinity of MW-4S and SB-9 respectively and the observed sheen to investigate whether measureable LNAPL is present beneath the buildings.

The wells are anticipated to be drilled to a terminal depth of approximately 17 fbg. However, the proposed drilling depth and screen interval of the monitoring wells may be modified based on the findings of the soil borings. If, during well installation, a peat or semi-confining layer is encountered below the water table, the well screen bottom will be set at or above the semi-confining layer. Proposed monitoring well drilling methods and well construction are as follows:

- Monitoring wells MW-25, MW-30 and MW-31 are proposed to be drilled using DPT and driven casing to approximately 17-fbg, due to the limited space along the bulkhead and within the buildings. The monitoring wells will be completed as 2-inch inside diameter groundwater monitoring wells screened from 2 to 17 fbg with 0.02-inch slot schedule 40 PVC screen and No. 2 Morie gravel.
- Monitoring wells MW-27, MW-28 and MW-29 are proposed to be drilled using a hydraulic drill rig equipped with hollow stem augers. The monitoring wells will be completed as 4-inch inside diameter wells screened from 2 to 17 fbg with 0.02-inch slot schedule 40 PVC screen and No. 2 gravel.
- Monitoring well MW-26 is proposed to be drilled using a hydraulic drill rig with hollow stem augers. The monitoring well is proposed to be completed as a 6-inch inside diameter groundwater monitoring well screened from 2 to 17 fbg with 0.02-inch slot stainless steel screen and No. 2 Morie gravel.

The monitoring wells will be completed at land surface with the installation of a 2-foot square concrete pad surrounding an 8-inch diameter, flush-mount manhole cover clearly embossed with the words "Monitoring Well".

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Soil boring and monitoring well locations may be adjusted or omitted due to, but not limited to, the presence of underground obstructions, overhead utilities, access limitations and/or refusal.

Soil Sampling and Analysis

Continuous soil samples will be collected from the soil borings and from monitoring wells MW-25, MW-30 and MW-31 using 2-inch diameter, 4 or 5-foot long macro-core soil samplers equipped with acetate liners. Continuous soil samples will be collected from monitoring wells MW-26, MW-27, MW-28, and MW-29 using a 2-foot long, 2-inch diameter split spoon soil sampler. Soil samples will be collected to the proposed terminal depth of the soil borings and monitoring wells. Soil samples will be collected during the monitoring well installation unless the wells are installed in a soil boring location.

Upon recovery, soil samples will be segregated and containerized for several purposes:

- Potential laboratory analysis;
- Field screening using a photoionization detector (PID); and
- Visual classification based on soil type, grain size, texture, moisture content, odor and visible evidence of staining or LNAPL, if present, and logged in the field.

The sample headspace will be field screened to detect the presence, if any, of volatile organic compounds (VOCs) using a PID equipped with a 10.6 electron volt (eV) lamp calibrated to an isobutylene span gas to yield total VOCs in parts per million per volume (ppmv) referenced to benzene. The PID screening values are for field screening, and may not be indicative of actual concentrations in soil, as determined by laboratory analysis.

Soil samples will be collected from the monitoring well locations for analysis as follows:

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- One soil sample collected from the sample interval with the highest PID reading or staining at or above the water table. In the absence of staining or PID readings above 10 ppmv, a soil sample will be collected from directly above the water table; and
- One soil sample collected from below the sample interval with the highest PID readings or staining above the saturated zone, if applicable.

Additional soil samples may be collected based on field observations. The soil samples will be placed in laboratory-supplied jars, subsequently placed in storage/transportation coolers, preserved with ice, and shipped, following chain of custody procedures via courier to Accutest Laboratories of Dayton, New Jersey (Accutest), a New York State Department of Health (NYSDOH) approved laboratory (Environmental Laboratory Approval Program [ELAP] No. 10983). The samples will be analyzed for the following:

- Target Compound List (TCL) of VOCs in accordance with United States Environmental Protection Agency (USEPA) Method 8260B;
- TCL semi-volatile organic compounds (SVOCs) in accordance with USEPA Method 8270C;
- Target Analyte List (TAL) metals including cyanide in accordance with USEPA Methods 6010B, 7471A and 335.4; and
- Total Petroleum Hydrocarbons (TPH) in accordance with USEPA Methods 8015 for Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and GC fingerprinting.

The GC fingerprinting analysis will evaluate whether the TPH results match one or more of the following: gasoline (C4-C12), turpentine (C9-C11), mineral spirits (C9-C12), kerosene (C9-C18), diesel /fuel oil #2 (C9-C22), fuel Oil #4 (C11-C24), fuel Oil #6 (C11-C26), or other patterns.

In addition, if sufficient sample is available, soil samples will be collected every 5-feet from the monitoring well locations for sieve analysis.

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Monitoring Well Development

Monitoring wells without LNAPL detections will be developed using a submersible pump to remove suspended particulates and establish hydraulic communication with the surrounding formation. Development water will be contained in 55-gallon drums and staged on site, pending characterization and disposal.

Surveying

The locations and elevations of the soil borings and monitoring wells will be surveyed by a licensed surveyor. Vertical control of elevations for soil borings and monitoring wells will be established to the nearest 0.01-foot and will be based on a United States Geologic Survey (USGS) datum and benchmarks established on the Project Area. Horizontal control will be based on New York State plane coordinate system with established and referenced control points.

Groundwater Gauging

Approximately two days following well development, a decontaminated electronic interface probe (EIP) will be used to measure the depths to the water table and thickness of LNAPL, if present in the wells. The groundwater gauging data will be subtracted from the monitoring well top of casing (TOC) elevation to calculate the groundwater elevation relative to mean sea level (MSL). For monitoring wells with measurable LNAPL, the groundwater elevation will be corrected for LNAPL displacement by adding the LNAPL thickness multiplied by the LNAPL specific gravity to the groundwater elevation.

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INTERIM REMEDIAL MEASURE WORK SCOPE

The purpose of the proposed IRMs is to evaluate alternatives in an effort to mitigate the observed sheen, encapsulate the area of the observed sheen and recover LNAPL from monitoring well MW-7 located west of the sheen, if present. The proposed IRM scope of work includes the following:

- Conducting a grout injection pilot test to evaluate the feasibility of injecting a grout slurry curtain to mitigate the sheen;
- Encapsulating the area of the sheen with a layer of organoclay, AquaBlok®, geotextile fabric and rip rap;
- Conducting a test pit at the southeast exterior corner of the vacant building to investigate the building foundation construction to evaluate the stability of the building for future mitigation considerations;
- Construct a temporary fenced hazardous waste storage area to store recovered LNAPL from monitoring well MW-7 (previously characterized as hazardous); and
- Recover LNAPL from MW-7 using a portable LNAPL recovery pump.

