Remedial Action Work Plan

340 Myrtle Avenue and 155 Carlton Avenue
Brooklyn, New York
Block 2073, Lots 21 & 22
BCP Site #C224340

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Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Region 2
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October 2023

CERTIFICATIONS

I, Matthew M. Carroll, certify that I am currently a registered professional engineer licensed by the State of New York and that this Remedial Action Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

091629

NYS Professional Engineer # Date Matthew M. Carroll, P.E.
Signature/Stamp

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

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LIST OF ACRONYMS

AGV	NYSDOH Air Guidance Value
AOC	area of concern
AS	air sparging
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
ECL	Environmental Conservation Law
BTEX	benzene, toluene, ethylbenzene and xylenes
CAMP	Community Air Monitoring Program
C&D	construction and demolition
CDS	construction dewatering system
Class GA Standards	NYSDEC TOGS 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values
CEQR	City Environmental Quality Review
CFR	Code of Federal Regulations
CPP	Citizen Participation Plan
COC	Certificate of Completion
DCE	Dichloroethylene
DER-10	NYSDEC Division of Environmental Remediation (DER), DER-10 / Technical Guidance for Site Investigation and Remediation
DRO	diesel range organics
DOC	dissolved organic carbon
DUSR	Data Usability Summary Report
EC	Engineering Control
ESA	Environmental Site Assessment
EZ	exclusion zone
FB	field blanks
FER	Final Engineering Report
ft-bs	feet below building slab
ft-bg	feet below sidewalk grade
ft-msl	feet above mean sea level
GPM	Gallons per minute
HASP	Health and Safety Plan
HSA	Hollow Stem Auger
HSO	Health and Safety Officer
IC	Institutional Control
ISCO	*in-situ* chemical oxidation
IRM	Interim Remedial Measure
MW	monitoring well
NAVD	North American Vertical Datum of 1988
NGVD	National Geodetic Vertical Datum of 1929
NIOSH	National Institute for Occupational Safety and Health
NYCDEP	New York City Department of Environmental Protection
NYCDEP Limits	NYCDEP Limitations for Effluent to Sanitary or Combined Sewers
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation

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NYSDOH	New York State Department of Health
NYSDOH-ELAP	NYSDOH Environmental Laboratory Approval Program
O&M Plan	Operations and Maintenance Plan
OSHA	Occupational Safety and Health Association
PCB	polychlorinated biphenyl
PCE	perchloroethylene, aka tetrachloroethylene
PID	photoionization detector
PGWSCOs	6 NYCRR 375-6.8(b) and CP-51 Protection of Groundwater Soil Cleanup Objectives
PP Metals	Priority Pollutant Metals
PPE	personal protective equipment
QA/QC	quality assurance / quality control
QAPP	Quality Assurance Project Plan
RAWP	Remedial Action Work Plan
RCNY	Rules of the City of New York
RAO	Remedial Action Objective
RE	Remedial Engineer
RI	Remedial Investigation
RSCOs	Recommended Soil Cleanup Objectives
RUSCOs	6 NYCRR 375-6.8(b) and CP-51 Track 2 – Restricted Use Soil Cleanup Objectives
SB	soil boring
SCGs	Standards, Criteria and Guidance
SV	soil vapor
SMP	Site Management Plan
SMMP	Soil/Material Management Plan
SSDS	sub-slab depressurization system
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
TAL	Target Analyte List
TAGM 4046	NYSDEC Technical and Administrative Guidance Memorandum #4046
TB	trip blanks
TCE	Trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TCLP Limits	USEPA Maximum Concentrations of Contaminants for the Toxicity Characteristic
TOC	total organic carbon
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
UUSCOs	6 NYCRR 375-6.8(a) Track 1 Unrestricted Use Soil Cleanup Objectives
VOC	volatile organic compound

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EXECUTIVE SUMMARY

SITE DESCRIPTION/PHYSICAL SETTING/SITE HISTORY

340 Myrtle Development LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in May 2023 to investigate and remediate a 0.189-acre property located at 340 Myrtle Avenue in the Fort Greene neighborhood of Brooklyn, New York (New York City Department of Finance Block 2073, Lot 21). The BCA for Lot 21 was initially executed on February 25, 2022 between F&D Myrtle Realty Co., LLC (F&D), One Brooklyn Family Warehousing LLC (OBFW), and NYSDEC. F&D and OBFW entered into the BCA as Participants. A BCA Amendment application was submitted to NYSDEC on April 27, 2023 to add the prospective purchaser, 340 Myrtle Development LLC, to the BCA. On May 12, 2023, the Amendment was approved and 340 Myrtle Development LLC was added to the BCA as a Participant. On August 15, 2023, 340 Myrtle Development LLC closed on its purchase of Lot 21. Subsequently, on September 15, 2023, a BCA Amendment application was submitted to NYSDEC to add a 0.013-acre property located at 155 Carlton Avenue (New York City Department of Finance Block 2073, Lot 22) to the BCA, to reflect that 340 Myrtle Development LLC is the new owner of Lot 21, and to remove F&D and OBFW from the BCA. On [add date], the Amendment was approved, Lot 22 was added to the BCA, and F&D and OBFW were removed from the BCA, leaving 340 Myrtle Development LLC as the sole remaining Participant on the BCA. Collectively, the 0.202-acre property consisting of Lots 21 and 22 (the "Site") will be redeveloped by the Participant.

Restricted residential use is proposed for the property. When completed, the Site will contain a new eight-story mixed-use commercial and residential building with a full cellar that will encompass the entirety of the Site lots.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), as described below. It provides an evaluation of a Track 1 cleanup and other applicable Remedial Action alternatives, their associated costs, and the recommended and preferred remedy. The remedy described in this document is consistent with the procedures defined in 6 NYCRR Part 375 and DER-10, and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have not yet determined if this Site poses a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

SUMMARY OF THE REMEDIAL INVESTIGATION

Tenen Environmental, LLC (Tenen) conducted investigation activities at the Site between May 2023 and August 2023. Additionally, soil samples were collected by Environmental Business Consultants (EBC) on Lot 22 in September 2022 as part of a New York City Mayor's Office of Environmental Remediation (NYC OER)-approved Remedial Action Plan (RAP). The results of the investigations were documented in the draft Remedial Investigation Report dated October 2023.

The RI consisted of the installation of soil borings and collection of soil samples, installation and sampling of groundwater monitoring wells, and sampling of soil vapor. Based on the results of the RI and previous investigations, the following summary has been prepared:

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Site History

- Previous non-residential Site uses include dry cleaning, restaurants, grocery stores, clothing stores, a gift shop, a meat market, and a barber shop. The most recent use of the Site was as a commercial laundry and a bedding and bath store. The Site is currently vacant.

Geology/Hydrogeology

- The Site is covered by a continuous layer of historic fill consisting of brown, fine silty sand with gravel, brick debris, and concrete debris at depths ranging from 1.5 to 2.5 feet below basement grade (ft-bbg) in soil beneath the onsite building, and at depths ranging from 10 to 11.5 feet below sidewalk grade (ft-bsg) in the exterior portion of the Site. The historic fill material is underlain by a native layer of fine to coarse grained sand with silt and clay lenses throughout to depths ranging from 22 to 24 ft-bbg or 32 to 34 ft-bsg. The sand, silt, and clay layer is underlain by glacial till consisting of dense sand, cobbles, and boulders to a depth of 60 ft-bbg, or 70 ft-bsg.
- Groundwater was encountered at approximately 51 to 53 ft-bsg and 41 to 43 ft-bbg and flows to the west with a northern component.

Soil

- The chlorinated volatile organic compound (cVOC) tetrachloroethene (PCE) was detected in exceedance of its Unrestricted Use Soil Cleanup Objective (SCO), Protection of Groundwater SCO, and Restricted-Residential Use SCO in one shallow (0-2 ft-bbg) soil sample collected from the southern portion of the former dry cleaner footprint during the 2021 Phase II Environmental Site Investigation (ESI). As part of the 2022 RI, the PCE concentration detected at this location was horizontally and vertically delineated. During the 2022 RI, PCE was detected in exceedance of the Unrestricted Use SCO and Protection of Groundwater SCO in four soil characterization samples and six of 13 analyzed cVOC delineation samples. Of these, PCE was also detected in exceedance of its Restricted-Residential Use SCO in one cVOC delineation sample.
- A cVOC source area has been identified beneath the basement in the southern portion of the former onsite dry cleaner footprint. The source area is approximately 2,300-SF in size, extends from zero to two ft-bbg and consists of approximately 170 cubic yards (CY) of impacted soil.
- A variety of semivolatile organic compounds (SVOCs), specifically polyaromatic hydrocarbons (PAHs), were detected in exceedance of Unrestricted Use and Restricted-Residential Use SCOs in two shallow (0-2 ft-bbg) soil samples collected from the historic fill layer beneath the basement of the Site building and four soil samples and a duplicate sample collected from the bottom of excavation (9.5 ft-bsg) at Lot 22.
- A variety of metals, specifically barium, cadmium, copper, nickel, zinc, lead, and mercury, were detected in exceedance of Unrestricted Use and/or Restricted-Residential Use SCOs in one or more soil samples.
- Toxicity Characteristic Leachate Procedure (TCLP) lead was detected in exceedance of the United State Environmental Protection Agency (USEPA) allowable level of 5 milligrams per liter (mg/L) in one mercury and lead delineation sample, SB-1E (4-6).
- Two pesticides, 4,4'-DDE and 4,4'-DDT, were each detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one soil sample collected from the historic fill layer beneath the basement of the Site building and one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Aroclor 1260 and total polychlorinated biphenyls (PCBs) were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Two per- and polyfluoroalkyl acids (PFAS), perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), were detected in exceedance of proposed Unrestricted Use

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SCOs in soil samples collected across the Site and offsite, with the highest concentrations generally occurring in samples collected from SB-11, located in the exterior portion of Lot 21.
- Herbicides and 1,4-dioxane were not detected in exceedance of Unrestricted Use or Restricted-Residential SCOs in any soil samples analyzed.

Groundwater
- PCE was detected in all eight groundwater monitoring wells at concentrations exceeding the Class GA Standard of 5 micrograms per liter (ug/l), with the highest concentration occurring in intermediate monitoring well MW-3I, located in the PCE source area in the southern portion of the former dry cleaner.
- The petroleum-related VOC, toluene, was detected slightly in exceedance of its Class GA Standard in MW-5, located in the southern sidewalk of Myrtle Avenue, adjacent to the Site.
- SVOCs, specifically PAHs, were detected slightly in exceedance of Class GA Standards in two onsite groundwater monitoring wells, MW-1 and MW-3I, and one offsite groundwater monitoring well, MW-4, with the highest concentrations generally occurring in MW-4. In addition, one phthalate was detected slightly in exceedance of its Class GA Standard in one groundwater monitoring well, MW-3S.
- No pesticides, herbicides, or PCBs were detected above Class GA Standards in any groundwater samples analyzed.
- Naturally occurring earth metals, including iron, magnesium, manganese, and sodium were detected in total (unfiltered) and dissolved (filtered) groundwater samples across the Site and offsite.
- PFAS were detected in groundwater samples across the Site and offsite. PFOA and PFOS were each detected in exceedance of their respective Class GA Guidance Values in all eight groundwater monitoring wells. 1,4-Dioxane was detected at low concentrations below the Class GA Guidance Value in three of eight monitoring wells.

Soil Vapor
- PCE was detected in all four exterior soil vapor samples at elevated concentrations. TCE was detected in three exterior soil vapor samples at concentrations exceeding ambient air concentrations, and cis-1,2-DCE was detected in one exterior soil vapor sample at a concentration exceeding the ambient air concentration. The highest concentrations of cVOCs were detected in SV-1, located adjacent to the former onsite dry cleaner. No other cVOCs included on the NYSDOH Matrices were detected in any exterior soil vapor samples.
- A variety of petroleum-related VOCs were detected at low concentrations in exterior soil vapor collected from sidewalks surrounding the Site.

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT

The results of the remedial investigations provided sufficient data to complete a Qualitative Human Health Exposure Assessment, which identified several potential exposure pathways that include:

- direct contact with subsurface soils (and incidental ingestion);
- direct contact with groundwater;
- inhalation of volatile groundwater constituents; and
- inhalation of vapors.

The potential exposure pathways associated with the remediation/construction phase of the redevelopment are temporary and of limited duration. Worker exposure to impacted groundwater and soil vapor and

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particulates will be addressed by adherence to health and safety protocols. Potential exposure of neighborhood residents and other offsite populations will be addressed through compliance with the Community Air Monitoring Plan (CAMP). A summary of the CAMP is included in Appendix B of this Remedial Action Work Plan (RAWP). Potential for exposure of building occupants through soil vapor intrusion to indoor air will be minimized by removal of soil to a depth of 15 ft-bsg across the Site, installation of a chemical-resistant vapor barrier beneath the new building, installation of an active sub-slab depressurization system beneath the new building and implementation of institutional controls in the form of an environmental easement and Site Management Plan (SMP).

SUMMARY OF THE REMEDIAL ACTIONS

The preferred Track 2 remedy, intended to address all environmental issues associated with the Site, consists of the following:

- Excavation and offsite disposal of all onsite soils which exceed the Protection of Groundwater Soil Cleanup Objectives (PGWSCOs) for cVOCs and Restricted-Residential Soil Cleanup Objectives (RRSCOs) for all other Part 375 analytes, as defined by 6 NYCRR Part 375-6.8(b), to a maximum depth of 15 ft-bsg;
- Off-site disposal of excavated materials from the Site in accordance with all Federal, State and local rules and regulations for handling, transport and disposal;
- Collection and analysis of post-remedial end-point samples to document remaining concentrations of contaminants. Samples will be evaluated for attainment of PGWSCOs for cVOCs and RRSCOs for all other Part 375 analytes, which would support a Track 2 remedy;
- Import of materials to be used for backfill and cover in compliance with: 6 NYCRR Part 375-6.7(d) and all Federal, State and local rules and regulations for handling and transport of material;
- Removal and disposal any unidentified/unknown underground storage tanks (USTs) that are encountered during development in compliance with all applicable Federal, State and local rules and regulations;
- Monitored natural attenuation (MNA) of groundwater following removal of the onsite soil source of PCE. Five existing groundwater monitoring wells (two onsite and three offsite) will be monitored quarterly for the first year and annually thereafter to document the natural attenuation of chlorinated solvents;
- Installation of an active Sub-Slab Depressurization System (SSDS) beneath the new onsite building to mitigate the potential for soil vapor intrusion. A pilot test will be performed to determine the design parameters of the SSDS. A blower test will be performed for the system to determine the final fan size required to meet the system design parameters. A SSDS Design Document for the Site system will be submitted under separate cover to NYSDEC and NYSDOH for approval which will include recommendation for effluent treatment as necessary;
- Efficacy of the active SSDS will be confirmed via achieving the required -0.02" water column depressurization throughout the sub-slab;
- Post-remedial indoor air sampling will be conducted three months following SSDS start-up. A total of five post-remedial indoor air samples will be collected: three from the basement level, and two from the first floor;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions;
- Development of a SMP for long term management of residual groundwater and soil vapor contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls; (2) monitoring; (3) operation and maintenance; and (3) reporting; and,

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- Recording of an Environmental Easement to restrict use of the site and require compliance with the SMP.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP. Any deviations from the RAWP will be promptly reported to NYSDEC for approval and detailed in the FER.

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REMEDIAL ACTION WORK PLAN

1.0 INTRODUCTION

340 Myrtle Development LLC entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in May 2023 to investigate and remediate a 0.189-acre property located at 340 Myrtle Avenue in the Fort Greene neighborhood of Brooklyn, New York (New York City Department of Finance Block 2073, Lot 21). The BCA for Lot 21 was initially executed on February 25, 2022 between F&D Myrtle Realty Co., LLC (F&D), One Brooklyn Family Warehousing LLC (OBFW), and NYSDEC. F&D and OBFW entered into the BCA as Participants. A BCA Amendment application was submitted to NYSDEC on April 27, 2023 to add the prospective purchaser, 340 Myrtle Development LLC, to the BCA. On May 12, 2023, the Amendment was approved and 340 Myrtle Development LLC was added to the BCA as a Participant. On August 15, 2023, 340 Myrtle Development LLC closed on its purchase of Lot 21. Subsequently, on September 15, 2023, a BCA Amendment application was submitted to NYSDEC to add a 0.013-acre property located at 155 Carlton Avenue (New York City Department of Finance Block 2073, Lot 22) to the BCA, to reflect that 340 Myrtle Development LLC is the new owner of Lot 21, and to remove F&D and OBFW from the BCA. On [add date], the Amendment was approved, Lot 22 was added to the BCA, and F&D and OBFW were removed from the BCA, leaving 340 Myrtle Development LLC as the sole remaining Participant on the BCA. Collectively, the 0.202-acre property consisting of Lots 21 and 22 (the "Site") will be redeveloped by the Participant.

Restricted residential use is proposed for the property. When completed, the Site will contain a new eight-story mixed-use commercial and residential building with a full cellar that will encompass the entirety of the Site lots.

This Remedial Action Work Plan (RAWP) summarizes the nature and extent of contamination, as determined from data gathered during previous investigations and Remedial Investigation (RI) activities performed between September 2022 and August 2023. The RAWP provides an evaluation of Track 1 cleanup and other applicable remedial measure alternatives, their associated costs, and the recommended and preferred remedy to address onsite contamination. The remedy described in this document is consistent with the procedures defined in 6 NYCRR Part 375 and DER-10, and complies with all applicable standards, criteria and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC, in conjunction with the New York State Department of Health (NYSDOH) have not yet determined if the Site poses a significant threat to human health. The RI for this Site did not identify fish and wildlife resources.

1.1 Site Location and Description

The Site is located at 340 Myrtle Avenue and 155 Carlton Avenue in the Fort Greene neighborhood of Brooklyn, New York. The Site is defined as an approximate 8,820 square foot (SF) irregularly-shaped parcel, identified by the New York City Department of Finance as Block 2073, Lots 21 and 22. The Site is located at the southeast corner of the intersection of Myrtle Avenue and Carlton Avenue and is in Brooklyn Community Board 2. A location map for the Site is provided as Figure 1. A map of the Site boundary is included as Figure 2. A portion of Lot 21 was historically occupied by a dry cleaner. Figure 2 depicts the footprint of the historical dry cleaner.

Lot 21 is currently occupied by a one-story commercial building with a full cellar that occupies the majority of the lot. The onsite building is currently vacant; the most recent tenants of the Site building include a commercial laundry and a bedding and bath store. The cellar extends to a depth of approximately 9.5 feet

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below sidewalk grade (ft-bsg). The southwestern portion of Lot 21 is unimproved, vacant, and was most recently utilized for parking.

Lot 22 was excavated to approximately 9.5 ft-bsg across the lot between April 2022 and September 2022 as part of previous redevelopment efforts conducted under a New York City Mayor's Office of Environmental Remediation (NYC OER)-approved Remedial Action Plan (RAP). Additionally, foundational elements (i.e., piles and support of excavation) were installed across Lot 22 in support of the previous redevelopment efforts. The planned development project for Lot 22 consisted of a four-story single family home with a full cellar. The redevelopment plan was abandoned in late 2022, and the lot was never backfilled. During the course of excavation on Lot 22, an abandoned gasoline underground storage tank (UST) was discovered. The UST was cleaned, removed and disposed of offsite in accordance with all Federal, State and local laws as part of the Remedial Action.

1.2 Proposed Site Plan

The Remedial Actions being performed under the RAWP are intended to make the Site protective of human health and the environment consistent with the contemplated end use of the Site. The Participant is proposing to redevelop the Site with a new eight-story mixed-use commercial and residential building with a full cellar. The building footprint will occupy the entire Site footprint and will be utilized for commercial space, a fitness center, a refuse compactor, bike storage, a laundry room, utility rooms in the cellar, retail space, recreation space, a lobby, parking at grade, and residential units on floors two through eight. The development project will require excavation to approximately 15 ft-bsg across the Site, with localized deeper excavation to accommodate the installation of foundational elements and the elevator pit.

1.3 Description of Surrounding Property

The surrounding area is predominantly commercial and residential. The adjacent properties consist of commercial and residential buildings to the north, east, and west, and residential buildings to the south.

The Site is zoned R7A; a designation that typically denotes a medium density apartment house district, with a C2-4 commercial overlay.

Based on a review of the New York City Office of Environmental Remediation (OER) Searchable Property Environmental E-Database (SPEED) and a Google maps search, no hospitals or day cares were located within 500 feet of the Site. One school, P.S. 046 Edward C. Blum, located at 100 Clermont Avenue, is located approximately 400 feet northeast of the Site.

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2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

The Site was investigated in accordance with the scope of work described in the September 2023 draft Remedial Investigation Report, which is currently under review by NYSDEC. This section presents the findings of the previous investigations conducted on-Site as well as the findings of the 2022-2023 Remedial Investigation performed at the Site by Tenen Environmental, LLC (Tenen) and EBC as documented in the draft RIR dated September 2023.

2.1 Site History

Lot 21 was initially developed sometime prior to 1887 with several three-story commercial buildings. By 1938, three of the commercial buildings were demolished and, by 1950, this portion of the Site was used for parking. By 1961, the remainder of the buildings were demolished and the Site was occupied by a one-story commercial building. Dry cleaning is depicted in the eastern portion of the building and parking is shown on the southwestern portion of the lot on Sanborn maps dated 1969-2007. City directory listings document historic residential and commercial uses of the Site, with commercial uses including dry cleaning, restaurants, grocery stores, a gift shop, a meat market, and a barber shop.

Lot 22 was initially developed sometime prior to 1887 with a three-story residential building with a basement. By 1978, the building was demolished and the lot has remained vacant ever since. Between April 2022 and September 2022, the lot was excavated to a depth of approximately 9.5 ft-bsg and foundational elements (i.e., piles and support of excavation) were installed in support of the redevelopment of the lot. The planned development project for Lot 22 consisted of a four-story single family home with a full cellar. The redevelopment plan was abandoned in late 2022; the lot was never backfilled. During the course of excavation on Lot 22, an abandoned gasoline UST was discovered. The UST was cleaned, removed and disposed of offsite in accordance with all Federal, State and local laws as part of the Remedial Action.

2.2 Site Geology / Hydrogeology

Site Topography

According to the United States Geological Survey (USGS) Flushing Topographic Map (2013), the Site elevation is approximately 60 feet above mean sea level (ft-msl). The surface topography at the Site is relatively flat and gently slopes downward to the north-northwest.

Site Geology and Hydrogeology

The overburden at the Site is composed predominantly of a continuous layer of historic fill consisting of brown, fine silty sand with gravel, brick debris, and concrete debris at depths ranging from 1.5 to 2.5 feet ft-bbg in soil beneath the Site building, and at depths ranging from 10 to 11.5 ft-bsg in the exterior portion of the Site. The historic fill material is underlain by a native layer of fine to coarse grained sand with silt and clay lenses throughout to depths ranging from 22 to 24 ft-bbg, or 32 to 34 ft-bsg. The sand, silt, and clay layer is underlain by glacial till consisting of dense sand, cobbles, and boulders to a depth of 60 ft-bbg or 70 ft-bsg.

Groundwater at the Site was encountered between approximately 51 to 53 ft-bsg and 41 to 43 ft-bbg in permanent groundwater monitoring wells. The shallow groundwater flow has been measured to be towards the west with a northern component, as shown on Figure 3. No surface water bodies are present at the Site; the nearest surface water body is the Wallabout Bay, located approximately 0.6 miles north of the Site.

Previous investigations at the Site documented groundwater concentrations of contaminants above the NYSDEC TOGS 1.1.1 Class GA Ambient Water Quality Standards and Guidance Values (AWQS). There

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are no known wellhead protection areas or specifically designated groundwater recharge areas in the vicinity of the Site. Groundwater in this area is not used as a source of potable water.

2.3 Summary of Remedial Investigation

This section presents the findings of the previous investigations and the 2023 Remedial Investigation conducted by Tenen.

2.3.1 Summary of Data

Investigations and sampling efforts conducted at the Site are described in the following reports:

- *Phase I Screening Summary, 155 Carlton Avenue, Brooklyn, NY.* Environmental Business Consultants, February 2021.
- *Remedial Investigation Report, 155 Carlton Avenue, Brooklyn, NY.* Environmental Business Consultants, March 2021.
- *Preliminary Geotechnical Engineering Report, 340 Myrtle Avenue, Brooklyn, NY.* Hartland Engineering, DPC, June 1, 2021.
- *Phase I Environmental Site Assessment, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, July 2021.
- *Phase II Environmental Site Investigation, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, August 2021.
- *Draft Remedial Investigation Report, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, September 2023.

Summaries of the above-mentioned reports are provided below.

Phase I Screening Summary, 155 Carlton Avenue, Brooklyn, New York, Environmental Business Consultants, February 2021.

A Phase I Environmental Site Assessment (ESA) conducted by EBC in February 2021 did not identify any recognized environmental conditions (RECs) in connection with Lot 22. However, EBC did identify one environmental concern:

- Lot 22 was formerly developed with a three-story residential building with a basement from circa 1887 through the 1970s. The residence was demolished between 1977 and 1979. Following demolition, the building basement was backfilled to grade. Fill material may have included construction and demolition (C&D) debris associated with the building demolition and/or material from an unknown offsite source. As no documentation regarding the nature or source of the fill materials utilized to backfill the basement of the former building following its demolition was available for review, the potential for contaminated and/or structurally unsuitable fill material on Lot 22 was noted.

Remedial Investigation Report, 155 Carlton Avenue, Brooklyn, NY. Environmental Business Consultants, March 2021.

A Remedial Investigation (RI) was completed at Lot 22 in February 2021 by EBC to evaluate the quality of soil, groundwater, and soil vapor across the Site. The results of the RI were presented in a Remedial Investigation Report (RIR), dated March 2021. The scope of work performed during the RI included the installation of three soil borings, the collection of seven soil samples (including QA/QC samples), the installation of one temporary groundwater monitoring well, the installation of two temporary soil vapor

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sample points, and the collection of two soil vapor samples. Temporary groundwater monitoring wells were attempted to be installed at four locations across the lot; however, refusal was repeatedly encountered at depths ranging from 30 to 37 ft-bsg. One temporary groundwater monitoring well was installed at the deepest refusal depth of 37 ft-bsg; however, no groundwater was present within the monitoring well. All soil samples were analyzed for full scan Part 375 analytes and one soil sample was also analyzed for 1,4-dioxane and PFAS. All soil vapor samples were analyzed for VOCs. A summary of the results is included below:

Soil

- One VOC, acetone, was detected in exceedance of its Unrestricted Use SCO, but below its Restricted-Residential Use SCO, in two shallow soil samples. Acetone is a common laboratory contaminant.
- A variety of SVOCs, specifically polyaromatic hydrocarbons (PAHs), were detected in exceedance of Unrestricted Use SCOs in shallow and deep soil samples collected across the lot, including benzo(a)anthracene (max. 53 mg/kg), benzo(a)pyrene (max. 46 mg/kg), benzo(b)fluoranthene (max. 40 mg/kg), benzo(k)fluoranthene (max. 31 mg/kg), chrysene (max. 49 mg/kg), dibenzo(a,h)anthracene (max. 6.4 mg/kg), indeno(1,2,3-cd)pyrene (max. 27 mg/kg), and dibenzofuran (max. 9.2 mg/kg). All of these analytes except dibenzofuran also exceeded their respective Restricted-Residential Use SCOs in one or more soil samples. The highest concentrations of SVOCs were detected in SB-3 (0-2 ft-bsg), collected from the center of the Site.
- A variety of metals, including barium (max. 1,860 mg/kg), cadmium (max. 2.58 mg/kg), chromium (max. 107 mg/kg), copper (max. 192 mg/kg), lead (max. 3,160 mg/kg), mercury (max. 0.5 mg/kg), and zinc (max. 1,110 mg/kg), were detected in one or more shallow and deep soil samples in exceedance of Unrestricted Use SCOs. Of these, barium and lead were also detected in exceedance of Restricted-Residential Use SCOs in the duplicate soil sample only.
- Four pesticides, 4,4'-DDD (max. 0.027 mg/kg), 4,4'-DDE (max. 0.03 mg/kg), 4,4'-DDT (max. 0.026 mg/kg), and dieldrin (max. 0.031 mg/kg) were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one or more soil samples.
- One PCB, aroclor 1254, and total PCBs were detected slightly in exceedance of their Unrestricted Use SCOs, but below their Restricted-Residential Use SCOs, in one soil sample, SB-1 (6-8 ft-bsg).
- One PFAS analyte, perfluorooctanesulfonic acid (PFOS), was detected in exceedance of its proposed Unrestricted Use SCO, but below its proposed Restricted-Residential Use SCO, in soil sample SB-2 (6-8 ft-bsg). PFOS was detected at a concentration of 1.83 nanograms per gram (ng/g) with a proposed Unrestricted Use SCO of 0.88 ng/g and a proposed Restricted-Residential Use SCO of 44 ng/g. 1,4-dioxane was not detected in any soil sample.

Soil Vapor

- Two cVOCs, PCE and chloroform, were detected at low concentrations in both soil vapor samples collected. PCE was detected at a max. concentration of 3.06 micrograms per cubic meter (ug/m3) and chloroform was detected at a max. concentration of 2.58 ug/m3. No other cVOCs were detected in any soil vapor samples.
- A variety of petroleum-related VOCs were detected at low concentrations in both soil vapor samples. The total concentration of benzene, toluene, ethylbenzene, and xylenes (collectively, BTEX) within the two soil vapor samples ranged from 8.04 ug/m3 to 12.51 ug/m3.

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Preliminary Geotechnical Engineering Report, 340 Myrtle Avenue, Brooklyn, New York, Hartland Engineering, DPC, June 1, 2021.

A Geotechnical Engineering Report was prepared for Lot 21 by Hartland Engineering, DPC (Hartland) in June 2021. The 2021 Geotechnical Engineering Report indicated that uncontrolled fill material (silt, gravel, and construction debris) existed onsite from the ground surface to approximately ten to 13 ft-bsg. The fill layer was noted underlain by native soil (loose and medium silt), followed by a layer of glacial till.

Phase I Environmental Site Assessment, 340 Myrtle Avenue, Brooklyn, New York, Tenen Environmental, LLC, July 2021.

A Phase I Environmental Site Assessment (ESA) conducted by Tenen in July 2021 identified the following recognized environmental conditions (RECs) in connection with Lot 21:

- The documented presence of historic fill at Lot 21;
- Historic use of Lot 21 for dry cleaning; and,
- Historic use of the south adjoining property for auto repair and manufacturing.

Phase II Environmental Site Investigation, 340 Myrtle Avenue, Brooklyn, New York, Tenen Environmental, LLC, August 2021.

A Phase II Environmental Site Investigation (ESI) was conducted at Lot 21 by Tenen in July 2021. The Phase II ESI consisted of the advancement of eight soil borings (seven interior and one exterior), installation of two permanent groundwater monitoring wells (one onsite and one offsite), the collection of two groundwater samples, installation of five temporary sub-slab soil vapor points, and collection of five sub-slab soil vapor samples. For all soil borings, a surface soil sample (0-2 ft-bbg interval for interior borings and 0-2 ft-bsg for the exterior boring) and a subsurface soil sample (2-4 ft-bbg interval for interior borings and 2-4 ft-bsg for the exterior boring) were collected. All soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), target analyte list (TAL) metals (total and dissolved for groundwater), pesticides, and PCBs. In addition, one soil sample and both groundwater samples were also analyzed for per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. All sub-slab soil vapor samples were analyzed for VOCs.

A third permanent groundwater monitoring well was originally planned to be installed within the southern sidewalk of Myrtle Avenue, west of MW-2; however, during the attempted installation, a location for the well could not be located due to the substantial presence of underground utilities and multiple overhead impediments. These access restrictions ultimately resulted in abandonment of the installation of MW-3.

A geophysical survey was conducted at Lot 21 to investigate the potential presence of underground storage tanks (USTs) and/or other subgrade obstructions. No USTs or obstructions were identified during the performance of the geophysical investigation.

Soil

- The cVOC PCE was detected in one shallow soil sample, SB-3 (0-2 ft-bbg), in exceedance of its Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs. PCE was also detected at low concentrations, below the Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs, in the remaining 15 soil samples and the duplicate sample. PCE was detected at a max. concentration of 100 mg/kg in SB-3 (0-2 ft-bbg), collected from the southern portion of the former dry cleaner footprint.

