REMEDIAL ACTION WORK PLAN
OPERABLE UNIT 2 (OU-2)
WHITE PLAINS FORMER MGP SITE (Site # V00438-3)
White Plains, New York

Prepared For:

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INTRODUCTION

1.1 PROJECT BACKGROUND

This Remedial Action Work Plan (RAWP) has been prepared on behalf of Consolidated Edison Company of New York, Inc. (Con Edison) pursuant to Voluntary Cleanup Agreement Index No. D3-0002-00-10 (the VCA) between Con Edison and the New York State Department of Environmental Conservation (NYSDEC) to provide a scope of work for implementing the preferred remedial action for Operable Unit 2 (OU-2) of the Former White Plains MGP Site (Site #V00438-3) located in White Plains, New York (Figure 1). The Former White Plains MGP Site (the Site) is located in downtown White Plains, New York. The Site is currently occupied by an electric distribution substation owned and operated by Con Edison and a four-story office building and parking lot referred to as 12 Water Street (Figure 2).

Con Edison is in the process of modernizing and upgrading its facilities at the substation to ensure continued reliability of the substation. In anticipation of the construction activities associated with the substation improvement/modernization project, a Preliminary Site Assessment (PSA) was conducted in several phases between March 2000 and August 2001 to identify potential subsurface conditions that might pose a risk to the health and safety of site workers and the public during those activities. In addition, Con Edison submitted a Voluntary Cleanup Program application for the Site to the New York State Department of Environmental Conservation (NYSDEC) on July 11, 2000. In the application, Con Edison proposed to coordinate the remediation of any MGP-impacted areas of the Site and adjacent lands with the planned removal of the energized electric equipment during the substation improvement project. On September 23, 2002, Con Edison entered into the VCA with the NYSDEC for the Site.

The NYSDEC has segmented the Site into two operable units as illustrated on Figure 2. Operable Unit 1 (OU-1) is comprised of the southern substation area and the St. John's Property. Operable Unit 2 (OU-2) includes the northern portion of the Con Edison substation and the 12 Water Street office building and parking lot. To date, several phases of investigation have been completed at both OU-1 and OU-2. An interim remedial measure (IRM) has been implemented for the southern substation area of OU-1 and a Remedial Alternative Report [Parsons, 2005] for OU-1 has also been submitted for NYSDEC and New York State Department of Health (NYSDOH) review.

As part of the ongoing improvement/modernization project at the substation, the old switchgear and transformers, including associated aboveground electrical equipment and structures, are currently being removed from the northern portion of the substation yard in OU-2. Removal of the electrical equipment from the north yard will result in increased accessibility to the MGP-related impacts identified in the OU-2 area. Additionally, Con Edison has leased the 12 Water Street property (the remaining portion of OU-2) from the current owner for a period of three years, expiring in October 2009, to ensure that it has the access needed to implement a

NYSDEC-approved remedial action for the MGP impacts on the 12 Water Street portion of OU-1.

A Remedial Action Selection Report (RASR) for OU-2 has been submitted for NYSDEC and NYSDOH review (Parsons, 2007). The purpose of this RAWP is to provide a scope of work for implementing the preferred selected remedial action identified in the OU-2 RASR, including the remedial design, field work, health and safety, and quality assurance/quality control (QA/QC).

1.2 SITE DESCRIPTION

The properties which comprised the Former White Plains MGP Site include two improved parcels encompassing approximately two acres of commercially-zoned land located in the downtown core area of the City of White Plains, Westchester County, New York. The Site is bounded by Water Street on the north, New Street on the south, and North Lexington Avenue on the west. It is bounded on the east by a parking lot located over the former roadbed of a de-mapped public thoroughfare that was known as Spring Street. Presently, the closest public street located east of the Site is Dr. Martin Luther King, Jr. Boulevard.

The northwestern portion of the Site, known as 12 Water Street, consists of a four-story commercial office building and a paved off-street parking area. The remaining portion of the Site, known as 9 New Street, is occupied by an electric distribution substation owned and operated by Con Edison to provide electric service to approximately 23,000 commercial and residential consumers within the White Plains area. The substation encompasses approximately 1.2 acres of land and includes a two-story brick switchgear/control room building, and a substantial amount of aboveground outdoor electric equipment (e.g., transformers, circuit breakers, switching gear, buss work, etc.), and extensive underground electric cables and feeders related to Con Edison's power distribution system. Surface materials consist of soil, pavement, bluestone, and concrete. The substation facility is surrounded by a chain link security fence.

The northern portion of the substation property is currently being decommissioned and all above-grade equipment and structures will be removed from this area by August 2007. Following the remedial action to address MGP-related impacts in this area, Con Edison has agreed to make a portion of this area available to the owner of 12 Water Street for use as additional parking for the tenants of the 12 Water Street office building.

St. John the Evangelist R.C. Church and Elementary School (St. John's property) is located at 146-148 Hamilton Avenue in White Plains, New York, directly south of the Former MGP Site. It is comprised of a rectangular parcel of improved land encompassing a total area of approximately 1.75 acres. Site features include a paved parking lot, an open court yard and grassy areas, and four buildings consisting of St. John's Church, a rectory house, a three-story building housing St. John's school, and the school's gymnasium building. The property is bounded by Hamilton Avenue, open space, and commercial buildings to the south, North Lexington Avenue, open space and an above-ground parking garage and commuter transportation center to the west, and office buildings and above-ground parking garage to the east. St John's property is bounded on the north by New Street and Con Edison's White Plains substation. A site layout map depicting the current structures at both the former MGP and the

St. John's properties along with the locations of the primary former MGP structures is presented on Figure 2.

With the exception of the St. John's Property, the area is predominately commercial, consisting of a car dealership, office buildings, and a bus depot.

1.3 SITE TOPOGRAPHY AND DRAINAGE

The U.S. Geologic Survey (USGS) topographic map for the White Plains, New York Quadrangle shows that relief at the Site is generally flat with a gradual slope to the west towards the Bronx River. The substation is constructed on two levels with two vertical retaining walls between the northern and southern portions of the facility. The southern portion of the substation ranges in elevation from approximately 200 to 205 feet above mean sea level (AMSL) and the northern portion of the substation and the 12 Water Street property is at an elevation of approximately 190 feet AMSL.

Given the urban nature of the area in which the Site is located, precipitation runoff from the Site is captured by local storm drains. Several storm drain catch basins are present within and adjacent to the Site area.

The nearest surface water body is the Bronx River, which is located approximately 900 feet west of the Site. The Bronx River in Westchester County is designated as "Class C" surface water. Class C surface water is defined in NYSDEC regulations as follows: "Class C, fresh surface waters, best usage is fishing. Waters shall be suitable for fish propagation and survival. The water quality shall be suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes."

1.4 SITE GEOLOGY AND HYDROGEOLOGY

The stratigraphy of the Site can be divided into four geologic units: fill, fine to medium sand, glacial till, and bedrock. The fill ranges in thickness from 3.5 to 9 feet and consists of fine to coarse sand, with varying amounts of gravel, silt, brick, cobbles, cinders, metal and concrete debris, and concrete foundations and slabs. The fill is underlain by up to 77 feet of sand. The upper portion of the sand unit consists predominantly of fine to medium sand with a few discontinuous lenses of fine to coarse sand, fine gravel, and thin discontinuous lenses of clayey silt. The lower portion of the sand unit consists of poorly graded sands. The sand unit ranges in thickness from 2 feet in MW-5 (below 6 feet of fill) at the northeastern side of the Site to over 77 feet in the southeastern end of the property. Investigation activities indicate that the sand unit is underlain by up to 15 feet of glacial till within the substation portion of OU-1. The glacial till observed at OU-1 consists of poorly graded sand and gravel with boulders. Glacial till was not apparent in borings advanced into bedrock at OU-2. Bedrock consisting of Manhattan Schist was observed throughout OU-1 and OU-2 at highly variable depths, ranging from 8 feet bgs in the northeastern corner of the substation property to 84 feet bgs in the southeastern corner of the substation property.

The groundwater table at the Site occurs in the sand and silt deposits overlying the glacial till. Depths to groundwater in the northern and topographically lower portion of the Site range

from approximately 7 to 12 feet below ground surface (bgs). Depths to groundwater in the southern and topographically higher portion of the Site range from 22 to 29 feet bgs. Local groundwater flow is generally toward the south and west. This appears to correspond with the increasing overburden thickness and increasing depth to bedrock towards the south and west. Measured groundwater elevations suggest that the Site is within the Hudson River drainage basin.

Groundwater at the Site is not used as a drinking water source. The entire City of White Plains is on a public water supply. According to the City of White Plains Water Department, 95 percent of the City's water is purchased from the New York City Water Board and is drawn from the Kensico Reservoir. Less than 5 percent of the City's water supply comes from three public water supply wells all located approximately 1.5 miles upgradient of the Site.

1.5 SUMMARY OF PREVIOUS INVESTIGATIONS AT OU-2

The results of the investigations conducted within the former substation area and 12 Water Street properties at OU-2 indicate that subsurface soils in the vicinity of the former MGP structures have been impacted by MGP residuals. MGP source materials, consisting of NAPL and oily or tar-like material, were encountered at various depths in borings conducted within and in the vicinity of the former gasholders, within the former purifying house area, in the vicinity of the former above ground oil and tar tanks, and near the former tar well and tar separator (Figure 3). NAPL at depths of less than 20 feet was generally present within and/or in close proximity to these former structures. MGP source materials at depths of greater than 20 feet occurred in vertically isolated intervals primarily in the vicinity of the former MGP structures. Volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), and metals were detected in the soil samples at concentrations exceeding the NYSDEC Recommended Soil Cleanup Objectives (RSCOs) provided in Technical and Administrative Guidance Memorandum (TAGM) #HWR-94-4046 [NYSDEC, 1994]. The highest concentrations were detected in the vicinity of the former MGP structures.

Investigation results indicate soils in the western portions of the 12 Water Street property and along the eastern sidewalk of North Lexington Avenue have not been impacted by MGP residuals. In addition, MGP-related impacts were not identified at locations west of the northern substation area in the paved parking area referred to as the Hamilton Ave parking lot. Due to the presence of active electrical equipment in the north substation yard, only limited data could be obtained in this area during previous investigations.

Investigation results indicate groundwater in the vicinity of the former MGP structures has also been impacted by MGP residuals. NAPL present as either a sheen, a thin layer of light non-aqueous phase liquid (LNAPL) (0.01 feet to 0.18 feet in thickness), or floating globules of a brownish oily material were encountered in three wells at OU-2. Select VOCs and semi-volatile organic compounds (SVOCs) were also detected in groundwater samples above the NYSDEC groundwater quality standards (GWQS) and guidance values presented in NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 [NYSDEC, 1998]. The highest concentrations were detected in wells located in the vicinity of the former MGP structures.

An evaluation of the potential subsurface vapor intrusion at the 12 Water Street office building was conducted in December 2005 by RETEC. The overall goal of the evaluation was to ascertain whether air quality within the building was being adversely affected by the potential presence of residual MGP-related impacts. The study entailed the collection and analysis of a total of seventeen air and soil gas samples: two ambient air samples from outside the building; nine indoor air samples, five soil gas samples from beneath the concrete floor slab, and one subsurface soil gas sample from outside the building. The results of the evaluation were documented in the Report of Evaluation of Indoor Air and Soil Gas Sampling (RETEC, 2006). Based on the analytical results from the study, the indoor air quality at the 12 Water Street office building does not appear to have been adversely impacted by intrusion of MGP-related vapors.

1.6 SUMMARY OF PRE-DESIGN INVESTIGATION AT OU-2

On June 20, 2006, Con Edison presented a proposed conceptual remedial approach for OU-2 to the NYSDEC. This approach involved a combination of potential shallow MGP source material removal, containment, and *in situ* treatment. However, additional information was necessary to evaluate further this and other potential remedial measures and technologies for the OU-2 Area prior to the final selection and design of the remedial action.

Based on previous investigation results for OU-2 and the conceptual remedial approach for this area, the following objectives for a Pre-Design Investigation (PDI) were established:

- Verify the presence of below-grade remnants of former MGP structures in OU-2 including the larger storage gasholder, the smaller relief gasholder, the tar tanks, and the purifier house;
- Verify the presence and extent of potential shallow areas of MGP source materials (e.g., in the areas of the former tar tanks, within the former gasholder structures, and in the vicinity of soil boring SB-31 located within the footprint of the large former gasholder);
- Further characterize subsurface conditions including the depth to bedrock and potential obstructions along the perimeter of the northern portion of the Site to evaluate the potential installation of a permanent containment wall.