Grout Injection Pilot Test

To evaluate the feasibility of installing a grout curtain, a grout injection feasibility test will be conducted. A test boring will be drilled at the location along the bulkhead illustrated on Figure 5. A DPT rod will be advanced to approximately 15 fbg. Grout will then be pumped down the rod in 1-foot depth intervals, while monitoring back pressure and volume of grout injected per interval. The grout composition will be decided based on the findings of the soil boring and monitoring well installation activities.

Bulkhead Encapsulation

Layers of organoclay, AquaBlok®, geotextile fabric and rip rap are proposed to be installed, in that order, in an attempt to seal preferential pathways and encapsulate the observed sheen area.

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A description of each layer and purpose is described as follows:

- Organoclay removes a wide range of hydrocarbons and trace amounts of heavy metals from water. Approximately 4,000-pounds of organoclay pellets are proposed to fill in the voids between the existing rip rap to a thickness of approximately 6-inches in an effort to adsorb potential sheens.
- AquaBlok® is a patented, composite-aggregate technology resembling small stones and comprised of a central core (stone aggregate), clay or clay sized materials, and polymers. AquaBlok's® clay component usually consists largely of bentonite clay. Attapulgite is incorporated into the product for saline applications. AquaBlok® use generally involves applying the dry product through water and across the surface of an area to encapsulate. In a matter of days, the layer of initially discrete particles hydrates and expands into a homogeneous, relatively cohesive low-permeable cap. Approximately 6,000-pounds of AquaBlok® is proposed to be placed on top of the organoclay to a thickness of approximately 6-inches.
- The geotextile fabric and rip rap are proposed as ballast to protect the AquaBlok® from the changing tides while it hydrates.

The proposed encapsulated area is approximately 16-feet long and 7-feet wide between the high and low tide elevations. The organoclay, AquaBlok®, and rip rap will be installed using a backhoe from the steel bulkhead area of Parcel B. Details of the proposed installation area are illustrated on Figure 4.

Foundation Inspection

A shallow test pit is proposed to be excavated at the southeast corner of the vacant building on Parcel A (Figure 5) in an effort to investigate whether the building is constructed on pilings. The test pit is proposed to be excavated using a backhoe and hand tools to the bottom of the outside wall foundation to evaluate whether it is supported by pilings. Knowledge of the building foundation construction is important for potential additional investigation and/or mitigation considerations.

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Hazardous Waste Drum Storage

A temporary hazardous waste drum storage area is proposed to be constructed north of the northeast corner of the vacant building on Parcel A as illustrated on Figure 5. The temporary storage area will be used to store 55-gallon steel drums of recovered LNAPL from monitoring well MW-7 until an IRM LNAPL recovery system enclosure is completed as proposed in the *Interim Remedial Measure Work Plan,* dated September 21, 2010 to store the drums. The temporary storage area will consist of a 6-foot high chain link fence approximately 12-feet wide and 12-feet long connected to the existing chain link fence along the eastern property boundary. The 55-gallon steel drums will be stored on secondary containment pallets and covered with plastic sheeting inside the storage area pending disposal.

Waste Management

Drill cuttings, well development water, decontamination fluids, personal protective equipment (PPE), and disposable sampling materials will be containerized in separate 55-gallon steel drums. The drums will be stored adjacent to the proposed hazardous waste storage area pending characterization and disposal.

REPORT OF FINDINGS

A report of findings will be prepared to include the investigation methods and provide a summary of findings and results of SSI and IRM activities.

TENTATIVE SCHEDULE

Field activities will commence within 30 days following receipt of written NYSDEC approval of this Work Plan. The report of findings will be submitted to the NYSDEC within 120 days following completion of field activies associated with this Work Plan or receipt of laboratory analysis.

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Please forward written NYSDEC comments and/or approval of this Work Plan to Kleinfelder at your earliest convenience. If you have questions or require additional information, please contact the undersigned at (631) 218-0612.

Very truly yours,
Kleinfelder East, Inc.

John E. Wolf
Senior Project Manager

Scott Strom
Field Supervisor

Attachments

Copy: File (16)

"Kleinfelder performed the services for this project under the Standard Procurement Agreement with Procurement, a division of ExxonMobil Global Services Company (signed on June 21, 2007). Kleinfelder states that the services performed are consistent with professional standard of care defined as that level of services provided by similar professionals under like circumstances. This report is based on the regulatory standards in effect on the date of the report. It has been produced for the primary benefit of Exxon Mobil Global Services Company and its affiliates."

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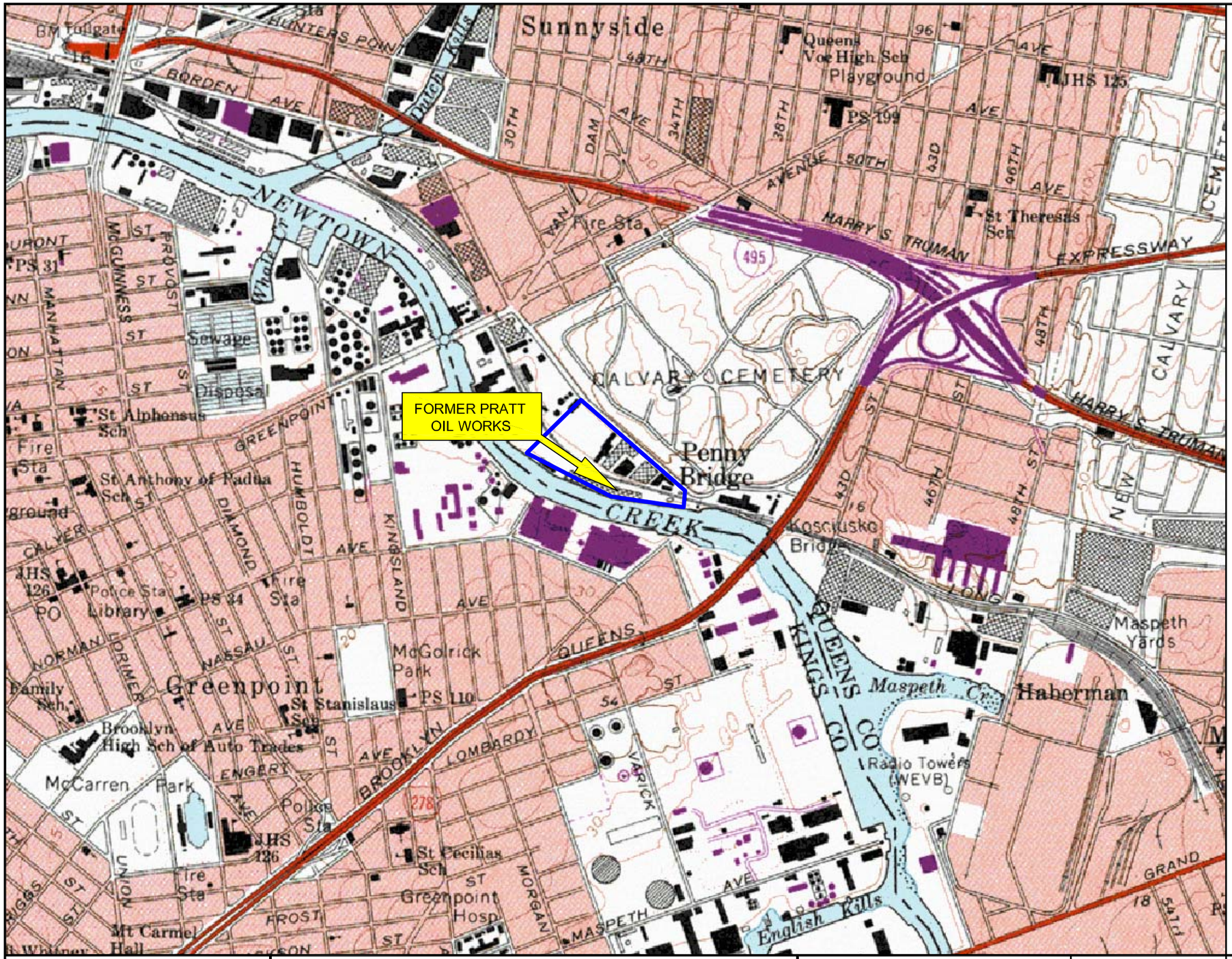
FIGURES