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- A variety of SVOCs, specifically PAHs, were detected in exceedance of Unrestricted Use SCOs and/or Restricted-Residential Use SCOs in one or more of three shallow (0-2 ft-bbg) soil samples, including chrysene (max. 3.8 mg/kg), benzo(k)fluoranthene (max. 1.9 mg/kg), benzo(a)anthracene (max. 4.5 mg/kg), benzo(a)pyrene (max. 5.3 mg/kg), benzo(b)fluoranthene (max. 6.1 mg/kg), indeno(1,2,3-cd)pyrene (max. 4.1 mg/kg), and dibenzo(a,h)anthracene (max. 0.96 mg/kg). The highest concentrations of all SVOCs were detected in SB-3 (0-2 ft-bbg).
- A variety of metals, including copper (max. 154 mg/kg), lead (max. 638 mg/kg), mercury (max. 1.14 mg/kg), and zinc (max. 317 mg/kg), were detected in one or more soil samples in exceedance of Unrestricted Use SCOs. Of these, lead and mercury were also detected in exceedance of Restricted-Residential Use SCOs in one or more samples.
- Two pesticides, 4,4'-DDE (max. 0.106 mg/kg) and 4,4'-DDT (max. 0.108 mg/kg), were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one or more soil samples, with the highest concentrations occurring in SB-1 (2-4 ft-bsg).
- One PCB, aroclor 1260, and total PCBs were detected slightly in exceedance of their Unrestricted Use SCO in one soil sample, SB-1 (0-2 ft-bsg) (concentration of 0.109 mg/kg for both).
- One PFAS analyte, PFOS, was detected in exceedance of its proposed Unrestricted Use SCO, but below its proposed Restricted-Residential Use SCO, in soil sample SB-1 (0-2 ft-bsg). PFOS was detected at a concentration of 5.14 ng/g with a proposed Unrestricted Use SCO of 0.88 ng/g and a proposed Restricted-Residential Use SCO of 44 ng/g. 1,4-dioxane was not detected in any soil sample.

Groundwater

- One cVOC, PCE, was detected in exceedance of its Class GA Standard of 5 micrograms per liter (ug/l) in both groundwater samples and the duplicate sample. PCE was detected at a max. concentration of 32 ug/l in MW-2 and MW-2_DUP, collected from the southern sidewalk of Myrtle Avenue, adjacent to the formeronsite dry cleaner.
- A variety of SVOCs, specifically PAHs, were detected slightly in exceedance of their respective Class GA Standards in both groundwater samples and the duplicate sample, including benzo(a)anthracene (max. 0.11 ug/l),benzo(b)fluoranthene (max. 0.08 ug/l), benzo(k)fluoranthene (max. 0.02 ug/l), chrysene (max. 0.09 ug/l), andindeno(1,2,3-cd)pyrene (max. 0.03 ug/l). The highest concentrations of all SVOCs were detected in MW-1, located in the exterior portion of the Site.
- One metal, chromium, was detected in one total groundwater sample, MW-2, at a concentration of 53 ug/l, slightly in exceedance of its Class GA Standard of 50 ug/l. Chromium was not detected in any dissolved groundwater samples.
- A variety of naturally-occurring earth metals, including iron, magnesium, manganese, and sodium, were detected in both total groundwater samples and the duplicate sample in exceedance of Class GA Standards.
- Pesticides and PCBs were not detected in exceedance of Class GA Standards in any groundwater sample.
- Two PFAS analytes, PFOS and perfluorooctanoic acid (PFOA), were detected in exceedance of their respective Class GA Guidance Values in both groundwater samples and the duplicate sample. PFOS was detected at a max. concentration of 12.2 nanograms per liter (ng/l) in MW-1 with a Class GA Standard of 2.7 ng/l and PFOA was detected at a max.concentration of 91 ng/l in MW-2_DUP with a Class GA Standard of 6.7 ng/l.
- Low concentrations of 1,4-dioxane were detected in one groundwater sample, MW-2, and the duplicate sample below the Class GA Guidance Value of 0.35 ug/l. 1,4-Dioxane was detected at a max. concentration of 0.0747 ug/l in MW-2_DUP.

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Soil Vapor

- A variety of cVOCs, including PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-DCE, and chloroform were detected in one or more sub-slab soil vapor samples.
    - PCE was detected in all five sub-slab soil vapor samples at concentrations ranging from 1,250 micrograms per cubic meter (ug/m3) in SS-5 to 351,000 ug/m3 in SS-2.
    - TCE was detected in four of five sub-slab soil vapor samples at concentrations ranging from 38.2 ug/m3 in SS-4 to 1,410 ug/m3 in SS-3.
    - Cis-1,2-DCE and trans-1,2-DCE were each detected in one sub-slab soil vapor sample (SS-3) at concentrations of 2,890 ug/m3 and 205 ug/m3, respectively.
    - Chloroform was detected in three sub-slab soil vapor samples at concentrations ranging from 5.23 ug/m3 in SS-5 to 406 ug/m3 in SS-2.
- PCE is part of NYSDOH Matrix B and TCE and cis-1,2-DCE are part of NYSDOH Matrix A. Comparison of PCE, TCE, and cis-1,2-DCE concentrations to the applicable NYSDOH Matrix (Matrix B for PCE and Matrix A for TCE and cis-1,2-DCE) indicates that mitigation would be required for PCE at all five sample locations regardless of the potential co-located indoor air concentrations; mitigation would be required for TCE at three sample locations (SS-1, SS-2, andSS-3) regardless of the potential co-located indoor air concentrations; and, mitigation would be required for cis-1,2-DCE at one sample locations (SS-3) regardless of the potential co-located indoor air concentration. Trans-1,2-DCE and chloroform are not part of the NYSDOH Decision Matrices. All other cVOCs listed in the NYSDOH Decision Matrices, including 1,1-DCE, carbon tetrachloride, 1,1,1- trichloroethane, methylene chloride, and vinyl chloride were not detected in any sub-slab soil vapor sample.

Draft Remedial Investigation Report, 340 Myrtle Avenue, Brooklyn, NY. Tenen Environmental, LLC, October 2023.

Remedial Investigation activities for Lot 21 were conducted in May 2023 and June 2023 by Tenen to further evaluate the quality of soil, groundwater, and soil vapor across the Site and offsite. Soil sampling of Lot 22 was completed by others in September 2022 in accordance with a NYC OER-approved RAP. Additional sampling of soil was completed on Lot 22 by Tenen in August 2023 as requested by NYSDEC on a conference call dated August 17, 2023. The results of these investigations were presented in a draft RIR, dated September 2023. The scope of work performed during the RI included the installation of 24 soil borings, the collection of 61 soil samples (including QA/QC samples), the installation of seven permanent groundwater monitoring wells, the collection of nine groundwater samples (including QA/QC samples), the installation of four permanent soil vapor sample points, the collection of four soil vapor samples, and the collection of two ambient air samples. All soil characterization samples and groundwater samples were analyzed for full scan Part 375 analytes, 1,4-dioxane, and PFAS; all cVOC delineation soil samples were analyzed for VOCs; all lead and mercury delineation soil samples were analyzed for total lead, total mercury, toxicity characteristic leachate procedure (TCLP) lead, and/or TCLP mercury; all bottom of excavation end-point soil samples collected from Lot 22 by EBC in September 2022 were analyzed for SVOCs and TAL metals; all UST bottom soil samples collected from Lot 22 by EBC in September 2022 were analyzed for CP-51 VOCs and CP-51 SVOCs; all surface soil samples collected by Tenen from Lot 22 in August 2023 were analyzed by PFAS; and, all soil vapor samples were analyzed for VOCs. A summary of the results is included below:

Soil

- The cVOC PCE was detected in exceedance of the Unrestricted Use and Protection of Groundwater SCO in four soil characterization samples and six of thirteen analyzed cVOC delineation samples.

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Of these, PCE was also detected in exceedance of its Restricted-Residential Use SCO in one cVOC delineation sample.

- A cVOC source area has been identified beneath the basement in the southern portion of the former onsite dry cleaner footprint. The source area is approximately 2,300-SF in area, extends from zero to two ft-bbg, consisting of approximately 170 cubic yards (CY) of impacted soil. The cVOC source area is defined as soils with cVOC impacts in excess of Protection of Groundwater SCOs.
- A variety of SVOCs, specifically PAHs, were detected in exceedance of Unrestricted Use and Restricted-Residential Use SCOs in two shallow (0-2 ft-bbg) soil samples collected from the historic fill layer beneath the basement of the Site building and four soil samples and a duplicate sample collected from the bottom of excavation (9.5 ft-bsg) at Lot 22.
- A variety of metals, specifically barium, cadmium, copper, nickel, zinc, lead, and mercury, were detected in exceedance of Unrestricted Use and/or Restricted-Residential Use SCOs in one or more soil samples.
- TCLP lead was detected in exceedance of the USEPA allowable level of 5 mg/L in one mercury and lead delineation sample, SB-1E (4-6 ft-bsg).
- Two pesticides, 4,4'-DDE and 4,4'-DDT, were each detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one soil sample collected from the historic fill layer beneath the basement of the Site building and one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Aroclor 1260 and total PCBs were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Two PFAS, PFOA and PFOS, were detected in exceedance of proposed Unrestricted Use SCOs in soil samples collected across the Site and offsite, with the highest concentrations generally occurring in samples collected from SB-11, located in the exterior portion of Lot 21.
- Herbicides and 1,4-dioxane were not detected in exceedance of Unrestricted Use or Restricted-Residential SCOs in any soil samples analyzed.

Groundwater

- PCE was detected in all eight groundwater monitoring wells at concentrations exceeding the Class GA Standard of 5 ug/l, with the highest concentration occurring in intermediate monitoring well MW-3I, located in the PCE source area in the southern portion of the former dry cleaner.
- The petroleum-related VOC, toluene, was detected slightly in exceedance of its Class GA Standard in MW-5, located in the southern sidewalk of Myrtle Avenue, adjacent to the Site.
- SVOCs, specifically PAHs, were detected slightly in exceedance of Class GA Standards in two onsite groundwater monitoring wells, MW-1 and MW-3I, and one offsite groundwater monitoring well, MW-4, with the highest concentrations generally occurring in MW-4. In addition, one phthalate was detected slightly in exceedance of its Class GA Standard in one groundwater monitoring well, MW-3S.
- No pesticides, herbicides, or PCBs were detected above Class GA Standards in any groundwater samples analyzed.
- Naturally occurring earth metals, including iron, magnesium, manganese, and sodium were detected in total (unfiltered) and dissolved (filtered) groundwater samples across the Site and offsite.
- PFAS were detected in groundwater samples across the Site and offsite. PFOA and PFOS were each detected in exceedance of their respective Class GA Guidance Values in all eight groundwater monitoring wells. 1,4-Dioxane was detected at low concentrations below the Class GA Standard in three of eight monitoring wells.

<u>Soil Vapor:</u>

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- PCE was detected in all four exterior soil vapor samples at elevated concentrations. TCE was detected in three exterior soil vapor samples at concentrations exceeding ambient air concentrations, and cis-1,2-DCE was detected in one exterior soil vapor sample at a concentration exceeding the ambient air concentration. The highest concentrations of cVOCs were detected in SV-1, located adjacent to the former onsite dry cleaner. No other cVOCs included on the NYSDOH Matrices were detected in any exterior soil vapor samples.
- A variety of petroleum-related VOCs were detected at low concentrations in exterior soil vapor collected from sidewalks surrounding the Site.

2.4 Significant Threat

The NYSDEC, in conjunction with NYSDOH, have not yet determined if the Site poses a significant threat to human health and the environment. The RI for this Site did not identify fish and wildlife resources.

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3.0 CONTAMINATION CONDITIONS

3.1 Conceptual Model of Site Contamination

The Site is vacant and currently improved with a one-story commercial building with a full cellar that was most recently used as a commercial laundry and bedding and bath store. Other prior non-residential uses include dry cleaning.

Based on the results of the 2021 Phase II ESI and the 2022-2023 Remedial Investigation, the contaminants of concern at the Site include chlorinated solvents and historic fill-related SVOCs, metals, pesticides, and PCBs.

The soil, groundwater and soil vapor are impacted with PCE, likely due to historic dry cleaning operations at the Site that utilized chlorinated solvents. A cVOC source area onsite was horizontally and vertically delineated as part of the Remedial Investigation. The source area is approximately 2,300-SF in area, extends from zero to two feet below basement grade in the southeastern portion of the Site consisting of approximately 170 CY of impacted soil. PCE has been detected at concentrations above applicable standards in soil from zero to two feet below basement grade in the southeastern portion of the Site, within the former dry cleaner footprint. In addition, PCE was detected in groundwater samples collected from the shallow and intermediate aquifer across the Site and cross/downgradient of the Site exceeding the Class GA Standard, with the highest concentrations occurring in groundwater collected from the intermediate aquifer beneath the cVOC source area. PCE and its breakdown products, TCE and cis-1,2-DCE, have been detected at elevated concentrations in sub-slab soil vapor across the Site, with the highest concentrations generally occurring in the southern portion of the former dry cleaner footprint, consistent with the highest concentrations of PCE detected in soil and groundwater. Indoor air samples have not been collected from the Site basement during previous investigations or the RI; however, comparison of cVOC concentrations in sub-slab soil vapor samples collected from the Site basement to the applicable NYSDOH Soil Vapor Decision Guidance Matrices indicates that mitigation would be required for PCE at all five onsite sample locations, mitigation would be required for TCE at three onsite sample locations, and mitigation would be required for cis-1,2-DCE at one onsite sample location regardless of the potential co-located indoor air concentrations. Additionally, PCE was detected at elevated concentrations in offsite soil vapor samples collected from sidewalks cross/downgradient of the Site, consistent with concentrations of PCE detected in offsite groundwater.

Metals impacts, including barium, lead, and mercury impacts, are present in the historic fill layer of the exterior portion of the Site. Barium, lead, and mercury were detected in multiple samples collected from the exterior portion of the Site at depths ranging from zero to ten ft-bsg in exceedance of Unrestricted Use and Restricted-Residential Use SCOs. TCLP lead in one sample collected from four to six ft-bsg in the exterior portion of Lot 21 was also detected in exceedance of the USEPA allowable limit of 5 micrograms per liter (mg/L), indicating hazardous concentrations.

Historic fill material has been identified across the Site varying in depth from 1.5 to 2.5 ft-bbg in soil beneath the Site building, and varying in depth from 10 to 11.5 ft-bsg in the exterior portion of the Site. Soil samples collected from historic fill material across the Site contains SVOCs, metals, pesticides, and/or PCBs above the Unrestricted Use and/or Restricted-Residential Use SCOs.

Table 1 presents the Part 375 Unrestricted Use SCOs. Table 2 presents the Part 375 Protection of Groundwater SCOs. Table 3 presents the Part 375 Restricted-Residential Use SCOs. Table 4 presents the TOGS 1.1.1 Ambient Class GA Water Quality Standards. Figures depicting soil, groundwater, and soil vapor

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concentrations detected in exceedance of applicable standards can be found in RIR Figures 5a through 7, respectively.

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4.0 ENVIRONMENTAL AND PUBLIC HEALTH ASSESSMENTS

4.1 Qualitative Human Health Exposure Assessment

A qualitative human health exposure assessment (QHHEA) has been completed in accordance with Section 3.3(c)4 of DER-10 and the NYSDOH guidance for performing a QHHEA (NYSDEC DER-10; Technical Guidance for Site Investigation and Remediation; Appendix 3 B). The QHHEA evaluates the potential for populations to be exposed to Site contaminants.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: (1) a contaminant source; (2) contaminant release and transport mechanisms to an exposed population; (3) a receptor population; (4) a route of exposure; and (5) a point of exposure to a receptor population. Potential contaminant receptors include the following populations:

- Site workers (primarily environmental professionals and contractors)
- Construction workers, visitors or trespassers
- Future building occupants and commercial workers
- Future on-Site workers and utility workers
- Off-Site residents/building occupants
- Off-Site maintenance workers

The following potential exposure routes are considered incomplete:

Groundwater Ingestion

New York City code prohibits the use of groundwater for potable purposes. This pathway is incomplete.

Inhalation of Vapors by Future Building Employees

Remediation as part of Site redevelopment will include excavation of the bulk of chlorinated solvent impacts in soil. The remediation of soil beneath the Site will result in a reduction of chlorinated VOC concentrations in groundwater and soil vapor over time, and groundwater will also be treated chemically to reduce cVOC concentrations over time. Additionally, a sub-slab depressurization system (SSDS) will be installed beneath the new building slab to be installed as part of Site redevelopment, which will mitigate soil vapor intrusion into the new onsite building.

The following potential exposure routes are considered complete:

Inhalation of Vapors and Particulates by On-Site Environmental and Construction Workers (and incidental ingestion).

During excavation and soil handling, on-Site personnel and construction workers may be exposed to dust and vapors via inhalation (and incidental ingestion). Potential exposures will be addressed by implementation of the Community Air Monitoring Plan (CAMP), referenced in Section 7.4 of this RAWP and included as Appendix B, and adherence to the Health and Safety Plan (HASP), included as Appendix C.

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Dermal Contact with Soil by On-Site Environmental and Construction Workers

During excavation and soil handling, on-Site personnel and construction workers may be exposed to contaminants in soil via dermal contact. This exposure would be mitigated by adherence to the HASP, included in Appendix C, during ground intrusive activities.

Dermal Contact with Groundwater by On-Site Environmental Workers

Groundwater was encountered at approximately 51 to 53 ft-bsg during the Remedial Investigation and is not anticipated to be encountered during Site redevelopment. Environmental professionals may be exposed to contaminants in groundwater via dermal contact during baseline and post-remedial groundwater sampling events from existing or newly-installed monitoring wells. These exposures would be mitigated by adherence to the HASP, included in Appendix C, during sampling activities.

Inhalation of Vapors and Particulates by Off-Site Residents/Building Workers

During Site redevelopment, soil excavation and removal may generate dust and vapors that could be inhaled by off-Site residents/building occupants and maintenance personnel.

The above potential exposures are limited to the remediation/construction phase of the proposed remedial action. Adherence to health and safety protocols will address environmental and construction worker exposure to contaminated soil vapors, particulates and groundwater. Potential exposure of off-Site residents and building occupants will be addressed by implementation of the CAMP referenced in Section 7.4 of this RAWP and included as Appendix B.

4.2 Remedial Action Objectives

The goals of remediation are to remove the on-Site sources of chlorinated solvents and fill with elevated metals and PAHs so as to allow for the Site's redevelopment for residential and commercial use and reduce the concentrations of contaminants in groundwater and soil vapor to levels below applicable Standards, Criteria and Guidance (SCGs). Based on the results of the Remedial Investigation conducted at the Site, the following Remedial Action Objectives (RAOs) have been identified:

4.2.1 Soil

PCE was detected at concentrations exceeding the Part 375 Unrestricted Use, Protection of Groundwater, and/or Restricted-Residential Use SCOs in soil at a depth of zero to two feet below basement grade in the southeastern portion of the Site basement, with the highest concentrations occurring within the former dry cleaner footprint. A cVOC source area has been identified in the southeastern portion of the Site and is approximately 2,300-SF in area, extends from zero to two feet below basement grade, and consists of approximately 170 CY of impacted soil. Metals, including barium, lead, and mercury, were detected at elevated concentrations in historic fill material in the exterior portion of the Site at depths ranging from zero to ten ft-bsg, with TCLP lead detected at hazardous concentrations in one sample collected from four to six feet below sidewalk grade in the exterior portion of Lot 21. Various SVOCs, specifically PAHs, pesticides and PCBs were detected in samples collected from historic fill material across the Site in exceedance of Unrestricted Use SCOs. Of these, PAHs were detected in exceedance of Restricted-Residential Use SCOs in one or more samples. PFAS, specifically PFOA and PFOS, were detected in one or more samples in exceedance of the proposed Unrestricted Use SCOs.

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

4.2.2 Groundwater

The cVOC PCE was detected at concentrations exceeding applicable SCGs in shallow and intermediate groundwater across the Site and cross/downgradient of the Site, with the highest concentrations occurring in the groundwater sample collected from the intermediate aquifer beneath the cVOC soil source area. Concentrations of SVOCs, specifically PAHs, were detected slightly in exceedance of applicable SCGs in groundwater across the Site and offsite. Total and dissolved metals, consistent with typical earth metals attributable to the conditions of the aquifer, were also detected above applicable SCGs in groundwater across the Site and offsite. PFAS, specifically PFOA and PFOS, were detected in groundwater across the Site and offsite above applicable SCGs.

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of groundwater or surface water contamination.

4.2.3 Soil Vapor

Elevated concentrations of cVOCs, specifically PCE and its breakdown products, TCE and cis-1,2-DCE, were detected in sub-slab soil vapor samples collected throughout the Site basement, with the highest concentrations generally occurring in the southeastern portion of the Site basement in the vicinity of the former dry cleaner, consistent with the highest concentrations of cVOCs detected in soil and groundwater. In addition, PCE was detected at elevated concentrations in offsite soil vapor samples collected from sidewalks cross/downgradient of the Site, consistent with the concentrations of PCE detected in offsite groundwater.

RAOs for Public Health Protection

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

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5.0 DESCRIPTION OF REMEDIAL ACTION

5.1 Evaluation of Remedial Alternatives

Two remedial alternatives were considered to address cVOC impacts to soil, groundwater, and soil vapor and historic fill-related impacts to soil. The alternatives considered to address contamination in soil, groundwater, and soil vapor are discussed below.

5.1.1 Alternative 1 – Track 2 Remedy

5.1.1.1 Soil

Excavation as part of the Site redevelopment would allow for the removal of the bulk of the contaminant mass at the Site. The remedial excavation would extend to a depth of 15 ft-bsg across the Site to remove soil exceeding Protection of Groundwater SCOs for cVOCs and Restricted-Residential Use SCOs for all other Part 375 analytes. This would remove the entirety of the cVOC source area and historic fill across the Site. Additional localized deeper excavations would be completed for installation of foundational elements and the elevator pit.

End-point samples would be collected to document the condition of soils that will be left in-place. At development depth, end-point samples will be collected from the bottom of the excavation and sidewalls of the excavation (where the sidewalls are not inaccessible due to support of excavation elements) and will be analyzed for target compound list (TCL) VOCs, TCL SVOCs, target analyte list (TAL) metals, pesticides, PCBs, and PFAS. If the end-point sample concentrations of cVOCs do not meet the Protection of Groundwater SCOs, additional excavation and end-point sampling will continue until the Protection of Groundwater SCOs are met for cVOCs. Additionally, if endpoint samples meet Unrestricted Use SCOs [aka Track 1 SCOs], then a Track 1 soil remedy will be documented in the Final Engineering Report.

The extent of remedial excavation under this alternative is depicted on Figure 6. Proposed documentation end-point sample locations under this alternative are depicted on Figure 7.

A CAMP (Appendix B) and Soil/Materials Management Plan (Appendix D) will be implemented during the invasive Site activities to prevent or minimize potential impacts to human health and the environment. End-point samples will confirm the removal of soil to concentrations below Protection of Groundwater SCOs for cVOCs and below Restricted-Residential SCOs for all other Part 375 analytes.

5.1.1.2 Groundwater

As part of this alternative, the soil source of PCE will be removed, thereby eliminating the contributing source to groundwater and resulting in diminished concentrations of PCE in groundwater over time. Following removal of the soil source area, groundwater will be monitored quarterly for the first year and annually thereafter to document the natural attenuation of chlorinated solvents. Monitoring will continue until applicable standards, criteria and guidance (SCGs) are met or achieve asymptotic at levels that are acceptable to NYSDEC.

Post-remedial groundwater sampling will be performed in accordance with a Site Management Plan (SMP). Post-remedial groundwater samples will be collected from two onsite monitoring wells (MW-3I and MW-6) and three cross/downgradient monitoring wells (MW-4, MW-5, and MW-7) in order to evaluate the efficacy of the natural attenuation remedy. Post-remedial monitoring well sample locations are shown on Figure 11. Post remedial groundwater samples will be analyzed for cVOCs only.

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If the results of the first and second round of post-remedial groundwater sampling indicate that cVOC concentrations have decreased below applicable standards, one confirmatory round of samples will be collected and NYSDEC will be asked to consider the groundwater remedy complete.

Groundwater in this part of Brooklyn is not used as a potable (drinking) water source. Residents receive their drinking water supply from surface reservoirs located in upstate New York.

5.1.1.3 Soil Vapor

Removal of the soil source of PCE should result in diminished concentrations of PCE in soil vapor over time and the installation of an active sub-slab depressurization system (SSDS) within the new building would mitigate the potential for remaining elevated concentrations of cVOCs in soil vapor beneath the building slab to migrate into the interior of the building. The active SDSS would create a negative pressure beneath the building slab, resulting in the collection of any VOCs that might otherwise migrate into the interior of the building. The system would connect to an exterior blower that will release trapped VOCs into the atmosphere above the building's roofline, to be diluted with ambient air. Exhaust of VOC impacted soil vapor would conform to the requirements set forth in the NYSDOH Soil Vapor Guidance.

A pilot test will be performed at the Site prior to the installation of the system to determine final design parameters. Confirmation testing would be performed following the installation the SSDS to verify that the systems are achieving the depressurization goal set by the Remedial Engineer. If the test shows a sub-slab vacuum below the depressurization goal, corrective measures would be implemented. Possible corrective measures include adjusting flow rates of individual soil vapor suction points, increasing the size of the suction point, adding additional suction points, and adding an additional blower.

Baseline indoor air samples will be collected onsite prior to the start-up of the SSDS, with post-remedial indoor air samples collected onsite three months after the system start-up. A total of five indoor air samples will be collected from the new onsite building during the initial sampling event and each one following [if additional sampling events are necessary]: three from the basement level (one each from the commercial space, fitness space, and mechanical space) and two from the first floor (one each from the recreation space and retail space; the remainder of the first floor consists of parking). Indoor air samples will be analyzed for VOCs via EPA Method TO-15. The results of the indoor air sampling will be presented in tabular form and discussed in the FER. Proposed post-remedial indoor air sampling locations are shown on Figure 12.

Alternative 1 is the preferred remedy as it is appropriate for bulk contaminant removal and the future proposed residential and commercial use of the Site and is the most cost-effective alternative. Long-term institutional and engineering controls for this Alternative would include post-remedial groundwater monitoring, maintenance of the active SSDS, annual inspection and certification of the active SSDS by a professional engineer, submission of periodic review reports (PRRs) to NYSDEC, and general site management activities. A pilot test for the installation of the SSDS would be conducted upon approval of the RAWP and a design document will be submitted to NYSDEC for approval prior to the implementation of the Remedial Action.

5.1.2 Alternative 2 – Track 1 Remedy

5.1.2.1 Soil

Excavation of all soil with concentrations above Track 1 Unrestricted Use SCOs would be completed. Based on previous investigations completed at the Site, this alternative would include similar excavation depths to Alternative 1, in addition to a localized hotspot excavation to approximately 22 ft-bg for removal of a deep nickel hotspot in the vicinity of RI soil boring SB-17. The excavated hotspot area would be backfilled with

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clean soil. All imported fill would be sampled and analyzed prior to importation to the Site to ensure that the material meets Unrestricted Use SCOs.
End-point samples would be collected to confirm that Track 1 Unrestricted Use SCOs have been achieved across the Site. At development depth and within the hotspot, end-point samples will be collected from the bottom of the excavation and sidewalls of the excavation (where the sidewalls are not inaccessible due to support of excavation elements) and will be analyzed for Part 375 TCL VOCs, TCL SVOCs, TAL metals, pesticides, PCBs, and PFAS. If the end-point sample concentrations do not meet the Track 1 Unrestricted Use SCOs, additional excavation and end-point sampling will continue until the Track 1 Unrestricted Use SCOs are met.

The extent of excavation under this Alternative is depicted on Figure 8. Post-excavation confirmation end-point sample locations under this alternative are depicted on Figure 9.

A CAMP (Appendix B) and Soil/Materials Management Plan (Appendix D) will be implemented during the invasive Site activities to prevent or minimize potential impacts to human health and the environment.

5.1.2.2 Groundwater

As part of this alternative, the soil source of PCE will be removed, thereby eliminating the contributing source to groundwater and resulting in diminished concentrations of PCE in groundwater over time. Following removal of the soil source area, groundwater will be monitored quarterly for the first year and annually thereafter to document the natural attenuation of chlorinated solvents. Monitoring will continue until applicable SCGs are met or achieve asymptotic at levels that are acceptable to NYSDEC.

Post-remedial groundwater sampling will be performed in accordance with a SMP. Post-remedial groundwater samples will be collected from two onsite monitoring wells (MW-3I and MW-6) and three cross/downgradient monitoring wells (MW-4, MW-5, and MW-7) in order to evaluate the efficacy of the natural attenuation. Post-remedial monitoring well sample locations are shown on Figure 11. Groundwater samples will be analyzed for cVOCs.

If the results of the first and second round of post-remedial groundwater sampling indicate that cVOC concentrations have decreased below applicable standards, one confirmatory round of samples will be collected and NYSDEC will be asked to consider the groundwater remedy complete.

Groundwater in this part of Brooklyn is not used as a potable (drinking) water source. Residents receive their drinking water supply from surface reservoirs located in upstate New York.

5.1.2.3 Soil Vapor

Installation of an active SSDS within the new building would mitigate the potential for elevated concentrations of cVOCs in soil vapor beneath the building slab to migrate into the interior of the building. The active SDSS would create a negative pressure beneath the building slab, resulting in the collection of any VOCs that might otherwise migrate into the interior of the building. The system would connect to an exterior blower that will release trapped VOCs into the atmosphere above the building's roofline, to be diluted with ambient air. Exhaust of VOC impacted soil vapor would conform to the requirements set forth in the NYSDOH Soil Vapor Guidance. In order to achieve a Track 1 remedy, the system would need to be shut off within five years of issuance of the Certificate of Completion (COC).

A pilot test will be performed at the Site prior to the installation of the system to determine final design parameters. Confirmation testing would be performed following the installation the SSDS to verify that the systems are achieving the depressurization goal set by the Remedial Engineer. If the test shows a sub-slab vacuum below the depressurization goal, corrective measures would be implemented. Possible corrective

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measures include adjusting flow rates of individual soil vapor suction points, increasing the size of the suction point, adding additional suction points, and adding an additional blower.

Baseline indoor air samples will be collected onsite prior to the start-up of the SSDS, with post-remedial indoor air samples collected onsite three months after the system start-up. A total of five indoor air samples will be collected from the new onsite building during the initial sampling event and each one following [if additional sampling events are necessary]: three from the basement level (one each from the commercial space, fitness space, and mechanical space) and two from the first floor (one each from the recreation space and retail space; the remainder of the first floor consists of parking). Indoor air samples will be analyzed for VOCs via EPA Method TO-15. The results of the indoor air sampling will be presented in tabular form and discussed in the FER. Proposed post-remedial indoor air sampling locations are shown on Figure 12.

Short-term institutional and engineering controls for this Alternative would include post-remedial groundwater monitoring, maintenance of the active SSDS, annual inspection and certification of the active SSDS by a professional engineer, submission of PRRs to NYSDEC, and general site management activities. A pilot test for the installation of the SSDS would be conducted upon approval of the RAWP and a design document will be submitted to NYSDEC for approval prior to the implementation of the Remedial Action.

Long-term engineering controls would not be required under this Alternative.

5.2 Standards, Criteria and Guidance (SCGs)

The Remedial Action SCGs are listed below.

SCG	Scope / Application
NYSDEC Brownfield Cleanup Program Guide (draft 2004)	General program guidance
NYSDEC CP-51 / Soil Cleanup Guidance (2010)	Supplemental SCOs
NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (2010)	End-point sampling methodology; underground storage tank (UST) closure
NYSDEC DER-31 Green Remediation (2011)	Green remediation components
NYSDEC TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (1998)	Class GA Standards for groundwater
NYSDOH Guidance for Evaluating Soil Vapor Intrusions in the State of New York (2006)	Soil vapor guidance
NYSDOH Generic Community Air Monitoring Plan	Plan for monitoring dust and volatile organics resulting from construction activities
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 360 – Solid Waste Management Facilities	Offsite disposal of waste for facilities in NYC
New York State Codes, Rules and Regulations (NYCRR) Title 6 Part 364 – Waste Transporter Permits	Transporter requirements for offsite disposal of waste
6 NYCRR Part 370 – Hazardous Waste Management System	Disposal of hazardous waste, if encountered
6 NYCRR Part 375 – Environmental Remediation Programs (December 2006)	General administrative guidance and SCOs
6 NYCRR Part 376 – Land Disposal Restrictions	Disposal of hazardous waste, if encountered

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SCG	Scope / Application
6 NYCRR Part 750 – State Pollutant Discharge Elimination System (SPDES) Regulations	Discharge of wastewater and stormwater
Code of Federal Regulations (CFR) Title 29 Part 1910.120 - Hazardous Waste Operations and Emergency Response Standard	Worker safety
29 CFR Title 29 Part 1926 - Safety and Health Regulations for Construction	Worker safety
40 CFR Parts 144 and 146 – Underground Injection Control Program	Injection of chemicals into the groundwater
Title 15, Rules of the City of New York (RCNY), Chapter 19 - Use of the Public Sewers	Discharge of groundwater to the municipal sewer system
NYCDEP Limitations for Effluent to Sanitary or Combined Sewers	Discharge of groundwater to the municipal sewer system

5.3 Evaluation of Alternatives

The remedial alternatives for soil, groundwater, and soil vapor are discussed below. Each alternative was evaluated based on the following remedy selection factors (as defined in DER-10, Section 4.2):

- Protection of human health and the environment
- Conformance with standards, criteria and guidelines
- Short-term effectiveness and performance
- Long-term effectiveness and performance
- Reduction in toxicity, mobility or volume
- Implementability
- Cost effectiveness
- Community acceptance
- Land use

5.3.1 Protection of Human Health and the Environment

Each alternative would be protective of human health and the environment. Under Alternative 1, soil/fill would be excavated to meet Protection of Groundwater for cVOCs and Restricted-Residential Use SCOs for all other Part 375 analytes, consistent with the proposed future residential use of the Site. Under Alternative 2, soil/fill would be excavated to meet Track 1 Unrestricted Use SCOs.. Groundwater in this area is not used as a source of drinking water. As part of redevelopment, the onsite source of groundwater and soil vapor impacts would be eliminated.

