SOUTH BROOKLYN MARINE TERMINAL

KINGS COUNTY, NEW YORK

Final Interim Remedial Measure Work Plan Addendum

NYSDEC BCP Number: C224360

Prepared for:

SBMT Asset LLC & Empire Offshore Wind LLC
600 Washington Ave., Suite 800 Stamford, CT, 06901

Prepared by:

Tetra Tech Engineering Corp PC
6 Century Drive, Suite 300, Parsippany, NJ, 07054
+1-973-630-8000

FEBRUARY 2024

INTERIM REMEDIAL MEASURE WORK PLAN

CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

Acronym	Definition
AST	Aboveground Storage Tank
BCA	Brownfields Cleanup Agreement
bgs	below ground surface
CY	Cubic Yard
DER	Division of Environmental Remediation
DGA	Dense Graded Aggregate
DOT	Department of Transportation
ESA	Environmental Site Assessment
FDNY	New York City Fire Department
FER	Final Engineering Report
IRM	Interim Remedial Measure
IRMWP	Interim Remedial Measure Work Plan
NYC	New York City
NYCRR	New York Codes, Rules, and Regulations
NYSDEC	New York State Department of Environmental Conservation
O&M	Operations and Maintenance
RI	Remedial Investigation
SBMT	South Brooklyn Marine Terminal
SCO	Soil Cleanup Objective
USEPA	United States Environmental Protection Agency

CERTIFICATION

I, Robert Chozick, certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measures Work Plan Addendum was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

094205	2/20/24	Robert Chozick Digitally signed by Robert Chozick DN: CN=Robert Chozick, E=robert.chozick@tetratech.com, G=Robert, SN=Chozick, C=US Date: 2024.02.20 15:33:49-05'00'
NYS Professional Engineer #	Date	Signature

Note: include PE stamp

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

1.0 INTRODUCTION

SBMT Asset LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in September 2022, to investigate and remediate a 71.134-acre property located at the South Brooklyn Marine Terminal (SBMT) located on 2nd Ave. between 29th and 39th Street in Sunset Park, Kings County New York (the "Site"). The BCA was amended on April 17, 2023, to add Empire Offshore Wind LLC as a Volunteer and again on November 11, 2023 to revise the Site boundary and reduce the Site acreage. When Site work is completed, the Site will contain a staging area for the loading of wind turbine components onto installation barges for the construction of wind turbines at several locations in the Atlantic Ocean. The Site will also act as an operation and maintenance (O&M) facility designated to assist in the O&M of installed oceanic wind turbines, and an electrical substation that will be used to distribute power generated by the oceanic wind turbines to the New York City (NYC) electrical grid.

This Interim Remedial Measure (IRM) Work Plan (IRMWP) Addendum describes additional actions proposed to address specific conditions or areas of contamination prior to the site-wide remediation described in a separate Remedial Action Work Plan. The IRM Work Plan Addendum is consistent with the procedures defined in Division of Environmental Remediation (DER)-10 and complies with all applicable standards, criteria, and guidance.

1.1 BACKGROUND, HISTORY AND SITE SETTING

Detailed information on the Site background, history, and site setting is provided in the NYSDEC-approved IRM Work Plan dated November 2023. A full history of the site, its setting, and the former MGP site operations is included in the Remedial Investigation Report.

The Site is located in Kings County, Brooklyn, NY and is identified as Block 662, portions of Lots 1 , 130, 136, 137, and 155 on the Brooklyn Borough Tax Map. The Site is situated on an approximately 71.13-acre area bounded by Sims Municipal Recycling facility and 29th Street to the northeast, 39th Street to the southwest, 2nd Avenue to the southeast, and Gowanus Bay to the northwest. Between 1888 and 1922, the elevation of this area was progressively raised with fill to construct a series of piers.