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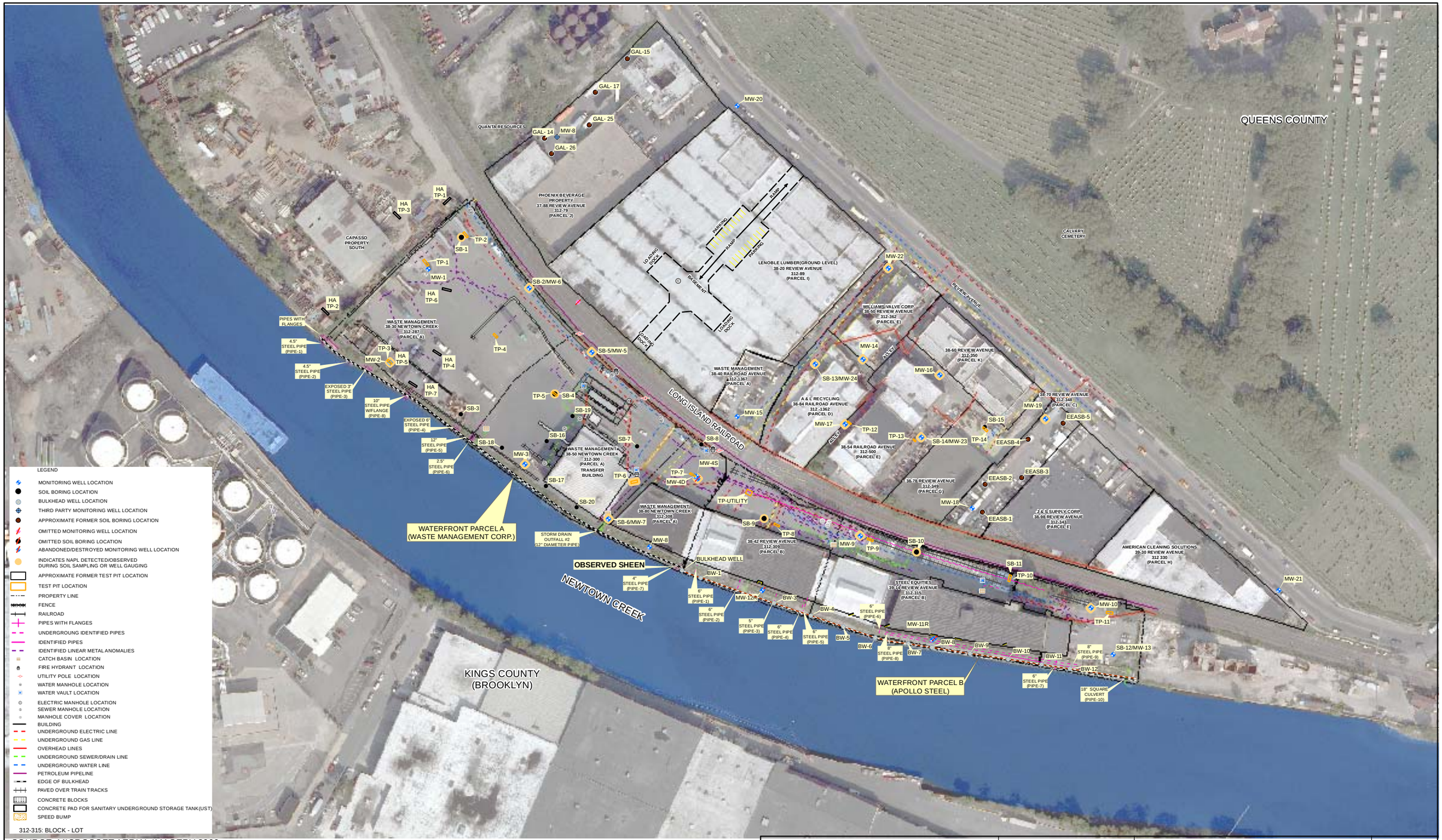
PROJECT NO.	116669
DRAWN:	05/19/2011
DRAWN BY:	JR
CHECKED BY:	JW
FILE NAME:	

LOCUS PLAN

FIGURE
1

FORMER PRATT OIL WORKS
THE INLAND PROJECT AREA (TRACT I)
THE WATERFRONT PROJECT AREA (TRACT II)
LONG ISLAND CITY, NEW YORK

