FORMER GIUFFRE AUTO GROUP SITE
8802 5TH AVENUE AND 429 89TH STREET
KINGS COUNTY
BROOKLYN, NEW YORK 11209

Remedial Action Work Plan

NYSDEC BCP Number: C224327

SCA PROJECT ID NO. 118924
SCA CONTRACT NO. C000016043
SCA SERVICE ID NO. 81213

TRC PROJECT NO. 630067

Submitted to:
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NOVEMBER 2025

CERTIFICATION STATEMENT

I, Philip Castellano, P.E., certify that I am currently a NYS registered professional engineer and that this Remedial Action Work Plan 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) and Green Remediation (DER-31).

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



11-25-2025

Phillip Castellano, P.E. Date
NYS Professional Engineer No. 095890-01

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 a New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

TABLE OF CONTENTS

Section **Page**

CERTIFICATION STATEMENT i
LIST OF ACRONYMS x
EXECUTIVE SUMMARY 1
Summary of the Remedy 6
1.0 Introduction 10
1.1 Site Location and Description 10
1.2 Contemplated Redevelopment Plan 11
1.3 Description of Surrounding Property 11
2.0 Description of Remedial Investigation Findings 13
2.1 Summary Remedial Investigations Performed 13
2.1.1 Samples Collected 13
2.1.2 Chemical Analytical Work Performed 13
2.1.3 Geophysical survey 17
2.1.4 Summary of Remedial Investigation Findings 17
2.2 Significant Threat 22
2.3 Site History 23
2.3.1 Past Uses and Ownership 23
2.3.2 Prior Reports 23
2.3.3 Sanborn Maps 28
2.4 Geologic and Hydrogeologic Conditions 28
2.4.1 Geology 28
2.4.2 Hydrogeology 29
2.5 Contamination Conditions 30
2.5.1 Conceptual Model of Site Contamination 30
2.5.2 Description of Areas of Concern 33
2.5.3 Identification of Standards, Criteria and Guidance 34
2.5.4 Soil/Fill Contamination 35
2.5.5 On-Site and Off-Site Groundwater Contamination 36
2.5.6 On-Site and Off-Site Soil Vapor Contamination 36

2.6 Environmental and Public health assessments 36
2.6.1 Qualitative Human Health Exposure Assessment 36
2.6.2 Fish & Wildlife Remedial Impact Analysis 39
2.7 Remedial Action Objectives 39
2.7.1 Groundwater 39
2.7.2 Soil 40
2.7.3 Soil Vapor 40
3.0 Description of Remedial Action Plan 41
3.1 Evaluation of remedial alternatives 41
3.1.1 Protection of Human Health and the Environment 44
3.1.2 Compliance with Standards, Criteria, and Guidelines (SCGs) 45
3.1.3 Short-Term Effectiveness and Impacts 46
3.1.4 Long-term Effectiveness and Permanence 47
3.1.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material 47
3.1.6 Implementability 48
3.1.7 Cost Effectiveness 49
3.1.8 Community Acceptance 49
3.1.9 Land Use 50
3.1.10 Environmental Footprint Analysis 50
3.2 Selection of the Preferred Remedy 52
3.2.1 Zoning 53
3.2.2 Applicable Comprehensive Community Master Plans or Land Use Plans 53
3.2.3 Surrounding Property Uses 53
3.2.4 Citizen Participation 54
3.2.5 Environmental Justice 54
3.2.6 Land Use Designations 54
3.2.7 Population Growth Patterns 54
3.2.8 Accessibility to Existing Infrastructure 54
3.2.9 Proximity to Cultural Resources 54
3.2.10 Proximity to Natural Resources 55
3.2.11 Off-Site Groundwater Impacts 55

3.2.12 Proximity to Floodplains 55
3.2.13 Geography and Geology of the Site 55
3.2.14 Current Institutional Controls 55
3.3 Summary of Selected Remedial Actions 55
4.0 Remedial Action Program 58
4.1 Governing Documents 59
4.1.1 Standards, Criteria and Guidance (SCGs) 59
4.1.2 Site Specific Health & Safety Plan (HASP) 61
4.1.3 Quality Assurance Project Plan (QAPP) 62
4.1.4 Construction Quality Assurance Plan (CQAP) 62
4.1.5 Soil/Materials Management Plan (SoMP) 63
4.1.6 Soil Erosion and Sediment Control Plan 63
4.1.7 Community Air Monitoring Plan (CAMP) 64
4.1.8 Contractors Site Operations Plan (SOP) 64
4.1.9 Citizen Participation Plan 65
4.2 General Remedial Construction Information 66
4.2.1 Project Organization 66
4.2.2 Remedial Engineer 66
4.2.3 Remedial Action Construction Schedule 67
4.2.4 Work Hours 67
4.2.5 Site Security 67
4.2.6 Traffic Control 67
4.2.7 Contingency Plan 68
4.2.8 Worker Training and Monitoring 68
4.2.9 Agency Approvals 68
4.2.10 Pre-Construction Meeting with NYSDEC 69
4.2.11 Emergency Contact Information 69
4.2.12 Remedial Action Costs 69
4.3 Site Preparation 69
4.3.1 Mobilization 69
4.3.2 Monitoring Well / Vapor Probe Decommissioning 70

4.3.3 Erosion and Sedimentation Controls 70
4.3.4 Stabilized Construction Entrance(s) 70
4.3.5 Utility Marker and Easements Layout 70
4.3.6 Sheeting and Shoring 71
4.3.7 Equipment and Material Staging 71
4.3.8 Decontamination Area 71
4.3.9 Site Fencing 72
4.3.10 Demobilization 72
4.4 Reporting 72
4.4.1 Daily Reports 72
4.4.2 Monthly Reports 73
4.4.3 Other Reporting 74
4.4.4 Complaint Management Plan 74
4.4.5 Deviations from the Remedial Action Work Plan 74
5.0 Remedial Action: Material Removal from Site 75
5.1 Soil Cleanup Objectives 75
5.2 Remedial Performance Evaluation (Post Excavation Documentation Soil Sampling) 75
5.2.1 Post-Remediation Sampling Frequency 75
5.2.2 Methodology 76
5.2.3 Reporting of Results 76
5.2.4 Quality Assurance/ Quality Control (QA/QC) 76
5.2.5 Data Usability Summary Reports (DUSRs) and Electronic Data Deliverables (EDDs) 76
5.2.6 Reporting of Endpoint Data in FER 77
5.3 Estimated Material Removal Quantities 77
5.4 Soil/Materials Management Plan 77
5.4.1 Soil Screening Methods 77
5.4.2 Stockpile Methods 78
5.4.3 Materials Excavation and Load Out 78
5.4.4 Materials Transport Off-Site 79
5.4.5 Materials Disposal Off-Site 80

5.4.6 Materials Reuse On-Site 83
5.4.7 Fluids Management 84
5.4.8 Demarcation 85
5.4.9 Backfill from Off-Site Sources 85
5.4.10 Soil Erosion and Sediment Control 87
5.4.11 Contingency Plan 87
5.4.12 Community Air Monitoring Plan 90
5.4.13 Odor, Dust and Nuisance Control Plan 90
6.0 Residual Contamination to Remain On-site 92
7.0 Engineering Controls: Site Cover System 93
8.0 Engineering Controls: SSDS 95
9.0 Criteria for Completion of Remediation/Termination of Remedial Systems 97
9.1 Composite Cover System 97
9.2 Sub-slab Depressurization System (SSDS) 97
9.3 Groundwater Monitoring 97
10.0 Institutional Controls 98
10.1 Environmental Easement 98
10.2 Site Management Plan 100
11.0 Final Engineering Report 102
11.1 Certifications 103
12.0 Schedule 105

LIST OF TABLES

TABLE 1 RESULTS OF ANALYSIS OF SUB-SLAB VAPOR FOR VOLATILE ORGANIC COMPOUNDS
TABLE 2A RESULTS OF ANALYSIS OF SOIL FOR VOLATILE ORGANIC COMPOUNDS
TABLE 2B RESULTS OF ANALYSIS OF SOIL FOR VOLATILE ORGANIC COMPOUNDS – SUPPLEMENTAL REMEDIAL INVESTIGATION
TABLE 3A RESULTS OF ANALYSIS OF SOIL FOR SEMIVOLATILE ORGANIC COMPOUNDS
TABLE 3B RESULTS OF ANALYSIS OF SOIL FOR SEMIVOLATILE ORGANIC COMPOUNDS – SUPPLEMENTAL REMEDIAL INVESTIGATION
TABLE 4 RESULTS OF ANALYSIS OF SOIL FOR METALS AND CYANIDE
TABLE 5 RESULTS OF ANALYSIS OF SOIL FOR SELECT METALS BY THE TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TABLE 6 RESULTS OF ANALYSIS OF SOIL FOR POLYCHLORINATED BIPHENYLS
TABLE 7 RESULTS OF ANALYSIS OF SOIL FOR PESTICIDES AND HERBICIDES
TABLE 8 RESULTS OF ANALYSIS OF SOIL FOR PER- AND POLYFLUOROALKYL SUBSTANCES
TABLE 9A RESULTS OF ANALYSIS OF GROUNDWATER FOR VOLATILE ORGANIC COMPOUNDS
TABLE 9B RESULTS OF ANALYSIS OF GROUNDWATER FOR VOLATILE ORGANIC COMPOUNDS – SUPPLEMENTAL REMEDIAL INVESTIGATION
TABLE 10A RESULTS OF ANALYSIS OF GROUNDWATER FOR SEMIVOLATILE ORGANIC COMPOUNDS
TABLE 10B RESULTS OF ANALYSIS OF GROUNDWATER FOR SEMIVOLATILE ORGANIC COMPOUNDS – SUPPLEMENTAL REMEDIAL INVESTIGATION
TABLE 11 RESULTS OF ANALYSIS OF GROUNDWATER FOR METALS AND CYANIDE
TABLE 12 RESULTS OF ANALYSIS OF GROUNDWATER FOR POLYCHLORINATED BIPHENYLS
TABLE 13 RESULTS OF ANALYSIS OF GROUNDWATER FOR PESTICIDES AND HERBICIDES
TABLE 14 RESULTS OF ANALYSIS OF GROUNDWATER FOR PER- AND POLYFLUOROALKYL SUBSTANCES
TABLE 15 LIST OF PERMITS
TABLE 16 SOIL CLEANUP OBJECTIVES
TABLE 17 SOIL EXCEDANCES OF SOIL CLEANUP OBJECTIVES ON LOT 28
TABLE 18 REMEDIATION SCHEDULE

LIST OF FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SITE PLAN
FIGURE 3	SURROUNDING LAND USE AND SENSITIVE ENVIRONMENTAL RECEPTORS
FIGURE 4	SITE DEVELOPMENT PLAN (PRELIMINARY)
FIGURE 5	GEOLOGICAL CROSS SECTIONS A-A’
FIGURE 6	GEOLOGICAL CROSS SECTIONS B-B’
FIGURE 7	GEOLOGICAL CROSS SECTIONS C-C’
FIGURE 8	GEOLOGICAL CROSS SECTIONS D-D’
FIGURE 9	GEOLOGICAL CROSS SECTIONS E-E’
FIGURE 10	GROUNDWATER SURFACE ELEVATION CONTOUR MAP – JULY 20, 2022
FIGURE 11A	GROUNDWATER SURFACE ELEVATION CONTOUR MAP – SEPTEMBER 12, 2024
FIGURE 11B	GROUNDWATER SURFACE ELEVATION CONTOUR MAP – NOVEMBER 19, 2024
FIGURE 12A	HISTORIC SOIL SAMPLING RESULTS
FIGURE 12B	HISTORIC GROUNDWATER SAMPLING RESULTS
FIGURE 12C	HISTORIC SOIL VAPOR AND SUB-SLAB VAPOR SAMPLING RESULTS
FIGURE 13	SAMPLE LOCATION PLAN
FIGURE 14	SAMPLE LOCATION PLAN DETAIL VIEW OF LOT 39
FIGURE 15	SUB-SLAB VAPOR SAMPLING RESULTS
FIGURE 16A	VOC EXCEEDANCES OF UNRESTRICTED USE AND PROTECTION OF GROUNDWATER SOIL CLEANUP OBJECTIVES
FIGURE 16B	SVOC, METALS, AND PFAS EXCEEDANCES OF UNRESTRICTED USE AND PROTECTION OF GROUNDWATER SOIL CLEANUP OBJECTIVES
FIGURE 17A	VOC EXCEEDANCES OF RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES
FIGURE 17B	SVOC, METALS, AND PFAS EXCEEDANCES OF RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVES
FIGURE 18	EXCEEDANCES OF CLASS GA VALUES IN GROUNDWATER
FIGURE 19	REMEDIATION TO BE PERFORMED UNDER APPROVED INTERIM REMEDIAL MEASURE
FIGURE 20	PROPOSED EXCAVATION AREAS
FIGURE 21	PROPOSED POST-EXCAVATION SAMPLE LOCATION PLAN
FIGURE 22	PROPOSED SITE COVER SYSTEM
FIGURE 23	PROPOSED BUILDING FOOTPRINT SUBJECT TO VAPOR MITIGATION MEASURES

LIST OF APPENDICES

APPENDIX A	NYSDEC CORRESPONDENCE
APPENDIX B	HEALTH AND SAFETY PLAN (HASP)
APPENDIX C	QUALITY ASSURANCE PROJECT PLAN (QAPP)
APPENDIX D	COMMUNITY AIR MONITORING PLAN (CAMP)
APPENDIX E	CITIZEN PARTICIPATION PLAN (CPP)
APPENDIX F	SANBORN MAPS
APPENDIX G	COST ESTIMATE
APPENDIX H	PROPOSED TRUCK ROUTE
APPENDIX I	RESUMES OF KEY PERSONNEL
APPENDIX J	ENVIRONMENTAL FOOTPRINT ANALYSIS
APPENDIX K	SOIL EROSION AND SEDIMENT CONTROL PLAN
APPENDIX L	INTERIM REMEDIAL MEASURE WORK PLAN
APPENDIX M	DRAFT SUB-SLAB DEPRESSUIZATION SYSTEM AND VAPOR BARRIER DESIGN DRAWINGS

LIST OF ACRONYMS

Acronym	Definition
µg/m^3	Micrograms per Cubic Meter
µg/L	Micrograms per Liter
ACM	Asbestos-Containing Materials
ASP	Analytical Services Protocol
BCP	Brownfield Cleanup Program
BGS	Below Ground Surface
CAMP	Community Air Monitoring Plan
cis-1,2-DCE	Cis-1,2-dichloroethene
CP-51	New York State Department of Environmental Conservation Commissioner Policy 51 Soil Cleanup Level
CVOC	Chlorinated Volatile Organic Compound
DER	Department of Environmental Remediation
DER-10	Department of Environmental Remediation Technical Guidance for Site Investigation and Remediation
DQO	Data Quality Objectives
DUSR	Data Usability Summary Report
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
FT	Feet
GPR	Ground-Penetrating Radar
HASP	Health and Safety Plan
IDW	Investigation Derived Waste
LBP	Lead-based paint
L/min	Liters per Minute
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
NTU	Nephelometric Turbidity Unit
NYCDCP	New York City Department of City Planning
NYCRR	New York Codes, Rules, and Regulations
NYCSCA	New York City School Construction Authority
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PCB	Polychlorinated Biphenyl
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PVC	Polyvinyl Chloride

Acronym	Definition
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RIWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RRUSCO	Restricted Residential Use Soil Cleanup Objective
REC	Recognized Environmental Condition
RI	Remedial Investigation
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SSDS	Sub-slab Depressurization System
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TOGS	Technical and Operational Guidance Series
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Site Description/Physical Setting/Site History

The property is located at 8802 5th Avenue and 429 89th Street, Brooklyn, New York 11209 (referred to as the "Site"). The legal description of the Site is Block 6065, Lots 28 and 39. The Site encompasses approximately 31,659 square feet (sf) and is improved with a one-story commercial building with a basement and an asphalt-paved parking lot on Lot 28 (8802 5th Avenue), and a commercial building with a partial basement on Lot 39 (429 89th Street). Lot 28 is approximately 21,659 sf and contains a one-story commercial building with a gross floor area of approximately 13,835 sf that is currently subdivided into two units that are vacant. Lot 39 is approximately 10,000 sf and is improved with a one-story commercial building with a partial basement that is currently vacant. The Site location is shown on *Figure 1*.

The Site is bordered to the north by 88th Street followed by a health care facility ("Langone Medical Arts"); to the east by 5th Avenue followed by institutional/commercial buildings (the United States Post Office and an automobile sales facility); to the south by 89th Street, followed by commercial buildings; and to the north and west by automobile showrooms with repair facilities and NYC Department of Education Superintendent Office/P.S./I.S. 104 Annex, The Fort Hamilton School Annex (K989). Beyond the properties immediately adjacent to the Site, property uses are commercial, residential, and institutional. A Site Plan showing the surrounding properties is presented as *Figure 2*.

According to the New York City Department of City Planning (NYCDCP) Zoning Map 22b, the Site is zoned for commercial use (C8-2). The NYCSCA will coordinate any zoning changes as needed with the NYCDCP. Based on a review of the City Environmental Quality Review (CEQR) Environmental Designations as shown on NYCDCP Zoning Map 22b, Lots 28 and 39 are each listed with an "E"-Designation for Underground Gasoline Storage Tanks Testing Protocol and Air Quality. Properties in the area of the Site are zoned for residential and commercial uses. *Figure 3* presents the surrounding land use and potential sensitive environmental receptors.

Historically, Lot 28 was occupied by several low-rise structures prior to construction of the current one-story commercial building with a basement in 1956. The building was most recently used by a bank and as real estate offices. Lot 39 has been improved with the current one-story building with a partial basement since 1923, which was occupied by a garage with gasoline tank and auto repair/service station between approximately 1926 and 1977 and was most recently occupied by a construction company for storage of tiles and other assorted construction materials.

Summary of the Findings from Prior Investigations

The 8802 5th Avenue and 429 89th Street Remedial Investigation Report (RI Report) dated April 2025 describes the results of the remedial investigation activities that were performed at the Site between June and July 2022, and the supplemental remedial investigation activities that were performed at the Site in August and September 2024. In addition, findings from prior investigation are documented in the February 2020 Phase II Environmental Site Investigation (ESI) Report. Provided below is a summary by tax Lot of the findings of the RI and prior Phase II ESI, as applicable to the Conceptual Site Model (CSM):

Lot 28:

- The primary contaminants of concern in shallow soil/fill between 1 to 4 feet below ground surface (bgs) are beneath the asphalt-paved lot and include the metal lead and semivolatile organic compounds (SVOCs).

Lot 39:

- The primary contaminants of concern in shallow soil/fill between 1 to 4 feet bgs include metals (barium, copper, chromium, and mercury) and SVOCs.
- The primary contaminants of concern in deeper soil between 25 and 26 feet bgs beneath the central to southern portion of the Lot 39 include heavily weathered petroleum - related constituents (1,2,4-trimethylbenzene and total xylenes) in one isolated soil boring location.
- Contaminants of concern in groundwater include the volatile organic compounds (VOCs) 1,2-dichloroethane, benzene, m-xylene & p-xylene, and total xylenes, and chloroform. VOCs in groundwater are isolated to two monitoring well locations in the central to southern portion of Lot 39 and are not impacting groundwater Site-wide or migrating off-Site.
- Soil vapor contaminants of concern include chlorinated VOCs (TCE and PCE). Note that TCE and PCE were detected in sub-slab soil vapor at maximum concentrations of 710 and 15,000 ug/m^3 respectively during the initial Phase II ESI performed in 2019. Sediment exhibiting low-level concentrations of TCE, PCE, and the breakdown product cis-1,2-dichloroethene, was removed from three floor drains in the Lot 39 building in 2020. The maximum TCE and PCE concentrations detected during the subsequent sub-slab vapor sampling event in 2022 were 72 and 520 ug/m^3, respectively.

Summary of Interim Remedial Measure

An Interim Remedial Measure (IRM) Work Plan, dated May 21, 2025, was proposed to NYSDEC to locate and remove subsurface structures and shallow residual source area(s) of petroleum-related contaminant mass. The IRM Work Plan was approved by NYSDEC on May 28, 2025, and is included as *Appendix L*. During prior investigations, petroleum impacted soils were identified beneath Lot 39. Specifically, moderate to strong odors, staining and photoionization detector (PID) readings were identified in soil samples collected between 18.5 feet below ground surface (bgs) and 24.8 feet bgs, and two (2) volatile organic compounds (VOCs), 1,2,4-trimethylbenze and xylene, were detected in one (1) soil boring beneath Lot 39 at concentrations above the Restricted Residential Use Soil Cleanup Objective (RRUSCO).

Additionally, during geophysical surveys performed as part of prior investigations, multiple suspected underground structures were identified. Specifically, identified structures resemble an underground drainage system, a UST, and an OWS. Since shallow source area impacts were not identified during prior extensive subsurface investigations, the intent of the IRM is to properly remove the underground structures and investigate and remediate (i.e., remove) potential residual source area impacts in their vicinity. A Site Layout Map showing the locations of the suspected underground structures is included as *Figure 2*.

As part of the draft License Agreement with the neighboring property, the neighboring property's cars and parking lifts that are currently abutting the Site are required to be relocated during Lot 28 building demolition and a barrier wall will be constructed that is intended to mitigate migration of potential future vehicle emissions from the adjacent commercial parking lot and car lift failures/collapses. As part of the draft License Agreement, it is anticipated that the neighboring property's relocated cars will be parked on Lot 39 during the demolition and construction activities on Lot 28. Due to the anticipated provisions of the License Agreement, it was beneficial to the progress of the project and the remedial approach to prepare the IRM Work Plan ahead of development of the Remedial Action Work Plan (RAWP) and the anticipated logistical and access constraints.

It is anticipated that the IRM remedial action will meet the requirements of a Track 4 cleanup on Lot 39. Contamination to remain after completion of the IRM Work Plan include:

- SVOCs and Metals (lead) in shallow soils on Lot 28.
- VOCs 1,2-dichloroethane, benzene, m-xylene & p-xylene, and total xylenes, and chloroform in groundwater, which may be attributable to historic Site uses. As noted above, petroleum-related VOCs were detected in samples collected from two

groundwater monitoring wells located in the center of Lot 39, and were not detected in downgradient or off-site groundwater.

- Remaining potential contamination in soil vapor include chlorinated VOCs (TCE and PCE) on Lot 39. Removal of the floor drains and associated piping during implementation of the IRM may remove sub-slab vapor exceedances.

Qualitative Human Health Exposure Assessment

An exposure pathway consists of five elements: (1) a contaminant source, (2) a contaminant release and transport mechanism, (3) a point of exposure, (4) a route of exposure, and (5) a receptor population. An exposure pathway is complete when all five elements of an exposure pathway are complete.

Based on the findings of the RI, the principal contaminants of concern at the Site have been identified as SVOCs and metals (barium, copper, chromium, mercury, and/or lead) in shallow soil/fill, residual petroleum VOCs in deeper soil beneath the central to southern portion of the Lot 39, VOCs (1,2-dichloroethane, benzene, m-xylene & p-xylene, and total xylenes, and chloroform) in groundwater on Lot 39, and chlorinated VOCs in sub-slab vapor (TCE and PCE) on Lot 39. A qualitative exposure assessment was prepared to evaluate the potential for exposure to these contaminants. The evaluation addresses both potential on-Site and off-Site health impacts associated with the Site.

Dermal contact, ingestion of soil or groundwater, or inhalation of vapors or dust represent the potential routes of exposure. Potential receptors include construction workers during demolition and redevelopment, future on-Site occupants and visitors, future on-Site maintenance workers, and off-Site residents.

Considering the future remediation and redevelopment activities, the following exposure pathways are considered incomplete:

- **Groundwater ingestion:** Use of groundwater in this area of Brooklyn is prohibited as a source of potable water; therefore, this exposure pathway is not complete for on-Site and off-Site residents.
- **Groundwater dermal contact by construction workers and future maintenance workers:** During the RI, groundwater was encountered at depths ranging 74 to 77 feet bgs. The proposed redevelopment includes construction of a basement with a proposed redevelopment depth of approximately 15 feet bgs. Therefore, it is unlikely that groundwater will be encountered by the proposed future redevelopment and dermal contact

with groundwater is not likely to occur. Accordingly, this exposure pathway is not complete for construction workers and future maintenance workers.

- **Soil dermal contact by future on-Site occupants:** After completion of redevelopment activities, the remaining soil/fill material at the Site will be covered by new building(s), pavement, or clean cover material and landscaping, thereby preventing future exposure of occupants to the soil.
- **Inhalation of dust by future on-Site occupants and maintenance workers**: After completion of redevelopment activities, the remaining soil/fill material at the Site will be covered by new building(s), pavement, or clean cover material and landscaping, thereby preventing future exposure of occupants to the soil.
- **Inhalation of vapors by future on-Site occupants and maintenance workers:** As a preventative measure and in accordance with NYCSCA's policies and procedures as a standard protective measure, future redevelopment of the Site will include the construction of a vapor barrier and sub-slab depressurization system (SSDS) below the proposed building that will minimize the potential for intrusion of VOCs into future building spaces and mitigate this exposure pathway. Post-mitigation sub-slab vapor samples will be collected after the new building slab is constructed and prior to occupation of the new building to determine if vapor mitigation engineering controls are a component of Site Management. If the post-mitigation sub-slab vapor samples indicate that the SSDS is subject to Site Management, the Site Management Plan (SMP) will include performance of one post-mitigation Indoor Air Quality (IAQ) survey during the first heating season after construction of the new building is complete. Otherwise, the vapor barrier and SSDS will be maintained in accordance with standard NYCSCA requirements and will not be included in the Final Engineering Report (FER), SMP, or Environmental Easement as engineering controls.

The following exposure pathways are considered potentially complete:

- **Soil dermal contact by construction workers and future maintenance workers:** Potential future construction and maintenance activities (e.g., utility repairs) could result in contact with on-Site contaminated soil. The lateral and vertical extent of residual contamination remaining in soil/fill will be unknown until the confirmatory endpoint soil samples are collected following the Lot 39 IRM and the Lot 28 new building excavations.
- **Inhalation of dust by construction workers:** Potential future construction and maintenance activities (e.g., utility repairs) could result in the generation of and exposure

to on-Site contaminated vapors and dust. The lateral and vertical extent of residual contamination remaining in soil/fill will be unknown until the confirmatory endpoint soil samples are collected following the Lot 39 IRM and the Lot 28 new building excavations.

- **Inhalation of vapors and dust by off-site residents:** Site remediation and future construction activities (e.g., utility repairs) could result in the generation of contaminated vapors and dust that have the potential to migrate off-Site during construction. Off-Site vapor intrusion assessment may be performed at nearby properties by the NYSDEC and NYSDOH to evaluate the potential for exposure of off-Site residents.

For future actions associated with remedial activity, redevelopment, and maintenance, a site-specific Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) will be in place for construction/maintenance workers to minimize the potential for exposures to soil and soil vapor. The HASP and CAMP will establish procedures for the protection of on-Site construction/maintenance workers and off-Site residents and will address community air monitoring and dust suppression measures.

Summary of the Remedy

Remedial action objectives are presented in Section 2.8 and the Summary of Selected Remedial Actions are presented in Section 3.3 of this work plan. In addition to the NYSDEC-approved IRM, which is anticipated to meet the requirements of a Track 4 cleanup, the following additional activities will be performed to achieve the remedial objectives:

1. Implement a site-specific HASP, Soil/Materials Management Plan (SoMP), and CAMP for the remedial activities.
2. Decommission all existing groundwater monitoring wells prior to remedial construction in accordance with NYSDEC CP-43.
3. A minimum of the upper 2 feet of soil (approximately 2,500 tons) across Lot 28 will be excavated and transported off-site for disposal.
4. Remove and dispose off-Site soil excavated as part of the remedy that does not meet the reuse criteria noted below, or is not proposed for reuse based on the redevelopment requirements of the new school construction project.
5. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work that will disturb existing soil material.
6. Post-excavation endpoint documentation/confirmatory soil sampling across Lot 28 to evaluate the performance of the remedy with respect to attainment of Track 4: RRUSCOs.
7. On-site soil which does not exceed the lower of Protection of Groundwater and Residential Use SCO criteria may be used anywhere beneath the cover system to backfill the

excavation or re-grade the Site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and NYCSCA Specification 02090 may be imported to the Site as necessary for backfilling beneath the cover system. It is anticipated that soil will not be reused on-site and approximately 2,500 tons of clean fill material will be imported to the Site for use as backfill.

8. Construct a composite cover system consisting of impervious surfaces (e.g., building, paved surfaces, etc.) across the majority of the Site and cover remaining landscaped areas with a minimum 2-foot thick imported clean soil layer, as defined in Section 7.0. Install a demarcation layer on top of existing site soils to remain that exceed Unrestricted Use SCOs (UUSCOs) below the new building, playground area, and clean cover layer in landscaped areas.
9. Appropriate offsite disposal of material removed from the Site in accordance with Federal, State and local rules and regulations for handling, transport, and disposal.
10. As part of construction of the new building, install a vapor barrier beneath the lowest level floor slab and install and operate a sub-slab depressurization system (SSDS).
    a. Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If sub-slab vapor TCE and PCE analytical results are below the action levels of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA and NYCDOE policies and procedures as a standard protective measure, but to alleviate reporting requirements, the systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the FER or subject to ongoing Site Management reporting. If the sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems will be considered Engineering Controls, the remedial engineer will then certify in the FER that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed, and the vapor mitigation systems will be subject to ongoing Site Management reporting requirements. Additionally, if the SSDS is an engineering control subject to Site Management, the SMP will include performance of one post-mitigation IAQ survey during the first heating season after construction of the new building is complete.
11. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, if appropriate, will be addressed in accordance with all applicable Federal, State and local rules and regulations.
12. Prepare and implement a SMP for long term maintenance of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting.
13. Record an Environmental Easement to ensure proper use of the Site.
14. Submission of a Final Engineering Report (FER) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries,

and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the NYSDEC-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER. By implementing a NYSDEC approved-RAWP and SMP, the proposed future redevelopment and use will be protective of human health and the environment.

Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals;
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development; and
- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction. The new public school facility will be sustainably designed, constructed, and operated in accordance with NYC Green Schools Guide and Local Law 86 of 2005 (New York City's Green Building Law) which mandates green building standards for public buildings in New York City.

As part of the remedial program, to evaluate the two remedial alternatives with respect to each other and to green and sustainable remediation principles, an environmental footprint analysis was completed. The environmental footprint analysis was completed utilizing the USEPA Greener Cleanup Metrics worksheets. Water consumption, fuel consumption, renewable and non-renewable energy use, waste reduction and material use was estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, has been incorporated into the remedial program, as appropriate. The project includes detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial program.

Additionally, a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy, was included in the RIR. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

1.0 INTRODUCTION

The New York City School Construction Authority (NYCSCA) entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in May 2022, to remediate a 0.73-acre property located at 8802 5th Avenue and 429 89th Street, Brooklyn, Kings County, New York (referred to as the "Site"). The NYCSCA, a New York State Public Benefit Corporation, purchased the Site for construction of a Public School Facility in August 2021. The Site was accepted into the Brownfield Cleanup Program (BCP) as a Volunteer on May 26, 2022. The BCP Site name is "Former Giuffre Auto Group Site" and the BCP Site Number is C224327.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between June and July 2022, and the Supplemental Remedial Investigation (SRI), performed in August and September 2024. This RAWP provides an evaluation of Track 1 and Track 4 remedial action alternatives, associated costs, and the recommended and preferred remedy. The remedy selection approach presented in this work plan is consistent with the procedures in DER-10 and complies with applicable standards, criteria, and guidance. The remedy described in this document also complies with applicable federal, state, and local laws, regulations and requirements. The NYSDEC and NYSDOH have determined that this Site does not pose a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

The Site is located in an urban area and is not located in close proximity to a surface water body, wetland, or other ecologically significant area. Redevelopment plans for the Site include construction of a Public School Facility, and there will be no ecological resources on the Site following the redevelopment. Therefore, in accordance with DER-10 Section 3.10.1(b), further evaluation related to the Fish and Wildlife Resources Impact Analysis is not warranted.

A formal Remedial Design document will not be prepared under the BCP since it is anticipated that the remedy will primarily consist of soil/fill excavation under the IRM and as part of the new building construction.

1.1 SITE LOCATION AND DESCRIPTION

The approximately 0.73-acre Site is located at 8802 5th Avenue and 429 89th Street, Brooklyn, New York and is identified as Block 6065, Lots 28 and 39. A United States Geological Survey (USGS) topographical quadrangle map (*Figure 1*) shows the Site location. The Site is bordered to the north by 88th Street followed by a health care facility ("Langone Medical Arts");

to the east by 5th Avenue followed by institutional/commercial buildings (the United States Post Office and an automobile sales facility); to the south by 89th Street, followed by commercial buildings; and to the west by automobile showrooms with repair facilities and P.S./I.S. 104 The Fort Hamilton School Annex (K989). Beyond the properties immediately adjacent to the Site, property uses are commercial, residential, and institutional (see *Figures 2 and 3)*. A boundary map is attached to the BCA as required by Environmental Conservation Law (ECL) Title 14 Section 27-1419.

1.2 CONTEMPLATED REDEVELOPMENT PLAN

The Remedial Action to be performed under the RAWP is intended to make the Site protective of human health and the environment consistent with the contemplated end use. The proposed redevelopment plan and end use is described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of the proposed redevelopment plan.

The proposed future use of the Site is a Public School Facility. The proposed redevelopment of the Site, based on the current conceptual design, includes demolition of the existing structures and construction of a five-story public school building with a partial cellar on the eastern portion of the Site (Lot 28) and a play yard on the western portion of the Site (Lot 39). A portion of the existing basement and foundation elements on Lot 28 are to remain in place and be reused for the new building. The cellar will be located at the northern end of Lot 28 and the depth of the cellar will be approximately 13 feet and 4 inches below sidewalk grade. The entire Site will be covered by the school building, paved surfaces, or landscaping. Additionally, a protective barrier wall is proposed to be constructed between the new building and the adjacent property at 440 88th Street, to protect against potential idling vehicle exhausts and car lift failures/collapses. *Figure 4* presents the conceptual design for the school facility, which is subject to change during the design process.

1.3 DESCRIPTION OF SURROUNDING PROPERTY

The Site is bordered to the north by 88th Street followed by a health care facility (“Langone Medical Arts”); to the east by 5th Avenue followed by institutional/commercial buildings (the United States Post Office and an automobile sales facility); to the south by 89th Street, followed by commercial buildings; and to the west by automobile showrooms with repair facilities and P.S./I.S. 104 The Fort Hamilton School Annex (K989). The existing buildings that abut the Site will be evaluated to determine the appropriate excavation and constructions methods for the Site, and feasible limits of earthwork.

According to the New York City Department of City Planning (NYCDCP) Zoning Map 22b, the Site is zoned for commercial use (C8-2). The NYCSCA will coordinate any zoning changes as needed with the NYCDCP. Based on a review of the City Environmental Quality Review (CEQR) Environmental Designations as shown on NYCDCP Zoning Map 22b, Lots 28 and 39 are each listed with an "E"-Designation for Underground Gasoline Storage Tanks Testing Protocol and Air Quality. Properties in the area of the Site are zoned for residential and commercial uses. Construction of a new school building and play area (including a playground area) will improve the community by providing employment opportunities, a local public school, and park-like facilities. Public schools also often serve as community centers for public events, emergency shelters, and voting venues. *Figure 3* presents the surrounding land use and potential sensitive environmental receptors.

As part of the draft License Agreement with the neighboring property, the neighboring property's cars and parking lifts that are currently abutting the Site are required to be relocated during Lot 28 building demolition and construction of the barrier wall. As part of the draft License Agreement, it is anticipated that the neighboring property's relocated cars will be parked on Lot 39 following completion of the approved IRM and during the demolition and construction activities on Lot 28. After construction of the new building is close to complete, the cars are anticipated to be relocated back to the neighboring property for completion of the new building and construction of the play area on Lot 39.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work presented in the NYSDEC-approved Remedial Investigation (RI) Work Plan dated March 2022 and Supplemental RI Work Plan dated May 2024. Approval letters from NYSDEC are included in *Appendix A.*

The Site was investigated in accordance with DER-10. The remedial investigation (RI) was conducted between June and July 2022, and the supplemental remedial investigation (SRI) was conducted between August and September 2024. The April 2025 RI Report was approved by the NYSDEC in May 2025. *Figures 13 and 14* depict the sample locations.

2.1 SUMMARY REMEDIAL INVESTIGATIONS PERFORMED

2.1.1 Samples Collected

The RI included the following:

1. Installation of four (4) soil vapor sampling points and collection of four (4) soil vapor samples for laboratory analysis;
2. Advancement of 17 soil borings with continuous sampling to a maximum depth of 90 feet below ground surface (bgs) and laboratory analysis of 32 soil samples; and,
3. Installation and development of three (3) permanent monitoring wells and collection and laboratory analysis of four (4) groundwater samples.

The SRI, conducted on Lot 39 only, included the following:

1. Advancement of eight (8) soil borings with continuous sampling to a maximum depth of 90 feet and laboratory analysis of 15 soil samples; and,
2. Installation and development of four (4) permanent monitoring wells and collection and laboratory analysis of four (4) groundwater samples.

2.1.2 Chemical Analytical Work Performed

2.1.2.1 Soil Vapor

The soil vapor samples were analyzed for a list of 26 petroleum- and chlorinated solvent-related VOCs by United States Environmental Protection Agency (USEPA) Method TO-15.

2.1.2.2 Soil Borings and Subsurface Soil

The soil samples selected for laboratory analyses and the analyses performed are summarized in the following table.

Boring Depths and Soil Sample Analytical Plan

Soil Boring ID	Boring Depth (feet bgs)	Maximum PID Reading (parts per million)[1]	Depth of Sample Intervals Selected for Analysis (feet bgs)	TCL/CP-51 VOCs+TICs	TCL/CP-51 SVOCs+TIC [5]	TAL Metals + Cyanide*	TCL PCBs	TCL Pesticides/ Herbicides	1,4-Dioxane	PFAS	TCLP Lead	TCLP Mercury
TRC-SB-06-N	30	0	1-4	X	X	X	X	X	X	X	X	
		441.1	13-15	X	X	X	X	X	X	X		
		5.2	20.5-22.5	X	X	X	X	X	X	X		
TRC-SB-06-E	3	0	1-4	X	X	X	X	X	X	X		
TRC-SB-06-W	30	0	1-4	X	X	X	X	X	X	X	X	
		0	20-22	X	X	X	X	X	X	X		
TRC-SB-12	5	0	1-4	X	X	X	X	X	X	X	X	
TRC-SB-13	5	0	1-4	X	X	X	X	X	X	X	X	
TRC-SB-14	90	0	1-4	X	X	X	X	X	X	X	X	
		0	12-15[2]	X	X	X	X	X	X	X		
		0	73-75	X	X	X	X	X	X	X		
TRC-SB-15	90	0	1-4	X	X	X	X	X	X	X		
		0	12-15	X	X	X	X	X	X	X		
		0	73-75	X	X	X	X	X	X	X		
TRC-SB-16	3	0	1-3	X	X	X	X	X	X	X		
TRC-SB-17	2	0	1-2	X	X	X	X	X	X	X		
TRC-SB-18	20	0	1-4	X	X	X	X	X	X	X	X	
		0	12-15[3]	X	X	X	X	X	X	X		
TRC-SB-19	25	0	1-4	X	X	X	X	X	X	X		
		0	12-15	X	X	X	X	X	X	X		
		1,014	22.5-24.5	X	X	X	X	X	X	X		
TRC-SB-19-N	24.5	62.8	22.5-24.5	X	X				X			
TRC-SB-19-E	25	8.8	18-20	X	X				X			
		2.2	22-24	X	X				X			
TRC-SB-19-S	25	1,422	23-25	X	X				X			
TRC-SB-19-W	30	1,549	18.5-20	X	X				X			
		1,004	26-28	X	X				X			

Soil Boring ID	Boring Depth (feet bgs)	Maximum PID Reading (parts per million)[1]	Depth of Sample Intervals Selected for Analysis (feet bgs)	TCL/CP-51 VOCs+TICs	TCL/CP-51 SVOCs+TIC [5]	TAL Metals + Cyanide*	TCL PCBs	TCL Pesticides/ Herbicides	1,4-Dioxane	PFAS	TCLP Lead	TCLP Mercury
TRC-SB-20	20	0	1-4	X	X	X	X	X	X	X	X	X
		0	12-15	X	X	X	X	X	X	X		
TRC-SB-21	90	0.3	1-4	X	X	X	X	X	X	X		
		0	12-15	X	X	X	X	X	X	X		
		0	71-73	X	X	X	X	X	X	X		
TRC-SB-22	80	6,549	25-26[4]	X	X							
		0.0	68-69	X	X							
		0.0	75-76									
TRC-SB-22-N	90	13.9	27-28	X	X							
		0.0	28-29	X	X							
		0.0	73-75									
TRC-SB-22-E	80	>15,000	72-73	X	X							
		511.9	74-75									
TRC-SB-22-S	90	0.0	25-27	X	X							
		>15,000	68-70	X	X							
		0.0	74-75									
TRC-SB-22-SW	80	170	27-28	X	X							
		0.0	65-67	X	X							
		0.0	74-75									
TRC-SB-22-W	80	106.0	32-33	X	X							
		0.0	57-58	X	X							
		0.0	74-75									
TRC-SB-22-EE	80	0.1	25-27	X	X							
TRC-SB-22-SS	80	0.0	25-27	X	X							
		5.5	45-46	X	X							
		0.7	72-73									

Notes:
TAL: Target Analyte List
TCL: Target Compound List
TICs: Tentatively identified compounds
X: Analysis performed
[1] PID readings are not quantitative, rather PIDs are field screening tools used to aid in selecting soil samples for laboratory analysis. Moisture content in the air and soil may yield erroneous PID readings. In addition, PIDs do not distinguish between target and non-target compounds.
[2] One duplicate soil sample (TRC-DUP-01), duplicate sample of TRC-SB-18(12-15), was selected for laboratory analysis.
[3] One duplicate soil sample (TRC-DUP-02), duplicate sample of TRC-SB-14 (12-15), was selected for laboratory analysis.
[4] One duplicate soil sample (TRC-SB-DUP-01), duplicate sample of TRC-SB-22 (25-26), was selected for laboratory analysis.

(5) Analysis for TCL and CP-51-listed semivolatile organic compounds (SVOCs) included 1,4-dioxane.

2.1.2.3 Groundwater

The groundwater samples selected for laboratory analyses and the analyses performed are summarized in the following table.

Groundwater Sample Analytical Plan

Sample ID/ Well Number	Sample Date	Laboratory Sample ID	Depth to Water (feet bgs)(1)	Screened Interval (feet bgs)	TCL/CP-51 VOCs + TICs	TCL/CP-51 SVOCs + TICs	TAL Metals(2) + Cyanide	TCL PCBs	TCL Pesticides/ Herbicides	PFAS	1,4-Dioxane
TRC-GW-04	7/20/2022	460-262473-1 460-262307-1	75.62	70.5 to 85.5	X	X	X	X	X	X	X
TRC-GW-14 (3)	7/20/2022	460-262473-2 460-262473-5	74.88	70 to 85	X	X	X	X	X	X	X
TRC-GW-15	7/20/2022	460-262473-3 460-262307-3	72.98	70 to 85	X	X	X	X	X	X	X
TRC-GW-21	7/20/2022	460-262473-4 460-262307-4	75.53	70 to 85	X	X	X	X	X	X	X
TRC-GW-22 (4)	9/12/2024	460-311272-1	74.15	69 to 84	X	X					
TRC-GW-22-N	9/13/2024	460-311367-1	74.20	70 to 85	X	X					
TRC-GW-22-E	9/12/2024	460-311272-2	74.43	70 to 85	X	X					
TRC-GW-22-SW	9/12/2024	460-311272-3	73.80	70 to 85	X	X					

Notes:
X – Analysis performed
TAL: Target Analyte List
TCL: Target Compound List
TICs: Tentatively identified compounds
PFAS: Per- and polyfluoroalkyl substances
(1) Measured from the top of PVC casing in 2022 and from top of protective casing in 2024
(2) Filtered and unfiltered
(3) One duplicate groundwater sample, TRC-GW-DUP, was collected on July 20, 2022, from TRC-GW-14.
(4) One duplicate groundwater sample, TRC-GW-DUP, was collected on September 12, 2024, from TRC-GW-22.

2.1.3 Geophysical survey

On June 23, 2022, as part of the RI, a geophysical survey was performed by Greenstar Environmental at the Site building to clear the proposed sample locations of potential subsurface utilities and underground structures using ground penetrating radar (GPR) equipment. On July 29, 2024, an additional geophysical survey was performed by NOVA Geophysical Services to clear the proposed SRI sample locations of potential subsurface utilities and underground structures using GPR equipment. Sampling locations were established in areas that did not conflict with subsurface structures or utilities.

2.1.4 Summary of Remedial Investigation Findings

Below is a summary of RI findings.

Volatile Organic Compounds (VOCs) in Soil Vapor

Four (4) sub-slab soil vapor samples were collected at the Site and analyzed for VOCs. TCE was detected in four (4) soil vapor samples at concentrations ranging between 0.39 and 72 µg/m^3. PCE was detected in four (4) soil vapor samples at concentrations ranging between 16 and 520 µg/m^3. Complete results of analysis of the soil vapor samples for VOCs are presented in *Table 1*.

Volatile Organic Compounds (VOCs) in Soil

A total of 32 soil samples and two duplicate soil samples were analyzed for Target Compound List (TCL)/CP-51 VOCs +10 tentatively identified compounds (TICs) during the RI. An additional 14 soil samples and one duplicate soil sample were analyzed for TCL/CP-51 VOCs+10 TICs during the SRI. The complete results of the analyses of the soil samples for VOCs are presented in *Tables 2A and 2B.* 1,2,4-Trimethylbenzene and total xylenes were detected in one soil sample at concentrations exceeding the Restricted Residential Use SCOs as shown in in the table below. Note that no VOCs were detected above SCOs in the soil sample collected from TRC-SB-22 from 68-69 feet bgs. The limited presence of VOCs detected above RRUSCOs can be attributed to very old and heavily weathered petroleum.

VOCs Detected in Soil at Concentrations Above Restricted Residential Use SCOs

Sample ID Sample Depth (ft) Units	TRC-SB-22 (25-26) 25-26 (mg/kg)	RRUSCO (mg/kg)
1,2,4-Trimethylbenzene	**67**	52
Xylenes, Total	**150**	100

Notes:
RRUSCO: Restricted Residential Use SCO

Bold and shaded values exceed RRUSCO
mg/kg: Milligrams per kilogram

Semivolatile Organic Compounds (SVOCs) in Soil

A total of 32 soil samples and two duplicate soil samples were analyzed for TCL/CP-51 semivolatile organic compounds (SVOCs) +20 TICs. An additional 14 soil samples and one duplicate soil sample were analyzed for TCL/CP-51 SVOCs + 20 TICs during the SRI. The analytical data for soil samples collected is summarized in *Tables 3A and 3B*. Five (5) polycyclic aromatic hydrocarbons (PAHs), benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, and indeno[1,2,3-cd]pyrene, were detected in shallow soil/fill at concentrations exceeding the Restricted Residential Use SCOs as shown in the table below.

SVOCs Detected in Soil at Concentrations Above Restricted Residential Use SCOs

Sample ID Sample Depth (ft) Sample Date Units	TRC-SB-13 1-4 6/26/2022 (mg/kg)	TRC-SB-14 1-4 6/29/2022 (mg/kg)	TRC-SB-18 1-4 6/27/2022 (mg/kg)	RRUSCO (mg/kg)
Benzo[a]anthracene	0.69	**1.8**	**4.1**	1
Benzo[a]pyrene	0.65	**1.7**	**4.6**	1
Benzo[b]fluoranthene	0.90	**2.7**	**6.1**	1
Chrysene	0.73	2.0	**4.4**	3.9
Indeno[1,2,3-cd]pyrene	**0.68**	**1.7**	**2.4**	0.5

Notes:
RRUSCO: Restricted Residential Use SCO
Bold and shaded values exceed RRUSCO
mg/kg: Milligrams per kilogram

Metals and Cyanide in Soil

A total of 26 soil samples and two duplicate soil samples were analyzed for Target Analyte List (TAL) metals and cyanide during the RI. The analytical data is summarized in *Table 4*. Mercury was detected in shallow soil/fill at concentrations exceeding the Restricted Residential Use SCO as shown in the table below. No other metals or cyanide were detected in soil samples at concentrations exceeding the Restricted Residential Use SCOs.

Mercury Detected in Soil at Concentrations Above Restricted Residential Use SCOs

Sample ID Sample Depth (ft) Units	TRC-SB-18 1-4 (mg/kg)	TRC-SB-20 1-4 (mg/kg)	RRUSCO (mg/kg)
Mercury	**3.9**	**319**	0.73

Notes:
RRUSCO: Restricted Residential Use SCO
Bold and shaded values exceed RRUSCO
mg/kg: Milligrams per kilogram

Additionally, seven (7) soil samples (TRC-SB-06-N, TRC-SB-06-W, TRC-SB-12, TRC-SB-13, TRC-SB-14, TRC-SB-18, and TRC-SB-20) contained lead at concentrations below RRSCOs but with the potential to exhibit the hazardous waste characteristic of toxicity and one (1) soil sample (TRC-SB-20) contained mercury at a concentration with the potential to exhibit the hazardous waste characteristic of toxicity. Each of the samples containing lead and/or mercury at concentrations with the potential to exhibit hazardous waste characteristics were analyzed for lead and/or mercury by Toxicity Characteristic Leaching Procedure (TCLP) as described below.

Hazardous Waste Characteristics in Soil

Each soil sample with the potential to exhibit hazardous waste characteristics for toxicity based on total analyte concentrations of equal or greater than 20 times the hazardous waste regulatory limit were additionally analyzed for that analyte by the TCLP method. Seven shallow soil/fill samples (TRC-SB-06-N (1-4), TRC-SB-06-W (1-4), TRC-SB-12 (1-4), TRC-SB-13 (1-4), TRC-SB-14 (1-4), TRC-SB-18 (1-4), and TRC-SB-20 (1-4)) were analyzed for TCLP lead and one (1) soil sample (TRC-SB-20 (1-4)) was analyzed for TCLP mercury. The leachable concentration of lead in the samples did not exceed the regulatory limit of 5 mg/L and the leachable concentration of mercury in TRC-SB-20 (1-4) did not exceed the regulatory limit of 0.2 mg/L.

A summary of the analytical results for the TCLP lead and mercury testing is presented in *Table 5.*

Polychlorinated Biphenyls (PCBs) in Soil

A total of 26 soil samples and two duplicate soil samples were analyzed for PCBs during the RI. PCBs were not detected in any of the soil samples. The analytical data is summarized in *Table 6.*

Pesticides and Herbicides in Soil

A total of 26 soil samples and two duplicate soil samples were analyzed for TCL pesticides and herbicides during the RI. There were no pesticides or herbicides detected in any of the soil samples. The analytical data is summarized in *Table 7*.

Per- and Poly-Fluoroalkyl Substances in Soil

A total of 26 soil samples and two duplicate soil samples were analyzed for per- and polyfluoroalkyl substances (PFAS) during the RI. There were no PFAS detected at concentrations greater than the proposed Restricted Residential Use SCOs. The analytical data is summarized in *Table 8.*

VOCs in Groundwater

Four groundwater samples and one duplicate groundwater sample collected from permanent monitoring wells TRC-GW-04, TRC-GW-14, TRC-GW-15, and TRC-GW-21 were analyzed for TCL and CP-51-listed VOCs +10 TICs during the RI. An additional four groundwater samples and one duplicate groundwater sample collected from permanent monitoring wells TRC-GW-22, TRC-GW-22-N, TRC-GW-22-E, and TRC-GW-22-SW were analyzed for TCL and CP-51-listed VOCs +10 TICs during the SRI. The analytical data for groundwater samples is summarized in *Tables 9A and 9B.* A summary of the VOCs detected above the Class GA Value in the groundwater samples is presented in the following table.

VOCs Detected in Groundwater at Concentrations Greater than Class GA Values

Sample ID	TRC-GW-04	TRC-GW-14	TRC-GW-DUP	TRC-GW-21	Class GA Value (µg/L)
Sample Date	7/20/2024	7/20/2024	7/20/2024	7/20/2024	
Units	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
Chloroform	**8.4**	**8.8**	**8.8**	**24**	7

Sample ID	TRC-GW-22	TRC-GW-DUP	TRC-GW-22-N	TRC-GW-22-SW	TRC-GW-22-E	Class GA Value (µg/L)
Sample Date	9/12/2024	9/12/2024	9/13/2024	9/12/2024	9/12/2024	
Units	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	
1,2-Dichloroethane	**1.1**	**1.2**	1.0 U	1.0 U	1.0 U	0.6
Benzene	0.53 J	0.56 J	1.0 U	**1.4**	1.0 U	1
Chloroform	**39**	**42**	**35**	**13**	**11**	7
m-Xylene & p-Xylene	**6.3**	**6.9**	1.0 U	1.0 U	1.0 U	5[(a)]
Xylenes, Total	**9.7**	**11**	2.0 U	2.0 U	2.0 U	5[(a)]

Notes:
[(a)] There is no Standard or Guidance Value for total xylenes. The Standard for o-xylene, m-xylene, and p-xylene is 5 µg/L.

Bold and shaded values exceed Class GA Values
µg/L: Micrograms per liter
TRC-GW-DUP collected 7/20/2024 is a duplicate sample of TRC-GW-14
TRC-GW-DUP collected 9/12/2024 is a duplicate sample of TRC-GW-22

SVOCs in Groundwater

Four groundwater samples and one duplicate groundwater sample collected from permanent monitoring wells TRC-GW-04, TRC-GW-14, TRC-GW-15, and TRC-GW-21 were analyzed for TCL/CP-51 SVOCs +20 TICs during the RI. An additional four groundwater samples and one duplicate groundwater sample collected from permanent monitoring wells TRC-GW-22, TRC-GW-22-N, TRC-GW-22-E, and TRC-GW-22-SW were analyzed for the parameters listed above during the SRI. There were no SVOCs detected at concentrations greater than the Class GA Values in the groundwater samples. The analytical data is summarized in *Tables 10A and 10B.*

Metals and Cyanide in Groundwater

Four groundwater samples and one duplicate groundwater sample were collected from the permanent monitoring wells and analyzed for metals (unfiltered and filtered) and total cyanide. The analytical data is summarized in *Table 11.* Three metals were detected in the filtered groundwater samples at concentrations above the Class GA Values. Cyanide was not detected above Class GA Values. A summary of the metals detected at concentrations greater than the Class GA Values in the filtered groundwater samples is provided in the following table.

Metals Detected in Filtered Groundwater at Concentrations above Class GA Values

Sample ID Filtered Units	TRC-GW-04 Filtered µg/L	TRC-GW-14 Filtered µg/L	TRC-GW-DUP Filtered µg/L	TRC-GW-15 Filtered µg/L	TRC-GW-21 Filtered µg/L	Class GA Value µg/L
Magnesium	**123,000**	**92,400**	**91,700**	**76,900**	33,400	35,000
Manganese	48.2	**692**	**679**	**1,490**	495	500
Sodium	**298,000**	**321,000**	**323,000**	**193,000**	**55,200**	20,000

Notes:
Bold and shaded values exceed Class GA Values
µg/L: Micrograms per liter
TRC-MW-DUP is a duplicate of TRC-GW-14

Manganese, sodium, and magnesium were detected in filtered groundwater samples at concentrations exceeding Class GA Values. The metals detected in groundwater are likely naturally occurring and attributable to regional groundwater characteristics.

PCBs in Groundwater

Four groundwater samples and one duplicate groundwater sample collected from the permanent monitoring wells were analyzed for PCBs. There were no PCBs detected in the groundwater samples. The analytical data is summarized in *Table 12.*

Pesticides and Herbicides in Groundwater

Four groundwater samples and one duplicate groundwater sample collected from the permanent monitoring wells were analyzed for TCL pesticides and TCL herbicides. There were no pesticides or herbicides detected at concentrations greater than the Class GA Values in the groundwater samples. The analytical data is summarized in *Table 13.*

Per- and Polyfluoroalkyl Substances in Groundwater

Four groundwater samples and one duplicate groundwater sample collected from the permanent monitoring wells were analyzed for PFAS. The analytical data is summarized in *Table 14.* A summary of PFAS detected at concentrations greater than the Class GA Values in the groundwater samples is provided in the following table.

PFAS Detected in Groundwater at Concentrations above Proposed Class GA Values

Sample ID Filtered Units	TRC-GW-15[1] ng/L	Proposed Class GA Value ng/L
PFOA [2]	**14.0**	6.7

Notes:
Bold and shaded values exceed Proposed Class GA Values
ng/L: Nanograms per liter
[1] – TRC-GW-15 is located upgradient of the Site and within the 88th street sidewalk.
[2] – Proposed Class GA Value for PFOA is presented in the NYSDEC Guidance Document titled "2021 Addendum to June 1998 Division of Water Technical and Operational Guidance Series (TOGS) No. 1.1.1" (February 2023) and in the proposed revision to TOGS 1.1.1.

2.2 SIGNIFICANT THREAT

The NYSDEC and NYSDOH have determined that this Site does not pose a significant threat to human health and the environment.

2.3 SITE HISTORY

2.3.1 Past Uses and Ownership

Historically, Lot 28 was occupied by several low-rise structures prior to construction of the current one-story commercial building with a basement in 1956. The building was most recently used by a bank and as real estate offices. Lot 39 has been improved with the current one-story building with a partial basement since 1923, which was occupied by a garage with gasoline tank and auto repair/service station between approximately 1926 and 1977 and was most recently occupied by a construction company for storage of tiles and other assorted construction materials.

2.3.2 Prior Reports

Presented in this section are summaries of reports regarding previous investigations conducted at the Site which include a Phase I Environmental Site Assessment (ESA) Report prepared by TRC in October 2019, a Phase II Environmental Site Investigation (ESI) Report by TRC in February 2020, a Remedial Investigation Work Plan prepared by TRC in March 2022, a Supplemental Remedial Investigation Work Plan prepared by TRC in May 2024, and an Interim Remedial Measure Work Plan prepared by TRC in May 2025. Refer to Section 2.1.4 for a summary of the RI Report.

2.3.2.1 Phase I Environmental Site Assessment (ESA), October 2019

A Phase I ESA for Block 6065, Lots 28 and 39 (the Site) was completed by TRC in 2019 on behalf of the NYCSCA. The Phase I ESA Report, dated October 15, 2019, identified on-Site recognized environmental conditions (RECs) associated with the potential presence of historic fill of unknown origin and suspect buried structures; a suspect aboveground storage tank (AST) in the basement of the 8802 5th Avenue building; historic use of the Site as a garage with a gasoline tank and auto repair/service station with a potential oil/water separator; the presence of volatile organic compounds (VOCs) and metals in soil above Unrestricted Use Soil Cleanup Objectives (SCOs) and the presence of chlorinated and petroleum-related VOCs in sub-slab vapor on Lot 39 (based on information provided by the previous property owner); and the Site's listing in the E-Designation database for Underground Gasoline Storage Tanks Testing Protocol and Air Quality. Off-Site RECs include the current presence of auto repair facilities in close proximity to the Site; the historic presence of auto repair facilities, manufacturing facilities, gasoline filling stations, printers, undertakers, machine shops, bowling alleys, a sub-station, and a dry cleaner on nearby properties; as well as nearby sites identified in the regulatory database listings for spills, petroleum bulk storage tanks, E-designations, hazardous waste generation, and historical auto stations and

dry cleaners. The Phase I ESA Report also identified environmental concerns associated with suspect asbestos-containing material (ACM), lead-based paint (LBP), and polychlorinated biphenyl (PCB)-containing materials, potential air emissions from the automobile repair facility located west of the Site on the Site block, and the potential for mold growth due to water intrusion.

Based on the results of the Phase I ESA, TRC recommended performing a Phase II ESI to determine whether the identified RECs affected the suitability of the Site for the construction of a Public School Facility. Environmental sampling was subsequently completed by TRC and is described below.

2.3.2.2 Phase II Environmental Site Investigation (ESI), February 2020

A Phase II ESI Report for the Site was prepared by TRC in February 2020 on behalf of the NYCSCA to assess the RECs identified in the Phase I ESA. Phase II ESI field activities consisted of a geophysical survey; assessment of a suspect AST and floor drains/underground structures; advancement of soil borings; installation of temporary soil vapor points and temporary groundwater monitoring wells; installation and development of one permanent monitoring well; and the collection and laboratory analysis of ambient air, sub-slab and soil vapor, soil, floor drain sediment, and groundwater samples. Historic sampling results are presented in *Figures 12A, 12B, and 12C.*

The results of the geophysical survey revealed an anomaly resembling a potential underground storage tank (UST) in the Lot 39 building. The anomaly was approximately 4.5 feet wide by 9 feet long. No fill ports or vent pipes were identified in the vicinity of the anomaly. Although several pipes which extend through the roof were identified along the southern wall of the Lot 39 building, the results of the geophysical survey concluded these pipes were not vent pipes related to underground tanks.

An assessment of the suspect AST in the 8802 5th Avenue building confirmed the presence of an AST; however, the condition and approximate size of the AST could not be confirmed due to the condition of the concrete and cinder block enclosure. In addition, during the geophysical survey, an anomaly was identified below the concrete floor adjacent and parallel to the suspect AST in the 8802 5th Avenue building. The dimensions of the anomaly could not be confirmed due to interference by the wall and the AST.

Petroleum- and chlorinated solvent-related compounds were detected in soil vapor and sub-slab vapor above screening criteria. Specifically, the VOCs trichloroethene (TCE) and tetrachloroethene (PCE) were detected in sub-slab vapor and soil vapor at concentrations ranging

from 0.16 to 710 micrograms per cubic meter ($\mu g/m^3$) and 5.3 to 15,000 $\mu g/m^3$, respectively. In addition, VOCs were not detected in the ambient air sample at concentrations above screening criteria.

Two (2) sediment samples were collected from the floor drains in the Lot 39 building. The VOC cis-1,2-dichloroethene (cis-1,2-DCE) (breakdown product of PCE) was detected in one floor drain sample and several semivolatile organic compounds (SVOCs) and several metals were detected in both sediment samples at concentrations exceeding Unrestricted Use Soil Cleanup Objective (SCOs) which are attributable to historic on-Site operations.

Total xylenes were detected in one (1) soil sample collected from soil boring TRC-SB-06 from 20 to 22 feet below ground surface (bgs) at concentrations marginally exceeding the Unrestricted Use SCO. Since black staining, petroleum odors, and photoionization detector (PID) readings were observed in soil from that boring from approximately 10 to 22 feet bgs, total xylenes may be attributable to very old and heavily weathered petroleum. No other petroleum-related VOCs were detected above comparison criteria in the sample. SVOCs and metals were detected in shallow soil samples (i.e., samples collected from 1 to 4 feet bgs/below the bottom of slab [bbos]) across the Site at concentrations above comparison criteria and were attributed to the characteristics of fill material at the Site. Polychlorinated biphenyls (PCBs), pesticides, and the herbicide Silvex were not detected in soil at concentrations above the Unrestricted Use SCOs. Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were not detected above the recommended Part 375 Unrestricted Use SCOs.

Three (3) soil samples and two (2) sediment samples collected from the floor drains were analyzed by the Toxicity Characteristic Leaching Procedure (TCLP) for lead. TCLP lead was not detected at concentrations exceeding the TCLP regulatory limit. In addition, one (1) sediment sample collected from the westernmost floor drain was analyzed for chromium by TCLP. Leachable chromium was not detected at a concentration exceeding the TCLP regulatory limit. Note that the sediment from the floor drains was containerized and transported off-Site for disposal during the implementation of the Phase II ESI.

Chloroform was detected in groundwater at concentrations slightly above the New York State Class GA Ambient Water Quality Standard (Class GA Value). Chloroform is commonly found in potable drinking water as a by-product of chlorination and its presence was attributed to historic on-Site operations (i.e., leaking water supply and/or drainage pipes). Benzene, toluene, ethylbenzene, and xylenes (BTEX)-compounds and the SVOC phenol were detected in one (1) groundwater sample at concentrations above comparison criteria, which was attributed to historic on-Site operations or an off-Site source. Metals (antimony, lead, and manganese) were detected in

filtered groundwater at concentrations above comparison criteria which was attributed to the characteristics of Site soil/fill. No PCBs were detected in groundwater at concentrations above the Class GA Value. In addition, PFOA and PFOS were not detected in groundwater at concentrations greater than the New York State Drinking Water Quality Council recommended Maximum Contaminant Level (MCL).

2.3.2.3 Remedial Investigation Work Plan, March 2022, and Regulatory Correspondence

The Work Plan for the RI which is the subject of this Report was prepared by TRC on behalf of NYCSCA and submitted to NYSDEC with the Brownfield Cleanup Program Application in November 2021. The RI Work Plan was prepared in accordance with the objective of completing the characterization of soil, groundwater, and soil vapor at the Site, confirming groundwater flow direction, and delineating impacts identified during prior investigations. The RI Work Plan scope included the advancement of soil borings, installation of monitoring wells, installation of sub-slab soil vapor points, the performance of a survey to determine groundwater surface elevations and flow direction, and the collection and laboratory analysis of soil, sub-slab vapor, and groundwater samples. A sample location plan is presented in *Figure 13.*

The RI Work Plan was revised based on NYSDEC and NYSDOH comments and was re-submitted to NYSDEC in March 2022. The BCP Agreement was executed on May 26, 2022, and the RI Work Plan was approved by the NYSDEC on June 6, 2022. A copy of the NYSDEC approval letter for the RI Work Plan is provided in *Appendix A.*

2.3.2.4 Supplemental Remedial Investigation Work Plan, May 2024, and Regulatory Correspondence

Based on the presence of petroleum-impacted soils identified during the 2022 RI activities, in a letter dated February 24, 2023, the NYSDEC requested additional investigation. The Work Plan for the SRI was prepared by TRC on behalf of NYCSCA and submitted to NYSDEC in February 2024, revised May 2024. The SRI Work Plan scope included the advancement of soil borings, installation of monitoring wells, the performance of a survey to determine groundwater surface elevations and flow direction, and the collection and laboratory analysis of soil and groundwater samples within Lot 39. A sample location plan is presented in *Figure 14.* The SRI Work Plan was approved by the NYSDEC on June 18, 2024. A copy of the NYSDEC letter requesting additional investigation and the NYSDEC approval letter for the SRI Work Plan are provided in *Appendix A.*

2.3.2.4 Interim Remedial Measure Work Plan, May 2025, and Regulatory Correspondence

An Interim Remedial Measure (IRM) Work Plan was proposed to NYSDEC to locate and remove subsurface structures and shallow residual source area(s) of petroleum-related contaminant mass. During prior investigations, petroleum impacted soils were identified beneath the Lot 39 building. Specifically, moderate to strong odors, staining and photoionization detector (PID) readings were identified in soil samples collected between 18.5 feet below ground surface (bgs) and 24.8 feet bgs, and two (2) volatile organic compounds (VOCs), 1,2,4-trimethylbenze and xylene, were detected in one (1) soil boring beneath Lot 39 at concentrations above the Restricted-Residential Use Soil Cleanup Objective (RRUSCO).

Additionally, during geophysical surveys performed as part of prior investigations, multiple suspected underground structures were identified. Specifically, identified structures resemble an underground drainage system, a UST, and an OWS. Since shallow source area impacts were not identified during prior extensive subsurface investigations, the intent of the IRM is to properly remove the underground structures and investigate and remediate (i.e., remove) potential shallow residual source area impacts in their vicinity. The information gained from the investigation, structure removal, and post-excavation sampling will provide additional clarity on the nature of the contamination previously identified onsite. A figure showing the locations of the suspected underground structures and IRM remedial actions is included as *Figure 19*.

As part of the draft License Agreement with the neighboring property, the neighboring property's cars and parking lifts that are currently abutting the Site are required to be relocated during Lot 28 building demolition and construction of the barrier wall that is needed to mitigate potential future adjacent property vehicle emissions and car lift failures/collapses. As part of the draft License Agreement, it is anticipated that the neighboring property's relocated cars will be parked on Lot 39 following implementation of the IRM and during the construction activities on Lot 28. Due to the anticipated provisions of the License Agreement, it was beneficial to the progress of the project and the remedial approach to prepare the IRM Work Plan in parallel with the development of this RAWP.

The IRM Work Plan was prepared by TRC on behalf of NYCSCA and submitted to NYSDEC on March 6, 2025. The NYSDEC deemed the IRM Work Plan to consist of the majority of the remedy at the Site, and therefore the IRM Work Plan entered a 30-day public comment period on March 7, 2025. An IRM Factsheet was prepared, in English and Spanish, to accompany the IRM Work Plan during the public comment period. Additionally, the NYSDEC provided a presentation

to the community during a Community Board 10 public meeting on April 8, 2025. NYCSCA and TRC also attended this meeting and answered questions from meeting attendees. The IRM Work Plan was revised based on NYSDEC comments, resubmitted on May 21, 2025, and approved by NYSDEC on May 28, 2025. It is anticipated that the IRM remedial actions will meet the requirements of a Track 4 cleanup. A copy of the NYSDEC approval letter for the IRM Work Plan is provided in *Appendix A.*

2.3.3 Sanborn Maps

All Sanborn Maps available for this Site were reviewed prior to preparation of the RAWP. Copies of the Sanborn Maps are in *Appendix F.* The following summary of the history and uses of the Site is based on a review of available Sanborn Fire Insurance Maps and the Phase I ESA Report prepared by TRC in 2019.

The Sanborn Map for 1893 shows two stables, one residential building, and one store. The 1905 Sanborn Map shows one stable has been demolished, an addition has been constructed on the existing stable and is labeled "wreck". The store is now labeled a dwelling. The 1926 Sanborn Map shows the Site is developed with one residential building on the northern portion of the Site, two residential buildings on the southeastern portion of the Site, two structures on the central portion of the Site, and a garage with one gasoline tank on the western portion of the Site. The stable/one-story structure has been demolished. The 1950 Sanborn Map shows the residential and auxiliary buildings on the eastern and central portions of the Site have been demolished. The garage with a gasoline tank remains. The 1969 Sanborn Map shows the northern portion of the Site is developed with a one-story building and the southeastern portion of the Site is developed with a parking lot. The garage on the southwestern portion of the Site is occupied by an auto repair facility. The gasoline tank is no longer shown. Sanborn Maps from 1977 through 2007 show no significant changes from the previous 1969 Sanborn Map.

2.4 GEOLOGIC AND HYDROGEOLOGIC CONDITIONS

2.4.1 Geology

The subsurface geology of Kings County (Brooklyn) is characterized by Cretaceous strata between Precambrian bedrock consisting of gneiss and schist and Precambrian bedrock and Pleistocene glacial deposits. Present day surface features and topography in New York City are primarily attributable to the most recent glaciation event. The area is underlain by deposits of

glacial outwash sediments, which are typically comprised of sand and gravel. Soil and bedrock stratigraphy throughout Brooklyn typically consists of a layer of historical fill that overlies glacial outwash sediments, unconsolidated deposits, and bedrock. Bedrock was not encountered in the soil borings advanced at the Site as the depth to bedrock for the area is estimated to be approximately 500 feet below ground surface (bgs).

During the RI, fill material consisting of gravel and trace building materials (i.e., red brick, asphalt, concrete) were observed from the ground surface to depths ranging between 1.0 and 15 feet bgs. During the previous Phase II Environmental Site Investigation (ESI), fill material was encountered at a maximum depth of 13 feet bgs. Beneath the fill materials, fine to coarse sand, silt, clay, and gravel were identified to the terminal depths of the borings (30 to 90 feet bgs). Clayey silt was encountered at depths ranging from 17.2 to 29.8 feet bgs in the borings advanced to depths of 30 feet bgs. Geologic cross-sections are presented on *Figures 5 through 9.*

The nearest major surface water body is the New York Bay, located approximately 0.7 miles to the west.

2.4.2 Hydrogeology

Regional groundwater is anticipated to flow to the south based on topography in the area and the review of the USGS Hydraulic Conditions Map for Long Island, NY 2013 (USGS Long Island Depth to Water Viewer and Geospatial Dataset of Water-Table and Potentiometric-Surface Altitudes in the Upper Glacial, Magothy, and Lloyd Aquifers of Long Island, New York in 2013).

A round of synoptic water level measurements was collected from four surveyed permanent monitoring wells (TRC-GW-04, TRC-GW-14, TRC-GW-15, and TRC-GW-21) on August 12, 2022 as part of the RI. Groundwater surface elevations in the monitoring wells ranged from approximately 4.22 feet NAVD88 in monitoring well TRC-GW-15, located in the southwest portion of the Site, to 1.82 feet NAVD88 in monitoring well TRC-GW-21, located in the northern portion of the Site, corresponding to approximately 72.98 feet and 75.53 feet below top of casing (btoc), respectively. *Figure 10* presents the groundwater surface elevation measurements and inferred groundwater surface elevation contours from the 2022 synoptic water level measurements.

A second and third round of synoptic water level measurements were collected from eight (8) surveyed permanent groundwater monitoring wells (TRC-GW-04, TRC-GW-14, TRC-GW-15, TRC-GW-21, TRC-GW-22, TRC-GW-22-N, TRC-GW-22-E, and TRC-GW-22-SW) on September 13, 2024 and November 19, 2024 as part of the SRI. Based on the synoptic water level measurements collected in September 2024, groundwater surface elevations ranged from

approximately 4.94 feet NAVD88 in monitoring well TRC-GW-22-E, located in the southwestern portion of the Site, to 1.74 feet NAVD88 in monitoring well TRC-GW-21, located in the northern portion of the Site, corresponding to approximately 74.10 feet and 75.86 feet btoc, respectively. *Figure 11A* presents the groundwater surface elevation measurements and inferred groundwater surface elevation contours from the September 2024 synoptic water level measurements. It was suspected that water introduced into the formation during drilling may have caused the slight groundwater mound that is observed on *Figure 11A*. To verify groundwater contours, the aforementioned third round of synoptic water level measurements were collected in November 2024.

During the November 2024 synoptic water level measurements, groundwater surface elevations in the monitoring wells ranged from approximately 4.70 feet NAVD88 in monitoring well TRC-GW-22-E, located in the southwestern portion of the Site, to 1.80 feet NAVD88 in monitoring well TRC-GW-21, located in the northern portion of the Site, corresponding to approximately 74.34 feet and 75.80 feet btoc, respectively. *Figure 11B* presents the groundwater surface elevation measurements and inferred groundwater surface elevation contours from the November 2024 synoptic water level measurements, which confirms that the previously observed groundwater mounding was temporary and likely a result of the introduction of water during drilling.

The apparent predominant direction of on-Site groundwater flow is toward the north-northeast. The groundwater gradient is almost flat in the southern portion of the Site relative to the steep north-northeasterly flow gradient across the remainder of the Site. The November 2024 groundwater flow direction is consistent with the groundwater flow direction observed in September 2022.

2.5 CONTAMINATION CONDITIONS

2.5.1 Conceptual Model of Site Contamination

The following conceptual site model explains the nature and extent of the contaminants known to be present at the Site, the dominant fate and transport characteristics, potential exposure pathways, and potential impacts to receptors.

The primary contaminants of concern include VOCs (1,2,4-trimethlybenzene and xylenes), SVOCs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, chrysene, and indeno[1,2,3-cd]pyrene), metals (barium, copper, chromium, mercury and lead) in soil; the VOCs 1,2-

dichloroethane, benzene, m-xylene & p-xylene, total xylenes, and chloroform in groundwater; and chlorinated VOCs in sub-slab vapor.

SVOCs and the metals mercury and lead in soil are attributed to the characteristics of shallow fill material at the Site. As noted previously, fill material was encountered from directly below ground surface coverings to depths ranging between 1 and 15 feet bgs. Hazardous levels of leachable mercury and lead were not detected in soil. Soil impacted with SVOCs, mercury and lead were detected in shallow soil samples (collected from 1 to 4 feet bgs) and are localized on the western/west-central and southern portions of the Site. The Site is currently developed with impervious surface coverings; therefore, under current conditions, exposure to metals in subsurface soil is not likely. Potential exposure could occur during soil disturbing activities (i.e., IRM implementation and future redevelopment); however, the frequency and duration of exposure is expected to be low and would be mitigated by implementation of a CAMP and appropriate health and safety procedures. Based on the results of the Remedial Investigation and Phase II ESI, concentrations of SVOCs and lead above the Restricted Residential Use SCO were reported within the anticipated excavation area on Lot 28.

Physical evidence of petroleum-related impacts (i.e., staining, petroleum odors, and PID readings) were identified in soil samples collected from borings advanced in the central to southern portion of the Lot 39 building. During the Phase II ESI (completed in February 2020), total xylenes were detected in one (1) soil sample at a concentration exceeding the Commissioner Policy 51 (CP-51) Soil Cleanup Level (SCL) of 0.26 mg/kg, but below the Protection of Groundwater Use SCO of 1.6 mg/kg. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were detected in one (1) groundwater sample at concentrations above Class GA Values during the Phase II ESI. During the RI, petroleum-related VOCs were not identified in soil at concentrations above the Restricted Residential Use SCOs nor in groundwater at concentrations above Class GA Values. During the SRI, petroleum-related VOCs were detected above the Restricted Residential Use SCOs in soil and above Class GA Values in groundwater in samples collected from sampling locations in the central to southern portions of the Lot 39 building. Evidence of petroleum-related impacts in soil and groundwater may be attributed to residual contamination from historic Site uses (i.e., automobile repair facility/garage with a potential UST and leaking subsurface drainage structure). The petroleum-related impacts are isolated to an area beneath the central to southern portion of the Lot 39 building, do not appear to be impacting off-Site groundwater, are located at a depth that is not expected to be encountered during redevelopment activities, and are expected to attenuate over time.

The VOC chloroform was detected in groundwater at concentrations above Class GA Values; however, there does not appear to be an on-Site source that would warrant remediation considering that: 1) The redevelopment plan for the Site includes the installation of new water supply and sanitary piping infrastructure 2) chloroform is commonly found in potable drinking water as a by-product of chlorination and the source is attributed to historic on-Site operations (i.e., leaking water pipes), and 3) chloroform was not detected at concentrations above the Unrestricted Use SCOs in soil samples collected during the RI and SRI. In addition, groundwater was encountered at depths ranging from approximately 74 feet to 77 feet below ground surface, minimizing the potential for exposure to groundwater at the Site. Therefore, under current conditions, ingestion and absorption of contaminated groundwater do not represent significant potential exposure pathways, and for this reason, the potential for exposure to contaminated groundwater by potential receptors is expected to be low.

PFOA was detected in one (1) upgradient groundwater sample at a concentration above the Class GA Value. Significant concentrations of PFAS were not detected in on-Site soil. The low concentrations of PFAS in upgradient groundwater are likely due to the ubiquitous presence of PFAS in groundwater throughout New York City.

Additionally, filtered metals were detected in groundwater above the Class GA Value. Specifically, manganese, sodium, and magnesium were detected in filtered groundwater samples at concentrations above the Class GA Value; however, the presence of metals detected in groundwater are attributed to regional groundwater characteristics.

The chlorinated VOCs detected in on-Site sub-slab vapor on Lot 39 could potentially result in vapor intrusion and impact the proposed future use of the Site as a Public School Facility; therefore, the proposed building on Lot 28 will be constructed with a vapor mitigation system (i.e., a vapor barrier and sub-slab depressurization system). Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If post-remedial sub-slab vapor TCE and PCE analytical results are below the action level of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA policies and procedures as a standard protective measure, but to alleviate reporting requirements, the systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the FER or subject to ongoing Site Management reporting. If the post-remedial sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the following vapor mitigation systems will be considered Engineering Controls, the remedial engineer will then certify in the FER that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed,

and the vapor mitigations systems will be subject to ongoing Site Management reporting requirements. Note that an inspection of the west adjacent NYC Department of Education Superintendent Office (K989) building was completed in December 2019, which confirmed that the basement that encompasses the building's footprint is occupied by a ventilated parking garage, eliminating concerns associated with vapor intrusion impacts at the school facility on floors one through five.

An IRM will be performed to locate and remove subsurface structures, shallow fill material, and shallow residual source area(s) of petroleum-related contaminant mass across Lot 39. It is anticipated that the IRM will remove the majority of the contamination of concern within Lot 39, including the shallow SVOC and metal exceedances of RRUSCOs. The IRM will also remove the potential sources of petroleum related contaminant mass, including one suspect UST, one suspect oil water separator, and an underground floor drain and drainage system. It is anticipated that the IRM remedial action will meet the requirements of a Track 4 cleanup.

2.5.2 Description of Areas of Concern

The following is a description of contaminants of concern, which will remain following implementation of the NYSDEC-approved IRM:

- The primary contaminants of concern in shallow soil/fill between 1 to 4 feet bgs are beneath the asphalt-paved area on Lot 28 and include lead and SVOCs consistent with historic fill material.
- The primary contaminants of concern in deeper soil between 25 and 26 feet bgs and beneath the central to southern portion of Lot 39 include residual petroleum-related VOCs 1,2,4-trimethylbenzene and total xylenes.
- Contaminants of concern in groundwater include the VOCs 1,2-dichloroethane, benzene, m-xylene & p-xylene, and total xylenes, and chloroform. Petroleum-related VOCs in groundwater are isolated to two monitoring well locations in the central to southern portion of the Lot 39 footprint and are not impacting groundwater Site-wide or migrating off-Site.
- Soil vapor contaminants of concern include chlorinated VOCs (TCE and PCE) on Lot 39. TCE and PCE concentrations in soil vapor collected during the RI were orders of magnitude lower than those detected during the previous Phase II ESI which was attributed to the removal and off-site disposal of CVOC-impacted sediment identified in the Lot 39 floor drains as part of the Phase II ESI.

2.5.3 Identification of Standards, Criteria and Guidance

A criterion for remedy selection is evaluation for conformance with SCGs that are applicable, relevant, and appropriate. Principal SCGs that are applicable, relevant, and appropriate for evaluating the alternatives for remediation of the Site include the following:

- New York State Environmental Conservation Law (ECL) Article 27, Title 14, Brownfield Cleanup Program (ECL §27-14);
- 6 NYCRR Subpart 375-1, General Remedial Program Requirements; 6 NYCRR Subpart 375-3, Brownfield Cleanup Program; 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives; and Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Program.
- NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation;
- NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Groundwater Effluent Limitations;
- NYSDOH Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York;
- New York State Groundwater Quality Standards – 6 NYCRR Part 703;
- NYSDEC Draft Brownfield Cleanup Program Guide;
- NYSDOH Generic Community Air Monitoring Plan;
- NYSDEC CP-51 Soil Cleanup Guidance;
- USEPA Lifetime Health Advisories and Health Effects Support Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate, Federal Register/Vol. 81, No.101/Wednesday, May 25, 2016/Notices[1].

Additional regulations and guidance are applicable, relevant, and appropriate to the remedial alternatives (such as 6 NYCRR Part 360, Solid Waste Management Requirements; 6 NYCRR Part 364, Waste Transporter Permits; 6 NYCRR Part 613, Handling and Storage of Petroleum, etc.), and will be complied with; however, the list above is intended to represent the principal SCGs which should be considered in evaluating the remedial alternatives for the Site.

[1] Note that this lifetime health advisory is applicable to drinking water. The health advisory as a screening level for groundwater, above which additional evaluation is warranted, has been included at the direction of the NYSDEC.

Conformance with the appropriate standards for remediation of contaminated soil is an important criterion in evaluating the remedial alternatives for the Site. Presently, in New York State 6 NYCRR Part 375 establishes the primary SCGs associated with remediation of contaminated soil at sites in the BCP. If proposing remediation pursuant to a Track other than Track 1 (Unrestricted Use), 6 NYCRR Part 375 requires evaluation of at least one remedial alternative pursuant to Track 1 (Unrestricted Use) and one other alternative developed by the Applicants for the proposed use of the Site[2]. The remedial alternatives analysis presented in Section 3.1 of this RAWP has been prepared in conformance with this requirement.

The preferred alternative, identified in Section 3.2 as Remedial Alternative 2.

2.5.4 Soil/Fill Contamination

Investigations conducted at the Site have determined that the primary contaminants of concern in soil are limited to the area beneath the asphalt-pavement on Lot 28 and include lead and SVOCs in shallow soil. Additionally, SVOC and mercury contaminated soils, being removed as part of the IRM, were identified on Lot 39.

2.5.4.1 Summary of Soil/Fill Data

Summaries of the results of the analyses of the soil samples are presented in *Tables 2* through *8.* In the tables, analytical results are compared to the Unrestricted Use SCOs, Restricted Residential Use SCOs, and Protection of Groundwater SCOs. The complete laboratory analytical data reports are presented in Appendix I of the RI Report.

A review of the results of the analyses of the soil samples is presented in Section 2.1.4.

2.5.4.2 Comparison of Soil/Fill with SCGs

Tables 2 through *8* show exceedances of Track 1 Unrestricted SCOs for soil samples collected at the Site during the RI. *Figures 16A and 16B* show the sampling locations and summarize the exceedances of Track 1 Unrestricted Use SCOs for soil/fill (prior to completion of the IRM). *Figures 17A and 17B* are maps from the RI Report that show the locations and summarize exceedances of the Restricted Residential Use SCOs.

[2] Exceptions apply to this and can be found at 6 NYCRR 375-3.8(f)(3).

2.5.5 On-Site and Off-Site Groundwater Contamination

Groundwater at the Site is impacted primarily by VOCs (1,2-dichloroethane, benzene, m-xylene & p-xylene, total xylenes, and chloroform).

2.5.5.1 Summary of Groundwater Data

Summaries of the results of the analyses of the groundwater samples collected at the Site during the RI are presented in *Tables 9A* through *14*. The complete laboratory analytical data reports are presented in Appendix I of the RI Report. A review of the results of the analyses of the groundwater samples is presented in Section 2.1.4.

2.5.5.2 Comparison of Groundwater with SCGs

Tables 9A through *14* show exceedances of Class GA Values in groundwater samples prior to the remedy. A map indicating the locations and summarizing exceedances of Class GA Values in groundwater samples is presented as *Figure 18*.

2.5.6 On-Site and Off-Site Soil Vapor Contamination

Summaries of the results of the analyses of the soil vapor samples are presented in *Table 1*. The soil vapor contaminants of concern include chlorinated VOCs (TCE and PCE). The complete laboratory analytical data reports are presented in Appendix I of the RI Report. *Figure 15* shows a summary of sub-slab vapor sampling results. A review of the results of the analyses of the soil vapor samples is presented in Section 2.1.4.

2.5.6.1 Comparison of Soil Vapor with SCGs

A table of soil vapor data collected prior to the remedy is shown in *Table 1*. A map that indicates the locations of and summarizes soil vapor data prior to the remedy is shown in *Figure 15.*

2.6 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

2.6.1 Qualitative Human Health Exposure Assessment

An exposure pathway consists of five elements: (1) a contaminant source, (2) a contaminant release and transport mechanism, (3) a point of exposure, (4) a route of exposure, and (5) a receptor

population. An exposure pathway is complete when all five elements of an exposure pathway are complete.

Based on the findings of the RI, the principal contaminants of concern at the Site have been identified as SVOCs and mercury in shallow soil, residual petroleum VOCs in deeper soil beneath the central to southern portion of the Lot 39 building, VOCs (1,2-dichloroethane, benzene, m-xylene & p-xylene, and total xylenes, and chloroform) in groundwater, and chlorinated VOCs in sub-slab vapor (TCE and PCE). A qualitative exposure assessment was prepared to evaluate the potential for exposure to these contaminants. The evaluation addresses both potential on-Site and off-Site health impacts associated with the Site.

Dermal contact, ingestion of soil or groundwater, or inhalation of vapors or dust represent the potential routes of exposure. Potential receptors include construction workers during demolition and redevelopment, future on-Site occupants and visitors, future on-Site maintenance workers, and off-Site residents.

Considering the future remediation and redevelopment activities, the following exposure pathways are considered incomplete:

- **Groundwater ingestion:** Use of groundwater in this area of Brooklyn is prohibited as a source of potable water; therefore, this exposure pathway is not complete for on-Site and off-Site residents.
- **Groundwater dermal contact by construction workers and future maintenance workers:** During the RI, groundwater was encountered at depths ranging 74 to 77 feet bgs. The proposed redevelopment includes construction of a basement with a proposed redevelopment depth of approximately 15 feet bgs. Therefore, it is unlikely that groundwater will be encountered by the proposed future redevelopment and dermal contact with groundwater is not likely to occur. Accordingly, this exposure pathway is not complete for construction workers and future maintenance workers.
- **Soil dermal contact by future on-Site occupants:** After completion of redevelopment activities, the remaining soil/fill material at the Site will be covered by new building(s), pavement, or clean cover material and landscaping, thereby preventing future exposure of occupants to the soil.
- **Inhalation of dust by future on-Site occupants and maintenance workers**: After completion of redevelopment activities, the remaining soil/fill material at the Site will be

covered by new building(s), pavement, or clean cover material and landscaping, thereby preventing future exposure of occupants to the soil.

- **Inhalation of vapors by future on-Site occupants and maintenance workers:** As a preventative measure and in accordance with NYCSCA's policies and procedures as a protective measure, future redevelopment of the Site will include the construction of a vapor barrier and sub-slab depressurization system (SSDS) below the proposed building that will minimize the potential for intrusion of VOCs into future building spaces and mitigate this exposure pathway. Post-mitigation sub-slab vapor samples will be collected after the new building slab is constructed and prior to construction and occupation of the new building to determine if vapor mitigation engineering controls are a requirement throughout Site Management. If the post-mitigation sub-slab vapor samples indicate that the SSDS is subject to Site Management, the Site Management Plan will include operation and maintenance of the SSDS and performance of one post-mitigation Indoor Air Quality (IAQ) survey during the first heating season after construction of the new building is complete. Otherwise, the vapor barrier and SSDS will be maintained in accordance with standard NYCSCA requirements.

The following exposure pathways are considered potentially complete:

- **Soil dermal contact by construction workers and future maintenance workers:** Potential future construction and maintenance activities (e.g., utility repairs) could result in contact with on-Site contaminated soil.
- **Inhalation of dust by construction workers:** Future construction and maintenance activities (e.g., utility repairs) could result in the generation of and exposure to on-Site contaminated vapors and dust. While the extent of residual contamination will be defined by post-excavation documentation soil sampling analytical results, the residual contamination is anticipated to include only one discrete interval of soil at approximately 26 feet bgs on Lot 39.
- **Inhalation of vapors and dust by off-site residents:** Site remediation and future construction activities (e.g., utility repairs) could result in the generation of contaminated vapors and dust that have the potential to migrate off-Site during construction. Off-Site vapor intrusion assessment may be performed at nearby properties by the NYSDEC and NYSDOH to evaluate the potential for exposure of off-Site residents.

For future actions associated with remedial activity, redevelopment, and maintenance, a site-specific HASP and CAMP will be in place for construction/maintenance workers to minimize the

potential for exposures to soil and soil vapor. The HASP and CAMP will establish procedures for the protection of on-Site construction/maintenance workers and off-Site residents and will address community air monitoring and dust suppression measures.

2.6.2 Fish & Wildlife Remedial Impact Analysis

A fish and wildlife resources impact analysis was completed in general conformance with the framework of Appendix 3C of the Draft DER–10 technical guidance. Significant findings of the analysis are presented below.

The Site has been developed since the late-1800s, with little or no vegetated area. Thus, no terrestrial wildlife resources exist on the Site itself. Further, PCBs and pesticides, bioaccumulable substances, were not detected in on-site soil during the RI.

The urban Site is not located in close proximity to a surface water body, wetland, or other ecologically significant area. Redevelopment plans for the Site include construction of a Public School Facility, and there will be no ecological resources on the Site following the redevelopment. Therefore, in accordance with DER-10 Section 3.10.1(b), further evaluation related to the Fish and Wildlife Resources Impact Analysis is not warranted.

2.7 REMEDIAL ACTION OBJECTIVES

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for this Site.

1. Reduce the contaminant mass by removing contaminated soil.
2. Protect on-Site workers and the surrounding community from exposure to site-related contaminants during remedial construction and development.
3. Establish engineering and institutional controls for the Site to protect future occupants, maintenance personnel, and the surrounding community from potential exposure to site-related contaminants remaining after Site redevelopment.

The RAOs for specific media consist of the following:

2.7.1 Groundwater

<u>RAOs for Public Health Protection</u>

- Prevent ingestion of groundwater containing contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater.

RAOs for Environmental Protection

- Prevent migration of soil contaminants that would result in groundwater contamination.

2.7.2 Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil/dust.
- Prevent inhalation of, or exposure to, contaminants volatilizing from contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater contamination.

2.7.3 Soil Vapor

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

3.1 EVALUATION OF REMEDIAL ALTERNATIVES

The purpose of this section is to present descriptions and an evaluation of the remedial alternatives selected for analysis for the Site. The primary goal of this analysis is to demonstrate how the selected remedy will comply with the following nine remedy selection factors in accordance with the NYSDEC BCP regulations found at 6 NYCRR 375-1.8(f):

1. Protection of human health and the environment;
2. Compliance with standards, criteria, and guidelines (SCGs);
3. Short-term effectiveness and impacts;
4. Long-term effectiveness and permanence;
5. Reduction of toxicity, mobility, or volume of contaminated material;
6. Implementability;
7. Cost effectiveness;
8. Community Acceptance;
9. Green and Sustainable Remediation (including climate resiliency); and
10. Land use.

Two remedial alternatives, consistent with the 6 NYCRR Subpart 375-3 Brownfield Cleanup Program requirements, have been developed for analysis. Descriptions of the alternatives are presented below.

Remedial Alternative 1: Remediate to Achieve Unrestricted Use (Track 1)

Alternative 1 consists of the excavation and removal of all soil which exceeds NYSDEC BCP Track 1 Unrestricted Use Soil Cleanup Objectives, including excavation on Lot 28 and Lot 39. Based on the data presented in the RI Report, the estimated volume of soil requiring removal under Alternative 1 is approximately 12,500 tons[3]. The anticipated excavation depth required to achieve a Track 1 cleanup is approximately 26 feet bgs

During remedial construction, controls would be in place to minimize the potential for exposure of workers and the surrounding community to contaminants. Controls would be implemented in accordance with a site-specific HASP, SoMP, and CAMP. Following remedial activities, the Site would be backfilled to development grade using imported environmentally clean material that meets the protection of public health soil cleanup objectives for Unrestricted Use as described in 6 NYCRR Part 375-6.7(d)(1)(ii)(a) or otherwise approved by NYSDEC.

Existing monitoring wells would be properly decommissioned and groundwater would be remediated through long-term attenuation and removal of potential sources of contamination.

No engineering controls are required for a Track 1 cleanup alternative. As part of development, an active SSDS and soil vapor barrier are being installed as a standard practice by NYCSCA to meet their internal design protocols.

Consideration of this Alternative 1 satisfies the 6 NYCRR Part 375 requirement of evaluating at least one remedial alternative which would achieve Track 1 (Unrestricted Use).

Remedial Alternative 2: Remediate to Achieve Restricted Residential Use Including the Use of Permanent Engineering Controls

Alternative 2 includes the excavation and removal of soil that exhibits SVOCs and lead above the Restricted Residential Use SCOs on Lot 28. Note that the soil exhibiting SVOC and mercury concentrations above the Restricted Residential Use SCOs on Lot 39 will be remediated as part of the IRM. A minimum of the upper 2 feet of soil across Lot 28 would be excavated for off-Site disposal. Additional soil would likely be removed as part of Site development in support of construction of the proposed Site building and cellar. Excavation of soil required for development is not included in the remedial cost estimate. The site development depth is expected to be

[3] This estimated soil volume excludes the removal of soil required for development, and the soil anticipated to be removed during the IRM. All of the quantities are intended solely to be estimates. The quantity estimates presented in this document are subject to change based on the final design for Site development.

approximately 13 feet below sidewalk grade beneath the northern portion of Lot 28 for construction of the basement, and approximately 2 feet bgs across the remainder of Lot 28. Note that portions of the existing basement and foundation elements on Lot 28 are to remain in place and be reused for the new building. Excavation of soil on Lot 39 is not proposed under Alternative 2, since it is anticipated that the IRM will satisfy the remedial requirements for a Track 4 cleanup under Alternative 2. Based on the data presented in the RI Report**,** the estimated volume of soil requiring removal that exhibits SVOCs and/or lead above the Restricted Residential Use SCOs for Alternative 2 is approximately 2,500 tons, which includes the upper 2 feet of soil across the existing exterior portion of Lot 28 only. *Figure 20* shows the estimated extent of excavation required for removal of the SVOC/lead-impacted areas. *Figure 21* shows the proposed post-excavation sample location plan (note that post-excavation sampling of Lot 39 will be performed under the IRM). As with Alternative 1, under Alternative 2 existing monitoring wells would be properly decommissioned.

During remedial construction, controls would be in place to minimize the potential for exposure of workers and the surrounding community to contaminants. Controls would be implemented in accordance with a site-specific HASP, SoMP, and CAMP.

Engineering and institutional controls are included in this alternative and would consist of the following:

1. The final cover will consist of impervious surfaces (i.e., a building and paved surfaces) and in other areas (i.e., landscaped areas) at least 2 feet of clean cover layer that will meet the protection of public health Soil Cleanup Objectives for Restricted Residential Use as described in 6 NYCRR Part 375-6.7(d)(1)(ii)(b) and NYCSCA Specification 02090 or otherwise approved by the NYSDEC.
2. The Site building would be constructed with a vapor barrier and SSDS designed to minimize the potential for vapor intrusion into the building. Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If sub-slab vapor TCE and PCE analytical results are below the action levels of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA and NYCDOE policies and procedures as a standard protective measure, but to alleviate reporting requirements, the systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the FER or subject to ongoing Site Management reporting. If the sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the following vapor mitigation systems will be considered

Engineering Controls, the remedial engineer will then certify in the FER that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed, and the vapor mitigations systems will be subject to ongoing Site Management reporting requirements. Additionally, if the SSDS is an engineering control subject to Site Management, the SMP will include performance of one post-mitigation IAQ survey during the first heating season after construction of the new building is complete;

3. A demarcation layer would be installed immediately above existing residual contaminated soil not meeting UUSCOs; and
4. Preparation and implementation of a post-remediation Site Management Plan (SMP) describing the requirements for engineering and institutional controls; monitoring; operation and maintenance of engineering controls; and, a reporting plan for submittal of data, information, recommendations, and certifications to the NYSDEC. If considered a required engineer control based on post-installation sub-slab vapor testing, a soil vapor mitigation system consisting of a continuous vapor barrier and an active sub-slab depressurization system constructed under all building structures must be inspected, certified, operated and maintained as required by the SMP. An environmental easement would be established to restrict use of groundwater prior to treatment. Site management is the last phase of remediation, which begins with the approval of the Final Engineering Report (FER).

3.1.1 Protection of Human Health and the Environment

The implementation of Alternative 1 – Remediate to Achieve Unrestricted Use and protection of Groundwater SCOs would be protective of public health and the environment through the removal of all contaminated soil via deep excavation. Installation of a vapor barrier and SSDS would minimize the potential for vapor intrusion into the proposed school building.

During remedial construction, on-site workers and the surrounding community would be protected from exposure to site-related contaminants through the implementation of health and safety protocols, a SoMP, and adherence to a CAMP.

Alternative 2 – Remediate to Achieve Restricted Residential Use would be protective of public health and the environment through the removal of approximately 2,500 tons of soil consisting of the upper 2 feet of soil across Lot 28, and the implementation of engineering and institutional controls including ground surface covers, a vapor barrier, an SSDS, and an environmental easement. Under this Alternative, one discrete interval of soil at approximately 26

feet bgs exhibiting VOCs (1,2,4-trimethylbenzene and xylene) at concentrations marginally above RRUSCOs (same order of magnitude) on Lot 39 would remain in place beneath an impermeable cover system. The VOC concentrations are attributed to a very old heavily weathered petroleum source and based on analytical results is not mobile or contributing to soil vapor impacts. In support of Site development, soil would be excavated across the entire limits of the Site (up to the Site boundary) to a minimum depth of approximately 2 feet bgs, to the extent feasible based on structural considerations. There will be no unexcavated areas of the Site as part of the site development.

Also, under Alternative 2, during construction, on-site workers and the surrounding community would be protected from exposure to site-related contaminants through the implementation of a HASP, a SoMP, and adherence to a CAMP.

Although impacted soil would remain in place beneath the composite cover system under Alternative 2, the use of engineering and institutional controls would minimize the potential for exposure to soil and potential residual soil vapor contamination. Residual groundwater contamination beneath the Site would be addressed by long term attenuation under Alternative 2. Therefore, both alternatives would be protective of human health and the environment.

3.1.2 Compliance with Standards, Criteria, and Guidelines (SCGs)

Alternative 1 – Remediate to Achieve Unrestricted Use would satisfy the SCGs (described in Section 2.5.3) and the RAOs (described in Section 2.8) developed for the Site. Soil which exceeds Track 1 SCOs would be removed. Groundwater treated through long term attenuation and removal of potential sources would satisfy the SCGs and RAOs for groundwater.

Alternative 2 – Remediate to Achieve Restricted Residential Use, the appropriate cleanup standard for a school, would satisfy the SCGs and RAOs for soil and soil vapor identified for the Site. Soil that exhibits SVOC above the Restricted Residential Use SCOs would be excavated consisting of the upper 2 feet of soil across Lot 28. Engineering and institutional controls included as a part of Alternative 2 would protect future Site users from soil and soil vapor contamination. Residual groundwater contamination beneath the Site would be addressed by long term attenuation under Alternative 2.

Under both alternatives, applicable environmental and health and safety laws and regulations would be followed, and waste would be managed and disposed in accordance with applicable laws and regulations. In summary, both alternatives proposed would conform to the SCGs and RAOs applicable to soil and soil vapor for remediation of the Site, however, groundwater contamination

would not be actively remediated under Alternative 1 or 2 given that pre-remedial groundwater concentrations only marginally exceed Class GA Values and are not moving off-site via groundwater transport.

3.1.3 Short-Term Effectiveness and Impacts

Potential short-term impacts to the community associated with implementation of Alternative 1 – Remediate to Achieve Unrestricted Use include increased construction noise, increased truck traffic, and the potential creation of objectionable odors, vapors, and/or dust. Removal of all contaminated soil with contaminant concentrations exceeding Track 1 SCOs would require excavations up to 26 feet deep, therefore, specialized excavators (e.g., with extension arms) and additional specialized sheeting (for support of deep excavation sidewalls) would be required for Alternative 1. Additionally, underpinning of the adjacent property may be necessary for support of excavation. Potential short-term impacts to on-site workers associated with Alternative 1 include exposure to site-related contaminants and physical hazards associated with working around heavy equipment and large excavations.

During the construction phase for Alternative 1, short-term impacts to the community would be minimized through remediation phase controls such as implementation of a SoMP and CAMP, use of soil erosion controls, and adherence to pre-approved truck routes. Decontamination of vehicles and equipment prior to leaving the Site would minimize the potential for off-site soil migration during remediation. Short-term exposures to on-site workers would be minimized through implementation of and adherence to a site-specific HASP, which would establish procedures and personal protective equipment requirements for site work.

The implementation of Alternative 2 – Remediate to Achieve Restricted Residential Use represents the potential for similar short-term impacts and would include the same impact mitigation strategies as those described for Alternative 1. The smaller volume of soil requiring removal for Alternative 2, compared to Alternative 1, represents corresponding decreases in the impacts to the surrounding community, including a shorter period of construction noise, decreased truck traffic, and lower potential for creation of objectionable odors, vapors, and/or dust.

In summary, both alternatives would be effective in the short term, through the removal of contaminated soil, and additionally through the implementation of engineering and institutional controls under Alternative 2. Adherence to appropriate controls would minimize potential short-term impacts to the surrounding community and on-site workers. However, the potential for short-

term impacts to the community and on-site workers during construction activities associated with Alternative 1 is greater than with Alternative 2, due to the volume of soil requiring removal.

3.1.4 Long-term Effectiveness and Permanence

Alternative 1 – Remediate to Achieve Unrestricted Use would be a long-term effective and permanent alternative since all contaminated soil above Track 1 SCOs would be removed. Removal of all contaminated soil with contaminant concentrations exceeding Track 1 SCOs would require excavations up to 26 feet deep. Additionally, a vapor barrier and SSDS would be installed beneath the building.

Alternative 2 – Remediate to Achieve Restricted Residential Use would be an effective and permanent alternative for the Site. The removal of approximately 2,500 tons of soil consisting of the upper 2 feet of soil across Lot 28 represents an effective and permanent remedy. In support of Site development, soil would be excavated across the entire limits of the Site (up to the Site boundary) to a minimum depth of 2 feet bgs. It is anticipated that there will be no unexcavated areas of the Site as part of the site development. The remaining soil would be covered with a building and/or paved surfaces and clean cover layer in landscaped areas (with a demarcation layer installed on top of existing native unexcavated soils and below the new building, playground area, and clean cover layer in landscaped areas, where UUSCOs were not achieved). A vapor barrier and SSDS would be installed beneath the building. Therefore, potential for exposure to remaining soil would be minimized by long-term engineering controls. The use of institutional controls would serve to further minimize potential future exposure pathways over the long term.

Even though impacted soil would remain in place beneath the cover system under Alternative 2, the use of engineering and institutional controls would minimize the potential for exposure to Site-related contaminants. Therefore, both alternatives represent long-term effective and permanent remedies for the Site that are protective of human health and the environment.

3.1.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

The implementation of Alternative 1 – Remediate to Achieve Unrestricted Use would reduce the toxicity, mobility, and volume of contamination by removing soil with contaminant concentrations above Track 1 SCOs. Long term attenuation would remediate on-Site impacted groundwater, reducing the toxicity of groundwater and the volume of impacted groundwater. The toxicity, mobility and volume of contaminated soil at the Site would be reduced by removal and disposing of the soil at appropriate permitted off-site disposal facilities.

The implementation of Alternative 2 – Remediate to Achieve Restricted Residential Use would reduce the toxicity, mobility, and volume of contamination by removing an estimated 2,500 tons consisting of the upper 2 feet of soil across Lot 28. In support of Site development, soil will be excavated across the entire limits of the Site to a minimum depth of 2 feet bgs. There will be no unexcavated areas of the Site as part of the site development. The toxicity of soil and volume and mobility of contaminated soil at the Site would be reduced by removal and management at permitted off-site treatment and/or disposal facilities. Based on information obtained from the RI, residual impacted soil located approximately 19 to 26 feet bgs on Lot 39 is associated with very old heavily weathered petroleum that is not very mobile due to the tight native soil formation. Although mobility of residual soil contamination is not anticipated because of the characteristics of the formation (i.e., dense/tight medium to coarse sand, silt, clay and gravel), potential future mobility of residual contaminated soil will be managed with design plans, which include placement of the stormwater detection tank in an area with no residual soil impacts (i.e., northern portion of Lot 28) and a primarily impermeable composite cover system, preventing infiltration of stormwater.

Although both alternatives would serve to reduce the toxicity, mobility, and volume of contamination, Alternative 1 would be more effective since the volume of impacted soil removed would be larger as a result of the additional excavation.

3.1.6 Implementability

Alternative 1 – Remediate to Achieve Unrestricted Use can be implemented with standard construction techniques, using widely available construction equipment and materials. However, removal of all contaminated soil with contaminant concentrations exceeding Track 1 SCOs would require excavations up to 26 feet deep in the western portion of the Site (Lot 39); therefore, specialized excavators (e.g., with extension arms) and additional specialized sheeting (for support of deep excavation sidewalls) would be required for Alternative 1. Excavation to terminal depth on Lot 39 would also require removal of 4 to 10 feet depth of clean backfill and the demarcation layer that was installed as part of the IRM, which would be inefficient and result in duplicate work. Additionally, underpinning of the adjacent property may be necessary for support of excavation. Further, due to the License Agreement with the neighboring property owner, remediation on Lot 39 would not be able to be implemented until the new school building is constructed, which would prolong the overall construction schedule. It is expected that required permits, such as from New York City Department of Buildings for excavation could be obtained in acceptable time frames.

Alternative 2 – Remediate to Achieve Restricted Residential Use can be implemented with standard construction techniques, using widely available equipment and materials. The vapor barrier and SSDS can be implemented during construction of the school building. Additional specialized equipment and materials would not be required and it is expected permits would be obtained in an appropriate time frame.

Therefore, due to the need for specialized equipment and the complications of performing excavations up to 26 feet in depth, Alternative 1 would be more difficult and inefficient to implement than Alternative 2.

3.1.7 Cost Effectiveness

Cost estimates were prepared for both alternatives based on recent bids for remediation projects and communications with remedial contractors, material suppliers, waste transporters, and disposal facilities. Alternative 1 – Remediate to Achieve Unrestricted Use is estimated to cost $7,500,000. Alternative 2 – Remediate to Achieve Restricted Residential Use is estimated to cost $720,000. The cost estimates are intended only for the purpose of determining relative cost in comparison to other alternatives.

The cost of Alternative 1 is significantly higher than Alternative 2 due to the larger volume of soil removal and disposal under Alternative 1.

3.1.8 Community Acceptance

Both alternatives would entail excavation of contaminated soil and include the implementation of a SoMP and CAMP to minimize the potential for off-site migration of dust, which would promote community acceptance. However, the larger volume of soil requiring removal under Alternative 1 – Remediate to Achieve Unrestricted Use increases the potential for impacts to the community (e.g., increased truck traffic and fugitive dust, odors and vapors). During a meeting with the local community hosted by Community Board 10 during the IRM Work Plan public comment period, the community raised concerns associated with the disturbance of contaminated soil. Alternative 1 would require more excavation/disturbance of contamination, and although impacts would be mitigated through CAMP, this approach would cause a greater disruption to the community. Since Alternative 2 – Remediate to Achieve Restricted Residential Use has a shorter remedial timeframe and requires less excavation of contaminated material, it is likely that this alternative would be more acceptable to the community.

Public comments that are provided during the public comment period on this RAWP will be evaluated, and this RAWP may be modified as appropriate in response to comments.

3.1.9 Land Use

The proposed future use of the Site is a Public School Facility. During construction of the new building on Lot 28, Lot 39 will be used as a temporary parking lot for the vehicles associated with the neighboring property to the north-west of the Site. The additional excavation required under Alternative 1 may impact the license agreement with the neighboring property, increasing the overall duration of construction, and require removal of clean backfill and the demarcation layer that was installed as part of the IRM, which would be inefficient and result in duplicate work. The proposed redevelopment includes a five-story building with a partial cellar on Lot 28 and a playground encompassing approximately 10,400 square-feet, predominantly on Lot 39. The conceptual building design is preliminary and is subject to change during the design process. Both remedial alternatives allow for this future planned development by removal of contaminated soil, and under Alternative 2 implementation of engineering and institutional controls to minimize the potential for impacts from the Site to future users.

Citizen participation in connection with the RAWP and planned future use of the Site is described in the CPP attached as *Appendix E*.

3.1.10 Environmental Footprint Analysis

An environmental footprint analysis was completed using the Greener Cleanup Metrics developed by the USEPA for each alternative to evaluate the proposed remedial options with respect to green and sustainable principles. During the RA, actual measurements or best estimates, as practical, of quantities of the footprint core elements (e.g., fuel usage, electricity, water volume, etc.) will be tracked and used to facilitate a comparison to this baseline analysis. The assessment generally follows the ITRC document titled “Green and Sustainable Remediation: State of the Science and Practice”, May 2011. The assessment scoring worksheet has been arranged to group the footprint into 4 core elements: materials, waste, water consumption, and energy use. Additionally, there are no known sensitive ecosystems/habitats within the project area; therefore, the remedial work is not expected to impact ecosystems and habitats within the project area. A discussion of the expected environmental footprint of the RA activities is provided below. The Environmental Footprint Analysis is included as *Attachment J*.

The Environmental Footprint of Alternative 1 is significantly higher than Alternative 2 due to the larger volume of soil removal and disposal, and longer duration of construction activities required under Alternative 1.

Alternative 1:

Energy

Staff will be utilized from the TRC New York, NY office. Eurofins Edison will be the laboratory utilized throughout the duration of the RA. Although subject to change, Bethlehem Landfill in Bethlehem, PA, is the disposal facility used to estimate the fuel usage for waste that will be transported. It is expected that approximately 20,600 gallons of diesel and 450 gallons of gasoline will be consumed in relation to RA activities by engineers, contractors, and laboratories and equipment drop off/pickups. In addition, one diesel powered excavator will be utilized on-Site throughout the duration of remedial work.

Energy consumption also includes powering equipment necessary for completing the remedial work. Energy consumption related to equipment usage will be calculated based on equipment usage hours and required kilowatt-hours. It is expected that equipment will be operating 8 hours per day, for 40 days.

Water

It is expected that approximately 20,000 gallons of municipal water will be utilized during remediation activities. Public water will be utilized mainly for dust suppression, and cleaning and decontamination of equipment. Water usage will be measured based on waste generated and estimated based on the flow rate and numbers of hours of site wetting for dust suppression.

Materials and Waste

The forecasted materials and waste are based on the planned excavation for completion of the RA, and related required excavation on Lots 28 and 39.

Expected materials imported to the site include 21,000 tons of backfill, 1,800 pounds of geotextile liner, and 4 55-gallon steel drums.

Expected waste transported off site for disposal includes 12,350 tons of non-hazardous soil, and 220 gallons of non-hazardous liquid and sediment.

Alternative 2:

Energy

Staff will be utilized from the TRC New York, NY office. Eurofins Edison will be the laboratory utilized throughout the duration of the RA. Although subject to change, Bethlehem Landfill in Bethlehem, PA, is the disposal facility used to estimate the fuel usage for waste that will be transported. It is expected that approximately 5,150 gallons of diesel and 274 gallons of gasoline will be consumed in relation to RA activities by engineers, contractors, and laboratories and equipment drop off/pickups. In addition, one diesel powered excavator will be utilized on-Site throughout the duration of remedial work.

Energy consumption also includes powering equipment necessary for completing the remedial work. Energy consumption related to equipment usage will be calculated based on equipment usage hours and required kilowatt-hours. It is expected that equipment will be operating 8 hours per day, for 20 days

Water

It is expected that approximately 10,000 gallons of municipal water will be utilized during remediation activities. Public water will be utilized mainly for dust suppression, and cleaning and decontamination of equipment. Water usage will be measured based on waste generated and estimated based on the flow rate and numbers of hours of site wetting for dust suppression.

Materials and Waste

The forecasted materials and waste are based on the planned excavation for completion of the RA, and related required excavation on Lot 28.

Expected materials imported to the site include 2,500 tons of backfill, 1,440 pounds of geotextile liner, and 4 55-gallon steel drums.

Expected waste transported off site for disposal includes 2,500 tons of non-hazardous soil, and 220 gallons of non-hazardous liquid and sediment.

3.2 SELECTION OF THE PREFERRED REMEDY

Both of the remedial alternatives evaluated would be protective of human health and the environment, provide a long term and effective remedy for the Site, and allow for future development. However, Alternative 1 – Remediate to Achieve Unrestricted Use would result in greater potential short-term impacts to the community due to the longer remedial time frame, and

larger volume of soil removed, would be more difficult to implement due to the greater excavation depths. Further, Alternative 1 is less cost effective and sustainable when compared to Alternative 2. Although Alternative 1 would be more effective in reducing the volume of contaminants at the Site and achieving the SCGs, it would not provide significant additional protection of human health or the environment.

Therefore, based on the evaluation of the remedial alternatives against the nine remedy selection factors in accordance with the requirements of 6 NYCRR 375-1.8(f), Alternative 2 – Remediate to Achieve Track 4: Restricted Residential Use is the selected remedy for the Site. Alternative 2 satisfies the soil and soil vapor RAOs for the Site and will be protective of human health and the environment.

The land use factor evaluation below examines the selected alternative in comparison to the criteria required by Article 27, Title 14 of the Environmental Conservation Law 27-1415.

3.2.1 Zoning

According to the New York City Department of City Planning (NYCDCP) Zoning Map 22b, the Site is zoned for commercial use (C8-2). The NYCSCA will coordinate any zoning changes as needed with the NYCDCP. Based on a review of the City Environmental Quality Review (CEQR) Environmental Designations as shown on NYCDCP Zoning Map 22b, Lots 28 and 39 are each listed with an "E"-Designation for Underground Gasoline Storage Tanks Testing Protocol and Air Quality. Although NYSDEC is the lead agency responsible for administering the BCP, to satisfy E-designation requirements, OER will provide construction authorization in the form of Notice of No Objection (NNO) or Notice to Proceed (NTP) for implementation of the remedy and redevelopment based on review of the redevelopment design and NYSDEC's RAWP approval. Properties in the area of the Site are zoned for residential and commercial uses. *Figure 3* presents the surrounding land use and potential sensitive environmental receptors.

3.2.2 Applicable Comprehensive Community Master Plans or Land Use Plans

The proposed use of the Site is consistent with the allowed land use in this portion of Brooklyn. There are no available Community Master Plans or Land Use Plans for the Site.

3.2.3 Surrounding Property Uses

The surrounding property uses are commercial, residential, and institutional. The Site is located in a highly developed urban area with a heath care facility ("Langone Medical Arts") to

the north, 5th Avenue followed by institutional/commercial buildings (the United States Post Office and an automobile sales facility) to the east, 89th Street followed by commercial buildings to the south, and automobile showrooms with repair facilities and P.S./I.S. 104 The Fort Hamilton School Annex (K989) to the west. The proposed use of the Site as a public school facility is consistent with the surrounding property uses. *Figure 3* presents the surrounding land use and potential sensitive environmental receptors.

3.2.4 Citizen Participation

Refer to Section 4.1.8 for information on the Citizen Participation Plan. The NYSDEC-approved CPP is provided in *Appendix E.*

3.2.5 Environmental Justice

The Site is located in an Environmental Justice Area with a large Hispanic-American population. Therefore, Fact Sheets issued for this Site are translated into Spanish. Additional details regarding community outreach and environmental justice are included in the Citizen Participation Plan.

3.2.6 Land Use Designations

The proposed use of the Site is consistent with the land use designation in this portion of Brooklyn.

3.2.7 Population Growth Patterns

The proposed public school facility is intended to address the need for public school facilities within this portion of Brooklyn give recent residential rezoning in the vicinity of the Site.

3.2.8 Accessibility to Existing Infrastructure

The proposed Public School Facility Site is accessible to the required infrastructure (e.g., utilities, transportation, etc.).

3.2.9 Proximity to Cultural Resources

There are no cultural resources within immediate proximity of the Site identified as part of this RAWP.

3.2.10 Proximity to Natural Resources

The nearest water bodies to the Site include: the New York Bay, located approximately 0.7 miles to the west. On-Site groundwater is not used as a source of potable water and is located approximately 75 feet bgs. The selected remedial alternative would not impact natural resources.

3.2.11 Off-Site Groundwater Impacts

The groundwater impacts at the Site are minor, and, based on downgradient groundwater sampling, there is no evidence that the impacts are migrating off-Site. The on-Site impacts are anticipated to naturally attenuate over time.

3.2.12 Proximity to Floodplains

The Site is not located in a flood zone.

3.2.13 Geography and Geology of the Site

The proposed use of the Site would alter the geology of the Site by removal of anthropogenic fill material and some underlying native sand and silt.

3.2.14 Current Institutional Controls

Currently there are no institutional controls for the Site. Following the completion of the remediation, an environmental easement will be in place as described in Section 10.1.

3.3 SUMMARY OF SELECTED REMEDIAL ACTIONS

Remedial activities will be performed in accordance with this RAWP. The following activities will be performed to achieve the remedial objectives:

1. Implement a site-specific HASP, SoMP, and CAMP for the remedial activities.
2. Decommission all existing groundwater monitoring wells prior to remedial construction in accordance with NYSDEC CP-43.
3. A minimum of the upper 2 feet of soil (approximately 2,500 tons) across Lot 28 will be excavated and transported offsite for disposal.
4. Remove and dispose off-Site soil excavated as part of the remedy and site redevelopment.

5. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work that will disturb existing soil material.
6. Post-excavation endpoint documentation/confirmatory soil sampling across Lot 28 to evaluate the performance of the remedy with respect to attainment of Track 4: RRUSCOs.
7. On-site soil which does not exceed the lower of Protection of Groundwater and Restricted Use SCOs criteria may be used anywhere, to backfill the excavation or re-grade the Site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and NYCSCA Specification 02090 may be imported to the Site as necessary for backfilling. It is anticipated that approximately 2,500 tons of clean fill material will be imported to the Site for use as backfill.
8. Construct a composite cover system consisting of impervious surfaces (e.g., building, paved surfaces, etc.) across the majority of the Site and cover remaining landscaped areas, if any, with a minimum 2-foot thick imported clean soil layer, as defined in Section 7.0. Install a demarcation layer on top of unexcavated native soils below the building, playground area, and clean cover layer in landscaped areas, where UUSCOs were not achieved.
9. Appropriate offsite disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.
10. As part of construction of the new building, install a vapor barrier beneath the lowest level floor slab and install and operate an SSDS.
    a. Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If sub-slab vapor TCE and PCE analytical results are below the action level of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA policies and procedures as a standard protective measure, but to alleviate reporting requirements, the systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the RAR or subject to ongoing Site Management reporting. If the sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the following vapor mitigation systems will be considered Engineering Controls, the remedial engineer will then certify in the RAR that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed, and the vapor mitigations systems will be subject to ongoing Site Management reporting requirements. Additionally, if the SSDS is an engineering control subject to Site Management, the SMP will include performance of one post-mitigation IAQ survey during the first heating season after construction of the new building is complete.
11. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.

12. Prepare and implement a SMP for long term maintenance of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting.
13. Record an Environmental Easement to ensure proper use of the Site.
14. Submission of a Final Engineering Report (FER) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the NYSDEC-issued Decision Document. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the FER.

4.0 REMEDIAL ACTION PROGRAM

The objective of this section of the RAWP is to present a scope of work which will be approved by NYSDEC and when completely implemented will ready the Site for development for the Contemplated Use, which is Restricted Residential Use, consistent with the requirements of the Brownfield Cleanup Program.

The following activities will be performed to achieve the remedial objectives:

1. Implement a site-specific HASP, SoMP, and CAMP for the remedial activities.
2. Decommission all existing groundwater monitoring wells prior to remedial construction in accordance with NYSDEC CP-43.
3. A minimum of the upper 2 feet of soil (approximately 2,500 tons) across Lot 28 will be excavated and transported off-site for disposal.
4. Remove and dispose off-Site soil excavated as part of the remedy and site redevelopment.
5. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during intrusive Site work that will disturb existing soil material.
6. Post-excavation endpoint documentation/confirmatory soil sampling across Lot 28 to evaluate the performance of the remedy with respect to attainment Track 4: RRUSCOs.
7. On-site soil which does not exceed the lower of Protection of Groundwater and Restricted Use SCOs criteria may be used to backfill the excavation or re-grade the Site. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) and NYCSCA Specification 02090 may imported to the Site as necessary for backfilling. It is anticipated that approximately 4,200 tons of clean fill material will be imported to the Site for use as backfill.
8. Construct a composite cover system consisting of impervious surfaces (e.g., building, paved surfaces, etc.) across the majority of the Site and cover remaining landscaped areas, if any, with a minimum 2-foot thick imported clean soil layer, as defined in section 7.0. Install a demarcation layer on top of unexcavated native soils below the building, playground area, and clean cover layer in landscaped areas, where UUSCOs were not achieved.
9. Appropriate offsite disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal.
10. As part of construction of the new building, install a vapor barrier beneath the lowest level floor slab and install and operate a sub-slab depressurization system (SSDS).
    a. Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If sub-slab vapor TCE and PCE analytical results are below the action level of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA policies and procedures as a standard protective measure, but to alleviate reporting requirements, the

systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the RAR or subject to ongoing Site Management reporting. If the sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the following vapor mitigation systems will be considered Engineering Controls, the remedial engineer will then certify in the RAR that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed, and the vapor mitigations systems will be subject to ongoing Site Management reporting requirements. Additionally, if the SSDS is an engineering control subject to Site Management, the SMP will include performance of one post-mitigation IAQ survey during the first heating season after construction of the new building is complete.

11. All responsibilities associated with the Remedial Action, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable Federal, State and local rules and regulations.
12. Prepare and implement a SMP for long term maintenance of residual contamination as required by the Environmental Easement, including plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance, and (4) reporting.
13. Record an Environmental Easement to ensure proper use of the Site.
14. Submission of a Final Engineering Report (FER) that describes the remedial activities, certifies that the remedial requirements have been achieved, defines the Site boundaries, and describes all Engineering and Institutional Controls to be implemented at the Site, and lists any changes from this RAWP.

4.1 GOVERNING DOCUMENTS

4.1.1 Standards, Criteria and Guidance (SCGs)

The following standards, criteria, and guidance are typically applicable to Remedial Action projects in New York State, and will be consulted and adhered to as applicable:

- 6 NYCRR Part 364 - NYS Waste Transporter Permits
- 6 NYCRR Part 360 - NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 - Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 - Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 374-2 - Standards for the Management of Used Oil
- 6 NYCRR Part 375 - Environmental Remediation Programs
- 6 NYCRR Part 376 - Land Disposal Restrictions
- 6 NYCRR Part 613 - Petroleum Bulk Storage

- 6 NYCRR Part 661 - Tidal Wetlands - Land Use Regulations
- 6 NYCRR Part 663 - Freshwater Wetlands - Permit Requirements
- 6 NYCRR Parts 700-706 – Classes and Standards of Quality and Purity
- 6 NYCRR Part 750 - State Pollutant Discharge Elimination System (SPDES) Permits
- 29 CFR Part 1910.120 - Hazardous Waste Operations and Emergency Response
- 40 CFR Part 144 - Underground Injection Control Program
- CP-43 - Commissioner Policy on Groundwater Monitoring Well Decommissioning (December 2009)
- CP-49 – Climate Change and DEC Action (2022)
- CP-51- Soil Cleanup Guidance (2010)
- CP-60 – Screening and Assessment of Contaminated Sediment (2014)
- DER-2 - Making Changes to Selected Remedies (April 2008)
- DER-4 – Management of Coal Tar Waste & Coal Tar Contaminated Soils from Manufactured Gas Plants (2001)
- DER-10 – Technical Guidance for Site Investigation and Remediation (2010)
- DER-13 – Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York (2006)
- DER-23 – Citizen Participation Handbook for Remedial Programs (2010)
- DER-31 – Green Remediation (2010)
- DER-32 – Brownfield Cleanup Program Applications and Agreements (2017)
- DER-33 – Guide to Drafting and Recording Institutional Controls (2010)
- TAGM 3028 - "Contained In" Criteria for Environmental Media: Soil Action Levels (August 1997)
- TOGS 1.1.1 - Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations (1998, Addenda 2000, 2004 and 2023)
- TOGS 1.3.8 - New Discharges to Publicly Owned Treatment Works (1994)
- TOGS 2.1.2 - Underground Injection/Recirculation (UIR) at Groundwater Remediation Sites (1990)
- New York State Standards and Specifications for Erosion and Sediment Control (2016)
- DAR-1 (formerly Air Guide 1) - Guidelines for the Control of Toxic Ambient Air Contaminants (1997)

- U.S. EPA OSWER Directive 9200.4-17 - Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (December 1997)
- New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan
- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006)
- New York State Climate Act (2019)
- NYSDEC Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (2023)

4.1.2 Site Specific Health & Safety Plan (HASP)

All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA.

The NYCSCA (Volunteer) and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws.

The Health and Safety Plan (HASP) and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

The Site Safety Coordinator will be identified prior to the start of remedial construction. A resume will be provided to NYSDEC prior to the start of remedial construction.

Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses.

Activities performed on-site by TRC will be conducted in accordance with TRC's HASP. Refer to *Appendix B* for the TRC HASP. Construction activities performed on-site will be conducted in accordance with the Contractor's Site-Specific HASP. Updates or additions to the HASP, if necessary, will be provided to NYSDEC.

4.1.3 Quality Assurance Project Plan (QAPP)

Post-excavation confirmatory sampling will be performed across Lot 28. Laboratory analysis will be performed in accordance with the Quality Assurance Project Plan (QAPP) presented in *Appendix C*. The QAPP presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with field activities. The QAPP also describes specific protocols for field sampling, sampling handling and storage, and laboratory analysis.

4.1.4 Construction Quality Assurance Plan (CQAP)

The Construction Quality Assurance Plan (CQAP) provides a description of the observation and testing activities that will be used to monitor construction quality and confirm that remedy construction is in conformance with the remediation objectives and specifications prepared for the environmental remediation components of the project. Since the remedy is being accomplished during the new building construction, the contractor and construction manager will have the primary responsibility to provide construction quality. A list of engineering personnel involved in implementation of the CQAP and procedures that will be carried out by the remedial engineering team are identified below. Select project personnel resumes are provided in *Appendix I.*

The following project personnel are anticipated to implement the RAWP:

Remediation Engineer (RE):	Phillip Castellano, P.E.
Qualified Environmental Professional (QEP):	Phillip Castellano, P.E.
Senior Project Manager:	Jenna Raup
Project Manager:	Zachary Schwartz
Quality Assurance Officer:	Elizabeth Denly
Health and Safety Officer:	Calah Lambertson

The RE/QEP will directly supervise field engineers, scientists, and/or geologists that will be on Site during the remedial action. The field engineer, scientist, and/or geologist will implement the CAMP, document remedial activities, screen excavations for evidence of gross contamination (i.e., staining, odors, elevated PID readings), and collect post-excavation confirmation samples. Daily reports will be submitted to NYSDEC and NYSDOH and will include reporting of any CAMP results that exceed the specified action levels, a summary of remedial activities completed, and a photolog.

The field engineer, scientist, and/or geologist will document the daily activities in a project field book, including post-excavation confirmation samples collected. All remedial activities will be conducted in accordance with the RAWP. All documentation, including daily field notes, will be scanned and uploaded to an electronic database. The project manager will maintain the field notes and documentation electronically after completion of the remedial program and will maintain all submittal document files.

The construction contractor, NYCSCA project manager, TRC project manager, and the RE/QEP, at a minimum, will conduct meetings once every two weeks to discuss project coordination and the status of the remedial program. Additional parties (e.g., environmental subcontractors) will be included on an as needed basis.

4.1.5 Soil/Materials Management Plan (SoMP)

The SoMP is described in Section 5.4.

4.1.6 Soil Erosion and Sediment Control Plan

The erosion and sediment controls will be in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control.

The erosion and sediment controls will be in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. A Soil Erosion and Sediment Control Plan and Details will be included in the Storm Water Pollution Prevention Plan (SWPPP) prepared by the Site Civil Engineer and submitted and approved by NYCDEP. A copy of the NYCDEP approval and the SWPPP will be provided to NYSDEC prior to the start of work.

Soil erosion and sediment control procedures will be in place and functional prior to beginning any ground intrusive work. These procedures include installation and maintenance of silt fencing, vehicle-tracking pads at egress points, storm drain inlet protection, sediment traps, and soil stockpile protection. Additional requirements regarding Soil erosion and sediment control procedures are listed below:

- Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs will be made immediately.

- Accumulated sediment will be removed as required to keep the barrier and hay bale check functional.
- All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.
- Erosion and sediment control measures identified in the RAWP will be observed to confirm that they are operating correctly. Where discharge locations or points are accessible, they will be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- Silt fencing or hay bales will be installed around the entire perimeter of the excavation area.

4.1.7 Community Air Monitoring Plan (CAMP)

During ground-intrusive work into residual contamination the requirements of the CAMP presented in *Appendix D* will be implemented. The CAMP requires real-time monitoring for VOCs and particulates (i.e., dust) at the downwind and upwind perimeter of the Site. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the remediation work activities) from potential airborne contaminant releases as a direct result of remedial work activities. The action levels specified in the CAMP require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP documents that work activities did not spread contamination off-Site through the air.

4.1.8 Contractors Site Operations Plan (SOP)

The Remedial Engineer has reviewed all plans and submittals for this remedial project (including those listed above and contractor and sub-contractor document submittals) and confirms that they comply with this RAWP. The Remedial Engineer is responsible to ensure that all later document submittals for this remedial project, including contractor and sub-contractor document submittals, comply with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

4.1.9 Citizen Participation Plan

The NYSDEC determined the BCP Application was complete, therefore the BCP Application was placed into the document repository and the Public Notice was published in the Environmental Notice Bulletin (ENB) and local newspaper. The Public Notice and Fact Sheet that describes the IRM Work Plan and announces the 30-day comment period was mailed to the site contact list. The IRM Work Plan and RI report were placed into the document repository.

A certification of mailing will be sent by the NYCSCA (Volunteer) to the NYSDEC project manager following the distribution of all Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of applicable project documents.

No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing. All future Fact Sheets will be translated into Spanish due to the large Hispanic-American population surrounding the Site.

A draft Citizen Participation Plan (CPP) was submitted to the NYSDEC in March 2022 prior to execution of the BCA. The CPP was revised based on NYSDEC comments and the final CPP was submitted to NYSDEC on April 6, 2022. The CPP was approved by NYSDEC on June 6, 2022.

Document repositories have been established at the following locations and contain all applicable project documents:

1. Brooklyn Community Board 10
   8119 5th Avenue
   Brooklyn, NY 11209
   Attn: Lori Willis - Chairperson
   Telephone: (718) 745-6827
   Hours: Mon to Fri: 8:30AM to 4PM (call for an appointment)
2. Brooklyn Public Library – Fort Hamilton Branch
   9424 4th Avenue
   Brooklyn, NY 11209
   Attn: Morris Denmark

Telephone: (718) 748-6919

Hours: Mon, Wed, Fri: 10AM to 6PM; Tues: 1PM to 8PM; Thurs: 10AM to 8PM; Sat: 10AM to 5PM; Sun: Closed.

In addition, an electronic repository can be accessed via DECInfo Locator and at the following link: https://extapps.dec.ny.gov/data/DecDocs/C224327/

4.2 GENERAL REMEDIAL CONSTRUCTION INFORMATION

4.2.1 Project Organization

The NYCSCA has contracted TRC to prepare the RAWP, provide remedial action design services associated with the RAWP, provide engineering design services, and prepare the FER. Site monitoring will be completed by the NYCSCA and the TRC Remedial Engineer (refer to Section 4.2.2). The Contractor, who will be selected prior to construction, will implement the Remedial Action during construction of the proposed school facility. An organization chart of key TRC personnel involved in the Remedial Action is provided in Section 3 of the HASP in *Appendix B*. Resumes of key personnel involved in the Remedial Action are included in *Appendix I*.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Phillip Castellano. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for the Site (NYSDEC BCA Index No. C224327-09-21 Site No. C224327). The Remedial Engineer will certify in the Final Engineering Report that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of backfill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The Remedial Engineer will review all pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the Final Engineering Report.

The Remedial Engineer will provide the certifications listed in Section 10.1 in the Final Engineering Report.

4.2.3 Remedial Action Construction Schedule

The NYCSCA will issue design packages for demolition of current site features, including implementation of the approved IRM, and construction of the proposed new school building, which will include the proposed Remedial Actions. The remedy is anticipated to be completed and the Certificate of Completion to be obtained by December 2026 to allow for the start of use of the school in September 2029.

A construction schedule prepared by the contractor will be submitted to the NYSDEC prior to the start of work.

4.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings (DOB) construction code requirements or according to specific variances issued by that agency. The anticipated work hours for the remedial activities will be from 7:00 AM to 3:30 PM, Monday through Friday. NYSDEC will be notified by the NYCSCA (Volunteer) of any variances issued by DOB. NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

A fence will be constructed along the perimeter of the Site. Access to the Site will be through controlled locations that are staffed by security 24-hours per day. Visitors to the Site will be required to sign-in and will be escorted while on-Site.

4.2.6 Traffic Control

A traffic control plan will be developed by the Contractor and submitted to the NYSDEC prior to the start of work.

4.2.7 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during the remedial excavation or development related construction, sampling will be performed on product and environmental media as appropriate. Chemical analyses will be for appropriate parameters (TAL metals, TCL VOCs and SVOCs, TCL pesticides, and/or PCBs), as approved by NYSDEC.

Identification of unknown or unexpected contaminated media identified by screening during invasive work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic reports.

4.2.8 Worker Training and Monitoring

Any individual working on the Site which could potentially be exposed to site soil must have current certifications documenting OSHA 40-hour and 8-hour refresher HAZWOPER training and medical monitoring in accordance with 29 CFR 1910.120 (for work on hazardous waste sites). Contractors that may be exposed to site soil during intrusive work into residual contamination will maintain a medical monitoring and respiratory protection program and documentation for individuals who will perform ground intrusive-related work at the Site have appropriate training and that medical monitoring is being performed in accordance with the requirements of OSHA will be included as part of the Site-Specific HASP. Additionally, the Contractor's Site-Specific HASP will include a description and documentation of training, respirator fit testing, and medical monitoring for each individual proposed for Remedial Action work.

4.2.9 Agency Approvals

The NYCSCA (Volunteer) has addressed or will address all SEQRA requirements for this Site. All permits or government approvals required for remedial construction have been, or will be, obtained prior to the start of remedial construction.

The planned end use for the Site is in conformance with the current zoning for the property as determined by New York City Department of City Planning. A Certificate of Completion will not be issued for the project unless conformance with zoning designation is demonstrated.

A list of all federal, state and local governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work is attached in *Table 15*. This list includes a citation of the law, statute or code to be complied with, the originating agency,

and a contact name and phone number in that agency. This list is preliminary and will be updated prior to the start of work. Additionally, this list will be updated in the Final Engineering Report.

All planned remedial or construction work in regulated wetlands and adjacent areas would be specifically approved by the NYSDEC Division of Natural Resources to ensure that it meets the requirements for substantive compliance with those regulations prior to the start of construction. Nothing in the approved RAWP or its approval by NYSDEC should be construed as an approval for this purpose. There are no regulated wetlands on or in close proximity to the Site and there is no planned remedial or construction work in regulated wetlands proposed as part of this project.

4.2.10 Pre-Construction Meeting with NYSDEC

A Pre-Construction meeting between the NYSDEC, the remedial contractor, and NYCSCA will be scheduled prior to the start of construction activities. The purpose of the meeting will be to review the environmental conditions present at the Site and review the scope of the RAWP and design documents with involved parties. No additional meetings will be scheduled prior to implementation of the RAWP, unless specifically requested by the NYSDEC.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in *Appendix B*. That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The total estimated cost of the Remedial Action is $712,314, exclusive of the IRM activities. An itemized and detailed summary of estimated costs for all remedial activity is attached as *Appendix G*. This will be revised based on actual costs and submitted as an Appendix to the Final Engineering Report.

4.3 SITE PREPARATION

4.3.1 Mobilization

The first step in site preparation is mobilization. Mobilization will be conducted in stages as necessary for each phase of work. Demobilization is discussed below.

4.3.2 Monitoring Well / Vapor Probe Decommissioning

All existing groundwater monitoring wells will be properly decommissioned in accordance with NYSDEC Commissioners Policy CP-43.

There are no existing permanent soil vapor sampling points on-Site. Post-remediation sub-slab vapor sampling will be performed using the permanent vacuum pressure monitoring points that will be installed through the lowest floor slab(s) of the new building. These are permanent monitoring points that will remain in use in connection with the SSDS, regardless if the SSDS is a permanent engineering control under the SMP; therefore, these sampling points will not be decommissioned.

4.3.3 Erosion and Sedimentation Controls

The erosion and sediment controls will be in conformance with requirements presented in the New York State Standards and Specifications for Erosion and Sediment Control. Details regarding soil erosion and sediment control are presented in Section 4.1.5.

4.3.4 Stabilized Construction Entrance(s)

A stabilized gravel construction entrance will be located near the Site exit to provide a clean and dust-free road surface prior to departure from the Site.

