AER ADVANCED ENVIRONMENTAL REDEVELOPMENT, LLC

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REMEDIAL WORK PLAN
YONKERS DOWNTOWN WATERFRONT DEVELOPMENT
PARCELS E and F
YONKERS, NEW YORK
PROJECT #214

Prepared for:

On its own behalf and on behalf of
Hudson Park Investors, LLC
C/O Collins Yonkers, LLC
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Principal

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1.0 INTRODUCTION

AER, LLC is pleased to submit this Remedial Work Plan for Parcels E and F of the Yonkers Downtown Waterfront Development Voluntary Cleanup Agreement (project number B0045-3). The site is located along the eastern shore of the Hudson River in Yonkers, New York, as shown on Figure 1 – Site Location Map. Parcel J is the proposed promenade of the redevelopment plan, and will be located west and adjacent to the waterfront parcels (Parcels A through I) along the Hudson River. In this work plan, Parcel J was not reported as a separate parcel, but was included with the adjacent Parcels E and F as shown on Figure 2 – Site Plan.

This Remedial Work Plan presents the conceptual remedial plan for Parcels E and F. The goal of this Work Plan is to carry out the recommendations included in AKRF's Site Investigation Report for Parcels E and F dated August 1998 and complies with the Record Of Decision for parcel F.

2.0 BACKGROUND

The study site is located in the downtown section of Yonkers, west of the New York Central Railroad right of way, and along the eastern bank of the Hudson River, as shown on Figure 1. The parcels have a history of industrial use dating back more than 100 years.

Parcel E (44,773 square feet) is abutted by: Sawmill River outlet to the north; MetroNorth Railroad to the east; Parcel F to the south; and The Hudson River to the west. Parcel F (52,846 square feet) is abutted by: Parcel E across the Main Street cul-de-sac to the north; the New York Central Railroad train tracks to the east; the Scrimshaw House condominium building to the south; and the Hudson River to the west.

Parcel E did not exist until some time between 1886 and 1917, at which time it was created with fill materials and utilized by the Water Department as a machine shop, stables and storage areas. The City of Yonkers Department of Public Works (DPW) occupied the site from 1951 until some time between 1971 and 1978, and included Water Bureau repairs, auto repairs and a boiler room. The Yonkers DPW leased the building to the Yonkers Post Office and was used for storage space by the Post Office until some time between 1978 and 1985. By 1991, the site was utilized as a wharf.

Parcel F was occupied by copper smiths and a sugar house from before 1886 until some time before 1917, at which time it was used as a sugar refining company. By 1951, the site was occupied by a wire drawing mill that remained on-site until some time between 1971 and 1975. The site was then occupied by Four Star Beer Distributors until the building was demolished sometime before 1980. The site is currently utilized as a parking lot for the Scrimshaw House condominium building.

3.0 OVERVIEW OF REMEDIATION PLAN

According to the " Site Investigation Report of 'Phase I' Parcels E and F", prepared by AKRF, dated August 1998, the identified contaminants of concern included levels of polynuclear aromatic hydrocarbons (PAHs), a class of semi-volatile organic compounds, and metals. AKRF collected 27 soil and 5 groundwater samples from test pits, soil borings and monitor wells, based on the results of preliminary surveys, including an electromagnetic survey, a soil gas survey, a ground penetrating radar (GPR) survey and on the known history of the two parcels. These activities helped to establish the extent of affected soil and groundwater on the site. Areas of affected soil are shown on Figure 2.

This proposed Remedial Work Plan involves capping the parcels with either a two-foot soil cover, buildings, or asphalt pavement. Soils needed to be excavated for the intended construction will be stockpiled on-site and tested to determine whether they can be used as on-site fill or require off-site disposal. This Work Plan includes a soil management plan component that sets forth how soils will be handled through excavation, stockpiling and if necessary, off-site disposal. Soil samples collected from any stockpile would be analyzed for PAHs and total Target Analyte List (TAL) metals in a New York State Department of Health certified laboratory.