BOHEMIA, NY



SOURCE: MICROSOFT AERIAL IMAGERY 2006

N

0 40 80
Feet

1 inch = 80 feet

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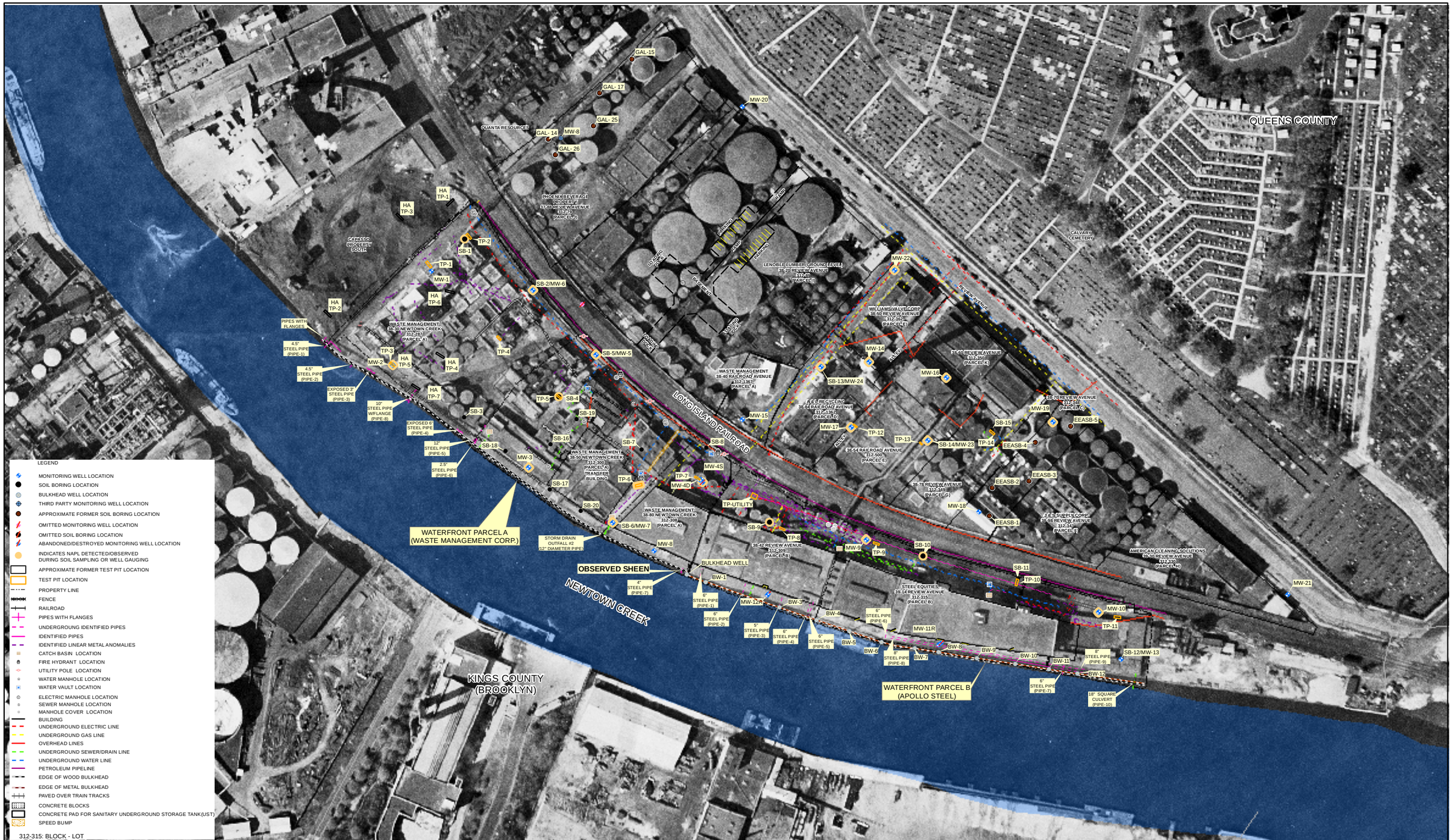
PROJECT NO.	116669
DRAWN:	05/10/11
DRAWN BY:	J.R.
CHECKED BY:	J.W.
FILE NAME:	

AERIAL PLAN

FORMER PRATT OIL WORKS
THE INLAND PROJECT AREA (TRACT I)
THE WATERFRONT PROJECT AREA (TRACT II)
LONG ISLAND CITY, NEW YORK

FIGURE
2



LEGEND

- MONITORING WELL LOCATION
- SOIL BORING LOCATION
- BULKHEAD WELL LOCATION
- THIRD PARTY MONITORING WELL LOCATION
- APPROXIMATE FORMER SOIL BORING LOCATION
- OMITTED MONITORING WELL LOCATION
- OMITTED SOIL BORING LOCATION
- ABANDONED/DESTROYED MONITORING WELL LOCATION
- INDICATES NAPL DETECTED/OBSERVED DURING SOIL SAMPLING OR WELL GAUGING
- APPROXIMATE FORMER TEST PIT LOCATION
- TEST PIT LOCATION
- PROPERTY LINE
- FENCE
- RAILROAD
- PIPES WITH FLANGES
- UNDERGROUNG IDENTIFIED PIPES
- IDENTIFIED PIPES
- IDENTIFIED LINEAR METAL ANOMALIES
- CATCH BASIN LOCATION
- FIRE HYDRANT LOCATION
- UTILITY POLE LOCATION
- WATER MANHOLE LOCATION
- WATER VAULT LOCATION
- ELECTRIC MANHOLE LOCATION
- SEWER MANHOLE LOCATION
- MANHOLE COVER LOCATION
- BUILDING
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND GAS LINE
- OVERHEAD LINES
- UNDERGROUND SEWER/DRAIN LINE
- UNDERGROUND WATER LINE
- PETROLEUM PIPELINE
- EDGE OF WOOD BULKHEAD
- EDGE OF METAL BULKHEAD
- PAVED OVER TRAIN TRACKS
- CONCRETE BLOCKS
- CONCRETE PAD FOR SANITARY UNDERGROUND STORAGE TANK(UST)
- SPEED BUMP

