October 27, 2022

Mr. Mark Domeracki
Assistant Geologist
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12207

RE: DRAFT REMEDIAL INVESTIGATION WORK PLAN
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) SITE # C360182A
33 CENTRE AVE, NEW ROCHELLE, NEW YORK, 10801
(HRP # DEC1036.P3)

Dear Mr. Domeracki:

On June 9, 2022, HRP Associates, Inc. (HRP) was authorized to complete this New York State Department of Environmental Conservation (NYSDEC) Work Assignment (WA) No. 36 (D009808-36) for Remedial Investigation/Feasibility Study (RI/FS) at the Centre Avenue Development Site, located at 33-35 Centre Avenue, New Rochelle, New York ("Site").

The scope of work (SOW) for the WA, discussed herein, was developed based on HRP's review of documents detailing previous subsurface investigations completed at the Site, as well as discussions and planning with NYSDEC staff. Work completed at the Site will be conducted in tandem with work to be completed at the adjacent Industrial Overall Services Site (#360109). All Health and Safety and Quality Assurance/Quality Control (QA/QC) protocols will be completed in accordance with the methods detailed in Appendices A through D of the Draft Remedial Investigation Work Plan for the Industrial Overall Service Site, dated October 27, 2022.

HRP Associates, Inc. (HRP) has prepared this letter work plan to summarize subcontractor and professional services necessary to complete the WA, and includes:

- Underground utility clearance using ground penetrating radar (GPR).
- Installation and development of one bedrock groundwater monitoring well.
- Groundwater sampling
- A Site survey.

A description of the Site background, preliminary activities, and SOW is provided below.

Site Background

The Site is located at 33 Centre Avenue in New Rochelle, Westchester County, New York and is identified as Section 2, Block 437, Lot 42 on the Westchester County Tax Map (**Figure 1**). The Site is an approximately 0.46-acre area and is bounded by Centre Avenue to the north,

a multi-story apartment building and a commercial building to the south, Huguenot Street to the east, and Relyea Place to the west (**Figure 2**).

The Site has documented impacts in the groundwater originating from the BCP site Centre Avenue Development South (Site #C360182) with the historic use of 1,1,1trichloroethane (-TCA) in electroplating operations. PCE and its breakdown products are also found in off-site groundwater emanating from Industrial Overall Services Corp (Site #360109).

Previous environmental investigations identified chlorinated solvents and fluorinated compounds in soil and groundwater above NYSDEC Standards, Criteria, and Guidance (SCGs). The primary contaminants of concern are volatile organic compounds (VOCs) in surface soils, subsurface soils, groundwater, soil vapor, and indoor air. Fluorinated compounds including perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) were also identified by NYSDEC as constituents that were disposed of at the Site.

Surficial and Bedrock Geology

The surficial geology at the s-Site is composed primarily of fill material that was encountered in most borings beneath the concrete/asphalt subbase. The fill was encountered at varying depths up to 8 ft bgs. The fill material is underlain by fine to silty sand followed by a layer of weathered (decomposed) rock of varying thickness overlying the bedrock.

The United States Geological Survey (USGS) describes bedrock at the Site as the Hartland Formation, an Ordovician amphibolite, which consists of crystalloblastic rock consisting mainly of amphibole and plagioclase with little or no quartz. The Hartland Formation also consists of a schistose metamorphic rock derived by metamorphism of an argillaceous or fine-grained aluminous sediment.

Gneiss and schist were the primary bedrock types encountered during previous investigations at the Site. Weathered bedrock was encountered at depths down to 12 feet below grade (ft bg). Fill material was encountered in most borings beneath the concrete/asphalt subbase. The fill material was underlain by fine to silty sand followed by a layer of weathered (decomposed) rock overlying the bedrock.

Hydrology and Hydrogeology

Surface water hydrology at the Site and surrounding areas includes stormwater runoff and surface water. The majority of stormwater runoff flows to the southwest, and is collected by the stormwater and sanitary drainage system at the Site. The drainage system discharges to Burling Brook, approximately 1 mile to the south-southwest of the Site, which flows into New Rochelle Harbor. The nearest waterbody to the Site is Titus Millpond, located approximately 2,000 feet southeast of the Site.

