REVISED CORRECTIVE MEASURES WORK PLAN

6469 Broadway BCP Site

6469 Broadway

Borough of Bronx, New York

NYSDEC BCP Site: C203048

May 14, 2020 (Revised April 2021)

CORRECTIVE MEASURES WORK PLAN

May 14, 2020 (Revised April 2021)

GBTS File: CB01174

Prepared By

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Prepared For

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I, Peter D. Setaro, certify that I am currently a NYS registered professional engineer as in defined in 6 NYCRR Part 375 and that this Corrective Measures 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).

077008
NYS Professional Engineer #

4/13/21
Date

Signature

The undersigned has reviewed this Corrective Measures Work Plan and certifies to 6469 Broadway Selfhelp, LLC that the information provided in this document is accurate as of the date of issuance.

Richard Hooker
Manager – Environmental Consulting
Gallagher Bassett Technical Services

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1.0 INTRODUCTION

1.1 Purpose

This Corrective Measures Work Plan is applicable to the 6469 Broadway BCP Site property, located at 6469 Broadway, Borough of Bronx, New York, New York. A Site Location Map is provided as Figure 1.

- Indoor air quality will be investigated at the Site in order to address potential indoor air impacts associated with water intrusion in the basement of the residential building.
- Active remediation will be conducted to address elevated VOCs in groundwater.

1.2 Background Information

Indoor Air Quality

New York State Department of Environmental Conservation (NYSDEC) and NYS Department of Health (NYSDOH) require sub-slab vapor and indoor air sampling to be conducted at the Site during the heating season to evaluate the potential for exposures via soil vapor intrusion potentially caused by water intrusion into the basement. Given the presence of water at or above the invert of the slab, sub-slab vapor sampling will not be practicable. Indoor air sampling activities will be performed subsequent to approval of this CWMP by NYSDEC and NYSDOH.

Groundwater

Based on recent quarterly groundwater monitoring data, groundwater contamination remains present on the Site at levels that exceed NYSDEC groundwater protection standards. Active remediation is warranted to reduce residual groundwater contamination to acceptable levels.

1.3 Water Intrusion Remedy

Site conditions related to reported flooding of the building cellar are documented in a *Summary of Limited Cellar Level Repair Program* (February 4, 2021), prepared by RAND Engineering & Architecture, DPC (RAND Report). This summary of the RAND Report is provided for information only and is not part of the CPL & Gallagher Bassett certification.

The report provides the following conclusions:

- Cellar flooding conditions are caused by deficiencies in the cellar floor waterproofing and structure, which must be addressed in order to correct the condition.
- The waterproofing beneath the cellar floor is compromised in multiple locations, with points of entry spread over a large area of the cellar.
- The concrete slab-on-grade forming the cellar floor was not designed or constructed to resist hydrostatic loads from below. Observable cracks in the slab-on-grade floor and foundation walls exhibit evidence of water entry.
- Previous remedial efforts, including localized grout injection, have not been adequate.

Recommended Repairs include the following:

- Installation of a new cellar pressure slab and waterproofing/drainage system on top of the existing cellar floor slab, including new sump pits, sump pumps, and connection to the existing drainage system.
- Localized grout injection of known/suspected points of water entry along the existing foundation walls and cellar floor slab.
- Underpinning of the rear yard retaining wall in locations of settlement.

2.0 SOIL VAPOR INTRUSION WORK PLAN

2.1 Summary of Services

Proposed fieldwork is summarized below. This Work Plan is consistent with the guidance set forth in the NYSDOH "Guidance for Evaluation of Soil Vapor Intrusion in the State of New York" (October 2006).

The following services will be performed:

- An inventory of any other chemicals/VOC containing materials being used in the building which may interfere with the sampling will be performed;
- Any other on-site activities that may interfere with the sampling will be documented;
- NYSDEC project manager for this site will be notified at least seven days prior to the planned sampling event; and,
- Indoor air sampling will be performed using summa canisters with 24 hour flow controllers. The samples will be analyzed using method T015 by a NELAP certified laboratory lab and an independent DUSR performed. A final report will be issued to the Client, NYSDEC and NYSDOH.