312-315: BLOCK - LOT

SOURCE: MICROSOFT AERIAL IMAGERY 2006

N

0 40 80
Feet

1 inch = 80 feet

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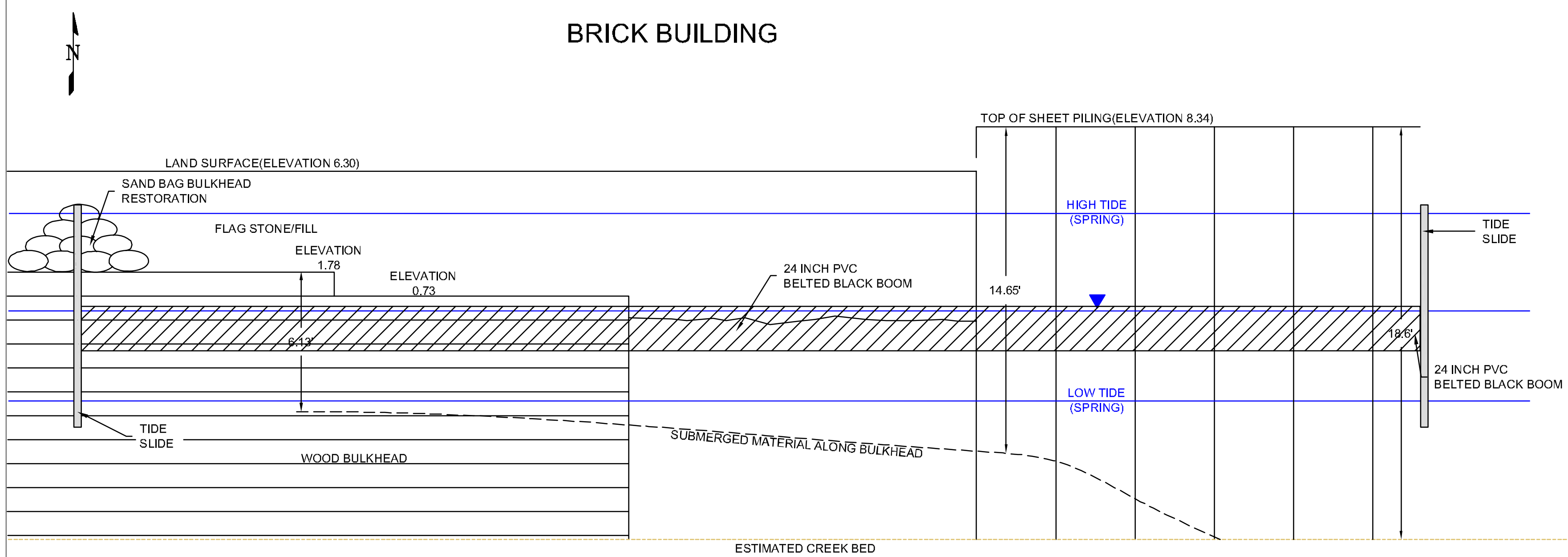
PROJECT NO.	116669
DRAWN:	05/10/11
DRAWN BY:	J.R.
CHECKED BY:	J.W.
FILE NAME:	

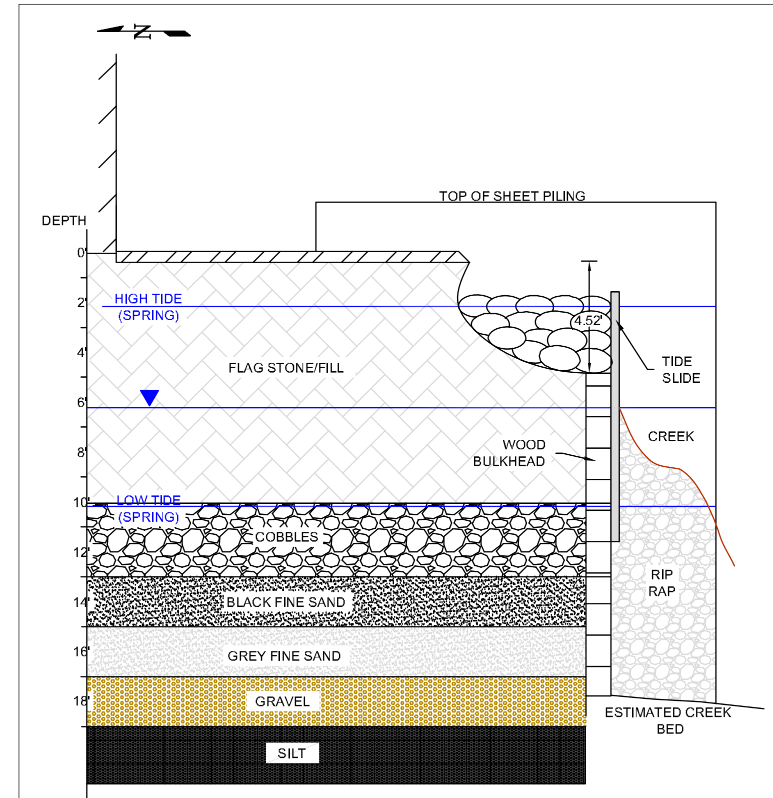
1949 AERIAL PLAN

FORMER PRATT OIL WORKS
THE INLAND PROJECT AREA (TRACT I)
THE WATERFRONT PROJECT AREA (TRACT II)
LONG ISLAND CITY, NEW YORK