A Health and Safety Plan (HASP), including monitoring/management for particulates and volatiles will be implemented during remedial activities.

5.3.2 Conformance with Standards, Criteria and Guidelines

Each alternative would conform to the SCGs. Both alternatives would remove the bulk of cVOC and fill-related impacts to soil, thus addressing the source of groundwater and soil vapor impacts. In addition, Alternative 2 (Track 1) would also remove a deep nickel hotspot in the southeastern portion of the Site.

Onsite construction safety will conform to the HASP requirements, which incorporate Occupational Safety and Health Administration (OSHA) requirements.

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5.3.3 Short-Term Effectiveness and Performance

Each alternative would be effective over a short-term time horizon. The alternatives are consistent with the proposed use. Alternative 2 (Track 1) is associated with the most significant short-term impacts, related to the increased duration associated with more extensive and deeper soil removal. These impacts include the potential for particulate and volatile impacts and additional truck traffic for a longer period. To a slightly lesser extent, Alternative 1 (Track 2) would have similar potential impacts for a shorter timescale. These potential impacts are addressed in the various control plans included in this RAWP.

5.3.4 Long-Term Effectiveness and Performance

Each alternative would be effective over a long-term time horizon. Alternative 2 (Track 1) would be consistent with the proposed use without long-term engineering controls and Alternative 1 (Track 2) would be consistent with the proposed use with long-term engineering controls. Groundwater in this area is not used as a source of drinking water, and the onsite source of cVOC impacts to groundwater and soil vapor would be removed during redevelopment.

5.3.5 Reduction in Toxicity, Mobility or Volume

Each alternative would reduce the toxicity, mobility, and volume of the contaminants present onsite. In particular, both Alternative 1 (Track 2) and 2 (Track 1) would remove the bulk of the impacts present at the Site.

5.3.6 Implementability

Each alternative could be implemented. Alternatives 1 (Track 2) and 2 (Track 1) could be implemented as part of the Site remedial action utilizing standard environmental and construction means and methods.

5.3.7 Cost Effectiveness

The cost of implementing Alternative 1 (Track 2) is estimated at approximately $575,000, as shown in Table 5. Additional reporting and long-term monitoring costs, approximately $105,000, would also be incurred. The cost of implementing Alternative 2 (Track 1) would be slightly lower, as long-term monitoring costs and reporting would not be required. However, additional excavation and disposal costs would partially offset the additional reporting and long-term monitoring costs that would be incurred with the implementation of Alternative 1 (Track 2).

5.3.8 Community Acceptance

Each alternative eliminates potential exposure pathways and will result in a decrease in toxicity, mobility and volume (see Section 5.3.5). These considerations, in conjunction with the future proposed residential and commercial use of the Site, acknowledgement that groundwater is not used as a potable source of water in this area of Brooklyn, and continued implementation of citizen participation requirements under the BCP should result in acceptance by the community.

The short-term impacts (see Section 5.3.3) are greater due to the additional construction impacts, although these will be addressed by the various control plans in this RAWP. The selected remedy will be subject to a 45-day public comment period in accordance with the Citizen Participation Plan.

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5.3.9 Land Use

Each of the proposed alternatives is compatible with the proposed land use at the Site, which has been documented in the BCP Application and in Section 1.3.

The following findings, based on a review of previous environmental and public documents, support the compatibility of the proposed Site land use with that of the surrounding area:

1. The use proposed for the Site conforms to applicable zoning laws or maps or the reasonably anticipated future use of the Site.
2. The proposed use conforms to historical and/or recent development patterns in the area.
3. The Site does not fall within the boundaries of an existing Brownfield Opportunity Area (BOA).
4. According to the New York City Planning Commission Zoning Map, the Site is located in a R7A zoning district, a designation that typically denotes a medium density apartment house district. The Site also has a C2-4 commercial overlay.
5. The Site is located in an urban setting characterized by residential and commercial uses. There are no areas zoned for agricultural use in the vicinity of the Site.
6. According to the NYSDEC database for environmental justice concerns, the Site is part of a Potential Environmental Justice Area (PEJA).
7. There are no Federal or State land designations.
8. The population growth patterns and projections support the proposed land use.
9. The Site is accessible to existing infrastructure.
10. The Site is not located in close proximity to important Federal, State or local natural resources, including waterways, wildlife refuges, wetlands, or critical habitats of endangered or threatened species.
11. Municipal water supply wells are not present in this area of New York City; therefore, groundwater from the Site cannot affect municipal water supply wells or recharge areas. The Federal Emergency Management Agency (FEMA) flood insurance rate map for the Site (Map Number 3604970203F) indicates that the Site is not located within the 0.2% annual chance floodplain (500-year flood).

5.4 Selection of the Preferred Remedial Actions

The preferred Track 2 remedy, intended to address all environmental issues associated with the Site, consists of the following: Alternative 1 (Track 2). The preferred remedy is further described below:

- Excavation and offsite disposal of all onsite soils which exceed the Protection of Groundwater Soil Cleanup Objectives (PGWSCOs) for cVOCs and Restricted-Residential Soil Cleanup Objectives (RRSCOs) for all other Part 375 analytes, as defined by 6 NYCRR Part 375-6.8(b), to a maximum depth of 15 ft-bsg;
- Off-site disposal of excavated materials from the Site in accordance with all Federal, State and local rules and regulations for handling, transport and disposal;
- Collection and analysis of post-remedial end-point samples to document remaining concentrations of contaminants. Samples will be evaluated for attainment of PGWSCOs for cVOCs and RRSCOs for all other Part 375 analytes, which would support a Track 2 remedy;
- Import of materials to be used for backfill and cover in compliance with 6 NYCRR Part 375-6.7(d) and all Federal, State and local rules and regulations for handling and transport of material;
- Removal and disposal any unidentified/unknown underground storage tanks (USTs) that are encountered during development in compliance with all applicable Federal, State and local rules and regulations;

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- Monitored natural attenuation (MNA) of groundwater following removal of the onsite soil source of PCE. Five existing groundwater monitoring wells (two onsite and three offsite) will be monitored quarterly for the first year and annually thereafter to document the natural attenuation of chlorinated solvents;
- Installation of an active Sub-Slab Depressurization System (SSDS) beneath the new onsite building to mitigate the potential for soil vapor intrusion. A pilot test will be performed to determine the design parameters of the SSDS. A blower test will be performed for the system to determine the final fan size required to meet the system design parameters. A SSDS Design Document for the Site system will be submitted under separate cover to NYSDEC and NYSDOH for approval which will include recommendation for effluent treatment as necessary;
- Efficacy of the active SSDS will be confirmed via achieving the required -0.02" water column depressurization throughout the sub-slab;
- Post-remedial (three months following SSDS start-up) indoor air sampling from the new Site building. A total of five post-remedial indoor air samples will be collected: three from the basement level, and two from the first floor;
- Preparation of a Final Engineering Report (FER) to document the implemented remedial actions;
- Development of a Site Management Plan (SMP) for long term management of residual groundwater and soil vapor contamination as required by an Environmental Easement, including plans for: (1) Institutional and Engineering Controls; (2) monitoring; (3) operation and maintenance; and (3) reporting; and,
- Recording of an Environmental Easement to restrict use of the site and require compliance with the SMP.

Remedial activities will be performed at the Site in accordance with this NYSDEC-approved RAWP and the Department-issued Decision Document. All deviations from the RAWP and/or Decision Document will be promptly reported to NYSDEC for approval and fully explained in the FER. Following excavation, site soils will meet the PGWSCOs for cVOCs and RRSCOs for all other analytes in the upper 15 feet and end-point sampling will document the quality of the remaining soil. Groundwater impacts will be monitored for natural attenuation of cVOCs, and soil vapor impacts will be mitigated by installation of an active SSDS.

The following land-use factors were considered in selecting these remedial measures.	Remedy Evaluation Result
Zoning	Remedy is consistent
Applicable comprehensive community master plans or land use plans	Remedy is consistent (not within a Brownfield Opportunity Area)
Surrounding property uses	Remedy is consistent
Citizen participation	Remedy is consistent; CPP requirements implemented regardless of selected remedy
Environmental justice concerns	Remedy is consistent
Land use designations	Remedy is consistent
Populations growth patterns	Remedy is consistent
Accessibility to existing infrastructure	Remedy is consistent
Proximity to cultural resources	None identified
Proximity to natural resources	None identified
Off-Site groundwater impacts	None identified
Proximity to floodplains	Site is outside the 500-year flood zone.=
Geography and geology of the Site	Remedy is consistent
Current Institutional Controls	None currently present

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

- Installation of a minimum 20-mil vapor barrier and waterproofing membrane beneath the foundation slab and on the exterior of all foundation sidewalls, to grade, as an element of foundation construction;
- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling, and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and,
- Integrating the remedy with the end use where possible.

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6.0 REMEDIAL ACTION PROGRAM

6.1 Governing Documents

6.1.1 Site-Specific Health and Safety Plan

A Site-Specific HASP has been created for the Site and is included in Appendix C. All remedial work performed under this plan will be in full compliance with governmental requirements, including Site and worker safety requirements mandated by Federal OSHA. An emergency contact sheet with names and phone numbers is included in Table 1 of the HASP and defines the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency. The HASP and requirements defined in this RAWP will govern all remedial and invasive work performed at the Site until the issuance of a Certificate of Completion.

6.1.2 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) has been created for the site to address quality control and quality assurance procedures for all site sampling, including post excavation end-point sampling, and is included in Appendix E.

6.1.3 Soil/Materials Management Plan

The Soil/Materials Management Plan (SMMP) includes plans for managing all soils/materials that are disturbed at the Site. The SMMP includes provisions for sediment and erosion control and stormwater management. The development is less than one acre in area and a Stormwater Pollution Prevention Plan (SWPPP) is not required.

The SMMP, which describes procedures for excavation, handling, storage, and transport and disposal, is included in Appendix D.

6.1.4 Storm-Water Pollution Prevention Plan (SWPPP)

The development is less than one acre in area and a SWPPP is not required.

6.1.5 Community Air Monitoring Plan

The purpose of the Community Air Monitoring Plan (CAMP) is to protect downwind receptors (e.g., residences, businesses, schools, nearby workers, and the public) from potential airborne contaminants released as a direct result of the Remedial Action being performed at the Site. A summary of the CAMP plan is included in Appendix B.

6.1.6 Citizen Participation Plan

The Citizen Participation Plan (CPP) enables citizens to participate more fully in decisions that affect their health, environment, and social well-being. The CPP will be updated throughout the Remedial Action in response to any community feedback.

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

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No changes will be made to approved Fact Sheets authorized for release by NYSDEC without written consent of the NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved Citizen Participation Plan for this project is attached in Appendix F.

An electronic document repository is available through DECinfo Locator: https://www.dec.ny.gov/data/DecDocs/C224340

In addition, paper document repositories have been established at the following locations and contain all applicable project documents:

Brooklyn Community Board #2
350 Jay Street, 8th Floor
Brooklyn, NY 11201
Phone: 718-596-5410
Hours: Monday – Friday : 9 AM – 5 PM
Saturday and Sunday: Closed

Brooklyn Public Library – Walt Whitman Branch
93 St. Edwards Street
Brooklyn, NY 11205
Phone: 718-935-0244
Hours: Monday, Wednesday, & Friday: 10 AM – 6 PM
Tuesday: 1 PM – 8 PM
Thursday: 10 AM – 8 PM
Saturday: 10 AM – 5 PM
Sunday: Closed

6.1.7 Site Operations Plan

The Remedial Engineer is responsible to ensure that all submittals for this remedial project, including contractor and sub-contractor document submittals, are in compliance with this RAWP. All remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and prior to the start of work.

6.2 General Remedial Construction Information

6.2.1 Project Organization and Emergency Contacts

The following are the principal personnel who will be assist in the management, oversight and completion of this project. A table of project contacts is also included as Table 7.

Remedial Engineer
Matthew M. Carroll, PE
1085 Sackett Avenue, Bronx, NY 10461
(917) 510-6767

Tenen Environmental, LLC
121 West 27th Street, Suite 702, New York, NY 10001
(646) 606-2332

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- Alana Carroll, Professional Geologist: responsible for overall coordination and management of the project.
- Mohamed Ahmed, Professional Geologist: responsible for quality assurance of sampling procedures and laboratory data.
- Ashley Platt, Project Environmental Scientist: responsible for the day-to-day coordination of field monitoring activities, including soil excavation and load-out, dust monitoring and PID monitoring. Report preparation will be the function of a Project Environmental Scientist from Tenen.

Subcontractors
Laboratory:
Alpha Analytical, Inc., 8 Walkup Drive, Westborough, MA 01581
(800) 624-9220
NYSDOH Environmental Laboratory Approval Program (ELAP) Certification No. 11148 for solid and hazardous waste

Data Validation/DUSR Preparer:
L.A.B Validation Corp., 14 West Point Drive, East Northport, NY 11731
(516) 523-7891

Remedial Party:
340 Myrtle Development LLC
1213 Rogers Avenue, 1st Floor, Brooklyn, NY 11226
Attn: David Halberstam
(718) 705-8825

Resumes of key personnel involved in the Remedial Action are presented in the QAPP, included as Appendix E.

6.2.2 Remedial Engineer

The Remedial Engineer (RE) for this project will be Matthew M. Carroll, P.E. The RE is a registered professional engineer (PE) licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program for the 340 Myrtle Avenue Site (NYSDEC BCA Index No. C224340-02-22; Site No. C224340). The RE will certify in the Final Engineering Report (FER) that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in conformance with that Plan. Other RE certification requirements are listed later in this RAWP.

The RE will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal, air monitoring, emergency spill response, import of back fill material (if any), and management of waste transport and disposal. The RE will be responsible for all appropriate communication with NYSDEC and NYSDOH.

The RE will review all pre-remedial plans submitted by contractors for compliance with this RAWP and will certify compliance in the FER.

6.2.3 Remedial Action Construction Schedule

A general Remedial Action construction schedule is included in Table 6.

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6.2.4 Work Hours

The hours for operation of remedial construction will conform to the New York City Department of Buildings construction code requirements or according to specific variances issued by that agency. NYSDEC will be notified by the Participant of any variances issued by the Department of Buildings. NYSDEC reserves the right to deny alternate remedial construction hours.

6.2.5 Mobilization

Mobilization includes field personnel orientation, equipment mobilization (including CAMP equipment), marking/staking sampling locations and utility mark-outs. Each field team member will attend an orientation meeting to become familiar with the general operation of the Site, health and safety requirements, and field procedures. The contractor will mobilize all necessary materials and equipment on Site directly prior to the initiation of any remedial activities. Material stockpile and equipment decontamination areas will be designated.

6.2.6 Erosion and Sedimentation Controls

The SMMP, as included in Appendix D, includes provisions for sediment and erosion control and stormwater management, which will be in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. This includes silt fencing along Myrtle Avenue and Carlton Avenue, as well as protection of nearby catch basins.

6.2.7 Stabilized Construction Entrances

One stabilized construction entrance is proposed at a gate along Carlton Avenue.

6.2.8 Equipment and Material Staging

All equipment and materials will be stored at the Site in accordance with the requirements of this RAWP, manufacturer's recommendations, and in conformity to applicable statutes, ordinances, regulations, and rulings of the public authority having jurisdiction. The Contractor shall maintain accurate records documenting the measures taken to protect each equipment item. The Contractor shall not store materials or encroach upon private property without the written consent of the owners of such private property. No work shall commence until a Notice to Commence work is provided by the Remedial Engineer.

6.2.9 Decontamination Area

One truck and equipment decontamination pad will be constructed at the gate along Carlton Avenue. This is the same as the construction entrance/exit pad, which limits the tracking of Site soils outside the Site.

The pads will be constructed using one and one-half inch to six inch crushed stone and shall be a minimum of eight inches thick. The construction zone exit pad will be constructed in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

All construction equipment exiting the contamination reduction zone must first be decontaminated regardless of whether the equipment has come in contact with contaminated materials.

During remediation, soil and liquids adhered to construction vehicles and equipment will be removed in the decontamination area prior to such vehicles and equipment leaving the Site.

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After wetting with potable water, brooms or shovels will be utilized for the gross removal of soil from vehicles and equipment. The decontamination procedure for the removal of the remaining soil and liquids will consist of washing with potable water. Soil generated by the decontamination process will be stockpiled and tested in accordance with the SMMP included in Appendix D, and transported offsite for disposal.

Decontamination liquids will percolate through the truck wash pad and be treated along with the groundwater.

6.2.10 Sheeting and Shoring

Appropriate management of structural stability of onsite or offsite structures during onsite activities including excavation is the sole responsibility of the Participant and its contractors. The Participant and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan. The Participant and its contractors must obey any local, State or Federal permits or approvals that may be required to perform work under this Plan. Further, the Participant and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved Plan.

6.2.11 Utility Markout and Easement Layout

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

6.2.12 Required Permits

A complete list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work will be included in the FER. This list will include a citation of the law, statute or code to be complied with, the originating agency, and a contact name and phone number in that agency.

6.2.13 Site Security

A construction fence will be installed around the Site and will be maintained and expanded as required throughout the Remedial Action. Sidewalks adjacent to the Site will be maintained with barriers to protect the public.

6.2.14 Pre-Construction Meeting with NYSDEC

The NYSDEC project manager will be invited to attend a pre-remedial action meeting at the Site with all parties involved in the remedial process prior to implementation of the RAWP.

6.2.15 Estimated Remedial Action Costs

The estimated cost to implement the Remedial Action is approximately $575,000. Additional costs, approximately $105,000, would be incurred for reporting and long-term monitoring. An itemized summary of estimated costs is included as Table 5. This table will be revised based on actual costs and included in the FER.

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6.2.16 Deviations from the Remedial Action Work Plan

During the implementation of the RAWP, any material deviation from the RAWP will be noted and immediately brought to the attention of the RE. The RE or his/her representative will contact the NYSDEC Project Manager and determine if the deviation necessitates a formal RAWP modification and NYSDEC approval. If no formal RAWP modification is required, the deviation will be noted in the Site reports and explained in the FER.

6.2.17 Demobilization

Disturbed areas resulting from remediation activities will be restored or addressed during construction activities. This includes removal of the construction fence and installation of a new concrete sidewalk along Myrtle Avenue and Carlton Avenue, as necessary. Restoration of disturbed access areas to pre-remediation conditions will include decommissioning any temporary curb supports for equipment access, if applicable.

Sediment and erosion control measures will be removed upon completion of the remediation activities.

Equipment decontamination will take place onsite in order to prevent dispersion of any contaminating materials.

All remediation and construction materials will be disposed of in accordance with the applicable rules and regulations. General refuse will be handled in accordance with the rules and regulations of the New York City Department of Sanitation.

6.3 Reporting

6.3.1 Daily Reporting

Daily reports will be submitted to the NYSDEC Project Manager by the end of each day following the reporting period and will include:

- An update of progress made during each day;
- Locations of work and quantities of material imported and exported from the Site;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions; and
- An explanation of notable Site conditions.

Daily reporting will be conducted during active Site remediation periods including soil excavation, air monitoring, soil segregation, off-Site disposal of material, UST removal (if any), end-point sampling, and pouring of the concrete foundation slab.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill, etc.), requests for changes to the Remedial Action Plan or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the Remedial Action Work Plan will be addressed directly to NYSDEC Project Manager via personal communication.

Daily reports will include a description of daily activities keyed to a map for the Site that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective

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actions, and any complaints received from the public. All complaints received will immediately be reported to NYSDEC.

The NYSDEC assigned project number will appear on all reports.

6.3.2 Monthly Reporting

Monthly reports will be submitted to NYSDEC Project Manager by the 10th day of the following month and will include:

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

6.3.3 Other Reporting

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

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

6.3.4 Complaint Management

All complaints received will be logged in by the Site Superintendent and reported in the daily report. Each complaint will be investigated as to its validity, the source determined, and a resolution adopted. Once a remedy has been put in place it will be recorded with the original complaint and reported in the daily report.

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7.0 REMEDIAL ACTION IMPLEMENTATION: EXCAVATION AND OFFSITE DISPOSAL

As discussed in Section 5.1, the components of the remedial action include the excavation and offsite disposal of soil for attainment of Protection of Groundwater SCOs for cVOCs and Restricted-Residential Use SCOs for all other Part 375 analytes to a maximum depth of 15 ft-bg. The applicable SCOs are presented in Tables 2 and 3, respectively.

The entirety of the Site will be excavated to 15 ft-bsg for removal of soil exceeding Protection of Groundwater SCOs for cVOCs and Restricted-Residential Use SCOs for all other Part 375 analytes, which will remove the bulk of contamination. Localized deeper excavation to accommodate installation of foundational elements and the elevator pit will also be completed for development purposes. As further described below, the major components of this part of the remedial action include characterization for disposal, implementation of the SMMP and CAMP, excavation and offsite disposal of impacted materials, closure of any encountered unknown USTs, and end-point sampling.

Based on the maximum detected concentration of PCE, approximately 170 CY of material exceeding Protection of Groundwater SCOs from the approximately 2,300-SF source area in the southeastern portion of the Site basement will be disposed offsite as F-002 hazardous waste. Additionally, based on TCLP lead concentrations, material from the lead hotspot in the exterior portion of Lot 21 will be disposed offsite as D-008 hazardous waste. A United State Environmental Protection Agency (USEPA) identification number will be obtained for the Site prior to offsite disposal of F-002 and D-008 hazardous waste. A contained-in determination will be requested for all material excavated and disposed offsite from outside of the source area and hotspot.

7.1 Estimated Material Removal Quantities

The estimated volume of material being excavated that does not meet applicable Track 2 Restricted-Residential SCOs is approximately 980 CY.

7.2 Waste Characterization

All soil will be disposed in accordance with NYSDEC requirements, which requires characterization sampling. Discrete and composite samples will be collected and analyzed in accordance with typical disposal facility requirements in order to characterize the soil. Samples will be field composited (as necessary), labeled and submitted for laboratory analysis. A field record, including PID readings, will be kept to document the materials encountered and support all sampling decisions. All samples will be analyzed for VOCs, SVOCs, pesticides, PCBs, and metals on the New York Part 375 SCOs and CP-51 lists and the New Jersey combined Soil Cleanup Criteria lists. In addition, samples will be analyzed for total petroleum hydrocarbons (TPH), TCLP metals, Resource Conservation and Recovery Act (RCRA) characteristics and paint filter test (PFT). These analytes are commonly required by regulated disposal facilities. Additional analysis may be required based on disposal facility requirements.

Approximately 2,000 CY of soil will be generated during excavation for development purposes. At a rate of approximately one sample per 800 CY and based on the Site geometry, three samples will be collected in order to characterize the volume of the soil. This sample frequency reflects typical disposal facility requirements for soils generated in New York City. Please note that there is no standard number of samples or analytes required for all facilities and, therefore, additional samples or analytes may be required at a later date.

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7.3 Soil/Materials Management Plan (SMMP)

Soil and materials management on-Site will be conducted in accordance with the SMMP and as described below. The main goal of the SMMP is to handle all potentially contaminated soil and manage activities associated with soil in a manner that prevents contamination from reaching the community, workers, future occupants and workers, and the environment. Contaminated soil must be managed in a manner that ensures removal, transport and disposal such that it fulfills applicable regulatory requirements. The means and methods to meet this goal are included in the SMMP, included as Appendix D.

7.4 Community Air Monitoring Plan (CAMP)

The main goal of the CAMP is to keep objectionable odors, VOCs, and/or particulates from reaching the surrounding community. The NYSDOH Generic CAMP, which includes monitoring for VOCs and particulates, will be implemented.

Should objectionable odors be produced during excavation, the area to be disturbed at any one time will be limited and, if necessary, foam cover will be utilized (Rusmar Incorporated AC-645 Long Duration Foam or approved equivalent), following the manufacturer's recommended application rate.

The CAMP is included as Appendix B.

7.5 Truck Routes

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

Myrtle Avenue is a two-way street, with traffic east and west. Carlton Avenue is a one-way street, with traffic moving from south to north. Trucks leaving the Site from Carlton Avenue will turn left onto Myrtle Avenue. Once on Myrtle Avenue, trucks will make the first right onto Navy Street, then make the first left onto Tillary Street. Trucks will continue to the end of Tillary Street and turn right onto Cadman Plaza West. Truck will then continue onto Old Fulton Street and keep left for the entrance to the Brooklyn Queens Expressway (I-278 West) and Verrazano-Narrows Bridge, which is a truck through route. The truck route is presented in Figure 10.

This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) limiting total distance to major highways; (d) promoting safety in access to highways; and (e) overall safety in transport. All trucks loaded with Site materials will exit the vicinity of the Site using only the most current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2022 New York City Truck Route Map).

Trucks will be prohibited from stopping and idling in the neighborhood outside the project Site. Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during Site remediation and development.

Materials transported by trucks exiting the Site will be secured with opaque, tight-fitting covers. If loads contain wet material capable of producing free liquid, truck liners will be used.

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7.6 Dewatering and Fluids Management

Groundwater is approximately 51 to 53 ft-bsg and will not be encountered during excavation for redevelopment.

Any liquids to be removed from the Site, including dewatering fluids, will be handled, transported, and disposed in accordance with applicable local, State, and Federal regulations. Liquids discharged into the New York City sewer system will be addressed through approval by NYCDEP.

Dewatering fluids, if any, will not be recharged back to the land surface or subsurface of the Site. Untreated dewatering fluids, if any, will be managed offsite.

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

7.7 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during on-Site remedial excavation or development related construction, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides, PCBs and PFAS). Newly encountered unknown USTs will be registered and closed in conformance with all applicable Federal, State and local regulations, including those defined in DER-10 and 6 NYCRR Parts 612 and 613.

Any newly encountered USTs will be registered with NYSDEC. Notification of removal of the existing tanks was provided to the Petroleum Bulk Storage Unit. USTs will be removed by a contractor licensed by the New York City Fire Department (FDNY) in accordance with the procedures set forth in the American Petroleum Institute (API) Recommended Practice 1604, entitled “Removal and Disposal of Used Underground Storage Tanks.”

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

7.8 Monitoring Well Decommissioning

Existing monitoring wells that will not be part of the post-remedial groundwater monitoring well network will be decommissioned prior to implementing remedial excavation in accordance with NYSDEC Groundwater Monitoring Well Decommissioning Policy (CP-43), dated November 3, 2009.

7.9 Remedial Performance Evaluation

Post-Excavation Documentation End-Point Sampling

End-point samples will be collected from the base of the excavation every 900 square feet (SF) and from the sidewalls of the excavation every 30 linear feet (LF) and will be analyzed for TCL VOCs, TCL SVOCs, TAL metals, pesticides, PCBs and PFAS. It is anticipated that a total of ten base of excavation documentation end-point samples and twelve sidewall documentation end-point samples will be collected following implementation of the Remedial Action. Figure 7 presents a generalized post-excavation sampling location map for Alternative 1.

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Chemical labs used for all end-point sample results and contingency sampling will be NYSDOH ELAP certified.

All post-excavation sample results will be compared with the Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs. The Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs are listed in Tables 1 through 3, respectively.

7.9.1 Quality Assurance / Quality Control (QA/QC)

A Quality Assurance Project Plan (QAPP) detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix E.

The QAPP includes provisions for trip blanks, field blanks, duplicates, matrix spike and matrix spike duplicate (MS/MSD) samples. The QAPP also describes field sampling procedures.

7.9.2 Data Usability Summary Report (DUSR)

A qualified data validator will prepare a Data Usability Summary Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

7.9.3 Reporting of End-Point Data in FER

The FER will provide a tabular and map summary of all end-point sample results and any exceedances of SCOs.

7.10 Reuse or Import of Materials

Import of materials for backfill is not anticipated. However, if materials are proposed for import to the Site, import materials will be in compliance with 6 NYCRR Part 375-6.7(d) and all Federal, State and local rules and regulations for handling and transport of material, and is further discussed in Section 1.9 of the SMMP in Appendix D.

A “Request to Import/Reuse Fill Material” form will be filed with the NYSDEC project manager for review and approval prior to reuse or import to the site. A copy of the form is presented in Appendix G.

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8.0 REMEDIAL ACTION IMPLEMENTATION: GROUNDWATER REMEDY – MONITERED NATURAL ATTENUATION

As discussed in Section 5.1, the components of the remedial action to address groundwater impacts includes monitored natural attenuation (MNA) of existing groundwater monitoring wells.

8.1 Monitored Natural Attenuation

As discussed in Section 7.0, the soil source of PCE at the Site will be removed, which should result in lower concentrations of PCE in groundwater over time. Based on the distribution of PCE contaminants in groundwater, it is anticipated that monitored natural attenuation (MNA) of cVOCs will be sufficient to remediate groundwater below the Site and offsite. MNA is the process by which a natural systems ability to attenuate contaminants at a specific site is confirmed, monitored, and quantified. Contaminant concentrations may attenuate in natural systems through biodegradation, sorption, volatilization, radioactive decay, chemical or biological stabilization, transformation, dispersion, dilution, and/or the destruction of contaminants. Following removal of the soil source area, groundwater will be monitored quarterly for the first year and annually thereafter to document the natural attenuation of chlorinated solvents. Monitoring will continue until applicable SCGs for cVOCs are met or achieve asymptotic at levels that are acceptable to NYSDEC.

Prior to beginning MNA, groundwater samples will be collected and analyzed for hydrogeologic and geochemical data (i.e., dissolved oxygen, nitrate, iron, manganese, sulfate, methane content, and oxidation/reduction potential) to confirm the aquifer characteristics are suitable to support natural attenuation of cVOCs in groundwater. The design goal is to decrease the concentrations of PCE to below the Class GA Standard of 5 ug/L.

8.2 Remedial Performance Evaluation

Post-Remedial Groundwater Sampling

Post-remedial groundwater sampling will be completed in accordance with a SMP. Post-remedial groundwater sampling will be performed at the Site following the completion of the Remedial Action. The first round of post-remedial groundwater sampling will occur at least 30 days after the PCE soil source area is removed and is expected to continue quarterly for a minimum of one year, and annually thereafter. Post-remedial groundwater samples will be collected from two onsite monitoring wells (MW-3I and MW-6) and three offsite cross/downgradient monitoring wells (MW-4, MW-5, and MW-7). All post-remedial groundwater samples will be analyzed for cVOCs. Proposed post-remedial groundwater monitoring well locations are shown on Figure 12.

8.2.1 Quality Assurance / Quality Control (QA/QC)

A QAPP detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix E.

The QAPP includes provisions for trip blanks, field blanks, duplicates, and MS/MSD samples. The QAPP also describes field sampling procedures.

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8.2.2 Data Usability Summary Report (DUSR)

A qualified data validator will prepare a Data Usability Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

8.2.3 Reporting of Post-Remedial Groundwater Data in FER

The FER will provide a tabular and map summary of all post-remedial groundwater sample results and any exceedances of Class GA Standards.

8.3 Monitoring Well Decommissioning

Existing monitoring wells that will not be part of the long-term monitoring will be decommissioned in accordance with NYSDEC Groundwater Monitoring Well Decommissioning Policy (CP-43), dated November 3, 2009.

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9.0 REMEDIAL ACTION IMPLEMENTATION: ACTIVE SUB-SLAB DEPRESSURIZATION SYSTEM

As discussed in Section 5.1, the components of the remedial action to address soil vapor impacts include the installation of an active SSDS within the new onsite building. The active SSDS will be a permanent engineering control for the Site. In addition, in order to comply with green remediation principles, a vapor barrier system will be installed beneath the foundation slab of the new onsite building and on all foundation sidewalls as an element of development.

Final SSDS designs for the system will be based upon the results of the pilot test and submitted for approval to NYSDEC via a SSDS Design Document.