2.2 General Fieldwork Methodology

2.2.1 General Protocols

Air samples will be collected in general conformance with NYSDEC fieldwork procedures and specific protocols specified in the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion (NYSDOH GESVI), inclusive of updates posted to the NYSDOH website. All field personnel will wear dedicated, disposable gloves during relevant fieldwork activities, and any non-dedicated sampling instruments will be decontaminated prior to media collection. A proposed Sample Location Map is included as Figure 2.

All samples will be collected into appropriately-sized containers provided by the laboratory and be maintained at proper temperatures under proper chain-of-custody. Samples will be transported via courier to a NYSDOH ELAP-certified laboratory for chemical analyses of VOCs using USEPA Method TO-15.

2.2.2 Air Standards, Criteria and/or Guidance

NYSDOH utilizes "air guideline values" (AGVs) for compounds found in indoor air (see NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York [GESVI, October 2006]). Where no AGVs are established, the NYSDOH utilizes air quality background levels identified in GESVI Appendix C. Volatile compounds in indoor air will be compared to AGVs and applicable background concentrations referenced by the GESVI, including the 90th percentile contaminant concentrations in the USEPA 2001: Building Assessment and Survey Evaluation (BASE) database.

2.3 Collection of Air Samples

Indoor air samples will be collected at three (3) locations within the cellar/basement area(s), three (3) within the first floor of the structure. A proposed sample location map is provided as Figure 2. Samples will be collected from a height of 4 to 6 feet above the ground (corresponding the "breathing zone") over a 24-hour period into individual laboratory-certified clean Summa canisters equipped with appropriate flow regulators.

A product inventory form (available at the NYSDOH website) will be completed for each sampling event, in order to assist with the evaluation of air sampling results.

3.0 GROUNDWATER REMEDIATION WORK PLAN

3.1 Summary of Services

Proposed fieldwork is summarized below. All work will be performed consistent with procedures set forth in the August 2013 Remedial Action Work Plan and supporting documents, including HASP, CAMP & QAPP. A Data Usability Review will be performed by an independent third party (anticipated at this time to be performed by ZDataReports, Syracuse, New York).