Additionally, the NYSDEC subsequently requested that additional information be obtained regarding the presence of MGP-related impacts beneath Water Street and the southern sidewalk, and the utilities located in this area.

The PDI activities were conducted between October 2006 and March 2007 in accordance with the NYSDEC-approved Pre-Design Investigation Work Plan [Parsons, 2006]. The scope of the PDI activities included the excavation of test pits and the installation of soil borings. In addition, subsurface soil samples were collected for characterization and laboratory analysis. A description of the PDI activities and discussion of the PDI results are presented in the RASR (Parsons, 2007).

The information obtained for OU-2 during the previous investigations and the PDI are summarized below.

- Investigation activities confirmed the presence of former MGP structures at OU-2 including the walls and bottom of the larger former storage gasholder and the walls only (no bottom) of the smaller relief gasholder.
- One shallow area of MGP source materials (NAPL-saturated soils) is present within the larger former storage gasholder. All other MGP source materials identified at OU-2 were encountered at depths at or below the approximate water table. NAPL is not accumulating in existing monitoring wells at OU-2.
- Total BTEX and PAH concentrations in soil exceeding 10 mg/kg and 500 mg/kg, respectively, were detected throughout OU-2. With the exception of the small area of MGP source materials identified within the larger former gasholder, all total BTEX concentrations exceeding 10 mg/kg were encountered at or below the approximate groundwater table. Total PAH concentrations in soil exceeding 500 mg/kg were encountered at or below the approximate groundwater table.
- In general, utilities present within the vicinity of OU-2 are located at depths less than 5 feet bgs. One 24-inch diameter sanitary sewer line beneath the sidewalk adjacent to OU-2 is present at depths up to 15 feet bgs, in areas where MGP source materials were encountered at depths greater than 7.5 feet bgs.
- MGP source materials were not encountered at any of the sampling locations located within the parking lot of the 150 Hamilton Avenue commercial office building property located directly east of OU-2. Additionally, total BTEX and total PAH concentrations detected in soil samples collected from this property were less than 10 mg/kg and 500 mg/kg, respectively.
- The indoor air quality at the 12 Water Street office building does not appear to have been adversely impacted by intrusion of MGP-related vapors.

To further delineate potential MGP-related impacts to the north of OU-2, four additional soil borings (PASB-1 through PASB-4) were completed on July 20, 2007 in Water Street as shown on Figure 3. No visual evidence of impacts (NAPL, staining, or sheens) or elevated PID readings were encountered during installation of the Water Street borings. Soil samples were collected from each of the soil borings for laboratory analysis for VOCs and SVOCs. The sample results will be forwarded to the NYSDEC upon receipt and validation of the analytical data.

At the NYSDEC's request, a video inspection of the 24-inch sanitary sewer located in the sidewalk, along the northern boundary of OU-2 was conducted on July 26, 2007. The purpose of the inspection was to determine whether the sewer may be a pathway for migration of MGP-related impacts in the vicinity of the sidewalk and sewer. The video inspection revealed that the sewer line appeared to be in good condition with no cracks, leaking joints, or NAPL seepage observed over the entire length of the sewer section between North Lexington Avenue and MLK Boulevard (approximately 386 feet in length).

Further investigation is planned to address the NYSDEC's August 8, 2007 letter to Con Edison. A bedrock boring(s) will be installed to further assess the potential for NAPL to have entered bedrock in the vicinity of soil boring SB-212. Additionally, one monitoring well will be installed adjacent to the southwest quadrant of the substation to further investigate groundwater conditions in this area. As stated in the NYSDEC's letter, the additional investigation of the

bedrock and groundwater in these areas does not need to be completed prior to remediation of the overburden at OU-2.

1.7 CONTEMPLATED USE AND EXPOSURE

The Site is located in an urban area. OU-2 is currently comprised by a four-story office building, a paved parking lot and a secured and inactive portion of Con Edison's White Plains Substation. With the exception of shrub and flower beds on the 12 Water Street property, OU-2 is either paved, or covered with concrete or gravel.

The substation property which is part of OU-2 is currently being decommissioned and all above-grade equipment and structures will be removed from this area by August 2007. Following the remedial action to address MGP-related impacts at OU-2, Con Edison has agreed to make a portion of the northern section of the substation property available to the owner of 12 Water Street for use as additional parking for the tenants of the 12 Water Street office building. Therefore, the future intended use of OU-2 will include only office building, paved parking lot, and electric substation use. The property will be covered by buildings and pavement. Limited areas of grass and landscaping which are currently present on the 12 Water Street property may remain or be replaced following the remedial action. There are no known plans for any future development of the 12 Water Street property or the future expanded parking lot (currently the northern substation portion of OU-2).

Presently, there are no complete pathways for human exposure to MGP-related impacts in the subsurface at OU-2. However, exposure to impacted soils and groundwater could potentially occur during intrusive activities involving the disturbance or excavation of subsurface soil at OU-2(e.g., repair/replacement of below-grade utilities). MGP-related impacts were encountered in the vicinity of active utilities located along the southern sidewalk of Water Street.

1.8 REMEDIAL OBJECTIVES

The objectives of the remediation at OU-2, which were developed as part of the RASR, include:

- Prevent the ingestion/direct contact with impacted soil and groundwater;
- Prevent the inhalation of volatiles from impacted soil or groundwater; and
- To the extent feasible and consistent with safety and other concerns identified above, undertake the treatment and/or removal of MGP source materials.

1.9 SUMMARY OF REMEDY

Based on the comparative analysis of remedial alternatives presented in the RASR (Parsons, 2007), *In Situ* Stabilization/Solidification (ISS) is the proposed remedy for addressing MGP source materials at OU-2. The major components of this alternative include:

- *In situ* solidification/stabilization of MGP source materials;
- Installation of a low-permeability cap or clean soil cover;
- Institutional controls; and

- Groundwater monitoring.

As documented in the RASR, this remedy will facilitate the future use of the OU-2 properties as an office building, an expanded parking area, and continued substation use. Implementation of ISS and installation of a cap, in combination with institutional controls and groundwater monitoring will provide the best overall long-term protection to human health and the environment, while posing only moderate short-term impacts which can be easily addressed during implementation.

1.10 RAWP ORGANIZATION

The purpose of this RAWP is to provide a scope of work for implementing the selected remedial action including the remedial design, field work, health and safety, and quality assurance/quality control (QA/QC). To achieve this goal, this RAWP has been organized as follows:

- Section 1 – Introduction
- Section 2 – Remedy Implementation
- Section 3 – Health and Safety
- Section 4 – QA/QC
- Section 5 – Institutional Controls
- Section 6 – Reporting
- Section 7 – Schedule
- Section 8 – Project Management and Organization
- Section 9 - References

SECTION 2

REMEDY IMPLEMENTATION

2.1 INTRODUCTION

The remedial action for OU-2 includes the following major components:

- *In situ* solidification/stabilization (ISS) of MGP source materials;
- Installation of a low-permeability cap or clean soil cover;
- Institutional controls; and
- Groundwater monitoring.

2.2 TREATABILITY TESTING

A treatability test to evaluate the implementation of ISS at OU-2 is currently being conducted by Kemron Environmental Services. Samples of NAPL-impacted material from known areas of MGP source materials were collected from OU-2 for the treatability study. The study includes the following tasks:

- *Characterization of untreated MGP source material.* Includes the testing of untreated samples for physical properties and chemical testing for total and leachable contaminants of concern (COCs) to obtain baseline values.

- *Solidification/stabilization evaluation.* This phase of work will evaluate 10 different reagent mix designs to determine the following:
    - Percent bulking and volumetric expansion of treated samples;
    - Bulk density of treated samples to assess moisture retention;
    - Vaporization of contaminants during mixing;
    - Unconfined compressive strength (UCS) of treated samples;
    - pH, moisture content, and hydraulic conductivity of treated samples; and
    - Chemical testing of treated samples (totals and leachability).
- *Evaluation of steam stripping*. This phase of work will assess the benefits of applying an initial steam stripping application to the ISS program and its effects on the final solidified material.

A treatability test report will be prepared to document the evaluations performed and will include: all data summary tables; raw data for physical and chemical testing; and a description of the testing protocols, results, and conclusions. The treatability test results will be incorporated in the remedial design.

2.3 SECURITY AND ACCESS

Prior to mobilization of remedial construction equipment and materials, access to unsecured areas of OU-2 will be restricted by installation of a 6-foot high chain-link fence, effectively isolating the entire construction area boundary. Locking double-swing gates will be installed to allow entry/exit to the construction area. The gates will remain unlocked during working hours and will be locked otherwise. The exact layout of the construction area and entrances/exits will be determined during the remedial design.

The fence and gates around the remedial construction area will be inspected on a regular basis and maintained throughout the construction activities by the Contractor. If damage is observed, repairs will be made prior to the end of the work day by the Contractor. Temporary security measures, including temporary lighting, may be installed as necessary during construction.

2.4 MOBILIZATION

Initial tasks associated with on-site mobilization will include the set up of temporary trailers, material and equipment lay down areas, batch plant area, temporary sanitary facilities, decontamination facilities, and support items. It is expected that the remediation contractor (or its subcontractors) will use the following types of equipment for the remedial construction activities:

- Crane;
- Excavator;
- Bulldozer;
- Front End Loader;
- Cement Storage Silo;
- Cement Bulk Storage Bin;
- Cement Mixing Batch Plant;
- Dump Truck;
- Mixing Augers
- Vibratory Roller (10-tons minimum),
- Storage Trailers;
- Field Office Trailers;
- Miscellaneous Hand Tools.

Material management areas (e.g., staging, processing, stockpiling) will be designated on-site.

2.5 SITE PREPARATION

2.5.1 Removal/Relocation of Utilities

The approximate locations of subsurface utilities known to be present at or adjacent to OU-2 are shown on Figure 4. A detailed utility survey will be performed during the remedial design to confirm utility lines (active and inactive) present within the proposed ISS area. Appropriate measures to address these utilities (e.g., removal, relocation, or temporary re-routing) will be implemented by the Contractor prior to all intrusive activities including pre-excavation and ISS. Additionally, minimum distances from remaining utilities and structures for ISS operations will be established during the remedial design.

2.5.2 Pre-Excavation

Prior to the implementation of ISS, known subsurface structures within the treatment area will be removed. For example, portions of the former gasholders at OU-2 and concrete structures associated with former electrical equipment on the substation property (see Figure 5) will be excavated and transported off-site for disposal. These excavations will be immediately backfilled/re-graded with surrounding soils. Due to the bulking factor associated with ISS (i.e., the volume expansion that occurs during treatment), additional surface soils would require removal to maintain the current grade elevation of the treated area. The bulking factor is typically 30-40%, but will be determined for OU-2 during the treatability study. This material removal would likely be done prior to mixing or in phases or sections during the mixing and must stop at least one foot above the groundwater table to provide adequate stable ground to support the mixing equipment. Given the relatively shallow bedrock surface in areas of OU-2 (e.g., the northeastern corner of the substation property), it may be determined during the remedial design that MGP source materials in these areas will be addressed through excavation rather than ISS.

Asphalt paving, concrete slabs, fencing, and a concrete wall separating the 12 Water Street property and the north substation yard will also be removed and disposed offsite to gain access to the underlying structures and soil.

2.6 IN SITU STABILIZATION/SOLIDIFICATION

2.6.1 Soil Mixing

Implementation of ISS at OU-2 involves mixing of NAPL-impacted soils to the depth of bedrock (an estimated 21,000 CY of soil). The general proposed ISS area is shown on Figure 6. The ISS area encompasses MGP source materials identified at OU-2 to the extent practicable. As shown on Figure 6, there are extensive major utility service lines (including gas, electric, sanitary sewer, and water mains) located beneath the 12 Water Street sidewalk, along the eastern boundary of the northern substation property, and along the southeastern boundary of OU-2. The relocation of these lines would be a very significant effort, if possible, given the limited available area for relocation and the number of lines. Therefore, the ISS area does not include areas of major utility lines known to be present at OU-2. The exact configuration of the ISS area boundaries will be determined during remedial design based on the detailed utility survey to be conducted and minimum distance requirements determined to protect adjacent utilities and structures.