1.2 PREVIOUS INVESTIGATIONS

Several environmental investigations have been completed for the SBMT, including Phase I ESAs, Phase II ESAs, and an RI. Detailed information on the Site background, history, and site setting is provided in the NYSDEC-approved IRM Work Plan dated November 2023.

2.0 ADDITIONAL SCOPE OF WORK

The proposed scope of work includes additional equipment and soil removal, as well as drum removal. All tasks will be conducted in accordance with the guidelines in the approved IRM Work Plan.

2.1 Aboveground Storage Tank (AST) in Fire Suppression Room

Additional inspection of the fire suppression room in the N-shed indicated the presence of a small AST, approximate 250 gallons and elevated above the floor (Figure 1). The tank appears to be in good condition, as does the concrete floor below it, and no staining or signs of leakage were noted. If present, the contents of the AST will be sampled and sent to a lab for waste characterization. Such contents will be removed from the tank via vacuum truck or chemical pump and placed into appropriate containers prior to transport. Any and all waste will be characterized and appropriately disposed of as required by 6 NYCRR Part 364, 6 NYCRR Part 371, 6 NYCRR Part 372, USEPA, and DOT standards.

Renova (subcontractor) will purge the atmosphere of the AST and utilize a multi-gas meter to observe the atmosphere for hazards (i.e., explosive atmosphere, oxygen deficiency, hydrogen sulfide, and carbon monoxide). Once the atmosphere has been cleared, the AST will be cut open with non-sparking tools to provide access for cleaning.

The tank and contents will be removed from the Site and appropriately disposed. A notarized City of New York Fire Department (FDNY) affidavit of tank removal and closure signed by a FDNY certificate/license holder will be obtained. Documentation including waste manifests and/or bills of lading for all materials removed from the site will be included in the Construction Completion Report (CCR).

2.2 Tower Building - Switches

Renova and their subcontractor, TCI of New York, have sampled the contents of two oil-filled switches associated with the transformer located in the Tower Building. Once the analytical results have been received and a waste determination is made, the oil will be removed. The oil and the switches themselves will be disposed of as Toxic Substances Control Act waste if the oil is found to contain PCBs above 50 ppm. The switches will be direct loaded onto trucks and will be removed and disposed of by TCI New York. Documentation including waste manifests and/or bills of lading for all materials removed from the site will be included in the FER.

2.3 SB-12 Area

Subsurface soil samples collected at boring SB-12 during the Remedial Investigation (RI) indicated an exceedance of Industrial Soil Cleanup Objectives (SCOs) for mercury in a sample

collected from the 5-7 foot interval below ground surface (bgs). No other soil samples from borings in this area showed exceedances of mercury Industrial SCOs. The area around SB-12 will be excavated as shown on Figure 2 and the planned extent of excavation will be 10 feet x 10 feet, to 8 feet bgs. The total planned area of disturbance will be approximately 100 square feet, and the total estimated volume of material to be excavated will be 30 cubic yards (CY) and will be comprised of overlying asphalt and excavated soil. The asphalt will be recycled. The soil to be excavated is expected to be non-hazardous based on prior sampling. The soil in this area will be sampled for TCLP metals and RCRA characteristics prior to excavation.

Shoring will be installed as needed to ensure integrity of the sidewalls and the safety of the contractor.

The soil cleanup objective for this area will be removal of soil above Industrial SCOs for mercury. Post-excavation sampling will be conducted in accordance with DER-10 in order to confirm removal of mercury impacts above Industrial SCOs and to document remaining exceedances of SCOs that will be addressed through the cover system as an engineering control. Samples will be collected from each sidewall and from the bottom of the excavation, and analyzed for TCL VOCs (Method 8260D), TCL SVOCs (Method 8270E), PCBs (Method 8082A), Pesticides (Method 8081B), TAL Metals (Method 6000/7000, and PFAS (Method 1633). The SCO for endpoint sampling documentation is 5.7 parts per million (ppm) of mercury.