FIGURE
3

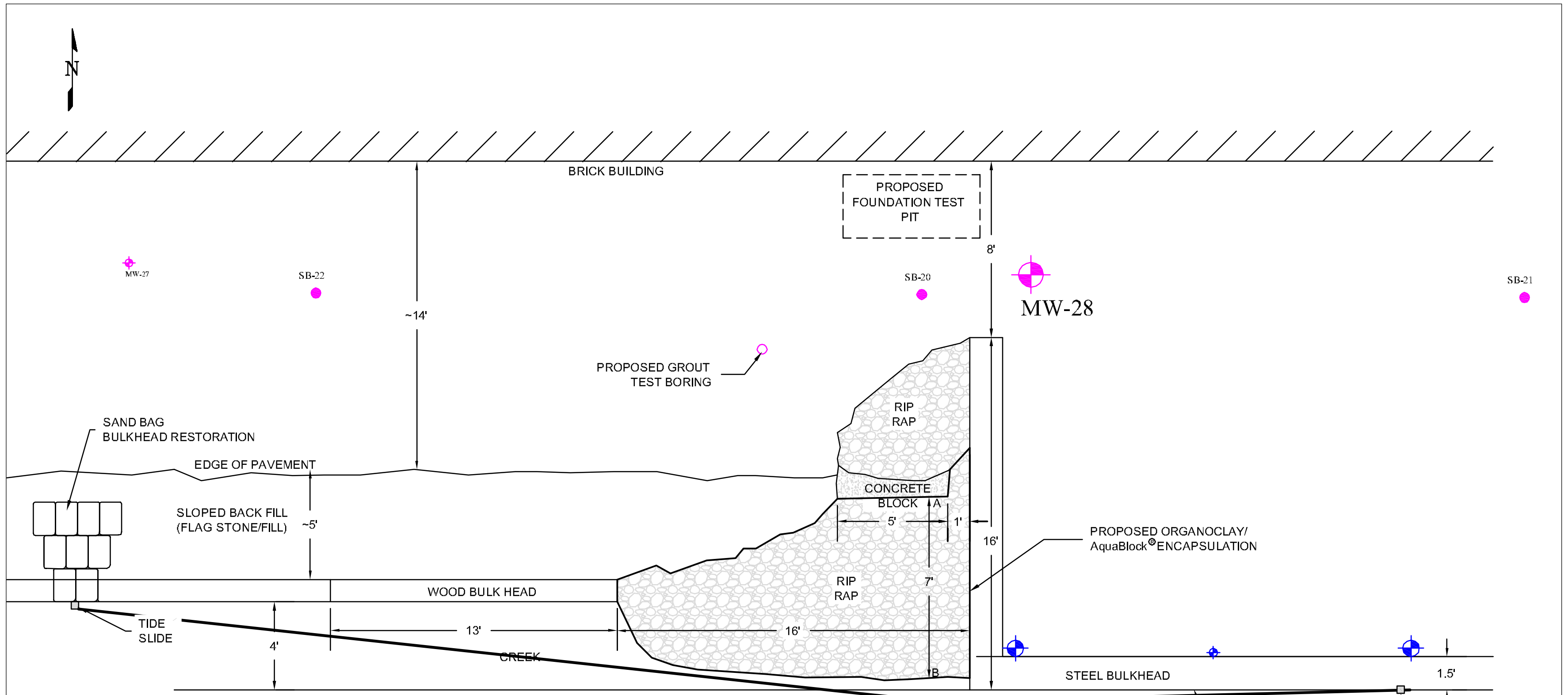


PROFILE VIEW
(LOOKING NORTH)

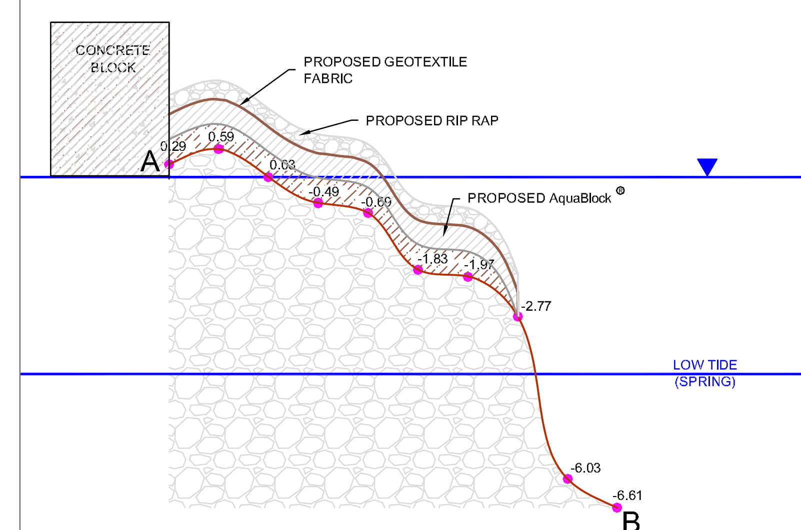


PROFILE VIEW
(LOOKING WEST)

NOTES:
1. GEOLOGIC DESCRIPTION BASED ON MW-8 SOIL BORING LOG.
2. TIDE ELEVATIONS BASED ON ELEVATIONS IN THE TIDAL STUDY AND HYDRAULIC CONDUCTIVITY EVALUATION REPORT DATED JANUARY 11, 2011.



PLAN VIEW



RIP RAP
SLOPE DETAIL

0 1 2 4
SCALE (feet)

THE EDUCATION LAW OF THE STATE OF NEW YORK PROHIBITS ANY PERSON ALTERING ANYTHING ON THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATIONS, UNLESS IT IS UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. WHERE SUCH ALTERATIONS ARE MADE, THE PROFESSIONAL ENGINEER MUST SIGN, SEAL, DATE AND DESCRIBE THE FULL EXTENT OF THE ALTERATION ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS. (NYS EDUCATION LAW SECTION 7209-2)

LEGEND
- MONITORING WELL LOCATION
- PROPOSED MONITORING WELL LOCATION
- PROPOSED GROUT INJECTION BORINGS
- PROPOSED SOIL BORING LOCATION

0 2 4 8
SCALE (feet)

NO.	REVISION	BY	DATE
1			

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PROJ. NO.: 115232
ACAD FILE: 30618.dwg
DRAWN BY: CTH
CHECKED BY: -
DESIGNED BY: -

BULKHEAD DETAIL

FORMER PRATT OIL WORKS
THE INLAND PARCELS (TRACT I)
THE WATERFRONT PARCELS (TRACT II)
LONG ISLAND CITY, NEW YORK

FOR REDUCED PLANS:
ORIGINAL IN INCHES
0 0.5 1.0 1.5 2.0

DATE: 04/13/11
SCALE: 1" = 5'
FIGURE 4
1 of 1 sheets

N

0 15 30
Feet

1 inch = 30 feet

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PROJECT NO.	116669
DRAWN:	05/19/2011
DRAWN BY:	J.R.
CHECKED BY:	J.W.
FILE NAME:	

AERIAL PLAN WITH PROPOSED BORING, MONITORING WELL, AND TEST PIT LOCATIONS

FORMER PRATT OIL WORKS
THE INLAND PROJECT AREA (TRACT I)
THE WATERFRONT PROJECT AREA (TRACT II)
LONG ISLAND CITY, NEW YORK

FIGURE
5

N

0 15 30
Feet

1 inch = 30 feet

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PROJECT NO.	116669
DRAWN:	05/19/2011
DRAWN BY:	J.R.
CHECKED BY:	J.W.
FILE NAME:	

1949 AERIAL PLAN WITH PROPOSED BORING, MONITORING WELL, AND TEST PIT LOCATIONS

FORMER PRATT OIL WORKS
THE INLAND PROJECT AREA (TRACT I)
THE WATERFRONT PROJECT AREA (TRACT II)
LONG ISLAND CITY, NEW YORK

FIGURE
6

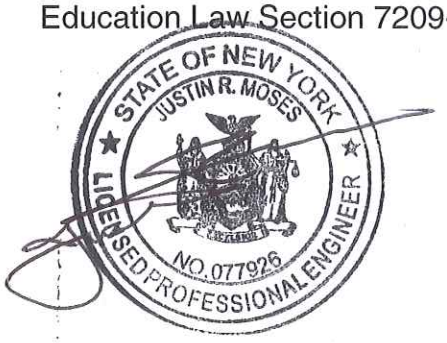
ATTACHMENT A

ENGINEERING CERTIFICATION

BULKHEAD SHEEN INVESTIGATION WORK PLAN
Former Pratt Oil Works
Long Island City, New York

ENGINEERING CERTIFICATION

This report has been reviewed by Kleinfelder Engineering, P.C. for accuracy, content and quality of presentation. The Education Law of the State of New York prohibits any person from altering anything in the report in anyway unless it is under the direction of the licensed professional engineer. Where such alterations are made, the professional engineer must sign, seal, date and describe the full extent of the alteration (NYS Education Law Section 7209-2).



Justin R. Moses, P.E.
Vice President and Secretary
Kleinfelder Engineering, P.C.