4.3.5 Utility Marker and Easements Layout

The NYCSCA (Volunteer) and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. The NYCSCA (Volunteer) and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The NYCSCA (Volunteer) and its contractors must obtain any local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

4.3.6 Sheeting and Shoring

Appropriate management of structural stability of on-Site or off-Site structures during on-Site activities include excavation is the sole responsibility of the NYCSCA (Volunteer) and its contractors. The NYCSCA (Volunteer) and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The NYCSCA (Volunteer) and its contractors must obtain any local, State or Federal permits or approvals that may be required to perform work under this RAWP. Further, the NYCSCA (Volunteer) and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

Support of excavation (SOE) will be designed by a licensed New York State Professional Engineer and will conform to applicable building codes.

4.3.7 Equipment and Material Staging

Equipment and material will be stored and staged in a manner that is consistent with local, State, and Federal regulations, as well as in accordance with the requirements of the New York State Standards and Specifications for Erosion and Sediment Control.

4.3.8 Decontamination Area

Equipment will be delivered to the work site free of contamination. The NYCSCA's on-site representative will prohibit any equipment from the Site that in his/her opinion has not been thoroughly decontaminated prior to arrival. The Contractor is prohibited from decontaminating equipment on-Site that is not thoroughly decontaminated prior to arrival.

Decontamination of equipment associated with ground-intrusive work will be conducted at an area within the work site that has been approved by the NYCSCA's on-site representative for such use. Frequency of decontamination will be determined by the NYCSCA's on-site representative and will be required prior to equipment and supplies leaving the Site between stages of the work. Decontamination materials will be collected, containerized, tested/characterized, labeled, and disposed in accordance with applicable laws and regulations. Transportation vehicles will be inspected, prior to leaving the Site, to ensure that no material adheres to the wheels, undercarriage, tailgates, covers or other areas of transport vehicles. Vehicles potentially in contact with contaminated material will be cleaned including tires, undercarriage, and any other contaminated parts, prior to leaving the Site.

4.3.9 Site Fencing

Site fencing will be installed around the perimeter of the Site to control Site access as indicated in Section 4.2.5 above. The fencing will be maintained throughout the construction phase and removed following completion of Site development.

4.3.10 Demobilization

Demobilization will include:

- Restoration of areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary wastewater management area[s], and access area);
- Removal of temporary access areas (whether on-Site or off-Site) and restoration of disturbed access areas to pre-remediation conditions;
- Removal of sediment and erosion control measures and disposal of materials in accordance with applicable laws and regulations;
- Equipment decontamination or disposal, as appropriate; and
- General refuse disposal.

4.4 REPORTING

All daily and monthly Reports will be included in the Final Engineering Report.

4.4.1 Daily Reports

Daily reports will be submitted to NYSDEC and NYSDOH Project Managers by noon following each day of environmental monitoring and will include:

- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from the Site;
- References to alpha-numeric map for Site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP finding, including excursions;
- Photographs of site activities;

- An explanation of notable Site conditions.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication (e.g., email, phone call, and/or in-person correspondence).

Daily Reports will include a description of daily activities keyed to an alpha-numeric map for the Site that identifies work areas. These reports will include a summary of CAMP results, odor and dust excursions and corrective actions, and all complaints received from the public.

A Site map that shows a predefined alpha-numeric grid for use in identifying locations described in reports submitted to NYSDEC is attached in *Figure 21*.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers by the 10th day of each month following the reporting period and will include:

- Activities relative to the Site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (e.g., tons/cubic yards of material exported and imported, etc);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and,
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.
- GSR metrics determined during the design process.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER, including a comparison to the goals established during the remedial program. Regular updates to the metrics used (SEFA, SiteWiseTM or otherwise approved method) should be included.

A Climate Screening process and results were included as part of the IRM Work Plan. The Climate Screening results indicated that a CVA was not required. The Climate Screening is included in *Appendix J*.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained on-Site at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

Complaints from the public regarding nuisance or other conditions will be addressed promptly. Complaints and the response to those complaints will be recorded in the daily reports. NYSDEC and NYSDOH will be notified of all odor events and of other complaints about the project.

4.4.5 Deviations from the Remedial Action Work Plan

The process to be followed if there are any deviations from the RAWP, at a minimum, will include a written submission to the NYSDEC with the following information:

- Reasons for deviating from the approved RAWP;
- Approval process to be followed for changes/additions to the RAWP; and,
- Effect of the deviations on overall remedy.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

This section introduces plans for removal of contaminated media (soil, structures, etc.), and includes a description and identification of: the locations of planned remedial activities; the estimated volume of each environmental medium to be remediated; the location, depth, and concentration of contaminants in excess of remediation standards; and planned sample locations, depths, and parameters for post-excavation documentation soil samples. The RAWP Quality Assurance Project Plan, describing the proposed sampling and analytical methods, is provided in *Appendix C*. A complete list of all local, regional and national governmental permits required to perform the work will be developed and submitted to the NYSDEC prior to the start of work.

5.1 SOIL CLEANUP OBJECTIVES

The Soil Cleanup Objectives for this Site are listed in Table 375-6.8(b) of 6 NYCRR Part 375. The remedy will achieve Restricted Residential Use Soil Cleanup Objectives. Under this Alternative, one discrete interval of soil at approximately 26 feet bgs exhibiting VOCs (1,2,4-trimethylbenzene and xylene) at concentrations marginally above RRUSCOs (same order of magnitude) on Lot 39 would remain in place beneath an impermeable cover system. The VOC concentrations are attributed to a very old heavily weathered petroleum source, and based on analytical results is not mobile or contributing to soil vapor impacts.

The Soil Cleanup Objectives for this Site are listed in *Table 17*.

Table 16 summarizes all soil samples that exceed the SCOs proposed for this Remedial Action. A spider map that shows all soil samples that exceed the SCOs proposed for this Remedial Action is shown in *Figure 17B*.

UST closures will, at a minimum, conform to criteria defined in DER-10.

Soil and materials management will be conducted in accordance with the Soil Management Plan as described below.

Figures 12A, 17A and 17B show all soil samples collected during the 2008 Phase II and RI that exceed the RRUSCOs.

5.2 REMEDIAL PERFORMANCE EVALUATION (POST EXCAVATION DOCUMENTATION SOIL SAMPLING)

5.2.1 Post-Remediation Sampling Frequency

Post-excavation documentation/confirmatory sampling will include the collection of soil samples. Soil samples will be collected across Lot 28 in accordance with DER-10 requirements.

Collection of post-excavation soil samples will be performed at a frequency of one (1) bottom sample every 900 square feet across the entire Site and one (1) sidewall sample every 30 feet as appropriate (i.e., where accessible based on method of support of excavation such as sloped excavation sidewalls) (refer to *Figure 21)*. Based on the anticipated construction phasing, sloped excavation sidewalls consisting of native soil is not anticipated, therefore, sidewall samples are not proposed to be collected. The sampling locations and frequency will be updated based on Site conditions during the remedial action, as appropriate. Soil sampling methods, analysis, and QA/QC requirements are presented in the QAPP in *Appendix C*.

Aboveground Storage Tank

One (1) aboveground storage tank (AST), encased in concrete and cinder block, identified on the northern portion of Lot 28 will be removed during demolition activities. If visual evidence of staining is observed, one (1) grab sample from beneath the bottom of the vault will be collected for lab analysis.

5.2.2 Methodology

Post-excavation documentation soil samples across Lot 28 will be collected from the excavation bottom and will be analyzed for SVOCs and metals. Proposed post-excavation soil sampling locations are shown on *Figure 21.*

5.2.3 Reporting of Results

The FER will provide a tabular and map summary of post-excavation soil sample results and exceedances of UUSCOs, if any.

5.2.4 Quality Assurance/ Quality Control (QA/QC)

A QA/QC program for the RAWP will be instituted to verify that the project analytical data objectives are met. The QA/QC program will be implemented consistent with the QAPP, which specifies the data quality objectives (DQOs) for each analytical parameter for the entire Remedial Action. During the program, the collection of QC samples will be monitored to verify that the field QC samples are collected at the proper frequency. Finally, the QA/QC program will include data validation of the analytical data, as specified in the QAPP.

5.2.5 Data Usability Summary Reports (DUSRs) and Electronic Data Deliverables (EDDs)

Data validation will be performed for the post-excavation documentation/confirmatory soil, sub-slab vapor, and indoor air sample analytical data. The results of the data validation will be summarized in Data Usability Summary Reports (DUSRs), prepared in accordance with Appendix

2B of DER-10 – Guidance for Data Deliverables and the Development of Data Usability Summary Reports. In addition, laboratory analytical data will be submitted to NYSDEC in the NYSDEC EQuIS electronic data deliverable (EDD) format .

5.2.6 Reporting of Endpoint Data in FER

Chemical laboratories used for all endpoint sample results and contingency sampling will be NYSDOH Environmental Laboratory Approval Program (ELAP) certified.

End point sampling will be performed in accordance with DER-10 sample frequency requirements. Bottom samples will be collected at a rate of one (1) sample for every 900 square feet from the base of the remedial excavation. The FER will provide a tabular and map summary of all endpoint sample results and exceedances of SCOs.

5.3 ESTIMATED MATERIAL REMOVAL QUANTITIES

The estimated quantity of soil to be removed from the Site is 2,500 tons. The estimated quantity of soil to be imported into the Site for backfill and cover soil is 2,500 tons, exclusive of the backfill required for implementation of the IRM. Soil/fill is not expected to be reused/relocated on Site.

5.4 SOIL/MATERIALS MANAGEMENT PLAN

5.4.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the direction of the Remedial Engineer during all remedial and development excavations into known or potentially contaminated material. Soil screening will include all excavation and invasive work performed during the remedy and during development phase, such as excavations for foundations and utility work, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the FER.

Screening will be performed by qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (e.g., those representing the Remedial

Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.4.2 Stockpile Methods

It is anticipated that excavated soil will be live loaded into trucks for off-site disposal and stockpiling of soil is not planned. However, if needed, stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. At a minimum, a storm event should be considered a rainfall of three inches or greater in 12 hours. Judgement should be used to evaluate water infiltration, nearby waterbodies where runoff is likely, and engineering controls that may be affected.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Water will be available on-site at suitable supply and pressure for use in dust control.

5.4.3 Materials Excavation and Load Out

The Remedial Engineer or a qualified environmental professional under his/her supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The NYCSCA (Volunteer) and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the Site has been investigated by the Remedial Engineer. It has been determined that no risk or impediment to the planned work under this Remedial Action Work Plan is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

Vehicles leaving the Site will not be overloaded. The Remedial Engineer's representative will make reasonable efforts to ensure that vehicles are not loaded beyond their NYSDOT weight rating and that all material is secured beneath the truck bed cover.

A truck wash will be operated on-Site. The Remedial Engineer will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the remedial construction is complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site sediment tracking.

The Remedial Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Site will be clean of dirt and other materials derived from the Site during Site remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site -derived materials.

The NYCSCA (Volunteer) and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

The Remedial Engineer will ensure that Site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this Remedial Action Work Plan.

Each hotspot and structure to be remediated (USTs, vaults and associated piping, transformers, etc.) will be removed and endpoint remedial performance sampling completed before excavations related to Site development commence proximal to the hotspot or structure.

Development-related grading cuts and fills will not be performed without NYSDEC approval and will not interfere with, or otherwise impair or compromise, the performance of remediation required by this plan.

Mechanical processing of historical fill and contaminated soil on-Site is prohibited.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during Site Characterization, Remedial Investigation, and Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. The survey information will be shown on maps to be reported in the FER.

5.4.4 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

The proposed truck transport route to the Site is: Take the I-278 highway exit ramp and turn right onto 86th Street, turn left onto 5th Avenue, turn right onto the Site. The proposed truck transport route from the Site is: Exit the Site and turn left onto 89th Street, turn left onto 5th Avenue, turn right onto 86th Street, turn left onto the I-278 highway ramp. Truck transport routes for subsurface soil removed from the Site are provided in *Appendix H* and Site entrances/exits are located on *Figure 20* and within the project SWPPP. All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes.

This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; (g) community input.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas or mesh truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

5.4.5 Materials Disposal Off-Site

The disposal locations will be submitted to the NYSDEC for approval by the Remedial Engineer prior to the start of work. Disposal location established at a later date will be reported to the NYSDEC Project Manager.

The total quantity of material expected to be disposed off-Site is 2,500 tons of non-hazardous contaminated soil to a disposal facility permitted to accept such material.

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated

disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Project Manager. Unregulated off-Site management of materials from this Site is prohibited without formal NYSDEC approval.

Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360.15 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from the Site conforms with all applicable laws: (1) a letter from the Remedial Engineer, Contractor or NYCSCA (Volunteer) to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation Site in New York State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including Site Characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360.2. The Remedial Engineer is responsible for assuring material is properly characterized and determining the appropriate disposal methods based on the characterization results.

Historical fill and contaminated soils from the Site are prohibited from being disposed at Part 360.15 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from the Site are considered by the NYSDEC Division of Materials Management (DMM) to be Construction and Demolition (C/D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C/D processing facility without permit modifications only upon prior notification of NYSDEC DMM. This material is prohibited from being sent or redirected to a Part 360-15 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C/D facility that provides a detailed explanation that the material is derived from a DER remediation Site, that the soil material is contaminated and that it must not be redirected to on-Site or off-Site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the Remedial

Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported.

The FER will include an accounting of the destination of all material removed from the Site during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

Bill of Lading system or equivalent will be used for off-Site movement of non-hazardous wastes and contaminated soils. This information will be reported in the FER.

Hazardous wastes derived from on-Site will be stored, transported, and disposed of in full compliance with applicable local, State, and Federal regulations.

Appropriately licensed haulers will be used for material removed from this Site and will be in full compliance with all applicable local, State and Federal regulations.

Waste characterization sampling will be performed exclusively for the purposes of off-Site soil disposal in a manner suitable to receiving facilities and in conformance with applicable federal, state and local laws rules and regulations and facility-specific permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC associated with waste characterization activities will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt. Waste characterization data will be used solely for complying with requirements for off-site disposal. Waste Characterization sampling cannot be utilized for:

- Delineating the extent of contamination required for remediation at a Site.
- Replacing or substituting data collected as part of Site Characterization and/or Remedial Investigation.
- Replacing or substituting confirmation or documentation sampling as described in NYSDEC DER-10, Section 5.4.
- To modify remedial decisions as formalized in a NYSDEC approved Decision Document or Record of Decision.

5.4.6 Materials Reuse On-Site

It is anticipated that soil will not be re-used on-Site; however, if necessary, soil with contaminant concentrations that meets the lower of the protection of groundwater or the protection of public health soil cleanup objectives for Residential Land Use as described in 6 NYCRR Part 375-6.7(d)(1)(ii)(b) and NYCSCA Specification 02090 can be reused to backfill excavations. A demarcation layer would be installed above existing soil throughout the Site, beneath the building, playground area, and a minimum 2-foot thick imported clean cover layer in landscaped areas, where UUSCOs were not achieved. Stockpiled backfill material will be maintained on-site separate from the areas of active remediation work.

Material proposed for reuse must be sampled in accordance with the requirements in DER-10 and meet the criteria listed in Appendix 5 of DER-10 for Restricted-Residential Use and be Environmentally Clean as defined in NYCSCA Specification 02090. The potential excavation areas for material reuse and associated soil quantities have not been established as of the date of this RAWP. However, the Remedial Engineer will coordinate with the NYSDEC for approval of reuse material during construction activities, as applicable. Samples will be collected in accordance with the frequency and analyses listed in the table below and submitted to a NYSDOH ELAP-certified laboratory.

Table 5.4(e)10
Recommended Number of Soil Samples for Soil Imported To or Exported From a Site

Contaminant	**VOCs**	**SVOCs, Inorganics & PCBs/Pesticides**	
Soil Quantity (cubic yards)	**Discrete Samples**	**Composite**	**Discrete Samples/Composite**
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1000	7	2	
➢ 1000	Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER		

Additional requirements regarding material reuse on-site include:

- The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site.

- Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos.
- Concrete crushing or processing on-Site is prohibited.
- Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-Site.
- Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the final Site Management Plan.

Chemical criteria for on-Site reuse of material have been approved by NYSDEC. The Remedial Engineer will ensure that procedures defined for materials reuse in this RAWP are followed and that unacceptable material will not remain on-Site.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC project manager for review and approval prior to material reuse on the site. A copy of the form is presented in *Appendix J*. Acceptable demolition material proposed for reuse on-Site, if any, will be sampled for asbestos.

Concrete crushing or processing on-Site is prohibited, unless NYSDEC has specifically approved on-site processing and reuse of acceptable demolition material.

Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site is prohibited for reuse on-Site.

Contaminated on-Site material, including historic fill and contaminated soil, removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. This will be expressed in the Site Management Plan (SMP).

5.4.7 Fluids Management

Dewatering is not anticipated, however if needed, all liquids to be removed from the Site, including dewatering fluids, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP.

Dewatered fluids will not be recharged back to the land surface or subsurface of the Site. Dewatering fluids will be managed off-Site.

Discharge of water generated during remedial construction to surface waters (i.e. a local pond, stream, river and/or storm sewer) is prohibited without a SPDES permit.

5.4.8 Demarcation

After the completion of soil removal and any other invasive remedial activities and prior to backfilling, a land survey will be performed by a New York State licensed surveyor. The survey will define the top elevation of residual contaminated soils, as defined in Section 6.0. A physical demarcation layer, consisting of orange snow fencing material or equivalent material will be placed on this surface to provide a visual reference. The anticipated depth of the demarcation layer is 2 feet bgs or existing cellar slab. This demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated residual soils defined in the SMP. The survey will measure the grade covered by the demarcation layer before the placement of cover soils, pavement and sub-soils, structures, or other materials. This survey and the demarcation layer placed on this grade surface will constitute the physical and written record of the upper surface of the 'Residuals Management Zone' in the SMP. A map showing the survey results will be included in the FER and the SMP.

5.4.9 Backfill from Off-Site Sources

This section presents the requirements for imported fill materials to be used as backfill and clean cover layer. Backfill material will be comprised of soil or other unregulated material. Use of recycled concrete aggregate as backfill is prohibited. Imported material used to backfill will meet the lower of the protection of groundwater or the protection of public health soil cleanup objectives for Residential Land Use, and be Environmentally Clean as defined in NYCSCA Specification 02090.

Details regarding imported material include:

- Soil proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.
- Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site.
- The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation,

approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan."

- All imported soil will meet NYSDEC approved backfill or cover soil quality objectives for this Site. The NYSDEC approved backfill and soil cover quality objective is the lower of the protection of groundwater or the protection of public health soil cleanup objectives for Residential Land Use as set forth in Table 375-6.8(b) of 6 NYCRR Part 375 and NYCSCA Specification 02090. Non-compliant soils will not be imported onto the Site without prior approval by NYSDEC. Nothing in the approved Remedial Action Work Plan or its approval by NYSDEC should be construed as an approval for this purpose.
- Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this Remedial Action Work Plan should be construed as an approval for this purpose.
- Solid waste will not be imported onto the Site.
- Trucks entering the Site with imported soils will be securely covered with tight fitting covers.

All materials proposed for import onto the Site will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the Site.

Material from industrial sites, spill sites, other environmental remediation sites or other potentially contaminated sites will not be imported to the Site. Solid waste will not be imported onto the Site.

The FER will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-Site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan".

Soils that meet the requirements of Fill Types 1 through 5 as defined in 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this Site, will not be imported onto the Site without prior approval by NYSDEC. Nothing in this RAWP should be construed as an approval for this purpose.

A "Request to Import/Reuse Fill Material" form will be filed with the NYSDEC project manager for review and approval prior to import to the site. A copy of the form is presented in *Appendix J*.

5.4.10 Soil Erosion and Sediment Control

The Soil Erosion and Sediment Control Plan and Details are included as *Appendix K*. The erosion and sediment controls will be in conformance with requirements in the New York State Standards and Specifications for Erosion and Sediment Control. Soil erosion and sediment control procedures will be in place and functional prior to and during any ground-intrusive work. Additional requirements regarding stormwater pollution prevention are listed below:

- Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.
- Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.
- All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.
- Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.
- Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.
- Silt fencing or hay bales will be installed around the entire perimeter of the remedial construction area.

5.4.11 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. in accordance with DER-10. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides, PCBs and PFAS). Analyses will not be otherwise limited without NYSDEC approval.

Identification of unknown or unexpected contaminated media identified by screening during invasive Site work will be promptly communicated by phone to NYSDEC's Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.4.11.1 *Extreme Storm Preparedness and Response Contingency Plan*

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of support of excavation structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the NYCSCA (Volunteer) will undertake the following steps for site preparedness prior to the event and response after the event.

Storm Preparedness

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and reposition silt fences, hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

Storm Response

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to NYSDEC at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911.

Petroleum spills will be reported to NYSDEC within 2 hours of identification and consistent with State regulations. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Although not anticipated, if necessary, dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. Support of excavation structure will be inspected and fortified as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained as necessary.

If soil or fill materials are discharged off site to adjacent properties, property owners and NYSDEC will be notified, and a corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of site access by the property owner. Impacted offsite areas may require characterization based on site conditions, at the discretion of NYSDEC.

If onsite petroleum spills are identified, a qualified environmental professional will determine the nature and extent of the spill and report to NYSDEC's spill hotline at (800) 457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

Storm Response Reporting

A site inspection report will be submitted to NYSDEC at the completion of site inspection. An inspection report will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the NYSDEC project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the support of excavation; presence of onsite or offsite

exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; schedule for corrective actions.

This report should be completed and submitted to NYSDEC project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.4.12 Community Air Monitoring Plan

Site investigations have indicated the presence of SVOCs and metals in subsurface soils. The CAMP has been designed to monitor for the target contaminants (refer to *Appendix D*) during construction activities that may disturb contaminated soil. Real-time air monitoring will be performed at the perimeter of remedial construction zones. The goal of the CAMP is to recognize and aggressively respond to exceedances of pre-determined action levels for contaminants of concern. Corrective actions, which may include dust and vapor suppression techniques, alteration of certain work activities, or stopping work, will be taken if exceedances of pre-determined action levels are detected.

A map showing the location of fixed and mobile sampling stations is shown in *Figure 20*.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report.

5.4.13 Odor, Dust and Nuisance Control Plan

The FER will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.4.13.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-Site. Specific odor control methods to be used on a routine basis will include limiting the area of open excavations. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of the NYCSCAs (Volunteers) Remedial Engineer, who is responsible for certifying the FER.

All necessary means will be employed to prevent on- and off-Site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations

with tarps and other covers; and (c) using foams to cover exposed odorous soils; [add other elements as appropriate]. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-Site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

Where odor nuisances have developed during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided due to on-Site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.4.13.2 Dust Control Plan

A dust suppression plan that addresses dust management during invasive on-Site work will include, at a minimum, the items listed below:

- Water will be available on-site at suitable supply and pressure for use in dust control.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water spraying.

5.4.13.3 Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work and will conform, at a minimum, to NYCDEP noise control standards.

6.0 RESIDUAL CONTAMINATION TO REMAIN ON-SITE

Residual contamination includes all contamination in native unexcavated soil that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. Since it is anticipated that residual contaminated soil and groundwater/soil vapor will exist beneath the Site after the remedy is complete, Engineering and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC/ICs and of residual contamination will be executed under a Site specific Site Management Plan (SMP) that will be developed and included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) is anticipated to have up to two (2) primary EC systems. These are: (1) a cover system consisting of concrete building slabs, paved surfaces and a minimum two-foot thick clean cover layer and (2) an SSDS below the building floor slab.

The FER will report residual contamination on the Site in tabular and map form. This will include presentation of exceedances of both Track 1 and Track 4 sites.

7.0 ENGINEERING CONTROLS: SITE COVER SYSTEM

Exposure to residual contaminated soils will be prevented by an engineered cover system that will be built on the Site. This site cover system will be comprised of asphalt covered roads, concrete covered sidewalks, concrete building slabs and a minimum 2-foot thick imported clean cover layer in landscaped areas, if any.

An engineered cover system will be built on the Site consisting of impervious surfaces (e.g., building, paved surfaces, etc.) and in all other areas (e.g., landscaped areas) at least 2 feet of clean cover material meeting the protection of public health Soil Cleanup Objectives for Restricted-Residential Use as described in 6 NYCRR Part 375-6.7(d)(1)(ii)(b) and NYCSCA Specification 02090 or otherwise approved by NYSDEC.

Green remediation best management practices (BMPs) for designing and installing a conventional cover system include:

- Design in ways that mimic rather than alter the site's natural setting, to improve the cover's long-term performance and protect ecosystem services such as potable water, wildlife habitat, and carbon storage;
- Design a cover accounting for potential effects of climate change, which could involve changes in onsite soil development or increased vulnerability to flooding;
- Use uncontaminated soil or sediment from onsite excavation instead of imported soil/sediment for the cover's frost prevention and erosion control layers; similarly, uncontaminated sand, gravel, and rocks from onsite instead of offsite areas may be used for drainage;
- Apply low impact development strategies such as installing earthen berms to manage stormwater;
- Choose geotextile fabric or drainage tubing composed of 100% recycled materials rather than virgin materials for lining, erosion control, and drainage; and
- Select materials with biobased content for daily activities during cover construction;
- Use clean fuel and emission control technologies for routine field vehicles and machinery such as backhoes and bulldozers to reduce fuel consumption and emission of air pollutants such as GHGs and particulate matter.

For alternative cover designs

- Consider using asphalt rubber where the cover system includes a layer of asphalt;
- Substitute concrete with high albedo pavement, which reflects sunlight and heat away from the cover surface and may aid growth of nearby vegetation; and

- Consider using concrete containing a high percentage of industrial waste by-products as a substitute for cement, if tests show no contaminant leaching.

In addition to BMPs that apply to conventional covers, BMPs for designing and installing an evapotranspiration (ET) cover include:

- Choose recycled (crushed) concrete for biobarriers or capillary breaks instead of natural rock provided that it has been tested and meets clean fill requirements;
- Select native drought-resistant plants for the upper vegetative layer to reduce maintenance needs;
- Preserve biodiversity and related ecosystem services by installing a suitable mix of native shrubs, grasses, and forbs; and

Use non-synthetic amendments such as compost instead of chemical fertilizers if the soil or vegetation is found to need supplementation over time.

A diagram showing the design detail for each cover type is shown in *Figure 22*. A map showing the aerial distribution of each of the cover types to be built at the Site is included in *Figure 22*.

The proposed playground includes installation of a rubber safety surface. As noted previously, the final cover system will consist of impervious surfaces (e.g., a building and/or paved surfaces, etc.) and in all other areas (i.e., landscaped areas) at least 2 feet of clean cover layer.

An Excavation Plan will be included in the Site Management Plan and will outline the procedures to be followed if the site cover system and underlying residual contamination are disturbed after the Remedial Action is complete.

The components of the site cover system will be documented in the FER. Maintenance of this site cover system will be described in the SMP.

8.0 ENGINEERING CONTROLS: SSDS

To prevent sub-slab vapor from entering the new building, engineering controls consisting of a vapor barrier and SSDS will be installed. The vapor barrier is a continuous synthetic membrane installed below the building which is impermeable to vapors. An active SSDS will be designed and installed to minimize the potential for vapor intrusion. The proposed building footprint and area to be depressurized with an active SSDS is shown on *Figure 23* and the draft SSDS design has been included as *Appendix M*. A pressure field extension test will be performed after installation of the subgrade SSDS components, including monitoring points, to confirm adequate depressurization beneath the new building's slab. The principal components of the SSDS will include:

- Vapor barrier (described above);
- Suction pits beneath the lowest floor slab;
- Pipe running horizontally beneath the slab from each suction pit to a common header or headers;
- A vertical riser or risers, at least six inches in diameter, from the common header(s) connecting to a suction fan or fans above the building roof;
- An exterior suction fan(s);
- An alarm system which will be activated on low vacuum conditions; and,
- Monitoring points at selected locations in the building floor slab.

Sub-slab vapor samples will be collected from permanent monitoring points installed as part of the building's active SSDS. If sub-slab vapor TCE and PCE analytical results are below the action level of 6 and 100 $\mu g/m^3$, respectively, the vapor mitigation systems described below will be designed, installed, operated, maintained, and monitored in accordance with NYCSCA and NYCDOE policies and procedures as a standard protective measure, but to alleviate reporting requirements, the systems will not be considered Engineering Controls for the purposes of the remedy, will not be included in the FER or subject to ongoing Site Management reporting. If the sub-slab vapor TCE and PCE analytical results exceed 6 and 100 $\mu g/m^3$, respectively, the following vapor mitigation systems will be considered Engineering Controls, the remedial engineer will then certify in the FER that the vapor barrier and active SSDS were designed, properly installed, adequate startup testing was performed, and the vapor mitigations systems will be subject to ongoing Site Management reporting requirements. Additionally, if the SSDS is an engineering control subject to Site Management, the SMP will include performance of one post-

mitigation IAQ survey during the first heating season after construction of the new building is complete.

The Operation and Maintenance (O&M) requirements for the SSDS will consist of initial start-up testing, routine maintenance and monitoring activities, and non-routine maintenance activities to be described in the SMP if it is determined that the SSDS will be considered an Engineering Control.

Design plans and specifications will be submitted to NYSDEC under the SMP.

All as-built drawings or signed and sealed construction drawings reviewed by the Remedial Engineer, diagrams, and post-installation pressure field extensions testing results will be presented in the FER.

9.0 CRITERIA FOR COMPLETION OF REMEDIATION/TERMINATION OF REMEDIAL SYSTEMS

9.1 COMPOSITE COVER SYSTEM

The composite cover system is a permanent control, and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

9.2 SUB-SLAB DEPRESSURIZATION SYSTEM (SSDS)

If the active SSDS is determined to be an Engineering Control, it will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the active SSDS may be submitted by the property owner based on confirmatory data that justifies such request. Systems will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

9.3 GROUNDWATER MONITORING

Groundwater monitoring is not a necessary criteria for completion of the remediation/termination of remedial systems, and therefore, will not be conducted.

10.0 INSTITUTIONAL CONTROLS

After the remedy is complete, the Site will have residual contamination remaining in place. Engineering Controls (ECs) for the residual contamination have been incorporated into the remedy to render the overall Site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan (SMP).

All as-built drawings, diagrams, calculation and manufacturer documentation for engineering controls will be presented in the FER. A Site -specific Environmental Easement will be recorded with the New York City Office of the City Register to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

10.1 ENVIRONMENTAL EASEMENT

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left on-Site after the Remedial Action is complete. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the Kings County Office of the City Register. The Environmental Easement will be submitted as part of the Final Engineering Report.

The Environmental Easement renders the Site a Controlled Property. The Environmental Easement must be recorded with New York City Office of the City Register before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to Restricted Residential, Commercial, or Industrial Uses only. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on

Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the SMP, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in the SMP;
- A site cover system consisting of asphalt covered roads/play surfaces, concrete covered sidewalks, and concrete building slabs must be inspected, certified and maintained as required in the SMP;
- The minimum 2-foot thick clean cover layer in landscaped areas must be inspected, certified, and maintained as required in the SMP;
- A soil vapor mitigation system consisting of a sub-slab depressurization system under all building structures must be inspected, certified, operated and maintained as required by the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Soil vapor and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- On-Site environmental monitoring devices, including but not limited to, soil vapor probes/SSDS monitoring points, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP;
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the Site is mandated by the Environmental Easement and will be implemented under the SMP (discussed in the next section). The Controlled

Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited;
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP;The Controlled Property may be used for Educational or Restricted Residential use only, provided the long-term Engineering and Institutional Controls included in the SMP are employed;
- The Controlled Property may not be used for a higher level of use, such as Unrestricted use without an amendment or extinguishment of this Environmental Easement;

Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

10.2 SITE MANAGEMENT PLAN

Site Management is the last phase of remediation and begins with the approval of the FER and issuance of the Certificate of Completion (COC) for the Remedial Action. The SMP is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the SMP are performed.

The SMP should include methods to incorporate and track GSR. Measures should be taken to maintain a cost-effective, protective remedy that remains conscientious of the Site's environmental footprint. At a minimum, the following should be assessed: waste generation, energy usage, emissions, and water usage.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the Site following completion of the Remedial Action in accordance with the BCA with the NYSDEC. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of Site information to NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring if any; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The first Periodic Review Report (PRR) will be due for submission to NYSDEC 16 months following certificate of completion and will be based on a calendar year and submitted annually thereafter. The periodic reports will document the routine inspections of the engineering controls. The periodic reports will be prepared and filed until the NYSDEC issues notification in writing that the periodic report is no longer required. Each periodic report will be signed by a New York State licensed Professional Engineer and will contain a certification confirming that the engineering and institutional controls at the Site have been maintained in accordance with the SMP to protect public health and the environment.

No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

11.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading as well as the complete SMP. The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling, and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

Where determined to be necessary by NYSDEC, a Financial Assurance Plan will be required to ensure the sufficiency of revenue to perform long-term operations, maintenance and monitoring tasks defined in the Site Management Plan and Environmental Easement. This determination will be made by NYSDEC in the context of the FER review.

The FER will include written and photographic documentation of all remedial work performed under this remedy.

The FER will include an itemized tabular description of actual costs incurred during all aspects of the Remedial Action.

The FER will provide a thorough summary of all residual contamination left on the Site after the remedy is complete. Residual contamination includes all contamination in native soils that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the Site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess

of Site SCOs and a map that shows residual contamination in excess of Site SCOs will be included in the FER.

The FER will include an accounting of the destination of all material removed from the Site, including excavated contaminated soil, historic fill, solid waste, hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onto the Site.

The FER must include a discussion of the green remediation practices/technologies employed throughout the remedial program. A final footprint analysis using a DER accepted model, and any tracking methods used through the construction including restoration activities. Before approval of a FER and issuance of a COC, all project reports must be submitted in digital form on electronic media (PDF).

Before approval of a FER and issuance of a COC, all project reports must be submitted in digital form on electronic media (PDF).

11.1 CERTIFICATIONS

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The FER will be prepared, stamped and the following certification signed by an individual licensed or otherwise authorized in accordance with article 145 of the education law to practice the profession of engineering. The certification will include the following statements:

I, _____, am currently a registered professional engineer licensed by the State of New York, I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan for the 8802 5th avenue and 429 89th street Site (NYSDEC BCA Index No. C224327-09-21, Site No. C224327) was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and/or any operation and maintenance requirements applicable to the Site are contained in an environmental

easement created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

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. I, [name], of [business address], am certifying as Owner's Designated Site Representative: [and I have been authorized and designated by all site owners to sign this certification] for the site.

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.

12.0 SCHEDULE

The Remedial Action will be implemented during construction of the new school (scheduled to open in September 2029). *Table 18* presents a schedule for proposed remediation. As the schedule for remediation and redevelopment activities become more defined, the schedule will be updated and provided to the NYSDEC.

TABLES

Table 1
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Summary of Results of Analysis of Sub-Slab Vapor for Volatile Organic Compounds

SAMPLE ID	TRC-SSV-12		TRC-SSV-13		TRC-SSV-16		TRC-SSV-17	
LABORATORY SAMPLE ID	200-63981-2		200-63981-1		200-63981-4		200-63981-3	
SAMPLE DATE	6/28/2022		6/28/2022		6/28/2022		6/28/2022	
MATRIX	Air		Air		Air		Air	
UNITS	µg/m^3		µg/m^3		µg/m^3		µg/m^3	
DILUTION FACTOR	1/2.99		1/2		1/2.99		1/2.99	
VOLATILE ORGANIC COMPOUNDS (VOCs)	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.74	J	6.8		0.33	J	0.75	J
1,1,2,2-Tetrachloroethane	1.4	U	1.4	U	1.4	U	1.4	U
1,1,2-Trichloroethane	1.1	U	1.1	U	1.1	U	1.1	U
1,1,2-Trichlorotrifluoroethane	1.5	U	1.5	U	1.5	U	0.51	J
1,1-Dichloroethane	0.81	U	0.81	U	0.81	U	0.81	U
1,1-Dichloroethene	0.20	U	0.20	U	0.20	U	0.20	U
1,2,4-Trichlorobenzene	3.7	U	3.7	U	3.7	U	3.7	U
1,2,4-Trimethylbenzene	1.0		0.53	J	4.7		7.3	
1,2-Dibromoethane	1.5	U	1.5	U	1.5	U	1.5	U
1,2-Dichlorobenzene	1.2	U	1.2	U	1.2	U	1.2	U
1,2-Dichloroethane	0.81	U	0.81	U	0.81	U	0.81	U
1,2-Dichloropropane	0.92	U	0.92	U	0.92	U	0.92	U
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	U	1.4	U	1.4	U
1,3,5-Trimethylbenzene	0.41	J	0.98	U	1.5		3.1	
1,3-Butadiene	0.44	U	0.44	U	0.51		0.76	
1,3-Dichlorobenzene	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dichlorobenzene	1.2	U	1.2	U	1.2	U	1.2	U
1,4-Dioxane	18	U	18	U	18	U	18	U
2,2,4-Trimethylpentane	0.43	J	1.0		1.4		1.3	
2-Chlorotoluene	1.0	U	1.0	U	1.0	U	1.0	U
3-Chloropropene	1.6	U	1.6	U	1.6	U	1.6	U
4-Ethyltoluene	0.98	U	0.98	U	1.0		1.7	
4-Isopropyltoluene	0.46	J	0.21	J	3.5		3.4	
4-Methyl-2-pentanone (Methyl isobutyl ketone)	2.0	U	2.0	U	6.6		3.4	
Acetone	130		38		220		180	
Benzene	0.42	J	0.61	J	3.5		1.6	
Benzyl chloride	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	1.3	U	1.3	U	0.88	J	0.33	J
Bromoethene(Vinyl Bromide)	0.87	U	0.87	U	0.87	U	0.87	U
Bromoform	2.1	U	2.1	U	2.1	U	2.1	U
Bromomethane	0.78	U	0.78	U	0.78	U	0.78	U
Carbon disulfide	1.6		0.71	J	6.1		5.1	
Carbon tetrachloride	0.33		0.24		0.24		0.32	
Chlorobenzene	0.92	U	0.92	U	0.92	U	0.92	U
Chlorodifluoromethane	0.86	J	0.90	J	8.6		41	
Chloroethane	1.3	U	1.3	U	1.3	U	1.3	U
Chloroform	0.28	J	0.80	J	23		7.6	
Chloromethane	0.46	J	0.75	J	0.76	J	0.93	J
cis-1,2-Dichloroethene	0.18	U	1.7		0.18	U	0.18	U
cis-1,3-Dichloropropene	0.91	U	0.91	U	0.91	U	0.91	U
Cumene	0.98	U	0.98	U	0.58	J	0.63	J
Cyclohexane	0.69	U	0.69	U	0.46	J	0.85	
Dibromochloromethane	1.7	U	1.7	U	1.7	U	1.7	U
Dichlorodifluoromethane	2.3	J	4.8		3.4		6.3	
Ethylbenzene	0.87	U	0.87	U	3.0		1.8	
Hexachlorobutadiene	2.1	U	2.1	U	2.1	U	2.1	U
Isopropyl alcohol	11	J	4.4	J	10	J	9.0	J
m,p-Xylene	1.5	J	0.94	J	8.0		6.2	
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	U	13		6.1	
Methyl Ethyl Ketone (2-Butanone)	1.5	U	1.5	U	70		45	
Methyl methacrylate	2.0	U	2.0	U	2.0	U	2.0	U
Methyl tert-butyl ether	0.72	U	0.70	J	0.72	U	0.72	U
Methylene Chloride	1.7	U	0.60	J	2.1		1.2	J
Naphthalene	2.6	U	2.6	U	1.4	J	1.2	J
n-Butane	1.2	U	0.45	J	3.3		3.7	
n-Butylbenzene	1.1	U	1.1	U	1.1	U	0.48	J
n-Heptane	0.71	J	0.82	U	2.4		1.8	
n-Hexane	1.8	U	1.8	U	1.6	J	1.6	J
n-Propylbenzene	0.98	U	0.98	U	0.68	J	0.79	J
o-Xylene	0.79	J	0.87	U	2.8		3.0	
sec-Butylbenzene	1.1	U	1.1	U	1.1	U	0.74	J
Styrene	0.85	U	0.14	J	0.30	J	0.86	
tert-Butyl alcohol	6.0	J	5.5	J	18		8.9	J
tert-Butylbenzene	1.1	U	1.1	U	1.1	U	1.1	U
Tetrachloroethene	520		330		53		16	
Tetrahydrofuran	15	U	15	U	15	U	15	U
Toluene	2.1		1.7		24		11	
trans-1,2-Dichloroethene	0.79	U	0.79	U	0.79	U	0.79	U
trans-1,3-Dichloropropene	0.91	U	0.91	U	0.91	U	0.91	U
Trichloroethene	11		72		0.39		0.96	
Trichlorofluoromethane	1.2		1.6		1.2		1.4	
Vinyl chloride	0.20	U	0.20	U	0.22		0.20	U

Notes:

J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Q - Qualifier

U - Non-detect

Table 1
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Summary of Results of Analysis of Sub-Slab Vapor for Volatile Organic Compounds

SAMPLE ID	TRC-SSV-12		TRC-SSV-13		TRC-SSV-16		TRC-SSV-17	
LABORATORY SAMPLE ID	200-63981-2		200-63981-1		200-63981-4		200-63981-3	
SAMPLE DATE	6/28/2022		6/28/2022		6/28/2022		6/28/2022	
MATRIX	Air		Air		Air		Air	
UNITS	µg/m^3		µg/m^3		µg/m^3		µg/m^3	
DILUTION FACTOR	1/2.99		1/2		1/2.99		1/2.99	
VOLATILE ORGANIC COMPOUNDS (VOCs)	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.74	J	6.8		0.33	J	0.75	J

µg/m^3 - Micrograms per cubic meter

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-06-N (1-4)		TRC-SB-06-N (13-15)		TRC-SB-06-N (20.5-22.5)		TRC-SB-06-E (1-3)		TRC-SB-06-W (1-4)		TRC-SB-06-W (20-22)	
			SAMPLE DEPTH (FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4		20-22	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4		460-260996-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.0010	U	0.11	U	0.0013	UJ	0.0011	UJ	0.0012	UJ	0.0010	UJ
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,1,2-Trichloroethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,1-Dichloroethane	0.27	26	0.27	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,1-Dichloroethene	0.33	100	0.33	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0010	U	**6.2**		0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,2-Dichloropropane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0010	U	1.0		0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
2-Butanone (MEK)	0.12	100	0.12	0.0052	U	0.56	U	0.0065	U	0.0054	U	0.0059	U	0.0051	U
2-Hexanone	NC	NC	NC	0.0052	U	0.56	U	0.0065	U	0.0054	U	0.0059	U	0.0051	U
4-Isopropyltoluene	NC	NC	NC	0.0010	U	2.3		0.0013	U	0.0011	U	0.0012	U	0.0010	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0052	UJ	0.56	U	0.0065	U	0.0054	U	0.0059	U	0.0051	U
Acetone	0.05	100	0.05	0.0062	U	0.56	U	0.0078	U	0.0065	U	0.019		0.0061	U
Benzene	0.06	4.8	0.06	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Bromoform	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Bromomethane	NC	NC	NC	0.0021	U	0.11	U	0.0026	U	0.0022	U	0.0024	U	0.0020	U
Carbon disulfide	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Carbon tetrachloride	0.76	2.4	0.76	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chlorobenzene	1.1	100	1.1	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chlorobromomethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chlorodibromomethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chloroethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chloroform	0.37	49	0.37	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Chloromethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
cis-1,3-Dichloropropene	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Cyclohexane	NC	NC	NC	0.0010	U	0.55		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Dichlorobromomethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Dichlorodifluoromethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Ethylbenzene	1	41	1	0.0010	U	1.0		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Ethylene Dibromide	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-06-N (1-4)		TRC-SB-06-N (13-15)		TRC-SB-06-N (20.5-22.5)		TRC-SB-06-E (1-3)		TRC-SB-06-W (1-4)		TRC-SB-06-W (20-22)	
			SAMPLE DEPTH (FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4		20-22	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4		460-260996-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.0010	U	1.4		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Methyl acetate	NC	NC	NC	0.0052	U	0.56	U	0.0065	U	0.0054	U	0.0059	U	0.0051	U
Methyl tert-butyl ether	0.93	100	0.93	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Methylcyclohexane	NC	NC	NC	0.0010	U	8.5		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Methylene Chloride	0.05	100	0.05	0.0021	U	0.11	U	0.0026	U	0.0022	U	0.0024	U	0.0020	U
m-Xylene & p-Xylene	NC	NC	NC	0.0010	U	0.38		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Naphthalene	12	100	12	0.0016	U	1.4		0.0020	U	0.0016	U	0.0018	U	0.0015	U
n-Butylbenzene	12	100	12	0.0010	U	3.0		0.0013	U	0.0011	U	0.0012	U	0.0010	U
N-Propylbenzene	3.9	100	3.9	0.0010	U	2.8		0.0013	U	0.0011	U	0.0012	U	0.0010	U
o-Xylene	NC	NC	NC	0.0010	U	0.15		0.0013	U	0.0011	U	0.0012	U	0.0010	U
sec-Butylbenzene	11	100	11	0.0010	U	2.3		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Styrene	NC	NC	NC	0.0010	UJ	0.11	U	0.0013	UJ	0.0011	UJ	0.0012	UJ	0.0010	UJ
tert-Butylbenzene	5.9	100	5.9	0.0010	U	0.72		0.0013	U	0.0011	U	0.0012	U	0.0010	U
Tetrachloroethene	1.3	19	1.3	0.0012		0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Toluene	0.7	100	0.7	0.0010	UJ	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
trans-1,3-Dichloropropene	NC	NC	NC	0.0010	UJ	0.11	U	0.0013	UJ	0.0011	UJ	0.0012	UJ	0.0010	UJ
Trichloroethene	0.47	21	0.47	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Trichlorofluoromethane	NC	NC	NC	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Vinyl chloride	0.02	0.9	0.02	0.0010	U	0.11	U	0.0013	U	0.0011	U	0.0012	U	0.0010	U
Xylenes, Total	0.26	100	1.6	0.0021	U	**0.53**		0.0026	U	0.0022	U	0.0024	U	0.0020	U
VOC TICs	NC	NC	NC	ND		77.4	J	ND		ND		0.0059	J	ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-12 (1-4)		TRC-SB-13 (1-4)		TRC-SB-14 (1-4)		TRC-SB-14 (12-15)		TRC-DUP-02		TRC-SB-14 (73-75)	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		12-15		12-15		73-75	
			LAB SAMPLE ID	460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3		460-261873-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022		7/13/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.0011	UJ	0.0018	UJ	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,1,2-Trichloroethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,1-Dichloroethane	0.27	26	0.27	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,1-Dichloroethene	0.33	100	0.33	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,2-Dichloropropane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
2-Butanone (MEK)	0.12	100	0.12	0.0057	U	0.0089	U	0.0054	U	0.0052	U	0.0049	U	0.0057	U
2-Hexanone	NC	NC	NC	0.0057	U	0.0089	U	0.0054	U	0.0052	U	0.0049	U	0.0057	U
4-Isopropyltoluene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0057	U	0.0089	U	0.0054	U	0.0052	U	0.0049	U	0.0057	U
Acetone	0.05	100	0.05	0.0068	U	0.011	U	0.0065	U	0.0082		0.0058	U	0.0068	U
Benzene	0.06	4.8	0.06	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Bromoform	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Bromomethane	NC	NC	NC	0.0023	U	0.0036	U	0.0022	U	0.0021	U	0.0019	U	0.0023	U
Carbon disulfide	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Carbon tetrachloride	0.76	2.4	0.76	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chlorobenzene	1.1	100	1.1	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chlorobromomethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chlorodibromomethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chloroethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chloroform	0.37	49	0.37	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Chloromethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
cis-1,3-Dichloropropene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Cyclohexane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Dichlorobromomethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Dichlorodifluoromethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Ethylbenzene	1	41	1	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Ethylene Dibromide	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-12 (1-4)		TRC-SB-13 (1-4)		TRC-SB-14 (1-4)		TRC-SB-14 (12-15)		TRC-DUP-02		TRC-SB-14 (73-75)	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		12-15		12-15		73-75	
			LAB SAMPLE ID	460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3		460-261873-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022		7/13/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Methyl acetate	NC	NC	NC	0.0057	U	0.0089	U	0.0054	U	0.0052	U	0.0049	U	0.0057	U
Methyl tert-butyl ether	0.93	100	0.93	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Methylcyclohexane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Methylene Chloride	0.05	100	0.05	0.0023	U	0.0036	U	0.0022	U	0.0021	U	0.0019	U	0.0023	U
m-Xylene & p-Xylene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Naphthalene	12	100	12	0.0017	U	0.0027	U	0.0016	U	0.0015	U	0.0015	U	0.0017	U
n-Butylbenzene	12	100	12	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
N-Propylbenzene	3.9	100	3.9	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
o-Xylene	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
sec-Butylbenzene	11	100	11	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Styrene	NC	NC	NC	0.0011	UJ	0.0018	UJ	0.0011	U	0.0010	U	0.00097	U	0.0011	U
tert-Butylbenzene	5.9	100	5.9	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Tetrachloroethene	1.3	19	1.3	0.0060		0.0033		0.0011	U	0.0010	U	0.00097	U	0.0011	U
Toluene	0.7	100	0.7	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
trans-1,3-Dichloropropene	NC	NC	NC	0.0011	UJ	0.0018	UJ	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Trichloroethene	0.47	21	0.47	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Trichlorofluoromethane	NC	NC	NC	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Vinyl chloride	0.02	0.9	0.02	0.0011	U	0.0018	U	0.0011	U	0.0010	U	0.00097	U	0.0011	U
Xylenes, Total	0.26	100	1.6	0.0023	U	0.0036	U	0.0022	U	0.0021	U	0.0019	U	0.0023	U
VOC TICs	NC	NC	NC	ND		ND		ND		ND		ND		ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)		TRC-SB-18 (1-4)	
			SAMPLE DEPTH (FEET BGS)	1-4		12-15		73-75		1-3		1-2		1-4	
			LAB SAMPLE ID	460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2		460-260931-6	
			SAMPLING DATE	7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.0012	U	0.0010	U	0.00099	U	0.00095	UJ	0.00092	UJ	0.0014	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,1,2-Trichloroethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,1-Dichloroethane	0.27	26	0.27	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,1-Dichloroethene	0.33	100	0.33	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,2-Dichloropropane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
2-Butanone (MEK)	0.12	100	0.12	0.0059	U	0.0051	U	0.0049	U	0.0048	U	0.0046	U	0.0068	U
2-Hexanone	NC	NC	NC	0.0059	U	0.0051	U	0.0049	U	0.0048	U	0.0046	U	0.0068	U
4-Isopropyltoluene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0059	U	0.0051	U	0.0049	U	0.0048	U	0.0046	U	0.0068	UJ
Acetone	0.05	100	0.05	0.022		0.0061	U	0.0059	U	0.0057	U	0.0055	U	0.0082	U
Benzene	0.06	4.8	0.06	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Bromoform	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Bromomethane	NC	NC	NC	0.0024	U	0.0020	U	0.0020	U	0.0019	U	0.0018	U	0.0027	U
Carbon disulfide	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Carbon tetrachloride	0.76	2.4	0.76	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chlorobenzene	1.1	100	1.1	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chlorobromomethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chlorodibromomethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chloroethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chloroform	0.37	49	0.37	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Chloromethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
cis-1,3-Dichloropropene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Cyclohexane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Dichlorobromomethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Dichlorodifluoromethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Ethylbenzene	1	41	1	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Ethylene Dibromide	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)		TRC-SB-18 (1-4)	
			SAMPLE DEPTH (FEET BGS)	1-4		12-15		73-75		1-3		1-2		1-4	
			LAB SAMPLE ID	460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2		460-260931-6	
			SAMPLING DATE	7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Methyl acetate	NC	NC	NC	0.0059	U	0.0051	U	0.0049	U	0.0048	U	0.0046	U	0.0068	U
Methyl tert-butyl ether	0.93	100	0.93	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Methylcyclohexane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Methylene Chloride	0.05	100	0.05	0.0084		0.0015	J	0.0020	U	0.0019	U	0.0018	U	0.0027	U
m-Xylene & p-Xylene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Naphthalene	12	100	12	0.0018	U	0.0015	U	0.0015	U	0.0014	U	0.0014	U	0.0021	U
n-Butylbenzene	12	100	12	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
N-Propylbenzene	3.9	100	3.9	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
o-Xylene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
sec-Butylbenzene	11	100	11	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Styrene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	UJ	0.00092	UJ	0.0014	UJ
tert-Butylbenzene	5.9	100	5.9	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Tetrachloroethene	1.3	19	1.3	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Toluene	0.7	100	0.7	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	UJ
trans-1,2-Dichloroethene	0.19	100	0.19	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
trans-1,3-Dichloropropene	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	UJ	0.00092	UJ	0.0014	UJ
Trichloroethene	0.47	21	0.47	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Trichlorofluoromethane	NC	NC	NC	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Vinyl chloride	0.02	0.9	0.02	0.0012	U	0.0010	U	0.00099	U	0.00095	U	0.00092	U	0.0014	U
Xylenes, Total	0.26	100	1.6	0.0024	U	0.0020	U	0.0020	U	0.0019	U	0.0018	U	0.0027	U
VOC TICs	NC	NC	NC	ND		ND		ND		ND		ND		ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-18 (12-15)		TRC-DUP-01		TRC-SB-19 (1-4)		TRC-SB-19 (12-15)		TRC-SB-19 (22.5-24.5)		TRC-SB-19-N (22.5-24.5)	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-14		22.5-24.5		22.5-24.5	
			LAB SAMPLE ID	460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5		460-261270-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		7/1/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		50	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,1,2-Trichloroethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,1-Dichloroethane	0.27	26	0.27	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,1-Dichloroethene	0.33	100	0.33	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.00098	U	0.0011	U	0.0011	U	0.0011	U	**28**		2.8	
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2-Dichlorobenzene	1.1	100	1.1	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2-Dichloroethane	0.02	3.1	0.02	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,2-Dichloropropane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.00098	U	0.0011	U	0.0011	U	0.0011	U	**10**		1.2	
1,3-Dichlorobenzene	2.4	49	2.4	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
1,4-Dichlorobenzene	1.8	13	1.8	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
2-Butanone (MEK)	0.12	100	0.12	0.0049	U	0.0056	U	0.0057	U	0.0057	U	1.0	U	0.58	U
2-Hexanone	NC	NC	NC	0.0049	U	0.0056	U	0.0057	U	0.0057	U	1.0	U	0.58	U
4-Isopropyltoluene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	2.2		0.27	
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0049	UJ	0.0056	UJ	0.0057	UJ	0.0057	UJ	1.0	U	0.58	U
Acetone	0.05	100	0.05	0.023		0.022		0.0068	U	0.0069	U	1.0	U	0.58	U
Benzene	0.06	4.8	0.06	0.00098	U	0.0011	U	0.0011	U	0.0011	U	**0.23**		0.12	U
Bromoform	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Bromomethane	NC	NC	NC	0.0020	U	0.0022	U	0.0023	U	0.0023	U	0.20	U	0.12	U
Carbon disulfide	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Carbon tetrachloride	0.76	2.4	0.76	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chlorobenzene	1.1	100	1.1	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chlorobromomethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chlorodibromomethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chloroethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chloroform	0.37	49	0.37	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Chloromethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
cis-1,3-Dichloropropene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Cyclohexane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	16		0.86	
Dichlorobromomethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Dichlorodifluoromethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Ethylbenzene	1	41	1	0.00098	U	0.0011	U	0.0011	U	0.0011	U	**8.8**		0.47	
Ethylene Dibromide	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-18 (12-15)		TRC-DUP-01		TRC-SB-19 (1-4)		TRC-SB-19 (12-15)		TRC-SB-19 (22.5-24.5)		TRC-SB-19-N (22.5-24.5)	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-14		22.5-24.5		22.5-24.5	
			LAB SAMPLE ID	460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5		460-261270-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		7/1/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		50	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	2.4		0.24	
Methyl acetate	NC	NC	NC	0.0049	U	0.0056	U	0.0057	U	0.0057	U	1.0	U	0.58	U
Methyl tert-butyl ether	0.93	100	0.93	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Methylcyclohexane	NC	NC	NC	0.00098	U	0.00086	J	0.0011	U	0.0011	U	67		4.6	
Methylene Chloride	0.05	100	0.05	0.0020	U	0.0022	U	0.0023	U	0.0023	U	0.20	U	0.12	U
m-Xylene & p-Xylene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	31		1.5	
Naphthalene	12	100	12	0.0015	U	0.0017	U	0.0039		0.0017	U	5.8		0.51	
n-Butylbenzene	12	100	12	0.00098	U	0.0011	U	0.0011	U	0.0011	U	1.9		0.23	
N-Propylbenzene	3.9	100	3.9	0.00098	U	0.0011	U	0.0011	U	0.0011	U	**4.0**		0.37	
o-Xylene	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	11		0.15	
sec-Butylbenzene	11	100	11	0.00098	U	0.0011	U	0.0011	U	0.0011	U	1.0		0.13	
Styrene	NC	NC	NC	0.00098	UJ	0.0011	UJ	0.0011	UJ	0.0011	UJ	0.20	U	0.12	U
tert-Butylbenzene	5.9	100	5.9	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.14	J	0.12	U
Tetrachloroethene	1.3	19	1.3	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Toluene	0.7	100	0.7	0.00098	UJ	0.0011	UJ	0.0011	UJ	0.0011	UJ	0.65		0.12	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
trans-1,3-Dichloropropene	NC	NC	NC	0.00098	UJ	0.0011	UJ	0.0011	UJ	0.0011	UJ	0.20	U	0.12	U
Trichloroethene	0.47	21	0.47	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Trichlorofluoromethane	NC	NC	NC	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Vinyl chloride	0.02	0.9	0.02	0.00098	U	0.0011	U	0.0011	U	0.0011	U	0.20	U	0.12	U
Xylenes, Total	0.26	100	1.6	0.0020	U	0.0022	U	0.0023	U	0.0023	U	**43**		**1.6**	
VOC TICs	NC	NC	NC	ND		ND		0.0039		ND		126.6	J	13.62	J

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-19-E (18-20)		TRC-SB-19-E (22-24)		TRC-SB-19-S (23-25)		TRC-SB-19-W (18.5-20)		TRC-SB-19-W (26-28)		TRC-SB-20 (1-4)	
			SAMPLE DEPTH (FEET BGS)	18-20		22-24		23-25		18.5-20		26-28		1-4	
			LAB SAMPLE ID	460-261270-5		460-261270-7		460-261270-4		460-261270-2		460-261270-3		460-260931-1	
			SAMPLING DATE	7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		50		50		100		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.001	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	UJ
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,1,2-Trichloroethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,1-Dichloroethane	0.27	26	0.27	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,1-Dichloroethene	0.33	100	0.33	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0010	U	0.0012		**27**		**21**		**39**		0.00090	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,2-Dichloropropane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0010	U	0.00035	J	**10**		7.8		**15**		0.00090	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
2-Butanone (MEK)	0.12	100	0.12	0.0050	U	0.0046	U	0.49	U	0.53	U	1.1	U	0.0045	U
2-Hexanone	NC	NC	NC	0.0050	U	0.0046	U	0.49	U	0.53	U	1.1	U	0.0045	U
4-Isopropyltoluene	NC	NC	NC	0.0010	U	0.00091	U	2.5		2.2		3.5		0.00090	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0050	U	0.0046	U	0.49	U	0.53	U	1.1	U	0.0045	U
Acetone	0.05	100	0.05	**0.11**		0.0055	U	0.49	U	0.53	U	1.1	U	0.0054	U
Benzene	0.06	4.8	0.06	0.00033	J	0.00033	J	**0.081**	J	0.11	U	**1.0**		0.00090	U
Bromoform	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Bromomethane	NC	NC	NC	0.0020	U	0.0018	U	0.097	U	0.11	U	0.22	U	0.0018	U
Carbon disulfide	NC	NC	NC	0.00044	J	0.00043	J	0.097	U	0.11	U	0.22	U	0.00090	U
Carbon tetrachloride	0.76	2.4	0.76	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chlorobenzene	1.1	100	1.1	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chlorobromomethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chlorodibromomethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chloroethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chloroform	0.37	49	0.37	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Chloromethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
cis-1,3-Dichloropropene	NC	NC	NC	0.0010	UJ	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Cyclohexane	NC	NC	NC	0.0010	U	0.00091	U	7.0		3.6		16		0.00090	U
Dichlorobromomethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Dichlorodifluoromethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Ethylbenzene	1	41	1	0.0010	U	0.00039	J	**7.4**		**4.0**		**12**		0.00090	U
Ethylene Dibromide	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-19-E (18-20)		TRC-SB-19-E (22-24)		TRC-SB-19-S (23-25)		TRC-SB-19-W (18.5-20)		TRC-SB-19-W (26-28)		TRC-SB-20 (1-4)	
			SAMPLE DEPTH (FEET BGS)	18-20		22-24		23-25		18.5-20		26-28		1-4	
			LAB SAMPLE ID	460-261270-5		460-261270-7		460-261270-4		460-261270-2		460-261270-3		460-260931-1	
			SAMPLING DATE	7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		50		50		100		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.0010	U	0.0013		2.1		1.7		3.3		0.00090	U
Methyl acetate	NC	NC	NC	0.0050	U	0.0046	U	0.49	U	0.53	U	1.1	U	0.0045	U
Methyl tert-butyl ether	0.93	100	0.93	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Methylcyclohexane	NC	NC	NC	0.0010	U	0.00091	U	42		27		65		0.00090	U
Methylene Chloride	0.05	100	0.05	0.0021	U	0.0023	U	0.097	U	0.11	U	0.22	U	0.0018	U
m-Xylene & p-Xylene	NC	NC	NC	0.0010	U	0.00028	J	33		6.1		55		0.00021	J
Naphthalene	12	100	12	0.0015	U	0.0060		6.9		4.0		10		0.0013	U
n-Butylbenzene	12	100	12	0.0010	U	0.00091	U	2.3		1.9		3.0		0.00090	U
N-Propylbenzene	3.9	100	3.9	0.0010	U	0.00099		3.8		2.8		**5.5**		0.00090	U
o-Xylene	NC	NC	NC	0.0010	U	0.00091	U	13		0.33		22		0.00090	U
sec-Butylbenzene	11	100	11	0.0010	U	0.00048	J	1.1		0.93		1.6		0.00090	U
Styrene	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	UJ
tert-Butylbenzene	5.9	100	5.9	0.0010	U	0.00091	U	0.16		0.15		0.25		0.00090	U
Tetrachloroethene	1.3	19	1.3	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00035	J
Toluene	0.7	100	0.7	0.0010	U	0.00022	J	**4.1**		0.11	U	**22**		0.00090	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
trans-1,3-Dichloropropene	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	UJ
Trichloroethene	0.47	21	0.47	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Trichlorofluoromethane	NC	NC	NC	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Vinyl chloride	0.02	0.9	0.02	0.0010	U	0.00091	U	0.097	U	0.11	U	0.22	U	0.00090	U
Xylenes, Total	0.26	100	1.6	0.0020	U	0.00028	J	**45**		**6.4**		**77**		0.00021	J
VOC TICs	NC	NC	NC	ND		0.0856	J	145.7	J	94.6	J	153.6	J	ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-20 (12-15)		TRC-SB-21 (1-4)		TRC-SB-21 (12-15)		TRC-SB-21 (71-73)	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.0011	U	0.0013	UJ	0.00089	U	0.00094	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,1,2-Trichloroethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,1-Dichloroethane	0.27	26	0.27	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,1-Dichloroethene	0.33	100	0.33	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2-Dichlorobenzene	1.1	100	1.1	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2-Dichloroethane	0.02	3.1	0.02	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,2-Dichloropropane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,3-Dichlorobenzene	2.4	49	2.4	0.0011	U	0.0013	U	0.00089	U	0.00094	U
1,4-Dichlorobenzene	1.8	13	1.8	0.0011	U	0.0013	U	0.00089	U	0.00094	U
2-Butanone (MEK)	0.12	100	0.12	0.0055	U	0.0067	U	0.0044	U	0.0047	U
2-Hexanone	NC	NC	NC	0.0055	U	0.0067	U	0.0044	U	0.0047	U
4-Isopropyltoluene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0055	UJ	0.0067	U	0.0044	U	0.0047	U
Acetone	0.05	100	0.05	0.0066	U	0.0080	U	0.0053		0.0057	U
Benzene	0.06	4.8	0.06	0.0011	U	0.0013	U	0.00030	J	0.00094	U
Bromoform	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Bromomethane	NC	NC	NC	0.0022	U	0.0027	U	0.0018	U	0.0019	UJ
Carbon disulfide	NC	NC	NC	0.0011	U	0.0013	U	0.0016		0.00094	U
Carbon tetrachloride	0.76	2.4	0.76	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Chlorobenzene	1.1	100	1.1	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Chlorobromomethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Chlorodibromomethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Chloroethane	NC	NC	NC	0.0011	U	0.0013	UJ	0.00089	UJ	0.00094	UJ
Chloroform	0.37	49	0.37	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Chloromethane	NC	NC	NC	0.0011	U	0.0013	UJ	0.00089	UJ	0.00094	UJ
cis-1,2-Dichloroethene	0.25	100	0.25	0.0011	U	0.0013	U	0.00089	U	0.00094	U
cis-1,3-Dichloropropene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Cyclohexane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Dichlorobromomethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Dichlorodifluoromethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Ethylbenzene	1	41	1	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Ethylene Dibromide	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U

Table 2A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-20 (12-15)		TRC-SB-21 (1-4)		TRC-SB-21 (12-15)		TRC-SB-21 (71-73)	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q
Isopropylbenzene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Methyl acetate	NC	NC	NC	0.0055	U	0.0067	U	0.0044	U	0.0047	U
Methyl tert-butyl ether	0.93	100	0.93	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Methylcyclohexane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Methylene Chloride	0.05	100	0.05	0.0022	U	0.0027	U	0.0018	U	0.0019	U
m-Xylene & p-Xylene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Naphthalene	12	100	12	0.0016	U	0.0020	U	0.0013	U	0.0014	U
n-Butylbenzene	12	100	12	0.0011	U	0.0013	U	0.00089	U	0.00094	U
N-Propylbenzene	3.9	100	3.9	0.0011	U	0.0013	U	0.00089	U	0.00094	U
o-Xylene	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
sec-Butylbenzene	11	100	11	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Styrene	NC	NC	NC	0.0011	UJ	0.0013	U	0.00089	U	0.00094	U
tert-Butylbenzene	5.9	100	5.9	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Tetrachloroethene	1.3	19	1.3	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Toluene	0.7	100	0.7	0.0011	UJ	0.0013	U	0.00089	U	0.00094	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.0011	U	0.0013	U	0.00089	U	0.00094	U
trans-1,3-Dichloropropene	NC	NC	NC	0.0011	UJ	0.0013	U	0.00089	U	0.00094	U
Trichloroethene	0.47	21	0.47	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Trichlorofluoromethane	NC	NC	NC	0.0011	U	0.0013	U	0.00089	U	0.00094	U
Vinyl chloride	0.02	0.9	0.02	0.0011	U	0.0013	UJ	0.00089	UJ	0.00094	U
Xylenes, Total	0.26	100	1.6	0.0022	U	0.0027	U	0.0018	U	0.0019	U
VOC TICs	NC	NC	NC	ND		ND		ND		ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 2B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-22 (25-26)		TRC-SB-DUP-01		TRC-SB-22 (68-69)		TRC-SB-22-N (27-28)		TRC-SB-22-N (28-29)		TRC-SB-22-W (32-33)		TRC-SB-22-W (57-58)	
			SAMPLE DEPTH (FEET BGS)	25-26		25-26		68-69		27-28		28-29		32-33		57-58	
			LAB SAMPLE ID	460-310092-2		460-310092-3		460-310092-4		460-310543-2		460-310543-3		460-310212-2		460-310212-3	
			SAMPLING DATE	8/23/2024		8/23/2024		8/23/2024		8/30/2024		8/30/2024		8/26/2024		8/26/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	500		100		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,1,2-Trichloroethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,1-Dichloroethane	0.27	26	0.27	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,1-Dichloroethene	0.33	100	0.33	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,2,3-Trichlorobenzene	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,2,4-Trichlorobenzene	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,2,4-Trimethylbenzene	3.6	52	3.6	**67**	**J**	**29**	**J**	0.00035	J	0.00086	U	0.00083	U	0.0072		0.0023	
1,2-Dibromo-3-Chloropropane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	UJ	0.00083	UJ	0.00083	U	0.0010	U
1,2-Dichlorobenzene	1.1	100	1.1	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,2-Dichloroethane	0.02	3.1	0.02	1.0	U	0.18	U	0.00054	J	0.00086	U	0.00083	U	0.00083	U	0.0012	
1,2-Dichloropropane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,3,5-Trimethylbenzene	8.4	52	8.4	**26**	**J**	**11**	**J**	0.00078	U	0.00086	U	0.00083	U	0.0020		0.00070	J
1,3-Dichlorobenzene	2.4	49	2.4	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
1,4-Dichlorobenzene	1.8	13	1.8	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
2-Butanone (MEK)	0.12	100	0.12	5.0	U	0.89	U	0.0039	U	0.0043	U	0.0042	U	0.0034	J	0.0060	
2-Hexanone	NC	NC	NC	5.0	U	0.89	U	0.0039	U	0.0043	U	0.0042	U	0.0041	U	0.0050	U
4-Isopropyltoluene	NC	NC	NC	5.3	J	2.4	J	0.00078	U	0.00086	U	0.00083	U	0.00039	J	0.0010	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	5.0	U	0.89	U	0.0039	U	0.0043	U	0.0042	U	0.0041	U	0.0050	U
Acetone	0.05	100	0.05	5.0	U	0.89	U	0.0093		0.0097		**0.10**		0.025	U	0.023	U
Benzene	0.06	4.8	0.06	**1.3**		**0.25**		0.00078	U	0.00086	U	0.00083	U	0.0040		0.011	
Bromoform	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	UJ	0.0010	UJ
Bromomethane	NC	NC	NC	1.0	U	0.18	U	0.0016	U	0.0017	U	0.0017	U	0.0017	UJ	0.0020	UJ
Carbon disulfide	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.00037	J
Carbon tetrachloride	0.76	2.4	0.76	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chlorobenzene	1.1	100	1.1	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chlorobromomethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chlorodibromomethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chloroethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chloroform	0.37	49	0.37	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Chloromethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
cis-1,2-Dichloroethene	0.25	100	0.25	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
cis-1,3-Dichloropropene	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Cyclohexane	NC	NC	NC	53	J	12	J	0.00078	U	0.00086	U	0.00083	U	0.0052		0.0018	
Dichlorobromomethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Dichlorodifluoromethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Ethylbenzene	1	41	1	**22**	**J**	**6.8**	**J**	0.00029	J	0.00086	U	0.00083	U	0.0045		0.0021	
Ethylene Dibromide	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U

Table 2B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	TRC-SB-22 (25-26)		TRC-SB-DUP-01		TRC-SB-22 (68-69)		TRC-SB-22-N (27-28)		TRC-SB-22-N (28-29)		TRC-SB-22-W (32-33)		TRC-SB-22-W (57-58)	
			SAMPLE DEPTH (FEET BGS)	25-26		25-26		68-69		27-28		28-29		32-33		57-58	
			LAB SAMPLE ID	460-310092-2		460-310092-3		460-310092-4		460-310543-2		460-310543-3		460-310212-2		460-310212-3	
			SAMPLING DATE	8/23/2024		8/23/2024		8/23/2024		8/30/2024		8/30/2024		8/26/2024		8/26/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	500		100		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hexane	NC	NC	NC	94	J	21	J	0.00078	U	0.00086	U	0.00083	U	0.0062		0.0011	
Isooctane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Isopropylbenzene	NC	NC	NC	5.9	J	2.1	J	0.00078	U	0.00086	U	0.00083	U	0.00068	J	0.00029	J
Methyl acetate	NC	NC	NC	5.0	U	0.89	U	0.0039	U	0.0043	U	0.0042	U	0.0041	U	0.0050	U
Methyl tert-butyl ether	0.93	100	0.93	1.0	U	0.18	U	0.016		0.00086	U	0.00083	U	0.00083	U	0.0010	U
Methylcyclohexane	NC	NC	NC	180	J	46	J	0.00078	U	0.00086	U	0.00083	U	0.0063		0.0016	
Methylene Chloride	0.05	100	0.05	1.0	U	0.18	U	0.0016	U	0.0017	U	0.0017	U	0.0017	U	0.0020	U
m-Xylene & p-Xylene	NC	NC	NC	110	J	34	J	0.0017		0.00086	U	0.00016	U	0.018		0.0076	
Naphthalene	12	100	12	**16**	**J**	6.8	J	0.0012	U	0.0013	U	0.0012	U	0.0031		0.0015	U
n-Butylbenzene	12	100	12	4.4		2.1		0.00078	U	0.00086	U	0.00083	U	0.00026	J	0.0010	U
n-Heptane	NC	NC	NC	180	J	50	J	0.00078	U	0.00086	U	0.00083	U	0.0039		0.00056	J
N-Propylbenzene	3.9	100	3.9	**7.7**	**J**	3.2	J	0.00078	U	0.00086	U	0.00083	U	0.00087		0.00024	J
o-Xylene	NC	NC	NC	40	J	13	J	0.00066	J	0.00086	U	0.00083	U	0.0076		0.0044	
sec-Butylbenzene	11	100	11	1.0	U	0.95		0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Styrene	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
tert-Butylbenzene	5.9	100	5.9	0.36	J	0.16	J	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Tetrachloroethene	1.3	19	1.3	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Toluene	0.7	100	0.7	**29**	**J**	**7.3**	**J**	0.00041	J	0.00086	U	0.00083	U	0.0051		0.010	
trans-1,2-Dichloroethene	0.19	100	0.19	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
trans-1,3-Dichloropropene	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Trichloroethene	0.47	21	0.47	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Trichlorofluoromethane	NC	NC	NC	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Vinyl chloride	0.02	0.9	0.02	1.0	U	0.18	U	0.00078	U	0.00086	U	0.00083	U	0.00083	U	0.0010	U
Xylenes, Total	0.26	100	1.6	**150**	**J**	**47**	**J**	0.0023		0.0017	U	0.00016	J	0.025		0.012	
VOC TICs	NC	NC	NC	474.0	NJ	160.8	NJ	ND		ND		ND		0.0228	NJ	0.0137	J

Notes:

B : The analyte was found in an associated blank, as well as in the sample.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

H : Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-22 (25-26)

U - Non-Detect

Table 2B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	**TRC-SB-22-SW (27-28)**		**TRC-SB-22-SW (65-67)**		**TRC-SB-22-S (25-27)**		**TRC-SB-22-S (68-70)**		**TRC-SB-22-E (72-73)**		**TRC-SB-22-EE (25-27)**		**TRC-SB-22-SS (25-27)**		**TRC-SB-22-SS (45-46)**	
			SAMPLE DEPTH (FEET BGS)	27-28		65-67		25-27		68-70		72-73		25-27		25-27		45-46	
			LAB SAMPLE ID	460-310409-2		460-310409-3		460-310328-6		460-310328-1		460-310328-4		460-310775-1		460-310868-3		460-311019-2	
			SAMPLING DATE	8/29/2024		8/29/2024		8/27/2024		8/28/2024		8/28/2024		9/4/2024		9/6/2024		9/9/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	0.68	100	0.68	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,1,2,2-Tetrachloroethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,1,2-Trichloro-1,2,2-trifluoroethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,1,2-Trichloroethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,1-Dichloroethane	0.27	26	0.27	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,1-Dichloroethene	0.33	100	0.33	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2,3-Trichlorobenzene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2,4-Trichlorobenzene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2,4-Trimethylbenzene	3.6	52	3.6	0.00077	J	0.0024		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2-Dibromo-3-Chloropropane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2-Dichlorobenzene	1.1	100	1.1	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2-Dichloroethane	0.02	3.1	0.02	0.00082	U	0.00088		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,2-Dichloropropane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,3,5-Trimethylbenzene	8.4	52	8.4	0.00082	U	0.0010		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,3-Dichlorobenzene	2.4	49	2.4	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
1,4-Dichlorobenzene	1.8	13	1.8	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
2-Butanone (MEK)	0.12	100	0.12	0.0041	U	0.0041	U	0.0041	U	0.0055	U	0.0053	U	0.0058	U	0.0061	U	0.0055	U
2-Hexanone	NC	NC	NC	0.0041	U	0.0041	U	0.0041	U	0.0055	U	0.0053	U	0.0058	U	0.0061	U	0.0055	U
4-Isopropyltoluene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
4-Methyl-2-pentanone (MIBK)	NC	NC	NC	0.0041	U	0.0041	U	0.0041	U	0.0055	U	0.0053	U	0.0058	U	0.0061	U	0.0055	U
Acetone	0.05	100	0.05	0.012		0.0095		0.0064		0.0066	U	0.0063	U	0.0069	U	0.0083		0.0066	U
Benzene	0.06	4.8	0.06	0.00082	U	0.016		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Bromoform	NC	NC	NC	0.00082	U	0.00082	U	0.00082	UJ	0.0011	UJ	0.0011	UJ	0.0012	U	0.0012	UJ	0.0011	U
Bromomethane	NC	NC	NC	0.0016	U	0.0016	U	0.0016	U	0.0022	U	0.0021	U	0.0023	U	0.0024	U	0.0022	U
Carbon disulfide	NC	NC	NC	0.00082	U	0.00075	J	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Carbon tetrachloride	0.76	2.4	0.76	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chlorobenzene	1.1	100	1.1	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chlorobromomethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chlorodibromomethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chloroethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chloroform	0.37	49	0.37	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Chloromethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
cis-1,2-Dichloroethene	0.25	100	0.25	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
cis-1,3-Dichloropropene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Cyclohexane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Dichlorobromomethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Dichlorodifluoromethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Ethylbenzene	1	41	1	0.00021	J	0.0019		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Ethylene Dibromide	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U

Table 2B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Volatile Organic Compounds

			SAMPLE ID	**TRC-SB-22-SW (27-28)**		**TRC-SB-22-SW (65-67)**		**TRC-SB-22-S (25-27)**		**TRC-SB-22-S (68-70)**		**TRC-SB-22-E (72-73)**		**TRC-SB-22-EE (25-27)**		**TRC-SB-22-SS (25-27)**		**TRC-SB-22-SS (45-46)**	
			SAMPLE DEPTH (FEET BGS)	27-28		65-67		25-27		68-70		72-73		25-27		25-27		45-46	
			LAB SAMPLE ID	460-310409-2		460-310409-3		460-310328-6		460-310328-1		460-310328-4		460-310775-1		460-310868-3		460-311019-2	
			SAMPLING DATE	8/29/2024		8/29/2024		8/27/2024		8/28/2024		8/28/2024		9/4/2024		9/6/2024		9/9/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hexane	NC	NC	NC	0.0015		0.00070	J	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0016	
Isooctane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Isopropylbenzene	NC	NC	NC	0.00082	U	0.00030	J	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Methyl acetate	NC	NC	NC	0.0041	U	0.0041	U	0.0041	U	0.0055	U	0.0053	U	0.0058	U	0.0061	U	0.0055	U
Methyl tert-butyl ether	0.93	100	0.93	0.00082	U	0.00054	J	0.00082	U	0.0011	U	0.00056	J	0.0012	U	0.0012	U	0.0011	U
Methylcyclohexane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Methylene Chloride	0.05	100	0.05	0.0016	U	0.0016	U	0.0016	U	0.0022	U	0.0021	U	0.0023	U	0.0024	U	0.0022	U
m-Xylene & p-Xylene	NC	NC	NC	0.00017	J	0.011		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Naphthalene	12	100	12	0.0023		0.0014		0.0012	U	0.0017	U	0.0016	U	0.0017	U	0.0018	U	0.0016	U
n-Butylbenzene	12	100	12	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
n-Heptane	NC	NC	NC	0.0028		0.00029	J	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
N-Propylbenzene	3.9	100	3.9	0.00015	J	0.00021	J	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
o-Xylene	NC	NC	NC	0.00082	U	0.0045		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
sec-Butylbenzene	11	100	11	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Styrene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
tert-Butylbenzene	5.9	100	5.9	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Tetrachloroethene	1.3	19	1.3	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.00077	J	0.0012	U	0.0011	U
Toluene	0.7	100	0.7	0.00082	U	0.0019		0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
trans-1,2-Dichloroethene	0.19	100	0.19	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
trans-1,3-Dichloropropene	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Trichloroethene	0.47	21	0.47	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Trichlorofluoromethane	NC	NC	NC	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Vinyl chloride	0.02	0.9	0.02	0.00082	U	0.00082	U	0.00082	U	0.0011	U	0.0011	U	0.0012	U	0.0012	U	0.0011	U
Xylenes, Total	0.26	100	1.6	0.00017	J	0.015		0.0016	U	0.0022	U	0.0021	U	0.0023	U	0.0024	U	0.0022	U
VOC TICs	NC	NC	NC	0.0167	NJ	0.0125	NJ	ND		ND		ND		ND		0.019	NJ	ND	

Notes:

B : The analyte was found in an associated blank, as well as in the sample.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

H : Sample was prepped or analyzed beyond the specified holding time. This does not meet regulatory requirements.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-22 (25-26)

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-06-N (1-4)**		**TRC-SB-06-N (13-15)**		**TRC-SB-06-N (20.5-22.5)**		**TRC-SB-06-E (1-3)**		**TRC-SB-06-W (1-4)**	
			(FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.37	U	1.0		0.35	U	0.35	U	0.36	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
1,4-Dioxane	0.1	13	0.1	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.37	UJ	0.35	UJ	0.35	UJ	0.35	U	0.36	U
2,4,5-Trichlorophenol	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2,4,6-Trichlorophenol	NC	NC	NC	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
2,4-Dichlorophenol	NC	NC	NC	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
2,4-Dimethylphenol	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2,4-Dinitrophenol	NC	NC	NC	0.30	U	0.28	U	0.28	U	0.28	U	0.29	U
2,4-Dinitrotoluene	NC	NC	NC	0.075	UJ	0.070	UJ	0.071	UJ	0.071	U	0.073	U
2,6-Dinitrotoluene	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.071	U	0.073	U
2-Chloronaphthalene	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2-Chlorophenol	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2-Methylnaphthalene	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2-Methylphenol	0.33	100	0.33	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2-Nitroaniline	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
2-Nitrophenol	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
3-Nitroaniline	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.30	U	0.28	U	0.28	U	0.28	U	0.29	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Chloro-3-methylphenol	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Chloroaniline	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Methylphenol	0.33	100	0.33	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Nitroaniline	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
4-Nitrophenol	NC	NC	NC	0.75	U	0.70	U	0.71	U	0.71	U	0.73	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-06-N (1-4)**		**TRC-SB-06-N (13-15)**		**TRC-SB-06-N (20.5-22.5)**		**TRC-SB-06-E (1-3)**		**TRC-SB-06-W (1-4)**	
			(FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.024	J	0.15	J	0.35	U	0.35	U	0.36	U
Acenaphthylene	100	100	107	0.042	J	0.17	J	0.35	U	0.35	U	0.36	U
Acetophenone	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Anthracene	100	100	1000	0.11	J	0.069	J	0.35	U	0.35	U	0.36	U
Atrazine	NC	NC	NC	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
Benzaldehyde	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Benzo[a]anthracene	1	1	1	0.51		0.086		0.035	U	0.035	U	0.071	
Benzo[a]pyrene	1	1	22	0.54		0.055		0.035	U	0.035	U	0.093	
Benzo[b]fluoranthene	1	1	1.7	0.71		0.10		0.035	U	0.035	U	0.13	
Benzo[g,h,i]perylene	100	100	1000	0.34	J	0.043	J	0.35	U	0.014	J	0.078	J
Benzo[k]fluoranthene	0.8	3.9	1.7	0.25		0.033	J	0.035	U	0.035	U	0.045	
Bis(2-chloroethoxy)methane	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Butyl benzyl phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Caprolactam	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Carbazole	NC	NC	NC	0.036	J	0.35	U	0.35	U	0.35	U	0.36	U
Chrysene	1	3.9	1	0.55		0.19	J	0.35	U	0.35	U	0.087	J
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.060		0.035	U	0.035	U	0.035	U	0.019	J
Dibenzofuran	7	59	210	0.012	J	0.21	J	0.35	U	0.35	U	0.36	U
Diethyl phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Dimethyl phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Di-n-butyl phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Di-n-octyl phthalate	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Fluoranthene	100	100	1000	1.0		0.23	J	0.35	U	0.017	J	0.10	J
Fluorene	30	100	386	0.021	J	0.27	J	0.35	U	0.35	U	0.36	U
Hexachlorobenzene	0.33	1.2	3.2	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U
Hexachlorobutadiene	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.071	U	0.073	U
Hexachlorocyclopentadiene	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Hexachloroethane	NC	NC	NC	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-06-N (1-4)**		**TRC-SB-06-N (13-15)**		**TRC-SB-06-N (20.5-22.5)**		**TRC-SB-06-E (1-3)**		**TRC-SB-06-W (1-4)**	
			(FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.45		0.069		0.035	U	0.035	U	0.086	
Isophorone	NC	NC	NC	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
Naphthalene	12	100	12	0.019	J	0.35	U	0.35	U	0.35	U	0.0079	J
Nitrobenzene	NC	NC	NC	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.037	U	0.035	U	0.035	U	0.035	U	0.036	U
N-Nitrosodiphenylamine	NC	NC	NC	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Pentachlorophenol	0.8	6.7	0.8	0.30	U	0.28	U	0.28	U	0.28	U	0.29	U
Phenanthrene	100	100	1,000	0.45		0.41		0.35	U	0.017	J	0.031	J
Phenol	0.33	100	0.33	0.37	U	0.35	U	0.35	U	0.35	U	0.36	U
Pyrene	100	100	1,000	1.0		0.25	J	0.35	U	0.013	J	0.11	J
SVOC TICs	NC	NC	NC	0.76	J	185.5	J	ND		0.87	J	ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-06-W (20-22)		TRC-SB-12 (1-4)		TRC-SB-13 (1-4)		TRC-SB-14 (1-4)		TRC-SB-14 (12-15)		TRC-DUP-02	
			(FEET BGS)	20-22		1-4		1-4		1-4		12-15		12-15	
			LAB SAMPLE ID	460-260996-5		460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3	
			SAMPLING DATE	6/28/2022		6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.013	J	0.36	U	0.35	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
1,4-Dioxane	0.1	13	0.1	0.040	U	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	UJ	0.35	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.40	U	0.35	UJ	0.37	UJ	0.39	U	0.36	U	0.35	U
2,4,5-Trichlorophenol	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
2,4,6-Trichlorophenol	NC	NC	NC	0.16	U	0.14	U	0.15	U	0.16	U	0.14	U	0.14	U
2,4-Dichlorophenol	NC	NC	NC	0.16	U	0.14	U	0.15	U	0.16	U	0.14	U	0.14	U
2,4-Dimethylphenol	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
2,4-Dinitrophenol	NC	NC	NC	0.32	U	0.28	U	0.30	U	0.31	U	0.29	U	0.28	U
2,4-Dinitrotoluene	NC	NC	NC	0.081	U	0.071	UJ	0.075	UJ	0.078	UJ	0.073	UJ	0.071	UJ
2,6-Dinitrotoluene	NC	NC	NC	0.081	U	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U
2-Chloronaphthalene	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
2-Chlorophenol	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	UJ	0.35	U
2-Methylnaphthalene	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.041	J	0.36	UJ	0.35	U
2-Methylphenol	0.33	100	0.33	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
2-Nitroaniline	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
2-Nitrophenol	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	UJ	0.35	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.16	U	0.14	U	0.15	U	0.16	U	0.14	U	0.14	U
3-Nitroaniline	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.32	U	0.28	U	0.30	U	0.31	U	0.29	U	0.28	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Chloro-3-methylphenol	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Chloroaniline	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Methylphenol	0.33	100	0.33	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Nitroaniline	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
4-Nitrophenol	NC	NC	NC	0.81	U	0.71	U	0.75	U	0.78	U	0.73	U	0.71	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-06-W (20-22)		TRC-SB-12 (1-4)		TRC-SB-13 (1-4)		TRC-SB-14 (1-4)		TRC-SB-14 (12-15)		TRC-DUP-02	
			(FEET BGS)	20-22		1-4		1-4		1-4		12-15		12-15	
			LAB SAMPLE ID	460-260996-5		460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3	
			SAMPLING DATE	6/28/2022		6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.40	U	0.35	U	0.016	J	0.17	J	0.36	U	0.35	U
Acenaphthylene	100	100	107	0.40	U	0.35	U	0.032	J	0.13	J	0.36	U	0.35	U
Acetophenone	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Anthracene	100	100	1000	0.40	U	0.017	J	0.098	J	0.41		0.36	U	0.35	U
Atrazine	NC	NC	NC	0.16	U	0.14	U	0.15	U	0.16	U	0.14	U	0.14	U
Benzaldehyde	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Benzo[a]anthracene	1	1	1	0.040	U	0.096		0.69		**1.8**		0.036	U	0.035	U
Benzo[a]pyrene	1	1	22	0.040	U	0.079		0.65		**1.7**		0.036	U	0.035	U
Benzo[b]fluoranthene	1	1	1.7	0.040	U	0.12		0.90		**2.7**		0.036	U	0.035	U
Benzo[g,h,i]perylene	100	100	1000	0.40	U	0.058	J	0.48		1.2		0.36	U	0.35	U
Benzo[k]fluoranthene	0.8	3.9	1.7	0.040	U	0.043		0.36		**1.0**		0.036	U	0.035	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.040	U	0.035	U	0.037	U	0.039	U	0.036	UJ	0.035	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Butyl benzyl phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Caprolactam	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Carbazole	NC	NC	NC	0.40	U	0.35	U	0.052	J	0.28	J	0.36	U	0.35	U
Chrysene	1	3.9	1	0.40	U	0.090	J	0.73		**2.0**		0.0087	J	0.0087	J
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.040	U	0.035	U	0.071		0.24		0.036	U	0.035	U
Dibenzofuran	7	59	210	0.40	U	0.35	U	0.017	J	0.10	J	0.36	U	0.35	U
Diethyl phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Dimethyl phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Di-n-butyl phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.016	J	0.36	U	0.35	U
Di-n-octyl phthalate	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Fluoranthene	100	100	1000	0.40	U	0.18	J	1.6		4.2		0.36	U	0.35	U
Fluorene	30	100	386	0.40	U	0.35	U	0.015	J	0.16	J	0.36	U	0.35	U
Hexachlorobenzene	0.33	1.2	3.2	0.040	U	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U
Hexachlorobutadiene	NC	NC	NC	0.081	U	0.071	U	0.075	U	0.078	U	0.073	UJ	0.071	U
Hexachlorocyclopentadiene	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	UJ	0.35	U
Hexachloroethane	NC	NC	NC	0.040	U	0.035	U	0.037	U	0.039	U	0.036	UJ	0.035	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-06-W (20-22)**		**TRC-SB-12 (1-4)**		**TRC-SB-13 (1-4)**		**TRC-SB-14 (1-4)**		**TRC-SB-14 (12-15)**		**TRC-DUP-02**	
			(FEET BGS)	20-22		1-4		1-4		1-4		12-15		12-15	
			LAB SAMPLE ID	460-260996-5		460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3	
			SAMPLING DATE	6/28/2022		6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.040	U	0.099		**0.68**		**1.7**		0.036	U	0.035	U
Isophorone	NC	NC	NC	0.16	U	0.14	U	0.15	U	0.16	U	0.14	U	0.14	U
Naphthalene	12	100	12	0.40	U	0.35	U	0.043	J	0.10	J	0.36	UJ	0.35	U
Nitrobenzene	NC	NC	NC	0.040	U	0.035	U	0.037	U	0.039	U	0.036	UJ	0.035	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.040	U	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U
N-Nitrosodiphenylamine	NC	NC	NC	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Pentachlorophenol	0.8	6.7	0.8	0.32	U	0.28	U	0.30	U	0.31	U	0.29	U	0.28	U
Phenanthrene	100	100	1,000	0.40	U	0.079	J	0.54		2.3		0.36	U	0.35	U
Phenol	0.33	100	0.33	0.40	U	0.35	U	0.37	U	0.39	U	0.36	U	0.35	U
Pyrene	100	100	1,000	0.40	U	0.17	J	1.5		3.3		0.36	U	0.011	J
SVOC TICs	NC	NC	NC	ND		ND		0.42	NJ	4.26	J	0.36	J	0.83	J

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-14 (73-75)		TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)	
			(FEET BGS)	73-75		1-4		12-15		73-75		1-3		1-2	
			LAB SAMPLE ID	460-261873-1		460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2	
			SAMPLING DATE	7/13/2022		7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
1,4-Dioxane	0.1	13	0.1	0.036	U	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2,4,5-Trichlorophenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2,4,6-Trichlorophenol	NC	NC	NC	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U
2,4-Dichlorophenol	NC	NC	NC	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U
2,4-Dimethylphenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2,4-Dinitrophenol	NC	NC	NC	0.29	U	0.30	U	0.29	U	0.31	U	0.29	U	0.29	U
2,4-Dinitrotoluene	NC	NC	NC	0.074	U	0.076	U	0.074	U	0.078	U	0.074	U	0.072	U
2,6-Dinitrotoluene	NC	NC	NC	0.074	U	0.076	U	0.074	U	0.078	U	0.074	U	0.072	U
2-Chloronaphthalene	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2-Chlorophenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2-Methylnaphthalene	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2-Methylphenol	0.33	100	0.33	0.36	UJ	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2-Nitroaniline	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
2-Nitrophenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U
3-Nitroaniline	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.29	U	0.30	U	0.29	U	0.31	U	0.29	U	0.29	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Chloro-3-methylphenol	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Chloroaniline	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Methylphenol	0.33	100	0.33	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Nitroaniline	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
4-Nitrophenol	NC	NC	NC	0.74	U	0.76	U	0.74	U	0.78	U	0.74	U	0.72	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-14 (73-75)		TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)	
			(FEET BGS)	73-75		1-4		12-15		73-75		1-3		1-2	
			LAB SAMPLE ID	460-261873-1		460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2	
			SAMPLING DATE	7/13/2022		7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.011	J
Acenaphthylene	100	100	107	0.36	U	0.019	J	0.36	U	0.38	U	0.36	U	0.36	U
Acetophenone	NC	NC	NC	0.36	UJ	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Anthracene	100	100	1000	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.023	J
Atrazine	NC	NC	NC	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U
Benzaldehyde	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Benzo[a]anthracene	1	1	1	0.036	U	0.066		0.036	U	0.038	U	0.036	U	0.083	
Benzo[a]pyrene	1	1	22	0.036	U	0.11		0.036	U	0.038	U	0.036	U	0.070	
Benzo[b]fluoranthene	1	1	1.7	0.036	U	0.16		0.036	U	0.038	U	0.036	U	0.091	
Benzo[g,h,i]perylene	100	100	1000	0.36	U	0.10	J	0.36	U	0.38	U	0.36	U	0.042	J
Benzo[k]fluoranthene	0.8	3.9	1.7	0.036	U	0.052		0.036	U	0.038	U	0.036	U	0.039	
Bis(2-chloroethoxy)methane	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.036	U	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Butyl benzyl phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Caprolactam	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Carbazole	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Chrysene	1	3.9	1	0.36	U	0.072	J	0.36	U	0.38	U	0.36	U	0.083	J
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.036	U	0.033	J	0.036	U	0.038	U	0.036	U	0.036	U
Dibenzofuran	7	59	210	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Diethyl phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Dimethyl phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Di-n-butyl phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Di-n-octyl phthalate	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Fluoranthene	100	100	1000	0.36	U	0.055	J	0.36	U	0.38	U	0.36	U	0.15	J
Fluorene	30	100	386	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Hexachlorobenzene	0.33	1.2	3.2	0.036	U	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U
Hexachlorobutadiene	NC	NC	NC	0.074	U	0.076	U	0.074	U	0.078	U	0.074	U	0.072	U
Hexachlorocyclopentadiene	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Hexachloroethane	NC	NC	NC	0.036	U	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-14 (73-75)		TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)	
			(FEET BGS)	73-75		1-4		12-15		73-75		1-3		1-2	
			LAB SAMPLE ID	460-261873-1		460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2	
			SAMPLING DATE	7/13/2022		7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.036	U	0.12		0.036	U	0.038	U	0.036	U	0.050	
Isophorone	NC	NC	NC	0.15	U	0.15	U	0.15	U	0.15	U	0.15	U	0.14	U
Naphthalene	12	100	12	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Nitrobenzene	NC	NC	NC	0.036	U	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.036	UJ	0.038	U	0.036	U	0.038	U	0.036	U	0.036	U
N-Nitrosodiphenylamine	NC	NC	NC	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Pentachlorophenol	0.8	6.7	0.8	0.29	U	0.30	U	0.29	U	0.31	U	0.29	U	0.29	U
Phenanthrene	100	100	1,000	0.36	U	0.024	J	0.36	U	0.38	U	0.36	U	0.13	J
Phenol	0.33	100	0.33	0.36	U	0.38	U	0.36	U	0.38	U	0.36	U	0.36	U
Pyrene	100	100	1,000	0.36	U	0.055	J	0.36	U	0.38	U	0.36	U	0.14	J
SVOC TICs	NC	NC	NC	ND		ND		ND		ND		0.35	J	ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-18 (1-4)		TRC-SB-18 (12-15)		TRC-DUP-01		TRC-SB-19 (1-4)		TRC-SB-19 (12-15)		TRC-SB-19 (22.5-24.5)	
			(FEET BGS)	1-4		12-15		12-15		1-4		12-14		22.5-24.5	
			LAB SAMPLE ID	460-260931-6		460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.096	J	0.40	U	0.40	U	0.36	U	0.38	U	0.021	J
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
1,4-Dioxane	0.1	13	0.1	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.36	UJ	0.40	UJ	0.40	UJ	0.36	UJ	0.38	UJ	0.36	UJ
2,4,5-Trichlorophenol	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2,4,6-Trichlorophenol	NC	NC	NC	0.15	U	0.16	U	0.16	U	0.14	U	0.15	U	0.15	U
2,4-Dichlorophenol	NC	NC	NC	0.15	U	0.16	U	0.16	U	0.14	U	0.15	U	0.15	U
2,4-Dimethylphenol	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2,4-Dinitrophenol	NC	NC	NC	0.29	U	0.32	U	0.32	U	0.29	U	0.31	U	0.29	U
2,4-Dinitrotoluene	NC	NC	NC	0.073	UJ	0.081	UJ	0.081	UJ	0.072	UJ	0.078	UJ	0.073	UJ
2,6-Dinitrotoluene	NC	NC	NC	0.073	U	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U
2-Chloronaphthalene	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2-Chlorophenol	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2-Methylnaphthalene	NC	NC	NC	0.15	J	0.021	J	0.40	U	0.014	J	0.38	U	0.93	
2-Methylphenol	0.33	100	0.33	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2-Nitroaniline	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
2-Nitrophenol	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.15	U	0.16	U	0.16	U	0.14	U	0.15	U	0.15	U
3-Nitroaniline	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.29	U	0.32	U	0.32	U	0.29	U	0.31	U	0.29	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Chloro-3-methylphenol	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Chloroaniline	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Methylphenol	0.33	100	0.33	0.029	J	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Nitroaniline	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
4-Nitrophenol	NC	NC	NC	0.73	U	0.81	U	0.81	U	0.72	U	0.78	U	0.73	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-18 (1-4)		TRC-SB-18 (12-15)		TRC-DUP-01		TRC-SB-19 (1-4)		TRC-SB-19 (12-15)		TRC-SB-19 (22.5-24.5)	
			(FEET BGS)	1-4		12-15		12-15		1-4		12-14		22.5-24.5	
			LAB SAMPLE ID	460-260931-6		460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.59		0.40	U	0.40	U	0.015	J	0.38	U	0.012	J
Acenaphthylene	100	100	107	0.18	J	0.40	U	0.40	U	0.021	J	0.38	U	0.36	U
Acetophenone	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Anthracene	100	100	1000	1.6		0.40	U	0.40	U	0.031	J	0.38	U	0.070	J
Atrazine	NC	NC	NC	0.15	U	0.16	U	0.16	U	0.14	U	0.15	U	0.15	U
Benzaldehyde	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Benzo[a]anthracene	1	1	1	**4.1**		0.040	U	0.040	U	0.10		0.038	U	0.036	U
Benzo[a]pyrene	1	1	22	**4.6**		0.040	U	0.040	U	0.079		0.038	U	0.036	U
Benzo[b]fluoranthene	1	1	1.7	**6.1**		0.040	U	0.040	U	0.12		0.038	U	0.036	U
Benzo[g,h,i]perylene	100	100	1000	1.8		0.40	U	0.40	U	0.055	J	0.38	U	0.36	U
Benzo[k]fluoranthene	0.8	3.9	1.7	**2.1**		0.040	U	0.040	U	0.054		0.038	U	0.036	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Butyl benzyl phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Caprolactam	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Carbazole	NC	NC	NC	0.86		0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Chrysene	1	3.9	1	**4.4**		0.40	U	0.40	U	0.098	J	0.38	U	0.0071	J
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.29		0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
Dibenzofuran	7	59	210	0.54		0.40	U	0.40	U	0.031	J	0.38	U	0.017	J
Diethyl phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Dimethyl phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Di-n-butyl phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Di-n-octyl phthalate	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Fluoranthene	100	100	1000	NR		0.016	J	0.40	U	0.20	J	0.38	U	0.021	J
Fluorene	30	100	386	0.73		0.40	U	0.40	U	0.021	J	0.38	U	0.022	J
Hexachlorobenzene	0.33	1.2	3.2	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
Hexachlorobutadiene	NC	NC	NC	0.073	U	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U
Hexachlorocyclopentadiene	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Hexachloroethane	NC	NC	NC	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-18 (1-4)**		**TRC-SB-18 (12-15)**		**TRC-DUP-01**		**TRC-SB-19 (1-4)**		**TRC-SB-19 (12-15)**		**TRC-SB-19 (22.5-24.5)**	
			(FEET BGS)	1-4		12-15		12-15		1-4		12-14		22.5-24.5	
			LAB SAMPLE ID	460-260931-6		460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	**2.4**		0.040	U	0.040	U	0.090		0.038	U	0.036	U
Isophorone	NC	NC	NC	0.15	U	0.16	U	0.16	U	0.14	U	0.15	U	0.15	U
Naphthalene	12	100	12	0.34	J	0.069	J	0.40	U	0.038	J	0.38	U	2.1	
Nitrobenzene	NC	NC	NC	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.036	U	0.040	U	0.040	U	0.036	U	0.038	U	0.036	U
N-Nitrosodiphenylamine	NC	NC	NC	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Pentachlorophenol	0.8	6.7	0.8	0.29	U	0.32	U	0.32	U	0.29	U	0.31	U	0.29	U
Phenanthrene	100	100	1,000	NR		0.044	J	0.40	U	0.12	J	0.38	U	0.060	J
Phenol	0.33	100	0.33	0.36	U	0.40	U	0.40	U	0.36	U	0.38	U	0.36	U
Pyrene	100	100	1,000	NR		0.40	U	0.40	U	0.17	J	0.38	U	0.015	J
SVOC TICs	NC	NC	NC	18.27	J	ND		ND		ND		ND		119.3	J

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-19-N (22.5-24.5)		TRC-SB-19-E (18-20)		TRC-SB-19-E (22-24)		TRC-SB-19-S (23-25)		TRC-SB-19-W (18.5-20)		TRC-SB-19-W (26-28)	
			(FEET BGS)	22.5-24.5		18-20		22-24		23-25		18.5-20		26-28	
			LAB SAMPLE ID	460-261270-1		460-261270-5		460-261270-7		460-261270-4		460-261270-2		460-261270-3	
			SAMPLING DATE	7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
1,4-Dioxane	0.1	13	0.1	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2,4,5-Trichlorophenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2,4,6-Trichlorophenol	NC	NC	NC	0.16	U	0.15	U	0.15	U	0.14	U	0.16	U	0.15	U
2,4-Dichlorophenol	NC	NC	NC	0.16	U	0.15	U	0.15	U	0.14	U	0.16	U	0.15	U
2,4-Dimethylphenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2,4-Dinitrophenol	NC	NC	NC	0.32	U	0.30	U	0.30	U	0.29	U	0.32	U	0.29	U
2,4-Dinitrotoluene	NC	NC	NC	0.080	U	0.075	U	0.076	U	0.073	U	0.080	U	0.073	U
2,6-Dinitrotoluene	NC	NC	NC	0.080	U	0.075	U	0.076	U	0.073	U	0.080	U	0.073	U
2-Chloronaphthalene	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2-Chlorophenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2-Methylnaphthalene	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.55		0.20	J	0.74	
2-Methylphenol	0.33	100	0.33	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2-Nitroaniline	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
2-Nitrophenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.16	U	0.15	U	0.15	U	0.14	U	0.16	U	0.15	U
3-Nitroaniline	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.32	U	0.30	U	0.30	U	0.29	U	0.32	U	0.29	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Chloro-3-methylphenol	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Chloroaniline	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Methylphenol	0.33	100	0.33	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Nitroaniline	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
4-Nitrophenol	NC	NC	NC	0.80	U	0.75	U	0.76	U	0.73	U	0.80	U	0.73	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-19-N (22.5-24.5)		TRC-SB-19-E (18-20)		TRC-SB-19-E (22-24)		TRC-SB-19-S (23-25)		TRC-SB-19-W (18.5-20)		TRC-SB-19-W (26-28)	
			(FEET BGS)	22.5-24.5		18-20		22-24		23-25		18.5-20		26-28	
			LAB SAMPLE ID	460-261270-1		460-261270-5		460-261270-7		460-261270-4		460-261270-2		460-261270-3	
			SAMPLING DATE	7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Acenaphthylene	100	100	107	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Acetophenone	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Anthracene	100	100	1000	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Atrazine	NC	NC	NC	0.16	U	0.15	U	0.15	U	0.14	U	0.16	U	0.15	U
Benzaldehyde	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Benzo[a]anthracene	1	1	1	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Benzo[a]pyrene	1	1	22	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Benzo[b]fluoranthene	1	1	1.7	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Benzo[g,h,i]perylene	100	100	1000	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Benzo[k]fluoranthene	0.8	3.9	1.7	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Butyl benzyl phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Caprolactam	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Carbazole	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Chrysene	1	3.9	1	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Dibenzofuran	7	59	210	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Diethyl phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Dimethyl phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Di-n-butyl phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Di-n-octyl phthalate	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Fluoranthene	100	100	1000	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Fluorene	30	100	386	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Hexachlorobenzene	0.33	1.2	3.2	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Hexachlorobutadiene	NC	NC	NC	0.080	U	0.075	U	0.076	U	0.073	U	0.080	U	0.073	U
Hexachlorocyclopentadiene	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Hexachloroethane	NC	NC	NC	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-19-N (22.5-24.5)**		**TRC-SB-19-E (18-20)**		**TRC-SB-19-E (22-24)**		**TRC-SB-19-S (23-25)**		**TRC-SB-19-W (18.5-20)**		**TRC-SB-19-W (26-28)**	
			(FEET BGS)	22.5-24.5		18-20		22-24		23-25		18.5-20		26-28	
			LAB SAMPLE ID	460-261270-1		460-261270-5		460-261270-7		460-261270-4		460-261270-2		460-261270-3	
			SAMPLING DATE	7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022		7/1/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
Isophorone	NC	NC	NC	0.16	U	0.15	U	0.15	U	0.14	U	0.16	U	0.15	U
Naphthalene	12	100	12	0.39	U	0.37	U	0.37	U	1.4		0.35	J	1.8	
Nitrobenzene	NC	NC	NC	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.039	U	0.037	U	0.037	U	0.036	U	0.039	U	0.036	U
N-Nitrosodiphenylamine	NC	NC	NC	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Pentachlorophenol	0.8	6.7	0.8	0.32	U	0.30	U	0.30	U	0.29	U	0.32	U	0.29	U
Phenanthrene	100	100	1,000	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Phenol	0.33	100	0.33	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
Pyrene	100	100	1,000	0.39	U	0.37	U	0.37	U	0.36	U	0.39	U	0.36	U
SVOC TICs	NC	NC	NC	97.0	J	ND		ND		24.27	J	17.0		25.11	J

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-20 (1-4)**		**TRC-SB-20 (12-15)**		**TRC-SB-21 (1-4)**		**TRC-SB-21 (12-15)**		**TRC-SB-21 (71-73)**	
			(FEET BGS)	1-4		12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-1		460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
1,4-Dioxane	0.1	13	0.1	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.36	UJ	0.39	UJ	0.41	U	0.37	U	0.37	U
2,4,5-Trichlorophenol	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2,4,6-Trichlorophenol	NC	NC	NC	0.14	U	0.16	U	0.16	U	0.15	U	0.15	U
2,4-Dichlorophenol	NC	NC	NC	0.14	U	0.16	U	0.16	U	0.15	U	0.15	U
2,4-Dimethylphenol	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2,4-Dinitrophenol	NC	NC	NC	0.29	U	0.31	U	0.33	U	0.30	U	0.30	U
2,4-Dinitrotoluene	NC	NC	NC	0.072	UJ	0.079	UJ	0.082	U	0.074	U	0.074	U
2,6-Dinitrotoluene	NC	NC	NC	0.072	U	0.079	U	0.082	U	0.074	U	0.074	U
2-Chloronaphthalene	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2-Chlorophenol	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2-Methylnaphthalene	NC	NC	NC	0.023	J	0.39	U	0.41	U	0.37	U	0.37	U
2-Methylphenol	0.33	100	0.33	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2-Nitroaniline	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
2-Nitrophenol	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.14	U	0.16	U	0.16	U	0.15	U	0.15	U
3-Nitroaniline	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.29	U	0.31	U	0.33	U	0.30	U	0.30	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Chloro-3-methylphenol	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Chloroaniline	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Methylphenol	0.33	100	0.33	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Nitroaniline	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
4-Nitrophenol	NC	NC	NC	0.72	U	0.79	U	0.82	U	0.74	U	0.74	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	**TRC-SB-20 (1-4)**		**TRC-SB-20 (12-15)**		**TRC-SB-21 (1-4)**		**TRC-SB-21 (12-15)**		**TRC-SB-21 (71-73)**	
			(FEET BGS)	1-4		12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-1		460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Acenaphthene	20	100	98	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Acenaphthylene	100	100	107	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Acetophenone	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Anthracene	100	100	1000	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Atrazine	NC	NC	NC	0.14	U	0.16	U	0.16	U	0.15	U	0.15	U
Benzaldehyde	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Benzo[a]anthracene	1	1	1	0.021	J	0.039	U	0.030	J	0.037	U	0.037	U
Benzo[a]pyrene	1	1	22	0.016	J	0.039	U	0.032	J	0.037	U	0.037	U
Benzo[b]fluoranthene	1	1	1.7	0.044		0.039	U	0.044		0.037	U	0.037	U
Benzo[g,h,i]perylene	100	100	1000	0.024	J	0.39	U	0.025	J	0.37	U	0.37	U
Benzo[k]fluoranthene	0.8	3.9	1.7	0.036	U	0.039	U	0.018	J	0.037	U	0.037	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Butyl benzyl phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Caprolactam	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Carbazole	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Chrysene	1	3.9	1	0.036	J	0.39	U	0.034	J	0.37	U	0.37	U
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
Dibenzofuran	7	59	210	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Diethyl phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Dimethyl phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Di-n-butyl phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Di-n-octyl phthalate	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Fluoranthene	100	100	1000	0.021	J	0.39	U	0.033	J	0.37	U	0.37	U
Fluorene	30	100	386	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Hexachlorobenzene	0.33	1.2	3.2	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
Hexachlorobutadiene	NC	NC	NC	0.072	U	0.079	U	0.082	U	0.074	U	0.074	U
Hexachlorocyclopentadiene	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Hexachloroethane	NC	NC	NC	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U

Table 3A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-20 (1-4)		TRC-SB-20 (12-15)		TRC-SB-21 (1-4)		TRC-SB-21 (12-15)		TRC-SB-21 (71-73)	
			(FEET BGS)	1-4		12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-1		460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			FACTOR	1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.036	U	0.039	U	0.025	J	0.037	U	0.037	U
Isophorone	NC	NC	NC	0.14	U	0.16	U	0.16	U	0.15	U	0.15	U
Naphthalene	12	100	12	0.035	J	0.39	U	0.41	U	0.37	U	0.37	U
Nitrobenzene	NC	NC	NC	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.036	U	0.039	U	0.041	U	0.037	U	0.037	U
N-Nitrosodiphenylamine	NC	NC	NC	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Pentachlorophenol	0.8	6.7	0.8	0.29	U	0.31	U	0.33	U	0.30	U	0.30	U
Phenanthrene	100	100	1,000	0.012	J	0.39	U	0.021	J	0.37	U	0.015	J
Phenol	0.33	100	0.33	0.36	U	0.39	U	0.41	U	0.37	U	0.37	U
Pyrene	100	100	1,000	0.021	J	0.39	U	0.038	J	0.37	U	0.37	U
SVOC TICs	NC	NC	NC	ND		ND		0.72	J	3.04	J	0.48	J

Notes:

* - LCS or LCSD is outside acceptance limits.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22 (25-26)		TRC-SB-DUP-01		TRC-SB-22 (68-69)		TRC-SB-22-N (27-28)		TRC-SB-22-N (28-29)		TRC-SB-22-W (32-33)		TRC-SB-22-W (57-58)		TRC-SB-22-SW (27-28)	
			SAMPLE DEPTH (FEET BGS)	25-26		25-26		68-69		27-28		28-29		32-33		57-58		27-28	
			LAB SAMPLE ID	460-310092-2		460-310092-3		460-310092-4		460-310543-2		460-310543-3		460-310212-2		460-310212-3		460-310409-2	
			SAMPLING DATE	8/23/2024		8/23/2024		8/23/2024		8/30/2024		8/30/2024		8/26/2024		8/26/2024		8/29/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.032	J	0.36	U	0.37	U	0.39	U	0.34	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
1,4-Dioxane	0.1	13	0.1	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2,4,5-Trichlorophenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2,4,6-Trichlorophenol	NC	NC	NC	0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.16	U	0.14	U
2,4-Dichlorophenol	NC	NC	NC	0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.16	U	0.14	U
2,4-Dimethylphenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2,4-Dinitrophenol	NC	NC	NC	0.29	U	0.28	U	0.30	U	0.29	U	0.29	U	0.30	U	0.31	U	0.28	U
2,4-Dinitrotoluene	NC	NC	NC	0.073	U	0.071	U	0.076	U	0.074	U	0.073	U	0.075	U	0.079	U	0.069	U
2,6-Dinitrotoluene	NC	NC	NC	0.073	U	0.071	U	0.076	U	0.074	U	0.073	U	0.075	U	0.079	U	0.069	U
2-Chloronaphthalene	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2-Chlorophenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2-Methylnaphthalene	NC	NC	NC	0.074	J	0.11	J	0.37	U	0.049	J	0.013	J	0.37	U	0.39	U	0.011	J
2-Methylphenol	0.33	100	0.33	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2-Nitroaniline	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
2-Nitrophenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
3 & 4 Methylphenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.16	U	0.14	U
3-Nitroaniline	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.29	U	0.28	U	0.30	U	0.29	U	0.29	U	0.30	U	0.31	U	0.28	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4-Chloro-3-methylphenol	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4-Chloroaniline	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4-Methylphenol	0.33	100	0.33	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
4-Nitroaniline	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22 (25-26)		TRC-SB-DUP-01		TRC-SB-22 (68-69)		TRC-SB-22-N (27-28)		TRC-SB-22-N (28-29)		TRC-SB-22-W (32-33)		TRC-SB-22-W (57-58)		TRC-SB-22-SW (27-28)	
			SAMPLE DEPTH (FEET BGS)	25-26		25-26		68-69		27-28		28-29		32-33		57-58		27-28	
			LAB SAMPLE ID	460-310092-2		460-310092-3		460-310092-4		460-310543-2		460-310543-3		460-310212-2		460-310212-3		460-310409-2	
			SAMPLING DATE	8/23/2024		8/23/2024		8/23/2024		8/30/2024		8/30/2024		8/26/2024		8/26/2024		8/29/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	NC	NC	NC	0.73	U	0.71	U	0.76	U	0.74	U	0.73	U	0.75	U	0.79	U	0.69	U
Acenaphthene	20	100	98	0.36	U	0.35	U	0.37	U	0.014	J	0.36	U	0.37	U	0.39	U	0.34	U
Acenaphthylene	100	100	107	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Acetophenone	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Anthracene	100	100	1,000	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Atrazine	NC	NC	NC	0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.16	U	0.14	U
Benzaldehyde	NC	NC	NC	0.36	UJ	0.35	UJ	0.37	UJ	0.36	UJ	0.36	UJ	0.37	UJ	0.39	UJ	0.34	U
Benzo[a]anthracene	1	1	1	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Benzo[a]pyrene	1	1	22	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Benzo[b]fluoranthene	1	1	1.7	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Benzo[g,h,i]perylene	100	100	1,000	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Benzo[k]fluoranthene	0.8	3.9	1.7	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Butyl benzyl phthalate	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Caprolactam	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Carbazole	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Chrysene	1	3.9	1	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Dibenzofuran	7	59	210	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Diethyl phthalate	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Dimethyl phthalate	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Di-n-butyl phthalate	NC	NC	NC	0.025	J	0.035	J	0.023	J	0.064	J	0.36	U	0.12	J	0.045	J	0.34	U
Di-n-octyl phthalate	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Fluoranthene	100	100	1,000	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Fluorene	30	100	386	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Hexachlorobenzene	0.33	1.2	3.2	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22 (25-26)		TRC-SB-DUP-01		TRC-SB-22 (68-69)		TRC-SB-22-N (27-28)		TRC-SB-22-N (28-29)		TRC-SB-22-W (32-33)		TRC-SB-22-W (57-58)		TRC-SB-22-SW (27-28)	
			SAMPLE DEPTH (FEET BGS)	25-26		25-26		68-69		27-28		28-29		32-33		57-58		27-28	
			LAB SAMPLE ID	460-310092-2		460-310092-3		460-310092-4		460-310543-2		460-310543-3		460-310212-2		460-310212-3		460-310409-2	
			SAMPLING DATE	8/23/2024		8/23/2024		8/23/2024		8/30/2024		8/30/2024		8/26/2024		8/26/2024		8/29/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hexachlorobutadiene	NC	NC	NC	0.073	U	0.071	U	0.076	U	0.074	U	0.073	U	0.075	U	0.079	U	0.069	U
Hexachlorocyclopentadiene	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Hexachloroethane	NC	NC	NC	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
Isophorone	NC	NC	NC	0.15	U	0.14	U	0.15	U	0.15	U	0.15	U	0.15	U	0.16	U	0.14	U
Naphthalene	12	100	12	0.16	J	0.18	J	0.37	U	0.36	U	0.36	U	0.0099	J	0.39	U	0.016	J
Nitrobenzene	NC	NC	NC	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.036	U	0.035	U	0.037	U	0.036	U	0.036	U	0.037	U	0.039	U	0.034	U
N-Nitrosodiphenylamine	NC	NC	NC	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Pentachlorophenol	0.8	6.7	0.8	0.29	U	0.28	U	0.30	U	0.29	U	0.29	U	0.30	U	0.31	U	0.28	U
Phenanthrene	100	100	1,000	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Phenol	0.33	100	0.33	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
Pyrene	100	100	1,000	0.36	U	0.35	U	0.37	U	0.36	U	0.36	U	0.37	U	0.39	U	0.34	U
SVOC TICs	NC	NC	NC	3.65	NJ	4.85	NJ	0.40	R	26.42	NJ	7.93	NJ	0.61	NJ	ND		0.47	R

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

R - Indicates data is unusable. The sample result is rejected due to serious defieciencies in meeting QC criteria. The analyte may or may not be present in the sample.

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-22 (25-26)

U - Non-Detect

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22-SW (65-67)		TRC-SB-22-S (25-27)		TRC-SB-22-S (68-70)		TRC-SB-22-E (72-73)		TRC-SB-22-EE (25-27)		TRC-SB-22-SS (25-27)		TRC-SB-22-SS (45-46)	
			SAMPLE DEPTH (FEET BGS)	65-67		25-27		68-70		72-73		25-27		25-27		45-46	
			LAB SAMPLE ID	460-310409-3		460-310328-6		460-310328-1		460-310328-4		460-310775-1		460-310868-3		460-311019-2	
			SAMPLING DATE	8/29/2024		8/27/2024		8/28/2024		8/28/2024		9/4/2024		9/6/2024		9/9/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
1,2,4,5-Tetrachlorobenzene	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
1,4-Dioxane	0.1	13	0.1	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
2,2'-oxybis[1-chloropropane]	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2,3,4,6-Tetrachlorophenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2,4,5-Trichlorophenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2,4,6-Trichlorophenol	NC	NC	NC	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
2,4-Dichlorophenol	NC	NC	NC	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
2,4-Dimethylphenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2,4-Dinitrophenol	NC	NC	NC	0.29	U	0.29	U	0.29	U	0.28	U	0.29	U	0.27	U	0.29	U
2,4-Dinitrotoluene	NC	NC	NC	0.073	U	0.073	U	0.074	U	0.071	U	0.073	U	0.068	U	0.074	U
2,6-Dinitrotoluene	NC	NC	NC	0.073	U	0.073	U	0.074	U	0.071	U	0.073	U	0.068	U	0.074	U
2-Chloronaphthalene	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2-Chlorophenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2-Methylnaphthalene	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2-Methylphenol	0.33	100	0.33	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2-Nitroaniline	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
2-Nitrophenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	UJ	0.34	U	0.36	U
3 & 4 Methylphenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
3,3'-Dichlorobenzidine	NC	NC	NC	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.14	UJ	0.15	U
3-Nitroaniline	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
4,6-Dinitro-2-methylphenol	NC	NC	NC	0.29	U	0.29	U	0.29	U	0.28	U	0.29	U	0.27	U	0.29	U
4-Bromophenyl phenyl ether	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
4-Chloro-3-methylphenol	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
4-Chloroaniline	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	UJ	0.36	U
4-Chlorophenyl phenyl ether	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
4-Methylphenol	0.33	100	0.33	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
4-Nitroaniline	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22-SW (65-67)		TRC-SB-22-S (25-27)		TRC-SB-22-S (68-70)		TRC-SB-22-E (72-73)		TRC-SB-22-EE (25-27)		TRC-SB-22-SS (25-27)		TRC-SB-22-SS (45-46)	
			SAMPLE DEPTH (FEET BGS)	65-67		25-27		68-70		72-73		25-27		25-27		45-46	
			LAB SAMPLE ID	460-310409-3		460-310328-6		460-310328-1		460-310328-4		460-310775-1		460-310868-3		460-311019-2	
			SAMPLING DATE	8/29/2024		8/27/2024		8/28/2024		8/28/2024		9/4/2024		9/6/2024		9/9/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4-Nitrophenol	NC	NC	NC	0.73	U	0.73	U	0.74	U	0.71	U	0.73	U	0.68	U	0.74	U
Acenaphthene	20	100	98	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Acenaphthylene	100	100	107	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Acetophenone	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Anthracene	100	100	1,000	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Atrazine	NC	NC	NC	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
Benzaldehyde	NC	NC	NC	0.36	U	0.36	UJ	0.36	UJ	0.35	UJ	0.36	U	0.34	UJ	0.36	UJ
Benzo[a]anthracene	1	1	1	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Benzo[a]pyrene	1	1	22	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Benzo[b]fluoranthene	1	1	1.7	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Benzo[g,h,i]perylene	100	100	1,000	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Benzo[k]fluoranthene	0.8	3.9	1.7	0.0083	J	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Bis(2-chloroethoxy)methane	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Bis(2-chloroethyl)ether	NC	NC	NC	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Bis(2-ethylhexyl) phthalate	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Butyl benzyl phthalate	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Caprolactam	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Carbazole	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Chrysene	1	3.9	1	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Dibenz(a,h)anthracene	0.33	0.33	1,000	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Dibenzofuran	7	59	210	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Diethyl phthalate	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Dimethyl phthalate	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Di-n-butyl phthalate	NC	NC	NC	0.36	U	0.024	J	0.36	U	0.017	J	0.36	U	0.022	J	0.015	J
Di-n-octyl phthalate	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Fluoranthene	100	100	1,000	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Fluorene	30	100	386	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Hexachlorobenzene	0.33	1.2	3.2	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U

Table 3B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Semivolatile Organic Compounds

			SAMPLE ID	TRC-SB-22-SW (65-67)		TRC-SB-22-S (25-27)		TRC-SB-22-S (68-70)		TRC-SB-22-E (72-73)		TRC-SB-22-EE (25-27)		TRC-SB-22-SS (25-27)		TRC-SB-22-SS (45-46)	
			SAMPLE DEPTH (FEET BGS)	65-67		25-27		68-70		72-73		25-27		25-27		45-46	
			LAB SAMPLE ID	460-310409-3		460-310328-6		460-310328-1		460-310328-4		460-310775-1		460-310868-3		460-311019-2	
			SAMPLING DATE	8/29/2024		8/27/2024		8/28/2024		8/28/2024		9/4/2024		9/6/2024		9/9/2024	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1		1	
			UNITS	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted-Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Hexachlorobutadiene	NC	NC	NC	0.073	U	0.073	U	0.074	U	0.071	U	0.073	U	0.068	U	0.074	U
Hexachlorocyclopentadiene	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	UJ	0.34	U	0.36	U
Hexachloroethane	NC	NC	NC	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Indeno[1,2,3-cd]pyrene	0.5	0.5	8.2	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
Isophorone	NC	NC	NC	0.14	U	0.14	U	0.15	U	0.14	U	0.14	U	0.14	U	0.15	U
Naphthalene	12	100	12	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Nitrobenzene	NC	NC	NC	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
N-Nitrosodi-n-propylamine	NC	NC	NC	0.036	U	0.036	U	0.036	U	0.035	U	0.036	U	0.034	U	0.036	U
N-Nitrosodiphenylamine	NC	NC	NC	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Pentachlorophenol	0.8	6.7	0.8	0.29	U	0.29	U	0.29	U	0.28	U	0.29	U	0.27	U	0.29	U
Phenanthrene	100	100	1,000	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Phenol	0.33	100	0.33	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
Pyrene	100	100	1,000	0.36	U	0.36	U	0.36	U	0.35	U	0.36	U	0.34	U	0.36	U
SVOC TICs	NC	NC	NC	0.29	J	ND		ND		ND		ND		0.29	R	0.32	R

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not detected

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

R - Indicates data is unusable. The sample result is rejected due to serious defieciencies in meeting QC criteria. The analyte may or may not be present in the sample.

SCO - Soil Cleanup Objective

TICs - Tentatively Identified Compounds

TRC-SB-DUP-01 is a duplicate of TRC-SB-22 (25-26)

U - Non-Detect

Table 4
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Metals and Cyanide

			SAMPLE ID	TRC-SB-06-N (1-4)		TRC-SB-06-N (13-15)		TRC-SB-06-N (20.5-22.5)		TRC-SB-06-E (1-3)		TRC-SB-06-W (1-4)		TRC-SB-06-W (20-22)	
			SAMPLE DEPTH (FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4		20-22	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4		460-260996-5	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
METALS & CYANIDE	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted - Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	NC	NC	10,200		8,170		5,320		6,530		9,330		6,800	
Antimony	NC	NC	NC	4.1	J	0.97	UJ	1.1	UJ	0.14	J	0.20	J	1.1	UJ
Arsenic	13	16	16	5.6		1.4		2.6		1.8		4.9		2.2	
Barium	350	400	820	129		20.5		36.4		11.4		85.1		18.8	
Beryllium	7.2	72	47	0.53		0.30	J	0.51		0.21	J	0.46		0.27	J
Cadmium	2.5	4.3	7.5	0.29	J	0.97	U	1.1	U	0.86	U	0.12	J	1.1	U
Calcium	NC	NC	NC	1,900	J	849	J	905	J	1,040		2,770	J	759	J
Total Chromium [(1)]	30	180	NC	15.6	J	12.4	J	9.9	J	10.2		14.1	J	13.8	J
Cobalt	NC	NC	NC	6.1		6.6		4.4		13.3		5.8		6.3	
Cyanide, Total	27	27	40	1.7		0.22	U	0.23	U	0.21	U	0.24	U	0.29	U
Copper	50	270	1,720	21.6		14.1		11.4		8.9		23.0		15.1	
Iron	NC	NC	NC	14,700		8,490		12,100		7,960		13,500		9,300	
Lead	63	400	450	**278**		7.9		6.0		5.7		**187**		6.2	
Magnesium	NC	NC	NC	2,770	J	3,030	J	2,400	J	1,590	J	2,510	J	2,750	J
Manganese	1,600	2,000	2,000	256		94.4		264		120	J	232		99.4	
Mercury	0.18	0.81	0.73	**0.51**		0.017	U	0.0082	J	0.016	J	**0.33**		0.019	U
Nickel	30	310	130	24.0		27.6		11.5		19.1		19.7		**31.7**	
Potassium	NC	NC	NC	968		966		1,000		429		908		753	
Selenium	3.9	180	4	0.33	J	1.2	U	1.3	U	0.18	J	0.28	J	1.4	U
Silver	2	180	8.3	0.11	J	0.39	U	0.42	U	0.34	U	0.43	U	0.45	U
Sodium	NC	NC	NC	112		52.4	J	86.3	J	85.6	U	787		54.6	J
Thallium	NC	NC	NC	0.14	J	0.064	J	0.064	J	0.34	U	0.085	J	0.049	J
Vanadium	NC	NC	NC	23.4	J	15.3	J	17.1	J	12.9		29.1	J	14.7	J
Zinc	109	10,000	2,480	**166**	J	34.5	J	26.9	J	21.3		83.4	J	28.5	J

Notes:

[(1)] SCO for trivalent chromium used.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 4
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Metals and Cyanide

			SAMPLE ID	TRC-SB-12 (1-4)		TRC-SB-13 (1-4)		TRC-SB-14 (1-4)		TRC-SB-14 (12-15)		TRC-DUP-02		TRC-SB-14 (73-75)	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		12-15		12-15		73-75	
			LAB SAMPLE ID	460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3		460-261873-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022		7/13/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
METALS & CYANIDE	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted - Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	NC	NC	9,090		13,200		6,650		7,070		6,290		3,750	
Antimony	NC	NC	NC	1.0	UJ	0.37	J	0.44	J	0.86	UJ	0.81	UJ	0.84	U
Arsenic	13	16	16	4.9		7.7		5.6		2.7		2.5		2.1	
Barium	350	400	820	44.4		118		87.5		23.9		21.9		30.4	
Beryllium	7.2	72	47	0.57		0.71		0.43		0.31	J	0.33		0.51	
Cadmium	2.5	4.3	7.5	1.0	U	0.26	J	0.49	J	0.86	U	0.81	U	0.84	U
Calcium	NC	NC	NC	1,040	J	1,280	J	9,560		649		618		1,810	
Total Chromium [(1)]	30	180	NC	13.2	J	19.2	J	15.0		13.2		10.7		12.2	
Cobalt	NC	NC	NC	5.4		6.6		5.3		4.0		3.9		4.4	
Cyanide, Total	27	27	40	0.25	U	1.2		0.14	J	0.22	U	0.23	U	0.26	U
Copper	50	270	1,720	19.3		31.9		29.1		10.9		9.9		11.6	
Iron	NC	NC	NC	12,800		15,200		12,400		10,600		9,690		10,600	
Lead	63	400	450	**104**		**371**		**125**		5.9		5.5		8.1	
Magnesium	NC	NC	NC	3,120	J	2,760	J	6,700	J	3,170	J	2,580	J	3,450	
Manganese	1,600	2,000	2,000	292		296		186	J	314	J	341	J	332	J
Mercury	0.18	0.81	0.73	**0.25**		**0.22**		0.093		0.018	U	0.050		0.018	U
Nickel	30	310	130	15.0		23.2		20.6		13.6		13.4		10	
Potassium	NC	NC	NC	1,390		1,230		679		1,450		1,010		1,250	
Selenium	3.9	180	4	0.13	J	0.59	J	0.46	J	1.1	U	1.0	U	1.0	U
Silver	2	180	8.3	0.41	U	0.18	J	0.15	J	0.34	U	0.33	U	0.33	U
Sodium	NC	NC	NC	177		313		90.4	J	114		105		153	
Thallium	NC	NC	NC	0.10	J	0.14	J	0.091	J	0.090	J	0.056	J	0.089	J
Vanadium	NC	NC	NC	22.4	J	26.1	J	21.4		19.6		14.9		16.1	
Zinc	109	10,000	2,480	43.8	J	**143**	J	**148**		35.9		32.6		28.6	

Notes:

[(1)] SCO for trivalent chromium used.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 4
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Metals and Cyanide

			SAMPLE ID	TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)		TRC-SB-18 (1-4)	
			SAMPLE DEPTH (FEET BGS)	1-4		12-15		73-75		1-3		1-2		1-4	
			LAB SAMPLE ID	460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2		460-260931-6	
			SAMPLING DATE	7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
METALS & CYANIDE	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted - Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	NC	NC	5,650		14,800		2,620		9,180		7,280		6,540	
Antimony	NC	NC	NC	0.42	J	0.82	UJ	0.94	UJ	1.0	UJ	1.0	UJ	1.5	J
Arsenic	13	16	16	4.4		5.4		2.8		2.4		3.3		3.8	
Barium	350	400	820	32.1		65.1		20.9		36.9		42.1		107	
Beryllium	7.2	72	47	0.27	J	0.64		0.35	J	0.33	J	0.44		0.44	
Cadmium	2.5	4.3	7.5	0.11	J	0.82	U	0.94	U	1.0	U	0.14	J	0.15	J
Calcium	NC	NC	NC	5,340		1,670		1,240		1,130	J	2,580	J	2,500	J
Total Chromium [(1)]	30	180	NC	9.8		21.5		7.7		13.6	J	15.4	J	12.8	J
Cobalt	NC	NC	NC	4.1		7.1		2.7		5.7		58.1		4.7	
Cyanide, Total	27	27	40	0.28	U	0.24	U	0.28	U	0.24	U	0.23	U	0.23	U
Copper	50	270	1,720	20.5		10.1		8.1		14.3		15.0		19.4	
Iron	NC	NC	NC	5,890		16,600		7,250		12,000		12,100		11,400	
Lead	63	400	450	**72.6**		6.5		4.4		9.4		27.7		**231**	
Magnesium	NC	NC	NC	2,420		6,490		1,800		2,810	J	2,510	J	2,500	J
Manganese	1,600	2,000	2,000	111		324		170		120		275		261	
Mercury	0.18	0.81	0.73	**0.31**		0.018	U	0.018	U	0.018	U	0.018	U	**3.9**	
Nickel	30	310	130	11.9	J	16.8	J	5.9		16.1		26.9		13.4	
Potassium	NC	NC	NC	442		4,650		731		1,240		1,070		1,100	
Selenium	3.9	180	4	0.13	J	0.11	J	1.2	U	1.3	U	1.3	U	0.26	J
Silver	2	180	8.3	0.34	U	0.33	U	0.38	U	0.41	U	0.41	U	0.41	U
Sodium	NC	NC	NC	522		1,340		137		110		102		175	
Thallium	NC	NC	NC	0.060	J	0.23	J	0.38	U	0.10	J	0.081	J	0.079	J
Vanadium	NC	NC	NC	10.7		34.7		10.7		23.6	J	19.6	J	18.6	J
Zinc	109	10,000	2,480	43.4	J	40.5	J	18.9		33.0	J	45.3	J	94.2	J

Notes:

[(1)] SCO for trivalent chromium used.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 4
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Metals and Cyanide

			SAMPLE ID	TRC-SB-18 (12-15)		TRC-DUP-01		TRC-SB-19 (1-4)		TRC-SB-19 (12-15)		TRC-SB-19 (22.5-24.5)		TRC-SB-20 (1-4)	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-14		22.5-24.5		1-4	
			LAB SAMPLE ID	460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5		460-260931-1	
			SAMPLING DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
METALS & CYANIDE	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted - Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	NC	NC	10,700		11,800		7,870		9,380		5,700		14,000	
Antimony	NC	NC	NC	1.1	UJ	1.2	UJ	0.86	UJ	0.93	UJ	0.85	UJ	0.44	J
Arsenic	13	16	16	1.5		2.6		4.4		1.8		1.9		7.4	
Barium	350	400	820	73.6		60.7		20.6		47.0		29.1		150	
Beryllium	7.2	72	47	0.46		0.71		0.32	J	0.75		0.38		0.74	
Cadmium	2.5	4.3	7.5	1.1	U	1.2	U	0.86	U	0.93	U	0.85	U	0.38	J
Calcium	NC	NC	NC	813	J	964	J	785		642		717		3,260	
Total Chromium [(1)]	30	180	NC	17.5	J	20.6	J	12.7		18.2		13.1		23.6	J
Cobalt	NC	NC	NC	2.4		3.6		5.7		6.5		4.9		8.3	J
Cyanide, Total	27	27	40	0.27	U	0.27	U	0.26	U	0.28	U	0.39		0.32	
Copper	50	270	1,720	15.2		17.6		7.9		13.5		12.0		**52.6**	
Iron	NC	NC	NC	6,720		9,690		14,000		11,000		9,940		27,800	
Lead	63	400	450	8.7		11.3		10.6		8.6		9.0		**370**	
Magnesium	NC	NC	NC	1,580	J	2,380	J	1,720	J	2,870	J	2,070	J	4,410	
Manganese	1,600	2,000	2,000	44.7		64.6		149	J	68.7	J	85.1	J	262	
Mercury	0.18	0.81	0.73	0.020	U	0.018	U	0.058		0.019	U	0.018	U	**319**	
Nickel	30	310	130	8.8		12.0		12.6		17.5		10.7		28.9	J
Potassium	NC	NC	NC	1,010		1,170		536		683		790		1,320	
Selenium	3.9	180	4	1.4	U	0.32	J	0.14	J	1.2	U	1.1	U	0.57	J
Silver	2	180	8.3	0.45	U	0.47	U	0.35	U	0.37	U	0.34	U	0.41	
Sodium	NC	NC	NC	227		266		73.8	J	85.8	J	74.0	J	214	J
Thallium	NC	NC	NC	0.15	J	0.17	J	0.035	J	0.095	J	0.052	J	0.14	J
Vanadium	NC	NC	NC	15.5	J	25.6	J	18.2		18.5		18.5		29.6	J
Zinc	109	10,000	2,480	42.6	J	54.3	J	23.8		63.9		26.7		**254**	

Notes:

[(1)] SCO for trivalent chromium used.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 4
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Metals and Cyanide

			SAMPLE ID	TRC-SB-20 (12-15)		TRC-SB-21 (1-4)		TRC-SB-21 (12-15)		TRC-SB-21 (71-73)	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLING DATE	6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg	
METALS & CYANIDE	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted - Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	NC	NC	10,800		11,700		6,430		4,940	
Antimony	NC	NC	NC	0.89	UJ	1.2	UJ	1.0	UJ	1.1	UJ
Arsenic	13	16	16	1.6		3.7		1.9		3.4	
Barium	350	400	820	22.0		53.5	J	31.0	J	55.1	
Beryllium	7.2	72	47	0.28	J	0.59		0.35	J	0.47	
Cadmium	2.5	4.3	7.5	0.89	U	0.17	J	1.0	U	1.1	U
Calcium	NC	NC	NC	766		2,990		1,250		6,390	J
Total Chromium [(1)]	30	180	NC	15.7	J	15.8		15.0		13.1	J
Cobalt	NC	NC	NC	3.3	J	6.1		7.0		4.5	
Cyanide, Total	27	27	40	1.6		0.20	J	0.26	U	0.23	U
Copper	50	270	1,720	8.9		14.1		20.9		12.5	
Iron	NC	NC	NC	7,620		12,600		10,400		11,800	
Lead	63	400	450	10.4		49.2		6.8		8.4	J
Magnesium	NC	NC	NC	1,980		2,620		2,790		3,400	
Manganese	1,600	2,000	2,000	57.1		195	J	131	J	261	
Mercury	0.18	0.81	0.73	0.020		**0.64**		0.0091	J	0.017	U
Nickel	30	310	130	12.4	J	16.5		16.1		9.1	
Potassium	NC	NC	NC	843		754		929		1,290	
Selenium	3.9	180	4	0.27	J	0.24	J	1.3	U	1.3	U
Silver	2	180	8.3	0.36	U	0.48	U	0.41	U	0.43	U
Sodium	NC	NC	NC	125	J	536		279		381	U
Thallium	NC	NC	NC	0.059	J	0.11	J	0.077	J	0.095	J
Vanadium	NC	NC	NC	17.6	J	22.7		17.2		20.3	
Zinc	109	10,000	2,480	33.0		51.6		31.4		30.2	

Notes:

[(1)] SCO for trivalent chromium used.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 5
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Select Metals by the Toxicity Characteristic Leaching Procedure

	SAMPLE ID	**TRC-SB-20 (1-4)**		**TRC-SB-18 (1-4)**		**TRC-SB-13 (1-4)**		**TRC-SB-12 (1-4)**		**TRC-SB-06-N (1-4)**		**TRC-SB-06-W (1-4)**		**TRC-SB-14 (1-4)**	
	SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		1-4		1-4		1-4		1-4	
	LAB SAMPLE ID	460-260931-1		460-260931-6		460-260931-9		460-260931-10		460-260931-14		460-260996-4		460-261082-1	
	SAMPLE DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
	MATRIX	Soil		Soil		Soil		Soil		Soil		Soil		Soil	
	SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
	UNIT	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L		mg/L	
Toxicity Characteristic Leaching Procedure (TCLP) - Metals	**RCRA 8 USEPA Allowable Limit**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Lead	5	0.202		0.182		0.136		0.0408		0.252		0.118		0.478	
Mercury	0.2	0.0037	J	NA		NA		NA		NA		NA		NA	

Notes:

BGS - Below ground surface

H - Sample was prepped or analyzed beyond the specified holding time

L - Liter

mg/L - milligrams per liter

NA - Not analyzed

Q - Qualifier

RCRA - Resource Conservation and Recovery Act

TCLP - Toxicity Characteristic Leaching Procedure

USEPA - United States Environmental Protection Agency

Table 6
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Polychlorinated Biphenyls

			SAMPLE ID	**TRC-SB-06-N (1-4)**		**TRC-SB-06-N (13-15)**		**TRC-SB-06-N (20.5-22.5)**		**TRC-SB-06-E (1-3)**		**TRC-SB-06-W (1-4)**		**TRC-SB-06-W (20-22)**	
			SAMPLE DEPTH (FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4		20-22	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4		460-260996-5	
			SAMPLE DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
POLYCHLORINATED BIPHENYLS (PCBs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aroclor 1016	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1221	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1232	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1242	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1248	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1254	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1260	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor 1268	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Aroclor-1262	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
Total PCBs	0.1	1	3.2	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 6
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Polychlorinated Biphenyls

			SAMPLE ID	**TRC-SB-12 (1-4)**		**TRC-SB-13 (1-4)**		**TRC-SB-14 (1-4)**		**TRC-SB-14 (12-15)**		**TRC-DUP-02**		**TRC-SB-14 (73-75)**	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		12-15		12-15		73-75	
			LAB SAMPLE ID	460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3		460-261873-1	
			SAMPLE DATE	6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022		7/13/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
POLYCHLORINATED BIPHENYLS (PCBs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aroclor 1016	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1221	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1232	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1242	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1248	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1254	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1260	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor 1268	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Aroclor-1262	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
Total PCBs	0.1	1	3.2	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 6
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Polychlorinated Biphenyls

			SAMPLE ID	TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)		TRC-SB-18 (1-4)	
			SAMPLE DEPTH (FEET BGS)	1-4		12-15		73-75		1-3		1-2		1-4	
			LAB SAMPLE ID	460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2		460-260931-6	
			SAMPLE DATE	7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
POLYCHLORINATED BIPHENYLS (PCBs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aroclor 1016	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1221	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1232	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1242	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1248	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1254	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1260	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor 1268	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Aroclor-1262	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
Total PCBs	0.1	1	3.2	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 6
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Polychlorinated Biphenyls

			SAMPLE ID	**TRC-SB-18 (12-15)**		**TRC-DUP-01**		**TRC-SB-19 (1-4)**		**TRC-SB-19 (12-15)**		**TRC-SB-19 (22.5-24.5)**		**TRC-SB-20 (1-4)**	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-14		22.5-24.5		1-4	
			LAB SAMPLE ID	460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5		460-260931-1	
			SAMPLE DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
POLYCHLORINATED BIPHENYLS (PCBs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q	Results	Q
Aroclor 1016	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1221	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1232	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1242	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1248	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1254	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1260	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor 1268	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Aroclor-1262	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
Total PCBs	0.1	1	3.2	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 6
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Polychlorinated Biphenyls

			SAMPLE ID	**TRC-SB-20 (12-15)**		**TRC-SB-21 (1-4)**		**TRC-SB-21 (12-15)**		**TRC-SB-21 (71-73)**	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLE DATE	6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg	
POLYCHLORINATED BIPHENYLS (PCBs)	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Results	Q	Results	Q	Results	Q	Results	Q
Aroclor 1016	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1221	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1232	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1242	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1248	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1254	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1260	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor 1268	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Aroclor-1262	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
Total PCBs	0.1	1	3.2	0.079	U	0.082	U	0.074	U	0.074	U

Notes:

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

J - Estimated value

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-SB-DUP-01 is a duplicate of TRC-SB-18 (12-15).