Groundwater was encountered at a depth of approximately 7 ft bgs at the eastern end of the Site to 23 ft bgs in the southwest corner of the Site. The overburden material investigated at

the s-Site was dry and the groundwater encountered was present in the bedrock. The bedrock groundwater flow direction was determined to be in a southwesterly direction across the Site.

Preliminary Site Activities

Utility Underground Clearance and Ground Penetrating Radar

Prior to implementing any intrusive activities, a utility clearance will be conducted by a Ground Penetrating Radar (GPR) contractor. The GPR subcontractor will rely upon multiple lines of evidence to ensure to the maximum extent practicable that subsurface features are identified prior to commencement of intrusive work. The drilling contractor will request public utility mark outs through NYS Code Rule 753/Dig Safe System.

GPR is a non-destructive and non-intrusive geophysical exploration technique that uses radar waves to detect subsurface objects, such as tanks, drums, and piping. The GPR is also capable of detecting discontinuities in the subsurface materials indicative of excavated and backfilled areas. The objective of performing this survey is to not only make the subsurface investigation as safe as possible for the field staff, but also to identify possible sources and migration pathways (utility corridors, etc.).

A subsurface interface radar system and a 400 MHz antenna will be used to provide real time data during the survey. The unit will be equipped with a video display microprocessor-controlled module, used to convert the Subsurface Interface Radar data to video, which will be displayed on a self-contained monitor. Anomalies identified during the GPR survey will be marked by the contractor using paint, and may include buried natural gas, electric, water, communication, and sewer utilities.

An electromagnetic (EM) survey will be conducted in conjunction with the GPR survey, to locate any potentially buried metal objects (drums, tanks, etc.), and to better define subsurface features at the Site.

HRP requests that a knowledgeable party (client/Site owner) provide all available Site utility information prior to the survey or drilling activities and, if possible, a knowledgeable Site person to clear the monitoring well location prior to drilling.

Drilling Activities and Monitoring Well Development

Groundwater Monitoring Well Installation

A rotary-vibratory (sonic) drilling rig will be used to advance through overburden and bedrock material to set one bedrock monitoring well. The sonic tooling will consist of a 4-inch core barrel with a 6-inch override casing to provide a continuous core across the entire length of the borehole. The soil will be logged to identify changes in stratigraphy related to overburden, weathered rock and bedrock. Soil will also be screened every foot vertically for volatile organic vapors using a 10.6 electron volt (eV) photoionization detector (PID) using headspace measurement techniques. The monitoring well will be set to an estimated depth of 65 ft bg, and will be screened from 55

ft bg to 65 ft bg. However, the target depth and well construction will be dependent on the subsurface conditions encountered in the field.

The monitoring well will be constructed using 2-inch diameter schedule-40 PVC pipe riser, and 10 feet of schedule-40 PVC 0.010-inch slot screen that will be set in the bedrock. The annular space will be filled with an appropriately sized filter pack to a depth extending 2-feet above the top of the well screen. A 2-foot bentonite seal will be emplaced on top of the sand and the remaining annular space will be filled with bentonite cement to ground surface. The monitoring well will be completed using a flush-mount protective casing encased in a concrete pad.

If grossly impacted soil is encountered (strong odor, staining) during the well installation, NYSDEC will be notified. Soil samples may be collected and submitted for analysis at the direction of NYSDEC.

Monitoring Well Development and Sampling

The newly installed groundwater monitoring well will be developed a minimum of 24 hours after completion by pumping and surging for two hours or until the field parameters stabilize for a minimum of three consecutive readings of 10 percent variability of less. The field parameters will include: temperature, pH and specific conductance. In addition, the turbidity of the groundwater should achieve a reading of 50 Nephelometric Turbidity Units (NTUs) or less during the field parameter readings.

Prior to sampling, a depth to water measurement will be collected from the monitoring well using a water level meter graduated in 0.01-foot increments. The monitoring well will be measured from the top of casing prior to sampling activities.