Presently, the only planned non-capped areas would be limited landscaped areas within the promenade and limited planted areas along the building/sidewalk area. In the event that the elevations are such that a two-foot soil cover could not be placed in these areas, soil would be excavated to an elevation that would enable the two-foot soil cover to be placed. This soil would be stockpiled on-site for analytical testing to determine whether it can be utilized as on-site fill, or would require off-site disposal as a special waste.

The basic remediation methods for the site will be:

- Delineation of Areas of Affected Soil
- Delineation of Foundation Excavations
- Delineation of the Non-Capped Areas
- Excavation and Disposal of Contaminated Soil
- Capping of the Site

The project organization:

Project Manager----------Christopher Kopley
Project Engineer----------James Moore
Field Managers----------Todd Snowden/Craig Smolin

Remediation operations will be performed in accordance with the project site Health and Safety Plan (HASP) and the Community Air Monitoring Plan. These documents have been prepared under separate cover.

4.0 SOIL REMEDIATION

4.1 Soil Isolation

The planned development for Parcels E and F include an esplanade along the Hudson River on the western side of the parcels, a building on the central portions of each parcel and associated sidewalks and roadways. The esplanade is to be developed by the city of Yonkers and any construction in that area is to be covered by their plans and specifications. The majority of the parcels will be covered by impermeable surfaces such as sidewalks roads and buildings. Some planted areas will be included in the esplanade along the roadways and sidewalks. The portions of the parcels that will be occupied by buildings must be raised to elevation 10.0 MSL, based on the National Geodetic Vertical Datum of 1929 (NGVD), to meet the 100-year flood elevation. However, the planned esplanade and roads will be below this elevation. In the regions of the proposed esplanade that will not be hardscaped, soil will be excavated to an elevation that would allow for a two-foot soil cap, bringing the final elevation of the landscaped areas of the esplanade to approximately 7.5 MSL, to align with the Yonkers Pier.

The final plans for the esplanade are not complete as of this Work Plan, however, minimal areas are proposed to be landscaped with the majority of the area hardscaped, and thus would require no additional remedial measures.

The area of land along the roadside currently varies from elevation 8.5 to 9.5 feet NGVD. The final elevation of the roadside will be 9.5 feet NGVD, therefore, in the landscaped areas along the road, if any, soil will be excavated to an elevation that would allow for a two-foot soil cap. In the areas of the proposed buildings, the final elevation will be approximately 10.0 feet NGVD. This area currently varies in elevation from 7.5 to 9.5 feet NGVD.

In those areas which will be landscaped (areas not below asphalt pavement or buildings), the soil will be excavated to up to approximately two feet below grade. A polyethylene high visibility barrier fence would then be placed as a marker layer followed by two feet of clean fill.

Excavated soil will be stockpiled on and covered with plastic sheeting. Soil samples will be collected from the stockpiles and analyzed by a certified laboratory for semi-volatile organic compounds (PAH's only) and TAL metals. Analytical results will be compared to TAGM 4046. TAGM 4046 guidelines will be used to determine whether off-site disposal or on-site reuse is appropriate. Based on the analytical results and physical soil characteristics, soils not exhibiting hazardous characteristics or grossly contaminated may be re-used as fill below one of the capping methods (soil, building or pavement).

Soils intended for reuse on site may consist of dry, non-hazardous granular soils that do not contain any free liquids or non-natural debris (paper, demolition debris, metals, etc). Headspace filed screening of these soils using a PID will not exceed 10 PID units above background conditions.

Grossly contaminated soils will consist of those soils that are laden with non-natural debris (excluding typical urban fill materials such as bricks, concrete, etc.), contain free product, register over 10 PID units above background using the PID headspace field screening method, are visibly stained or exhibit a strong odor.

During these construction and utility excavations, oversight will be conducted by AER to document field activities. Field screening will be conducted using a photoionization device (PID), however, soil staining and odors will primarily be used to delineate contaminated soil. The majority of the known contaminants are not detectable using a PID. Soil that is slated for removal will be sampled and analyzed for those compounds appropriate for the receiving facility.