TRC-SB-DUP-02 is a duplicate of TRC-SB-14 (12-15).

U - Non-Detect

Table 7
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Pesticides and Herbicides

			SAMPLE ID	**TRC-SB-06-N (1-4)**		**TRC-SB-06-N (13-15)**		**TRC-SB-06-N (20.5-22.5)**		**TRC-SB-06-E (1-3)**		**TRC-SB-06-W (1-4)**		**TRC-SB-06-W (20-22)**	
			SAMPLE DEPTH (FEET BGS)	1-4		13-15		20.5-22.5		1-3		1-4		20-22	
			LAB SAMPLE ID	460-260931-14		460-260931-13		460-260931-12		460-260996-6		460-260996-4		460-260996-5	
			SAMPLE DATE	6/27/2022		6/27/2022		6/27/2022		6/28/2022		6/28/2022		6/28/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.0033	13	14	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
4,4'-DDE	0.0033	8.9	17	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
4,4'-DDT	0.0033	7.9	136	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Aldrin	0.005	0.097	0.19	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
alpha-BHC	0.02	0.48	0.02	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0024	U
beta-BHC	0.036	0.36	0.09	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0024	U
Chlordane (technical)	0.094	4.2	2.9	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
delta-BHC	0.04	100	0.25	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0024	U
Dieldrin	0.005	0.2	0.1	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0024	U
Endosulfan I	2.4 [(1)]	24	102	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Endosulfan II	2.4 [(1)]	24	102	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Endosulfan sulfate	2.4 [(1)]	24	1000	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Endrin	0.014	11	0.06	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Endrin aldehyde	NC	NC	NC	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Endrin ketone	NC	NC	NC	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
gamma-BHC (Lindane)	0.1	1.3	0.1	0.0022	U	0.0021	U	0.0021	U	0.0021	U	0.0022	U	0.0024	U
Heptachlor	0.042	2.1	0.38	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Heptachlor epoxide	NC	NC	NC	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Methoxychlor	NC	NC	NC	0.0075	U	0.0070	U	0.0071	U	0.0072	U	0.0073	U	0.0081	U
Toxaphene	NC	NC	NC	0.075	U	0.070	U	0.071	U	0.072	U	0.073	U	0.081	U
HERBICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	NC	NC	NC	0.037	U	0.035	U	0.035	U	0.036	U	0.037	U	0.040	U
2,4-D	NC	NC	0.5	0.037	U	0.035	U	0.035	U	0.036	U	0.037	U	0.040	U
Silvex (2,4,5-TP)	3.8	100	3.8	0.037	U	0.035	U	0.035	U	0.036	U	0.037	U	0.040	U

Notes:

[(1)] - SCO is the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-Detect

Table 7
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Pesticides and Herbicides

			SAMPLE ID	**TRC-SB-12 (1-4)**		**TRC-SB-13 (1-4)**		**TRC-SB-14 (1-4)**		**TRC-SB-14 (12-15)**		**TRC-DUP-02**		**TRC-SB-14 (73-75)**	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		1-4		12-15		12-15		73-75	
			LAB SAMPLE ID	460-260931-10		460-260931-9		460-261082-1		460-261082-2		460-261082-3		460-261873-1	
			SAMPLE DATE	6/27/2022		6/27/2022		6/29/2022		6/29/2022		6/29/2022		7/13/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.0033	13	14	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
4,4'-DDE	0.0033	8.9	17	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
4,4'-DDT	0.0033	7.9	136	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Aldrin	0.005	0.097	0.19	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
alpha-BHC	0.02	0.48	0.02	0.0021	U	0.0022	U	0.0023	U	0.0022	U	0.0021	U	0.0022	U
beta-BHC	0.036	0.36	0.09	0.0021	U	0.0022	U	0.0023	U	0.0022	U	0.0021	U	0.0022	U
Chlordane (technical)	0.094	4.2	2.9	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
delta-BHC	0.04	100	0.25	0.0021	U	0.0022	U	0.0023	U	0.0022	U	0.0021	U	0.0022	U
Dieldrin	0.005	0.2	0.1	0.0021	U	0.0022	U	0.0023	U	0.0022	U	0.0021	U	0.0022	U
Endosulfan I	2.4 [(1)]	24	102	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Endosulfan II	2.4 [(1)]	24	102	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Endosulfan sulfate	2.4 [(1)]	24	1000	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Endrin	0.014	11	0.06	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Endrin aldehyde	NC	NC	NC	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Endrin ketone	NC	NC	NC	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
gamma-BHC (Lindane)	0.1	1.3	0.1	0.0021	U	0.0022	U	0.0023	U	0.0022	U	0.0021	U	0.0022	U
Heptachlor	0.042	2.1	0.38	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Heptachlor epoxide	NC	NC	NC	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Methoxychlor	NC	NC	NC	0.0071	U	0.0075	U	0.0078	U	0.0073	U	0.0071	U	0.0074	U
Toxaphene	NC	NC	NC	0.071	U	0.075	U	0.078	U	0.073	U	0.071	U	0.074	U
HERBICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	NC	NC	NC	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U	0.037	U
2,4-D	NC	NC	0.5	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U	0.037	U
Silvex (2,4,5-TP)	3.8	100	3.8	0.035	U	0.037	U	0.039	U	0.036	U	0.035	U	0.037	U

Notes:

[(1)] - SCO is the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-Detect

Table 7
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Pesticides and Herbicides

			SAMPLE ID	TRC-SB-15 (1-4)		TRC-SB-15 (12-15)		TRC-SB-15 (73-75)		TRC-SB-16 (1-3)		TRC-SB-17 (1-2)		TRC-SB-18 (1-4)	
			SAMPLE DEPTH (FEET BGS)	1-4		12-15		73-75		1-3		1-2		1-4	
			LAB SAMPLE ID	460-261735-1		460-261735-2		460-261735-3		460-260996-1		460-260996-2		460-260931-6	
			SAMPLE DATE	7/11/2022		7/11/2022		7/11/2022		6/28/2022		6/28/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.0033	13	14	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
4,4'-DDE	0.0033	8.9	17	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
4,4'-DDT	0.0033	7.9	136	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Aldrin	0.005	0.097	0.19	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
alpha-BHC	0.02	0.48	0.02	0.0023	U	0.0022	U	0.0023	U	0.0022	U	0.0022	U	0.0022	U
beta-BHC	0.036	0.36	0.09	0.0023	U	0.0022	U	0.0023	U	0.0022	U	0.0022	U	0.0022	U
Chlordane (technical)	0.094	4.2	2.9	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
delta-BHC	0.04	100	0.25	0.0023	U	0.0022	U	0.0023	U	0.0022	U	0.0022	U	0.0022	U
Dieldrin	0.005	0.2	0.1	0.0023	U	0.0022	U	0.0023	U	0.0022	U	0.0022	U	0.0022	U
Endosulfan I	2.4 [(1)]	24	102	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Endosulfan II	2.4 [(1)]	24	102	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Endosulfan sulfate	2.4 [(1)]	24	1000	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Endrin	0.014	11	0.06	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Endrin aldehyde	NC	NC	NC	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Endrin ketone	NC	NC	NC	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
gamma-BHC (Lindane)	0.1	1.3	0.1	0.0023	U	0.0022	U	0.0023	U	0.0022	U	0.0022	U	0.0022	U
Heptachlor	0.042	2.1	0.38	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Heptachlor epoxide	NC	NC	NC	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Methoxychlor	NC	NC	NC	0.0077	U	0.0074	U	0.0078	U	0.0074	U	0.0073	U	0.0074	U
Toxaphene	NC	NC	NC	0.077	U	0.074	U	0.078	U	0.074	U	0.073	U	0.074	U
HERBICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	NC	NC	NC	0.038	U	0.037	U	0.039	U	0.037	U	0.036	U	0.037	U
2,4-D	NC	NC	0.5	0.038	U	0.037	U	0.039	U	0.037	U	0.036	U	0.037	U
Silvex (2,4,5-TP)	3.8	100	3.8	0.038	U	0.037	U	0.039	U	0.037	U	0.036	U	0.037	U

Notes:

[(1)] - SCO is the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-Detect

Table 7
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Pesticides and Herbicides

			SAMPLE ID	**TRC-SB-18 (12-15)**		**TRC-DUP-01**		**TRC-SB-19 (1-4)**		**TRC-SB-19 (12-15)**		**TRC-SB-19 (22.5-24.5)**		**TRC-SB-20 (1-4)**	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-14		22.5-24.5		1-4	
			LAB SAMPLE ID	460-260931-7		460-260931-8		460-260931-3		460-260931-4		460-260931-5		460-260931-1	
			SAMPLE DATE	6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022		6/27/2022	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.0033	13	14	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
4,4'-DDE	0.0033	8.9	17	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
4,4'-DDT	0.0033	7.9	136	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Aldrin	0.005	0.097	0.19	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
alpha-BHC	0.02	0.48	0.02	0.0024	U	0.0024	U	0.0021	U	0.0023	U	0.0022	U	0.0021	U
beta-BHC	0.036	0.36	0.09	0.0024	U	0.0024	U	0.0021	U	0.0023	U	0.0022	U	0.0021	U
Chlordane (technical)	0.094	4.2	2.9	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
delta-BHC	0.04	100	0.25	0.0024	U	0.0024	U	0.0021	U	0.0023	U	0.0022	U	0.0021	U
Dieldrin	0.005	0.2	0.1	0.0024	U	0.0024	U	0.0021	U	0.0023	U	0.0022	U	0.0021	U
Endosulfan I	2.4 [(1)]	24	102	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Endosulfan II	2.4 [(1)]	24	102	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Endosulfan sulfate	2.4 [(1)]	24	1000	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Endrin	0.014	11	0.06	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Endrin aldehyde	NC	NC	NC	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Endrin ketone	NC	NC	NC	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
gamma-BHC (Lindane)	0.1	1.3	0.1	0.0024	U	0.0024	U	0.0021	U	0.0023	U	0.0022	U	0.0021	U
Heptachlor	0.042	2.1	0.38	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Heptachlor epoxide	NC	NC	NC	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Methoxychlor	NC	NC	NC	0.0081	U	0.0081	U	0.0072	U	0.0078	U	0.0073	U	0.0072	U
Toxaphene	NC	NC	NC	0.081	U	0.081	U	0.072	U	0.078	U	0.073	U	0.072	U
HERBICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	NC	NC	NC	0.040	U	0.040	U	0.036	U	0.039	U	0.037	U	0.036	U
2,4-D	NC	NC	0.5	0.040	U	0.040	U	0.036	U	0.039	U	0.037	U	0.036	U
Silvex (2,4,5-TP)	3.8	100	3.8	0.040	U	0.040	U	0.036	U	0.039	U	0.037	U	0.036	U

Notes:

[(1)] - SCO is the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-Detect

Table 7
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Pesticides and Herbicides

			SAMPLE ID	**TRC-SB-20 (12-15)**		**TRC-SB-21 (1-4)**		**TRC-SB-21 (12-15)**		**TRC-SB-21 (71-73)**	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260931-2		460-261506-1		460-261506-2		460-261582-1	
			SAMPLE DATE	6/27/2022		7/7/2022		7/7/2022		7/7/2022	
			MATRIX	Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1	
			UNIT	mg/kg		mg/kg		mg/kg		mg/kg	
PESTICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.0033	13	14	0.0079	U	0.0082	U	0.0074	U	0.0074	U
4,4'-DDE	0.0033	8.9	17	0.0079	U	0.0082	U	0.0074	U	0.0074	U
4,4'-DDT	0.0033	7.9	136	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Aldrin	0.005	0.097	0.19	0.0079	U	0.0082	U	0.0074	U	0.0074	U
alpha-BHC	0.02	0.48	0.02	0.0024	U	0.0025	U	0.0022	U	0.0022	U
beta-BHC	0.036	0.36	0.09	0.0024	U	0.0025	U	0.0022	U	0.0022	U
Chlordane (technical)	0.094	4.2	2.9	0.079	U	0.082	U	0.074	U	0.074	U
delta-BHC	0.04	100	0.25	0.0024	U	0.0025	U	0.0022	U	0.0022	U
Dieldrin	0.005	0.2	0.1	0.0024	U	0.0025	U	0.0022	U	0.0022	U
Endosulfan I	2.4 [(1)]	24	102	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Endosulfan II	2.4 [(1)]	24	102	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Endosulfan sulfate	2.4 [(1)]	24	1000	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Endrin	0.014	11	0.06	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Endrin aldehyde	NC	NC	NC	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Endrin ketone	NC	NC	NC	0.0079	U	0.0082	U	0.0074	U	0.0074	U
gamma-BHC (Lindane)	0.1	1.3	0.1	0.0024	U	0.0025	U	0.0022	U	0.0022	U
Heptachlor	0.042	2.1	0.38	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Heptachlor epoxide	NC	NC	NC	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Methoxychlor	NC	NC	NC	0.0079	U	0.0082	U	0.0074	U	0.0074	U
Toxaphene	NC	NC	NC	0.079	U	0.082	U	0.074	U	0.074	U
HERBICIDES	**NYSDEC Unrestricted Use SCO (mg/kg)**	**NYSDEC Restricted Residential Use SCO (mg/kg)**	**Protection of Groundwater SCO (mg/kg)**	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	NC	NC	NC	0.039	U	0.041	U	0.037	U	0.037	U
2,4-D	NC	NC	0.5	0.039	U	0.041	U	0.037	U	0.037	U
Silvex (2,4,5-TP)	3.8	100	3.8	0.039	U	0.041	U	0.037	U	0.037	U

Notes:

[(1)] - SCO is the sum of endosulfan I, endosulfan II, and endosulfan sulfate.

BGS - Below ground surface

Bold and shaded indicates result above SCO. Color representing least stringent SCO exceeded is shown unless otherwise noted.

mg/kg - milligrams per kilogram (dry weight).

NC - No criterion

NYSDEC - New York State Department of Environmental Conservation

Q - Qualifier

SCO - Soil Cleanup Objective

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-Detect

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	TRC-SB-06-N (1-4)		TRC-SB-06-N (1-4)		TRC-SB-06-N (13-15)		TRC-SB-06-N (20.5-22.5)		TRC-SB-06-W (1-4)		TRC-SB-06-W (20-22)	
			SAMPLE DEPTH (FEET BGS)	1-4		1-4		13-15		20.5-22.5		1 -4		20-22	
			LAB SAMPLE ID	460-260929-14		460-260929-14		460-260929-13		460-260929-12		460-260974-4		460-260974-5	
			SAMPLE DTE	6/27/22		6/27/22		6/27/22		6/27/22		6/28/22		6/28/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
NEtFOSAA	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
NMeFOSAA	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.45	U	0.45	U H	0.45	U	0.44	U	0.46	U	0.50	U
Perfluorobutanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.049	J	0.042	J
Perfluorodecanesulfonic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluorodecanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.061	J
Perfluorododecanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluoroheptanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.054	J	0.25	U
Perfluorohexanesulfonic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.080	J	0.25	U
Perfluorohexanoic acid	NC	NC	NC	0.032	J	0.029	J H	0.22	U	0.22	U	0.065	J	0.034	J
Perfluorononanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.040	J
Perfluorooctanesulfonamide	NC	NC	NC	0.23	UJ	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	R
Perfluorooctanesulfonic acid	0.88	44	1.0	0.23	U	0.069	J H	0.15	J	0.11	J	0.074	J	**2.36**	
Perfluorooctanoic acid	0.66	33	0.8	0.097	J	0.19	J H	0.22	U	0.22	U	0.41		0.25	U
Perfluoropentanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.048	J	0.25	U
Perfluorotetradecanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluorotridecanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U
Perfluoroundecanoic acid	NC	NC	NC	0.23	U	0.23	U H	0.22	U	0.22	U	0.23	U	0.25	U

Notes

(1) Unrestricted Use, Restricted Residential, and Protection of Groundwater Use SCOs are presented in the NYSDEC Guidance Document titled "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC's Part 375 Remedial Programs" (April 2023) and are proposed in and upcoming revison to 6 NYCRR Part 375-6.

H - Sample was prepared or analyzed beyond the specified holding time

J - Estimated value

NC - No criterion

R - Rejected

SCO - Soil Cleanup Objective

Shading and bolding indicates results above comparison criteria. Color representing least stringent criteria exceeded is shown unless otherwise noted.

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-detect

ug/kg - Micrograms per kilogram

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	**TRC-SB-06-W (20-22)**		**TRC-SB-06-E (1-3)**		**TRC-SB-12 (1-4)**		**TRC-SB-13 (1-4)**		**TRC-SB-14 (1-4)**	
			SAMPLE DEPTH (FEET BGS)	20-22		1-3		1-4		1-4		1-4	
			LAB SAMPLE ID	460-260974-5		460-260974-6		460-260929-11		460-260929-10		460-261083-1	
			SAMPLE DTE	6/28/22		6/28/22		6/27/22		6/27/22		6/29/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
NEtFOSAA	NC	NC	NC	0.25	U H	0.026	J	0.23	U	0.29	U	0.23	U
NMeFOSAA	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.50	U H	0.45	U	0.45	U	0.57	U	0.46	U
Perfluorobutanoic acid	NC	NC	NC	0.25	U H	0.067	J	0.029	J	0.056	J	0.23	U
Perfluorodecanesulfonic acid	NC	NC	NC	0.25	U H	0.084	J	0.23	U	0.29	U	0.23	U
Perfluorodecanoic acid	NC	NC	NC	0.065	J H	0.098	J	0.23	U	0.29	U	0.23	U
Perfluorododecanoic acid	NC	NC	NC	0.25	U H	0.026	J	0.23	U	0.29	U	0.23	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
Perfluoroheptanoic acid	NC	NC	NC	0.25	U H	0.038	J	0.060	J	0.083	J	0.036	J
Perfluorohexanesulfonic acid	NC	NC	NC	0.25	U H	0.23	U	0.090	J	0.027	J	0.052	J
Perfluorohexanoic acid	NC	NC	NC	0.25	U H	0.078	J	0.050	J	0.058	J	0.049	J
Perfluorononanoic acid	NC	NC	NC	0.041	J H	0.032	J	0.23	U	0.29	U	0.042	J
Perfluorooctanesulfonamide	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
Perfluorooctanesulfonic acid	0.88	44	1.0	**2.39**	**H**	**1.62**		0.23	U	0.29	U	**1.11**	
Perfluorooctanoic acid	0.66	33	0.8	0.25	U H	0.080	J	0.22	J	0.61		0.33	
Perfluoropentanoic acid	NC	NC	NC	0.25	U H	0.073	J	0.058	J	0.29	U	0.16	J
Perfluorotetradecanoic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
Perfluorotridecanoic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U
Perfluoroundecanoic acid	NC	NC	NC	0.25	U H	0.23	U	0.23	U	0.29	U	0.23	U

Notes

(1) Unrestricted Use, Restricted Residential, and Protection of Groundwater Use SCOs are presented in the Document titled "Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSI Remedial Programs" (April 2023) and are proposed in and upcoming revison to 6 NYCRR Part 375-6.

H - Sample was prepared or analyzed beyond the specified holding time

J - Estimated value

NC - No criterion

R - Rejected

SCO - Soil Cleanup Objective

Shading and bolding indicates results above comparison criteria. Color representing least stringent criteria e

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-detect

ug/kg - Micrograms per kilogram

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	**TRC-SB-14 (12-15)**		**TRC-DUP-02**		**TRC-SB-14 (73-75)**		**TRC-SB-15 (1-4)**		**TRC-SB-15 (12-15)**	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		73-75		1-4		12-15	
			LAB SAMPLE ID	460-261083-2		460-261083-3		460-261888-1		460-261747-1		460-261747-2	
			SAMPLE DTE	6/29/22		6/29/22		7/13/22		7/11/22		7/11/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
NEtFOSAA	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
NMeFOSAA	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.44	U	0.43	U	0.51	U	0.45	U	0.45	U
Perfluorobutanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorodecanesulfonic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.11	J	0.23	U
Perfluorodecanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.081	J	0.23	U
Perfluorododecanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.043	J	0.23	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluoroheptanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorohexanesulfonic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorohexanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.024	J	0.23	U
Perfluorononanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.032	J	0.23	U
Perfluorooctanesulfonamide	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorooctanesulfonic acid	0.88	44	1.0	0.46		0.43		0.25	U	0.79		0.23	U
Perfluorooctanoic acid	0.66	33	0.8	0.033	J	0.036	J	0.25	U	0.066	J	0.097	J
Perfluoropentanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorotetradecanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluorotridecanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.23	U	0.23	U
Perfluoroundecanoic acid	NC	NC	NC	0.22	U	0.22	U	0.25	U	0.12	J	0.23	U

Notes

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H - Sample was prepared or analyzed beyond the specified holding time

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NC - No criterion

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SCO - Soil Cleanup Objective

Shading and bolding indicates results above comparison criteria. Color representing least stringent criteria e

TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-detect

ug/kg - Micrograms per kilogram

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	**TRC-SB-15 (73-75)**		**TRC-SB-16 (1-3)**		**TRC-SB-17 (1-2)**		**TRC-SB-18 (1-4)**		**TRC-SB-18 (12-15)**	
			SAMPLE DEPTH (FEET BGS)	73-75		1-3		1-2		1-4		12-15	
			LAB SAMPLE ID	460-261747-3		460-260974-1		460-260974-2		460-260929-6		460-260929-7	
			SAMPLE DTE	7/11/22		6/28/22		6/28/22		6/27/22		6/27/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
NEtFOSAA	NC	NC	NC	0.23	U	0.22	U	0.030	J	0.22	U	0.25	U
NMeFOSAA	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.47	U	0.45	U	0.45	U	0.43	U	0.49	U
Perfluorobutanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorodecanesulfonic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorodecanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorododecanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluoroheptanoic acid	NC	NC	NC	0.23	U	0.22	U	0.045	J	0.22	U	0.25	U
Perfluorohexanesulfonic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorohexanoic acid	NC	NC	NC	0.23	U	0.023	J	0.043	J	0.22	U	0.25	U
Perfluorononanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorooctanesulfonamide	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorooctanesulfonic acid	0.88	44	1.0	0.23	U	0.053	J	**1.14**		0.22	U	0.25	U
Perfluorooctanoic acid	0.66	33	0.8	0.23	U	0.096	J	0.22	J	0.22	U	0.25	U
Perfluoropentanoic acid	NC	NC	NC	0.23	U	0.22	U	0.030	J	0.22	U	0.25	U
Perfluorotetradecanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluorotridecanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U
Perfluoroundecanoic acid	NC	NC	NC	0.23	U	0.22	U	0.23	U	0.22	U	0.25	U

Notes

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H - Sample was prepared or analyzed beyond the specified holding time

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TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-detect

ug/kg - Micrograms per kilogram

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	**TRC-DUP-01**		**TRC-SB-19 (1-4)**		**TRC-SB-19 (12-15)**		**TRC-SB-19 (22.5-24.5)**		**TRC-SB-20 (1-4)**	
			SAMPLE DEPTH (FEET BGS)	12-15		1-4		12-15		22.5-24.5		1-4	
			LAB SAMPLE ID	460-260929-9		460-260929-3		460-260929-4		460-260929-5		460-260929-1	
			SAMPLE DTE	6/27/22		6/27/22		6/27/22		6/27/22		6/27/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
NEtFOSAA	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
NMeFOSAA	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.49	U	0.44	U	0.47	U	0.44	U	0.63	U
Perfluorobutanoic acid	NC	NC	NC	0.25	U	0.045	J	0.24	U	0.056	J	0.32	U
Perfluorodecanesulfonic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorodecanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorododecanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluoroheptanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorohexanesulfonic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorohexanoic acid	NC	NC	NC	0.25	U	0.033	J	0.24	U	0.22	U	0.32	U
Perfluorononanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorooctanesulfonamide	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorooctanesulfonic acid	0.88	44	1.0	0.25	U	0.067	J	0.24	U	0.22	U	0.32	U
Perfluorooctanoic acid	0.66	33	0.8	0.25	U	0.14	J	0.24	U	0.22	U	0.32	U
Perfluoropentanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorotetradecanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluorotridecanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U
Perfluoroundecanoic acid	NC	NC	NC	0.25	U	0.22	U	0.24	U	0.22	U	0.32	U

Notes

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TRC-DUP-01 is a duplicate of TRC-SB-18 (12-15)

TRC-DUP-02 is a duplicate of TRC-SB-14 (12-15)

U - Non-detect

ug/kg - Micrograms per kilogram

Table 8
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil for Per- and Polyflouroalkyl Substances

			SAMPLE ID	**TRC-SB-20 (12-15)**		**TRC-SB-20 (12-15)**		**TRC-SB-21 (1-4)**		**TRC-SB-21 (12-15)**		**TRC-SB-21 (71-73)**	
			SAMPLE DEPTH (FEET BGS)	12-15		12-15		1-4		12-15		71-73	
			LAB SAMPLE ID	460-260929-2		460-260929-2		460-261556-1		460-261556-2		460-261619-1	
			SAMPLE DTE	6/27/22		6/27/22		7/7/22		7/7/22		7/7/22	
			MATRIX	Soil		Soil		Soil		Soil		Soil	
			SATURATED OR UNSATURATED	Unsaturated		Unsaturated		Unsaturated		Unsaturated		Unsaturated	
			DILUTION FACTOR	1		1		1		1		1	
			UNIT	ug/kg		ug/kg		ug/kg		ug/kg		ug/kg	
Per- and Polyfluoroalkyl Substances (PFAS)	**NYSDEC Unrestricted Use SCO (ug/kg)**	**NYSDEC Restricted Residential Use SCO (ug/kg)**	**Protection of Groundwater SCO (ug/kg)**	Result	Q	Secondary 1	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
8:2 Fluorotelomer sulfonic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
NEtFOSAA	NC	NC	NC	0.24	R	0.24	U H	0.25	U	0.23	U	0.23	U
NMeFOSAA	NC	NC	NC	0.24	R	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluorobutanesulfonic acid	NC	NC	NC	0.47	U	0.47	U H	0.51	U	0.46	U	0.45	U
Perfluorobutanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.055	J	0.23	U	0.23	U
Perfluorodecanesulfonic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluorodecanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.11	J	0.23	U	0.23	U
Perfluorododecanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluoroheptanesulfonic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluoroheptanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.13	J	0.23	U	0.23	U
Perfluorohexanesulfonic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluorohexanoic acid	NC	NC	NC	0.024	J	0.029	J H	0.10	J	0.23	U	0.23	U
Perfluorononanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.046	J	0.23	U	0.23	U
Perfluorooctanesulfonamide	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluorooctanesulfonic acid	0.88	44	1.0	0.24	U	0.24	U H	**1.05**		0.23	U	0.23	U
Perfluorooctanoic acid	0.66	33	0.8	0.049	J	0.047	J H	**0.78**		0.13	J	0.23	U
Perfluoropentanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.092	J	0.23	U	0.23	U
Perfluorotetradecanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluorotridecanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U
Perfluoroundecanoic acid	NC	NC	NC	0.24	U	0.24	U H	0.25	U	0.23	U	0.23	U

Notes

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U - Non-detect

ug/kg - Micrograms per kilogram

Table 9A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Volatile Organic Compounds

	SAMPLE ID	TRC-GW-04		TRC-GW-14		TRC-GW-DUP		TRC-GW-15		TRC-GW-21		TRC-EB-07202022	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1		1		1		1	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**Class GA Value (µg/L)****	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trimethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-Chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3,5-Trimethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Butanone (MEK)	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Isopropyltoluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone (MIBK)	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	60	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorodibromomethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	**8.4**		**8.8**		**8.8**		1.9		**24**		1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4 [(a)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorobromomethane	50	0.75	J	1.0	U	1.0	U	1.0	U	0.40	J	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Table 9A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Volatile Organic Compounds

	SAMPLE ID	**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1		1		1		1	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**Class GA Value (µg/L)****	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylene Dibromide	0.0006	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl acetate	NC	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	10	0.60	J	1.0	U	1.0	U	1.3		0.28	J	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	0.45	J
m-Xylene & p-Xylene	5[(b)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Naphthalene	10	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
n-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
N-Propylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
o-Xylene	5[(b)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
sec-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tert-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4[(a)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	0.50	J	1.8		1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes, Total	5[(b)]	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Total Estimated Conc. (TICs)	NC	ND		ND		ND		ND		ND		ND	

Notes:

* - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

(a) - Applies to the sum of cis- and trans-1,3-Dichloropropene.

(b) - There is no Standard or Guidance Value for total xylenes. The Standard for o-xylene, m-xylene, and p-xylene is 5 µg/L.

Bold and shaded indicates result above Class GA Value.

J - Estimated value

NC - No criterion

ND - Not detected

Q - Qualifier

TRC-GW-DUP is a duplicate sample of TRC-GW-14.

U - Non-Detect

µg/L - Micrograms per liter

Table 9B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Volatile Organic Compounds

	SAMPLE ID	TRC-GW-22		TRC-GW-DUP		TRC-GW-22-N		TRC-GW-22-SW		TRC-GW-22-E	
	LAB SAMPLE ID	460-311272-1		460-311272-5		460-311367-1		460-311272-3		460-311272-2	
	SAMPLE DATE	9/12/2024		9/12/2024		9/13/2024		9/12/2024		9/12/2024	
	MATRIX	Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1		1		1	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L	
VOLATILE ORGANIC COMPOUNDS (VOCs)	**Class GA Value (µg/L)****	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	5	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trimethylbenzene	5	4.8		4.5		1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-Chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	**1.1**		**1.2**		1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3,5-Trimethylbenzene	5	1.7		1.5		1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Butanone (MEK)	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Hexanone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
4-Isopropyltoluene	5	0.56	J	0.49	J	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone (MIBK)	NC	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.53	J	0.56	J	1.0	U	**1.4**		1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorodibromomethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	**39**		**42**		**35**		**13**		**11**	
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4 [(a)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cyclohexane	NC	8.0		8.9		1.0	U	1.0	U	1.0	U
Dichlorobromomethane	50	0.66	J	0.70	J	0.66	J	0.73	J	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.8		1.9		1.0	U	1.0	U	1.0	U
Ethylene Dibromide	0.0006	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexane	NC	0.86	J	0.75	J	1.0	U	1.0	U	1.0	U
Isooctane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	0.87	J	0.92	J	1.0	U	1.0	U	1.0	U
Methyl acetate	NC	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methyl tert-butyl ether	NC	14		16		23		4.7		19	
Methylcyclohexane	NC	11		12		1.0	U	1.0	U	1.0	U
Methylene Chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m-Xylene & p-Xylene	5 [(b)]	**6.3**		**6.9**		1.0	U	1.0	U	1.0	U
Naphthalene	10	0.92	J	0.89	J	1.0	U	1.0	U	1.0	U
n-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
n-Heptane	NC	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
N-Propylbenzene	5	0.68	J	0.65	J	1.0	U	1.0	U	1.0	U
o-Xylene	5 [(b)]	3.4		3.6		1.0	U	1.0	U	1.0	U
sec-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	930	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
tert-Butylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	2.3		2.5		1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4 [(a)]	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.3		1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes, Total	5 [(b)]	**9.7**		**11**		2.0	U	2.0	U	2.0	U
Total Estimated Conc. (TICs)	NC	13.8	NJ	8.0	NJ	63	J	ND		ND	

Notes:
* - LCS or LCSD is outside acceptance limits.
** - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.
(a) - Applies to the sum of cis- and trans-1,3-Dichloropropene.
(b) - There is no Standard or Guidance Value for total xylenes. The Standard for o-xylene, m-xylene, and p-xylene is 5 µg/L.
Bold and shaded indicates result above Class GA Value.
B - The analyte was found in an associated blank, as well as in the sample.
J - Estimated value
N - Indicates the presumptive evidence of a compound
NC - No criterion
ND - Not detected
Q - Qualifier
TRC-GW-DUP is a duplicate sample of TRC-GW-22.
U - Non-Detect
µg/L - Micrograms per liter

Table 10A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Semivolatile Organic Compounds

SAMPLE ID		**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
LAB SAMPLE ID		460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
SAMPLE DATE		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
MATRIX		Water		Water		Water		Water		Water		Water	
DILUTION FACTOR		1		1		1		1		1		1	
UNIT		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	5	10	U	10	U	10	U	10	U	10	U	10	U
1,2,4,5-Tetrachlorobenzene	5	10	U	10	U	10	U	10	U	10	U	10	U
1,4-Dioxane	0.35[(1)]	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
2,2'-oxybis[1-chloropropane]	5	10	U	10	U	10	U	10	U	10	U	10	U
2,3,4,6-Tetrachlorophenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	5	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	50	10	U	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	10	40	U	40	U	40	U	40	U	40	U	40	U
2,4-Dinitrotoluene	5	10	U	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
2-Chloronaphthalene	10	10	U	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	NC	10	U	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	5	10	U	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	5	10	U	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	5	10	U	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	NC	20	U	20	U	20	U	20	U	20	U	20	U
4-Bromophenyl phenyl ether	NC	10	U	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline	5	10	U	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl phenyl ether	NC	10	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	NC	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	5	10	U	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	5	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ	20	UJ
Acenaphthene	20	10	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	NC	10	U	10	U	10	U	10	U	10	U	10	U
Acetophenone	NC	10	U	10	U	10	U	10	U	10	U	10	U
Anthracene	50	10	U	10	U	10	U	10	U	10	U	10	U
Atrazine	7.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Benzaldehyde	NC	10	U	10	U	10	U	10	U	10	U	10	U
Benzo[a]anthracene	0.002	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzo[a]pyrene	>ND	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzo[b]fluoranthene	0.002	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Benzo[k]fluoranthene	0.002	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bis(2-chloroethoxy)methane	5	10	U	10	U	10	U	10	U	10	U	10	U
Bis(2-chloroethyl)ether	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bis(2-ethylhexyl) phthalate	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U

Table 10A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Semivolatile Organic Compounds

SAMPLE ID		**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
LAB SAMPLE ID		460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
SAMPLE DATE		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
MATRIX		Water		Water		Water		Water		Water		Water	
DILUTION FACTOR		1		1		1		1		1		1	
UNIT		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Butyl benzyl phthalate	50	10	U	10	U	10	U	10	U	10	U	10	U
Caprolactam	NC	10	U	10	U	10	U	10	U	10	U	10	U
Carbazole	NC	10	U	10	U	10	U	10	U	10	U	10	U
Chrysene	0.002	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Dibenz(a,h)anthracene	NC	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ	1.0	UJ
Dibenzofuran	NC	10	U	10	U	10	U	10	U	10	U	10	U
Diethyl phthalate	50	10	U	10	U	10	U	10	U	10	U	10	U
Dimethyl phthalate	50	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-butyl phthalate	50	10	U	10	U	10	U	10	U	10	U	10	U
Di-n-octyl phthalate	50	10	U	10	U	10	U	10	U	10	U	10	U
Fluoranthene	50	10	U	10	U	10	U	10	U	10	U	10	U
Fluorene	50	10	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexachlorobutadiene	0.5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexachlorocyclopentadiene	5	10	U	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ	2.0	UJ
Isophorone	50	10	U	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Nitrobenzene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
N-Nitrosodi-n-propylamine	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
N-Nitrosodiphenylamine	50	10	U	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	1	20	U	20	U	20	U	20	U	20	U	20	U
Phenanthrene	50	10	U	10	U	10	U	10	U	10	U	10	U
Phenol	1	10	U	10	U	10	U	10	U	10	U	10	U
Pyrene	50	10	U	10	U	10	U	10	U	10	U	10	U
Total Estimated Conc. (TICs)	NC	11.0	J	10.0	NJ	9.2	J	ND		ND		ND	

Notes:

[(1)] Class GA Value for 1,4-dioxane is presented in the NYSDEC Guidance Document titled "2023 Addendum to June 1998 Division of Water Technical and Operational Guidance Series (TOGS) No. 1.1.1" (February 2023) and proposed in an upcoming revision to TOGS 1.1.1.

* - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

Bold and shaded indicates result above Class GA Value.

J - Estimated value
N - Indicates the presumptive evidence of a compound
NC - No criterion
ND - Not Detected
Q - Qualifier
TRC-GW-DUP is a duplicate of TRC-GW-14.

Table 10A
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Semivolatile Organic Compounds

SAMPLE ID		**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
LAB SAMPLE ID		460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
SAMPLE DATE		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
MATRIX		Water		Water		Water		Water		Water		Water	
DILUTION FACTOR		1		1		1		1		1		1	
UNIT		µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q

U - Non-Detect
µg/L - Micrograms per liter

Table 10B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Semivolatile Organic Compounds

	SAMPLE ID	**TRC-GW-22**		**TRC-GW-DUP**		**TRC-GW-22-N**		**TRC-GW-22-SW**		**TRC-GW-22-E**	
	LAB SAMPLE ID	460-311272-1		460-311272-5		460-311367-1		460-311272-3		460-311272-2	
	SAMPLE DATE	9/12/2024		9/12/2024		9/13/2024		9/12/2024		9/12/2024	
	MATRIX	Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1/5		1		1/2	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**Class GA Value (µg/L)****	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
1,1'-Biphenyl	5	10	U	10	U	10	U	10	U	10	U
1,2,4,5-Tetrachlorobenzene	5	10	U	10	U	10	U	10	U	10	U
1,4-Dioxane	0.35	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis[1-chloropropane]	5	10	U	10	U	10	U	10	U	10	U
2,3,4,6-Tetrachlorophenol	NC	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	NC	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	NC	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	5	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	50	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	10	40	U	40	U	40	U	40	U	40	U
2,4-Dinitrotoluene	5	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5	2.9		2.0	U	2.0	U	2.0	U	2.0	U
2-Chloronaphthalene	10	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	NC	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	NC	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	NC	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	5	10	UJ	10	UJ	10	U	10	UJ	10	UJ
2-Nitrophenol	NC	10	U	10	U	10	U	10	U	10	U
3 & 4 Methylphenol	NC	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	5	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	5	10	U	10	U	10	U	10	U	10	U
4,6-Dinitro-2-methylphenol	NC	20	U	20	U	20	U	20	U	20	U
4-Bromophenyl phenyl ether	NC	10	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	NC	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline	5	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl phenyl ether	NC	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	NC	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	5	10	U	10	U	10	U	10	U	10	U
4-Nitrophenol	5	20	U	20	U	20	U	20	U	20	U
Acenaphthene	20	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	NC	10	U	10	U	10	U	10	U	10	U
Acetophenone	NC	10	U	10	U	10	U	10	U	10	U
Anthracene	50	10	U	10	U	10	U	10	U	10	U
Atrazine	7.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Benzaldehyde	NC	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Benzo[a]anthracene	0.002	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzo[a]pyrene	>ND	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Benzo[b]fluoranthene	0.002	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	10	U	10	U	10	U	10	U	10	U
Benzo[k]fluoranthene	0.002	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bis(2-chloroethoxy)methane	5	10	U	10	U	10	U	10	U	10	U
Bis(2-chloroethyl)ether	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bis(2-ethylhexyl) phthalate	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Butyl benzyl phthalate	50	10	U	10	U	10	U	10	U	10	U
Caprolactam	NC	30		22		110		15		58	
Carbazole	NC	10	U	10	U	10	U	10	U	10	U
Chrysene	0.002	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U
Dibenz(a,h)anthracene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibenzofuran	NC	10	U	10	U	10	U	10	U	10	U
Diethyl phthalate	50	10	U	10	U	10	U	10	U	10	U
Dimethyl phthalate	50	10	U	10	U	10	U	10	U	10	U
Di-n-butyl phthalate	50	10	U	10	U	10	U	10	U	10	U
Di-n-octyl phthalate	50	10	U	10	U	10	U	10	U	10	U
Fluoranthene	50	10	U	10	U	10	U	10	U	10	U
Fluorene	50	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexachlorobutadiene	0.5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Hexachlorocyclopentadiene	5	10	U	10	U	10	U	10	U	10	U
Hexachloroethane	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Isophorone	50	10	U	10	U	10	U	10	U	10	U
Naphthalene	10	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Nitrobenzene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
N-Nitrosodi-n-propylamine	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
N-Nitrosodiphenylamine	50	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	1	20	U	20	U	20	U	20	U	20	U
Phenanthrene	50	10	U	10	U	10	U	10	U	10	U
Phenol	1	10	U	10	U	10	U	10	U	10	U
Pyrene	50	10	U	10	U	10	U	10	U	10	U
Total Estimated Conc. (TICs)	NC	38	NJ	31	NJ	ND		ND		ND	

Notes:

* - LCS or LCSD is outside acceptance limits.

** - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

Bold and shaded indicates result above Class GA Value.

J - Estimated value

N - Indicates the presumptive evidence of a compound

NC - No criterion

ND - Not Detected

Q - Qualifier

TRC-GW-DUP is a duplicate of TRC-GW-22.

U - Non-Detect

Table 10B
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Semivolatile Organic Compounds

	SAMPLE ID	**TRC-GW-22**		**TRC-GW-DUP**		**TRC-GW-22-N**		**TRC-GW-22-SW**		**TRC-GW-22-E**	
	LAB SAMPLE ID	460-311272-1		460-311272-5		460-311367-1		460-311272-3		460-311272-2	
	SAMPLE DATE	9/12/2024		9/12/2024		9/13/2024		9/12/2024		9/12/2024	
	MATRIX	Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1/5		1		1/2	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L	
SEMIVOLATILE ORGANIC COMPOUNDS (SVOCs)	**Class GA Value (µg/L)****	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q

µg/L - Micrograms per liter

Table 11
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Metals and Cyanide

	SAMPLE ID	**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
METALS+	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aluminum	NC	48.9		513		40.0	U	1,640		895		40.0	U
Aluminum, Filtered		74.8		40.0	U	120		40.0	U	40.0	U	40.0	U
Antimony	3	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Antimony, Filtered		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	1.1	J	1.5	J	2.0	U
Arsenic, Filtered		2.0	U	2.0	U	2.0	U	2.0	U	1.1	J	2.0	U
Barium	1,000	251		166		166		299		141		4.0	U
Barium, Filtered		250		167		165		264		137		4.0	U
Beryllium	3	0.80	U	0.80	U	0.80	U	0.14	J	0.80	U	0.80	U
Beryllium, Filtered		0.80	U	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Cadmium	5	2.0	U	0.95	J	1.2	J	1.2	J	2.0	U	2.0	U
Cadmium, Filtered		2.0	U	0.90	J	1.0	J	1.5	J	2.0	U	2.0	U
Calcium	NC	297,000		205,000		221,000		207,000		143,000		500	U
Calcium, Filtered		273,000		209,000		196,000		209,000		143,000		500	U
Total Chromium	50	4.0	U	4.0	U	4.0	U	4.8		4.0	U	4.0	U
Total Chromium, Filtered		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
Cobalt	NC	0.83	J	1.4	J	1.0	J	3.6	J	1.4	J	4.0	U
Cobalt, Filtered		2.1	J	0.92	J	1.1	J	2.1	J	0.76	J	4.0	U
Copper	200	10		4.0	U	4.0	U	6.7		3.1	J	4.0	U
Copper, Filtered		4.0	U	7.4		4.0	U	9.5		9.4		4.0	U
Cyanide	200	10.0	UJ	10.0	UJ	10.0	UJ	10.0	UJ	10.0	UJ	10.0	UJ
Iron	300	100	J	**783**		120	U	**2,320**		**1,320**		120	U
Iron, Filtered		274		120	U	291		120	U	120	U	120	U
Lead	25	1.2	U	0.91	J	1.2	U	4.0		1.2		1.2	U
Lead, Filtered		0.93	J	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Magnesium	35,000	**115,000**		**92,600**		**98,100**		**73,100**		33,800		200	U
Magnesium, Filtered		**123,000**		**92,400**		**91,700**		**76,900**		33,400		200	U
Manganese	500	15.3		**713**		**664**		**1,650**		**527**		8.0	U
Manganese, Filtered		48.2		**692**		**679**		**1,490**		495		8.0	U

Table 11
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Metals and Cyanide

	SAMPLE ID	**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
METALS+	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Mercury	0.7	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Mercury, Filtered		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Nickel	100	2.0	J	11.0		11.1		26.1		4.1		4.0	U
Nickel, Filtered		0.92	J	10		9.8		22.6		3.2	J	4.0	U
Potassium	NC	7,260		15,000		15,700		8,830		5,690		200	U
Potassium, Filtered		7,330		15,400		15,500		8,630		5,880		200	U
Selenium	10	3.1		6.9		7.6		3.7		2.5	U	2.5	U
Selenium, Filtered		2.9		6.5		6.2		3.7		2.5	U	2.5	U
Silver	50	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Silver, Filtered		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Sodium	20,000	**283,000**		**325,000**		**347,000**		**184,000**		**55,700**		500	U
Sodium, Filtered		**298,000**		**321,000**		**323,000**		**193,000**		**55,200**		268	J
Thallium	0.5	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Thallium, Filtered		0.80	U	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
Vanadium	NC	0.93	J	2.6	J	4.0	U	4.8		4.4		4.0	U
Vanadium, Filtered		0.85	J	4.0	U	0.77	J	4.0	U	1.6	J	4.0	U
Zinc	2,000	16.0	U	14.0	J	11.7	J	20.2		16.0	U	16.0	U
Zinc, Filtered		16.0	U	14.4	J	13.6	J	14.3	J	16.0	U	16.0	U

Notes:

* - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

+ - Analysis performed on unfiltered samples unless otherwise noted.

Bold and shaded indicates result above Class GA Value.

J - Estimated value

NC - No criterion

Q - Qualifier

TRC-GW-DUP is a duplicate of TRC-GW-14.

U - Non-Detect

µg/L - Micrograms per liter

Table 12
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Polychlorinated Biphenyls

	SAMPLE ID	TRC-GW-04		TRC-GW-14		TRC-GW-DUP		TRC-GW-15		TRC-GW-21		TRC-EB-07202022	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1		1		1		1	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
POLYCHLORINATED BIPHENYLS (PCBS)	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor 1016	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1221	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1232	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1242	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1248	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1254	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1260	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1262	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Aroclor 1268	NC	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
Total	0.09	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U

Notes:
* - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

Bold and shaded indicates result above Class GA Value.

ND - Not detected

NC - No criterion

Q - Qualifier

TRC-GW-DUP is a duplicate of TRC-GW-14.

U - Non-Detect

µg/L - Micrograms per liter

Table 13
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Pesticides and Herbicides

	SAMPLE ID	**TRC-GW-04**		**TRC-GW-14**		**TRC-GW-DUP**		**TRC-GW-15**		**TRC-GW-21**		**TRC-EB-07202022**	
	LAB SAMPLE ID	460-262473-1		460-262473-2		460-262473-5		460-262473-3		460-262473-4		460-262473-6	
	SAMPLE DATE	7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
	MATRIX	Water		Water		Water		Water		Water		Water	
	DILUTION FACTOR	1		1		1		1		1		1	
	UNIT	µg/L		µg/L		µg/L		µg/L		µg/L		µg/L	
PESTICIDES	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
4,4'-DDD	0.3	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
4,4'-DDE	0.2	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
4,4'-DDT	0.2	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Aldrin	ND	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
alpha-BHC	0.01	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
beta-BHC	0.04	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Chlordane	NC	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
delta-BHC	0.04	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Dieldrin	0.004	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endosulfan I	NC	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endosulfan II	NC	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endosulfan sulfate	NC	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endrin	>ND	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endrin aldehyde	5	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Endrin ketone	6	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
gamma-BHC (Lindane)	0.05	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Heptachlor	0.04	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Heptachlor epoxide	0.03	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Methoxychlor	35	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Toxaphene	0.06	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
HERBICIDES	**Class GA Value (µg/L)***	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
2,4,5-T	35	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
2,4-D	50	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U
Silvex (2,4,5-TP)	0.26	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U	1.2	U

Notes:

* - New York State Department of Environmental Conservation Ambient Water Quality Standards and Guidance Values for Class GA water from the Division of Water Technical and Operational Guidance Series 1.1.1.

Bold and shaded indicates result above Class GA Value.
ND - Not detected
NC - No criterion
Q - Qualifier
TRC-GW-DUP is a duplicate of TRC-GW-14.
U - Not detected
µg/L - Micrograms per liter

Table 14
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Groundwater for Per- and Polyfluoroalkyl Substances

SAMPLE ID		TRC-GW-04		TRC-GW-14		TRC-GW-DUP		TRC-GW-15		TRC-GW-21		TRC-EB-07202022	
LAB SAMPLE ID		460-262307-1		460-262307-2		460-262307-5		460-262307-3		460-262307-4		460-262307-6	
SAMPLING DATE		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022		7/20/2022	
MATRIX		Water		Water		Water		Water		Water		Water	
UNIT		ng/L		ng/L		ng/L		ng/L		ng/L		ng/L	
Per- and Polyfluoroalkyl Substances (PFAS)	**Class GA Value (ng/L)**	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
6:2 Fluorotelomer sulfonic acid	NC	7.93		4.39	J	3.76	J	4.11	U	4.29	U	4.10	U
8:2 Fluorotelomer sulfonic acid	NC	2.48	U	2.52	U	2.59	U	2.46	U	2.57	U	2.46	U
NEtFOSAA	NC	2.48	U	2.52	U	2.59	U	2.46	U	2.57	U	2.46	U
NMeFOSAA	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorobutanesulfonic acid	NC	4.23		10.2		9.27		14.5		1.93		1.64	U
Perfluorobutanoic acid	NC	7.35		6.16		6.04		5.58		5.54		4.10	U
Perfluorodecanesulfonic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorodecanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorododecanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluoroheptanesulfonic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluoroheptanoic acid	NC	9.40		16.2		15.5		9.33		3.26		1.64	U
Perfluorohexanesulfonic acid	NC	1.72		6.25		6.07		7.93		1.33	J	1.64	U
Perfluorohexanoic acid	NC	8.40		14.8		14.5		9.55		8.77		1.64	U
Perfluorononanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorooctanesulfonamide	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorooctanesulfonic acid	2.7[(1)]	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorooctanoic acid	6.7[(1)]	1.17	J	1.44	J	1.48	J	**14.0**		1.60	J	1.64	U
Perfluoropentanoic acid	NC	14.1		11.3		12.1		8.90		12.1		1.64	U
Perfluorotetradecanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluorotridecanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U
Perfluoroundecanoic acid	NC	1.65	U	1.68	U	1.73	U	1.64	U	1.72	U	1.64	U

Notes:

[(1)] - GA Value for PFOS and PFOA is presented in the NYSDEC Guidance Document titled "2021 Addendum to June 1998 Division of Water Technical and Operational Guidance Series (TOGS) No. 1.1.1" (February 2023) and proposed in an upcoming revision to TOGS 1.1.1.

H - Sample was analyzed beyond the holding time
J - Estimated value
NC - No Criterion
ND - Not detected
ng/L - Nanograms per liter
PFOA - Perfluorooctanoic acid
PFOS - Perfluorooctanesulfonic acid
Q - Qualifier
Shaded and **bold** results exceed the corresponding Class GA Value.
TRC-GW-DUP is a duplicate of TRC-GW-14.
U - Non-detect

Table 15
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
List of Permits

Permit	Agency	Citation of Law, Statute, or Code	Contact	Phone Number
NYCDEP Discharge Permit	NYCDEP	NYC Adminstrative Code	Gareth King	311
Stormwater Pollution Prevention Plan	NYCDEP	ECL Article 17, Title 8	Gareth King	311
Brownfield Cleanup Program Agreement	NYSDEC	ECL Article 27, Title 14	Jennifer Gonzalez	718-482-4508
Department of Building Permits - Cranes and Derricks - After-hours work - Elevators - Bureau of Electrical Control - Material Hoists and Hoistways - Mechanical Demolitions - Equipment Use for Boilers - Equipment Use for Fuel Tanks	NYCDOB	NYC Construction Codes	TBD	311

Notes:
NYCDEP - New York City Department of Environmental Protection
NYSDEC - New York State Department of Environmental Conservation
NYCDOB - New York City Department of Buildings
ECL - Environmental Conservation Law

Table 16
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Results of Analysis of Soil Exceedances Above Restriced Residential Use SCOs on Lot 28

Parameter	Restricted Residential Use SCO	TRC-SB-14 (1-4)
SVOCs	(mg/kg)	(mg/kg)
BENZO[A]ANTHRACENE	1	1.8
BENZO[A]PYRENE	1	1.7
BENZO[B]FLUORANTHENE	1	2.7
INDENO(1,2,3-CD)PYRENE	0.5	1.7

Table 17
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Soil Cleanup Objectives

Analyte	CAS Number	Track 4 NYSDEC Part 375 Restricted-Residential SCO (mg/kg)
Metals		
Arsenic	7440-38-2	16
Barium	7440-39-3	400
Beryllium	7440-41-7	72
Cadmium	7440-43-9	4.3
Chromium, hexavalent	18540-29-9	110
Chromium, trivalent	16065-83-1	180
Copper	7440-50-8	270
Total Cyanide		27
Lead	7439-92-1	400
Manganes	7439-96-5	2,000
Total Mercury		0.81
Nickel	7440-02-0	310
Selenium	7782-49-2	180
Silver	7440-22-4	180
Zinc	7440-66-6	10,000
Semivolatile Organic Carbons (SVOCs)		
Acenaphthene	83-32-9	100
Acenapthylene	208-96-8	100
Anthracene	120-12-7	100
Benz(a)anthracene	56-55-3	1
Benzo(a)pyrene	50-32-8	1
Benzo(b)fluoranthene	205-99-2	1
Benzo(g,h,i)perylene	191-24-2	100
Benzo(k)fluoranthene	207-08-9	3.9
Chrysene	218-01-9	3.9
Dibenz(a,h)anthracene	53-70-3	0.33
Fluoranthene	206-44-0	100
Fluorene	86-73-7	100
Indeno(1,2,3-cd)pyrene	193-39-5	0.5
m-Cresol	108-39-4	100
Naphthalene	91-20-3	100
o-Cresol	95-48-7	100
p-Cresol	106-44-5	100
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	100
Phenol	108-95-2	100
Pyrene	129-00-0	100

Table 17
New York City School Construction Authority
8802 5th Avenue, Brooklyn, New York
Remedial Action Work Plan
Soil Cleanup Objectives

Analyte	CAS Number	Track 4 NYSDEC Part 375 Restricted-Residential SCO (mg/kg)
Volatile Organic Carbons (VOCs)		
1,1,1-Trichloroethane	71-55-6	100
1,1-Dichloroethane	75-34-3	26
1,1-Dichloroethene	75-35-4	100
1,2-Dichlorobenzene	95-50-1	100
1,2-Dichloroethane	107-06-2	3.1
cis-1,2-Dichloroethene	156-59-2	100
trans-1,2-Dichloroethene	156-60-5	100
1,3-Dichlorobenzene	541-73-1	49
1,4-Dichlorobenzene	106-46-7	13
1,4-Dioxane	123-91-1	13
Acetone	67-64-1	100
Benzene	71-43-2	4.8
Butylbenzene	104-51-8	100
Carbon tetrachloride	56-23-5	2.4
Chlorobenzene	108-90-7	100
Chloroform	67-66-3	49
Ethylbenzene	100-41-4	41
Hexachlorobenzene	118-74-1	1.2
Methyl ethyl ketone	78-93-3	100
Methyl tert-butyl ether	1634-04-4	100
Methylene chloride	75-09-2	100
n-Propylbenzene	103-65-1	100
sec-Butylbenzene	135-98-8	100
tert-Butylbenzene	98-06-6	100
Tetrachloroethene	127-18-4	19
Toluene	108-88-3	100
Trichloroethene	79-01-6	21
1,2,4-Trimethylbenzene	95-63-6	52
1,3,5- Trimethylbenzene	108-67-8	52
Vinyl chloride	75-01-4	0.9
Xylene (mixed)	1330-20-7	100

Notes:

1. SCO - Soil Cleanup Objective

2. SCOs taken from New York State Department of Environmental Conservication Title 6 of the Official Compilation of new York Codes, Rules, and Regularions (NYCRR) Part 375 Restricted Residential use Soil SCOs

3. mg/kg = milligram per kilogram

Table 18
New York City School Construction Authority
8802 5th Avenue, Brooklyn New York
Remedial Action Work Plan
Remediation Schedule

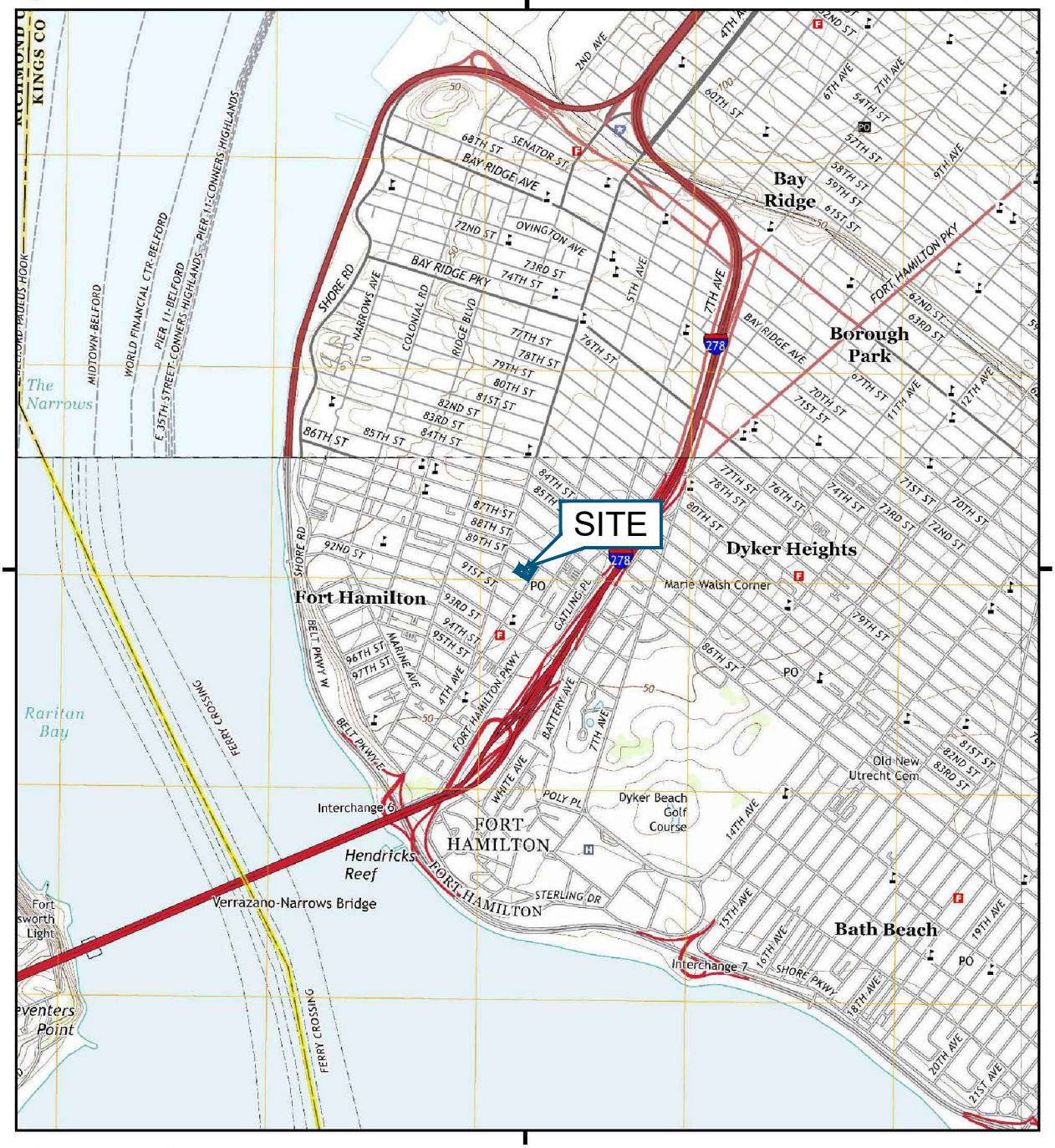
Schedule Milestone	Estimated Completion Date
NYSDEC Approval of IRM	May 28, 2025
IRM Implementation	January 2026
NYSDEC Approval of RAWP	December 2026
Pre-Construction Kickoff Meeting	January 2026
Excavate a Minimum of 2 Feet of Soil across Lot 28	June 2026
Environmental Easement Land Survey	October 2026
Vapor Sampling of SSDS Monitoring Points	November 2026
Complete Remedial Action Activities (Up to Vapor Sampling of SSDS monitoring points)	November 2026
Filing of Environmental Easement	March 2026
Submit Final Engineering Report/ Site Management Plan	November 2027
Certificate of Completion	December 2027
School Opening	September 2029

FIGURES

EDR

Historical Topo Map

2013, 2014



This report includes information from the following map sheet(s).

NW N NE
W E
SW S SE

TP, The Narrows, 2013, 7.5-minute
N, Jersey City, 2014, 7.5-minute
NE, Brooklyn, 2013, 7.5-minute
SE, Coney Island, 2013, 7.5-minute

0 Miles 0.25 0.5 1 1.5

SITE NAME: 8802 5th Avenue
ADDRESS: 8802 5th Avenue
Brooklyn, NY 11209

N

TRC
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New York, NY 10018
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PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

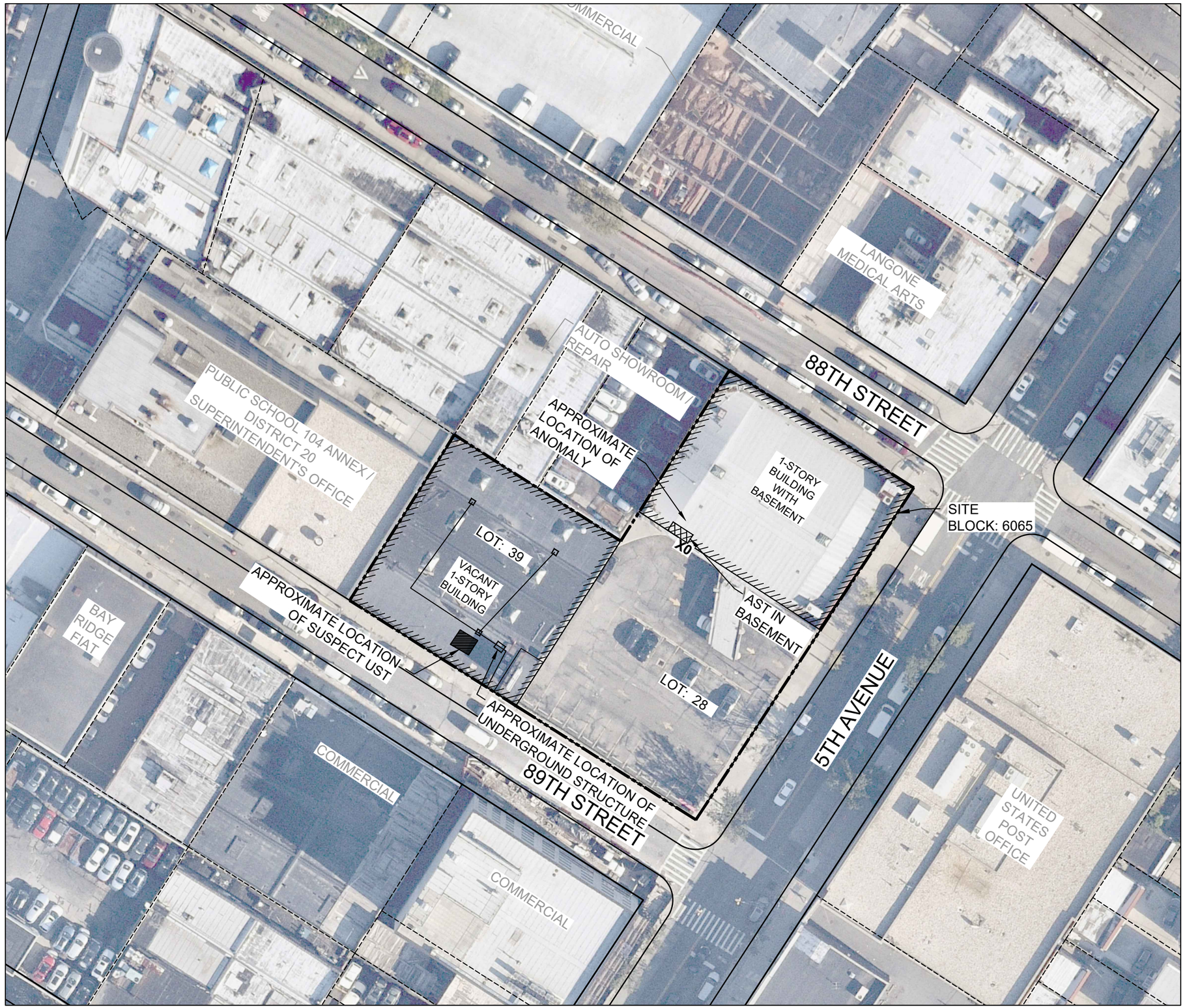
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SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	Z. SCHWARTZ
APPROVED BY:	J. RAUP
DATE:	JUNE 2025
PROJ. NO.:	630067.0000.0000
FILE:	Fig 1 - Site Location Map.dwg

FIGURE 1

8.5x11 -- ATTACHED XREFS: -- ATTACHED IMAGES: 2013-2014 Hist Topo:
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 1 - Site Location Map.dwg -- PLOT DATE: June 27, 2025 - 9:38AM -- LAYOUT: 8.5x11P



LEGEND (SYMBOLS NOT TO SCALE):

	SITE BOUNDARY
	LOT BOUNDARY
	BUILDING FOOTPRINT
	FLOOR DRAIN
X0	FILL PORT / VENT PIPE
	DRAINAGE PIPING

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. AERIAL IMAGE BACKGROUND SOURCED FROM NEARMAP DATED OCTOBER 01, 2020.
3. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
4. AST - ABOVEGROUND STORAGE TANK
5. UST - UNDERGROUND STORAGE TANK

N

TRUE NORTH
NY83-LIF

0 50' 100'

SCALE: 1" = 50'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

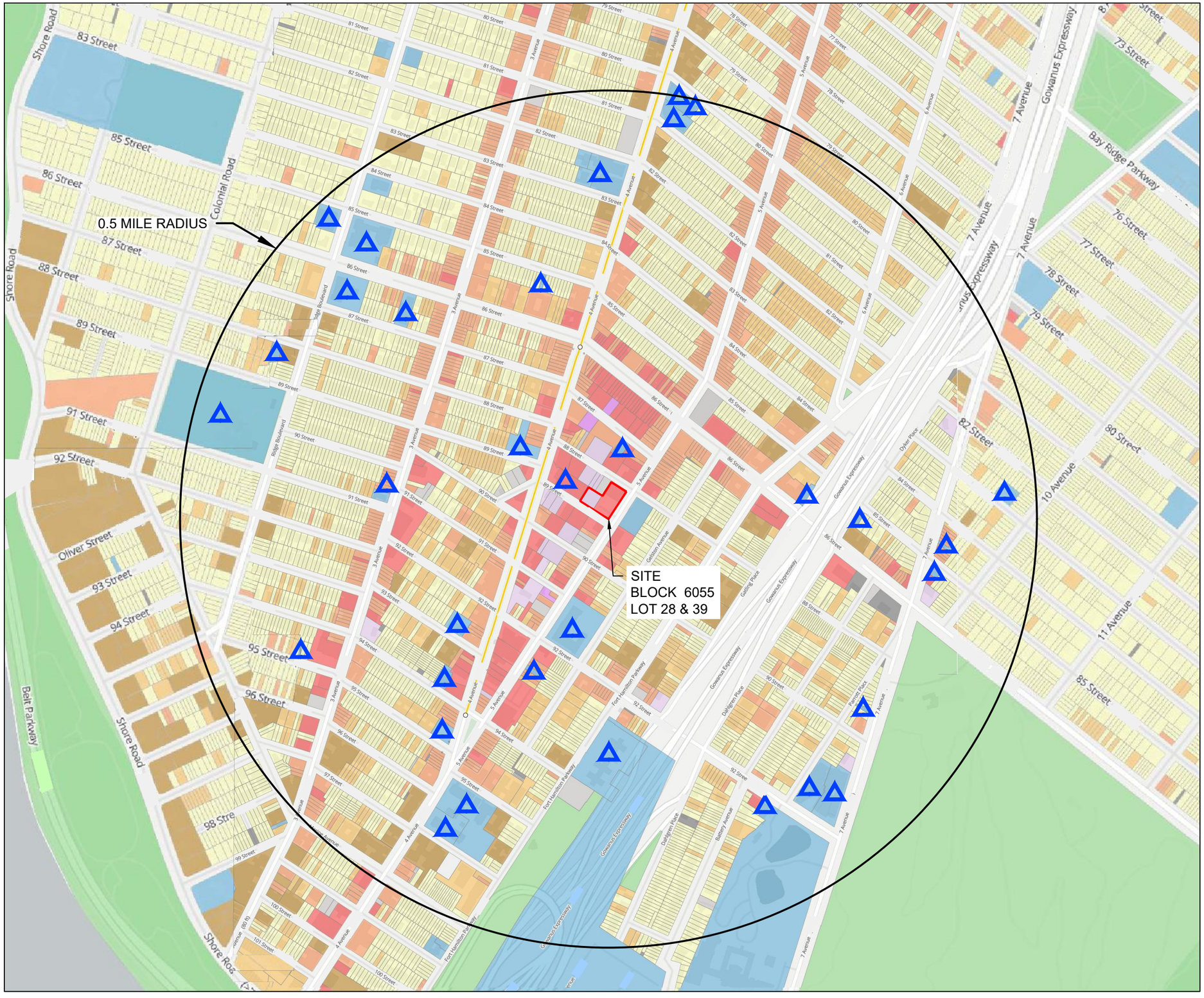
SITE PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 2**
DATE:	JUNE 2025		

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FILE NO.: Fig 2 - Site Plan.dwg

11:17 -- ATTACHED XREFS: -- ATTACHED IMAGES: EPSG2263,
DRAWING NAME: \\nyc-fp1\Projects$\NYCSCA Contract C000015348\436632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 2 - Site Plan.dwg -- PLOT DATE: July 16, 2025 - 10:49AM -- LAYOUT: 11x17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- 1 & 2 FAMILY RESIDENTIAL
- MULTI-FAMILY WALK-UP BUILDINGS
- MULTI-FAMILY ELEVATOR BUILDINGS
- MIXED RESIDENTIAL & COMMERCIAL BUILDINGS
- COMMERCIAL& OFFICE BUILDINGS
- INDUSTRIAL & MANUFACTURING
- TRANSPORTATION & UTILITY
- PUBLIC FACILITIES & INSTITUTIONS
- OPEN SPACE & OUTDOOR RECREATION
- PARKING FACILITIES
- VACANT LAND
- OTHER
- SCHOOL WITHIN 0.5 MILE RADIUS OF SITE

NOTE:

1. MAP SOURCE: HTTPS://ZOLA.PLANNING.NYC.GOV DOWNLOADED OCTOBER 22, 2024

N

TRUE NORTH
NY83-LIF

0 600' 1,200'

SCALE: 1" = 600'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

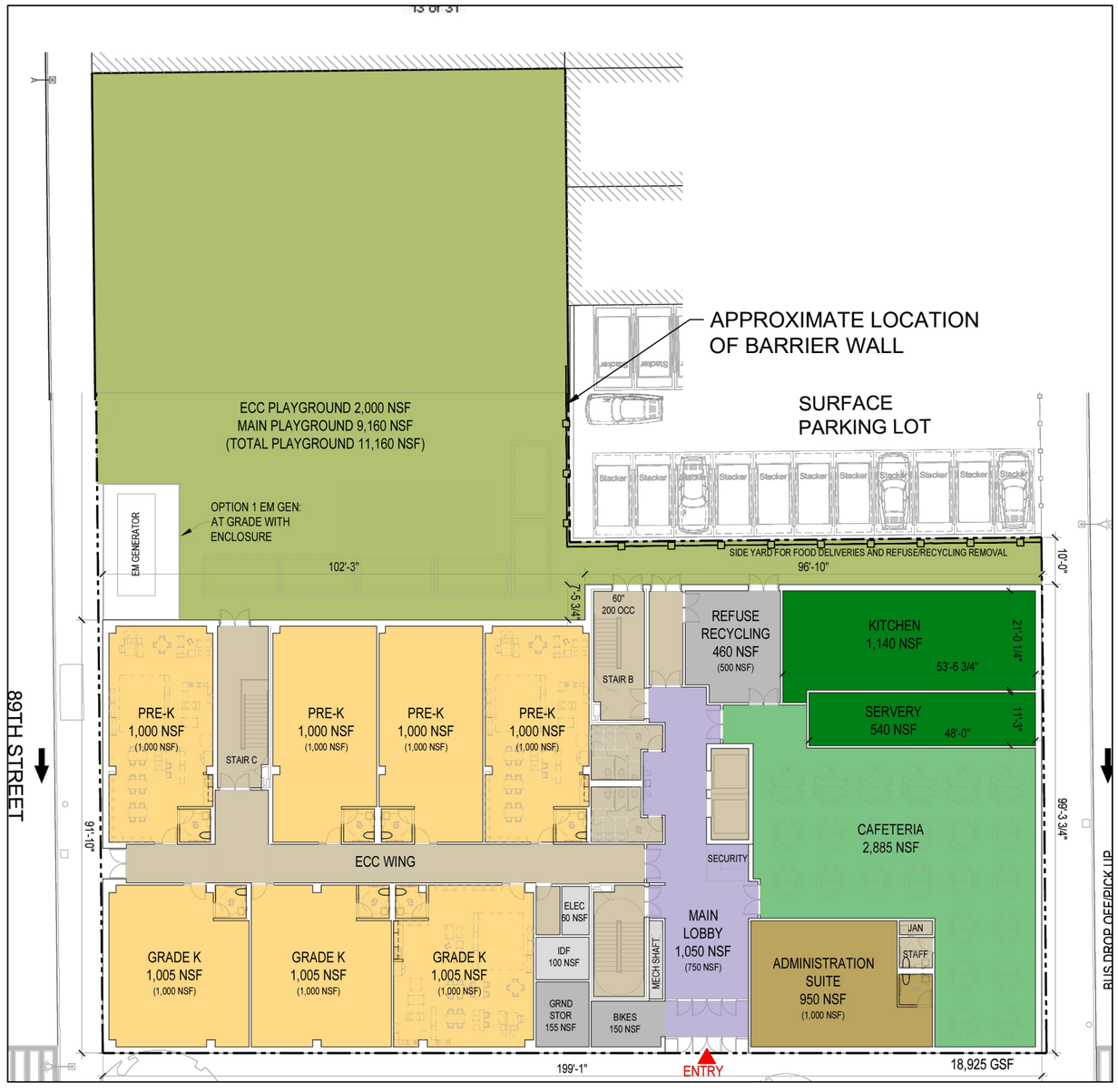
SURROUNDING LAND USE AND SENSITIVE ENVIRONMENTAL RECEPTORS

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 3**
DATE:	JUNE 2025		

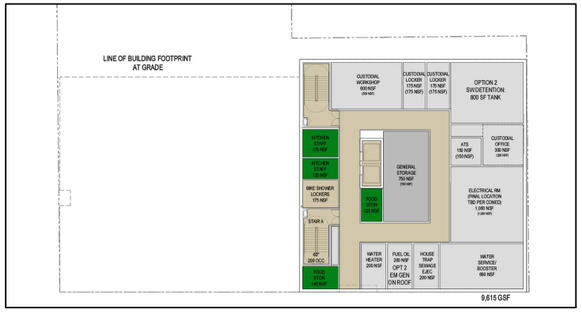
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FILE NO.: Fig 3 - Sur. Land Use & Sens. Env. Recept..dwg

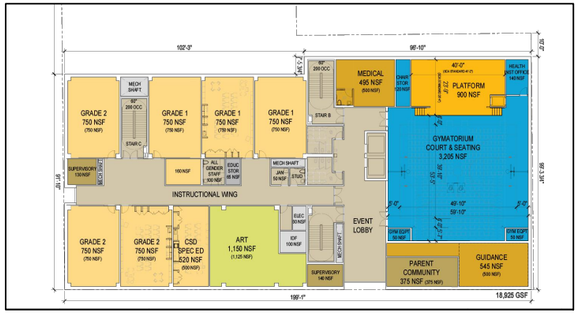
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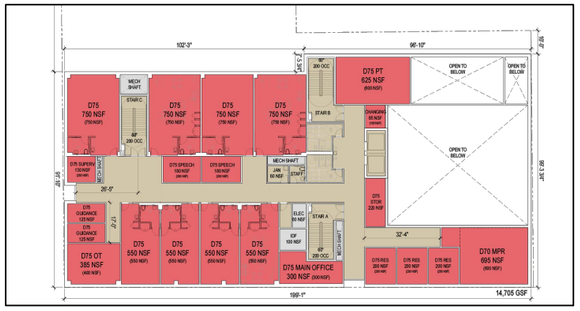
FIRST FLOOR / SITE PLAN
NOT TO SCALE



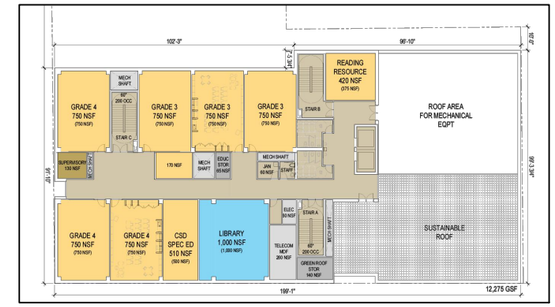
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NOT TO SCALE



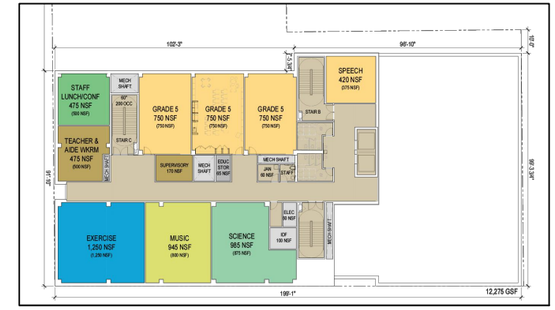
SECOND FLOOR PLAN
NOT TO SCALE



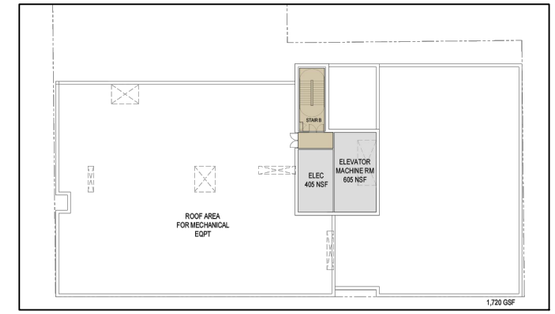
THIRD FLOOR PLAN
NOT TO SCALE



FOURTH FLOOR PLAN
NOT TO SCALE



FIFTH FLOOR PLAN
NOT TO SCALE



ROOF PLAN
NOT TO SCALE

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

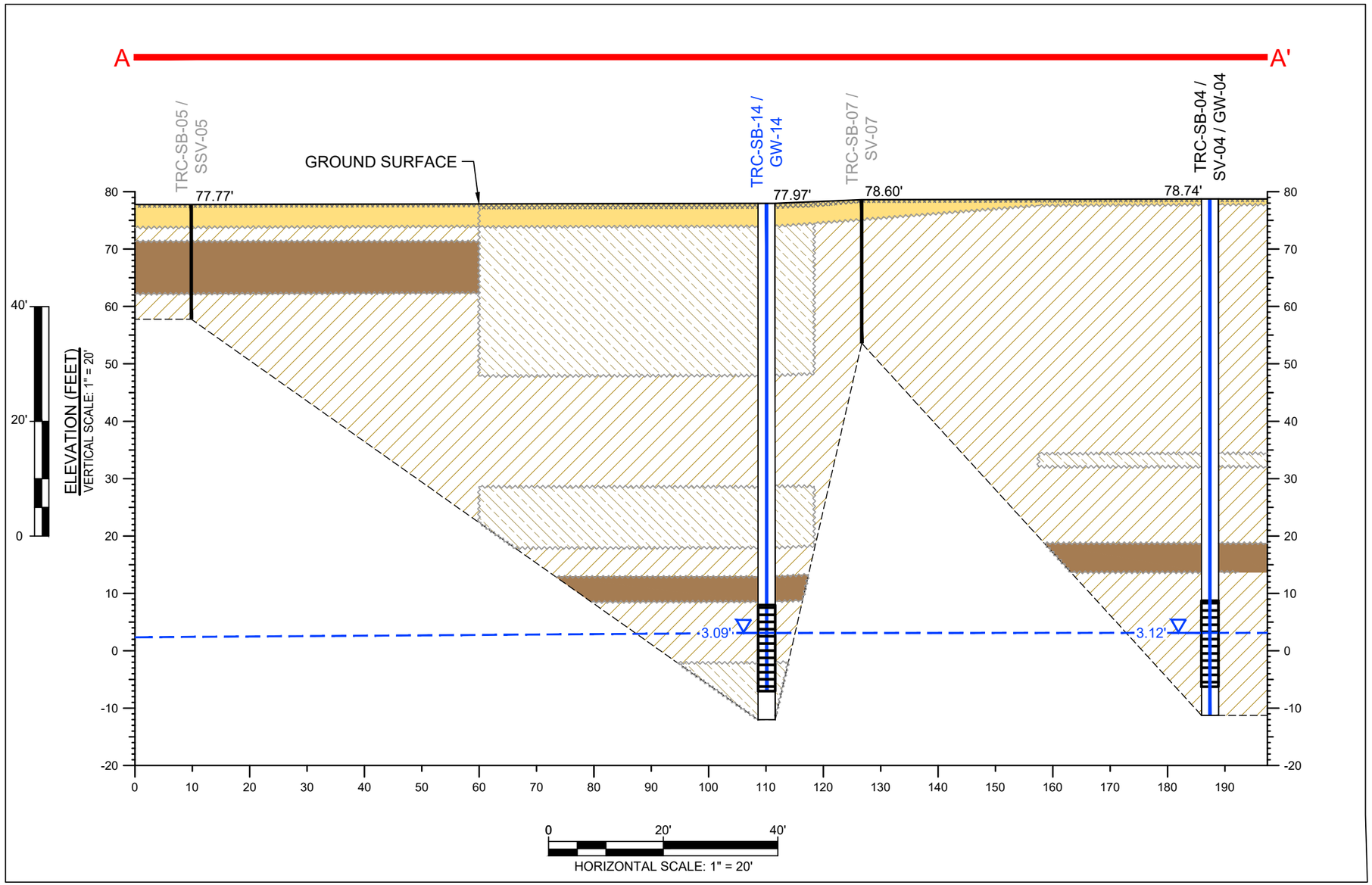
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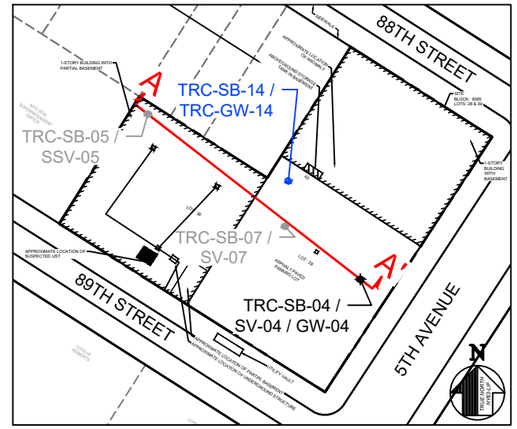
DRAWN BY:	Z. SCHWARTZ	PROJ NO.:	630067.0000.0000
CHECKED BY:	J, RAUP		
APPROVED BY:	P. CASTELLANO		**FIGURE 4**
DATE:	JUNE 2025		

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FILE NO.: Fig 4 - Site Develop. Plan (Prelim.).dwg

11x17 — ATTACHED IMAGES — ATTACHED IMAGES: _Text Fls - 8802 5th Ave-A - Memo-2, 5th Fl.; Text Fls - 8802 5th Ave-A - Memo-2, 1st Flr Plan; Text Fls - 8802 5th Ave-A - Memo-2, 2nd Fl.; Text Fls - 8802 5th Ave-A - Memo-2, 3rd Fl.; Text Fls - 8802 5th Ave-A - Memo-2, 4th Fl.; Text Fls - 8802 5th Ave-A - Memo-2, 5th Fl.; Text Fls - 8802 5th Ave-A - Memo-2, Cellar; Text Fls - 8802 5th Ave-A - Memo-2, Roof;
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 4 - Site Develop. Plan (Prelim.).dwg — PLOT DATE: June 27, 2025 - 8:22AM — LAYOUT: 11X17L





TRANSECT A-A' LOCATION MAP

0 100' 200'

SCALE: 1" = 100'

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)

LEGEND (SYMBOLS NOT TO SCALE):

- #.##' — GROUNDWATER SURFACE ELEVATION FROM GROUNDWATER SAMPLING GAUGING EVENT ON JULY 20, 2022 (DASHED WHERE INFERRED)
- MONITORING WELL SCREEN
- A — A' — GEOLOGIC CROSS-SECTION TRANSECT
- ABRUPT LITHOLOGIC CHANGE, BOUNDARY INFERRED
- GRADATIONAL LITHOLOGIC BLENDING, BOUNDARY INFERRED
- ASPHALT
- INTERPRETED DEPTH OF FILL MATERIAL
- CLAYEY SILT
- MOSTLY SILT
- MOSTLY SAND

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF ANOMOLY/POTENTIAL UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
5. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

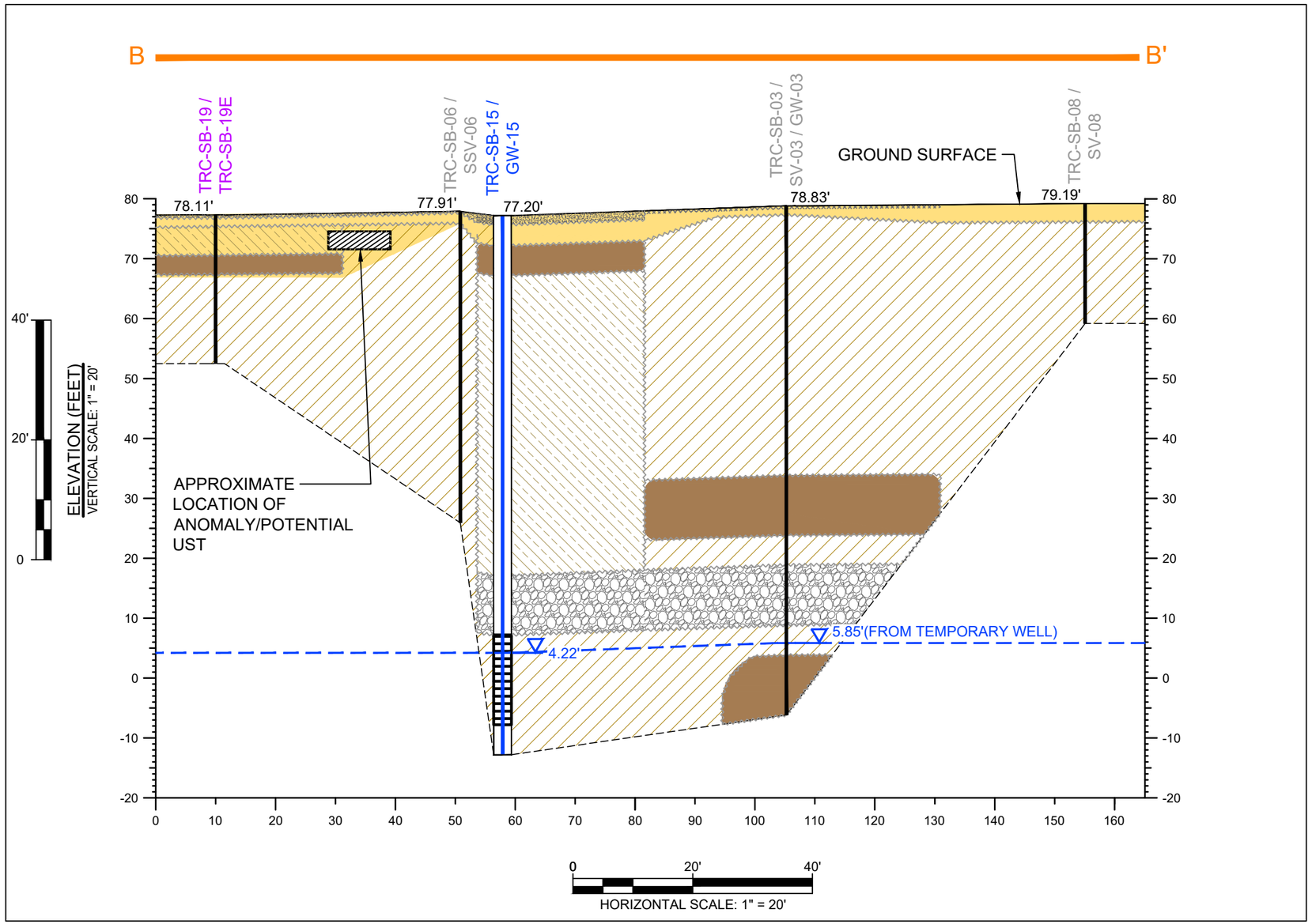
GEOLOGICAL CROSS-SECTION A-A'

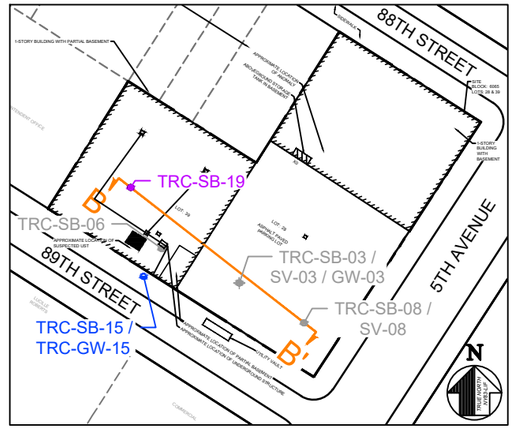
DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 5**
DATE:	JUNE 2025		

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New York, NY 10018
Phone: 212.221.7822
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FILE NO.: Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802-8824 5th Avenue.mrp, Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\436632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg -- PLOT DATE: July 16, 2025 - 10:50AM -- LAYOUT: 11X17L (X-sct A-A')





TRANSECT B-B' LOCATION MAP

SCALE: 1" = 100'

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)

LEGEND (SYMBOLS NOT TO SCALE):

- #.##' — GROUNDWATER SURFACE ELEVATION FROM GROUNDWATER SAMPLING GAUGING EVENT ON JULY 20, 2022 (DASHED WHERE INFERRED)
- MONITORING WELL SCREEN
- B — B' — GEOLOGIC CROSS-SECTION TRANSECT
- ABRUPT LITHOLOGIC CHANGE, BOUNDARY INFERRED
- GRADATIONAL LITHOLOGIC BLENDING, BOUNDARY INFERRED
- ASPHALT
- CONCRETE
- GRAVEL
- INTERPRETED DEPTH OF FILL MATERIAL
- CLAYEY SILT
- MOSTLY SILT
- MOSTLY SAND

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF ANOMOLY/POTENTIAL UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
5. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

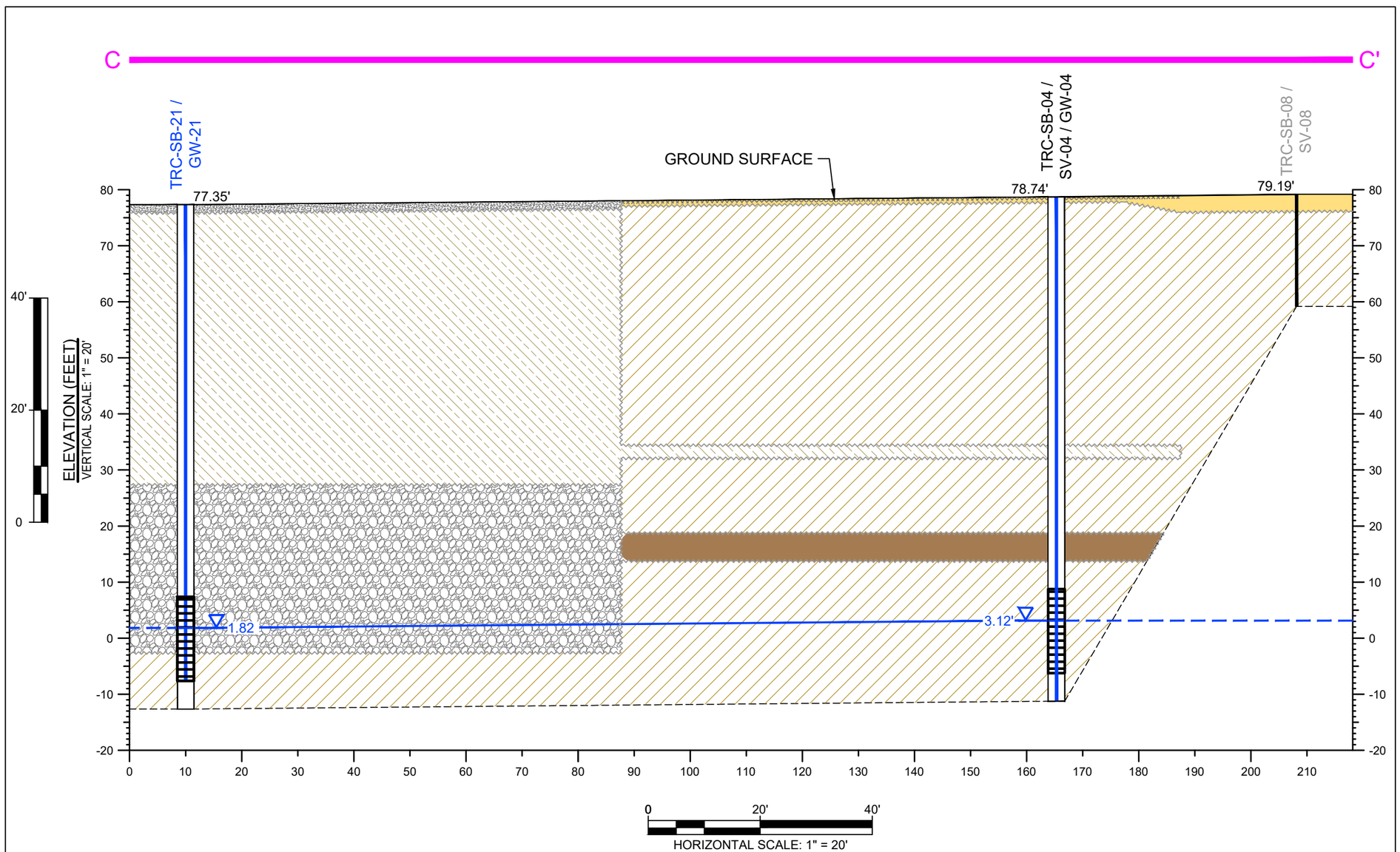
GEOLOGICAL CROSS-SECTION B-B'

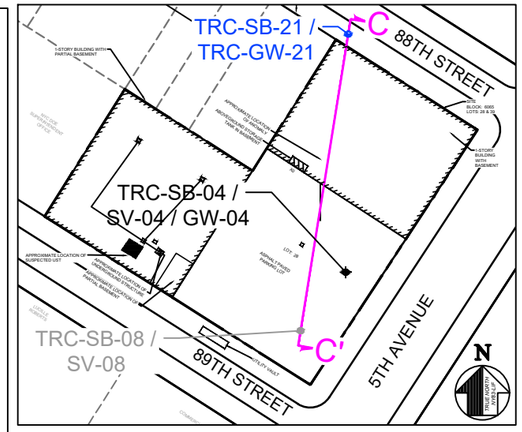
DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 6**
DATE:	JUNE 2025		

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New York, NY 10018
Phone: 212.221.7822
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FILE NO.: Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802 8824 5th Avenue.png; Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAMP\Figures\TRC WD\ Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg -- PLOT DATE: July 16, 2025 - 10:50AM -- LAYOUT: 11X17L (X-sct B-B')





TRANSECT C-C' LOCATION MAP

0 100' 200'

SCALE: 1" = 100'

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)

LEGEND (SYMBOLS NOT TO SCALE):

- #.##' — GROUNDWATER SURFACE ELEVATION FROM GROUNDWATER SAMPLING GAUGING EVENT ON JULY 20, 2022 (DASHED WHERE INFERRED)
- MONITORING WELL SCREEN
- C — C' — GEOLOGIC CROSS-SECTION TRANSECT
- ABRUPT LITHOLOGIC CHANGE, BOUNDARY INFERRED
- GRADATIONAL LITHOLOGIC BLENDING, BOUNDARY INFERRED

- ASPHALT
- CONCRETE
- GRAVEL
- INTERPRETED DEPTH OF FILL MATERIAL
- CLAYEY SILT
- MOSTLY SILT
- MOSTLY SAND

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF ANOMOLY/POTENTIAL UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
5. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

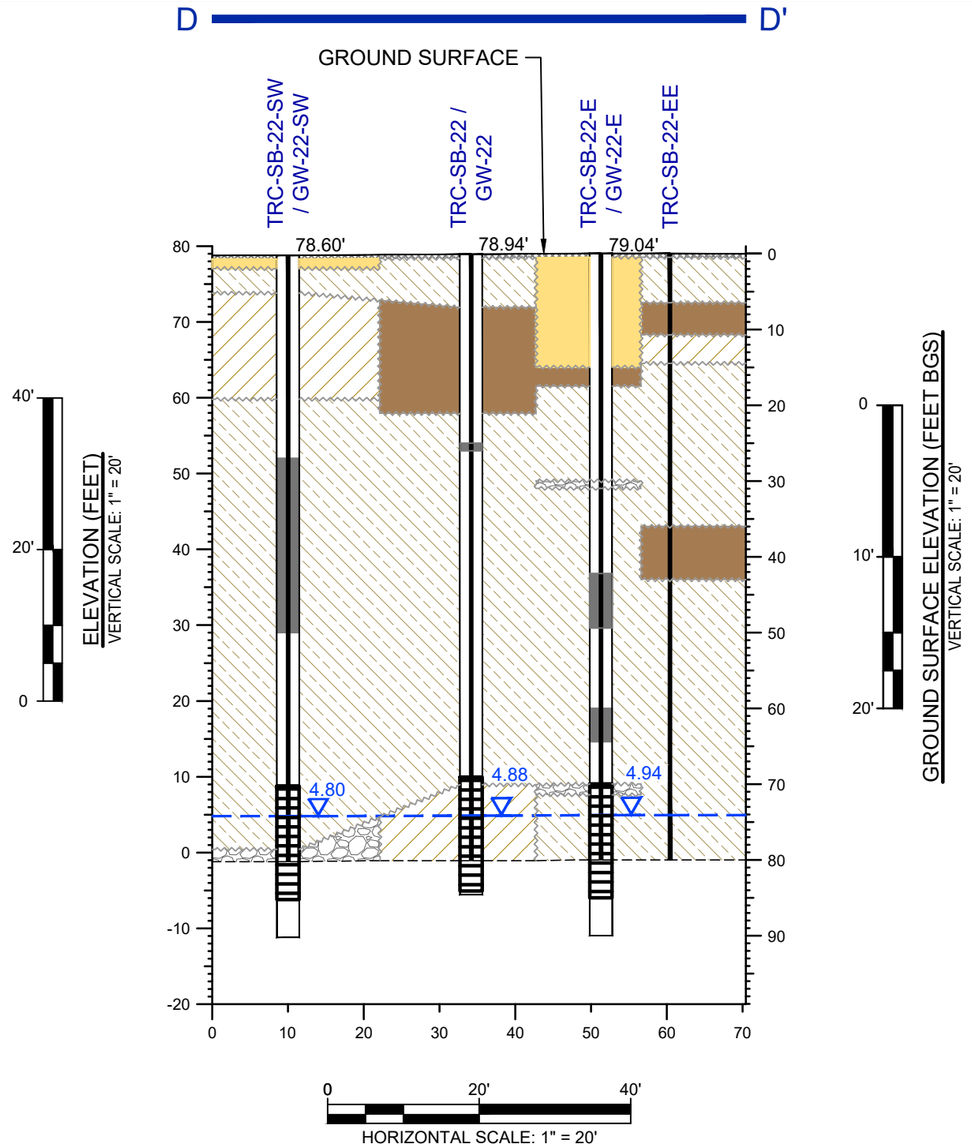
GEOLOGICAL CROSS-SECTION C-C'

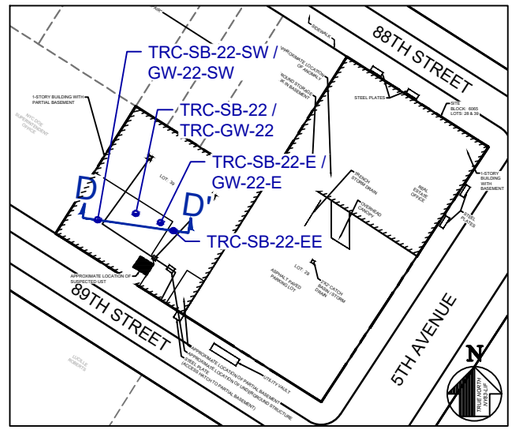
DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 7**
DATE:	JUNE 2025		

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FILE NO.: Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg

11x17 -- ATTACHED XREFS: $xrefs -- ATTACHED IMAGES: 8802 8802 5th Avenue.png; $images
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\36632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 5-7 - Geo. X-Sct A-A', B-B', & C-C'.dwg -- PLOT DATE: July 16, 2025 - 10:53AM -- LAYOUT: 11X17L (X-sct C-C')





TRANSECT D-D' LOCATION MAP

0 100' 200'

SCALE: 1" = 100'

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- DRAINAGE PIPING
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

LEGEND (SYMBOLS NOT TO SCALE):

- #.##' — GROUNDWATER SURFACE ELEVATION FROM GROUNDWATER SAMPLING GAUGING EVENT ON SEPTEMBER 2024 (DASHED WHERE INFERRED)
- MONITORING WELL SCREEN
- D — D' — GEOLOGIC CROSS-SECTION TRANSECT
- ABRUPT LITHOLOGIC CHANGE, BOUNDARY INFERRED
- GRADATIONAL LITHOLOGIC BLENDING, BOUNDARY INFERRED
- ASPHALT
- GRAVEL
- INTERPRETED DEPTH OF FILL MATERIAL
- CLAYEY SILT
- MOSTLY SILT
- MOSTLY SAND
- INDICATES EXTENT OF CONTAMINATION BASED ON GROSS EVIDENCE OF CONTAMINATION (I.E., VISIBLY CONTAMINATED) AND/OR LABORATORY ANALYTICAL RESULTS. NAPL WAS NOT OBSERVED.

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
5. NAPL - NON-AQUEOUS PHASE LIQUID.
6. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

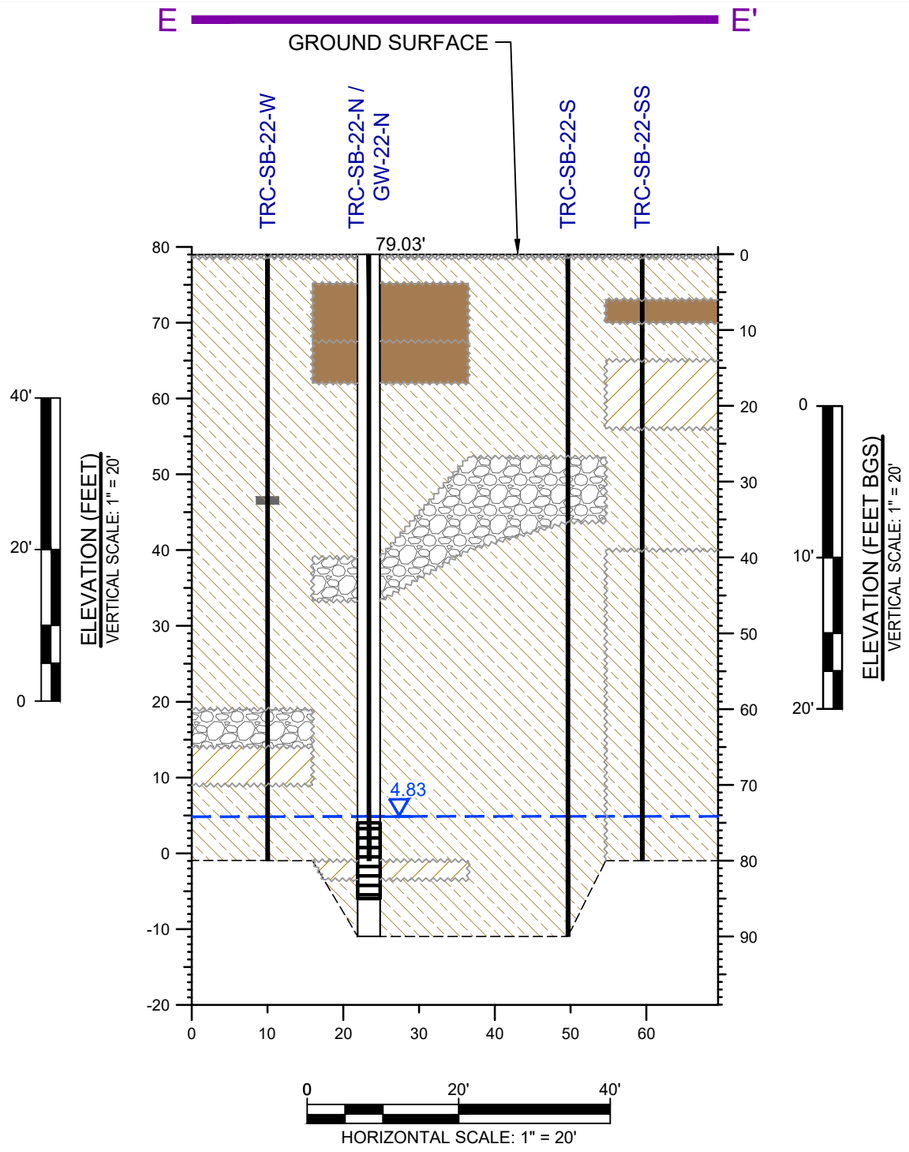
GEOLOGICAL CROSS-SECTION D-D'

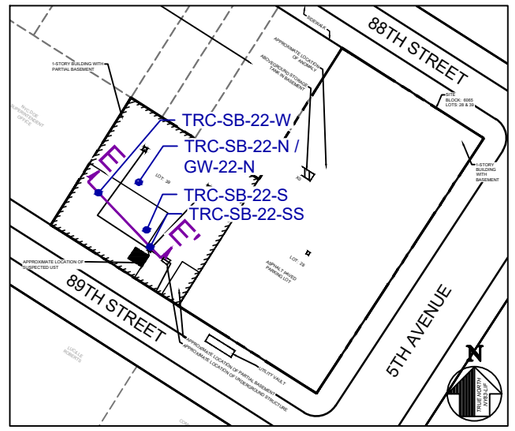
DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 8**
DATE:	JUNE 2025		

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FILE NO.: Fig 8-9 - Geo. X-Sct D-D' & E-E'.dwg

11x17 -- ATTACHED IXREFS: Bwdrpn -- ATTACHED IMAGES: 8802 8802 5th Avenue.mpw, Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015340\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 8-9 - Geo. X-Sct D-D' & E-E'.dwg -- PLOT DATE: July 16, 2025 - 10:54AM -- LAYOUT: 11X17L (X-sct D-D')





TRANSECT E-E' LOCATION MAP

0 100' 200'

SCALE: 1" = 100'

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- DRAINAGE PIPING
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

LEGEND (SYMBOLS NOT TO SCALE):

- #.##' — GROUNDWATER SURFACE ELEVATION FROM GROUNDWATER SAMPLING GAUGING EVENT ON SEPTEMBER 2024 (DASHED WHERE INFERRED)
- MONITORING WELL SCREEN
- E — E' — GEOLOGIC CROSS-SECTION TRANSECT
- ABRUPT LITHOLOGIC CHANGE, BOUNDARY INFERRED
- GRADATIONAL LITHOLOGIC BLENDING, BOUNDARY INFERRED
- ASPHALT
- GRAVEL
- CLAYEY SILT
- MOSTLY SILT
- MOSTLY SAND
- INDICATES EXTENT OF CONTAMINATION BASED ON GROSS EVIDENCE OF CONTAMINATION (I.E., VISIBLY CONTAMINATED) AND/OR LABORATORY ANALYTICAL RESULTS. NAPL WAS NOT OBSERVED.

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
5. NAPL - NON-AQUEOUS PHASE LIQUID.
6. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

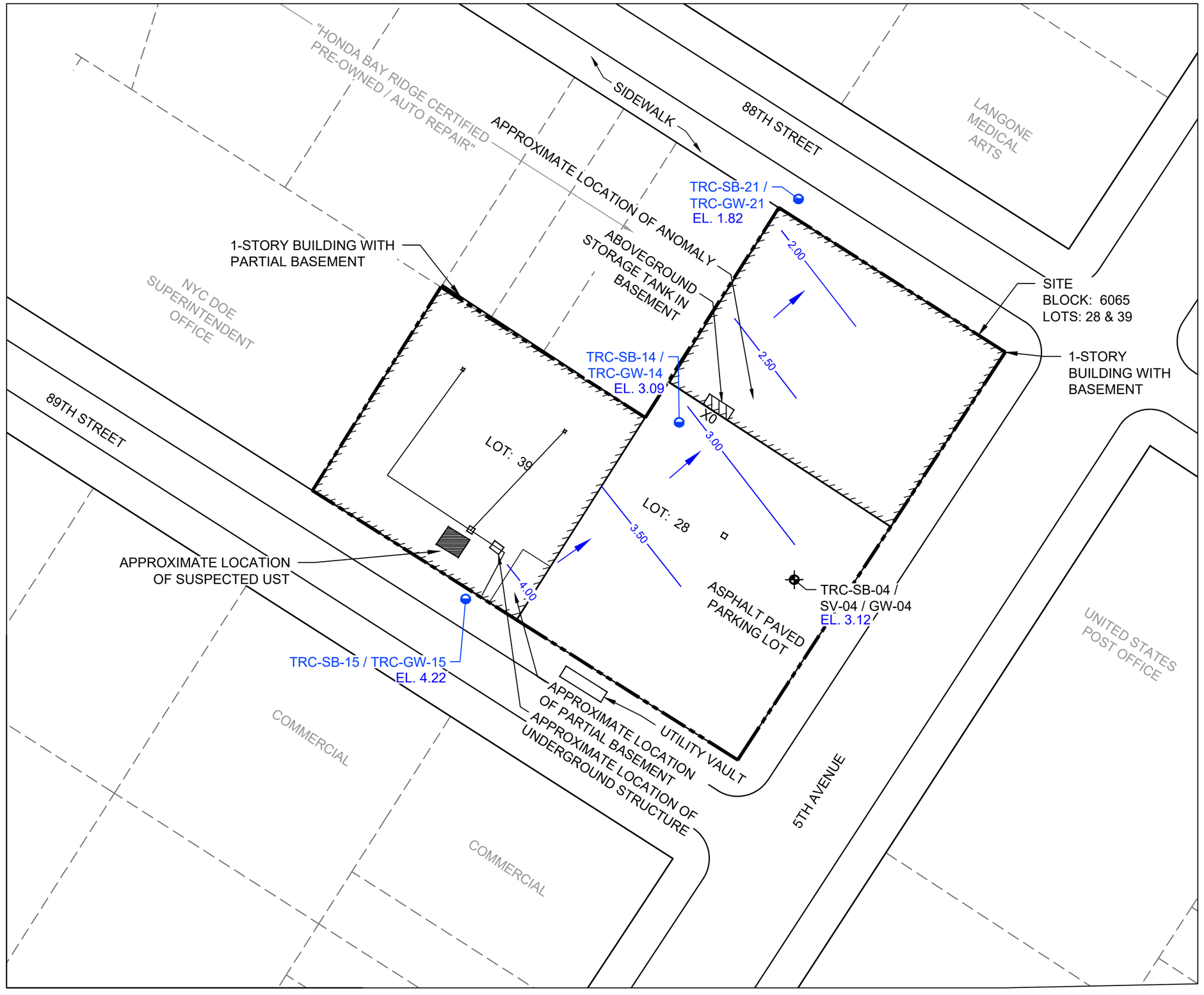
GEOLOGICAL CROSS-SECTION E-E'

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		**FIGURE 9**
APPROVED BY:	J. RAUP		
DATE:	JUNE 2025		

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FILE NO.: Fig 8-9 - Geo. X-Sct D-D' & E-E'.dwg

11x17 -- ATTACHED VSHEETS Revised -- ATTACHED IMAGES 8802-8824 5th Avenue.mxd -- 7/16/2025 -- 10:54 AM -- jmyc
DRAWING NAME: I:\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 8-9 - Geo. X-Sct D-D' & E-E'.dwg -- PLOT DATE: July 16, 2025 - 10:54AM -- LAYOUT: 11X17L (X-sct E-E')



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JULY 2022)
- EL. 1.82 — GROUNDWATER SURFACE ELEVATION (IN FEET)
- 2.0 — INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR (IN FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
5. GROUNDWATER SURFACE ELEVATION DATUM IS NAVD88.
6. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

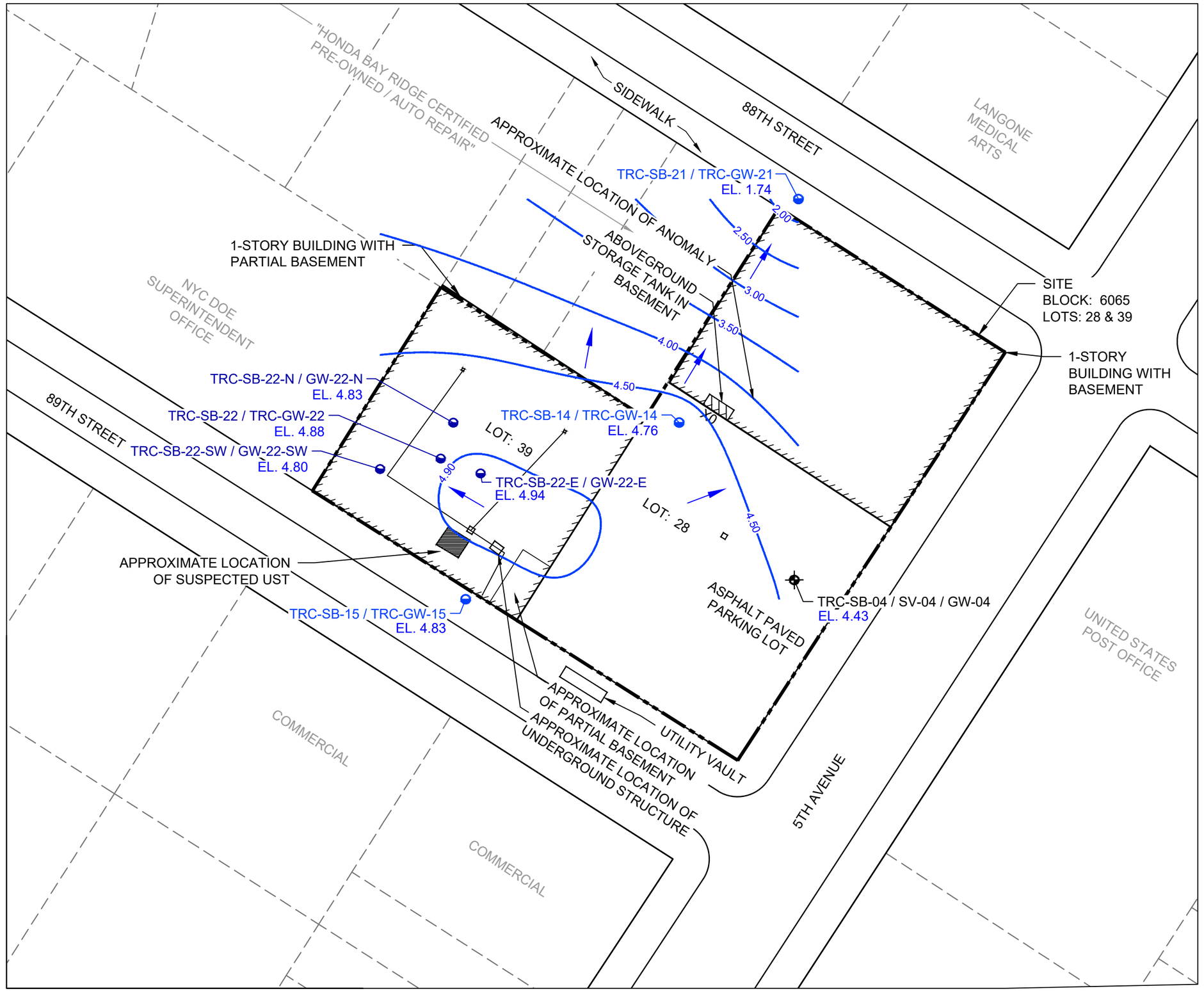
TITLE: **GROUNDWATER SURFACE ELEVATION CONTOUR MAP - JULY 20, 2022**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		**FIGURE 10**
APPROVED BY:	J. RAUP		
DATE:	JUNE 2025		

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www.TRCcompanies.com

FILE NO.: Fig 10 - GWSEC Map - 07.20.2022.dwg

11x17 — ATTACHED IMAGES: Brooklyn — ATTACHED IMAGES: 8802-8824 5th Avenue.mxd; 2.jpeg
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 10 - GWSEC Map - 07.20.2022.dwg — PLOT DATE: July 16, 2025 - 10:55AM — LAYOUT: 11X17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- EL. 3.30 — GROUNDWATER SURFACE ELEVATION (IN FEET)
- 4.0 — INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR (IN FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. GROUNDWATER SURFACE ELEVATION DATUM IS NAVD88.
8. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

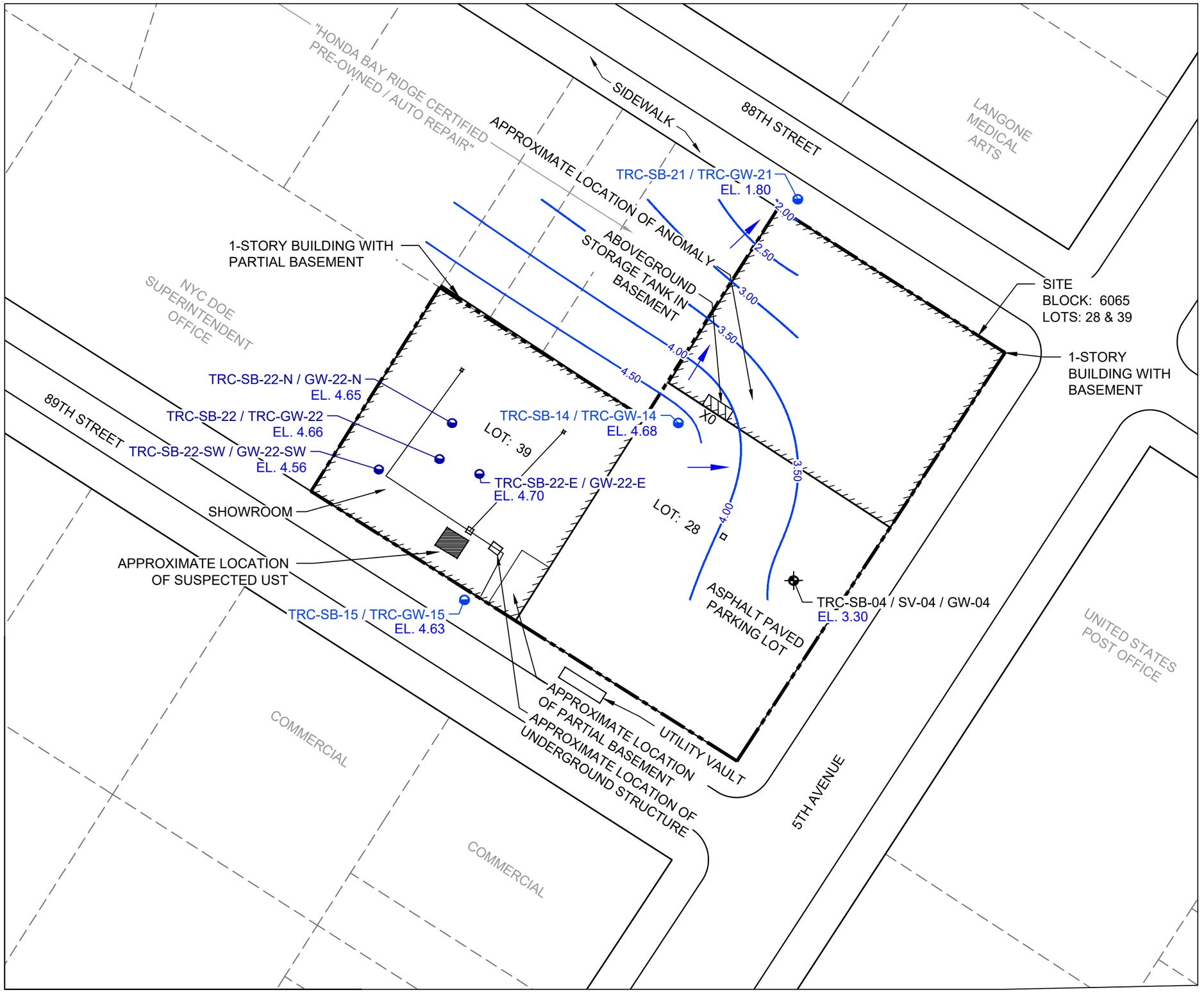
TITLE: **GROUNDWATER SURFACE ELEVATION CONTOUR MAP - SEPTEMBER 12, 2024**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 11A**
DATE:	JUNE 2025		

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FILE NO.: Fig 11A - GWSEC Map - 09.12.2024.dwg

11x17 --- ATTACHED XREFS: Brooklyn --- ATTACHED IMAGES: 8802-8824 5th Avenue.tmp --- DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 11A - GWSEC Map - 09.12.2024.dwg --- PLOT DATE: July 16, 2025 - 10:56AM --- LAYOUT: 11X17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- EL. 3.30 — GROUNDWATER SURFACE ELEVATION (IN FEET)
- 4.0 — INFERRED GROUNDWATER SURFACE ELEVATION CONTOUR (IN FEET)
- INFERRED GROUNDWATER FLOW DIRECTION

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. GROUNDWATER SURFACE ELEVATION DATUM IS NAVD88.
8. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
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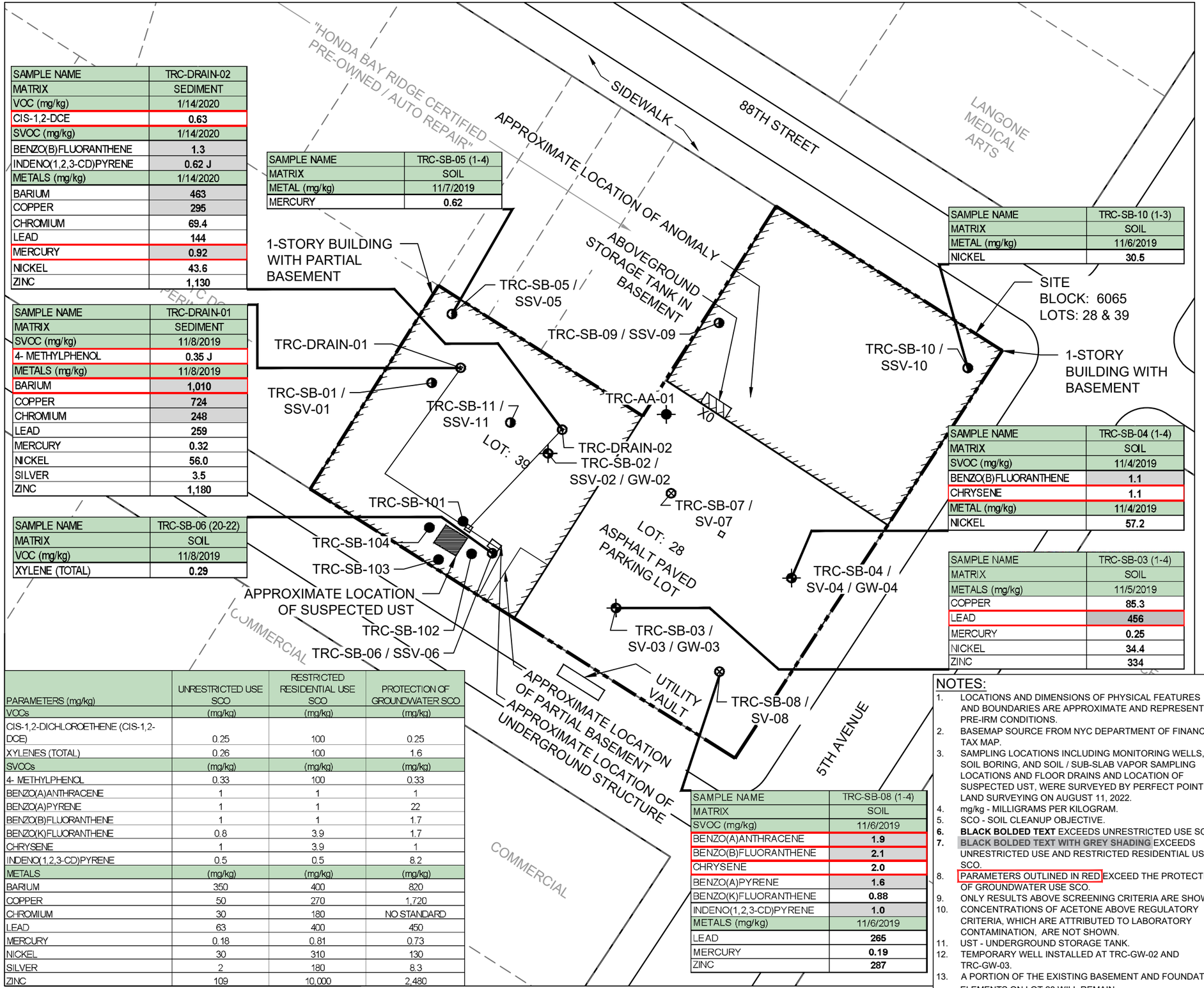
TITLE:
GROUNDWATER SURFACE ELEVATION CONTOUR MAP - NOVEMBER 19, 2024

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 11B**
DATE:	JUNE 2025		

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FILE NO.: Fig 11B - GWSEC Map - 11.19.2024.dwg

11x17 --- ATTACHED XREFS: Beyond --- ATTACHED IMAGES: 8802-8824 5th Avenue.tmp, Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015349\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 11B - GWSEC Map - 11.19.2024.dwg --- PLOT DATE: July 16, 2025 - 10:56AM --- LAYOUT: 11X17L



SAMPLE NAME	TRC-DRAIN-02
MATRIX	SEDIMENT
VOC (mg/kg)	1/14/2020
CIS-1,2-DCE	**0.63**
SVOC (mg/kg)	1/14/2020
BENZO(B)FLUORANTHENE	**1.3**
INDENO(1,2,3-CD)PYRENE	**0.62 J**
METALS (mg/kg)	1/14/2020
BARIUM	**463**
COPPER	**295**
CHROMIUM	**69.4**
LEAD	**144**
MERCURY	**0.92**
NICKEL	**43.6**
ZINC	**1,130**

SAMPLE NAME	TRC-SB-05 (1-4)
MATRIX	SOIL
METAL (mg/kg)	11/7/2019
MERCURY	**0.62**

SAMPLE NAME	TRC-SB-10 (1-3)
MATRIX	SOIL
METAL (mg/kg)	11/6/2019
NICKEL	**30.5**

SAMPLE NAME	TRC-DRAIN-01
MATRIX	SEDIMENT
SVOC (mg/kg)	11/8/2019
4- METHYLPHENOL	**0.35 J**
METALS (mg/kg)	11/8/2019
BARIUM	**1,010**
COPPER	**724**
CHROMIUM	**248**
LEAD	**259**
MERCURY	**0.32**
NICKEL	**56.0**
SILVER	**3.5**
ZINC	**1,180**

SAMPLE NAME	TRC-SB-04 (1-4)
MATRIX	SOIL
SVOC (mg/kg)	11/4/2019
BENZO(B)FLUORANTHENE	**1.1**
CHRYSENE	**1.1**
METAL (mg/kg)	11/4/2019
NICKEL	**57.2**

SAMPLE NAME	TRC-SB-06 (20-22)
MATRIX	SOIL
VOC (mg/kg)	11/8/2019
XYLENE (TOTAL)	**0.29**

SAMPLE NAME	TRC-SB-03 (1-4)
MATRIX	SOIL
METALS (mg/kg)	11/5/2019
COPPER	**85.3**
LEAD	**456**
MERCURY	**0.25**
NICKEL	**34.4**
ZINC	**334**

PARAMETERS (mg/kg)	UNRESTRICTED USE SCO	RESTRICTED RESIDENTIAL USE SCO	PROTECTION OF GROUNDWATER SCO
VOCs	(mg/kg)	(mg/kg)	(mg/kg)
CIS-1,2-DICHLOROETHENE (CIS-1,2-DCE)	0.25	100	0.25
XYLENES (TOTAL)	0.26	100	1.6
SVOCs	(mg/kg)	(mg/kg)	(mg/kg)
4- METHYLPHENOL	0.33	100	0.33
BENZO(A)ANTHRACENE	1	1	1
BENZO(A)PYRENE	1	1	22
BENZO(B)FLUORANTHENE	1	1	1.7
BENZO(K)FLUORANTHENE	0.8	3.9	1.7
CHRYSENE	1	3.9	1
INDENO(1,2,3-CD)PYRENE	0.5	0.5	8.2
METALS	(mg/kg)	(mg/kg)	(mg/kg)
BARIUM	350	400	820
COPPER	50	270	1,720
CHROMIUM	30	180	NO STANDARD
LEAD	63	400	450
MERCURY	0.18	0.81	0.73
NICKEL	30	310	130
SILVER	2	180	8.3
ZINC	109	10,000	2,480

SAMPLE NAME	TRC-SB-08 (1-4)
MATRIX	SOIL
SVOC (mg/kg)	11/6/2019
BENZO(A)ANTHRACENE	**1.9**
BENZO(B)FLUORANTHENE	**2.1**
CHRYSENE	**2.0**
BENZO(A)PYRENE	**1.6**
BENZO(K)FLUORANTHENE	**0.88**
INDENO(1,2,3-CD)PYRENE	**1.0**
METALS (mg/kg)	11/6/2019
LEAD	**265**
MERCURY	**0.19**
ZINC	**287**

LEGEND (SYMBOLS NOT TO SCALE):

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- LOT BOUNDARY
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- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)

N

TRUE NORTH NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
4. mg/kg - MILLIGRAMS PER KILOGRAM.
5. SCO - SOIL CLEANUP OBJECTIVE.
6. **BLACK BOLDED TEXT** EXCEEDS UNRESTRICTED USE SCO.
7. **BLACK BOLDED TEXT WITH GREY SHADING** EXCEEDS UNRESTRICTED USE AND RESTRICTED RESIDENTIAL USE SCO.
8. PARAMETERS OUTLINED IN RED EXCEED THE PROTECTION OF GROUNDWATER USE SCO.
9. ONLY RESULTS ABOVE SCREENING CRITERIA ARE SHOWN.
10. CONCENTRATIONS OF ACETONE ABOVE REGULATORY CRITERIA, WHICH ARE ATTRIBUTED TO LABORATORY CONTAMINATION, ARE NOT SHOWN.
11. UST - UNDERGROUND STORAGE TANK.
12. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
13. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

HISTORIC SOIL SAMPLING RESULTS

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 12A**
DATE:	JUNE 2025		

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Phone: 212.221.7822
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FILE NO.: Fig 12A - Hist. Soil Samp. Results.dwg

11x17 -- ATTACHED XREFS: Binding = ATTACHED IMAGES: 8802-8824 5th Avenue.mes Images
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WDI Fig 12A - Hist. Soil Samp. Results.dwg -- PLOT DATE: July 16, 2025 - 10:57AM -- LAYOUT: 11X17L

"HONDA BAY RIDGE CERTIFIED PRE-OWNED / AUTO REPAIR"

SIDEWALK

88TH STREET

LANGONE MEDICAL ARTS

APPROXIMATE LOCATION OF ANOMALY

1-STORY BUILDING WITH PARTIAL BASEMENT

ABOVEGROUND STORAGE TANK IN BASEMENT

TRC-SB-05 / SSV-05

TRC-SB-09 / SSV-09

TRC-DRAIN-01

TRC-SB-01 / SSV-01

TRC-SB-11 / SSV-11

TRC-AA-01

X0

LOT: 39

TRC-DRAIN-02

TRC-SB-02 / SSV-02 / GW-02

TRC-SB-07 / SV-07

SITE
BLOCK: 6065
LOTS: 28 & 39

TRC-SB-10 / SSV-10

1-STORY BUILDING WITH BASEMENT

REAL ESTATE OFFICE

OVERHEAD CANOPY

89TH STREET

TRC-SB-101

TRC-SB-104

TRC-SB-103

APPROXIMATE LOCATION OF SUSPECTED UST

TRC-SB-102

TRC-SB-06 / SSV-06

LOT: 28

ASPHALT PAVED PARKING LOT

TRC-SB-03 / SV-03 / GW-03

TRC-SB-08 / SV-08

TRC-SB-04 / SV-04 / GW-04

COMMERCIAL

APPROXIMATE LOCATION OF PARTIAL BASEMENT

APPROXIMATE LOCATION OF UNDERGROUND STRUCTURE

UTILITY VAULT

COMMERCIAL

5TH AVENUE

SAMPLE NAME	TRC-GW-02
MATRIX	GROUNDWATER
VOC (µg/L)	1/16/2020
ACETONE	**76**
BENZENE	**31**
ETHYLBENZENE	**6.3**
M/P-XYLENES	**13**
O-XYLENE	**6.4**
TOLUENE	**38**
XYLENES (TOTAL)	**19.4**
SVOC (µg/L)	1/16/2020
PHENOL	**1.3 J**
FILTERED METALS (µg/L)	1/16/2020
ANTIMONY	**9.1**
MANGANESE	**2,940**

SAMPLE NAME	TRC-GW-04
MATRIX	GROUNDWATER
VOC (µg/L)	11/11/2019
CHLOROFORM	**21**
FILTERED METALS (µg/L)	11/11/2019
MANGANESE	**942**

SAMPLE NAME	TRC-GW-03	TRC-GW-DUP11062019
MATRIX	GROUNDWATER	GROUNDWATER
VOC (µg/L)	11/6/2019	11/6/2019
CHLOROFORM	**21**	**20**
FILTERED METALS (µg/L)	11/6/2019	11/6/2019
MANGANESE	**2,010**	**2,420**
LEAD	<CLASS GA VALUE	**28.4**

PARAMETERS (µg/L)	CLASS GA VALUE
VOCs	(µg/L)
ACETONE	50
BENZENE	1
CHLOROFORM	7
ETHYLBENZENE	5
M/P-XYLENES	5
O-XYLENE	5
TOLUENE	5
XYLENES (TOTAL)	5(1)
SVOC	(µg/L)
PHENOL	1
METALS (FILTERED)	(µg/L)
ANTIMONY	3
LEAD	25
MANGANESE	300

NOTES:

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4. ONLY PARAMETERS EXCEEDING CLASS GA VALUES ARE SHOWN.
5. µg/L - MICROGRAMS PER LITER.
6. (1) THERE IS NO CLASS GA VALUE FOR TOTAL XYLENES. THE STANDARD FOR O-XYLENE, M-XYLENE, AND P-XYLENE IS 5 µg/L.
7. J - ESTIMATED VALUE.
8. UST - UNDERGROUND STORAGE TANK.
9. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
10. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

LEGEND (SYMBOLS NOT TO SCALE):

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- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
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- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
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PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
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TITLE:

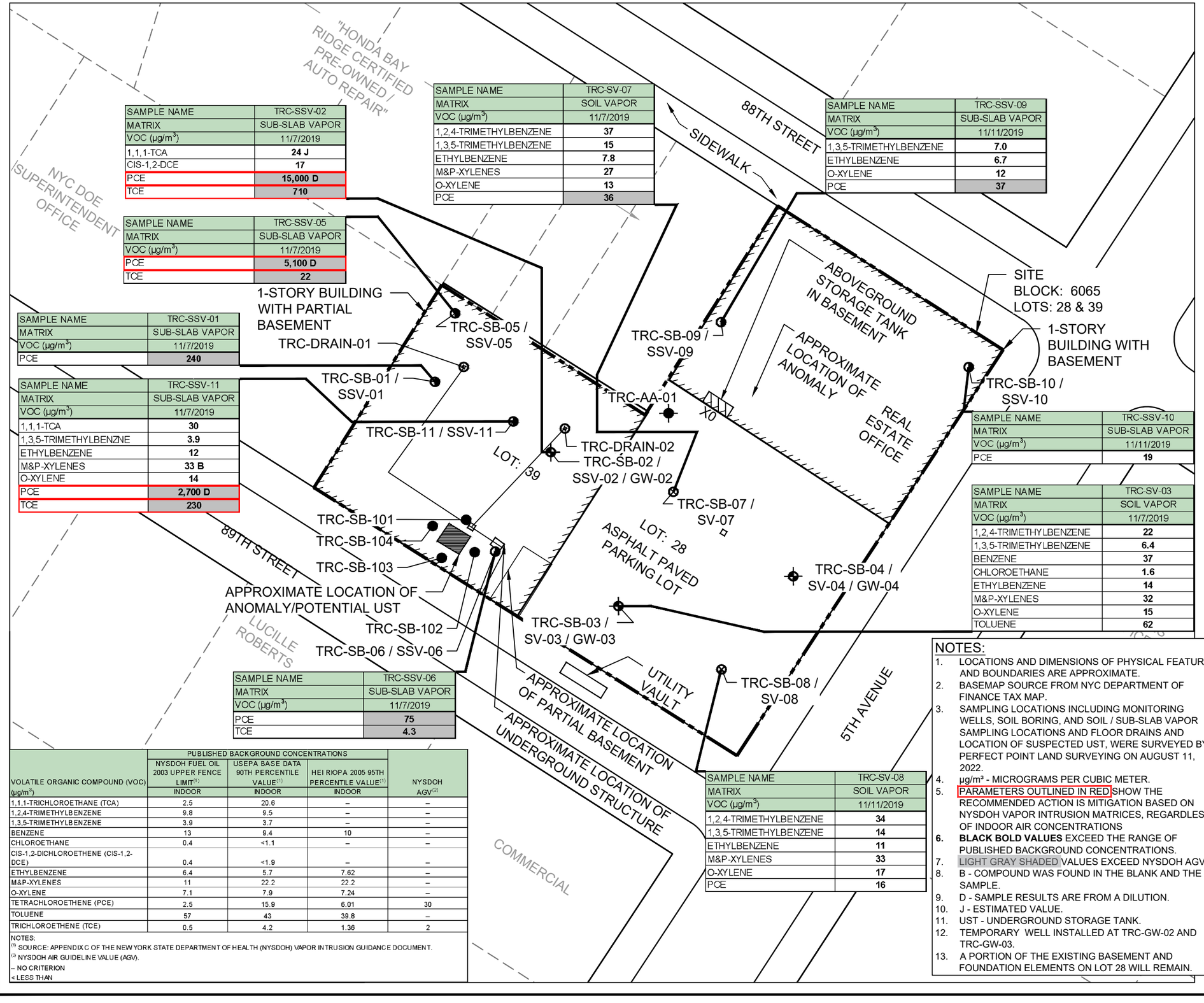
HISTORIC GROUNDWATER SAMPLING RESULTS

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 12B**
DATE:	JUNE 2025		

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New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 12B - Hist. GW Samp. Results.dwg

11x17 — ATTACHED XREFS: Beyfips — ATTACHED IMAGES: 8802-864 5th Avenue.tmp; 7mm;
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 12B - Hist. GW Samp. Results.dwg — PLOT DATE: July 16, 2025 - 10:58AM — LAYOUT: 11X17L



SAMPLE NAME	TRC-SSV-02
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/7/2019
1,1,1-TCA	**24 J**
CIS-1,2-DCE	**17**
PCE	**15,000 D**
TCE	**710**

SAMPLE NAME	TRC-SSV-05
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/7/2019
PCE	**5,100 D**
TCE	**22**

SAMPLE NAME	TRC-SSV-01
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/7/2019
PCE	**240**

SAMPLE NAME	TRC-SSV-11
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/7/2019
1,1,1-TCA	**30**
1,3,5-TRIMETHYLBENZNE	**3.9**
ETHYLBENZENE	**12**
M&P-XYLENES	**33 B**
O-XYLENE	**14**
PCE	**2,700 D**
TCE	**230**

SAMPLE NAME	TRC-SV-07
MATRIX	SOIL VAPOR
VOC (µg/m³)	11/7/2019
1,2,4-TRIMETHYLBENZENE	**37**
1,3,5-TRIMETHYLBENZENE	**15**
ETHYLBENZENE	**7.8**
M&P-XYLENES	**27**
O-XYLENE	**13**
PCE	**36**

SAMPLE NAME	TRC-SSV-09
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/11/2019
1,3,5-TRIMETHYLBENZENE	**7.0**
ETHYLBENZENE	**6.7**
O-XYLENE	**12**
PCE	**37**

SAMPLE NAME	TRC-SSV-10
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/11/2019
PCE	**19**

SAMPLE NAME	TRC-SV-03
MATRIX	SOIL VAPOR
VOC (µg/m³)	11/7/2019
1,2,4-TRIMETHYLBENZENE	**22**
1,3,5-TRIMETHYLBENZENE	**6.4**
BENZENE	**37**
CHLOROETHANE	**1.6**
ETHYLBENZENE	**14**
M&P-XYLENES	**32**
O-XYLENE	**15**
TOLUENE	**62**

SAMPLE NAME	TRC-SSV-06
MATRIX	SUB-SLAB VAPOR
VOC (µg/m³)	11/7/2019
PCE	**75**
TCE	**4.3**

SAMPLE NAME	TRC-SV-08
MATRIX	SOIL VAPOR
VOC (µg/m³)	11/11/2019
1,2,4-TRIMETHYLBENZENE	**34**
1,3,5-TRIMETHYLBENZENE	**14**
ETHYLBENZENE	**11**
M&P-XYLENES	**33**
O-XYLENE	**17**
PCE	**16**

VOLATILE ORGANIC COMPOUND (VOC) (µg/m³)	PUBLISHED BACKGROUND CONCENTRATIONS: NYSDOH FUEL OIL 2003 UPPER FENCE LIMIT[1] INDOOR	USEPA BASE DATA 90TH PERCENTILE VALUE[1] INDOOR	HEI RIOPA 2005 95TH PERCENTILE VALUE[1] INDOOR	NYSDOH AGV[2]
1,1,1-TRICHLOROETHANE (TCA)	2.5	20.6	–	–
1,2,4-TRIMETHYLBENZENE	9.8	9.5	–	–
1,3,5-TRIMETHYLBENZENE	3.9	3.7	–	–
BENZENE	13	9.4	10	–
CHLOROETHANE	0.4	<1.1	–	–
CIS-1,2-DICHLOROETHENE (CIS-1,2-DCE)	0.4	<1.9	–	–
ETHYLBENZENE	6.4	5.7	7.62	–
M&P-XYLENES	11	22.2	22.2	–
O-XYLENE	7.1	7.9	7.24	–
TETRACHLOROETHENE (PCE)	2.5	15.9	6.01	30
TOLUENE	57	43	39.8	–
TRICHLOROETHENE (TCE)	0.5	4.2	1.36	2

NOTES:
[1] SOURCE: APPENDIX C OF THE NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH) VAPOR INTRUSION GUIDANCE DOCUMENT.
[2] NYSDOH AIR GUIDELINE VALUE (AGV).
– NO CRITERION
< LESS THAN

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)

NOTES:
1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
4. µg/m³ - MICROGRAMS PER CUBIC METER.
5. PARAMETERS OUTLINED IN RED SHOW THE RECOMMENDED ACTION IS MITIGATION BASED ON NYSDOH VAPOR INTRUSION MATRICES, REGARDLESS OF INDOOR AIR CONCENTRATIONS
6. **BLACK BOLD VALUES** EXCEED THE RANGE OF PUBLISHED BACKGROUND CONCENTRATIONS.
7. LIGHT GRAY SHADED VALUES EXCEED NYSDOH AGVs.
8. B - COMPOUND WAS FOUND IN THE BLANK AND THE SAMPLE.
9. D - SAMPLE RESULTS ARE FROM A DILUTION.
10. J - ESTIMATED VALUE.
11. UST - UNDERGROUND STORAGE TANK.
12. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
13. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

N
TRUE NORTH NY83-LIF
0 40' 80'
SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

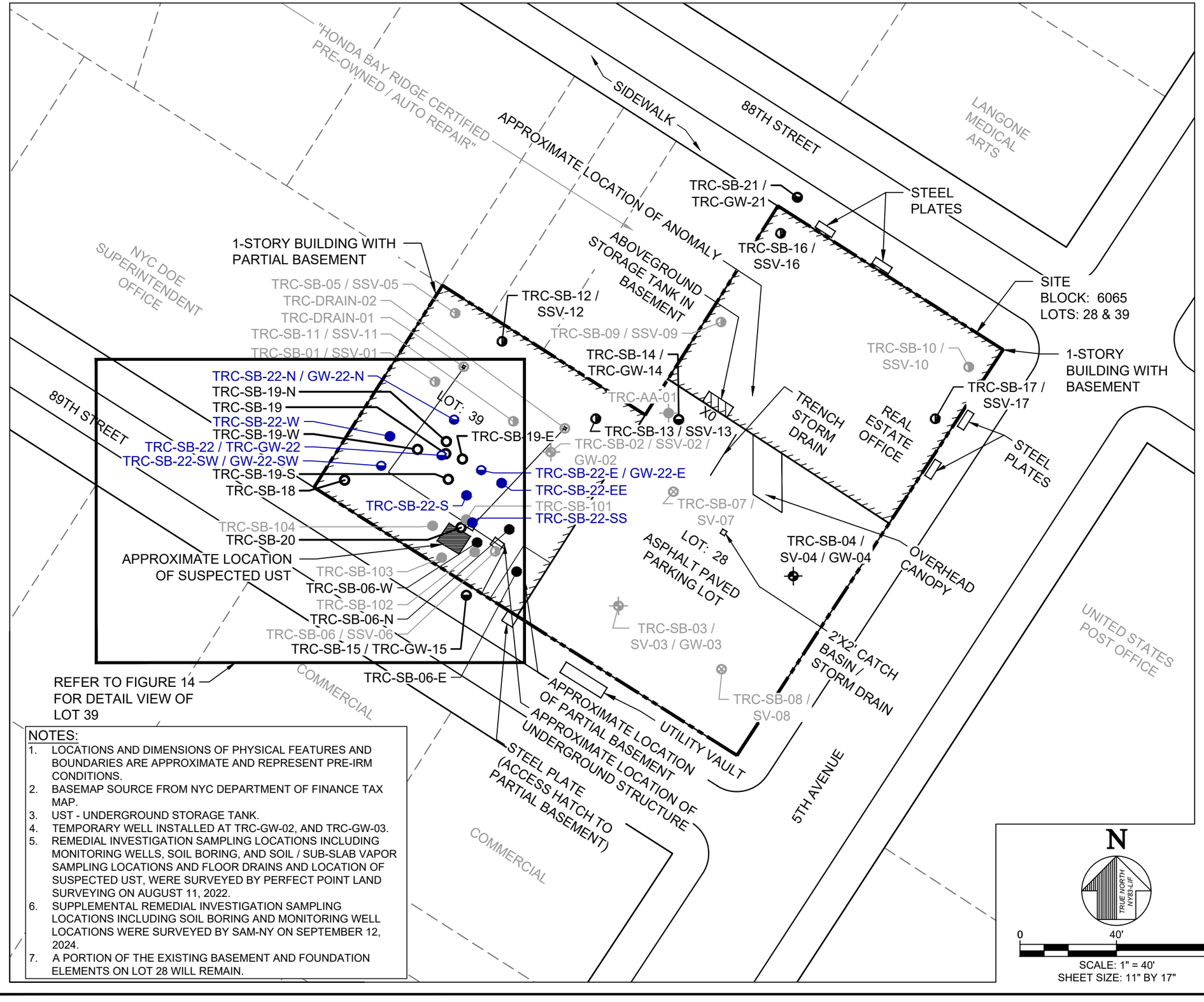
TITLE:
HISTORIC SOIL VAPOR AND SUB-SLAB VAPOR SAMPLING RESULTS

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		**FIGURE 12C**
APPROVED BY:	J. RAUP		
DATE:	JUNE 2025		

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FILE NO.: Fig 12C - Hist. SV & SSV Samp. Results.dwg

11x17 -- ATTACHED VSEFS: Brooklyn -- ATTACHED IMAGES: 8802-8804 5th Avenue.dwg
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 12C - Hist. SV & SSV Samp. Results.dwg -- PLOT DATE: July 16, 2025 - 11:00AM -- LAYOUT: 11X17L



NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
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5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

LEGEND (SYMBOLS NOT TO SCALE):

	SITE BOUNDARY
	LOT BOUNDARY
	EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
X0	VENT LINE / FILL PORT
	FLOOR DRAIN AND DRAINAGE PIPING
TRC-SB-## / SV-## / GW-##	SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
TRC-SB-## / SV-##	SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
TRC-SB-## / SSV-##	SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
TRC-AA-##	AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
TRC-DRAIN-##	FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
TRC-GW-##	GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
TRC-SB-1##	SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
TRC-SB-## / TRC-GW-##	SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
TRC-SB-06-#	DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
TRC-SB-## / SSV-##	SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
TRC-SB-##	SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
TRC-SB-22-##	SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
TRC-SB-22-# / TRC-GW-22-#	SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

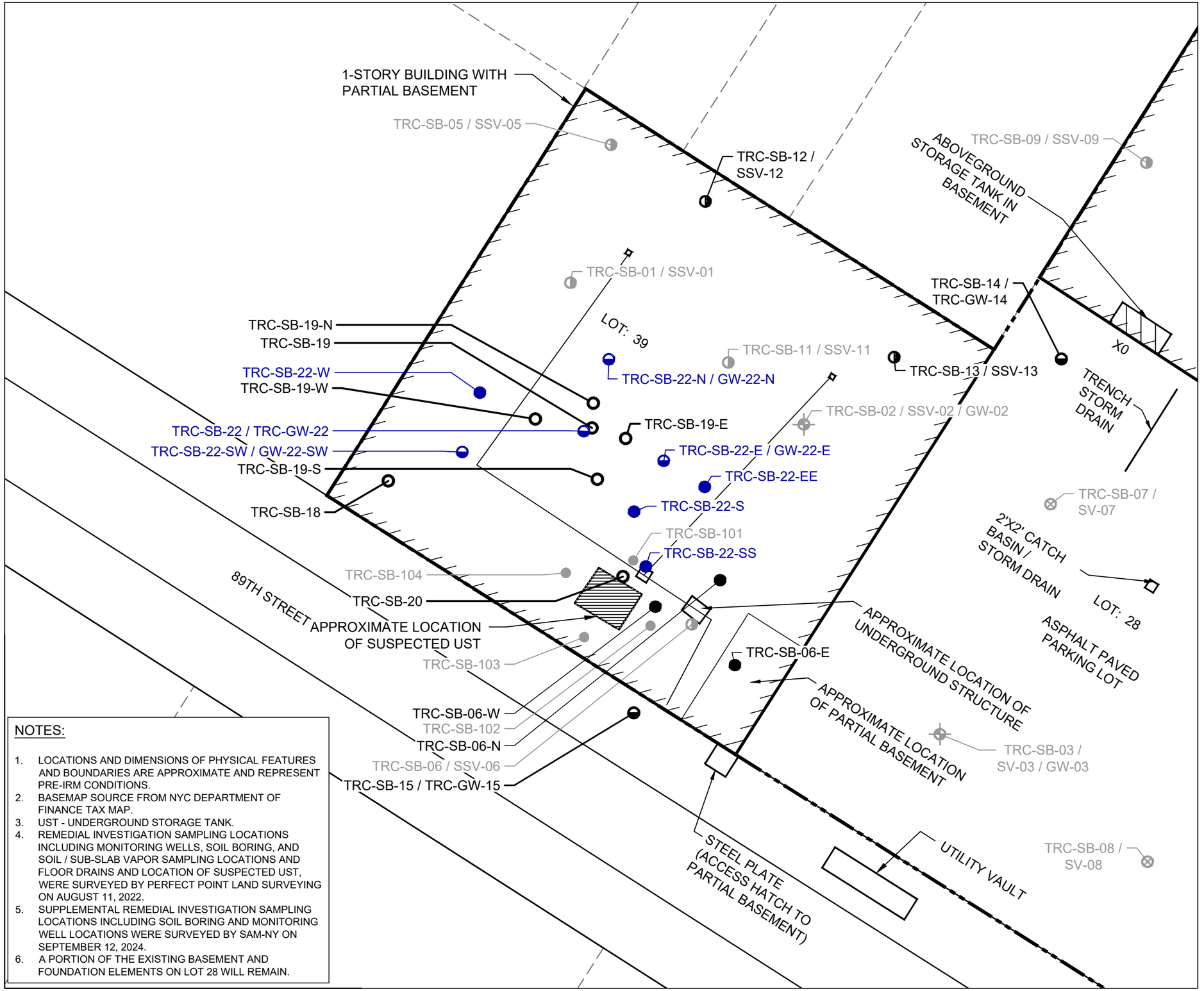
SAMPLE LOCATION PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 13**
DATE:	JUNE 2025		

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New York, NY 10018
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www.TRCcompanies.com

FILE NO.: Fig 13 - Samp. Loc. Plan.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802 8802 5th Avenue.png; Image
DRAWING NAME: \\nyc4p1\Projects\NYCSCA Contract C000001534\436632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 13 - Samp. Loc. Plan.dwg -- PLOT DATE: July 16, 2025 - 11:00AM -- LAYOUT: 11X17L



NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
5. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
6. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

N

TRUE NORTH
NY83-LIF

0 20' 40'

SCALE: 1" = 20'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

SAMPLE LOCATION PLAN
DETAIL VIEW OF LOT 39

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 14**
DATE:	JUNE 2025		

TRC
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New York, NY 10018
Phone: 212.221.7822
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FILE NO.: Fig 14 - Samp. Loc. Plan - DV of Lot 39.dwg

1417 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802-8804 5th Avenue, Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 14 - Samp. Loc. Plan - DV of Lot 39.dwg -- PLOT DATE: July 16, 2025 - 11:01AM -- LAYOUT: 11X17L

SAMPLE ID	TRC-SSV-12
DATE	6/28/2022
TCE	11
PCE	520
CARBON TETRACHLORIDE	0.33
111 - TCA	0.74
BENZENE	0.42 J
1,3,5-TRIMETHYLBENZENE	0.41 J
o-XYLENE	0.79 J
m,p-XYLENE	1.5 J
HEPTANE	0.71 J
TOLUENE	2.10

SAMPLE ID	TRC-SSV-13
DATE	6/28/2022
CIS-1,2-DCE	1.7
TCE	72
PCE	330
CARBON TETRACHLORIDE	0.24
111 - TCA	6.8
METHYLENE CHLORIDE	0.60
BENZENE	0.61 J
m,p-XYLENE	0.94 J
TOLUENE	1.7

SAMPLE ID	TRC-SSV-16
DATE	6/28/2022
TCE	0.39
PCE	53
CARBON TETRACHLORIDE	0.24
VINYL CHLORIDE	0.22
METHYLENE CHLORIDE	2.1
111 - TCA	0.33
BENZENE	3.5
ETHYLBENZENE	3.0
NAPHTHALENE	1.4 J
CYCLOHEXANE	0.46 J
1,3,5-TRIMETHYLBENZENE	1.5
o-XYLENE	2.8
m,p-XYLENE	8.0
HEPTANE	2.4
HEXANE	1.6 J
TOLUENE	24

SAMPLE ID	TRC-SSV-17
DATE	6/28/2022
TCE	0.96
PCE	16
CARBON TETRACHLORIDE	0.32
METHYLENE CHLORIDE	1.2
111 - TCA	0.75
BENZENE	1.6
ETHYLBENZENE	1.8
NAPHTHALENE	1.2 J
CYCLOHEXANE	0.85
1,3,5-TRIMETHYLBENZENE	3.1
o-XYLENE	3.0
m,p-XYLENE	6.2
HEPTANE	1.8
HEXANE	1.6 J
TOLUENE	11

"HONDA PRE-OWNED RIDGE CERTIFIED / AUTO REPAIR"
SIDEWALK
88TH STREET
APPROXIMATE LOCATION OF ANOMALY
ABOVEGROUND STORAGE TANK IN BASEMENT
1-STORY BUILDING WITH PARTIAL BASEMENT
NYC DOE SUPERINTENDENT OFFICE
TRC-SB-21 / TRC-GW-21
TRC-SB-16 / SSV-16
SITE
BLOCK: 6065
LOTS: 28 & 39
1-STORY BUILDING WITH BASEMENT
TRC-SB-05 / SSV-05
TRC-SB-12 / SSV-12
TRC-SB-09 / SSV-09
TRC-SB-10 / SSV-10
TRC-SB-17 / SSV-17
TRC-DRAIN-01
TRC-SB-14 / TRC-GW-14
TRC-SB-01 / SSV-01
TRC-SB-13 / SSV-13
X0
TRC-DRAIN-02
TRC-AA-01
TRC-SB-11 / SSV-11
TRC-SB-02 / SSV-02 / GW-02
TRC-SB-22-N / GW-22-N
TRC-SB-19-N
TRC-SB-19
TRC-SB-22-W
TRC-SB-19-W
89TH STREET
TRC-SB-22 / TRC-GW-22
TRC-SB-22-SW / GW-22-SW
TRC-SB-19-E
TRC-SB-18
TRC-SB-19-S
TRC-SB-22-S
TRC-SB-22-E / GW-22-E
TRC-SB-22-EE
TRC-SB-101
TRC-SB-22-SS
LOT: 39
TRC-SB-07 / SV-07
LOT: 28
ASPHALT PAVED PARKING LOT
TRC-SB-104
TRC-SB-20
TRC-SB-06-N
TRC-SB-04 / SV-04 / GW-04
APPROXIMATE LOCATION OF SUSPECTED UST
TRC-SB-103
TRC-SB-06-W
TRC-SB-06-E
TRC-SB-102
TRC-SB-15 / TRC-GW-15
TRC-SB-06
TRC-SB-03 / SV-03 / GW-03
TRC-SB-08 / SV-08
UTILITY VAULT
APPROXIMATE LOCATION OF PARTIAL BASEMENT
APPROXIMATE LOCATION OF UNDERGROUND STRUCTURE
COMMERCIAL
COMMERCIAL
UNITED STATES POST OFFICE
5TH AVENUE

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. ALL VALUES ARE IN MICROGRAMS PER CUBIC METER ($\mu g/m^3$).
8. 1,1-DCE - 1,1-DICHLOROETHENE
9. CIS-1,2-DCE - CIS-1,2-DICHLOROETHENE
10. TCE - TRICHLOROETHENE
11. PCE - TETRACHLOROETHENE
12. 111-TCA - 1,1,1-TRICHLOROETHANE
13. THE SUB-SLAB VAPOR SAMPLES WERE NOT ANALYZED FOR ISOOCTANE AND 1,2,4 – TRIMETHYLBENZENE.
14. INDOOR AIR SAMPLES NOT COLLECTED.
15. ONLY RESULTS THAT COULD POTENTIALLY REQUIRE RECOMMENDED ACTION ARE SHOWN.
16. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
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- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
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- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

N
TRUE NORTH
NY83-LIF
0 40' 80'
SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

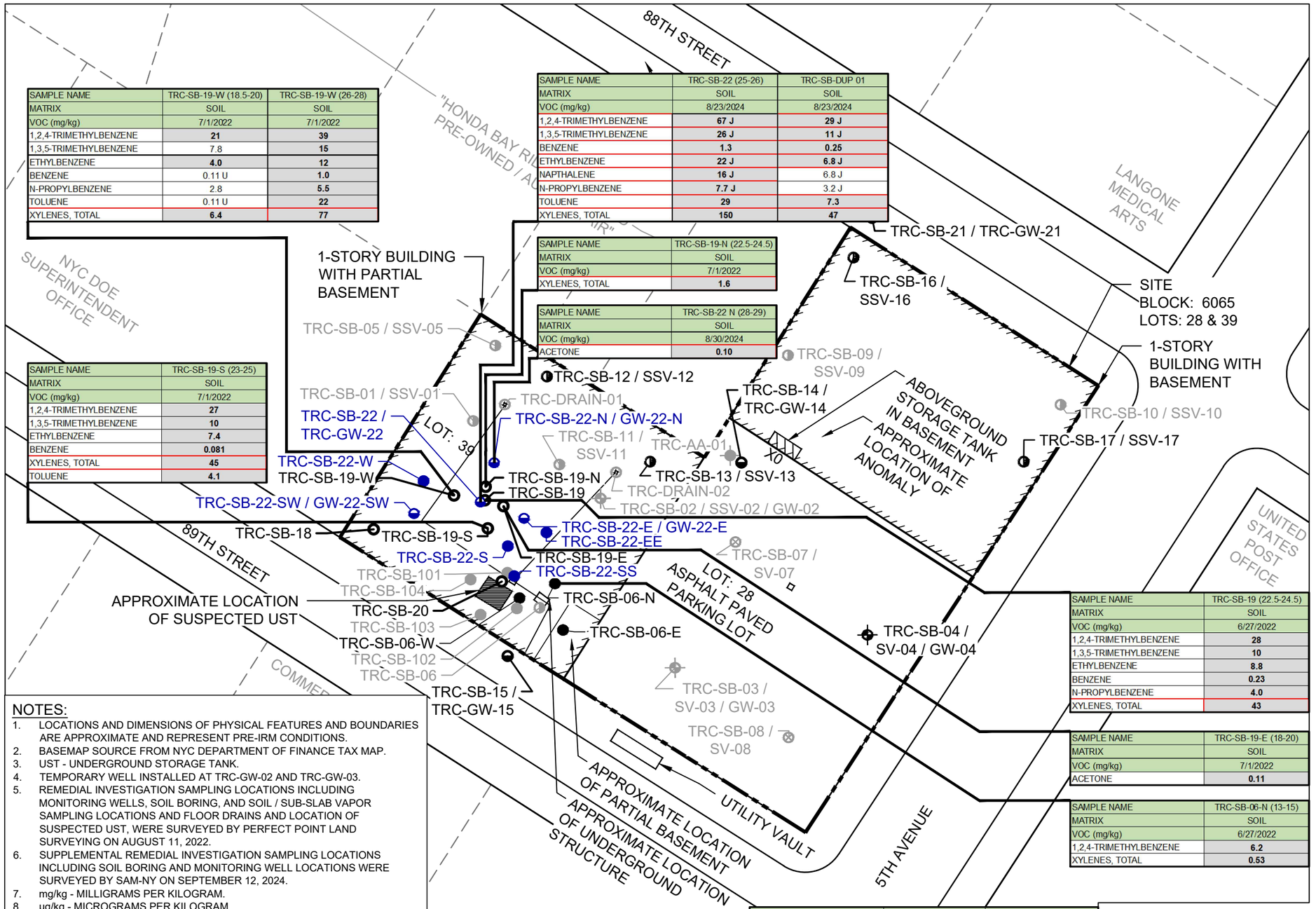
TITLE:
SUB-SLAB VAPOR SAMPLING RESULTS

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 15**
DATE:	JUNE 2025		

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Phone: 212.221.7822
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FILE NO.: Fig 15 - SSV Samp. Results.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802-8804 5th Avenue.mrp, Image1
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 15 - SSV Samp. Results.dwg -- PLOT DATE: July 16, 2025 - 11:01AM -- LAYOUT: 11X17L



SAMPLE NAME	TRC-SB-19-W (18.5-20)	TRC-SB-19-W (26-28)
MATRIX	SOIL	SOIL
VOC (mg/kg)	7/1/2022	7/1/2022
1,2,4-TRIMETHYLBENZENE	**21**	**39**
1,3,5-TRIMETHYLBENZENE	7.8	**15**
ETHYLBENZENE	**4.0**	**12**
BENZENE	0.11 U	**1.0**
N-PROPYLBENZENE	2.8	**5.5**
TOLUENE	0.11 U	**22**
XYLENES, TOTAL	**6.4**	**77**

SAMPLE NAME	TRC-SB-22 (25-26)	TRC-SB-DUP 01
MATRIX	SOIL	SOIL
VOC (mg/kg)	8/23/2024	8/23/2024
1,2,4-TRIMETHYLBENZENE	**67 J**	**29 J**
1,3,5-TRIMETHYLBENZENE	**26 J**	**11 J**
BENZENE	**1.3**	**0.25**
ETHYLBENZENE	**22 J**	**6.8 J**
NAPTHALENE	**16 J**	6.8 J
N-PROPYLBENZENE	**7.7 J**	3.2 J
TOLUENE	**29**	**7.3**
XYLENES, TOTAL	**150**	**47**

SAMPLE NAME	TRC-SB-19-N (22.5-24.5)
MATRIX	SOIL
VOC (mg/kg)	7/1/2022
XYLENES, TOTAL	**1.6**

SAMPLE NAME	TRC-SB-22 N (28-29)
MATRIX	SOIL
VOC (mg/kg)	8/30/2024
ACETONE	**0.10**

SAMPLE NAME	TRC-SB-19-S (23-25)
MATRIX	SOIL
VOC (mg/kg)	7/1/2022
1,2,4-TRIMETHYLBENZENE	**27**
1,3,5-TRIMETHYLBENZENE	**10**
ETHYLBENZENE	**7.4**
BENZENE	**0.081**
XYLENES, TOTAL	**45**
TOLUENE	**4.1**

SAMPLE NAME	TRC-SB-19 (22.5-24.5)
MATRIX	SOIL
VOC (mg/kg)	6/27/2022
1,2,4-TRIMETHYLBENZENE	**28**
1,3,5-TRIMETHYLBENZENE	**10**
ETHYLBENZENE	**8.8**
BENZENE	**0.23**
N-PROPYLBENZENE	**4.0**
XYLENES, TOTAL	**43**

SAMPLE NAME	TRC-SB-19-E (18-20)
MATRIX	SOIL
VOC (mg/kg)	7/1/2022
ACETONE	**0.11**

SAMPLE NAME	TRC-SB-06-N (13-15)
MATRIX	SOIL
VOC (mg/kg)	6/27/2022
1,2,4-TRIMETHYLBENZENE	**6.2**
XYLENES, TOTAL	**0.53**

NOTES:

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2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. mg/kg - MILLIGRAMS PER KILOGRAM.
8. µg/kg - MICROGRAMS PER KILOGRAM.
9. **BLACK BOLDED TEXT WITH GREY SHADING** EXCEEDS UNRESTRICTED USE SCO.
10. PARAMETERS OUTLINED IN RED EXCEED THE PROTECTION OF GROUNDWATER USE SCO.
11. SCO - SOIL CLEANUP OBJECTIVE.
12. H - SAMPLE WAS PREPPED OR ANALYZED BEYOND THE SPECIFIED HOLDING TIME. THIS DOES NOT MEET REGULATORY REQUIREMENTS.
13. TRC-SB-DUP-01 IS A DUPLICATE OF TRC-SB-22 (25-26).
14. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

PARAMETERS (mg/kg)	UNRESTRICTED USE SCO	PROTECTION OF GROUNDWATER USE SCO
VOCs	(mg/kg)	(mg/kg)
ETHYLBENZENE	1	1
1,2,4-TRIMETHYLBENZENE	3.6	3.6
1,3,5-TRIMETHYLBENZENE	8.4	8.4
BENZENE	0.06	0.06
N-PROPYLBENZENE	3.9	3.9
NAPTHALENE	12	12
XYLENES, TOTAL	0.26	1.6
ACETONE	0.05	0.05
TOLUENE	0.7	0.7

N

TRUE NORTH
NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE: **VOC EXCEEDANCES OF UNRESTRICTED USE AND PROTECTION OF GROUNDWATER SOIL CLEANUP OBJECTIVES**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 16A**
DATE:	JUNE 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 16A - VOC Exceed. of UU & PoGW SCO.dwg

11x17 -- ATTACHED XREFS: Bretton -- ATTACHED IMAGES: 8802-8804 5th Avenue.mpw; Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 16A - VOC Exceed. of UU & PoGW SCO.dwg -- PLOT DATE: July 16, 2025 - 11:02AM -- LAYOUT: 11X17L

11x17 -- ATTACHED SHEETS: Brooklyn -- ATTACHED IMAGES: 8802-8804 5th Avenue.dgn
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 16B - SVOC, Metals, & PFAS Exceed. of UU & PoGW SCO.dwg -- PLOT DATE: July 16, 2025 - 11:04AM -- LAYOUT: 11X17L

SAMPLE NAME	TRC-SB-06-W (1-4)	TRC-SB-06-W (20-22)
MATRIX	SOIL	SOIL
METALS (mg/kg)	6/28/2022	6/28/2022
LEAD	**187**	6.2
MERCURY	**0.33**	0.019 U
NICKEL	19.7	**31.7**
PFAS (µg/kg)	6/28/2022	6/28/2022
PFOS	0.074 J	**2.36**

SAMPLE NAME	TRC-SB-18 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
LEAD	**231**
MERCURY	**3.9**
SVOC (mg/kg)	6/27/2022
BENZO(A)ANTHRACENE	**4.1**
BENZO(A)PYRENE	**4.6**
BENZO(B)FLUORANTHENE	**6.1**
BENZO(K)FLUORANTHENE	**2.1**
INDENO(1,2,3-CD)PYRENE	**2.4**
CHRYSENE	**4.4**

SAMPLE NAME	TRC-SB-12 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
LEAD	**104**
MERCURY	**0.25**

SAMPLE NAME	TRC-SB-14 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/29/2022
LEAD	**125**
ZINC	**148**
SVOC (mg/kg)	6/29/2022
BENZO(A)ANTHRACENE	**1.8**
BENZO(A)PYRENE	**1.7**
BENZO(B)FLUORANTHENE	**2.7**
BENZO(K)FLUORANTHENE	**1.0**
INDENO(1,2,3-CD)PYRENE	**1.7**
CHRYSENE	**2.0**
PFAS (µg/kg)	6/29/2022
PFOS	**1.11**

SAMPLE NAME	TRC-SB-21 (1-4)
MATRIX	SOIL
METALS (mg/kg)	7/7/2022
MERCURY	**0.64**
PFAS (µg/kg)	7/7/2022
PFOS	**1.05**
PFOA	**0.78**

SAMPLE NAME	TRC-SB-20 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
ZINC	**254**
COPPER	**52.6**
LEAD	**231**
MERCURY	**319**

SAMPLE NAME	TRC-SB-06-N (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
LEAD	**278**
MERCURY	**0.51**
ZINC	**166 J**

SAMPLE NAME	TRC-SB-15 (1-4)
MATRIX	SOIL
METALS (mg/kg)	7/11/2022
LEAD	**72.6**
MERCURY	**0.31**

SAMPLE NAME	TRC-SB-17 (1-2)
MATRIX	SOIL
PFAS (µg/kg)	6/28/2022
PFOS	**1.14**

SAMPLE NAME	TRC-SB-13 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
LEAD	**371**
MERCURY	**0.22**
ZINC	**143**
SVOC (mg/kg)	6/29/2022
INDENO(1,2,3-CD)PYRENE	**0.68**

SAMPLE NAME	TRC-SB-06-E (1-3)
MATRIX	SOIL
PFAS (µg/kg)	6/28/2022
PFOS	**1.62**

SIDEWALK
88TH STREET
"HONDA BAY RIDGE CERTIFIED PRE-OWNED / AUTO REPAIR"
LANGONE MEDICAL ARTS
1-STORY BUILDING WITH PARTIAL BASEMENT
TRC-SB-05 / SSV-05
TRC-SB-12 / SSV-12
TRC-SB-22-N / GW-22-N
TRC-SB-01 / SSV-01
TRC-SB-19-N
TRC-SB-22 / TRC-GW-22
TRC-SB-19-W
TRC-SB-22-W
TRC-SB-22-SW / GW-22-SW
TRC-SB-18
TRC-SB-19-S
TRC-SB-22-S
TRC-SB-101
TRC-SB-104
TRC-SB-20
TRC-SB-103
APPROXIMATE LOCATION OF SUSPECTED UST
TRC-SB-06-W
TRC-SB-102
TRC-SB-15 / TRC-GW-15
89TH STREET
TRC-DRAIN-01
TRC-SB-11 / SSV-11
LOT: 39
TRC-SB-19
TRC-SB-19-E
TRC-SB-22-E / GW-22-E
TRC-SB-22-EE
TRC-SB-22-SS
TRC-SB-06-N
TRC-SB-06
TRC-SB-06-E
TRC-SB-14 / TRC-GW-14
TRC-DRAIN-02
TRC-AA-01
TRC-SB-13 / SSV-13
TRC-SB-02 / SSV-02 / GW-02
TRC-SB-09 / SSV-09
TRC-SB-21 / TRC-GW-21
TRC-SB-16 / SSV-16
ABOVEGROUND STORAGE TANK IN BASEMENT
APPROXIMATE LOCATION OF ANOMALY
X0
LOT: 28
ASPHALT PAVED PARKING LOT
TRC-SB-07 / SV-07
TRC-SB-04 / SV-04 / GW-04
TRC-SB-03 / SV-03 / GW-03
TRC-SB-08 / SV-08
UTILITY VAULT
APPROXIMATE LOCATION OF PARTIAL BASEMENT
APPROXIMATE LOCATION OF UNDERGROUND STRUCTURE
SITE
BLOCK: 6065
LOTS: 28 & 39
1-STORY BUILDING WITH BASEMENT
TRC-SB-10 / SSV-10
TRC-SB-17 / SSV-17
5TH AVENUE
COMMERCIAL

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. mg/kg - MILLIGRAMS PER KILOGRAM.
8. µg/kg - MICROGRAMS PER KILOGRAM.
9. **BLACK BOLDED TEXT WITH GREY SHADING** EXCEEDS UNRESTRICTED USE SCO.
10. PARAMETERS OUTLINED IN RED EXCEED THE PROTECTION OF GROUNDWATER USE SCO.
11. SCO - SOIL CLEANUP OBJECTIVE.
12. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

PARAMETERS (mg/kg)	UNRESTRICTED USE SCO	PROTECTION OF GROUNDWATER SCO
SVOCs	(mg/kg)	(mg/kg)
BENZO(A)ANTHRACENE	1	1
BENZO(A)PYRENE	1	22
BENZO(B)FLUORANTHENE	1	1.7
BENZO(K)FLUORANTHENE	0.8	1.7
CHRYSENE	1	1
INDENO(1,2,3-CD)PYRENE	0.5	8.2
METALS	(mg/kg)	(mg/kg)
LEAD	63	450
COPPER	50	1,720
MERCURY	0.18	0.73
NICKEL	30	130
SILVER	2	8.3
ZINC	109	2,480
PER- AND POLYFUOROALKYL SUBSTANCES (PFAS)	(µg/kg)	(µg/kg)
PERFLUOROOCTANESULFONIC ACID (PFOS)	0.88	1
PERFLUOROOCTANOIC ACID (PFOA)	0.66	0.8

N
TRUE NORTH
NY83-LIF
0 40' 80'
SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE: **SVOC, METALS, AND PFAS EXCEEDANCES OF UNRESTRICTED USE AND PROTECTION OF GROUNDWATER SOIL CLEANUP OBJECTIVES**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 16B**
DATE:	JUNE 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 16B - SVOC, Metals, & PFAS Exceed. of UU & PoGW SCO.dwg

"HONDA BAY RIDGE CERTIFIED PRE-OWNED / AUTO REPAIR"

NYC DOE SUPERINTENDENT OFFICE

SIDEWALK

88TH STREET

LANGONE MEDICAL ARTS

1-STORY BUILDING WITH PARTIAL BASEMENT

ABOVEGROUND STORAGE TANK IN BASEMENT

SITE
BLOCK: 6065
LOTS: 28 & 39

1-STORY BUILDING WITH BASEMENT

TRC-SB-21 / TRC-GW-21

TRC-SB-16 / SSV-16

TRC-SB-05 / SSV-05

TRC-SB-22-N / GW-22-N

TRC-SB-01 / SSV-01

TRC-SB-19-N

TRC-SB-19

TRC-SB-22 / TRC-GW-22

TRC-SB-22-W

TRC-SB-19-W

TRC-SB-22-SW / GW-22-SW

TRC-SB-18

TRC-SB-12 / SSV-12

TRC-DRAIN-01

TRC-SB-09 / SSV-09

TRC-SB-14 / TRC-GW-14

TRC-AA-01

TRC-SB-11 / SSV-11

TRC-SB-19-E

TRC-DRAIN-02

TRC-SB-02 / SSV-02 / GW-02

TRC-SB-22-E / GW-22-E

TRC-SB-22-EE

TRC-SB-13 / SSV-13

X0

TRC-SB-10 / SSV-10

TRC-SB-17 / SSV-17

LOT: 39

TRC-SB-19-S

TRC-SB-22-S

TRC-SB-101

TRC-SB-104

TRC-SB-22-SS

TRC-SB-07 / SV-07

LOT: 28
ASPHALT PAVED PARKING LOT

TRC-SB-04 / SV-04 / GW-04

APPROXIMATE LOCATION OF SUSPECT UST

TRC-SB-20

TRC-SB-103

TRC-SB-06-W

TRC-SB-102

TRC-SB-06

TRC-SB-06-N

TRC-SB-06-E

TRC-SB-15 / TRC-GW-15

TRC-SB-03 / SV-03 / GW-03

TRC-SB-08 / SV-08

89TH STREET

APPROXIMATE LOCATION OF PARTIAL BASEMENT

APPROXIMATE LOCATION OF UNDERGROUND STRUCTURE

UTILITY VAULT

5TH AVENUE

UNITED STATES POST OFFICE

COMMERCIAL

SAMPLE NAME	TRC-SB-22 (25-26)
MATRIX	SOIL
VOC (mg/kg)	8/23/2024
1,2,4 - TRIMETHYLBENZENE	**67 J**
XYLENES, TOTAL	**150 J**

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECT UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. RRUSCO - 6 NYCRR PART 375 RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVE.
8. mg/kg - MILLIGRAMS PER KILOGRAM.
9. µg/kg - MICROGRAMS PER KILOGRAM.
10. **BLACK BOLDED TEXT WITH GREY SHADING** EXCEEDS RESTRICTED RESIDENTIAL USE SCO.
11. SCO - SOIL CLEANUP OBJECTIVE.
12. J - ESTIMATED VALUE.
13. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

PARAMETERS (mg/kg)	RESTRICTED RESIDENTIAL USE SCO
VOCs	(mg/kg)
1,2,4 - TRIMETHYLBENZENE	52
XYLENES, TOTAL	100

N

TRUE NORTH
NY83-LI/F

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

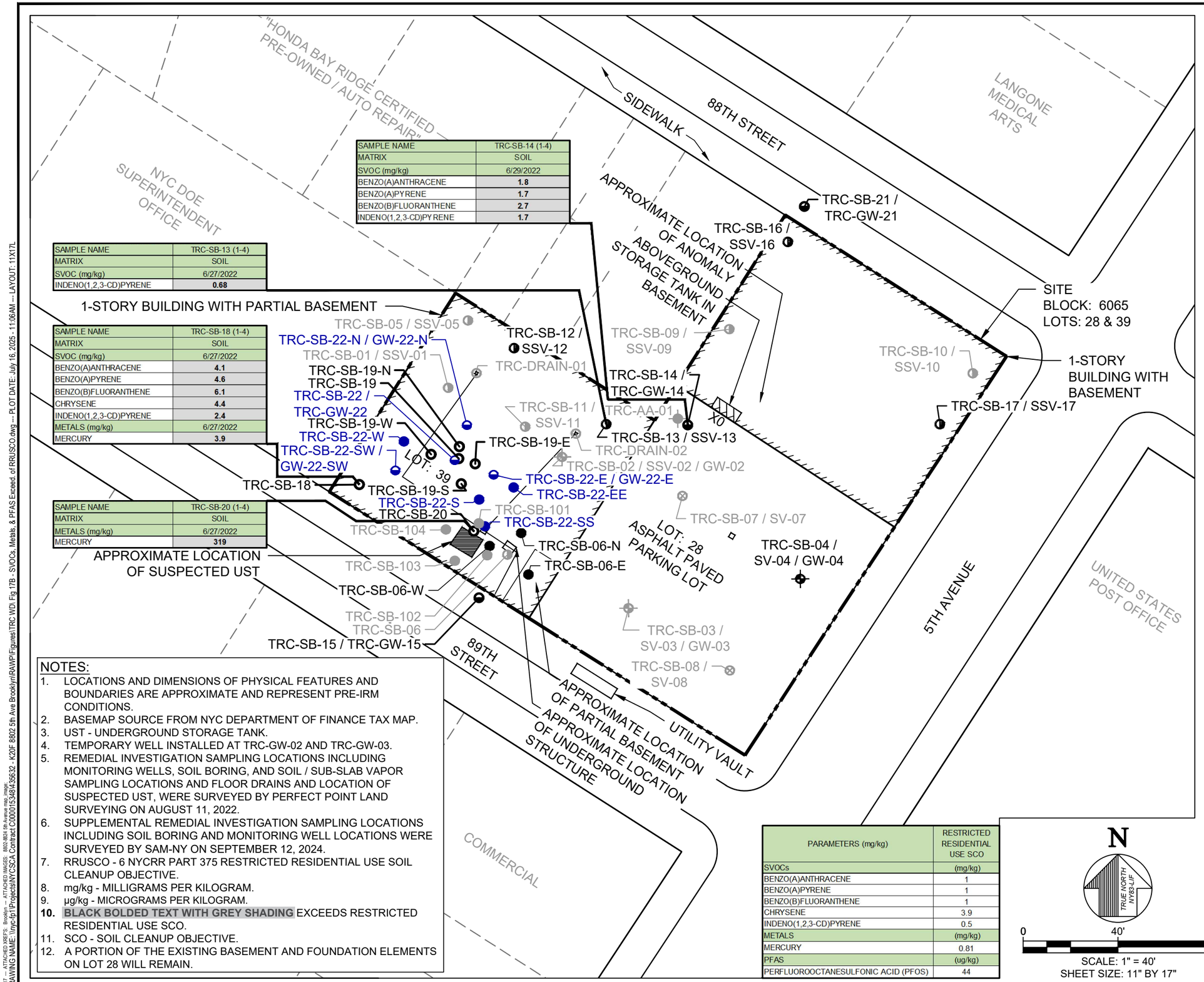
TITLE: **VOC EXCEEDANCES OF RESTRICTED-RESIDENTIAL USE SOIL CLEANUP OBJECTIVES**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 17A**
DATE:	JUNE 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 17A - VOC Exceed. of RRUSCO.dwg

11x17 --- ATTACHED VIEWS: Default --- ATTACHED IMAGES: 8802-8824 5th Avenue Image Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\436532 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 17A - VOC Exceed. of RRUSCO.dwg --- PLOT DATE: July 16, 2025 - 11:05AM --- LAYOUT: 11X17L



SAMPLE NAME	TRC-SB-14 (1-4)
MATRIX	SOIL
SVOC (mg/kg)	6/29/2022
BENZO(A)ANTHRACENE	**1.8**
BENZO(A)PYRENE	**1.7**
BENZO(B)FLUORANTHENE	**2.7**
INDENO(1,2,3-CD)PYRENE	**1.7**

SAMPLE NAME	TRC-SB-13 (1-4)
MATRIX	SOIL
SVOC (mg/kg)	6/27/2022
INDENO(1,2,3-CD)PYRENE	**0.68**

SAMPLE NAME	TRC-SB-18 (1-4)
MATRIX	SOIL
SVOC (mg/kg)	6/27/2022
BENZO(A)ANTHRACENE	**4.1**
BENZO(A)PYRENE	**4.6**
BENZO(B)FLUORANTHENE	**6.1**
CHRYSENE	**4.4**
INDENO(1,2,3-CD)PYRENE	**2.4**
METALS (mg/kg)	6/27/2022
MERCURY	**3.9**

SAMPLE NAME	TRC-SB-20 (1-4)
MATRIX	SOIL
METALS (mg/kg)	6/27/2022
MERCURY	**319**

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECTED UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. RRUSCO - 6 NYCRR PART 375 RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVE.
8. mg/kg - MILLIGRAMS PER KILOGRAM.
9. µg/kg - MICROGRAMS PER KILOGRAM.
10. **BLACK BOLDED TEXT WITH GREY SHADING** EXCEEDS RESTRICTED RESIDENTIAL USE SCO.
11. SCO - SOIL CLEANUP OBJECTIVE.
12. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

PARAMETERS (mg/kg)	RESTRICTED RESIDENTIAL USE SCO
SVOCs	(mg/kg)
BENZO(A)ANTHRACENE	1
BENZO(A)PYRENE	1
BENZO(B)FLUORANTHENE	1
CHRYSENE	3.9
INDENO(1,2,3-CD)PYRENE	0.5
METALS	(mg/kg)
MERCURY	0.81
PFAS	(ug/kg)
PERFLUOROOCTANESULFONIC ACID (PFOS)	44

N

TRUE NORTH NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE: **SVOC, METALS, AND PFAS EXCEEDANCES OF RESTRICTED-RESIDENTIAL USE SOIL CLEANUP OBJECTIVES**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 17B**
DATE:	JUNE 2025		

TRC
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FILE NO.: Fig 17B - SVOCs, Metals, & PFAS Exceed. of RRUSCO.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802-8804 5th Avenue.png; Image
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 17B - SVOCs, Metals, & PFAS Exceed. of RRUSCO.dwg -- PLOT DATE: July 16, 2025 - 11:06AM -- LAYOUT: 11X17L

SAMPLE NAME	TRC-GW-14	TRC-GW-DUP
MATRIX	GROUNDWATER	GROUNDWATER
FILTERED METALS (µg/L)	7/20/2022	7/20/2022
SODIUM	**321,000**	**323,000**
MAGNESIUM	**92,400**	**91,700**
MANGANESE	**692**	**679**
VOCs (µg/L)	7/20/2022	7/20/2022
CHLOROFORM	**8.8**	**8.8**

SAMPLE NAME	TRC-GW-22	TRC-GW-DUP
MATRIX	GROUNDWATER	GROUNDWATER
VOCs (µg/L)	9/12/2024	9/12/2024
1,2-DICHLOROETHANE	**1**	**1**
CHLOROFORM	**39**	**42**
m-XYLENE & p-XYLENE	**6.3**	**6.9**
XYLENES, TOTAL	**9.7**	**11**

SAMPLE NAME	TRC-GW-22-N
MATRIX	GROUNDWATER
VOCs (µg/L)	9/13/2024
CHLOROFORM	**35**

SAMPLE NAME	TRC-GW-22-SW
MATRIX	GROUNDWATER
VOCs (µg/L)	9/12/2024
BENZENE	**1.4**
CHLOROFORM	**13**

SAMPLE NAME	TRC-GW-15
MATRIX	GROUNDWATER
FILTERED METALS (µg/L)	7/20/2022
SODIUM	**193,000**
MAGNESIUM	**76,900**
MANGANESE	**1,490**

SAMPLE NAME	TRC-GW-21
MATRIX	GROUNDWATER
FILTERED METALS (µg/L)	7/20/2022
SODIUM	**55,200**
VOCs (µg/L)	7/20/2022
CHLOROFORM	**24**

SAMPLE NAME	TRC-GW-22-EE
MATRIX	GROUNDWATER
VOCs (µg/L)	9/12/2024
CHLOROFORM	**11**

SAMPLE NAME	TRC-GW-04
MATRIX	GROUNDWATER
FILTERED METALS (µg/L)	7/20/2022
SODIUM	**298,000**
MAGNESIUM	**2,940**
VOCs (µg/L)	7/20/2022
CHLOROFORM	**8.4**

PARAMETERS (µg/L)	CLASS GA VALUE
METALS (FILTERED)	(µg/L)
LEAD	25
MANGANESE	500
MAGNESIUM	35,000
IRON	300
SODIUM	20,000
VOCs (µg/L)	
1,2-DICHLOROETHANE	0.2
BENZENE	1
CHLOROFORM	7.0
m-XYLENE & p-XYLENE	5
XYLENES, TOTAL	5
CHLOROFORM	7.0

"HONDA BAY RIDGE CERTIFIED PRE-OWNED / AUTO REPAIR"
SIDEWALK
88TH STREET
LANGONE MEDICAL ARTS
APPROXIMATE LOCATION OF ANOMALY
ABOVEGROUND STORAGE TANK IN BASEMENT
1-STORY BUILDING WITH PARTIAL BASEMENT
TRC-SB-21 / TRC-GW-21
TRC-SB-16 / SSV-16
SITE
BLOCK: 6065
LOTS: 28 & 39
1-STORY BUILDING WITH BASEMENT
TRC-SB-10 / SSV-10
TRC-SB-17 / SSV-17
TRC-SB-05 / SSV-05
TRC-SB-12 / SSV-12
TRC-SB-09 / SSV-09
TRC-SB-22-N / GW-22-N
TRC-SB-01 / SSV-01
TRC-DRAIN-01
TRC-SB-19-N
TRC-SB-19
TRC-SB-14 / TRC-GW-14
LOT: 39
TRC-SB-11 / TRC-AA-01
SSV-11
X0
TRC-SB-22 / TRC-GW-22
TRC-SB-22-W
TRC-SB-19-E
TRC-SB-13 / SSV-13
TRC-SB-19-W
TRC-DRAIN-02
89TH STREET
TRC-SB-02 / SSV-02 / GW-02
TRC-SB-22-SW / GW-22-SW
TRC-SB-22-E / GW-22-E
TRC-SB-18
TRC-SB-19-S
TRC-SB-22-EE
TRC-SB-22-S
TRC-SB-101
TRC-SB-07 / SV-07
TRC-SB-22-SS
TRC-SB-104
LOT: 28
ASPHALT PAVED PARKING LOT
TRC-SB-20
TRC-SB-06-N
TRC-SB-06-E
TRC-SB-04 / SV-04 / GW-04
APPROXIMATE LOCATION OF SUSPECT UST
TRC-SB-103
TRC-SB-06-W
TRC-SB-102
TRC-SB-06
TRC-SB-03 / SV-03 / GW-03
TRC-SB-15 / TRC-GW-15
TRC-SB-08 / SV-08
APPROXIMATE LOCATION OF PARTIAL BASEMENT
APPROXIMATE LOCATION OF UNDERGROUND STRUCTURE
UTILITY VAULT
5TH AVENUE
UNITED STATES POST OFFICE
COMMERCIAL

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE AND REPRESENT PRE-IRM CONDITIONS.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. UST - UNDERGROUND STORAGE TANK.
4. TEMPORARY WELL INSTALLED AT TRC-GW-02 AND TRC-GW-03.
5. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS AND FLOOR DRAINS AND LOCATION OF SUSPECT UST, WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
6. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
7. µg/L - MICROGRAMS PER LITER.
8. CLASS GA VALUE - NEW YORK STATE CLASS GA GROUNDWATER STANDARD OR GUIDANCE VALUE PUBLISHED IN THE NYSDEC TOGS 1.1.1, AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES.
9. **BOLD VALUE** INDICATES RESULT ABOVE CLASS GA VALUE.
10. TRC-GW-DUP IS A DUPLICATE SAMPLE OF TRC-GW-14.
9. TRC-GW-DUP IS A DUPLICATE SAMPLE OF TRC-GW-22.
10. THERE IS NO STANDARD OR GUIDANCE VALUE FOR TOTAL XYLENES. THE STANDARD FOR O-XYLENE, M-XYLENE, AND P-XYLENE IS 5 µg/L.
11. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- X0 — VENT LINE / FILL PORT
- FLOOR DRAIN AND DRAINAGE PIPING
- TRC-SB-## / SV-## / GW-## — SOIL, SOIL VAPOR, AND GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SV-## — SOIL AND SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-SB-## / SSV-## — SOIL AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-AA-## — AMBIENT AIR SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019)
- TRC-DRAIN-## — FLOOR DRAIN SAMPLE LOCATION AND IDENTIFICATION NUMBER (NOVEMBER 2019 AND JANUARY 2020)
- TRC-GW-## — GROUNDWATER SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-1## — SOIL SAMPLE LOCATION AND IDENTIFICATION NUMBER (JANUARY 2020)
- TRC-SB-## / TRC-GW-## — SOIL BORING / PERMANENT MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-06-# — DELINEATION SOIL BORING LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## / SSV-## — SHALLOW SOIL BORING AND SUB-SLAB SOIL VAPOR SAMPLE LOCATION AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-## — SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (JUNE/JULY 2022)
- TRC-SB-22-## — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING SAMPLE AND IDENTIFICATION NUMBER (SEPTEMBER 2024)
- TRC-SB-22-# / TRC-GW-22-# — SUPPLEMENTAL REMEDIAL INVESTIGATION SOIL BORING AND/OR MONITORING WELL LOCATION AND IDENTIFICATION NUMBER (SEPTEMBER 2024)

N
TRUE NORTH
NY83-LIF
0 40' 80'
SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

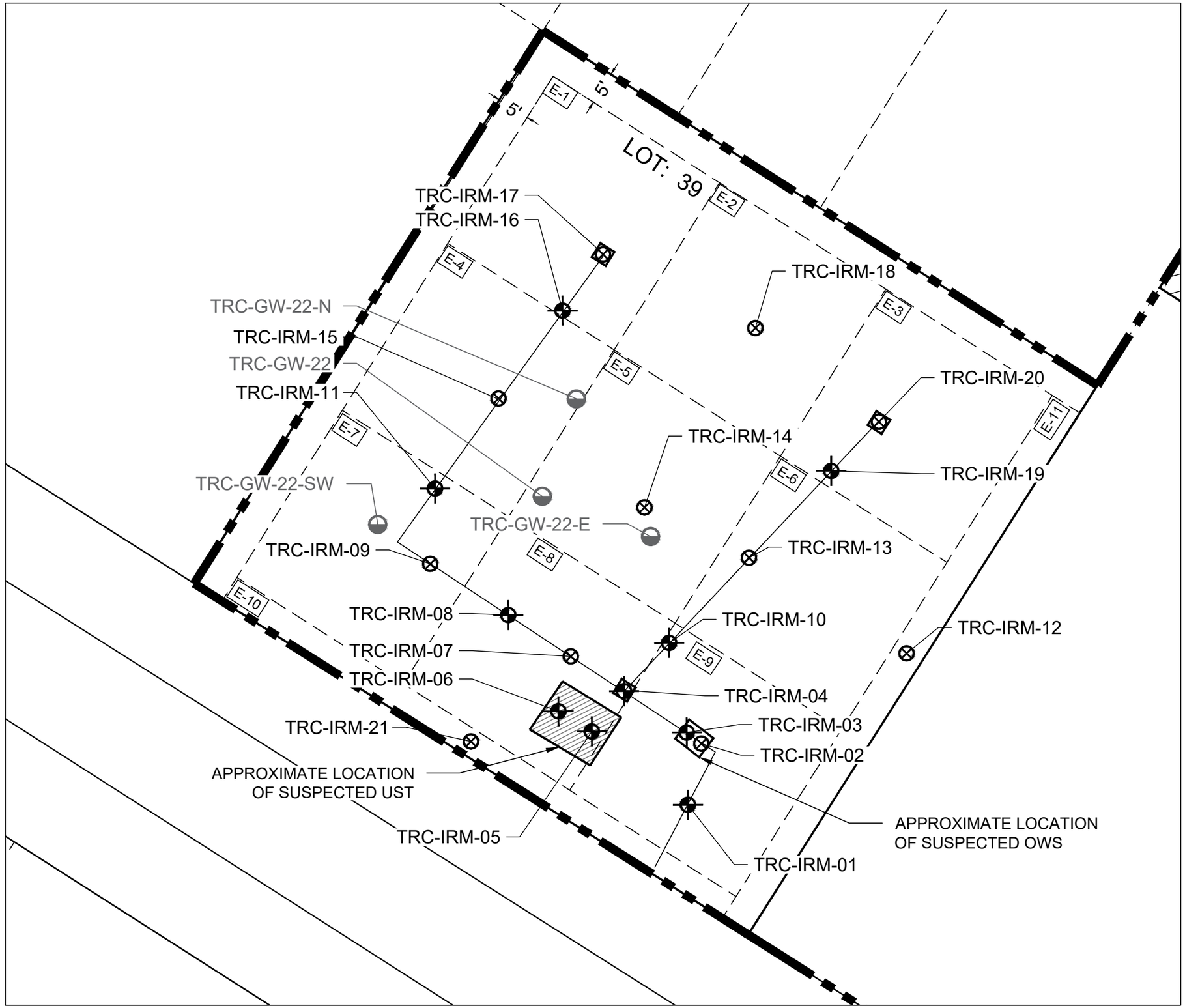
TITLE:
EXCEEDANCES OF CLASS GA VALUES IN GROUNDWATER

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	J. RAUP		**FIGURE 18**
DATE:	JUNE 2025		

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FILE NO.: Fig 18 - Exceed. of CGAV in GW.dwg

11x17 -- ATTACHED WSES - Brooklyn -- ATTACHED IMAGES - 8802 8th & 5th Avenue maps, images
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 18 - Exceed. of CGAV in GW.dwg -- PLOT DATE: July 16, 2025 - 11:12AM -- LAYOUT: 11X17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXCAVATION AREA REPRESENTING APPROXIMATELY 900 SQUARE FEET
- SUSPECT DRAINAGE SYSTEM PIPING
- FLOOR DRAIN
- SOIL SAMPLE LOCATION - VOCS AND SVOCS
- SOIL SAMPLE LOCATION - VOCS, SVOCS AND METALS
- MONITORING WELL TO BE DECOMMISSIONED

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. SAMPLES MAY BE ADDED OR REMOVED AS NECESSARY TO COMPLY WITH DER-10 RECOMMENDATIONS.
4. SAMPLES TO BE COLLECTED FROM THE TERMINAL DEPTH OF EXCAVATION, BENEATH THE PIPING INVERTS, UST AND OWS, FOLLOWING COMPLETION OF EXCAVATION AND REMOVAL.
5. A GEOTEXTILE DEMARCATION LAYER WILL BE INSTALLED PRIOR TO BACKFILLING WITH VIRGIN QUARRIED #57 STONE, OR APPROVED EQUAL.
6. UST - UNDERGROUND STORAGE TANK
7. OWS - OIL WATER SEPARATOR

N (TRUE NORTH NYW3-LIF)

0 15' 30'

SCALE: 1" = 15'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE: **REMEDIATION TO BE PERFORMED UNDER APPROVED INTERIM REMEDIAL MEASURE**

DRAWN BY:	H. DELGADO	PROJ NO.:	630067.0000.0000
CHECKED BY:	Z. SCHWARTZ		**FIGURE 19**
APPROVED BY:	P. CASTELLANO		
DATE:	NOVEMBER 2025		

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FILE NO.: Fig 19 - IRM Remedial Action Plan.dwg

1x1 -- ATTACHED XREFS -- ATTACHED IMAGES: EPSG2263, TRC
DRAWING NAME: \\nyc-fp1\Projects\NY CSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 19 - IRM Remedial Action Plan.dwg -- PLOT DATE: November 13, 2025 - 2:13PM -- LAYOUT: 11x17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- TRC-GW-## — PERMANENT MONITORING WELL (TO BE DECOMMISSIONED)
- MINIMUM OF 2 FEET OF SOIL TO BE EXCAVATED BELOW GROUND SURFACE OR EXISTING CELLAR
- AREA TO BE EXCAVATED DURING THE INTERIM REMEDIAL MEASURE (REFER TO FIGURE 19)
- PROPOSED MOBILE CAMP STATION

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING MONITORING WELLS, SOIL BORING, AND SOIL / SUB-SLAB VAPOR SAMPLING LOCATIONS WERE SURVEYED BY PERFECT POINT LAND SURVEYING ON AUGUST 11, 2022.
4. SUPPLEMENTAL REMEDIAL INVESTIGATION SAMPLING LOCATIONS INCLUDING SOIL BORING AND MONITORING WELL LOCATIONS WERE SURVEYED BY SAM-NY ON SEPTEMBER 12, 2024.
5. EXCAVATION AND DEVELOPMENT PLANS ARE PRELIMINARY. CHANGES ARE LIKELY FROM THE CURRENT CONCEPT.
6. RRUSCO - RESTRICTED RESIDENTIAL USE SOIL CLEANUP OBJECTIVE
7. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.
8. LOCATIONS OF SITE ENTRANCES AND EXITS ARE APPROXIMATE AND SUBJECT TO CHANGE.
9. CAMP - COMMUNITY AIR MONITORING PLAN
10. LOCATIONS OF PROPOSED MOBILE CAMP STATIONS WILL BE UPDATED DAILY TO REFLECT SITE CONDITIONS (E.G., EXTENTS OF EXCAVATION, WIND DIRECTION). AT A MINIMUM, CAMP STATIONS WILL BE POSITIONED AT THE UPWIND AND DOWNWIND PROJECT LIMITS.

N

TRUE NORTH NY83-LIF

0 40' 80'

SCALE: 1" = 40'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

PROPOSED EXCAVATION AREAS

DRAWN BY:	Z. SCHWARTZ	PROJ NO.:	630067.0000.0000
CHECKED BY:	J. RAUP		
APPROVED BY:	P. CASTELLANO		**FIGURE 20**
DATE:	NOVEMBER 2025		

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FILE NO.: Fig 20 - Prop. Excav. Areas.dwg

11x17 -- ATTACHED XREFS: Brooklyn -- ATTACHED IMAGES: 8802 8824 5th Avenue new_images TRC
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C00001\5J48\35632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 20 - Prop. Excav. Areas.dwg -- PLOT DATE: November 13, 2025 - 2:14PM -- LAYOUT: 11X17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- EXISTING BUILDING FOOTPRINT TO BE DEMOLISHED
- APPROXIMATE FOOTPRINT OF NEW SCHOOL BUILDING
- TRC-PE-XX — PROPOSED POST-EXCAVATION SOIL SAMPLE LOCATION
- A1 — EXCAVATION AREA REPRESENTING A MAXIMUM OF APPROXIMATELY 900 SQUARE FEET
- GRID BOX IDENTIFICATION NUMBER

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. RRUSCO - RESTRICTED-RESIDENTIAL USE SOIL CLEANUP OBJECTIVE
4. A MINIMUM OF 2 FEET OF SOIL WILL BE EXCAVATED WITHIN THE EXCAVATION AREAS.
5. EXCAVATION AND DEVELOPMENT PLANS ARE PRELIMINARY. CHANGES ARE LIKELY FROM THE CURRENT CONCEPT.
6. APPROXIMATE BUILDING FOOTPRINT FROM DRAWING A035 - SITE PLAN, PREPARED BY GLUCK+, DATED 6/5/2025.
7. A PORTION OF THE EXISTING BASEMENT AND FOUNDATION ELEMENTS ON LOT 28 WILL REMAIN.

N

TRUE NORTH
NY83-LIF

0 30' 60'

SCALE: 1" = 30'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

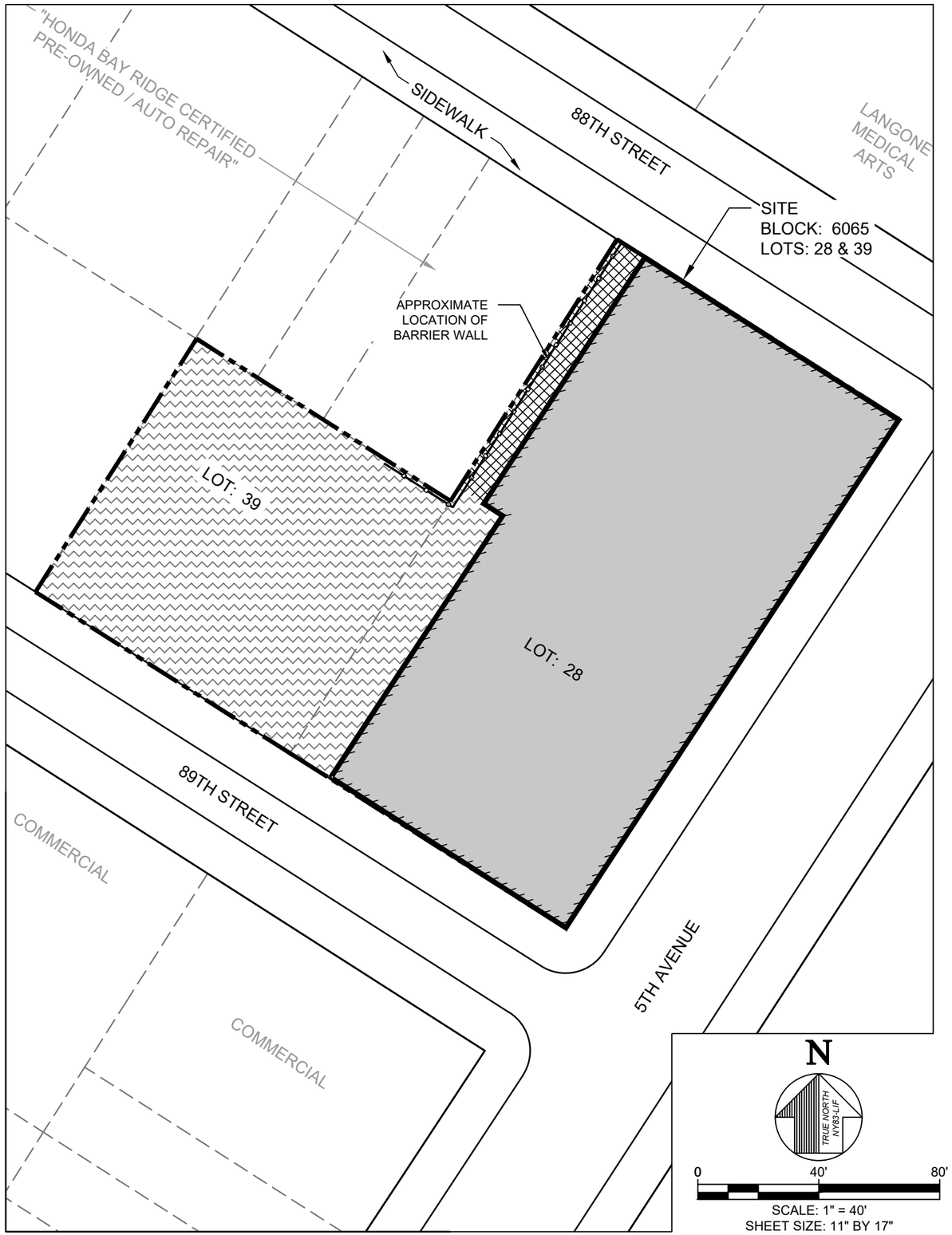
PROPOSED POST-EXCAVATION SAMPLE LOCATION PLAN

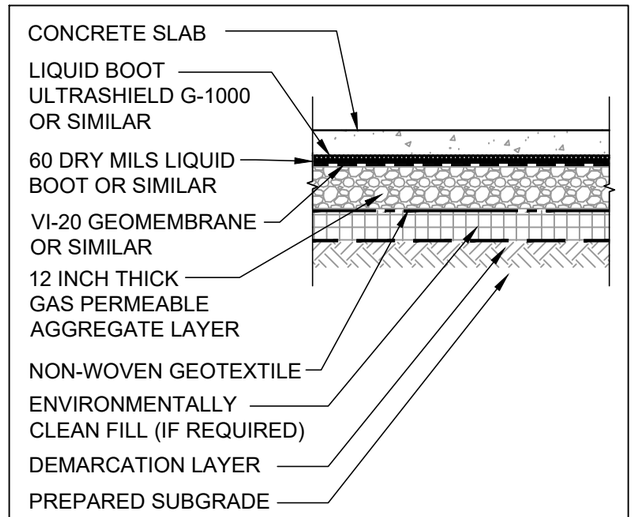
DRAWN BY:	Z. SCHWARTZ	PROJ NO.:	630067.0000.0000
CHECKED BY:	J.RAUP		
APPROVED BY:	P. CASTELLANO		**FIGURE 21**
DATE:	NOVEMBER 2025		

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FILE NO.: Fig 21 - Prop. Post-Excv. Samp. Loc. Plan.dwg

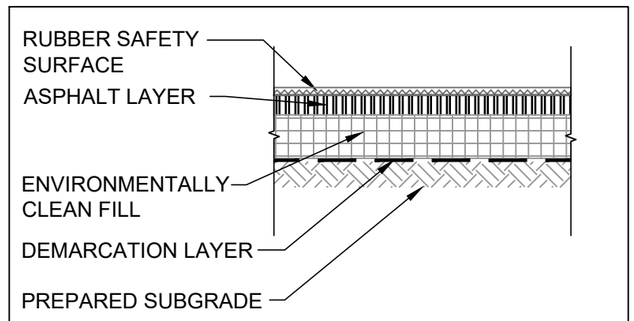
11:17 -- ATTACHED XREFS: $refs:\ -- ATTACHED IMAGES: 8802 8802 5th Avenue.mrp, Image, TaxExt, 8802 5th Ave, Image2, 14" ESRI Plan, TRC
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000001534\8436\32 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 21 - Prop. Post-Excv. Samp. Loc. Plan.dwg -- PLOT DATE: November 11, 2025 - 1:56PM -- LAYOUT: 11X17L





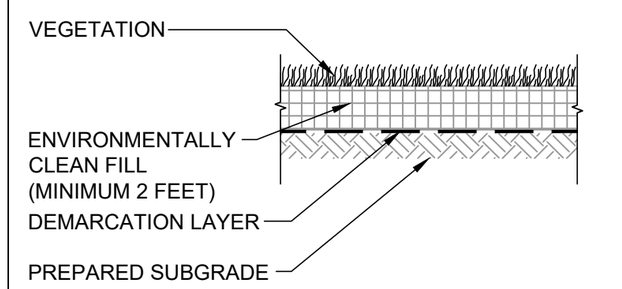
DETAIL A - BUILDING

NTS



DETAIL B - PLAYGROUND

NTS



DETAIL C - LANDSCAPED AREAS

NTS

LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- APPROXIMATE FOOTPRINT OF SCHOOL BUILDING
- CONCRETE BUILDING SLAB (REFER TO DETAIL A)
- RUBBER SAFETY SURFACE OVER ASPHALT (REFER TO DETAIL B)
- CONCRETE COVER (REFER TO NOTE 5)

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
2. DEVELOPMENT PLANS ARE PRELIMINARY AND LIKELY TO CHANGE DURING SCHOOL DESIGN.
3. APPROXIMATE BUILDING FOOTPRINT AND SITE COVERS FROM DRAWING A035 - SITE PLAN, PREPARED BY GLUCK+, DATED 6/5/2025.
4. DETAIL C - LANDSCAPED AREAS IS PROVIDED IN THE EVENT THAT LANDSCAPED AREAS ARE INCORPORATED INTO THE FINAL DESIGN.
5. ENVIRONMENTALLY CLEAN FILL WILL BE INSTALLED BENEATH THE BUILDING SLAB TO RAISE SITE ELEVATION TO THE GRADE NEEDED FOR GAS PERMEABLE AGGREGATE INSTALLATION, AS SHOWN ON DETAIL A.
6. CONCRETE COVER DETAIL SIMILAR TO DETAIL B, EXCEPT THE RUBBER SAFETY SURFACE AND ASPHALT LAYER WILL BE REPLACED WITH A CONCRETE LAYER

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

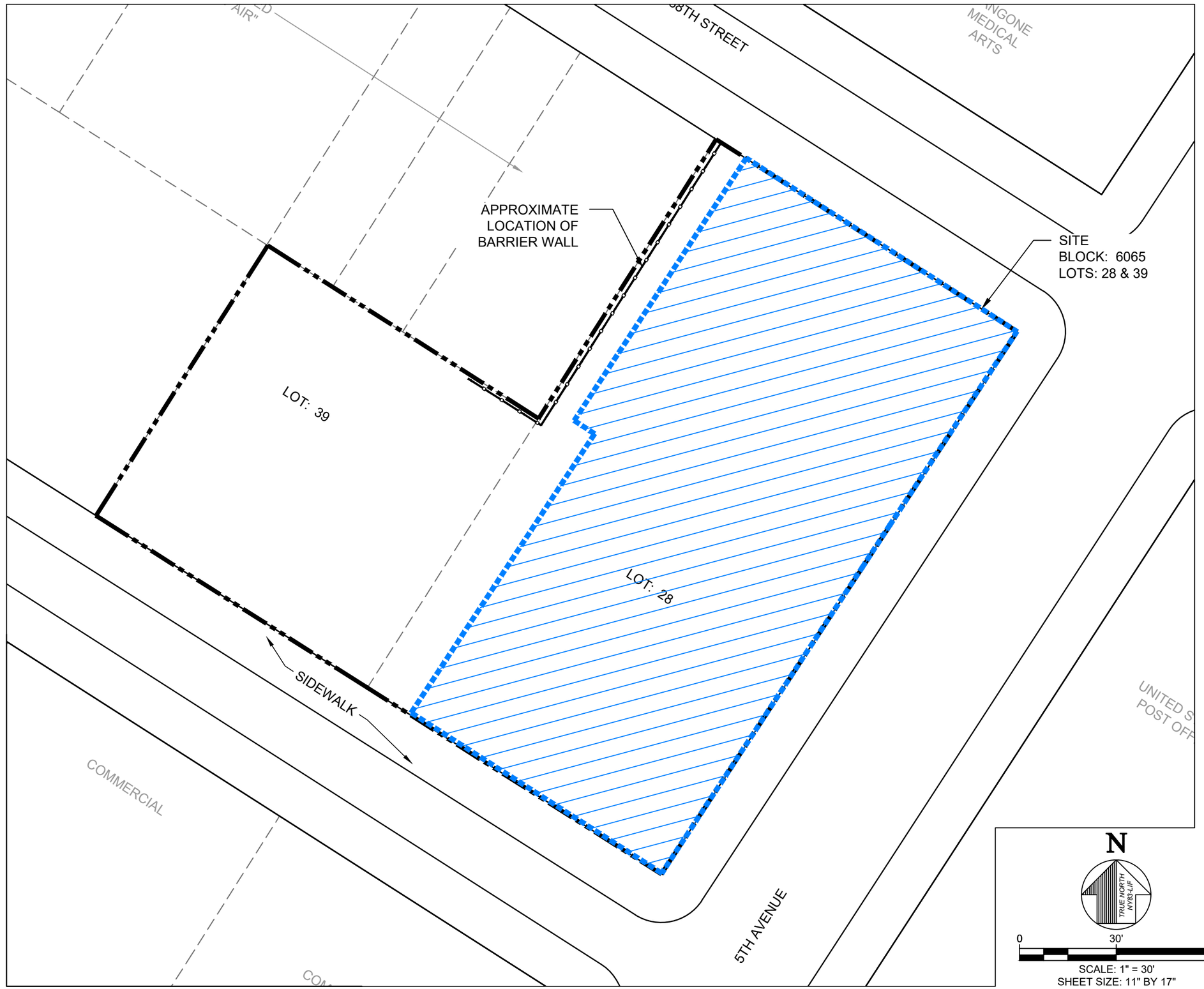
PROPOSED SITE COVER SYSTEM

DRAWN BY:	Z. SCHWARTZ	PROJ NO.:	630067.0000.0000
CHECKED BY:	J. RAUP		
APPROVED BY:	P. CASTELLANO		**FIGURE 22**
DATE:	JUNE 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 22 - Prop. Site Covers.dwg

11x17 -- ATTACHED XREFS: Borders -- ATTACHED IMAGES: 8802-8824 5th Avenue.mrp; Image; TextTx; 8802 5th Ave.tx; Meter-2; 14 Site Plan; TRC;
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WDI Fig 22 - Prop. Site Covers.dwg -- PLOT DATE: June 27, 2025 - 12:17PM -- LAYOUT: 11X17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- STREET AND SIDEWALK BOUNDARIES
- APPROXIMATE FOOTPRINT OF SCHOOL BUILDING
- BUILDING FOOTPRINT SUBJECT TO VAPOR MITIGATION MEASURES

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. APPROXIMATE BUILDING FOOTPRINT FROM DRAWING A035 - SITE PLAN, PREPARED BY GLUCK+, DATED 6/5/2025.
4. VAPOR MITIGATION WILL BE CONSIDERED AN ENGINEERING CONTROL ONLY IF SUB-SLAB VAPOR TCE AND PCE ANALYTICAL RESULTS ARE BELOW THE ACTION LEVEL OF 6 µg/m3 AND 100 µg/m3, RESPECTIVELY.
5. µg/m3 - MICROGRAM PER METER CUBED

N

TRUE NORTH
NY83-LIF

0 30' 60'

SCALE: 1" = 30'
SHEET SIZE: 11" BY 17"

PROJECT: NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY
REMEDIAL ACTION WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:
PROPOSED BUILDING FOOTPRINT SUBJECT TO VAPOR MITIGATION MEASURES

DRAWN BY:	Z. SCHWARTZ	PROJ NO.:	630067.0000.0000
CHECKED BY:	J. RAUP		**FIGURE 23**
APPROVED BY:	P. CASTELLANO		
DATE:	JUNE 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 23 - Prop. Bldg. FP to be Depress..dwg

11x17 -- ATTACHED XREFS: BrookLyn -- ATTACHED IMAGES: 8802-804 5th Avenue.ntpp (Image), Tax Lot 28 - 8802 5th Ave, Manv-2, 1st FI Site Plan_TRC
DRAWING NAME: \\nyc-fp1\Projects\NY\CSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RAWP\Figures\TRC WD\ Fig 23 - Prop. Bldg. FP to be Depress..dwg -- PLOT DATE: June 27, 2025 - 9:37AM -- LAYOUT: 11X17L

APPENDIX A
NYSDEC/NYSDOH CORRESPONDENCE

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Acting Commissioner

May 28, 2025

Lee Guterman
NYCSCA, IEH Division
25-01 Jackson Avenue
Long Island City, NY 11101

Re: Former Giuffre Auto Group Site
8802 5th Avenue and 429 89th Street, Brooklyn, Kings County
Brownfield Cleanup Program # C224327
Interim Remedial Measures Work Plan

Dear Ms. Guterman:

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the Interim Remedial Measures Work Plan (IRMWP) dated May 2025, which was prepared by TRC Engineers, Inc. on behalf of New York City School Construction Authority (the Volunteer). The RIR is a requirement of the NYS Brownfield Cleanup Program, Agreement Index No. C203161-04-23. The IRMWP meets the requirements of DER-10 and the Brownfield Cleanup Agreement (BCA) and is hereby approved.

The Volunteer and its contractors are solely responsible for safe execution of all invasive and other field work performed under this IRMWP. The Volunteer and its contractors must obtain all local, state, and/or federal permits or approvals that may be required to perform work under this IRMWP. Further, the Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under this IRMWP and, implementation of all required, appropriate, or necessary health and safety measures during performance of work under this IRMWP.

In accordance with the requirements of the Brownfield Cleanup Agreement and the Citizen Participation Plan, the approved IRMWP must be placed in the project document repositories within 5 business days. Any draft copies of this report should be removed. A certification that this document has been placed in the project repositories, and that the repositories are complete with all project documents, must be submitted to the NYSDEC project manager.

Please notify the NYSDEC at least 7 days prior to commencing any field work related to the approved RIWP. Should you have any questions regarding this letter or any other aspect of the project, please contact me at 718-482-4508 or jennifer.gonzalez@dec.ny.gov.

Regards,

Jennifer Gonzalez
Project Manager

cc: J. O'Connell, A. Obligado, G. Nam – NYSDEC
S. McLaughlin, A. Perretta – NYSDOH
B. Kanaparthi, M. Sherwood – NYSCA
J. Raup, Z. Schwartz – TRC Engineers, Inc.

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Acting Commissioner

May 20, 2025

Lee Guterman
NYCSCA, IEH Division
25-01 Jackson Avenue
Long Island City, NY 11101

Re: Former Giuffre Auto Group Site
8802 5th Avenue and 429 89th Street, Brooklyn, Kings County
Brownfield Cleanup Program # C224327
Remedial Investigation Report

Dear Ms. Guterman:

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the Remedial Investigation Report (RIR) dated April 2025, which was prepared by TRC Engineers, Inc. on behalf of New York City School Construction Authority (the Volunteer). The RIR is a requirement of the NYS Brownfield Cleanup Program, Agreement Index No. C203161-04-23. The RIR meets the requirements of DER-10 and the Brownfield Cleanup Agreement (BCA) and is hereby approved.

In accordance with the requirements of the Brownfield Cleanup Agreement and the Citizen Participation Plan, the approved RIR must be placed in the project document repositories within 5 business days. Any draft copies of this report should be removed. A certification that this document has been placed in the project repositories, and that the repositories are complete with all project documents, must be submitted to the NYSDEC project manager.

As per the BCA, please submit the Remedial Action Work Plan within sixty (60) days of this approval letter. Should you have any questions regarding this letter or any other aspect of the project, please contact me at 718-482-4508 or jennifer.gonzalez@dec.ny.gov.

Regards,

Jennifer Gonzalez
Project Manager

cc: J. O'Connell, A. Obligado, G. Nam – NYSDEC
S. McLaughlin, A. Perretta – NYSDOH
B. Kanaparthi, M. Sherwood – NYSCA
J. Raup, Z. Schwartz – TRC Engineers, Inc.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 2
47-40 21st Street, Long Island City, NY 11101
P: (718) 482-4995
www.dec.ny.gov

June 18, 2024

Lee Guterman
30-30 Thomson Avenue, IEH Division
Long Island City, NY 11101

Re: Former Giuffre Auto Group Site
8802 5th Avenue and 429 89th Street, Brooklyn, Kings County
Brownfield Cleanup Program # C224327
Supplemental Remedial Investigation Work Plan

Dear Ms. Guterman:

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the Supplemental Remedial Investigation Work Plan (SRIWP) dated February 2024, which was prepared by TRC Engineers, Inc. on behalf of New York City School Construction Authority (the Volunteer). The SRIWP was submitted to the NYSDEC under the Brownfield Cleanup Program. The SRIWP is deemed adequate and is hereby approved for implementation.

The Volunteer and its contractors are solely responsible for safe execution of all invasive and other field work performed under this SRIWP. The Volunteer and its contractors must obtain all local, state, and/or federal permits or approvals that may be required to perform work under this SRIWP. Further, the Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under this SRIWP and, implementation of all required, appropriate, or necessary health and safety measures during performance of work under this SRIWP.

In accordance with the requirements of the Brownfield Cleanup Agreement and the Citizen Participation Plan, the approved SRIWP must be placed in the project document repositories within 5 business days. Any draft copies of this work plan should be removed. A certification that this document has been placed in the project repositories, and that the repositories are complete with all project documents, must be submitted to the NYSDEC project manager.

Please notify the NYSDEC at least 7 days prior to commencing any field work related to the approved SRIWP. Should you have any questions regarding this letter or any other aspect of the project, please contact me at 718-482-4508 or jennifer.gonzalez@dec.ny.gov.

Regards,



Jennifer Gonzalez
Project Manager

cc: J. O'Connell, A. Obligado, G. Nam – NYSDEC
S. McLaughlin, A. Perretta – NYSDOH
G. Mandaro – NYSCA
J. Miranda, E. Kessler – TRC Engineers, Inc.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 2
47-40 21st Street, Long Island City, NY 11101
P: (718) 482-4995
www.dec.ny.gov

June 6, 2022

Jennifer Miranda
TRC Engineers, Inc.
1430 Broadway, 10th Floor
New York, NY 10018

Re: Former Giuffre Auto Group site
NYSDEC Site No.: C224327
Remedial Investigation Work Plan (RIWP)

Dear Ms. Miranda:

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the Remedial Investigation Work Plan (RIWP) dated March 2022, which was prepared by TRC Engineers, inc. (TRC) on behalf of New York City School Construction Authority (NYCSCA) (the Volunteer). The SRIWP is hereby approved.

In accordance with the requirements of the Brownfield Cleanup Agreement, the approved RIWP must be placed in all publicly accessible repositories for this project within 5 business days by the Volunteer. Any draft copies of the RIWP should be removed. A certification that this documents have been placed in project repositories, and that the repositories are complete with all project documents, must be submitted to the Department's project manager.

The Volunteer and its contractors are solely responsible for safe execution of all invasive and other work performed under the RIWP. The Volunteer and its contractors must obtain all local, state, or federal permits or approvals that may be required to perform work under the RIWP. Further, the Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under the RIWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approval RIWP.

Please notify the Department at least 5 days in advance of the field work related to the RIWP. If you have any questions regarding this matter, please contact me at (718) 482-4905.

Sincerely,

Bryan Wong
Project Manager

ec: Jane O'Connell, Cris-Sandra Maycock – NYSDEC
Scarlett McLaughlin, Anthony Perretta – NYSDOH
Lee Guterman – NYCSCA
Emily Ebert – TRC

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

APPENDIX B
HEALTH AND SAFETY PLAN

SITE-SPECIFIC HEALTH AND SAFETY PLAN FOR

REMEDIATION ACTIVITIES

AT

Former Giuffre Auto Group Site

Brownfield Cleanup Program Site No. C224327
8802 5th Avenue and 429 89th Street
Brooklyn, New York 11209

Prepared by:

TRC Engineers, Inc.
1407 Broadway, Suite 3301
New York, New York 10018

TRC Project Number: 630067

November 2025

DISCLAIMER

STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THESE SITES. THE HEALTH AND SAFETY GUIDELINES IN THIS HEALTH AND SAFETY PLAN WERE PREPARED SPECIFICALLY FOR THIS PROJECT AND SHOULD NOT BE USED ON ANY OTHER SITE OR PROJECT WITHOUT PRIOR RESEARCH AND EVALUATION BY TRAINED HEALTH AND SAFETY SPECIALISTS.

TABLE OF CONTENTS

Section **Page**

1.0 SITE INFORMATION 1
1.1 Introduction 1
1.2 Purpose 1
1.3 Site Description and History 1
2.0 SCOPE OF WORK 3
3.0 EMERGENCY AND TRC CONTACT NUMBERS 3
4.0 HAZARD ASSESSMENT 6
4.1 Contaminants of Concern 6
4.2 Level of Protection 6
5.0 ON-SITE OPERATION 7
5.1 First Aid Procedures for Chemical Exposures 7
5.2 Chemical Hazards 7
5.3 Biological Hazards 7
5.4 Physical Hazards 7
5.5 Cold Stress 9
5.6 Noise 10
5.7 Electrical Utility Hazards 10
5.8 Mechanical Hazards 10
5.9 Air Monitoring Requirements 11
6.0 GENERAL SAFETY REQUIREMENTS 13
7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) 14
8.0 DECONTAMINATION PROCEDURES 16
8.1 Minimization of Contact with Contaminants 16
8.2 Personnel Decontamination Procedures 16
8.3 Decontamination Procedures 16
8.4 Emergency Decontamination 16
8.5 Hand Held Equipment Decontamination 17
9.0 REQUIRED PERSONNEL TRAINING 18

10.0 MEDICAL MONITORING 19
11.0 TAILGATE SAFETY MEETINGS 20
12.0 OBSERVATIONS 21
13.0 INCIDENT REPORTING 22
14.0 Acknowledgement 23
15.0 Subcontractors and Health and Safety Planning 24

ATTACHMENTS

Attachment A – Health and Safety Plan Acceptance

Attachment B – Hospital Route

Attachment C – Work Care Information

Attachment D – Emergency Contact Information

Attachment E – Safety Data Sheets for Potential Contaminants of Concern

Attachment F – Daily Pre-Job Safety Briefing Form

Attachment G – Incident Reporting Forms

Attachment H – Observation Documentation Form

Attachment I – Safe Catch Report

1.0 SITE INFORMATION

1.1 Introduction

The following is the Health and Safety Plan (HASP) for remediation activities at the proposed Public School located at 8802 5th Avenue and 89th Street, Brooklyn, New York 11209 (the "Site"). A detailed scope of work is described in the Remedial Action Work Plan (RAWP).

The site-specific HASP was developed from Site visits and investigations, as well as appropriate project documents. Revisions and/or alterations to this HASP may become necessary as more information becomes available. Any proposed changes to this HASP will be approved by the Health & Safety Coordinator prior to implementation. All on-site personnel are required to read, review, and strictly comply with the HASP as well as sign the Health and Safety Plan Acceptance in **Attachment A**. It is the responsibility of the Project Manager or designee to ensure that the HASP is implemented and enforced.

1.2 Purpose

The Site remediation tasks and objectives are the mitigation of human contact with soil vapor, groundwater, and soil impacted by volatile organic compounds (VOCs) and metals. Remedial measures described herein will be performed in accordance with this HASP and applicable federal, state, and local regulations.

1.3 Site Description and History

The Site encompasses approximately 31,659 square feet (sf) and is improved with a one-story commercial building with a basement and an asphalt-paved parking lot on Lot 28 (8802 5th Avenue), and a commercial building with a partial basement on Lot 39 (429 89th Street). Lot 28 is approximately 21,659 sf and contains a one-story commercial building with a gross floor area of approximately 13,835 sf that is currently subdivided into two units that are currently vacant. Lot 39 is approximately 10,000 sf and is improved with a one-story commercial building with a partial basement that is currently vacant and was most recently used by a construction company for storage of assorted construction materials. Historically, Lot 28 was occupied by several low-rise structures prior to construction of the current one-story commercial building with a basement in 1956. The building was most recently used by a bank and as real estate offices. Lot 39 has been improved with the current one-story building with a partial basement since 1923, which was occupied by a garage with gasoline tank and auto repair/service station between 1926 and circa 1977.

Previous investigations conducted at the Site include a Phase I Environmental Site Assessment (ESA) Report prepared by TRC in October 2019, a Phase II Environmental Site Investigation (ESI) Report prepared by TRC in February 2020, and a Remedial Investigation Report completed in May 2025.

Based on the results of previously investigation, the primary contaminants of concern in soil include metals (mercury) and SVOCs; in groundwater the primary contaminants of concern are VOCs (TCE, 1,2-DCE, benzene, m-xylene & p-xylene, total xylenes and chloroform); and in soil vapor the primary contaminants of concern are chlorinated VOCs (TCE and PCE).

2.0 SCOPE OF WORK

Remedial activities to be implemented as part of the RAWP include:

- Decommission existing groundwater monitoring wells prior to remedial construction in accordance with NYSDEC CP-43.
- Remove and dispose off-Site soil that exhibits the metal lead and SVOCs above the Restricted-Residential Use Soil Cleanup Objectives (SCOs), extending to approximately 4 feet in depth.
- Remove and dispose off-Site soil excavated as part of the proposed redevelopment.
- Post-excavation documentation/confirmatory soil sampling.
- As part of construction of the new building, install a gas vapor barrier beneath the lowest level floor slab and install and operate a sub-slab depressurization system (SSDS).
- Construct an impermeable cover system consisting of impervious surfaces (e.g., building, paved surfaces, etc.) across the majority of the Site and cover remaining landscaped areas with a minimum 2-foot thick imported clean soil layer. Install a demarcation layer below the clean soil cover.

3.0 EMERGENCY AND TRC CONTACT NUMBERS

Ambulance: **911** Fire Department: **911**

Police Department: **911 (68th Precinct (718) 439-4211)**

Hospital: **New York-Presbyterian Brooklyn Methodist Hospital**

Emergency Center No.: **(718) 283-2190**

Hospital Address: **699 92nd Street, Brooklyn, NY 11228**

HOSPITAL DIRECTIONS

NOTE: FOR ANY TYPE OF SERIOUS MEDICAL EMERGENCY, CALL 911 AND REQUEST AN AMBULANCE. NEW YORK CITY STREETS ARE OFTEN CONGESTED DUE TO HEAVY TRAFFIC, CONSTRUCTION AND DOUBLE-PARKED VEHICLES AND IT MAY BE DIFFICULT TO DRIVE TO THE EMERGENCY ROOM.

Refer to **Attachment B** for Hospital Route Direction with maps.

TRC Contacts

1. Project Manager

   Name: Zachary Schwartz

   Office/Division: New York, NY

   Cell Phone: 332-323-9840

2. Certified Industrial Hygienist

   Name: Ed Gerdts, CIH

   Office/Division: New York, NY

   Office Phone: 212-221-7822

3. National Safety Director

   Name: Mike Glenn

   Office/Division: Irvine, CA

   Office Phone: 949-727-7347

   Cell Phone: 949-697-7418

4. Office Safety Coordinator (OSC)

   Name: Calah Lamberton

   Office/Division: New York, NY

   Office Phone: 212-221-7822

   Cell Phone: 646-618-0358

5. Work Care can provide assistance in providing first aid advice and directing an injured worker to non-emergency medical care. WorkCare is a service that provides 24/7 access to an Occupational Healthcare physician or clinician.

   Work Care Incident Intervention: 888-449-7787 (refer to **Attachment C)**

6. Human Resource Manager

Name: Suzanne Micallef

Office/Division: Administrative

Office Telephone: 978-656-3628

Refer to **Attachment D** for emergency contact information.

4.0 HAZARD ASSESSMENT

4.1 Contaminants of Concern

Based on our understanding of the history of the Site and the results of previous environmental investigations performed at the Site, the following chemical hazards have been identified:

- The primary contaminants of concern in soil include metals (mercury and lead) and SVOCs in shallow soil.
- Groundwater contaminants of concern include VOCs (TCE, 1,2-DCE, benzene, m-xylene & p-xylene, total xylenes and chloroform).
- Soil vapor contaminants of concern include chlorinated VOCs (TCE and PCE).

Safety Data Sheets (SDS) for compounds of concern are provided in **Attachment E**.

4.2 Level of Protection

The Project Manager will continually evaluate levels of protection to be utilized by on-site personnel, with assistance from the Health & Safety Coordinator and the Industrial Hygienist. The levels of protection may be downgraded or upgraded, as necessary, with approval by the Project Manager.

5.0 ON-SITE OPERATION

5.1 First Aid Procedures for Chemical Exposures

EYE: If any chemicals come in contact with eyes, immediately wash the eyes with large amounts of water, occasionally lifting lower and upper lids. Get medical attention immediately.

BREATH: If person breathes large amounts of any chemicals, remove person to fresh air. If breathing has stopped, perform artificial respiration. Keep affected person warm and rested. Get medical attention as soon as possible.

SKIN: If any chemicals except those listed below come in contact with the skin, immediately wash skin with soap and water. Get medical attention promptly. If chemical penetrates clothing, immediately remove clothing and wash with soap and water.

SWALLOW: If any chemicals are swallowed get medical attention immediately

5.2 Chemical Hazards

Based on previous investigations completed at the Site, the presence of the following contaminants is expected in soil:

- Metals, specifically mercury.
- SVOCs

5.3 Biological Hazards

During the course of the project, there is a potential for workers to come into contact with biological hazards, such as animals and their scat.

During Site operations, wild animals such as birds, rats, stray dogs or cats, raccoons, and other rodents and their scat may be encountered. Workers will use discretion and avoid all contact with wild animals and their scat. Avoid areas and habitats inside and outside work areas that are contaminated with scat. If unsafe conditions are noted (e.g., gross accumulations of scat or vermin infestations), work in these areas will be halted and reevaluated.

5.4 Physical Hazards

The physical hazards are anticipated to be low and are outlined in Table A-1 below.

TABLE A-1

PHYSICAL HAZARDS

HAZARD TYPE	KNOWN	POTENTIAL
Heat Stress/Cold Stress		**X**
Severe Weather (lightning, snow, sleet)		**X**
Excessive Noise	**X**	
Facility Operations (machinery, structures)		**X**
Unstable ground (wet areas)		**X**
Site Operations (drilling, hand and power tool use)	**X**	
Heavy lifting/moving		**X**
Hazardous materials use & storage		**X**
Fire		**X**
Slips, trips, and falls	**X**	
Cuts, punctures		**X**

TRC personnel can avoid most of the hazards listed above including hand tools, hazardous materials use, slips, trips and falls, and punctures and cuts by remaining alert and performing safe work practices during all site activities. Other proper work practices are outlined below.

1. To avoid falling objects:
    - Do not walk or stand under suspended/overhead loads (including scaffolding).
    - Be aware of falling objects in the work area.
    - Secure overhead objects.
2. When using hand tools:
    - Hand tools will meet the manufacturer's safety standards.
    - Hand tools will not be altered in any way.
    - Makeshift tools will not be used.
    - At a minimum, eye protection will be used when working with hand tools.

- Wrenches, including adjustable, pipe, end and socket wrenches, will not be used when jaws are sprung to the point that slippage occurs.
- Impact tools such as drift pins, wedges and chisels, will be kept free of mushroom heads.
- Wooden handles will be free of splinters or cracks and secured tightly to the tool.

3. Overhead Wires and Underground Utilities:

   If contact is possible (i.e., ladder, equipment, crane lift, etc.) one or more of the following will be done:

   - Power sources will be disconnected by the utility;
   - Power sources will be shielded by the utility; and
   - Object will get no closure than 12' to prevent arcing.

4. Slips, Trips and Falls:

   - Proper lighting will be maintained at all times.
   - Walkways will remain clear and unobstructed at all times.
   - When possible, cords, hose lines, etc., will be raised to reduce or eliminate trip hazards.

5.5 Cold Stress

The single most important aspect of hypothermia (cold stress) is the fall in the deep core temperature of the body. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 36ºC (96.8ºF). Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 35ºC (95ºF). This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for all workers when severe shivering becomes evident. Useful physical, or mental work is limited when severe shivering occurs.

Since prolonged exposure to cold air at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided. Adequate insulating clothing to maintain core temperatures above 36ºC must be provided to workers if work is performed in air temperatures below 4ºC (40ºF). In addition, it should be kept in mind that, the higher the wind speed and the

lower the temperature in the work area, the greater the insulation value of the protective clothing required.

To prevent cold stress, Contractor personnel will be encouraged to maintain an optimal level of physical fitness, and to maintain body fluids at normal levels. Workers will be encouraged to drink water before beginning work and frequently during the day. TRC personnel and subcontractors will be instructed to recognize symptoms of and measures to prevent cold stress prior to the commencement of field activities.

5.6 Noise

Approved hearing protection will be required in work areas involving heavy equipment, impact tools, drilling, etc. In general, hearing protection should be worn if an individual cannot be heard in a normal speaking voice at a distance of two feet.

5.7 Electrical Utility Hazards

TRC will implement the following subsurface utility clearance procedure:

- TRC will review available site plans for work involving activities at or near utilities.
- TRC's utility mark-out subcontractor will conduct a geophysical survey around all proposed intrusive locations to identify subsurface electric utilities and mark the centerline of underground lines.
- The drilling or excavation contractor will notify the NYC One Call Center at (800) 272-4480, in accordance with Code 753, a minimum of 5 working days prior to any drilling or excavation on streets and sidewalks.

5.8 Mechanical Hazards

The mechanical hazards are anticipated to be associated with excavation activities and loading of trucks using a backhoe/excavator. The following precautions will be taken around construction equipment and excavations:

- Ensure the equipment operator is aware of the location of on-site personnel at all times to avoid potential injuries (e.g., maintain eye contact with the equipment operator). A spotter should be used to direct the movement of heavy equipment. A swing zone should be established with cones behind any excavators to prevent injury during movement of equipment.

- Exercise caution and wear protective equipment around the equipment to guard against crushing and pinching hazards. On-site personnel will maintain a distance (approximately 10 feet) from mechanical hazards associated with heavy equipment.
- Perimeter protection in the form of barricades is necessary for the protection of employees and subcontractor personnel and the public. Such protection will meet requirements set forth in 29 CFR 1926, as well as in the New York City Building Code, Article 19.
- All field team members working near/with equipment with emergency shut-off switches should be aware of the locations and situations when these switches should be used.

5.9 Air Monitoring Requirements

Real-time air monitoring for VOCs and observations of particulate levels at the perimeter of the work areas will be completed during intrusive activities. Continuous monitoring and observations will be required for all intrusive work activity. A detailed description of the Community Air Monitoring Plan (CAMP) is provided as Appendix E to the Remedial Action Work Plan (RAWP).

OSHA Permissible Exposure Limit (PEL)

The OSHA PEL, for benzene, which will be used to determine the appropriate respiratory protection, is 1 part per million (ppm) over an 8-hour time-weighted average or 5 ppm over 15 minutes. This value is based upon the OSHA PEL for benzene, which, of the VOC constituents of petroleum compounds, has the lowest PEL.

Respiratory Protection

It is unlikely that respiratory protection will be required during implementation of the work plan. TRC's health and safety goal is to avoid using respiratory protection unless it is absolutely necessary or required. Administrative controls or engineering controls should always be considered as a means to reduce potential exposures before PPE is required. If air monitoring measurements indicate that levels of organic vapors have reached 5 ppm, workers will cease work in the area until levels of organic vapors have decreased. If necessary, modifications to work practices will be implemented to reduce or avoid generating elevated levels of organic vapors.

Respiratory protection for TRC’s subcontractor may be required during tank cleaning activities. Any upgrade in respiratory protection will be coordinated with the Health & Safety Coordinator and the Industrial Hygienist. For operations that may require the use of a respirator, the TRC Project Manager (and Contractor equivalent) must verify that Field Personnel are medically

approved to use respiratory equipment, fit tested, and trained in the proper use of respirators. Only respirators that are NIOSH/MSHA1 approved are to be used.

Exposure Limits: The following tables summarizes anticipated concentrations and accepted exposure limits of chemicals potentially present at the Site.

Known or Suspected Chemicals/Contaminants	
Chemical/Contaminant of Concern	**OSHA Permissible Exposure Limit (PEL)**
Heavy metals – Mercury	0.1 mg/m^3 (OSHA PEL for Mercury)
Heavy metals – Lead	0.05 mg/m^3 (OSHA PEL for Lead)

1 NIOSH – National Institute for Occupational Safety and Health; MSHA – Mine Safety and Health Administration

6.0 GENERAL SAFETY REQUIREMENTS

The general safety rules listed below apply to all TRC personnel present at the site.

- A tailgate health and safety meeting will be held with all field team members and subcontractors each day prior to the start of work.
- Adhere to all requirements of this health and safety plan (HASP).
- Wear protective clothing appropriate for the designated level of protection and decontaminate before entering clean areas when applicable.
- Use safety equipment in accordance with OSHA guidance and labeling instructions.
- Maintain safety equipment in good condition and proper working order and make sure that the equipment is calibrated prior to use.
- Immediately report unsafe acts or conditions to the Project Manager and OSC.
- Eating, drinking, and smoking are prohibited on site, except in designated areas.
- Maintaining a position upwind from intrusive activities is encouraged.
- The emergency shutoff switch should be demonstrated to be working prior to initiating excavation activities.
- An adequately stocked first-aid kit will be maintained at the work site.

Communication

TRC team members shall be equipped with cellular telephones. If an emergency occurs, and the team members are not in close proximity to each other, communication will occur via telephone.

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

It is anticipated that Level D PPE will be required. Level D protection is applicable when no respiratory protection and minimal skin protection is required. Level D can be used in the following circumstances:

- The atmosphere contains no known hazard
- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals

The Level D recommended for this Site includes:

Level D Personal Protective Equipment	
Item	**Rationale/Notes**
Hardhat	Appropriately rated hard hats will be worn by personnel for protection against overhead hazards, including electrical.
Hearing protection	Hearing protection will be worn by all personnel exposed to more than 85 dB of sound during the workday.
Safety boots	Safety boots will be worn by all personnel during project work described in this HASP and at all times on site.
Eye protection (safety glasses)	Eye protection will be worn when personnel are exposed to flying debris, chemical vapors or particulates. Chemical splash goggles will be worn for protection against chemical gases, vapors or particulates. Safety glasses will be worn for protection against flying objects.
Safety vest	Utilize in areas in or near vehicular traffic of any kind on or off property.
Gloves	Gloves to be changed between samples to avoid cross-contamination. Nitrile chemically resistant gloves will be worn when handling sample bottles.
Kevlar work gloves	As indicated herein, use Cut and Abrasion Resistance Level 4 or Level 5 gloves when necessary for hand protection during field tasks.

If excessive ionizable organic vapors containing of VOCs are detected at or above the action levels (See Section 6.3), workers will cease work in the area until organic vapor levels decrease for Level D PPE. Odor suppression techniques (i.e., water misting and foam) will be used during excavation activities as necessary.

A basic first aid kit will be provided by the contractor and readily available on-Site in the event of an emergency.

A fire extinguisher should be present with the excavator. All personnel working on or around the excavator should know the location of and how to operate the fire extinguisher. TRC will confirm the location of the first aid kid and fire extinguisher during daily tailgate safety meetings.

8.0 DECONTAMINATION PROCEDURES

8.1 Minimization of Contact with Contaminants

During the completion of all Site activities, personnel should attempt to minimize the degree of contact with contaminated materials. This involves a conscientious effort to keep "clean" during Site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from Site operations.

8.2 Personnel Decontamination Procedures

The following describes procedures to be employed for personnel decontamination.

PERSONNEL DECONTAMINATION PROCEDURES FOR LEVEL D PROTECTION	
1.	Decontaminate equipment used on-Site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) with moist towel.
2.	Use boot brush to remove soil from treads of shoes.
2.	Remove PPE and wipe down with moist towel.
3.	Remove gloves and deposit in waste container.
4.	If inner clothing has become contaminated, remove it and place it into a poly bag.
5.	Wash hands and face.

8.3 Decontamination Procedures

All liquids used in the decontamination procedure will be collected, stored, and disposed in accordance with federal, state, and local regulations. Personnel performing this task will wear the proper PPE as prescribed in the table in Section 7.

8.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination; wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment.

If the person cannot be moved because of the extent of the injury (a back or neck injury) provisions will be made to ensure that emergency response personnel are able to respond to victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with poly to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent chemical data.

8.5 Hand Held Equipment Decontamination

Hand held equipment includes all monitoring instruments, samples, hand tools, and field logbooks. To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident.

Decontamination procedures for sampling equipment, hand tools, etc. will include a moist towel wipe, as appropriate for the Site conditions.

9.0 REQUIRED PERSONNEL TRAINING

TRC field personnel will have the training outlined below before on-Site work activities:

Project Training Requirements

(* required for all sites; but minimum recommended)

Check "A" if training required for everyone, and check "T" if training required for specific task or per notations.

A	T	SUBJECT	REFERENCE	
			29 CFR 1910	29 CFR 1926 or Other
☒	☐	HAZWOPER 40 hour	1910.120	1926.65
☐	☐	3-Day HAZWOPER Supervised On-site	1910.120	1926.65
☒	☐	8-Hour HAZWOPER Refresher	1910.120	1926.65
☐	☒	8-Hour Supervisor HAZWOPER*	1910.120	1926.65
☐	☒	First Aid, CPR[1]	1910.151	1926.23,.50
☒	☐	Hazard Communication (HAZCOM)	1910.1200	1926.59
☐	☐	DOT / IATA Shipping Training	1910.1201	49 CFR 172.704
☒	☐	TRC Hand Protection Policy	1910.138	TRC Policy[2]
☒	☐	Defensive Driving	N/A	White Paper[3] TRC Manual[4]
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				

Note:
***** The OHSO shall have OSHA 8-hour supervisor training, in addition to 40-hour HAZWOPER.
1 Per the TRC Health and Safety Policy and Procedure Manual, each TRC project will have at least one certified CPR/first aid trained person on- Site at all times. All Project Managers, and anyone acting as the on-site Health and Safety Officer, must be current in First Aid/CPR.
2 TRC RMD Hand Protection Policy, August 2012
3 Guidelines for Employers to Reduce Motor Vehicle Crashes (joint white paper by NETS, NHTSA and OSHA)
4 TRC Driver and Vehicle Management Policy and Procedure Manual, Rev 1 (April 2012)

Project training requirements beyond those provided in the above table will require a HASP revision/upgrade or concurrence of the TRC Safety Director or Practice Safety Manager.

10.0 MEDICAL MONITORING

Medical monitoring will apply routinely to all employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year (40 CFR 1910.120[f][2][i]). Said TRC field personnel will have the medical surveillance outlined in the table below prior to commencing on-site work activities.

Medical Surveillance Required			
*Baseline is minimum recommended.			
	29 CFR 1910	**29 CFR 1926 or Other**	**Notes**
☒ HAZWOPER Physical - Baseline	1910.120	1926.65	
☒ HAZWOPER Physical – Annual	1910.120	1926.65	
☐ HAZWOPER Physical - Biennial	1910.120	1926.65	
Client-specific drug testing[1]	☒ Not Applicable ☐ Specify		
Client-specific medical monitoring[1]	☒ Not Applicable ☐ Specify		
Site-specific medical monitoring:	☒ Not Applicable ☐ Specify		

Note:
[1] Client required drug testing or medical monitoring should be coordinated through the Project Manager.

TRC has a Drug and Alcohol-Free Workplace Policy. TRC may require employees or subcontractors to be tested upon reasonable suspicion, following accidents or incidents during work activities, or during travel to or from a project Site. Client policies may be stricter in regard to procedures following an accident. Project Managers must be aware of these and inform employees and subcontractors of any additional requirements.

11.0 TAILGATE SAFETY MEETINGS

A tailgate safety meeting will be conducted daily prior to commencement of the work day (see Daily Pre-Job Safety Briefing Form provided in **Attachment F**) or if site conditions change.

Topics covered by the tailgate safety meeting will include, but not be limited to:

- Scope of work and who will conduct each task
- Potential hazards for the scope of work
- weather forecast
- PPE
- Emergency procedures and the route to the medical facility
- Site conditions and features
- Communication guidelines related to stakeholder engagement and visitors

Safety meetings will be held to address modifications to this HASP and any addenda prepared to supplement the HASP. Subcontractors and personnel present at the tailgate safety meeting shall be required to sign an acknowledgement form after each meeting.

12.0 OBSERVATIONS

Note that the Project Manager and/or OSC may notify field staff that their site activities may be the subject of Safety Observation, an integral part of the continuous improvement safety culture promoted at TRC. If subject to an observation, please note the following:

- The Observation will tend to focus on the highest risk activity (as a general example, drilling in a public right-of-way).
- Follow-up observations may be required, depending on prior data collected.
- The observer's preparation before visiting the site will be a review of the HASP, client-specific requirements, etc., and a review of the work scope with the Project Manager to ensure the context of the work is well understood in advance.
- Review items may include PPE, body use and positioning, work environment, operating procedures, and tools and equipment (see **Attachment H**).
- The observation should last between 30 and 60 minutes.

Observations will be documented on the form found in **Attachment H**. Both positive and negative observations are candidates for documentation and later discussion. The overarching goals are to identify and correct questionable practices, and to identify and promote good, safe and efficient practices. It is a data gathering process that will allow TRC safety specialists to identify root causes for safety issues in both categories to better inform policy decisions.

In addition, TRC may record a Safe Catch which is identification and mitigation of a condition that may have created a hazard if it were not identified. The Safe Catch documentation is provided in **Attachment I**.

13.0 INCIDENT REPORTING

In case of an incident, TRC personnel must report the incident immediately to their project manager/supervisor and/or OHSC, and client's representative, and follow the TRC Incident Response and Reporting Process (see **Attachment G**). Required forms must be completed within 24 hours following the incident. If the forms are unavailable, the incident shall be reported to the TRC Safety Director (Mike Glenn). Accident/injury/exposure information must be recorded per TRC policy (see **Attachment G**) and will be the basis of any accident/incident investigations.

14.0 ACKNOWLEDGEMENT

All TRC personnel operating under this HASP must read the HASP and sign the acknowledgment page in **Attachment A**.

15.0 SUBCONTRACTORS AND HEALTH AND SAFETY PLANNING

TRC personnel must provide the complete HASP to all subcontractors for their reference in advance of the work. Subcontractors must prepare their own site-specific HASP and provide evidence of HASP preparation before the start of site work to ensure that the subcontractor has an understanding of the safety hazards associated with the work that they are performing. Subcontractor HASPs are not required to be included unless contractually/client required, of is so desired by the Project Manager or OSC.

Attachment A
Health and Safety Plan Acceptance

SITE: 8802 5th Avenue and 429 89th Street, Brooklyn, N.Y. 11209

I have received a copy of the Health and Safety Plan for this site and have read, understand and will abide by the procedures set forth in this Health and Safety Plan and any amendments to this plan.

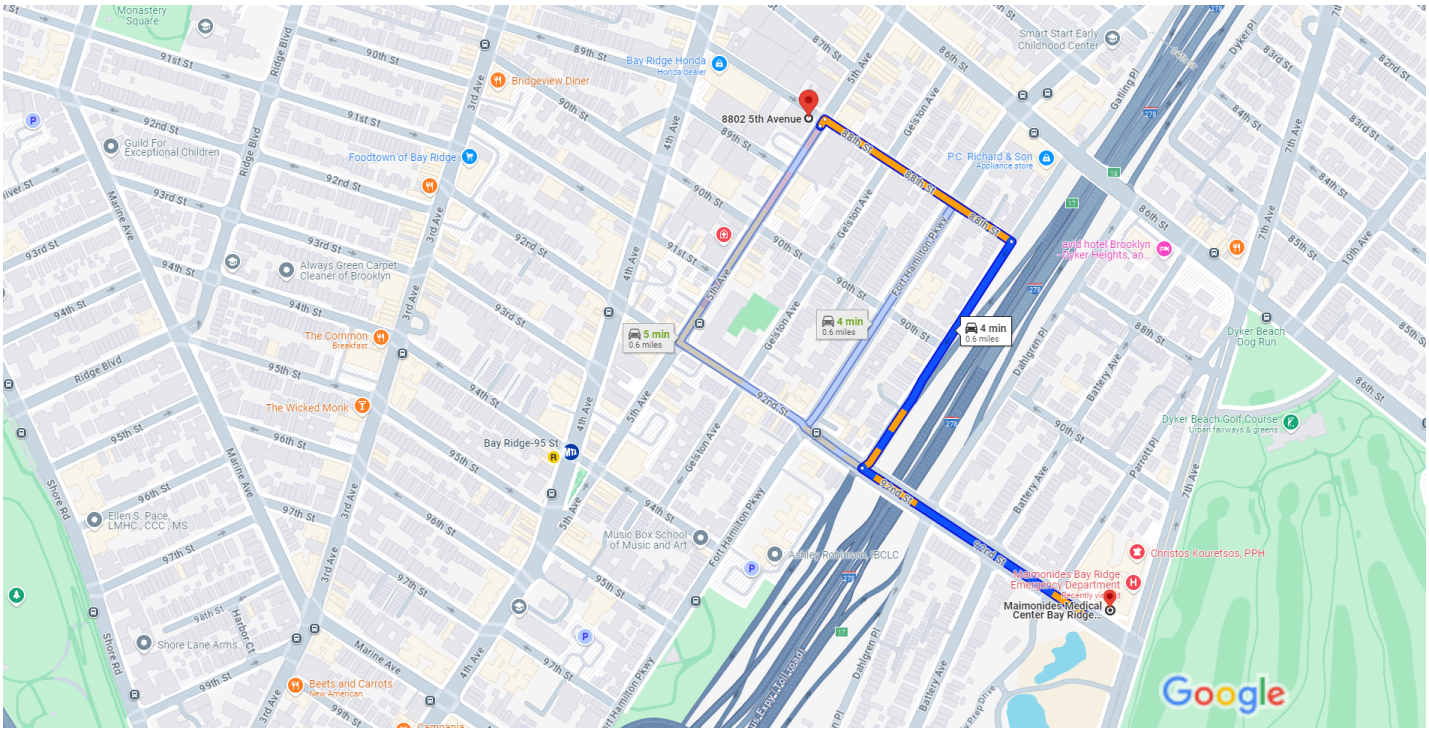
Printed Name	**Signature**	**Date**

Attachment B
Hospital Route

Google Maps

8802 5th Ave, Brooklyn, NY 11209 to Maimonides Medical Center Bay Ridge Emergency Department, 699 92nd St, Brooklyn, NY 11228

Drive 0.6 mile, 4 min



Map data ©2024 Google 200 ft

8802 5th Ave
Brooklyn, NY 11209

1. Head northeast on 5th Ave toward 88th St

30 ft

2. Turn right at the 1st cross street onto 88th St

0.2 mi

3. Turn right onto Gatling Pl

0.2 mi

4. Use the middle lane to turn left onto 92nd St

0.2 mi

Maimonides Medical Center Bay Ridge Emergency Department
699 92nd St, Brooklyn, NY 11228

Attachment C
Work Care Information

EARLY INCIDENT INTERVENTION®

Immediate Access to Medical Advice for Work Related Incidents

(888) 449-7787

INTRODUCTION

WorkCare, Inc. (WorkCare) and TRC have partnered together to promote Incident Intervention®, a resource designed to support company safety goals/targets—while reducing runaway-costs associated with workplace injuries and illnesses.

PURPOSE

Early Incident Intervention provides TRC employees with **IMMEDIATE** telephonic access to WorkCare clinicians at the time of a presumed, non-emergency workplace injury or illness. Clinicians provide expert guidance on the evaluation of symptoms, appropriate first aid, and the need for additional medical evaluation or treatment.

When utilizing this service within the first hour of an incident, known as the "Golden Hour," licensed medical staff can guide the case so that medical evaluation and treatment are rendered appropriately.

> ***"…helps the worker traverse the unpredictable terrain of work-related injuries and illness."***

PRINCIPLES OF EARLY INCIDENT INTERVENTION

- Utilizes principles of the "Golden Hour."
- Provides workers immediate clinician support at the time of an incident.
- Focuses on providing the right care, at the right time in the proper setting.

BENEFITS FOR EMPLOYEES

- Instant access to a medically qualified professional for evaluation of symptoms and possible outcomes.
- Professional guidance on appropriate first aid measures and medications.
- Professional advice regarding the need for additional medical evaluation or treatment.

BENEFITS FOR TRC

- Point of contact for emergency and non-emergency medical clinicians.
- Triages the incident to determine risk and urgency, delivering interventions that are consistent with medical guidelines for the specified injury and illness.
- Maintains communication with clinicians to ensure accurate and timely reporting.

Attachment D
Emergency Contact Information

ATTACHMENT D

EMERGENCY CONTACT INFORMATION

Name	Role	Phone Number
Lee Guterman, NYCSCA	NYCSCA, IEH Division	(718)-472-8502
Bob Kanaparthi, NYCSCA	NYCSCA, IEH Division	(718) 472-8620
Michael Sherwood, NYCSCA	NYCSCA, IEH Division	(718) 752-5211 Cell: (914) 400-5205
Charles Guder, TRC	TRC Vice President	(212) 221-7822
Lindsay O'Hara, TRC	TRC Office Practice Leader	(203) 278-5305 Cell: (914) 420-9649
Zachary Schwartz, TRC	TRC Project Manager	(212) 221-7822 Cell: (332) 323-9840
Calah Lambertson, TRC	TRC Office Safety Coordinator	(212) 221-7822 Cell: (646) 618-0358
Jenna Raup, TRC	TRC Quality Assurance Officer	(212) 221-7822 Cell: (929) 502-6469
Jannell Franklin, Test America	Laboratory Services	(732) 593-2551

Attachment E
Safety Data Sheets for Potential Contaminants of Concern

Per- and Polyfluoroalkyl Substances (PFAS)
Frequently Asked Questions

What are PFAS?

PFAS are a large group of man-made chemicals that have been used since the 1950s. Use of some of these chemicals has decreased in the United States over the last 10 years. People can still be exposed to PFAS because they are still present in the environment. PFAS do not break down easily in the environment. They also build up in the bodies of exposed humans and animals. Over the last decade, interest in PFAS has grown.

How can I be exposed to PFAS?

ATSDR and our state health partners are studying exposure to PFAS at a number of sites. PFAS are found near areas where they are manufactured or used. Listed below are places where they can be found.

- Public water systems and drinking water wells, soil, and outdoor air near industrial areas with frequent PFAS use
- Indoor air in spaces that contain carpets, textiles, and other consumer products treated with PFAS to resist stains
- Surface water (lakes, ponds, etc.) and run-off from areas where aqueous (water-based) film-forming fire fighting foam (AFFF) was often used (like military or civilian airfields)
- Locally caught fish from contaminated bodies of water
- Food items sold in the marketplace

Consumer products can be source of exposures to PFAS. These products include

- Some grease-resistant paper, fast food wrappers, microwave popcorn bags, pizza boxes, and candy wrappers
- Nonstick cookware such as Teflon®[1] coated pots and pans
- Stain resistant coatings such as Scotchguard®[1] used on carpets, upholstery, and other fabrics
- Water resistant clothing such as Gore-Tex®[1]
- Cleaning products
- Personal care products (shampoo, dental floss) and cosmetics (nail polish, eye makeup)
- Paints, varnishes, and sealants

Recent efforts to stop using some PFAS in consumer products appear to have lowered exposure in the U.S. population. CDC surveys have shown that blood levels of PFAS have dropped over time. People who work with PFAS are more likely to be exposed than the general population. Workers may be exposed to PFAS by inhaling them, getting them on their skin, and swallowing them, but inhaling them is the most likely route for exposure.

How can I reduce my exposure to PFAS?

PFAS are found in people and animals all over the world. They are found in some food products and in the environment (air, water, soil, etc.). Completely stopping exposure to PFAS is unlikely. But, if you live near sources of PFAS contamination you can take steps to reduce your risk of exposure to PFAS:

- Some states have warnings about eating fish from bodies of water with high PFAS levels. Check with your state public health and environmental quality departments to learn the types and local sources of fish that are safe to eat.
- If your water contains PFAS, you can reduce exposure by using an alternative or treated water source for drinking, food preparation, cooking, brushing teeth, and any activity that might result in ingestion of water.
- It is safe to shower and bathe in PFAS-contaminated water. Neither routine showering or bathing are a significant source of exposure. Studies have shown very limited absorption of PFAS through the skin.

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations

17-CS265744B_Updated March 9, 2017

How can PFAS affect people's health?

Scientists are not sure about the health effects of human exposure to PFAS. Some studies in humans have shown that certain PFAS may affect the developing fetus and child, including possible changes in growth, learning, and behavior. In addition, they may decrease fertility and interfere with the body's natural hormones, increase cholesterol, affect the immune system, and even increase cancer risk.

- PFAS build up and stay in the human body and the amount goes down very slowly over time. So scientists and doctors are concerned about their effects on human health.
- Some studies show that animals given PFAS have changes in the liver, thyroid, pancreas, and hormone levels. Scientists are not sure what animal data means about human health. PFAS act differently in humans than they do in animals and may be harmful in different ways.

How can I learn more?

Contact 1-800-CDC-INFO for updated information on this topic.

Contact the Consumer Product Safety Commission at (800) 638-2772 if you have questions about the products you use in your home.

Visit the following websites for more information:

ATSDR Websites

http://www.atsdr.cdc.gov/pfc/index.html

Environmental Protection Agency

http://www2.epa.gov/chemical-research/perfluorinated-chemical-pfc-research

List of Common PFAS and Their Abbreviations

Compound	Abbreviation
Perfluorobutane sulfonate	PFBS
Perfluorohexane sulfonate	PFHxS
Perfluorooctane sulfonate	PFOS
Perfluoroheptanoic acid	PFHpA
Perfluorooctanoic acid	PFOA
Perfluorononanoic acid	PFNA
Perfluorodecanoic acid	PFDA
Perfluoroundecanoic acid	PFUnA
Perfluorododecanoic acid	PFDoA
Perfluorooctane sulfonamide	PFOSA
2-(N-Methyl-perfluorooctane sulfonamido) acetate	Me-PFOSA-AcOH
2-(N-Ethyl-perfluorooctane sulfonamido) acetate	Et-PFOSA-AcOH

Notes

[1]Use of trade names is for identification only and does not imply endorsement by the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. Department of Health and Human Services

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **cis-1,2-Dichloroethylene**

Cat No. : **AC113380000; AC113380025; AC113380100; AC113380500**

Synonyms cis-Acetylene dichloride.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled
Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Take precautionary measures against static discharge
Do not eat, drink or smoke when using this product
Response
Call a POISON CENTER or doctor/physician if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Fire
Explosion risk in case of fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store in a well-ventilated place. Keep cool
Store in a closed container
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
cis-1,2-Dichloroethylene	156-59-2	97

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. Obtain medical attention. If not breathing, give artificial respiration.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms and effects Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. Chemical foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media No information available

Flash Point 6 °C / 42.8 °F

Method - No information available

Autoignition Temperature 440 °C / 824 °F

Explosion Limits

Upper 12.80%

Lower 9.70%

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing.

Environmental Precautions See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Use explosion-proof equipment. Use only non-sparking tools. Avoid contact with skin, eyes and clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
cis-1,2-Dichloroethylene	TWA: 200 ppm			

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-80 °C / -112 °F
Boiling Point/Range	60 °C / 140 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.80%
Lower	9.70%
Vapor Pressure	201 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.280
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Bases

Hazardous Decomposition Products Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
cis-1,2-Dichloroethylene	156-59-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea

cis-1,2-Dichloroethylene	Not listed	Not listed	EC50 = 721 mg/L 5 min EC50 = 905 mg/L 30 min	Not listed

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IATA

UN-No 1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No 1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
cis-1,2-Dichloroethylene	X	-	X	205-859-7	-		-	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
cis-1,2-Dichloroethylene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 23-Jan-2018
Print Date 23-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Section 1. Identification

GHS product identifier : Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Other means of identification : Not available.

Product use : Synthetic/Analytical chemistry.

SDS # : 002103

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

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Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

CAS number : Not applicable.

Product code : 002103

Ingredient name	%	CAS number
Nitrogen	75 - 80.5	7727-37-9
oxygen	19.5 - 23.5	7782-44-7
2-methylpropene	0.0001 - 1.13	115-11-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas.

Color : Not available.

Melting/freezing point : -140.7°C (-221.3°F) This is based on data for the following ingredient: 2-methylpropene. Weighted average: -211.14°C (-348.1°F)

Critical temperature : Lowest known value: -146.95°C (-232.5°F) (nitrogen).

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Highest known value: 1.94 (Air = 1) (2-methylpropene). Weighted average: 1.01 (Air = 1)

Gas Density (lb/ft ^{3}) : Weighted average: 0.07

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

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Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatibility with various substances : Extremely reactive or incompatible with the following materials: reducing materials and combustible materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

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Section 11. Toxicological information

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

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Section 12. Ecological information

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1956	UN1956	UN1956	UN1956	UN1956
UN proper shipping name	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	-	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	-

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

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Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act (CAA) 112 regulated flammable substances: 2-methylpropene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : The following components are listed: NITROGEN; OXYGEN (LIQUID); 2-METHYLPROPENE

New York : None of the components are listed.

New Jersey : The following components are listed: NITROGEN; OXYGEN; ISOBUTYLENE; 1-PROPENE, 2-METHYL-

Pennsylvania : The following components are listed: NITROGEN; OXYGEN; 1-PROPENE, 2-METHYL-

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

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Section 15. Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

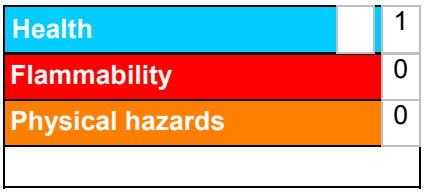
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Butene (all isomers)
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 1/23/2015.

Date of issue/Date of revision : 1/23/2015.

Date of previous issue : No previous validation.

Version : 0.01

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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Lead

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 12/15/2014 Revision date: 12/15/2014 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance

CAS No : 7439-92-1

Formula : Pb

Synonyms : C.I. 77575, in massive state / elemental lead, in massive state / glover, in massive state

BIG no : 10073

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Solder
Battery: component
Construction
Electrodes

1.3. Details of the supplier of the safety data sheet

GSC International, Inc.
1747 N. Deffer Drive
Nixa,
MO 65714
United States of America

Tel: 417-374-7431
Fax: 417-374-7442
Email: info@gscinternationalinc.com

1.4. Emergency telephone number

Country	Organization/Company	Address	Emergency number
MEXICO	Servicio de Informacion Toxicologica Sintox	Tintoreto #32 Edif. a Desp. Col. Nochebuena Mixcoac México, D.F.	1 800 009 2800 +52 55 5611 2634 /+52 55 5598 9095
UNITED STATES OF AMERICA	American Association of Poison Control Centers		1-800-222-1222

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Acute Tox. 4 (Oral)	H302
Acute Tox. 4 (Inhalation)	H332
Carc. 1B	H350
Repr. 1A	H360
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



GHS07 GHS08 GHS09

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H302+H332 - Harmful if swallowed or if inhaled
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H373 - May cause damage to organs through prolonged or repeated exposure

H400 - Very toxic to aquatic life
H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust, fume
P264 - Wash hands thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P314 - Get medical advice/attention if you feel unwell
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Name	Product identifier	%	Classification (GHS-US)
Lead (Main constituent)	(CAS No) 7439-92-1	> 99,9	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation), H332 Carc. 1B, H350 Repr. 1A, H360 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice. IF exposed or concerned: Get medical advice/attention. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Not applicable. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after skin contact : Not applicable. Wash skin with plenty of water.

First-aid measures after eye contact : Not applicable. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Not applicable. Rinse mouth. Call a poison center/doctor/physician if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : No effects known.

Symptoms/injuries after skin contact : No effects known.

Symptoms/injuries after eye contact : No effects known.

Symptoms/injuries after ingestion : No effects known.

Chronic symptoms : No effects known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD. Non combustible.

Explosion hazard	:	DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.
Reactivity	:	On burning: formation of metallic fumes. Oxidizes on exposure to air.

5.3. Advice for firefighters

Precautionary measures fire	:	Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to heat: have neighborhood close doors and windows.
Firefighting instructions	:	Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
Protection during firefighting	:	Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Gloves. Protective clothing. See "Material-Handling" to select protective clothing.
Emergency procedures	:	Mark the danger area. No naked flames.

6.1.2. For emergency responders

Protective equipment	:	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent soil and water pollution. Prevent spreading in sewers. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment	:	Not applicable. Collect spillage.
Methods for cleaning up	:	Recover mechanically the product. Pick-up the material. Take collected spill to manufacturer/competent authority. Notify authorities if product enters sewers or public waters.
Other information	:	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Meet the legal requirements. Do not discharge the waste into the drain. Handle unclean empty containers as full ones. Observe strict hygiene. Measure the concentration in the atmosphere. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust, fume. Use only outdoors or in a well-ventilated area. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Wear personal protective equipment. Floors, walls and other surfaces in the hazard area must be cleaned regularly.
Hygiene measures	:	Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	:	Does not require any specific or particular technical measures. Comply with applicable regulations.
Storage conditions	:	Store locked up. Store in a well-ventilated place. Keep cool.
Incompatible materials	:	Strong acids, strong bases and oxidation agents.
Heat-ignition	:	KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage	:	KEEP SUBSTANCE AWAY FROM: oxidizing agents. Strong acids. Strong bases.
Storage area	:	Meet the legal requirements.
Special rules on packaging	:	SPECIAL REQUIREMENTS: closing. correctly labeled. meet the legal requirements. Secure fragile packaging in solid containers.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Lead (7439-92-1)		
ACGIH	ACGIH TWA (mg/m³)	0,05 mg/m³
ACGIH	Remark (ACGIH)	CNS & PNS impair
OSHA	Not applicable	

8.2. Exposure controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Ensure good ventilation of the work station.

Personal protective equipment : Protective goggles. Gloves.



Materials for protective clothing : GIVE EXCELLENT RESISTANCE: No data available. GIVE GOOD RESISTANCE: butyl rubber. PVC. GIVE LESS RESISTANCE: No data available. GIVE POOR RESISTANCE: No data available.

Hand protection : protective gloves.

Eye protection : Safety glasses.

Skin and body protection : Not required for normal conditions of use.

Respiratory protection : Wear respiratory protection.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid

Appearance : Metal.

Molecular mass : 207,20 g/mol

Color : White to blue-grey

Odor : Odorless

Odor threshold : No data available

pH : No data available

Relative evaporation rate (butyl acetate=1) : No data available

Melting point : 327 °C

Freezing point : No data available

Boiling point : 1740 °C

Flash point : Not applicable

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability (solid, gas) : No data available

Vapor pressure : < 0,1 hPa

Relative vapor density at 20 °C : No data available

Relative density : 11,3

Specific gravity / density : 11340 kg/m³

Solubility : insoluble in water. Substance sinks in water. Soluble in nitric acid. Insoluble in organic solvents. Water: < 0,1 g/100ml

Log Pow : 0,73 (Estimated value)

Log Kow : No data available

Viscosity, kinematic	:	Not applicable
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

VOC content : Not applicable (inorganic)

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: formation of metallic fumes. Oxidizes on exposure to air.

10.2. Chemical stability

Unstable on exposure to air.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Acids. Bases.

10.6. Hazardous decomposition products

Thermal decomposition generates : fume.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Harmful if swallowed. Inhalation: Harmful if inhaled.

Lead (\f)7439-92-1	
LD50 oral rat	> 2000 mg/kg body weight (Rat; Weight of evidence)
LD50 dermal rat	> 2000 mg/kg body weight (Rat; Experimental value; OECD 402: Acute Dermal Toxicity)
ATE US (oral)	500,000 mg/kg body weight
ATE US (gases)	4500,000 ppmV/4h
ATE US (vapors)	11,000 mg/l/4h
ATE US (dust, mist)	1,500 mg/l/4h
Additional information	Lead massive metal is not considered to be acutely toxic. It is not easily inhaled or ingested, and if it is accidentally ingested normally passes through the gastrointestinal system without significant absorption into the body. Lead is not easily absorbed through the skin.

Skin corrosion/irritation : Not classified
(Based on available data, the classification criteria are not met)

Serious eye damage/irritation : Not classified
(Based on available data, the classification criteria are not met)

Respiratory or skin sensitization : Not classified
(Based on available data, the classification criteria are not met)

Germ cell mutagenicity : Not classified
(Based on available data, the classification criteria are not met)

Carcinogenicity : May cause cancer.

Lead (7439-92-1)	
Additional information	There is some evidence that inorganic lead compounds may have a carcinogenic effect, and they have been classified by IARC as probably carcinogenic to humans. However, it is considered that this classification does not apply to lead in articles, given the very low bioavailability of metallic lead. Carcinogenicity studies of lead metal powder have been negative. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. IARC has concluded that lead metal is possibly carcinogenic to humans (Group aB).
IARC group	2B - Possibly carcinogenic to humans
National Toxicology Program (NTP) Status	3 - Reasonably anticipated to be Human Carcinogen

Reproductive toxicity : May damage fertility or the unborn child.

Specific target organ toxicity (single exposure) : Not classified

(Based on available data, the classification criteria are not met)

Specific target organ toxicity (repeated exposure) : May cause damage to organs through prolonged or repeated exposure.

Lead (7439-92-1)	
Additional information	Lead is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Although inhalation and ingestion of lead in massive form are unlikely, poor hygiene practises may result in hand to mouth transfer which maybe significant over a prolonged period of time. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the haemotopoetic (blood) system, kidney function, reproductive function and the central nervous system.

Aspiration hazard : Not classified

(Based on available data, the classification criteria are not met)

Symptoms/injuries after inhalation : No effects known.

Symptoms/injuries after skin contact : No effects known.

Symptoms/injuries after eye contact : No effects known.

Symptoms/injuries after ingestion : No effects known.

Chronic symptoms : No effects known.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Dangerous for the environment. Very toxic to aquatic life with long lasting effects.