The excavation will be backfilled with ¾-inch stone until a depth of 5 feet below grade is achieved. This excavation will then be backfilled to grade with imported dense graded aggregate (DGA). Any import of backfill will comply with the requirements set forth in Section 6.9 of the IRMWP.

2.4 Waste Oil Drums

Two waste oil drums were discovered on a pallet southeast of the Graffiti Building, east of Pier 39 (Figure 2). The contents of the drums (presumed to be waste oil) will be sampled and sent to a lab for waste characterization. The drums and pallet will be removed from the Site for disposal. The waste oil will be characterized and appropriately disposed of as required by 6 NYCRR Part 364, 6 NYCRR Part 371, 6 NYCRR Part 372, USEPA, and DOT standards.

The area around the drums will be excavated as shown on Figure 2 and the planned extent of excavation will be 10 feet x 10 feet, to 3 feet bgs. The total planned area of disturbance will be approximately 100 square feet, and the total estimated volume of material to be excavated will be 11 CY and will be comprised of overlying asphalt and excavated soil. The asphalt will be recycled if possible, or disposed of as construction debris. The soil to be excavated is expected to be non-hazardous based on prior sampling and will be disposed of as such unless visual and olfactory observations suggest further characterization of this material is necessary.

Post-excavation sampling will be conducted in accordance with DER-10 in order to confirm removal of impacts above Industrial SCOs and to document remaining exceedances of SCOs that will be addressed through the cover system as an engineering control. Samples will be collected from each sidewall and from the bottom of the excavation, and analyzed for TCL VOCs (Method 8260D), TCL SVOCs (Method 8270E), Method 8015B(M))and extractable petroleum hydrocarbons (EPH), to confirm conformance with the SCOs as presented in Table 1.

The excavation will be backfilled with imported DGA. Any import of backfill will comply with the requirements set forth in Section 6.9 of the IRMWP.

2.5 Graffiti Building

Two previously undocumented hydraulic lifts and three monitoring wells have been observed in the Graffiti Building. This building was formerly occupied by Phoenix Marine and is now vacant. The monitoring wells in the building are compromised (e.g., damaged, missing well caps, etc.) and therefore are not suitable for sampling. The Scope of Work for this area includes the collection and analysis of additional on-Site soil and groundwater samples to characterize subsurface conditions at the Graffiti Building. These activities include:

The field sampling program has been developed to determine the nature and extent of potential contaminants related to activities in the Graffiti Building. The sampling program will consist of collecting soil samples from 10 soil boring locations and the collection of groundwater samples from three of the borings. The proposed sampling locations are depicted on Figure 3. The number and type of samples to be collected are broken down by area as described below.

Table 2: Graffiti Building - Proposed Boring and Sample Distribution

Area	Number of Borings	Soil Samples	Groundwater Samples
Small Lift	4	8	1
Large Lift	4	8	1
Monitoring well area	2	4	1

Utility Clearance

Prior to commencing ground-intrusive activities on-Site, a public utility mark out will be requested through notification to the New York 811 System (800-272-4480). The mark out request will be placed at least 48 hours, but no more than 10 days, prior to drilling. A private utility location company will also be subcontracted to clear the proposed sample locations prior to drilling. If any utilities are identified, then the proposed sampling locations may be modified to avoid overhead, or subsurface obstructions as needed. Borings will also be hand-cleared to approximately five feet bgs.

Installation of Soil Borings and Collection of Subsurface Soil Samples

The soil sampling will be performed by a field engineer, scientist, or technician under the supervision of a New York-licensed geologist or engineer. Soil samples will be continuously collected using direct-push drilling methods with macro-core samplers and acetate liners from ground surface to the target boring depths. If required due to the soil conditions (i.e., fill/lag layer), a hollow stem auger may be used to facilitate the collection of soil samples at depth.