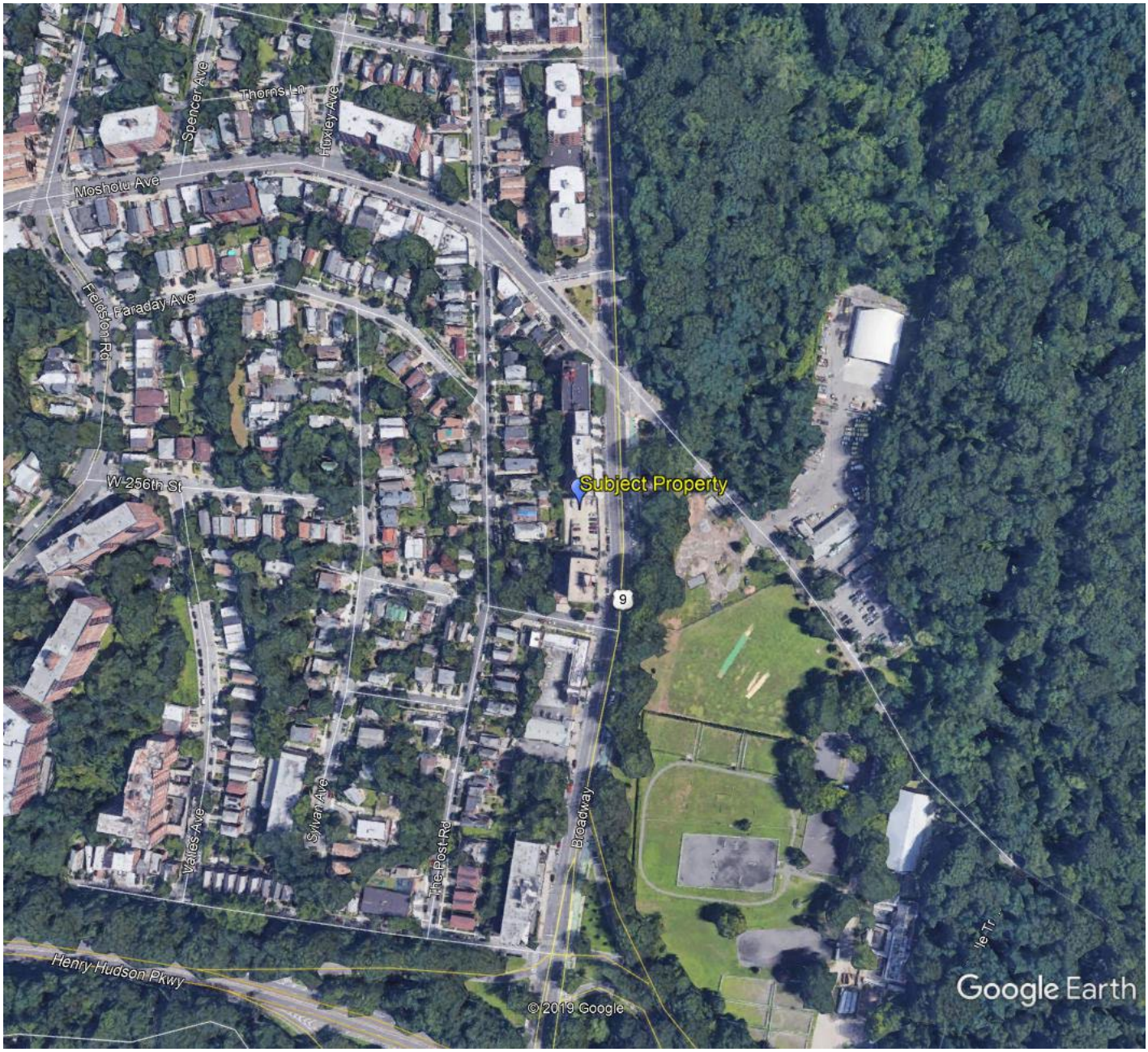
- Additional in situ chemical oxidation (ISCO) treatment is proposed at existing injection wells IW-1 through IW-3, located in close proximity to the groundwater monitoring wells showing elevated levels of VOCs (injection locations are shown in Figure 3).
- The selected injection wells will be inspected to verify their integrity and suitability for the proposed treatment, and redeveloped prior to the ISCO application.
- The selected reagent will be sodium persulfate to destroy organic contaminants found in groundwater and soil through abiotic chemical oxidation reactions. The application rate will be determined in consultation with a qualified supplier of ISCO services after the suitability of the wells has been verified.
- After the injection event, existing monitoring wells will continue to be sampled quarterly per the requirements of the SMP. Data will be reviewed to evaluate the effectiveness of the ISCO application. Additional treatment will be conducted as necessary in order to achieve acceptable water quality.

3.2 General Fieldwork Methodology

Application of the oxidants will be performed by properly trained personnel under the supervision of the Remedial Engineer and Qualified Environmental Professional. The initial recommendation from the ISCO manufacturer, based on known Site conditions, is for the application of sodium persulfate to destroy organic contaminants found in groundwater and soil through abiotic chemical oxidation reactions. Groundwater will be resampled after laboratory analysis of indicator compounds indicates that ISCO reagents are likely spent (approximately 3-4 months after injection). Fieldwork protocols will be submitted to NYSDEC for review after a final ISCO methodology has been established.

4.0 DOCUMENTATION

At the completion of all services detailed in this Work Plan, a Corrective Measures Report (Report) will be prepared and submitted to the NYSDEC for review and approval. This Report will include, at a minimum: a summary of all fieldwork activities; results of laboratory analyses generated as a result of this investigation; maps illustrating Site investigation and waterproofing activities; a Data Usability Summary Report (DUSR) prepared by a third, independent party, which maintains NYSDOH ELAP CLP Certification; and, any recommendations and detailed protocols for appropriate response actions.