ISS will be accomplished by constructing a series of overlapping stabilized soil columns (typically 4 to 12 feet in diameter). The stabilized soil columns will be formed by a crane-mounted drill attachment that turns a single shaft large diameter auger head consisting of two or more cutting edges and mixing blades. As the auger head is advanced into the soil, the binding reagent (grout) is pumped through a Kelly bar (hollow drill shaft) and injected into the soil using predetermined quantities in accordance with the mix design requirements. The cutting edges and mixing blades blend the soil and grout with a shearing motion. When the underlying bedrock is reached, the auger head will be raised to expose the mixing blades at the surface and then allowed to re-advance to bedrock. The degree of mixing will be determined in the field during initial drilling operations and upon observing the quality of the mixture created. Once the shaft is completed, another column is drilled using a specified pattern of overlapping columns, which becomes a series of interlinked columns that create a monolith of solidified soil.

The mixing auger's speed (revolutions per minute [RPM]) will be adjusted to accommodate a constant rate of mixing and auger penetration based on the degree of drilling difficulty to assist penetration in hard drilling conditions. To ensure adequate mixing, the penetration rate of the mixing auger will be maintained in the range of 1 to 4 vertical feet per minute during both penetration and withdrawal. The grout take per vertical foot per column will be adjusted accordingly to accommodate drilling as well as design injection requirements. Typically, the grout application rate can be successfully controlled once the pattern of operation is established. Generally, the grout injection rate is approximately 70 to 80% of the total required drilling fluid volume while the auger is moving downward and 20 to 30% while moving upward. Some variations in the grout take will occur due to field conditions. Additional mixing will be performed when necessary to distribute the grout evenly throughout the entire column. More accurate production rates will be estimated during the remedial design. However, general production rates for ISS range from 500 to 700 CY of soil per day per drilling rig.

The proposed center point of each proposed soil column will be marked prior to proceeding with the soil mixing. Upon establishing the center point of a given column, the auger/mixer will be positioned over the established point for drilling. Based on the column overlap and auger diameter, a net effective surface area per column will be established.

Previous investigations indicate that the bedrock surface at OU-2 may slope steeply in some areas, potentially making it difficult to solidify to bedrock. The bedrock surface with respect to the location of MGP source materials and anticipated mixing auger diameter will be further evaluated during the remedial design to determine whether additional measures (e.g., jet grouting) are warranted to supplement the auger mixing in certain areas.

2.6.2 Cement Grout Batching

Cement grout will be produced on-site in a batch plant which consists of mixers having the capacity to produce up to 1,000 gallons of hydrated grout per minute. Water (obtained either from an on-site source or storage tanks) will be pumped to the batch plant that will supply grout to the mixing auger. The amount of water to be pumped to the batch plant will be measured and controlled using a water meter. Upon water addition, cement will be added from a storage silo mounted adjacent to the batch plant. The silo will be equipped with a dry reagent auger feeder to measure and meter the amount of cement added to the water. Cement addition control will be

accomplished by adjusting the number of revolutions per minute of the auger feeder to provide the required cement amount per the mix design.

The unit weight of each cement grout batch will be checked using a mud balance to further ensure compliance with the mix design. This will be followed by the transfer of the prepared grout to the soil mixing equipment. Grout will be pumped to the mixing auger as needed using positive displacement pumps. The amount of grout required for each soil column will be measured and controlled using flow meters.

2.6.3 Management of Spoils

As in-situ mixing work progresses, grout/soil cuttings will be brought to the surface during mixing. These spoils will be either re-graded within OU-2 prior to curing or managed on site prior to off-site transportation and disposal.

2.6.4 Post-Mix Sampling

Performance goals for ISS will be determined during the remedial design based on the results of the treatability test. Samples of the freshly mixed soil will be collected, remolded into cylinders (e.g., 3-inch diameter by 6-inches tall), and allowed to cure in air-tight containers. Once fully cured, the samples will be tested in accordance with procedures specified in the CQAPP (see Section 5). The most common post-mixing testing performed includes toxicity characteristic leaching procedure (TCLP), permeability, and unconfined compressive strength (UCS).

2.7 CAP

Following implementation of ISS, a cap will be installed over the treated area. The cap design will be consistent with the future use plans for OU-2 and will consist of asphalt in parking areas, conventional concrete slabs under building structures, concrete in sidewalk areas, and clean fill/topsoil in unpaved/landscaped areas. Further details regarding the cap will be included in the remedial design.

2.8 EROSION AND SEDIMENT CONTROL PLAN

During the remediation, the contractors will implement best management practices for soil erosion and sediment control. These measures will generally consist of the following methods, which will be further detailed in the remedial design:

- Hay bales and silt fencing placed around drainage structures and storm drain inlets. Hay bales will be installed around the perimeter of all storm drains and replaced as necessary. The silt fence will be cleaned out periodically, before any bulges develop in the fence.
- Drainage swales or berms would be constructed upgradient of any soil staging areas to control stormwater run-on.
- Stockpiled soils, debris, and asphalt (clean or contaminated) will be completely covered using 10 mil polyethylene sheets and secured with sandbags or equivalent.

Stockpiles will not be placed in low-lying areas and storm water will be diverted away from soil stockpiles using hay bales or similar methods.

2.9 CONSTRUCTION WATER MANAGEMENT

No handling/management of groundwater is anticipated to be necessary during the remedial action. Pre-excavation activities are anticipated to extend no greater than one foot above the water table in order to maintain adequate stable ground to support the mixing equipment. Removal of certain subsurface remnants may require limited excavations below the groundwater table. However, these excavations will be immediately backfilled/re-graded with surrounding soils.

It may be necessary to manage surface water resulting from precipitation during the remedial action. Surface water in contact with disturbed areas (either during the pre-excavation or soil mixing process) may be collected, contained, and recycled for use in the reagent/grout mix on site.

2.10 EQUIPMENT DECONTAMINATION PROCEDURES

Heavy equipment used for intrusive activities (e.g., excavation and soil mixing) will be decontaminated prior to leaving the Site. Primary decontamination methods will include pressure washing/steam cleaning of vehicle tires, mixing augers, and excavator buckets. Decontamination water will be collected, contained, characterized, and properly disposed of in accordance with applicable rules and regulations. Personnel decontamination procedures will be outlined in the Construction Health and Safety Plan.

2.11 WASTE CLASSIFICATION, SAMPLING, AND DISPOSAL

Based on observations recorded during the previous investigation activities at OU-2, soils to be removed as part of the pre-excavation activities are anticipated to be non-hazardous and, in general, not visibly impacted with NAPL. Additionally, six soil samples were collected during the pre-design investigation activities and submitted for laboratory analysis for waste characterization purposes. The samples were composite samples of soil from depths of 0 to 5 feet bgs at six locations spatially distributed throughout OU-2. Table 2.1 summarizes the soil waste characterization results which indicate the soil is non-hazardous. These sample results (including their specific locations) will be incorporated into the remedial design and provided to the Contractor for coordination of the transportation and disposal of these materials. Additional waste characterization may be necessary depending on the actual volumes and depths of material excavated for implementation of ISS.

Excavated soils not visibly impacted with NAPL will be direct loaded onto trucks for off-site disposal at a permitted facility. Excavated soils visibly impacted with NAPL will be segregated during excavation and either loaded directly onto trucks for off-site thermal treatment and disposal, or temporarily staged on-site for sampling and characterization prior to off-site transportation and disposal.

C&D materials excavated from the Site will be directly loaded onto trucks for off-site disposal at a permitted facility. During the pre-excavation process, it is possible that remnant sub-grade structures requiring removal (i.e., brick walls and concrete associated with former gasholders and the substation) and piping may be impacted by NAPL. These structures will be exposed and inspected for the potential presence of NAPL. Any piping found to contain flowing

coal tar or NAPL will be traced to connection points or the property boundary, drained of the coal tar/NAPL, and removed. Coal tar/NAPL waste will be containerized on site into a storage tank or NYSDOT approved 55-gallon drums, characterized, and labeled prior to off-site disposal at a licensed facility.

2.12 SITE RESTORATION AND DEMOBILIZATION

Field equipment and materials will be properly decontaminated and removed from the Site following the completion of remediation activities. The 12 Water Street property will be restored to pre-remedial action conditions including the replacement of concrete curbing, walkways, and grass/landscaped areas.

TABLE 2.1
SUMMARY OF SOIL WASTE CHARACTERIZATION DATA
WHITE PLAINS FORMER MGP SITE OU-2

Consolidated Edison White Plains Site Waste Characterization Analytical Data Composite Soil Samples (0-5' bgs)		Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Sample Depth:	WC-6 Y2533-01 Chemtech Y2533 SOIL 4/30/2007 0-5'	WC-7 Y2533-03 Chemtech Y2533 SOIL 4/30/2007 0-5'	WC-8 Y2533-05 Chemtech Y2533 SOIL 4/30/2007 0-5'	WC-9 Y2590-01 Chemtech Y2590 SOIL 5/3/2007 0-5'	WC-10 Y2590-03 Chemtech Y2590 SOIL 5/3/2007 0-5'	WC-11 Y2590-05 Chemtech Y2590 SOIL 5/3/2007 0-5'
CAS NO.	COMPOUND	UNITS:						
	PESTICIDES							
319-84-6	alpha-BHC	ug/Kg	0.68 U	0.67 U	0.72 U	0.69 U	0.72 U	0.71 U
319-85-7	beta-BHC	ug/Kg	0.93 U	0.91 U	0.99 U	0.94 U	0.98 U	0.97 U
319-86-8	delta-BHC	ug/Kg	1.7 U	1.7 U	1.8 U	1.7 U	1.8 U	1.8 U
309-00-2	Aldrin	ug/Kg	1.3 U	1.3 U	1.4 U	1.3 U	1.4 U	1.4 U
959-98-8	Endosulfan I	ug/Kg	0.93 U	0.92 U	0.99 U	0.94 U	0.99 U	0.97 U
60-57-1	Dieldrin	ug/Kg	0.88 U	0.86 U	0.93 U	0.88 U	0.93 U	0.91 U
72-55-9	4,4-DDE	ug/Kg	0.84 U	0.82 U	0.89 U	0.84 U	0.88 U	0.87 U
33213-65-9	Endosulfan II	ug/Kg	1 U	0.99 U	1.1 U	1 U	1.1 U	1 U
72-54-8	4,4-DDD	ug/Kg	0.74 U	0.73 U	0.79 U	0.75 U	0.79 U	0.77 U
1031-07-8	Endosulfan Sulfate	ug/Kg	1.1 U	1.1 U	1.2 U	1.2 U	1.2 U	1.2 U
50-29-3	4,4-DDT	ug/Kg	0.76 U	0.75 U	0.81 U	0.77 U	0.81 U	0.8 U
53494-70-5	Endrin ketone	ug/Kg	0.87 U	0.86 U	0.93 U	0.88 U	0.92 U	0.91 U
7421-93-4	Endrin aldehyde	ug/Kg	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1.1 U
5103-71-9	alpha-Chlordane	ug/Kg	0.89 U	0.87 U	0.94 U	0.9 U	0.94 U	0.92 U
5103-74-2	gamma-Chlordane	ug/Kg	0.93 U	0.91 U	0.98 U	0.93 U	0.98 U	0.96 U
	PCBs							
12674-11-2	Aroclor-1016	ug/Kg	2.6 U	2.7 U	2.9 U	2.7 U	2.9 U	2.8 U
11104-28-2	Aroclor-1221	ug/Kg	4.1 U	4.1 U	4.5 U	4.2 U	4.4 U	4.4 U
11141-16-5	Aroclor-1232	ug/Kg	6.1 U	6.2 U	6.7 U	6.3 U	6.6 U	6.6 U
53469-21-9	Aroclor-1242	ug/Kg	5.5 U	5.5 U	6 U	5.6 U	5.9 U	5.9 U
12672-29-6	Aroclor-1248	ug/Kg	2.7 U	2.7 U	2.9 U	2.7 U	2.9 U	2.9 U
11097-69-1	Aroclor-1254	ug/Kg	1.7 U	1.7 U	1.9 U	1.8 U	1.9 U	1.9 U
11096-82-5	Aroclor-1260	ug/Kg	4.4 U	4.4 U	4.8 U	4.5 U	4.7 U	25
	HERBICIDES							
1918-00-9	DICAMBA	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
120-36-5	DICHLORPROP	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
93-76-5	2,4,5-T	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
94-82-6	2,4-DB	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
88-85-7	DINOSEB	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
	TCLP VOLATILES							
75-01-4	Vinyl chloride	ug/L	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
75-35-4	1,1-Dichloroethene	ug/L	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U
78-93-3	2-Butanone	ug/L	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U
56-23-5	Carbon Tetrachloride	ug/L	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U
67-66-3	Chloroform	ug/L	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
71-43-2	Benzene	ug/L	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U
107-06-2	1,2-Dichloroethane	ug/L	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
79-01-6	Trichloroethene	ug/L	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
127-18-4	Tetrachloroethene	ug/L	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U	2.4 U
108-90-7	Chlorobenzene	ug/L	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
	TCLP SEMIVOLATILES							
110-86-1	Pyridine	ug/L	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U	0.98 U
106-46-7	1,4-Dichlorobenzene	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
95-48-7	2-Methylphenol	ug/L	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
87-86-5	3+4-Methylphenols	ug/L	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
67-72-1	Hexachloroethane	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
98-95-3	Nitrobenzene	ug/L	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
87-68-3	Hexachlorobutadiene	ug/L	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
95-95-4	2,4,5-Trichlorophenol	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
88-06-2	2,4,6-Trichlorophenol	ug/L	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
121-14-2	2,4-Dinitrotoluene	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
118-74-1	Hexachlorobenzene	ug/L	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
87-86-5	Pentachlorophenol	ug/L	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
	TCLP PESTICIDES/HERBICIDES							
58-89-9	gamma-BHC	ug/Kg	0.76 U	0.75 U	0.81 U	0.77 U	0.81 U	0.79 U
76-44-8	Heptachlor	ug/Kg	0.99 U	0.97 U	1 U	1 U	1 U	1 U
1024-57-3	Heptachlor epoxide	ug/Kg	1.1 U	1.1 U	1.2 U	1.1 U	1.2 U	1.2 U
72-20-8	Endrin	ug/Kg	0.9 U	0.89 U	0.96 U	0.91 U	0.96 U	0.94 U
72-43-5	Methoxychlor	ug/Kg	0.91 U	0.9 U	0.97 U	0.92 U	0.97 U	0.95 U
8001-35-2	Toxaphene	ug/Kg	3.8 U	3.7 U	4 U	3.8 U	4 U	4 U
94-75-7	2,4-D	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
93-72-1	2,4,5-TP (SILVEX)	ug/Kg	73.9 U	73.2 U	80 U	37.2 U	39.1 U	38.9 U
	TCLP METALS							
7440-38-2	Arsenic	ug/L	31 U	38.8 J	61 J	38.7 J	47.5 J	31 U
7440-39-3	Barium	ug/L	594	754	656	717	691	749
7440-43-9	Cadmium	ug/L	30.6	24.5 J	25.8 J	27.6 J	20 J	33
7440-47-3	Chromium	ug/L	10.5 J	9.8 J	81	6 U	6 U	6 U
7439-92-1	Lead	ug/L	122	80.6	215	426	879	41.2 J
7439-97-6	Mercury	ug/L	1.1 UN*	1.1 UN*	1.1 UN*	1.4 J	1.1 U	1.1 U
7782-49-2	Selenium	ug/L	21 U	21 U	21 U	46.9 J	26.9 J	65 J
7440-22-4	Silver	ug/L	44.7 J	42.2 J	41.5 J	6 U	6 U	6 U
	WASTE CHARACTERISTICS							
Corrosivity	Corrosivity (as pH)	pH	8.2	8.7	8	8.9	7.7	8
TPH	TPH	mg/Kg	112	122	387	360	1300	1600
REACT_Cn	Reactive Cyanide	mg/Kg	10 U	10 U	10 U	10 U	10 U	10 U
REACT_Sulf	Reactive Sulfide	mg/Kg	40 U	40 U	40 U	40 U	40 U	40 U
Flashpoint	Flashpoint	o C	>100	>100	>100	>100	>100	>100