4.2 Soil Management

Affected soil that would require off-site disposal, if any, would be removed in accordance with the requirements of the Occupational Safety and Health Act (OSHA) using conventional excavation techniques, such as the use of backhoes and excavators, and the resultant excavation would be backfilled using environmentally clean fill. To minimize the potential for post-construction settlement, the fill will be placed and mechanically compacted in layers or lifts to be determined by the site contractor.

During excavation and backfilling activities, proper surface water management measures would be implemented. Such measures may include:

- management and handling of precipitation and flow into the excavations using temporary ditches and berms to minimize run-on;
- diversion of collected surface water to off-site disposal points consistent with current surface water flow patterns;

- covering the interior of the excavations with temporary tarpaulins, to the extent practicable, during rainfall events; and

- management of excavation and filling activities such as that a localized low area or sump can be maintained, if needed.

Representative soil samples from each stockpile will be collected using dedicated sampling equipment and analyzed for TCLP RCRA metals, total TAL metals and semi-volatile organic compounds (EPA Method 8270 PAH's only). One grab soil sample will be collected for every 300 cubic yards of stockpiled material. Representative confirmatory samples will be collected and analyzed from those areas where soil disposed of off-site had been excavated (one sample each ±20 linear feet of excavation). The stockpiled soil will be securely placed on and covered with plastic sheeting. Plastic sheeting will be sized and lapped to completely enclose the stockpiled soil and will be applied and secured to drain possible run-off. The stockpiled soil and plastic sheeting will be maintained in good condition until the soil is either used on-site or disposed of off-site.

If the analytical results indicate that the soil is not suitable for reuse, the affected soil will be transported off-site within applicable regulatory time frames to an appropriate disposal facility. Previous soil samples collected from the study site did not exceed the hazardous waste thresholds.

Soil samples from the impacted stockpile will be collected and submitted for analysis for possible off-site disposal characterization. The number, type of samples and the parameters analyzed will depend on the disposal facility requirements. Contingent on analytical results, the impacted soil may necessitate transportation off-site by a licensed hauler and disposal at a regulated disposal facility, in accordance with Federal, State and local regulations.

4.3 Additional Considerations

Site investigations have shown that only metals and semi-volatile compounds have been identified on-site. AER will review site soil conditions during this project and identify the need for any additional soil sampling or stockpiling. Encountered soils will be screened daily with a PID. Soils that are grossly contaminated soils will consist of those soils that are laden with non-natural debris (excluding typical urban fill materials such as bricks, concrete, etc.), contain free product, register over 10 PID units above background using the PID headspace field screening method, are visibly stained or exhibit a strong odor. These soils will likely be managed using excavation techniques and segregated from the typical site soil. If freestanding liquids are found they will be removed and affected site soils excavated. Excavated soils will be placed on and covered with plastic sheeting.

Any soils differing from those expected will be analyzed for the appropriate parameters based upon PID readings, color and odors. Representative confirmation soil samples (one sample each ±20 linear feet of excavation) will be collected from the excavation verifying that the contaminants of concern have been removed. Additional samples will be collected for off-site disposal classification if necessary.

4.4 Capping of the Site

As part of the planned development, the majority of the study site will be capped with a building, paved roadways, sidewalks and hardscaping along the promenade. In the areas that will not be capped with impermeable surfaces, the contractor shall place at least two feet of clean fill to act as a soil cap. A high visibility barrier fence will be placed on top of the affected soil remaining in place and beneath the clean fill. This visual demarcation barrier should consist of a horizontal layer of a distinctively colored, durable, non-degradable, porous or open-mesh material such as orange snow fencing. These planted areas must be maintained to ensure the integrity of the soil cap. An Operations and Management (O&M) Plan will be developed to manage the planted areas.

4.5 Site Visits

At least one site visit per month will be performed, and initially, more frequent site visits will be conducted until a routine is established, during excavation, off-site disposal and cap installation activities; or wherever affected soils are to be handled or managed. AER will document field activities and observe the excavation and stockpiling of affected soils and demarcation of soils to remain in place. The DEC may enter upon Parcels E and F for inspecting, sampling or testing to ensure compliance with the Agreement to Remediate.