Date 5/31/11

ATTACHMENT B

Geophysical Survey Report

NAEVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

GPR
MAGNETICS
ELECTROMAGNETICS
SEISMICS
RESISTIVITY
UTILITY LOCATION
UXO DETECTION
BOREHOLE CAMERA
STAFF SUPPORT

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(845) 268-1802 Fax

VIRGINIA
P.O. Box 7325
Charlottesville
Virginia 22906
(434) 978-3187
(434) 973-9791 Fax

April 27, 2011

Mr. John Wolf
Kleinfelder, Inc.
One Corporate Drive, Suite 201
Bohemia, NY 11716

Dear Mr. Wolf:

This letter summarizes the results of the geophysical investigation conducted by NAEVA Geophysics, Inc. on April 21, 2011, on portions of a former Pratt Oil facility located in Long Island City (Queens), New York. The area of investigation included a vacant building located at 38-80 Newtown Creek (in what is referred to as Parcel A) and the area between the building and Newtown Creek (see Figure 1). The purpose of the investigation was to identify subsurface utilities and features that may be a source or provide a pathway for contamination, such as piping associated with the former Pratt Oil facility. The area inside the building was approximately 11,500 square feet and the area between the building and Newtown Creek was approximately 2,200 square feet.

The equipment selected for this investigation included a Geonics EM-61 high-sensitivity electromagnetic (EM) metal-detector (used as the primary investigative instrument inside the building), a Fisher TW-6 Pipe and Cable Locator (a type of hand-held EM metal-detector used to further define EM-61 anomalies, and as the primary investigative instrument in the area between the building and Newtown Creek), a Subsite 950 utility locator, a Dynatel 2250 Pipe and Cable Locator, and a Sensors & Software Smart Cart ground penetrating radar (GPR) system with a 250 MHz antenna.

The EM-61 identified several EM anomalies inside the building (see Figure 2). The majority of the anomalies were found to be due to aboveground cultural features such as metallic stairs and metallic support columns. There were two large areas of high EM response on the east and north sides of the building. GPR data collected over the anomalous areas were inconclusive in determining their source. It is possible the anomalous areas could represent a subsurface feature such as reinforced concrete which could potentially obscure underlying targets. Careful excavation of the anomalous areas would be required to determine their source.

The TW-6 metal-detector and utility locating instruments identified several suspected linear features inside the building. These features were not visible in the EM-61 data and GPR data collected over the features proved to be inconclusive in determining their source. Due to the unusually curved surface traces of these features, and the fact they do not appear in the EM-61 data, it is unlikely they represent large diameter metal piping. It is possible they represent small diameter conduits, such as

abandoned electric lines or grounding wires, or buried metallic debris. NAEVA recommends careful excavation of these features to determine their source.

The area between the building and Newtown Creek was determined to be too narrow to use the EM-61. The TW-6 metal-detector, GPR, and utility locating instruments were used to investigate this area. Two large metal detector anomalies were identified with the TW-6. One metal anomaly covered a large portion of the eastern half of the area. The second anomaly was an approximately seven foot wide strip located 31 feet west of the first anomaly. GPR data collected over the anomalies were inconclusive, although exposed reinforced concrete could be seen under the grass along the southern edge of the smaller metal anomaly, near Newtown Creek. A third smaller rectangular metal anomaly was identified between the first two. A linear feature was also delineating exiting the anomaly to the east for approximately 15 feet where it appeared to terminate. GPR data collected over the anomaly and the linear feature proved to be inconclusive. NAEVA recommends careful excavation of these features to determine their sources.

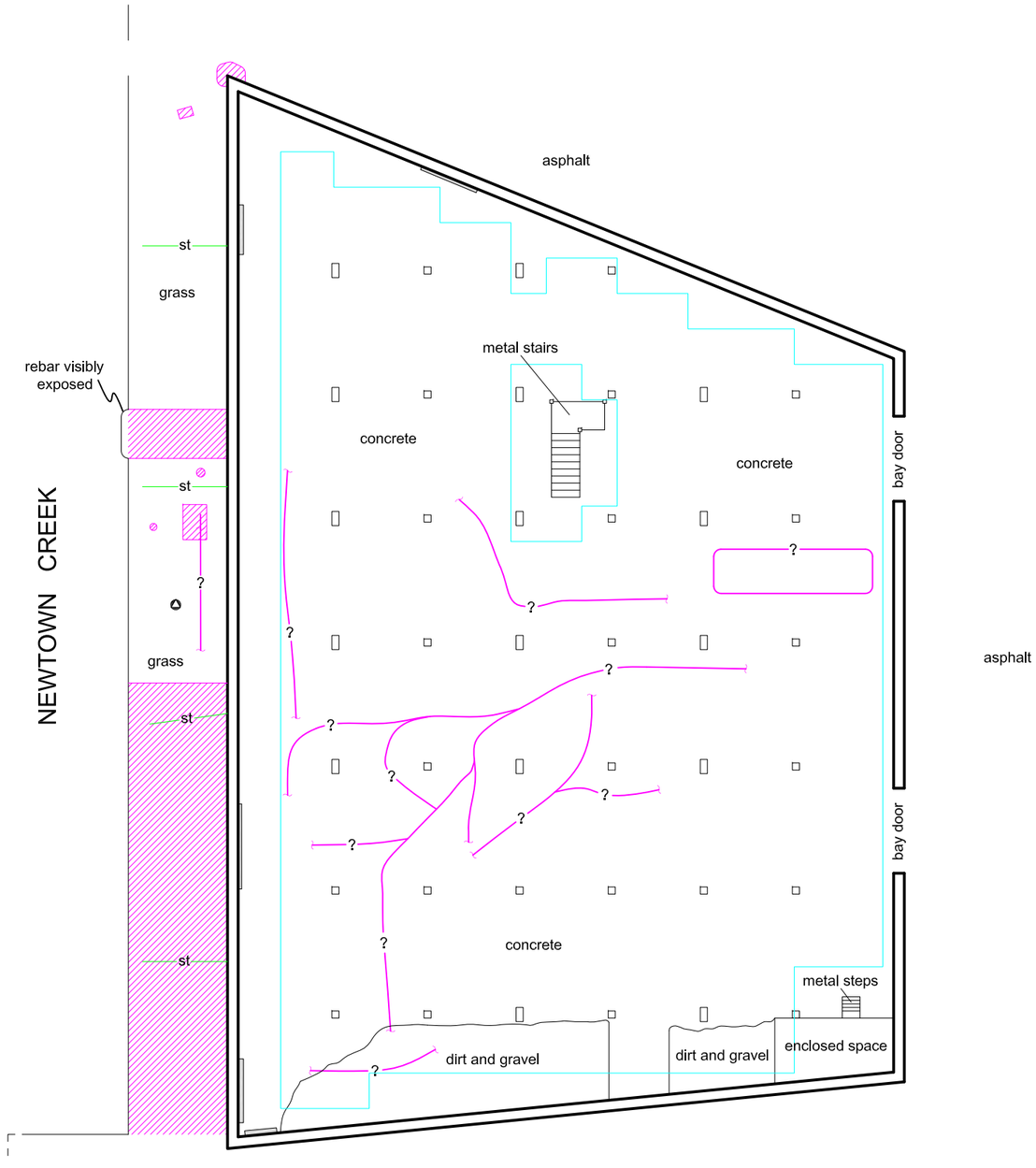
All detected utilities and features were marked on the ground with pink spray paint and indicated on the attached figures. EM anomalies identified by the EM-61 were not marked on the ground in the field, but are indicated on the attached Figure 2. NAEVA recommends that you exercise caution when drilling and/or excavating in the vicinity of any detected and/or marked out features.