Two soil samples will be collected from each boring for off-Site laboratory analysis. One sample will be collected from the two-foot interval exhibiting the greater evidence of impact (e.g., elevated PID readings, odors, or staining). If no evidence of impacts is observed during soil boring advancement, a soil sample will be collected from the interval immediately above the groundwater table. A second sample will be collected from the final two-foot interval of the boring. The target

boring depth is approximately 12-15 feet bgs, which is approximately five feet below the anticipated water table, in order to assess the possible presence of a smear zone.

QA/QC samples will be collected at a ratio of 1:20. Therefore, it is anticipated that one duplicate soil sample will be collected.

Soil samples will be logged and classified according to the Unified Soil Classification system per ASTM 2488 to aid in determining if the soils are fill material or native soils.

The soil cores will be screened with a PID for volatiles, and detections will be noted on the boring log. Any unusual soil conditions identified through visual and olfactory observations will also be recorded.

Samples selected for off-Site laboratory analysis will be transferred to certified-clean containers provided by the laboratory by personnel wearing clean, disposable latex or nitrile gloves. The soil fraction for Target Compound List (TCL) volatile organic compounds (VOCs) will be collected using an EnCore® sampler before removing the soil from the core tube. Collected soils will then be placed into a clean, disposable aluminum tin using a disposable plastic trowel, and mixed to ensure a homogeneous sample that is representative of the sampling interval. The remaining analytical fractions will then be transferred into the appropriate glass jars, labeled, recorded on a chain-of-custody, and placed into an ice-chilled cooler pending transport to the analytical laboratory (additional details are provided below).

Soil samples will be analyzed for the TCL VOCs, TCL semi-volatile organic compounds (SVOCs), Target Analyte List (TAL) Metals, Total Organic Carbon (TOC), polychlorinated biphenyls (PCBs), per- and polyfluorinated substances (PFAS), 1,4-dioxane and cyanide (CN). In addition, 25% of the samples will be analyzed for pesticides. The laboratory analytical methods are listed below.

Each soil sample location will be located using GPS.

Table 3: Soil Sampling and Analysis Plan

Parameter	Interval(s)	No. of Samples	QA/QC
TCL VOCs	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
TCL SVOCs	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
TAL Metals and CN	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
TOC	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
PCBs	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
1,4-dioxane	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
PFAS	based on field observations, previous sampling, and/or termination of boring (below GW table)	21	1 duplicate, 1 MS/MSD
Pesticide	25% of the samples will be analyzed based on field observations, previous sampling, and/or termination of boring (below GW table)	6	1 duplicate, 1 MS/MSD

MS/MSD: matrix spile/matrix spike duplicate

Groundwater Investigation and Sampling Methods

Grab groundwater samples will be collected from three of the soil borings. The samples will be collecting by using a groundwater sampling point (e.g., Hydropunch®). The point will allow a well screen to be opened in undisturbed soils once groundwater has been encountered. If the Site geology prohibits this sampling method to be used, the samples will be collecting using a groundwater sampling point constructed with a PVC well screen and riser with the screen placed into the groundwater once encountered. The grab groundwater samples will be collected from the sampling points by low-flow purge sample methods using either a peristaltic pump, a submersible pump (bladder, Redi-flo^{TM}, or equivalent), or a Wattera actuator (or equivalent).

At the ground surface, the groundwater will pass through a sealed chamber containing probes which will measure the water temperature, pH, specific conductivity, oxidation-reduction potential, and dissolved oxygen. Samples of water discharging from the chamber will be collected at regular intervals and analyzed for turbidity using a hand-held field meter. Purged water will be placed into 55-gallon drums and temporarily stored awaiting offsite disposal.

Groundwater samples for PFAS will be collected in accordance with the June 2021 NYSDEC guidance, *Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs and* will be outlined in the project specific SOPs developed for the Quality Assurance Project Plan.