9.1 Sub-Slab Depressurization System

An active SSDS will be installed in conjunction with the construction of the new building to minimize the potential for vapor intrusion and will generally consist of perforated or slotted PVC pipes set horizontally within subgrade trenches consisting of six inches of stone aggregate, topped by geotextile fabric and a concrete foundation slab. Multiple pressure monitoring points will be installed throughout the slab within the cellar to confirm the system is achieving its design goals.

The layout of the proposed system and pressure monitoring points will be provided to NYSDEC for approval via a SSDS Design Document that will be prepared prior to installation.

A six-inch diameter cast iron riser pipe will connect to the subgrade system and extend through the building to the roof where it will be connected to a blower fan for exhaust. The final location of all vertical riser piping, header piping, and roof mounts will be determined by a Professional Engineer in consultation with the building owner.

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust will conform to the NYSDOH Soil Vapor Intrusion Guidance, specifically Section 4.2.2, System-specific recommendations, which provides:

To avoid entry of extracted subsurface vapors into the building, the vent pipe's exhaust should be:

i. Above the eave of the roof (preferable, above the highest eave of the building at least 12 inches above the surface of the roof),
ii. At least 10 feet above ground level,
iii. At least 10 feet away from any opening that is less than 2 feet below the exhaust point, and
iv. 10 feet from any adjoining or adjacent building, or HVAC intakes or supply registers.

The exhaust location, labeling, alarms and system components have been designed in general accordance with the NYSDOH Soil Vapor Guidance.

Following the installation of the SSDS, a blower test will be completed in order to size the blower. A regenerative blower will be mobilized to the Site and a step-test will be completed to determine the flows from each suction pit to depressurize below the slab at least -0.02 inches of water column (in-wc). The above-grade head losses will be modeled using the Darcy-Weisbach equation.

Initial Startup

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After the System has been installed, the following will be completed in order to ensure that the system meets the remedial goal of a -0.02 in-wc or greater pressure differential.

- Visual inspection of the building slab for any cracks or holes. In any are identified, they will be sealed.
- Measurement of the sub-slab pressure at temporary and permanent pressure-monitoring points to ensure that the remedial goal of -0.02 in-wc has been achieved. If the startup is not conducted during the heating season, the pressure differential will also be measured during the heating season to ensure the remedial goal of -0.02 in-wc has been achieved.
- If appliances that rely on natural draft for exhaust of carbon monoxide and other combustion gases are identified, the potential for back draft will be tested. The potential for back draft will be determined using a carbon monoxide detector. If any back draft is identified, it will be corrected.

An alarm system will be installed that will notify the building management if a drop in pressure indicates that the system is not operating as designed. In general, a pressure switch will be placed on the main riser with a field-set switch point. The alarm will be a horn-strobe mounted in the building. If a full-time attendant is not assigned to oversee the performance of the SSDS, a telemetry system will be installed that is capable of notifying building management of any operational issues via electronic communication.

A Site Management Plan (SMP) will be prepared that includes an Operations, Maintenance and Monitoring (OM&M) Plan and submitted to NYSDEC upon completion of the Remedial Action. The OM&M Plan will be used to determine the efficacy of the SSDS after system startup.

9.2 Remedial Performance Evaluation

Post-Remedial Indoor Air Sampling

The efficacy of the active SSDS will be confirmed via pressure monitoring points achieving the required -0.02 in-wc depressurization throughout the sub-slab. Baseline (prior to SSDS startup) and post-remedial (three months following SSDS start-up) indoor air sampling will be conducted for additional evaluation of the onsite SSDS. It is anticipated that a total of five indoor air samples will be collected from the new Site building during each sampling event: three from the basement level and two from the first floor. Proposed post-remedial indoor air sample locations are shown on Figure 12.

Chemical labs used for all indoor air sample results will be NYSDOH ELAP certified.

All indoor air samples will be analyzed for EPA Method TO-15 VOCs and sample results will be compared with the NYSDOH Decision Matrices and Air Guideline Values (AGVs) as listed in the NYSDOH Soil Vapor Guidance.

9.2.1 Quality Assurance / Quality Control (QA/QC)

A QAPP detailing the frequency of sample collection, analytical methods and the quality standards that must be achieved by the analytical laboratory is included as Appendix E.

The QAPP includes provisions for trip blanks, field blanks, duplicates, and MS/MSD samples. The QAPP also describes field sampling procedures.

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9.2.2 Data Usability Summary Report (DUSR)

A qualified data validator will prepare a Data Usability Report (DUSR). The DUSR will be prepared according to the guidelines contained in Appendix 2B of DER-10.

9.2.3 Reporting of Post-Remedial Indoor Air Data in FER

The FER will provide a tabular and map summary of all indoor air sample results and any exceedances of AGVs.

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10.0 REMAINING CONTAMINATION TO REMAIN ON-SITE

The successful implementation of the Remedial Action will result in the following:

- All soil left onsite will meet the Protection of Groundwater SCOs for cVOCs and Restricted-Residential Use SCOs for all other Part 375 analytes to a depth of at least 15 ft-bsg;
- Contamination may remain in groundwater and soil vapor but the bulk of the cVOC and historic fill contaminant mass will be removed, resulting in lower concentrations of contaminants in groundwater and soil vapor over time;
- Groundwater will be monitored for natural attenuation of cVOCs with a design goal of meeting the Class GA Standard for PCE; and,
- Soil vapor will be mitigated within the new building by an active SSDS, with design goals of preventing soil vapor intrusion within the building.

Since residual contaminated groundwater and soil vapor may remain after the remedy is complete, long-term Engineering Controls and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described below. Long-term management of ECs/ICs and of residual contamination will be executed under a Site-Specific Site Management Plan (SMP) that will be developed and included in the FER.

ECs will be implemented to protect public health and the environment by appropriately managing residual contamination. The Controlled Property (the Site) will have two primary EC systems:

- Active Sub-Slab Depressurization System; and,
- Post-Remedial Groundwater Monitoring.

The SSDS would be a long-term EC. While post-remedial groundwater monitoring is part of the selected remedy, it is presented as an EC because it will continue after the FER and SMP are submitted. The FER will report residual contamination onsite in tabular and map form, including any exceedances of the Class GA Standards.

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11.0 ENGINEERING CONTROLS

11.1 Engineering Control Systems

As discussed above, two engineering controls (ECs) will be utilized at the Site: an active SSDS and post-remedial groundwater monitoring. The ECs will be memorialized in an Environmental Easement assigned to the property by the titleholder and will be implemented under a SMP. The post-remedial groundwater monitoring is considered an EC only because it will be implemented following submittal of the FER. The conceptual approach, general system design, operation, maintenance and monitoring (OM&M) requirements and criteria for termination of each of these systems are described below.

11.1.1 Description of Engineering Controls

11.1.1.1 Sub-Slab Depressurization System

An active SSDS will be installed within the new building to minimize the potential for vapor intrusion and offsite vapor migration. The proposed system design and layout will be provided to NYSDEC for approval via a SSDS Design Document following the pilot test. The principal components of the SSDS are a number of perforated or slotted PVC pipes set horizontally within subgrade trenches connected to a cast iron riser pipe that will extend through the building to the roof where it will be connected to a blower fan for exhaust. Multiple vapor pressure monitoring points will be installed throughout the cellar slab to confirm the system is achieving its design goals.

The goal of an active system is to create a pressure differential of at least -0.02 in-wc between the indoor and sub-slab environments. An alarm system will be installed that will notify the building management if a drop in pressure occurs, indicating that the system is not operating as designed. If a full-time attendant is not assigned to oversee the performance of the SSDS, a telemetry system will be installed that is capable of notifying building management of any operational issues via electronic communication. The system will be designed in general accordance with NYSDOH's Soil Vapor Guidance. In order to determine design parameters for the system, a pilot test will be conducted prior to the installation of the SSDS.

A written record of the annual monitoring for the system will be kept with the SMP. If any of the above items suggest that the SSDS may have been impacted beyond the need for routine maintenance, the building management will contact an environmental professional. If the operation of the SSDS has been impacted, NYSDEC will be contacted. If non-routine maintenance or repairs are required based on the annual inspection or an alarm condition, the system will be restarted as described in the "Initial Startup" section (RAWP Section 8.3).

11.1.1.2 Post-Remedial Groundwater Monitoring

Elevated levels of PCE have been detected in the groundwater at the Site. Residual contaminants may remain following implementation of the remedial action and will be monitored for natural attenuation of cVOCs.

Groundwater will be monitored by sampling existing permanent groundwater monitoring wells as shown on Figure 11. Two onsite wells (MW-3I and MW-6) and three offsite and cross/downgradient wells (MW-4, MW-5, and MW-7) will be sampled as part of each monitoring event.

Post-remedial groundwater monitoring will begin at least 30 days following removal of the soil source of PCE. All sampling equipment will be decontaminated prior to use. Prior to sampling, water levels will be measured using an electronic product-water level indicator. Samples will be collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedures

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for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW 001 Revision 3 dated July 30, 1996; Revised: January 19, 2010).

Long-term monitoring (quarterly for a minimum of one year and annually thereafter) of the groundwater will be conducted to determine the efficacy of the Remedial Action. All quarterly and annual monitoring samples will be analyzed for cVOCs.

11.1.2 Criteria for Termination of Remedial Systems

11.1.2.1 Sub-Slab Depressurization System

The active SSD system will not be discontinued without written approval by NYSDEC and NYSDOH. A proposal to discontinue the active SSD system may be submitted by the property owner based on confirmatory data that justifies such request. Systems will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

11.1.2.2 Post-Remedial Groundwater Monitoring

Groundwater monitoring to assess the efficacy of the Remedial Action is planned for four quarters after the completion of the Remedial Action, and annually thereafter.

Monitoring will continue until permission to discontinue is granted in writing by NYSDEC and NYSDOH. Monitoring activities will be outlined in the SMP.

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12.0 INSTITUTIONAL CONTROLS

An Institutional Control (IC) will be required to manage residual contamination on-Site and off-Site and to ensure that the ECs remain protective of public health and the environment. The ICs consist of two elements designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan.

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, will be recorded with the Kings County Office of the City Register for the Site and any off-Site property requiring mitigation to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this Site by this NYSDEC-approved remedy. ICs provide restrictions on Site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The Site Management Plan (SMP) describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

12.1 Environmental Easement

The Environmental Easement renders the Site and any property requiring mitigation as Controlled Properties. The Environmental Easements must be recorded with the Kings County Office of the City Register before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the Site to residential, commercial, or industrial use(s) only. These Institutional Controls are requirements or restrictions placed on the Site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on Site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required;
- All Engineering Controls must be operated and maintained as specified in the SMP;
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP;
- Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP;
- Onsite environmental monitoring devices, including but not limited to groundwater monitoring wells and soil vapor extraction monitoring points, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP; and
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

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Adherence to these Institutional Controls for the Site and any offsite properties requiring mitigation is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (Site) will also have a series of Institutional Controls in the form of Site restrictions and requirements. The Site restrictions that apply to the Controlled Property are:

- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose;
- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan;
- The Controlled Property may be used for residential, commercial, or industrial use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed;
- The Controlled Property may not be used for a higher level of use, such as unrestricted use, without an amendment or extinguishment of the Environmental Easement; and
- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or following an alternate period of time that NYSDEC may allow. This annual statement must be certified by an expert that the NYSDEC finds acceptable.

The Environmental Easement will incorporate the ICs required to implement, maintain and monitor the ECs, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restrict the use of the Site to residential, commercial, or industrial uses only, unless discontinued or modified with the approval of NYSDEC.

The Environmental Easement for the controlled property will include the following requirements:

- The remedial party or Site owner must complete and submit to NYSDEC a periodic certification of institutional and engineering controls in accordance with 6 NYCRR Part 375-1.8 (h)(3);
- The use and development of the controlled property is allowed for residential, commercial, and industrial uses as defined by 6 NYCRR Part 375-1.8(g), although land use is subject to local zoning laws;
- The use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health (NYCDOH) is restricted; and
- Compliance with the NYSDEC-approved SMP is required.

12.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The SMP is submitted as part of the FER, but will be written as a complete and independent document. Site management requirements continue in perpetuity or until released in writing by NYSDEC. The property owner is responsible for ensuring that all Site and offsite management responsibilities defined in the Environmental Easement and SMP are performed.

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

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of site monitoring; (3) an Operation and Maintenance (O&M) Plan for implementation of remedial containment systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis; the certification period will be annually. The Periodic Review Report (PRR) submitted under the SMP will be based on a calendar year. The first PRR will be submitted to the NYSDEC within 15 months after the date of COC issuance. Any lapses in the engineering or institutional controls noted in the PRR will be required to be corrected expeditiously and the NYSDEC notified of the correction. The SMP will include the following:

1. Introduction with purpose, summary of remediation and site conditions;
2. Institutional and Engineering Control Plan;
3. O&M Plan;
4. Site Monitoring Plan;
5. Site maintenance requirements;
6. Citizen Participation Plan;
7. Personnel organization and responsibilities;
8. Health and Safety Plan;
9. Records and forms;
10. Emergency Contingency Plan; and
11. Copies of Environmental Easement and applicable Site plans, including electronic versions.

The Institutional and Engineering Control Plan will include the following:

- descriptions of the provisions of the environmental easement including any land use and groundwater use restrictions;
- a provision for evaluation of the potential for soil vapor intrusion for any buildings developed on the site, including a provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and NYSDEC notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

The OM&M Plan will include the following:

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- compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit-equivalent reporting;
- maintaining site access controls and NYSDEC notification; and
- providing NYSDEC access to the site and O&M records.

The Site Monitoring Plan will include the following:

- a schedule of monitoring and frequency of submittals to NYSDEC; and
- monitoring for soil vapor intrusion for any buildings developed on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

The Site Management Reporting Plan will include the following:

- Details regarding post-COC reporting requirements, including a schedule.
- The contents of the annual report, including:
    - an evaluation of the EC/ICs, EC/IC certifications, results of period Site inspections and deliverables to be generated;
    - frequency and type of the EC/IC and Site inspections;
    - inspection forms, sampling data and maintenance reports;
    - an evaluation of records and reporting; and
    - corrective measure plans.

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13.0 FINAL ENGINEERING REPORT

A Final Engineering Report (FER) will be submitted to the NYSDEC Project Manager within 90 days of completion of the remedial action. The FER will provide documentation showing that the remedial work required under this RAWP has been completed and has been performed in compliance with this RAWP. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, calculation and manufacturer documentation for treatment systems, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will provide test results demonstrating that all mitigation and remedial systems are functioning properly. The FER will be prepared in conformance with DER-10.

The Final Engineering Report will include written and photographic documentation of all remedial work performed under this remedy. Photographs will be taken of all remedial activities and submitted to NYSDEC in digital format after completion of active Site remediation. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the Site prior to any Remedial Actions will be provided. Representative photos will be provided of each contaminant source, source area and Site structures before, during and after remediation. Photos will be submitted to NYSDEC on CD or other acceptable electronic media and will be sent to NYSDEC's Project Manager (2 copies) and to NYSDOH's Project Manager (1 copy). Each CD will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Measure components. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos.

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

The FER will provide a thorough summary of all remaining contamination left on the Site after the remedy is complete if Unrestricted Use SCOs are not met. Remaining contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCOs in 6 NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted Use SCOs for all soil/fill remaining at the Site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted Use SCOs for all soil/fill remaining at the Site after the Remedial Action will be included in the FER.

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

This FER will include the following:

1. Certification by the RE that the data generated is useable and meets the remedial requirements;
2. Certification by the RE that any financial assurance mechanisms required by the NYSDEC have been executed;
3. Certification by the RE that the remedial work conformed to the RAWP;

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4. Certification by the RE that dust, odor, and vapor control measures were implemented during invasive work and conformed with the RAWP;
5. Certification by the RE that all the remedial waste was transported and disposed in accordance with the RAWP;
6. Certification by the RE that the source approval and sampling of imported acceptable fill was completed in a manner consistent with the methodology of the RAWP;
7. Summary of the remedy and all remedial actions completed;
8. Description of any problems encountered and their resolutions;
9. Description of the deviations from the approved RAWP;
10. Listing of waste streams, quantity of materials disposed, and where they were disposed;
11. Analytical QA/QC completed for the environmental media sampling during the remedial activities, including DUSR or other data validation;
12. List of the remediation standards applied to the remedial actions;
13. List of all applicable local, regional, and national governmental permits, certificates, or other approvals required for the remedial and development work;
14. Tables and figures containing all pre- and post-remedial data, including volumes of soil removed (as applicable);
15. Description of source and quality of fill (as applicable);
16. "As-built" drawings including remediation areas;
17. Air quality and dust monitoring data, including any supporting documentation on the decisions made based on the data;
18. Copies of all the submitted periodic reports; and
19. Copies of all manifests of offsite transport of waste material.

Before approval of a FER and issuance of a Certificate of Completion, all documents and reports will be submitted to the NYSDEC will be in both hard copy and in digital format on CD. These digital documents shall be in PDF form and, where appropriate, supplemented by photos and Microsoft Excel files. Laboratory analytical data will be submitted in an electronic data deliverable (EDD) format that complies with the NYSDEC's electronic data warehouse standards.

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Figures

Basemap: USGS Topographic Map, 7.5 Minute Quadrangle: Brooklyn, NY

Site Location

0 1,000 2,000 4,000 Feet

http://gis.nyc.gov/taxmap/map.htm

Department of Finance Digital Tax Map

0 100 200 400 Feet

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community
NYC Department of City Planning, Information Technology Division

Department of City Planning MapPLUTO - 2023 v1

0 100 200 400 Feet

Site

Remedial Action Work Plan
340 Myrtle Avenue
Brooklyn, New York
Block 2073, Lots 21 & 22
BCP Site No. C224340

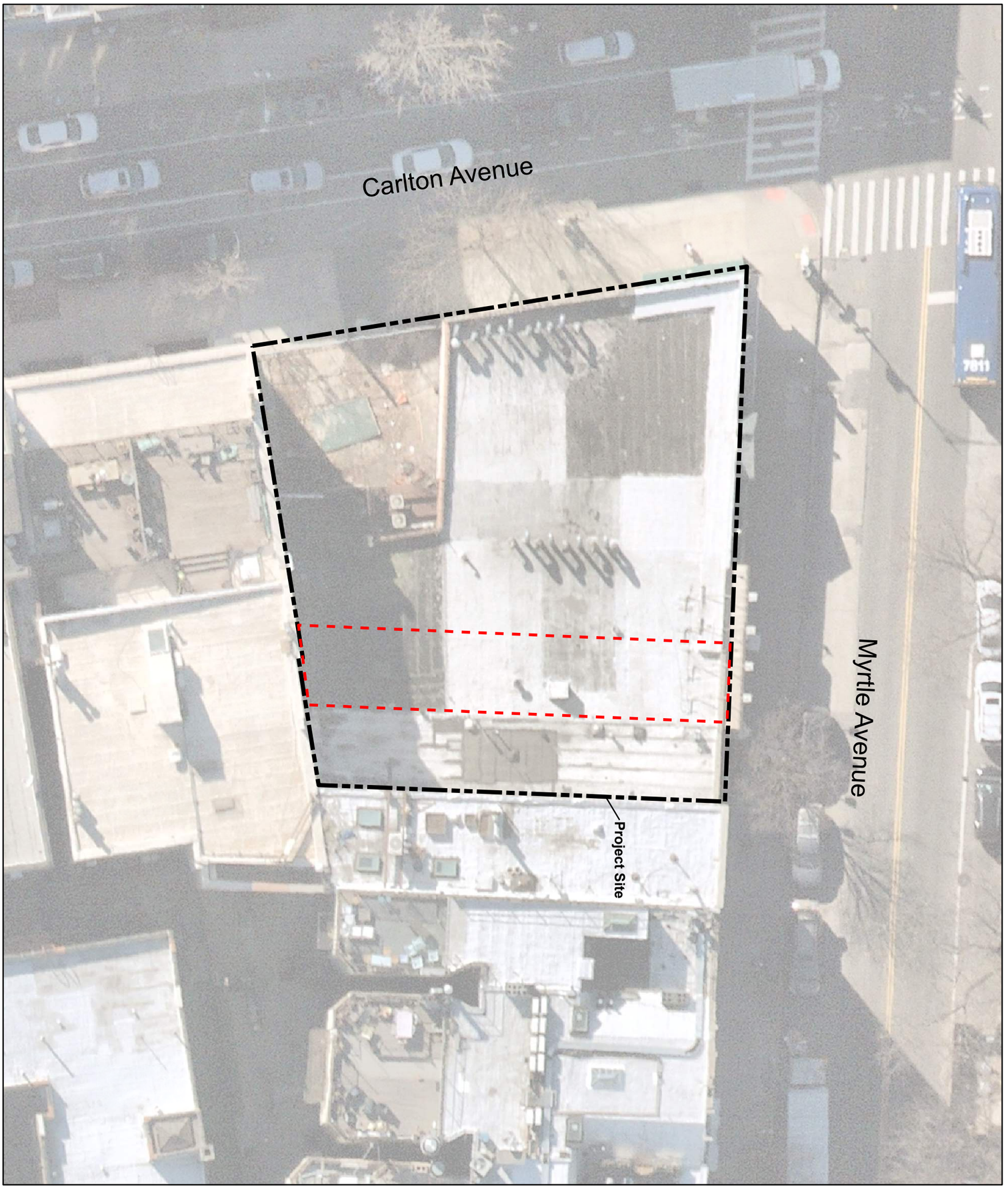
TENEN ENVIRONMENTAL

Tenen Environmental, LLC
121 West 27th Street
Suite 702
New York, NY 10001
O: (646) 606-2332
F: (646) 606-2379

Drawn By	Checked By	Date	Scale
LM	AP	September 2023	As Noted

Drawing Title: **Site Location Map**

Drawing No: **Figure 1**



0 10 20 40 Feet

Nearmap Aerial 3/12/2021

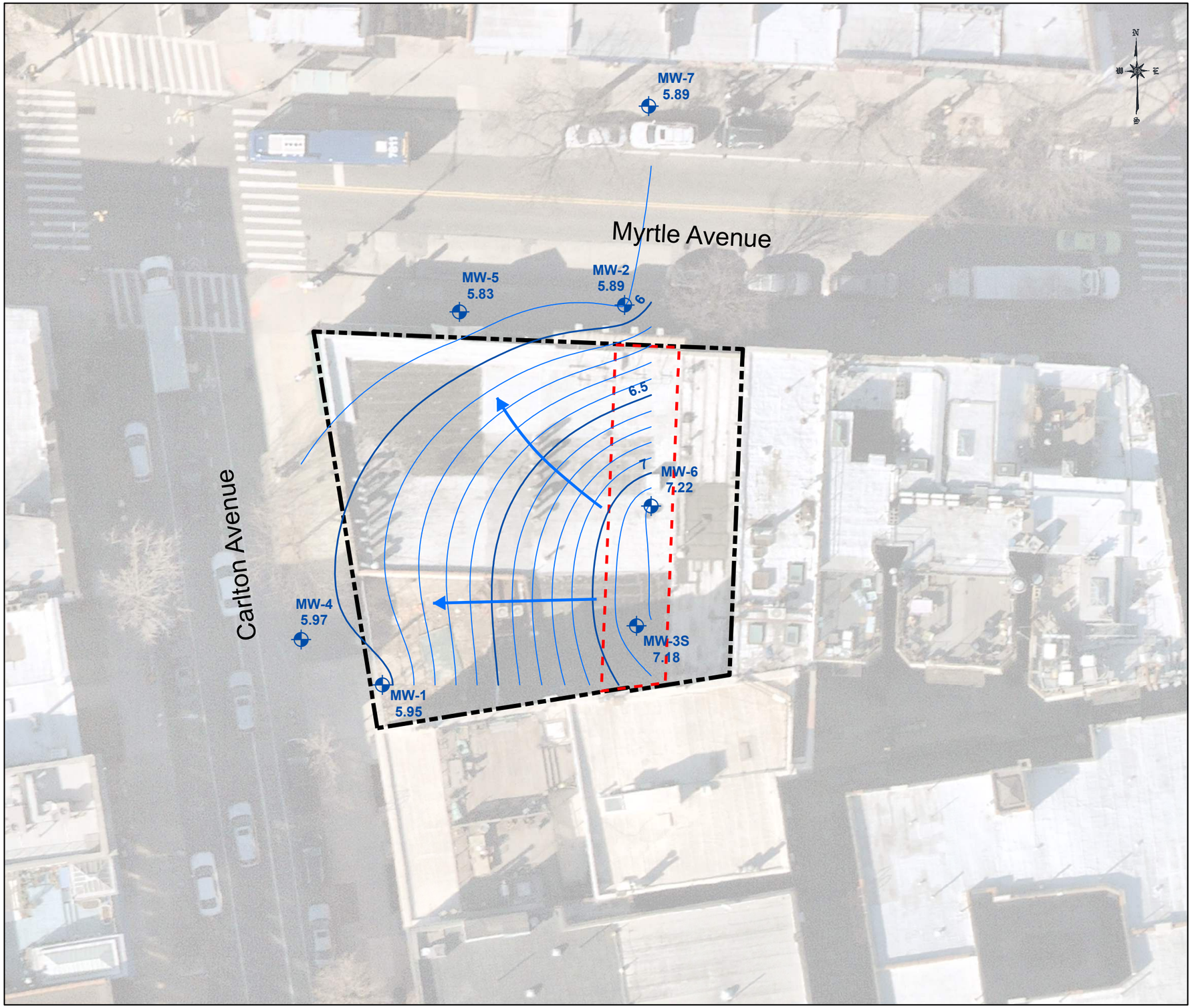
Legend

Site Boundary

Former Dry Cleaner

W E S N

Drawing Title: **Site Layout**	Drawn By: LM	TENEN ENVIRONMENTAL	Site: **Remedial Action Work Plan** **340 Myrtle Avenue** **Brooklyn, New York** **Block 2073, Lots 21 & 22** **BCP Site No. C224340**
	Checked By: AP		
Drawing No: **Figure 2**	Date: September 2023	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Scale: As Noted		



Legend

- Groundwater Monitoring Wells
- Groundwater Contour
- Groundwater Contour
- Former Dry Cleaner
- Site Boundary

Nearmap Aerial 3/12/2021

0 12.5 25 50 Feet

Site

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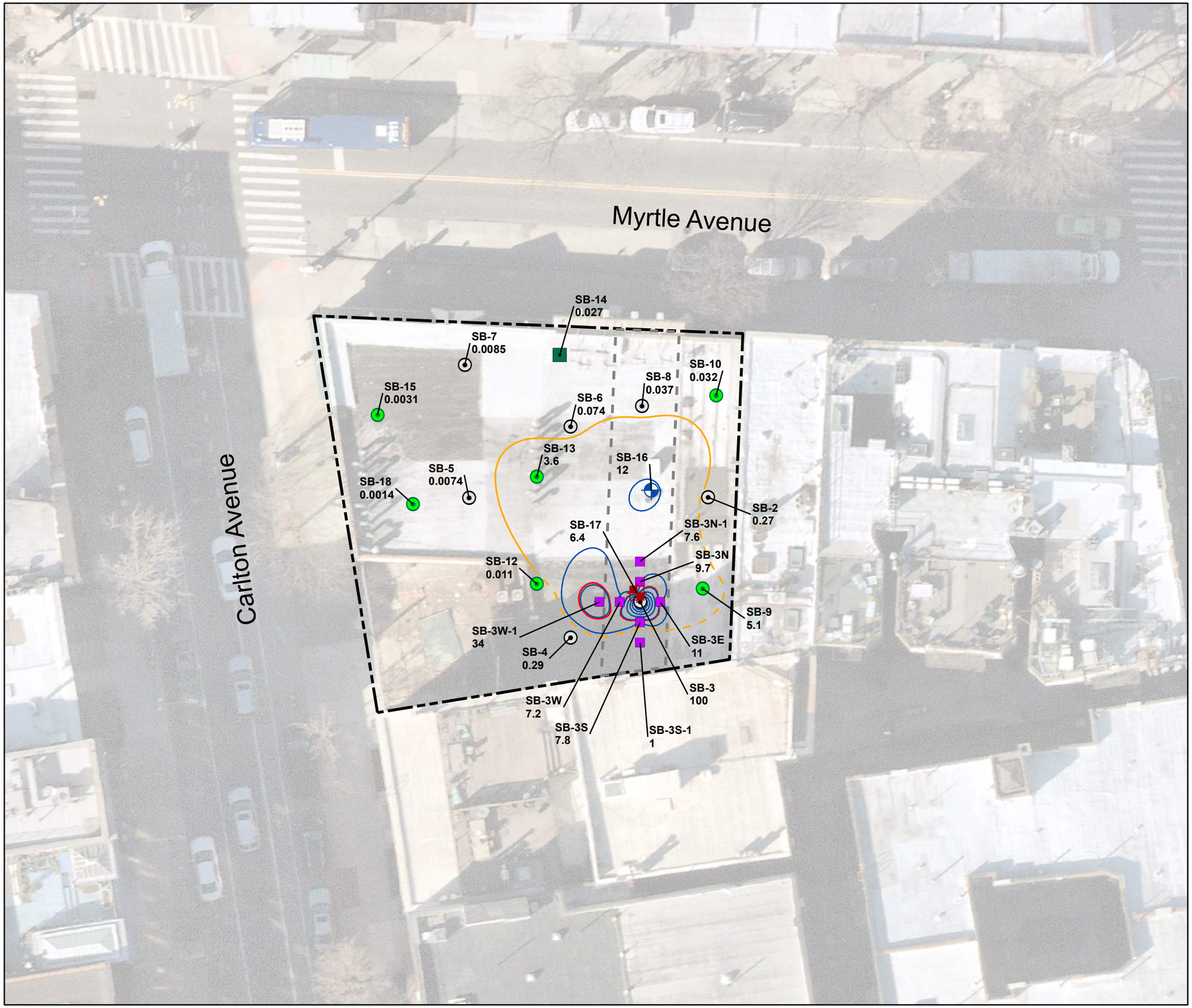
Drawn By	Checked By	Date	Scale
LM	AP	September 2023	As Noted

Drawing Title: **Groundwater Flow Contours**

Drawing No: **Figure 3**



Legend

- Shallow/Intermediate Historic Fill Sample Location
- Deep Soil Sample Location (no Well)
- Monitoring Well/Deep Soil & Groundwater Sample Location
- Deep Soil Boring with Coupled Monitoring Wells
- CVOC Hotspot Delineation Soil Sample
- Hand Augered Soil Boring
- 10 mg/kg Isopleth Interval
- 1.3 mg/kg Isopleth Contour (Unrestricted Use SCO)
- 19 mg/kg Isopleth Contour (Restricted Residential Use SCO)
- Former Dry Cleaner
- Site Boundary

Notes:

1. All samples collected from 0-2 feet below basement grade.

2. Concentrations are in mg/kg.

Nearmap Aerial 3/12/2021

0 12.5 25 50 Feet

Site

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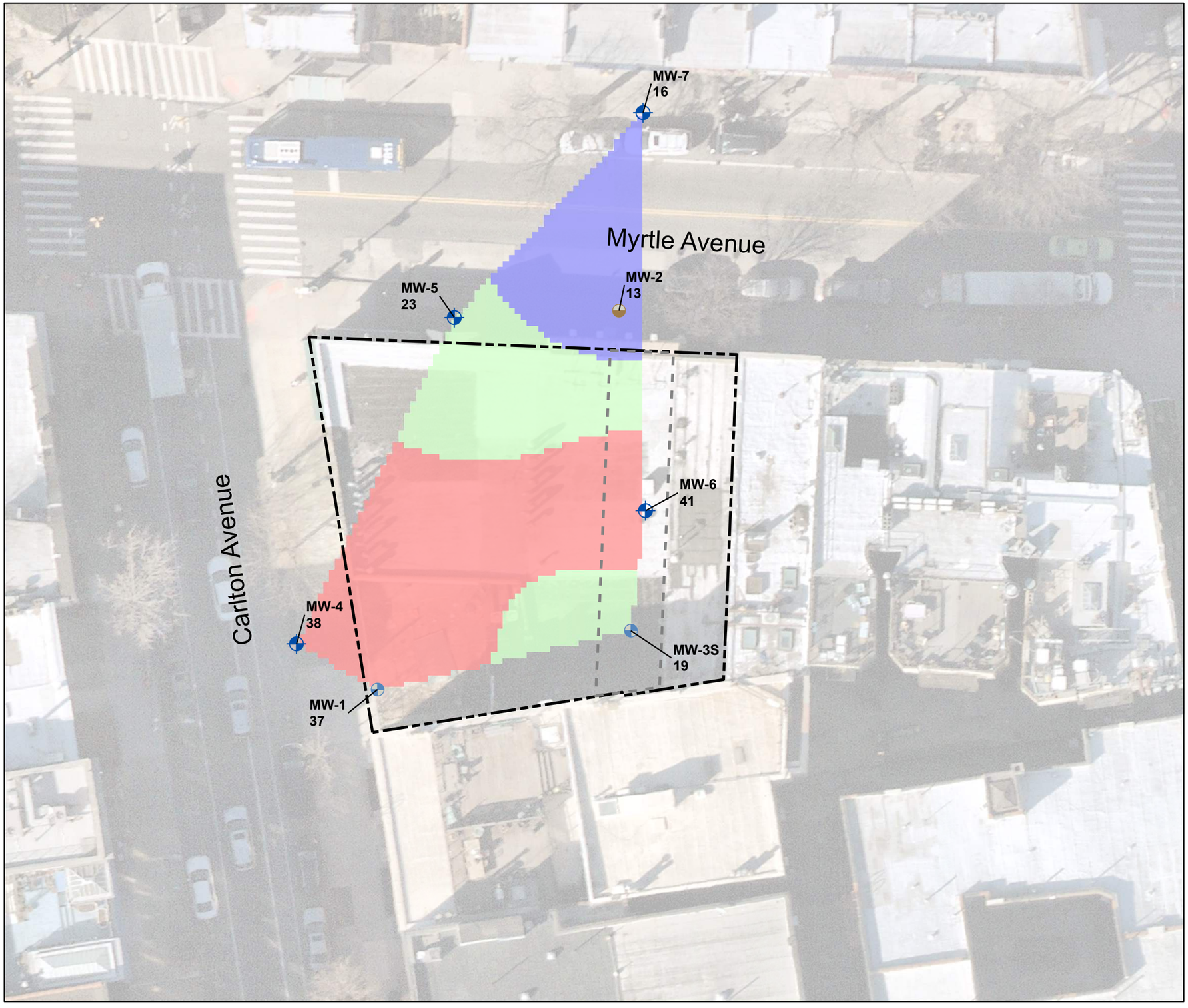
Drawn By	Checked By	Date	Scale
LM	AP	September 2023	As Noted