Ecology - air : Not dangerous for the ozone layer (Regulation (EC) No 1005/2009). Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 842/2006). TA-Luft Klasse 5.2.2/II.

Ecology - water : No water pollutant (surface water). Maximum concentration in drinking water: 0.010 mg/l (lead) (Directive 98/83/EC). Highly toxic to aquatic organisms.

Lead (7439-92-1)	
LC50 fish 1	2,8 (0,44 - 542) mg/l (96h) Coughlan, D.J., S.P. Gloss, and J. Kubota 1986. Acute and Sub-Chronic Toxicity of Lead to the Early Life Stages of Small mouth Bass (Micropterus dolomieui). Water Air Soil Pollut. 28(3/4):265-275
EC50 Daphnia 1	4,46 (0,53 - 5,1) mg/l (48h) Govindarajan, S., C.P. Valsaraj, R. Mohan, V. Hariprasad, and R. Ramasubramanian 1993. Toxicity of Heavy Metals in Aquaculture Organisms: Penaeus indicus, Perna viridis, Artemia salina and Skeletonema costatum. Pollut.Res. 12(3):187-189

12.2. Persistence and degradability

Lead (7439-92-1)	
Persistence and degradability	Biodegradability: Not applicable. No (test)data available on mobility of the substance.
ThOD	Not applicable (inorganic)

12.3. Bioaccumulative potential

Lead (7439-92-1)	
Log Pow	0,73 (Estimated value)
Bioaccumulative potential	Low bioaccumulation potential (Log Kow < 4).

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer :

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Reuse or recycle following decontamination. Remove to an authorized dump (Class I). Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001).

Additional information : LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

In accordance with DOT

Transport document description : UN3077 Environmentally hazardous substances, solid, n.o.s. Lead(7439-92-1), 9, III

UN-No.(DOT) : UN3077

Proper Shipping Name (DOT) : Environmentally hazardous substances, solid, n.o.s.
Lead(7439-92-1)

Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140

Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



DOT Symbols : G - Identifies PSN requiring a technical name

Packing group (DOT) : III - Minor Danger

DOT Special Provisions (49 CFR 172.102)	:	8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description “Other regulated substances, liquid or solid, n.o.s.”, as appropriate. In addition, for solid materials, special provision B54 applies. 146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination. 335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as “Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging. A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg: a. Metal: 11A, 11B, 11N, 21A, 21B and 21N b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2 c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2 d. Fiberboard: 11G e. Wooden: 11C, 11D and 11F (with inner liners) f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner). B54 - Open-top, sift-proof rail cars are also authorized. IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2). IP3 - Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner. N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle. T1 - 1.5 178.274(d)(2) Normal..... 178.275(d)(2) TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	155
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	213
DOT Packaging Bulk (49 CFR 173.xxx)	:	240
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	No limit
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	No limit
DOT Vessel Stowage Location	:	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

ADR

No additional information available

Transport by sea

UN-No. (IMDG)	:	3077
Proper Shipping Name (IMDG)	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Class (IMDG)	:	9 - Miscellaneous dangerous compounds
Packing group (IMDG)	:	III - substances presenting low danger

Air transport

UN-No.(IATA)	:	3077
Proper Shipping Name (IATA)	:	Environmentally hazardous substance, solid, n.o.s.
Class (IATA)	:	9 - Miscellaneous Dangerous Goods
Packing group (IATA)	:	III - Minor Danger

SECTION 15: Regulatory information

15.1. US Federal regulations

Lead (7439-92-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 Not listed on the United States SARA Section 313	
RQ (Reportable quantity, section 304 of EPA's List of Lists)	10 lb

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Repr. 1A	H360Df
Acute Tox. 4 (Inhalation)	H332
Acute Tox. 4 (Oral)	H302
STOT RE 2	H373
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Repr.Cat.1; R61
Repr.Cat.3; R62
Xn; R20/22
R33
N; R50/53

Full text of R-phrases: see section 16

15.2.2. National regulations

Lead (7439-92-1)
Listed on IARC (International Agency for Research on Cancer) Listed as carcinogen on NTP (National Toxicology Program)

15.3. US State regulations

No additional information available

SECTION 16: Other information

Revision date	:	12/15/2014

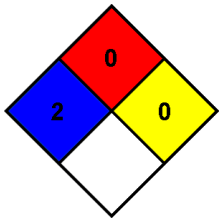
Full text of H-phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Carc. 1B	Carcinogenicity Category 1B
Repr. 1A	Reproductive toxicity Category 1A
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H302	Harmful if swallowed
H332	Harmful if inhaled
H350	May cause cancer
H360	May damage fertility or the unborn child
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

Health : * Chronic Hazard - Chronic (long-term) health effects may result from repeated overexposure

Flammability : 0 Minimal Hazard

Physical : 0 Minimal Hazard

Personal Protection : B

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

SAFETY DATA SHEET

Creation Date 20-Aug-2014 **Revision Date** 09-Feb-2024 **Revision Number** 5

1. Identification

Product Name **Mercury (Certified ACS)**

Cat No. : **M141-1LB; M141-6LB**

Synonyms Colloidal mercury; Hydrargyrum; Metallic mercury

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company
Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute Inhalation Toxicity - Vapors	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Central nervous system (CNS), Kidney.	

Label Elements

Signal Word
Danger

Hazard Statements
Fatal if inhaled
May damage the unborn child
Causes damage to organs through prolonged or repeated exposure



Precautionary Statements
Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Response
IF exposed or concerned: Get medical attention/advice
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a POISON CENTER or doctor/physician
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
Very toxic to aquatic life with long lasting effects
WARNING. Reproductive Harm - https://www.p65warnings.ca.gov/.

3. Composition/Information on Ingredients

Component	CAS No	Weight %
Mercury	7439-97-6	100

4. First-aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects None reasonably foreseeable.

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. approved class D extinguishers.

Unsuitable Extinguishing Media Water may be ineffective

Flash Point Not applicable
Method - No information available

Autoignition Temperature No information available
Explosion Limits
Upper No data available
Lower No data available
Sensitivity to Mechanical Impact No information available
Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical
Very toxic. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products
Mercury oxide. Toxic fumes.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health	Flammability	Instability	Physical hazards
4	0	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment as required. No special precautions required. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.

Environmental Precautions Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Pick up and transfer to properly labelled containers.

7. Handling and storage

Handling Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area. Keep in a dry place. Keep away from acids. Incompatible Materials. Strong oxidizing agents. Ammonia. Metals. Halogens.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Mercury	TWA: 0.025 mg/m³ Skin	(Vacated) TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³ (Vacated) STEL: 0.03 mg/m³ Skin (Vacated) Ceiling: 0.1 mg/m³	IDLH: 10 mg/m³ TWA: 0.05 mg/m³ Ceiling: 0.1 mg/m³	TWA: 0.025 mg/m³

Legend

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. None under normal use conditions.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No special protective equipment required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Silver
Odor	Odorless
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-38.87 °C / -38 °F
Boiling Point/Range	356.72 °C / 674.1 °F
Flash Point	Not applicable
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	0.002 mmHg @ 25 °C
Vapor Density	7.0
Specific Gravity	13.59 (H2O=1)
Solubility	Insoluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	Hg
Molecular Weight	200.59

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Incompatible products. Excess heat.

Incompatible Materials Strong oxidizing agents, Ammonia, Metals, Halogens

Hazardous Decomposition Products Mercury oxide, Toxic fumes

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Mercury	Not listed	Not listed	LC50 < 27 mg/m³ (Rat) 2 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation No information available

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Mercury	7439-97-6	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects May cause harm to the unborn child.

Teratogenicity No information available.

STOT - single exposure None known

STOT - repeated exposure Central nervous system (CNS) Kidney

Aspiration hazard No information available

Symptoms / effects,both acute and delayed No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Mercury	Not listed	0.9 mg/L LC50 96h	Not listed	Not listed

		0.18 mg/L LC50 96h 0.16 mg/L LC50 96h 0.5 mg/L LC50 96h		

Persistence and Degradability Insoluble in water May persist

Bioaccumulation/ Accumulation No information available.

Mobility Is not likely mobile in the environment due its low water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Mercury - 7439-97-6	U151	-

14. Transport information

DOT

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

TDG

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IATA

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Subsidiary Hazard Class	6.1
Packing Group	III

IMDG/IMO

UN-No	UN2809
Proper Shipping Name	Mercury
Hazard Class	8
Packing Group	III

15. Regulatory information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Mercury	7439-97-6	X	ACTIVE	S;12C

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule.

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export

Component	CAS No	**TSCA 12(b)** - Notices of Export
Mercury	7439-97-6	Section 5

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Mercury	7439-97-6	X	-	231-106-7	X	X		X	X	KE-23117

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372. Note that PBT chemicals are not eligible for the de minimis exemption. For these chemicals, supplier notification limits are provided.

> 0 % = no low concentration cut-off set, supplier notification limit applies.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting threasholds
Mercury	7439-97-6	100	> 0 %	RT = 10 lb

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Mercury	-	-	X	X

Clean Air Act

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Mercury	1 lb	-	1 lb 0.454 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Mercury	7439-97-6	Developmental	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Mercury	X	X	X	X	X

U.S. Department of Transportation
Reportable Quantity (RQ): Y
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Mercury	7439-97-6	-	Use restricted. See item 18[a]. (see link for restriction details) Use restricted. See item 30. (see link for restriction details) Use restricted. See item 75. (see link for restriction details)	-

REACH links
https://echa.europa.eu/substances-restricted-under-reach

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Mercury	7439-97-6	Listed	Not applicable	Not applicable	0.1% (Max. Conc.)

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?
Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Mercury	7439-97-6	Not applicable	Not applicable	X	Annex I - Y29

16. Other information

Prepared By Regulatory Affairs

Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

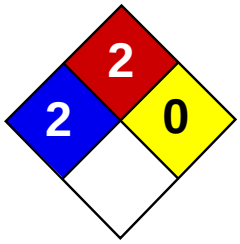
Creation Date	20-Aug-2014
Revision Date	09-Feb-2024
Print Date	09-Feb-2024
Revision Summary	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS





Health	2
Fire	2
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Naphthalene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Naphthalene

Catalog Codes: SLN1789, SLN2401

CAS#: 91-20-3

RTECS: QJ0525000

TSCA: TSCA 8(b) inventory: Naphthalene

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C10H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

Toxicological Data on Ingredients: Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 567°C (1052.6°F)

Flash Points: CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 5.9%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Israel: TWA: 10 (ppm) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m3) from ACGIH [1995] Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 128.19 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 218°C (424.4°F)

Melting Point: 80.2°C (176.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.162 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 4.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.038 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

Solubility:
Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Highly reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: May attack some forms of rubber and plastic

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Naphthalene, refined : UN1334 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:30 PM

Last Updated: 05/21/2013 12:00 PM

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Material Safety Data Sheet
Trichloroethylene

ACC# 23850

Section 1 - Chemical Product and Company Identification

MSDS Name: Trichloroethylene
Catalog Numbers: AC158310000, AC158310025, AC421520000, AC421520040, AC421520200, AC421525000, 15831-0010, S80327ACS-1, S80327ACS-2, T340-4, T341-20, T341-4, T341-500, T341J4, T403-4
Synonyms: Ethylene trichloride; 1,1,2-Trichloroethylene; TCE.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
79-01-6	Trichloroethylene	99+	201-167-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: APHA: 15 max liquid.
Warning! Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Breathing vapors may cause drowsiness and dizziness. Possible risks of irreversible effects. Cancer hazard. Causes eye and skin irritation. May cause respiratory tract irritation. May cause liver and kidney damage. May cause central nervous system effects.
Target Organs: Kidneys, central nervous system, liver, spleen, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Contact with trichloroethylene causes pain but no permanent injury to the eyes. (Doc of TLV)
Skin: Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed. May cause central nervous system effects.
Inhalation: May cause respiratory tract irritation. May cause liver and kidney damage. May be harmful if inhaled. May cause central nervous system effects. The chief symptoms of TCE exposure were found to be abnormal fatigue, irritability, headache, gastric disturbances, and intolerance to alcohol. (Doc to TLV)
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. May cause liver and kidney damage. May cause cancer in humans. Repeated exposure may cause damage to the spleen. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Possible risk of irreversible effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. Get medical aid.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.
Flash Point: Not applicable.
Autoignition Temperature: 410 deg C (770.00 deg F)
Explosion Limits, Lower:7.9 Vol %
Upper: 90 Vol %
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.
Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Trichloroethylene	10 ppm TWA; 25 ppm STEL	1000 ppm IDLH	100 ppm TWA; 200 ppm Ceiling

OSHA Vacated PELs: Trichloroethylene: 50 ppm TWA; 270 mg/m3 TWA
Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless - APHA: 15 max
Odor: chloroform-like
pH: Not available.
Vapor Pressure: 77.3 mbar @ 20 deg C
Vapor Density: 4.5 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 87 deg C @ 760 mmHg
Freezing/Melting Point:-86 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:1.460
Molecular Formula:C2HCl3
Molecular Weight:131.39

Section 10 - Stability and Reactivity

Chemical Stability: Moisture sensitive. Light sensitive.
Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, bases, active metals, metals and metal compounds (toxic, e.g. beryllium, lead acetate, nickel carbonyl, tetraethyl lead).
Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 79-01-6: KX4550000
LD50/LC50:
CAS# 79-01-6:
Draize test, rabbit, eye: 20 mg/24H Moderate;
Draize test, rabbit, skin: 2 mg/24H Severe;
Inhalation, mouse: LC50 = 8450 ppm/4H;
Inhalation, mouse: LC50 = 220000 mg/m3/20M;
Inhalation, mouse: LC50 = 262000 mg/m3/30M;
Inhalation, mouse: LC50 = 40000 mg/m3/4H;
Inhalation, rat: LC50 = 140700 mg/m3/1H;
Oral, mouse: LD50 = 2402 mg/kg;
Oral, mouse: LD50 = 2400 mg/kg;
Oral, rat: LD50 = 4920 mg/kg;
Skin, rabbit: LD50 = >20 gm/kg;

Skin, rabbit: LD50 = 20 mL/kg;

.

Carcinogenicity:
CAS# 79-01-6:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 4/1/88
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

Epidemiology: Tumorigenic effects have been reported in experimental animals.
Teratogenicity: Teratogenic effects have occurred in experimental animals.
Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.
Mutagenicity: Mutagenic effects have occurred in humans.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: 41-67 mg/L; 96 hrs.; LC50Daphnia: Daphnia: 2.2-100 mg/L; 48 hrs.; LC50Mollusk Shrimp: 2 mg/L; 96 hrs.; LC50 Bluegill sunfish, LD50= 44,700 ug/L/96Hr. Fathead minnow, LC50=40.7 mg/L/96Hr.
Environmental: In air, substance is photooxidized and is reported to form phosgene, dichloroacetyl chloride, and formyl chloride. In water, it evaporates rapidly. Potential for mobility in soil is high.
Physical: No information available.
Other: Bioconcentration potential is low (BCF less than 100).

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 79-01-6: waste number U228.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TRICHLOROETHYLENE	TRICHLOROETHYLENE
Hazard Class:	6.1	6.1
UN Number:	UN1710	UN1710
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 79-01-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 79-01-6: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 79-01-6: immediate, delayed, reactive.

Section 313

This material contains Trichloroethylene (CAS# 79-01-6, 99+%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

CAS# 79-01-6 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 79-01-6 is listed as a Hazardous Substance under the CWA. CAS# 79-01-6 is listed as a Priority Pollutant under the Clean Water Act. CAS# 79-01-6 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 79-01-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Trichloroethylene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 79-01-6: 50 æg/day NSRL (oral); 80 æg/day NSRL (inhalation)

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 36/38 Irritating to eyes and skin.
R 45 May cause cancer.
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 67 Vapours may cause drowsiness and dizziness.
R 68 Possible risk of irreversible effects.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 79-01-6: 3

Canada - DSL/NDSL

CAS# 79-01-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 79-01-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 2/01/1999
Revision #9 Date: 6/03/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Attachment F
Daily Pre-Job Safety Briefing Form

Daily Pre-Job Safety Briefing

Project Name: _____ Project Number: _____

Work Location: _____ Date: _____

Tasks Performed: _____ Time: _____ AM PM

Client Name: _____ Submitted By: _____

Health and Safety Plan Available Onsite: Yes ☐ No ☐ Health and Safety Plan Location: _____

Emergency Facility(s): _____ Number(s): _____

Physical Address: _____

First Aid/CPR Persons: _____

For Emergencies Dial 911/For Non-Emergencies Dial WorkCare (888) 449-7787

Personal Protective Equipment Required	Yes	No	Type
Fall Protection	☐	☐	_____
body harness, lifelines, barricades, other (specify)			
Eye/Face	☐	☐	_____
goggles, face shield, hood, other (specify)			
Respirator	☐	☐	_____
SCBA, supplied air, HEPA, dust, other (specify)			
Foot Protection	☐	☐	_____
safety toe, EH rated, rubber boots, other (specify)			
Hand Protection	☐	☐	_____
leather, cut resistant, chemical, EH, other (specify)			
Head Protection	☐	☐	_____
hard hat, helmet, electrical hazard, other (specify)			
Clothing	☐	☐	_____
coveralls, welding, sleeves, rain, FR, reflective vest, chemical, other (specify)			
Hearing Protection	☐	☐	_____

Procedures/Programs Required	Yes	No
Hot Work	☐	☐
LOTO/Energy Control	☐	☐
Trenching/Excavation	☐	☐
Signs/Barricades	☐	☐
Confined Space	☐	☐
Cranes/Critical Lifts	☐	☐
Line Breaking/Hot Tap	☐	☐
Scaffolds/Aerial Lifts	☐	☐
System Testing/ Grounding	☐	☐
Employee Certification/Training Required		
Crane Operator	☐	☐
Forklift Operator	☐	☐
Mobile Equipment Operator	☐	☐
Competent Person	☐	☐
OSHA 10/30	☐	☐
HAZWOPER	☐	☐
Clearance/Tagging Authority	☐	☐

Additional Considerations

Work Procedures: ☐ Isolation of equipment
☐ Check for potential ☐ Adequate grounding
☐ Vehicle grounds ☐ Working clearances
☐ Dig Safe/CBYD ☐ E-911 Protocol
People: ☐ Worker fatigue ☐ Other work groups
☐ Public safety ☐ Pedestrian control ☐ Experience
☐ Traffic control ☐ Other utilities ☐ Spec. Training
Tools/Equipment: ☐ Adequate cover-up
☐ Live line tools ☐ Portable Grounds
☐ Inspection of tools/equipment
☐ Specialized tools/equipment
☐ Correct tool/equipment for the job
Special Precautions: ☐ Adjacent structures
☐ Condition of structures ☐ Weather conditions
☐ Lighting conditions ☐ Terrain ☐ Water bodies
☐ Spills and leaks ☐ Environmental ☐ Cultural
Other: _____

If Conditions CHANGE…Stop Work, Review and Revise the Plan!!

Daily Pre-Job Safety Briefing

Hazards Associated with the Job (focus on the GEMS)				
Gravity	**Electrical**	**Mechanical**	**Kinetic**	**Other/Environmental**
☐ Falling from a height	☐ Electrical contact	☐ Equipment failure	☐ Traffic	☐ Asbestos/Lead
☐ Falling objects	☐ Induced voltage	☐ Conductor tension	☐ Driving conditions	☐ Animals/Insects
☐ Falling structures	☐ Back-feed	☐ Cable tension	☐ Moving/Shifting loads	☐ Confined space
☐ Climbing obstructions	☐ Flash potential	☐ Loaded springs	☐ Rotating machinery	☐ Excavations
☐ Dangerous trees	☐ Step/Touch potential	☐ Moving parts	☐ Vehicle stability	☐ Heat/Cold
☐ Aerial device operation	☐ Static charge	☐ Crane/Rigging	☐ Heavy equip. operation	☐ Pressurized fluids/gases

List all hazards associated with this task	**Signature of Crew Members Present**	**Post Task Safety Analysis**
		Did any injuries or incidents occur today? If yes, explain.
		☐ Yes ☐ No
Barriers to eliminate/control above hazards?		Was the injury or incident reported the safety department?
		☐ Yes ☐ No ☐ N/A
		What problems did you have with today's work assignment?
		What can we do tomorrow to improve performance?
Supervisor Signature		

Attachment G
Incident Reporting Forms

AUTO INCIDENT REPORT

TRC DRIVER INFORMATION:

Driver's Name: _____ Driver's Phone: ( ) _____

Company Name: _____ Company Location: _____

Supervisor's Name: _____ Supervisors Phone: ( ) _____

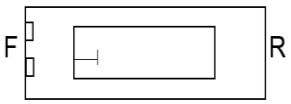
Project Name: _____ Client Name: _____

Driver's Date of Birth (MM/DD/YY): _____ Driver's License #: _____ State: _____

TRC VEHICLE INFORMATION (V-1):

Year/Make/Model of Vehicle: _____

License Plate #: _____ Vehicle ID # (VIN): _____

Circle Point of Contact: 

Was Vehicle Drivable? ☐ Yes ☐ No

Personal: ☐ Yes Rental: ☐ Yes Fleet: ☐ Yes

Rental Company

INCIDENT INFORMATION:

Date of Incident: _____ Time of Incident: _____ A.M. _____ P.M. Photos Taken: ☐ Yes ☐ No

Location of Incident: _____ City: _____

Were The Authorities Contacted? Police: ☐ Yes ☐ No Ambulance: ☐ Yes ☐ No Fire: ☐ Yes ☐ No

Name of Police Dept: _____ Case #: _____ Officer Name: _____

Were Citations Issued? ☐ Yes ☐ No If Yes, To Whom? _____

Citation Number: _____

Were There Any Witnesses? ☐ Yes ☐ No If Yes, Please Provide Name, Address and Phone Below:

Witness Name: _____ Witness Phone: ( ) _____

Witness Address: _____

Traffic Conditions (i.e., heavy, light): _____ Weather Conditions (i.e., dry, wet, ice, fog): _____

Was the TRC Driver Injured? ☐ Yes ☐ No Was Medical Treatment Received? ☐ Yes ☐ No

Describe Injuries:

Describe Damage to Property Other Than Motor Vehicles (i.e., guardrails, mailboxes, etc.):

AUTO INCIDENT REPORT

OTHER DRIVER & VEHICLE INFORMATION (V-2):

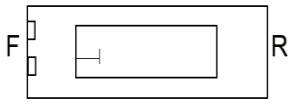
Driver's Name: _____ Driver's Phone: ( ) _____

Driver's Address: _____

Owner's Name (If different than driver): _____ Owner's Phone: ( ) _____

Owner's Address: _____

Year/Make/Model of Vehicle: _____ License Plate #: _____ State: _____

Circle Point of Contact: 

Was Vehicle Drivable? ☐ Yes ☐ No

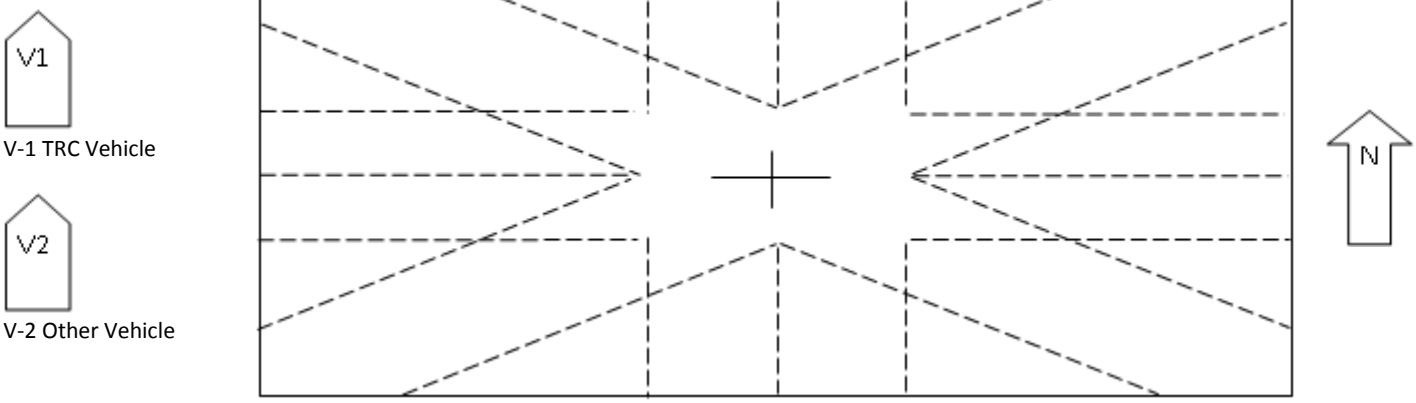
Insurance Company Name: _____ Policy Number: _____

Insurance Company Phone: ( ) _____ Number of Passengers in Vehicle: _____

List Persons Injured: _____

Were Any Other Vehicles Involved in Incident? ☐ Yes ☐ No If yes, provide details below:

PLEASE DESCRIBE THE INCIDENT AND COMPLETE THE DIAGRAM BELOW. Be sure to indicate as many details as possible (i.e., How many lanes in each direction; Were there any turn lanes; What kind of traffic controls were there – light, stop sign, yield sign, Positions of vehicles on impact).



Completed By: _____ Signature: _____

TRC Incident Report Form

(To be completed immediately after an Injury, Illness, Incident, Accident or Significant Near Miss by Employee's Supervisor and Employee involved)

Incident Category						
☐ Employee Injury/Illness	☐ Near Miss/Loss	☐ Property Damage	☐ Vehicle Accident	☐ Fire	☐ Other: Specify	
1	Incident Location:					
2	Site Identification/Project No.:					
3	Site Address:					
4	Date Incident Occurred:					
5	Time Incident Occurred:					
6	Date Incident Reported to Supervisor:					
7	Date Report Completed:					
8	Was WorkCare Contacted? ☐ Yes ☐ No					
9	Client:					

TRC Employee Information					
10	Name:				
11	Address:				
12	Employee Phone:				
13	Title or Occupation:				
14	Sector/Practice:				
15	Supervisor Name/Phone:				
TRC Employee Information (to be completed by Worker's Compensation Claims Administrator)					
16	Employee Date of Birth:				
17	Employee Social Security Number:				
18	Employee Marital Status:	☐ Married	☐ Single		
19	Number of Dependant under the age of 18:				
20	Date of Hire:				
21	Rate of Pay:		Hours per week:		

Type of Employee Injury or Illness (To be determined by Safety Director)			
22	☐ First Aid Only	20	☐ Extended Time Away From Work (3 days or more)
23	☐ Medical Treatment Only	21	☐ Fatality
24	☐ Restricted Work-case	22	☐ Other (specify):
25	☐ Lost Workday		
26	Estimated Number of Days on Restricted Work:		
27	Estimated Number of Days Away from Work:		

Employee Injury or Illness Description	
28	Describe the Injury or Illness:
29	First Aid/Medical Treatment Administered:
30	Name of Doctor's Office, Clinic, or Hospital: Concentra
31	Address and Phone Number:

Incident Description	
32	Equipment Involved:
33	Site Description:
34	What task was being performed at time of incident?
35	Describe Incident in Detail :
36	Conditions at time of Incident: (weather, lighting, etc.):
37	Motor Vehicle Accident:
38	TRC Vehicle ID:

39	Year/Make/Model:	
☐ DOT Regulated Vehicle ☐ Towed From Scene ☐ Airbag Deployed ☐ Seatbelt in Use ☐ TRC Fleet ☐ Rental ☐ Personal Vehicle		
40	Other Vehicle License Plate	
41	Other Vehicle Year/Make/Model	
42	Other Vehicle Driver Name	
43	Other Vehicle Year/Make/Model	
44	Other Injured Parties ☐ Yes ☐ No	
43	Description of other injuries:	

Subcontractor Involvement / Description of Incident	
44	Subcontractor Involved: ☐ Yes ☐ No
45	Name of Company:
46	Address:
47	Contact Name and Phone Number:
48	Subcontractor Description of Incident:

Witness Involvement / Description of Incident	
49	Witnesses to Incident: ☐ Yes ☐ No
50	Name(s) and Address(s):
51	Phone Number(s):
52	Witness Description of Incident:

Personal Protective Equipment (PPE)	
53	List PPE required to complete the task: (glasses, gloves, shoes, hard hat, respirator, hearing protection, etc.)
54	Was the employee using the proper PPE at the time of the Incident?

Immediate Corrective Actions			
55	Describe the immediate corrective actions taken:		
56	Immediate Supervisor:	Signature:	Date:
57	Employee:	Signature:	Date:

Supervisor's Post-Incident Review and Recommendations

	Safety Violation	☐ Yes	☐ No
58	State the company safety rule, OSHA regulation, or specific training that was violated:		
59	Describe the training the employee received to prevent this violation:		

#	Root Cause Factors (RCF)
1	Lack of skill or knowledge
2	In the past, did not follow procedures or acceptable practices and no incident occurred (injury, product quality incident, equipment damage, regulatory assessment or production delay)
3	Doing the job according to procedures or acceptable practices takes more time/effort
4	Short-cutting procedures or acceptable practices are positively reinforced or tolerated
5	Lack of or inadequate operational procedures
6	Inadequate communication of expectations regarding procedures or acceptable practices
7	Inadequate tools or equipment (available, operable and safely maintained, proper task and workplace design)
8	External factors

60	Root Cause(s)	Identified Root Cause(s):							
		#1	#2	#3	#4	#5	#6	#7	#8
A		☐	☐	☐	☐	☐	☐	☐	☐
B		☐	☐	☐	☐	☐	☐	☐	☐
C		☐	☐	☐	☐	☐	☐	☐	☐
D		☐	☐	☐	☐	☐	☐	☐	☐
E		☐	☐	☐	☐	☐	☐	☐	☐
F		☐	☐	☐	☐	☐	☐	☐	☐
G		☐	☐	☐	☐	☐	☐	☐	☐
H		☐	☐	☐	☐	☐	☐	☐	☐

61 **Conclusion: Why did the Incident Occur?**

62

Item No.	RCF No.	Recommended Corrective Action(s) How to Prevent Incident from Reoccurring	Responsible Person	Due Date	Completed (date)	Verified/ Validated (date)

Supervisor: _____ Signature: _____ Date: _____

TRC Safety Director: _____ Signature: _____ Date:_____

TRC Incident Reporting Guidelines

Incident Response:

1. For life threatening injuries and medical emergencies call 911 or go to the closest emergency room.
2. An injured worker must report an injury to their supervisor immediately.
3. Supervisor is required to complete The TRC Incident Report Form within 24 hours of the reported accident and forward to Bill Russell at Sargent & Associates with a copy to Mike Glenn.

   Bill Russell – Sargent &Associates
   Office: (978) 256-7459; Fax: (978) 256-4941
   bill@sargentandassociates.com

   Mike Glenn, National Safety Director
   Office: (949) 727-7347; Mobile: (949) 697-7418
   mglenn@trcsolutions.com

4. WorkCare can provide assistance in providing first aid advice and directing an injured worker to non-emergency medical care. WorkCare is a service that provides 24/7 access to an Occupational Healthcare physician or clinician.

   WorkCare Incident Intervention
   (888) 449-7787

Return to Work:

1. The injured worker is responsible for providing the Supervisor with a copy of the doctor's note detailing the injury and "return to work" status within 24 hours of the doctor's visit. The supervisor must email or fax the completed TRC Incident Report and Doctor's notes to Sargent & Associates.
2. Sargent & Associates will contact the injured worker and the Supervisor to confirm the facts surrounding the injury.
3. Sargent & Associates will report the injury to the workers' compensation insurance carrier, Zurich.

4. Zurich may contact the injured worker and supervisor to conduct an accident investigation.
5. Sargent & Associates will maintain communication with all parties in order to monitor the medical treatment, and the injured worker's return to work status. They will act as liaison between the injured worker, TRC, and Zurich.
6. Sargent & Associates will work with TRC's Health & Safety, Human Resources, and/or Supervisors to determine if modified duty work is an option, until the injured worker is able to return to full duty work activities.

Incident Investigation:

1. All incidents that result in injuries that require reporting for OSHA recordkeeping purposes and all high potential first aid and near miss events require an incident investigation.
2. The Supervisor with assistance from the National Safety Director and/or Safety Coordinator, must complete the incident investigation report/contributing cause analysis within 7 days of the incident and must develop a corrective action plan within 14 days of the incident.

Attachment H
Observation Documentation Form

TRC SAFETY OBSERVATION FORM

Revised January 2014

Location/Project Name: _____ **Date:** _____

Observer Name: _____

Observee Name: _____ **Time:** _____

Task Observed

Description of Task Observed and Background Information

Positive Comments

Conclusions / Why the Questionable Items Occurred?

Feedback Session Conducted By: _____ **Date:** _____

Name of Observee's Supervisor: _____ **Time:** _____

At-Risk Observations/Root Cause Analysis

Personal Factor:
(1) Lack of skill or knowledge
(2) Correct way takes more time/requires more effort
(3) Shortcutting standard procedures is rewarded or appreciated
(4) In past, did not follow procedures or acceptable practices and no incident occurred

Job Factor:
(5) Lack of or inadequate operational procedures or work standards
(6) Inadequate communication of expectations or work standards
(7) Inadequate tools or equipment

At-Risk Observation #	Root Cause Analysis #	Solution(s) To Prevent Potential Incident from Occurring	Person Responsible	Agreed Due Date	Date Completed

Results of Verification (were solutions done?) and Validation (were solutions effective?)

Reviewed by (PM/Supervisor): _____ **Date:** _____

Approved by (Practice Safety Leader): _____ **Date:** _____

TRC SAFETY OBSERVATION FORM

Revised January 2014

PERSONAL PROTECTIVE EQUIPMENT	Safe	At-Risk	Comments
1. Hearing Protection (e.g., Ear Plugs)			
2. Head Protection (e.g., Hard Hat)			
3. ANSI Rated Eye Protection (e.g., Safety Glasses)			
4. Hand Protection (e.g., Kevlar Gloves)			
5. Foot Protection (e.g., Safety Shoes)			
6. Respiratory Protection			
7. Fall Protection Inspected (e.g., Harness)			
8. ANSI Rated Reflective Vest/High Visibility Clothing			
9. Other (Specify)			
BODY USE AND POSITIONING	**Safe**	**At-Risk**	**Comments**
10. Correct Body Use and Positioning When Lifting/Pushing/Pulling			
11. Pinch Points/Moving Equipment - Hands/Body Clear			
12. Mounts/Dismounts Using 3-Points of Contact			
13. Other (Specify)			
WORK ENVIRONMENT	**Safe**	**At-Risk**	**Comments**
14. Work/Walk Surface Free of Obstructions (e.g., Tripping Hazards)			
15. Housekeeping/Storage			
16. Defined and Secured (e.g., warning devices, barricades, cones, flags)			
17. Suspended Load, Swing Radius & Lift Area is Barricaded			
18. Safety Shutdown Devices			
19. Proper Storage & Labeling /Disposal of Sample & Waste Materials			
20. Cylinders Stored Upright, Secured, & Caps in Place			
21. Manhole/vault Inspected for Hazards			
22. Other (Specify)			
OPERATING PROCEDURES	**Safe**	**At-Risk**	**Comments**
23. Job Planning (HASP reviewed, JSAs, etc.)			
24. Fire Extinguishers Accessible and Inspections Current			
25. Work Permit/Authorization to Work (Hot, Cold, LOTO, Confined Space)			
26. JSA Reviewed & Followed			
27. Hazard Assessment - Hazard Hunt			
28. Interfaces with Other Functions (awareness with other personnel on site)			
29. Operators Looking Behind Prior to Backing Up			
30. Operators Wearing Seat Belts While Operating Equipment			
31. Subsurface Structures Identified			
32. Proper Trench Protective Equipment in Place			
33. Adequate Egress Is Available for Excavation & Trench (within 25 ft. if depth is <4 ft.)			
34. All Materials Set Back at Least 2 Feet From Edge of Trench/Excavation			
35. Other (Specify)			
TOOLS/EQUIPMENT	**Safe**	**At-Risk**	**Comments**
36. Hand Tools (Proper Equipment Selection, Condition, and Use)			
37. Power Tools (Proper Equipment Selection, Condition, and Use)			
38. Equipment, Including Heavy (Proper Equipment Selection, Condition, and Use)			
39. Hoses Inspected			
40. Required Monitoring Equipment Calibrated & Used			
41. Ladders Set up Correctly & Inspected			
42. Right Tools for the Job are Available and in Good Condition - No Fixed Open Blade Knives (FOBKs)			
43. Other (Specify)			
Total #	0	0	

Attachment I
Safe Catch Report

"Safe Catch" Report

A "Safe Catch" is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee behaviors, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone's responsibility to report and/or correct these potential incidents immediately. Please complete this form as a means to report these "Good Catch" situations and submit to your local OSC Representative and Mike Glenn, National Safety Director.

Employee Name:		Date:	
Incident Location:		Office:	
Project:		Practice:	

Conditions

Please check all appropriate conditions:

☐ Unsafe Act	☐ Unsafe Condition	☐ Unsafe Equipment	☐ Unsafe Use of Equipment

Description of Incident or Potential Hazard:

Task Performed at Time of Incident:

Causes (Primary and Contributing):

Corrective Action(s) Taken (remove the hazard, replace, repair, or retrain):

Employee Signature:		Date Completed:	

Our Mission: To reduce the frequency of incidents by applying local lessons learned globally.

If you have any questions about this report or would like additional information, please reference Compliance Program CP019—TRC Incident Response and Lessons Learned Program, located on TRCNET or contact Mike Glenn, National Safety Director at mglenn@trcsolutions.com.

APPENDIX C
QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the field activities described in the scope of work. The QAPP also describes specific protocols for field sampling, sample handling and storage, and laboratory analysis. The data generated from the analysis of samples will be used to document post-excavation soil conditions.

Project Organization and Responsibility

A qualified person will coordinate and manage the sampling and analysis program, data reduction, QA/QC, data validation, analysis, and reporting. TRC will direct the sampling activities and coordinate laboratory and remedial investigation activities. The TRC Project Quality Assurance (QA) Officer will be Elizabeth Denly and will report directly to the Project Manager, Jenna Raup.

A qualified person will ensure that the QAPP is implemented and will oversee data validation. A qualified person will provide oversight and technical support for the sampling and analytical procedures followed in this project. This individual has the broad authority to approve or disapprove project plans, specific analyses, and final reports. The Project QA Officer is independent from the data generation activities. In general, the QA officer will be responsible for reviewing and advising on all QA/QC aspects of this program.

Data validation will be performed for the post-excavation documentation/confirmatory soil sample analytical data. The results of the data validation will be summarized in Data Usability Summary Reports (DUSRs). Nancy Weaver of Environmental Data Services, Inc. is the proposed data validator for this project. Resumes of key personnel, including the Project QA Officer, Project Manager, and Data Validator can be found at the end of the QAPP.

Laboratories used will be New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratories. The proposed laboratory for this project is Eurofins-TestAmerica Laboratory in Edison, New Jersey (ELAP Certification No. 11452). The laboratory will communicate directly with the Project Manager regarding the analytical results and reporting and will be responsible for providing all labels, sample containers, temperature blanks, shipping coolers, and laboratory documentation.

QA Objectives for Data Management

New York State Analytical Services Protocol (ASP) Category B laboratory packages will be provided by the laboratory.

All analytical measurements will be made so that the results are representative of the media sampled and the conditions measured. Data will be reported in consistent dry weight units for solid samples (i.e., µg/kg and/or mg/kg). Table 1A presents the proposed samples, sampling and analytical parameters, analytical methods, sample preservation requirements, containers, and QA/QC samples.

Quantitation Limits (QLs) are laboratory-specific and reflect those values achievable by the laboratory performing the analyses.

Data Quality Levels (DQLs) are those reporting limits required to meet the objectives of the program (i.e., program action levels, cleanup standards, etc.).

Data Quality Objectives (DQOs) define the quality of data and documentation required to support decisions made in the various phases of the data collection activities. The DQOs are dependent on the end uses of the data to be collected and are also expressed in terms of objectives for precision, accuracy, representativeness, completeness, and comparability.

The analytical methods to be used at this site provide the highest level of data quality and can be used for purposes of risk assessment, evaluation of remedial alternatives and verification that cleanup standards have been met. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy and precision.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs.

For quantitation limits for parameters associated with soil samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits listed in 6 NYCRR Part 375 Unrestricted Use Criteria and Commissioner Policy 51 Tables 2 and 3 (CP-51).

The QA objectives are defined as follows:

- ***Accuracy*** is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

  Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of non-dedicated equipment being used. Since the scope of work includes soil sampling using disposable and sterile scoops, Equipment Blanks are not proposed.

  The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. Table 2A summarizes the laboratory accuracy requirements.

- ***Precision*** is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation.

  Precision in the field is assessed through the collection and measurement of field duplicates (one extra sample in addition to the original field sample). Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter. Precision will be measured through the calculation of relative percent differences (RPDs). The resulting

information will be used to assess sampling and analytical variability. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are < 5x the quantitation limit, the criterion will be doubled.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic soil analysis, laboratory precision will be assessed through the analysis of field duplicates.

- ***Completeness*** is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned.

  Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

  Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

- ***Representativeness*** is a qualitative parameter that expresses the degree to which data accurately and precisely represents either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data. In addition, field duplicate samples will provide an additional measure of representativeness at a given location.

  Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Remedial Action Work Plan (RAWP) is followed and that proper sampling, sample handling, and sample preservation techniques are used.

  Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times.

- ***Comparability*** expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plan are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

  Comparability is dependent on the use of recognized United Stated Environmental Protection Agency (USEPA) or equivalent analytical methods and the reporting of data in standardized units. Laboratory procedures are consistent with those used for previous sampling efforts.

Table 1A
Analytical Parameters, Methods, Preservation, Holding Time, and Container Requirements for Soil Samples

Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	No. of QA/QC Samples	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container
Soil	TCL and CP-51 VOCs	Grab	26-30	Duplicate: 1/20	8260C	Sealed in EnCore® bag; Cool to 4° C	48 hours to extract: 2 EnCore® samplers extruded in 5 mL DI water and freeze vials to <-7^{0}C; 1 EnCore® sampler extruded in 5 mL methanol and Cool to 40 C; 14 days to analysis	3 x 5 gram EnCore® samplers
Soil	TCL and CP-51 SVOCs	Grab	26-30	Duplicate: 1/20	8270D	Cool to 4° C	14 days to extract	8 oz glass jar
Soil	TAL Metals	Grab	16-20	Duplicate: 1/20	6010C	Cool to 4° C	180 days to analysis	8 oz glass jar
Soil	Mercury	Grab	16-20	Duplicate: 1/20	7471B	Cool to 4° C	28 days to analysis	8 oz glass jar

[1] A six-inch sampling interval is the targeted sample size; however, sample volume recovery, analytical method requirements, and field conditions can affect the actual sample interval size. For these reasons, the actual sampling interval may change in order to obtain adequate volume.
[2] Actual number of samples may vary depending on field conditions, sample material availability, and field observations.
[3] From date and time of sample collection

Table 1B
Analytical Parameters, Methods, Preservation, Holding Time, and Container Requirements for Soil Vapor Samples

Sample Matrix	Analytical Parameter	Sample Type	No. of Samples	No. of QA/QC Samples	EPA Analytical Method	Sample Preservation	Holding Time[1]	Sample Container
Soil Vapor	VOCs	Grab	4-8	None	TO-15	None	30 days to analysis	One 6-L Summa Canister

[1] From date and time of sample collection

Table 2A
Laboratory Data Quality Objectives: Precision and Accuracy: Soil Samples

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
TCL and CP-51 VOCs	8260C	Soil	Surrogates % Rec. 1,2-Dichloroethane-d4 78-135 4-Bromofluorobenzene 67-126 Toluene-d8 73-121 Dibromfluoromethane 61-149	Surrogates: All samples, standards, QC samples	Field Duplicates RPD ≤50	Field Duplicates: One per 20 soil samples
TCL and CP-51 SVOCs	8270D	Soil	Surrogates % Rec. 2-Fluorophenol 38-95 Phenol-d5 32-91 2,4,6-Tribromophenol 10-103 Nitrobenzene-d5 37-94 2-Fluorobiphenyl 38-95 Terphenyl-d14 24-109	Surrogates: All samples, standards, QC samples	Field Duplicates RPD ≤50	Field Duplicates: One per 20 soil samples
TAL Metals	6010C	Soil	Matrix Spikes: 75-125% recovery Laboratory Control Samples: 80-120% recovery	Matrix Spikes: One per 20 soil samples per laboratory analytical batch Laboratory Control Samples: One per 20 samples per laboratory analytical batch	Field Duplicates RPD ≤20	Field Duplicates: One per 20 soil samples

Table 2B
Laboratory Data Quality Objectives: Precision and Accuracy: Soil Vapor Samples

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
VOCs	TO-15	Soil Vapor	LCS limits vary by analyte (see analytical SOP BR-AT-004)	Each batch or every 20 samples, whichever is less.	N/A	N/A

N/A – Not applicable
Refer to SOP BR-AT-004, provided in Attachment A.

Project Goals

The principal objectives of the RAWP sampling program are to document the soil and soil vapor conditions following excavation activities.

Sampling Plan

Environmental sampling will include soil and soil vapor. Soil samples will be collected using disposable sampling equipment. Soil vapor samples will be collected from sub-slab depressurization system (SSDS) monitoring points using dedicated sampling equipment.

Soil Sampling

Soil samples will be collected in 2-ounce disposable, sterile scoops and placed in the sample bottles. Samples will be collected from the terminal depth of the excavation at locations described in the RAWP. EnCore® samplers will be used to collect soil samples for VOC analysis. Samplers will wear phthalate-free gloves such as nitrile (no latex will be used). Only clean instruments will be allowed to touch the sample.

Sub-Slab Vapor Sampling

Sub-Slab vapor sampling will be conducted in accordance with the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006)" and ASTM Standard E 2600-10.

The sub-slab vapor samples will be collected utilizing the SSDS monitoring points. In accordance with the NYSDOH vapor intrusion guidance, tracer gas (i.e., helium) will be used at each sub-slab vapor sampling location to ensure that an adequate surface seal has been created.

The SSDS monitoring point will then be purged using a photoionization detector (PID) to evacuate one to three volumes of soil vapor. During purging, the purge flow rate will not exceed 0.200 liters per minute (L/min). Maximum VOC concentrations will be recorded by the field technician. Each probe will be connected via Teflon tubing to a laboratory-supplied individually certified clean SUMMA canister with a 2-hour flow controller. Using a 0.05 L/min flow regulator, the sample collection time will be approximately 120 minutes.

QC Sample Collection

QC samples will include field duplicates soil samples. Refer to Table 1A for a summary of QC sample preservation and container requirements.

Field duplicates are an additional aliquot of the same sample submitted for the same parameters as the original sample. Field duplicates will be used to assess the sampling and analytical reproducibility. Field duplicates will be collected by alternately filling sample bottles from the source being sampled. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Refer to Table 1A for a summary of QC sample preservation and container requirements.

Sample Preservation and Containerization

The analytical laboratory will supply the containers for analytical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest USEPA's Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to USEPA specifications. Soil samples will be placed in chilled coolers immediately after collection.

Equipment Decontamination

Since disposable sampling equipment will be utilized, equipment decontamination procedures are not included in this QAPP.

Field Custody Procedures

Sample chain-of-custody and packaging procedures are summarized below. These procedures are intended to ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.

- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of sample collection, and type of analysis.

- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage location.

- All shipments will be accompanied by the chain-of-custody record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.

- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.

- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the

custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

Data Management and Reporting

ASP Category B Laboratory Packages will undergo data validation. A NYSDEC Data Usability Summary Report (DUSR) will be prepared for each laboratory package. Note that waste characterization samples, if collected for laboratory analysis, will not undergo data validation.

APPENDIX D
COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN

In accordance with the Remedial Action Work Plan (RAWP), this Community Air Monitoring Plan (CAMP) was developed to describe the procedures for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area at the Site during ground intrusive work activities at 8802 5th Avenue and 429 89th Street, Brooklyn, New York (referred to as the "Site"). The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities do not spread contamination off-site through the air.

Community Air Monitoring Plan

Real-time air monitoring for VOCs and observations of particulate levels at the perimeter of the work areas will be completed during intrusive activities on Lot 28. Continuous monitoring and observations will be required during soil excavation activities. The downwind location will be just inside the fence line at the edge of the property.

VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downwind perimeter of each designated work area on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated daily. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring will continue. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring will continue. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the work area or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings will be recorded and will be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind locations of the borings at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work will be stopped and a re-evaluation of activities will be initiated. Work will be able to be resumed provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

3. All readings will be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

ODOR MONITORING AND MITIGATION PLAN

The purpose of this Odor Monitoring and Mitigation Plan is to detail the monitoring and, if necessary, mitigation of odor potentially generated during implementation of the RAWP. However, work activities will be performed to minimize the potential for generation of odor.

Odor Monitoring

Odor will be monitored within the work area and at the perimeter CAMP stations. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Odor or dust complaints from any owner or occupant of an adjacent or nearby property will be immediately addressed and managed by the Environmental Monitor in a manner equivalent to an exceedance of an air monitoring action level.

Odor Mitigation

All necessary means will be employed to prevent on- and off-Site nuisances. These measures may include: containerizing drill cuttings immediately and using tarps to cover exposed odorous soil (if encountered). Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpiles will be kept covered at all times with appropriately anchored tarps, except when materials are being removed or added, and during stockpile sampling. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: use of chemical odorants in spray or misting systems; and, use of staff to monitor odors in surrounding neighborhoods. It is anticipated that any nuisance odors developed during intrusive work can be corrected, without the use of a temporary containment structure equipped with appropriate air venting/filtering systems.

APPENDIX E
CITIZEN PARTICIPATION PLAN

NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
Former Giuffre Auto Group Site
April 2022

BCP Site No. C224327
8802 5th Avenue and 429 89th Street
Brooklyn, NY 11209

Contents

Section **Page Number**

1. What is New York's Brownfield Cleanup Program? 2

2. Citizen Participation Activities..... 2

3. Major Issues of Public Concern..... 8

4. Site Information..... 8

5. Investigation and Cleanup Process 9

Appendix A - Project Contacts and Locations of Reports and Information 13

Appendix B - Site Contact List..... 15

Appendix C - Site Location Map..... 22

Appendix D - Brownfield Cleanup Program Process 23

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Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **New York City School Construction Authority (NYCSCA) ("Applicant")**
Site Name: **Former Giuffre Auto Group Site ("Site")**
Site Address: **8802 5th Avenue and 429 89th Street, Brooklyn, New York 11209**
Site County: **Kings**
Site Number: **C224327**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, schools, and businesses.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.

The site contact list includes, at a minimum:

- Chief executive officer and planning board chairperson of each county, city, town andvillage in which the site is located;
- Residents, owners, and occupants of the site and properties adjacent to the site;
- The public water supplier which services the area in which the site is located;
- Any person who has requested to be placed on the site contact list;
- The administrator of any school or day care facility located on or near the site forpurposes of posting and/or dissemination of information at the facility;
- Location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, the significant threat determination for the site had not yet been made.

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at
http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process. Furthermore, there may be impacts with regard to noise, odor or truck-related traffic.

All investigation and remediation work will be performed in a manner that protects the public from adverse exposure to contaminants. Groundwater is not currently used for public water supply in Brooklyn. The entire Site is covered with existing buildings or the asphalt paved lot. A Community Air Monitoring Plan will be implemented to provide a measure of protection for the downwind community (i.e., off-Site receptors including businesses) from potential airborne contaminant releases as a direct result of investigative and remedial work activities.

According to the online NYSDEC Maps and Geospatial Information System (GIS) Tools for Environmental Justice, the Site is not located in a Potential Environmental Justice Area. Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

There are sizable Hispanic-American communities nearby. Therefore, all future fact sheets will be translated into Spanish.

For additional information: https://statisticalatlas.com/tract/New-York/Kings-County/016000/Race-and-Ethnicity

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The Site is located at 8802 5th Avenue and 429 89th Street in Bay Ridge, a mixed-use urban area of Brooklyn, NY, which includes residential and commercial areas. The legal description of the Site is Block 6065, Lots 28 and 39. The NYCSCA intends to merge the Site lots prior to redevelopment. The Site encompasses approximately 31,659 square feet (sf) and contains a one-story commercial building with a basement and an asphalt- paved parking lot on Lot 28 (8802 5th Avenue), and a commercial building with a partial basement on Lot 39 (429 89th Street). The Site is currently vacant. Lot 39 was most recently used by a construction company for storage of tiles and other assorted construction materials.

The Site is bordered to the north by 88th Street followed by a health care facility ("Langone

Medical Arts"); to the east by 5th Avenue followed by institutional/commercial buildings (the United States Post Office and an automobile sales facility); to the south by 89th Street, followed by commercial buildings; and to the west by automobile showrooms with repair facilities, NYC Department of Education Superintendent Office, and a commercial building (7-Eleven) followed by 4th Avenue. Beyond the properties immediately adjacent to the Site, property uses are commercial, residential, and institutional.

History of Site Use, Investigation, and Cleanup

Historically, Lot 28 was occupied by several low-rise structures prior to construction of the current one-story commercial building with a basement in 1956. The building was most recently used by a bank and as real estate offices. Lot 39 has been improved with the current one-story building with a partial basement since 1923, and operated as a garage and auto repair/service station.

Between 2019 and 2020, environmental due diligence activities were completed at the Site. The results of prior investigations indicate that Chlorinated Volatile Organic Compounds (CVOCs) were present in soil vapor and sub-slab vapor above regulatory criteria which were attributed to historic on-Site operations. One CVOC, Semi Volatile Organic Compounds (SVOCs), and metals were present in sediment samples from on-Site floor drains which were attributed to historic on-Site operations. Volatile Organic Compounds (VOCs) were present in soil above regulatory criteria which were attributed to historic Site uses (i.e., automobile repair facility/garage with a potential underground storage tank (UST) and subsurface structure). SVOCs and metals were present in shallow soil samples which were attributed to the characteristics of fill material at the Site. Chloroform, petroleum-related VOCs, and the SVOC phenol were present in groundwater at concentrations above comparison criteria which were attributed to historic on-Site operations or an off-Site source. Metals were present in filtered groundwater at concentrations above comparison criteria which are attributed to the characteristics of Site soil/fill. Additionally, a geophysical anomaly resembling a potential UST wasidentified in the 429 89th Street building.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a Volunteer. This means that the Applicant was not responsible for the disposal or discharge of the contaminants or whose ownership or operation of the site took place after the discharge or disposal of contaminants. The Volunteer must fully characterize the nature and extent of contamination onsite, and must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.

The Applicant in its Application proposes that the site will be used for Restricted purposes. Specifically, the Site was purchased by the NYCSCA in August 2021 for the construction of a Public School Facility.

To achieve this goal, the Applicant will conduct investigation and cleanup activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant has completed a partial site investigation before it entered into the BCP. For the partial investigation, NYSDEC will determine if the data are useable.

The Applicant will conduct an investigation of the site officially called a “remedial investigation” (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) Define the nature and extent of contamination in soil, surface water, groundwaterand any other parts of the environment that may be affected;
2) Identify the source(s) of the contamination;
3) Assess the impact of the contamination on public health and the environment;and
4) Provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a Final Engineering Report (FER) that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of publichealth and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the FER. NYSDEC then will issuea Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelopthe site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

Bryan Wong
Project Manager
NYSDEC Region 2
Division of Environmental Remediation
One Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101
Phone: (718) 482-4905
Email: yukyin.wong@dec.ny.gov

Thomas V. Panzone
Public Participation Specialist
NYSDEC Region 2
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101
Phone: (718) 482-4953
Email: Thomas.panzone@dec.ny.gov

New York State Department of Health (NYSDOH):

Anthony Perretta
Public Health Specialist II
NYSDOH
Empire State Plaza
Corning Tower, Room 1787
Albany, NY 12237
Phone: (518) 486-7186
Email: beei@health.ny.gov

Appendix A (Continued)
Project Contacts and Locations of Reports and Information

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Document Repositories – COVID 19

*Repositories may be temporarily unavailable due to COVID-19 precautions. If you cannot access the online repository, please contact the NYSDEC project manager listed above for assistance.

Brooklyn Community Board 10
8119 5th Avenue
Brooklyn, New York 11209
Attn: Lori Willis – Chairperson
Josephine Beckmann – District Manager
Tracie Britton – Environmental Committee Chairperson
Phone: (718) 745-6827
bk10@cb.nyc.gov
Hours: Mon to Fri: 8:30AM to 4PM (call for appointment)

Brooklyn Public Library – Fort Hamilton Branch
9424 4th Avenue
Brooklyn, New York 11209
Attn: Morris Denmark
Phone: (718) 748-6919
Hours: Mon, Wed & Fri: 10AM to 6PM; Tues: 1PM to 8PM; Thurs: 10AM to 8PM; Sat: 10AM to 5PM; Closed Sunday

Appendix B - Site Contact List

1. **The Chief Executive Officer and Zoning Board Chairperson of Each County, City, Town, and Village in which the Site is Located:**

The Honorable Eric Adams
Mayor, City of New York
City Hall
New York, NY 10007

Dan Garodnick
City Planning Commission Chair
New York City Department of City Planning
120 Broadway
New York, NY 10271

Hon. Brad Lander
NYC Comptroller
1 Centre Street
New York, NY 10007

Hon. Jumaane D. Williams
Public Advocate
1 Centre Street
New York, NY 10007

Hon. Antonio Reynoso
Brooklyn Borough President
Borough Hall
209 Joralemon Street
Brooklyn, NY 11201

Mark McIntyre, Acting Director/General Counsel
NYC Office of Environmental Remediation
100 Gold Street - 2nd Floor
New York, NY 10038

Rohit Aggarwala – Public Water Supplier
Commissioner, NYC Dept. of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Hon. Justin Brannan
NYC Councilmember
8203 3rd Avenue
Brooklyn, NY 11209

Hon. Andrew Gounardes
NYS Senator
8018 5th Avenue
Brooklyn, NY 11209

Hon. Mathylde Frontus
NYS Assemblymember
2002 Mermaid Avenue
Brooklyn, NY 11224

Hon Charles Schumer
U.S. Senator
780 Third Avenue, Suite 2301
New York, NY 10017

Hon. Kirsten Gillibrand
U.S. Senator
780 Third Avenue, Suite 2601
New York, NY 10017

Hon. Nicole Malliotakis
U.S. House of Representatives
7716 Third Avenue
Brooklyn, NY 11209

Nancy T. Sunshine
Kings County Clerk
360 Adams Street Room 189
Brooklyn, NY 11201

2. Residents, Owners, and Occupants of the Site and Properties Adjoining and Adjacent to the Site

Site Property Address	Block-Lot	Owner
8802 5th Avenue Brooklyn, NY 11209	Block 6065, Lot 28	New York City School Construction Authority IDCNY Center 1 30-30 Thomason Avenue Long Island City, NY 11101
429 89th Street Brooklyn, NY 11209	Block 6065, Lot 39	New York City School Construction Authority IDCNY Center 1 30-30 Thomason Avenue Long Island City, NY 11101
Adjoining Property Address	**Block-Lot**	**Owner/Occupant**
415 89th Street Brooklyn, NY 11209	Block 6065, Lot 43	Owner: 415 89th Street, LP 7203 8th Avenue Brooklyn, NY 11228 Occupant: Public School 104 Annex/ District 20 Superintendents Office (K989)
428 88th Street 440 88th Street Brooklyn, NY 11209	Block 6065, Lots 18, 22 & 23	Marial Associates, LLC 5630 Wisconsin Ave #704 Chevy Chase, MD 20815
438 88th Street Brooklyn, NY 11209	Block 6065, Lot 21	Lilik Is, Mike 235 89th Street Brooklyn, NY 11209
8904 5th Avenue Brooklyn, NY 11209	Block 6066, Lot 26	8904 5th Ave, LLC 511 Canal Street, Fl 6 New York, NY 10013

430 89th Street Brooklyn, NY 11209	Block 6066, Lot 19	89th Street NY, LLC 4 E 80th Street New York, NY 10075
8821 5th Avenue Brooklyn, NY 11209	Block 6067, Lot 15	USPS 475 L'enfant Plaza SW Washington, DC 20260
8714 5th Avenue Brooklyn, NY 11209	Block 6050, Lot 40	Sabbagh Gottlieb Realty 8701 Colonial Road Brooklyn, NY 11209
Adjacent Property Address	**Block-Lot**	**Owner/Occupant**
426 89th Street Brooklyn, NY 11209	Block 6066, Lot 18	Nicholas Coscia 224 82nd Street Brooklyn, NY 11209
437 88th Street Brooklyn, NY 11209	Block 6050, Lot 45	437 88, LLC 9322 3rd Ave #502 Brooklyn, NY 11209
8825 5th Avenue Brooklyn, NY 11209	Block 6067, Lot 7	34 Linden Realty Company 12 Buckram Rd Locust Valley, NY 11560
8715 5th Avenue Brooklyn, NY 11209	Block 6051, Lot 1	ARG NYC8713FIFTH, LLC 7621 Little Avenue, Suite 200 Charlotte, NC 28226

3. Local News Media from Which the Community Typically Obtains Information

The Brooklyn Reporter
16 Court Street, 30th Floor
Brooklyn, NY 11241

Courier-Life Publications
1 Metrotech Center #10T
Brooklyn, NY 11201

Brooklyn Daily Eagle
16 Court Street, Suite
2901
Brooklyn, NY 11241

The Brooklyn Papers
1 Metrotech Center, 3rd
Floor
Brooklyn, NY 11201

New York Post
1211 Avenue of the Americas
New York, NY 10036-8790

The New York Daily News
270C Duffy Avenue
Hicksville, NY 10801

Spectrum NY 1 News
75 Ninth Avenue
New York, NY 10011

Hoy Nueva York
15 Metrotech Center Floor 7
Brooklyn, NY 11201

El Diario La Prensa
15 Metrotech Center Floor 7
Brooklyn, NY 11201

4. **Any person who has requested to be placed on the site contact list**

None

5. **The administrator of any school or day care facility located on or near the site**

President/Executive Director/Principal
P.S. 264 – Bay Ridge Elementary School for the Arts
371 89th Street
Brooklyn, NY 11209
718-630-1650

President/Executive Director/Principal
P.S./I.S. 104 The Fort Hamilton School
9115 5th Avenue
Brooklyn, NY 11209
718-836-4630

President/Executive Director/Principal
P.S. 185 The Walter Kassenbrock School
8601 Ridge Boulevard
Brooklyn, NY 11209
718-745-6610

President/Executive Director/Principal
P.S. 127 McKinley Park School
7805 7th Avenue
Brooklyn, NY 11228
718-833-2323

President/Executive Director/Principal
Little Bees Family Day Care, LLC
356 88th Street, Floor 1
Brooklyn, NY 11209
718-833-2491

President/Executive Director/Principal
Smart Start Early Childhood Center
8411 Fort Hamilton Parkway
Brooklyn, NY 11209
718-921-1868

President/Executive Director/Principal
Lighthouse Group Family Daycare
311 90th Street
Brooklyn, NY 11209
212-219-8813

President/Executive Director/Principal
Family Daycare
8523 Fort Hamilton Parkway
Brooklyn, NY 11209
718-833-1471

Community, Civic, Religious
and Other Environmental
Organizations:

Antonia Yuille - Director
Consolidated Edison
Corporate Affairs
30 Flatbush Avenue
Brooklyn, NY 11217

David Ryan - President
68th NYPD Police Precinct
Council

333 65th Street
Brooklyn, NY, 11220

FDNY
Engine 242
9219 5 AVENUE
Brooklyn, NY11209

86th Street BID
9201 4th Avenue
Brooklyn, NY 11209
info@86bid.org
https://www.86bid.org/

Bay Ridge Cares
Karen Tadross - President
80 80th Street
Brooklyn, NY 11209
https://www.bayridgecares.org/

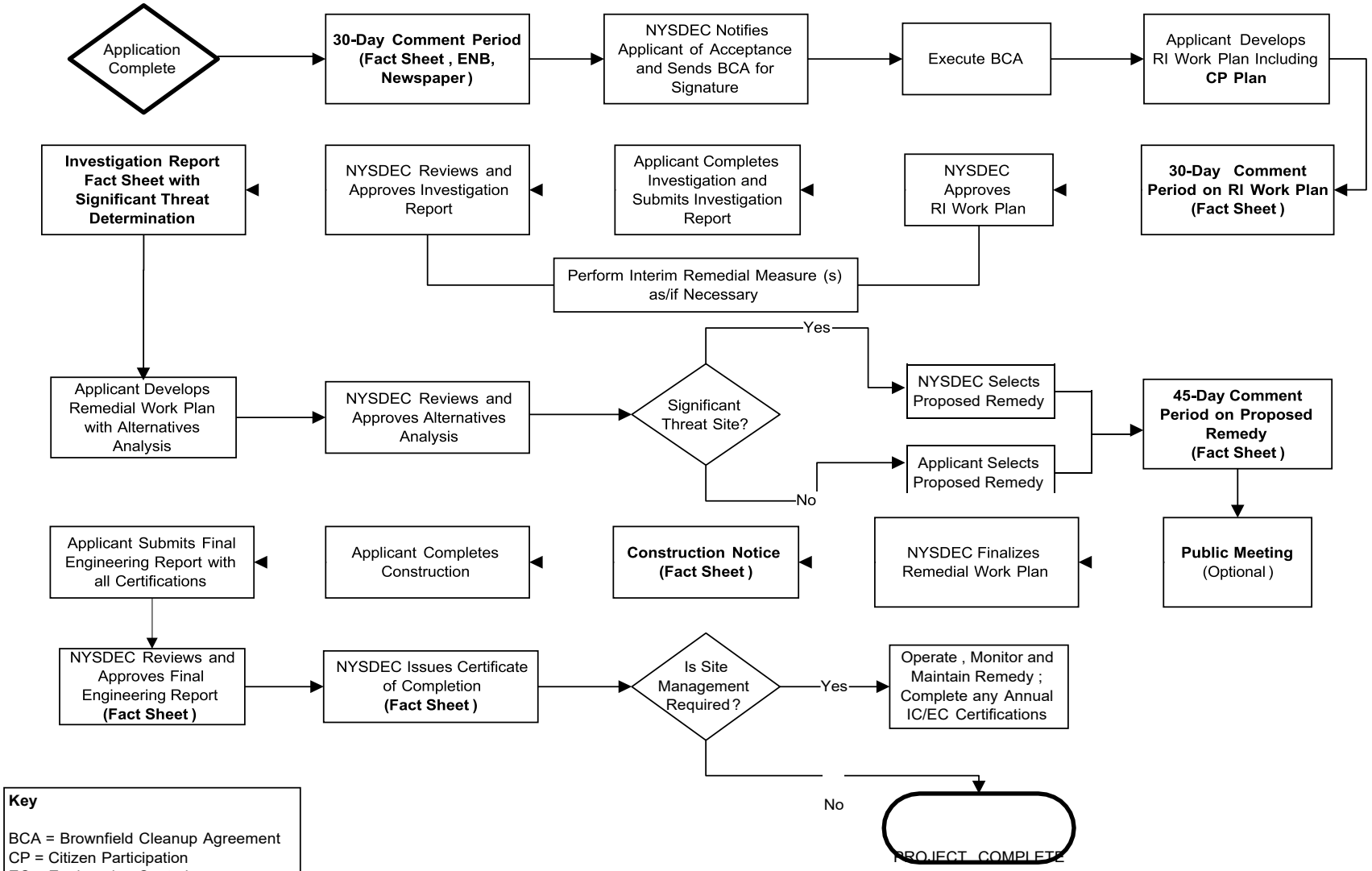
Bay Ridge Community Development Center
https://brcdc.org/
info@brcdc.org
98-18 Fort Hamilton Parkway
Brooklyn, NY 1120998
(347) 560-6700

Trinity Lutheran Church
9020 Third Avenue
Brooklyn, NY 11209

Appendix C - Site Location Map



Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: *Former Giuffre Auto Group Site*

Site Number: *C224327*

Site Address and County: *8802 5th Avenue and 429 89th Street, Brooklyn, Kings County, New York 11209*

Remedial Party(ies): *New York City School Construction Authority*

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**

Individuals, groups, organizations, businesses, and/or units of government have not requested environmental information pertaining to the Site as of the date of issuance of the CCP. As noted in the CPP, all environmental investigation and remediation work will be performed in a manner that protects the public from adverse exposure to contaminants.

How were these issues and/or information needs identified?

Not applicable.

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.

Not applicable.

How were these information needs identified?

Not applicable.

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.

Not applicable.

How were these issues and/or information needs identified?

Not applicable.

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☐ **Industrial**

b. Residential type around site:
☒ **Urban** ☐ **Suburban** ☐ **Rural**

c. Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

d. Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:

Not applicable.

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:

Contamination has been identified at the Site; however, there is no current indication that the affected community is being significantly impacted.

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☐ **Yes** ☒ **No**

According to the NYSDEC Maps and Geospatial Information System (GIS) Tools for Environmental Justice, the Site is not located in a Potential Environmental Justice Area.

h. Special considerations:
☒ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

There are sizable Hispanic-American communities nearby. Therefore, all future fact sheets will be translated into Spanish.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☒ **Non-Adjacent Residents/Property Owners:** *Please see Site Contact List (Appendix B)*

☒ **Local Officials:** *Please see Site Contact List (Appendix B)*

☒ **Media:** *Please see Site Contact List (Appendix B)*

☒ **Business/Commercial Interests:** *Please see Site Contact List (Appendix B)*

☐ **Labor Group(s)/Employees:** *Not applicable.*

☐ **Indian Nation:** *Not applicable.*

☒ **Citizens/Community Group(s):** *Please see Site Contact List (Appendix B)*

☐ **Environmental Justice Group(s):** *Not applicable.*

☐ **Environmental Group(s):** *Not applicable.*

☐ **Civic Group(s):** *Not applicable.*

☐ **Recreational Group(s):** *Not applicable.*

☒ **Other(s):** *Please see Site Contact List (Appendix B)*

Prepared/Updated By: Srinivas Kanaparthi, NYCSCA **Date: 4/6/2022**

Reviewed/Approved By: Thomas V. Panzone, NYSDEC **Date: 3/29/22**

APPENDIX F
SANBORN MAPS

8802 5th Avenue

8802 5th Avenue

Brooklyn, NY 11209

Inquiry Number: 5781538.3

September 09, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

09/09/19

Site Name:

8802 5th Avenue
8802 5th Avenue
Brooklyn, NY 11209
EDR Inquiry # 5781538.3

Client Name:

TRC Environmental Consultants
1430 Broadway
New York, NY 10018
Contact: Emily Ebert

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by TRC Environmental Consultants were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # 7A7B-4352-AA9B

PO # 361460

Project 361460

Maps Provided:

2007	1994	1983	1893
2006	1993	1981	
2005	1992	1980	
2004	1990	1977	
2003	1989	1969	
2002	1988	1950	
2001	1987	1926	
1995	1986	1905	

Sanborn® Library search results

Certification #: 7A7B-4352-AA9B

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

Limited Permission To Make Copies

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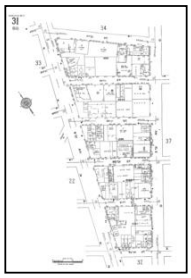
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2007 Source Sheets

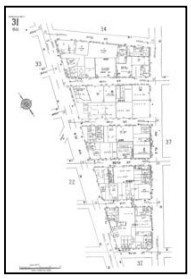


Volume 11, Sheet 37
2007



Volume 11, Sheet 31
2007

2006 Source Sheets

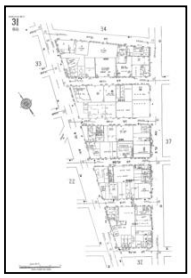


Volume 11, Sheet 31
2006



Volume 11, Sheet 37
2006

2005 Source Sheets

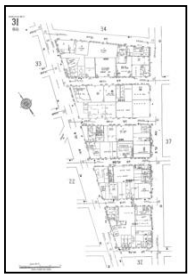


Volume 11, Sheet 31
2005



Volume 11, Sheet 37
2005

2004 Source Sheets



Volume 11, Sheet 31
2004

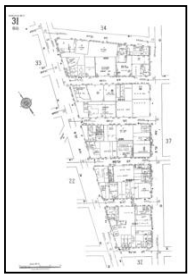


Volume 11, Sheet 37
2004

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2003 Source Sheets


Volume 11, Sheet 31
2003

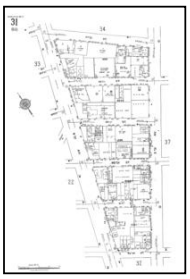

Volume 11, Sheet 34
2003


Volume 11, Sheet 37
2003

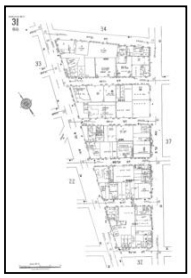
2002 Source Sheets


Volume 11, Sheet 34
2002


Volume 11, Sheet 37
2002


Volume 11, Sheet 31
2002

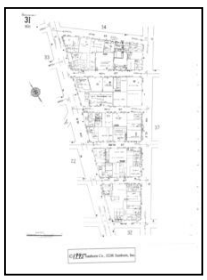
2001 Source Sheets


Volume 11, Sheet 31
2001


Volume 11, Sheet 34
2001


Volume 11, Sheet 37
2001

1995 Source Sheets

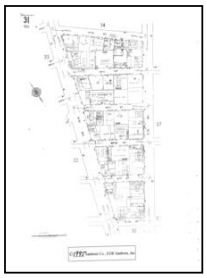

Volume 11, Sheet 31
1995-Jan


Volume 11, Sheet 37
1995-Jan

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1995 Source Sheets

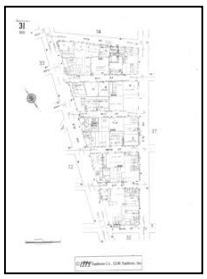


Volume 11, Sheet 31
1995-Dec



Volume 11, Sheet 37
1995-Dec

1994 Source Sheets

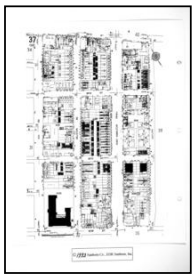


Volume 11, Sheet 31
1994

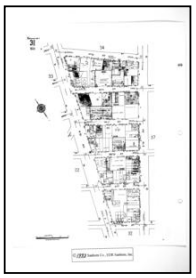


Volume 11, Sheet 37
1994

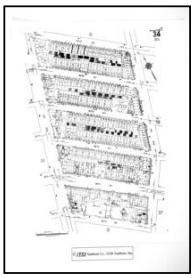
1993 Source Sheets



Volume 11, Sheet 37
1993

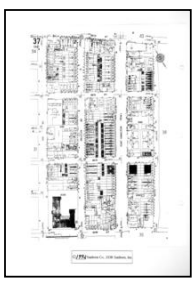


Volume 11, Sheet 31
1993



Volume 11, Sheet 34
1993

1992 Source Sheets



Volume 11, Sheet 37
1992



Volume 11, Sheet 31
1992

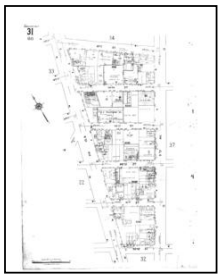


Volume 11, Sheet 34
1992

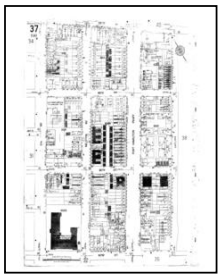
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1990 Source Sheets

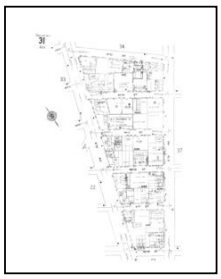


Volume 11, Sheet 31
1990

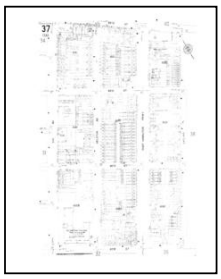


Volume 11, Sheet 37
1990

1989 Source Sheets

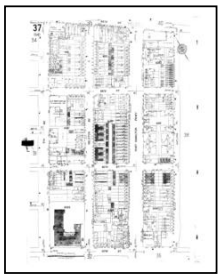


Volume 11, Sheet 31
1989

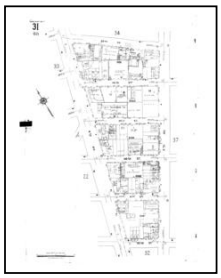


Volume 11, Sheet 37
1989

1988 Source Sheets

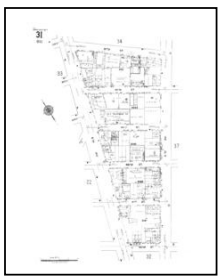


Volume 11, Sheet 37
1988

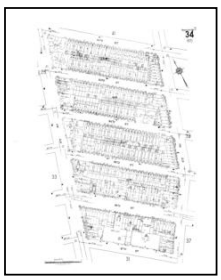


Volume 11, Sheet 31
1988

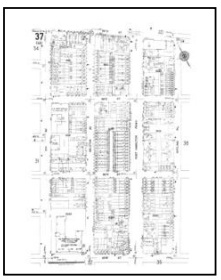
1987 Source Sheets



Volume 11, Sheet 31
1987



Volume 11, Sheet 34
1987

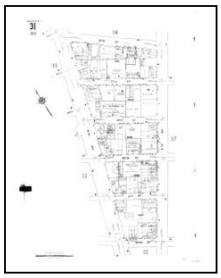


Volume 11, Sheet 37
1987

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

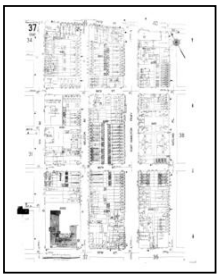
1986 Source Sheets



Volume 11, Sheet 31
1986



Volume 11, Sheet 34
1986

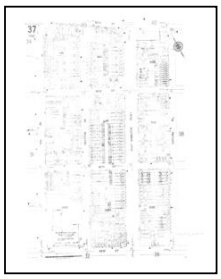


Volume 11, Sheet 37
1986

1983 Source Sheets



Volume 11, Sheet 31
1983



Volume 11, Sheet 37
1983

1981 Source Sheets



Volume 11, Sheet 31
1981



Volume 11, Sheet 34
1981

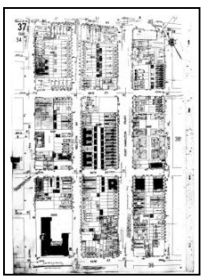


Volume 11, Sheet 37
1981

1980 Source Sheets



Volume 11, Sheet 31
1980



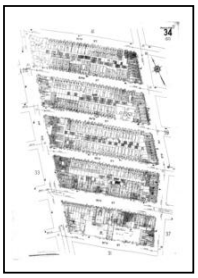
Volume 11, Sheet 37
1980

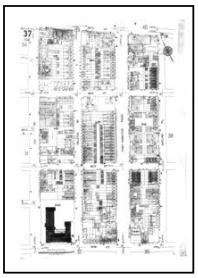
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1977 Source Sheets

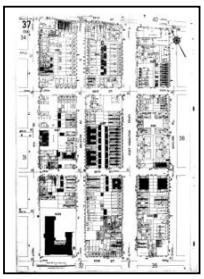

Volume 11, Sheet 31
1977


Volume 11, Sheet 34
1977

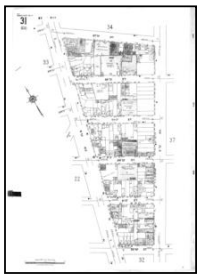

Volume 11, Sheet 37
1977

1969 Source Sheets


Volume 11, Sheet 31
1969


Volume 11, Sheet 37
1969

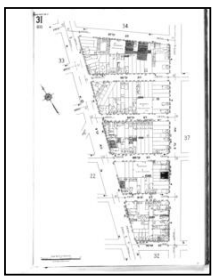
1950 Source Sheets


Volume 11, Sheet 31
1950

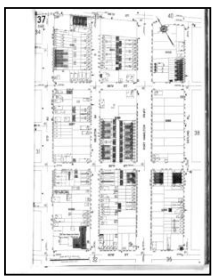

Volume 11, Sheet 34
1950


Volume 11, Sheet 37
1950

1926 Source Sheets


Volume 11, Sheet 31
1926

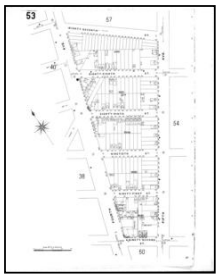

Volume 11, Sheet 34
1926


Volume 11, Sheet 37
1926

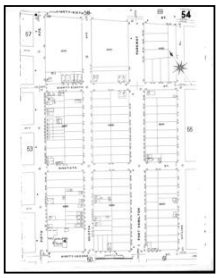
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1905 Source Sheets



Volume 11, Sheet 53
1905



Volume 11, Sheet 54
1905

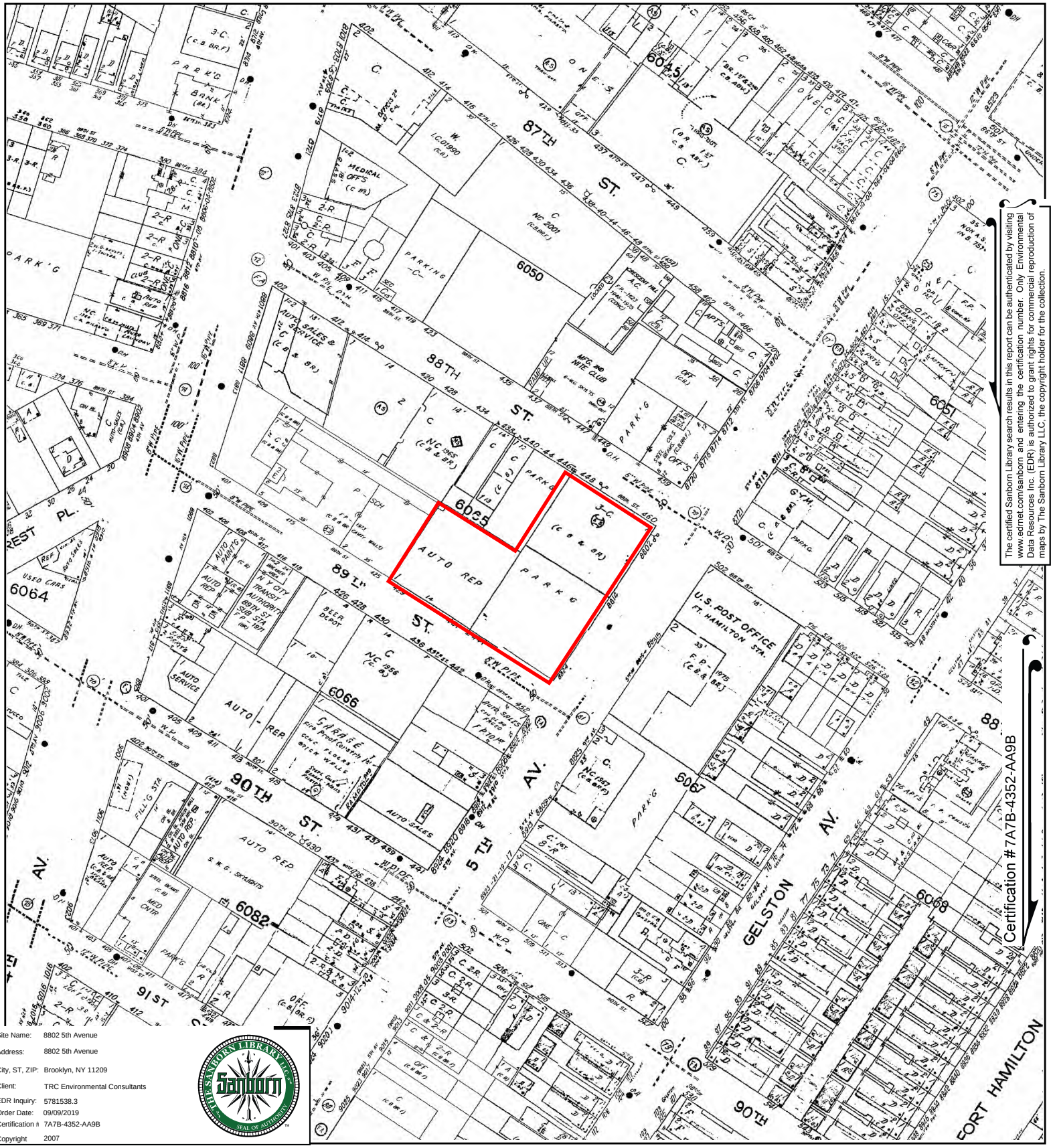
1893 Source Sheets



Volume A, Sheet 35
1893



Volume A, Sheet 36
1893

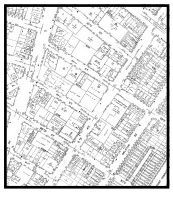


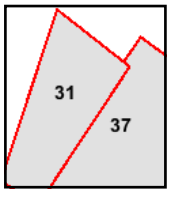
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Order Date:	09/09/2019
Certification #	7A7B-4352-AA9B
Copyright	2007

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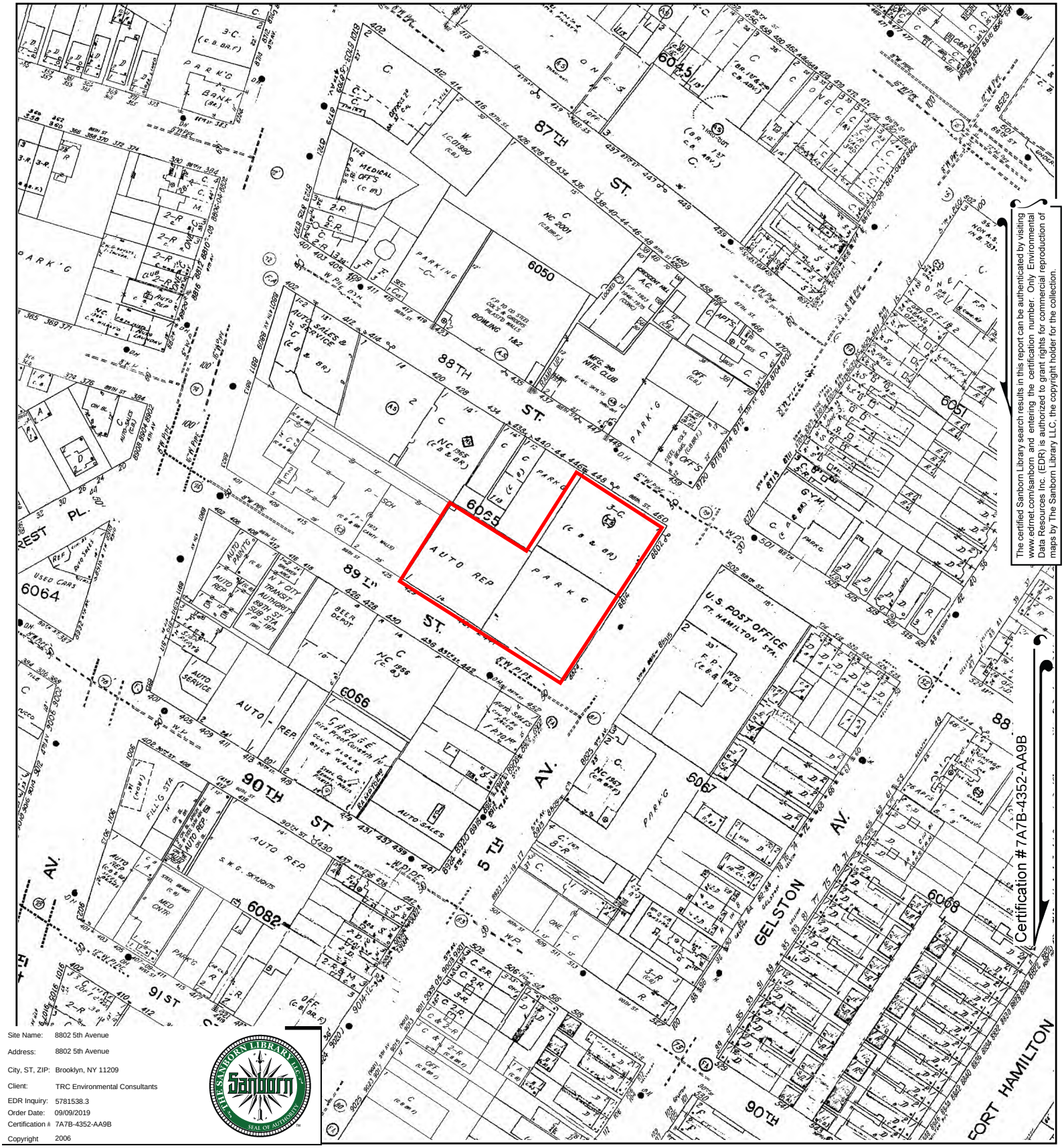
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Volume 11, Sheet 31
Volume 11, Sheet 37

N

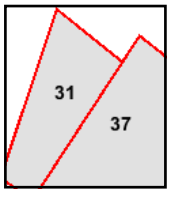


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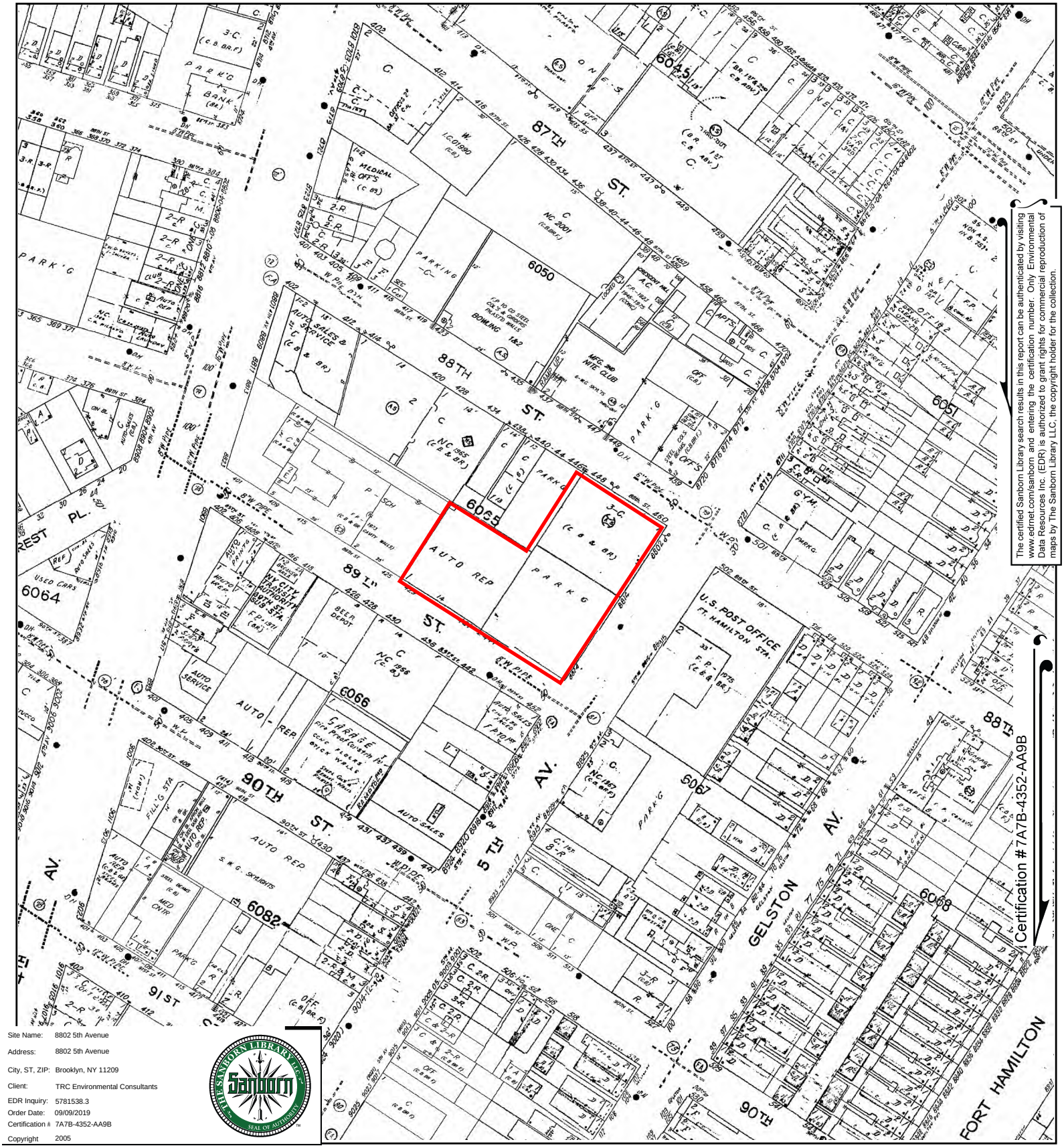




Volume 11, Sheet 37
Volume 11, Sheet 31

0 Feet 150 300 600

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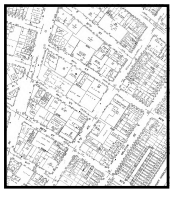


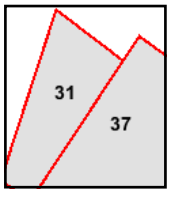
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Certification #	7A7B-4352-AA9B
Copyright	2005

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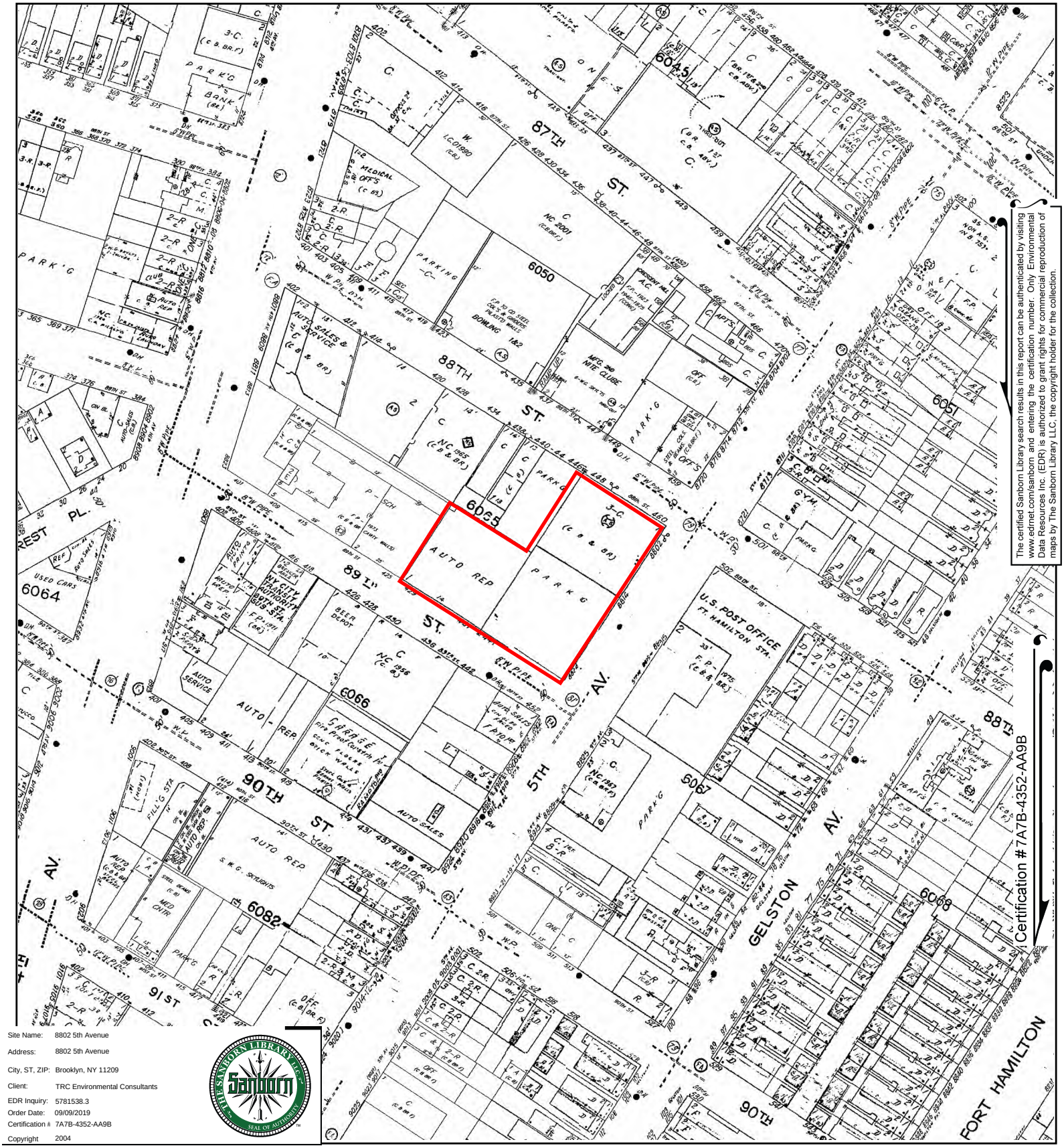
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Volume 11, Sheet 37
Volume 11, Sheet 31

N

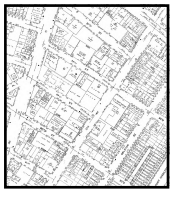


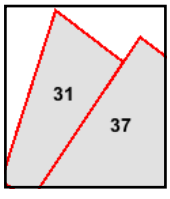
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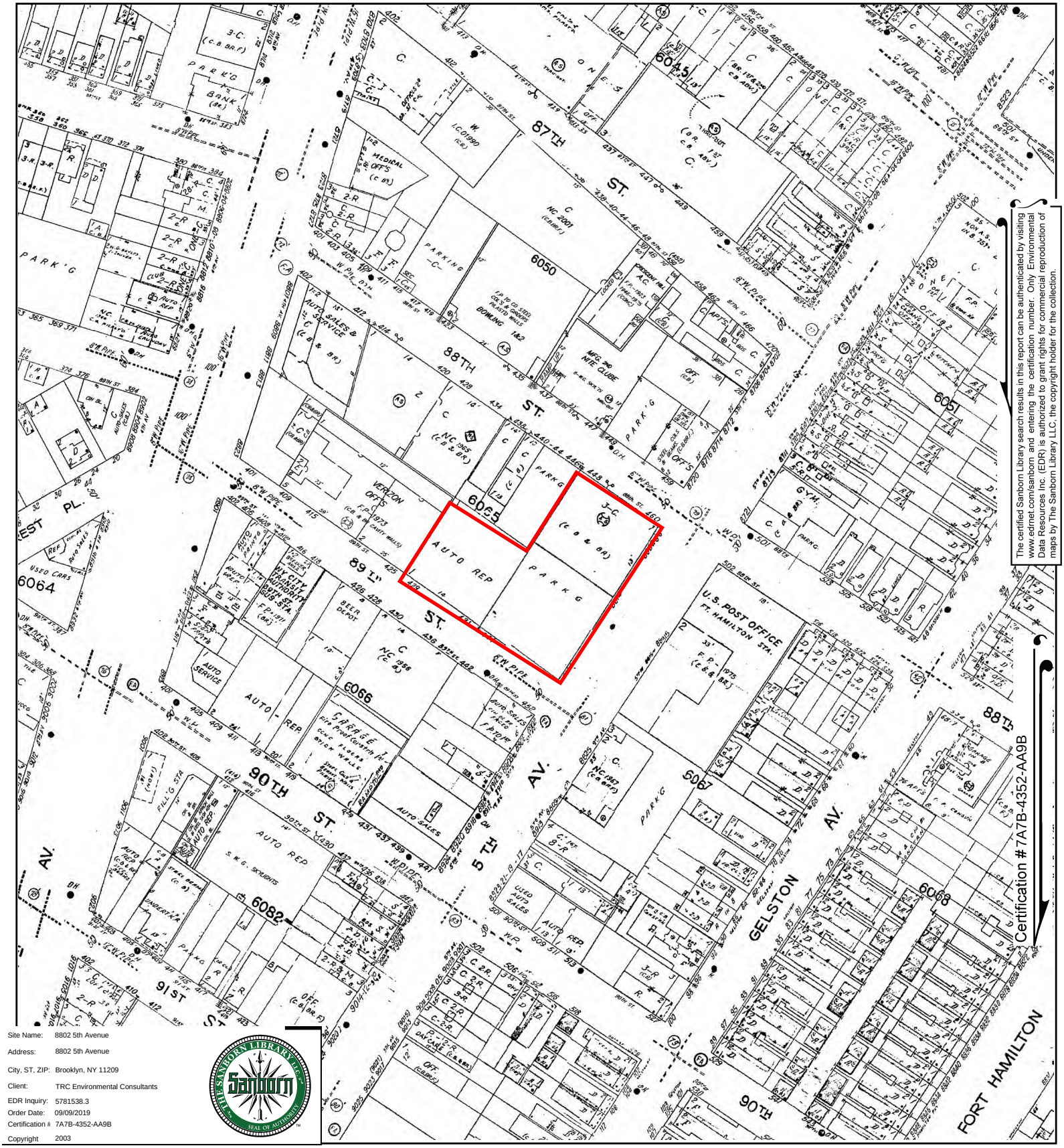
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Volume 11, Sheet 37
Volume 11, Sheet 31

N

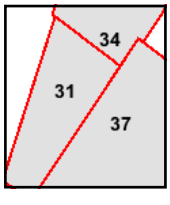


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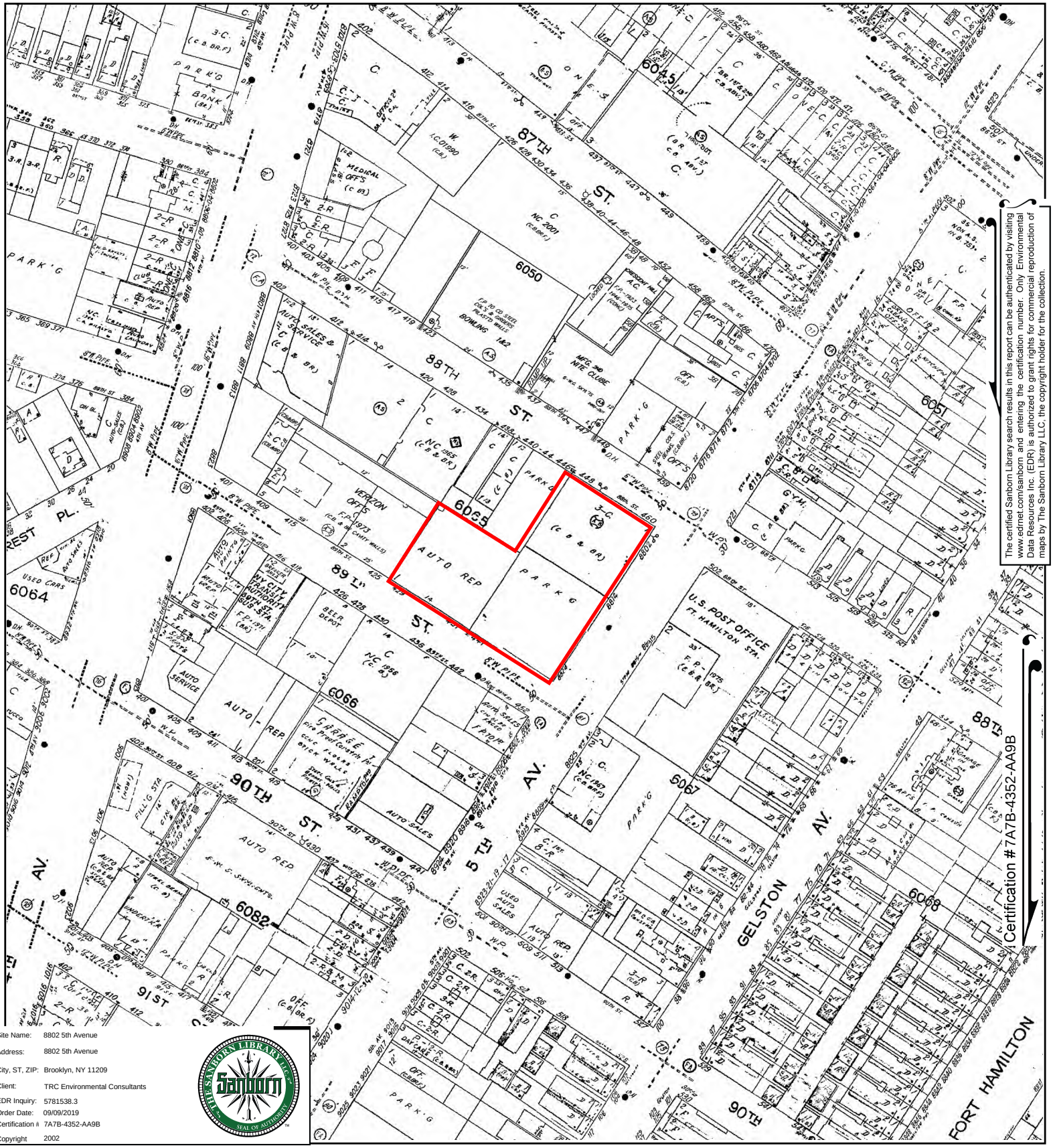




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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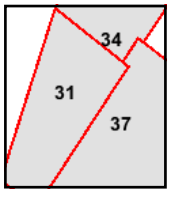


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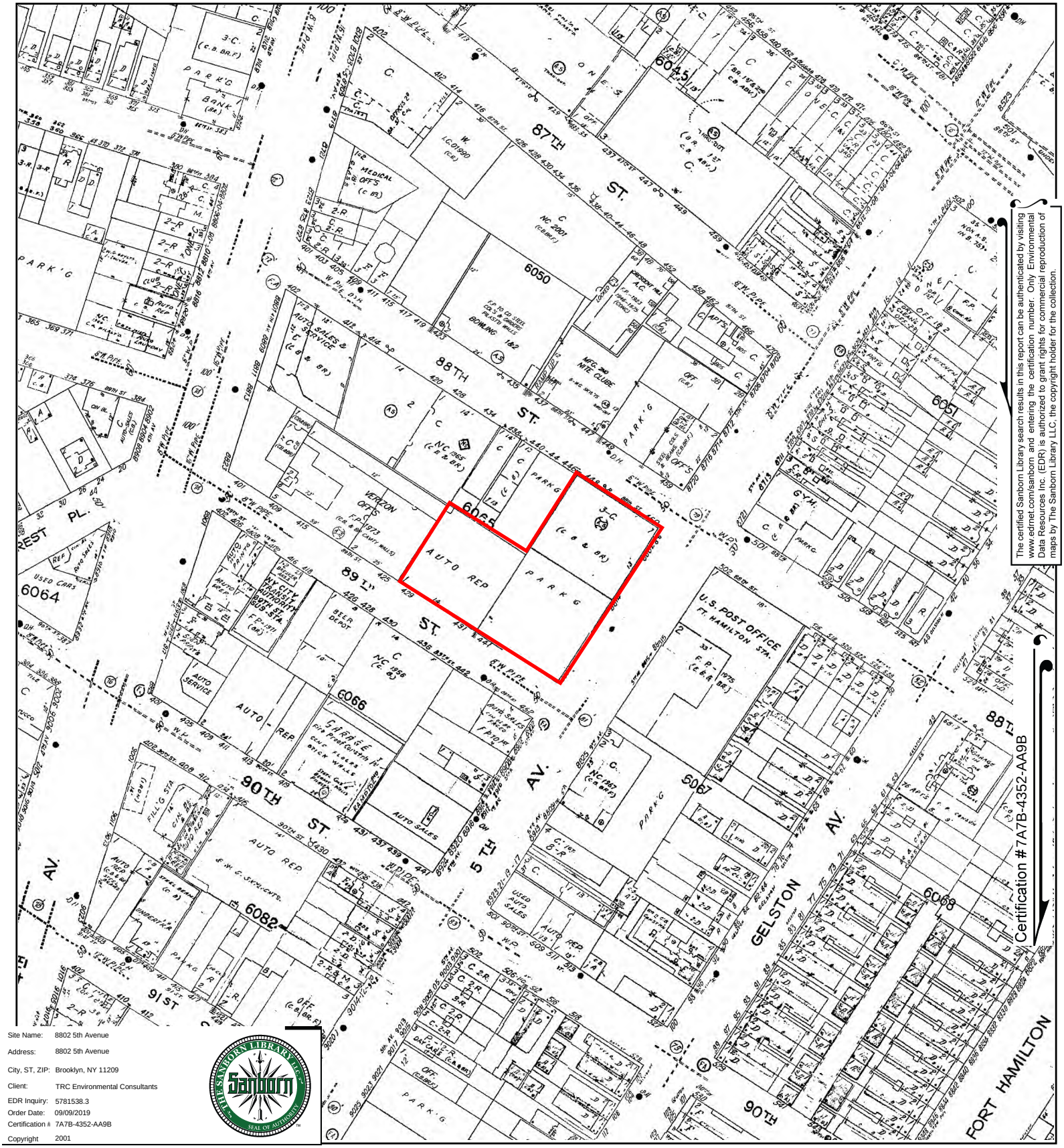




Volume 11, Sheet 31
Volume 11, Sheet 37
Volume 11, Sheet 34

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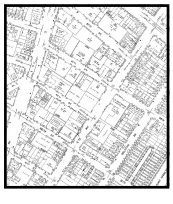


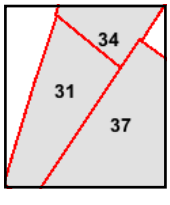
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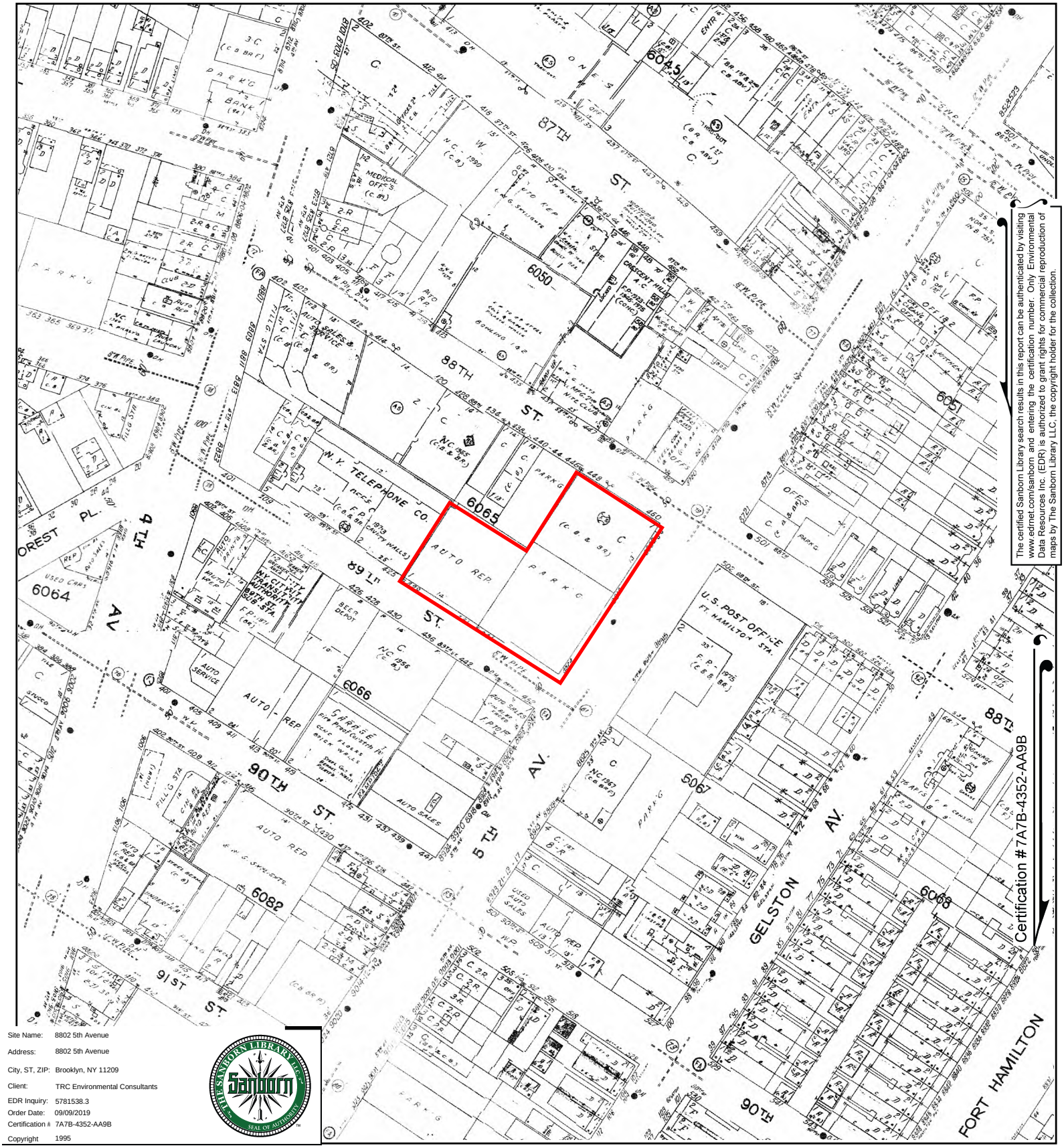
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Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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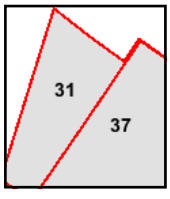


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Copyright	1995

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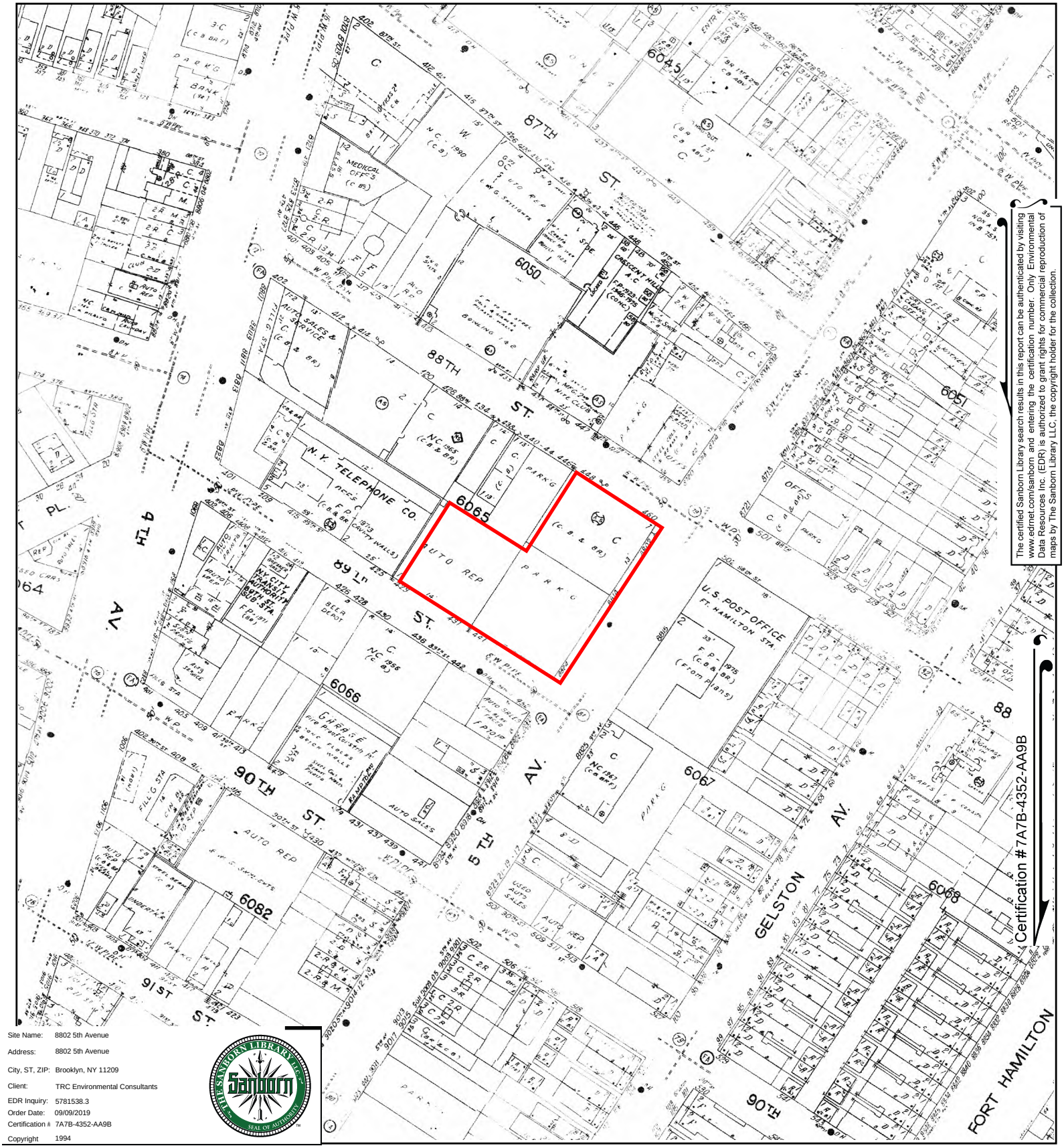




Volume 11, Sheet 37
Volume 11, Sheet 31
Volume 11, Sheet 37
Volume 11, Sheet 31

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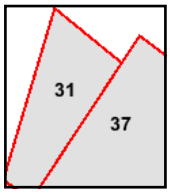
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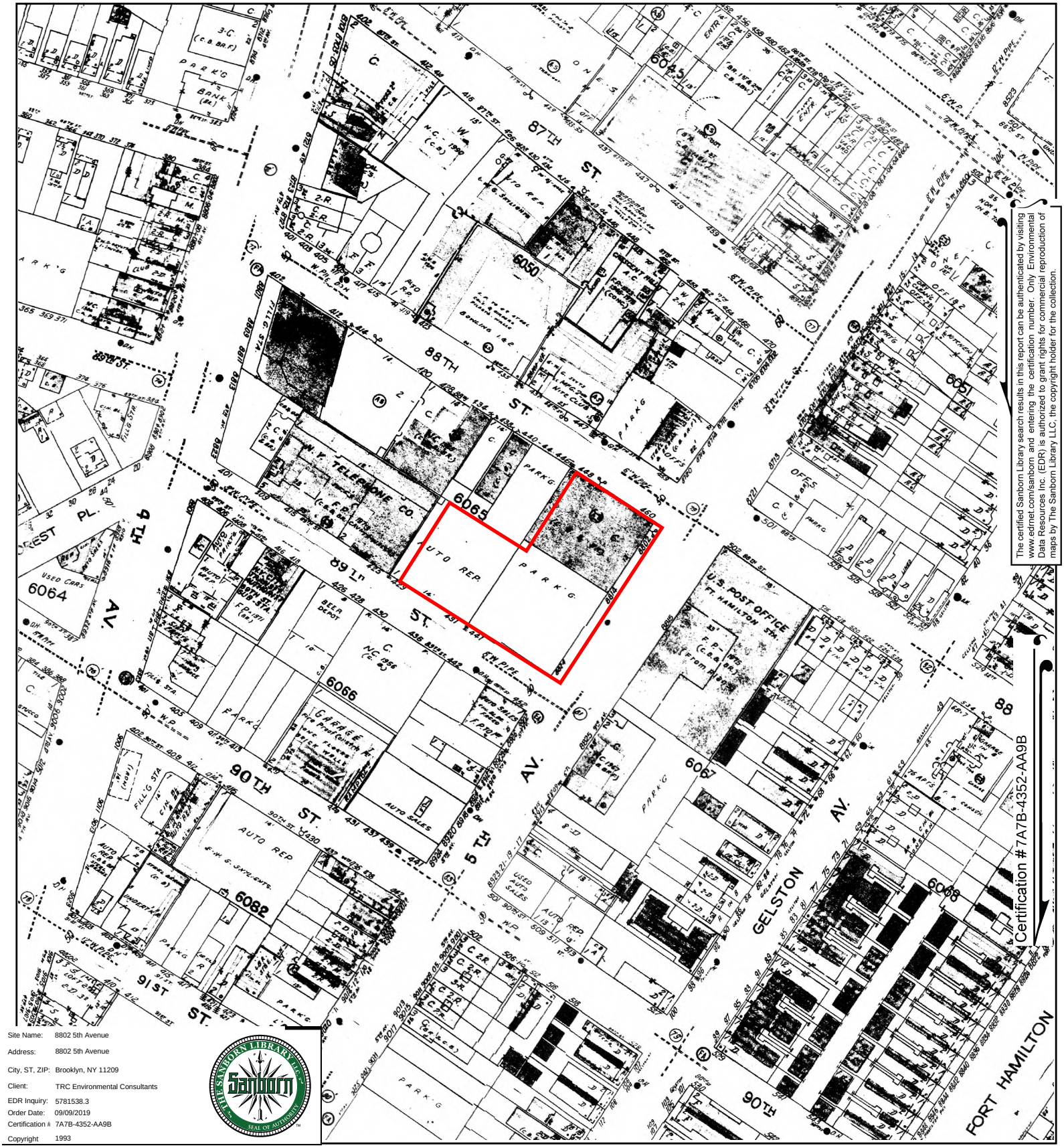
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Volume 11, Sheet 37
Volume 11, Sheet 31

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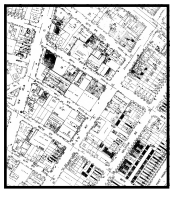


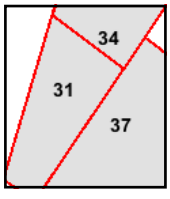
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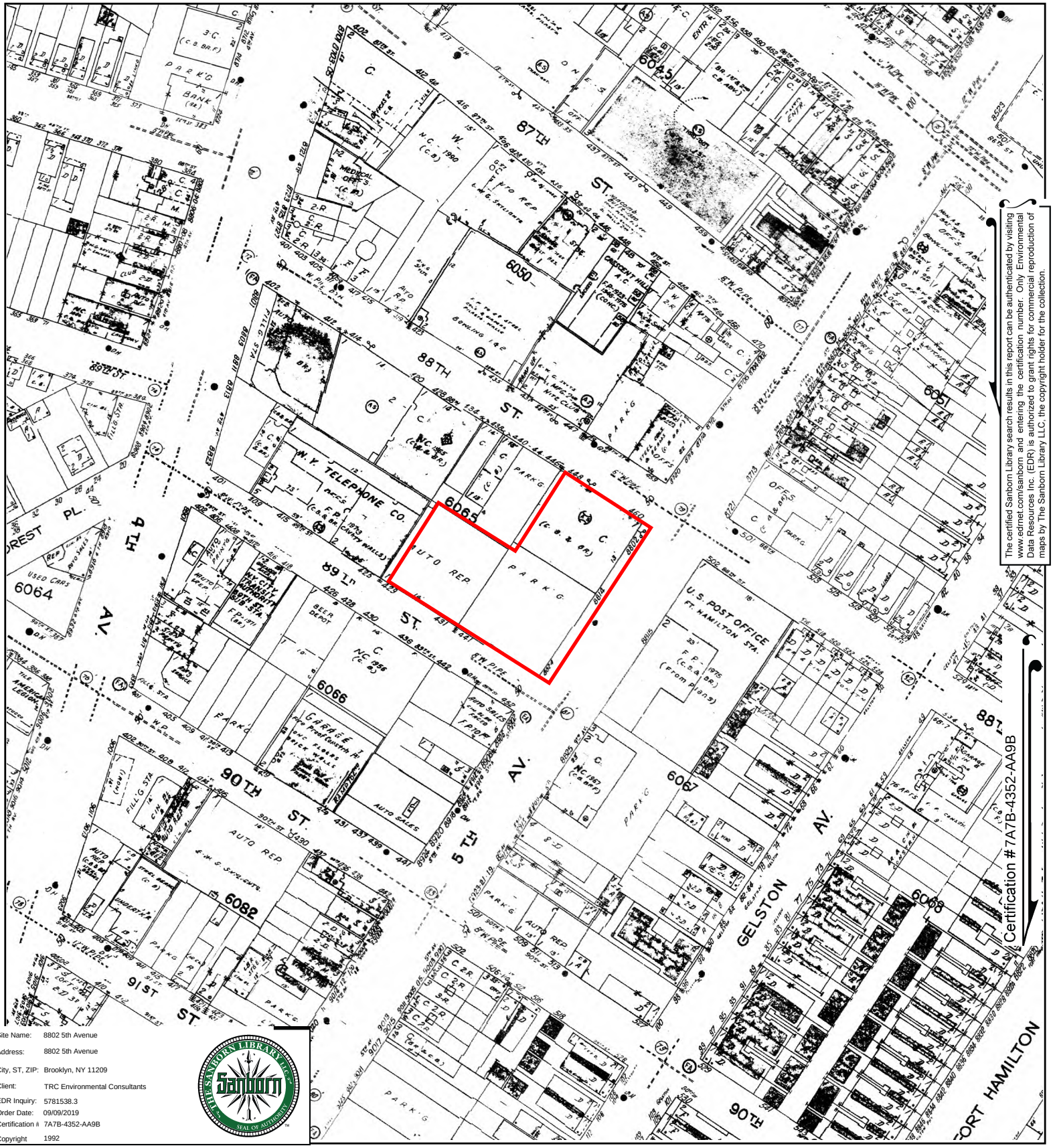
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Volume 11, Sheet 34
Volume 11, Sheet 31
Volume 11, Sheet 37

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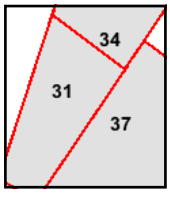


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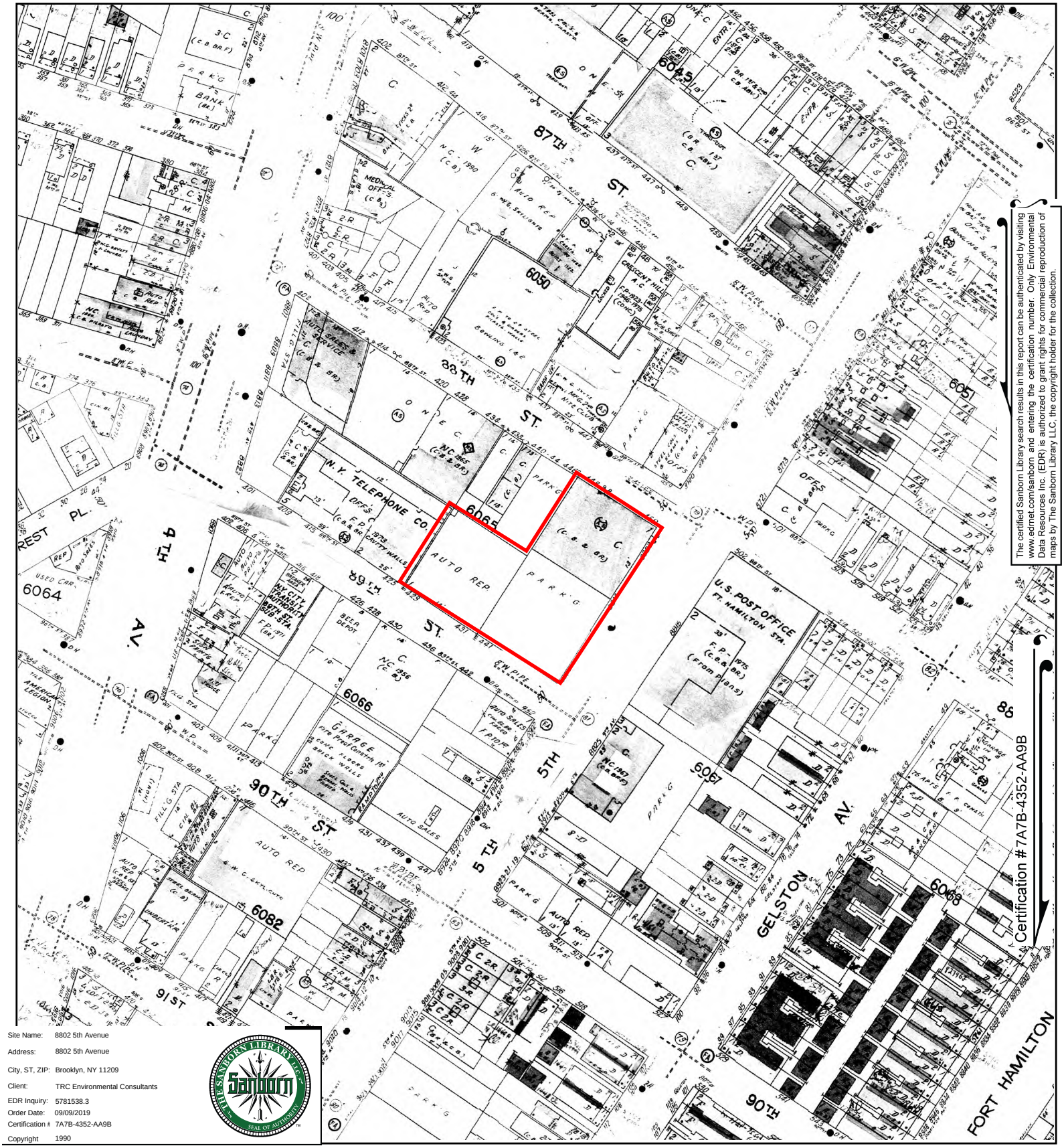




Volume 11, Sheet 34
Volume 11, Sheet 31
Volume 11, Sheet 37

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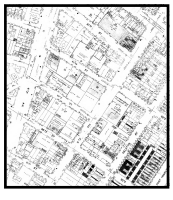


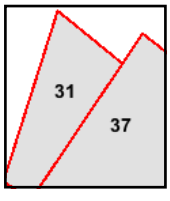
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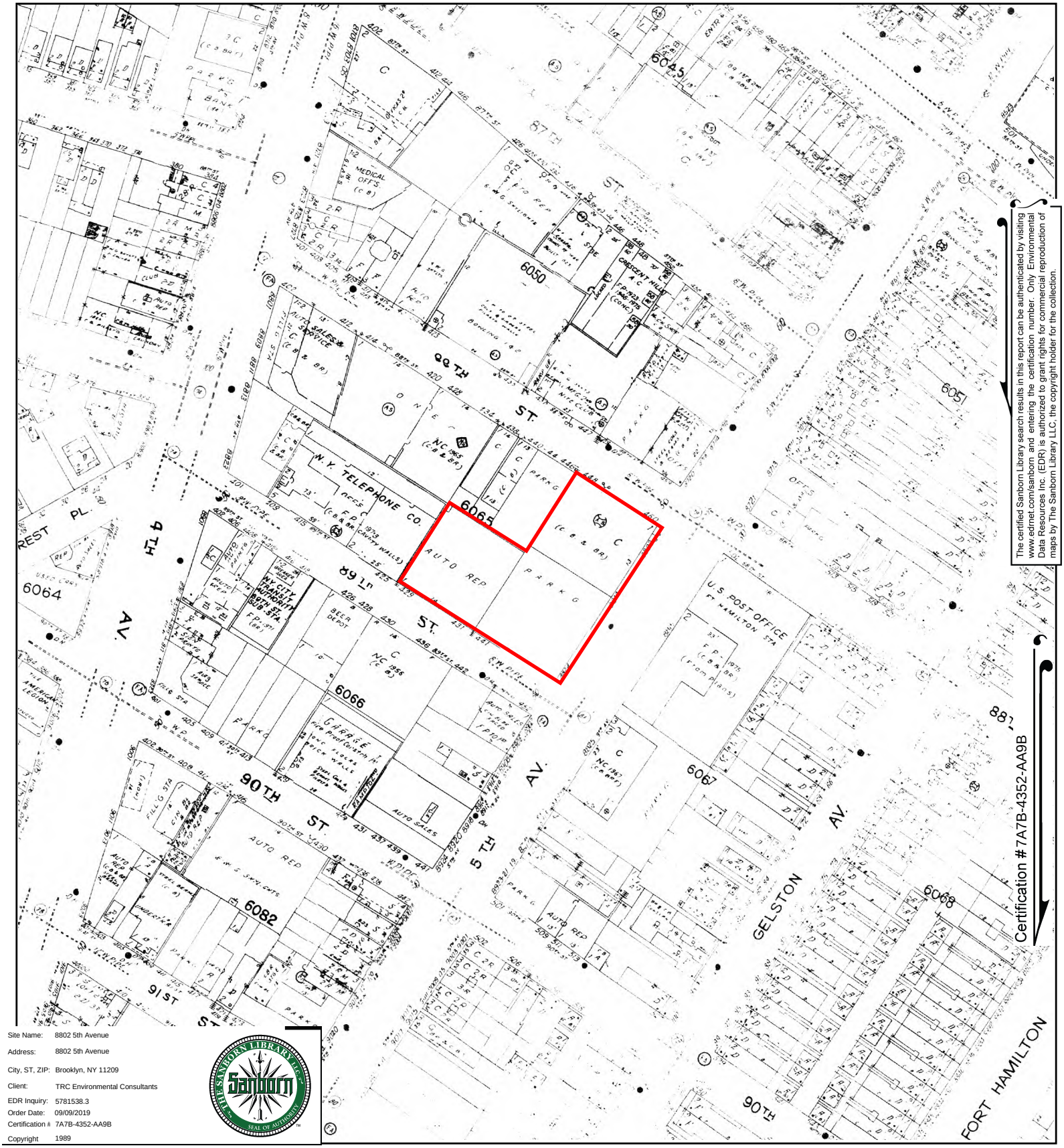
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Volume 11, Sheet 37
Volume 11, Sheet 31

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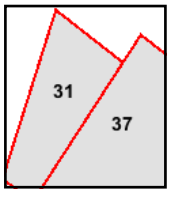


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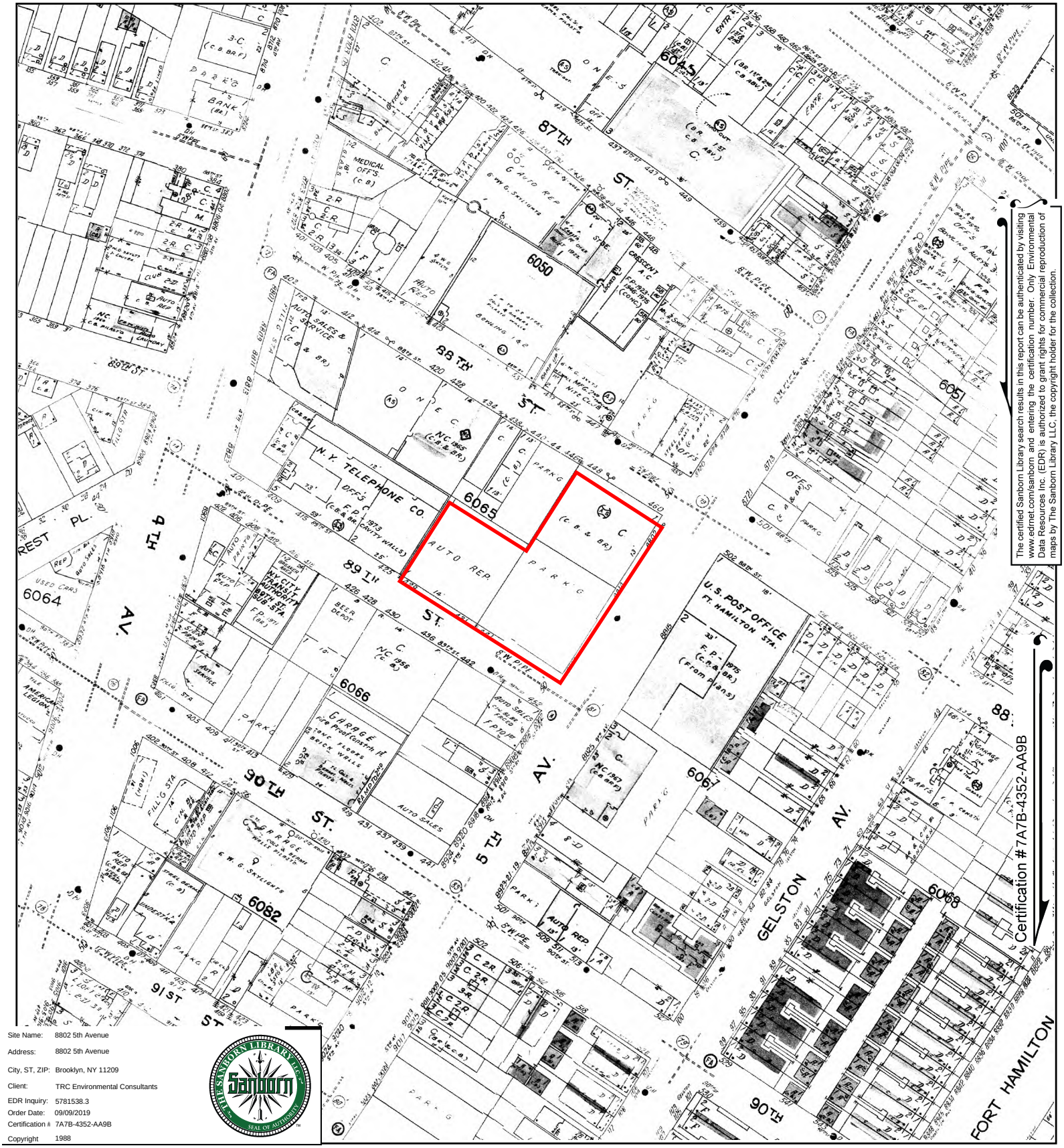




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Volume 11, Sheet 31

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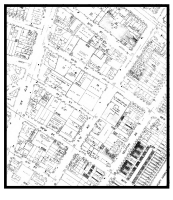


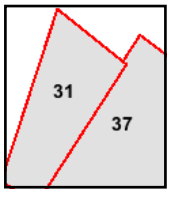
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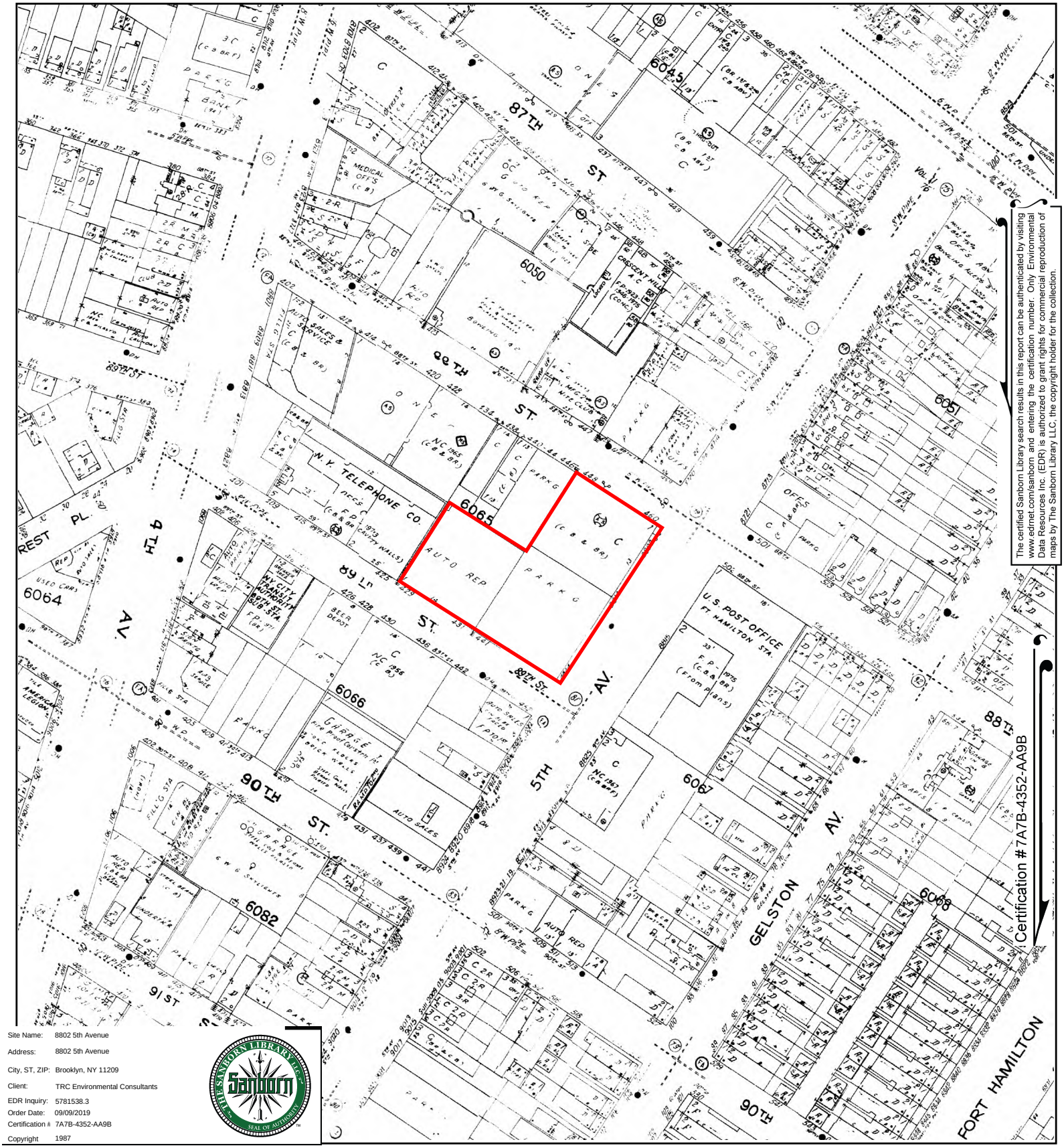
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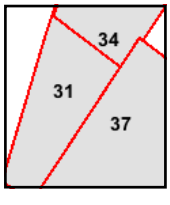