SECTION 3

INSTITUTIONAL CONTROLS AND MONITORING

3.1 INTRODUCTION

The following institutional controls are proposed to limit the potential exposure to the public from residual contaminants. An agreement by Con Edison to establish and maintain the controls will be developed and contained in Declarations of Covenants and Restrictions ("Declaration") covering the properties comprising OU-2. A Declaration covering the White Plains Substation section of OU-2 executed by Con Edison and a Declaration covering the 12 Water Street section of OU-2 executed by the owner of that property will be approved by the NYSDEC. The executed Declarations will be filed with the Westchester County Clerk for recording. Certification that the controls are being maintained will be conducted on an annual basis as part of the Site Management Plan (SMP) and/or the Operation, Monitoring, and Maintenance (O&MM) Plan.

3.2 RESTRICTIVE USE - TENANTS

The Declarations will limit the OU-2 properties to only commercial or industrial uses, and will prohibit use of the properties for residential, day care, child education, or medical care purposes without the express written approval and consent of the NYSDEC. This is consistent with the City of White Plains zoning code, which also limits uses in this area to commercial and light industry.

3.3 RESTRICTIVE USE – GROUNDWATER

The Declarations will prohibit the use of untreated groundwater at OU-2 for potable and non-potable purposes to eliminate the groundwater ingestion/inhalation pathway. This prohibition is aligned with the Westchester County code (Article VII. Section 873.707.3.) which prohibits installation of potable water wells in areas where municipal water supply is available.

3.4 RESTRICTIVE USE - FUTURE CONSTRUCTION, MAINTENANCE, OR REMEDIATION ACTIVITIES

A SMP will be prepared and include provisions to control any future development, remediation, or maintenance activities requiring subsurface excavation of soil or extraction of groundwater. The plan will ensure compliance with NYSDEC/NYSDOH-approved Site-specific health and safety, community air monitoring, and OM&M Plans. For new redevelopment of the OU-2 properties, the property owner at the time that any such proposed plans are developed will be required under the terms of the applicable Declaration to notify the NYSDEC prior to proceeding with the plans. Also, the NYSDEC will notify the City of White Plains and Westchester County of the Declaration and file a copy of the Declarations with the City of White Plains and Westchester County.

The Declarations will require that the current owners of properties comprising OU-2 (and any and all future owners) comply with the approved SMP, limit the use and development of the property to commercial or industrial uses only unless the NYSDEC is notified and consents to the use of the OU-2 properties for other purposes, restrict the use of untreated groundwater as a source of potable or process water unless the NYSDEC is notified and consents to such use of the groundwater, and require the current owners of property comprising OU-2 (and any and all future owners of the Site) to complete and submit an annual certification to the Department that these controls are being complied with and remain effective to protect human health and the environment or allow Con Edison to inspect the properties comprising the Site for the purpose of completing and filing such certifications with the NYSDEC.

The Declarations will be applicable to the entire area of OU-2 and will each include a map showing the area of controls, a description of the controls, and will contain an express agreement by the current property owner making the Declaration binding on all future owners of the Site property covered by the Declaration and enforceable by the State of New York. The Declarations will be approved by the NYSDEC and will be in a recordable form pursuant to Real Property Law Section 291. Compliance with the Department-approved SMP, and all Department-approved amendments to the SMP will be required under the terms of the Declarations for all activities entailing the disturbance of the containment cap installed as part of the OU-2 remedy and all activities involving excavation beneath the cap. The Declarations will require that the Department be notified prior to the initiation of all such activities, other than routine operation and maintenance activities (e.g. tree planting, installation of light poles, etc.), which will be performed in compliance with the requirements of the NYSDEC-approved SMP. If soils with residual contamination are excavated during such future redevelopment activities, characterization of the affected soil will be performed and, where applicable, disposal/reuse , will be done in accordance with applicable Federal, State, and local laws, regulations, and requirements and the Department-approved SMP. Finally, future redevelopment will be conducted such that all use restrictions (development and groundwater) specified in the Declarations are complied with.

The post-remediation SMP will specify that soil excavated for new foundations, utility trenches, and grading will be characterized for contamination, segregated, and either reused on-site or disposed off-site depending on the presence NAPL or coal tar. The SMP will also address the appropriate procedures for performing intrusive work. The post-remediation health and safety general guidelines will require that construction workers involved with disturbance of the subsurface to have appropriate Occupational Safety and Health Administration (OSHA) training and medical monitoring as required in 29 CFR 1910.120 (Hazardous Waste Operation and Emergency Response). These guidelines will also specify appropriate worker and community air monitoring required during Site development.

3.5 MONITORING, MAINTENANCE, AND ANNUAL INSPECTION

Details regarding the components of the OM&M Plan that will be contained with the SMP will be finalized during the remedial design. The OM&M Plan will include a detailed description of the long-term groundwater monitoring program. Additionally, the OM&M Plan will describe procedures for maintaining and inspecting the engineering controls installed at OU-2, including the cap and any monitoring wells used for long-term monitoring.

The site cap, monitoring wells, protective casings and covers, and surrounding surface areas will be inspected on an annual basis to determine if maintenance activities are required to

maintain the integrity of these features. The inspections will be performed to confirm that these items are present, functioning properly, and have not been damaged so as to compromise the effectiveness of each feature. Maintenance activities will be performed by Con Edison, as appropriate, based on the findings of the inspection.

Cracks, holes, depressions, or erosion observed in concrete, asphalt, or soil surfaces of the capped area will repaired as directed by the Engineer performing the inspection and will meet the requirements established in the SMP. The Engineer will inspect and approve these repairs once completed.

3.6 ANNUAL CERTIFICATION

An annual certification will be submitted to the NYSDEC and NYSDOH each year following completion of the remedial action activities. In the annual certification, the following information will be provided concerning the engineering and institutional controls implemented at the Site:

- Documentation that the inspection and maintenance activities described in the OM&M Plan have been completed;
- Certification that the Declaration has been properly filed with the appropriate agencies/offices and no subsequent notices have been filed to nullify the original notice;
- Certification that the land use is consistent with the use restrictions identified in the Declaration; and
- Notification of any excavation/disturbance activities within the restricted area and certification that any such excavations/disturbances do not or did not present an unacceptable risk to the health and safety of site workers or the surrounding community.

The annual certification will be prepared by a New York State-licensed professional engineer and certify that the engineering controls employed at the Site are unchanged from the previous certification or that any changes to the controls employed at the Site were approved by the NYSDEC, and that nothing has occurred that would impair the ability of such controls to protect the public health and the environment or constitute a violation or failure to comply with the OM&M Plan.

SECTION 4

HEALTH AND SAFETY

A Construction Health and Safety Plan (CHASP) will be prepared to provide guidance for field activities required to complete the remedial action. The CHASP will assign responsibilities; establish standard operating procedures, personnel protection standards and mandatory safety practices; and provide for contingencies that may arise during the remedial action.

The primary field activities to be performed during the remedial action include, but are not limited to: site preparation; establishment of erosion and sediment controls; soil excavation; loading of materials into trucks and hauling offsite; deep soil mixing with augers; removal of surface grout and soil cuttings; cap installation; and site restoration.

Field staff may also be exposed to other hazards that are encountered during field activities including slips, trips, falls, automobiles, traffic, heavy equipment, drill rigs, winches, and crane hazards. Depending upon the time of season, field staff may be exposed to biological hazards such as insect bites and stings. Meteorological hazards such as lightning, wind, rain, extreme hot or cold temperatures, and ultraviolet radiation may also be present. These issues will each be addressed in the CHASP.

Field staff may be exposed to hazards associated with NAPL, with BTEX and PAHs being the primary chemicals of concern. Field staff will be required to use personal protective equipment (PPE) suitable for the level of contaminants present. Monitoring (e.g., for VOCs and dust) will be conducted to verify contamination levels and ensure proper PPE upgrade is implemented if necessary. The CHASP will also include a site-specific Community Air Monitoring Plan (CAMP) in compliance with the NYSDOH Generic Community Air Monitoring Plan.

The CHASP will be included as an appendix to the Remedial Design Report.

SECTION 5

QUALITY ASSURANCE/QUALITY CONTROL

A Construction Quality Assurance Project Plan (CQAPP) will be completed and included in the Remedial Design Report. This CQAPP will be used to guide all field and laboratory sampling, analysis and measurement conducted as part of the execution of the remedial action. The anticipated table of contents for the CQAPP is provided in Table 5.1.