Drawing Title: **PCE in Soil Isopleths**

Drawing No: **Figure 4**



Legend

- Groundwater Sample Location from Existing Monitoring Well
- Groundwater Sample Location from Newly Installed Monitoring Well
- Monitoring Well/Deep Soil & Groundwater Sample Location
- Deep Soil Boring with Coupled Monitoring Wells
- Former Dry Cleaner
- Site Boundary

PCE in Groundwater (µg/l)

- 13 - 20
- 20 - 30
- 30 - 40

Note:

1. Concentrations are in µg/l.

Nearmap Aerial 3/12/2021

0 12.5 25 50 Feet

Site

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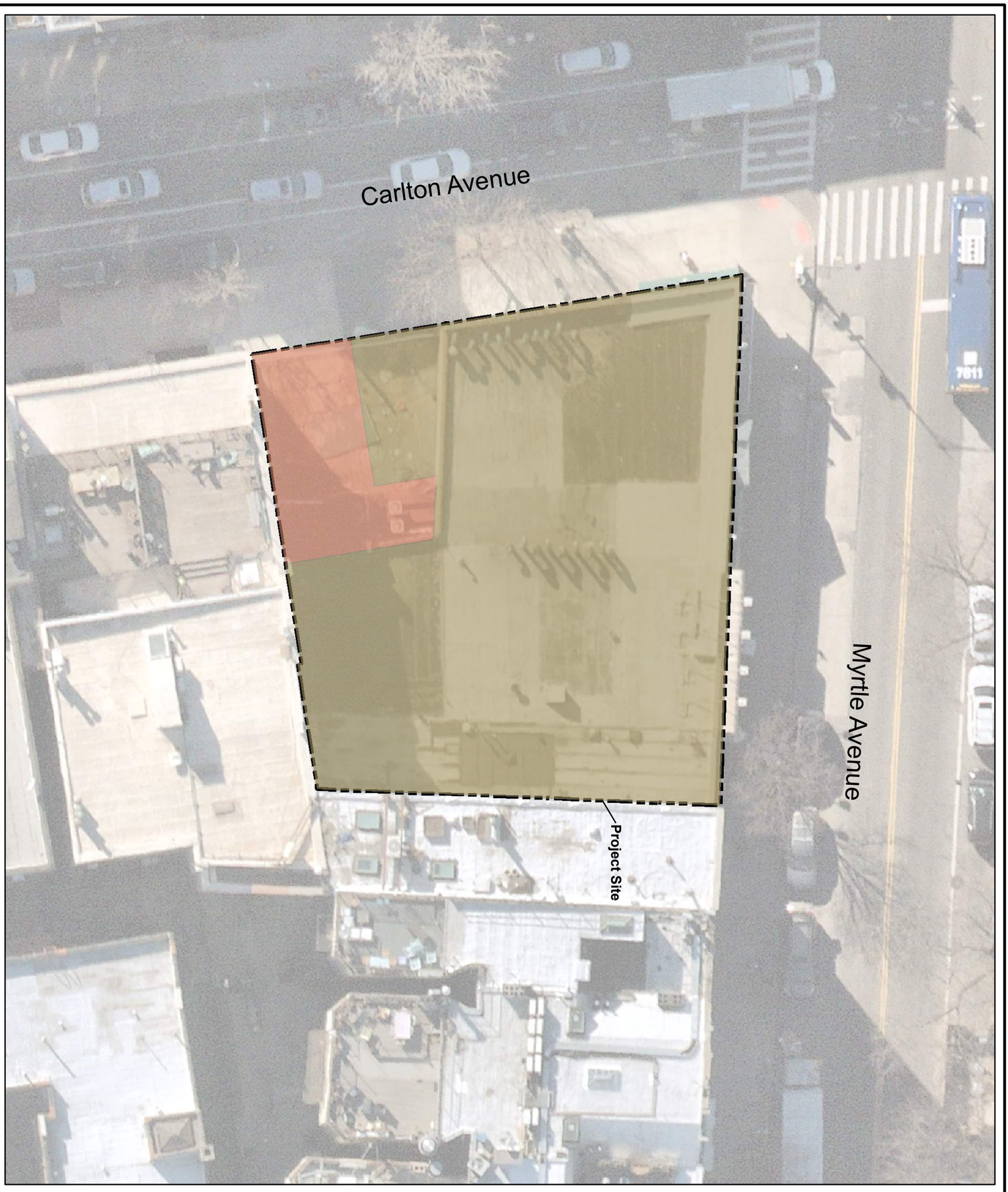
Drawn By	Checked By	Date	Scale
LM	AP	September 2023	As Noted

Drawing Title: **PCE in Groundwater Isopleths**

Drawing No: **Figure 5**



Legend

- Remedial Excavation to 5.5 ft-bg (El. +44)
- Remedial Excavation to 15 ft-bg (El. +44)
- Site Boundary

Notes:

1. Sidewalk elevation is approx. El. +59
2. ft-bsg = feet below sidewalk grade and ft-bg = feet below grade
3. The existing building basement grade is approximately 9.5 ft-bsg.
4. Lot 22 was excavated to approximately 9.5 ft-bsg as part of previous redevelopment efforts.

0 10 20 40 Feet

Nearmap Aerial 3/12/2021

Drawing Title: **Proposed Excavation Extent (Alternative 1- Track 2 SCOs)**	Drawn By: LM	TENEN ENVIRONMENTAL Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	Site: **Remedial Action Work Plan 340 Myrtle Avenue Brooklyn, New York Block 2073, Lots 21 & 22 BCP Site No. C224340**
	Checked By: AP		
Drawing No: **Figure 6**	Date: September 2023		
	Scale: As Noted		

Legend

- Sidewall End-Point Sample
- Bottom of Excavation End-Point Sample
- Remedial Excavation to 5.5 ft-bg (El. +44)
- Remedial Excavation to 15 ft-bg (El. +44)
- Site Boundary

Notes:
Sidewalk elevation is approx. El. +59
ft-bsg = feet below sidewalk grade and ft-bg = feet below grade
The existing building basement grade is approximately 9.5 ft-bsg.
Lot 22 was excavated to approximately 9.5 ft-bsg as part of previous redevelopment efforts.

Nearmap Aerial 3/12/2021

0 10 20 40 Feet

Site

Remedial Action Work Plan
340 Myrtle Avenue
Brooklyn, New York
Block 2073, Lots 21 & 22
BCP Site No. C224340

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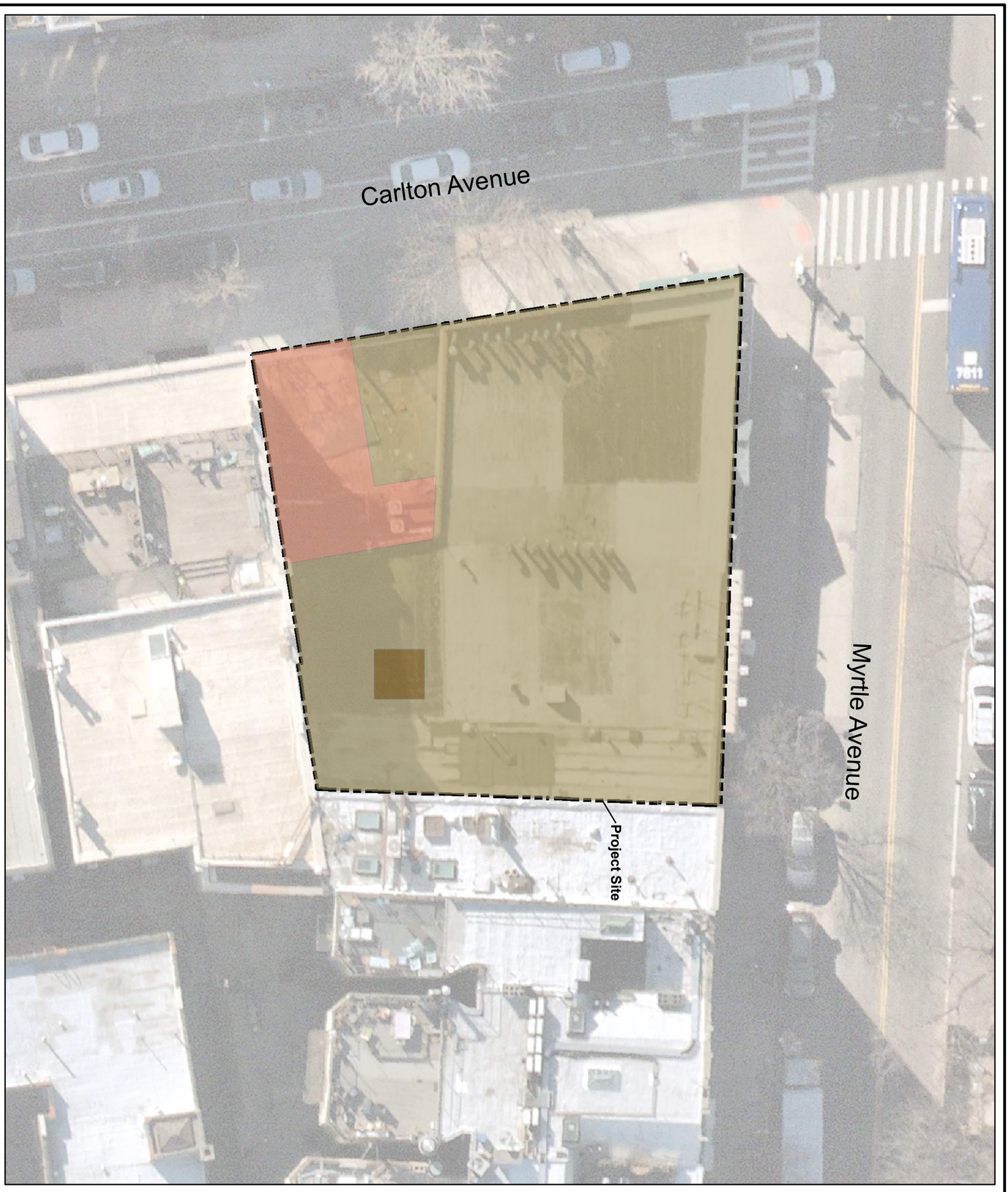
Drawn By LM
Checked By AP
Date September 2023
Scale As Noted

Drawing Title **Proposed Documentation End-Point Sample Locations (Alternative 1 - Track 2 SCOs)**

Drawing No **Figure 7**



Legend

- Remedial Excavation to 5.5 ft-bg (El. +44)
- Remedial Excavation to 15 ft-bg (El. +44)
- Remedial Excavation to 22 ft-bg (El. +37)
- Site Boundary

Notes:

1. Sidewalk elevation is approx. El. +59
2. ft-bsg = feet below sidewalk grade and ft-bg = feet below grade
3. The existing building basement grade is approximately 9.5 ft-bsg.
4. Lot 22 was excavated to approximately 9.5 ft-bsg (El. +49.5) as part of previous redevelopment efforts.

0 10 20 40 Feet

Nearmap Aerial 3/12/2021

Drawing Title: **Proposed Excavation Extent (Alternative 2- Track 1 SCOs)**	Drawn By: LM	TENEN ENVIRONMENTAL	Site: **Remedial Action Work Plan 340 Myrtle Avenue Brooklyn, New York Block 2073, Lots 21 & 22 BCP Site No. C224340**
	Checked By: AP		
Drawing No: **Figure 8**	Date: September 2023	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Scale: As Noted		

Legend

- Sidewall End-Point Sample
- Bottom of Excavation End-Point Sample
- Remedial Excavation to 5.5 ft-bg (El. +44)
- Remedial Excavation to 15 ft-bg (El. +44)
- Remedial Excavation to 22 ft-bg (El. +37)
- Site Boundary

Notes:
Sidewall elevation is approx. El. +59
ft-bsg = feet below sidewalk grade and ft-bg = feet below grade
The existing building basement grade is approximately 9.5 ft-bsg.
Lot 22 was excavated to approximately 9.5 ft-bsg (El. +49.5) as part of previous redevelopment efforts.

Nearmap Aerial 3/12/2021

0 10 20 40 Feet

Site

Remedial Action Work Plan
340 Myrtle Avenue
Brooklyn, New York
Block 2073, Lots 21 & 22
BCP Site No. C224340

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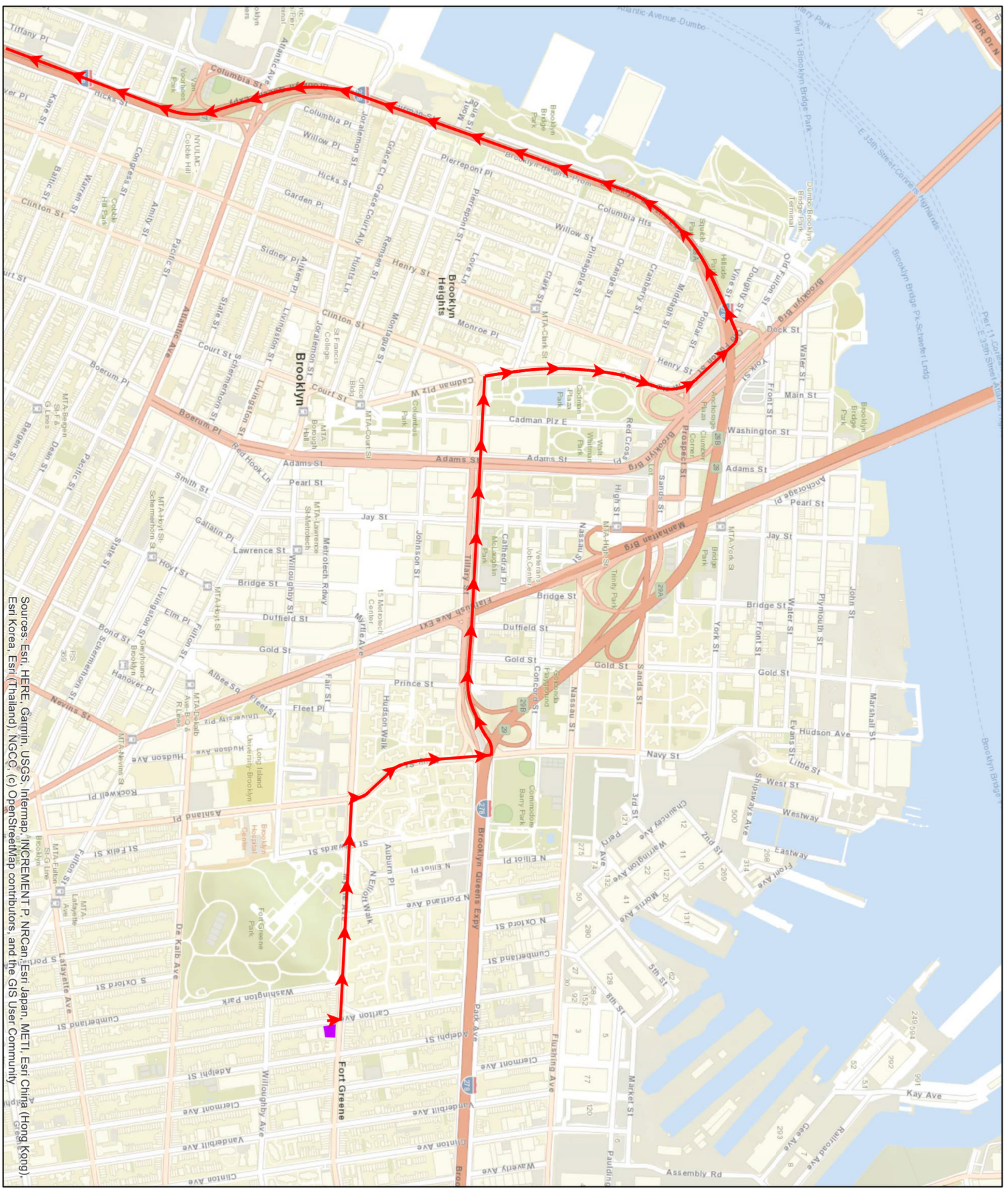
Drawn By: LM
Checked By: AP
Date: September 2023
Scale: As Noted

Drawing Title: **Proposed Confirmation End-Point Sample Location (Alternative 2 - Track 1 SCOs)**

Drawing No: **Figure 9**



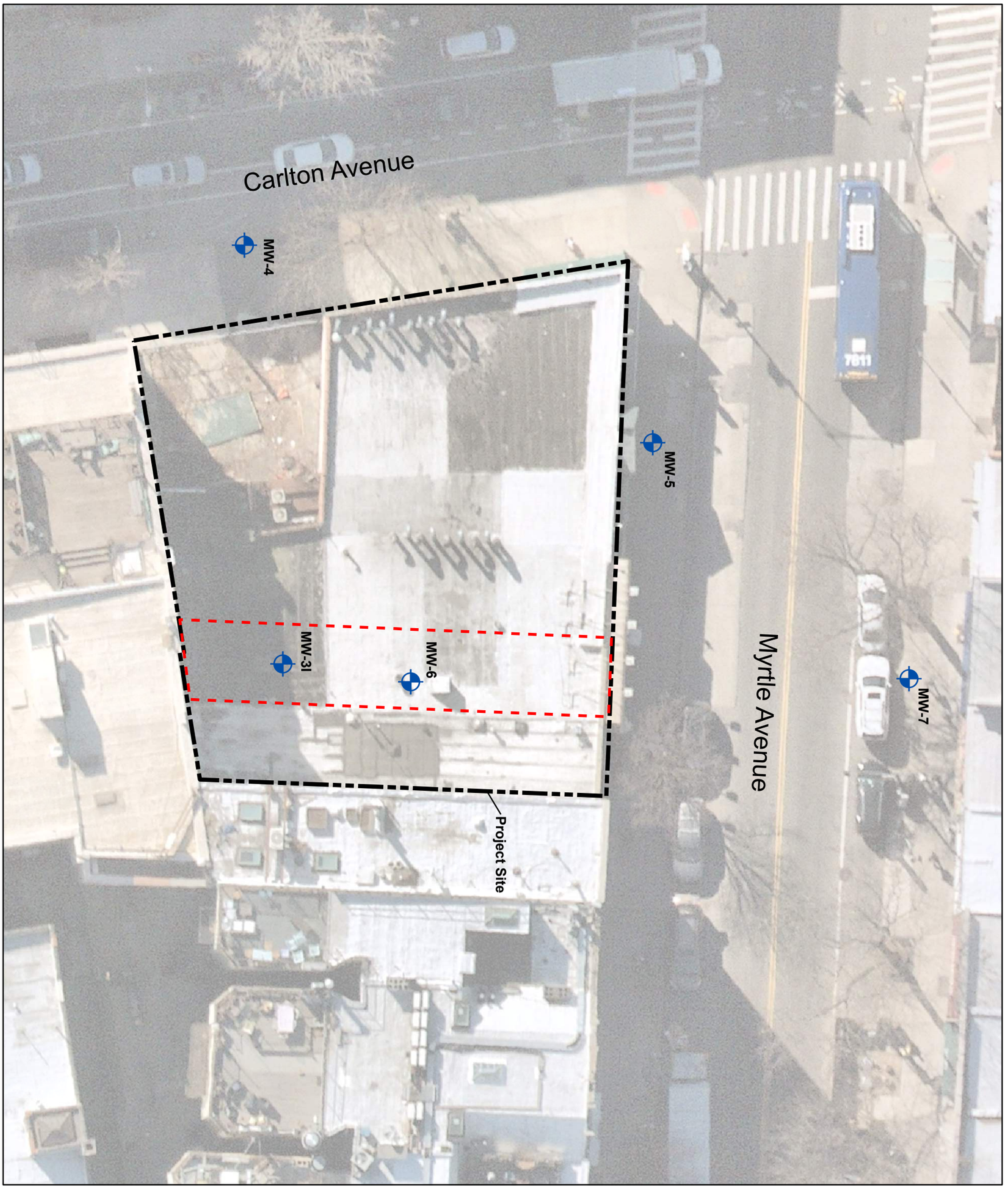
0 400 800 1,600 Feet

Legend

Site Boundary

TruckRoute

Drawing Title: **Truck Route Map**	Drawn By: LM	TENEN ENVIRONMENTAL	Site: **Remedial Action Work Plan** **340 Myrtle Avenue** **Brooklyn, New York** **Block 2073, Lots 21 & 22** **BCP Site No. C224340**
	Checked By: AP		
Drawing No: **Figure 10**	Date: September 2023	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	
	Scale: As Noted		



Legend

- Proposed Post-Remedial Groundwater Sample Locations
- Former Dry Cleaner
- Site Boundary

0 10 20 40 Feet

Nearmap Aerial 3/12/2021

Drawing Title: **Proposed Post-Remedial Groundwater Sample Locations**	Drawn By: LM	Tenen Environmental, LLC 121 West 27th Street Suite 702 New York, NY 10001 O: (646) 606-2332 F: (646) 606-2379	Site: **Remedial Action Work Plan 340 Myrtle Avenue Brooklyn, New York Block 2073, Lots 21 & 22 BCP Site No. C224340**
	Checked By: AP		
Drawing No: **Figure 11**	Date: September 2023		
	Scale: As Noted		

Tables

Table 1.
Unrestricted Use Soil Cleanup Objectives
Remedial Action Work Plan
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

From Table 375-6.8(a) Unrestricted Use Soil Cleanup Objectives

Contaminant	CAS Number	SCO
Metals		
Arsenic	7440-38-2	13[c]
Barium	7440-39-3	350[c]
Beryllium	7440-41-7	7.2
Cadmium	7440-43-9	2.5[c]
Chromium, hexavalent[e]	18540-29-9	1[b]
Chromium, trivalent[e]	16065-83-1	30[c]
Copper	7440-50-8	50
Total Cyanide[e,f]		27
Lead	7439-92-1	63[c]
Manganese	7439-96-5	1,600[c]
Total Mercury		0.18[c]
Nickel	7440-02-0	30
Selenium	7782-49-2	3.9[c]
Silver	7440-22-4	2
Zinc	7440-66-6	109[c]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)[f]	93-72-1	3.8
4,4'-DDE	72-55-9	0.0033[b]
4,4'-DDT	50-29-3	0.0033[b]
4,4'-DDD	72-54-8	0.0033[b]
Aldrin	309-00-2	0.005[c]
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.036
Chlordane (alpha)	5103-71-9	0.094
delta-BHC[g]	319-86-8	0.04
Dibenzofuran[f]	132-64-9	7
Dieldrin	60-57-1	0.005[c]
Endosulfan I[d,f]	959-98-8	2.4
Endosulfan Ii[d,f]	33213-65-9	2.4
Endosulfan sulfate[d,f]	1031-07-8	2.4
Endrin	72-20-8	0.014
Heptachlor	76-44-8	0.042
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	0.1

Contaminant	CAS Number	SCO
Semivolatiles		
Acenaphthene	83-32-9	20
Acenapthylene[f]	208-96-8	100[a]
Anthracene[f]	120-12-7	100[a]
Benz(a)anthracene[f]	56-55-3	1[c]
Benzo(a)pyrene	50-32-8	1[c]
Benzo(b)fluoranthene[f]	205-99-2	1[c]
Benzo(g,h,i)perylene[f]	191-24-2	100
Benzo(k)fluoranthene[f]	207-08-9	0.8[c]
Chrysene[f]	218-01-9	1[c]
Dibenz(a,h)anthracene[f]	53-70-3	0.33[b]
Fluoranthene[f]	206-44-0	100[a]
Fluorene[f]	86-73-7	30
Indeno(1,2,3-cd)pyrene[f]	193-39-5	0.5[c]
m-Cresol[f]	108-39-4	0.33[b]
Naphthalene[f]	91-20-3	12
o-Cresol[f]	95-48-7	0.33[b]
p-Cresol[f]	106-44-5	0.33[b]
Pentachlorophenol	87-86-5	0.8[b]
Phenanthrene[f]	85-01-8	100
Phenol	108-95-2	0.33[b]
Pyrene[f]	129-00-0	100
Volatiles		
1,1,1-Trichloroethane[f]	71-55-6	0.68
1,1-Dichloroethane[f]	75-34-3	0.27
1,1-Dichloroethene[f]	75-35-4	0.33
1,2-Dichlorobenzene[f]	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.2[c]
cis-1,2-Dichloroethene[f]	156-59-2	0.25
trans-1,2-Dichloroethene[f]	156-60-5	0.19
1,3-Dichlorobenzene[f]	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1[b]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene[f]	104-51-8	12
Carbon tetrachloride[f]	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene[f]	100-41-4	1
Hexachlorobenzene[f]	118-74-1	0.33[b]
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether[f]	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene[f]	103-65-1	3.9
sec-Butylbenzene[f]	135-98-8	11
tert-Butylbenzene[f]	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.07
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene[f]	95-63-6	3.6
1,3,5- Trimethylbenzene[f]	108-67-8	8.4
Vinyl chloride[f]	75-01-4	0.02
Xylene (mixed)	1330-20-7	0.26

Notes:
All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.
Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).
a The SCOs for unrestricted use were capped at a maximum value of 100 ppm. See TSD section 9.3.
b For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the Track 1 SCO value.
c For constituents where the calculated SCO was lower than the rural soil background concentration, as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 1 SCO value for this use of the site.
d SCO is the sum of endosulfan I, endosulfan II and endosulfan sulfate.
e The SCO for this specific compound (or family of compounds) is considered to be met if the analysis for the total species of this contaminant is below the specific SCO.
f Protection of ecological resources SCOs were not developed for contaminants identified in Table 375-6.8(b) with "NS". Where such contaminants appear in Table 375-6.8(a), the applicant may be required by the Department to calculate a protection of ecological resources SCO according to the TSD.

Table 2.
Protection of Groundwater Soil Cleanup Objectives
Remedial Action Work Plan
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

From Table 375-6.8(b) or CP51 Table 1: Protection of Groundwater Soil Cleanup Objectives.

Contaminant	CAS Number	Protection of GW
Metals		
Arsenic	7440-38-2	16[f]
Barium	7440-39-3	820
Beryllium	7440-41-7	47
Cadmium	7440-43-9	7.5
Chromium, hexavalent[h]	18540-29-9	19
Chromium, trivalent[h]	16065-83-1	36
Copper	7440-50-8	1720
Total Cyanide[h]		40
Lead	7439-92-1	450
Manganese	7439-96-5	2,000[f]
Total Mercury		0.73
Nickel	7440-02-0	130
Selenium	7782-49-2	4[f]
Silver	7440-22-4	8
Zinc	7440-66-6	2,480
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	3.8
4,4'-DDE	72-55-9	17
4,4'-DDT	50-29-3	136
4,4'-DDD	72-54-8	14
Aldrin	309-00-2	0.19
alpha-BHC	319-84-6	0.02
beta-BHC	319-85-7	0.009
Chlordane (alpha)	5103-71-9	2.9
delta-BHC	319-86-8	0.25
Dibenzofuran	132-64-9	6.2
Dieldrin	60-57-1	0.1
Endosulfan I	959-98-8	102
Endosulfan II	33213-65-9	102
Endosulfan sulfate	1031-07-8	1000[c]
Endrin	72-20-8	0.06
Heptachlor	76-44-8	0.38
Lindane	58-89-9	0.1
Polychlorinated biphenyls	1336-36-3	3.2

Contaminant	CAS Number	Protection of GW
Semivolatiles		
Acenaphthene	83-32-9	98
Acenapthylene	208-96-8	107
Anthracene	120-12-7	1000[c]
Benz(a)anthracene	56-55-3	1[f]
Benzo(a)pyrene	50-32-8	22
Benzo(b)fluoranthene	205-99-2	2
Benzo(g,h,i)perylene	191-24-2	1000[c]
Benzo(k)fluoranthene	207-08-9	2
Chrysene	218-01-9	1[f]
Dibenz(a,h)anthracene	53-70-3	1000[c]
Fluoranthene	206-44-0	1000[c]
Fluorene	86-73-7	386
Indeno(1,2,3-cd)pyrene	193-39-5	8
m-Cresol	108-39-4	0.33[e]
Naphthalene	91-20-3	12
o-Cresol	95-48-7	0.33[e]
p-Cresol	106-44-5	0.33[e]
Pentachlorophenol	87-86-5	0.8[e]
Phenanthrene	85-01-8	1000[c]
Phenol	108-95-2	0.33[e]
Pyrene	129-00-0	1000[c]

Contaminant	CAS Number	Protection of GW
Volatiles		
1,1,1-Trichloroethane	71-55-6	0.68
1,1-Dichloroethane	75-34-3	0.27
1,1-Dichloroethene	75-35-4	0.33
1,2-Dichlorobenzene	95-50-1	1.1
1,2-Dichloroethane	107-06-2	0.02[f]
cis-1,2-Dichloroethene	156-59-2	0.25
trans-1,2-Dichloroethene	156-60-5	0.19
1,3-Dichlorobenzene	541-73-1	2.4
1,4-Dichlorobenzene	106-46-7	1.8
1,4-Dioxane	123-91-1	0.1[e]
Acetone	67-64-1	0.05
Benzene	71-43-2	0.06
n-Butylbenzene	104-51-8	12
Carbon tetrachloride	56-23-5	0.76
Chlorobenzene	108-90-7	1.1
Chloroform	67-66-3	0.37
Ethylbenzene	100-41-4	1
Hexachlorobenzene	118-74-1	3
Methyl ethyl ketone	78-93-3	0.12
Methyl tert-butyl ether	1634-04-4	0.93
Methylene chloride	75-09-2	0.05
n-Propylbenzene	103-65-1	3.9
sec-Butylbenzene	135-98-8	11
tert-Butylbenzene	98-06-6	5.9
Tetrachloroethene	127-18-4	1.3
Toluene	108-88-3	0.7
Trichloroethene	79-01-6	0.47
1,2,4-Trimethylbenzene	95-63-6	3.6
1,3,5- Trimethylbenzene	108-67-8	8.4
Vinyl chloride	75-01-4	0.02
Xylene (mixed)	1330-20-7	1.6

Notes:
All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.
Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).
a The SCOs for restricted-commercial use were capped at a maximum value of 250 ppm.
b the SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.
d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.
e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.
f For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.
i This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.
j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Table 3.
Restricted-Residential Use Soil Cleanup Objectives
Remedial Action Work Plan
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

From Table 375-6.8(b) or CP-51 Table 1: Restricted-Residential Use Soil Cleanup Objectives.