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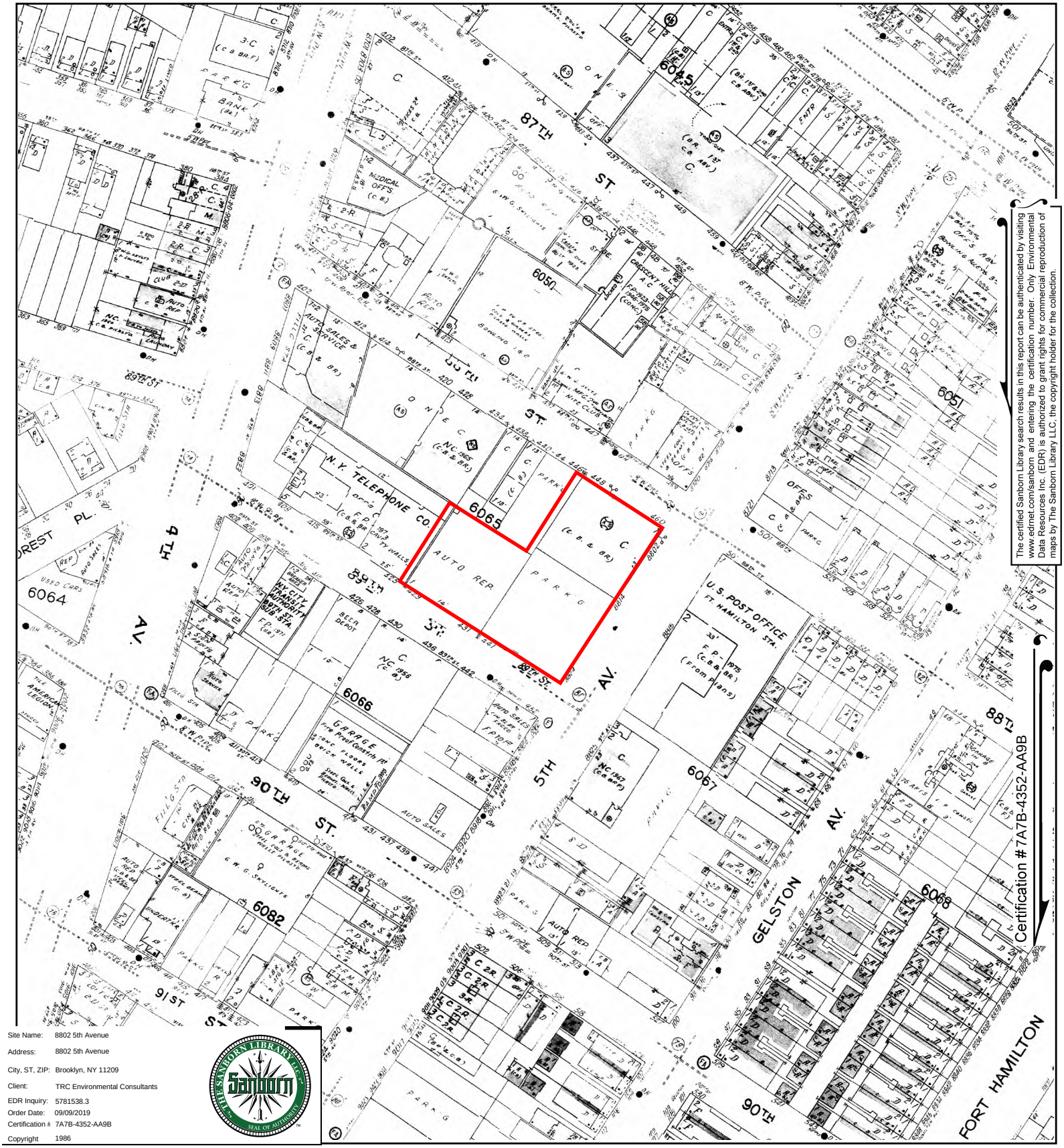
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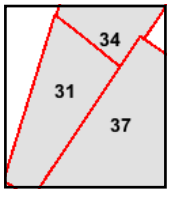


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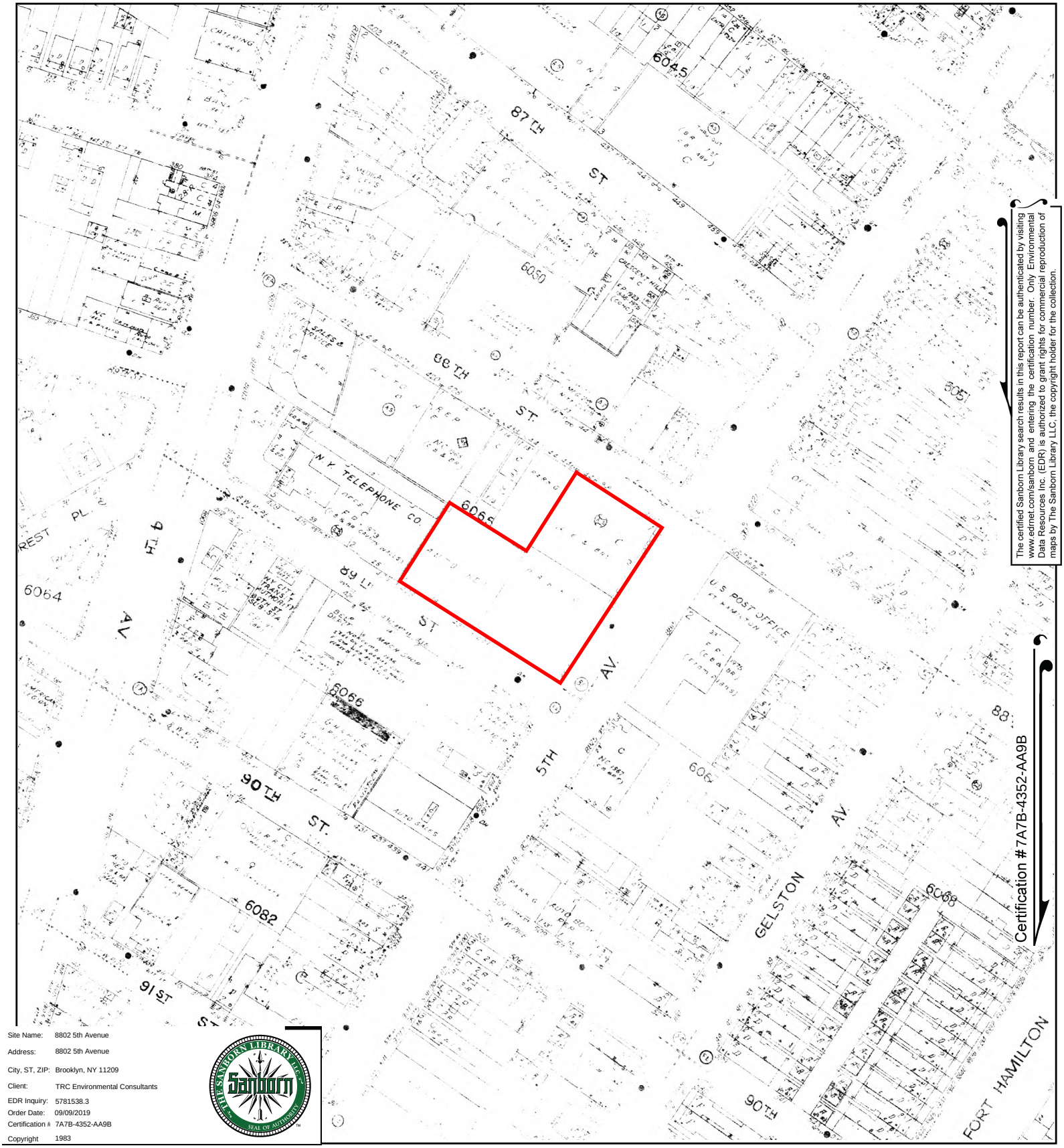




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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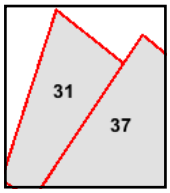


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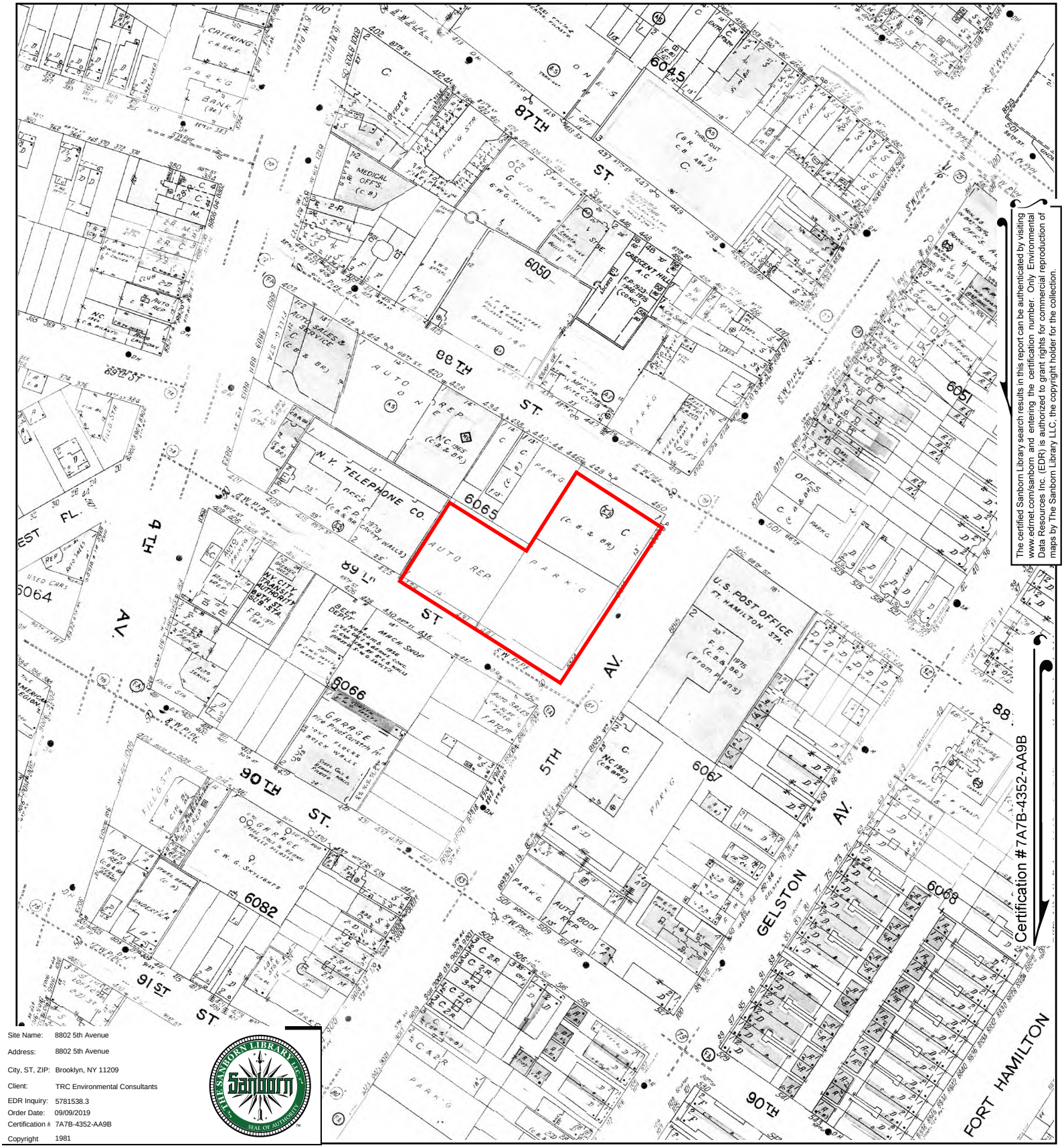




Volume 11, Sheet 37
Volume 11, Sheet 31

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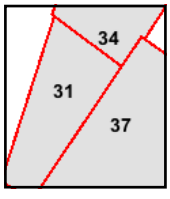


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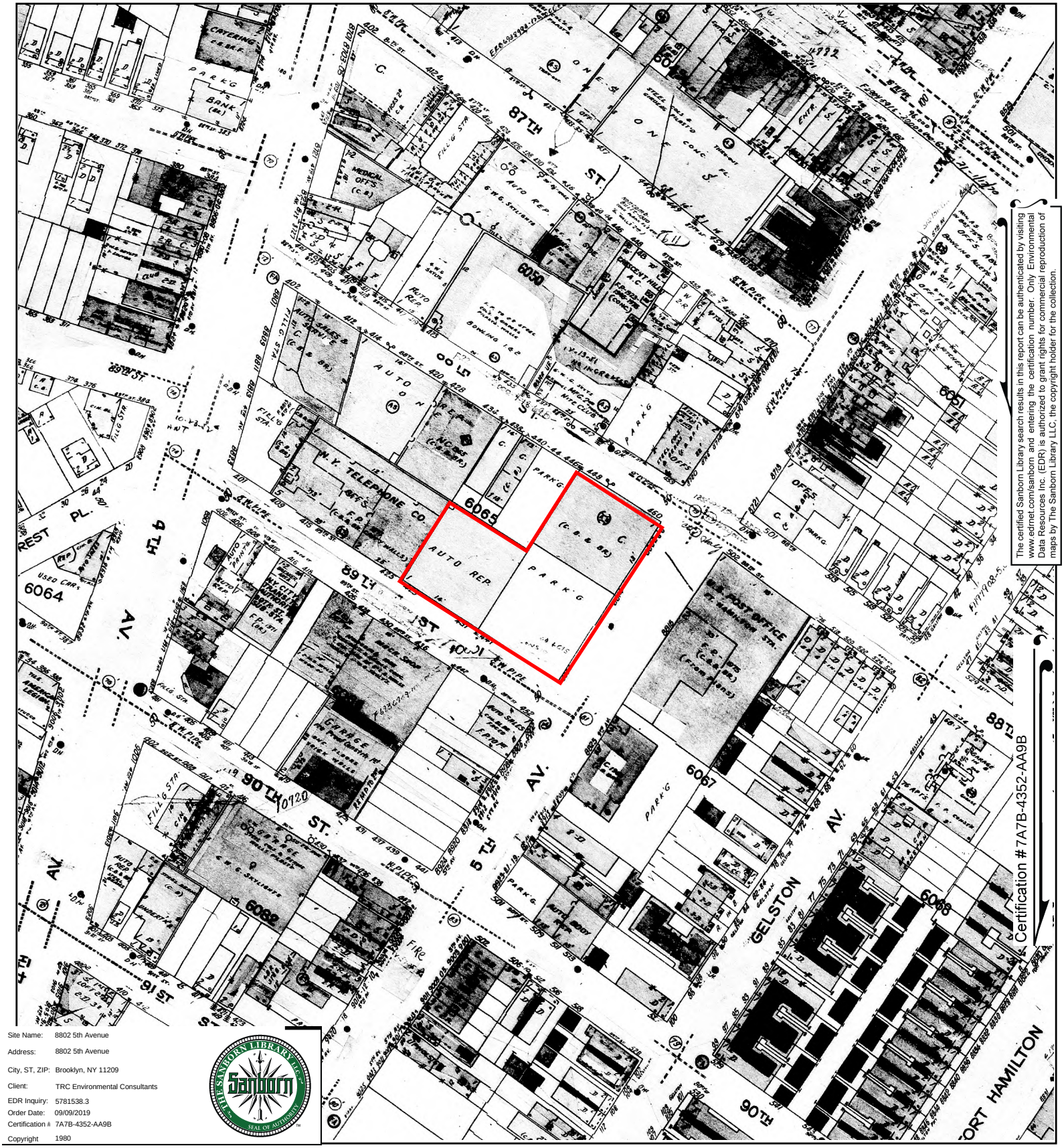




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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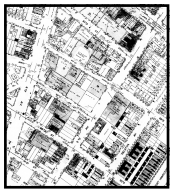


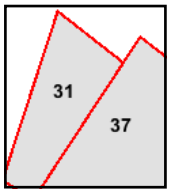
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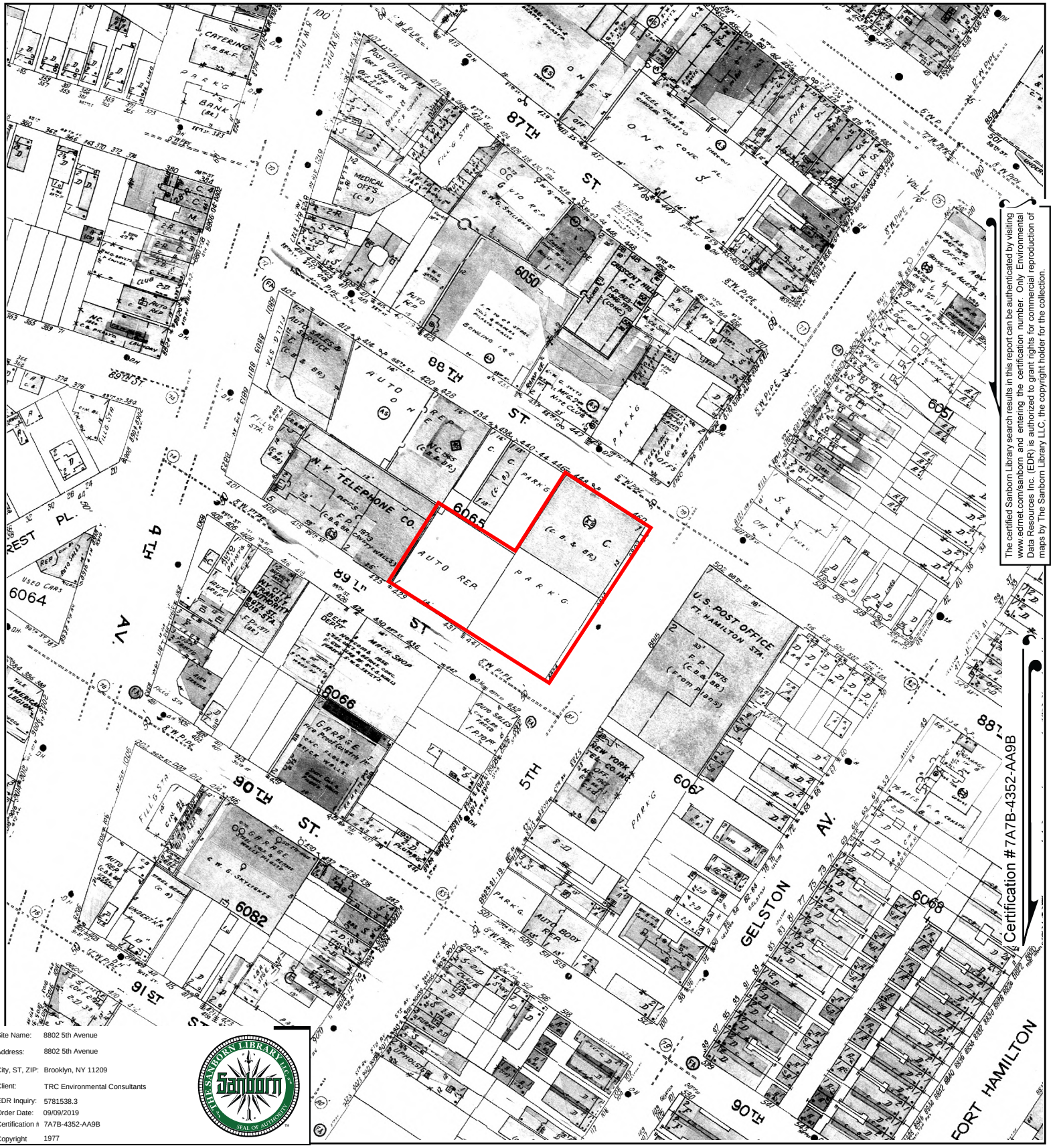
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Volume 11, Sheet 37
Volume 11, Sheet 31

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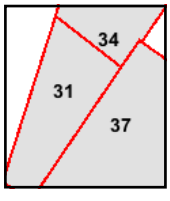


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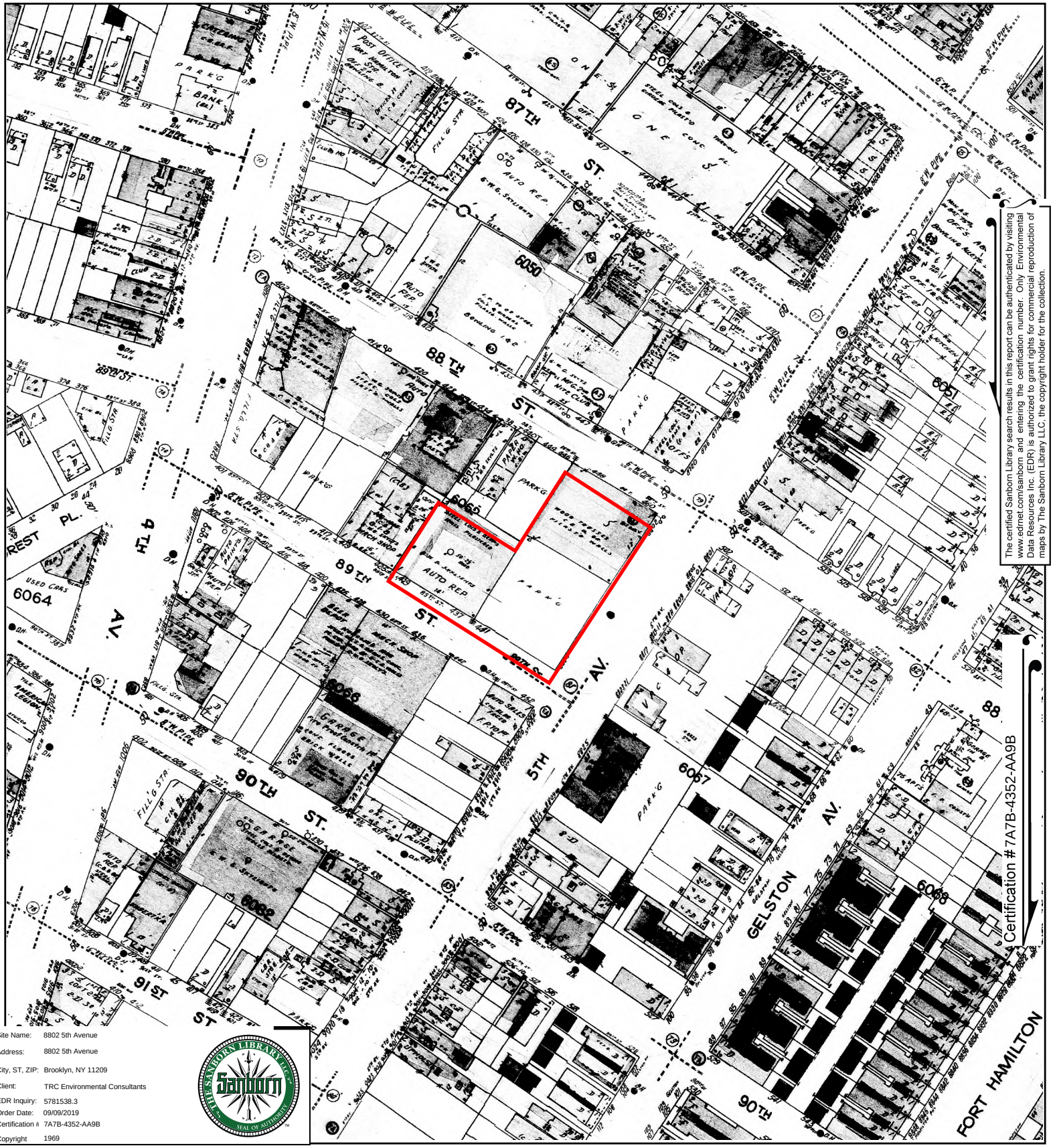




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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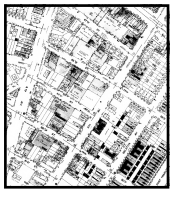


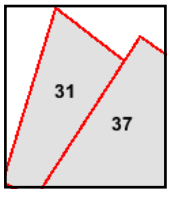
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Address:	8802 5th Avenue
City, ST, ZIP:	Brooklyn, NY 11209
Client:	TRC Environmental Consultants
EDR Inquiry:	5781538.3
Order Date:	09/09/2019
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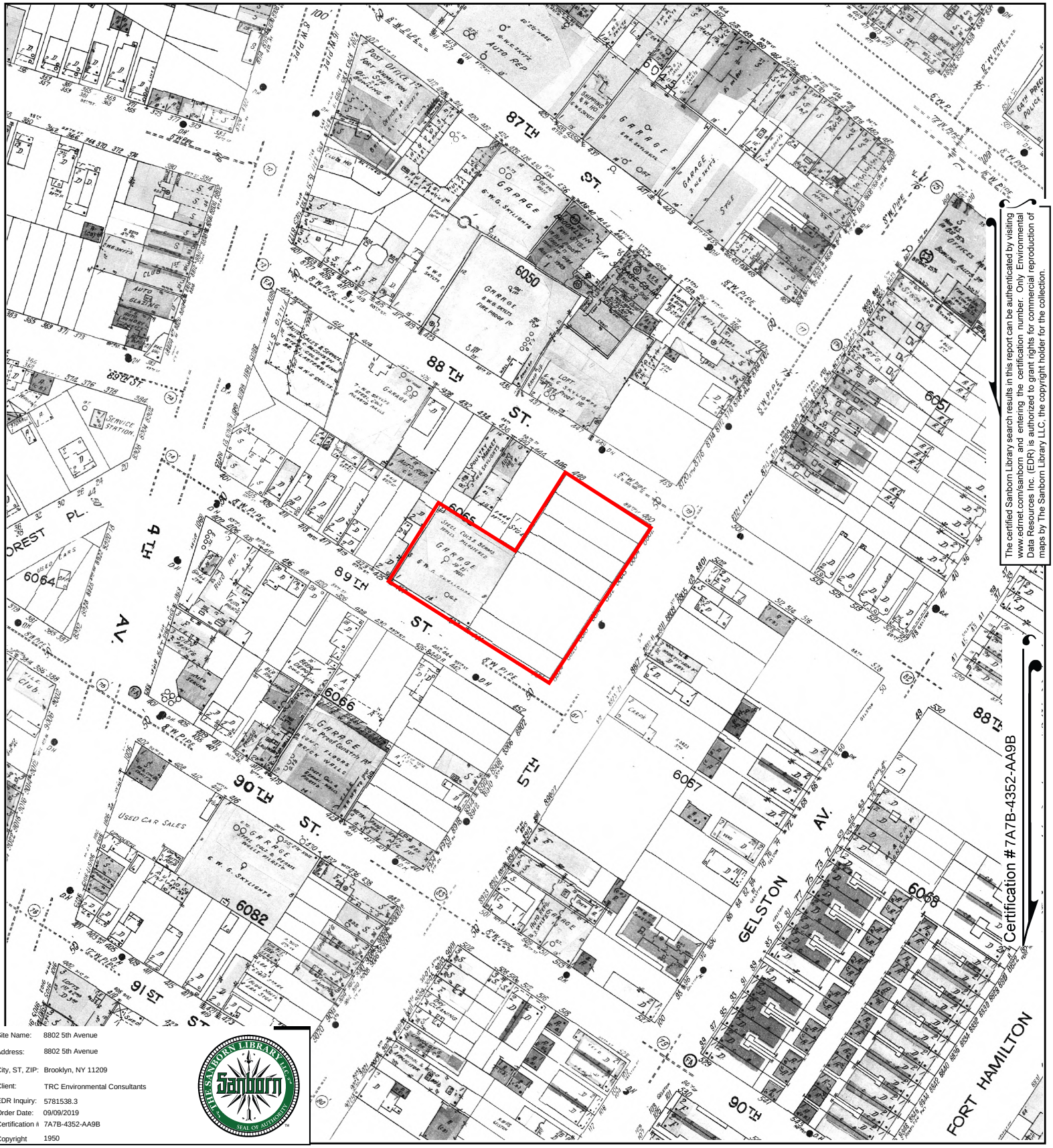
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Volume 11, Sheet 37
Volume 11, Sheet 31

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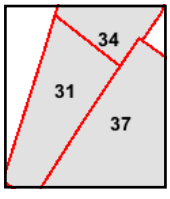


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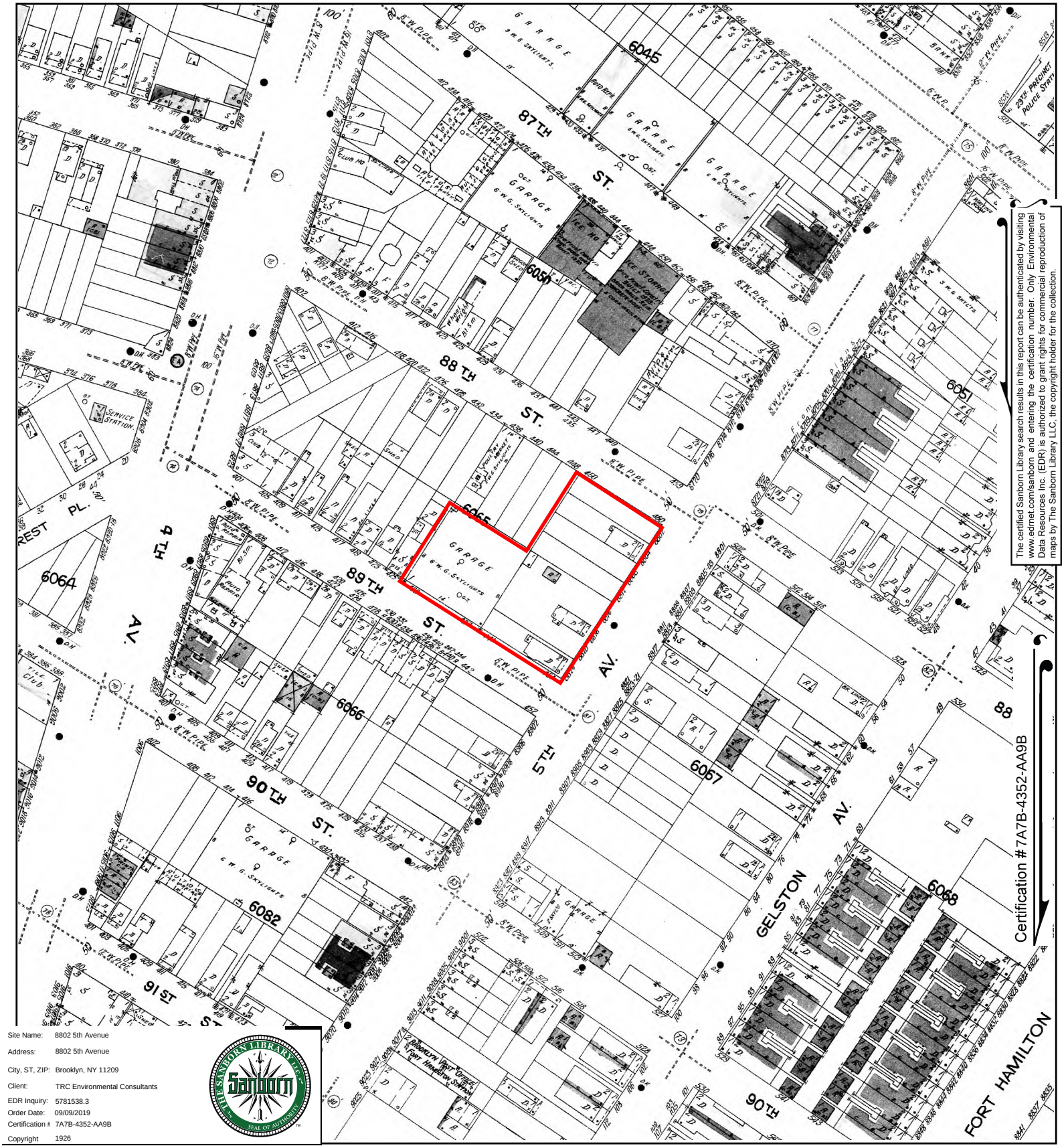




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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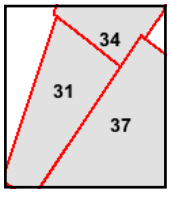
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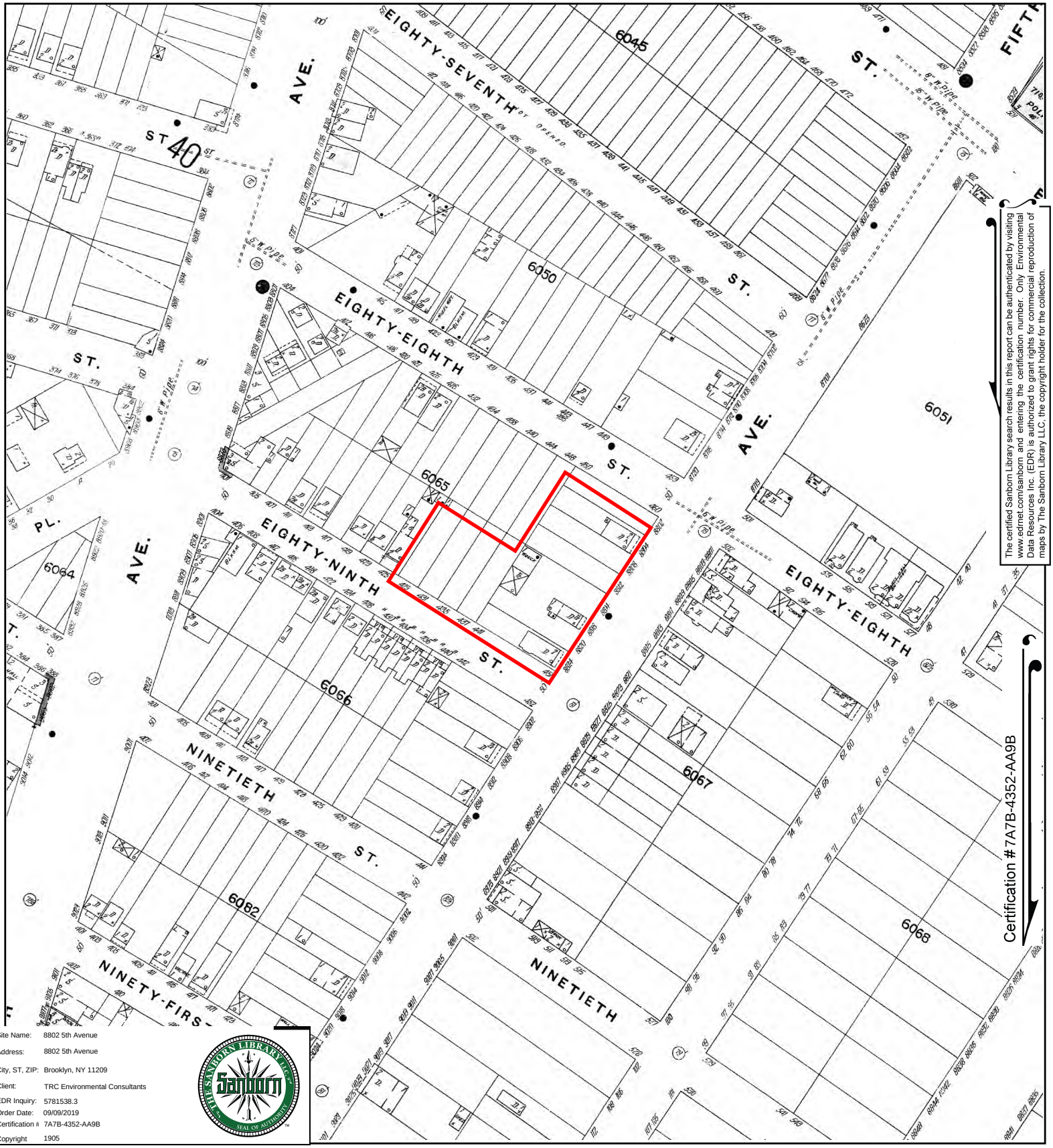




Volume 11, Sheet 37
Volume 11, Sheet 34
Volume 11, Sheet 31

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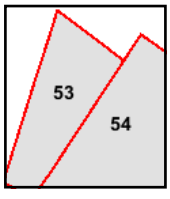


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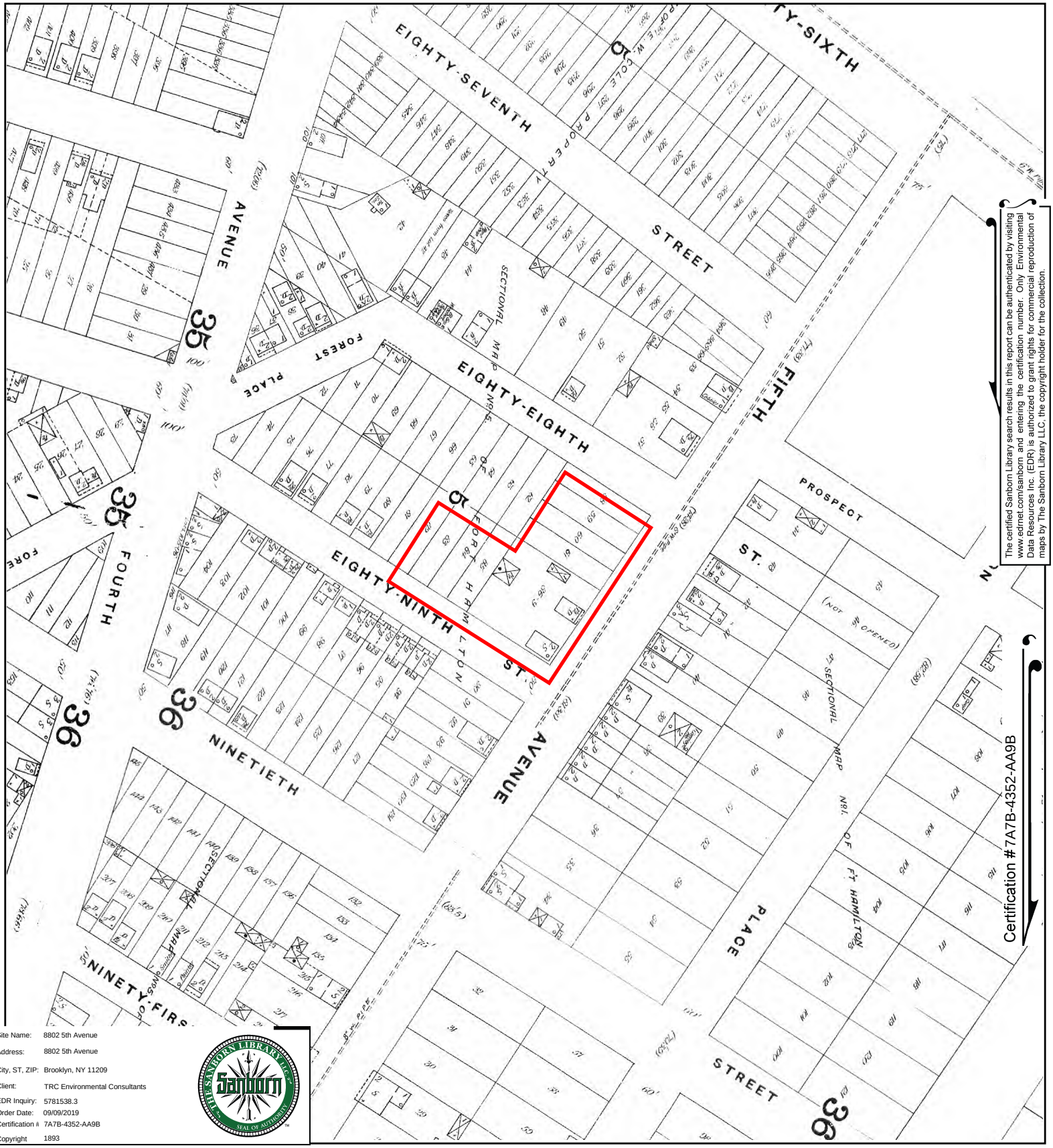




Volume 11, Sheet 54
Volume 11, Sheet 53

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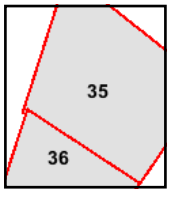
Certification #7A7B-4352-AA9B

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Address:	8802 5th Avenue
City, ST, ZIP:	Brooklyn, NY 11209
Client:	TRC Environmental Consultants
EDR Inquiry:	5781538.3
Order Date:	09/09/2019
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Volume A, Sheet 36
Volume A, Sheet 35

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APPENDIX G
COST ESTIMATE

Appendix G
Table 1
New York City School Construction Authority
Remedial Action Work Plan
8802 5th Avenue, Brooklyn, New York
Alternative 1 - Remediate to Achieve Unrestricted Use
Cost Estimate

Item	Quantity	Units	Unit Cost	Reference	Escalation	Unit Cost	Extended Cost	# Yrs - Future Costs	Present Value
CAPITAL COST - DIRECT									
HASP and CAMP Preparation and Implementation									
Prepare and Implement HASP and CAMP During Intrusive Remedial Actions	1	l.s.	$80,000	Allowance Based on Prior Experience	1.000	$80,000	$80,000	NA	$80,000
Soil Excavation and Backfill (Unrestricted SCOs)									
Mobilization and Site Preparation	1	l.s.	$20,000	Allowance Based on Prior Experience	1.000	$20,000	$20,000	NA	$20,000
Erosion and Sediment Control	1	l.s.	$20,000	Allowance Based on Prior Experience	1.000	$20,000	$20,000	NA	$20,000
Excavation, Transportation and Disposal (Non. Haz.)	12,500	ton	$100	Allowance Based on Prior Experience	1.000	$100	$1,250,000	NA	$1,250,000
Sheeting (Install, Remove, Salvage)	36,000	s.f.	$75	Allowance Based on Prior Experience	1.000	$75.00	$2,700,000	NA	$2,700,000
Confirmatory Samples (Analysis)	38	ea.	$200	Allowance Based on Prior Experience	1.000	$200	$7,600	NA	$7,600
Backfill (Place and Compact)	12,500	ton	$35	Allowance Based on Prior Experience	1.000	$35	$437,500	NA	$437,500
Backfill Samples (Analysis)	9	ea.	$750	Allowance Based on Prior Experience	1.000	$750	$6,750	NA	$6,750
TOTAL DIRECT COSTS									$4,521,850
CAPITAL COST - INDIRECT									
Engineering and Design (10%)									$452,185
Construction Phase Engineering Services (20%)									$904,370
Permits and Plans (5%)									$226,093
TOTAL INDIRECT COSTS									$1,582,648
TOTAL CAPITAL COSTS									$6,104,498
CONTINGENCY (20%)									$1,220,900
TOTAL PRESENT VALUE COST FOR ALTERNATIVE 1									$7,325,397

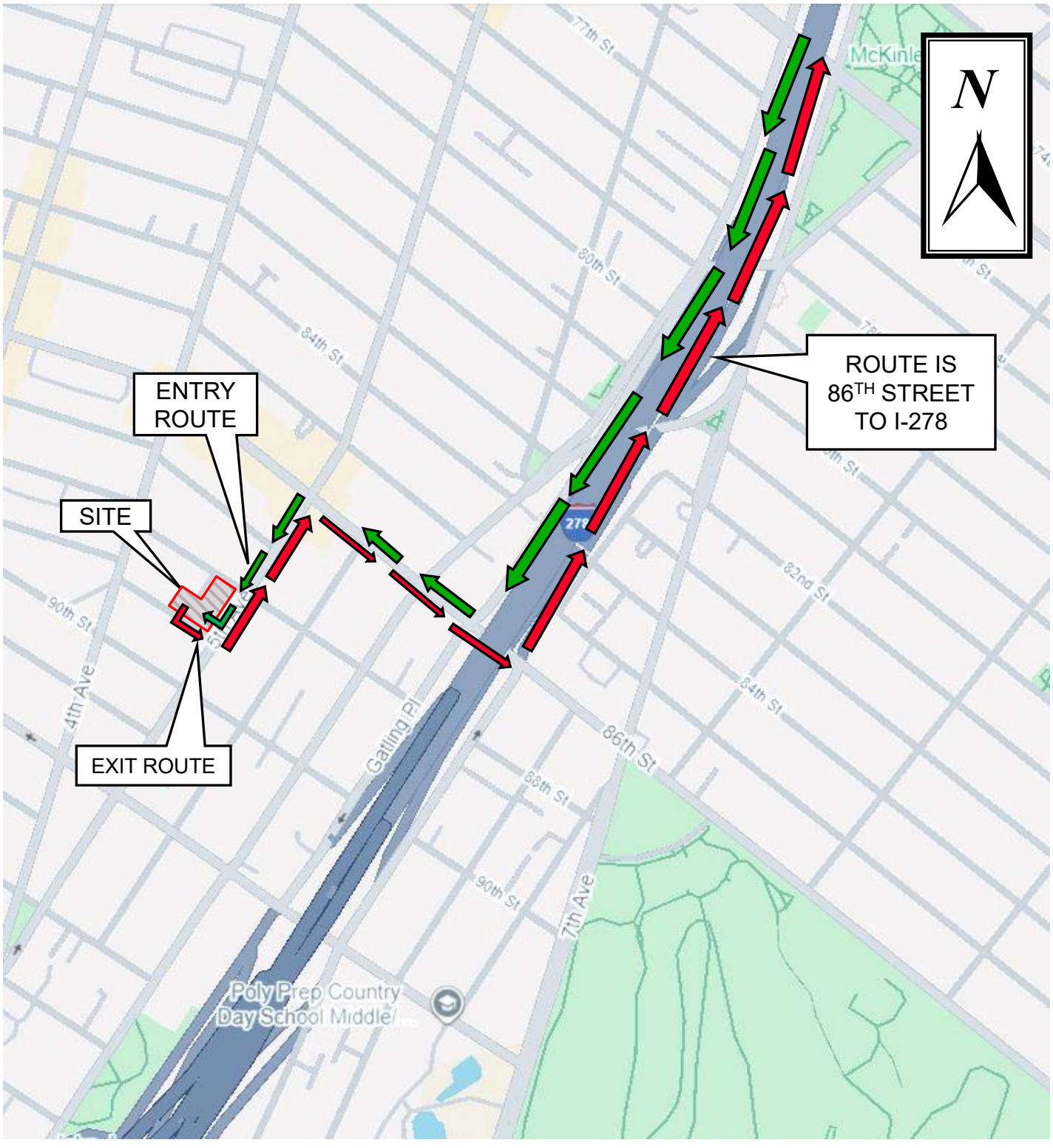
Notes
1. 7% discount rate used to calculate present value cost.
2. Cost estimate intended only for the purpose of determining relative cost in comparison to other alternatives.
3. Legal and administrative costs, such as costs for implementing Institutional Controls, are not included in cost estimate.
4. Excavation for basement construction and associated soil removal not included in estimated remedial alternative costs.
5. Sub-slab depressurization and gas vapor barrier are being installed as a standard NYCSCA practice to meet internal design protocals.
6. Periodic reviews only required for duration of groundwater monitoring.

Appendix G
Table 2
New York City School Construction Authority
Remedial Action Work Plan
8802 5th Avenue, Brooklyn, New York
Alternative 2 - Remediate to Achieve Restricted-Residential Use
Cost Estimate

Item	Quantity	Units	Unit Cost	Reference	# Yrs - Future Costs	Present Value
CAPITAL COST - DIRECT						
HASP and CAMP Preparation and Implementation						
Prepare and Implement HASP and CAMP During Intrusive Remedial Actions	1	l.s.	$40,000	Allowance Based on Prior Experience	NA	$40,000
Soil Excavation and Backfill						
Mobilization and Site Preparation	1	l.s.	$10,000	Allowance Based on Prior Experience	NA	$10,000
Erosion and Sediment Control	1	l.s.	$10,000	Allowance Based on Prior Experience	NA	$10,000
Excavation, Transportation and Disposal (Non. Haz)	2,500	ton	$110	Allowance Based on Prior Experience	NA	$275,000
Confirmatory Samples (Analysis)	16	ea.	$200	Allowance Based on Prior Experience	NA	$3,200
Backfill (Place and Compact)	2,500	ton	$40	Allowance Based on Prior Experience	NA	$100,000
Backfill Samples (Analysis)	2	ea.	$750	Allowance Based on Prior Experience	NA	$1,500
TOTAL DIRECT COSTS						$439,700
CAPITAL COST - INDIRECT						
Engineering and Design (10%)						$43,970
Construction Phase Engineering Services (20%)						$87,940
Permits and Plans (5%)						$21,985
TOTAL INDIRECT COSTS						$153,895
TOTAL CAPITAL COSTS						$593,595
FUTURE ACTIONS						
Periodic Reviews	1	l.s. (per year)	10,000	Allowance Based on Prior Experience	5	$41,000
TOTAL PRESENT VALUE OF FUTURE ACTIONS						
CONTINGENCY (20%)						$118,719
TOTAL PRESENT VALUE COST FOR ALTERNATIVE 2						$712,314

Notes
1. 7% discount rate used to calculate present value cost.
2. Cost estimate intended only for the purpose of determining relative cost in comparison to other alternatives.
3. Legal and administrative costs, such as costs for implementing Institutional Controls, are not included in cost estimate.
4. Excavation for basement construction and associated soil removal not included in estimated remedial alternative costs.
5. Sub-slab depressurization and gas vapor barrier are being installed as a standard NYCSCA practice to meet internal design protocals.

APPENDIX H
PROPOSED TRUCK ROUTE



REMEDIAL ACTION WORK PLAN – SITE TRUCK ROUTE

8802 5TH AVENUE AND 429 89TH STREET
BROOKLYN, NEW YORK
NYSDEC BCP SITE NO. C224327

TRC
1407 BROADWAY, SUITE 3301
NEW YORK, NEW YORK 10018

DATE	NOVEMBER 2025
DRAWING BY	ZS
PROJECT No.	630067
FIGURE No.	1

APPENDIX I
RESUMES OF KEY PERSONNEL

PHILLIP CASTELLANO, PE

YEARS OF ENVIRONMENTAL CONSULTING EXPERIENCE: 13

EDUCATION

Master of Civil Engineering, University of Delaware, May 2011

Bachelor of Civil and Environmental Engineering, Economics Minor, University of Delaware, May 2008

PROFESSIONAL REGISTRATIONS/CERTIFICATIONS

Professional Engineer, New York

AREAS OF EXPERTISE

Mr. Castellano has experience in the following general areas:

- Remedial Design
- Vapor Intrusion Mitigation System Design
- Remedial Construction Inspection/Oversight
- Environmental Site Assessment
- Remedial Investigation
- Underground Storage Tank Testing, Removal, and Closure
- Community Air Monitoring Program Implementation
- Groundwater Remediation
- Wastewater Treatment
- Computer Modeling
- Computer Aided Design (CAD)
- Data Analysis
- Groundwater/Soil Sampling
- Construction Dewatering Design and Permitting

Mr. Castellano possesses over 13 years of experience in environmental consulting and serves as a Project Manager based in TRC's New York City office. Mr. Castellano's experience includes preparing vapor mitigation designs for new school buildings and additions, sub-slab depressurization system (SSDS) pilot testing and retrofit design for existing structures, DOB NOW permitting for design tasks, tank closure investigation and design, construction oversight of environmental scope items, hazardous material disposal oversight and program support, professional engineering and remedial design services for sites in the NYSDEC Brownfield Cleanup Program (BCP), design and execution of waste characterization sampling programs, Phase II Environmental Site Investigations and other due diligence reporting, and managing/executing a variety of environmental sampling programs including groundwater, soil, soil vapor, and indoor air. Mr. Castellano has spent the majority of his 13+ years with TRC working on NYCSCA projects and has assumed progressively increasing responsibilities throughout that time on a wide variety of projects, particularly projects where mitigation/remedial design or professional engineering services are required.

REPRESENTATIVE EXPERIENCE (Descriptions marked with an asterisk (*) undertaken within the past three years)

New York City School Construction Authority, Environmental Scientist – Multiple Sites, New York*
Under consecutive on-call hazardous materials services contract with the New York City School Construction Authority (NYCSCA), Mr. Castellano has served as a project engineer and project manager for the design and inspection of construction of vapor intrusion mitigation systems for multiple New York City public schools. Mr. Castellano's responsibilities have included the design of sub-slab depressurization systems (SSDSs) and gas vapor barrier systems. Specific design tasks performed by Mr. Castellano have included drawing preparation, engineering calculations and coordination with architects and engineers. In connection with construction, Mr. Castellano's responsibilities have included submittal review, and performing inspections at critical milestones including: completion of construction of sub-slab depressurization pits and piping, pressure testing of piping, completion of construction of suction fans and instrumentation, completion of preparation of sub-grade for application of gas vapor barriers, and pilot testing prior to SSDS installation. Mr. Castellano has also been responsible for preparing inspection reports, preparing operation and maintenance manuals, identifying construction deficiencies, performing startup and testing of active SSDSs including sub-slab pressure field testing to verify performance of SSDSs, testing SSDS integration with the school Building Management Systems (BMSs) and Alarm Indication Stations (AIS) and biweekly inspections of in-progress SSDSs at active school buildings. Some recent projects Mr. Castellano has been associated with are Q508, K134, and M634 among others.

Mr. Castellano has served as project engineer for the design and permitting of several construction dewatering projects. Specific tasks performed by Mr. Castellano include assisting with the preparation of dewatering design drawings, the completion of New York State Department of Environmental Conservation (NYSDEC) Long Island Well and State Pollutant Discharge Elimination System (SPDES) permitting applications, the completion of New York City Department of Environmental Protection (NYCDEP) effluent quality and quantity approval applications, and coordination with NYSDEC and NYCDEP permit application reviewers. Additionally, Mr. Castellano has been involved with the review of dewatering submittals for projects under construction.
Mr. Castellano has previously provided, and is currently providing, professional engineering services for several NYCSCA projects in remedial programs under NYSDEC or NYCOER. In addition to the various vapor intrusion mitigation tasks noted above, Mr. Castellano also serves as the professional engineer of record for the various reporting tasks (Remedial Investigation Reporting, Remedial Action Work Plans, etc.) and is involved in the development, design, execution, and closeout of sites in these programs.

Mr. Castellano has served as project engineer and project manager for multiple remediation projects. Specifically, Mr. Castellano has prepared drawings and specifications for removal or closure of aboveground/underground storage tanks and removal of contaminated soil. Mr. Castellano has served as the field inspector/supervisor during excavation of hazardous and petroleum contaminated soil and aboveground/underground storage tank removals. Mr. Castellano has been responsible for review and processing of submittals, including Excavated Material Disposal Plans, Tank Closure Plans and Tank Closure Documentation. Mr. Castellano has also been responsible for the preparation of Tank and Spill Closure Reports.

Mr. Castellano has conducted Phase II Environmental Site Investigations for proposed New York City public school sites. Mr. Castellano's responsibilities have included oversight of geophysical and drilling activities, classification and screening of soil samples, collection of groundwater, soil and soil vapor samples, installation and development of groundwater monitoring wells, and the preparation of Phase II Environmental Site Investigation reports.

Mr. Castellano has been responsible for conducting indoor air quality (IAQ) assessments to evaluate the air quality at properties being considered for use as public schools and in existing school buildings. Mr. Castellano has been responsible for the collection of indoor and ambient air and sub-slab vapor samples

as well as completing the New York State Department of Health (NYSDOH) Indoor Air Quality Questionnaire and Building Inventory evaluation form.

Mr. Castellano has been responsible for oversight for the remediation of polychlorinated biphenyl (PCB) contaminated soil at five (5) New York City public school sites. Under the supervision of Mr. Castellano, PCB contaminated soils were excavated for off-site disposal. Mr. Castellano was also responsible for post-excavation soil sampling, overseeing backfilling of excavations, implementation of the community air monitoring plans and health and safety plans, daily site-activity reports, preparation of PCB remediation reports, and review of contractor invoices.

NYCO Environmental and Dewatering Corp. – Multiple Construction Projects – New York*
Mr. Castellano has been involved with the design and permitting for localized and site wide dewatering for new construction projects in New York City and Long Island. Specific tasks performed by Mr. Castellano include the preparation of dewatering design drawings, the preparation of dewatering design and sewer loading calculations, creating MODFLOW based simulations of groundwater flow during construction dewatering activities, the completion of NYSDEC Long Island Well and SPDES permit applications, the completion of NYCDEP effluent quality and quantity approval applications, the preparation of NYSDEC notice of non-jurisdiction applications, and coordination with NYSDEC and NYCDEP permit application reviewers. Additionally, Mr. Castellano has been involved with the review of dewatering submittals for projects under Construction.

Civic Builders – Multiple Charter Schools – New York, NY
Mr. Castellano prepared environmental design documents for the construction of new charter schools in New York, NY. As part of his responsibilities, Mr. Castellano prepared specifications and drawings for an SSDS and vapor barrier system. Mr. Castellano also provided active construction inspection services and performed milestone inspections to certify the SSDS installation at various charter schools, many of which were in remedial programs.

New York State Department of Environmental Conservation – Multiple Sites, New York*
Mr. Castellano serves as a Project Manager for services provided by TRC to the NYSDEC under a Superfund Standby (on-call engineering services) Contract. Currently, Mr. Castellano is serving as the Project Manager for the cleanup of a former solvent manufacturer, which will include multiple remedial systems such as air sparge/soil vapor extraction (AS/SVE) and a Permeable Reactive Barrier (PRB). Mr. Castellano also serves as project manager for an off-site soil vapor intrusion (SVI) program related to a BCP site in Buffalo, NY. Mr. Castellano led an SVI investigation effort for several off-site residences and businesses to evaluate whether soil vapor intrusion was occurring, and, if so, if mitigation would be required. Additionally, Mr. Castellano is also leading the pilot testing and design effort for sub-slab depressurization system (SSDS) installation for a structure adjacent to the BCP Site where the SVI investigation indicated mitigation would be required in accordance with the New York State Department of Health (NYSDOH) SVI matrices.

The Port Authority of New York & New Jersey – Goethals Bridge Replacement, Staten Island, NY and JFK International Airport, Queens, NY
Mr. Castellano is responsible for dewatering design and review of dewatering design and permitting submittals associated with JFK Airport Redevelopment work, including groundwater remediation systems. Additionally, Mr. Castellano is responsible for review of dewatering submittals required during JFK Redevelopment Construction including discharge monitoring reports, sentinel well monitoring logs, system startup monitoring, corrective action plans, and effluent sampling data.

Mr. Castellano was part of the team that performed an environmental site investigation in the wetland area adjacent to the Goethals Bridge, in support of the bridge replacement project. This project was unique in that site access and mobility were very limited, work activities and movement around the site were impacted by the tide, and impacts to the wetlands had to be minimized to the greatest extent possible. Mr. Castellano's responsibilities included oversight of geophysical and drilling activities,

classification and screening of soil samples, and collection of soil and groundwater samples. Mr. Castellano also assisted in the preparation of the Site Investigation Report.

Mr. Castellano also was responsible for the field implementation of groundwater remediation injection activities at multiple areas in and around JFK International Airport. Mr. Castellano was responsible for coordinating with subcontractors, setup, oversight, and monitoring of sodium lactate injection, and preparing daily site reports.

McLaren - Waterfront Structures East River Esplanade – New York, NY
Mr. Castellano served as project manager for the delineation of residual manufactured gas plant (MGP) contaminants during the redevelopment design of the East River Esplanade. Specific tasks included coordination of access to the esplanade, coordination with field staff and drilling subcontractors, and investigation reporting. Mr. Castellano also reviewed historic documentation related to the adjacent MGP Site and prepared design drawing notes, specifications, and an engineer's cost estimate for removal of residual MGP-impacted material.

SPECIALIZED TRAINING

- 40-Hour OSHA HAZWOPER Training
- 8-Hour OSHA HAZWOPER Refresher Training
- 8-Hour OSHA HAZWOPER Supervisor Training
- 10-Hour OSHA Construction Safety Training

JENNA RAUP

YEARS OF ENVIRONMENTAL CONSULTING EXPERIENCE: 15

EDUCATION

B.A., Chemistry; Minor, Environmental Science; University at Buffalo, SUNY, 2010

PUBLICATIONS

Raup, J., Eberle, M., Denly, E., Glass, D.S., Stefansky, J., Dyber, J., Scharf, B., Saucier, S., 2024. "A Conceptual Site Model for Per- and Polyfluoroalkyl Substance Water Supply Impacts in a Residential Community." Remediation Journal, 2024; 35:e70001 2024. https://doi.org/10.1002/rem.70001.

AREAS OF EXPERTISE

Ms. Jenna Raup has program management and technical experience in the following general areas:

- Quality Assurance and Quality Control
- Contract and Project Management
- Environmental Assessments and Investigations
- Underground Storage Tank Management
- Soil, Groundwater, and Soil Vapor Investigations and Remediation
- Vapor Intrusion Investigations and Remediation
- Potable Water Sampling and System Evaluation
- Data Management
- Regulatory Compliance
- Report Preparation
- Analytical Chemistry

Ms. Jenna Raup is an environmental consultant specializing in due diligence, site investigation, and remediation services. She is proficient at overseeing environmental site assessments and investigations, as well as project scoping, budgeting, and closeout. Ms. Raup also serves as a TRC Corporate Quality Leader. As a Quality Leader, Ms. Raup is responsible for ensuring the proper implementation of the requirements under the United State Environmental Protection Agency (USEPA)-approved Quality Management Plan (QMP), developing internal tools and guidance, conducting quality control audits and surveys, documenting Lessons Learned and conducting root cause analyses, and serving as a resource to develop project and team-specific quality procedures.

REPRESENTATIVE EXPERIENCE

NYCSCA Hazardous Materials Consulting Services, NYC – Program Manager

For nearly 13 years, Ms. Raup has provided environmental consulting services to the NYCSCA's IEH Division. In that time, she has managed an array of assignments including: due diligence (Phase I ESAs/Phase II ESIs/IAQs); design of remediation and mitigation systems to address environmental contaminants; petroleum storage tank investigations and closure designs; emergency responses related to blue water, water intrusion, and odors; product evaluations; preparation of cost estimates for remedial actions, remedial programs, and design implementation; construction-phase support; potable water supply system investigations and city-wide sampling; and, New York State Department of Environmental Conservation and NYC Mayor's Office of Environmental Remediation (OER) remedial sites. Ms. Raup is well-versed in federal, state, and local regulations pertaining to the assignments on this contract, and supports NYCSCA in navigating regulatory changes, as necessary. Since April 2018, she has served as the Program Manager, responsible for performance on the former and current 3-year on-call services contracts, contributing greatly by methodically and diligently training new staff on the requirements of the contract, and implementing quality control procedures to ensure responsive, high-quality service.

Accomplished under Ms. Raup's supervision during this timeframe include over 70 site inspections for potential lease spaces in Queens to support the 3-K and ACS lease properties programs, more than 100

Phase I ESAs, 50 IAQs, 20 Phase II ESIs, potable water system disinfection oversight and sampling at over 70 sites, inspections and closure reports for about ten tank systems, and ongoing construction-phase services for more than 20 capacity sites.

In addition, Ms. Raup worked with the IEH Division to modify due diligence templates to ensure that the documents facilitate adherence to current standards and NYCSCA protocols, and to improve efficiency and functionality. Although she is responsible for management of the contract, her role on this contract spans all technical and administrative needs. Ms. Raup performs technical reviews of all work products, and is responsible for the exceptional technical performance, which is a result of her programmatic vision and day-to-day hands-on involvement. Her long-standing relationships with NYCSCA staff form her understanding and approach to solving NYCSCA's problems as if they were TRC's, and her technical guidance to junior level staff ensure that the service provided by TRC is delivered consistently and at the highest quality.

NYSDEC Mahopac Business District Wells – Senior Project Manager
In response to New York State's emerging contaminant sampling initiative, monitoring wells at a State Superfund site in Mahopac, NY were sampled for emerging contaminants, revealing that the per- and polyfluoroalkyl substances (PFAS) perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are present in groundwater at the site. A survey of the surrounding area revealed that residential and commercial properties rely on private water supply wells for drinking water, and further, sampling of these wells identified PFOA and PFOS above the screening criteria. Ms. Raup led the PFAS Source Investigation in connection with the widespread PFAS contamination present in the 1/2 -mile area surrounding the Superfund Site. Since a precedent was not yet established for area-wide PFAS Source Investigations, Ms. Raup worked closely with the client, New York State Department of Health (NYSDOH), and TRC subject matter experts to develop a methodical investigative approach that would most efficiently identify potential PFAS sources and confirm links to area-wide contamination in support of a conceptual site model. Information review began as a desktop study of the historical uses of the area, public and private water supply and waste disposal infrastructure, use and/or storage of aqueous film forming foam (AFFF) in the area, and a review of the signature trends of PFAS compounds.

As a data management solution, Ms. Raup worked with TRC's GIS team to create a digital, accessible, and georeferenced database repository to facilitate real-time mapped updates for the client and NYSDOH throughout the project in the form of a project-specific and secure GIS Viewer. Informational layers in the viewer included the following information: private well sampling and mitigation records; sewer maps; public water supply maps and connections; and potential PFAS sources and proposed sampling locations. The Viewer afforded the project team the ability to download datasets, generate formatted and customized figures on demand, and visualize the sampling progress throughout the area.

Ms. Raup also designed and implemented subsurface investigations at twelve sites identified as potential PFAS sources. Investigations consisted primarily of targeted overburden soil and groundwater sampling, as well as surface water and sediment sampling at State Pollutant Discharge Elimination System (SPDES) outfalls and throughout the nearby surface water body (Lake Mahopac). Sampling of Lake Mahopac also included collection of fish via electroshocking methods. The results of the PFAS Source Investigation are being compiled in a final report that will be available to the public and will inform the next steps of NYSDEC and NYSDOH on the area-wide issue. Ms. Raup also managed the public outreach effort throughout the project by collaborating with the NYSDEC and NYSDOH on regularly circulated community update bulletins, brochures on alternative water supplies, educational pieces on the efficacy of activated carbon, website content development, communication with community members through a dedicated email, and management and execution of a public availability session.

Confidential Client, Buchanan, NY – Senior Project Manager
In support of decommissioning of the nuclear power generation facility, to satisfy requirements of the Order on Consent and Administrative Settlement between Holtec Decommissioning International LLC and NYSDEC, Ms. Raup prepared and received NYSDEC's approval of a Remedial Investigation (RI) Scoping Work Plan (SWP). The SWP was prepared by touring the facility, interviewing knowledgeable site representatives, reviewing environmental databases and historical maps/aerial photographs, and

reviewing nearly 50 years of environmental documentation for the nearly 300-acre site, and summarizing the potential and known remaining contamination for purposes of informing non-radiological remedial investigation that will be required to be performed as part of facility decommissioning and prior to reuse of the land. The SWP was prepared in a short timeframe, demanding thorough review, keen attention to detail, and quick uptake of a large volume of information. Subsequently, Ms. Raup scoped and received NYSDEC approval of a RI Work Plan for an area of concern. Implementation of the work plan has not yet started. Ms. Raup has also managed and supported other site-related activities including air permit modifications to allow for temporary boiler use, tank closure plans, Citizen Participation Plan development, and Spill Prevention, Control, and Countermeasure (SPCC) plan updates.

NYCHA PACT Round 9 Due Diligence – Project Manager and Senior Environmental Scientist
Scoped and managed preparation of two Phase I ESAs in connection with two NYCHA development land transactions in Manhattan and Bronx, NY that will unlock federal funding to allow private developers to take on property upgrades and management responsibilities. Ms. Raup reviewed sites that spanned several hundred acres to determine the most efficient way to perform Site reconnaissance and review regulatory agency and historical records. She prepared a streamlined Phase I ESA template that effectively presented findings and captured NYCHA-specific out-of-scope services. Reports were prepared and reviewed by Jenna within a short timeframe to meet NYCHA's project schedule. NYCHA's review of the Phase I ESAs yielded no comments, and reports were finalized for distribution.

PANYNJ Newark Liberty International Airport Terminal One Redevelopment Design-Build – Senior Environmental Scientist
Providing environmental services for the $1.4 billion design-build of the new Terminal One at Newark Liberty International Airport in Newark, NJ. The Port Authority of New York and New Jersey (PANYNJ) project encompasses phased demolition of the existing Terminal A building and associated infrastructure and construction of a new 1 million-sf, 33-gate common-use terminal; a new pedestrian bridge; new terminal parking garage and toll plaza facility; and airside and landside redevelopment. The scope of services includes asbestos abatement prior to demolition activities; soil sampling to assess how to best dispose of certain materials; and other testing to secure permits for flood hazards, soil erosion, hazmat removal, and stormwater/dewatering/discharge.

NYCT On-Call Environmental Consulting Services – Senior Environmental Scientist
Preparing due diligence reports (Phase I and Phase II ESAs) and performing technical reviews of environmental due diligence assessments for various New York City Transit (NYCT) projects. Projects that Ms. Raup has been involved with include the planned construction of a new electrical substation at 28th Street and 8th Avenue; ADA Station upgrades at 11 sites in Manhattan, Bronx, and Staten Island; and, a new temporary bus parking lot in Queens. She is also responsible for preparing subcontractor agreements, as needed.

SPECIALIZED TRAINING

- OSHA 40-Hour HAZWOPER
- Brownfield Industry Professional, Gold Level; OER (2016)
- Analytical Chemist (2010-2012)

ZACHARY SCHWARTZ, EIT

YEARS OF ENVIRONMENTAL CONSULTING EXPERIENCE: 5

EDUCATION

B.S., Environmental Engineering, Lehigh University, 2020

M. Eng, Civil Engineering, City College of New York, expected graduation 2027

PROFESSIONAL REGISTRATION/CERTIFICATIONS

Licensed Engineer in Training

AREAS OF EXPERTISE

Mr. Schwartz has experience in the following general areas:

- Construction Oversight and Management
- Soil Remediation
- Preparation of Design Drawings
- Preparation of Specifications
- Construction Submittal Reviews
- Cost Estimate Preparation
- Report Preparation
- Data Analysis
- Soil and Groundwater Sampling
- Air Monitoring
- Sewer System Evaluation Surveys
- Infiltration and Inflow in Sanitary Sewers

Mr. Schwartz possesses 5 years of experience in environmental consulting and serves as a Project Manager based in TRC's New York City office. Mr. Schwartz's experience includes preparing design drawing and specifications for bid solicitation, construction submittal review and response, performance of soil and groundwater sampling, report preparation, laboratory analytical data review, development of recommendations for remediation and associated cost estimates. Mr. Schwartz has assumed progressively increasing responsibilities primarily in project management, budget and schedule performance, and investigation and remediation for the New York City School Construction Authority.

REPRESENTATIVE EXPERIENCE (Descriptions marked with an asterisk (*) undertaken within the past three years)

New York City School Construction Authority, Environmental Engineer – Multiple Sites, New York*

Mr. Schwartz serves as a Junior Engineer in support of the various new school and school addition design and construction projects for the NYCSCA. Design tasks include preparation of gas vapor barrier (GVB) sub-slab depressurization system (SSDS) drawings and specifications, and coordination with the client and other disciplines (Architecture, Mechanical, etc.). Additionally, Mr. Schwartz has prepared Interim Remedial Measure (IRM) Work Plans and Remedial Action Work Plans (RAWP) for the projects in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Sites. The

construction tasks include reviewing contractor submittals for environmental concerns, conducting on-site community air monitoring plans, conducting on-site GVB smoke testing, and conducting on-site SSDS inspections as the NYCSCA contractor representative for quality control and assurance. Contractor submittals reviewed include soil sampling plans, excavated material disposal plans, SSDS and GVB related submittals, and various other environmentally related submittals. Additionally, Mr. Schwarts has supported PCB remediation projects at various NYCSCA Sites across NYC. Responsibilities included preparing daily field reports, coordination with the remedial contractor, and preparation of the final PCB Remediation Report. Lastly, Mr. Schwartz has also conducted indoor air quality assessments which includes preparing an indoor air quality questionnaire. Lastly, Mr. Schwartz has assisted in preparing a groundwater hydrological evaluation for an NYCSCA site, including preparing groundwater models using collected samples and preparing an end of project memorandum.

In-House Consultant for the Port Authority of New York and New Jersey (PANYNJ)*

Mr. Schwartz has acted as an In-House Consultant for the PANYNJ within the Environmental Engineering Design department. As an In-House Consultant, Mr. Schwartz has worked directly under the supervision of the Port Authority Environmental Engineering Principals. Mr. Schwartz's design responsibilities include preparing 25%, 50% and 100% design drawings and documents for John. F. Kennedy (JFK) and LaGuardia (LGA) International Airports. Additionally, Mr. Schwartz oversees the environmental compliance of various construction projects at JFK, including reviewing construction submittals for compliance with Environmental Drawings and Documents, and Stormwater Pollution and Prevention Plan (SWPPP) compliance audits. Lastly, Mr. Schwartz supports JFK and LGA Individual State Pollutant Discharge Elimination System (SPDES) permit compliance. Mr. Schwartz has been involved in projects of varying magnitude, from less than $100,000 to over $200 million.

Civic Builders – Phase II Environmental Site Investigations and Construction Oversight – Multiple Sites, NY*

Mr. Schwartz performs Phase II ESIs in support of new charter schools. Mr. Schwart's responsibilities include coordinating site activities, coordinating with sub-consultants including ground penetrating radar and drilling services, tabulating analytical data, and summarizing observations and investigative results into Phase II ESI reports.

Mr. Schwartz served as a Project Engineer responsible for the implementation and performance of a community air monitoring program (CAMP), soil excavation monitoring, and inspection of sub-slab depressurization system (SSDS) installation during construction of a new charter school. Responsibilities include CAMP equipment calibration and setup, responding to CAMP exceedances, daily monitoring of excavation progress and compliance with excavated material disposal plan (EMDP), and inspection of SSDS components during installation to confirm compliance with design intent and contractor submittals.

NYCO – Brooklyn, NY*

Mr. Schwartz served as a Project Engineer in connection with stormwater management and dewatering for a project in Brooklyn, NY. Mr. Schwartz supported completion of the NYSDEC Jurisdiction Determination request/State Pollutant Discharge Elimination System (SPDES) permit application, tabulated and analyzed groundwater data, and reviewed site plans for drilling activities.

NYC Department of Parks and Recreation, Subsurface Investigations - Multiple Sites, NY*

Mr. Schwartz served as an Environmental Field Technician in connection with the implementation of sub-surface investigations in support of the reconstruction and new construction of park facilities throughout New York City. The scope of work for the investigations includes environmental (i.e., soil and groundwater) and structural investigations, permeability evaluations, asbestos and regulated materials surveys, and sewer line inspection on behalf of DPR. Responsibilities include on-site implementation of the field work, collection of soil and groundwater samples for laboratory analysis, performance of permeability tests, monitoring of subcontractors providing geophysical mark-out, drilling, geotechnical engineering, drain line video inspection services. In addition, Mr. Schwartz supported the preparation of Site Investigation Reports and periodic review reports for locations with active site management plans.

SPECIALIZED TRAINING

- 40-Hour OSHA Hazardous Waste and Emergency Response (HAZWOPER)
- 30-Hour OSHA Construction Training
- 8-Hour OSHA HAZWOPER Annual Refresher

CALAH LAMBERTSON

EDUCATION
MPH, Environmental Occupational Health and Safety, CUNY Hunter College, 2010
B.A., Sociology, University of California, Santa Barbara, 2002

PROFESSIONAL TRAINING
- 40-Hour OSHA Hazardous Waste Operations and Emergency Response Training
- Red Cross First Aid/CPR/AED Certified
- Long Island Rail Road Roadway Protection Training

AREAS OF EXPERTISE
Ms. Calah Lambertson, has Project Management, Environmental Compliance, and Health and Safety experience in the following general areas:

- Report Preparation
- Technical Writing
- Environmental health and safety
- Occupational health and safety
- Environmental assessments and audits
- Environmental compliance and permitting
- Underground storage tank management
- Aboveground storage tank management
- Hazardous waste management
- Phase I ESA Reports
- Spill response and reporting

REPRESENTATIVE EXPERIENCE
Ms. Lambertson serves as a project manager based in TRC's Engineering, Construction and Remediation (ECR) Practice in Manhattan and has six years of experience working in the public sector for the New York City Department of Environmental Protection (NYC DEP) in the Bureau of Water and Sewer Operations (BWSO). Her qualifications include project management, environmental compliance, hazardous waste, chemical bulk storage and petroleum bulk storage, spill prevention planning and reporting, and construction health and safety.

Prospect Park Alliance (PPA) – Engaged by DPR – Subsurface Investigations – Multiple Sites
Ms. Lambertson serves as a project manager in connection with the implementation of sub-surface investigations at various sites in support of the reconstruction and new construction of park facilities in Prospect Park, Brooklyn. The scope of work for the investigations includes environmental (i.e., soil and groundwater) and structural investigations, permeability evaluations, and sewer line inspection on behalf of PPA. Responsibilities include the submittal of Metropolitan Transit Authority (MTA) No Impact Letters and design figures, and monitoring of subcontractors providing geophysical mark-out, drilling, geotechnical engineering, drain line video inspection services.

The City of New York Department of Parks and Recreation (DPR) – FY 24 Sub-Surface Investigations– Multiple Sites
Ms. Lambertson serves as a project manager in connection with the implementation of sub-surface investigations at various sites in support of the reconstruction and new construction of park facilities throughout New York City. The scope of work for the investigations includes environmental (i.e., soil and groundwater) and structural investigations, permeability evaluations, and sewer line inspection on behalf of DPR. Responsibilities include on-site implementation of the field work, collection of soil samples for laboratory analysis, operation of a photoionization detector (PID), and monitoring of subcontractors

providing geophysical mark-out, drilling, geotechnical engineering, drain line video inspection services.

MTA Long Island Rail Road – New York State, Multiple Projects
Ms. Lambertson serves as a project manager for various projects on TRC's on-call environmental services contract with MTA Long Island Rail Road. To date, her responsibilities have included invoice management, assisting on the regulatory design requirements for hazardous waste storage structures at various LIRR facilities in the NYC, Nassau, and Suffolk Counties, and the preparation of responses to comments from the New York State Department of Environmental Conservation (NYSDEC) to the LIRR Arch Street Yard Remedial Action Work Plan. In addition, Ms. Lambertson assists on the review of the Long Island City Passenger Yard quarterly progress reports, disturbance activities at Morris Park Yard, and MS4 Permitting Roadmap.

American Electric Power - Glen Lyn Power Plant, Playbook, Virginia and West Virginia States
Ms. Lambertson serves as a project manager in connection with redevelopment investigations for a legacy coal-fired plant. The scope of work for the investigations includes reviewing past documents, working with GIS to design Figures of the site, and implementation of information into a Playbook for future redevelopment efforts.

Guam Power Authority – Cabras Power Plant, Environmental Assessment, Guam Territory of the United States
Ms. Lambertson serves as a project manager in connection with the preparation of an environmental assessment for the decommission of the Guam Power Authority, Cabras Power Plant. The scope of work for the investigations includes the review of spill documentation, historical documents, and environmental databases in compliance an USEPA Consent Decree and Administrative Order for the Clean Air Act (CAA) and Clean Water Act (CWA).

NY Transco Dover, Knickerbocker, and Van Wagner Substations- New York State, Stockpile Sampling
Ms. Lambertson served as a project manager in connection with stockpile sampling for the NY Transco Dover, Knickerbocker, and Van Wagner Substations. Her responsibilities included the coordination of the field work and sampling of stockpile soil to be used as backfill at the sites. In addition, she oversaw the preparation of the sampling work plans, data tables, and final reports.

EDPR NA Distributed Generation LLC – Lowes Home Centers Inc., Multiple Sites, Pennsylvania State, Phase I ESAs
Ms. Lambertson serves as a research scientist preparing Phase I ESAs for EDPR NA Distributed Generation LLC's planned solar development at various Lowes Home Center locations in the state of Pennsylvania. Her responsibilities included review of historical documents, environmental databases, and Freedom of Information Law (FOIL) documentation. In addition, Ms. Lambertson serves as the primary Phase I ESA report preparer.

Neighborhood Charter Schools - Phase I Environmental Site Assessment (ESA) Report
Ms. Lambertson serves as a project manager for a Phase I ESA inspection and report for a Charter School in the Bronx borough of New York City. Her responsibilities include due diligence of the site through site reconnaissance, the review of historical documents and environmental databases, and submitting and reviewing Freedom of Information Law (FOIL) requests. Ms. Lambertson applies her observations and findings in the preparation of the Phase I ESA reports.

Phase I Environmental Site Assessment (ESA), Multiple Sites, New York State
Ms. Lambertson assists on Phase I Environmental Site Assessments (ESAs) in support of solar farm developments in New York State. Her responsibilities include due diligence of the site through the review of historical documents and environmental databases, and submitting and reviewing Freedom of

Information Law (FOIL) requests. Ms. Lambertson applies her observations and findings in the preparation of the Phase I ESA reports.

New York City Department of Environmental Protection (NYCDEP) – Bureau of Water and Sewer Operations (BWSO) – Nonhazardous and Hazardous Waste Contract
Ms. Lambertson served as an environmental compliance specialist and project manager for the NYCDEP BWSO Nonhazardous and Hazardous Waste contract. She was responsible for the sampling of soil, water, spill debris, and pipe masting on water and sewer lines, for constituents such as, but not limited to, volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, and asbestos. In addition, she maintained proper liquid and solid waste storage areas, and spill prevention planning of the nonhazardous and hazardous waste at BWSO facilities in the city's five boroughs. Ms. Lambertson worked with local, state and federal agencies on all paperwork and compliance requirements, and coordinated with and managed contractors to complete testing and disposal of the waste, chain of custodies, and the clean-up of spills. She also worked with contractors on soil and water sampling, and remediation activities in various BWSO pumping stations, where mercury was present in the soil and water.

New York City Department of Environmental Protection (NYCDEP) – Bureau of Water and Sewer Operations (BWSO) – Petroleum Bulk Storage (PBS) Tanks Contract
While working with NYCDEP BWSO, Ms. Lambertson served as an environmental compliance specialist and project manager for the PBS Tank contract. She was responsible for underground and aboveground petroleum tanks at BWSO facilities in the city's five boroughs. Ms. Lambertson managed the day-to-day operations for facility fueling stations, including inspections, spill reporting, New York State Department of Environmental Conservation (NYSDEC) 10-day reports for fuel accountability, spill and leak detection, training facility staff, and working with contractors to make all repairs to tanks and equipment. She worked with local, state and federal agencies for permitting and compliance requirements. Ms. Lambertson also managed tank closures, permits for new and existing tanks, investigations for spills, leaks and equipment failure, and Spill Prevention, Control, and Countermeasure (SPCC) Plans.

New York City Department of Environmental Protection (NYCDEP) – Bureau of Water and Sewer Operations (BWSO) – Chemical Bulk Storage (CBS) Tanks Contract
While working with the NYCDEP BWSO, Ms. Lambertson served as an environmental compliance specialist and project manager for the CBS Tanks contract. Ms. Lambertson maintained all the records for the aboveground chemical tanks, including the chlorine tanks at the NYCDEP's Hillview Reservoir. Her responsibilities included inspections, training, emergency planning, and working with local, state and federal agencies for compliance, testing, and permitting requirements.

City University of New York (CUNY), Hunter College – Chemical Exposure Assessment
Ms. Lambertson served as a graduate researcher while attending graduate school at CUNY Hunter College. She represented the college in a project conducted at an electronic and electrical waste and recycling site called Agbogbloshie based in Accra, the capital city of Ghana. On site at Agbogbloshie, Ms. Lambertson collected (ambient) air samples for polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and heavy metals, including, but not limited to aluminum, copper, manganese, nickel and zinc, and collected soil samples on the property site and surrounding areas that were tested for heavy metals. Ms. Lambertson coordinated with Pure Earth, formally known as the Black Smith Institute, The Ghana Health Service, Ministry of Health, the Ghana EPA, and Green Advocacy for the purposes of funding, access to site and workers, and publishing testing results.

SELECTED PUBLICATIONS AND PRESENTATIONS
Caravanos, Jack; Clark, Edith; Fuller, Richard; Lambertson, Calah (2011-02-01). "Assessing Worker and Environmental Chemical Exposure Risks at an E-Waste Recycling and Disposal Site in Accra, Ghana". Journal of Health and Pollution. 1(1): 16-25.

ELIZABETH A. DENLY

EDUCATION
B.A., Chemistry, University of New Hampshire, 1987

PROFESSIONAL REGISTRATIONS /CERTIFICATIONS
Licensed Site Professional Association, Massachusetts, Associate Member American Chemical Society (ACS)
American Society for Quality (ASQ)

AREAS OF EXPERTISE
Ms. Denly has over 30 years of experience in:

- Emerging Contaminants
- Technical Advisor for QA/Chemistry
- PFAS Forensics
- Data Evaluation/Data Validation
- QA Project Plans
- QA Management
- Analytical Laboratory and Field Sampling Audits

Quality Assurance/Quality Control

As a QA chemist at TRC, Ms. Denly is responsible for providing QA/QC oversight in support of a variety of environmental investigations including contaminant ambient air monitoring, human health and ecological risk assessments, riskbased soil cleanups, remediation programs, and delineation. Ms. Denly has provided this oversight under different regulatory programs, including MassDEP, NYSDEC, NJDEP, and USEPA Region I, Region II, Region III, and Region V. In this role, she has been responsible for the preparation of the project-specific QAPP, coordination with the laboratory, selection of the appropriate analytical methodologies to achieve the desired state or regulatory standards, oversight and performance of the data validation process, and determination of the usability of the data in comparison to the overall project objectives.

In addition, Ms. Denly serves as TRC's Remediation and Building Science Practices Quality Assurance & Chemistry Systems Manager, responsible for the creation and implementation of the Sector's Quality Management Plan and Standard Operating Procedures (SOPs) for field sampling and documentation protocols. Ms. Denly also leads Quality Coordinator networks in the Remediation and Building Science Practices which are responsible for the development and communication of quality initiatives within the organization. Among the quality initiatives that have been implemented or created under Ms. Denly's leadership include the following:

- Procedures for Peer Review of Deliverables
- Tracking of Peer Review Documentation via monthly random audits
- Project Planning Checklist tool
- Analytical Data Review Checklist and Training
- Practice Self-Assessments with follow-up Corrective Actions
- Biweekly Quality Messaging
- Technical Editing Guidelines
- Publication of Quality Lessons Learned reports

Data Validation

Ms. Denly provides oversight and senior review on data validation performed for a variety of analytical parameters. She performs data validation for organic parameters including VOCs, SVOCs, Pesticides, PCB Aroclors, PCB homologues/congeners, Dioxins, specialty analyses including GC/MS/SIM and various air analyses. Validation and reporting guidelines utilized include USEPA National Functional Guidelines, USEPA Regions I through V, and NYSDEC DUSRs. Ms. Denly developed internal protocols for the validation of the MassDEP EPH/VPH methodologies.

REPRESENTATIVE EXPERIENCE (Descriptions marked with an asterisk (*) undertaken within past three years) New York City School Construction Authority*

Ms. Denly has provided quality assurance management for a variety of SCA programs, including PCB air monitoring, site investigations, and sub-slab soil vapor and indoor air investigations. In this role, Ms. Denly is responsible for reviewing field team documentation, providing oversight of the analytical laboratory, data validation, and preparation of DUSRs. She is responsible for frequent communication with the laboratories to ensure proper receipt of samples, proper utilization of project-specific analytical protocols in order to achieve necessary project action levels, and to monitor the overall performance of the laboratories.

Brownfields Programs – Various Locations*
Ms. Denly serves as the Project Quality Assurance Manager on TRC's Brownfields programs within USEPA Regions 1 and 3. In this role, she is responsible for maintaining and updating the USEPA-approved generic Brownfields QAPPs. She provides final review of site-specific QAPP addenda prepared for the individual Brownfields sites and assists in the determination of required analytical methodologies necessary to achieve specific project objectives. Ms. Denly is the point of contact for the field team and the laboratory during the investigations for issues related to the ultimate usability of the analytical data. She reviews the chains-of-custody as samples are received by the laboratory to ensure the requirements for sample collection in the site specific QAPP addenda are followed and samples are properly logged into the laboratory. Final review of the analytical data is performed by Ms. Denly and a data usability assessment is generated for each investigation.

Vieques Island, Environmental Cleanup Oversight, Vieques, Puerto Rico* Ms. Denly provides technical and regulatory compliance oversight to the Commonwealth of Puerto Rico and the Puerto Rico Environmental Quality Board (EQB) regarding the investigation, assessment, and remediation of contamination on Vieques Island by the U.S. Navy in support of the property's transfer to the Commonwealth of Puerto Rico. Ms. Denly conducts technical and regulatory reviews pertaining to analytical methods and QA/QC issues of the documents prepared by Navy subcontractors including draft and final submissions of work plans, field sampling plans, investigation results, technical memoranda, feasibility studies, and remedial designs.

Massachusetts Department of Environmental Protection – MA*
Ms. Denly is currently providing assistance to MassDEP to determine whether the regulated community is correctly implementing analytical methodologies at MassDEP sites; this includes providing training for all MassDEP auditors. Ms. Denly is also assisting MassDEP in the development of a protocol for the analysis of volatile petroleum hydrocarbons (VPH) by GC/MS. Previously, Ms. Denly has assisted MassDEP in the review/evaluation of data packages for EPH/VPH analyses from laboratories selected by MassDEP as part of a Data Audit project to ensure compliance with the methods and CAM. She provided consultation to MassDEP for revisions to the MassDEP's innovative EPH/VPH analytical methods used to measure petroleum hydrocarbon concentrations in soil and groundwater. Ms. Denly served as a member of the Data

Quality Enhancement Work Group led by MassDEP and assisted in the development of a policy for achieving consistency of data reported under the MCP. Ms. Denly was responsible for generating the framework for QC parameters on organic analyses typically utilized under the MCP, method-specific performance standards for these QC parameters, minimum reporting requirements for the laboratories for each method, and a list of what laboratories need to keep on file for potential audits by the MassDEP.

Mattiace Petrochemical Superfund Site – Glen Cove, NY*
Ms. Denly prepared the QAPP for the Long Term Remedial Action under TRC's Exit Strategy® program using USEPA Region II guidance. She provides QA oversight to the field team. Ms. Denly also performs data validation of data generated for demonstration of achievement of cleanup objectives. Ms. Denly is responsible for performing assessment of data to determine overall usability.

USEPA Region I Superfund RAC*
Ms. Denly serves as lead chemist for a variety of Superfund programs under the USEPA Region I Remedial Action Contract (RAC). Her responsibilities have included ongoing development of analytical specifications for laboratories to achieve specific project objectives and development of QAPPs following the requirements of USEPA Region I QAPP guidelines. She performs data validation and/or senior review of data validation for a variety of analytical methodologies utilizing USEPA Region I validation guidelines. Ms. Denly generates data usability assessments and/or split sample comparison reports in accordance with USEPA Region I guidance, when required. She interacts with USEPA Region I chemists in the selection of analytical methodologies and project objectives. Ms. Denly provides QA oversight of PRPs' validation reports, sampling and analysis plans, and QAPPs. She is also responsible for providing QA oversight to field teams, performing daily reviews of COCs and traffic reports, and acting as the main liaison between the field team and USEPA.

FAA, Region II – Atlantic City, NJ
Ms. Denly assisted in the preparation of QA protocols for the Supplemental RI and Ecological Risk Assessment Work Plan. She was also responsible for providing QA support to the field team. Ms. Denly interfaced with laboratories to ensure achievement of risk-based standards and performed data validation and/or oversight for all data generated. Ms. Denly provided oversight for all validation performed on the Remedial Investigation data.

Queens West Development – Stage 2 Site – Long Island City, NY
Ms. Denly prepared the QAPP for the NYSDEC Voluntary Cleanup Program under TRC's Exit Strategy® program. She provided QA oversight to the field team. Ms. Denly performed data validation for the program. She was responsible for performing assessment of data to determine overall usability. Ms. Denly provided daily support to the project team on chemistry, laboratory, and QA issues. She was responsible for ensuring project objectives were achieved by the laboratory and for oversight of laboratory QA issues.

Consolidated Edison First Avenue Properties – New York, NY
Ms. Denly prepared a QAPP for Supplemental Soil Investigation and Voluntary Cleanup of four sites under TRC's Exit Strategy® program. The First Avenue Properties Site is the site of a former Consolidated Edison Power Plant located in midtown Manhattan between East 38th Street and East 40th Street. Ms. Delny provided QA oversight to field team during site remediation. Ms. Denly performed data validation of select data points used for decision-making and was responsible for performing assessment of data to determine overall usability for various Remedial Work Plans.

130 Liberty Street – New York, NY
Ms. Denly developed the QAPP for the extensive ambient air monitoring program and waste management program under USEPA Region II oversight. Ms. Denly provided oversight of six analytical laboratories and was responsible for coordination and performance of data validation for asbestos, metals, dioxins/furans, PAHs, PCBs, and silica ambient air data as well as TCLP and metals waste characterization data. Ms. Denly communicated frequently with the laboratories to ensure proper receipt of samples, proper utilization of projectspecific analytical protocols and to monitor the overall performance of the laboratories. Responsible for the oversight and performance of field and laboratory audits. Reviewed all data prior to web-site posting and submission to USEPA.

PUBLICATIONS AND PRESENTATIONS

Raup J, Eberle M, Denly E, Glass D, Stefansky J, Dyber J, Scharf B, Saucier S. *A Conceptual Site Model for Per-and Polyfluoroalkyl Substance Water Supply Impacts in a Residential Community*. Remediation. 2024; 35:e70001. https://doi.org/10.1002/rem.70001.

Denly, E., & Morin, K. (2022). *A review of draft Environmental Protection Agency Method 1633: A data user's perspective*. Remediation Journal, 1–5. https://doi.org/10.1002/rem.21713

Denly E, Occhialini J, Bassignani P, Eberle M, Rabah N. *Per- and polyfluoroalkyl substances in environmental sampling products: Fact or fiction?* Remediation Journal. 2019; 29:65–76.

Eberle M, Edelman M, Denly E, Rabah N. *Evaluation of the effects of PFAS soil adsorption and transformation in the presence of divalent cations under ambient conditions*. Remediation. 2019; 30:15–25.

Fiorenza, S, Denly, E, Vitale, R J, Nigro, N, Leahy, M C, Neslund, C, Blye, D R, & Farmer, N (2022). *PFAS Experts Symposium 2: An update on advances in the chemical analysis of PFAS*. Remediation Journal, 1–9. https://doi.org/10.1002/rem.21707

Simon JA, Abrams S, Bradburne T, et al. *PFAS Experts Symposium: Statements on regulatory policy, chemistry and analytics, toxicology, transport/fate, and remediation for per- and polyfluoroalkyl substances (PFAS) contamination issues*. Remediation Journal. 2019; 29:31–48.

APPENDIX J
ENVIRONMENTAL FOOTPRINT ANALYSIS

Greener Cleanup Metrics - Summary Table

Site Name:	Former Giuffre Auto Group Site (NYSDEC BCP Site No. C224327)	**Site Location:**	**City or Locale**	**State**	**Cleanup Program:**	NYSDEC Brownfields Cleanup Program
Unit Name:	Remedial Action Work Plan		Brooklyn	NY		

Description of Site and Cleanup Activities

Description of Site:	The Site consists of a one-story commercial building with a basement and an asphalt-paved parking lot (Lot 28), and a former commercial building with a partial basement (Lot 39).	**Cleanup Activities:**	The primary objective of the remediation is to remove remaining contamination beneath Lot 28 and Lot 39 to meet Unrestricted Use SCOs. Alternative 1 is a Track 1 remediation consisting of excavation to 4 feet below ground surface (bgs) on Lot 28 and 27 feet bgs on Lot 39.

Description of Units and Cleanup Phase for these Metrics

Description of Unit:	Remedial Activitity to remove residual contaminated soil.	**Phase of Cleanup:**	Remedial Action Workplan: Alternative 1 - Track 1 Cleanup	**Source of Input Data**	Quantities developed by design team

Notes on Data Collection

Data Collection:	NA	**Site Contact Person**		**EPA Contact Person**	
		Name:	NYCSCA - Mike Sherwood	**Name:**	
		Contact Information:	718-752-5211, msherwood@nycsca.org	**Contact Information:**	

SUMMARY FOR TOTALS

Timeframe for Data --->

Core Element	Metric	Resources Used		Resources Conserved		Comments About Results
Materials	Refined materials	1.00	Tons	0.00	Tons	
	Unrefined materials	21,000.00	Tons	0.00	Tons	
Waste	Hazardous waste generation	0.00	Tons	0.00	Tons	
	Non-hazardous waste generation	12,351.95	Tons	0.00	Tons	
Water	Public water	0.02	MG	0.00	MG	
	Groundwater	0.00	MG	0.00	MG	
	Wastewater generation	0.00	MG	0.00	MG	
	Other water	0.00	MG	0.00	MG	
Energy	Grid electricity	0.00	MWh	0.00	MWh	
	Diesel for equipment	2,400	Gallons	0	Gallons	
	Diesel for transportation	18,164	Gallons	0	Gallons	
	Gasoline for equipment	0	Gallons	0	Gallons	
	Gasoline for transportation	452	Gallons	0	Gallons	
	Other energy	0	(variable)	0	(variable)	

Notes on Inputs for Resources Used		Notes on Inputs for Resources Conserved
Refined Materials:	55-gallon drums and geotextile liner	N/A
Unrefined Materials:	Imported backfill	N/A
Hazardous Waste:	No hazardous waste generated	N/A
Non-Hazardous Waste:	Non-hazardous soil hauled off site via dump trucks to Bethlehem Landfill (100 miles each way)	N/A
Water:	20,000 gallons of water used from fire hydrant; Non-hazardous wastewater hauled off site to Clean Water of NY (15 miles each way)	N/A
Grid Electricity:	N/A	N/A
Fuel Used Onsite:	Large excavator	N/A
Fuel Used for Transportation:	Fuel used for transportation of excavator, materials, waste, and personnel travel	N/A
Other Notes:	Assumptions were used for transportation vehicle size and equipment HPs. All quantities are estimated based on the scope of work outlined in the Remedial Action Work Plan.	

Greener Cleanup Metrics - Summary Table

Site Name:	Former Giuffre Auto Group Site (NYSDEC BCP Site No. C224327)	**Site Location:**	**City or Locale**	**State**	**Cleanup Program:**	NYSDEC Brownfields Cleanup Program
Unit Name:	Remedial Action Work Plan		Brooklyn	NY		

Description of Site and Cleanup Activities

Description of Site:	The Site consists of a one-story commercial building with a basement and an asphalt-paved parking lot (Lot 28), and a former commercial building with a partial basement (Lot 39).	**Cleanup Activities:**	The primary objective of the remediation is to remove remaining contamination beneath Lot 39 to meet Restricted Residential Use SCOs. Alternative 2 is a Track 4 remediation consisting of excavation to 2 feet bgs across the existing exterior part of Lot 28.

Description of Units and Cleanup Phase for these Metrics

Description of Unit:	Remedial Activitity to remove residual contaminated soil.	**Phase of Cleanup:**	Remedial Action Workplan: Alternative 2 - Track 4 Cleanup	**Source of Input Data**	Quantities developed by design team

Notes on Data Collection

Data Collection:	NA	**Site Contact Person**		**EPA Contact Person**	
		Name:	NYCSCA - Mike Sherwood	**Name:**	
		Contact Information:	718-752-5211, msherwood@nycsca.org	**Contact Information:**	

SUMMARY FOR TOTALS

Timeframe for Data --->

Core Element	Metric	Resources Used		Resources Conserved		Comments About Results
Materials	Refined materials	0.82	Tons	0.00	Tons	
	Unrefined materials	2,500.00	Tons	0.00	Tons	
Waste	Hazardous waste generation	0.00	Tons	0.00	Tons	
	Non-hazardous waste generation	2,500.00	Tons	0.00	Tons	
Water	Public water	0.01	MG	0.00	MG	
	Groundwater	0.00	MG	0.00	MG	
	Wastewater generation	0.00	MG	0.00	MG	
	Other water	0.00	MG	0.00	MG	
Energy	Grid electricity	0.00	MWh	0.00	MWh	
	Diesel for equipment	1,200	Gallons	0	Gallons	
	Diesel for transportation	3,950	Gallons	0	Gallons	
	Gasoline for equipment	0	Gallons	0	Gallons	
	Gasoline for transportation	274	Gallons	0	Gallons	
	Other energy	0	(variable)	0	(variable)	

Notes on Inputs for Resources Used		Notes on Inputs for Resources Conserved
Refined Materials:	55-gallon drums and geotextile liner	N/A
Unrefined Materials:	Imported backfill	N/A
Hazardous Waste:	No hazardous waste generated	N/A
Non-Hazardous Waste:	Non-hazardous soil hauled off site via dump trucks to Bethlehem Landfill (100 miles each way)	N/A
Water:	10,000 gallons of water used from fire hydrant; Non-hazardous wastewater hauled off site to Clean Water of NY (15 miles each way)	N/A
Grid Electricity:	N/A	N/A
Fuel Used Onsite:	Large excavator	N/A
Fuel Used for Transportation:	Fuel used for transportation of excavator, materials, waste, and personnel travel	N/A
Other Notes:	Assumptions were used for transportation vehicle size and equipment HPs. All quantities are estimated based on the scope of work outlined in the Remedial Action Work Plan.	

APPENDIX K

SOIL EROSION AND SEDIMENT CONTROL PLAN

LIST OF DRAWINGS - CIVIL GENERAL CONSTRUCTION

DRAWING NO.	DRAWING TITLE	DOB SET SHEET NO.
C001.00	CIVIL NOTES	1
C101.00	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE I	2
C102.00	SOIL EROSION AND SEDIMENT CONTROL PLAN - STAGE II	3
C201.00	SITE IMPROVEMENTS PLAN	4
C501.00	SITE DETAILS	5
C502.00	SITE DETAILS	6
C503.00	SITE DETAILS	7

SPECIAL INSPECTIONS - CIVIL WORK TYPE (NYC BC 2022):

SPECIAL INSPECTIONS REQUIRED UNDER THIS APPLICATION IN ACCORDANCE WITH CHAPTER 17 AND THE APPLICABLE SECTIONS OF THE NYC CONSTRUCTION CODE ARE LISTED IN THE FOLLOWING TABLES. SPECIAL INSPECTIONS FOR PORTIONS OF THE WORK THAT ARE FILED UNDER SEPARATE APPLICATION ARE NOT LISTED HERE AND ARE TO BE LISTED ON THOSE APPLICATIONS BY THE CONTRACTOR'S APPLICANT OF RECORD.
THE CONTRACTOR MUST NOTIFY THE RELEVANT SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY IN WRITING FOR SPECIAL INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIFIC WORK COMMENCES.

THE FOLLOWING SPECIAL INSPECTIONS HAVE BEEN COMPLETED:	
N/A	
THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING SPECIAL INSPECTIONS:	
SUBSURFACE CONDITIONS - FILL PLACEMENT & IN PLACE DENSITY	BC 1705.6
SUBGRADE INSPECTION	BC 1705.6.4
THE "CONTRACTOR" SHALL BE RESPONSIBLE FOR THE FOLLOWING BUILDING DEPARTMENT FORM:	

PROGRESS INSPECTIONS - CIVIL WORK TYPE (NYC BC 2022):

PROGRESS INSPECTIONS REQUIRED IN ACCORDANCE WITH CHAPTER 1 OF THE 2022 NYC BUILDING CODE AND THE APPLICABLE SECTIONS OF THE NYC CONSTRUCTION CODE ARE LISTED IN THE FOLLOWING TABLES:
THE CONTRACTOR MUST NOTIFY THE ARCHITECT OR ENGINEER FOR PROGRESS INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIFIC WORK COMMENCES OR REQUIRES INSPECTION. SPECIFIC INSPECTION REQUIREMENTS FOR ENERGY CODE COMPLIANCE ARE INDICATED ON THE 'EN' SERIES DRAWINGS.

THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING SPECIAL INSPECTIONS:	
FINAL	28-116.2.4.2 & BC 110.5

NYC STORMWATER CONSTRUCTION PERMIT: SWPPP AND CLOSEOUT

THE CONTRACTOR SHALL OBTAIN THE NYC STORMWATER CONSTRUCTION PERMIT FROM NYC DEP PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THIS COVERED DEVELOPMENT PROJECT IS NOT LOCATED IN A MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) AREA.

CONTRACTOR SHALL PROVIDE AN AS-BUILT OF THE SITE PREPARED BY A NYS LICENSED SURVEYOR WHICH WILL INCLUDE TOPOGRAPHY, ALL SITE FEATURES, BOUNDARY, UTILITIES, AND STORMWATER MANAGEMENT PRACTICES (DETENTION SYSTEM AND GREEN ROOF).

AS-BUILT PLANS OF STORMWATER MANAGEMENTS PRACTICE MUST INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING INFORMATION:

1. TOPOGRAPHICAL SITE SURVEY
2. ELEVATIONS OF ALL STORMWATER MANAGEMENT PRACTICES COMPONENTS (IE. INVERTS OF ALL INCOMING AND OUTGOING PIPES, TOP AND BOTTOM OF STRUCTURE, TOP AND BOTTOM OF STONE, TOP AND BOTTOM OF SOIL, OVERFLOW INVERTS, TOP AND BOTTOM OF UNDERDRAIN, AND WEEP HOLES) AS APPLICABLE.
3. LAYOUT OF ALL STORMWATER MANAGEMENT PRACTICES, INCLUDING EXTENTS OF STONE.

SITE SHALL BE FULLY AND PERMANENTLY STABILIZED (I.E. 80% UNIFORM DENSITY OF PERMANENT VEGETATION IN VEGETATED AREA, PERMANENT MULCH/STONE WHERE APPLICABLE, 80% OF LIVE PLANTS COVERAGE OF VEGETATION LAYER IN VEGETATED SMP BY THE OF COMPLIANCE PERIOD) BEFORE APPLYING FOR NOTICE OF TERMINATION (NOT). THE OWNER OR OPERATOR SHALL REFER TO THE NYS DEC SDPES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITY GP-0-25-001 PART V. TERMINATION OF PERMIT COVERAGE FOR ALL CONDTIONS REQUIRED TO APPLY FOR NOTICE OF TERMINATION.

SUMMARY OF WORK:

- REMOVE EXISTING PAVEMENTS, CONCRETE CURBS, FENCING, EXISTING STORM INLETS, AS INDICATED ON DRAWINGS.
- INSTALL ASPHALT PAVEMENT, CONCRETE PAVEMENT, CURBS, LANDSCAPING, PLAYGROUND EQUIPMENT AND FENCES, AS INDICATED ON DRAWINGS.

SITE REMOVAL NOTES:

1. WORK OF THIS PROJECT SHALL CONFORM TO ALL REQUIREMENTS OF THE 2022 NYC BUILDING CODE AND ALL APPLICABLE REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION, INCLUDING SAFETY, HEALTH AND ANTI-POLLUTION REGULATIONS. WHERE MORE SEVERE REQUIREMENTS THAN THOSE CONTAINED IN THE BUILDING CODE ARE GIVEN IN PROJECT DOCUMENTS, THE REQUIREMENTS OF THESE PROJECT DOCUMENTS SHALL GOVERN. "SAFETY AND HEALTH STANDARDS, SUBPART P - EXCAVATIONS, TRENCHING AND SHORING" - OSHA.
2. CONTRACTOR SHALL VERIFY THAT EXISTING SITE CONDITIONS MATCH THOSE OF THE SURVEY. NOTIFY THE AUTHORITY IN WRITING PRIOR TO COMMENCEMENT OF WORK OF ANY DISCREPANCIES.
3. UPON RECEIPT OF THE NOTICE TO PROCEED, CAREFULLY INSPECT ALL EXISTING WORK WHICH IS REQUIRED TO BE REMOVED. ANY SUCH WORK WHICH IS FOUND TO BE WEAKENED, STRUCTURALLY UNSAFE OR OTHERWISE HAZARDOUS, SHALL BE IMMEDIATELY PUT IN A SAFE CONDITION AND SO MAINTAINED UNTIL SUCH WHEN IT SHALL BE REMOVED. ANY RESTRICTIONS REGARDING SEQUENCE OF OPERATIONS AND LOCATIONS OF WORK DO NOT APPLY TO THE ELIMINATION OF HAZARDOUS CONDITIONS; ALL PARTS OF THE PREMISES WILL BE AVAILABLE AT ALL TIMES FOR THE PERFORMANCE OF SUCH WORK.
4. CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES TO CONFINE REMOVALS AND ALL OTHER OPERATIONS TO AREA OF WORK. AFTER COMPLETION OF THE WORK, THE CONTRACTOR SHALL THEREAFTER PROTECT WORK UNTIL IT IS ACCEPTED BY THE AUTHORITY.
5. THE CONTRACTOR IS HEREBY ADVISED THAT THE WORK OF THIS CONTRACT SHALL BE PERFORMED IN COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF NYC LOCAL LAW 113 OF THE 2005 NOISE CONTROL CODE.
6. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, RULES AND REGULATIONS GOVERNING POLLUTION CONTROL, INCLUDING BUT NOT LIMITED TO THOSE OF THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
7. CONTRACTOR SHALL FIELD VERIFY ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
8. CONTRACTOR IS RESPONSIBLE FOR CREATING ALL REQUIRED SITE LOGISTICS PLANS AND OBTAINING ALL ASSOCIATED PERMITTING.
9. CONTRACTOR SHALL TAKE THE NECESSARY PRECAUTIONS TO PROTECT ALL EXISTING CONDITIONS THAT SHALL REMAIN INCLUDING ADJACENT PROPERTIES.

GENERAL CONTRACTOR NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL WORK CONFORMS WITH ALL FEDERAL, STATE, COUNTY OR LOCAL CODES HAVING JURISDICTION OVER SUCH WORK.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE OSHA REGULATIONS AND SAFETY PROCEDURES TO ENSURE PERSONNEL HEALTH AND SAFETY. THE CONTRACTOR MUST MAINTAIN A SAFE AND CLEAN WORKING ENVIRONMENT AND SHALL ENSURE PROPER PERSONAL PROTECTIVE EQUIPMENT IS WORN AT ALL TIMES. IN AREAS WHERE PEDESTRIAN AND/OR VEHICULAR TRAFFIC MAY BE AFFECTED BY THE WORK, THE CONTRACTOR SHALL CORDON OFF THE WORK AREA.
3. PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL VISIT THE SITE AND SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UTILITIES, STRUCTURES OR ANY OTHER ELEMENTS WHICH MAY IMPEDE WORK. UTILITY AND/OR STRUCTURE RELOCATIONS, IF NECESSARY, SHALL BE COORDINATED THROUGH THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.
4. IT IS THE CONTRACTORS' RESPONSIBILITY TO VERIFY, COORDINATE AND STAGE OR SEQUENCE THEIR WORK WITH ANY OTHER PLANNED OR ONGOING CONSTRUCTION ACTIVITIES AT THE SITE.
5. THE CONTRACTOR SHALL COORDINATE ANY STAGE WORK, LAY DOWN, AND STORAGE AREA LOCATIONS AND ACCESS WITH OWNER, PRIOR TO START OF WORK.
6. CONTRACTOR SHALL SUBMIT AN APPLICATION FOR A PERMIT TO NYC DEPARTMENT OF PARKS AT A MINIMUM OF 20 DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN 50-FT OF AN EXISTING STREET TREE.
7. THE CONTRACTOR SHALL BE SOLELY AND FULLY RESPONSIBLE FOR ALL EXCAVATION WORK INCLUDING BUT NOT LIMITED TO THE DESIGN, INSTALLATION AND MAINTENANCE OF SHEETING AND SHORING, PROTECTION OF SLOPES, UNDERPINNING AND DEWATERING IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE. PREPARATION OF DETAILS OF SHEETING, SHORING, BRACING AND UNDERPINNING AS WELL AS MONITORING PLANS SHALL BE UNDER THE DIRECT SUPERVISION OF, AND BEAR THE SEAL OF, A LICENSED PROFESSIONAL ENGINEER OF THE STATE OF NEW YORK, EXPERIENCED IN THE DESIGN OF SUCH WORK, WHO SHALL ALSO BE RESPONSIBLE FOR FILING SUCH DOCUMENTS AND THE CONSTRUCTION SUPERVISION OF SUCH. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND ASSOCIATED CALCULATIONS FOR SHEETING, SHORING, BRACING AND UNDERPINNING. SHOP DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A NEW YORK STATE LICENSED PROFESSIONAL ENGINEER.

PLANNED EROSION AND SEDIMENT CONTROL PRACTICES:

1. STORM DRAIN INLET PROTECTION: THE STRUCTURE SHALL BE INSPECTED AFTER EVERY STORM EVENT WITH REPAIRS MADE AS REQUIRED. REMOVE SEDIMENT FROM THE POOL AREA AS NECESSARY WITH CARE NOT TO UNDERCUT OR DAMAGE THE FILTER FABRIC. UPON STABILIZATION OF THE DRAINAGE AREA, REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT AND DISPOSE OF PROPERLY. BRING THE ADJACENT AREA OF THE DROP INLET TO GRADE, SMOOTH, COMPACT AND STABILIZE IN THE APPROPRIATE MANNER TO THE SITE. INLET PROTECTION SHALL BE INSTALLED FOR ALL ON-SITE DRAINAGE STRUCTURES IMMEDIATELY UPON INSTALLATION, REGARDLESS OF WHETHER THEY ARE CONNECTED TO THE STORMWATER SYSTEM.
2. TREE PROTECTION: TEMPORARY TREE PROTECTION SHALL BE INSTALLED AROUND ALL TREES THAT ARE TO REMAIN TO PREVENT DAMAGE DURING CONSTRUCTION.
3. STABILIZED CONSTRUCTION ENTRANCES: THE STABILIZED CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE. WIDTH SHALL BE TWELVE (12) FEET MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS, OR TWENTY-FOUR (24) FEET IF SINGLE ENTRANCE TO SITE.
4. DUST CONTROL: MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED.
5. SOIL STOCKPILES: SILT FENCE MUST BE PLACED CONTINUOUSLY AROUND THE PERIMETER OF ALL STOCKPILES. APPLY TEMPORARY STABILIZATION TO ALL STOCKPILES WHICH WILL BE INACTIVE FOR 14 DAYS OR LONGER. STOCKPILES MAY BE COVERED WITH A SECURE TARP.
6. EQUIPMENT WASHDOWN: CONSTRUCTION VEHICLES SHALL BE WASHED OUT IN AN AREA APPROVED OF BY THE OWNER OR OWNER'S REPRESENTATIVE. ALL RUNOFF FROM THESE ACTIVITIES SHALL BE DIRECTED TO THE ON-SITE CONTROL MEASURES. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

EROSION AND SEDIMENT CONTROL CONSTRUCTION PROGRAM:

1. OBTAIN LOCAL AND STATE APPROVALS PRIOR TO COMMENCING WORK
2. FLAG THE WORK LIMITS AND ITEMS TO BE PROTECTED (I.E. TREES)
3. HOLD PRECONSTRUCTION CONFERENCE WITH CONTRACTOR, PROJECT ARCHITECT, PROJECT ENGINEER, LOCAL OFFICIALS, AND SCA PROJECT OFFICER
4. INSTALL EROSION AND SEDIMENT CONTROL PRACTICES PER DRAWINGS.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES TO BE INSPECTED DAILY BY TRAINED CONTRACTOR, PRIOR TO ANTICIPATED RAINFALL EVENTS, AND AFTER RAINFALL EVENTS. NEEDED REPAIRS WILL BE MADE IMMEDIATELY.
5. COMPLETE SITE DEMOLITION FOR THE SITE AS NEEDED.
6. REMOVE EROSION CONTROL ITEMS WHEN EARTHWORK IS COMPLETE AND ALL PERMANENT SURFACES ARE IN PLACE AND ESTABLISHED.
7. KEEP AREAS BEYOND SITE IN CLEAN, CLEAR CONDITION DURING COURSE OF WORK.

EROSION AND SEDIMENT CONTROL MAINTENANCE NOTES:

1. THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION AND MAINTENANCE OF ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN. THE SITE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR THE PROPER CONSTRUCTION AND STABILIZATION OF PERMANENT CONTROL MEASURES AND RELATED ITEMS INCLUDED WITHIN THIS PLAN THROUGH COMPLETION OF CONSTRUCTION.
2. ALL EROSION AND SEDIMENT CONTROLS SHALL REMAIN IN PLACE UNTIL THE TRIBUTARY AREA TO THE CONTROL IS COMPLETELY STABILIZED AT THE END OF THE SITE AND LANDSCAPING WORK. ALL CONTROLS SHALL BE CHECKED DAILY AND AFTER STORM EVENTS TO ENSURE THEY ARE IN PROPER WORKING ORDER.
3. SEDIMENT REMOVED FROM ANY TEMPORARY CONTROL MEASURE DURING REGULAR MAINTENANCE MAY BE INCORPORATED BACK INTO THE EARTHWORK AS FILL ON THE SITE IF APPROVED BY THE ENGINEER. SOIL SEDIMENT MATERIAL SHALL BE DISTRIBUTED ON-SITE WITHOUT CHANGING DRAINAGE PATTERNS DURING A SPECIFIC CONSTRUCTION PHASE. SEDIMENT THAT IS NOT APPROVED FOR FILL MUST BE DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS AND GUIDELINES.
4. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE A WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES DURING A SPECIFIC CONSTRUCTION STAGE.
5. SILT FENCE: MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE. IF SEDIMENT ACCUMULATES TO HALF THE EXPOSED FABRIC OF THE SILT FENCE, THE SEDIMENT SHALL BE REMOVED AND DISPOSED OF PROPERLY. RIPS AND TEARS SHALL BE REPAIRED.
6. STORM DRAIN INLET PROTECTION: THE STRUCTURE SHALL BE INSPECTED AFTER EVERY STORM EVENT WITH REPAIRS MADE AS REQUIRED. SEDIMENT DEPOSITS SHALL BE REMOVED AND DISPOSED OF PROPERLY WHEN THE DEPOSITS REACH ½ THE HEIGHT OF THE FABRIC DROP HEIGHT TO PROVIDE NECESSARY STORAGE VOLUME. PRACTICES SHALL BE REPLACED IF THE FABRIC BECOMES RIPPED. INLET PROTECTION SHALL BE INSTALLED FOR ALL ON-SITE DRAINAGE STRUCTURES IMMEDIATELY UPON INSTALLATION, REGARDLESS OF WHETHER THEY ARE CONNECTED TO THE STORMWATER SYSTEM. UPON STABILIZATION OF THE DRAINAGE AREA, REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT AND DISPOSE OF PROPERLY.
7. R.O.W INLET PROTECTION: INSTALLATION OF ROW INLET PROTECTION IS ONLY REQUIRED WHEN THERE IS SOIL DISTURBING ACTIVITY OCCURRING WITHIN THE AREA UPSTREAM OF AND TRIBUTARY TO THE CATCH BASIN AND SHOULD OTHERWISE BE REMOVED SO AS TO NOT IMPEDE THE FLOW OF STORMWATER RUNOFF INTO THE SYSTEM.
8. STABILIZED CONSTRUCTION ENTRANCE: THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF SEDIMENT ONTO THE PUBLIC RIGHTS-OF-WAY OR STREETS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL AGGREGATE. ALL SEDIMENT SPILLED, DROPPED, OR WASHED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
9. DUST CONTROL: MAINTAIN DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS ARE STABILIZED. CONSTRUCTION OPERATIONS SHOULD BE SCHEDULED TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ONE TIME. EXCESSIVE DUST SHALL BE CONTROLLED BY WATER SPRINKLING AS NEEDED.
10. CONCRETE TRUCK WASHOUT: ALL PRE-FABRICATED CONCRETE WASHOUT FACILITIES SHALL BE INSPECTED DAILY. DAMAGED OR LEAKING FACILITIES SHALL BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATELY. ANY EXCESS WASH WATER SHALL BE PUMPED INTO A CONTAINMENT VESSEL AND PROPERLY DISPOSED OF OFF SITE. DISPOSE OF THE HARDENED MATERIAL OFF-SITE IN A CONSTRUCTION/DEMOLITION LANDFILL. INSPECT THE PROJECT SITE FREQUENTLY TO ENSURE THAT NO CONCRETE DISCHARGES ARE TAKING PLACE IN NON-DESIGNATED AREAS.
11. EQUIPMENT WASHDOWN: ALL CONSTRUCTION VEHICLES SHALL BE WASHED OUT IN A DEDICATED WASHDOWN AREA. EQUIPMENT WASH DOWN STONES SHALL BE WASHED AND REPLACED AS NEEDED. FILTER FABRIC SHALL BE REPLACED IF DEEMED NONFUNCTIONAL.
12. SOIL STOCKPILES: SILT FENCE MUST BE PLACED CONTINUOUSLY AROUND THE PERIMETER OF ALL STOCKPILES. REPLACE SILT FENCE AS NEEDED. APPLY TEMPORARY STABILIZATION TO ALL STOCKPILES WHICH WILL BE INACTIVE FOR 14 DAYS OR LONGER. STOCKPILES MAY BE COVERED WITH A SECURE TARP.
13. TEMPORARY CONSTRUCTION AREA SEEDING: IN THE EVENT THAT DISTURBED AREAS ARE EXPECTED TO BE INACTIVE FOR MORE THAN 14 DAYS, TEMPORARY CONSTRUCTION SEEDING SHALL BE APPLIED TO PROVIDE TEMPORARY EROSION CONTROL PROTECTION TO DISTURBED AREAS FOR AN INTERIM PERIOD BY COVERING ALL BARE GROUND THAT EXISTS AS A RESULT OF CONSTRUCTION ACTIVITIES. IF SPRING OR SUMMER OR EARLY FALL, THEN SEED THE AREA WITH RYEGRASS (ANNUAL OR PERENNIAL) AT 30 LBS. PER ACRE (APPROXIMATELY 0.7 LB./1000 SQ. FT. OR USE 1 LB./1000 SQ. FT.). IF LATE FALL OR EARLY WINTER, THEN SEED CERTIFIED 'AROOSTOOK' WINTER RYE (CEREAL RYE) AT 100 LBS. PER ACRE (2.5 LBS./1000 SQ. FT.). MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/ACRE (APPROX. 90 LBS./1000 SQ. FT. OR 2 BALES).

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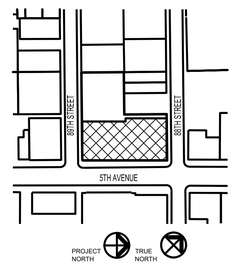
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NOTE: Drawing may be printed at reduced scale

IT IS A VIOLATION OF THE STATE EDUCATION LAW SECTION 7209 (2) FOR ANY PERSON TO ALTER AN ITEM IN ANY WAY UNLESS SUCH PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, AND THE ENGINEER STAMPS SUCH CHANGES

No.	Date	Revision

Key Plan:



Block # 6065 Lot # 28 & 39

SCA Design Manager:	Ciara Rogers
Project Architect/Engineer:	Stacie Wong
Discipline Lead:	Tommy Maene, P.E.
Designer:	Jade Ferrara
Drawn by:	Tatiana Del Gallego
Checked by:	Vageles Sophias, P.E.

LLW No.:	Facility Code:	Date:
118924	K337	08/04/2025

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Drawing Title:
Civil Notes

DOB NOW #:



Drawing No.:
C001.00

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EROSION AND SEDIMENT CONTROL PLAN - STAGE I
SCALE: 1" = 20'

SCALE IN FEET: 20 0 5 10 20

GENERAL NOTES:

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TABLE 4.6(a) – CONSTRUCTION SEQUENCING

PHASE # _1_: School
STAGE # _1_: Demolition

CONSTRUCTION ACTIVITY (in sequential order)	PRACTICE(S) INSTALLED PRIOR TO ACTIVTY[1]	PRACTICE(S) INSTALLED DURING ACTIVTY[1]
Demolition of existing buildings	Equipment washdown	Dust control

LEGEND:

PROPERTY LINE

W/D — EQUIPMENT WASHDOWN

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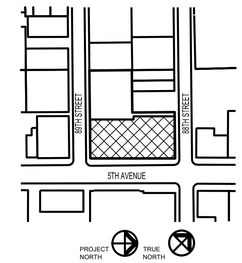
Consultants:
Architecture GLUCK+ Architecture, 475 W 127th Street, 6th Floor, New York, NY 10027, 212.690.4950
Civil Hartland Engineering, 720 Monroe Street, E405, Hoboken, NJ 07030, 917.536.6720
Structural Engineering LERA Consulting Structural Engineers, 40 Wall St, 23rd Floor, New York, NY 10005, 212.750.9000
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Expediting JM Zuming, 225 Broadway, Suite 1300, New York, NY 10007, 212.964.4464
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No.	Date	Revision

Key Plan:



Block # 6065 Lot # 28 & 39

SCA Design Manager:	Ciara Rogers
Project Architect/Engineer:	Stacie Wong
Discipline Lead:	Tommy Maene, P.E.
Designer:	Jade Ferrara
Drawn by:	Tatiana Del Gallego
Checked by:	Vageles Sophias, P.E.

LLW No.:	Facility Code:	Date:
118924	K337	08/04/2025

Project:
PS 337K, Brooklyn
K337

Address:
8802 5TH AVENUE,
BROOKLYN, NY. 11209

Drawing Title:
Erosion And Sediment Control Plan (Stage I)

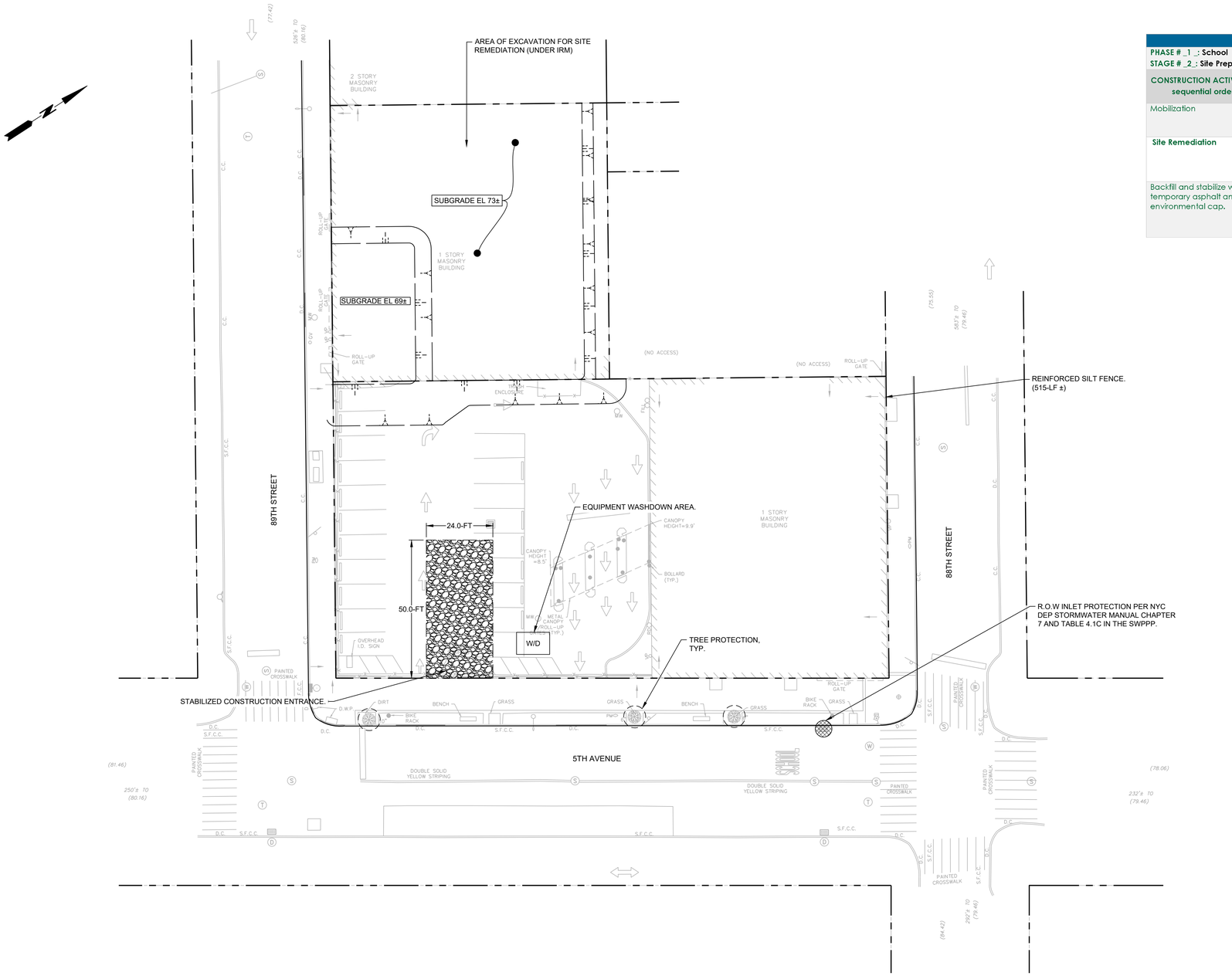
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EROSION AND SEDIMENT CONTROL PLAN - STAGE II
SCALE: 1" = 20'

SCALE IN FEET: 20 0 5 10 20

GENERAL NOTES:

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TABLE 4.6(b) – CONSTRUCTION SEQUENCING

PHASE # _1_: School
STAGE # _2_: Site Preparation, Lot 39 remediation and Removals

CONSTRUCTION ACTIVITY (in sequential order)	PRACTICE(S) INSTALLED PRIOR TO ACTIVTY[1]	PRACTICE(S) INSTALLED DURING ACTIVTY[1]
Mobilization	Stabilized construction entrance Storm drain inlet protection	None
Site Remediation	Stabilized construction entrance Storm drain inlet protection Equipment washdown	Dust control
Backfill and stabilize with temporary asphalt and environmental cap.	Stabilized construction entrance Equipment washdown Storm drain inlet protection Concrete truck washout	Dust control

LEGEND:

- PROPERTY LINE
- TREE PROTECTION
- REINFORCED SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- W/D — EQUIPMENT WASHDOWN
- TOP OF SLOPE
- BOTTOM OF SLOPE

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MEP Shenoy Engineering PC, 26 US Hwy 46E Suite 802, Pine Brook, NJ 07058, 862.210.6695
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No.	Date	Revision

Key Plan:

Block # 6065 Lot # 28 & 39

SCA Design Manager:	Ciara Rogers
Project Architect/Engineer:	Stacie Wong
Discipline Lead:	Tommy Maene, P.E.
Designer:	Jade Ferrara
Drawn by:	Tatiana Del Gallego
Checked by:	Vageles Sophias, P.E.

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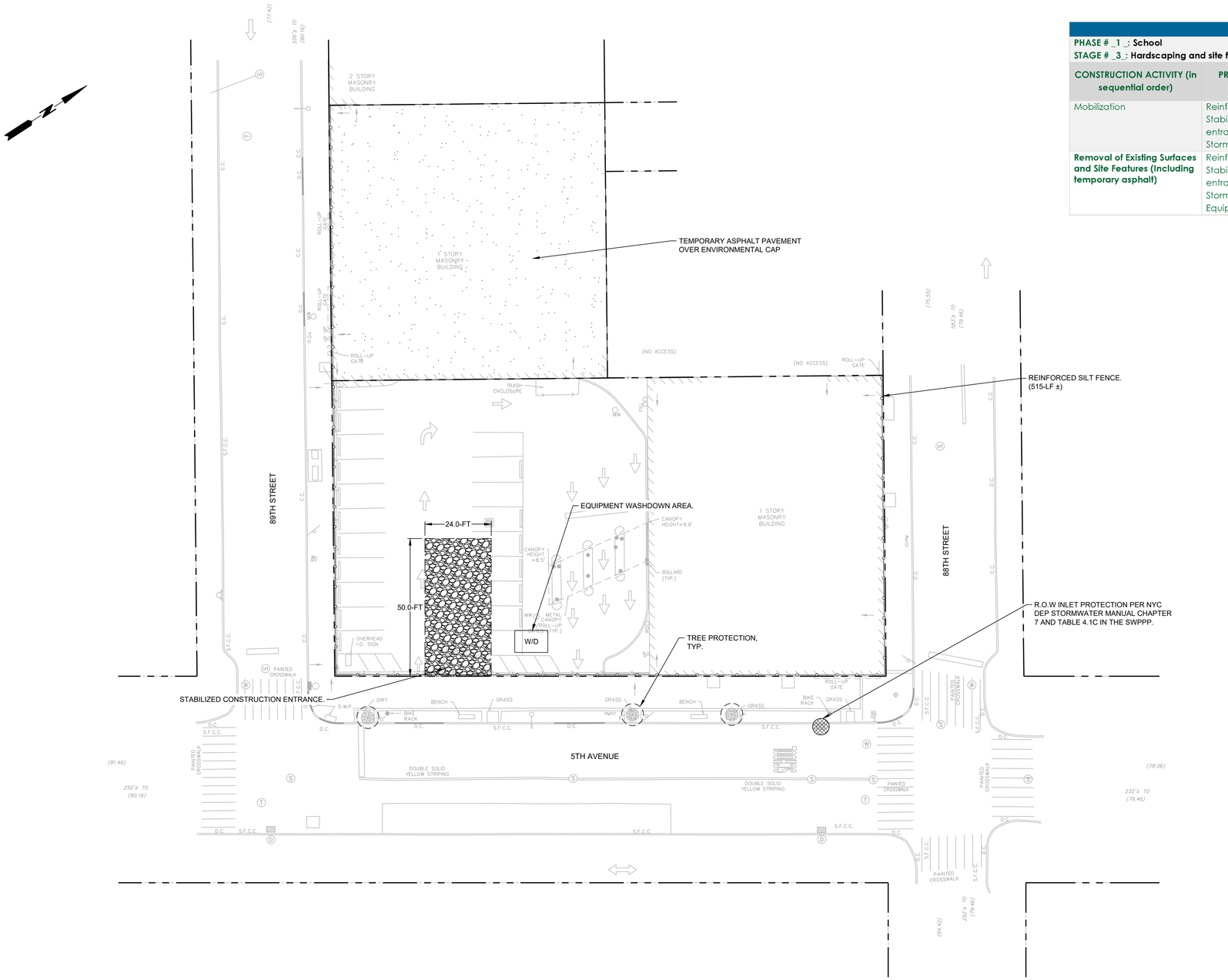
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Erosion And Sediment Control Plan (Stage II)

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EROSION AND SEDIMENT CONTROL PLAN - STAGE III
SCALE: 1" = 20'

SCALE IN FEET: 20 0 5 10 20

TABLE 4.6(c) – CONSTRUCTION SEQUENCING

PHASE # _1_: School
STAGE # _3_: Hardscaping and site features Removals

CONSTRUCTION ACTIVITY (in sequential order)	PRACTICE(S) INSTALLED PRIOR TO ACTIVTY[1]	PRACTICE(S) INSTALLED DURING ACTIVTY[1]
Mobilization	Reinforced Silt fence Stabilized construction entrance Storm drain inlet protection	None
Removal of Existing Surfaces and Site Features (Including temporary asphalt)	Reinforced Silt fence Stabilized construction entrance Storm drain inlet protection Equipment washdown	Dust control

LEGEND:

- PROPERTY LINE
- INLET PROTECTION
- TREE PROTECTION
- REINFORCED SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- W/D — EQUIPMENT WASHDOWN
- TEMPORARY ASPHALT PAVEMENT

GENERAL NOTES:

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No.	Date	Revision

Key Plan:

Block # 6065 Lot # 28 & 39

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Project Architect/Engineer:	Stacie Wong
Discipline Lead:	Tommy Maene, P.E.
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118924	K337	08/04/2025

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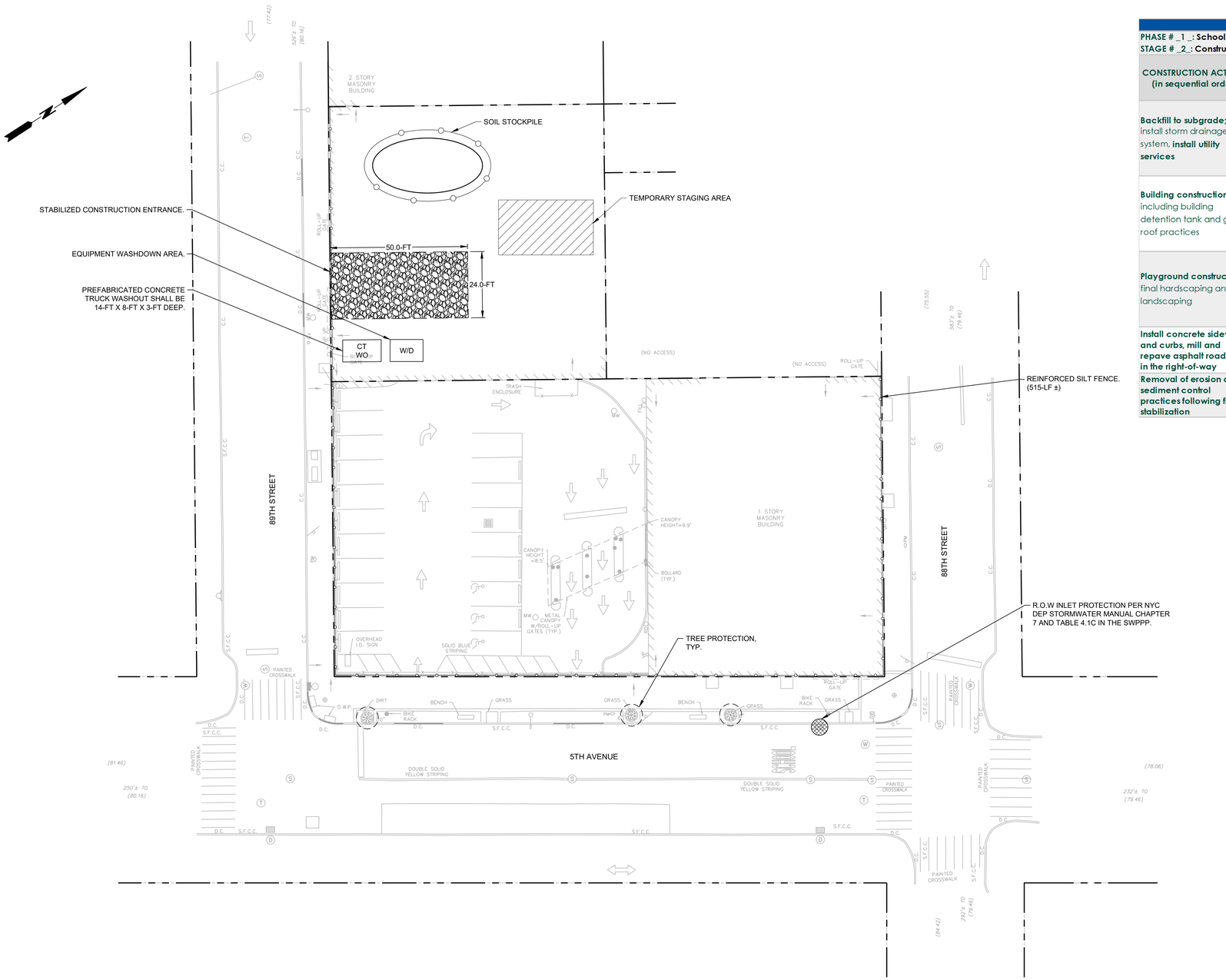
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EROSION AND SEDIMENT CONTROL PLAN - STAGE IV
SCALE: 1" = 20'

20 0 5 10 20
SCALE IN FEET

GENERAL NOTES:

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TABLE 4.6(b) – CONSTRUCTION SEQUENCING

PHASE # _1_: School
STAGE # _2_: Construction

CONSTRUCTION ACTIVITY (in sequential order)	PRACTICE(S) INSTALLED PRIOR TO ACTIVTY[1]	PRACTICE(S) INSTALLED DURING ACTIVTY[1]	PRACTICE(S) INSTALLED WITHIN ONE BUSINESS DAY OF COMPLETING ACTIVTY[1]
Backfill to subgrade; install storm drainage system, **install utility services**	Reinforced Silt fence Stabilized construction entrance Storm drain inlet protection Equipment washdown Concrete truck washout	Dust control	Temporary Construction Area Seeding or Mulching (if required)
Building construction, including building detention tank and green roof practices	Reinforced Silt fence Stabilized construction entrance Storm drain inlet protection Equipment washdown Concrete truck washout	Dust control	Temporary Construction Area Seeding or Mulching (if required)
Playground construction, final hardscaping and landscaping	Reinforced Silt fence Stabilized construction entrance Storm drain inlet protection Equipment washdown Concrete truck washout	Dust control	None
Install concrete sidewalk and curbs, mill and repave asphalt roadway in the right-of-way	ROW Inlet Protection Concrete truck washout	Dust control	None
Removal of erosion and sediment control practices following final stabilization	None	None	None

LEGEND:

- PROPERTY LINE
- INLET PROTECTION
- TREE PROTECTION
- REINFORCED SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- W/D — EQUIPMENT WASHDOWN
- CT WO — CONCRETE WASHDOWN

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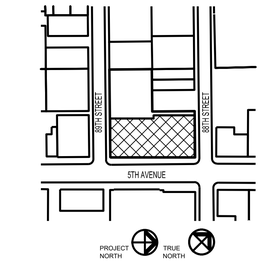
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Key Plan:



Block # 6065 Lot # 28 & 39

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118924	K337	08/04/2025

Project:
PS 337K, Brooklyn
K337

Address:
8802 5TH AVENUE,
BROOKLYN, NY. 11209

Drawing Title:
Erosion And Sediment Control Plan (Stage IV)

DOB NOW #:



Drawing No.: C104.00

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APPENDIX L
INTERIM REMEDIAL MEASURE WORK PLAN

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Acting Commissioner

May 28, 2025

Lee Guterman
NYCSCA, IEH Division
25-01 Jackson Avenue
Long Island City, NY 11101

Re: Former Giuffre Auto Group Site
8802 5th Avenue and 429 89th Street, Brooklyn, Kings County
Brownfield Cleanup Program # C224327
Interim Remedial Measures Work Plan

Dear Ms. Guterman:

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has completed its review of the Interim Remedial Measures Work Plan (IRMWP) dated May 2025, which was prepared by TRC Engineers, Inc. on behalf of New York City School Construction Authority (the Volunteer). The RIR is a requirement of the NYS Brownfield Cleanup Program, Agreement Index No. C203161-04-23. The IRMWP meets the requirements of DER-10 and the Brownfield Cleanup Agreement (BCA) and is hereby approved.