TABLE 5.1

CONSTRUCTION QUALITY ASSURANCE PROJECT PLAN
ANTICIPATED TABLE OF CONTENTS
WHITE PLAINS FORMER MGP SITE OU-2

TABLE 5.1 (CONTINUED)

CONSTRUCTION QUALITY ASSURANCE PROJECT PLAN
ANTICIPATED TABLE OF CONTENTS
WHITE PLAINS FORMER MGP SITE OU-2

SECTION 6

REPORTING

6.1 MONTHLY REPORTS

Monthly Progress Reports will be prepared in accordance with the VCA. The Monthly Progress Reports will include the following information:

- Remedial Design tasks completed in the past month;
- Remedial Action tasks completed in the past month;
- Testing and sampling results;
- Anticipated Remedial Design tasks for next month;
- Anticipated Remedial Action tasks for next month;
- Percent completion of the Remedial Design and Remedial Action tasks, schedule issues and delays, if any;
- Modifications to the design and/or plans as approved by Con Edison and the NYSDEC; and
- Citizen Participation Plan-related activities.

6.2 REMEDIAL DESIGN REPORT

The Remedial Design Report will include a detailed description of the project's scope of work and basis of design. Each remedial action component will be described. The Remedial Design Report will also include technical specifications, design drawings, design calculations, a CHASP, and relevant pre-design investigation data including treatability test and waste characterization results. The anticipated table of contents for the Remedial Design Report is provided in Table 6.1. The anticipated list of technical specifications and design drawings are provided in Tables 6.2 and 6.3, respectively.

6.3 FINAL ENGINEERING REPORT

Once the Remedial Action has been completed, a Final Engineering Report, will be submitted to the NYSDEC. The report will summarize the activities completed to execute the Department-approved remedy and RD for OU-2 and document any Department-approved modifications to the remedy and RD. The report will also include the following: a certification by a New York State licensed Professional Engineer that work was completed in accordance with the Department-approved RAWP and Remedial Design documents and will include record drawings; a chronological color photo log; waste manifests for material transported offsite for disposal; analytical and geotechnical results; QA/QC testing results; and other factual data related to the work.

TABLE 6.1__

REMEDIAL DESIGN REPORT
ANTICIPATED TABLE OF CONTENTS
WHITE PLAINS FORMER MGP SITE OU-2

TABLE 6.2

ANTICIPATED LIST OF TECHNICAL SPECIFICATIONS
WHITE PLAINS FORMER MGP SITE OU-2

DIVISION TITLE AND SECTION NO.	SECTION TITLE
DIVISION 1 - GENERAL REQUIREMENTS	
00800	Safety, Health, and Emergency Response
01100	Summary of the Work
01200	Measurement and Payment (With Request for Proposals only)
01320	Progress Schedule
01330	Submittals
01400	Quality Assurance and Quality Control
01500	Temporary Facilities and Field Office
01600	Material and Equipment
01630	Substitutions
01720	Grades, Lines, and Levels
01770	Project Closeout
01780	Project Record Drawings
DIVISION 2 - SITE WORK	
02110	Waste Disposal
02140	Construction Water Management
02160	In Situ Soil Stabilization/Solidification
02220	Demolition
02315	Excavation
02316	Backfilling
02317	Compaction
02340	Geotextiles
02370	Erosion and Sediment Control
02500	Utility Relocation
02630	Drainage Piping
02740	Asphalt Paving
02820	Chain Link Fence and Gates
02900	Finish Grading, Topsoil, and Seeding
DIVISION 3 - CONCRETE	
03300	Concrete

Note: The specification list may be revised during the design.

TABLE 6.3
ANTICIPATED LIST OF DESIGN DRAWINGS
WHITE PLAINS FORMER MGP SITE OU-2

Drawing No.	Drawing Title
G-1	Title Sheet, Drawing Index and Site Location
C-1	Existing Site Plan
C-2	Construction Layout Plan
C-3	BTEX Sampling Results Data Map
C-4	PAH Sampling Results Data Map
C-5	Existing Utility & Utility Relocation Plan
C-6	Demolition Plan
C-7	ISS/Excavation Plan
C-8	Restoration Plan
C-9	Sections
C-10	Sections
C-11	Details

Note: The drawing list may be revised during the design.

SECTION 7

PROJECT SCHEDULE

As discussed in Section 1.1, Con Edison has assumed the lease of the 12 Water Street property from the current property owner through October 2009. Therefore, Con Edison intends to complete the remedial action prior to the 12 Water Street lease expiration in October 2009. The anticipated project schedule is provided on Figure 7.

SECTION 8

PROJECT MANAGEMENT AND ORGANIZATION

8.1 PROJECT TEAM

Several organizations will be directly involved in the performance and review of this project. These organizations have specific project functions and relate to each other in various ways according to their project responsibilities.

The key project team members are described below and presented on the organizational chart (Figure 8). A project contact list is provided on Table 8.1 below.

8.1.1 New York State Department of Environmental Conservation

Con Edison has entered the VCA with the NYSDEC to investigate and remediate the Former White Plains MGP Site. The NYSDEC is the lead agency and will review and approve plans, drawings, reports, and schedules submitted for the remedial design and remedial action as specified in the VCA. The NYSDEC has designated Mr. William Ottoway as its key contact.

8.1.2 New York State Department of Health

The New York State Department of Health (NYSDOH) will also review and provide input to the NYSDEC on the foregoing submittals. The NYSDOH has designated Mr. Joe Crua as its key contact.

8.1.3 Con Edison

Con Edison is ultimately responsible for the design and implementation of the selected remedy specified for the OU-2 area. Con Edison has designated Ms. Yelena Skorobogatov as its Project Manager and primary contact for this project. Eddy Louie serves as the Con Edison MGP Program Manager.

8.1.4 Parsons

Parsons was retained by Con Edison to provide RD and Construction Management services for the OU-2 remedy. Parsons has designated Ms. Megan Miller as the Project Manager and primary contact for this project. Ms. Miller is responsible for preparation of the design documents, the RA bid package, the Construction Certification Report, and monthly progress reports. Ms. Miller is also responsible for arranging project meetings, ensuring proper staffing and resources for completing the RD/RA activities in accordance with this approved RAWP, and serving as Con Edison's designated technical point of contact with the NYSDEC, other agencies, contractors and subcontractors.

Mr. Vipul Srivastava will serve as the Technical Director for this project. As Technical Director, Mr. Srivastava's responsibilities are to (1) provide innovative and sophisticated input to various technical questions as they arise; (2) ensure compliance with regulatory guidelines;

(3) ensure overall quality assurance of the work; and (4) provide senior review of the work at key points.

Mr. William Long will be the Senior Project Engineer for this project. Mr. Long will provide support to the Project Manager in the preparation of the design documents and the RA bid package.

Mr. Gregory Beck will serve as the Health and Safety Officer for this project. Mr. Beck will ensure that the HASP is properly prepared and implemented and that all Parsons and subcontractor site personnel are trained in the site-specific project health and safety requirements. Mr. Beck will have authority to stop work if unsafe conditions are observed during RD/RA activities.

Table 8.1 Project Contact List

NYSDEC/NYSDOH	
NYSDEC William Ottoway, Project Manager Remedial Bureau C, 11th Floor 625 Broadway Albany, NY 12233-7017 (P) 518-402-9686 (F) 518-402-9679 (E) wsottawa@gw.dec.state.ny.us	NYSDOH Bureau of Env. Exposure Investigation Joe Crua Flanigan Square 547 River Street Troy, NY 12180-2216 (E) jpc04@health.state.ny.us
Con Edison	
Con Edison Yelena Skorobogatov, Project Manager 31-01 20th Avenue, Bldg. 136 Long Island City, NY 11105 (P) 718-204-4205 (F) 718-932-2687 (E) skorobogatovy@coned.com	Con Edison Eddy Louie MGP Program Manager 31-01 20th Avenue, Bldg. 136 Astoria, NY 11105 (P) 718-204-4262 (F) 718-932-2687 (E) louiee@coned.com

Table 8.1 (Continued) Project Contact List

Parsons	
Parsons Megan Miller, P.E., Project Manager 290 Elwood Davis Road, Suite 312 Liverpool, NY 13088 (P) 315-451-9560 (F) 315-451-9570 (E) megan.miller@parsons.com	Parsons Gregory Beck, Health and Safety Officer 200 Cottontail Lane Somerset, NJ 08873 (P) 732-537-3502 (F) 732-537-0353 (E) gregory.beck@parsons.com
Parsons Vipul Srivastava, Technical Director 999 Oakmont Plaza Drive, Suite 420 Westmont, IL 60559 (P) 630-371-1827 (F) 630-371-1818 (E) vipul.srivastava@parsons.com	Parsons William Long, Senior Project Engineer 290 Elwood Davis Road, Suite 312 Liverpool, NY 13088 (P) 315-451-9560 (F) 315-451-9570 (E) william.long@parsons.com

8.2 COMMUNICATION

Monthly reports will be submitted to the NYSDEC and NYSDOH to provide an update of the status of the project (See Section 6.1). In addition, several meetings between the NYSDEC, NYSDOH, Con Edison, and Parsons have been planned at critical stages of the project to discuss progress, key issues, and any potential impacts to the project schedule. Communication between the NYSDEC, NYSDOH, Con Edison, and Parsons will follow the chain of command, with the key points of contacts described in Section 8.1.

SECTION 9

REFERENCES

NYSDEC. 1994. *Determination of Soil Cleanup Objectives and Cleanup Levels.* New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum (TAGM) HWR-94-4046. January 1994.

NYSDEC. 1998. *Ambient Water Quality Standards and Guidance Values.* New York State Department of Environmental Conservation, Division of Water, Technical and Operational Guidance Series (1.1.1). October 1998.

Parsons. 2003. *Interim Remedial Measures Work Plan for Phase II Construction Activities, White Plains Former MGP Site.* Prepared by Parsons for Consolidated Edison Company of New York. October 2003.

Parsons. 2004. *Site Investigation Report, White Plains Former MGP Site.* Prepared by Parsons for Consolidated Edison Company of New York. February 2004.

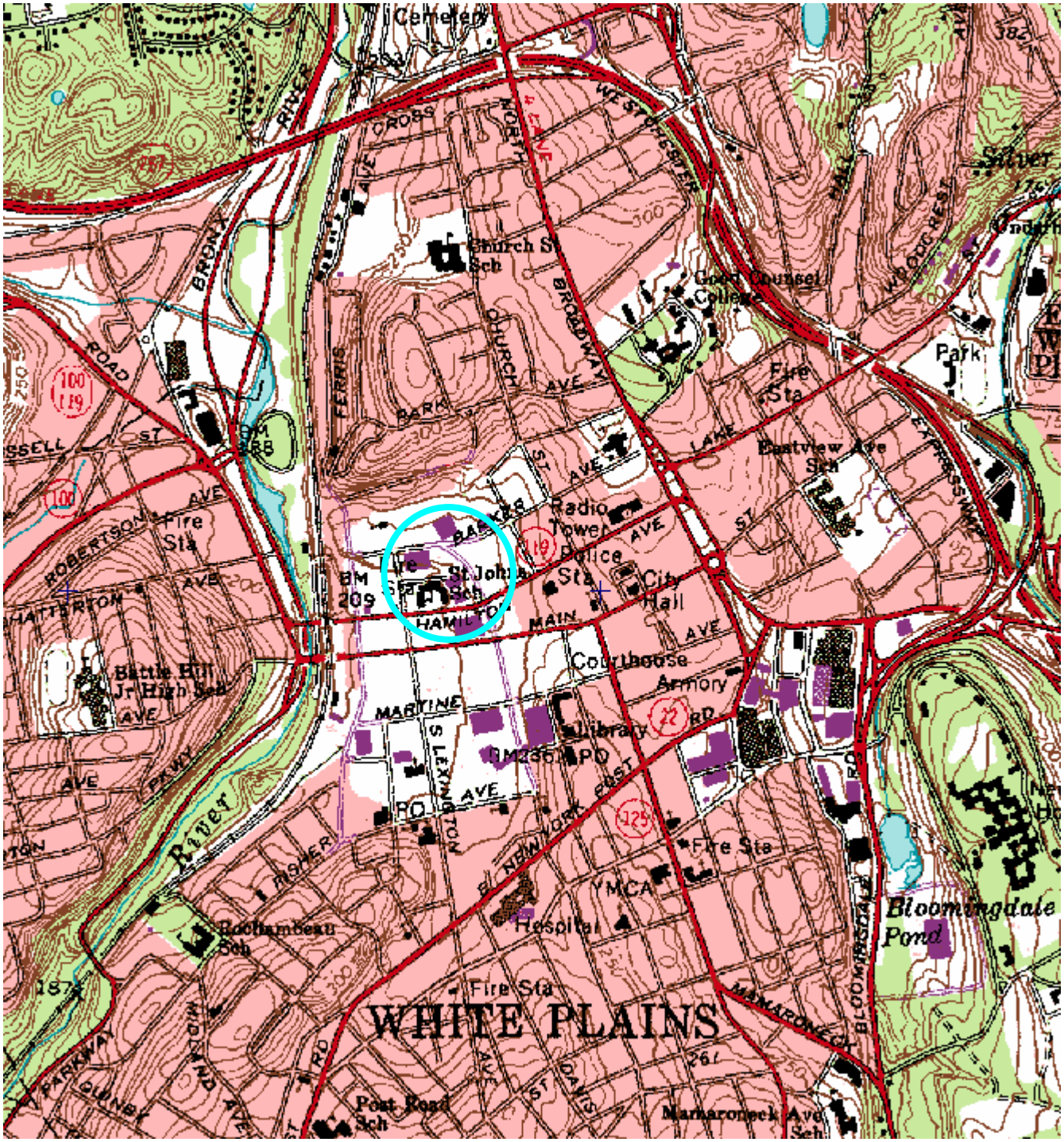
Parsons. 2005. *Interim Remedial Measures Report for Phase II Construction Activities, White Plains Former MGP Site.* Prepared by Parsons for Consolidated Edison Company of New York. August 2005.