The groundwater samples will be analyzed for TCL VOCs, TCL SVOCs, TAL Metals, Total Organic Carbon (TOC), PCBs, pesticides, PFAS, 1,4-dioxane and cyanide (CN). The laboratory analytical methods are listed below.

QA/QC samples will be collected at a ratio of 1:20. Therefore, it is anticipated that one blind duplicate groundwater sample will be collected.

Off-Site Laboratory Sample Analytical Methods

The representative soil samples will be analyzed by New York ELAP-certified laboratory with a standard 10-day turn-around-time. The analytical methods proposed are summarized below:

- TCL VOCs using USEPA Method 8260;
- TCL SVOCs using USEPA Method 8270;
- Chlorinated Pesticides using method EPA 8081
- TAL metals using USEPA Methods 6010 and 7471;
- TOC under SW-846 using USEPA Method 9060A;
- PCBs using USEPA Method 8082;
- 1,4-dioxane by USEPA Method 8270 SIM, and;
- PFAS by USEPA Method 1633.

The groundwater samples will be submitted to a New York State Department of Health (NYSDOH) approved laboratory for the following analyses:

- VOCs by USEPA Method 8260;
- SVOCs by USEPA Method 8270;
- Chlorinated Pesticides by USEPA Method 8081;
- Total Metals (total and dissolved metals) by USEPA Method 6010/7470;
- PCBs by USEPA Method 8082;
- PFAS compounds by USEPA Method 1633;

The laboratory will provide a Category B data deliverable (PDF) and a NYSDEC EQuIS-formatted electronic data deliverable. Data Usability Summary Reports will be required for all data packages, including previously collected Phase II data.

Well and Boring Abandonment and Waste Disposal

The sampling locations will be restored to grade using a cement/bentonite slurry. The existing, unusable wells will be properly abandoned in accordance with *CP-43: Groundwater Monitoring Well Decommissioning Policy* (November 2009). Investigation-derived waste that is generated during this sampling effort will be placed in 55-gallon drums, labeled appropriately, and stored on-Site in an owner-designated area for proper off-Site disposal of the investigation-derived waste using a licensed waste hauler and disposal facility.

Field Log

Field sampling personnel, under the supervision of a Qualified Environmental Professional, will keep a daily record of the field activities, including work completed that day, samples collected, visitors to the Site, and any other pertinent observations. Photographs taken during field activities will be noted in the daily field log with the date and time of the photo, location, direction of the photo and description of the subject of the photograph.

Reporting

The supplemental Remedial Investigation activities will be documented in the FER. A data package will also be prepared for submission to the NYSDEC.