Samples will be collected from the newly installed well a minimum of seven days after well development has been completed. A depth to water measurement will be taken prior to the start of groundwater sampling. Groundwater samples will be collected in general accordance with EPA low-flow groundwater sampling procedures. Groundwater samples will be collected and analyzed by Pace for laboratory analysis of Target Compound List VOCs +10 by EPA Method 8260, per- and poly-fluoroalkyl substances (PFAS) by EPA Method 1633, and 1,4-dioxane by EPA Method 8270 SIM. Groundwater quality parameters will be collected in the field, and will include Dissolved Oxygen (DO), Oxidation Reduction Potential (ORP), and pH.

Decontamination and Investigation Derived Waste

Non-dedicated sampling equipment (i.e., water level indicators, etc.) will be subject to decontamination procedures prior to sampling to reduce the potential for cross-contamination as described in HRP's Generic Field Activities Plan. The decontamination procedures will include the use of a scrub wash with a solution consisting of Alconox® detergent and potable water followed by a rinse with de-ionized water. Liquinox will not be used during decontamination, as it can contain low levels of both 1,4-dioxane and PFAS compounds. The decontaminated equipment will be stored in clean environments (i.e., the manufacturer's storage case). Decontamination fluids will be properly labeled and securely stored in the designated waste-container staging area.

Material that is visually stained, or exhibits strong odors may be segregated from non-impacted material. Additionally, drill cuttings which are stored/disposed on-site will be monitored for volatile emissions and for fugitive dust emissions. Monitoring instruments available at the Site as determined by the site-specific HASP may generally be sufficient. If any action level specified in the HASP is exceeded, corrective actions shall be implemented.

Decontamination fluids will be containerized separately from other IDW, and any decontamination fluids that do not exhibit evidence of impacts will be containerized separately from those exhibiting evidence of impacts.

All contaminated drill cuttings will be containerized on-site, in Department of Transportation (DOT) approved 55-gallon drums. All drilling equipment will be decontaminated using a decontamination pad, pressure-washer, Alconox®, and water between drilling locations. All decontamination and purge water will be containerized and labeled for future disposal.

Site Survey

The subject property and surrounding areas will be surveyed by a New York State licensed professional land surveyor (PLS). The field survey will include establishing project horizontal control and the collection of planimetric features for the development of 2D mapping. Subsequently, a base map of the Site will be revised using Computer Aided-Design (CAD) software that will be utilized to place all sampling locations from previous on-site and off-site investigations on the existing base map. Locations will we placed on the base map by geo-referencing previous figures into the local CAD coordinate system. The elevations of monitoring well casings will be established to within an accuracy of plus or minus 0.01 feet based on an arbitrary local vertical benchmark. A notch will be etched in all interior casings, or a permanent black mark, to provide a reference point for all future groundwater elevation measurements.

Data Validation and Electronic Data Delivery

Pace Analytical will supply required data deliverables (USEPA CLP and NYSDEC Analytical Service Protocol [ASP] deliverable format) to enable the data to be validated. Environmental data will be submitted electronically in a specified format named 'NYSDEC' in accordance with the data submission procedures outlined on the NYSDEC's website (http://www.dec.ny.gov/chemical/62440.html). HRP will provide an EQuIS approved EDD to the Department and NYSDEC Project Manager.

Upon receipt of the sample data, the validation contractor will quantitatively and qualitatively validate the laboratory data. The validation of the analytical data will be performed according to the protocols and QC requirements of the analytical methods, the USEPA CLP, National Functional Guidelines for Organic and Inorganic Data Review (February 1994), the USEPA Region II CLP Data Review SOP, and the reviewer's professional judgment.

In addition to appropriate data summary tables and boring logs included in the report, environmental data will be submitted electronically in a specified Electronic Data Deliverable

(EDD) format named in accordance with the data submission procedures outlined on the NYSDEC's website (http://www.dec.ny.gov/chemical/62440.html).

Green Remediation

While the NYSDEC's goal is to address unacceptable risk from hazardous substance releases, consideration of the cleanup activities broader impacts on the community and the environment is consistent with the NYSDEC sustainability and greenhouse gas (GHG) reduction goals as outlined in NYSDEC policies (e.g., CP-75-DEC Sustainability, DER-31 Green Remediation, CP-49 Climate Change Climate Change and DEC Action and CP-75 Sustainability). During site investigation and remediation HRP will identify, quantify, and document Green and Sustainable Remediation principals and techniques to the extent feasible including but not limited to:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long-term when choosing a s-Site remedy.
- Reducing direct and indirect GHG 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; and
- Integrating the remedy with the s-Site's end use where possible and encouraging green and sustainable re-development.