Air monitoring will be performed according to the Community Air Monitoring Plan each day when affected soils are exposed. Periodic measurements of volatile organic compounds and particulates will be conducted; background readings will be conducted prior to that day's activities. If the site is covered with gravel or other clean materials (pavement, geotextiles, clean fill, etc.) that control or prevent dust generation, air monitoring will not be conducted.

AER will prepare monthly progress reports when required by the NYDEC or when necessary during the project and submit them to the client and appropriate NYSDEC representative when requested or when field observation or sampling anomalies are observed. The Progress Reports, when generated, will include:

- Actions completed
- Actions anticipated
- Analytical results including any QA/QC data
- Information concerning the percent complete, anticipated delays, future schedule and efforts to mitigate delays or problems.

These reports will be submitted by the tenth of each month only if field activities related to the site remediation have been conducted. Additionally, the NYSDEC shall be provided a chronological description of any anticipated ground intrusive and remedial activities, a schedule for the performance of these activities and at least 10 business days advance notice of any intrusive or remedial activities. AER will provide the NYSDEC with the construction schedule for intrusive activities as soon as it is finalized by the site contractor.

5.0 QUALITY ASSURANCE/QUALITY CONTROL

5.1 Sample Methods

Soil samples will be collected from soil stockpiles and the excavation, where excavated affected soil (above TCLP regulatory thresholds) had been located. The soil samples will be collected as discrete grab samples. The samples will be collected using decontaminated stainless steel sampling equipment and placed directly into laboratory prepared containers. The samples for analysis will be placed directly into a field cooler with an internal temperature of approximately 4° C. The soil samples will be delivered to the laboratory at the end of each day. Handling requirements are summarized in section 5.3.

Sampling containers, preservation and holding times are tabulated for the contaminants of concern; semi volatile compounds and metals.

Sampling Containers, Preservation, and Holding Times

Parameter Soil	Container	Sample Size	Preservation	Max. Holding Time
Semi Volatile	Glass wide mouth with Teflon lined cap	4 oz.	Cool, 4°C Store in dark	5 days to extraction; 40 days after extraction
Metals excluding chromium+6 and Mercury	Plastic or Glass	4 oz.	None	6 Months
Chromium +6	Plastic or Glass	4 oz.	Cool, 4°C	24 hours
Mercury	Plastic or Glass	4 oz.	None	26 days

Soil samples will be collected according to the following schedule:

1) Stockpiled soil: 1 sample per each approximate 300 cubic yards

2) Confirmatory samples in excavated areas for TCLP metals (if necessary): 1 sample per each approximate 20 linear feet of excavation

3) Trip Blanks: 1 sample per each 10 sample batch

4) Matrix Spike: 1 sample per each 20 sample batch and matrix spike duplicate

5.2 Field Decontamination Procedures

To avoid contamination and cross-contamination of soil samples, sampling equipment will be cleaned before collection of each sample. The procedure to be used was derived from the United States Environmental Protection Agency (EPA) Region II, as published by the New Jersey Department of Environmental Protection *Field Sampling Procedures Manual,* dated 1992. This reference differs in allowing alternatives to acetone and in the use of HCL for stainless steel.

The following procedure will be followed for the samples:

Step 1: Scrub equipment with a bristle brush using a non-phosphate detergent (alconox) in tap water.

Step 2: Rinse with tap water.

Step 3: Rinse with 0.1N nitric acid (HNO3). For stainless steel equipment, rinse with 0.1N hydrochloric acid (HCL).

Step 4: Rinse twice with deionized water.

Step 5: Air dry.

5.3 Chain of Custody

To ensure the integrity of soil samples collected, a strict chain of custody record must be maintained on each sample. The procedure begins after initial sampling is conducted. The entry in the sampler's field logbook will include the following:

a) Date and time of sampling;

b) sample location (as specific as possible):

c) the unique sample number, size and container(s) used;

d) sample description;

e) weather conditions (if applicable); and

f) any additional comments.