Contaminant	CAS Number	Restricted-Residential
Metals		
Arsenic	7440-38-2	16[f]
Barium	7440-39-3	400
Beryllium	7440-41-7	72
Cadmium	7440-43-9	4.3
Chromium, hexavalent[h]	18540-29-9	110
Chromium, trivalent[h]	16065-83-1	180
Copper	7440-50-8	270
Total Cyanide[h]		27
Lead	7439-92-1	400
Manganese	7439-96-5	2,000[f]
Total Mercury		0.81[j]
Nickel	7440-02-0	310
Selenium	7782-49-2	180
Silver	7440-22-4	180
Zinc	7440-66-6	10,000[d]
PCBs/Pesticides		
2,4,5-TP Acid (Silvex)	93-72-1	100[a]
4,4'-DDE	72-55-9	8.9
4,4'-DDT	50-29-3	7.9
4,4'-DDD	72-54-8	13
Aldrin	309-00-2	0.097
alpha-BHC	319-84-6	0.48
beta-BHC	319-85-7	0.36
Chlordane (alpha)	5103-71-9	4.2
delta-BHC	319-86-8	100[a]
Dibenzofuran	132-64-9	59
Dieldrin	60-57-1	0.2
Endosulfan I	959-98-8	24[i]
Endosulfan II	33213-65-9	24[i]
Endosulfan sulfate	1031-07-8	24[i]
Endrin	72-20-8	11
Heptachlor	76-44-8	2.1
Lindane	58-89-9	1.3
Polychlorinated biphenyls	1336-36-3	1

Contaminant	CAS Number	Restricted-Residential
Semivolatiles		
Acenaphthene	83-32-9	100[a]
Acenapthylene	208-96-8	100[a]
Anthracene	120-12-7	100[a]
Benz(a)anthracene	56-55-3	1[f]
Benzo(a)pyrene	50-32-8	1[f]
Benzo(b)fluoranthene	205-99-2	1[f]
Benzo(g,h,i)perylene	191-24-2	100[a]
Benzo(k)fluoranthene	207-08-9	3.9
Chrysene	218-01-9	3.9
Dibenz(a,h)anthracene	53-70-3	0.33[e]
Fluoranthene	206-44-0	100[a]
Fluorene	86-73-7	100[a]
Indeno(1,2,3-cd)pyrene	193-39-5	0.5[f]
m-Cresol	108-39-4	100[a]
Naphthalene	91-20-3	100[a]
o-Cresol	95-48-7	100[a]
p-Cresol	106-44-5	100[a]
Pentachlorophenol	87-86-5	6.7
Phenanthrene	85-01-8	100[a]
Phenol	108-95-2	100[a]
Pyrene	129-00-0	100[a]

Contaminant	CAS Number	Restricted-Residential
Volatiles		
1,1,1-Trichloroethane	71-55-6	100[a]
1,1-Dichloroethane	75-34-3	26
1,1-Dichloroethene	75-35-4	100[a]
1,2-Dichlorobenzene	95-50-1	100[a]
1,2-Dichloroethane	107-06-2	3.1
cis-1,2-Dichloroethene	156-59-2	100[a]
trans-1,2-Dichloroethene	156-60-5	100[a]
1,3-Dichlorobenzene	541-73-1	49
1,4-Dichlorobenzene	106-46-7	13
1,4-Dioxane	123-91-1	13
Acetone	67-64-1	100[b]
Benzene	71-43-2	4.8
n-Butylbenzene	104-51-8	100[a]
Carbon tetrachloride	56-23-5	2.4
Chlorobenzene	108-90-7	100[a]
Chloroform	67-66-3	49
Ethylbenzene	100-41-4	41
Hexachlorobenzene	118-74-1	1.2
Methyl ethyl ketone	78-93-3	100[a]
Methyl tert-butyl ether	1634-04-4	100[a]
Methylene chloride	75-09-2	100[a]
n-Propylbenzene	103-65-1	100[a]
sec-Butylbenzene	135-98-8	100[a]
tert-Butylbenzene	98-06-6	100[a]
Tetrachloroethene	127-18-4	19
Toluene	108-88-3	100[a]
Trichloroethene	79-01-6	21
1,2,4-Trimethylbenzene	95-63-6	52
1,3,5- Trimethylbenzene	108-67-8	52
Vinyl chloride	75-01-4	0.9
Xylene (mixed)	1330-20-7	100[a]

Notes:
All soil cleanup objectives (SCOs) are in parts per million (ppm). NS=Not specified.
Footnotes (designations are from Table in Part 375). See Technical Support Document (TSD).
b the SCOs for commercial use were capped at a maximum value of 500 ppm. See TSD section 9.3.
d The SCOs for metals were capped at a maximum value of 10,000 ppm. See TSD section 9.3.
e For constituents where the calculated SCO was lower than the contract required quantitation limit (CRQL), the CRQL is used as the SCO value.
f For constituents where the calculated SCO was lower than the rural soil background concentration as determined by the Department and Department of Health rural soil survey, the rural soil background concentration is used as the Track 2 SCO value for this use of the site.
i This SCO is for the sum of endosulfan I, endosulfan II, and endosulfan sulfate.
j This SCO is the lower of the values for mercury (elemental) or mercury (inorganic salts). See TSD Table 5.6-1.

Table 4.
NYSDEC Division of Water TOGS 1.1.1 Class GA Standards
Remedial Action Work Plan
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

From Table 1: New York State Ambient Water Quality Standards and Guidance Values

(Division of Water Technical and Operational Guidance Series (1.1.1), June 1998)

Contaminant	CAS Number	Class GA Standard
Volatiles		
1,1,1,2-Tetrachloroethane	630-20-6	5*
1,1,1-Trichloroethane	71-55-6	5*
1,1,2,2-Tetrachloroethane	79-34-5	5*
1,1,2-Trichloroethane	79-00-5	1
1,1-Dichloroethane	75-34-3	5*
1,1-Dichloroethene	75-35-4	5*
1,1-Dichloropropene	563-58-6	5*
1,2,3-Trichloropropane	96-18-4	0.04
1,2,4,5-Tetramethylbenzene	95-93-2	5*
1,2,4-Trimethylbenzene	95-63-6	5*
1,2-Dibromo-3-chloropropane	96-12-8	0.04
1,2-Dichlorobenzene	95-50-1	3
1,2-Dichloroethane	107-06-2	0.6
1,2-Dichloropropane	78-87-5	1
1,3,5-Trimethylbenzene	108-67-8	5*
1,3-Dichlorobenzene	541-73-1	3
1,3-Dichloropropane	142-28-9	5*
1,4-Dichlorobenzene	106-46-7	3
2,2-Dichloropropane	594-20-7	5*
2-Hexanone	591-78-6	50**
Acetone	67-64-1	50**
Acrylonitrile	107-13-1	5*
Benzene	71-43-2	1
Bromobenzene	108-86-1	5*
Bromochloromethane	74-97-5	5*
Bromodichloromethane	75-27-4	50**
Bromoform	75-25-2	50**
Bromomethane	74-83-9	5*
Butylbenzene	104-51-8	5*
Carbon tetrachloride	56-23-5	5
Chlorobenzene	108-90-7	5*
Chloroethane	75-00-3	5*
Chloroform	75-34-3	7
Chloromethane (Methyl Chloride)	74-87-3	5*
cis-1,2-Dichloroethene	156-59-2	5*
Dibromochloromethane	124-48-1	50**
Dibromomethane	74-95-3	5*
Dichlorodifluoromethane	75-71-8	5*
Ethylbenzene	100-41-4	5*
Hexachlorobenzene	87-68-3	0.04
Hexachlorobutadiene	87-68-3	0.5
Isopropylbenzene	98-82-8	5*
Methylene chloride	75-09-2	5*
m-Xylene (1,3-Xylene)	108-38-3	5*
Naphthalene	91-20-3	10**
n-Propylbenzene	103-65-1	5*
o-Chlorotoluene	95-49-8	5*
o-Xylene (1,2-Xylene)	95-47-6	5*
p-Chlorotoluene	106-43-4	5*
p-Isopropyltoluene	99-87-6	5*
p-Xylene (1,4-Xylene)	106-42-3	5*
sec-Butylbenzene	135-98-8	5*
Styrene	100-42-5	5*
tert-Butylbenzene	98-06-6	5*
Tetrachloroethene	127-18-4	5*
Toluene	108-88-3	5*
Total 1,3-Dichloropropene	542-75-6	0.4 (1)
trans-1,2-Dichloroethene	156-60-5	5*
trans-1,4-Dichloro-2-butene	110-57-6	5*
Trichloroethene	79-01-6	5*
Trichlorofluoromethane	75-69-4	5*
Vinyl chloride	75-01-4	2

Notes:
All Class GA Standards are in micrograms per liter (ug/l). Compounds without standards or guideline values are not shown.
*The principal organic contaminant standard for groundwater of 5 ug/l applies to this substance.
** The value shown is a Guidance Value
(1) refers to sum of cis- and trans-1,3-dichloropropene.

Table 5. Estimated Remedial Costs
Remedial Action Work Plan
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

Alternative 1: Track 2 Protection of Groundwater and Restricted-Residential Soil Cleanup Objectives (SCOs), Monitered Natural Attenuation (MNA) of Groundwater, and Sub-Slab Depressurization System (SSDS)		
Remedial Tasks		
Remediation Facilities, Mob/Demob, Permits	$20,000	Trailer, Permits
Waste Characterization	$15,000	Characterization of 2,000 CY of soil to be generated and disposed offsite
Soil Disposal	$150,000	Disposal of ~1,800 CY of non-hazardous soil, ~170 CY of F-002 hazardous soil, and ~50 CY of D-008 hazardous soil
Soil Excavation and Loading	$50,000	Excavation and loading of ~2,000 CY of soil
Remedial Oversight	$210,000	Remedial oversight, implementation of CAMP, and daily reporting
End-Point Samples	$40,000	Collection and analysis of 22 end-point samples (plus QA/QC samples), data validation, and preparation of EDDs
Pre-Design Groundwater Sampling	$10,000	Groundwater sampling to confirm natural attenuation parameters of aquifer
Monitoring Well Decommissioning	$10,000	Decommission Monitoring Wells that will not be part of the post-remedial groundwater monitoring well network
Pilot Test for SSDS	$15,000	Pilot test and engineering design
SSDS	$45,000	Installation and startup
Post-Remedial Indoor Air Samples	$5,000	Collection and analysis of 5 post-remedial indoor air samples, data validation, and preparation of EDDs
Operation & Maintenance of SSDS	$5,000	Ongoing operation and maintenance of SSDS
Post-Remedial Reporting and Annual Inspections		
Reporting (FER, SMP)	$45,000	Reporting
Annual Inspections of Engineering Controls reporting (PRR)	$60,000	Four quarters of groundwater sampling from five monitoring wells, annual groundwater sampling after first year, annual inspections and annual r

Estimated Remedial Costs	$575,000
Estimated Reporting and Long-Term Monitoring Costs	$105,000
Total Estimated Remedial Costs	$680,000

Table 6. Remedial Construction Schedule
340 Myrtle Avenue - Brooklyn, NY
BCP Site #C224340

Task	Task Description	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
1	Mobilization													
2	Remedial Action Implementation (Bulk excavation, end-point sample collection, SSDS installation, and foundation installation)													
3	First Round of Post-Remedial Groundwater Sampling													
4	Analysis of Post-Remedial Groundwater Samples													
5	Prepare Environmental Easement Package													
6	Submit Environmental Easement Package													
7	Prepare Draft SMP and FER													
8	Collection of Post-Remedial Indoor Air Samples and Second Round of Post-Remedial Groundwater Samples													
9	Analysis of Post-Remedial Indoor Air Samples and Groundwater Samples													
10	Submit Draft SMP and FER													
11	Department Review of Draft SMP and FER													
12	Preparation of DUSRs and EDDs													
13	Complete SMP and FER Edits													
14	Department Review of Revised SMP and FER													
15	Department Approval of SMP and FER and Issuance of COC													

Key Map	
	Fieldwork
	Lab Analysis/Validation/EDDs
	Report Writing
	Agencies Review
	Agency Acceptance

Table 7. Project Organization and Emergency Contacts
340 Myrtle Avenue - Brooklyn, NY
BCP #C224340

Tenen Staff	Title	Role
Alana Carroll, PG	Project Manager and Qualified Environmental Professional	Responsible for overall coordination and management of the project
Matthew Carroll, PE	Project Professional Engineer	Responsible for work plan, report and EC/IC certifications.
Mohamed Ahmed, PG	Quality Assurance Officer	Responsible for quality assurance of sampling procedures and laboratory data
Ashley Platt	Project Environmental Scientist	Responsible for the day-to-day field monitoring and sampling activities, including dust monitoring, PID monitoring, and soil sampling.

Subcontractor	Phone Number	Role
Alpha Analytical, Inc.	(800) 624-9220	Responsible for analysis of all soil, groundwater, and indoor air samples collected as part of the Remedial Action
L.A.B. Validation Corp	(516) 523-7891	Responsible for preparation of DUSRs for all analytical data collected as part of the Remedial Action

Name	Organization	Phone Number
Matthew Carroll, PE	Tenen Environmental, LLC	(646) 606-2332
Alana Carroll, PG	Tenen Environmental, LLC	(646) 606-2332
David Halberstam, The Participant	340 Myrtle Development LLC	(718) 705-8825
Christopher Allan, NYSDEC Project Manager	New York State Department of Environmental Conservation	(718) 482-4065
Stephanie Selmer, NYSDOH Project Manager	New York State Department of Health	(518) 402-7860

Appendix A
Architectural Drawings

155 CARLTON AVENUE

BROOKLYN, NY 11205

PROPOSED 8 STORY MIXED NEW BUILDING

58 DWELLING UNITS

SHEET LIST

	SHEET NUMBER	DOB REV. NUMBER	SHEET NAME	REVISION DATE	ISSUE
.T-100					
1	T-100	0	TITLESHEET	XX/XX/202X	DOB FILING
.Z-100					
2	Z-100	0	ZONING ANALYSIS	XX/XX/202X	DOB FILING
3	Z-101	0	ZONING ANALYSIS	XX/XX/202X	DOB FILING
4	Z-102	0	ZONING SITE PLAN	XX/XX/202X	DOB FILING
5	Z-103	0	ZONING MAPS & SURVEY	XX/XX/202X	DOB FILING
6	Z-104	0	ZONING GROSS AREA PLANS	XX/XX/202X	DOB FILING
7	Z-105	0	ZONING GROSS AREA PLANS	XX/XX/202X	DOB FILING
8	Z-106	0	ZONING FLOOR AREA DEDUCTIONS	XX/XX/202X	DOB FILING
9	Z-107	0	ZONING FLOOR AREA DEDUCTIONS	XX/XX/202X	DOB FILING
10	Z-108	0	ZONING FLOOR AREA DEDUCTIONS	XX/XX/202X	DOB FILING
11	Z-109	0	ZONING FLOOR AREA DEDUCTIONS	XX/XX/202X	DOB FILING
12	Z-111	0	SITE IMAGES	XX/XX/202X	DOB FILING
A-000					
13	G-100	0	GENERAL NOTES	XX/XX/202X	DOB FILING
14	G-101	0	GENERAL NOTES	XX/XX/202X	DOB FILING
15	G-102	0	GENERAL NOTES	XX/XX/202X	DOB FILING
16	G-103	0	GENERAL NOTES	XX/XX/202X	DOB FILING
17	G-104	0	GENERAL NOTES	XX/XX/202X	DOB FILING
18	G-106	0	BUILDING CODE ANALYSIS	XX/XX/202X	DOB FILING
19	G-107	0	BUILDING CODE ANALYSIS	XX/XX/202X	DOB FILING
20	G-200	0	LIFE SAFETY PLANS	XX/XX/202X	DOB FILING
21	G-201	0	LIFE SAFETY PLANS	XX/XX/202X	DOB FILING
22	G-202	0	LIFE SAFETY PLANS	XX/XX/202X	DOB FILING
23	G-203	0	LIFE SAFETY PLANS	XX/XX/202X	DOB FILING
24	G-204	0	LIFE SAFETY PLANS	XX/XX/202X	DOB FILING
25	G-300	0	NET AREA PLANS	XX/XX/202X	DOB FILING
26	G-301	0	NET AREA PLANS	XX/XX/202X	DOB FILING
A-100					
27	A-100	0	CELLAR PLAN	XX/XX/202X	DOB FILING
28	A-101	0	1ST FLOOR PLAN	XX/XX/202X	DOB FILING
29	A-102	0	2ND FLOOR PLAN	XX/XX/202X	DOB FILING
30	A-103	0	3RD-5TH FLOOR PLAN	XX/XX/202X	DOB FILING
31	A-104	0	6TH FLOOR PLAN	XX/XX/202X	DOB FILING
32	A-105	0	7TH FLOOR PLAN	XX/XX/202X	DOB FILING
33	A-106	0	8TH FLOOR PLAN	XX/XX/202X	DOB FILING
34	A-107	0	ROOF PLAN	XX/XX/202X	DOB FILING
35	A-108	0	BULKHEAD PLAN	XX/XX/202X	DOB FILING
36	A-120	0	3D FLOOR PLAN VIEWS	XX/XX/202X	DOB FILING
37	A-121	0	3D FLOOR PLAN VIEWS	XX/XX/202X	DOB FILING
A-200					
38	A-200	0	NORTH (MYRTLE AVENUE) ELEVATION	XX/XX/202X	DOB FILING
39	A-201	0	WEST (CARLTON AVENUE) ELEVATION	XX/XX/202X	DOB FILING
40	A-202	0	EAST ELEVATION	XX/XX/202X	DOB FILING
41	A-203	0	SOUTH (REAR) ELEVATION	XX/XX/202X	DOB FILING
42	A-210	0	3D VIEWS	XX/XX/202X	DOB FILING

SHEET LIST

	SHEET NUMBER	DOB REV. NUMBER	SHEET NAME	REVISION DATE	ISSUE
A-300					
43	A-300	0	BUILDING SECTIONS	XX/XX/202X	DOB FILING
44	A-301	0	BUILDING SECTIONS	XX/XX/202X	DOB FILING
45	A-302	0	BUILDING SECTIONS	XX/XX/202X	DOB FILING
46	A-310	0	WALL SECTION 1	XX/XX/202X	DOB FILING
47	A-311	0	WALL SECTION 2	XX/XX/202X	DOB FILING
48	A-312	0	WALL SECTION 3	XX/XX/202X	DOB FILING
49	A-320	0	WALL DETAILS	XX/XX/202X	DOB FILING
50	A-321	0	WALL DETAILS	XX/XX/202X	DOB FILING
51	A-322	0	WALL DETAILS	XX/XX/202X	DOB FILING
52	A-328	0	FLASHING DETAILS AT ADJACENT EXISTING	XX/XX/202X	DOB FILING
A-400					
53	A-400	0	EXTERIOR WALL DETAILS	XX/XX/202X	DOB FILING
54	A-401	0	FLOOR AND ROOF DETAILS	XX/XX/202X	DOB FILING
55	A-402	0	PARTITION DETAILS	XX/XX/202X	DOB FILING
56	A-404	0	DETAILS	XX/XX/202X	DOB FILING
57	A-405	0	DETAILS	XX/XX/202X	DOB FILING
58	A-406	0	DETAILS	XX/XX/202X	DOB FILING
59	A-410	0	REFUSE DETAILS	XX/XX/202X	DOB FILING
60	A-411	0	STAIR PLANS	XX/XX/202X	DOB FILING
61	A-413	0	STAIR DETAILS	XX/XX/202X	DOB FILING
62	A-414	0	RAILING & LADDER DETAILS	XX/XX/202X	DOB FILING
63	A-415	0	ROOFING DETAILS	XX/XX/202X	DOB FILING
64	A-416	0	MISC DETAILS	XX/XX/202X	DOB FILING
A-600					
65	A-600	0	DOOR SCHEDULE	XX/XX/202X	DOB FILING
66	A-601	0	DOOR DETAILS	XX/XX/202X	DOB FILING
67	A-602	0	WINDOW SCHEDULE	XX/XX/202X	DOB FILING
A-700					
68	A-700	0	ENLARGED KITTE & LAUNDRY PLANS	XX/XX/202X	DOB FILING
69	A-701	0	ENLARGED BATH PLANS	XX/XX/202X	DOB FILING
70	A-702	0	ENLARGED BATH PLANS	XX/XX/202X	DOB FILING
A-800					
71	A-800	0	MAILBOX ELEVATIONS	XX/XX/202X	DOB FILING
72	A-801	0	SIGNAGE	XX/XX/202X	DOB FILING
AB-100					
73	AB-100	0	AIR BARRIER PLAN	XX/XX/202X	DOB FILING
74	AB-101	0	AIR BARRIER DETAILS	XX/XX/202X	DOB FILING
EN-100					
75	EN-100	0	ENERGY ANALYSIS	XX/XX/202X	DOB FILING
76	EN-101	0	ENERGY THERMAL ENVELOPE DIAGRAM	XX/XX/202X	DOB FILING
77	EN-102	0	ENERGY AREA DIAGRAMS	XX/XX/202X	DOB FILING
78	EN-103	0	ENERGY AREA DIAGRAMS	XX/XX/202X	DOB FILING
79	EN-200	0	ENERGY INSPECTIONS	XX/XX/202X	DOB FILING
80	EN-201	0	ENERGY INSPECTIONS	XX/XX/202X	DOB FILING
81	EN-202	0	ENERGY INSPECTIONS	XX/XX/202X	DOB FILING
82	EN-300	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
83	EN-301	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
84	EN-302	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
85	EN-303	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
86	EN-304	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
87	EN-305	0	REFLECTED CEILING PLANS	XX/XX/202X	DOB FILING
TOTAL: 87					

RELATED APPLICATIONS

WORK TYPE		APPLICATION #	DOCUMENT #
DM	DEMOLITION		
EA	EARTHWORK		
SE	SUPPORT OF EXCAVATION		
FO	FOUNDATION		
ST	STRUCTURAL		
MH	MECHANICAL		
EL	ELECTRICAL		
PL	PLUMBING		
SP	SPRINKLER		
FA	FIRE ALARM		
FE	FENCE		
BPP	BUILDERS PAVEMENT PLAN		
	STREET TREE		
CC	CURB CUT		
SD	STANDPIPE		
	ZONING EXHIBIT RECORD		
SH	SHED		
VT	ELEVATOR		
	SITE CONNECTION		

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

TITLESHEET

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:36:53 AM

SCALE:

DRAWN BY: XX

T-100.00

SHEET: 1 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

5/12/2023 1:36:53 AM

ZONING ANALYSIS

SECTION	DESCRIPTION	MAX. ALLOWED OR MIN. REQ'D	PROPOSED
ZR 22-12	USES PERMITTED AS-OF-RIGHT	USE GROUPS: (RESIDENTIAL)1-4, (COMMERCIAL)5-6	USE GROUP: 2A, 2B & 6A
ZR 23-153	MAX. FLOOR AREA RATIO	RESIDENTIAL: WITHIN R7A MAX FAR 4.60 COMMERCIAL: C2-4 WITHIN R7A MAX FAR 2.00 TOTAL MAX FAR 4.60	RESIDENTIAL: 4.55 FAR COMMERCIAL: 0.05 FAR TOTAL PROPOSED = 4.60 FAR
ZR 23-153	MAX. FLOOR AREA	RESIDENTIAL: 8,598 X 4.60 = 39,550 SF COMMERCIAL: 8,598 X 2.0 = 17,196 SF TOTAL PERMITED = 39,550 SF	RESIDENTIAL: 39,136 SF COMMERCIAL: 408 SF TOTAL PROPOSED = 39,544 SF
ZR 23-153	MAX. LOT COVERAGE	R7A / C2-4 LOT AREA ALLOWABLE LOT COVERAGE: 100% WITHIN 100'-0'' OF CORNER: 8,558 SF x 100% = 8,558 SF 65% WITOUT 100'-0'' OF CORNER: 40 SF x 65 % = 26 SF TOTAL ALLOWABLE FOR LOT: 8,584 SF (99 %)	TOTAL PROPOSED: 6,893 SF (80%) THEREFORE (OK), SEE SHEET Z-101
ZR 23-22	MAX. # DWELLING UNITS	680	
		58 DWELLING UNITS (39,550 SF/ 680 = 58)	58 DWELLING UNITS
ZR 23-45	MIN. FRONT YARD	NO FRONT YARD IS REQUIRED, HOWEVER, IF ONE IS PROVIDED, THE AREA OF THE ZONING LOT BETWEEN THE STREET LINE AND ALL STREET WALLS OF THE BUILDING AND THEIR PROLONGATIONS SHALL BE PLANTED IN COMPLIANCE WITH ZR 28-23	NO FRONT YARD PROVIDED
ZR 23-462(c)	MIN. SIDE YARD	NO SIDE YARD IS REQUIRED, HOWEVER, IF ONE IS PROVIDED IT SHALL HAVE A MINIMUM WIDTH OF 8'-0"	0'-0"
ZR 23-47, 23-541	MIN. REAR YARD	30'-0" MINIMUM REAR YARD	32'-0" PROPOSED REAR YARD SEE Z-102
ZR 23-661(b)(2)	STREET WALL LOCATION	STREET WALL TO ALIGN WITH ADJACENT BUILDING	ALIGNED W/ ADJACENT BLDG
ZR 23-662(C)(1)	REQUIRED SETBACK	15'-0" @ NARROW STREET (CARLTON AVENUE) 10'-0" @ WIDE STREET (MYRTLE AVENUE)	15'-0" PROPOSED SETBACK @ NARROW STREET (CARLTON AVENUE) 10'-0" PROPOSED SETBACK @ WIDE STREET (MYRTLE AVENUE)
ZR 23-662	MIN BASE HEIGHT	40'-0" MINIMUM BASE HEIGHT	74'-0" PROPOSED BASE HEIGHT
ZR 23-662	MAX BASE HEIGHT	75'-0" MAXIMUM BASE HEIGHT	74'-0" PROPOSED BASE HEIGHT
ZR 23-662	MAX. BUILDING HEIGHT	85'-0" MAXIMUM BUILDING HEIGHT	85'-0" PROPOSED BUILDING HEIGHT
ZR 25-241, 25-261, 25-62, 36-21, ZR-36-231	MIN. PARKING SPACES	[RESIDENTIAL]: R7A 30% OF DWELLING UNITS: 58 UNITS X 30% = 17.4 SPACES REQUIRED [COMMERCIAL]: (ZR 36-21, 36-232(b)) COMMERCIAL USE GROUP 6A: [PRC-B] 1 PER 400 SF 408 SF / 400 SF = 1 SPACE REQUIRED WAIVED: LESS THAN 40 REQUIRED	PROPOSED 17 PARKING SPACES AT 1ST FLOOR SEE A-101
ZR 25-811	BICYCLE PARKING	[RESIDENTIAL]: 1 PER 2 DWELLING UNITS IF MORE THAN 10 UNITS 58 UNITS X 0.5 = 29 SPACES REQUIRED [COMMERCIAL]: 1 PER 10,000 SF 408 SF / 10,000 SF = 1 SPACES REQUIRED	[RESIDENTIAL]: 29 SPACES PROPOSED AT CELLAR SEE A-100 [COMMERCIAL]: 1 SPACES PROPOSED AT CELLAR SEE A-100
ZR 26-41	STREET TREE PLANTING	ONE TREE PER 25 FEET OF ZONING LOT STREET FRONTAGE. MYRTLE AVENUE: 106.06' STREET LENGTH / 25'-0" = 4 REQUIRED TREES CARLTON AVENUE: 99' STREET LENGTH / 25'-0" = 4 REQUIRED TREES TOTAL: 8 TREES REQUIRED	MYRTLE AVENUE: 4 REQUIRED TREES TO BE PAID INTO OFF-SITE TREE FUND CARLTON AVENUE: 1 EXISTING TREE 3 REQUIRED TREES TO BE PAID INTO OFF-SITE TREE FUND TOTAL: 7 TREES TO BE PAID INTO OFF-SITE TREE FUND
BB 2019-010 (LL 92/2019, LL94/2019)	SUSTAINABLE ROOF ZONE	SUSTAINABLE ROOF ZONES TO BE PROVIDED PER BB 2019-010 (LL 92/2019, LL94/2019)	GREEN ROOF SYSTEM PROPOSED AT 7TH FLOOR AND ROOF LEVEL COMPLIES, SEE SHEET A-110 FOR DETAILS
ZR 36-62	REQUIRED ACCESSORY OFF-STREET LOADING BERTHS	DISTRICT C2 MAPPED WITHIN R6 - NO BERTHS REQUIRED FOR FIRST 8,000 SF,1 BERTHS FOR NEXT 17,000 SF	COMMERCIAL=5,155 SF, NO BERTH PROVIDED

ZONING QUALITY HOUSING REGULATIONS

SECTION	DESCRIPTION	MAX. ALLOWED OR MIN. REQ'D	PROPOSED
ZR 23-011 (b)	QUALITY HOUSING PROGRAM	BULK REGULATIONS APPLICABLE TO QUALITY HOUSING BUILDINGS MAY BE APPLIED AS AN ALTERNATIVE.	COMPLIES
ZR 28-01	APPLICATION OF QUALITY HOUSING REGULATIONS	QUALITY HOUSING PROGRAM STANDARDS AND REQUIREMENTS IN CONJUNCTION WITH BULK PROVISIONS FOR QUALITY HOUSING BUILDINGS. ALL RELATED FACILITIES AND AMENITIES REQUIRED PURSUANT THE QUALITY HOUSING PROGRAM SHALL NOT BE REMOVED.	COMPLIES
ZR 28-11	ELEVATED GROUND FLOOR UNITS	UP TO 100 SF OF ENTRYWAYS FOR EACH 1'-0" OF DIFFERENCE BETWEEN FLOOR LEVEL OF #DWELLING UNITS# AND #CURB LEVEL#. MAX 500 SF DEDUCTION ALLOWED	N/A
ZR 28-12	REFUSE STORAGE & DISPOSAL	DISPOSAL: A REFUSE DISPOSAL ROOM OF NOT LESS THAN 12 SF WITH NO DIMENSION LESS THAN 3 FT SHALL BE PROVIDED ON EACH STORY THAT HAS ENTRANCES TO DWELLING UNITS STORAGE: THE STORAGE OF REFUSE SHALL BE PROVIDED AT THE RATE OF 2.9 CUBIC FEET PER DWELLING UNIT. 58 UNITS X 2.9 CF= 168.2 CF	DISPOSAL: 36 SF, PROVIDED AT EACH FLOOR STORAGE: PROVIDED AT CELLAR 342 SF X 8'-6" = 2,907 C.F.
ZR 28-13	LAUNDRY FACILITIES	1 WASHING MACHINE PER 20 DWELLING UNITS (58 / 20 = 3 REQUIRED WASHING MACHINES) 1 DRYER PER 40 DWELLING UNITS (58 / 40 = 2 REQUIRED DRYER)	(3) WASHING MACHINES PROPOSED (3) DRYERS PROPOSED LOCATED IN CELLAR, SHEET A-100
ZR 28-14	DAYLIGHT IN CORRIDORS	50% OF THE SF OF A CORRIDOR MAY BE EXCLUDED FROM THE DEFINITION OF FLOOR AREA IF A WINDOW WITH A CLEAR, NON-TINTED, GLAZED AREA OF AT LEAST 20 SF IS PROVIDED IN SUCH CORRIDOR, PROVIDED THAT SUCH WINDOW: (A) SHALL BE DIRECTLY VISIBLE FROM AT LEAST 50 % OF THE CORRIDOR OR FROM THE VERTICAL CIRCULATION CORE. THIS STANDARD SHALL BE ACHIEVED WHEN A VISUALLY UNOBSTRUCTED STRAIGHT LINE CAN BE DRAWN BETWEEN SUCH CORRIDOR, ELEVATOR OR STAIRWELL, AND THE WINDOW; AND (B) IS FACING A STREET, YARD OR COURT THAT MEETS THE APPLICABLE REGULATIONS SET FORTH IN ARTICLE II, CHAPTER 3.	COMPLIES, SEE SHEET Z-106-109 FOR DEDUCTIONS
ZR 28-21	RECREATION SPACE REQ. FOR 9 D.U. & OVER	MINIMUM REQUIRED RECREATION SPACE. ((R6-R7) 3.3% 39,136 SF) = 1,291 SF	PROPOSED INDOOR RECREATION SPACE = RECREATION: 1,193 SF AT 1ST FLOOR FITNESS CENTER: 1,215 SF AT CELLAR FLOOR TOTAL RECREATION AREA = 2,408 SF
ZR 28-23	PLANTING AREAS	AREA BETWEEN THE STREET LINE AND THE STREET WALL SHALL BE PLANTED, EXCEPT THAT SUCH PLANTINGS SHALL NOT BE REQUIRED AT THE ENTRANCES TO AND EXITS FROM THE BUILDING.., OR BETWEEN NON-RESIDENTIAL USES.., AND THE STREET LINE.	BUILDING STARTS AT PROPERTY LINE
ZR 28-31	DENSITY PER CORRIDOR	IF THE NUMBER OF DWELLING UNITS SERVED BY A VERTICAL CIRCULATION CORE & CORRIDOR ON EACH STORY DOES NOT EXCEED THE NUMBER SET FORTH IN THE FOLLOWING TABLE, 50 % OF THE SF OF THE CORRIDOR SERVING SUCH DU ON SUCH STORY MAY BE EXCLUDED FROM FLOOR AREA. DU WITH ENTRANCE DOORS ON MORE THAN ONE CORRIDOR (DUPLEX AND TRIPLEX UNITS), MAY COUNT EACH ENTRANCE DOOR AS A FRACTION OF THE TOTAL NUMBER OF DOORS TO SUCH DU WHEN DETERMINING THE NUMBER OF DU SERVED PER CORRIDOR. R6 R7: 11 DU	COMPLIES, SEE SHEET Z-106-109 FOR DEDUCTIONS
ZR 28-40	PARKING FOR QUALITY HOUSING	ACCESSORY OFF-STREET PARKING SHALL BE PROVIDED AS SET FORTH IN THE APPLICABLE DISTRICT REGULATIONS.	COMPLIES