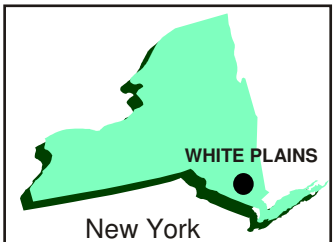
Parsons. 2006. *Pre-Design Investigation Work Plan, White Plains Former MGP Site.* Prepared by Parsons for Consolidated Edison Company of New York. August 2006.

Parsons and The RETEC Group, Inc. 2006. *Remedial Alternatives Report, Saint John the Evangelist R.C. Church and Elementary School.* Prepared by Parsons and The RETEC Group, Inc. for Consolidated Edison Company of New York. December 2006.

Parsons. 2007. *Remedial Action Selection Report for Operable Unit 2, White Plains Former MGP Site.* Prepared by Parsons for Consolidated Edison Company of New York. May 2007.

The RETEC Group, Inc. 2006. *Report of Evaluation of Indoor Air and Soil Gas Sampling, Conducted at 12 Water Street, White Plains, New York.* Prepared by RETEC for Consolidated Edison Company of New York. June 30, 2006.





LATITUDE: N42° 02' 00"
LONGITUDE: W73° 46' 16"

N

Not to Scale

SOURC: DeLORME 3-D
TOPOQUAD PROGRAM

FIGURE 1

White Plains Former MGP Site
White Plains, New York

SITE LOCATION MAP

PARSONS
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, NY 13088 PHONE: (315) 451-9560

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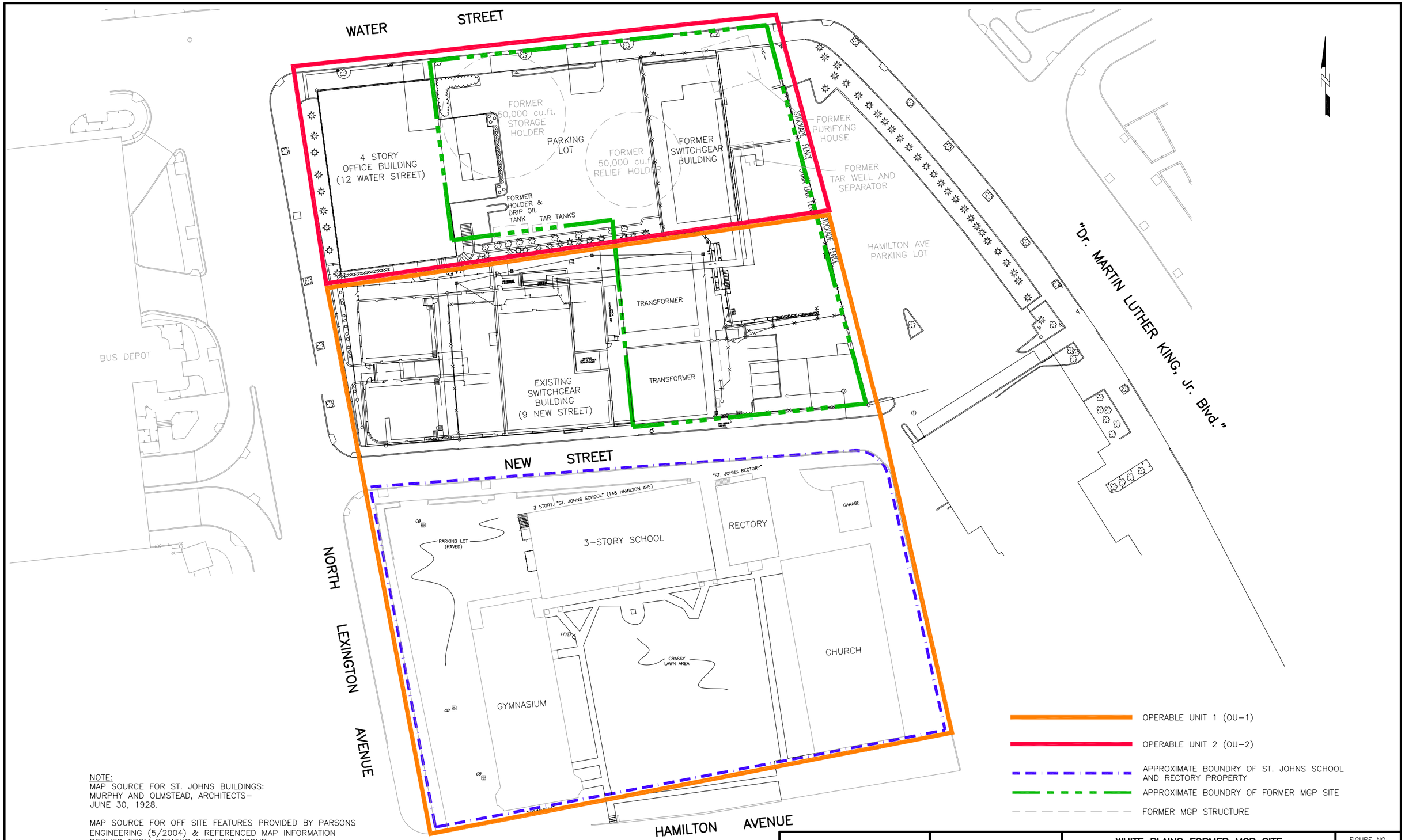

NOTE:
MAP SOURCE FOR ST. JOHNS BUILDINGS:
MURPHY AND OLMSTEAD, ARCHITECTS–
JUNE 30, 1928.

MAP SOURCE FOR OFF SITE FEATURES PROVIDED BY PARSONS ENGINEERING (5/2004) & REFERENCED MAP INFORMATION DERIVED FROM STRATUS SERVICES GROUP, ENGINEERING DIVISION, INC., CRANBURY, NEW JERSEY.

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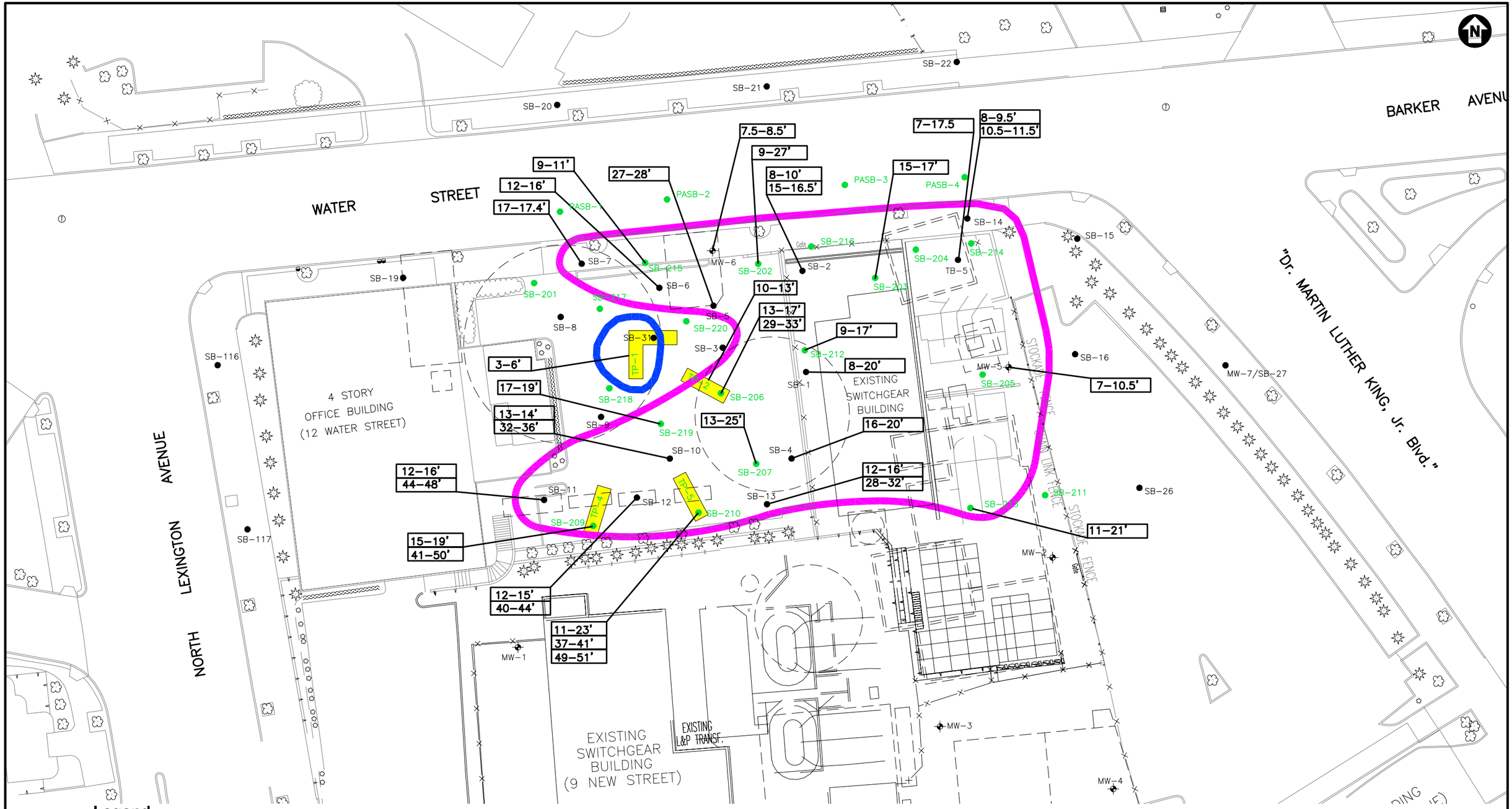
PARSONS
290 ELWOOD DAVIS ROAD
SUITE 312
LIVERPOOL, N.Y. 13088
PHONE: (315) 451-9560
FAX: (315) 451-9570

Con Edison

WHITE PLAINS FORMER MGP SITE
WHITE PLAINS, NEW YORK

SITE LAYOUT

FIGURE NO.
2



Legend

- SB-1● SOIL BORING
- MW-3⊕ MONITORING WELL
- FORMER MGP STRUCTURES
- SB-201● PDI SOIL BORING
- PDI TEST PIT
- ESTIMATED EXTENT OF VISIBLE NAPL IN SOILS ABOVE THE APPROXIMATE WATER TABLE
- ESTIMATED EXTENT OF VISIBLE NAPL IN SOILS BELOW THE APPROXIMATE WATER TABLE
- 7.5–8.5' DEPTH INTERVAL WITH VISIBLE NAPL (bgs)

40 20 0 40 80

SCALE: 1"=40'

ORIGINAL BASE MAP INFORMATION DERIVED FROM STRATUS SERVICES GROUP, ENGINEERING DIVISION, INC., CRANBURY, NEW JERSEY.