To achieve this objective HRP will:

1) Evaluate Green and Sustainable Remediation options at each step of site investigation and remediation process.
2) Quantify impacts and reductions.
3) Implement the most effective principals and techniques with NYSDEC approval within the selected remedy.
4) Document the reduced impacts.

Green and Sustainable Remediation principals and techniques will incorporate throughout the Site Investigation process, and will be documented in the Remedial Investigation Report (RIR).

Remedial Investigation Report

The RIR will be prepared as part of this WA following completion of the field activities. A draft RIR will be submitted within 90 days after HRP receives the last round of analytical data from laboratory. A second draft RIR will be submitted, if needed, within two weeks after the data validation company has reviewed the final analytical submitted for the investigation. A final version of the RIR will be submitted within 2-4 weeks after the NYSDEC PM's comments on both draft reports are received by HRP. The RIR will include the required information and elements described in Section 3.14 of DER 10.

The RIR will provide a description of the field activities, present data collected during field characterization, present a physical description of the Site including geology and hydrogeology, and provide an analysis and interpretation of the available data in the context of existing Site conditions. The report will include tabulated laboratory analytical results, Site maps and a discussion of contaminant concentrations, including a comparison to NYSDEC SCGs as described in Section 3.14 of DER-10. The results of the RI will be used to evaluate and select a remedial plan of action for the Site.

Feasibility Study

A Feasibility Study (FS) will be prepared in parallel to the Industrial Overall Site, as the Industrial Overall dataset will be utilized to evaluate remediation alternatives for the Site and select the preferred remedial approach. A draft version of the FS report will be submitted to NYSDEC to review and comment within 60 days after HRP receives approval of the Final RIR. A final version of the FS will be submitted within two weeks after the NYSDEC PM's comments on the draft report are received by HRP. The FS report will include the required information and elements described in Sections 4.4(b) and (c) of DER-10.

Schedule

The proposed project schedule for this WA is outlined below and will be completed in parallel with the Industrial Overall Service Site. Key milestones are identified to monitor work progress. The following milestones will be applicable for this project:

Project Milestones Est.		Start Date
• Milestone 1:	Notice to Proceed (NTP), RI FAP development	Completed
• Milestone 2:	NYSDEC review of site-specific plans	November 2022
• Milestone 3:	Installation and sampling of monitoring wells	April /May 2023
• Milestone 4:	Removal of IDW	May/June 2023
• Milestone 5:	Complete Data Validation	Summer 2023
• Milestone 6:	RIR	Fall 2023
• Milestone 7:	FS	Winter 2023/Spring 2024

Drilling activities (Milestone 3) will begin in the Spring of 2023, following the snow melt and removal of any potential snow piles that could limit access to the drilling locations. The timeframe of pickup and removal of the IDW (Milestone 4) will be determined by the contractor upon scheduling. Data validation (Milestone 5) will begin upon receipt of the first set of laboratory results, and will continue to be submitted for validation as the results are received from the laboratory. Data validation is expected within a four-week timeframe. Milestone 5 will not be considered complete until all groundwater data have been validated.

The RIR (Milestone 6) will be submitted as a draft report within 90 days after HRP receives the last round of analytical data from the laboratory. A second draft RIR will be submitted, if needed, within two weeks after the data validation company has reviewed the final analytical submitted

for the investigation. A final version of the RIR will be submitted within two weeks after the NYSDEC Project Manager's comments on both draft reports are received by HRP.

Thank you for the opportunity to assist the department with this WA. Should you have any questions please contact the undersigned at 518-877-7101.

Sincerely,
HRP Associates, Inc.