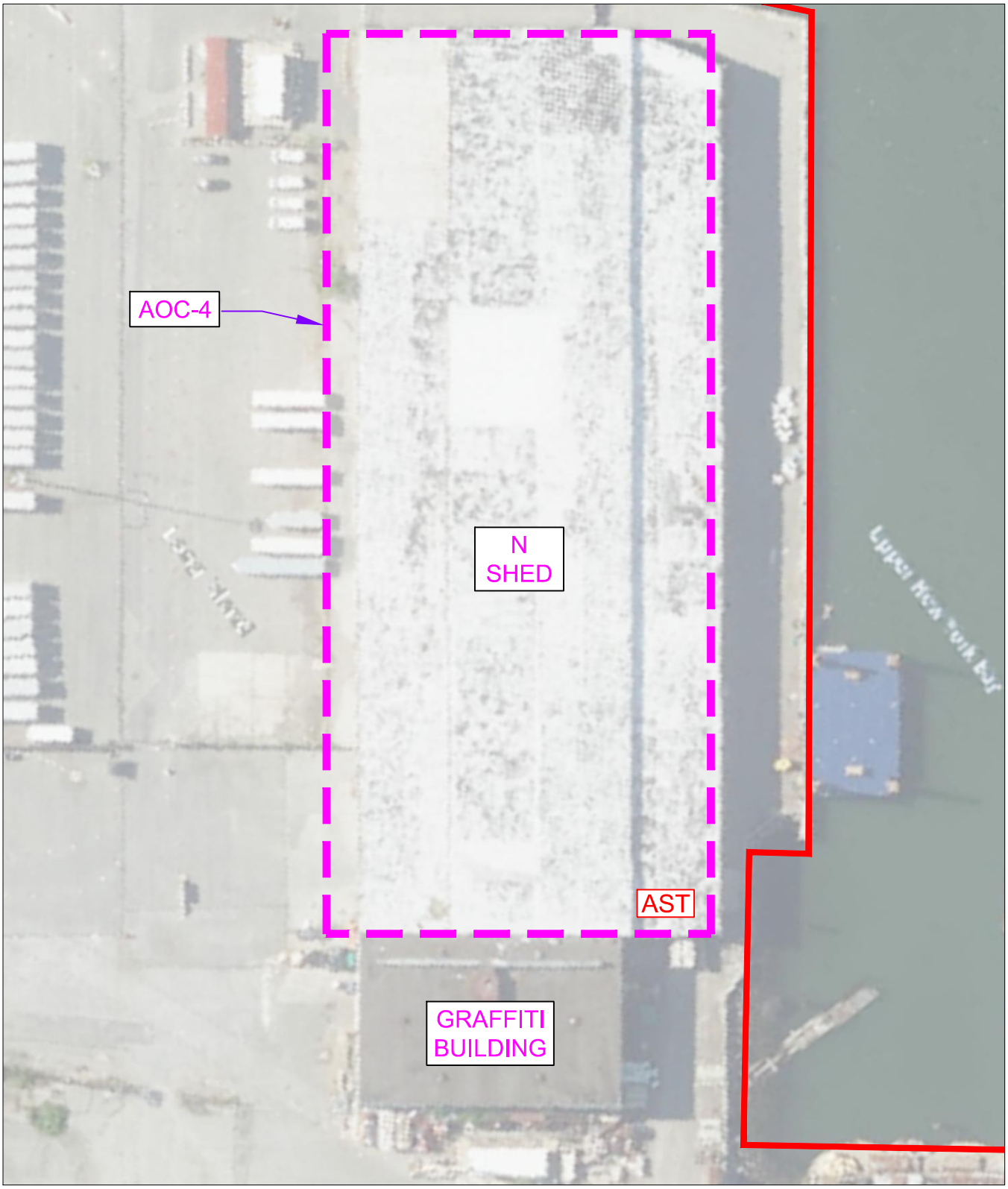
Tables

TABLE 1
SOIL CLEANUP LEVELS FOR FUEL OIL CONTAMINATED SOIL

Contaminant	CAS Registry Number	Soil Cleanup Level (mg/kg)	Practical Quantitation Limit Soil Samples (mg/kg)
Acenaphthene	83-32-9	20	0.330
Acenaphthylene	208-96-8	100	0.330
Anthracene	120-12-7	100	0.330
Benz(a)Anthracene	56-55-3	1.0	0.330
Dibenzo(a,h)Anthracene	53-70-3	0.33	0.330
Benzene	71-43-2	0.06	0.330
n-Butylbenzene	104-51-8	12.0	0.330
sec-Butylbenzene	135-98-8	11.0	0.330
Tert-Butylbenzene	98-06-6	5.9	0.330
Chrysene	218-01-9	1.0	0.330
Ethylbenzene	100-41-4	1.0	0.330
Fluoranthene	206-44-0	100	0.330
Benzo(b)Fluoranthene	205-99-2	1.0	0.330
Benzo(k)Fluoranthene	207-08-9	0.8	0.330
Fluorene	86-73-7	30	0.330
Isopropylbenzene	98-82-8	2.3	0.330
p-Isopropyltoluene	99-87-6	10.0	0.330
Naphthalene	91-20-3	12.0	0.330
n-Propylbenzene	103-65-1	3.9	0.330
Benzo(g,h,i)Perylene	191-24-2	100	0.330
Phenanthrene	85-01-8	100	0.330
Pyrene	129-00-0	100	0.330
Benzo(a)Pyrene	50-32-8	1.0	0.330
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	0.330
1,2,4-Trimethylbenzene	95-63-6	3.6	0.330
1,3,5-Trimethylbenzene	108-67-8	8.4	0.330
Toluene	108-88-3	0.7	0.330
Xylene (Mixed)	1330-20-7	0.26	0.330