The Volunteer and its contractors are solely responsible for safe execution of all invasive and other field work performed under this IRMWP. The Volunteer and its contractors must obtain all local, state, and/or federal permits or approvals that may be required to perform work under this IRMWP. Further, the Volunteer and its contractors are solely responsible for the identification of utilities that might be affected by work under this IRMWP and, implementation of all required, appropriate, or necessary health and safety measures during performance of work under this IRMWP.

In accordance with the requirements of the Brownfield Cleanup Agreement and the Citizen Participation Plan, the approved IRMWP must be placed in the project document repositories within 5 business days. Any draft copies of this report should be removed. A certification that this document has been placed in the project repositories, and that the repositories are complete with all project documents, must be submitted to the NYSDEC project manager.

Please notify the NYSDEC at least 7 days prior to commencing any field work related to the approved RIWP. Should you have any questions regarding this letter or any other aspect of the project, please contact me at 718-482-4508 or jennifer.gonzalez@dec.ny.gov.

Regards,

Jennifer Gonzalez
Project Manager

cc: J. O'Connell, A. Obligado, G. Nam – NYSDEC
S. McLaughlin, A. Perretta – NYSDOH
B. Kanaparthi, M. Sherwood – NYSCA
J. Raup, Z. Schwartz – TRC Engineers, Inc.

1407 Broadway, Suite 3301
New York, NY 10018
t 212.221.7822

May 21, 2025

Ms. Jennifer Gonzalez
Division of Environmental Remediation
New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101

Re: Interim Remedial Measure Work Plan
Former Giuffre Auto Group Site (Proposed Public School 337K)
8802 5th Avenue and 429 89th Street, Brooklyn, New York 11209
NYSDEC BCP Site No. C224327
Service ID No. 81213; SCA Project ID No. 118924

Dear Ms. Gonzalez:

TRC Engineers, Inc. (TRC) has prepared this Interim Remedial Measure (IRM) Work Plan on behalf of the New York City School Construction Authority (NYCSCA) for the Former Giuffre Auto Group Brownfield Cleanup Program (BCP) Site No. C224327, located at 8802 5th Avenue and 429 89th Street, Brooklyn, New York 11209 (Block 6065, Lots 28 and 39) (the "Site").

The primary objective of the IRM is to remove the drainage system, suspected underground storage tank (UST), and oil-water separator (OWS) beneath the former auto repair/service station building located on the 429 89th Street portion of the Site (Lot 39). In addition, an objective of this IRM is to locate and remove shallow residual source area(s) of petroleum-related contaminant mass.

Site Description and Background

The Site encompasses approximately 31,659 square feet (sf) and is improved with a one-story commercial building with a basement and an asphalt-paved parking lot on Lot 28 (8802 5th Avenue), and a former commercial building with a partial basement on Lot 39 (429 89th Street). Lot 28 is approximately 21,659 sf and contains a one-story commercial building with a gross floor area of approximately 13,835 sf that is currently subdivided into two units that are currently vacant. Lot 39 is approximately 10,000 sf and is improved with a one-story former commercial building with a partial basement that is currently vacant and was most recently used by a construction company for storage of tiles and other assorted construction materials. The Site location is shown on *Figure 1*.

Between 2019 and 2020, TRC conducted environmental due diligence activities at the Site consisting of a Phase I Environmental Site Assessment (ESA) and a Phase II Environmental Site Investigation (ESI). The Site was entered into the BCP, and the Brownfield Cleanup Agreement (BCA) was executed on May 26, 2022. Between June 2022 and September 2024, TRC conducted a Remediation Investigation (RI) and a Supplemental Remedial Investigation (SRI) in accordance with the New York State Department of Environmental Conservation (NYSDEC)-approved work plans dated March 17, 2022 and May 16, 2024. The RI Report was submitted to NYSDEC in

December 2024. Comments to the RI Report have been received by NYSDEC and the RI Report is being finalized.

During prior investigations, petroleum impacted soils were identified beneath the 429 89th Street Building (Lot 39). Specifically, moderate to strong odors, staining and photoionization detector (PID) readings were identified in soil samples collected between 18.5 feet below ground surface (bgs) and 24.8 feet bgs, and two (2) volatile organic compounds (VOCs), 1,2,4-trimethylbenze and xylene, were detected in one (1) soil boring beneath Lot 39 at concentrations above the Restricted Residential Use Soil Cleanup Objective (RRSCO).

Additionally, during geophysical surveys performed as part of prior investigations, multiple suspected underground structures were identified. Specifically, identified structures resemble an underground drainage system, a UST, and an OWS. Since shallow source area impacts were not identified during prior extensive subsurface investigations, the intent of this IRM is to properly remove the suspected underground structures and investigate and remediate potential residual source area impacts in their vicinity. The information gained from this investigation, structure removal, and post-excavation sampling will provide additional clarity on the nature of the contamination previously identified onsite and may inform the proposed remedial efforts going forward. A Site Layout Map showing the locations of the suspected underground structures is included as *Figure 2*.

As part of the draft License Agreement with the neighboring property, the neighboring property's cars and parking lifts that are currently abutting the Site are required to be relocated during Lot 28 building demolition and construction of the barrier wall that is needed to mitigate potential future adjacent property vehicle emissions and car lift failures/collapses. As part of the draft License Agreement, it is anticipated that the neighboring property's relocated cars will be parked on Lot 39 during the demolition and construction activities on Lot 28. Due to the anticipated provisions of the License Agreement, it is beneficial to the progress of the project and the remedial approach to complete this IRM ahead of development of the Remedial Action Work Plan (RAWP) and the anticipated logistical and access constraints.

IRM Work Plan Scope of Work

The activities described in this Work Plan will be performed in accordance with applicable local, state, and Federal rules and regulations, and the Quality Assurance Project Plan (QAPP), Community Air Monitoring Plan (CAMP) and site-specific Health and Safety Plan (HASP), presented as *Attachments A through C,* respectively. The CAMP will be implemented during all ground-intrusive activities.

Subsequent to the IRM activities, ground-intrusive pile driving activities may be conducted on lot 28 in support of installation of a protective wall. This work is not a part of the remedial activities; however, CAMP will be implemented during all ground-intrusive activities that have the potential for off-site migration of dust. All soil and waste produced by the pile driving activities will be properly managed and disposed of in accordance with Section 5.0 below.

On-Site monitoring wells TRC-GW-22, TRC-GW-22-N, TRC-GW-22-E, and TRC-GW-22-SW will be protected during performance of the IRM using barriers to prevent damage. Refer to *Figures 2 and 3* for the locations of monitoring wells to be protected. In addition, the above grade portion of the building and the floor slab will be removed in advance of performance of the IRM.

1.0 Removal of the Suspect Drainage Piping and Floor Drain System

Within the Lot 39 Building, floor drains were identified that connect to suspected underground drainage piping. The floor drains and suspected piping will be excavated and removed from the Site as part of the IRM.

- The floor drains and suspected underground drainage piping will be emptied and cleaned. All waste generated during drainage system cleaning will be stored in 55-gallon drums, which will be labeled and remain stored onsite prior to disposal.
- Following cleaning, the floor drains and drainage system piping will be inspected for evidence of damage (e.g., corrosion) and penetrations. A description and photographic documentation of the floor drains and drainage system conditions, including any evidence of corrosion and leaks, will be documented.
- Soil in the vicinity of the piping will be inspected for evidence of contamination (e.g., odors, staining) and screened with a PID. If evidence of a release is identified, or evidence of damage to the floor drains/drainage system piping is identified, a sample of soil from the most impacted zone and/or area of observed damage will be collected and submitted to the Environmental Laboratory Approval Program (ELAP)-certified laboratory under standard chain-of-custody for analysis for Target Compound List (TCL)/Commissioner Policy 51 (CP-51) volatile organic compounds (VOCs) + Tentatively Identified Compounds (TICs), semivolatile organic compounds (SVOCs) + TICs, and Target Analyte List (TAL) metals. Analytical Services Protocol (ASP) Category B laboratory data packages will be provided.
- Any soil exhibiting evidence of contamination will be stockpiled on polyethylene sheeting for proper waste characterization, prior to being transported off-Site for disposal.
- Post-excavation soil sampling, which will be used to document the conditions of remaining on-Site material, will be performed as described in Section 4.0 below.

2.0 Removal of the Suspect Oil Water Separator

The suspect OWS is located beneath the south portion of the Lot 39 building, and is anticipated to be connected to the underground drainage system based on the geophysical survey performed during prior investigations. The removal of the suspect OWS will be performed as follows:

- Excavation in the area of the suspected OWS will be completed to confirm if a structure is present, and, if so, if the structure appears to be consistent with an OWS.

- If identified, the OWS will be emptied and scrubbed clean of residual material. All waste generated during cleaning will be stored in 55-gallon drums, which will be labeled and remain stored onsite prior to disposal.

- The OWS interior will be made inert.

- Following cleaning, the OWS interior will be inspected for indications of damage (e.g., corrosion, penetrations, etc.). A description and photographic documentation of the OWS conditions, including any evidence of corrosion and leaks, will be documented.

- Soil in the vicinity of the OWS will be inspected for evidence of petroleum contamination (e.g., odors, staining) and screened with a PID. If evidence of a release, and/or evidence of damage to the OWS is identified, a sample of soil from the most impacted zone and/or area of damage will be collected and submitted to the ELAP-certified laboratory under standard chain-of-custody for analysis for TCL/CP-51 VOCs + TICs, SVOCs + TICs, and TAL metals. ASP Category B laboratory data packages will be provided.

- Any soil exhibiting evidence of contamination will be stockpiled on polyethylene sheeting for proper waste characterization, prior to being transported off-Site for disposal.

- Post-excavation soil sampling, which will be used to document the conditions of remaining on-Site material, will be performed as described in Section 4.0 below.

3.0 Removal and Closure of the Suspect Underground Storage Tank

The dimensions of the suspect UST are assumed to be approximately 4.5 feet by 9 feet based on the limits of the anomaly detected during the prior geophysical survey work. If a UST is present, the tank and associated piping will be closed and removed in accordance with NYSDEC requirements and applicable local, state, and Federal rules and regulations.

Please note, there are no tanks currently registered in NYSDEC Petroleum Bulk Storage (PBS) program for Lot 39. If discovered, the UST will be registered and closed concurrently during the IRM, with consideration of the total petroleum storage, including the approximate 1,100-gallon above ground storage tank (AST) located on Lot 28. Closure of the tank (if encountered), including collection and analysis of post excavation end-point samples, will be conducted in accordance with NYSDEC Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (DER-10), as described in the following bullets and in Section 4.0:

- The tank will be emptied and scrubbed clean of any residual material. All waste generated during cleaning will be stored in 55-gallon drums, which will be labeled and remain stored onsite prior to being transported off-Site for disposal.

- The tank interior will be made inert.

- Following tank cleaning, the tank interior will be inspected for damage (e.g., corrosion, penetrations, etc.). A description and photographic documentation of the tank and piping conditions, including any evidence of corrosion and leaks, will be documented.

- Soil in the vicinity of the UST will be inspected for evidence of petroleum contamination (e.g., odors, staining) and screened with a PID. If evidence of a release is identified, and/or evidence of damage to the UST is identified, a sample of soil from the most impacted zone and/or area of damage will be collected and submitted to the ELAP-certified laboratory under standard chain-of-custody for analysis for TCL/CP-51 VOCs + TICs, SVOCs + TICs, and TAL metals. ASP Category B laboratory data packages will be provided.

- Any soil exhibiting evidence of contamination will be stockpiled on polyethylene sheeting for proper waste characterization, prior to being transported off-Site for disposal.

- Underground piping associated with the UST, if discovered, will be cleaned and removed.

4.0 Excavation and Post-Excavation Sampling Program

Following closure and removal of the sub-slab drainage system, OWS, and UST, the Lot 39 portion of the Site will be excavated to a minimum depth of 2 feet below ground surface (bgs) to the extent possible. Excavation to 10 feet bgs may be necessary for proper removal and closure of the UST. Support of excavation (SOE) will be installed to facilitate excavations deeper than 5 feet bgs. Soil will be direct loaded into trucks and transported off-site to a disposal facility permitted to accept such waste (i.e. non-hazardous excavated material and petroleum contaminated material).

Post-excavation samples will be collected from the terminal depth of the excavation. Refer to *Figure* 3 for the post-excavation sampling plan. Samples may be added or removed based on the actual extent of the piping discovered during excavation and removal work. Post-excavation sampling will remain compliant with DER-10 sampling frequency recommendations. Sampling will be conducted as follows:

- The following samples will be analyzed for TCL/CP-51 VOCs + TICs and TCL/CP-51 SVOCs + TICs:

    - One (1) sample will be collected every 20 linear feet of piping associated with the underground drainage system.

    - One (1) sample will be collected beneath each removed floor drain.

    - One (1) sample per five (5) feet of length of the OWS.

    - One (1) sample every five (5) feet of length of the UST (i.e., 2 soil samples).

        - If there is underground piping associated with the UST, one (1) sample every 20 linear feet of piping will be collected. If there is less than 20 feet of piping, one (1) sample will be collected.

- The following samples will be analyzed for TCL/CP-51 VOCs + TICs, TCL/CP-51 SVOCs + TICs, and TAL metals:

    - One (1) post-excavation sample will be collected approximately every 900 square feet. Post-excavation sample locations may be co-located with the drainage piping, OWS and UST sample locations, as applicable. Refer to *Figure 3*.

- If evidence of a release is identified at the terminal depth of the excavation, a sample of soil from the most impacted zone will be collected and submitted to the ELAP-certified laboratory under standard chain-of-custody for analysis for TCL/CP-51 VOCs + TICs, SVOCs + TICs, and TAL metals. ASP Category B laboratory data packages will be provided.

- Any previously unidentified drainage features will be thoroughly inspected and documented.

Samples will be submitted to an ELAP-certified laboratory under standard chain-of-custody for analysis. ASP Category B laboratory packages will be provided.

5.0 Site Restoration and Waste Disposal

After post-excavation sampling has been performed, the excavation will be backfilled as follows:

1. A geotextile liner will be installed against all exposed soil surfaces within the excavation to serve as a demarcation layer.

2. The excavation will be backfilled with virgin quarried #57 stone (i.e., ¾ inch bluestone) to grade, or an approved equal. NYSDEC's Request to Import/Reuse Fill or Soil form will be provided to NYSDEC prior to import, included as *Attachment D*.

All waste generated during IRM activities (soil, oil, wash waters, tank bottoms, drainage sediment, cleaning materials, etc.) will be properly characterized and transported offsite for disposal at a facility(ies) permitted to accept such waste.

- Waste characterization sampling will be performed exclusively for the purposes of off-Site disposal in a manner suitable to comply with receiving facility(ies) permit(s).

- Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded. Further, truck tires will inspected and cleaned, if necessary, to avoid tracking material into the street.

- All transport of materials will be performed by licensed haulers in accordance with 6 NYCRR Part 364 and other applicable local, state, and Federal rules and regulations.
- All soil/fill/liquid/solid waste excavated and removed from the Site will be disposed of in accordance with 6 NYCRR Part 360 and other applicable local, state, and Federal rules and regulations.

Green and Sustainable Remediation Baseline Analysis

The Green and Sustainable Remediation Baseline Analysis was conducted utilizing the US Environmental Protection Agency (EPA) Greener Cleanup Metrics Workbook to estimate the environmental footprint of the IRM. The purpose of this analysis is to estimate a baseline footprint to be compared against after implementation of the IRM is complete. During the IRM, actual measurements or best estimates, as practical, of quantities of the footprint core elements (e.g., fuel usage, electricity, water volume, etc.) will be tracked and used to facilitate a comparison to this baseline analysis. The assessment generally follows the ITRC document titled "Green and Sustainable Remediation: State of the Science and Practice", May 2011. The assessment scoring worksheet has been arranged to group the footprint into 4 core elements: materials, waste, water consumption, and energy use. Additionally, there are no known sensitive ecosystems/habitats within the project area; therefore, the remedial work is not expected to impact ecosystems and habitats within the project area. A discussion of the expected environmental footprint of the IRM activities is provided below. The green and sustainable remediation baseline analysis is included as *Attachment E*.

Energy

Staff will be utilized from the TRC New York, NY office. Eurofins Edison will be the laboratory utilized throughout the duration of the IRM. Although subject to change, Bethlehem Landfill in Bethlehem, PA, is the disposal facility used to estimate the fuel usage for waste that will be transported. It is expected that approximately 4,850 gallons of diesel and 130 gallons of gasoline will be consumed in relation to IRM activities by engineers, contractors, and laboratories and equipment drop off/pickups. In addition, one diesel powered excavator will be utilized on-Site throughout the duration of remedial work.

Energy consumption also includes powering equipment necessary for completing the remedial work, including charging CAMP station equipment. Energy consumption related to equipment usage will be calculated based on equipment usage hours and required kilowatt-hours. It is expected that equipment will be operating 8 hours per day, for 20 days.

Water

It is expected that 10,000 gallons of non-potable public water will be utilized during remediation activities. Public water will be utilized mainly for dust suppression, cleaning of the UST and drainage systems, and cleaning and decontamination of equipment. Water usage will be measured based on waste generated and estimated based on the flow rate and numbers of hours of site wetting for dust suppression.

Materials and Waste

The forecasted materials and waste are based on the planned excavation for completion of the

IRM, and related required excavation on Lot 39.

Expected materials imported to the site include 6,000 tons of crushed stone, 360 pounds of geotextile liner, 24 55-gallon steel drums, and 20 feet of 2-inch PVC pipe for monitoring well repairs.

Expected waste transported off site for disposal includes 4,500 tons of non-hazardous soil, 1,320 gallons of non-hazardous liquid and sediment, and 5,000 pounds of UST shell/scrap metal.

Report Preparation

After completion of off-site material disposal, site restoration, and receipt of validated laboratory results, an IRM Construction Completion Report (CCR) will be prepared. The IRM CCR will be prepared in accordance with DER-10, Section 5.8, and will contain a description of field activities, description of excavated areas, imported material sources and quantities, soil quantities removed, waste disposal documentation, tank closure documentation, and sampling results. Additionally, the report will include an analysis of the Green and Sustainable Remediation results compared to the baseline analysis included in this work plan, in accordance with DER-31. The report will include an evaluation of the quality of the analytical data and the reliability of the data for its intended use. The report will contain NYSDEC ASP Category B data deliverables and a DUSR for non-waste characterization analyses. The IRM CCR will be signed and sealed by a licensed New York State Professional Engineer. The data deliverables package will be submitted to NYSDEC in approved electronic data deliverable (EDD) format.

Schedule

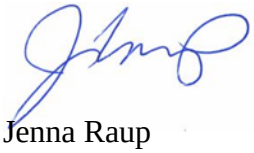
Prior to implementation of the IRM, the IRM Work Plan and NYSDEC approval letter will be filed with NYCOER in order to receive a Notice to Proceed (NTP) or a Notice of No Objection (NNO) in the Building Department's DOBNOW system. It is anticipated that the IRM field activities will occur during the upcoming demolition phase of the new building construction. It is anticipated that the IRM field activities will take place once the building demolition has sufficiently advanced to facilitate the intrusive work below the slab of the existing building. The IRM CCR will be submitted to NYSDEC within approximately 8 weeks of receipt of all documentation required for the report.

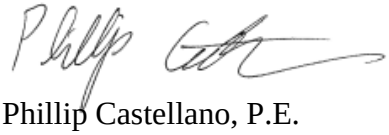
Certification

I, Phillip Castellano, certify that I am currently a NYS registered professional engineer and that this Interim Remedial Measure Work Plan 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) and Green Remediation (DER-31).

Please contact me at (917) 359-1852 or pcastellano@trccompanies.com with any questions or comments.

Sincerely,
TRC Engineers, Inc.





Jenna Raup
Program Manager
Jraup@trccompanies.com

Phillip Castellano, P.E.
Senior Engineer
PCastellano@trccompanies.com

cc: J. O'Connell, A. Obligado, NYSDEC
S. Kanaparthi, M. Sherwood, NYCSCA
Z. Schwartz, TRC

Enclosures: Figure 1 – Site Location Map
Figure 2 – Site Layout Map
Figure 3 – Proposed Post-Excavation Sample Location Plan

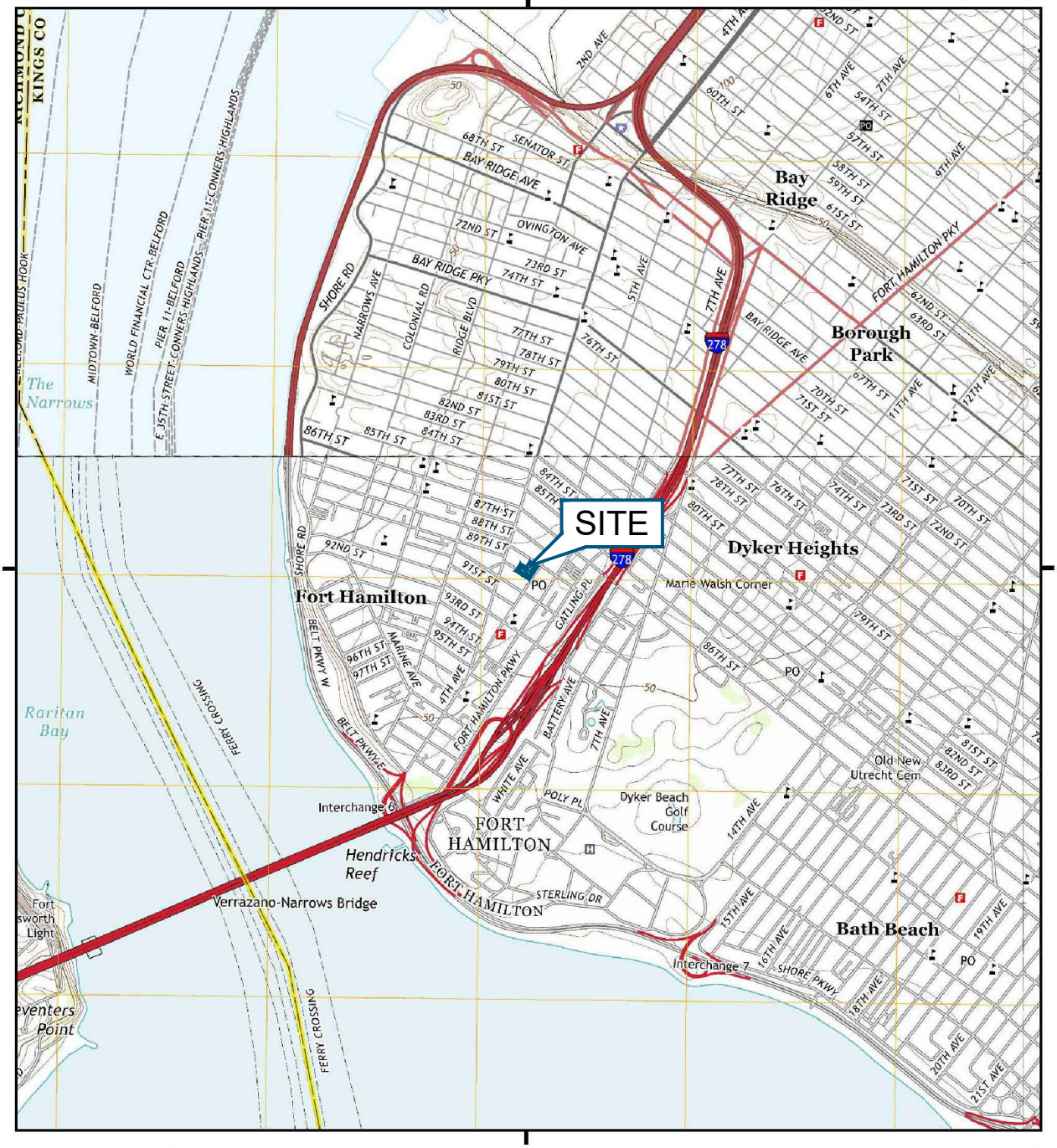
Attachment A – Quality Assurance Project Plan
Attachment B – Community Air Monitoring Plan
Attachment C – Health and Safety Plan
Attachment D – NYSDEC Request to Import/Reuse Fill or Soil Form
Attachment E – Green and Sustainable Remediation Baseline Analysis

FIGURES

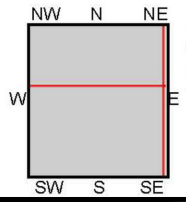
EDR

Historical Topo Map

2013, 2014



This report includes information from the following map sheet(s).



TP, The Narrows, 2013, 7.5-minute
N, Jersey City, 2014, 7.5-minute
NE, Brooklyn, 2013, 7.5-minute
SE, Coney Island, 2013, 7.5-minute

0 Miles 0.25 0.5 1 1.5

SITE NAME: 8802 5th Avenue
ADDRESS: 8802 5th Avenue
Brooklyn, NY 11209

N

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PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
INTERIM REMEDIAL MEASURE WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

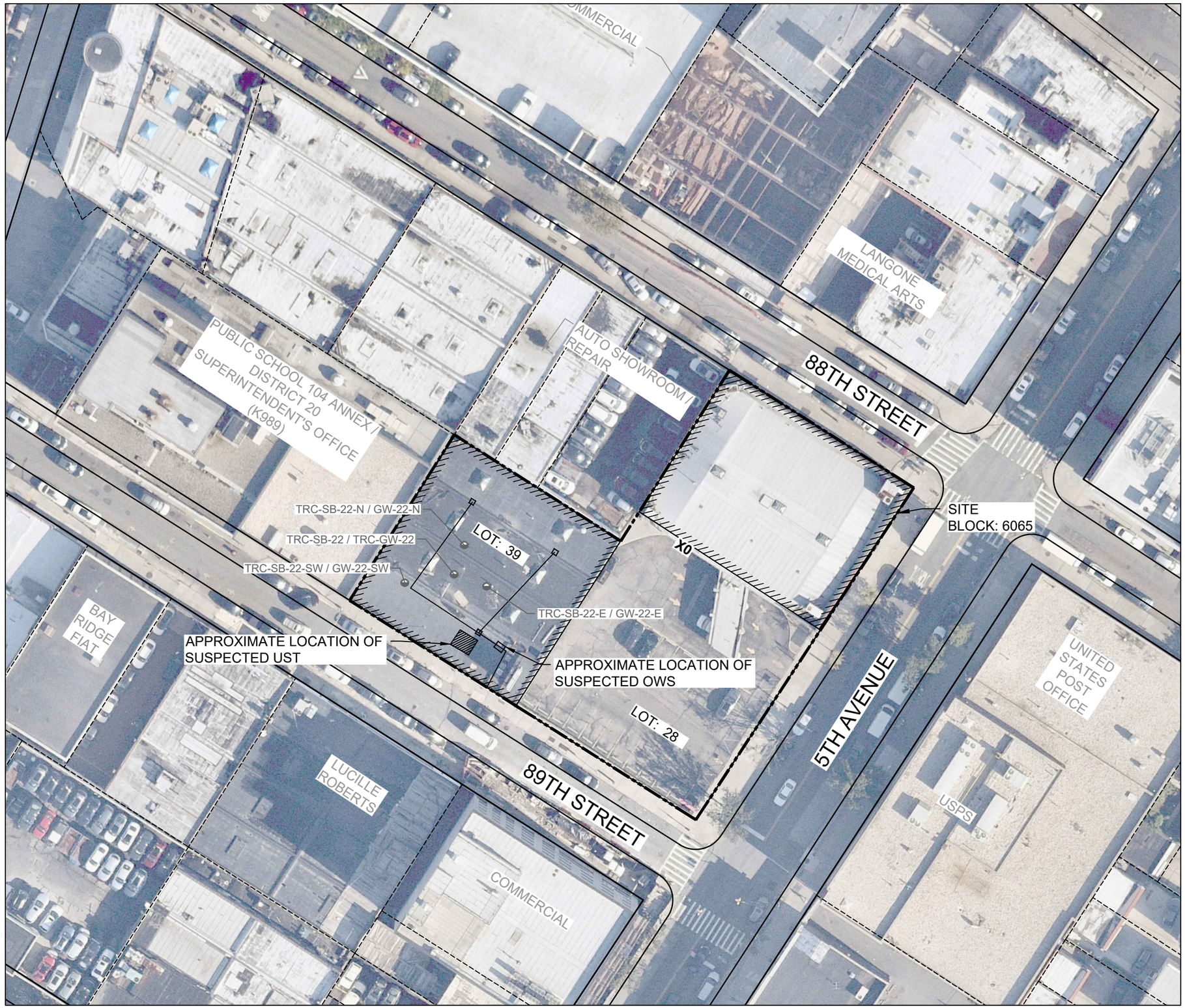
TITLE:

SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	Z. SCHWARTZ
APPROVED BY:	P. CASTELLANO
DATE:	APRIL 2025
PROJ. NO.:	565027.0000.0000
FILE:	Fig 1 - Site Location Map (K20F).dwg

FIGURE 1

8.5x11 -- ATTACHED XREFS: -- ATTACHED IMAGES: 2013-2014 Hist Topo: TRC:
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RMTRC Working Drawings\ Fig 1 - Site Location Map (K20F).dwg -- PLOT DATE: April 25, 2025 - 3:58PM -- LAYOUT: 8.5x11P



LEGEND (SYMBOLS NOT TO SCALE):

	SITE BOUNDARY
	LOT BOUNDARY
	BUILDING FOOTPRINT
	SUSPECT DRAINAGE SYSTEM PIPING
	MONITORING WELL TO BE PROTECTED
	FLOOR DRAIN
X0	FILL PORT / VENT PIPE

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. AERIAL IMAGE BACKGROUND SOURCED FROM NEARMAP DATED OCTOBER 01, 2020.
3. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
4. LOT 39 BUILDING IS CURRENTLY VACANT
5. UST - UNDERGROUND STORAGE TANK
6. OWS - OIL WATER SEPARATOR

N

TRUE NORTH NY83-LIF

0 50' 100'

SCALE: 1" = 50'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
INTERIM REMEDIAL MEASURE WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

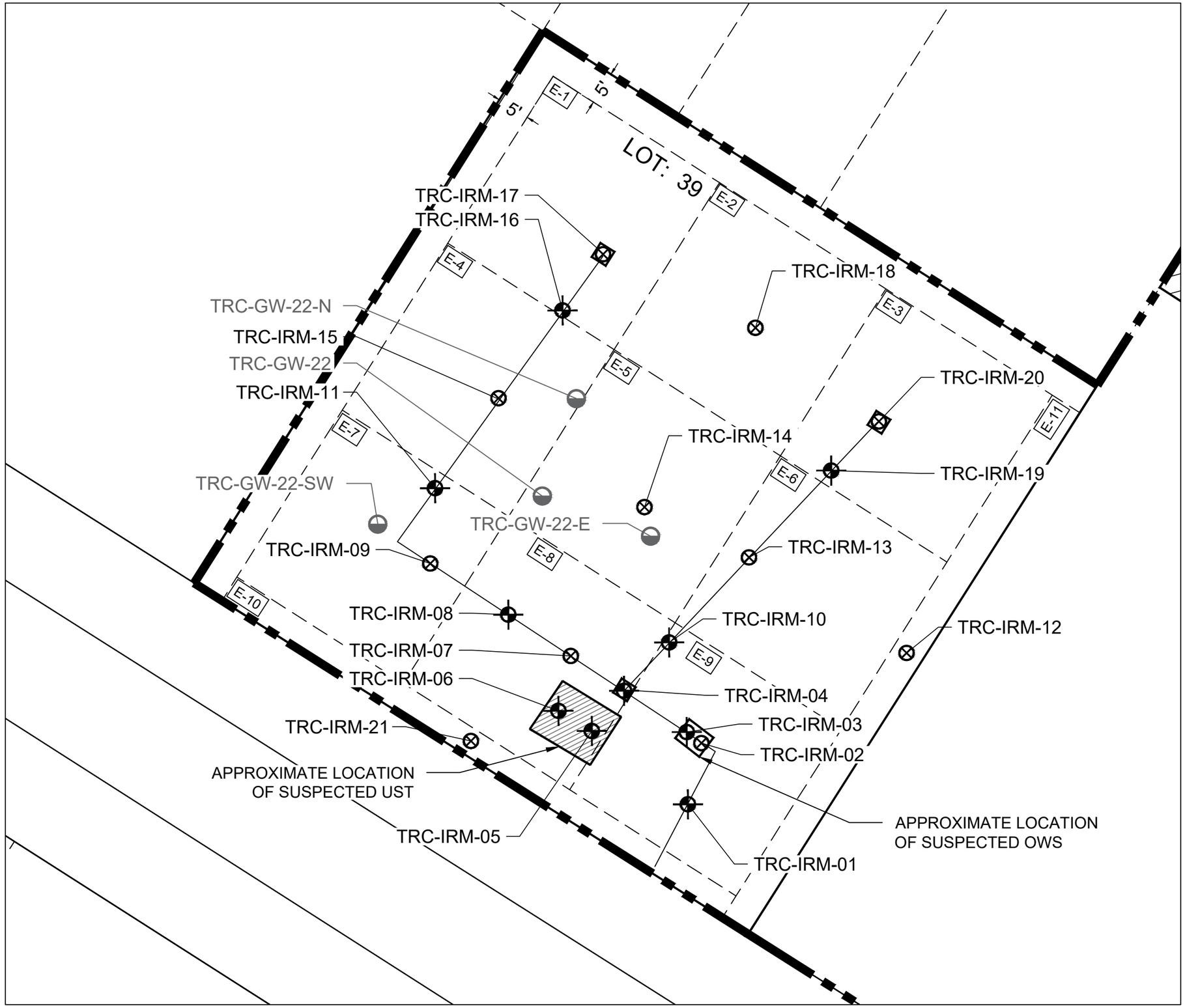
SITE PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	565027.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	P. CASTELLANO		**FIGURE 2**
DATE:	APRIL 2025		

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FILE NO.: Fig 2 - Site Plan (K20F).dwg

11x17 -- ATTACHED XREFS: -- ATTACHED IMAGES: EPSG#203, TRC
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\RM\TRC Working Drawings\ Fig 2 - Site Plan (K20F).dwg -- PLOT DATE: April 25, 2025 - 3:59PM -- LAYOUT: 11x17L



LEGEND (SYMBOLS NOT TO SCALE):

- SITE BOUNDARY
- LOT BOUNDARY
- EXCAVATION AREA REPRESENTING APPROXIMATELY 900 SQUARE FEET
- SUSPECT DRAINAGE SYSTEM PIPING
- FLOOR DRAIN
- SOIL SAMPLE LOCATION - VOCS AND SVOCS
- SOIL SAMPLE LOCATION - VOCS, SVOCS AND METALS
- MONITORING WELL TO BE PROTECTED

NOTES:

1. LOCATIONS AND DIMENSIONS OF PHYSICAL FEATURES AND BOUNDARIES ARE APPROXIMATE.
2. BASEMAP SOURCE FROM NYC DEPARTMENT OF FINANCE TAX MAP.
3. SAMPLES MAY BE ADDED OR REMOVED AS NECESSARY TO COMPLY WITH DER-10 RECOMMENDATIONS.
4. SAMPLES TO BE COLLECTED FROM THE TERMINAL DEPTH OF EXCAVATION, BENEATH THE PIPING INVERTS, UST AND OWS, FOLLOWING COMPLETION OF EXCAVATION AND REMOVAL.
5. A GEOTEXTILE DEMARCATION LAYER WILL BE INSTALLED PRIOR TO BACKFILLING WITH VIRGIN QUARRIED #57 STONE, OR APPROVED EQUAL.
6. UST - UNDERGROUND STORAGE TANK
7. OWS - OIL WATER SEPARATOR

N

TRUE NORTH
NY83-LIF

0 15' 30'

SCALE: 1" = 15'
SHEET SIZE: 11" BY 17"

PROJECT: **NEW YORK CITY SCHOOL CONSTRUCTION AUTHORITY**
INTERIM REMEDIAL MEASURE WORK PLAN - BCP SITE NO. C224327
8802 5TH AVENUE AND 429 89TH STREET
BLOCK: 6065, LOTS: 28 & 39
BROOKLYN, NEW YORK 11209

TITLE:

PROPOSED POST-EXCAVATION SAMPLE LOCATION PLAN

DRAWN BY:	H. DELGADO	PROJ NO.:	565027.0000.0000
CHECKED BY:	Z. SCHWARTZ		
APPROVED BY:	P. CASTELLANO		**FIGURE 3**
DATE:	APRIL 2025		

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New York, NY 10018
Phone: 212.221.7822
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FILE NO.: Fig 3 - Sample Location Plan (K20F).dwg

11x17 — ATTACHED SHEETS — ATTACHED IMAGES: EP629393, TRC
DRAWING NAME: \\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\IRM\TRC Working Drawings\ Fig 3 - Sample Location Plan (K20F).dwg — PLOT DATE: April 28, 2025 - 11:25AM — LAYOUT: 11x17L

ATTACHMENT A

QUALITY ASSURANCE PROJECT PLAN

QUALITY ASSURANCE PROJECT PLAN

This Quality Assurance Project Plan (QAPP) presents the organization, objectives, planned activities, and specific quality assurance/quality control (QA/QC) procedures associated with the field activities described in the scope of work. The QAPP also describes specific protocols for field sampling, sample handling and storage, and laboratory analysis. The data generated from the analysis of samples will be used to document post-excavation soil conditions.

Project Organization and Responsibility

A qualified person will coordinate and manage the sampling and analysis program, data reduction, QA/QC, data validation, analysis, and reporting. TRC will direct the sampling activities and coordinate laboratory and remedial investigation activities. The TRC Project Quality Assurance (QA) Officer will be Elizabeth Denly and will report directly to the Project Manager, Jenna Raup.

A qualified person will ensure that the QAPP is implemented and will oversee data validation. A qualified person will provide oversight and technical support for the sampling and analytical procedures followed in this project. This individual has the broad authority to approve or disapprove project plans, specific analyses, and final reports. The Project QA Officer is independent from the data generation activities. In general, the QA officer will be responsible for reviewing and advising on all QA/QC aspects of this program.

Data validation will be performed for the post-excavation documentation/confirmatory soil sample analytical data. The results of the data validation will be summarized in Data Usability Summary Reports (DUSRs). Nancy Weaver of Environmental Data Services, Inc. is the proposed data validator for this project. Resumes of key personnel, including the Project QA Officer, Project Manager, and Data Validator can be found at the end of the QAPP.

Laboratories used will be New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratories. The proposed laboratory for this project is Eurofins-TestAmerica Laboratory in Edison, New Jersey (ELAP Certification No. 11452). The laboratory will communicate directly with the Project Manager regarding the analytical results and reporting and will be responsible for providing all labels, sample containers, temperature blanks, shipping coolers, and laboratory documentation.

QA Objectives for Data Management

New York State Analytical Services Protocol (ASP) Category B laboratory packages will be provided by the laboratory.

All analytical measurements will be made so that the results are representative of the media sampled and the conditions measured. Data will be reported in consistent dry weight units for solid samples (i.e., µg/kg and/or mg/kg). Table 1A presents the proposed samples, sampling and analytical parameters, analytical methods, sample preservation requirements, containers, and QA/QC samples.

Quantitation Limits (QLs) are laboratory-specific and reflect those values achievable by the laboratory performing the analyses.

Data Quality Levels (DQLs) are those reporting limits required to meet the objectives of the program (i.e., program action levels, cleanup standards, etc.).

Data Quality Objectives (DQOs) define the quality of data and documentation required to support decisions made in the various phases of the data collection activities. The DQOs are dependent on the end uses of the data to be collected and are also expressed in terms of objectives for precision, accuracy, representativeness, completeness, and comparability.

The analytical methods to be used at this site provide the highest level of data quality and can be used for purposes of risk assessment, evaluation of remedial alternatives and verification that cleanup standards have been met. However, in order to ensure that the analytical methodologies are capable of achieving the DQOs, measurement performance criteria have been set for the analytical measurements in terms of accuracy and precision.

The overall QA objective is to develop and implement procedures for field sampling, chain-of-custody, laboratory analysis, and reporting which will provide results that are scientifically valid, and the levels of which are sufficient to meet DQOs.

For quantitation limits for parameters associated with soil samples, the laboratory will be required to attempt to meet or surpass the parameter-specific limits listed in 6 NYCRR Part 375 Unrestricted Use Criteria and Commissioner Policy 51 Tables 2 and 3 (CP-51).

The QA objectives are defined as follows:

- ***Accuracy*** is the closeness of agreement between an observed value and an accepted reference value. The difference between the observed value and the reference value includes components of both systematic error (bias) and random error.

  Accuracy in the field is assessed through the adherence to all field instrument calibration procedures, sample handling, preservation, and holding time requirements, and through the collection of equipment blanks prior to the collection of samples for each type of non-dedicated equipment being used. Since the scope of work includes soil sampling using disposable and sterile scoops, Equipment Blanks are not proposed.

  The laboratory will assess the overall accuracy of their instruments and analytical methods (independent of sample or matrix effects) through the measurement of "standards," materials of accepted reference value. Accuracy will vary from analysis to analysis because of individual sample and matrix effects. In an individual analysis, accuracy will be measured in terms of blank results, the percent recovery (%R) of surrogate compounds in organic analyses and/or laboratory control samples (LCSs). This gives an indication of expected recovery for analytes tending to behave chemically like the spiked or surrogate compounds. Table 2A summarizes the laboratory accuracy requirements.

- ***Precision*** is the agreement among a set of replicate measurements without consideration of the "true" or accurate value: i.e., variability between measurements of the same material for the same analyte. Precision is measured in a variety of ways including statistically, such as calculating variance or standard deviation.

  Precision in the field is assessed through the collection and measurement of field duplicates (one extra sample in addition to the original field sample). Field duplicates will be collected at a frequency of one per twenty investigative samples per matrix per analytical parameter. Precision will be measured through the calculation of relative percent differences (RPDs). The resulting

information will be used to assess sampling and analytical variability. These criteria apply only if the sample and/or duplicate results are >5x the quantitation limit; if both results are < 5x the quantitation limit, the criterion will be doubled.

Precision in the laboratory is assessed through the calculation of RPD for duplicate samples. For organic soil analysis, laboratory precision will be assessed through the analysis of field duplicates.

- ***Completeness*** is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. "Normal conditions" are defined as the conditions expected if the sampling plan was implemented as planned.

  Field completeness is a measure of the amount of (1) valid measurements obtained from all the measurements taken in the project and (2) valid samples collected. The field completeness objective is greater than 90 percent.

  Laboratory completeness is a measure of the amount of valid measurements obtained from all valid samples submitted to the laboratory. The laboratory completeness objective is greater than 95 percent.

- ***Representativeness*** is a qualitative parameter that expresses the degree to which data accurately and precisely represents either a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition within a defined spatial and/or temporal boundary. To ensure representativeness, the sampling locations have been selected to provide coverage over a wide area and to highlight potential trends in the data. In addition, field duplicate samples will provide an additional measure of representativeness at a given location.

  Representativeness is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Interim Remedial Measure (IRM) Work Plan is followed and that proper sampling, sample handling, and sample preservation techniques are used.

  Representativeness in the laboratory is ensured by using the proper analytical procedures, appropriate methods, and meeting sample holding times.

- ***Comparability*** expresses the confidence with which one data set can be compared to another. Comparability is dependent upon the proper design of the sampling program and will be satisfied by ensuring that the Work Plan are followed and that proper sampling techniques are used. Maximization of comparability with previous data sets is expected because the sampling design and field protocols are consistent with those previously used.

  Comparability is dependent on the use of recognized United Stated Environmental Protection Agency (USEPA) or equivalent analytical methods and the reporting of data in standardized units. Laboratory procedures are consistent with those used for previous sampling efforts.

Table 1A
Analytical Parameters, Methods, Preservation, Holding Time, and Container Requirements for Soil Samples

Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[2]	No. of QA/QC Samples	EPA Analytical Method	Sample Preservation	Holding Time[3]	Sample Container
Soil	TCL and CP-51 VOCs	Grab	26-30	Duplicate: 1/20	8260C	Sealed in EnCore® bag; Cool to 4° C	48 hours to extract: 2 EnCore® samplers extruded in 5 mL DI water and freeze vials to <-7^{0}C; 1 EnCore® sampler extruded in 5 mL methanol and Cool to 40 C; 14 days to analysis	3 x 5 gram EnCore® samplers
Soil	TCL and CP-51 SVOCs	Grab	26-30	Duplicate: 1/20	8270D	Cool to 4° C	14 days to extract	8 oz glass jar
Soil	TAL Metals	Grab	16-20	Duplicate: 1/20	6010C	Cool to 4° C	180 days to analysis	8 oz glass jar
Soil	Mercury	Grab	16-20	Duplicate: 1/20	7471B	Cool to 4° C	28 days to analysis	8 oz glass jar

[1] A six-inch sampling interval is the targeted sample size; however, sample volume recovery, analytical method requirements, and field conditions can affect the actual sample interval size. For these reasons, the actual sampling interval may change in order to obtain adequate volume.
[2] Actual number of samples may vary depending on field conditions, sample material availability, and field observations.
[3] From date and time of sample collection

Table 2A
Laboratory Data Quality Objectives: Precision and Accuracy: Soil Samples

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
TCL and CP-51 VOCs	8260C	Soil	Surrogates / Rec. / % 1,2-Dichloroethane-d4 78-135 4-Bromofluorobenzene 67-126 Toluene-d8 73-121 Dibromfluoromethane 61-149	Surrogates: All samples, standards, QC samples	Field Duplicates RPD ≤50	Field Duplicates: One per 20 soil samples

Table 2A
Laboratory Data Quality Objectives: Precision and Accuracy: Soil Samples

Parameter	Method	Matrix	Accuracy Control Limits	Accuracy Frequency Requirements	Precision (RPD) Control Limits	Precision Frequency Requirements
TCL and CP-51 SVOCs	8270D	Soil	Surrogates % Rec. 2-Fluorophenol 38-95 Phenol-d5 32-91 2,4,6-Tribromophenol 10-103 Nitrobenzene-d5 37-94 2-Fluorobiphenyl 38-95 Terphenyl-d14 24-109	Surrogates: All samples, standards, QC samples	Field Duplicates RPD ≤50	Field Duplicates: One per 20 soil samples
TAL Metals	6010C	Soil	Matrix Spikes: 75-125% recovery Laboratory Control Samples: 80-120% recovery	Matrix Spikes: One per 20 soil samples per laboratory analytical batch Laboratory Control Samples: One per 20 samples per laboratory analytical batch	Field Duplicates RPD ≤20	Field Duplicates: One per 20 soil samples

Project Goals

The principal objectives of the IRM Work Plan sampling program are to document the soil conditions following excavation activities.

Sampling Plan

Environmental sampling will include soil. Soil samples will be collected using disposable sampling equipment.

Soil Sampling

Soil samples will be collected in 2-ounce disposable, sterile scoops and placed in the sample bottles. Samples will be collected from the terminal depth of the excavation at locations described in the IRM. EnCore® samplers will be used to collect soil samples for VOC analysis. Samplers will wear phthalate-free gloves such as nitrile (no latex will be used). Only clean instruments will be allowed to touch the sample.

QC Sample Collection

QC samples will include field duplicates soil samples. Refer to Table 1A for a summary of QC sample preservation and container requirements.

Field duplicates are an additional aliquot of the same sample submitted for the same parameters as the original sample. Field duplicates will be used to assess the sampling and analytical reproducibility. Field duplicates will be collected by alternately filling sample bottles from the source being sampled. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Refer to Table 1A for a summary of QC sample preservation and container requirements.

Sample Preservation and Containerization

The analytical laboratory will supply the containers for analytical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest USEPA's Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file to document conformance to USEPA specifications. Soil samples will be placed in chilled coolers immediately after collection.

Equipment Decontamination

Since disposable sampling equipment will be utilized, equipment decontamination procedures are not included in this QAPP.

Field Custody Procedures

Sample chain-of-custody and packaging procedures are summarized below. These procedures are intended to ensure that the samples will arrive at the laboratory with the chain-of-custody intact.

- The field sampler is personally responsible for the care and custody of the samples until they are transferred or dispatched properly. Field procedures have been designed such that as few people as possible will handle the samples.

- All bottles will be identified by the use of sample labels with sample numbers, sampling locations, date/time of sample collection, and type of analysis.

- Sample labels will be completed for each sample using waterproof ink unless prohibited by weather conditions. For example, a logbook notation would explain that a pencil was used to fill out the sample label because the pen would not function in wet weather.

- Samples will be accompanied by a properly completed chain-of-custody form. The sample numbers and locations will be listed on the chain-of-custody form. When transferring the possession of samples, the individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents the transfer of custody of samples from the sampler to another person, to a mobile laboratory, to the permanent laboratory, or to/from a secure storage location.

- All shipments will be accompanied by the chain-of-custody record identifying the contents. The original record will accompany the shipment, and copies will be retained by the sampler and placed in the project files.

- Samples will be properly packaged for shipment and dispatched to the appropriate laboratory for analysis, with a separate signed custody record enclosed in and secured to the inside top of each sample box or cooler. Shipping containers will be secured with strapping tape and custody seals for shipment to the laboratory. The custody seals will be attached to the front right and back left of the cooler and covered with clear plastic tape after being signed by field personnel. The cooler will be strapped shut with strapping tape in at least two locations.

- If the samples are sent by common carrier, the air bill will be used. Air bills will be retained as part of the permanent documentation. Commercial carriers are not required to sign off on the custody forms since the custody forms will be sealed inside the sample cooler and the custody seals will remain intact.

- Samples remain in the custody of the sampler until transfer of custody is completed. This consists of delivery of samples to the laboratory sample custodian, and signature of the laboratory sample custodian on chain-of-custody document as receiving the samples and signature of sampler as relinquishing samples.

Data Management and Reporting

ASP Category B Laboratory Packages will undergo data validation. A NYSDEC Data Usability Summary Report (DUSR) will be prepared for each laboratory package. Note that waste characterization samples, if collected for laboratory analysis, will not undergo data validation.

JENNA RAUP

YEARS OF ENVIRONMENTAL CONSULTING EXPERIENCE: 15

EDUCATION

B.A., Chemistry; Minor, Environmental Science; University at Buffalo, SUNY, 2010

PUBLICATIONS

Raup, J., Eberle, M., Denly, E., Glass, D.S., Stefansky, J., Dyber, J., Scharf, B., Saucier, S., 2024. "A Conceptual Site Model for Per- and Polyfluoroalkyl Substance Water Supply Impacts in a Residential Community." Remediation Journal, 2024; 35:e70001 2024. https://doi.org/10.1002/rem.70001.

AREAS OF EXPERTISE

Ms. Jenna Raup has program management and technical experience in the following general areas:

- Quality Assurance and Quality Control
- Contract and Project Management
- Environmental Assessments and Investigations
- Underground Storage Tank Management
- Soil, Groundwater, and Soil Vapor Investigations and Remediation
- Vapor Intrusion Investigations and Remediation
- Potable Water Sampling and System Evaluation
- Data Management
- Regulatory Compliance
- Report Preparation
- Analytical Chemistry

Ms. Jenna Raup is an environmental consultant specializing in due diligence, site investigation, and remediation services. She is proficient at overseeing environmental site assessments and investigations, as well as project scoping, budgeting, and closeout. Ms. Raup also serves as a TRC Corporate Quality Leader. As a Quality Leader, Ms. Raup is responsible for ensuring the proper implementation of the requirements under the United State Environmental Protection Agency (USEPA)-approved Quality Management Plan (QMP), developing internal tools and guidance, conducting quality control audits and surveys, documenting Lessons Learned and conducting root cause analyses, and serving as a resource to develop project and team-specific quality procedures.

REPRESENTATIVE EXPERIENCE

NYCSCA Hazardous Materials Consulting Services, NYC – Program Manager

For nearly 13 years, Ms. Raup has provided environmental consulting services to the NYCSCA's IEH Division. In that time, she has managed an array of assignments including: due diligence (Phase I ESAs/Phase II ESIs/IAQs); design of remediation and mitigation systems to address environmental contaminants; petroleum storage tank investigations and closure designs; emergency responses related to blue water, water intrusion, and odors; product evaluations; preparation of cost estimates for remedial actions, remedial programs, and design implementation; construction-phase support; potable water supply system investigations and city-wide sampling; and, New York State Department of Environmental Conservation and NYC Mayor's Office of Environmental Remediation (OER) remedial sites. Ms. Raup is well-versed in federal, state, and local regulations pertaining to the assignments on this contract, and supports NYCSCA in navigating regulatory changes, as necessary. Since April 2018, she has served as the Program Manager, responsible for performance on the former and current 3-year on-call services contracts, contributing greatly by methodically and diligently training new staff on the requirements of the contract, and implementing quality control procedures to ensure responsive, high-quality service.

Accomplished under Ms. Raup's supervision during this timeframe include over 70 site inspections for potential lease spaces in Queens to support the 3-K and ACS lease properties programs, more than 100

Phase I ESAs, 50 IAQs, 20 Phase II ESIs, potable water system disinfection oversight and sampling at over 70 sites, inspections and closure reports for about ten tank systems, and ongoing construction-phase services for more than 20 capacity sites.

In addition, Ms. Raup worked with the IEH Division to modify due diligence templates to ensure that the documents facilitate adherence to current standards and NYCSCA protocols, and to improve efficiency and functionality. Although she is responsible for management of the contract, her role on this contract spans all technical and administrative needs. Ms. Raup performs technical reviews of all work products, and is responsible for the exceptional technical performance, which is a result of her programmatic vision and day-to-day hands-on involvement. Her long-standing relationships with NYCSCA staff form her understanding and approach to solving NYCSCA's problems as if they were TRC's, and her technical guidance to junior level staff ensure that the service provided by TRC is delivered consistently and at the highest quality.

NYSDEC Mahopac Business District Wells – Senior Project Manager
In response to New York State's emerging contaminant sampling initiative, monitoring wells at a State Superfund site in Mahopac, NY were sampled for emerging contaminants, revealing that the per- and polyfluoroalkyl substances (PFAS) perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) are present in groundwater at the site. A survey of the surrounding area revealed that residential and commercial properties rely on private water supply wells for drinking water, and further, sampling of these wells identified PFOA and PFOS above the screening criteria. Ms. Raup led the PFAS Source Investigation in connection with the widespread PFAS contamination present in the 1/2 -mile area surrounding the Superfund Site. Since a precedent was not yet established for area-wide PFAS Source Investigations, Ms. Raup worked closely with the client, New York State Department of Health (NYSDOH), and TRC subject matter experts to develop a methodical investigative approach that would most efficiently identify potential PFAS sources and confirm links to area-wide contamination in support of a conceptual site model. Information review began as a desktop study of the historical uses of the area, public and private water supply and waste disposal infrastructure, use and/or storage of aqueous film forming foam (AFFF) in the area, and a review of the signature trends of PFAS compounds.

As a data management solution, Ms. Raup worked with TRC's GIS team to create a digital, accessible, and georeferenced database repository to facilitate real-time mapped updates for the client and NYSDOH throughout the project in the form of a project-specific and secure GIS Viewer. Informational layers in the viewer included the following information: private well sampling and mitigation records; sewer maps; public water supply maps and connections; and potential PFAS sources and proposed sampling locations. The Viewer afforded the project team the ability to download datasets, generate formatted and customized figures on demand, and visualize the sampling progress throughout the area.

Ms. Raup also designed and implemented subsurface investigations at twelve sites identified as potential PFAS sources. Investigations consisted primarily of targeted overburden soil and groundwater sampling, as well as surface water and sediment sampling at State Pollutant Discharge Elimination System (SPDES) outfalls and throughout the nearby surface water body (Lake Mahopac). Sampling of Lake Mahopac also included collection of fish via electroshocking methods. The results of the PFAS Source Investigation are being compiled in a final report that will be available to the public and will inform the next steps of NYSDEC and NYSDOH on the area-wide issue. Ms. Raup also managed the public outreach effort throughout the project by collaborating with the NYSDEC and NYSDOH on regularly circulated community update bulletins, brochures on alternative water supplies, educational pieces on the efficacy of activated carbon, website content development, communication with community members through a dedicated email, and management and execution of a public availability session.

Confidential Client, Buchanan, NY – Senior Project Manager
In support of decommissioning of the nuclear power generation facility, to satisfy requirements of the Order on Consent and Administrative Settlement between Holtec Decommissioning International LLC and NYSDEC, Ms. Raup prepared and received NYSDEC's approval of a Remedial Investigation (RI) Scoping Work Plan (SWP). The SWP was prepared by touring the facility, interviewing knowledgeable site representatives, reviewing environmental databases and historical maps/aerial photographs, and

reviewing nearly 50 years of environmental documentation for the nearly 300-acre site, and summarizing the potential and known remaining contamination for purposes of informing non-radiological remedial investigation that will be required to be performed as part of facility decommissioning and prior to reuse of the land. The SWP was prepared in a short timeframe, demanding thorough review, keen attention to detail, and quick uptake of a large volume of information. Subsequently, Ms. Raup scoped and received NYSDEC approval of a RI Work Plan for an area of concern. Implementation of the work plan has not yet started. Ms. Raup has also managed and supported other site-related activities including air permit modifications to allow for temporary boiler use, tank closure plans, Citizen Participation Plan development, and Spill Prevention, Control, and Countermeasure (SPCC) plan updates.

NYCHA PACT Round 9 Due Diligence – Project Manager and Senior Environmental Scientist
Scoped and managed preparation of two Phase I ESAs in connection with two NYCHA development land transactions in Manhattan and Bronx, NY that will unlock federal funding to allow private developers to take on property upgrades and management responsibilities. Ms. Raup reviewed sites that spanned several hundred acres to determine the most efficient way to perform Site reconnaissance and review regulatory agency and historical records. She prepared a streamlined Phase I ESA template that effectively presented findings and captured NYCHA-specific out-of-scope services. Reports were prepared and reviewed by Jenna within a short timeframe to meet NYCHA's project schedule. NYCHA's review of the Phase I ESAs yielded no comments, and reports were finalized for distribution.

PANYNJ Newark Liberty International Airport Terminal One Redevelopment Design-Build – Senior Environmental Scientist
Providing environmental services for the $1.4 billion design-build of the new Terminal One at Newark Liberty International Airport in Newark, NJ. The Port Authority of New York and New Jersey (PANYNJ) project encompasses phased demolition of the existing Terminal A building and associated infrastructure and construction of a new 1 million-sf, 33-gate common-use terminal; a new pedestrian bridge; new terminal parking garage and toll plaza facility; and airside and landside redevelopment. The scope of services includes asbestos abatement prior to demolition activities; soil sampling to assess how to best dispose of certain materials; and other testing to secure permits for flood hazards, soil erosion, hazmat removal, and stormwater/dewatering/discharge.

NYCT On-Call Environmental Consulting Services – Senior Environmental Scientist
Preparing due diligence reports (Phase I and Phase II ESAs) and performing technical reviews of environmental due diligence assessments for various New York City Transit (NYCT) projects. Projects that Ms. Raup has been involved with include the planned construction of a new electrical substation at 28th Street and 8th Avenue; ADA Station upgrades at 11 sites in Manhattan, Bronx, and Staten Island; and, a new temporary bus parking lot in Queens. She is also responsible for preparing subcontractor agreements, as needed.

SPECIALIZED TRAINING

- OSHA 40-Hour HAZWOPER
- Brownfield Industry Professional, Gold Level; OER (2016)
- Analytical Chemist (2010-2012)

ELIZABETH A. DENLY

EDUCATION
B.A., Chemistry, University of New Hampshire, 1987

PROFESSIONAL REGISTRATIONS /CERTIFICATIONS
Licensed Site Professional Association, Massachusetts, Associate Member American Chemical Society (ACS)
American Society for Quality (ASQ)

AREAS OF EXPERTISE
Ms. Denly has over 30 years of experience in:

- Emerging Contaminants
- Technical Advisor for QA/Chemistry
- PFAS Forensics
- Data Evaluation/Data Validation
- QA Project Plans
- QA Management
- Analytical Laboratory and Field Sampling Audits

Quality Assurance/Quality Control

As a QA chemist at TRC, Ms. Denly is responsible for providing QA/QC oversight in support of a variety of environmental investigations including contaminant ambient air monitoring, human health and ecological risk assessments, riskbased soil cleanups, remediation programs, and delineation. Ms. Denly has provided this oversight under different regulatory programs, including MassDEP, NYSDEC, NJDEP, and USEPA Region I, Region II, Region III, and Region V. In this role, she has been responsible for the preparation of the project-specific QAPP, coordination with the laboratory, selection of the appropriate analytical methodologies to achieve the desired state or regulatory standards, oversight and performance of the data validation process, and determination of the usability of the data in comparison to the overall project objectives.

In addition, Ms. Denly serves as TRC's Remediation and Building Science Practices Quality Assurance & Chemistry Systems Manager, responsible for the creation and implementation of the Sector's Quality Management Plan and Standard Operating Procedures (SOPs) for field sampling and documentation protocols. Ms. Denly also leads Quality Coordinator networks in the Remediation and Building Science Practices which are responsible for the development and communication of quality initiatives within the organization. Among the quality initiatives that have been implemented or created under Ms. Denly's leadership include the following:

- Procedures for Peer Review of Deliverables
- Tracking of Peer Review Documentation via monthly random audits
- Project Planning Checklist tool
- Analytical Data Review Checklist and Training
- Practice Self-Assessments with follow-up Corrective Actions
- Biweekly Quality Messaging
- Technical Editing Guidelines
- Publication of Quality Lessons Learned reports

Data Validation

Ms. Denly provides oversight and senior review on data validation performed for a variety of analytical parameters. She performs data validation for organic parameters including VOCs, SVOCs, Pesticides, PCB Aroclors, PCB homologues/congeners, Dioxins, specialty analyses including GC/MS/SIM and various air analyses. Validation and reporting guidelines utilized include USEPA National Functional Guidelines, USEPA Regions I through V, and NYSDEC DUSRs. Ms. Denly developed internal protocols for the validation of the MassDEP EPH/VPH methodologies.

REPRESENTATIVE EXPERIENCE (Descriptions marked with an asterisk (*) undertaken within past three years) New York City School Construction Authority*

Ms. Denly has provided quality assurance management for a variety of SCA programs, including PCB air monitoring, site investigations, and sub-slab soil vapor and indoor air investigations. In this role, Ms. Denly is responsible for reviewing field team documentation, providing oversight of the analytical laboratory, data validation, and preparation of DUSRs. She is responsible for frequent communication with the laboratories to ensure proper receipt of samples, proper utilization of project-specific analytical protocols in order to achieve necessary project action levels, and to monitor the overall performance of the laboratories.

Brownfields Programs – Various Locations*
Ms. Denly serves as the Project Quality Assurance Manager on TRC's Brownfields programs within USEPA Regions 1 and 3. In this role, she is responsible for maintaining and updating the USEPA-approved generic Brownfields QAPPs. She provides final review of site-specific QAPP addenda prepared for the individual Brownfields sites and assists in the determination of required analytical methodologies necessary to achieve specific project objectives. Ms. Denly is the point of contact for the field team and the laboratory during the investigations for issues related to the ultimate usability of the analytical data. She reviews the chains-of-custody as samples are received by the laboratory to ensure the requirements for sample collection in the site specific QAPP addenda are followed and samples are properly logged into the laboratory. Final review of the analytical data is performed by Ms. Denly and a data usability assessment is generated for each investigation.

Vieques Island, Environmental Cleanup Oversight, Vieques, Puerto Rico* Ms. Denly provides technical and regulatory compliance oversight to the Commonwealth of Puerto Rico and the Puerto Rico Environmental Quality Board (EQB) regarding the investigation, assessment, and remediation of contamination on Vieques Island by the U.S. Navy in support of the property's transfer to the Commonwealth of Puerto Rico. Ms. Denly conducts technical and regulatory reviews pertaining to analytical methods and QA/QC issues of the documents prepared by Navy subcontractors including draft and final submissions of work plans, field sampling plans, investigation results, technical memoranda, feasibility studies, and remedial designs.

Massachusetts Department of Environmental Protection – MA*
Ms. Denly is currently providing assistance to MassDEP to determine whether the regulated community is correctly implementing analytical methodologies at MassDEP sites; this includes providing training for all MassDEP auditors. Ms. Denly is also assisting MassDEP in the development of a protocol for the analysis of volatile petroleum hydrocarbons (VPH) by GC/MS. Previously, Ms. Denly has assisted MassDEP in the review/evaluation of data packages for EPH/VPH analyses from laboratories selected by MassDEP as part of a Data Audit project to ensure compliance with the methods and CAM. She provided consultation to MassDEP for revisions to the MassDEP's innovative EPH/VPH analytical methods used to measure petroleum hydrocarbon concentrations in soil and groundwater. Ms. Denly served as a member of the Data

Quality Enhancement Work Group led by MassDEP and assisted in the development of a policy for achieving consistency of data reported under the MCP. Ms. Denly was responsible for generating the framework for QC parameters on organic analyses typically utilized under the MCP, method-specific performance standards for these QC parameters, minimum reporting requirements for the laboratories for each method, and a list of what laboratories need to keep on file for potential audits by the MassDEP.

Mattiace Petrochemical Superfund Site – Glen Cove, NY*
Ms. Denly prepared the QAPP for the Long Term Remedial Action under TRC's Exit Strategy® program using USEPA Region II guidance. She provides QA oversight to the field team. Ms. Denly also performs data validation of data generated for demonstration of achievement of cleanup objectives. Ms. Denly is responsible for performing assessment of data to determine overall usability.

USEPA Region I Superfund RAC*
Ms. Denly serves as lead chemist for a variety of Superfund programs under the USEPA Region I Remedial Action Contract (RAC). Her responsibilities have included ongoing development of analytical specifications for laboratories to achieve specific project objectives and development of QAPPs following the requirements of USEPA Region I QAPP guidelines. She performs data validation and/or senior review of data validation for a variety of analytical methodologies utilizing USEPA Region I validation guidelines. Ms. Denly generates data usability assessments and/or split sample comparison reports in accordance with USEPA Region I guidance, when required. She interacts with USEPA Region I chemists in the selection of analytical methodologies and project objectives. Ms. Denly provides QA oversight of PRPs' validation reports, sampling and analysis plans, and QAPPs. She is also responsible for providing QA oversight to field teams, performing daily reviews of COCs and traffic reports, and acting as the main liaison between the field team and USEPA.

FAA, Region II – Atlantic City, NJ
Ms. Denly assisted in the preparation of QA protocols for the Supplemental RI and Ecological Risk Assessment Work Plan. She was also responsible for providing QA support to the field team. Ms. Denly interfaced with laboratories to ensure achievement of risk-based standards and performed data validation and/or oversight for all data generated. Ms. Denly provided oversight for all validation performed on the Remedial Investigation data.

Queens West Development – Stage 2 Site – Long Island City, NY
Ms. Denly prepared the QAPP for the NYSDEC Voluntary Cleanup Program under TRC's Exit Strategy® program. She provided QA oversight to the field team. Ms. Denly performed data validation for the program. She was responsible for performing assessment of data to determine overall usability. Ms. Denly provided daily support to the project team on chemistry, laboratory, and QA issues. She was responsible for ensuring project objectives were achieved by the laboratory and for oversight of laboratory QA issues.

Consolidated Edison First Avenue Properties – New York, NY
Ms. Denly prepared a QAPP for Supplemental Soil Investigation and Voluntary Cleanup of four sites under TRC's Exit Strategy® program. The First Avenue Properties Site is the site of a former Consolidated Edison Power Plant located in midtown Manhattan between East 38th Street and East 40th Street. Ms. Delny provided QA oversight to field team during site remediation. Ms. Denly performed data validation of select data points used for decision-making and was responsible for performing assessment of data to determine overall usability for various Remedial Work Plans.

130 Liberty Street – New York, NY
Ms. Denly developed the QAPP for the extensive ambient air monitoring program and waste management program under USEPA Region II oversight. Ms. Denly provided oversight of six analytical laboratories and was responsible for coordination and performance of data validation for asbestos, metals, dioxins/furans, PAHs, PCBs, and silica ambient air data as well as TCLP and metals waste characterization data. Ms. Denly communicated frequently with the laboratories to ensure proper receipt of samples, proper utilization of projectspecific analytical protocols and to monitor the overall performance of the laboratories. Responsible for the oversight and performance of field and laboratory audits. Reviewed all data prior to web-site posting and submission to USEPA.

PUBLICATIONS AND PRESENTATIONS

Raup J, Eberle M, Denly E, Glass D, Stefansky J, Dyber J, Scharf B, Saucier S. *A Conceptual Site Model for Per-and Polyfluoroalkyl Substance Water Supply Impacts in a Residential Community*. Remediation. 2024; 35:e70001. https://doi.org/10.1002/rem.70001.

Denly, E., & Morin, K. (2022). *A review of draft Environmental Protection Agency Method 1633: A data user's perspective*. Remediation Journal, 1–5. https://doi.org/10.1002/rem.21713

Denly E, Occhialini J, Bassignani P, Eberle M, Rabah N. *Per- and polyfluoroalkyl substances in environmental sampling products: Fact or fiction?* Remediation Journal. 2019; 29:65–76.

Eberle M, Edelman M, Denly E, Rabah N. *Evaluation of the effects of PFAS soil adsorption and transformation in the presence of divalent cations under ambient conditions*. Remediation. 2019; 30:15–25.

Fiorenza, S, Denly, E, Vitale, R J, Nigro, N, Leahy, M C, Neslund, C, Blye, D R, & Farmer, N (2022). *PFAS Experts Symposium 2: An update on advances in the chemical analysis of PFAS*. Remediation Journal, 1–9. https://doi.org/10.1002/rem.21707

Simon JA, Abrams S, Bradburne T, et al. *PFAS Experts Symposium: Statements on regulatory policy, chemistry and analytics, toxicology, transport/fate, and remediation for per- and polyfluoroalkyl substances (PFAS) contamination issues*. Remediation Journal. 2019; 29:31–48.

Nancy Weaver

Education

B.S., Chemistry, University of Colorado, Denver, Colorado

Certifications and Training

State of New York Department of Environmental Conservation certified Asbestos Inspector

40-Hour OSHA Hazardous Waste Training

8-Hour Health and Safety Supervisor Training for Hazardous Waste Operations

Relevant Experience

- More than 20 years combined laboratory, data validation and project management experience
- Experienced in writing Quality Assurance Project Plans (QAPPs), managing subcontracted analytical laboratories, performing laboratory audits, and analyzing samples in a laboratory.

Experience Overview

Ms. Weaver has over twenty years combined laboratory, data validation and project management experience. She is the President and co-founder of EDS and is responsible for the technical data review and validation of laboratory data. Ms. Weaver has performed data validation on thousands of data validation projects. She has extensive knowledge in applying the various regional and project specific data validation guidelines and QAPPs. Her experience also includes writing Quality Assurance Project Plans (QAPPs), managing subcontracted analytical laboratories, performing laboratory audits, participating in field sampling activities and analyzing samples in a laboratory.

Relevant Project Experience

Principal/Senior Chemist, Environmental Data Services, Inc., Williamsburg, Virginia, August 1994 - Present. As the Principal Chemist at Environmental Data Services, Inc., Ms. Weaver has provided Level IV data review on more than 6000 Sample Delivery Groups (SDGs) generated through site investigations and/or remediations. These SDGs have included every analytical fraction possible including VOC, SVOC, pesticides, PCBs, herbicides, DRO, GRO, dioxin/furans, PCB congeners, metals, wet chemistry and radiological parameters. Sample matrices include water, soil, sediment, wipe, concrete and air. The SDGs have included CLP data packages produced under the CLP SOWs and CLP-like data packages with samples analyzed under SW-864 methodologies. Sample quantities validated may reach upwards of 120,000 per fraction over the past 20 years. Ms. Weaver has been using the USEPA National Functional Data Validation Guidelines since 1993 and has provided Level IV (full) and Level III (cursory) validation. Specifically validated PCB congeners by EPA Method 1668 and dioxin/furans by EPA Method 1613 using the USEPA National Functional Guidelines, USEPA Region I and USEPA Region III data validation guidelines. Validated radiological parameters analyzed by alpha and gamma spectrometry using the USACE Kansas City and St. Louis District Radionuclide Data Quality Evaluation Guidance.

Chemist-Analyst Specialist, City & County of Denver, Denver, Colorado, June 1992 - August 1994. As a Chemist-Analyst Specialist for the City and County of Denver, Ms. Weaver supervised performance and compliance sampling for O & M requirements at groundwater treatment facility. She provided assessment of analytical data for quarterly reports to local regulatory agencies. She also acted as liaison between the technical group and laboratory to coordinate sampling events and resolve problems with analyses. While in this capacity, she performed data validation for organic, inorganic and radiological analyses. Ms. Weaver reviewed over 2000 VOC, SVOC, pesticide, PCB, TPH, metals and wet chemistry samples. Ms. Weaver managed the database for groundwater and treatment plant sampling events and performed environmental site assessments for commercial and residential properties. She provided technical review and recommendations of Phase I and Phase II site investigations performed by outside consultants. She also analyzed policy and interpreted city, state and federal environmental regulations.

Data Validation Specialist, C.C. Johnson & Malhotra, Lakewood, Colorado, January 1990 to June 1992. While a Data Validation Specialist at C.C. Johnson & Malhorta, Ms. Weaver performed data validation and interpretation of organic analytical data generated from the EPA Contract Laboratory Program (CLP). Data analysis included VOC,

SVOC, pesticides, PCBs, metals and wet chemistry. Ms. Weaver reviewed more than 600 SDGs and 9000 samples. She interpreted gas chromatograms, gas chromatography/mass spectral data and verified mathematical calculations.

Environmental Chemist, The Anschutz Corporation - SP Environmental Systems, Inc., Denver, Colorado, July 1990 to January 1992. As an Environmental Chemist for The Anschutz Corporation - SP Environmental Systems, Inc., Ms. Weaver assisted in the management of site investigations and remediation for Southern Pacific Transportation Company properties. In this capacity, she performed environmental audits and site assessments and conducted site investigations at potential Superfund sites with state and federal agencies. She researched and prepared responses to regulatory agencies for non-compliant sites and defined the needs for hazardous waste disposal including the analysis required and disposal. Ms. Weaver also supervised the removal of underground storage tanks and remediation. She prepared closure reports for UST removals, as well as annual waste summary forms for TSD facilities throughout the state of Texas. She also constructed, developed, and sampled groundwater monitoring wells.

Environmental Specialist, Martin Marietta Astronautics Group, Denver, Colorado, January 1988 to January 1990. While with Martin Marietta Astronautics Group as an Environmental Specialist, Ms. Weaver performed organic analysis and sampling of wastewater, groundwater, and drinking water in support of NPDES permit. She operated and maintained laboratory instrumentation including GC and GC/MS for volatile, semi-volatile, and pesticide/PCB analysis. Ms. Weaver also coordinated sample collection and preparation activities, developed and authored standard operating procedures for laboratory analysis, and followed EPA protocol for QA/QC requirements for analysis. She calculated and interpreted data and reported results.

Environmental Chemist, Camp, Dresser, & McKee, Boston, Massachusetts, April 1986 to October 1987. As an Environmental Chemist with Camp, Dresser, & McKee, Ms. Weaver analyzed water/wastewater for organic compounds. She operated and maintained laboratory instrumentation including GC and infrared spectrophotometer for volatile, pesticide/PCB, and petroleum hydrocarbon analysis. She also calculated and interpreted data and reported results. Ms. Weaver analyzed more than 2000 samples.

Employment History

Environmental Data Services, Inc.	Principal/Senior Chemist	1994–Present
City & County of Denver	Chemist-Analyst Specialist	1992–1994
C.C. Johnson & Malhorta	Contractor/Data Validation Specialist	1990–1992
The Anschutz Corporation - SP Environmental Systems, Inc.	Environmental Chemist	1990–1992
Martin Marietta Astronautics Group	Environmental Specialist	1988–1990
Camp, Dresser, & McKee	Environmental Chemist	1986–1987

ATTACHMENT B
COMMUNITY AIR MONITORING PLAN

COMMUNITY AIR MONITORING PLAN

In accordance with the Interim Remedial Measure Work Plan (IRM), this Community Air Monitoring Plan (CAMP) was developed to describe the procedures for real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area at the Site during ground intrusive work activities at 8802 5th Avenue and 429 89th Street, Brooklyn, New York (referred to as the "Site"). The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities do not spread contamination off-site through the air.

Community Air Monitoring Plan

Real-time air monitoring for VOCs and observations of particulate levels at the perimeter of the work areas will be completed during intrusive activities. Continuous monitoring and observations will be required during soil excavation activities. The downwind location will be just inside the fence line at the edge of the property.

VOC Monitoring, Response Levels, and Actions

VOCs will be monitored at the downwind perimeter of each designated work area on a continuous basis. Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated daily. The equipment will be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities will be temporarily halted and monitoring will continue. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities will be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring will continue. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the work area or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings will be recorded and will be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes will also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations will be monitored continuously at the upwind and downwind locations of the borings at temporary particulate monitoring stations. The particulate monitoring will be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ($\mu g/m^3$) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work will be stopped and a re-evaluation of activities will be initiated. Work will be able to be resumed provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

3. All readings will be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

ODOR MONITORING AND MITIGATION PLAN

The purpose of this Odor Monitoring and Mitigation Plan is to detail the monitoring and, if necessary, mitigation of odor potentially generated during implementation of the IRM. However, work activities will be performed to minimize the potential for generation of odor.

Odor Monitoring

Odor will be monitored within the work area and at the perimeter CAMP stations. If nuisance odors are identified at the Site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Odor or dust complaints from any owner or occupant of an adjacent or nearby property will be immediately addressed and managed by the Environmental Monitor in a manner equivalent to an exceedance of an air monitoring action level.

Odor Mitigation

All necessary means will be employed to prevent on- and off-Site nuisances. These measures may include: containerizing drill cuttings immediately and using tarps to cover exposed odorous soil (if encountered). Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

Stockpiles will be kept covered at all times with appropriately anchored tarps, except when materials are being removed or added, and during stockpile sampling. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Soil stockpiles will be continuously encircled with silt fences. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: use of chemical odorants in spray or misting systems; and, use of staff to monitor odors in surrounding neighborhoods. It is anticipated that any nuisance odors developed during intrusive work can be corrected, without the use of a temporary containment structure equipped with appropriate air venting/filtering systems.

ATTACHMENT C

HEALTH AND SAFETY PLAN

SITE-SPECIFIC HEALTH AND SAFETY PLAN FOR

REMEDIATION ACTIVITIES

AT

Proposed Public School K337

Brownfield Cleanup Program Site No. C224327
8802 5th Avenue and 429 89th Street
Brooklyn, New York 11209

Prepared by:

TRC Engineers, Inc.
1407 Broadway, Suite 3301
New York, New York 10018

TRC Project Number: 630067

November 2024

DISCLAIMER

STRICT ADHERENCE TO THE HEALTH AND SAFETY GUIDELINES SET FORTH HEREIN WILL REDUCE, BUT NOT ELIMINATE, THE POTENTIAL FOR INJURY AT THESE SITES. THE HEALTH AND SAFETY GUIDELINES IN THIS HEALTH AND SAFETY PLAN WERE PREPARED SPECIFICALLY FOR THIS PROJECT AND SHOULD NOT BE USED ON ANY OTHER SITE OR PROJECT WITHOUT PRIOR RESEARCH AND EVALUATION BY TRAINED HEALTH AND SAFETY SPECIALISTS.

TABLE OF CONTENTS

Section **Page**

1.0 SITE INFORMATION 1
1.1 Introduction 1
1.2 Purpose 1
1.3 Site Description and History 1
2.0 SCOPE OF WORK 3
3.0 EMERGENCY AND TRC CONTACT NUMBERS 3
4.0 HAZARD ASSESSMENT 5
4.1 Contaminants of Concern 5
4.2 Level of Protection 5
5.0 ON-SITE OPERATION 6
5.1 First Aid Procedures for Chemical Exposures 6
5.2 Chemical Hazards 6
5.3 Biological Hazards 6
5.4 Physical Hazards 6
5.5 Cold Stress 8
5.6 Noise 9
5.7 Electrical Utility Hazards 9
5.8 Mechanical Hazards 9
5.9 Air Monitoring Requirements 10
6.0 GENERAL SAFETY REQUIREMENTS 12
7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) 13
8.0 DECONTAMINATION PROCEDURES 15
8.1 Minimization of Contact with Contaminants 15
8.2 Personnel Decontamination Procedures 15
8.3 Decontamination Procedures 15
8.4 Emergency Decontamination 15
8.5 Hand Held Equipment Decontamination 16
9.0 REQUIRED PERSONNEL TRAINING 17

10.0 MEDICAL MONITORING 18
11.0 TAILGATE SAFETY MEETINGS 19
12.0 OBSERVATIONS 20
13.0 INCIDENT REPORTING 21
14.0 Acknowledgement 22
15.0 Subcontractors and Health and Safety Planning 23

ATTACHMENTS

Attachment A – Health and Safety Plan Acceptance

Attachment B – Hospital Route

Attachment C – Work Care Information

Attachment D – Emergency Contact Information

Attachment E – Safety Data Sheets for Potential Contaminants of Concern

Attachment F – Daily Pre-Job Safety Briefing Form

Attachment G – Incident Reporting Forms

Attachment H – Observation Documentation Form

Attachment I – Safe Catch Report

1.0 SITE INFORMATION

1.1 Introduction

The following is the Health and Safety Plan (HASP) for remediation activities at the proposed Public School K337 located at 8802 5th Avenue and 89th Street, Brooklyn, New York 11209 (the "Site"). A detailed scope of work is described in the Interim Remedial Measure Work Plan (IRM).

The site-specific HASP was developed from Site visits and investigations, as well as appropriate project documents. Revisions and/or alterations to this HASP may become necessary as more information becomes available. Any proposed changes to this HASP will be approved by the Health & Safety Coordinator prior to implementation. All on-site personnel are required to read, review, and strictly comply with the HASP as well as sign the Health and Safety Plan Acceptance in **Attachment A**. It is the responsibility of the Project Manager or designee to ensure that the HASP is implemented and enforced.

1.2 Purpose

The Site remediation tasks and objectives are the mitigation of human contact with soil vapor, groundwater, and soil impacted by volatile organic compounds (VOCs) and metals. Remedial measures described herein will be performed in accordance with this HASP and applicable federal, state, and local regulations.

1.3 Site Description and History

The Site encompasses approximately 31,659 square feet (sf) and is improved with a one-story commercial building with a basement and an asphalt-paved parking lot on Lot 28 (8802 5th Avenue), and a commercial building with a partial basement on Lot 39 (429 89th Street). Lot 28 is approximately 21,659 sf and contains a one-story commercial building with a gross floor area of approximately 13,835 sf that is currently subdivided into two units that are currently vacant. Lot 39 is approximately 10,000 sf and is improved with a one-story commercial building with a partial basement that is currently vacant and was most recently used by a construction company for storage of assorted construction materials. Historically, Lot 28 was occupied by several low-rise structures prior to construction of the current one-story commercial building with a basement in 1956. The building was most recently used by a bank and as real estate offices. Lot 39 has been improved with the current one-story building with a partial basement since 1923, which was occupied by a garage with gasoline tank and auto repair/service station between 1926 and circa 1977.

Previous investigations conducted at the Site include a Phase I Environmental Site Assessment (ESA) Report prepared by TRC in May 2011, a Phase II Environmental Site Investigation (ESI) Report prepared by TRC in May 2013, and a Remedial Investigation Report completed in October 2024.

Based on the results of previously investigation, the primary contaminants of concern in soil include metals (mercury) and SVOCs; in groundwater the primary contaminants of concern are VOCs (TCE, 1,2-DCE, benzene, m-xylene & p-xylene, total xylenes and chloroform); and in soil vapor the primary contaminants of concern are chlorinated VOCs (TCE and PCE).

2.0 SCOPE OF WORK

Remedial activities to be implemented as part of the IRM include:

- Remove the suspected underground storage tank (UST), suspected oil water separator (OWS), and underground drainage and floor drain system.
- Remove and dispose off-Site soil in excavated to remove the UST, OWS and drainage system
- Post-excavation documentation/confirmatory soil sampling in the area that of the UST, OWS and drainage system.

3.0 EMERGENCY AND TRC CONTACT NUMBERS

Ambulance: **911** Fire Department: **911**

Police Department: **911 (68th Precinct (718) 439-4211)**

Hospital: **New York-Presbyterian Brooklyn Methodist Hospital**

Emergency Center No.: **(718) 283-2190**

Hospital Address: **699 92nd Street, Brooklyn, NY 11228**

HOSPITAL DIRECTIONS

NOTE: FOR ANY TYPE OF SERIOUS MEDICAL EMERGENCY, CALL 911 AND REQUEST AN AMBULANCE. NEW YORK CITY STREETS ARE OFTEN CONGESTED DUE TO HEAVY TRAFFIC, CONSTRUCTION AND DOUBLE-PARKED VEHICLES AND IT MAY BE DIFFICULT TO DRIVE TO THE EMERGENCY ROOM.

Refer to **Attachment B** for Hospital Route Direction with maps.

TRC Contacts

1. Project Manager

   Name: Jenna Raup

   Office/Division: New York, NY

   Office Phone: 212 221 7822

   Cell Phone: 929-502-6469

2. Certified Industrial Hygienist

   Name: Ed Gerdts, CIH

   Office/Division: New York, NY

   Office Phone: 212-221-7822

3. National Safety Director

   Name: Mike Glenn

   Office/Division: Irvine, CA

   Office Phone: 949-727-7347

   Cell Phone: 949-697-7418

4. Office Safety Coordinator (OSC)

   Name: Emily Kessler

   Office/Division: New York, NY

   Cell Phone: (908) 451-0203

5. Work Care can provide assistance in providing first aid advice and directing an injured worker to non-emergency medical care. WorkCare is a service that provides 24/7 access to an Occupational Healthcare physician or clinician.

   Work Care Incident Intervention: 888-449-7787 (refer to **Attachment C)**

6. Human Resource Manager

   Name: Suzanne Micallef

   Office/Division: Administrative

   Office Telephone: 978-656-3628

Refer to **Attachment D** for emergency contact information.

4.0 HAZARD ASSESSMENT

4.1 Contaminants of Concern

Based on our understanding of the history of the Site and the results of previous environmental investigations performed at the Site, the following chemical hazards have been identified:

- The primary contaminants of concern in soil include metals (mercury) and SVOCs in shallow soil.
- Groundwater contaminants of concern include VOCs (TCE, 1,2-DCE, benzene, m-xylene & p-xylene, total xylenes and chloroform).
- Soil vapor contaminants of concern include chlorinated VOCs (TCE and PCE).

Safety Data Sheets (SDS) for compounds of concern are provided in **Attachment E**.

4.2 Level of Protection

The Project Manager will continually evaluate levels of protection to be utilized by on-site personnel, with assistance from the Health & Safety Coordinator and the Industrial Hygienist. The levels of protection may be downgraded or upgraded, as necessary, with approval by the Project Manager.

5.0 ON-SITE OPERATION

5.1 First Aid Procedures for Chemical Exposures

EYE: If any chemicals come in contact with eyes, immediately wash the eyes with large amounts of water, occasionally lifting lower and upper lids. Get medical attention immediately.

BREATH: If person breathes large amounts of any chemicals, remove person to fresh air. If breathing has stopped, perform artificial respiration. Keep affected person warm and rested. Get medical attention as soon as possible.

SKIN: If any chemicals except those listed below come in contact with the skin, immediately wash skin with soap and water. Get medical attention promptly. If chemical penetrates clothing, immediately remove clothing and wash with soap and water.

SWALLOW: If any chemicals are swallowed get medical attention immediately

5.2 Chemical Hazards

Based on previous investigations completed at the Site, the presence of the following contaminants is expected in soil:

- Metals, specifically mercury.
- SVOCs

5.3 Biological Hazards

During the course of the project, there is a potential for workers to come into contact with biological hazards, such as animals and their scat.

During Site operations, wild animals such as birds, rats, stray dogs or cats, raccoons, and other rodents and their scat may be encountered. Workers will use discretion and avoid all contact with wild animals and their scat. Avoid areas and habitats inside and outside work areas that are contaminated with scat. If unsafe conditions are noted (e.g., gross accumulations of scat or vermin infestations), work in these areas will be halted and reevaluated.

5.4 Physical Hazards

The physical hazards are anticipated to be low and are outlined in Table A-1 below.

TABLE A-1

PHYSICAL HAZARDS

HAZARD TYPE	KNOWN	POTENTIAL
Heat Stress/Cold Stress		**X**
Severe Weather (lightning, snow, sleet)		**X**
Excessive Noise	**X**	
Facility Operations (machinery, structures)		**X**
Unstable ground (wet areas)		**X**
Site Operations (drilling, hand and power tool use)	**X**	
Heavy lifting/moving		**X**
Hazardous materials use & storage		**X**
Fire		**X**
Slips, trips, and falls	**X**	
Cuts, punctures		**X**

TRC personnel can avoid most of the hazards listed above including hand tools, hazardous materials use, slips, trips and falls, and punctures and cuts by remaining alert and performing safe work practices during all site activities. Other proper work practices are outlined below.

1. To avoid falling objects:
    - Do not walk or stand under suspended/overhead loads (including scaffolding).
    - Be aware of falling objects in the work area.
    - Secure overhead objects.
2. When using hand tools:
    - Hand tools will meet the manufacturer's safety standards.
    - Hand tools will not be altered in any way.
    - Makeshift tools will not be used.
    - At a minimum, eye protection will be used when working with hand tools.

- Wrenches, including adjustable, pipe, end and socket wrenches, will not be used when jaws are sprung to the point that slippage occurs.
- Impact tools such as drift pins, wedges and chisels, will be kept free of mushroom heads.
- Wooden handles will be free of splinters or cracks and secured tightly to the tool.

3. Overhead Wires and Underground Utilities:

   If contact is possible (i.e., ladder, equipment, crane lift, etc.) one or more of the following will be done:

   - Power sources will be disconnected by the utility;
   - Power sources will be shielded by the utility; and
   - Object will get no closure than 12' to prevent arcing.

4. Slips, Trips and Falls:

   - Proper lighting will be maintained at all times.
   - Walkways will remain clear and unobstructed at all times.
   - When possible, cords, hose lines, etc., will be raised to reduce or eliminate trip hazards.

5.5 Cold Stress

The single most important aspect of hypothermia (cold stress) is the fall in the deep core temperature of the body. Workers should be protected from exposure to cold so that the deep core temperature does not fall below 36ºC (96.8ºF). Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision-making, or loss of consciousness.

Pain in the extremities may be the first early warning of danger to cold stress. During exposure to cold, maximum severe shivering develops when the body temperature has fallen to 35ºC (95ºF). This must be taken as a sign of danger to the workers and exposure to cold should be immediately terminated for all workers when severe shivering becomes evident. Useful physical, or mental work is limited when severe shivering occurs.

Since prolonged exposure to cold air at temperatures well above freezing can lead to dangerous hypothermia, whole body protection must be provided. Adequate insulating clothing to maintain core temperatures above 36ºC must be provided to workers if work is performed in air temperatures below 4ºC (40ºF). In addition, it should be kept in mind that, the higher the wind speed and the

lower the temperature in the work area, the greater the insulation value of the protective clothing required.

To prevent cold stress, Contractor personnel will be encouraged to maintain an optimal level of physical fitness, and to maintain body fluids at normal levels. Workers will be encouraged to drink water before beginning work and frequently during the day. TRC personnel and subcontractors will be instructed to recognize symptoms of and measures to prevent cold stress prior to the commencement of field activities.

5.6 Noise

Approved hearing protection will be required in work areas involving heavy equipment, impact tools, drilling, etc. In general, hearing protection should be worn if an individual cannot be heard in a normal speaking voice at a distance of two feet.

5.7 Electrical Utility Hazards

TRC will implement the following subsurface utility clearance procedure:

- TRC will review available site plans for work involving activities at or near utilities.
- TRC's utility mark-out subcontractor will conduct a geophysical survey around all proposed intrusive locations to identify subsurface electric utilities and mark the centerline of underground lines.
- The drilling or excavation contractor will notify the NYC One Call Center at (800) 272-4480, in accordance with Code 753, a minimum of 5 working days prior to any drilling or excavation on streets and sidewalks.

5.8 Mechanical Hazards

The mechanical hazards are anticipated to be associated with excavation activities and loading of trucks using a backhoe/excavator. The following precautions will be taken around construction equipment and excavations:

- Ensure the equipment operator is aware of the location of on-site personnel at all times to avoid potential injuries (e.g., maintain eye contact with the equipment operator). A spotter should be used to direct the movement of heavy equipment. A swing zone should be established with cones behind any excavators to prevent injury during movement of equipment.

- Exercise caution and wear protective equipment around the equipment to guard against crushing and pinching hazards. On-site personnel will maintain a distance (approximately 10 feet) from mechanical hazards associated with heavy equipment.
- Perimeter protection in the form of barricades is necessary for the protection of employees and subcontractor personnel and the public. Such protection will meet requirements set forth in 29 CFR 1926, as well as in the New York City Building Code, Article 19.
- All field team members working near/with equipment with emergency shut-off switches should be aware of the locations and situations when these switches should be used.

5.9 Air Monitoring Requirements

Real-time air monitoring for VOCs and observations of particulate levels at the perimeter of the work areas will be completed during intrusive activities. Continuous monitoring and observations will be required for all intrusive work activity. A detailed description of the Community Air Monitoring Plan (CAMP) is provided as Attachment B to the IRM.

OSHA Permissible Exposure Limit (PEL)

The OSHA PEL, for benzene, which will be used to determine the appropriate respiratory protection, is 1 part per million (ppm) over an 8-hour time-weighted average or 5 ppm over 15 minutes. This value is based upon the OSHA PEL for benzene, which, of the VOC constituents of petroleum compounds, has the lowest PEL.

Respiratory Protection

It is unlikely that respiratory protection will be required during implementation of the work plan. TRC's health and safety goal is to avoid using respiratory protection unless it is absolutely necessary or required. Administrative controls or engineering controls should always be considered as a means to reduce potential exposures before PPE is required. If air monitoring measurements indicate that levels of organic vapors have reached 5 ppm, workers will cease work in the area until levels of organic vapors have decreased. If necessary, modifications to work practices will be implemented to reduce or avoid generating elevated levels of organic vapors.

Respiratory protection for TRC’s subcontractor may be required during tank cleaning activities. Any upgrade in respiratory protection will be coordinated with the Health & Safety Coordinator and the Industrial Hygienist. For operations that may require the use of a respirator, the TRC Project Manager (and Contractor equivalent) must verify that Field Personnel are medically

approved to use respiratory equipment, fit tested, and trained in the proper use of respirators. Only respirators that are NIOSH/MSHA1 approved are to be used.

Exposure Limits: The following tables summarizes anticipated concentrations and accepted exposure limits of chemicals potentially present at the Site.

Known or Suspected Chemicals/Contaminants	
Chemical/Contaminant of Concern	**OSHA Permissible Exposure Limit (PEL)**
Heavy metals – Mercury	0.1 mg/m^3 (OSHA PEL for Mercury)

1 NIOSH – National Institute for Occupational Safety and Health; MSHA – Mine Safety and Health Administration

6.0 GENERAL SAFETY REQUIREMENTS

The general safety rules listed below apply to all TRC personnel present at the site.

- A tailgate health and safety meeting will be held with all field team members and subcontractors each day prior to the start of work.
- Adhere to all requirements of this health and safety plan (HASP).
- Wear protective clothing appropriate for the designated level of protection and decontaminate before entering clean areas when applicable.
- Use safety equipment in accordance with OSHA guidance and labeling instructions.
- Maintain safety equipment in good condition and proper working order and make sure that the equipment is calibrated prior to use.
- Immediately report unsafe acts or conditions to the Project Manager and OSC.
- Eating, drinking, and smoking are prohibited on site, except in designated areas.
- Maintaining a position upwind from intrusive activities is encouraged.
- The emergency shutoff switch should be demonstrated to be working prior to initiating excavation activities.
- An adequately stocked first-aid kit will be maintained at the work site.

Communication

TRC team members shall be equipped with cellular telephones. If an emergency occurs, and the team members are not in close proximity to each other, communication will occur via telephone.

7.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

It is anticipated that Level D PPE will be required. Level D protection is applicable when no respiratory protection and minimal skin protection is required. Level D can be used in the following circumstances:

- The atmosphere contains no known hazard
- Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals

The Level D recommended for this Site includes:

Level D Personal Protective Equipment	
Item	**Rationale/Notes**
Hardhat	Appropriately rated hard hats will be worn by personnel for protection against overhead hazards, including electrical.
Hearing protection	Hearing protection will be worn by all personnel exposed to more than 85 dB of sound during the workday.
Safety boots	Safety boots will be worn by all personnel during project work described in this HASP and at all times on site.
Eye protection (safety glasses)	Eye protection will be worn when personnel are exposed to flying debris, chemical vapors or particulates. Chemical splash goggles will be worn for protection against chemical gases, vapors or particulates. Safety glasses will be worn for protection against flying objects.
Safety vest	Utilize in areas in or near vehicular traffic of any kind on or off property.
Gloves	Gloves to be changed between samples to avoid cross-contamination. Nitrile chemically resistant gloves will be worn when handling sample bottles.
Kevlar work gloves	As indicated herein, use Cut and Abrasion Resistance Level 4 or Level 5 gloves when necessary for hand protection during field tasks.

If excessive ionizable organic vapors containing of VOCs are detected at or above the action levels (See Section 6.3), workers will cease work in the area until organic vapor levels decrease for Level D PPE. Odor suppression techniques (i.e., water misting and foam) will be used during excavation activities as necessary.

A basic first aid kit will be provided by the contractor and readily available on-Site in the event of an emergency.

A fire extinguisher should be present with the excavator. All personnel working on or around the excavator should know the location of and how to operate the fire extinguisher. TRC will confirm the location of the first aid kid and fire extinguisher during daily tailgate safety meetings.

8.0 DECONTAMINATION PROCEDURES

8.1 Minimization of Contact with Contaminants

During the completion of all Site activities, personnel should attempt to minimize the degree of contact with contaminated materials. This involves a conscientious effort to keep "clean" during Site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from Site operations.

8.2 Personnel Decontamination Procedures

The following describes procedures to be employed for personnel decontamination.

PERSONNEL DECONTAMINATION PROCEDURES FOR LEVEL D PROTECTION	
1.	Decontaminate equipment used on-Site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) with moist towel.
2.	Use boot brush to remove soil from treads of shoes.
2.	Remove PPE and wipe down with moist towel.
3.	Remove gloves and deposit in waste container.
4.	If inner clothing has become contaminated, remove it and place it into a poly bag.
5.	Wash hands and face.

8.3 Decontamination Procedures

All liquids used in the decontamination procedure will be collected, stored, and disposed in accordance with federal, state, and local regulations. Personnel performing this task will wear the proper PPE as prescribed in the table in Section 7.

8.4 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination; wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or transporting equipment.

If the person cannot be moved because of the extent of the injury (a back or neck injury) provisions will be made to ensure that emergency response personnel are able to respond to victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with poly to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent chemical data.

8.5 Hand Held Equipment Decontamination

Hand held equipment includes all monitoring instruments, samples, hand tools, and field logbooks. To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident.

Decontamination procedures for sampling equipment, hand tools, etc. will include a moist towel wipe, as appropriate for the Site conditions.

9.0 REQUIRED PERSONNEL TRAINING

TRC field personnel will have the training outlined below before on-Site work activities:

Project Training Requirements

(* required for all sites; but minimum recommended)

Check "A" if training required for everyone, and check "T" if training required for specific task or per notations.

A	T	SUBJECT	REFERENCE	
			29 CFR 1910	29 CFR 1926 or Other
☒	☐	HAZWOPER 40 hour	1910.120	1926.65
☐	☐	3-Day HAZWOPER Supervised On-site	1910.120	1926.65
☒	☐	8-Hour HAZWOPER Refresher	1910.120	1926.65
☐	☒	8-Hour Supervisor HAZWOPER*	1910.120	1926.65
☐	☒	First Aid, CPR[1]	1910.151	1926.23,.50
☒	☐	Hazard Communication (HAZCOM)	1910.1200	1926.59
☐	☐	DOT / IATA Shipping Training	1910.1201	49 CFR 172.704
☒	☐	TRC Hand Protection Policy	1910.138	TRC Policy[2]
☒	☐	Defensive Driving	N/A	White Paper[3] TRC Manual[4]
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				

Note:
***** The OHSO shall have OSHA 8-hour supervisor training, in addition to 40-hour HAZWOPER.
1 Per the TRC Health and Safety Policy and Procedure Manual, each TRC project will have at least one certified CPR/first aid trained person on- Site at all times. All Project Managers, and anyone acting as the on-site Health and Safety Officer, must be current in First Aid/CPR.
2 TRC RMD Hand Protection Policy, August 2012
3 Guidelines for Employers to Reduce Motor Vehicle Crashes (joint white paper by NETS, NHTSA and OSHA)
4 TRC Driver and Vehicle Management Policy and Procedure Manual, Rev 1 (April 2012)

Project training requirements beyond those provided in the above table will require a HASP revision/upgrade or concurrence of the TRC Safety Director or Practice Safety Manager.

10.0 MEDICAL MONITORING

Medical monitoring will apply routinely to all employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year (40 CFR 1910.120[f][2][i]). Said TRC field personnel will have the medical surveillance outlined in the table below prior to commencing on-site work activities.

Medical Surveillance Required			
*Baseline is minimum recommended.			
	29 CFR 1910	**29 CFR 1926 or Other**	**Notes**
☒ HAZWOPER Physical - Baseline	1910.120	1926.65	
☒ HAZWOPER Physical – Annual	1910.120	1926.65	
☐ HAZWOPER Physical - Biennial	1910.120	1926.65	
Client-specific drug testing[1]	☒ Not Applicable ☐ Specify		
Client-specific medical monitoring[1]	☒ Not Applicable ☐ Specify		
Site-specific medical monitoring:	☒ Not Applicable ☐ Specify		

Note:
[1] Client required drug testing or medical monitoring should be coordinated through the Project Manager.

TRC has a Drug and Alcohol-Free Workplace Policy. TRC may require employees or subcontractors to be tested upon reasonable suspicion, following accidents or incidents during work activities, or during travel to or from a project Site. Client policies may be stricter in regard to procedures following an accident. Project Managers must be aware of these and inform employees and subcontractors of any additional requirements.

11.0 TAILGATE SAFETY MEETINGS

A tailgate safety meeting will be conducted daily prior to commencement of the work day (see Daily Pre-Job Safety Briefing Form provided in **Attachment F**) or if site conditions change.

Topics covered by the tailgate safety meeting will include, but not be limited to:

- Scope of work and who will conduct each task
- Potential hazards for the scope of work
- weather forecast
- PPE
- Emergency procedures and the route to the medical facility
- Site conditions and features
- Communication guidelines related to stakeholder engagement and visitors

Safety meetings will be held to address modifications to this HASP and any addenda prepared to supplement the HASP. Subcontractors and personnel present at the tailgate safety meeting shall be required to sign an acknowledgement form after each meeting.

12.0 OBSERVATIONS

Note that the Project Manager and/or OSC may notify field staff that their site activities may be the subject of Safety Observation, an integral part of the continuous improvement safety culture promoted at TRC. If subject to an observation, please note the following:

- The Observation will tend to focus on the highest risk activity (as a general example, drilling in a public right-of-way).
- Follow-up observations may be required, depending on prior data collected.
- The observer's preparation before visiting the site will be a review of the HASP, client-specific requirements, etc., and a review of the work scope with the Project Manager to ensure the context of the work is well understood in advance.
- Review items may include PPE, body use and positioning, work environment, operating procedures, and tools and equipment (see **Attachment H**).
- The observation should last between 30 and 60 minutes.

Observations will be documented on the form found in **Attachment H**. Both positive and negative observations are candidates for documentation and later discussion. The overarching goals are to identify and correct questionable practices, and to identify and promote good, safe and efficient practices. It is a data gathering process that will allow TRC safety specialists to identify root causes for safety issues in both categories to better inform policy decisions.

In addition, TRC may record a Safe Catch which is identification and mitigation of a condition that may have created a hazard if it were not identified. The Safe Catch documentation is provided in **Attachment I**.

13.0 INCIDENT REPORTING

In case of an incident, TRC personnel must report the incident immediately to their project manager/supervisor and/or OHSC, and client's representative, and follow the TRC Incident Response and Reporting Process (see **Attachment G**). Required forms must be completed within 24 hours following the incident. If the forms are unavailable, the incident shall be reported to the TRC Safety Director (Mike Glenn). Accident/injury/exposure information must be recorded per TRC policy (see **Attachment G**) and will be the basis of any accident/incident investigations.

14.0 ACKNOWLEDGEMENT

All TRC personnel operating under this HASP must read the HASP and sign the acknowledgment page in **Attachment A**.

15.0 SUBCONTRACTORS AND HEALTH AND SAFETY PLANNING

TRC personnel must provide the complete HASP to all subcontractors for their reference in advance of the work. Subcontractors must prepare their own site-specific HASP and provide evidence of HASP preparation before the start of site work to ensure that the subcontractor has an understanding of the safety hazards associated with the work that they are performing. Subcontractor HASPs are not required to be included unless contractually/client required, of is so desired by the Project Manager or OSC.

Attachment A
Health and Safety Plan Acceptance

SITE: 8802 5th Avenue and 429 89th Street, Brooklyn, N.Y. 11209

I have received a copy of the Health and Safety Plan for this site and have read, understand and will abide by the procedures set forth in this Health and Safety Plan and any amendments to this plan.

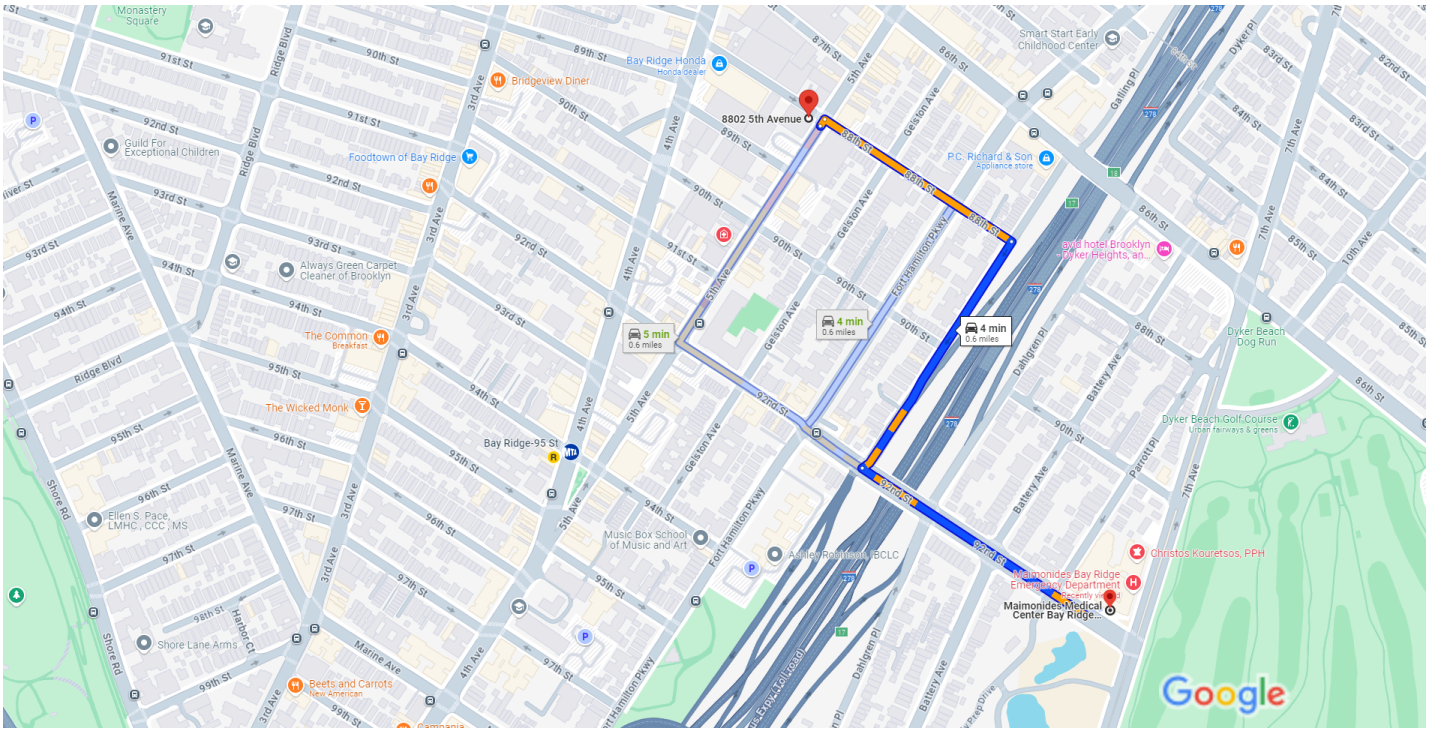
Printed Name	**Signature**	**Date**

Attachment B
Hospital Route

Google Maps

8802 5th Ave, Brooklyn, NY 11209 to Maimonides Medical Center Bay Ridge Emergency Department, 699 92nd St, Brooklyn, NY 11228

Drive 0.6 mile, 4 min



Map data ©2024 Google 200 ft

8802 5th Ave
Brooklyn, NY 11209

1. Head northeast on 5th Ave toward 88th St

30 ft

2. Turn right at the 1st cross street onto 88th St

0.2 mi

3. Turn right onto Gatling Pl

0.2 mi

4. Use the middle lane to turn left onto 92nd St

0.2 mi

Maimonides Medical Center Bay Ridge Emergency Department
699 92nd St, Brooklyn, NY 11228

Attachment C
Work Care Information

EARLY INCIDENT INTERVENTION®

Immediate Access to Medical Advice for Work Related Incidents

(888) 449-7787

INTRODUCTION

WorkCare, Inc. (WorkCare) and TRC have partnered together to promote Incident Intervention®, a resource designed to support company safety goals/targets—while reducing runaway-costs associated with workplace injuries and illnesses.

PURPOSE

Early Incident Intervention provides TRC employees with **IMMEDIATE** telephonic access to WorkCare clinicians at the time of a presumed, non-emergency workplace injury or illness. Clinicians provide expert guidance on the evaluation of symptoms, appropriate first aid, and the need for additional medical evaluation or treatment.

When utilizing this service within the first hour of an incident, known as the "Golden Hour," licensed medical staff can guide the case so that medical evaluation and treatment are rendered appropriately.

> ***"…helps the worker traverse the unpredictable terrain of work-related injuries and illness."***

PRINCIPLES OF EARLY INCIDENT INTERVENTION

- Utilizes principles of the "Golden Hour."
- Provides workers immediate clinician support at the time of an incident.
- Focuses on providing the right care, at the right time in the proper setting.

BENEFITS FOR EMPLOYEES

- Instant access to a medically qualified professional for evaluation of symptoms and possible outcomes.
- Professional guidance on appropriate first aid measures and medications.
- Professional advice regarding the need for additional medical evaluation or treatment.

BENEFITS FOR TRC

- Point of contact for emergency and non-emergency medical clinicians.
- Triages the incident to determine risk and urgency, delivering interventions that are consistent with medical guidelines for the specified injury and illness.
- Maintains communication with clinicians to ensure accurate and timely reporting.

Attachment D
Emergency Contact Information

ATTACHMENT D

EMERGENCY CONTACT INFORMATION

Name	Role	Phone Number
Lee Guterman, NYCSCA	NYCSCA, IEH Division	(718)-472-8502
Bob Kanaparthi, NYCSCA	NYCSCA, IEH Division	(718) 472-8620
Michael Sherwood, NYCSCA	NYCSCA, IEH Division	(718) 752-5211 Cell: (914) 400-5205
Charles Guder, TRC	TRC Vice President	(212) 221-7822
Lindsay O'Hara, TRC	TRC Office Practice Leader	(203) 278-5305 Cell: (914) 420-9649
Jenna Raup, TRC	TRC Project Manager	Cell: (929) 502-6469
Emily Ebert, TRC	TRC Office Safety Coordinator	(212) 221-7822 Cell: (908) 451-0203
Zachary Schwartz, TRC	TRC Project Engineer	Cell: (332) 323-9840
Jannell Franklin, Test America	Laboratory Services	(732) 593-2551

Attachment E
Safety Data Sheets for Potential Contaminants of Concern

Per- and Polyfluoroalkyl Substances (PFAS)
Frequently Asked Questions

What are PFAS?

PFAS are a large group of man-made chemicals that have been used since the 1950s. Use of some of these chemicals has decreased in the United States over the last 10 years. People can still be exposed to PFAS because they are still present in the environment. PFAS do not break down easily in the environment. They also build up in the bodies of exposed humans and animals. Over the last decade, interest in PFAS has grown.

How can I be exposed to PFAS?

ATSDR and our state health partners are studying exposure to PFAS at a number of sites. PFAS are found near areas where they are manufactured or used. Listed below are places where they can be found.

- Public water systems and drinking water wells, soil, and outdoor air near industrial areas with frequent PFAS use
- Indoor air in spaces that contain carpets, textiles, and other consumer products treated with PFAS to resist stains
- Surface water (lakes, ponds, etc.) and run-off from areas where aqueous (water-based) film-forming fire fighting foam (AFFF) was often used (like military or civilian airfields)
- Locally caught fish from contaminated bodies of water
- Food items sold in the marketplace

Consumer products can be source of exposures to PFAS. These products include

- Some grease-resistant paper, fast food wrappers, microwave popcorn bags, pizza boxes, and candy wrappers
- Nonstick cookware such as Teflon®[1] coated pots and pans
- Stain resistant coatings such as Scotchguard®[1] used on carpets, upholstery, and other fabrics
- Water resistant clothing such as Gore-Tex®[1]
- Cleaning products
- Personal care products (shampoo, dental floss) and cosmetics (nail polish, eye makeup)
- Paints, varnishes, and sealants

Recent efforts to stop using some PFAS in consumer products appear to have lowered exposure in the U.S. population. CDC surveys have shown that blood levels of PFAS have dropped over time. People who work with PFAS are more likely to be exposed than the general population. Workers may be exposed to PFAS by inhaling them, getting them on their skin, and swallowing them, but inhaling them is the most likely route for exposure.

How can I reduce my exposure to PFAS?

PFAS are found in people and animals all over the world. They are found in some food products and in the environment (air, water, soil, etc.). Completely stopping exposure to PFAS is unlikely. But, if you live near sources of PFAS contamination you can take steps to reduce your risk of exposure to PFAS:

- Some states have warnings about eating fish from bodies of water with high PFAS levels. Check with your state public health and environmental quality departments to learn the types and local sources of fish that are safe to eat.
- If your water contains PFAS, you can reduce exposure by using an alternative or treated water source for drinking, food preparation, cooking, brushing teeth, and any activity that might result in ingestion of water.
- It is safe to shower and bathe in PFAS-contaminated water. Neither routine showering or bathing are a significant source of exposure. Studies have shown very limited absorption of PFAS through the skin.

Agency for Toxic Substances and Disease Registry
Division of Community Health Investigations

17-CS265744B_Updated March 9, 2017

How can PFAS affect people's health?

Scientists are not sure about the health effects of human exposure to PFAS. Some studies in humans have shown that certain PFAS may affect the developing fetus and child, including possible changes in growth, learning, and behavior. In addition, they may decrease fertility and interfere with the body's natural hormones, increase cholesterol, affect the immune system, and even increase cancer risk.

- PFAS build up and stay in the human body and the amount goes down very slowly over time. So scientists and doctors are concerned about their effects on human health.
- Some studies show that animals given PFAS have changes in the liver, thyroid, pancreas, and hormone levels. Scientists are not sure what animal data means about human health. PFAS act differently in humans than they do in animals and may be harmful in different ways.

How can I learn more?

Contact 1-800-CDC-INFO for updated information on this topic.

Contact the Consumer Product Safety Commission at (800) 638-2772 if you have questions about the products you use in your home.

Visit the following websites for more information:

ATSDR Websites

http://www.atsdr.cdc.gov/pfc/index.html

Environmental Protection Agency

http://www2.epa.gov/chemical-research/perfluorinated-chemical-pfc-research

List of Common PFAS and Their Abbreviations

Compound	Abbreviation
Perfluorobutane sulfonate	PFBS
Perfluorohexane sulfonate	PFHxS
Perfluorooctane sulfonate	PFOS
Perfluoroheptanoic acid	PFHpA
Perfluorooctanoic acid	PFOA
Perfluorononanoic acid	PFNA
Perfluorodecanoic acid	PFDA
Perfluoroundecanoic acid	PFUnA
Perfluorododecanoic acid	PFDoA
Perfluorooctane sulfonamide	PFOSA
2-(N-Methyl-perfluorooctane sulfonamido) acetate	Me-PFOSA-AcOH
2-(N-Ethyl-perfluorooctane sulfonamido) acetate	Et-PFOSA-AcOH

Notes

[1]Use of trade names is for identification only and does not imply endorsement by the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry, the Public Health Service, or the U.S. Department of Health and Human Services

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **cis-1,2-Dichloroethylene**

Cat No. : **AC113380000; AC113380025; AC113380100; AC113380500**

Synonyms cis-Acetylene dichloride.

Recommended Use Laboratory chemicals.
Uses advised against Not for food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company
Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled
Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation



Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Take precautionary measures against static discharge
Do not eat, drink or smoke when using this product
Response
Call a POISON CENTER or doctor/physician if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Fire
Explosion risk in case of fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store in a well-ventilated place. Keep cool
Store in a closed container
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
cis-1,2-Dichloroethylene	156-59-2	97

4. First-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention.

Inhalation Move to fresh air. Obtain medical attention. If not breathing, give artificial respiration.

Ingestion Do not induce vomiting. Obtain medical attention.

Most important symptoms and effects Breathing difficulties. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media Water spray. Carbon dioxide (CO_2). Dry chemical. Use water spray to cool unopened containers. Chemical foam. Cool closed containers exposed to fire with water spray.

Unsuitable Extinguishing Media No information available

Flash Point 6 °C / 42.8 °F

Method - No information available

Autoignition Temperature 440 °C / 824 °F

Explosion Limits

Upper 12.80%

Lower 9.70%

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products

Hydrogen chloride gas Carbon monoxide (CO) Carbon dioxide (CO_2)

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions Ensure adequate ventilation. Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes and clothing.

Environmental Precautions See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system.

Methods for Containment and Clean Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling Ensure adequate ventilation. Wear personal protective equipment. Use explosion-proof equipment. Use only non-sparking tools. Avoid contact with skin, eyes and clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
cis-1,2-Dichloroethylene	TWA: 200 ppm			

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection No protective equipment is needed under normal use conditions.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-80 °C / -112 °F
Boiling Point/Range	60 °C / 140 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.80%
Lower	9.70%
Vapor Pressure	201 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.280
Solubility	No information available
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Bases

Hazardous Decomposition Products Hydrogen chloride gas, Carbon monoxide (CO), Carbon dioxide (CO_2)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information
Component Information
Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
cis-1,2-Dichloroethylene	156-59-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea

cis-1,2-Dichloroethylene	Not listed	Not listed	EC50 = 721 mg/L 5 min EC50 = 905 mg/L 30 min	Not listed

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IATA

UN-No 1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No 1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

15. Regulatory information

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
cis-1,2-Dichloroethylene	X	-	X	205-859-7	-		-	X	X	X	X

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
cis-1,2-Dichloroethylene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 23-Jan-2018
Print Date 23-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Section 1. Identification

GHS product identifier : Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Other means of identification : Not available.

Product use : Synthetic/Analytical chemistry.

SDS # : 002103

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

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Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

CAS number : Not applicable.

Product code : 002103

Ingredient name	%	CAS number
Nitrogen	75 - 80.5	7727-37-9
oxygen	19.5 - 23.5	7782-44-7
2-methylpropene	0.0001 - 1.13	115-11-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas.

Color : Not available.

Melting/freezing point : -140.7°C (-221.3°F) This is based on data for the following ingredient: 2-methylpropene. Weighted average: -211.14°C (-348.1°F)

Critical temperature : Lowest known value: -146.95°C (-232.5°F) (nitrogen).

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Highest known value: 1.94 (Air = 1) (2-methylpropene). Weighted average: 1.01 (Air = 1)

Gas Density (lb/ft ^{3}) : Weighted average: 0.07

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

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Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatibility with various substances : Extremely reactive or incompatible with the following materials: reducing materials and combustible materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

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Section 11. Toxicological information

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

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Section 12. Ecological information

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1956	UN1956	UN1956	UN1956	UN1956
UN proper shipping name	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	-	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	-

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

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Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act (CAA) 112 regulated flammable substances: 2-methylpropene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : The following components are listed: NITROGEN; OXYGEN (LIQUID); 2-METHYLPROPENE

New York : None of the components are listed.

New Jersey : The following components are listed: NITROGEN; OXYGEN; ISOBUTYLENE; 1-PROPENE, 2-METHYL-

Pennsylvania : The following components are listed: NITROGEN; OXYGEN; 1-PROPENE, 2-METHYL-

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

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Section 15. Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

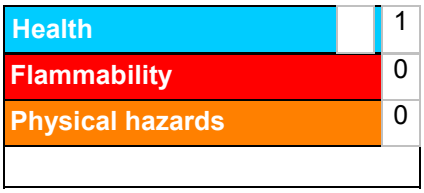
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Butene (all isomers)
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 1/23/2015.

Date of issue/Date of revision : 1/23/2015.

Date of previous issue : No previous validation.

Version : 0.01

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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

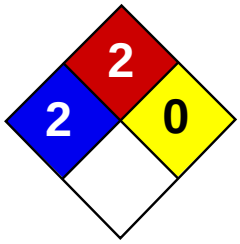
Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Health	2
Fire	2
Reactivity	0
Personal Protection	E

Material Safety Data Sheet
Naphthalene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Naphthalene

Catalog Codes: SLN1789, SLN2401

CAS#: 91-20-3

RTECS: QJ0525000

TSCA: TSCA 8(b) inventory: Naphthalene

CI#: Not available.

Synonym:

Chemical Name: Not available.

Chemical Formula: C10H8

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Naphthalene	91-20-3	100

Toxicological Data on Ingredients: Naphthalene: ORAL (LD50): Acute: 490 mg/kg [Rat]. 533 mg/kg [Mouse]. 1200 mg/kg [Guinea pig]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit]. VAPOR (LC50): Acute: 170 ppm 4 hour(s) [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of ingestion. Hazardous in case of eye contact (irritant), of inhalation. Slightly hazardous in case of skin contact (irritant, permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact: Not available.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 567°C (1052.6°F)

Flash Points: CLOSED CUP: 88°C (190.4°F). OPEN CUP: 79°C (174.2°F).

Flammable Limits: LOWER: 0.9% UPPER: 5.9%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
Flammable solid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:
Flammable solid. Stop leak if without risk. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe dust. Avoid contact with eyes Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents.

Storage:
Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. Keep container dry. Keep in a cool place.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Israel: TWA: 10 (ppm) TWA: 10 STEL: 15 (ppm) from ACGIH (TLV) [1995] TWA: 52 STEL: 79 (mg/m3) from ACGIH [1995] Australia: STEL: 15 (ppm) Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Crystalline solid.)

Odor: Aromatic.

Taste: Not available.

Molecular Weight: 128.19 g/mole

Color: White.

pH (1% soln/water): Not available.

Boiling Point: 218°C (424.4°F)

Melting Point: 80.2°C (176.4°F)

Critical Temperature: Not available.

Specific Gravity: 1.162 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: 4.4 (Air = 1)

Volatility: Not available.

Odor Threshold: 0.038 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties:
Partially dispersed in hot water, methanol, n-octanol. Very slightly dispersed in cold water. See solubility in methanol, n-octanol.

Solubility:
Partially soluble in methanol, n-octanol. Very slightly soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Highly reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: May attack some forms of rubber and plastic

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 490 mg/kg [Rat]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 170 ppm 4 hour(s) [Rat].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH. DEVELOPMENTAL TOXICITY: Classified Development toxin [POSSIBLE]. The substance is toxic to blood, kidneys, the nervous system, the reproductive system, liver, mucous membranes, gastrointestinal tract, upper respiratory tract, central nervous system (CNS).

Other Toxic Effects on Humans:
Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 305.2 ppm 96 hour(s) [Trout].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 4.1: Flammable solid.

Identification: : Naphthalene, refined : UN1334 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
Rhode Island RTK hazardous substances: Naphthalene Pennsylvania RTK: Naphthalene Florida: Naphthalene Minnesota: Naphthalene Massachusetts RTK: Naphthalene TSCA 8(b) inventory: Naphthalene TSCA 8(a) PAIR: Naphthalene TSCA 8(d) H and S data reporting: Naphthalene: 06/01/87 SARA 313 toxic chemical notification and release reporting: Naphthalene: 1% CERCLA: Hazardous substances.: Naphthalene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-4: Flammable solid. CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36- Irritating to eyes. R40- Possible risks of irreversible effects. R48/22- Harmful: danger of serious damage to health by prolonged exposure if swallowed. R48/23- Toxic: danger of serious damage to health by prolonged exposure through inhalation. R63- Possible risk of harm to the unborn child.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 2

Reactivity: 0

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 2

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/11/2005 01:30 PM

Last Updated: 05/21/2013 12:00 PM

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall ScienceLab.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if ScienceLab.com has been advised of the possibility of such damages.

Material Safety Data Sheet
Trichloroethylene

ACC# 23850

Section 1 - Chemical Product and Company Identification

MSDS Name: Trichloroethylene
Catalog Numbers: AC158310000, AC158310025, AC421520000, AC421520040, AC421520200, AC421525000, 15831-0010, S80327ACS-1, S80327ACS-2, T340-4, T341-20, T341-4, T341-500, T341J4, T403-4
Synonyms: Ethylene trichloride; 1,1,2-Trichloroethylene; TCE.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
79-01-6	Trichloroethylene	99+	201-167-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: APHA: 15 max liquid.
Warning! Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Breathing vapors may cause drowsiness and dizziness. Possible risks of irreversible effects. Cancer hazard. Causes eye and skin irritation. May cause respiratory tract irritation. May cause liver and kidney damage. May cause central nervous system effects.
Target Organs: Kidneys, central nervous system, liver, spleen, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye irritation. Contact with trichloroethylene causes pain but no permanent injury to the eyes. (Doc of TLV)
Skin: Causes skin irritation. May be harmful if absorbed through the skin.
Ingestion: May cause irritation of the digestive tract. May be harmful if swallowed. May cause central nervous system effects.
Inhalation: May cause respiratory tract irritation. May cause liver and kidney damage. May be harmful if inhaled. May cause central nervous system effects. The chief symptoms of TCE exposure were found to be abnormal fatigue, irritability, headache, gastric disturbances, and intolerance to alcohol. (Doc to TLV)
Chronic: Prolonged or repeated skin contact may cause defatting and dermatitis. May cause liver and kidney damage. May cause cancer in humans. Repeated exposure may cause damage to the spleen. Adverse reproductive effects have been reported in animals. Laboratory experiments have resulted in mutagenic effects. Possible risk of irreversible effects.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Do not induce vomiting. Get medical aid.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.
Flash Point: Not applicable.
Autoignition Temperature: 410 deg C (770.00 deg F)
Explosion Limits, Lower:7.9 Vol %
Upper: 90 Vol %
NFPA Rating: (estimated) Health: 2; Flammability: 1; Instability: 1

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Remove all sources of ignition. Use a spark-proof tool. Do not let this chemical enter the environment.

Section 7 - Handling and Storage

Handling: Do not get in eyes, on skin, or on clothing. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood.
Storage: Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Trichloroethylene	10 ppm TWA; 25 ppm STEL	1000 ppm IDLH	100 ppm TWA; 200 ppm Ceiling

OSHA Vacated PELs: Trichloroethylene: 50 ppm TWA; 270 mg/m3 TWA
Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless - APHA: 15 max
Odor: chloroform-like
pH: Not available.
Vapor Pressure: 77.3 mbar @ 20 deg C
Vapor Density: 4.5 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 87 deg C @ 760 mmHg
Freezing/Melting Point:-86 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:1.460
Molecular Formula:C2HCl3
Molecular Weight:131.39

Section 10 - Stability and Reactivity

Chemical Stability: Moisture sensitive. Light sensitive.
Conditions to Avoid: Incompatible materials, light, ignition sources, excess heat, exposure to moist air or water.
Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, bases, active metals, metals and metal compounds (toxic, e.g. beryllium, lead acetate, nickel carbonyl, tetraethyl lead).
Hazardous Decomposition Products: Hydrogen chloride, carbon monoxide, carbon dioxide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 79-01-6: KX4550000
LD50/LC50:
CAS# 79-01-6:
Draize test, rabbit, eye: 20 mg/24H Moderate;
Draize test, rabbit, skin: 2 mg/24H Severe;
Inhalation, mouse: LC50 = 8450 ppm/4H;
Inhalation, mouse: LC50 = 220000 mg/m3/20M;
Inhalation, mouse: LC50 = 262000 mg/m3/30M;
Inhalation, mouse: LC50 = 40000 mg/m3/4H;
Inhalation, rat: LC50 = 140700 mg/m3/1H;
Oral, mouse: LD50 = 2402 mg/kg;
Oral, mouse: LD50 = 2400 mg/kg;
Oral, rat: LD50 = 4920 mg/kg;
Skin, rabbit: LD50 = >20 gm/kg;

Skin, rabbit: LD50 = 20 mL/kg;

.

Carcinogenicity:
CAS# 79-01-6:

- **ACGIH:** A2 - Suspected Human Carcinogen
- **California:** carcinogen, initial date 4/1/88
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

Epidemiology: Tumorigenic effects have been reported in experimental animals.
Teratogenicity: Teratogenic effects have occurred in experimental animals.
Reproductive Effects: Adverse reproductive effects have occurred in experimental animals.
Mutagenicity: Mutagenic effects have occurred in humans.
Neurotoxicity: No information available.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: 41-67 mg/L; 96 hrs.; LC50Daphnia: Daphnia: 2.2-100 mg/L; 48 hrs.; LC50Mollusk Shrimp: 2 mg/L; 96 hrs.; LC50 Bluegill sunfish, LD50= 44,700 ug/L/96Hr. Fathead minnow, LC50=40.7 mg/L/96Hr.
Environmental: In air, substance is photooxidized and is reported to form phosgene, dichloroacetyl chloride, and formyl chloride. In water, it evaporates rapidly. Potential for mobility in soil is high.
Physical: No information available.
Other: Bioconcentration potential is low (BCF less than 100).

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 79-01-6: waste number U228.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TRICHLOROETHYLENE	TRICHLOROETHYLENE
Hazard Class:	6.1	6.1
UN Number:	UN1710	UN1710
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 79-01-6 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

CAS# 79-01-6: 100 lb final RQ; 45.4 kg final RQ

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 79-01-6: immediate, delayed, reactive.

Section 313

This material contains Trichloroethylene (CAS# 79-01-6, 99+%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR

Clean Air Act:

CAS# 79-01-6 is listed as a hazardous air pollutant (HAP).
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

CAS# 79-01-6 is listed as a Hazardous Substance under the CWA. CAS# 79-01-6 is listed as a Priority Pollutant under the Clean Water Act. CAS# 79-01-6 is listed as a Toxic Pollutant under the Clean Water Act.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 79-01-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Trichloroethylene, a chemical known to the state of California to cause cancer.

California No Significant Risk Level: CAS# 79-01-6: 50 æg/day NSRL (oral); 80 æg/day NSRL (inhalation)

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T

Risk Phrases:

R 36/38 Irritating to eyes and skin.
R 45 May cause cancer.
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 67 Vapours may cause drowsiness and dizziness.
R 68 Possible risk of irreversible effects.

Safety Phrases:

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 79-01-6: 3

Canada - DSL/NDSL

CAS# 79-01-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 79-01-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 2/01/1999
Revision #9 Date: 6/03/2008

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Attachment F
Daily Pre-Job Safety Briefing Form

Daily Pre-Job Safety Briefing

Project Name: Proposed Public School K337 | Interim Remedial Measure Project Number: _____

Work Location: 8802 5th Avenue and 429 89th Street, Brooklyn, NY 11209 Date: _____

Tasks Performed: _____ Time: _____ AM PM

Client Name: New York City School Construction Authority Submitted By: _____

Health and Safety Plan Available Onsite: Yes ☐ No ☐ Health and Safety Plan Location: _____

Emergency Facility(s): Maimonides Medical Center Bay Ridge Emergency Department Number(s): 718-283-2190

Physical Address: 699 92nd Street, Brooklyn, NY 11228

First Aid/CPR Persons: _____

For Emergencies Dial 911/For Non-Emergencies Dial WorkCare (888) 449-7787

Personal Protective Equipment Required	Yes	No	Type
Fall Protection	☐	☐	_____
body harness, lifelines, barricades, other (specify)			
Eye/Face	☐	☐	_____
goggles, face shield, hood, other (specify)			
Respirator	☐	☐	_____
SCBA, supplied air, HEPA, dust, other (specify)			
Foot Protection	☐	☐	_____
safety toe, EH rated, rubber boots, other (specify)			
Hand Protection	☐	☐	_____
leather, cut resistant, chemical, EH, other (specify)			
Head Protection	☐	☐	_____
hard hat, helmet, electrical hazard, other (specify)			
Clothing	☐	☐	_____
coveralls, welding, sleeves, rain, FR, reflective vest, chemical, other (specify)			
Hearing Protection	☐	☐	_____

Procedures/Programs Required	Yes	No
Hot Work	☐	☐
LOTO/Energy Control	☐	☐
Trenching/Excavation	☐	☐
Signs/Barricades	☐	☐
Confined Space	☐	☐
Cranes/Critical Lifts	☐	☐
Line Breaking/Hot Tap	☐	☐
Scaffolds/Aerial Lifts	☐	☐
System Testing/ Grounding	☐	☐
Employee Certification/Training Required		
Crane Operator	☐	☐
Forklift Operator	☐	☐
Mobile Equipment Operator	☐	☐
Competent Person	☐	☐
OSHA 10/30	☐	☐
HAZWOPER	☐	☐
Clearance/Tagging Authority	☐	☐

Additional Considerations

Work Procedures: ☐ Isolation of equipment
☐ Check for potential ☐ Adequate grounding
☐ Vehicle grounds ☐ Working clearances
☐ Dig Safe/CBYD ☐ E-911 Protocol
People: ☐ Worker fatigue ☐ Other work groups
☐ Public safety ☐ Pedestrian control ☐ Experience
☐ Traffic control ☐ Other utilities ☐ Spec. Training
Tools/Equipment: ☐ Adequate cover-up
☐ Live line tools ☐ Portable Grounds
☐ Inspection of tools/equipment
☐ Specialized tools/equipment
☐ Correct tool/equipment for the job
Special Precautions: ☐ Adjacent structures
☐ Condition of structures ☐ Weather conditions
☐ Lighting conditions ☐ Terrain ☐ Water bodies
☐ Spills and leaks ☐ Environmental ☐ Cultural
Other: _____

If Conditions CHANGE…Stop Work, Review and Revise the Plan!!