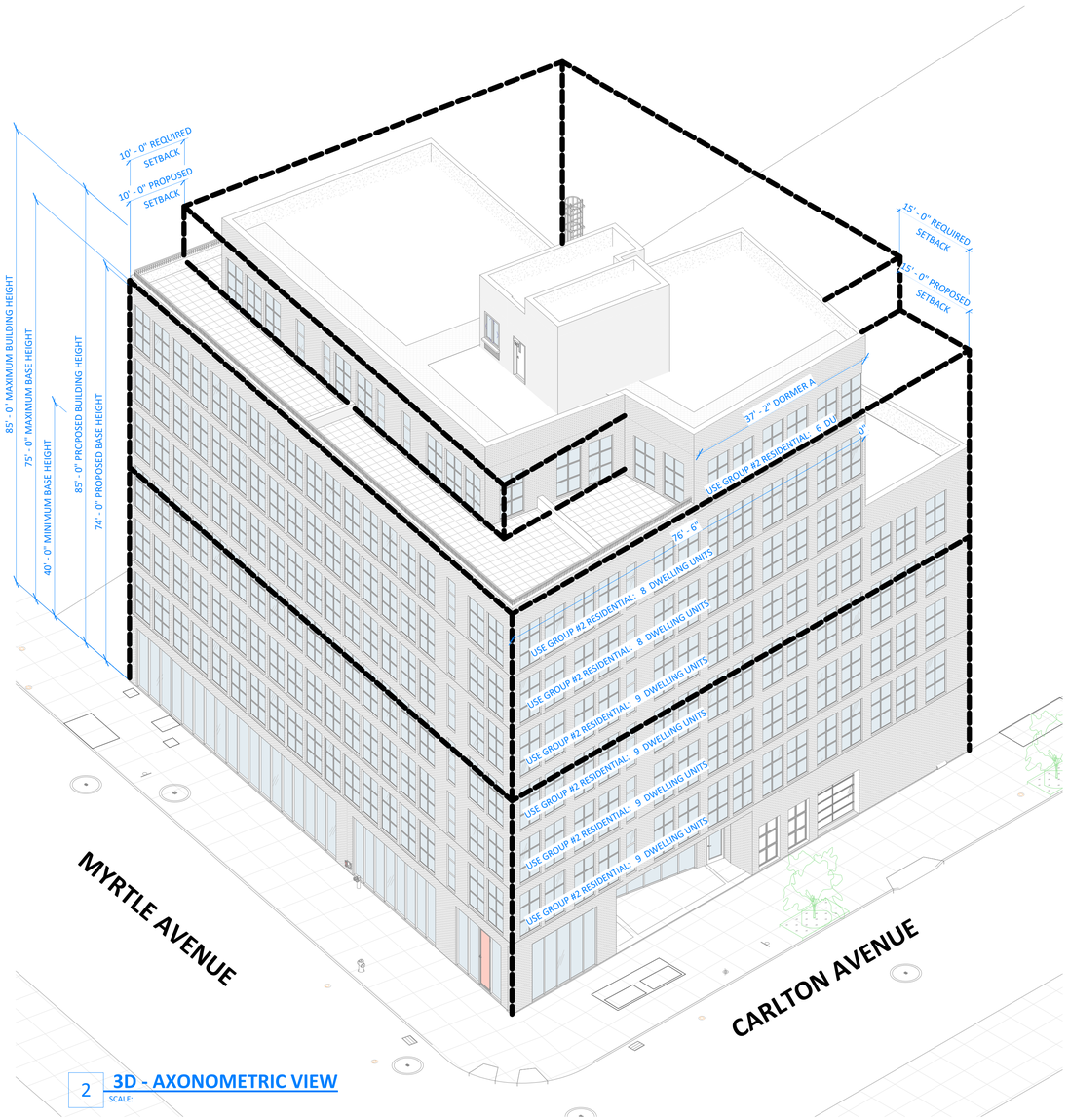
ZONING FLOOR AREA SCHEDULE

LEVEL	USE	GFA	DEDUCTION AREA	ZFA	F.A.R.	LOT AREA	LOT COVERAGE	USE GROUP	OCCUPANCY GROUP	DWELLING UNITS
COMMERCIAL										
CELLAR	COMMERCIAL	4,747 SF	4,747 SF	0 SF	0.00	8,598 SF	55%	6	M	0
1ST FLOOR	COMMERCIAL	408 SF	0 SF	408 SF	0.05	8,598 SF	5%	6	M	0
		5,155 SF	4,747 SF	408 SF	0.05					0
PARKING										
1ST FLOOR	PARKING	5,041 SF	5,041 SF	0 SF	0.00	8,598 SF	59%	2A	R2	0
		5,041 SF	5,041 SF	0 SF	0.00					0
RESIDENTIAL										
CELLAR	RESIDENTIAL	3,831 SF	3,831 SF	0 SF	0.00	8,598 SF	45%	2A	R2	0
1ST FLOOR	RESIDENTIAL	2,304 SF	1,625 SF	679 SF	0.08	8,598 SF	27%	2A	R2	0
2ND FLOOR	RESIDENTIAL	6,893 SF	887 SF	6,006 SF	0.70	8,598 SF	80%	2A	R2	9
3RD FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
4TH FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
5TH FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
6TH FLOOR	RESIDENTIAL	6,136 SF	751 SF	5,385 SF	0.63	8,598 SF	71%	2A	R2	8
7TH FLOOR	RESIDENTIAL	6,136 SF	751 SF	5,385 SF	0.63	8,598 SF	71%	2A	R2	8
8TH FLOOR	RESIDENTIAL	3,995 SF	605 SF	3,390 SF	0.39	8,598 SF	46%	2A	R2	6
ROOF	RESIDENTIAL	479 SF	195 SF	284 SF	0.03	8,598 SF	6%	2A	R2	0
		50,454 SF	11,318 SF	39,136 SF	4.55					58
TOTALS		60,650 SF	21,107 SF	39,544 SF	4.60					58

< 39,550 SF < 4.60 THEREFORE OK

SITE INFORMATION

ADDRESS	155 CARLTON AVENUE, BROOKLYN, NY, 11205
BLOCK	2073
LOT	21
COMMUNITY BOARD	BROOKLYN COMMUNITY DISTRICT 2
ZONING DISTRICT	R7A & C2-4
SPECIAL ZONING DISTRICT	N/A
ZONING MAP	16C
ZONING LOT AREA	8,827 SF
USE GROUP	2A, 2B
OCCUPANCY GROUP	R-2
CONSTRUCTION CLASSIFICATION	IB
MULTIPLE DWELLING CLASSIFICATION	HAEA
BUILDING CODE	2022 NYC BUILDING CODE
ENERGY CODE	2020 NEW YORK CITY ENERGY CONSERVATION CODE, APPENDIX CA (MODIFIED 90.1-2016)
ENVIRONMENTAL NYC OFFICE OF REMEDIATION	YES
TRANSIT AUTHORITY MTA	N/A NOT WITHIN 200' OF MTA
MIH INCLUSIONARY HOUSING DESIGNATED AREA	N/A
VIH INCLUSIONARY HOUSING DESIGNATED AREA	YES
LANDMARK	N/A
PRIMARY STRUCTURAL SYSTEM	CAST IN PLACE CONCRETE
STRUCTURAL OCCUPANCY RISK	II
SEISMIC DESIGN CATEGORY	B



2 **3D - AXONOMETRIC VIEW**
SCALE:

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

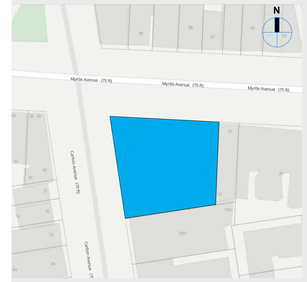
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ZONING ANALYSIS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:37:21 AM
SCALE:
DRAWN BY: XX

Z-100.00

SHEET: 2 OF 88

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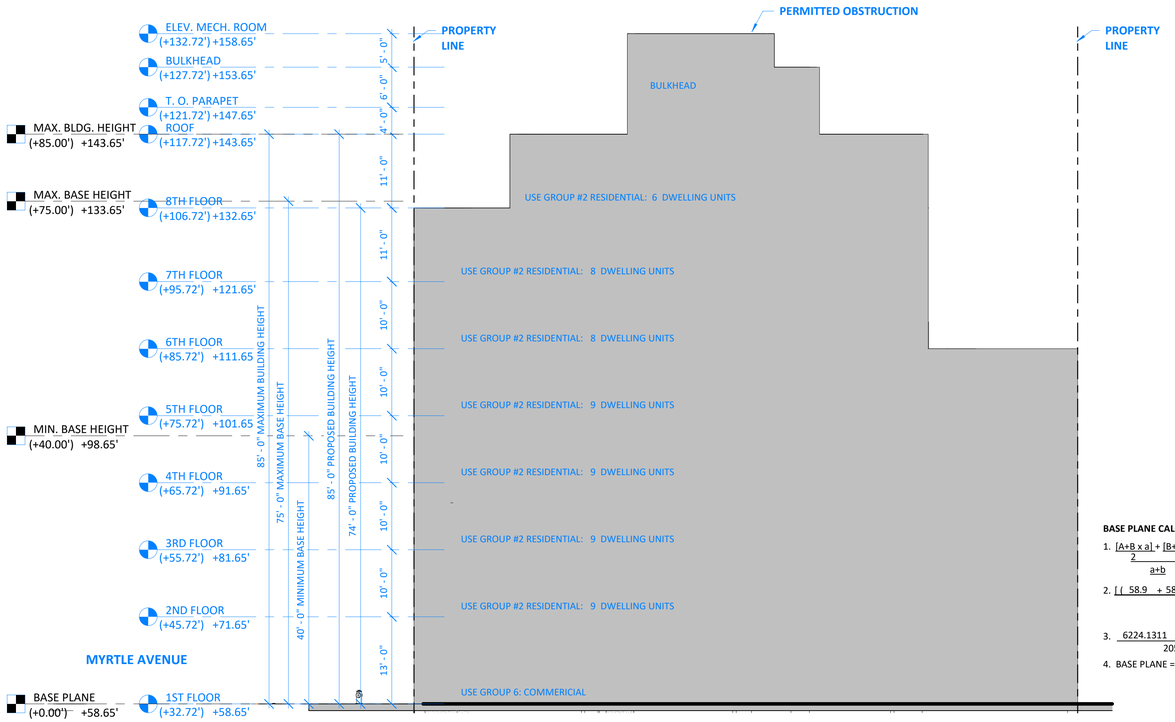


1 ZONING SECTION DIAGRAM CARLTON AVENUE

SCALE: 3/32" = 1'-0"

BASE PLANE CALCULATION:

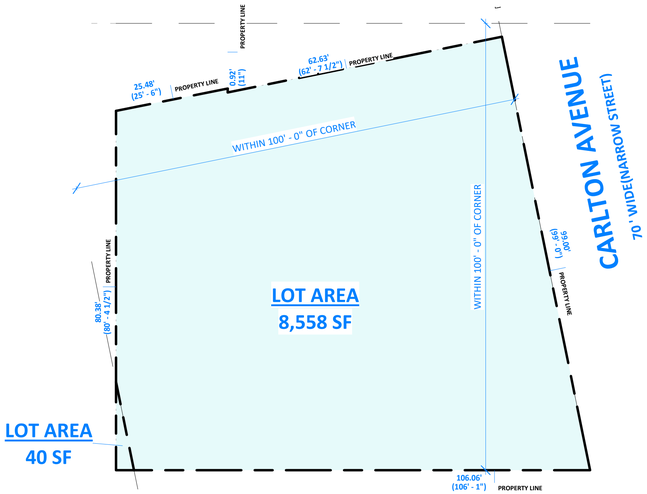
1. $\frac{\frac{[A+B \times a]}{2} + \frac{[B+C \times b]}{2}}{a+b}$

2. $\frac{\frac{[(\ 58.9\ +\ 58.47\ ) \times 106.06\ ]}{2} + \frac{[(\ 58.47\ +\ 58.76\ ) \times 99.00\ ]}{2}}{106.06\ +\ 99.00}$

3. $\frac{6224.1311\ +\ 5802.885}{205.06} = 58.65$

4. BASE PLANE = 58.65

NOTE: ALL ELEVATIONS IN ACCORDANCE WITH NAVD 88

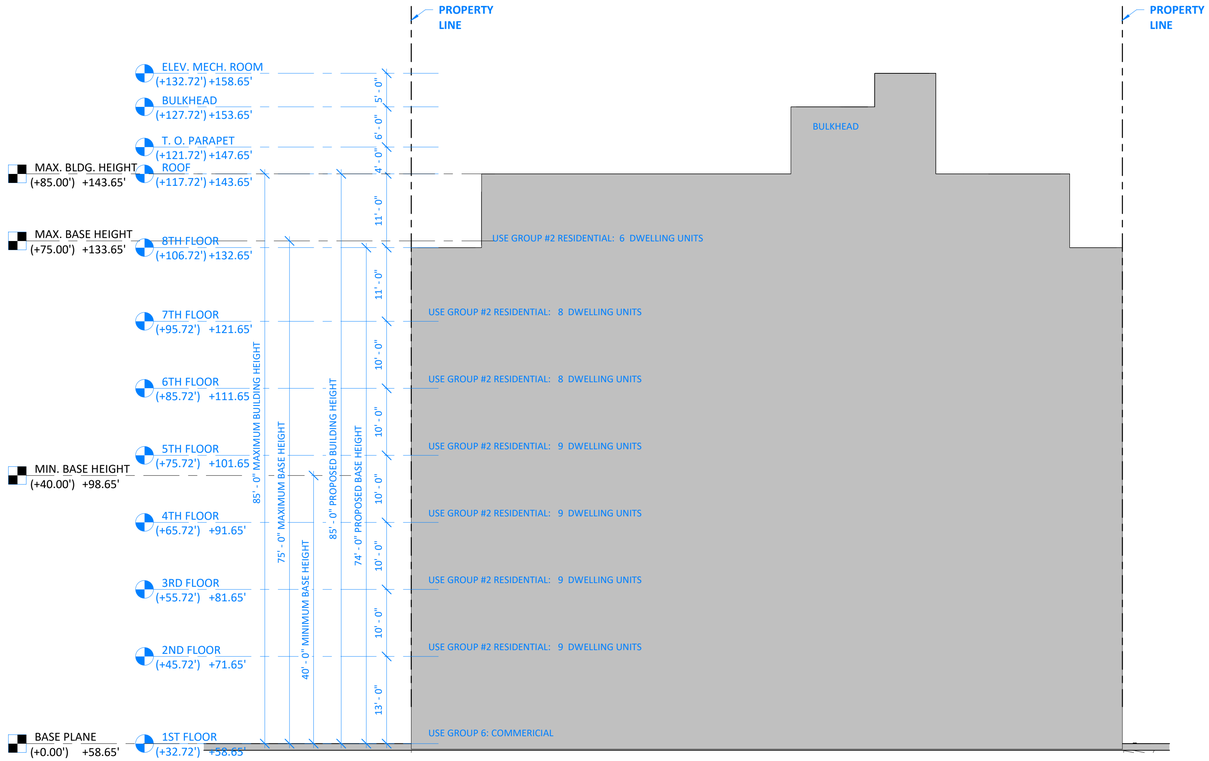


2 LOT AREA DIAGRAM

SCALE: 1/16" = 1'-0"

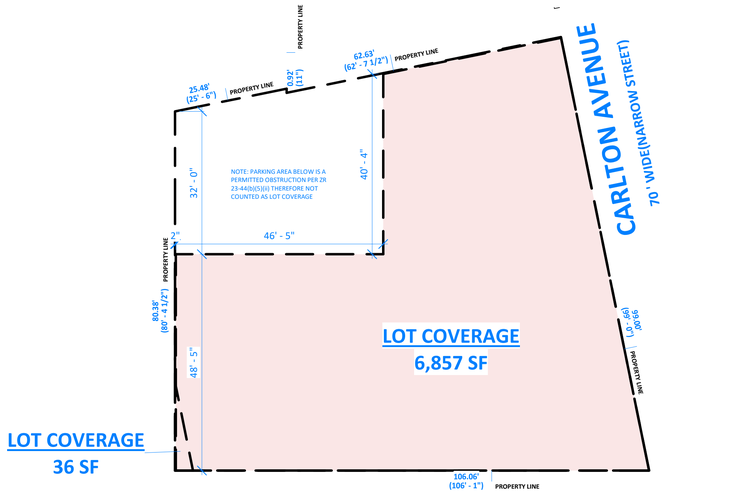
LOT AREA	
LOT	AREA
LOT AREA	8,598 SF
TOTAL	8,598 SF

LOT COVERAGE CALCULATION					
		MAX PERMITTED		PROPOSED	
LOT	AREA	%	SF	%	SF
LOT AREA	8,558 SF	100%	8,558 SF	80%	6,857 SF
LOT AREA	40 SF	65%	26 SF	91%	36 SF
TOTAL	8,598 SF				6,893 SF



4 ZONING SECTION DIAGRAM MYRTLE AVENUE

SCALE: 3/32" = 1'-0"



3 LOT COVERAGE DIAGRAM

SCALE: 1/16" = 1'-0"

N

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BROOKLYN NY, 11216
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STRUCTURAL ENGINEER:
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MEP ENGINEER:
...

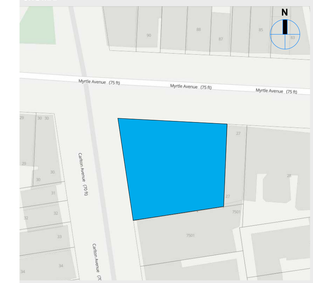
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ZONING ANALYSIS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:37:29 AM
SCALE: As indicated
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SHEET: 3 OF 88

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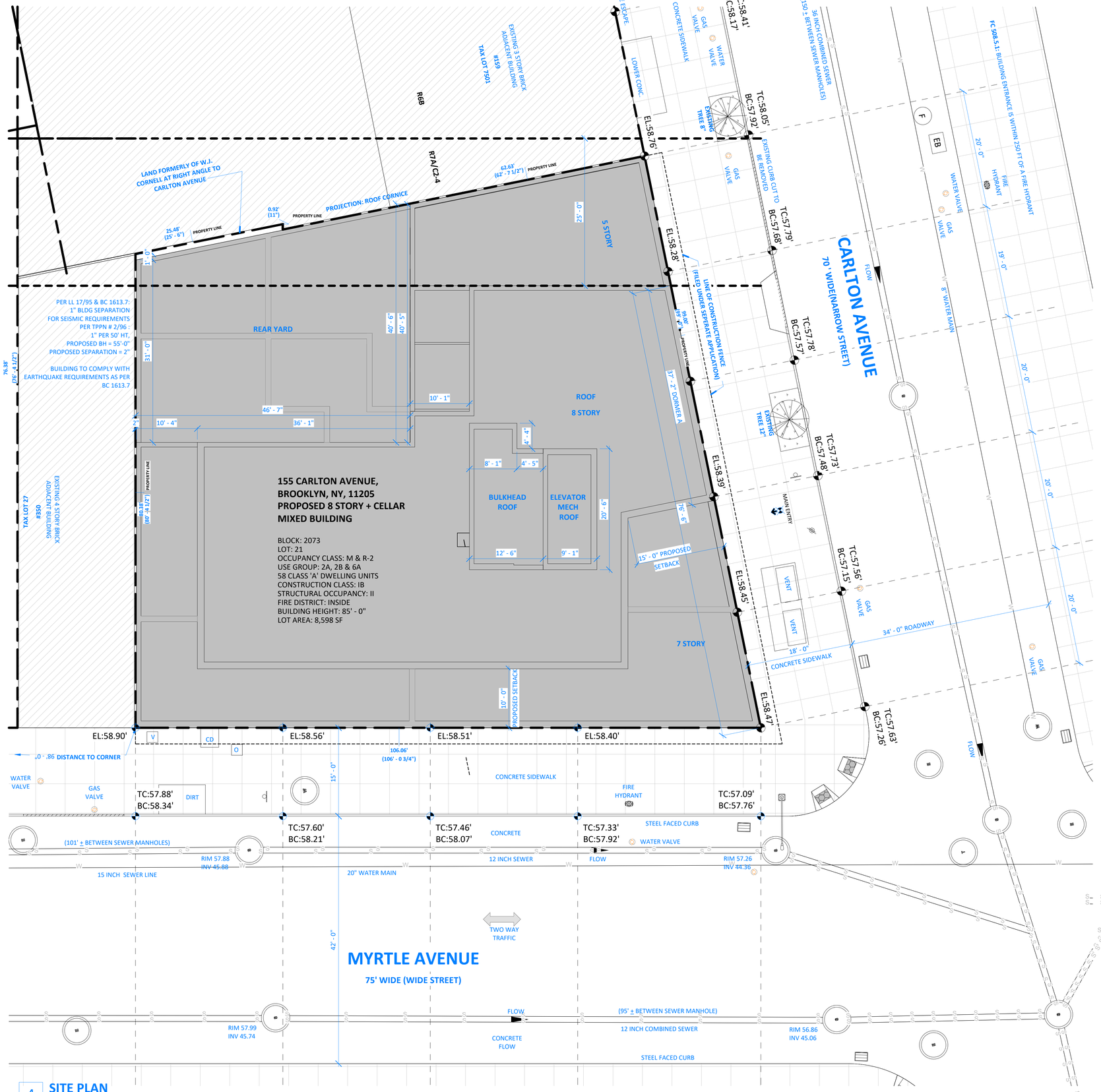

SITE PLAN

SCALE: 1/8" = 1'-0"

DORMER A:
60% OF STREET WALL LENGTH BELOW MAX. BASE HT. REDUCE WIDTH BY 1% PER EVERY FT. OF HEIGHT ABOVE MAX. BASE HEIGHT
PROPOSED DORMER:
HEIGHT ABOVE MAX BASE HT= 10' - 0"
60% - 10' - 0"% = 50.0%
76' - 6" (WALL LENGTH) X .50 = 38' - 3" (MAXIMUM DORMER LENGTH)
PROPOSED DORMER = 37' - 2" < 38' - 3" OK

SITE LEGEND

- NEW BUILDING
- EXISTING BUILDING
- PLANTING GRASS
- SIDEWALK
- LIGHT POLE
- SPOT ELEVATION SYMBOL
- FIRE HYDRANT
- GAS VALVE
- SIGN
- UTILITY POLE
- WATER VALVE
- DRAIN
- ELECTRICAL BOX
- MANHOLE
- TRAFFIC FLOW
- TREE
- PEDESTRIAN RAMP
- PROPERTY LINE
- CONSTRUCTION FENCE

E.T.C	EXISTING TOP OF CURB
E.B.C	EXISTING BOTTOM OF CURB
E.PL	EXISTING PROPERTY LINE
P.PL	PROPOSED PROPERTY LINE
P.T.C	PROPOSED TOP OF CURB
P.B.C	PROPOSED BOTTOM OF CURB
CL	CENTER LINE
LG	LEGAL GRADE
E	ELECT.
S	SEWER
W	WATER

NOTE: ALL ELEVATIONS IN ACCORDANCE WITH NAVD 88

N

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BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ZONING SITE PLAN

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:37:33 AM
SCALE: As indicated
DRAWN BY: XX

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SHEET: 4 OF 88

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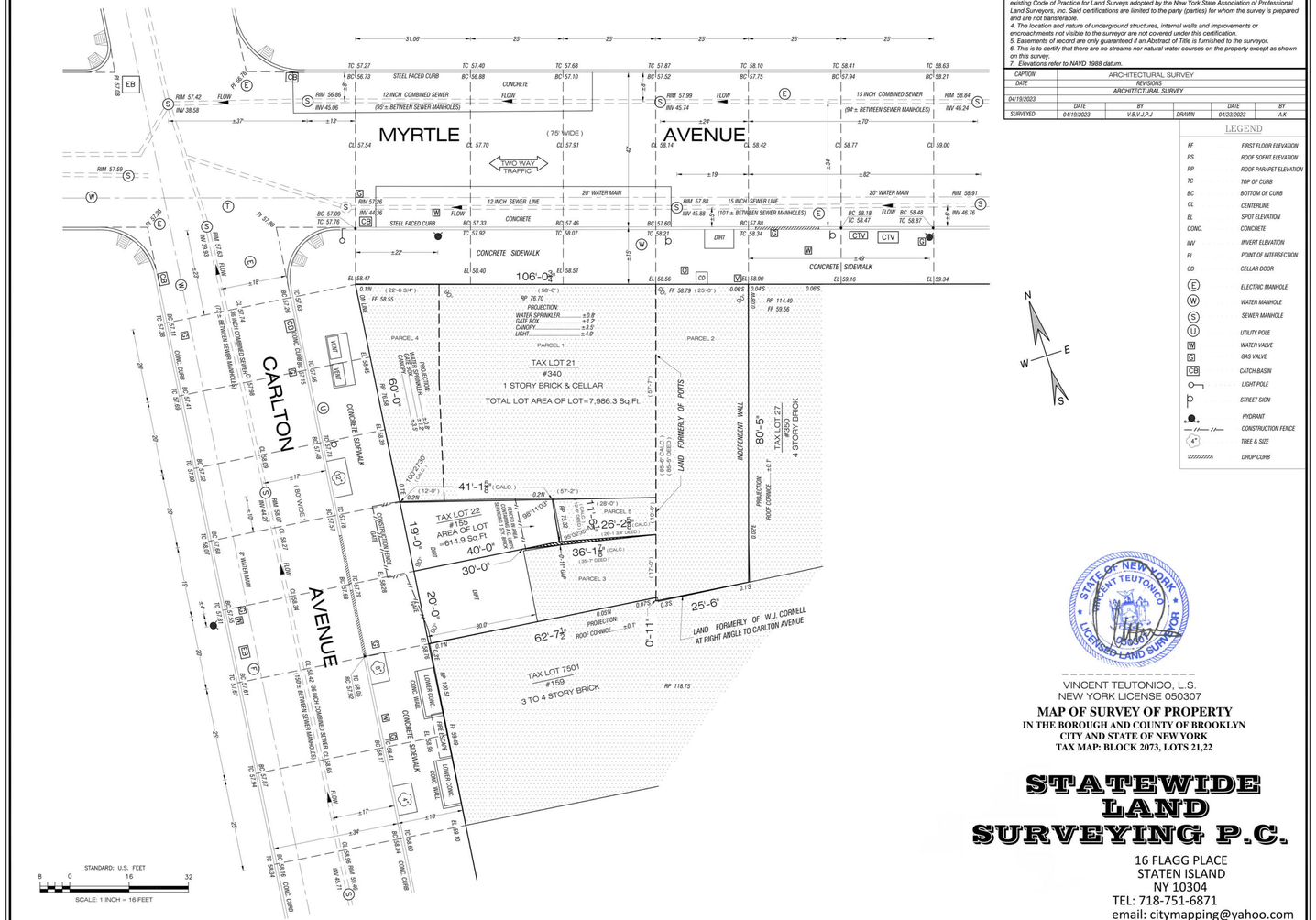
5/12/2023 1:37:33 AM

6 **TAX MAP**
SCALE: 1" = 80'-0"



GENERAL NOTES:
1. This survey was prepared only for the party (parties) and purpose indicated hereon.
2. Property corner monuments or markers were (not) placed as part of this survey.
3. Certifications on this survey map signify that the map was prepared in accordance with the current existing Code of Practice for Land Surveys adopted by the New York State Association of Professional Land Surveyors, Inc. Said certifications are limited to the party (parties) for whom the survey is prepared and are not transferable.
4. The location and nature of underground structures, internal walls and improvements or encroachments not visible to the surveyor are not covered under this certification.
5. Easements of record are only guaranteed if an Abstract of Title is furnished to the surveyor.
6. This is to certify that there are no streams nor natural water courses on the property except as shown on this survey.
7. Elevations refer to NAVD 1988 datum.

CAPTION	ARCHITECTURAL SURVEY				
DATE	REVISIONS: ARCHITECTURAL SURVEY				
04/19/2023					
SURVEYED	DATE 04/19/2023	BY V.B.V./J.P.J	DRAWN	DATE 04/23/2023	BY A.K

LEGEND

FF	FIRST FLOOR ELEVATION
RS	ROOF SOFFIT ELEVATION
RP	ROOF PARAPET ELEVATION
TC	TOP OF CURB
BC	BOTTOM OF CURB
CL	CENTERLINE
EL	SPOT ELEVATION
CONC.	CONCRETE
INV	INVERT ELEVATION
PI	POINT OF INTERSECTION
CD	CELLAR DOOR
E	ELECTRIC MANHOLE
W	WATER MANHOLE
S	SEWER MANHOLE
U	UTILITY POLE
WV	WATER VALVE
GV	GAS VALVE
CB	CATCH BASIN
	LIGHT POLE
	STREET SIGN
	HYDRANT
	CONSTRUCTION FENCE
4"	TREE & SIZE
	DROP CURB

VINCENT TEUTONICO, L.S.
NEW YORK LICENSE 050307

MAP OF SURVEY OF PROPERTY
IN THE BOROUGH AND COUNTY OF BROOKLYN
CITY AND STATE OF NEW YORK
TAX MAP: BLOCK 2073, LOTS 21,22

STATEWIDE LAND SURVEYING P.C.