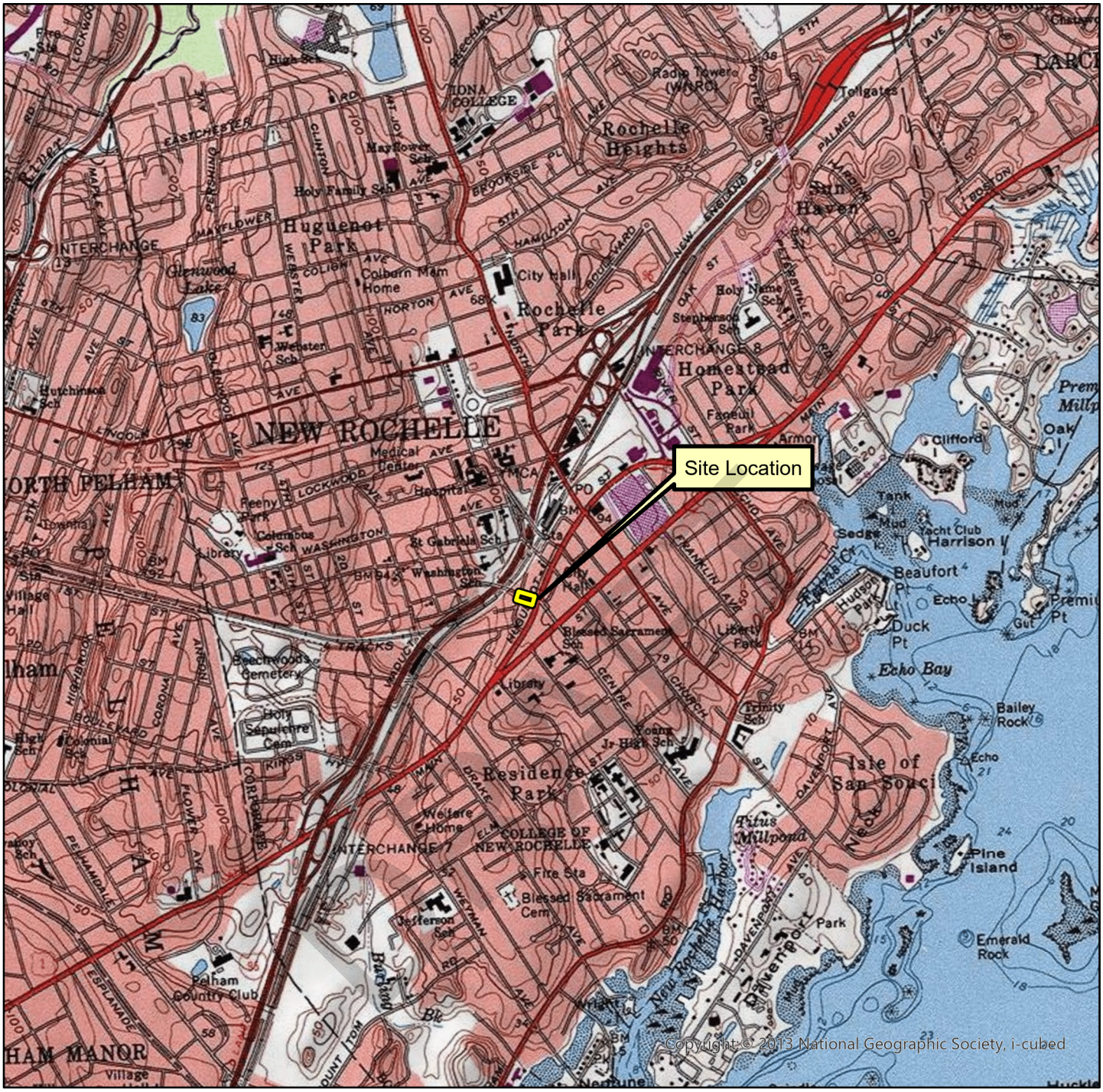
Stefan Truex, P.G.
Senior Project Geologist

Thomas Darby, P.G
Senior Project Manager

Attachments
Figure 1 – Site Location Map
Figure 2 – Site Plan

Cc: Jessica Kruczek, PE

Figures



0 500 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000

Feet

1:24,000

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USGS Quadrangle Information
Quad ID: 40073-H7
Name: Mount Vernon, New York
Date Rev: 1976
Date Pub: 1979

Figure 1
Site Location
33 Central Ave Development -South
Site # C360182
33 Central Avenue
New Rochelle, New York
HRP # DEC1036.P3
Scale 1" = 2,000'