Daily Pre-Job Safety Briefing

Hazards Associated with the Job (focus on the GEMS)				
Gravity	**Electrical**	**Mechanical**	**Kinetic**	**Other/Environmental**
☐ Falling from a height	☐ Electrical contact	☐ Equipment failure	☐ Traffic	☐ Asbestos/Lead
☐ Falling objects	☐ Induced voltage	☐ Conductor tension	☐ Driving conditions	☐ Animals/Insects
☐ Falling structures	☐ Back-feed	☐ Cable tension	☐ Moving/Shifting loads	☐ Confined space
☐ Climbing obstructions	☐ Flash potential	☐ Loaded springs	☐ Rotating machinery	☐ Excavations
☐ Dangerous trees	☐ Step/Touch potential	☐ Moving parts	☐ Vehicle stability	☐ Heat/Cold
☐ Aerial device operation	☐ Static charge	☐ Crane/Rigging	☐ Heavy equip. operation	☐ Pressurized fluids/gases

List all hazards associated with this task	**Signature of Crew Members Present**	**Post Task Safety Analysis**
		Did any injuries or incidents occur today? If yes, explain.
		☐ Yes ☐ No
Barriers to eliminate/control above hazards?		Was the injury or incident reported the safety department?
		☐ Yes ☐ No ☐ N/A
		What problems did you have with today's work assignment?
		What can we do tomorrow to improve performance?
Supervisor Signature		

Attachment G
Incident Reporting Forms

AUTO INCIDENT REPORT

TRC DRIVER INFORMATION:

Driver's Name: _____ Driver's Phone: ( ) _____

Company Name: _____ Company Location: _____

Supervisor's Name: _____ Supervisors Phone: ( ) _____

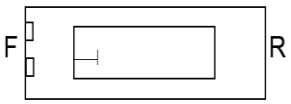
Project Name: _____ Client Name: _____

Driver's Date of Birth (MM/DD/YY): _____ Driver's License #: _____ State: _____

TRC VEHICLE INFORMATION (V-1):

Year/Make/Model of Vehicle: _____

License Plate #: _____ Vehicle ID # (VIN): _____

Circle Point of Contact: 

Was Vehicle Drivable? ☐ Yes ☐ No

Personal: ☐ Yes Rental: ☐ Yes Fleet: ☐ Yes

Rental Company

INCIDENT INFORMATION:

Date of Incident: _____ Time of Incident: _____ A.M. _____ P.M. Photos Taken: ☐ Yes ☐ No

Location of Incident: _____ City: _____

Were The Authorities Contacted? Police: ☐ Yes ☐ No Ambulance: ☐ Yes ☐ No Fire: ☐ Yes ☐ No

Name of Police Dept: _____ Case #: _____ Officer Name: _____

Were Citations Issued? ☐ Yes ☐ No If Yes, To Whom? _____

Citation Number: _____

Were There Any Witnesses? ☐ Yes ☐ No If Yes, Please Provide Name, Address and Phone Below:

Witness Name: _____ Witness Phone: ( ) _____

Witness Address: _____

Traffic Conditions (i.e., heavy, light): _____ Weather Conditions (i.e., dry, wet, ice, fog): _____

Was the TRC Driver Injured? ☐ Yes ☐ No Was Medical Treatment Received? ☐ Yes ☐ No

Describe Injuries:

Describe Damage to Property Other Than Motor Vehicles (i.e., guardrails, mailboxes, etc.):

AUTO INCIDENT REPORT

OTHER DRIVER & VEHICLE INFORMATION (V-2):

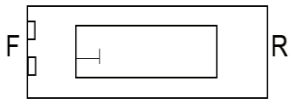
Driver's Name: _____ Driver's Phone: ( ) _____

Driver's Address: _____

Owner's Name (If different than driver): _____ Owner's Phone: ( ) _____

Owner's Address: _____

Year/Make/Model of Vehicle: _____ License Plate #: _____ State: _____

Circle Point of Contact: 

Was Vehicle Drivable? ☐ Yes ☐ No

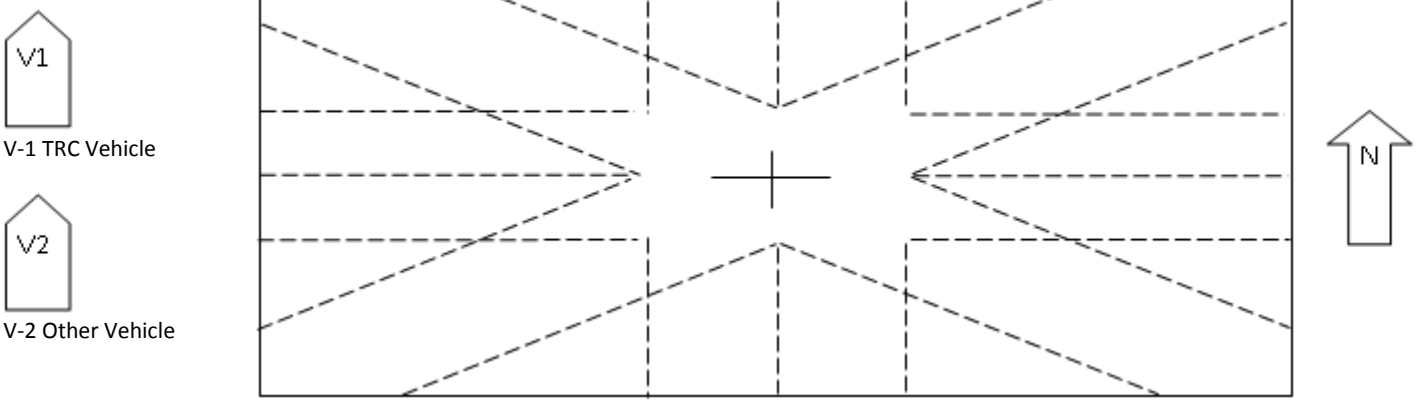
Insurance Company Name: _____ Policy Number: _____

Insurance Company Phone: ( ) _____ Number of Passengers in Vehicle: _____

List Persons Injured: _____

Were Any Other Vehicles Involved in Incident? ☐ Yes ☐ No If yes, provide details below:

PLEASE DESCRIBE THE INCIDENT AND COMPLETE THE DIAGRAM BELOW. Be sure to indicate as many details as possible (i.e., How many lanes in each direction; Were there any turn lanes; What kind of traffic controls were there – light, stop sign, yield sign, Positions of vehicles on impact).



Completed By: _____ Signature: _____

TRC Incident Report Form

(To be completed immediately after an Injury, Illness, Incident, Accident or Significant Near Miss by Employee's Supervisor and Employee involved)

Incident Category						
☐ Employee Injury/Illness	☐ Near Miss/Loss	☐ Property Damage	☐ Vehicle Accident	☐ Fire	☐ Other: Specify	
1	Incident Location:					
2	Site Identification/Project No.:					
3	Site Address:					
4	Date Incident Occurred:					
5	Time Incident Occurred:					
6	Date Incident Reported to Supervisor:					
7	Date Report Completed:					
8	Was WorkCare Contacted? ☐ Yes ☐ No					
9	Client:					

TRC Employee Information					
10	Name:				
11	Address:				
12	Employee Phone:				
13	Title or Occupation:				
14	Sector/Practice:				
15	Supervisor Name/Phone:				
TRC Employee Information (to be completed by Worker's Compensation Claims Administrator)					
16	Employee Date of Birth:				
17	Employee Social Security Number:				
18	Employee Marital Status:	☐ Married	☐ Single		
19	Number of Dependant under the age of 18:				
20	Date of Hire:				
21	Rate of Pay:		Hours per week:		

Type of Employee Injury or Illness (To be determined by Safety Director)			
22	☐ First Aid Only	20	☐ Extended Time Away From Work (3 days or more)
23	☐ Medical Treatment Only	21	☐ Fatality
24	☐ Restricted Work-case	22	☐ Other (specify):
25	☐ Lost Workday		
26	Estimated Number of Days on Restricted Work:		
27	Estimated Number of Days Away from Work:		

Employee Injury or Illness Description	
28	Describe the Injury or Illness:
29	First Aid/Medical Treatment Administered:
30	Name of Doctor's Office, Clinic, or Hospital: Concentra
31	Address and Phone Number:

Incident Description	
32	Equipment Involved:
33	Site Description:
34	What task was being performed at time of incident?
35	Describe Incident in Detail :
36	Conditions at time of Incident: (weather, lighting, etc.):
37	Motor Vehicle Accident:
38	TRC Vehicle ID:

39	Year/Make/Model:	
☐ DOT Regulated Vehicle ☐ Towed From Scene ☐ Airbag Deployed ☐ Seatbelt in Use ☐ TRC Fleet ☐ Rental ☐ Personal Vehicle		
40	Other Vehicle License Plate	
41	Other Vehicle Year/Make/Model	
42	Other Vehicle Driver Name	
43	Other Vehicle Year/Make/Model	
44	Other Injured Parties ☐ Yes ☐ No	
43	Description of other injuries:	

Subcontractor Involvement / Description of Incident	
44	Subcontractor Involved: ☐ Yes ☐ No
45	Name of Company:
46	Address:
47	Contact Name and Phone Number:
48	Subcontractor Description of Incident:

Witness Involvement / Description of Incident	
49	Witnesses to Incident: ☐ Yes ☐ No
50	Name(s) and Address(s):
51	Phone Number(s):
52	Witness Description of Incident:

Personal Protective Equipment (PPE)	
53	List PPE required to complete the task: (glasses, gloves, shoes, hard hat, respirator, hearing protection, etc.)
54	Was the employee using the proper PPE at the time of the Incident?

Immediate Corrective Actions			
55	Describe the immediate corrective actions taken:		
56	Immediate Supervisor:	Signature:	Date:
57	Employee:	Signature:	Date:

Supervisor's Post-Incident Review and Recommendations

	Safety Violation	☐ Yes	☐ No
58	State the company safety rule, OSHA regulation, or specific training that was violated:		
59	Describe the training the employee received to prevent this violation:		

#	Root Cause Factors (RCF)
1	Lack of skill or knowledge
2	In the past, did not follow procedures or acceptable practices and no incident occurred (injury, product quality incident, equipment damage, regulatory assessment or production delay)
3	Doing the job according to procedures or acceptable practices takes more time/effort
4	Short-cutting procedures or acceptable practices are positively reinforced or tolerated
5	Lack of or inadequate operational procedures
6	Inadequate communication of expectations regarding procedures or acceptable practices
7	Inadequate tools or equipment (available, operable and safely maintained, proper task and workplace design)
8	External factors

60	Root Cause(s)	Identified Root Cause(s):							
		#1	#2	#3	#4	#5	#6	#7	#8
A		☐	☐	☐	☐	☐	☐	☐	☐
B		☐	☐	☐	☐	☐	☐	☐	☐
C		☐	☐	☐	☐	☐	☐	☐	☐
D		☐	☐	☐	☐	☐	☐	☐	☐
E		☐	☐	☐	☐	☐	☐	☐	☐
F		☐	☐	☐	☐	☐	☐	☐	☐
G		☐	☐	☐	☐	☐	☐	☐	☐
H		☐	☐	☐	☐	☐	☐	☐	☐

61 **Conclusion: Why did the Incident Occur?**

62

Item No.	RCF No.	Recommended Corrective Action(s) How to Prevent Incident from Reoccurring	Responsible Person	Due Date	Completed (date)	Verified/ Validated (date)

Supervisor: _____ Signature: _____ Date: _____

TRC Safety Director: _____ Signature: _____ Date:_____

TRC Incident Reporting Guidelines

Incident Response:

1. For life threatening injuries and medical emergencies call 911 or go to the closest emergency room.
2. An injured worker must report an injury to their supervisor immediately.
3. Supervisor is required to complete The TRC Incident Report Form within 24 hours of the reported accident and forward to Bill Russell at Sargent & Associates with a copy to Mike Glenn.

   Bill Russell – Sargent &Associates
   Office: (978) 256-7459; Fax: (978) 256-4941
   bill@sargentandassociates.com

   Mike Glenn, National Safety Director
   Office: (949) 727-7347; Mobile: (949) 697-7418
   mglenn@trcsolutions.com

4. WorkCare can provide assistance in providing first aid advice and directing an injured worker to non-emergency medical care. WorkCare is a service that provides 24/7 access to an Occupational Healthcare physician or clinician.

   WorkCare Incident Intervention
   (888) 449-7787

Return to Work:

1. The injured worker is responsible for providing the Supervisor with a copy of the doctor's note detailing the injury and "return to work" status within 24 hours of the doctor's visit. The supervisor must email or fax the completed TRC Incident Report and Doctor's notes to Sargent & Associates.
2. Sargent & Associates will contact the injured worker and the Supervisor to confirm the facts surrounding the injury.
3. Sargent & Associates will report the injury to the workers' compensation insurance carrier, Zurich.

4. Zurich may contact the injured worker and supervisor to conduct an accident investigation.
5. Sargent & Associates will maintain communication with all parties in order to monitor the medical treatment, and the injured worker's return to work status. They will act as liaison between the injured worker, TRC, and Zurich.
6. Sargent & Associates will work with TRC's Health & Safety, Human Resources, and/or Supervisors to determine if modified duty work is an option, until the injured worker is able to return to full duty work activities.

Incident Investigation:

1. All incidents that result in injuries that require reporting for OSHA recordkeeping purposes and all high potential first aid and near miss events require an incident investigation.
2. The Supervisor with assistance from the National Safety Director and/or Safety Coordinator, must complete the incident investigation report/contributing cause analysis within 7 days of the incident and must develop a corrective action plan within 14 days of the incident.

Attachment H
Observation Documentation Form

TRC SAFETY OBSERVATION FORM

Revised January 2014

Location/Project Name: _____ **Date:** _____

Observer Name: _____

Observee Name: _____ **Time:** _____

Task Observed

Description of Task Observed and Background Information

Positive Comments

Conclusions / Why the Questionable Items Occurred?

Feedback Session Conducted By: _____ **Date:** _____

Name of Observee's Supervisor: _____ **Time:** _____

At-Risk Observations/Root Cause Analysis

Personal Factor:
(1) Lack of skill or knowledge
(2) Correct way takes more time/requires more effort
(3) Shortcutting standard procedures is rewarded or appreciated
(4) In past, did not follow procedures or acceptable practices and no incident occurred

Job Factor:
(5) Lack of or inadequate operational procedures or work standards
(6) Inadequate communication of expectations or work standards
(7) Inadequate tools or equipment

At-Risk Observation #	Root Cause Analysis #	Solution(s) To Prevent Potential Incident from Occurring	Person Responsible	Agreed Due Date	Date Completed

Results of Verification (were solutions done?) and Validation (were solutions effective?)

Reviewed by (PM/Supervisor): _____ **Date:** _____

Approved by (Practice Safety Leader): _____ **Date:** _____

TRC SAFETY OBSERVATION FORM

Revised January 2014

PERSONAL PROTECTIVE EQUIPMENT	Safe	At-Risk	Comments
1. Hearing Protection (e.g., Ear Plugs)			
2. Head Protection (e.g., Hard Hat)			
3. ANSI Rated Eye Protection (e.g., Safety Glasses)			
4. Hand Protection (e.g., Kevlar Gloves)			
5. Foot Protection (e.g., Safety Shoes)			
6. Respiratory Protection			
7. Fall Protection Inspected (e.g., Harness)			
8. ANSI Rated Reflective Vest/High Visibility Clothing			
9. Other (Specify)			
BODY USE AND POSITIONING	**Safe**	**At-Risk**	**Comments**
10. Correct Body Use and Positioning When Lifting/Pushing/Pulling			
11. Pinch Points/Moving Equipment - Hands/Body Clear			
12. Mounts/Dismounts Using 3-Points of Contact			
13. Other (Specify)			
WORK ENVIRONMENT	**Safe**	**At-Risk**	**Comments**
14. Work/Walk Surface Free of Obstructions (e.g., Tripping Hazards)			
15. Housekeeping/Storage			
16. Defined and Secured (e.g., warning devices, barricades, cones, flags)			
17. Suspended Load, Swing Radius & Lift Area is Barricaded			
18. Safety Shutdown Devices			
19. Proper Storage & Labeling /Disposal of Sample & Waste Materials			
20. Cylinders Stored Upright, Secured, & Caps in Place			
21. Manhole/vault Inspected for Hazards			
22. Other (Specify)			
OPERATING PROCEDURES	**Safe**	**At-Risk**	**Comments**
23. Job Planning (HASP reviewed, JSAs, etc.)			
24. Fire Extinguishers Accessible and Inspections Current			
25. Work Permit/Authorization to Work (Hot, Cold, LOTO, Confined Space)			
26. JSA Reviewed & Followed			
27. Hazard Assessment - Hazard Hunt			
28. Interfaces with Other Functions (awareness with other personnel on site)			
29. Operators Looking Behind Prior to Backing Up			
30. Operators Wearing Seat Belts While Operating Equipment			
31. Subsurface Structures Identified			
32. Proper Trench Protective Equipment in Place			
33. Adequate Egress Is Available for Excavation & Trench (within 25 ft. if depth is <4 ft.)			
34. All Materials Set Back at Least 2 Feet From Edge of Trench/Excavation			
35. Other (Specify)			
TOOLS/EQUIPMENT	**Safe**	**At-Risk**	**Comments**
36. Hand Tools (Proper Equipment Selection, Condition, and Use)			
37. Power Tools (Proper Equipment Selection, Condition, and Use)			
38. Equipment, Including Heavy (Proper Equipment Selection, Condition, and Use)			
39. Hoses Inspected			
40. Required Monitoring Equipment Calibrated & Used			
41. Ladders Set up Correctly & Inspected			
42. Right Tools for the Job are Available and in Good Condition - No Fixed Open Blade Knives (FOBKs)			
43. Other (Specify)			
Total #	0	0	

Attachment I
Safe Catch Report

"Safe Catch" Report

A "Safe Catch" is a potential hazard or incident that has not resulted in any personal injury. Unsafe working conditions, unsafe employee behaviors, improper use of equipment or use of malfunctioning equipment have the potential to cause work related injuries. It is everyone's responsibility to report and/or correct these potential incidents immediately. Please complete this form as a means to report these "Good Catch" situations and submit to your local OSC Representative and Mike Glenn, National Safety Director.

Employee Name:		Date:	
Incident Location:		Office:	
Project:		Practice:	

Conditions

Please check all appropriate conditions:

☐ Unsafe Act	☐ Unsafe Condition	☐ Unsafe Equipment	☐ Unsafe Use of Equipment

Description of Incident or Potential Hazard:

Task Performed at Time of Incident:

Causes (Primary and Contributing):

Corrective Action(s) Taken (remove the hazard, replace, repair, or retrain):

Employee Signature:		Date Completed:	

Our Mission: To reduce the frequency of incidents by applying local lessons learned globally.

If you have any questions about this report or would like additional information, please reference Compliance Program CP019—TRC Incident Response and Lessons Learned Program, located on TRCNET or contact Mike Glenn, National Safety Director at mglenn@trcsolutions.com.

ATTACHMENT D

NYSDEC REQUEST TO IMPORT/REUSE FILL OR SOIL FORM

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

Site Name:

Site Number:

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Name and address of fill source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

ATTACHMENT E

GREEN AND SUSTAINABLE REMEDIATION BASELINE ANALYSIS

Greener Cleanup Metrics - Summary Table

Site Name:	Former Giuffre Auto Group Site (Proposed Public School 337K)	**Site Location:**	**City or Locale**	**State**	**Cleanup Program:**	NYSDEC Brownfields Cleanup Program
Unit Name:	Remove underground structures and investigate potential residual source area impact		Brooklyn	NY		

Description of Site and Cleanup Activities

Description of Site:	The Site consists of a one-story commercial building with a basement and an asphalt-paved parking lot (Lot 28), and a former commercial building with a partial basement (Lot 39).	**Cleanup Activities:**	The primary objective of the IRM is to remove the drainage system, suspected underground storage tank (UST), and oil-water separator (OWS) beneath the former auto repair/service station building located on the 429 89th Street portion of the Site (Lot 39). In addition, an objective of this IRM is to locate and remove shallow residual source area(s) of petroleum-related contaminants.

Description of Units and Cleanup Phase for these Metrics

Description of Unit:	Remove the suspected underground structures and investigate and remediate potential residual source area impacts in their vicinity.	**Phase of Cleanup:**	Interim Remedial Measure	**Source of Input Data**	Interim Remedial Measure Work Plan

Notes on Data Collection

Data Collection:	NA	**Site Contact Person**		**EPA Contact Person**	
		Name:	NYCSCA - Mike Sherwood	**Name:**	
		Contact Information:	718-752-5211, msherwood@nycsca.org	**Contact Information:**	

SUMMARY FOR TOTALS

Timeframe for Data --->

Core Element	Metric	Resources Used		Resources Conserved		Comments About Results
Materials	Refined materials	0.76	Tons	0.00	Tons	
	Unrefined materials	6,000.00	Tons	0.00	Tons	
Waste	Hazardous waste generation	0.00	Tons	0.00	Tons	
	Non-hazardous waste generation	4,502.50	Tons	2.50	Tons	
Water	Public water	0.01	MG	0.00	MG	
	Groundwater	0.00	MG	0.00	MG	
	Wastewater generation	0.00	MG	0.00	MG	
	Other water	0.00	MG	0.00	MG	
Energy	Grid electricity	0.60	MWh	0.00	MWh	
	Diesel for equipment	1,200	Gallons	0	Gallons	
	Diesel for transportation	3,655	Gallons	0	Gallons	
	Gasoline for equipment	0	Gallons	0	Gallons	
	Gasoline for transportation	124	Gallons	0	Gallons	
	Other energy	0	(variable)	0	(variable)	

	Notes on Inputs for Resources Used	Notes on Inputs for Resources Conserved
Refined Materials:	Geotextile liner, 2-inch PVC pipe, 55-gallon drums.	N/A
Unrefined Materials:	Imported crushed stone	N/A
Hazardous Waste:	N/A	N/A
Non-Hazardous Waste:	Non-hazardous soil hauled off site via dump trucks to Bethlehem Landfill.	Scrap Metal hauled off site via dump truck to TNT Scrap instead of landfill for disposal.
Water:	Non-hazardous wastewater hauler off site to Clean Water of NY.	N/A
Grid Electricity:	Grid electricity used for charging of PID and CAMP stations.	N/A
Fuel Used Onsite:	Large excavator.	N/A
Fuel Used for Transportation:	Fuel used for transportation of excavator, materials, waste, and personnel travel.	N/A
Other Notes:	Assumptions were used for transportation vehicle size and equipment HPs. All quantities are estimated based on the scope of work outlined in the IRM Work Plan.	

APPENDIX M

DRAFT SUB-SLAB DEPRESSURIZATION SYSTEM AND VAPOR BARRIER DESIGN DRAWINGS

SHEET NO.	SHEET TITLE	DOB SET	BID SET
H200.00	SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER NOTES	1	
H201.00	SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER PLAN	2	
H202.00	SUB-SLAB DEPRESSURIZATION SYSTEM RISER PLAN I	3	
H203.00	SUB-SLAB DEPRESSURIZATION SYSTEM RISER PLAN II	4	
H204.00	ENLARGEMENT OF ROOF RISER AND TYPICAL SUB-SLAB DEPRESSURIZATION SYSTEM EXHAUST STACK DETAILS	5	
H205.00	TYPICAL SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS	6	
H206.00	SUB-SLAB DEPRESSURIZATION SYSTEM P&ID, AIS CONNECTION, & EQUIPMENT SCHEDULE	7	
H207.00	MONITORING WELL DECOMMISSIONING AND REMEDIAL EXCAVATION PLAN		
H208.00	TYPICAL GAS VAPOR BARRIER DETAILS	8	
H209.00	GAS VAPOR BARRIER DETAILS I	9	
H210.00	GAS VAPOR BARRIER DETAILS II	10	
H211.00	GAS VAPOR BARRIER DETAILS III	11	
H212.00	GAS VAPOR BARRIER DETAILS IV	12	
H213.00	GAS VAPOR BARRIER DETAILS V	13	

GENERAL NOTES

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL, OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER.
2. COORDINATE ALL WORK FOR SUB-SLAB DEPRESSURIZATION SYSTEM, GAS VAPOR BARRIER, AND ROOF PENETRATIONS WITH OTHER TRADES PRIOR TO INSTALLATION
3. INSULATION NOT SHOWN. REFER TO ARCH. DRAWINGS FOR INSULATION REQUIREMENTS.
4. ANY DEVIATION FROM THIS INSTALLATION MUST BE SUBMITTED TO THE AUTHORITY FOR APPROVAL.
5. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION.
6. ALL ELEVATIONS SHOWN ARE REFERENCED TO THE PROJECT DATUM, WHICH IS 0'-0" AT THE TOP OF FIRST FLOOR SLAB.
7. THE DOCUMENTS DESCRIBED IN SECTION C408.2.5 SHALL BE PROVIDED TO THE SCA WITHIN 90 DAYS OF THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCE OR LETTER OF COMPLETION AS REQUIRED BY C408.2.5.
8. THIS SITE HAS BEEN ENROLLED IN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) BROWNFIELD CLEANUP PROGRAM (BCP SITE NO. C224327). ALL WORK WILL BE CONDUCTED IN ACCORDANCE WITH THE APPROVED REMEDIAL ACTION WORK PLAN (RAWP). REFER TO SPECIFICATION SECTION 02010 FOR ENVIRONMENTAL REPORTS AND SPECIFICATION SECTION 02222 FOR ADDITIONAL ENVIRONMENTAL REQUIREMENTS.
9. THE SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER SHALL BE FULLY FUNCTIONAL AND TESTED BY MAY 1ST 2029.

GAS VAPOR BARRIER NOTES

1. THE EXTENTS OF THE BUILDING CONSTRUCTION BENEATH THE FLOOR SLABS SHALL BE LINED WITH A GAS VAPOR BARRIER, INCLUDING UNDER ANY VESTIBULES NOT SHOWN ON PLAN. AS PART OF BUILDING CONSTRUCTION, THE GAS VAPOR BARRIER SHALL ALSO BE APPLIED TO WALLS AND FLOORS OF PITS AND SUMPS.
2. REFER TO DRAWINGS H208.00 TO H213.00 FOR GAS VAPOR BARRIER DETAILS AND SECTIONS.
3. REFER TO SPECIFICATION SECTION 02220 FOR ADDITIONAL GAS VAPOR BARRIER REQUIREMENTS.
4. THE GAS VAPOR BARRIER IS NOT DESIGNED TO FUNCTION AS A STANDALONE CONTINUOUS AIR BARRIER AS DEFINED BY THE NYCECC.
5. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR NYCSCA APPROVAL OF THE GAS VAPOR BARRIER INSTALLATION. ANY CONDITION OR DETAIL NOT DEPICTED IN THESE DRAWINGS SHALL BE PROVIDED AS A SHOP DRAWING FOR APPROVAL.
6. ENTIRE GAS VAPOR BARRIER INSTALLATION MUST BE INSPECTED AND CERTIFIED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER IN ACCORDANCE WITH SPECIFICATION SECTION 02220.
7. CONTRACTOR'S PROFESSIONAL ENGINEER AND THE AUTHORITY'S CONSTRUCTION INSPECTION DIVISION MUST BE PRESENT FOR LIQUID BOOT SMOKE TESTING. THE CONTRACTOR'S PROFESSIONAL ENGINEER MUST PERFORM ALL MILESTONE INSPECTIONS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
8. RELATIVE THICKNESS OF GAS VAPOR BARRIER SHOWN ON DRAWINGS IS EXAGGERATED FOR ILLUSTRATIVE PURPOSES.
9. INSTALL GAS VAPOR BARRIER IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
10. TYPICAL DETAILS SHOULD BE USED WHEN NO SITE-SPECIFIC DETAIL IS PROVIDED.

SUB-SLAB DEPRESSURIZATION SYSTEM NOTES

1. REFER TO DRAWINGS H201.00, H202.00, H203.00, H204.00, H205.00, AND H206.00 FOR SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS AND SECTIONS.
2. REFER TO SPECIFICATION SECTION 02221 FOR ADDITIONAL SUB-SLAB DEPRESSURIZATION SYSTEM BELOW-SLAB REQUIREMENTS.
3. REFER TO SPECIFICATION SECTION 15880 FOR ADDITIONAL SUB-SLAB DEPRESSURIZATION SYSTEM ABOVE-SLAB REQUIREMENTS.
4. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR NYCSCA APPROVAL OF THE SUB-SLAB DEPRESSURIZATION SYSTEM INSTALLATION. ANY CONDITION OR DETAIL NOT DEPICTED IN THESE DRAWINGS SHALL BE PROVIDED AS A SHOP DRAWING FOR APPROVAL.
5. ENTIRE SUB-SLAB DEPRESSURIZATION SYSTEM INSTALLATION MUST BE INSPECTED AND CERTIFIED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER IN ACCORDANCE WITH SPECIFICATION SECTION 02221 AND 15880.
6. CONTRACTOR'S PROFESSIONAL ENGINEER AND THE AUTHORITY'S CONSTRUCTION INSPECTION DIVISION MUST BE PRESENT FOR VERTICAL RISER PRESSURE TESTING. THE CONTRACTOR'S PROFESSIONAL ENGINEER MUST PERFORM ALL MILESTONE INSPECTIONS IN ACCORDANCE WITH CONTRACT DOCUMENTS.
7. SLOPE ABOVEGROUND HORIZONTAL PIPE A MINIMUM 1% UNIFORMLY TOWARDS SUB-SLAB DEPRESSURIZATION SYSTEM PITS. ABOVEGROUND/SLAB PIPING SHALL NOT BE TRAPPED AND CONDENSATE DRAINS SHALL NOT BE INSTALLED IN ABOVE SLAB PIPING.
8. UNDERGROUND HORIZONTAL PIPING SHALL BE SCHD. 80 PVC PIPE WITH 1/4"Ø WEEP HOLES APPROXIMATELY EVERY 10' AT THE BOTTOM OF ALL SCHD. 80 PVC PIPE. WEEP HOLES SHALL BE PREFABRICATED.
9. INSTALL WARNING BARRIER (1-FOOT WIDE STRIP OF SAFETY ORANGE PLASTIC FENCE) ABOVE ALL SUB-SLAB PIPING.
10. COAT ANY PIPING IN DIRECT CONTACT WITH CONCRETE IN ACCORDANCE WITH PLUMBING CODES.
11. RISER PIPE SHALL BE PERMANENTLY IDENTIFIED WITHIN EACH FLOOR LEVEL IN ACCORDANCE WITH SECTION 15880-3.02B. BACKGROUND SHALL BE SAFETY BLUE WITH WHITE LETTERING. LETTERING SHALL READ: "CAUTION: DO NOT ALTER SUBSURFACE VAPOR VENT PIPE."
12. COORDINATE STORAGE LOCATION OF SPARE SUB-SLAB DEPRESSURIZATION SYSTEM FAN WITH NYCSCA.
13. DESIGN DETAILS AND DRAWINGS ARE ADAPTED FROM EPA DOCUMENT EPA/625/R-92/016.
14. VENT AND RISER PIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE NEW YORK CITY MECHANICAL AND PLUMBING CODE, INCLUDING, BUT NOT LIMITED TO, THOSE REQUIREMENTS PERTAINING TO: PROTECTION OF SYSTEM COMPONENTS, TRENCHING, EXCAVATION, AND BACKFILL, STRUCTURAL SAFETY, PIPING SUPPORT, JOINTS, RISER LOCATION.
15. UNLESS OTHERWISE SPECIFIED, ALL UNDERGROUND PIPING SHALL BE CONSTRUCTED OF 6"Ø SCHD. 80 POLYVINYL CHLORIDE (PVC) AND ALL ABOVEGROUND RISER PIPING SHALL BE CONSTRUCTED OF 6"Ø GALVANIZED STEEL.
16. ALL CONNECTIONS AT PIPE FITTINGS AND JOINTS SHALL BE LEAK FREE. THIS SHALL BE DEMONSTRATED BY THE PERFORMANCE OF A PRESSURE TEST IN ACCORDANCE WITH SSDS SPECIFICATION SECTION 02221-3.03C AND 15880-3.03E.
17. UNDERGROUND SSDS PIPES SHALL BE PROVIDED WITH PIPE HANGERS IN ACCORDANCE WITH THE REQUIREMENTS ON THE PLUMBING DRAWINGS AND SPECIFICATIONS, IF REQUIRED.
18. INSTALLATION OF THE SUB-SLAB COMPONENTS AND VENT AND RISER PIPING, AND ROOF PENETRATIONS MUST BE COORDINATED WITH OTHER TRADES FOR THE INSTALLATION OF OTHER UTILITIES AND STRUCTURAL COMPONENTS.
19. RISER PIPE FROM SUB-SLAB TO ROOF SHALL BE COORDINATED WITH THE ARCHITECT AND MECHANICAL ENGINEER. RISER PIPE SHALL BE EXTENDED TO THE ROOF WITH MINIMAL CHANGES IN DIRECTION.
20. SYSTEM INSTALLATION SHALL ADHERE TO: OCTOBER 2006 FINAL GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK PREPARED BY NEW YORK STATE DEPARTMENT OF HEALTH (NYSDOH) AND ALL SUBSEQUENT AMENDMENTS, ALL APPLICABLE PORTIONS OF THE BUILDING CODE OF THE CITY OF NEW YORK, INCLUDING BUT NOT LIMITED TO 2022 NEW YORK CITY MECHANICAL CODE, CHAPTER 5, SECTION MC 512-SUB-SLAB SOIL EXHAUST SYSTEMS.
21. EXHAUST STACKS SHALL TERMINATE A MINIMUM OF 6 INCHES ABOVE THE ROOF AND BE A MINIMUM OF 10 FEET FROM ANY OPERABLE OPENINGS OR INTAKES.
22. LOCATIONS OF RISER PIPE FROM SUB-SLAB TO ROOF SHALL BE COORDINATED WITH ARCHITECT AND MECHANICAL ENGINEER. RISER PIPE SHALL BE EXTENDED TO THE ROOF WITH MINIMAL CHANGES IN DIRECTION. SEE DRAWINGS H201.00, H202.00, H203.00, AND H204.00 FOR RISER LOCATIONS.
23. ALL EXTERNAL PIPES OR PIPES EXPOSED TO MOISTURE AND METAL SYSTEM COMPONENTS SHALL BE PAINTED WITH A CORROSION RESISTANT COATING.

CODE COMPLIANCE NOTES

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2022 NYC MECHANICAL CODE SECTION 512, "SUB-SLAB SOIL EXHAUST SYSTEMS".
2. THE SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT A "HAZARDOUS EXHAUST SYSTEM", AS DEFINED IN THE 2022 NYC MECHANICAL CODE SECTION 510.
3. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPH 601.4, "CONTAINMENT PREVENTION", OF THE 2022 NYC MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
4. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPH 607.5.5.2, "LIMITATIONS", OF THE 2022 NYC MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
5. SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT DESIGNED TO VENT METHANE OR RADON.
6. PLEASE REFER TO NEW BUILDING APPLICATION DOB NOW JOB NUMBER B01011532 FOR ALL BUILDING DEPARTMENT NOTES, APPLICABLE INSPECTIONS, AND LIST OF DRAWINGS.
7. THE CONTRACTOR SHALL OBTAIN "CERTIFICATE OF COMPLIANCE" REQUIRED IN ACCORDANCE WITH CHAPTER 1 OF TITLE 28 OF THE ADMINISTRATIVE CODE, ARTICLE 116, 28-116.4.1. CERTIFICATE OF COMPLIANCE SHALL BE REQUIRED FOR THE USE AND OPERATION OF THE SSDS SYSTEM.

PERMITS:
CONTRACTOR SHALL FILE FOR AND OBTAIN PERMITS FOR ALL MECHANICAL SYSTEMS. PERMITS SHALL COMPLY WITH CHAPTER 1 ADMINISTRATION, TITLE 28, SECTION MC105.

LISTED AND LABELED:
ALL APPLIANCES REGULATED BY NYCMC SHALL BE LISTED AND LABELED AS REQUIRED BY MC301.4. LABEL INFORMATION SHALL COMPLY WITH REQUIREMENTS OF MC 301.6.

VIBRATION ISOLATION:
ALL MECHANICAL EQUIPMENT SHALL BE MOUNTED AND SUPPORTED AND PROVIDED WITH VIBRATION ISOLATORS AS REQUIRED BY MC 301.10.

WIND RESISTANCE:
ALL MECHANICAL EQUIPMENT, APPLIANCES, AND SUPPORTS THAT ARE EXPOSED TO WIND SHALL BE DESIGNED AND INSTALLED AS PER BC 1609 "WIND LOADS".

FIRE STOPPING COMPLIANCE NOTE:
- FOR FIRE STOPPING AT ANY FIRE RATED CONSTRUCTION PENETRATION, CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 07270.
- ALL DUCT AND PIPE PENETRATIONS OF RATED CONSTRUCTION SHALL COMPLY WITH NYC BC 712.

PROGRESS INSPECTIONS

PROGRESS INSPECTIONS REQUIRED UNDER CHAPTER 1 OF THE NYC BUILDING CODE AND THE APPLICABLE SECTIONS OF THE NYC CONSTRUCTION CODE ARE LISTED IN THE FOLLOWING TABLES.

THE CONTRACTOR MUST NOTIFY THE RELEVANT SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY IN WRITING FOR SPECIAL INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIFIC WORK COMMENCES.

THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING PROGRESS INSPECTIONS:

ENERGY CODE COMPLIANCE INSPECTIONS * TR8	BC 110.3.5
FINAL	BC 110.5 28-116.2.4.2 1 RCNY 101-10

SPECIAL INSPECTIONS

SPECIAL INSTRUCTIONS REQUIRED UNDER THIS APPLICATION IN ACCORDANCE WITH CHAPTER 17 AND THE APPLICABLE SECTIONS OF THE NYC CONSTRUCTION CODE ARE LISTED IN THE FOLLOWING TABLES. SPECIAL INSPECTIONS FOR PORTIONS OF THE WORK THAT ARE FILED UNDER SEPARATE APPLICATION ARE NOT LISTED HERE AND ARE TO BE LISTED ON THOSE APPLICATIONS BY THE CONTRACTOR'S APPLICANT OF RECORD.

THE CONTRACTOR MUST NOTIFY THE RELEVANT SPECIAL INSPECTOR OR SPECIAL INSPECTION AGENCY IN WRITING FOR SPECIAL INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIFIC WORK COMMENCES.

THE "AUTHORITY" SHALL BE RESPONSIBLE FOR THE FOLLOWING SPECIAL INSPECTIONS:

MECHANICAL SYSTEMS	BC 1705.21
FIRE-RESISTANT PENETRATIONS AND JOINTS	BC 1705.17
POST-INSTALLED ANCHORS (BB# 20-14-018,2014-19)	BC 1705.37

ENERGY CODE PROGRESS INSPECTION

	INSPECTION/TEST	PERIODIC (MINIMUM)	REFERENCE STANDARD (SEE EEC CHAPTER C6) OR OTHER CRITERIA	SUPPORTING DOC. LOCATION	INSPECTION DESCRIPTION
IID	OTHER				
IID1	MAINTENANCE INFORMATION	PRIOR TO SIGN-OFF OR ISSUANCE OF FINAL CERTIFICATE OFOCCUPANCY	APPROVED CONSTRUCTION DOCUMENTS, INCLUDING ELECTRICAL DRAWINGS WHERE APPLICABLE; ASHRAE GUIDELINE: PREPARATION OF OPERATING AND MAINTENANCE DOCUMENTATION FOR BUILDING SYSTEMS	SPEC SECTION 015880	MAINTENANCE MANUALS FOR MECHANICAL SERVICE, HOT WATER AND ELECTRICAL EQUIPMENT AND SYSTEMS REQUIRING PREVENTIVE MAINTENANCE MUST BE REVIEWED FOR APPLICABILITY TO INSTALLED EQUIPMENT AND SYSTEMS BEFORE SUCH MANUALS ARE PROVIDED TO THE OWNER. LABELS REQUIRED FOR SUCH EQUIPMENT OR SYSTEMS MUST BE INSPECTED FOR ACCURACY AND COMPLETENESS.

PROFESSIONAL STATEMENT OF COMPLIANCE BY THE DESIGN PROFESSIONAL:

TO THE BEST OF MY KNOWLEDGE, BELIEVE AND PROFESSIONAL JUDGEMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK CITY.

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A. Nina Kubota

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Mark Warrren, AIA, Director

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OLDCH Architecture
423 W 127th Street, 6th Floor, New York, NY 10027
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917.338.6733

Structural Engineering
LERA Consulting Structural Engineers
40 Wall St. 23rd Floor, New York, NY 10005
212.750.9000

MEP
Shamy Engineering PC
39 US Hwy 46E Suite 902, Pine Brook, NJ 07058
862.210.6665

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TRC Engineers, Inc.
1427 Broadway, Suite 3301, New York, NY 10018
212.221.7622

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151 W 42nd St0036, New York, NY 10010
212.689.5469

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2 Park Avenue, 20th Floor, New York, NY 10016
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631.226.7700

Expediting
JM Zoning
225 Broadway, Suite 1300, New York, NY 10007
212.964.4464

Specifications
Construction Specifications
PO Box 498 Morganville, NJ 07751
732 970 0700

Cost Estimating
ELLANA, Inc.
30 Broadway, Suite 801, New York, NY 10004
212.971.0936

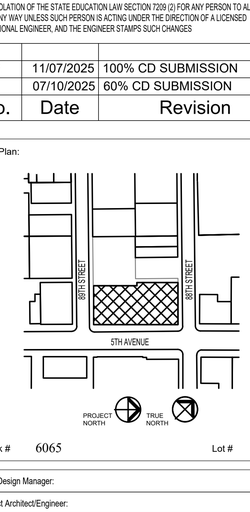
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NOTE: Drawing may be printed at reduced scale

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No.	Date	Revision
2	11/07/2025	100% CD SUBMISSION
1	07/10/2025	60% CD SUBMISSION

Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER NOTES

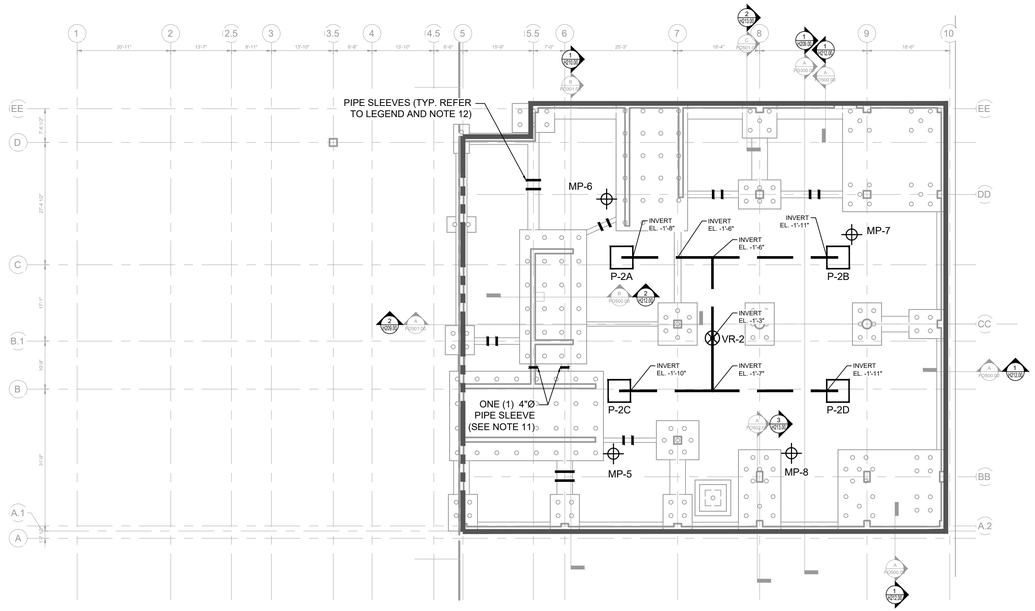
DOB NOW #:
B01322944-I1

Drawing No.:
H200.00

SHEETS IN | WORK TYPE CONTRACT SET:
xxx OF xxx

SHEETS IN | WORK TYPE DOB FILING SET:
1 OF 13

\\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H200.00 - SSDS & GVB Notes.dwg



1/H201.00 SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER PLAN - BENEATH CELLAR

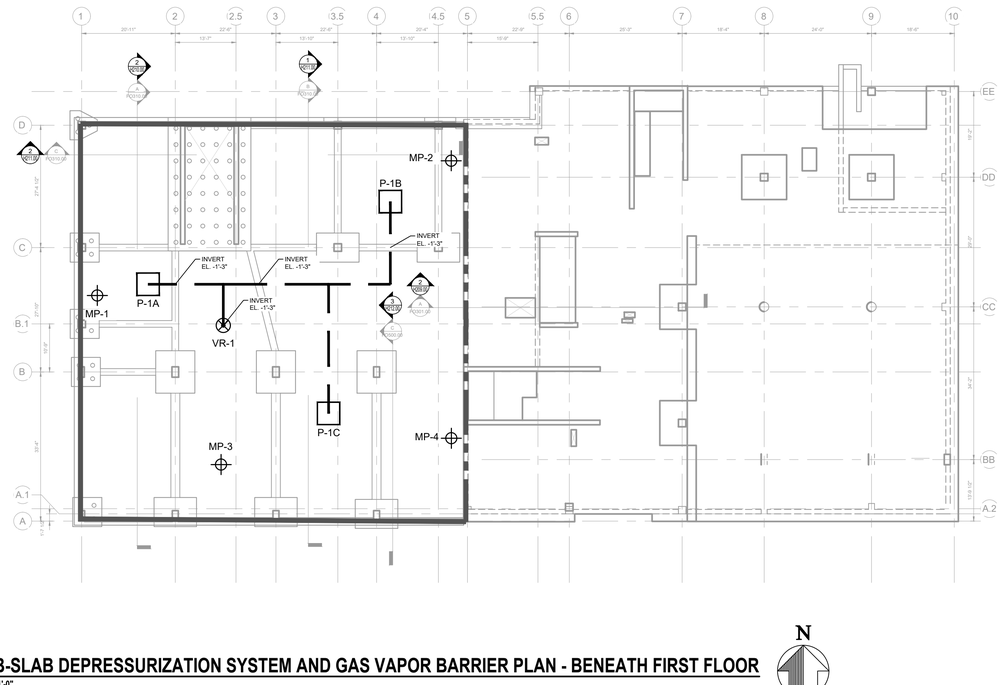
1/16" = 1'-0"

0 5 10 20

SCALE IN FEET

N

PLAN NORTH



2/H201.00 SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER PLAN - BENEATH FIRST FLOOR

1/16" = 1'-0"

0 5 10 20

SCALE IN FEET

N

PLAN NORTH

CODE COMPLIANCE NOTES:

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2022 NYC MECHANICAL CODE SECTION 512, "SUB-SLAB SOIL EXHAUST SYSTEMS".
2. THE SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT A "HAZARDOUS EXHAUST SYSTEM", AS DEFINED IN THE 2022 NYC MECHANICAL CODE SECTION 510.
3. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPH 601.4, "CONTAMINATION PREVENTION", OF THE 2022 NYC MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
4. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPH 607.5.5.2, "LIMITATIONS", OF THE 2022 NYC MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
5. THE INTENT OF THE SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT TO VENT METHANE OR RADON.

LEGEND (SYMBOLS NOT TO SCALE):

- 6"Ø SCHD. 80 PVC PIPE BENEATH FLOOR SLAB WITH 1/4"Ø WEEP HOLES APPROXIMATELY EVERY 10' AT THE BOTTOM OF ALL SCHED. 80 PVC. PIPE. WEEP HOLES SHALL BE PREFABRICATED.
- VR-X — 6"Ø VERTICAL RISER AND IDENTIFICATION NUMBER (REFER TO DETAIL E ON DWG. NO. H205)
- MP-X — SUB-SLAB MONITORING POINT AND IDENTIFICATION NUMBER (REFER TO DETAIL C ON DWG. NO. H205)
- P-X — SUB-SLAB DEPRESSURIZATION SYSTEM PIT AND IDENTIFICATION NUMBER (REFER TO DETAIL A ON DWG. NO. H205)
- HORIZONTAL EXTENT OF GAS VAPOR BARRIER AND MINIMUM 12-INCH THICK GAS PERMEABLE AGGREGATE LAYER
- GAS VAPOR BARRIER ON INTERIOR FOUNDATION WALLS
- TWO (2) 4"Ø PIPE SLEEVES SPACED 2' ON CENTER THROUGH BEAM (REFER TO NOTE 11)

NOTES:

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER.
2. UNDERGROUND HORIZONTAL PIPING SHALL BE SCHD. 80 PVC PIPE WITH 1/4"Ø WEEP HOLES APPROXIMATELY EVERY 10' AT THE BOTTOM OF ALL SCHD. 80 PVC PIPE. WEEP HOLES SHALL BE PREFABRICATED.
3. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY TOWARDS SUB-SLAB DEPRESSURIZATION SYSTEM PITS OR TO LOW POINTS WITH WEEP HOLES WHEN PIPING CANNOT BE SLOPED TO PITS.
4. INSTALL GAS PERMEABLE AGGREGATE FROM BOTTOM OF SLAB TO SSDS PIT/PIPING INVERT ELEVATIONS NOTED ON THE PLAN.
5. THE EXTENTS OF BUILDING CONSTRUCTION BENEATH THE FLOOR SLABS SHALL BE LINED WITH GAS VAPOR BARRIER. AS PART OF BUILDING CONSTRUCTION, GAS VAPOR BARRIER SHALL ALSO BE APPLIED TO BELOW GRADE WALLS, PITS, DETENTION STRUCTURES, ETC.
6. INVERT ELEVATIONS SHOWN ON DETAIL 1/H201 ARE REFERENCED FROM TYPICAL TOP OF CELLAR SLAB (0'-0"). INVERT ELEVATIONS SHOWN ON DETAIL 2/H201 ARE REFERENCED FROM TYPICAL TOP OF FIRST FLOOR SLAB (0'-0").
7. REFER TO SPECIFICATION SECTION 02220 FOR ADDITIONAL GAS VAPOR BARRIER REQUIREMENTS.
8. REFER TO SPECIFICATION SECTION 02221 FOR ADDITIONAL SUB-SLAB DEPRESSURIZATION SYSTEM REQUIREMENTS.
9. INSTALL WARNING BARRIER (1-FOOT WIDE STRIP OF SAFETY ORANGE PLASTIC FENCE) ABOVE ALL SUB-SLAB PIPING.
10. DRAWING FO100.00 AND F0101.00 DATED 10/20/2025 WERE USED AS A BASE FILE FOR 1/H201.00 AND 2/H201, RESPECTIVELY.
11. PIPE SLEEVES MUST TERMINATE WITHIN THE GAS PERMEABLE AGGREGATE LAYER AND PROVIDE A PATH FOR COMMUNICATION BETWEEN THE GAS PERMEABLE AGGREGATE ON EITHER SIDE OF THE FOUNDATION ELEMENT.

MONITORING POINT ID	ROOM NUMBER AND LOCATION
MP-1	115A – PRE-KINDERGARTEN TOILET
MP-2	109 – PRE-KINDERGARTEN
MP-3	114A – GRADE KINDERGARTEN TOILET
MP-4	108 – RPZ
MP-5	023 – GENERAL STORAGE
MP-6	000 - CORRIDOR (OUTSIDE 021 – D75 STORAGE)
MP-7	009 – PLUMBING
MP-8	017 – WATER METER ROOM

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Energy — Socotec, 151 W 42nd St0036, New York, NY 10010, 212.689.5489
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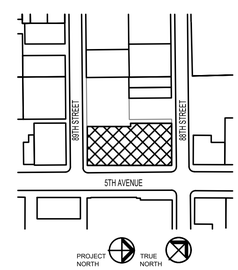
100% CD SUBMISSION
Not For Construction

NOTE: Drawing may be printed at reduced scale

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No.	Date	Revision
2	11/07/2025	100% CD SUBMISSION
1	07/10/2025	60% CD SUBMISSION

Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
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LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER PLAN

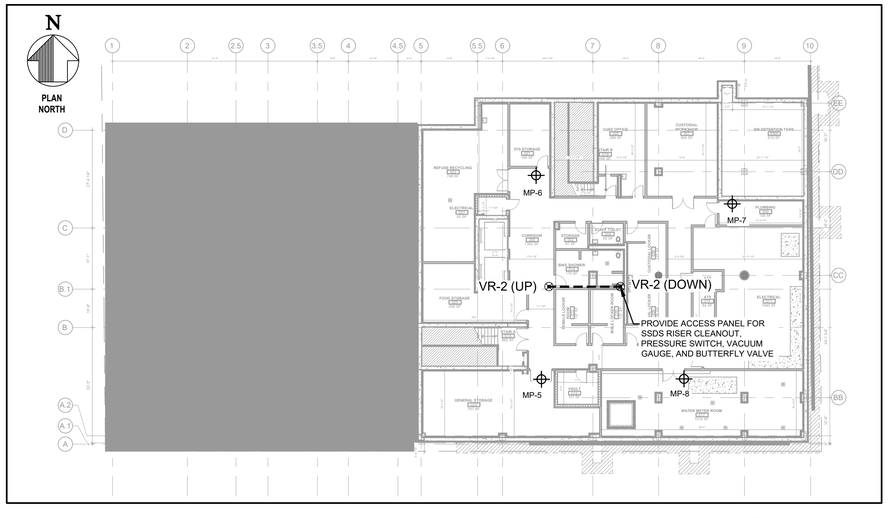
DOB NOW #:
B01322944-I1

Drawing No.:
H201.00

SHEETS IN WORK TYPE CONTRACT SET:
xxx OF xxx

SHEETS IN WORK TYPE DOB FILING SET:
2 OF 13

\\nyc-fp1\Projects\NYCSCA Contract C0000153484356632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H201.00 - SSDS & GVB Plan.dwg



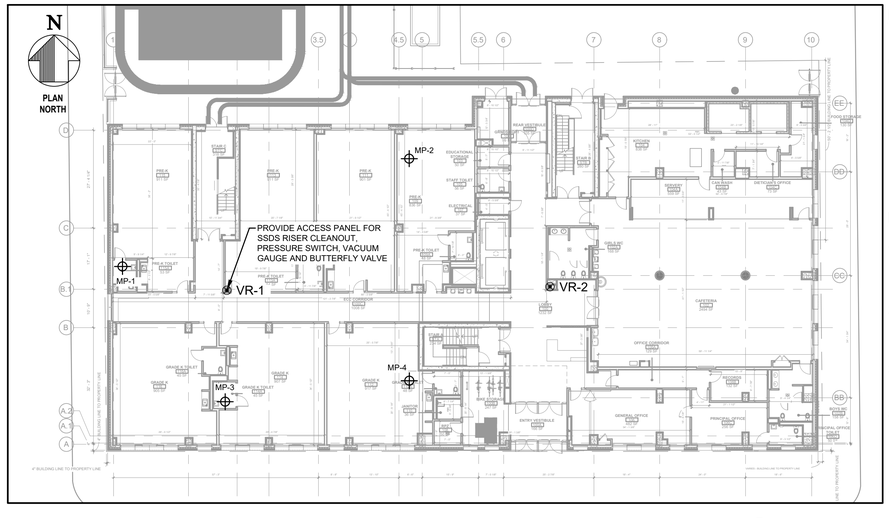
CELLAR PENETRATION POINTS AND MONITORING POINTS - A100

SCALE: 1:20

0 20 40

SCALE IN FEET

1 H202



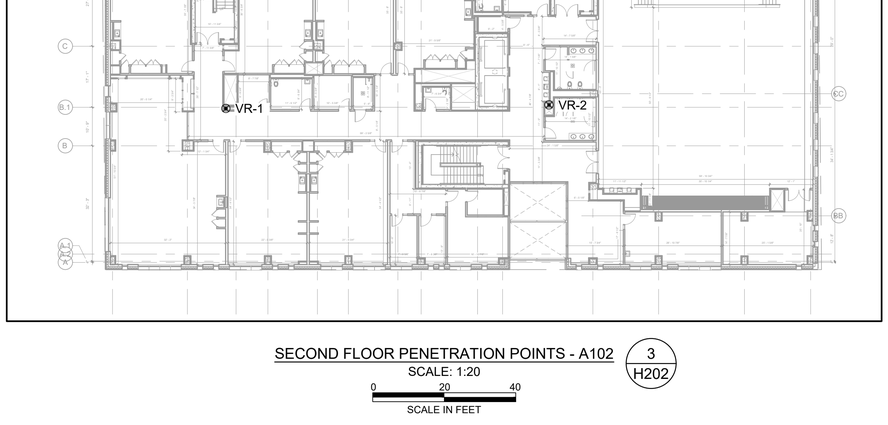
FIRST FLOOR PENETRATION POINTS AND MONITORING POINTS - A101

SCALE: 1:20

0 20 40

SCALE IN FEET

2 H202



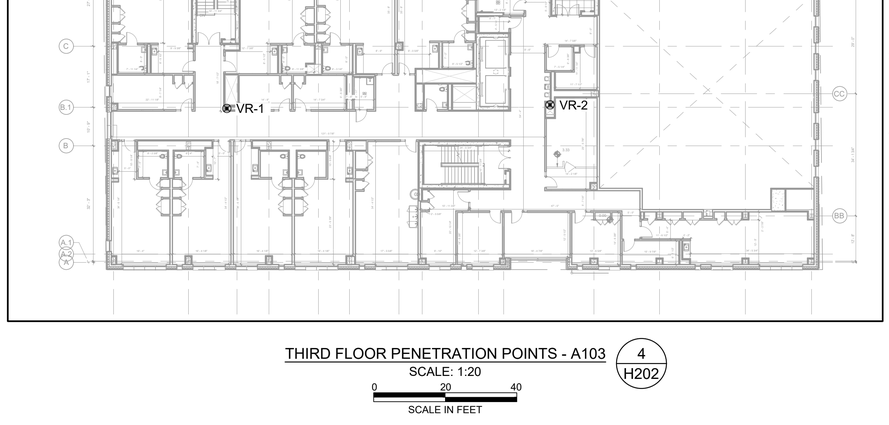
SECOND FLOOR PENETRATION POINTS - A102

SCALE: 1:20

0 20 40

SCALE IN FEET

3 H202



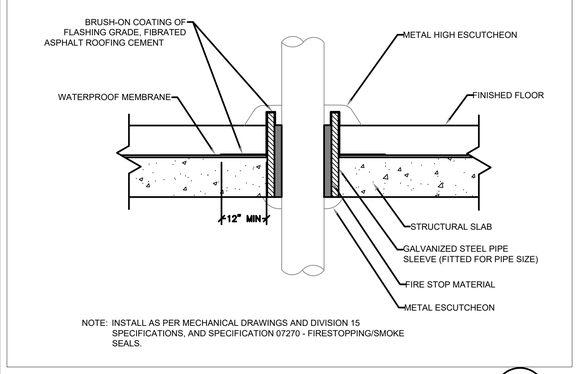
THIRD FLOOR PENETRATION POINTS - A103

SCALE: 1:20

0 20 40

SCALE IN FEET

4 H202

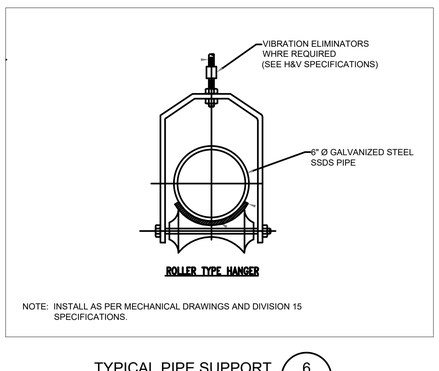


NOTE: INSTALL AS PER MECHANICAL DRAWINGS AND DIVISION 15 SPECIFICATIONS, AND SPECIFICATION 07270 - FIRESTOPPING/SMOKE SEALS.

TYPICAL PIPE PENETRATION OF RATED FLOOR OR WALL

SCALE: N.T.S

5 H202



NOTE: INSTALL AS PER MECHANICAL DRAWINGS AND DIVISION 15 SPECIFICATIONS.

TYPICAL PIPE SUPPORT

SCALE: N.T.S

6 H202

LEGEND (SYMBOLS NOT TO SCALE):

- 6" Ø GALVANIZED STEEL PIPING
- VR-X — VERTICAL RISER AND IDENTIFICATION NUMBER
- MP-X — SUB-SLAB MONITORING POINT AND IDENTIFICATION NUMBER (REFER TO DETAIL C ON DWG. NO. H205)

NOTES:

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM.
2. COORDINATE ALL WORK FOR SSDS SYSTEM AND ROOF PENETRATIONS WITH OTHER TRADES PRIOR TO INSTALLATION.
3. COMPLY WITH PIPE SUPPORT SPECIFICATIONS AND DRAWINGS.
4. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY TOWARDS SUB-SLAB DEPRESSURIZATION SYSTEM PITS. ABOVESLAB PIPING SHALL NOT BE TRAPPED.
5. ALL PENETRATIONS THROUGH FLOORS AND WALLS SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE DETAILS AND SPECIFICATIONS
6. LABEL ALL SSDS RISER PIPE IN ACCORDANCE WITH SPECIFICATION SECTIONS 15431 AND 02221.

MONITORING POINT ID	ROOM NUMBER AND LOCATION
MP-1	115A – PRE-KINDERGARTEN TOILET
MP-2	109 – PRE-KINDERGARTEN
MP-3	114A – GRADE KINDERGARTEN TOILET
MP-4	108 – RPZ
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MP-6	000 - CORRIDOR (OUTSIDE 021 – D75 STORAGE)
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MP-8	017 – WATER METER ROOM

CODE COMPLIANCE NOTES:

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2022 NYC MECHANICAL CODE SECTION 512, “SUB-SLAB SOIL EXHAUST SYSTEMS”.
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2	11/07/2025	100% CD SUBMISSION
1	07/10/2025	60% CD SUBMISSION

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Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
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LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
SUB-SLAB DEPRESSURIZATION SYSTEM RISER PLAN I

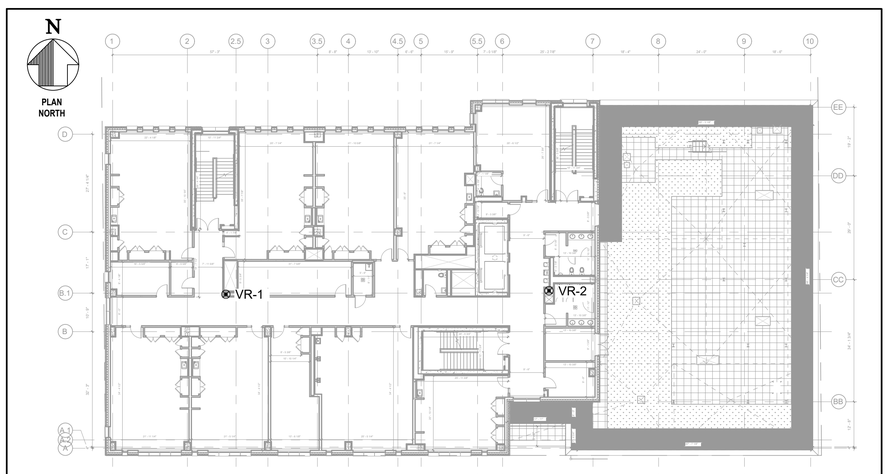
DOB NOW #:
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Drawing No.:
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WORK TYPE CONTRACT SET:

SHEETS IN: 3 OF 13
WORK TYPE DOB FILING SET:

\\nyc-fp1\Projects\NYCSCA Contract C0000153484356632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H202.00-H203.00 - SSDS Riser Plan I & II.dwg



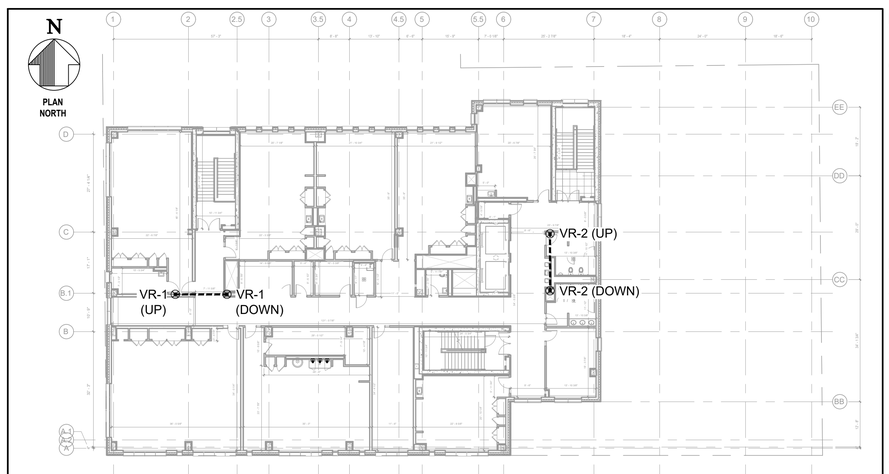
FOURTH FLOOR PENETRATION POINTS - A104

SCALE: 1:20

0 20 40

SCALE IN FEET

1 H203



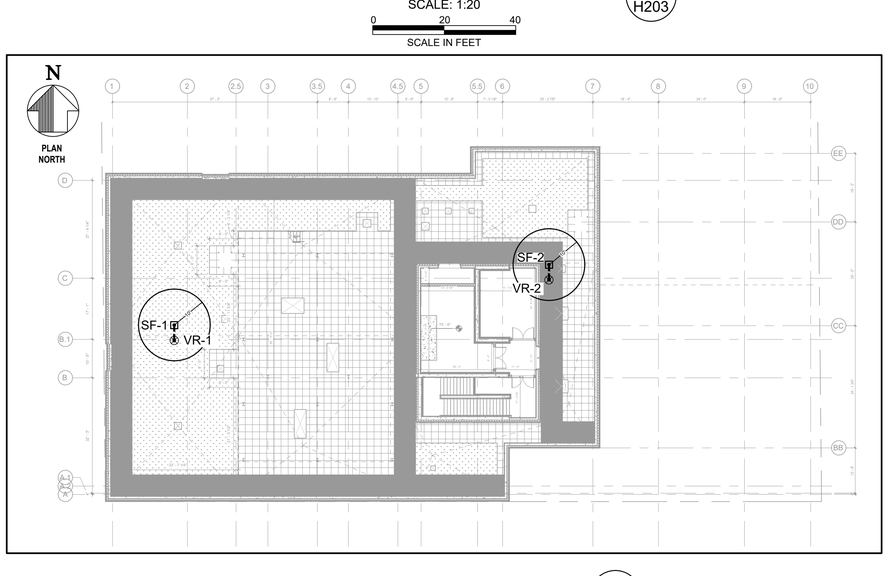
FIFTH FLOOR PENETRATION POINTS - A105

SCALE: 1:20

0 20 40

SCALE IN FEET

2 H203



ROOF PENETRATION POINTS - A106

SCALE: 1:20

0 20 40

SCALE IN FEET

3 H203

LEGEND (SYMBOLS NOT TO SCALE):

- 6"Ø GALVANIZED STEEL PIPING
- VR-X — VERTICAL RISER AND IDENTIFICATION NUMBER
- SF-X — SUCTION FAN AND EXHAUST STACK LOCATION AND IDENTIFICATION NUMBER (SCHEMATIC SYMBOL)

NOTES:

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM.
2. COORDINATE ALL WORK FOR SSDS SYSTEM AND ROOF PENETRATIONS WITH OTHER TRADES PRIOR TO INSTALLATION.
3. COMPLY WITH PIPE SUPPORT SPECIFICATIONS AND DRAWINGS.
4. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY TOWARDS SUB-SLAB DEPRESSURIZATION SYSTEM PITS. ABOVESLAB PIPING SHALL NOT BE TRAPPED.
5. ALL PENETRATIONS THROUGH FLOORS AND WALLS SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE DETAILS AND SPECIFICATIONS
6. LABEL ALL SSDS RISER PIPE IN ACCORDANCE WITH SPECIFICATION SECTIONS 15431 AND 02221.

CODE COMPLIANCE NOTES:

1. THE SUB-SLAB DEPRESSURIZATION SYSTEM COMPLIES WITH THE REQUIREMENTS OF THE 2022 NYC MECHANICAL CODE SECTION 512, “SUB-SLAB SOIL EXHAUST SYSTEMS”.
2. THE SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT A “HAZARDOUS EXHAUST SYSTEM”, AS DEFINED IN THE 2022 NYC MECHANICAL CODE SECTION 510.
3. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPGH 601.4, "CONTAMINATION PREVENTION", OF THE 2022 NYC MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
4. CHAPTER 6, "DUCT SYSTEMS", PARAGRAPH 607.5.5.2, "LIMITATIONS", OF THE 2022 MECHANICAL CODE DOES NOT APPLY TO SUB-SLAB DEPRESSURIZATION SYSTEMS.
5. THE INTENT OF THE SUB-SLAB DEPRESSURIZATION SYSTEM IS NOT TO VENT METHANE OR RADON.

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No.	Date	Revision
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Key Plan:

Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
SUB-SLAB DEPRESSURIZATION SYSTEM RISER PLAN II

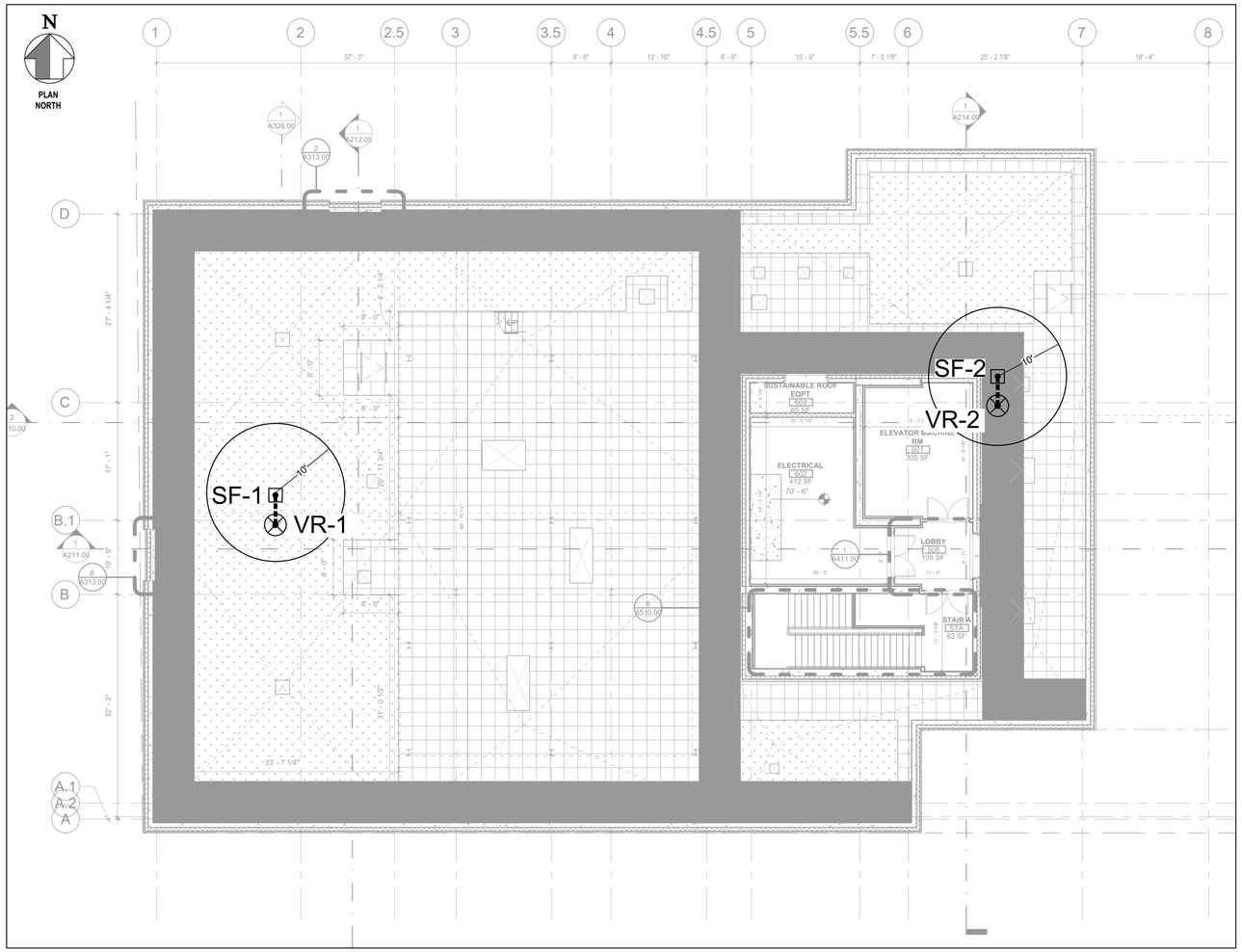
DOB NOW #:
B01322944-I1

Drawing No.:
H203.00

SHEETS IN: WORK TYPE CONTRACT SET:
xxx OF xxx

SHEETS IN: WORK TYPE DOB FILING SET:
4 OF 13

\\nyc-fp1\Projects\NYCSCA Contract C0000153484356332 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H202.00-H203.00 - SSDS



ROOF RISER PENETRATION POINTS AND SUCTION FANS - A106

SCALE: 1"=10'

0 10 20

SCALE IN FEET

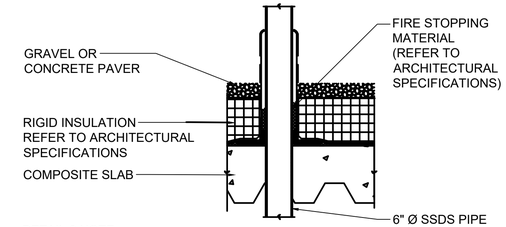
1 H204

GENERAL NOTES:

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM.
2. COORDINATE ALL WORK FOR SSDS SYSTEM AND ROOF PENETRATIONS WITH OTHER TRADES PRIOR TO INSTALLATION.
3. COMPLY WITH PIPE SUPPORT SPECIFICATIONS AND DRAWINGS.
4. SSDS VERTICAL RISERS SHALL NOT BE INSTALLED IN SHAFTS WITH DUCTS THAT CONTAIN ENVIRONMENTAL AIR.
5. SLOPE HORIZONTAL PIPE A MINIMUM OF 1% UNIFORMLY TOWARDS SUB-SLAB DEPRESSURIZATION SYSTEM PITS OR TO CONDENSATE DRAINS. ABOVESLAB PIPING SHALL NOT BE TRAPPED AND CONDENSATE DRAINS SHALL NOT BE INSTALLED IN ABOVE SLAB PIPING.
6. ALL PENETRATIONS THROUGH FLOORS AND WALLS SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE DETAILS AND SPECIFICATIONS

LEGEND (SYMBOLS NOT TO SCALE):

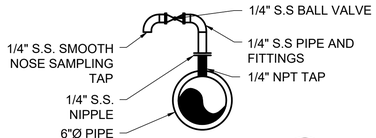
- 6"Ø GALVANIZED STEEL PIPE (INSTRUMENTATION NOT SHOWN)
- VR-X — VERTICAL RISER AND IDENTIFICATION NUMBER
- SF-X — SUCTION FAN AND EXHAUST STACK LOCATION AND IDENTIFICATION NUMBER (SCHEMATIC SYMBOL)



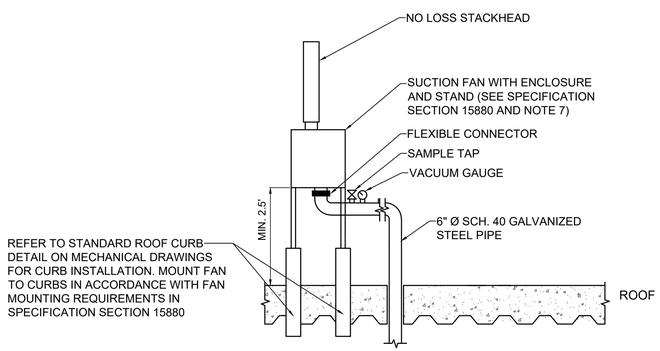
DETAIL 3 NOTE:

DRAWING ADAPTED FROM NYCSCA STANDARD DETAIL 0756001c "PIPE/CONDUIT PENETRATION DETAIL". INSTALL AS PER MECHANICAL DRAWINGS AND DIVISION 15 SPECIFICATIONS, AND SPECIFICATION 07270 - FIRESTOPPING/SMOKE SEALS

TYPICAL ROOF PENETRATION DETAIL — NTS — 3 / H204



SAMPLE TAP ASSEMBLY — NTS — 4 / H204



DETAIL 2 NOTES:

1. NOT ALL REQUIRED ACCESSORIES ARE SHOWN. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. ELECTRICAL WIRING AND EQUIPMENT NOT SHOWN. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR REQUIREMENTS.
3. PIPE AND EQUIPMENT ARRANGEMENT SHOWN FOR SCHEMATIC PURPOSES ONLY (NOT TO SCALE). CONTRACTOR TO SUBMIT TO SCALE DRAWING SHOWING PROPOSED ARRANGEMENT. CONTRACTOR IS REQUIRED TO OBTAIN APPROVAL OF ARRANGEMENT.
4. COORDINATE ALL ROOF PENETRATIONS WITH ALL OTHER TRADES TO ENSURE ALL PENETRATIONS ARE SEALED IN ACCORDANCE WITH WARRANTY.
5. PROVIDE SHOP DRAWINGS FOR SUCTION FAN AND ACCESSORY LAYOUT AND EXHAUST STACK MOUNTING.
6. DISCHARGE EXHAUST STACK MINIMUM 6" ABOVE ROOF AND MINIMUM 10' FROM ANY WINDOWS AND AIR INTAKES.
7. SUCTION FAN ENCLOSURE SHALL BE MOUNTED TO CURB ON MANUFACTURER SUPPLIED STAND.

SUCTION FAN DETAIL AND EXHAUST STACK LAYOUT — NTS — 2 / H204

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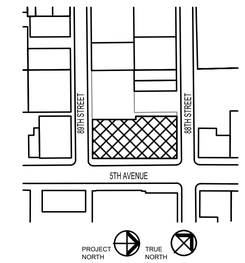
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Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
ENLARGEMENT OF ROOF RISER AND TYPICAL SUB-SLAB DEPRESSURIZATION SYSTEM EXHAUST STACK DETAILS

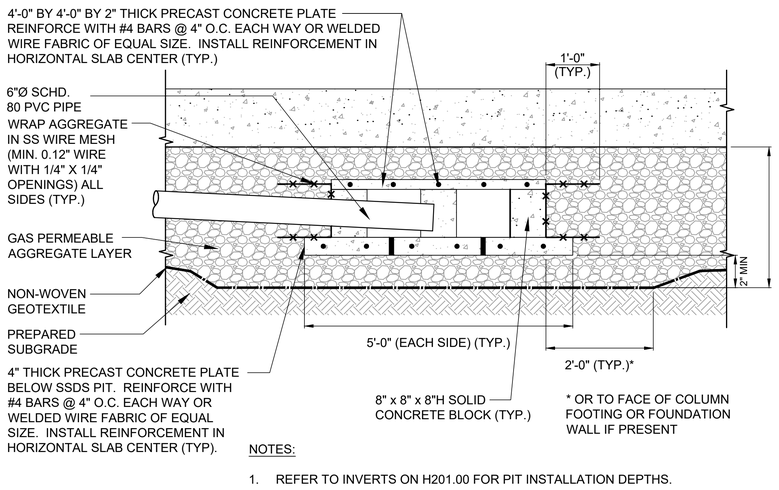
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Drawing No.:
H204.00

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SHEETS IN WORK TYPE DOB FILING SET:
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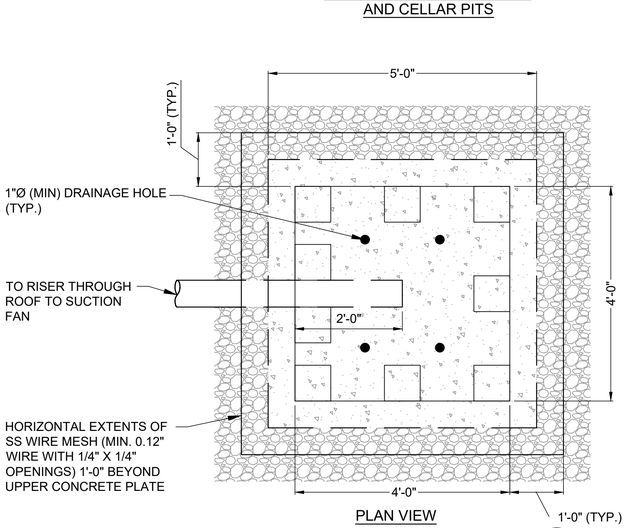
\\nyc-fp1\Projects\NYCSCA Contract C0000153484\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H204.00 - Enlarg. of Roof Riser & Typ. SSDS Ex. Stack Det..dwg



NOTES:

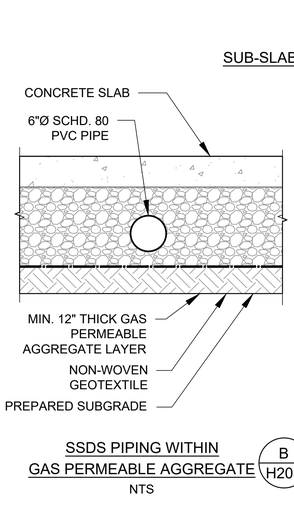
1. REFER TO INVERTS ON H201.00 FOR PIT INSTALLATION DEPTHS.

PROFILE VIEW - SUBCELLAR AND CELLAR PITS

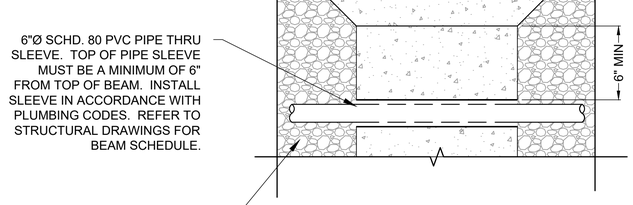


PLAN VIEW

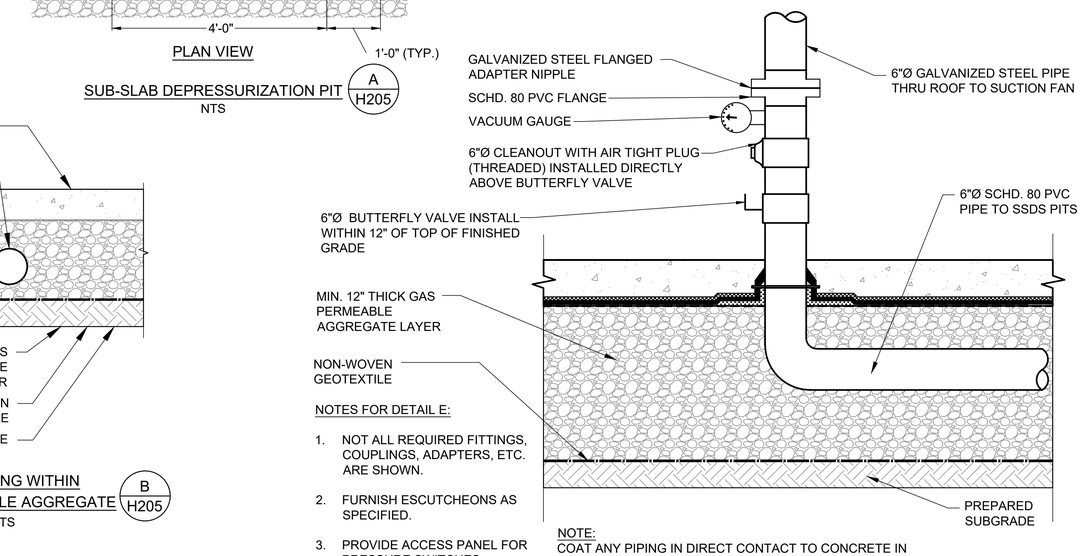
SUB-SLAB DEPRESSURIZATION PIT (A H205)
NTS



SSDS PIPING WITHIN GAS PERMEABLE AGGREGATE (B H205)
NTS



SSDS PIPE THROUGH BEAM (D H205)
NTS

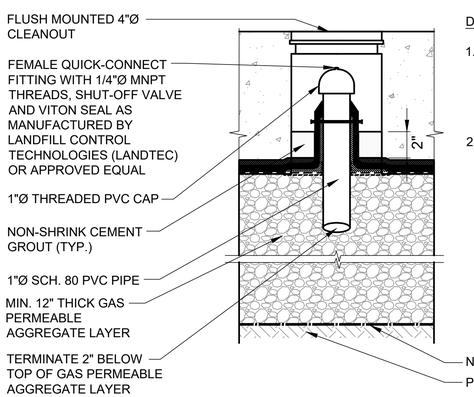


NOTES FOR DETAIL E:

1. NOT ALL REQUIRED FITTINGS, COUPLINGS, ADAPTERS, ETC. ARE SHOWN.
2. FURNISH ESCUTCHEONS AS SPECIFIED.
3. PROVIDE ACCESS PANEL FOR PRESSURE SWITCHES, BUTTERFLY VALVES, VACUUM GAUGES AND CLEANOUTS AS SPECIFIED IN SECTION 02221.

NOTE:
COAT ANY PIPING IN DIRECT CONTACT TO CONCRETE IN ACCORDANCE WITH PLUMBING CODES

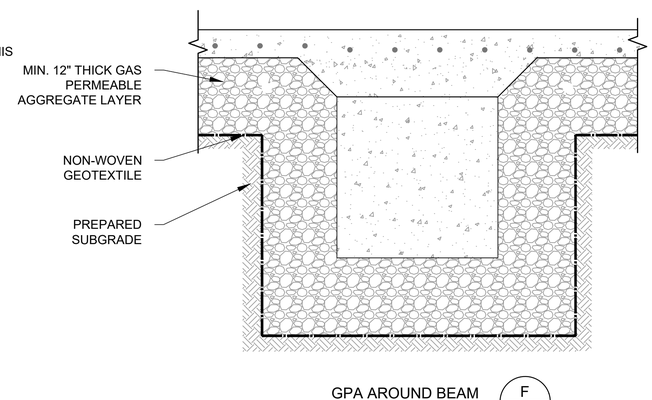
SSDS RISER DETAIL FOR VR-1 (E H205)
NTS



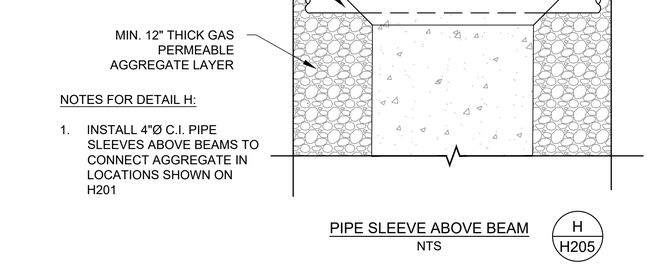
SUB-SLAB MONITORING POINT DETAIL (C H205)
NTS

DETAIL C NOTES:

1. ANY DEVIATION FROM THIS INSTALLATION MUST BE SUBMITTED TO THE DEVELOPER FOR APPROVAL.
2. NOT ALL REQUIRED ACCESSORIES ARE SHOWN. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



GPA AROUND BEAM (F H205)
NTS



NOTES FOR DETAIL H:

1. INSTALL 4"Ø C.I. PIPE SLEEVES ABOVE BEAMS TO CONNECT AGGREGATE IN LOCATIONS SHOWN ON H201

PIPE SLEEVE ABOVE BEAM (H H205)
NTS

GENERAL NOTES:

1. COAT ANY PIPING IN DIRECT CONTACT TO CONCRETE IN ACCORDANCE WITH PLUMBING CODES.
2. GAS VAPOR BARRIER NOT SHOWN. REFER TO H208.00 FOR TYPICAL GAS VAPOR BARRIER DETAILS.

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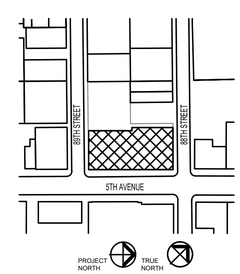
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118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
TYPICAL SUB-SLAB DEPRESSURIZATION SYSTEM DETAILS

DOB NOW #:
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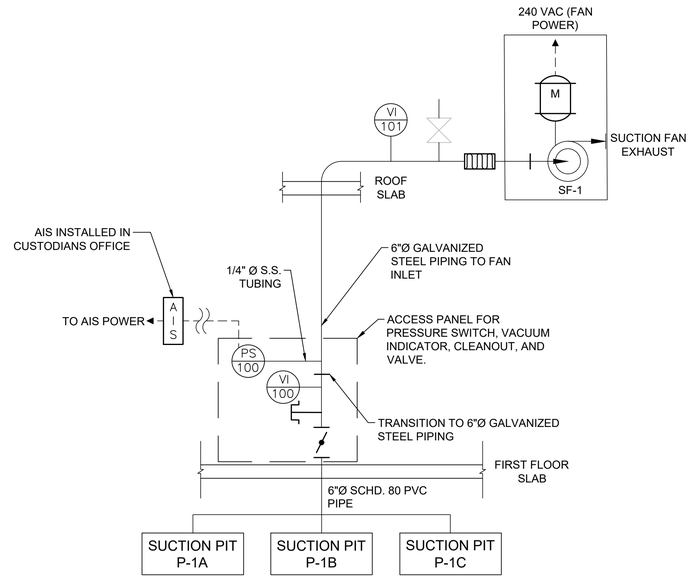
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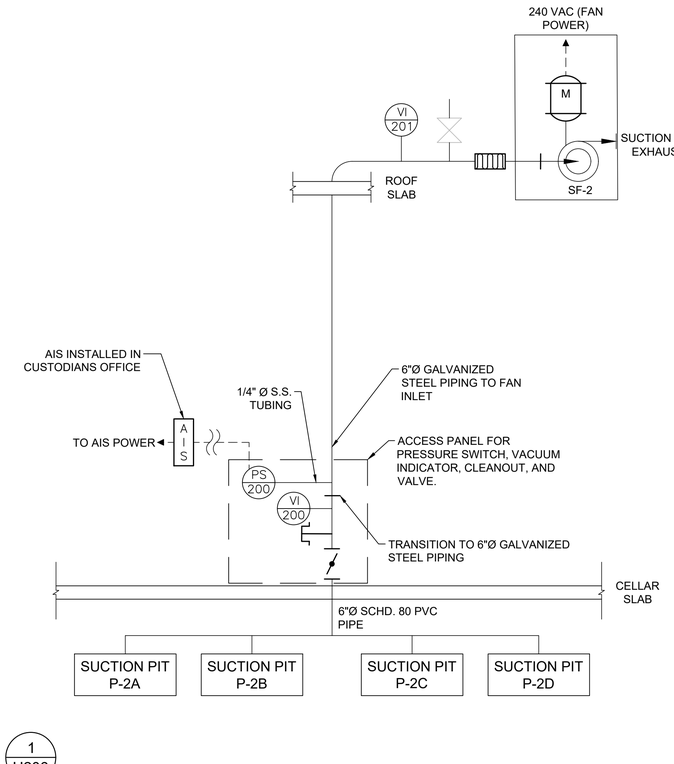
SHEETS IN	WORK TYPE CONTRACT SET:
xxx OF xxx	
SHEETS IN	WORK TYPE DOB FILING SET:
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\\nyc-fp1\Projects\NYCSCA Contract C0000153481\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H205.00 - Typical SSDS Details.dwg

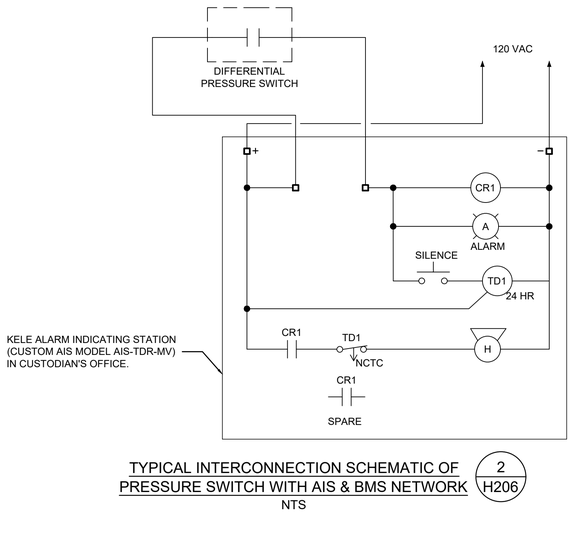
LEGEND (SYMBOLS NOT TO SCALE):

- AIS — ALARM INDICATION STATION
- BLIND FLANGE
- BUTTERFLY VALVE
- CENTRIFUGAL BLOWER
- ELECTRICAL
- M — ELECTRIC MOTOR
- FLANGED OR UNION CONNECTOR
- FLEXIBLE CONNECTOR
- PIPING
- PS # — PRESSURE SWITCH
- THREADED CLEANOUT
- VI # — VACUUM INDICATOR
- TRANSITION FLANGE
- SAMPLE TAP





PIPING AND INSTRUMENTATION DIAGRAM FOR SSDS (1 / H206)
NTS



TYPICAL INTERCONNECTION SCHEMATIC OF PRESSURE SWITCH WITH AIS & BMS NETWORK (2 / H206)
NTS

FAN SCHEDULE

UNIT NO.	AREAS SERVED	SERVICE	LOCATION	MOTOR INPUT CURRENT RATING	MIN. CFM	MIN. RATE (INCHES WC)	POWER REQUIREMENTS *			MANUFACTURER/MODEL
SF-1	BELOW FIRST FLOOR SLAB	SSDS	ROOF	10.0 AMPS	300	12	1 PHASE	60 HZ	240 VOLT	OBAR GBR89HA
SF-2	BELOW CELLAR SLAB	SSDS	ROOF	10.0 AMPS	300	12	1 PHASE	60 HZ	240 VOLT	OBAR GBR89HA
SPARE	N/A	SSDS	STORAGE	10.0 AMPS	300	12	1 PHASE	60 HZ	240 VOLT	OBAR GBR89HA

* FAN IS FURNISHED WITH INTEGRAL DC MOTOR AND DC DRIVE, RATED FOR OPERATION ON 120 VAC POWER SUPPLY TO BLOWER

INSTRUMENT AND EQUIPMENT SCHEDULE

ITEM	DESCRIPTION	SERVICE	LOCATION	ELECTRICAL REQUIREMENTS	RANGE	MANUFACTURER/MODEL	QUANTITY
VI	VACUUM INDICATOR	SSD SYSTEM	SUCTION FAN	N/A	0-15" WC	WIKA MODEL 612.20, PART 9747732	4
PS	DIFFERENTIAL PRESSURE SWITCH	SSD SYSTEM ALARM	RISER (ACCESS PANEL AT SLAB LEVEL)	N/A	1.4-5.5" WC	DWYER INSTRUMENTS INC. SERIES 1900, MODEL 1910-5	2
ALARM INDICATION STATION	SSDS MONITORING PANEL	SSD SYSTEM	CUSTODIAL ENGINEER'S OFFICE	1 PHASE, 60HZ, 24/120VAC	N/A	KELE INC. MODEL AIS-TDR-MV	2
BV	BUTTERFLY VALVE	SSD SYSTEM	RISER (ACCESS PANEL AT SLAB LEVEL)	N/A	N/A	ASAHI MODEL 1728060	2

GENERAL NOTES:

1. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM.
2. EACH SUCTION FAN EXHAUST MUST BE A MINIMUM OF 10 FEET FROM ANY BUILDING AIR INTAKE OR OPERABLE WINDOW AND A MINIMUM OF 6 INCHES ABOVE THE BUILDING ROOF.
3. COORDINATE ALL WORK FOR SSDS SYSTEM, BMS AND SSDS MONITORING PANEL CONNECTIONS AND ROOF PENETRATIONS WITH OTHER TRADES PRIOR TO INSTALLATION.
4. BMS CONNECTION FROM INTERPOSING RELAY SHALL BE COMPLETED BY THE TCC.

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Elizabeth Bergin

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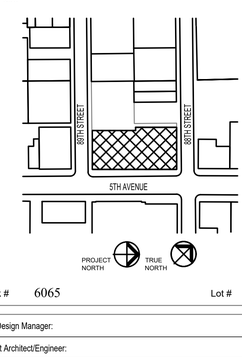
100% CD SUBMISSION
Not For Construction

NOTE: Drawing may be printed at reduced scale

IT IS A VIOLATION OF THE STATE EDUCATION LAW SECTION 7209 (2) FOR ANY PERSON TO ALTER AN ITEM IN ANY WAY UNLESS SUCH PERSON IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, AND THE ENGINEER STAMPS SUCH CHANGES

No.	Date	Revision
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1	07/10/2025	60% CD SUBMISSION

Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
SUB-SLAB DEPRESSURIZATION SYSTEM P&ID, AIS CONNECTION, & EQUIPMENT SCHEDULE

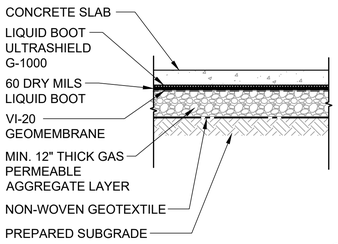
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Drawing No.:
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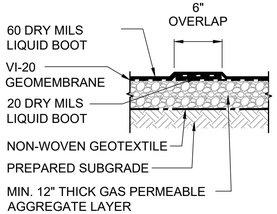
SHEETS IN WORK TYPE CONTRACT SET:
xxx OF xxx

SHEETS IN WORK TYPE DOB FILING SET:
7 OF 13

\\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H206.00 - SSDS P&ID, AIS, and Equip. Schedule.dwg

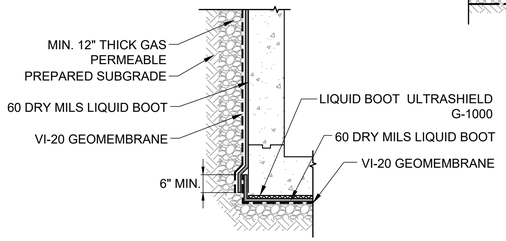


SECTION THROUGH SUB-SLAB (A / H208)
NTS

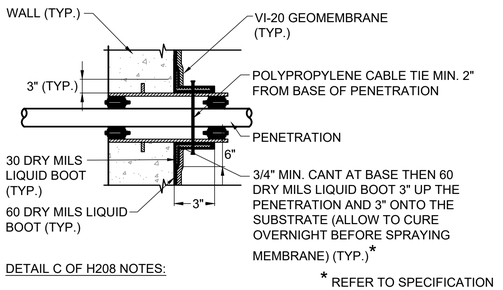


NOTE: LIQUID BOOT ULTRASHIELD G-1000 LAYER NOT SHOWN.

DETAIL FOR OVERLAP OF LIQUID BOOT SYSTEM (B / H208)
NTS



GAS VAPOR BARRIER DETAIL FOR TRANSITION FROM VERTICAL TO HORIZONTAL (G / H208)
NTS

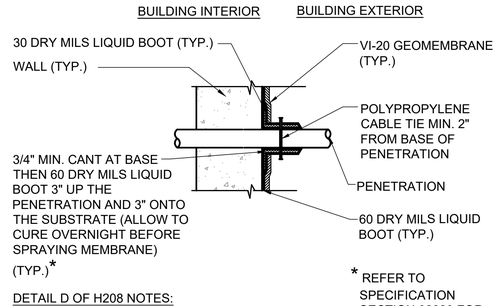


* REFER TO SPECIFICATION SECTION 02220 FOR ALTERNATE APPLICATION SEQUENCE ("OPTION 2").

DETAIL C OF H208 NOTES:

1. FURNISH ESCUTCHEONS AS SPECIFIED.
2. ANY DEVIATION FROM THIS INSTALLATION MUST BE SUBMITTED TO THE DEVELOPER FOR APPROVAL.
3. REFER TO MECHANICAL AND ARCHITECTURAL DRAWINGS FOR TYPICAL BELOW GRADE PENETRATION DETAILS.

GAS VAPOR BARRIER DETAIL FOR PENETRATION THROUGH WALL BELOW GRADE (C / H208)
NTS

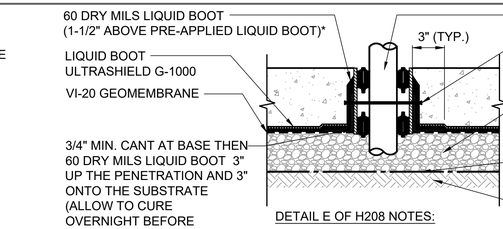


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GAS VAPOR BARRIER DETAIL FOR PENETRATION THROUGH WALL BELOW GRADE WITHOUT SLEEVE (D / H208)
NTS

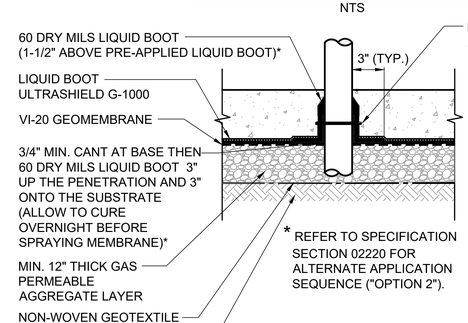


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GAS VAPOR BARRIER DETAIL AT PENETRATION THRU FLOOR WITH SLEEVE (E / H208)
NTS

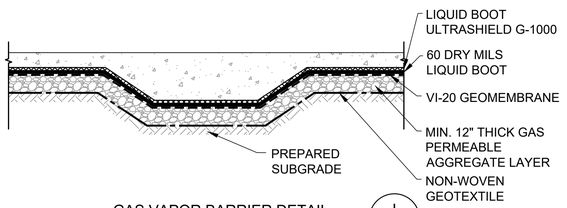


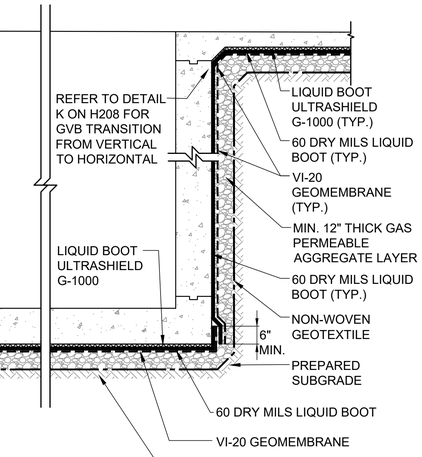
* REFER TO SPECIFICATION SECTION 02220 FOR ALTERNATE APPLICATION SEQUENCE ("OPTION 2").

DETAIL F OF H208 NOTES:

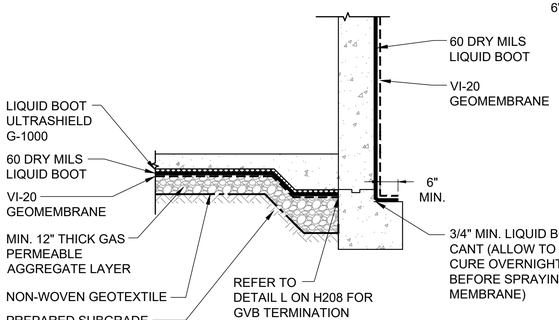
1. COAT ANY PIPING IN DIRECT CONTACT TO CONCRETE IN ACCORDANCE WITH PLUMBING CODES
2. FURNISH ESCUTCHEONS AS SPECIFIED.
3. ANY DEVIATION FROM THIS INSTALLATION MUST BE SUBMITTED TO THE DEVELOPER FOR APPROVAL.
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GAS VAPOR BARRIER DETAIL AT PENETRATION THRU FLOOR WITHOUT SLEEVE (F / H208)
NTS

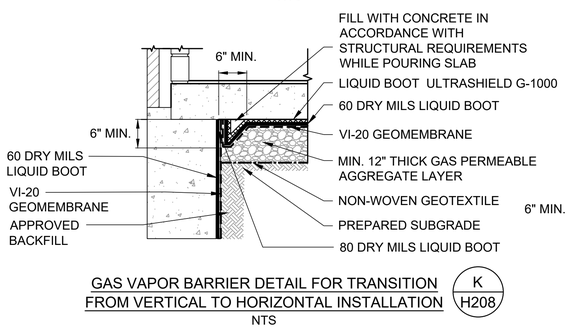




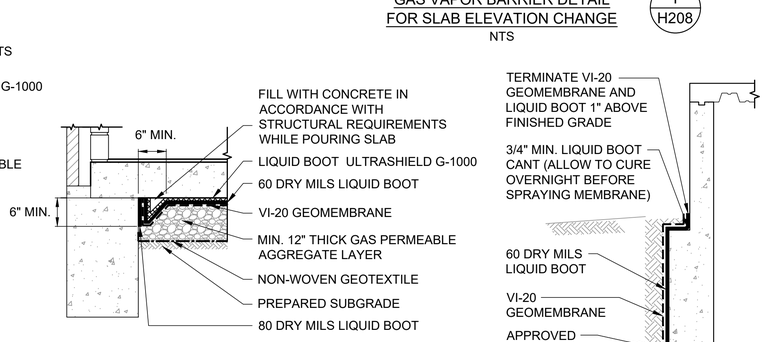
GAS VAPOR BARRIER DETAIL FOR PIT WITH PIT SUMP (H / H208)
NTS



GAS VAPOR BARRIER DETAIL FOR UNDER SLAB AND WALLS (J / H208)
NTS

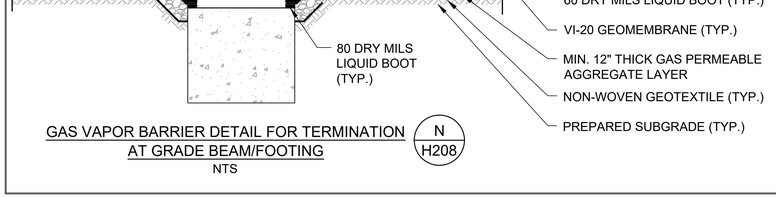


GAS VAPOR BARRIER DETAIL FOR TRANSITION FROM VERTICAL TO HORIZONTAL INSTALLATION (K / H208)
NTS



GAS VAPOR BARRIER DETAIL FOR TERMINATION AT VERTICAL WALL (L / H208)
NTS

GAS VAPOR BARRIER DETAIL FOR VERTICAL TERMINATION AT GRADE (M / H208)
NTS



GAS VAPOR BARRIER DETAIL FOR TERMINATION AT GRADE BEAM/FOOTING (N / H208)
NTS

GENERAL NOTES:

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Food Service — Romano Gallard, 1 Huntington Quadrangle, Suite 2C03 Melville, NY 11747, 631.226.7700
Expediting — JM Zoning, 225 Broadway, Suite 1300, New York, NY 10007, 212.964.4464
Specifications — Construction Specifications, PO Box 489 Morganville, NJ 07751, 212.725.6800
Cost Estimating — ELLANA, Inc., 29 Broadway, Suite 801, New York, NY 10004, 212.971.0056

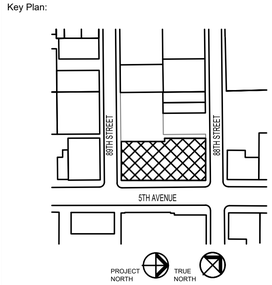
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1	07/10/2025	60% CD SUBMISSION

Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

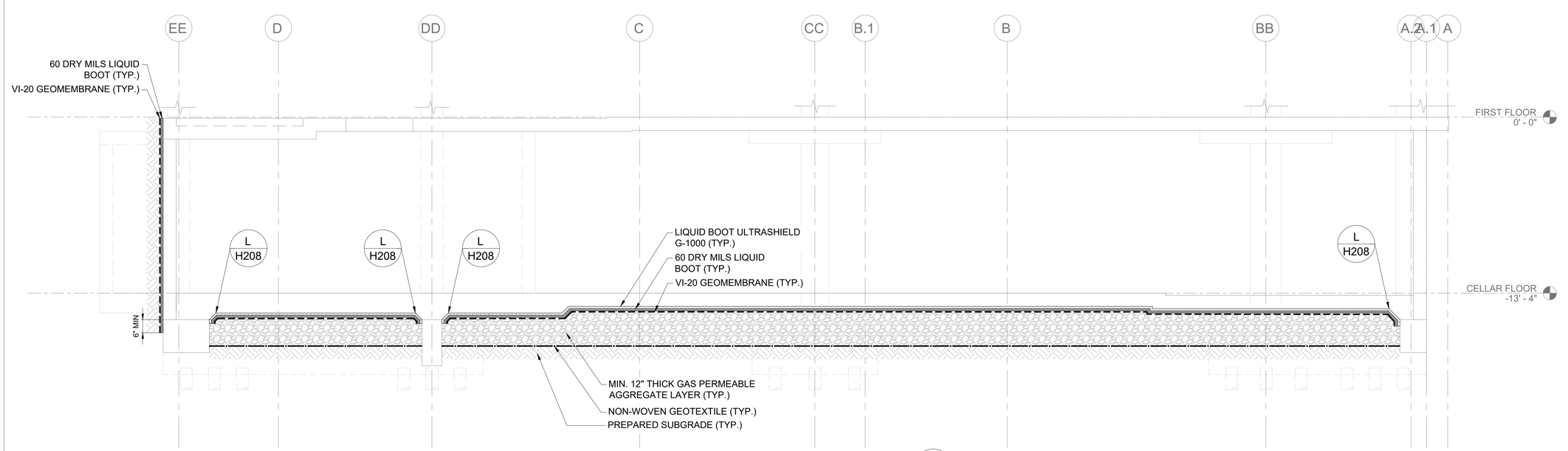
Drawing Title:
TYPICAL GAS VAPOR BARRIER DETAILS

DOB NOW #:
B01322944-I1

Drawing No.:
H208.00

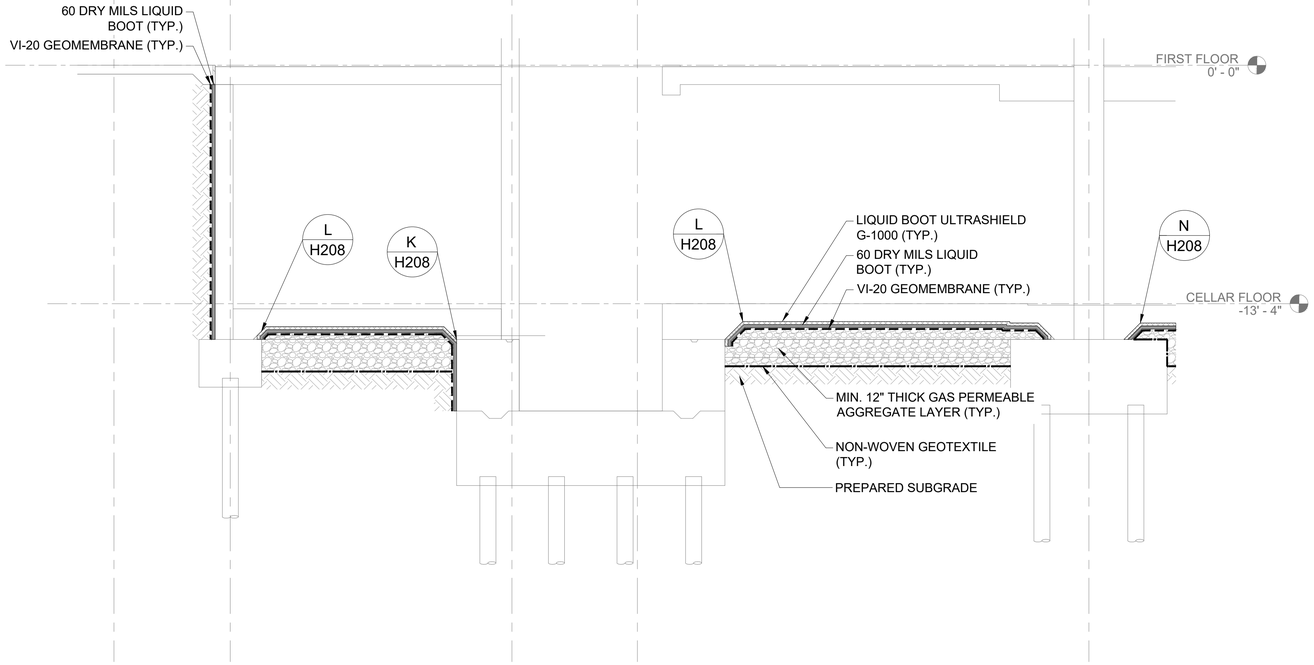
SHEETS IN	WORK TYPE CONTRACT SET:
xxx OF xxx	
SHEETS IN	WORK TYPE DOB FILING SET:
8 OF 13	

\\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H208.00 - Typical GVB Details.dwg



GAS VAPOR BARRIER DETAIL FOR FOR DETAIL A ON DRAWING FO300 — 1 / H209

NTS



GAS VAPOR BARRIER DETAIL FOR FOR DETAIL A ON DRAWING FO301 — 2 / H209

NTS

GENERAL NOTES:

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862.210.6685

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LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
GAS VAPOR BARRIER DETAILS I

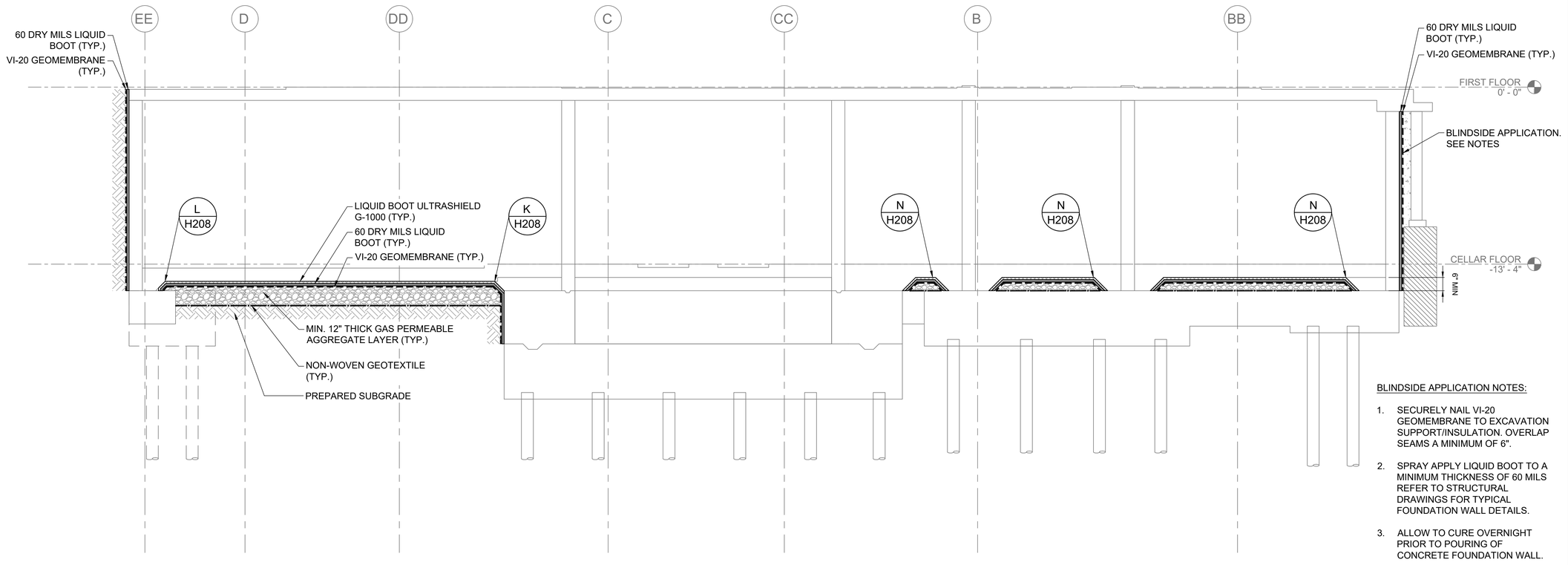
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Drawing No.:
H209.00

SHEETS IN: xxx OF xxx
WORK TYPE CONTRACT SET:

SHEETS IN: 9 OF 13
WORK TYPE DOB FILING SET:

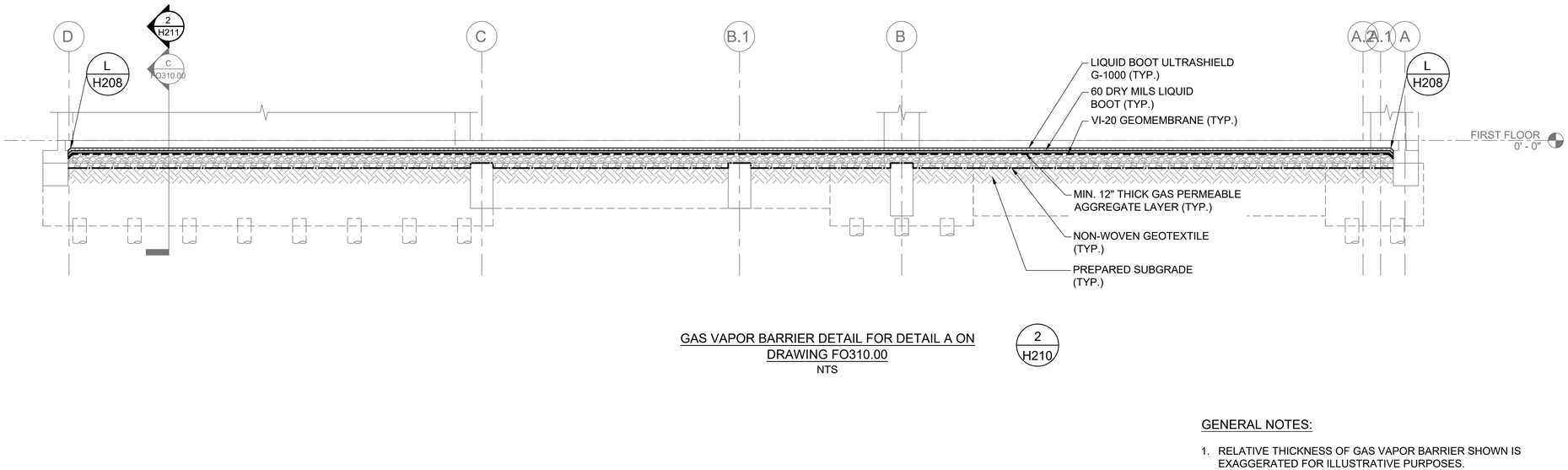
\\nyc-fp1\Projects\NYCSCA Contract C000015348\435632 - K20F 8802 5th Ave Brooklyn\SSDS Design\TRC WDs\H209.00-H213.00 - GVB Details I - V.dwg



BLINDSIDE APPLICATION NOTES:

1. SECURELY NAIL VI-20 GEOMEMBRANE TO EXCAVATION SUPPORT/INSULATION. OVERLAP SEAMS A MINIMUM OF 6".
2. SPRAY APPLY LIQUID BOOT TO A MINIMUM THICKNESS OF 60 MILS REFER TO STRUCTURAL DRAWINGS FOR TYPICAL FOUNDATION WALL DETAILS.
3. ALLOW TO CURE OVERNIGHT PRIOR TO POURING OF CONCRETE FOUNDATION WALL.

GAS VAPOR BARRIER DETAIL FOR DETAIL B ON DRAWING FO301.00 — 1 / H210
NTS



GAS VAPOR BARRIER DETAIL FOR DETAIL A ON DRAWING FO310.00 — 2 / H210
NTS

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212.221.7922

Energy
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212.689.5489

Elevator Consultant
SAVKOM Inc.
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212.759.8686

Acoustic
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Lighting
Domingo Gonzalez Associates
29 Broadway, Floor 3, New York, NY 10006
212 608 4800

Food Service
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631.226.7700

Expediting
JM Zoning
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212.964.4464

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Construction Specifications
PO Box 489 Morganville, NJ 07751
732.970.9700

Cost Estimating
ELLANA, Inc.
32 Broadway, Suite 601, New York, NY 10004
212.971.0006

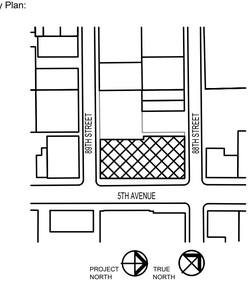
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NOTE: Drawing may be printed at reduced scale

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No.	Date	Revision
2	11/07/2025	100% CD SUBMISSION
1	07/10/2025	60% CD SUBMISSION

Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
GAS VAPOR BARRIER DETAILS II

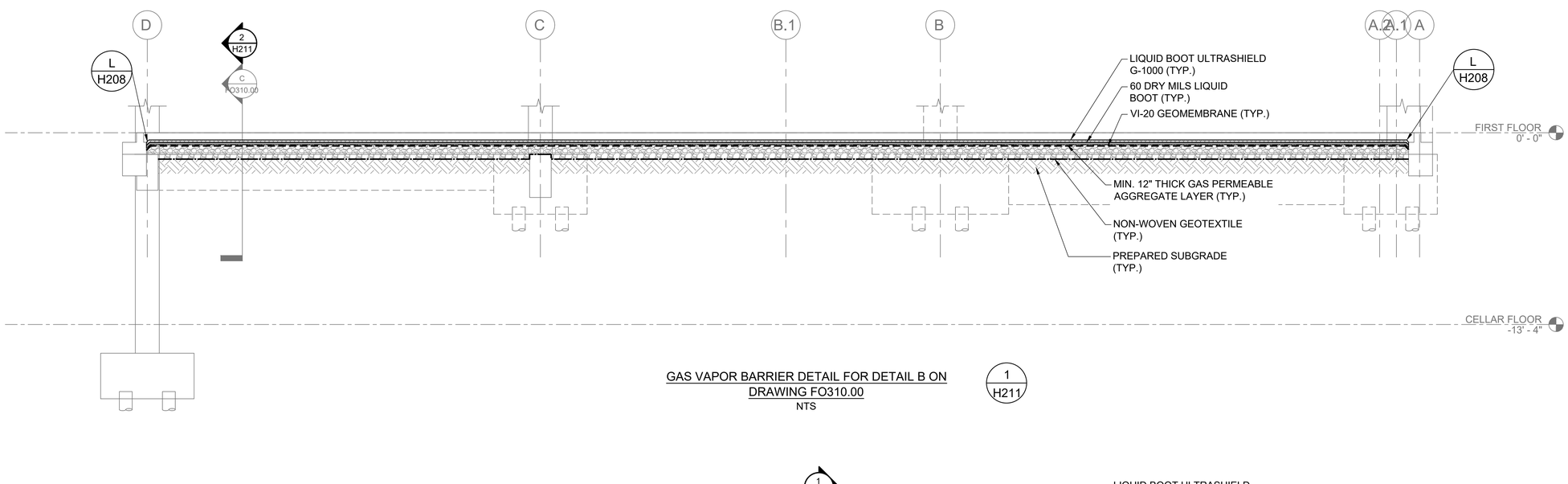
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Drawing No.:
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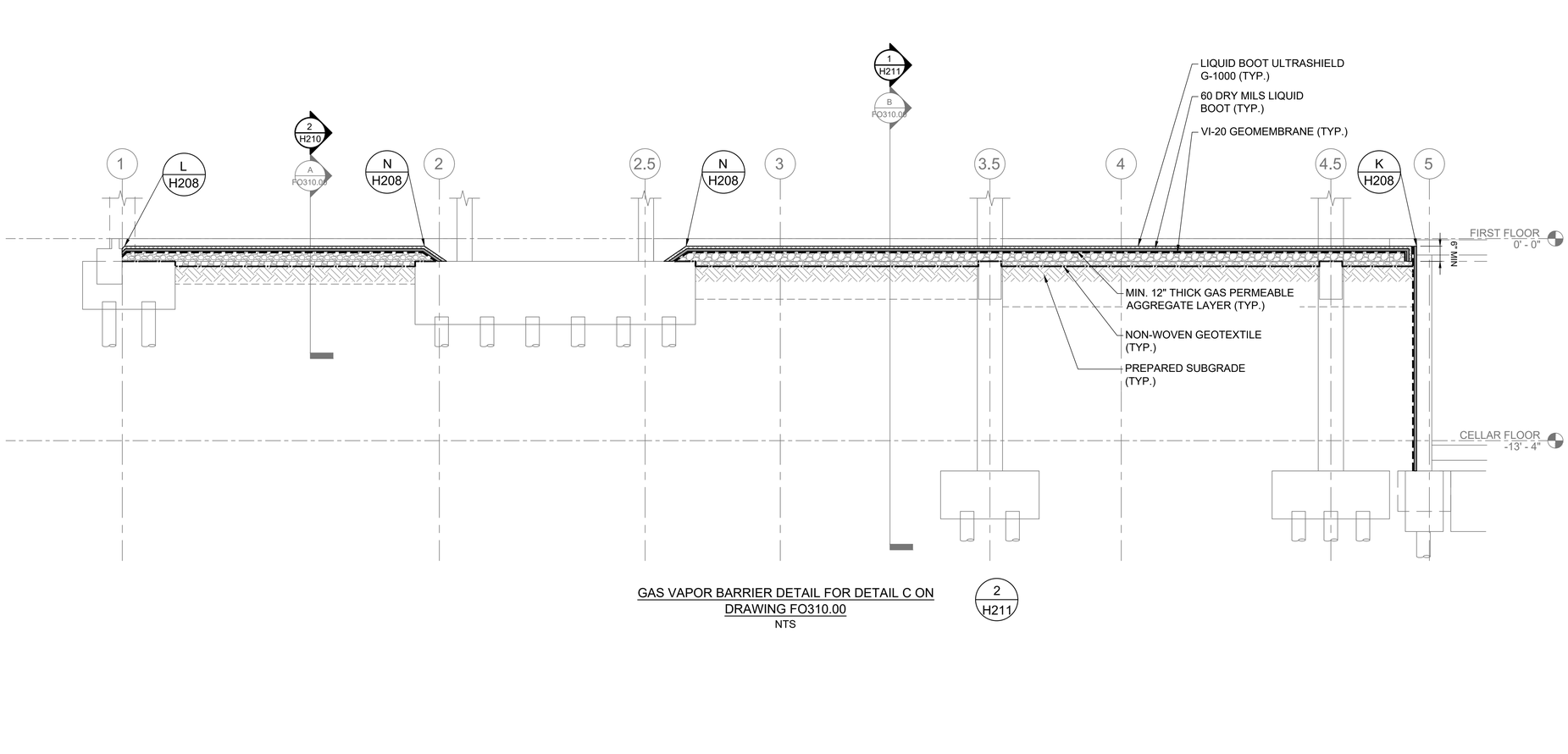
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GAS VAPOR BARRIER DETAIL FOR DETAIL B ON DRAWING FO310.00
NTS

1
H211



GAS VAPOR BARRIER DETAIL FOR DETAIL C ON DRAWING FO310.00
NTS

2
H211

GENERAL NOTES:

1. RELATIVE THICKNESS OF GAS VAPOR BARRIER SHOWN IS EXAGGERATED FOR ILLUSTRATIVE PURPOSES.
2. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER DETAILS.
3. SUBMIT DETAIL OF ANY VAPOR BARRIER PENETRATIONS NOT SHOWN TO THE AUTHORITY FOR APPROVAL.

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NYC School Construction Authority

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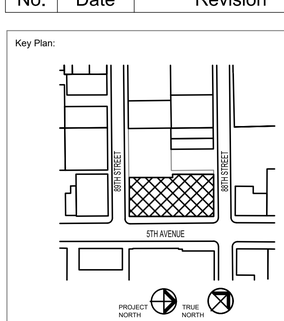
100% CD SUBMISSION
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Block # 6065 Lot # 28/39

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Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
Designer:	ZAK SCHWARTZ, E.I.T. (TRC)
Drawn by:	HENRY DELGADO (TRC)
Checked by:	PHILLIP CASTELLANO, P.E. (TRC)

LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
GAS VAPOR BARRIER
DETAILS III

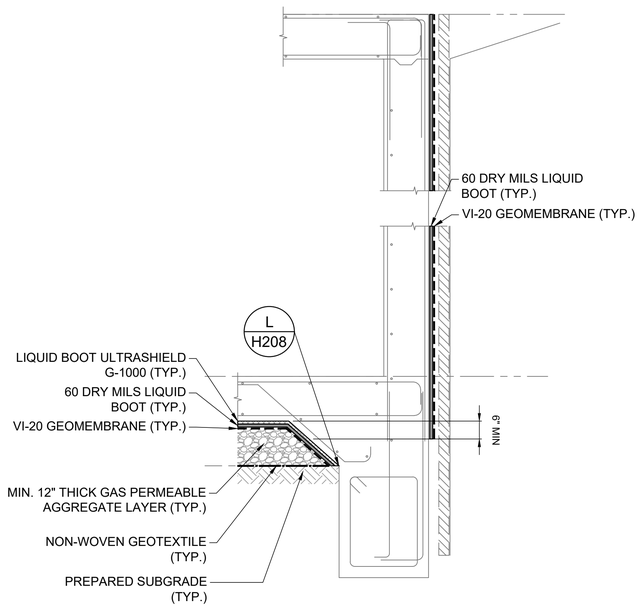
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Drawing No.:
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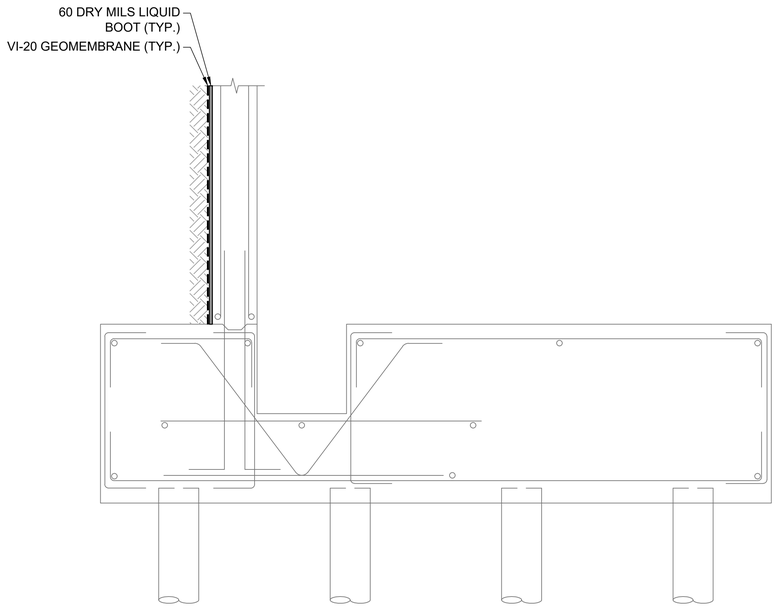
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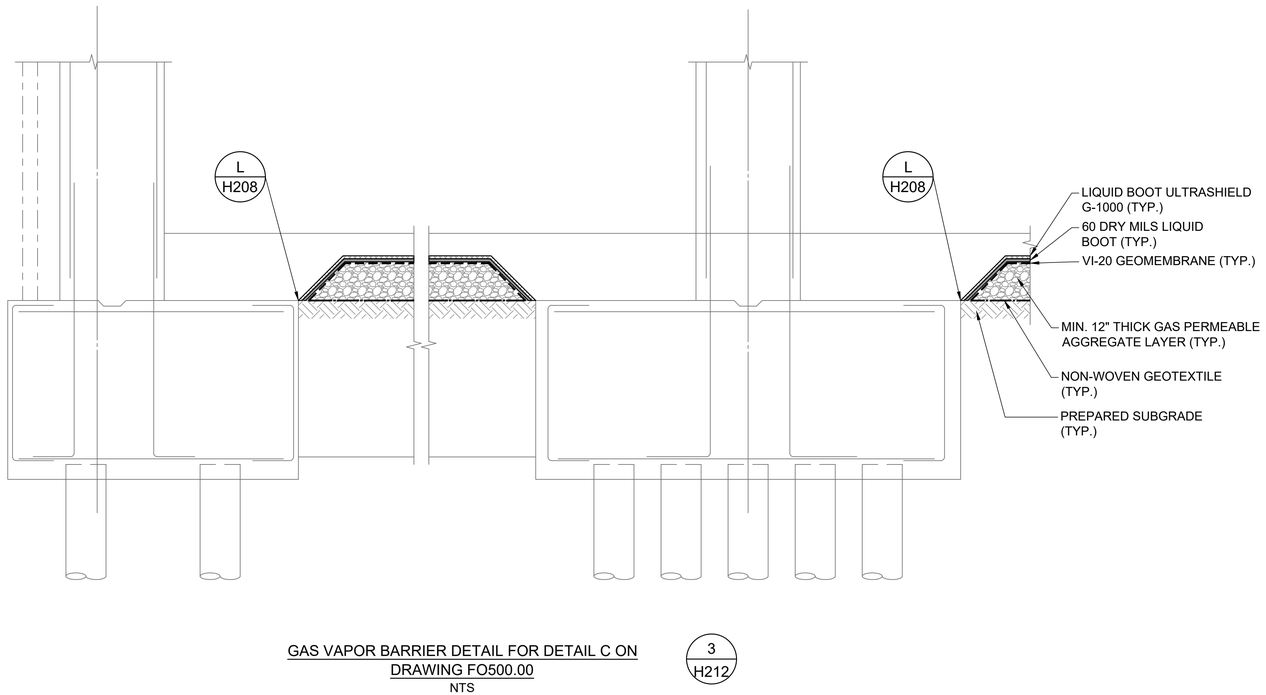
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NTS

1
H212



GAS VAPOR BARRIER DETAIL FOR DETAIL B ON DRAWING FO500.00
NTS

2
H212



GAS VAPOR BARRIER DETAIL FOR DETAIL C ON DRAWING FO500.00
NTS

3
H212

GENERAL NOTES:

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2. DRAWING NOT TO BE USED FOR STRUCTURAL, ARCHITECTURAL OR OTHER REFERENCE EXCEPT FOR SUB-SLAB DEPRESSURIZATION SYSTEM AND GAS VAPOR BARRIER DETAILS.
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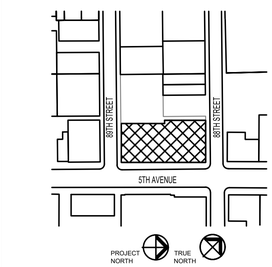
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Key Plan:



Block # 6065 Lot # 28/39

SCA Design Manager:	CR
Project Architect/Engineer:	SW
Discipline Lead:	TRC ENGINEERS, INC.
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LLW No.:	Facility Code:	Date:
118924	K337	12/15/2025

Project:
PS K337
NEW BUILDING

Address:
8802 5TH AVENUE, BROOKLYN, NY 11209

Drawing Title:
GAS VAPOR BARRIER
DETAILS IV

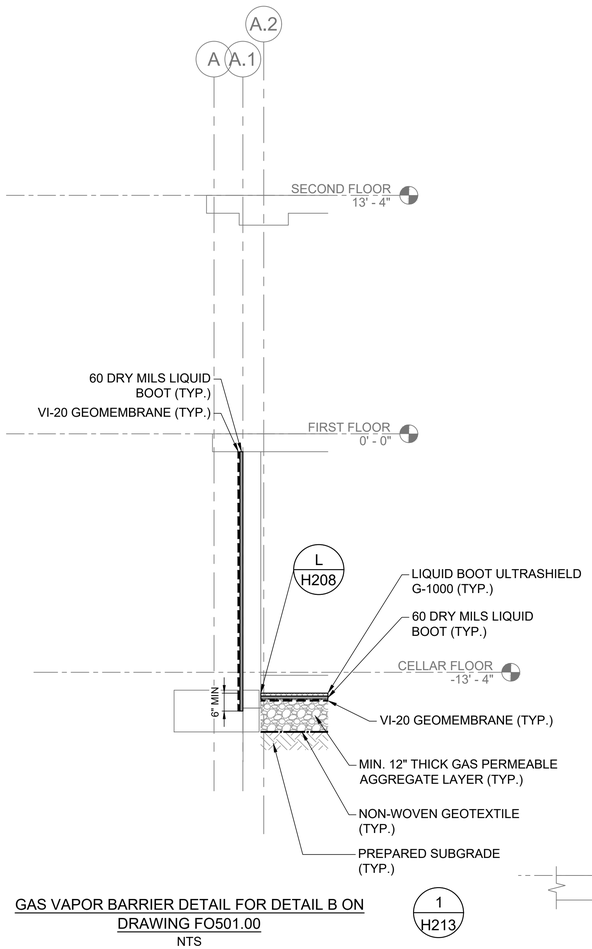
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Drawing No.:
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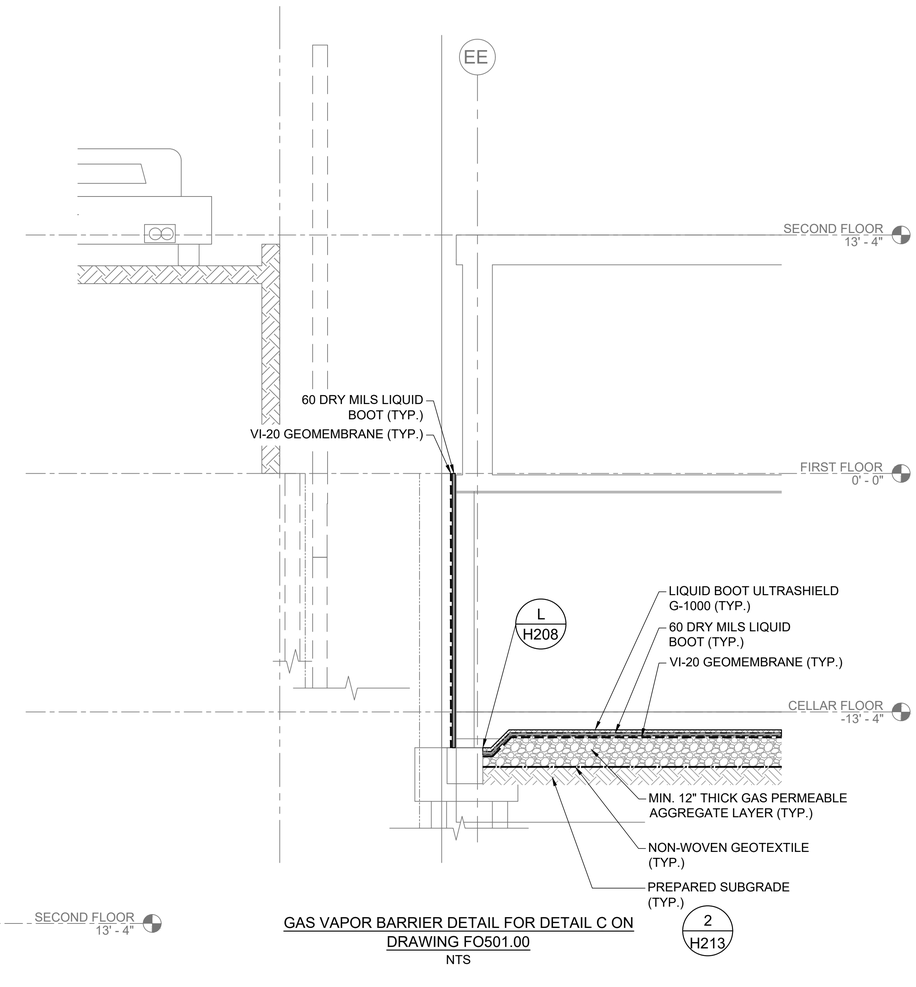
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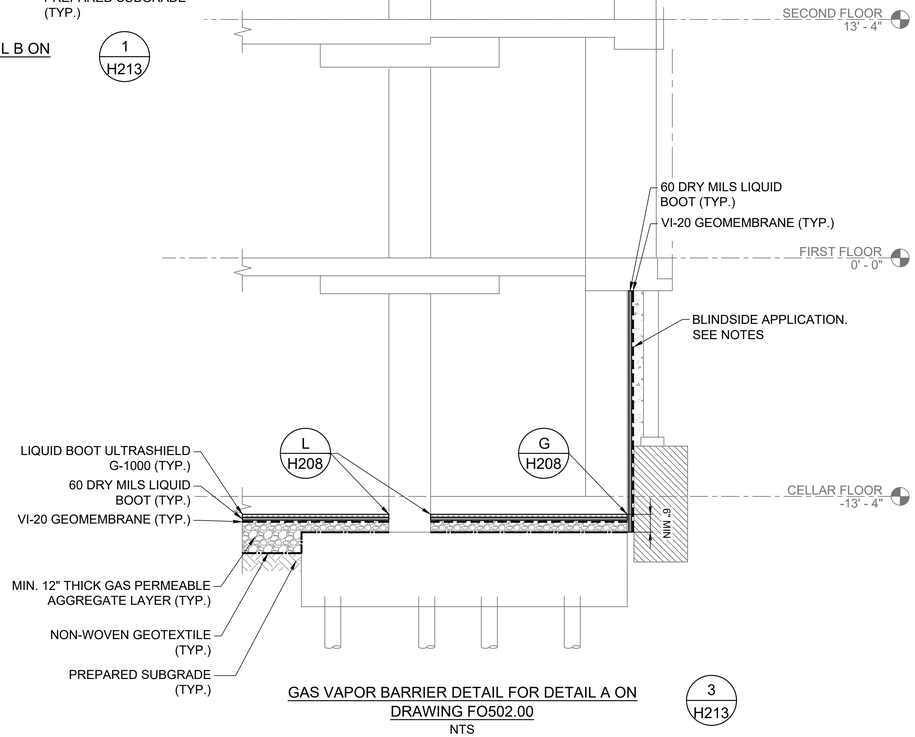
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NTS

1
H213



GAS VAPOR BARRIER DETAIL FOR DETAIL C ON DRAWING FO501.00
NTS

2
H213



GAS VAPOR BARRIER DETAIL FOR DETAIL A ON DRAWING FO502.00
NTS

3
H213

BLINDSIDE APPLICATION NOTES:

1. SECURELY NAIL VI-20 GEOMEMBRANE TO EXCAVATION SUPPORT/INSULATION. OVERLAP SEAMS A MINIMUM OF 6".
2. SPRAY APPLY LIQUID BOOT TO A MINIMUM THICKNESS OF 60 MILS REFER TO STRUCTURAL DRAWINGS FOR TYPICAL FOUNDATION WALL DETAILS.
3. ALLOW TO CURE OVERNIGHT PRIOR TO POURING OF CONCRETE FOUNDATION WALL.

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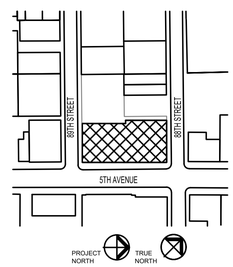
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DOB NOW #:
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Drawing No.:
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SHEETS IN | WORK TYPE DOB FILING SET:
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