Site Location Map
6469 Broadway
Bronx, New York

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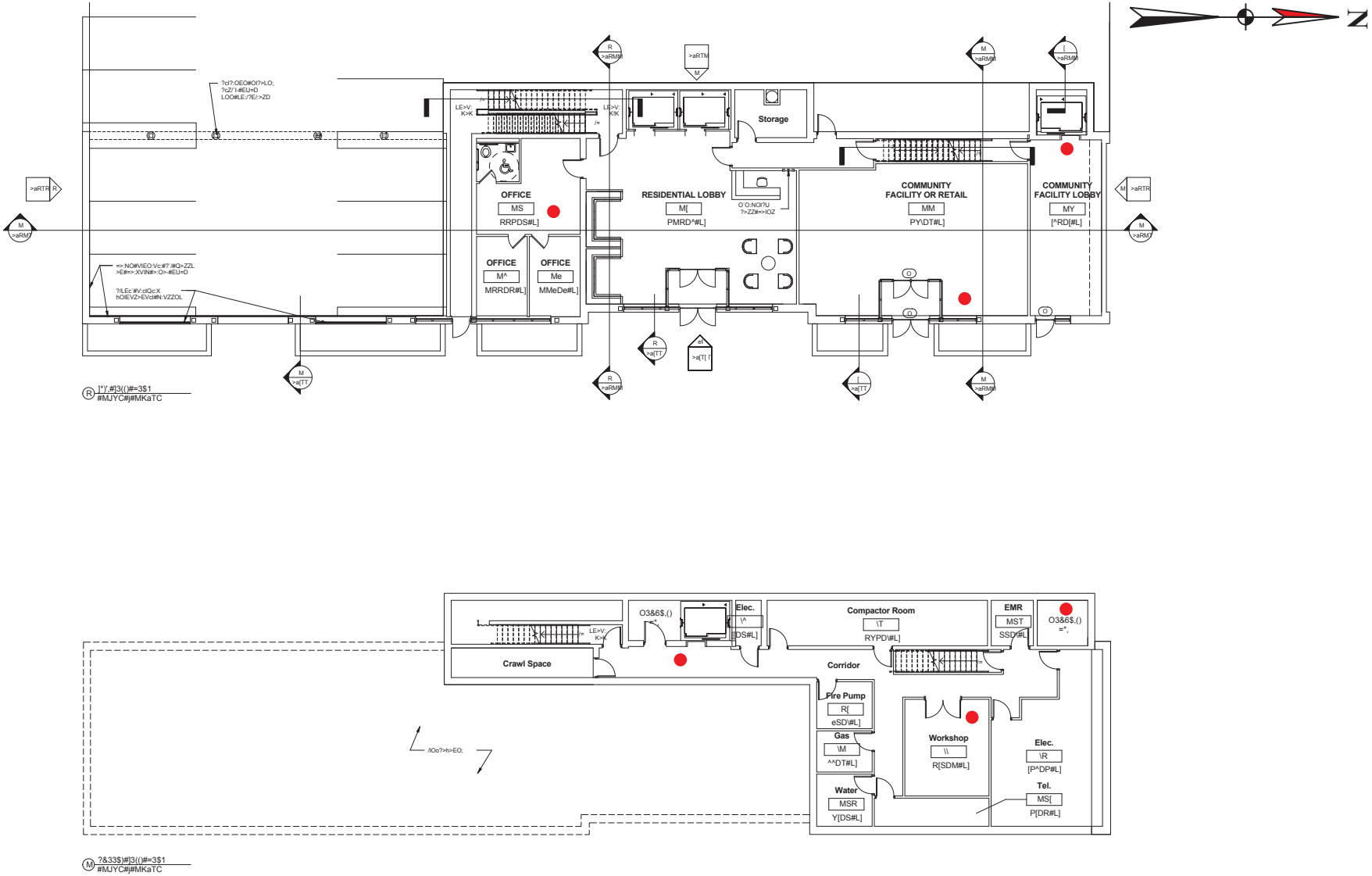
File: CB01174.50

April 2021

Figure 1



All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Proposed IAQ Sample Location Map

6469 Broadway
Bronx, New York

Legend:

- proposed indoor air sample location

File: CB01174.40

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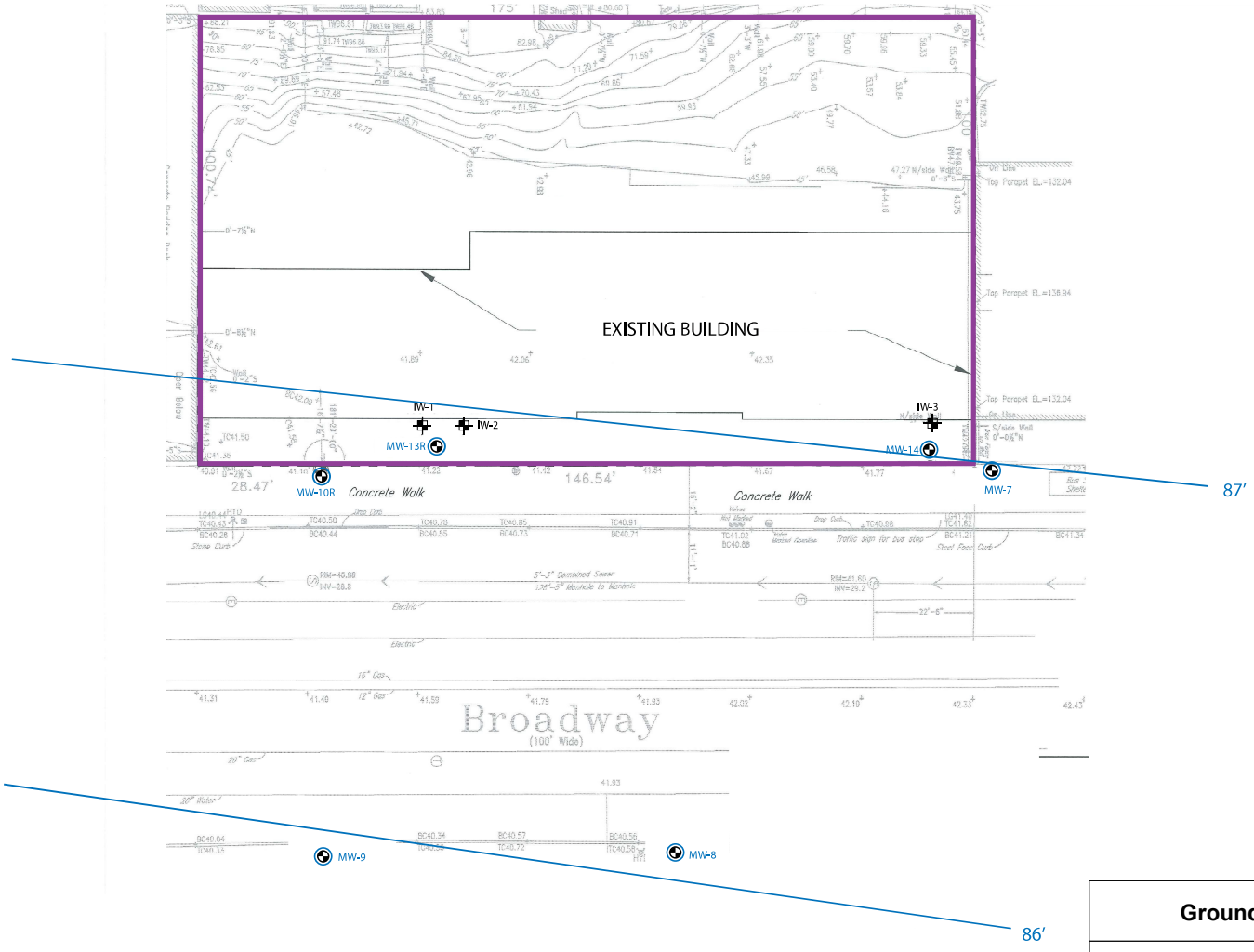
Not to scale

Figure 2



LEGEND:

- site boundary
- groundwater contour lines (June 28, 2013)
- active monitoring well
- injection well

0 25 50

SCALE IN FEET (APPROXIMATELY)

Source: Survey provided by Erlandsen-Crowell & Shaw dated 12/26/12

Groundwater and Injection Well Location Map

6469 Broadway Site NYSDEC BCP ID: C203048 6469 Broadway Bronx, New York	File: CB01174
	Scale as shown
	April 2021 | Figure 3