In addition, a record must be kept of the soil sample's progress from the sample site to the laboratory, where it will be analyzed. A chain of custody form will accompany the samples delivered to the lab and will include:

a) The sample number;

b) the sampler's name;

c) date and time of sampling;

d) location at which the sample was collected, including the address, if possible;

e) a description of the sample, as best known;

f) signatures of people involved in the chain of possession; and

g) inclusive dates of possession of each person in the chain.

The chain of custody form must accompany the sample(s) throughout its trip to the laboratory. If the sample(s) must be shipped to a laboratory, most shipping agents will refuse to sign or separately carry the chain of custody form. In this one case, it is permissible to put the chain of custody form into the box with the sample and then seal the box. The recipient of the box, the laboratory's sample custodian, can then attest to the box's arrival still sealed and unopened.

Accompanying the chain of custody record, or included in it, must be a request to the laboratory for sample analyses. Information required includes:

a) Name of person receiving the sample;

b) laboratory sample number;

c) date of sample receipt;

d) sample allocation; and

e) analyses to be performed.

Finally, on arrival at the laboratory, the sample custodian must enter the sample in the laboratory's sample logbook. The chain of custody should be kept on file at the laboratory.

5.4 Laboratory Testing

AER will be using the laboratory services of American Analytical Laboratories located at 56 Toledo Street, Farmingdale, New York. American Analytical Laboratories is an ELAP certified

laboratory (NYS ELAP 11418). The American Analytical laboratory operates a Quality Assurance/Quality Control (QA/QC) program that consists of proper laboratory practices (including the required chain of custody), an internal quality control program and external quality control audits by New York State.

6.0 FINAL REPORT

AER will submit a final draft report which summarizes the data collected during the Work Plan's implementation including data relative to each parcel. The following items will be included in this remediation report:

- A narrative section describing the daily remedial activities on-site;
- Project photos;
- Copies of the laboratory data sheets and summary tables for the soil sample analysis and air testing (particulate and PID data;
- Maps showing locations of soil and air sample collection;
- Waste soil tracking and manifests, if applicable.

The draft final report will also include an Operations and Management Plan that describes the long term maintenance plan detailing how the engineering controls (pavement and a two foot soil cover in areas not covered by buildings) will be maintained. The plan will also include contingency procedures if the cap is accidentally or purposely breached.

The report will be signed by a licensed New York Professional Engineer and document that remedial activities were completed in accordance with the remedial elements of the construction plans and the Record of Decision. He will be involved in daily decision making processes when necessary. Four copies of each report will be submitted; one will be unbound. The final report will be submitted in Microsoft Word and AutoCAD electronic format.

7.0 CONFORMANCE TO REMEDIATION PROJECT GOALS

The remediation remedy, as described herein, can achieve the clean-up goals of the Agreement, which are to eliminate or mitigate threats to the public health and the environment presented by waste at the site through the proper application of scientific and engineering principles. The remedy conforms to the project goals by reducing the seven screening criteria listed in 6NYCRR Part 375-1.10. The remedy will achieve the goals, including protectiveness of public health and the environment, short term effectiveness, long term effectiveness and reduction of toxicity, mobility, and volume with treatment.

FIGURES

0 500 1000 1500 2000 3000 4000

Scale in Feet

SOURCE:

USGS TOPOGRAPHIC MAP - YONKERS, NEW YORK QUADRANGLE - DATED 1966 PHOTOREVISED 1979

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YONKERS WATERFRONT DEVELOPEMENT