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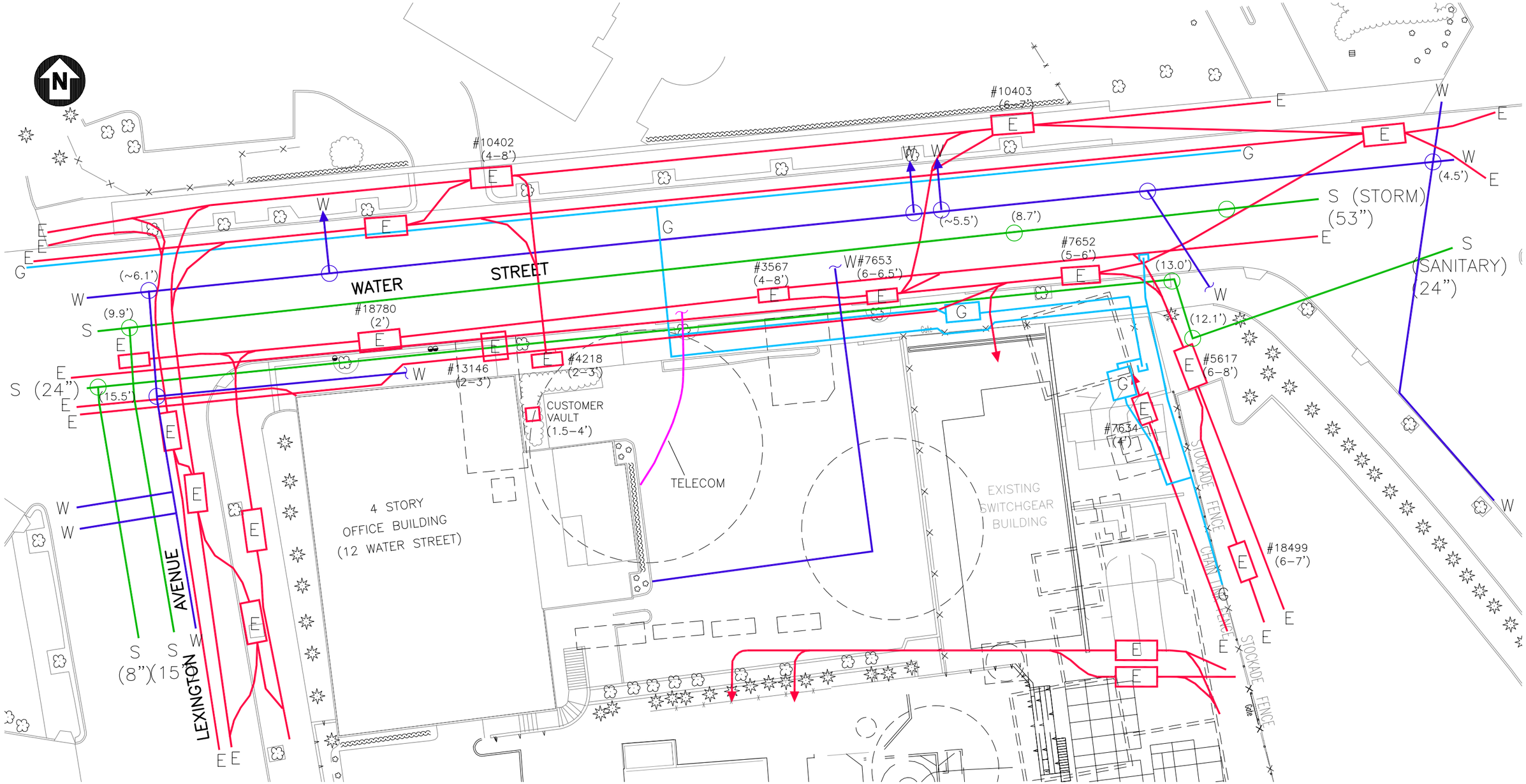
PARSONS
OFFICES IN PRINCIPAL CITIES
290 ELWOOD DAVIS ROAD, SUITE 312
LIVERPOOL, N.Y. 13088
PHONE: (315) 451-9560
FAX: (315) 451-9570

Con Edison

WHITE PLAINS FORMER MGP SITE
WHITE PLAINS, NEW YORK

DISTRIBUTION OF VISIBLE NAPL AT OU-2

FIGURE NO. 3



Legend

- MANHOLE OR VAULT
- ELECTRIC
- SEWER
- WATER
- GAS

(2–3') APPROXIMATE DEPTH OF UTILITY OBSERVED FROM MANHOLE/VAULT (FEET BGS)

NOTE:

ALL LOCATIONS AND DEPTHS ARE APPROXIMATE

35 0 35 70

SCALE: 1"=35'

ORIGINAL BASE MAP INFORMATION DERIVED FROM STRATUS SERVICES GROUP, ENGINEERING DIVISION, INC., CRANBURY, NEW JERSEY.

PARSONS
OFFICES IN PRINCIPAL CITIES
290 ELWOOD DAVIS ROAD, SUITE 312
LIVERPOOL, N.Y. 13088
PHONE: (315) 451–9560
FAX: (315) 451–9570

Con Edison

WHITE PLAINS FORMER MGP SITE
WHITE PLAINS, NEW YORK

APPROXIMATE LOCATION OF UTILITIES IN VICINITY OF OU–2

FIGURE NO. 4

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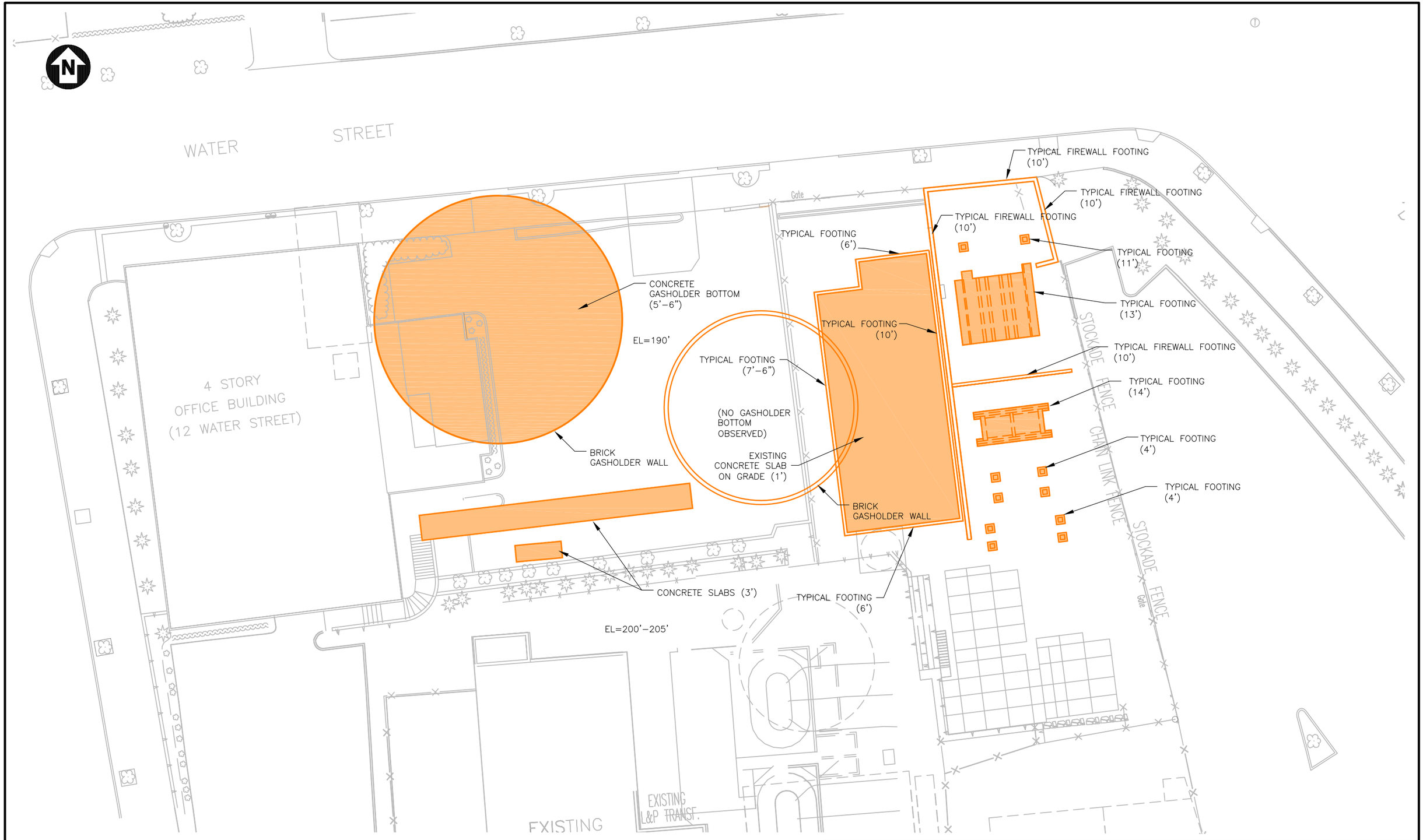

NOTE:

ALL LOCATIONS AND DEPTHS ARE APPROXIMATE.

30 15 0 30 60

SCALE: 1"=30'

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PARSONS
OFFICES IN PRINCIPAL CITIES
290 ELWOOD DAVIS ROAD, SUITE 312
LIVERPOOL, N.Y. 13088
PHONE: (315) 451-9560
FAX: (315) 451-9570

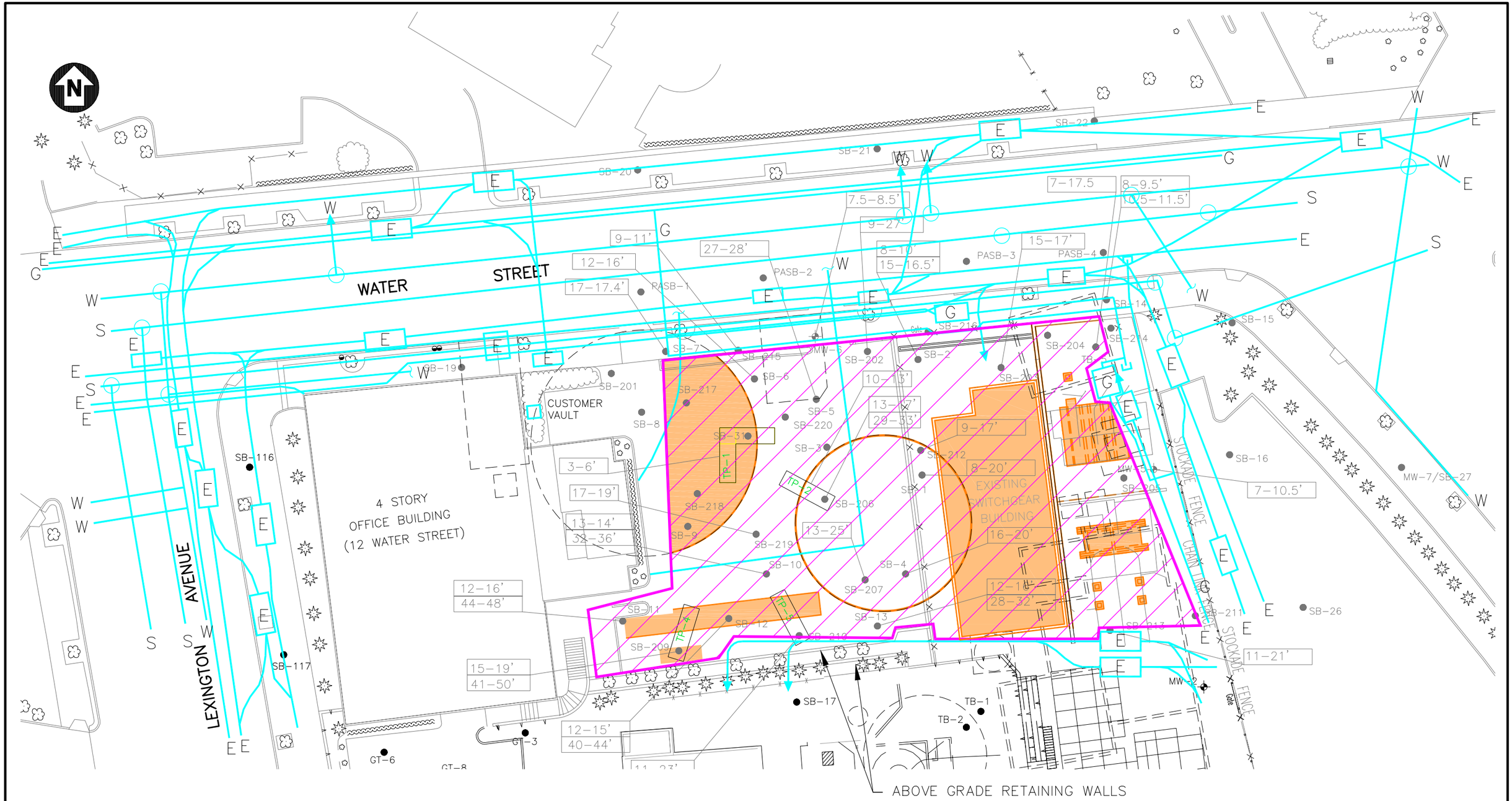
Con Edison

WHITE PLAINS FORMER MGP SITE
WHITE PLAINS, NEW YORK

BELOW GRADE STRUCTURES

FIGURE NO.