Thank you for the opportunity to work with you on this project. We look forward to providing subsurface locating services for you in the future.

Sincerely,

Gerald Williamson
Geologist - Project Manager
NAEVA Geophysics, Inc.

Attachments: Figure 1 – Results of Geophysical Investigation
Figure 2 – EM-61 Bottom Coil Contour Map



LEGEND

- ? — suspected linear feature
- st — aboveground PVC drain pipe
- metal-detector anomaly
- area of EM investigation
- monitoring well
- metal column
- wood column

approximately

20 10 0 10 20 ft

Scale: One inch equals approximately twenty feet

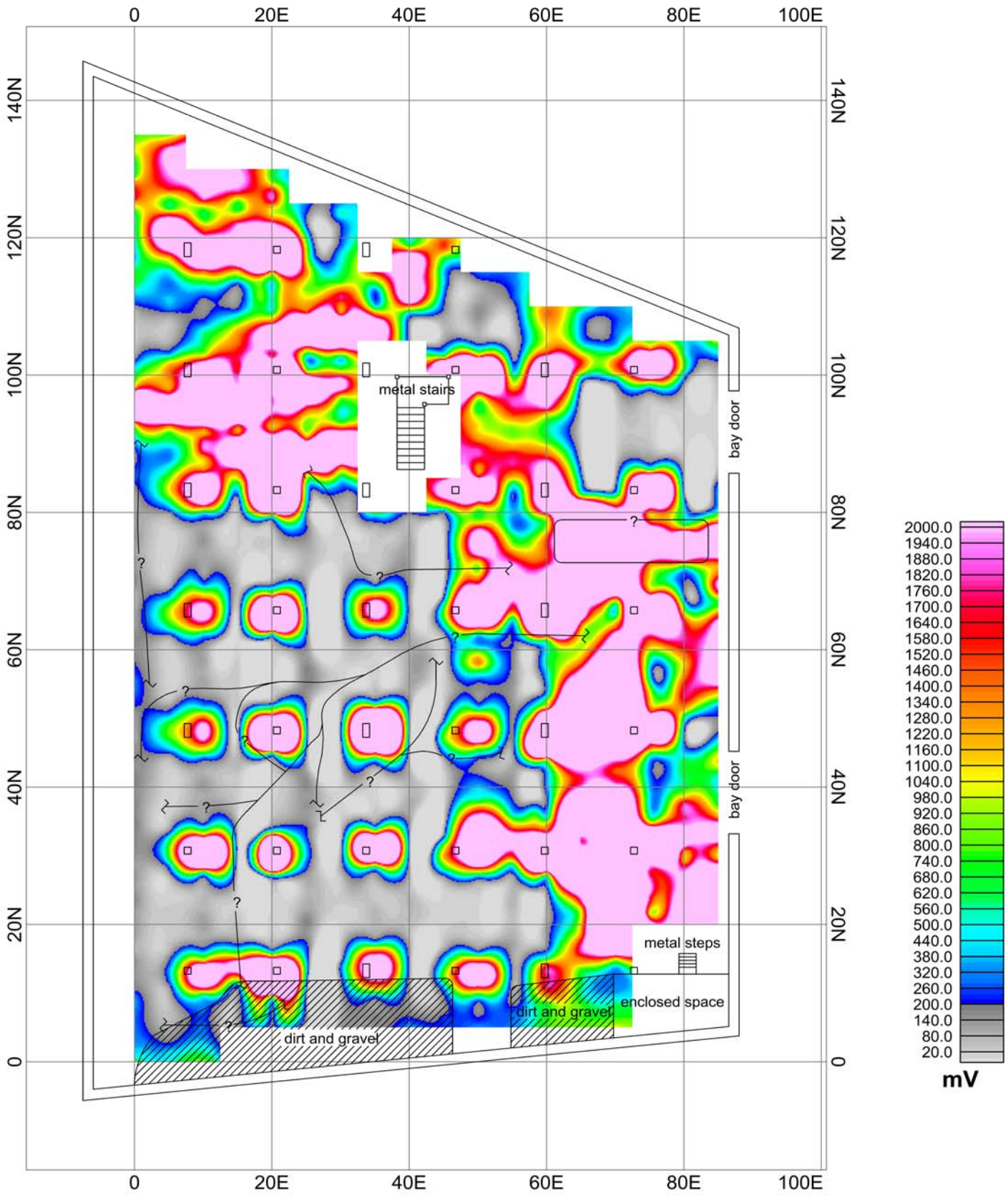
NAEVA GEOPHYSICS, INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

225 N Route 303, Suite 102
Congers, NY 10920
(845)268-1800
(845)268-1802 FAX

Figure 1: Results of a Geophysical Investigation Conducted at a Vacant Building Located at 38-80 Newtown Creek in Long Island City, New York

Client	Kleinfelder, Inc.	Date of Work	April, 21 2011
Project No.	C1104211X	Map By	Alec D. Kurowski

ALL UNDERGROUND FACILITIES MAY NOT BE DEPICTED ON THIS MAP



LEGEND

?	suspected linear feature
	metal column
	wood column

Scale 1:240

10 0 10 20

(feet)

Figure 2

NAEVA GEOPHYSICS INC.
THE LEADER IN SUBSURFACE DETECTION
Subsurface Geophysical Surveys

Kleinfelder

Project Number: C1104211X
EM-61 Bottom Coil Contour Map
Former Pratt Oil Facility - 38-80 Newtown Creek
Long Island City, New York

Date of Survey: April 21, 2011
Map By: Gerald Williamson

ALL BELOW GROUND FACILITIES MAY NOT BE DEPICTED ON THIS MAP.