NOTES:
Soil Cleanup Levels taken from CP-51 (10/21/2010)

Figures



TETRA TECH

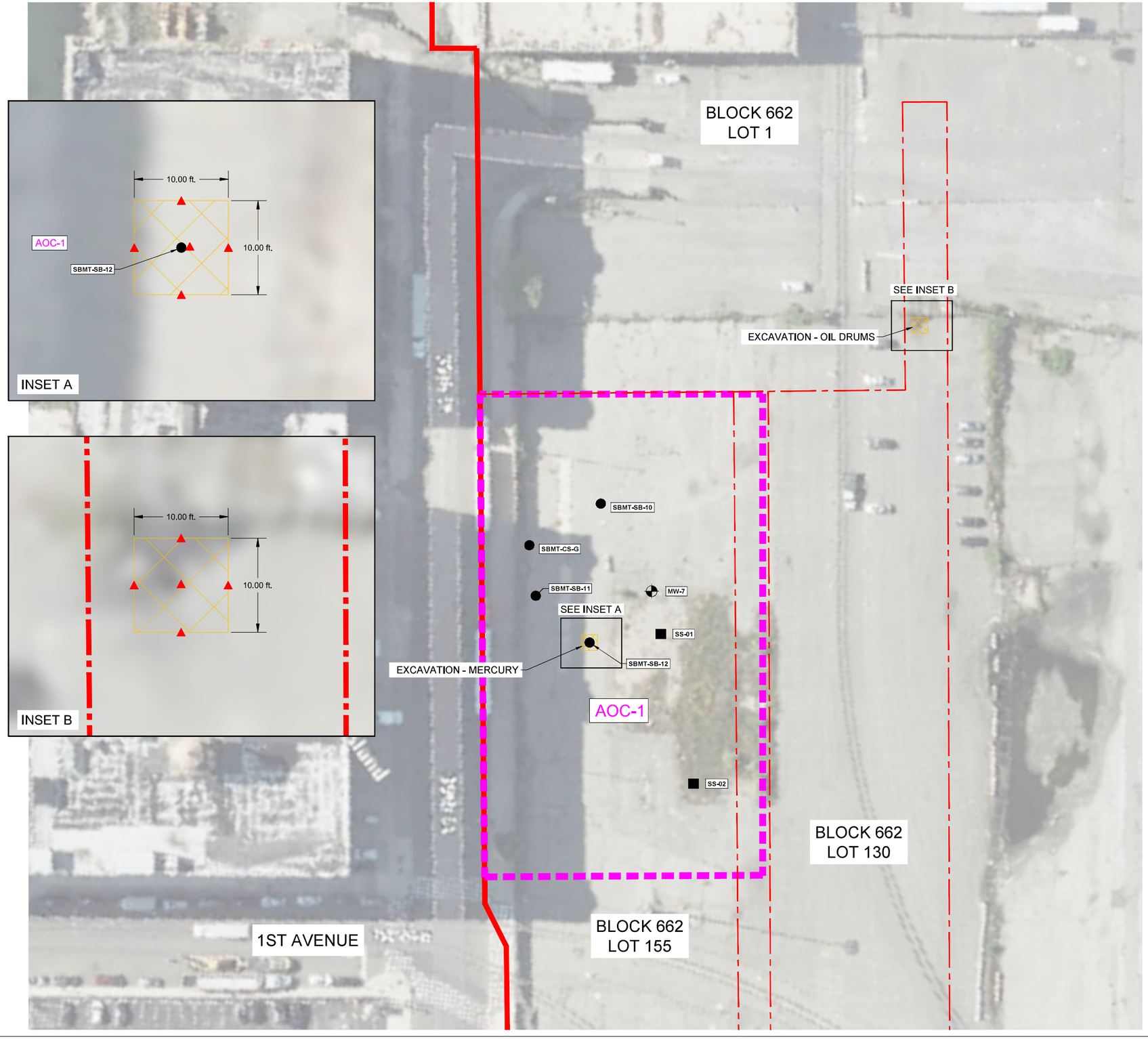
TETRA TECH, INC.
6 CENTURY DRIVE, SUITE 3
PARSIPPANY, NJ 07054
(973) 630-8000