5



Legend

- UTILITY (APPROXIMATE)
- PROPOSED ISS AREA
- BELOW GRADE STRUCTURES REQUIRING REMOVAL (APPROXIMATE)

NOTES:

1. ALL UTILITY AND BELOW GRADE STRUCTURES LOCATIONS ARE APPROXIMATE.
2. PROPOSED ISS AREA BOUNDARIES ARE APPROXIMATE AND MAY BE MODIFIED DURING THE REMEDIAL DESIGN.

35 0 35 70

SCALE: 1"=35'

ORIGINAL BASE MAP INFORMATION DERIVED FROM STRATUS SERVICES GROUP, ENGINEERING DIVISION, INC., CRANBURY, NEW JERSEY.

PARSONS
OFFICES IN PRINCIPAL CITIES
290 ELWOOD DAVIS ROAD, SUITE 312
LIVERPOOL, N.Y. 13088
PHONE: (315) 451-9560
FAX: (315) 451-9570

Con Edison

WHITE PLAINS FORMER MGP SITE
WHITE PLAINS, NEW YORK

PROPOSED ISS AREA

FIGURE NO. 6

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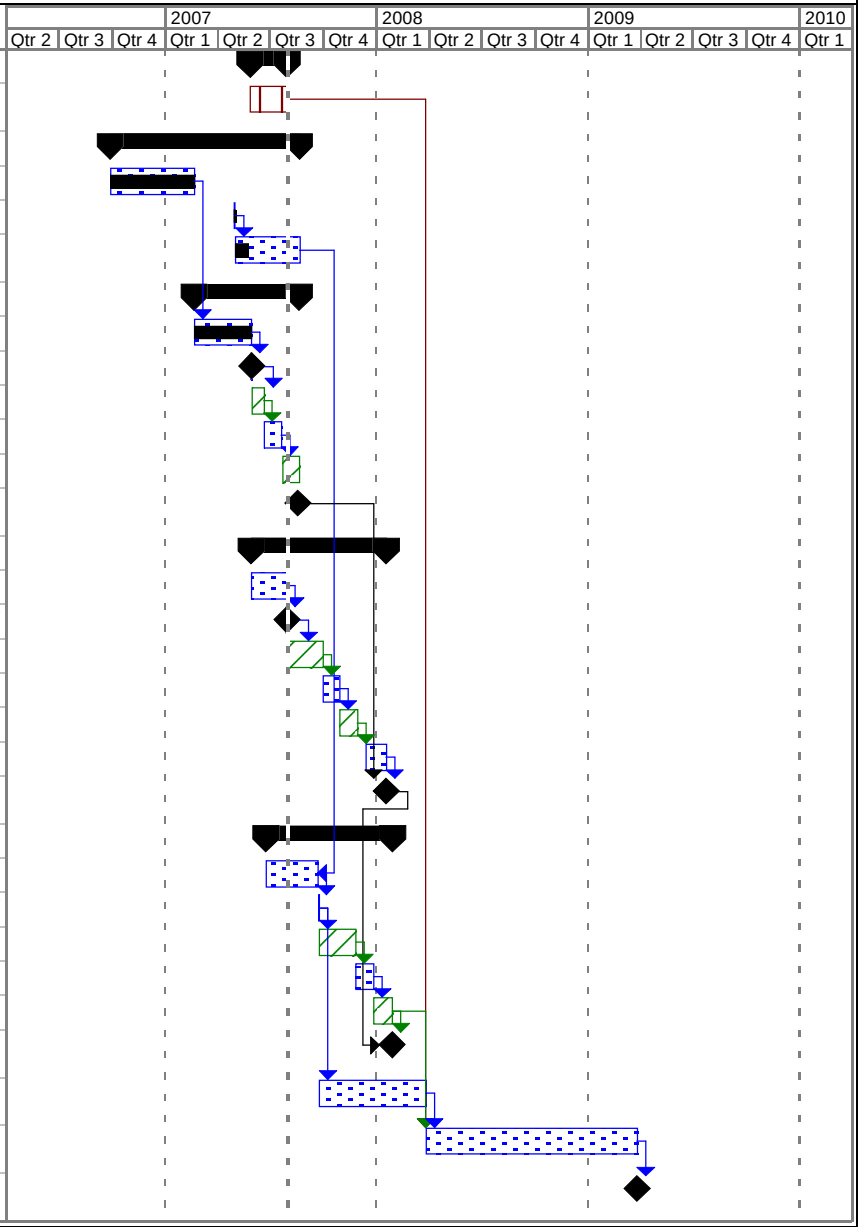
FIGURE 7
White Plains Former MGP Site OU-2
Remedial Action (RA) Schedule

ID	Task Name	Start	Finish	Duration
1	**Substation Removal (Remaining Work)**	**Tue 5/29/07**	**Tue 7/31/07**	**46 days**
2	Above-ground concrete removal in north substation yard	Tue 5/29/07	Tue 7/31/07	46 days
3	**PreDesign Investigation**	**Fri 9/29/06**	**Tue 8/21/07**	**233 days**
4	PDI fieldwork	Fri 9/29/06	Tue 2/20/07	104 days
5	Sample collection for ISS treatability testing	Tue 5/1/07	Wed 5/2/07	2 days
6	ISS treatability testing	Thu 5/3/07	Tue 8/21/07	78 days
7	**Remedial Alternatives Analysis (RAA)**	**Wed 2/21/07**	**Mon 8/20/07**	**128 days**
8	Preparation of draft RAA	Wed 2/21/07	Wed 5/30/07	70 days
9	Con Edison submittal of draft RAA to DEC	Thu 5/31/07	Thu 5/31/07	1 day
10	DEC review/comment on draft RAA	Fri 6/1/07	Wed 6/20/07	14 days
11	Con Edison response to DEC comments on RAA	Thu 6/21/07	Fri 7/20/07	22 days
12	DEC review of RAA	Mon 7/23/07	Mon 8/20/07	21 days
13	DEC approval of RAA	Mon 8/20/07	Mon 8/20/07	0 days
14	**Remedial Action Work Plan (RAWP)**	**Thu 5/31/07**	**Fri 1/18/08**	**161 days**
15	Preparation of draft RAWP	Thu 5/31/07	Mon 7/30/07	43 days
16	Con Edison submittal of draft RAWP to DEC	Tue 7/31/07	Tue 7/31/07	1 day
17	DEC review/comment on draft RAWP	Wed 8/1/07	Mon 10/1/07	43 days
18	Con Edison response to DEC comments on RAWP	Tue 10/2/07	Mon 10/29/07	20 days
19	DEC review/preliminary approval of RAWP	Tue 10/30/07	Thu 11/29/07	21 days
20	Public notice of draft RAWP and 30-day public comment period	Fri 12/14/07	Fri 1/18/08	23 days
21	DEC approval of RAWP	Fri 1/18/08	Fri 1/18/08	0 days
22	**Remedial Design (RD)**	**Mon 6/25/07**	**Tue 1/29/08**	**151 days**
23	Preparation of RD	Mon 6/25/07	Fri 9/21/07	64 days
24	Con Edison submittal of draft RD Report to DEC	Mon 9/24/07	Mon 9/24/07	1 day
25	DEC review/comment on draft RD	Tue 9/25/07	Mon 11/26/07	43 days
26	Con Edison response to DEC comments on draft RD	Tue 11/27/07	Thu 12/27/07	21 days
27	DEC review of RD	Fri 12/28/07	Mon 1/28/08	21 days
28	DEC approval of RD	Tue 1/29/08	Tue 1/29/08	1 day
29	**Procurement of remediation contractor**	Tue 9/25/07	Thu 3/27/08	128 days
30	**Remedial Action (RA)**	Fri 3/28/08	Fri 3/27/09	254 days
31	**Return of 12 Water Street parking lot to GHP**	Fri 3/27/09	Fri 3/27/09	0 days



Project: White Plains Former MGP Site RA
Date: Mon 7/30/07

Non-RA Task
Con Edison Task
DEC Task
Progress
Milestone
Summary

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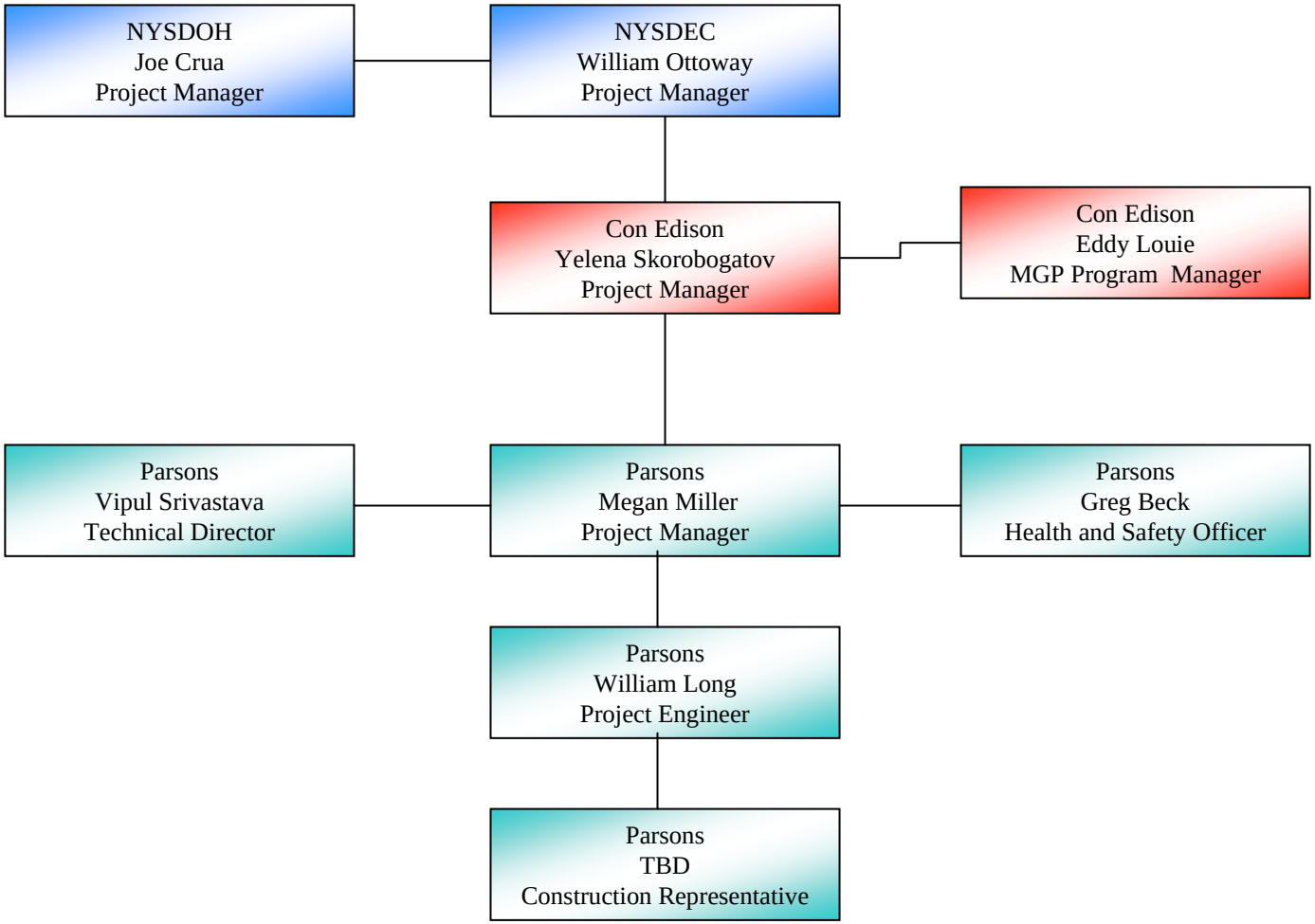
Figure 8
White Plains Former MGP Site OU-2 Remedial Action
Project Organization Chart



PARSONS