HRP
MOVE YOUR ENVIRONMENT FORWARD
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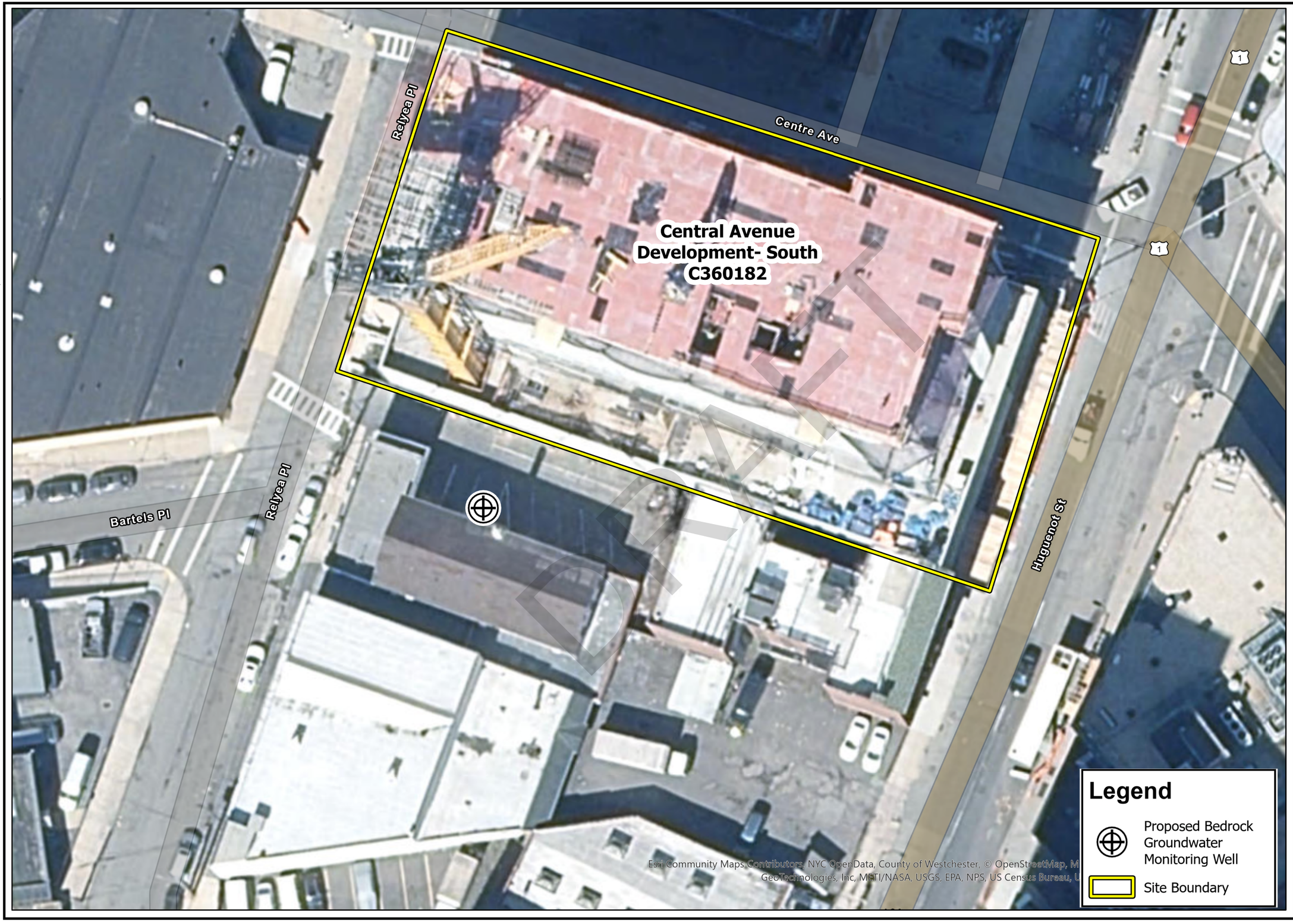

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North

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Revisions						
No.	Date					

Designed By: CMS
Drawn By: CSM
Reviewed By: SRT

Issue Date: 10/5/2022
Project No: DEC1036.P3
Sheet Size: 11x17

Site Plan

Central Avenue
Development - South
Site #C360182
33 Central Avenue
New Rochelle, New York

Figure No.

2