YONKERS, NEW YORK

SITE LOCATION MAP

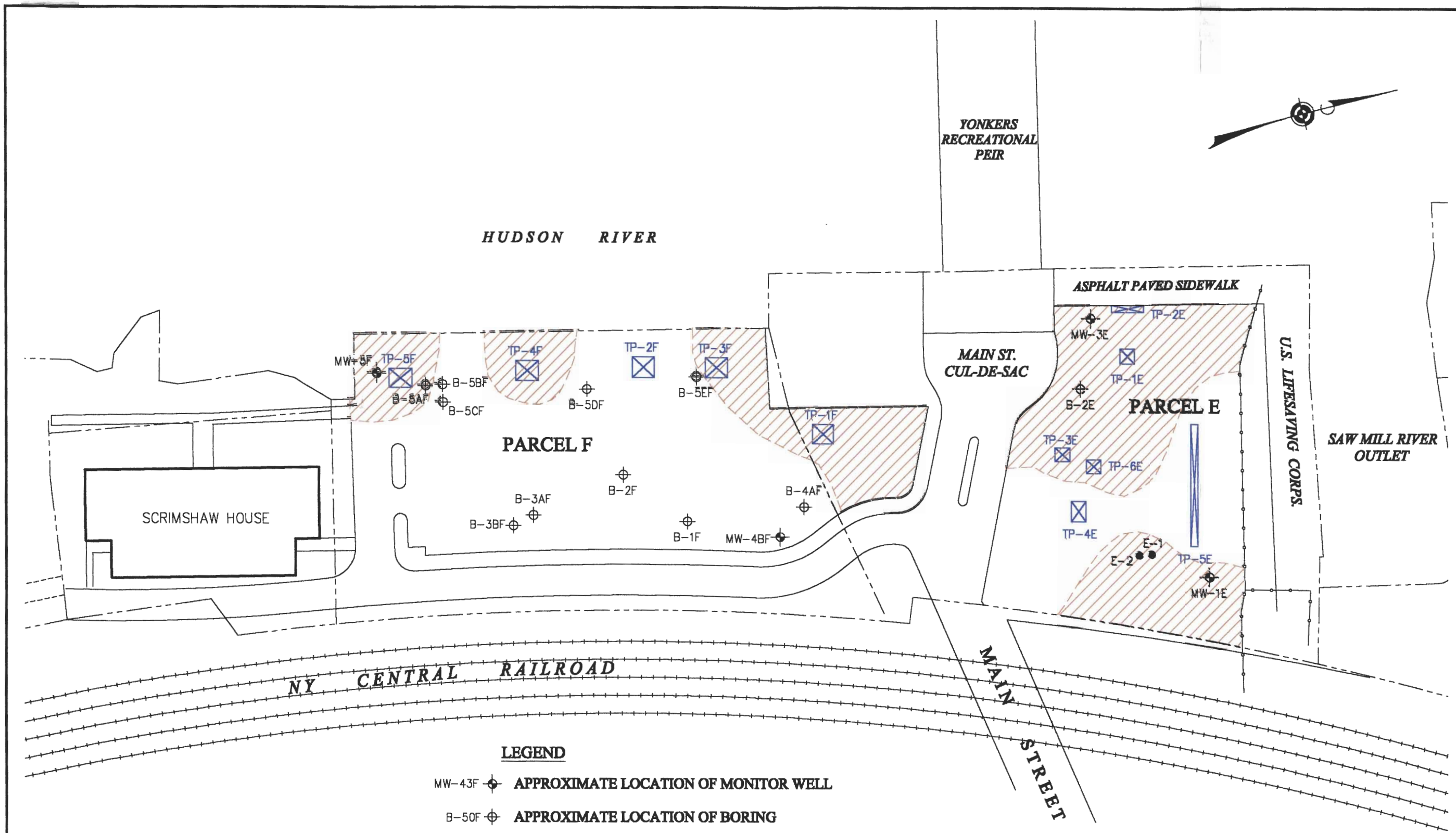
AER ADVANCED ENVIRONMENTAL REDEVELOPMENT, LLC

904 MADISON AVENUE – SUITE 213
BRIDGEPORT, CONNECTICUT 06606

DATE
11/8/01

PROJECT No.
0214

FIGURE No.
1



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904 MADISON AVENUE – SUITE 213
BRIDGEPORT, CONNECTICUT 06606

YONKERS DOWNTOWN WATERFRONT DEVEL.
127 SOUTH BROADWAY, YONKERS, NY

SITE PLAN

DRAWN BY: JJS
APPROVED BY: CK
REVISION DATE: 11/20/01
FILE No. 0214-1B
DATE CREATED 11/7/01
SCALE AS SHOWN
PROJECT No. 0214
FIGURE No. 2