SOUTH BROOKLYN
MARINE TERMINAL
NYSDEC SITE NO.: C224360
SBMT ASSET LLC & EMPIRE
OFFSHORE WIND LLC
269 37TH STREET
BROOKLYN, NY 11232

LEGEND

AST — ABOVE GROUND STORAGE TANK IN FIRE SUPPRESSION ROOM

AST LOCATION
FIGURE 1



LEGEND

- COMPLETED SOIL BORINGS
- COMPLETED SURFACE SOIL SAMPLE LOCATION
- COMPLETED MONITORING WELL LOCATIONS
- COMMUNITY AIR MONITORING STATION
- PROJECT AREA
- PARCEL BOUNDARIES
- NYCDEP STORMWATER EASEMENT
- AOC BOUNDARY
- EXCAVATION AREAS
- POST-EXCAVATION CONFIRMATION SAMPLE LOCATIONS

0 30 60 Feet

TETRA TECH

STAMP:

DRAFT
NOT FOR CONSTRUCTION

SOUTH BROOKLYN MARINE TERMINAL
NYSDEC SITE NO.: C224360
SBMT ASSET LLC & EMPIRE OFFSHORE WIND LLC
269 37TH STREET
BROOKLYN, NY 11232

PROJECT NUMBERS:
194-1247-0003

SHEET TITLE:
ADDITIONAL AREAS OF EXCAVATION

SHEET SIZE:
ARCH "D"
24" X 36" (610 x 914)
0 ½" 1"

NO.	REVISION	DATE	INIT.

DATE: 2/1/2024
DRAWN BY:
ENGINEER:
APPROVED BY:

PROJECT PHASE:
N/A

SCALE:
1" = 30'

SHEET NO.:
FIGURE 2

P:\SBMT\SBMT IRM Workplan Addendum Figures.dwg
Printed: 2/1/2024 10:46 AM

LEGEND

- PROJECT AREA
- PARCEL BOUNDARIES
- IN GROUND LIFT AREA
- MONITORING WELL AREA
- PROPOSED SOIL BORING

N

0 30 60 Feet

TETRA TECH

STAMP:

DRAFT
NOT FOR CONSTRUCTION

SOUTH BROOKLYN MARINE TERMINAL
SBMT ASSET LLC & EMPIRE OFFSHORE WIND LLC
269 37TH STREET
BROOKLYN, NY 11232

PROJECT NUMBERS:
194-1247-0003

SHEET TITLE:
PROPOSED REMEDIAL INVESTIGATION ADDENDUM SAMPLE LOCATION PLAN

SHEET SIZE:
ARCH "D"
24" X 36" (610 x 914)
0 ½" 1"

NO.	REVISION	DATE	INIT.

DATE: 1/31/2024
DRAWN BY:
ENGINEER:
APPROVED BY:

PROJECT PHASE:
N/A

SCALE:
1" = 30'

SHEET NO.:
FIGURE 3

P:\SBMT\SBMT RIR Workplan Addendum_Fig-1.dwg
Printed: 2/6/2024 1:58 PM