16 FLAGG PLACE
STATEN ISLAND
NY 10304
TEL: 718-751-6871
email: citymapping@yahoo.com

4 **ARCHITECTURAL SURVEY**
SCALE: 12" = 1'-0"

Comparison of Flood Hazard

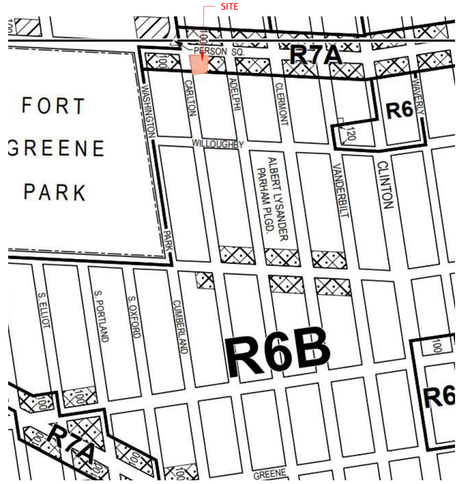
Effective & Preliminary Flood Hazards

FEMA

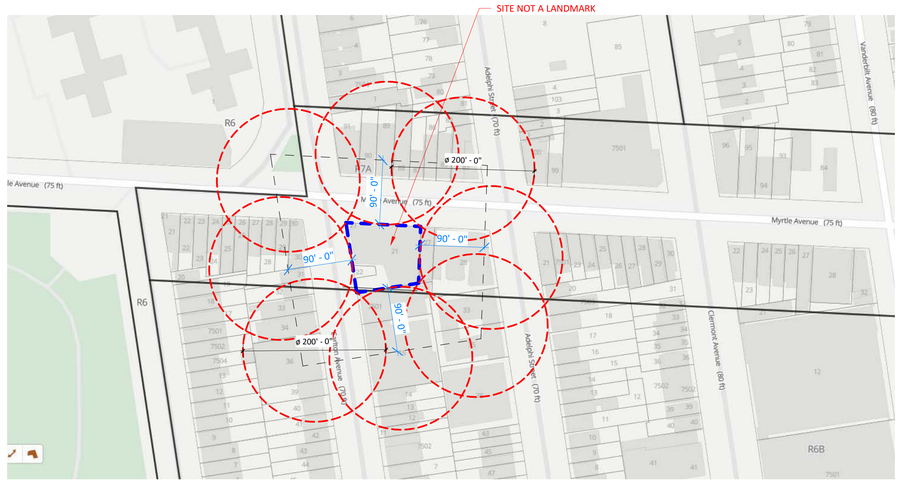
Effective	
POI Longitude/Latitude	-73.9727, 40.693
Effective FIRM Panel	3604970203F
Effective Date	9/5/2007
Flood Zone	X
Static BFE*	Not Available
Flood Depth	Not Available
Vertical Datum	Not Available

Preliminary	
POI Longitude/Latitude	-73.9727, 40.693
Preliminary FIRM Panel	3604970203G
Preliminary Issue Date	1/30/2015
Flood Zone	X
Estimated Static BFE*	Not Available
Estimated Flood Depth	Not Available
Vertical Datum	Not Available

3 **ZONING FLOOD MAP**
SCALE: 12" = 1'-0"



7 **ZONING MAP**
SCALE:1 : 6000



8 **200 FT RADIUS FROM PROJECT SITE. DOB MEMO 8-27-69 & TPPN 10/88**
SCALE: 1" = 100'-0"

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

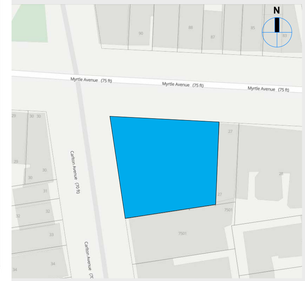
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ZONING MAPS & SURVEY

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:37:43 AM
SCALE: As indicated
DRAWN BY: XX

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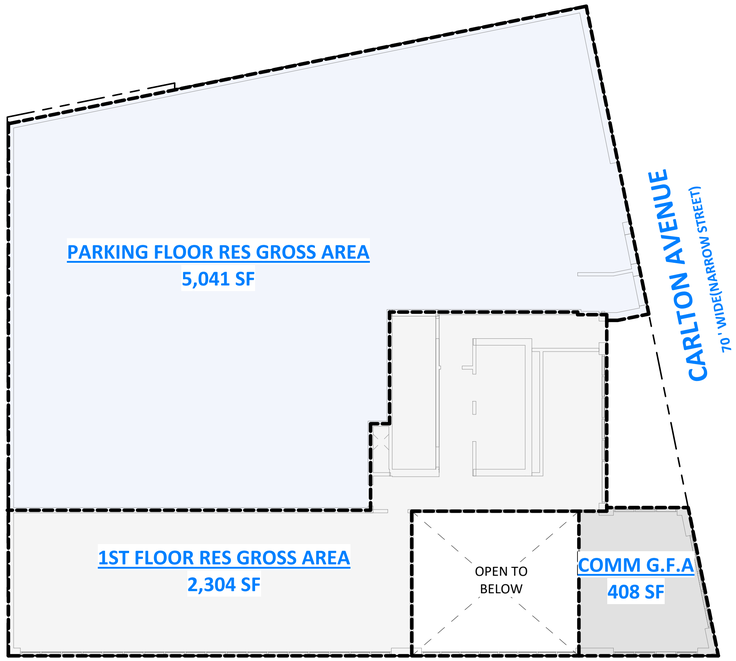
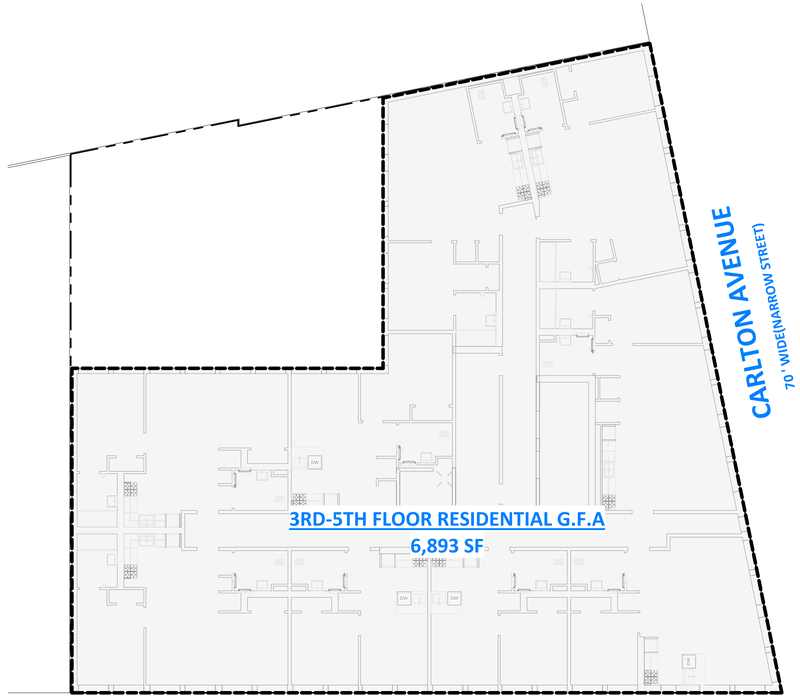


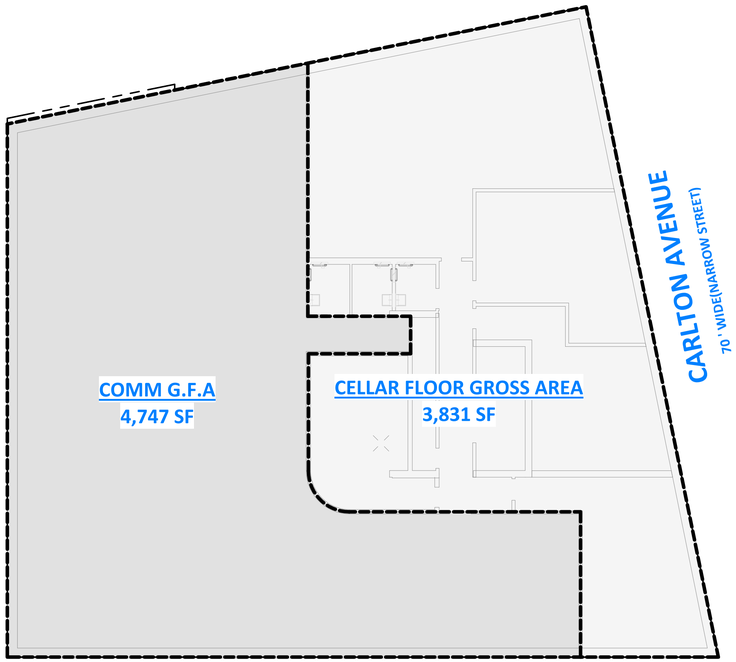
2 1ST FLOOR GROSS AREA PLAN
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



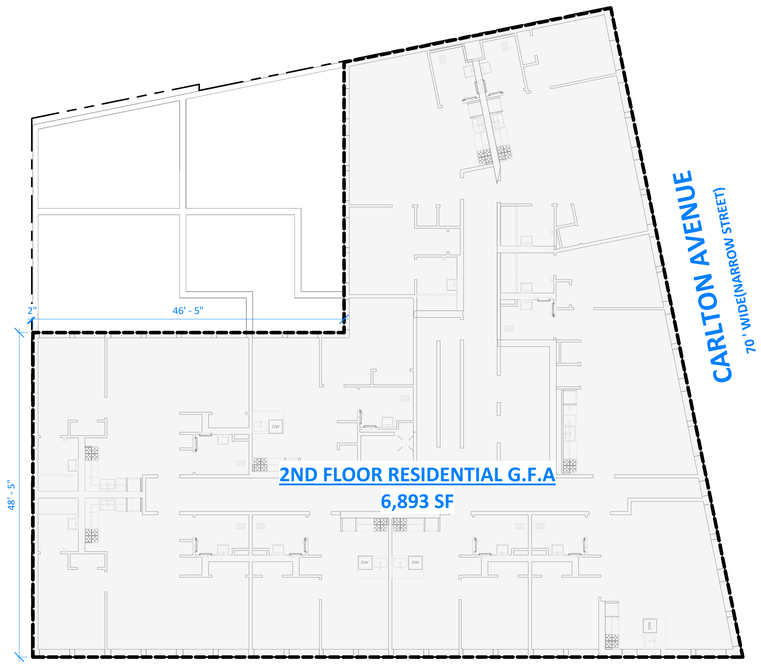
4 3RD-5TH FLOOR GROSS AREA PLAN
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



1 .CELLAR GROSS FLOOR AREA PLAN
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



3 2ND FLOOR GROSS AREA PLAN
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)

N

S. WIEDER ARCHITECT PC

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BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

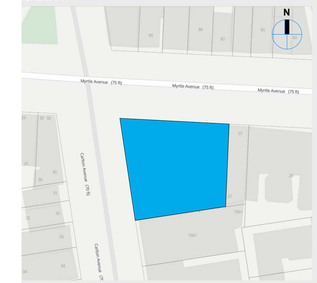
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ZONING GROSS AREA PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:37:53 AM
SCALE: 3/32" = 1'-0"
DRAWN BY: XX

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SHEET: 6 OF 88

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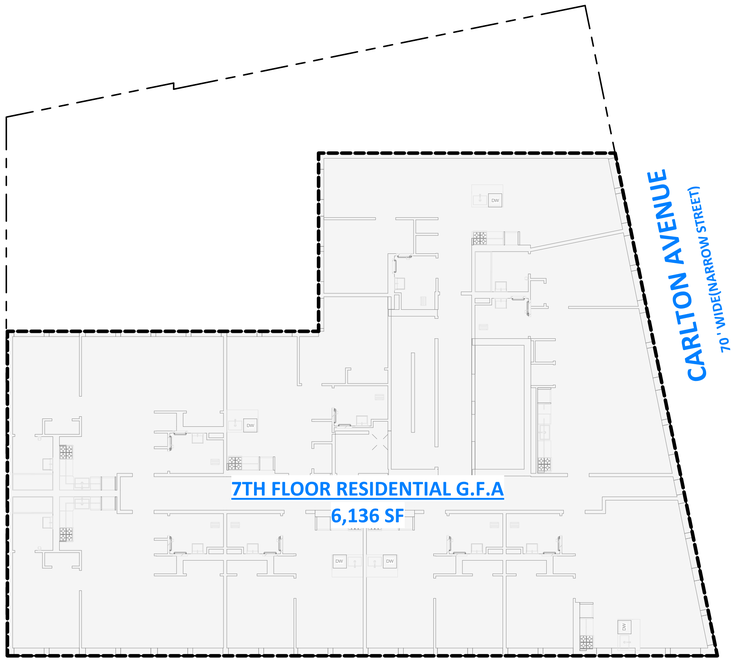
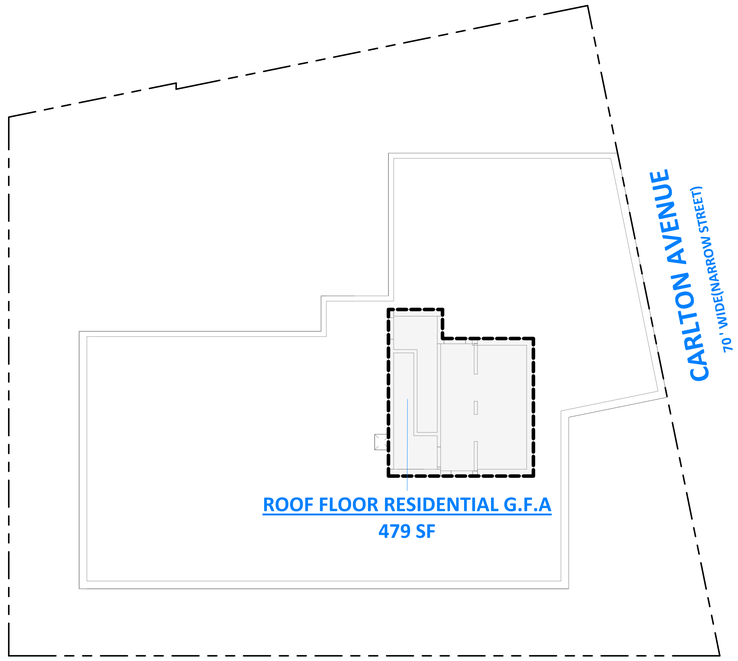


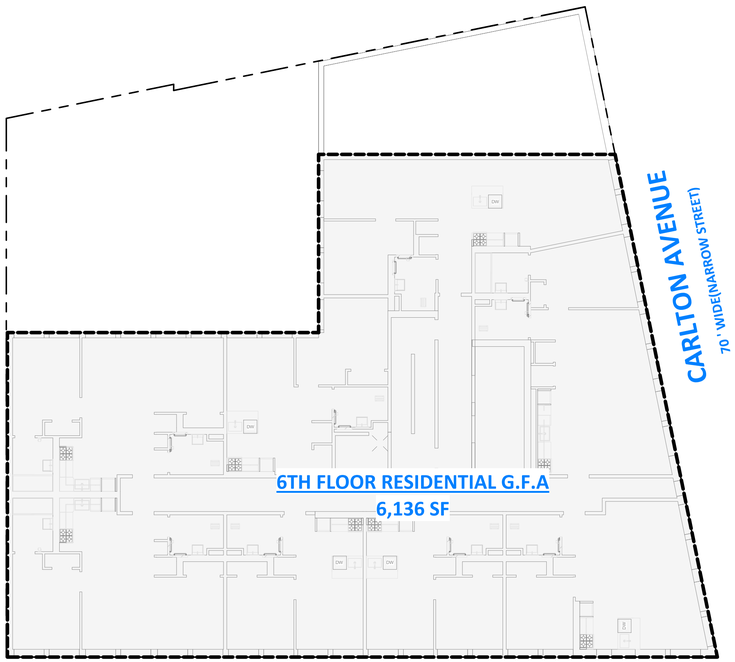
2 **7TH FLOOR GROSS AREA PLAN**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



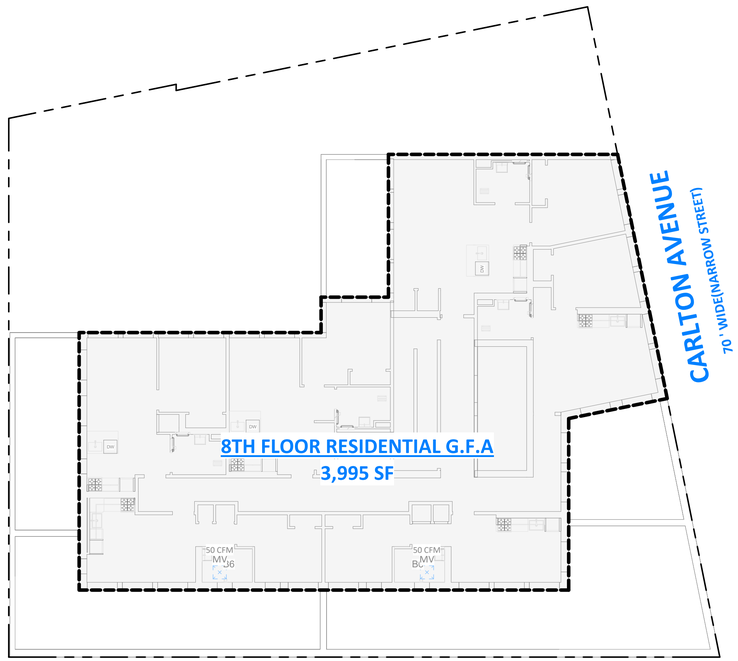
4 **ROOF GROSS FLOOR AREA PLAN**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



1 **6TH FLOOR GROSS AREA PLAN**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



3 **8TH FLOOR GROSS AREA PLAN**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)

N

S. WIEDER ARCHITECT PC

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BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
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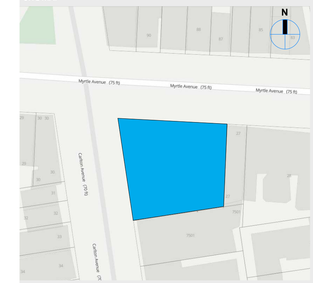
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ZONING GROSS AREA PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:38:01 AM
SCALE: 3/32" = 1'-0"
DRAWN BY: XX

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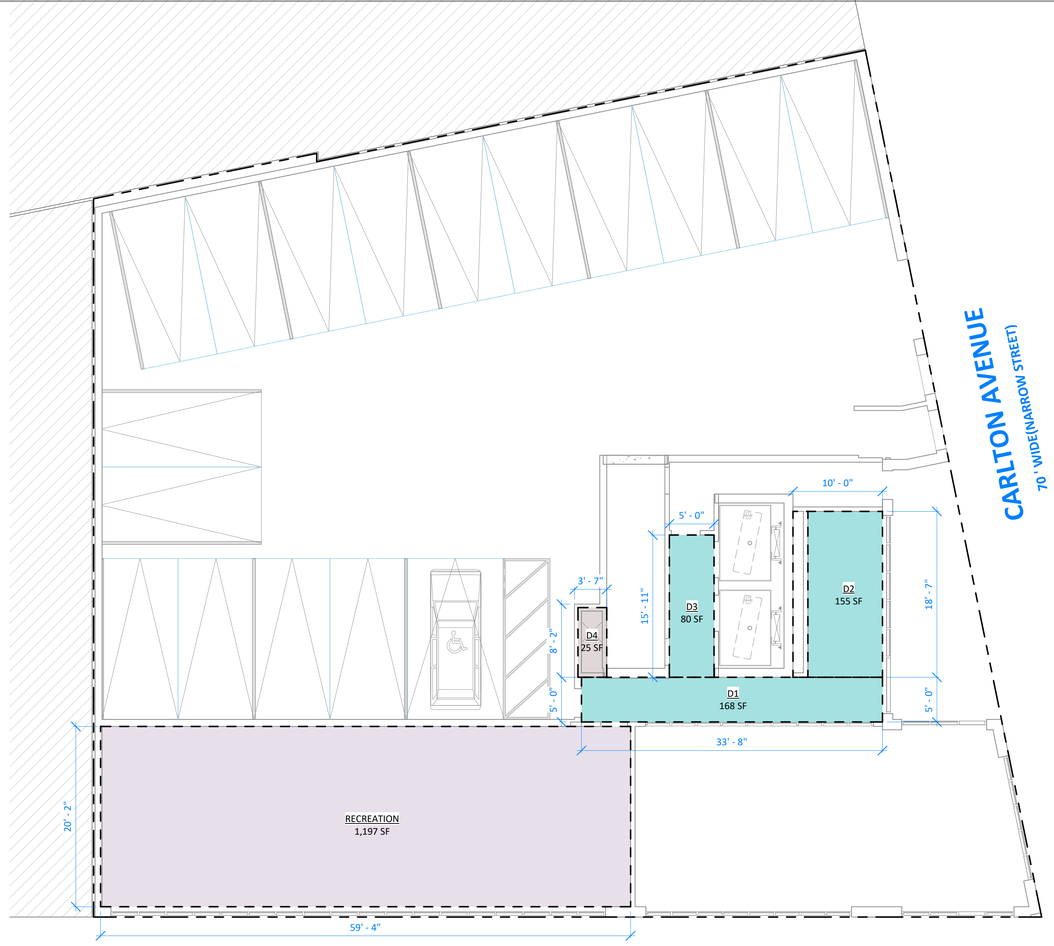
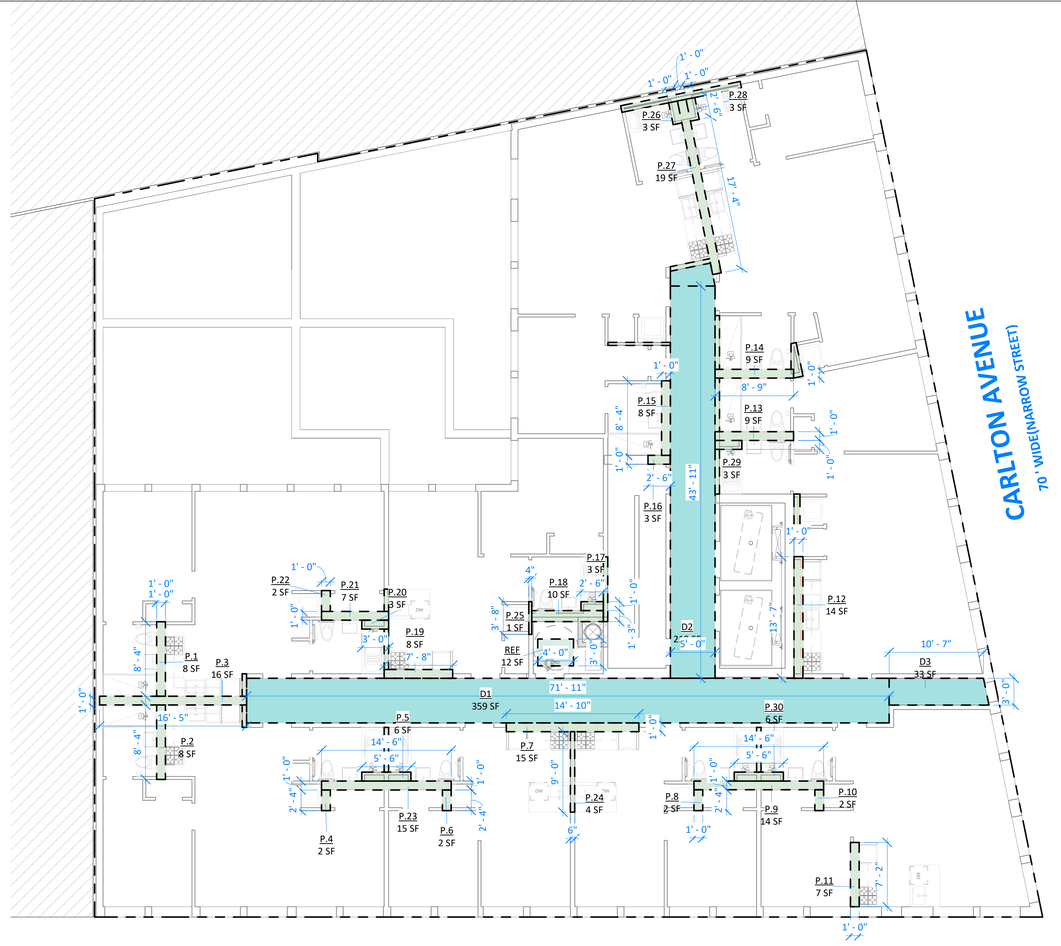


1 1ST FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"



2 2ND FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"

DEDUCTION TYPE LEGEND

- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- MECHANICAL
- RECREATION

DEDUCTION TYPE LEGEND

- BULKHEAD
- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- PL
- RECREATION
- REFUSE
- VEHICLE PARKING

1ST FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	33' - 8"	168 SF
D2	DENSITY & DAYLIGHT	5' - 0"	18' - 7"	155 SF
D3	DENSITY & DAYLIGHT	5' - 0"	15' - 11"	80 SF
DENSITY & DAYLIGHT				403 SF
D4	MECHANICAL	3' - 2 1/2"	7' - 9 1/2"	25 SF
MECHANICAL				25 SF
RECREATION	RECREATION	20' - 2"	59' - 3 1/2"	1,197 SF
RECREATION				1,197 SF
TOTAL DEDUCTIONS: 5				1,625 SF

2ND FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	71' - 10 1/2"	359 SF
D2	DENSITY & DAYLIGHT	5' - 0"	43' - 10 1/2"	219 SF
D3	DENSITY & DAYLIGHT	3' - 0"	10' - 11"	33 SF
D3	DENSITY & DAYLIGHT	2' - 1 1/2"	4' - 10"	10 SF
DENSITY & DAYLIGHT				622 SF
P.1	PL	1' - 0"	8' - 4"	8 SF
P.2	PL	1' - 0"	8' - 4"	8 SF
P.3	PL	1' - 0"	16' - 5 1/2"	16 SF
P.4	PL	1' - 0"	2' - 4"	2 SF
P.5	PL	1' - 0"	5' - 6"	6 SF
P.6	PL	1' - 0"	2' - 4"	2 SF
P.7	PL	1' - 0"	14' - 10"	15 SF
P.8	PL	1' - 0"	2' - 4"	2 SF
P.9	PL	1' - 0"	14' - 6"	14 SF
P.10	PL	1' - 0"	2' - 4"	2 SF
P.11	PL	1' - 0"	7' - 2 1/2"	7 SF
P.12	PL	1' - 0"	13' - 7 1/2"	14 SF
P.13	PL	1' - 0"	8' - 9 1/2"	9 SF
P.14	PL	1' - 0"	8' - 9 1/2"	9 SF
P.15	PL	1' - 0"	8' - 4"	8 SF
P.16	PL	1' - 0"	2' - 6"	3 SF
P.17	PL	1' - 0"	2' - 6"	3 SF
P.18	PL	1' - 3"	8' - 0"	10 SF
P.19	PL	1' - 0"	7' - 8"	8 SF
P.20	PL	1' - 0"	3' - 0"	3 SF
P.21	PL	1' - 0"	7' - 6"	7 SF
P.22	PL	1' - 0"	2' - 4"	2 SF
P.23	PL	1' - 0"	14' - 5 1/2"	15 SF

2ND FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
P.24	PL	6"	9' - 0"	4 SF
P.25	PL	4"	3' - 8"	1 SF
P.26	PL	1' - 0"	2' - 6"	3 SF
P.27	PL	1' - 0"	19' - 10"	19 SF
P.28	PL	1' - 0"	2' - 6"	3 SF
P.29	PL	1' - 0"	3' - 0"	3 SF
P.30	PL	1' - 0"	5' - 6"	6 SF
P.31	PL	6"	2' - 6"	1 SF
P.32	PL	10 1/2"	3' - 11 1/2"	3 SF
P.33	PL	6"	4' - 6 1/2"	2 SF
P.34	PL	6"	6' - 0"	3 SF
P.35	PL	6"	5' - 0"	3 SF
P.36	PL	9"	13' - 8"	10 SF
P.37	PL	6"	5' - 0"	2 SF
P.38	PL	6"	7' - 3"	4 SF
P.39	PL	8"	3' - 10"	3 SF
P.40	PL	6"	5' - 0"	3 SF
P.41	PL	6"	6' - 0"	3 SF
P.42	PL	6"	2' - 6"	1 SF
P.43	PL	6"	2' - 6"	1 SF
P.44	PL	4"	7' - 0"	2 SF
P.45	PL	6"	4' - 6 1/2"	2 SF
PL				254 SF
REF	REFUSE	3' - 0"	4' - 0"	12 SF
REFUSE				12 SF
TOTAL DEDUCTIONS: 50				887 SF

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ZONING FLOOR AREA DEDUCTIONS

DOB # :

DOB BSCAN + STAMP :

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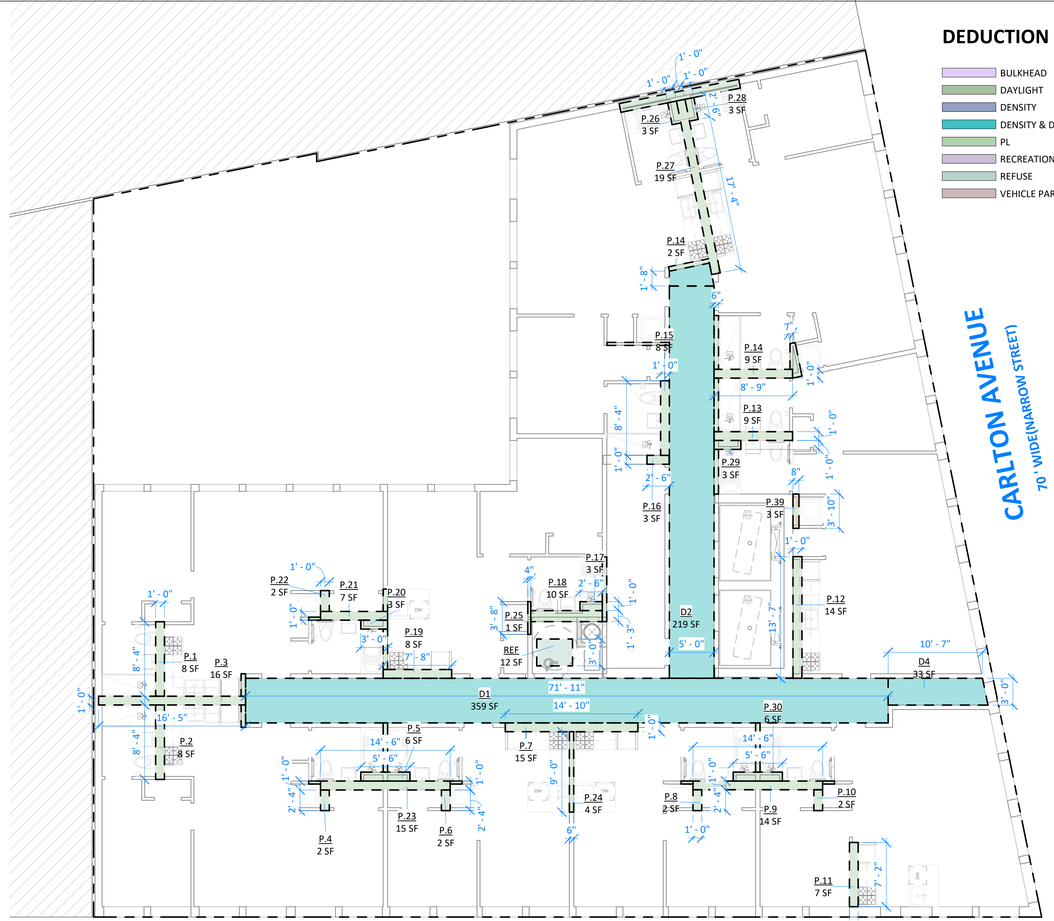
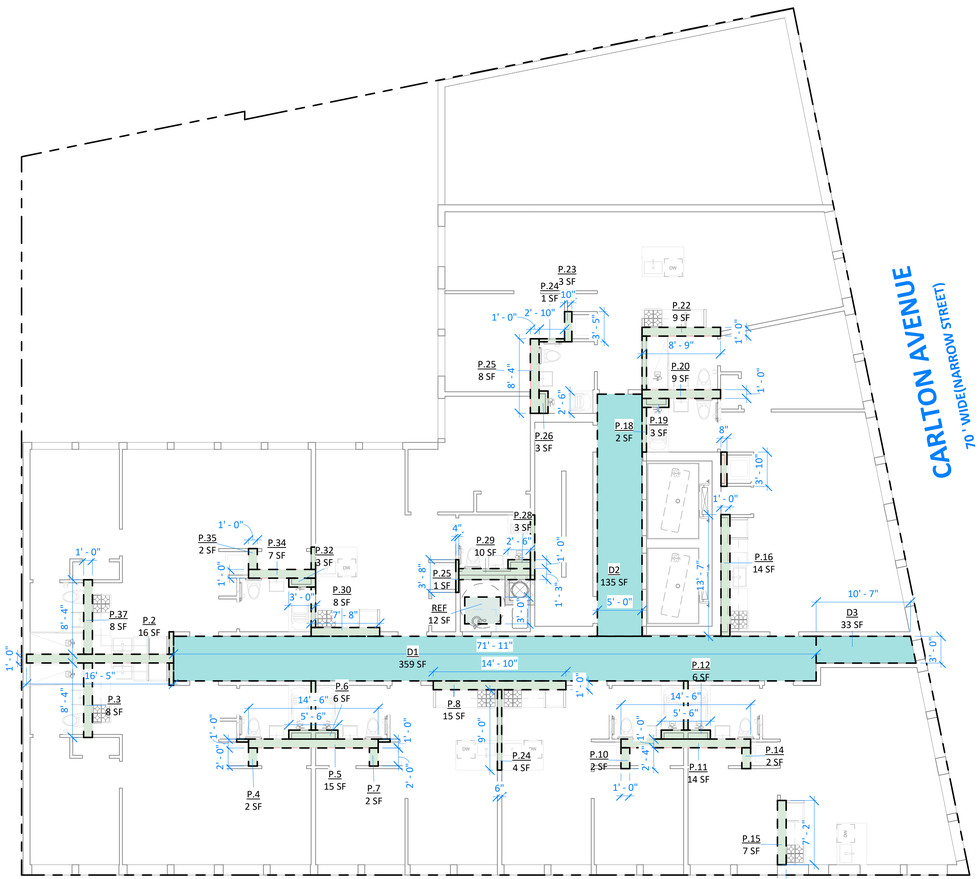
DEDUCTION TYPE LEGEND

- BULKHEAD
- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- PL
- RECREATION
- REFUSE
- VEHICLE PARKING



1 3RD-5TH FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"



2 6TH FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"

3RD-5TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	71' - 10 1/2"	359 SF
D2	DENSITY & DAYLIGHT	5' - 0"	43' - 10 1/2"	219 SF
D3	DENSITY & DAYLIGHT	2' - 1 1/2"	4' - 10"	10 SF
D4	DENSITY & DAYLIGHT	3' - 0"	10' - 11"	33 SF
DENSITY & DAYLIGHT				622 SF
P.1	PL	1' - 0"	8' - 4"	8 SF
P.2	PL	1' - 0"	8' - 4"	8 SF
P.3	PL	1' - 0"	16' - 5 1/2"	16 SF
P.3	PL	6"	2' - 6"	1 SF
P.3	PL	6"	2' - 6"	1 SF
P.4	PL	1' - 0"	2' - 4"	2 SF
P.5	PL	1' - 0"	5' - 6"	6 SF
P.6	PL	1' - 0"	2' - 4"	2 SF
P.7	PL	1' - 0"	14' - 10"	15 SF
P.8	PL	1' - 0"	2' - 4"	2 SF
P.9	PL	1' - 0"	14' - 6"	14 SF
P.10	PL	1' - 0"	2' - 4"	2 SF
P.11	PL	1' - 0"	7' - 2 1/2"	7 SF
P.12	PL	1' - 0"	13' - 7 1/2"	14 SF
P.13	PL	1' - 0"	8' - 9 1/2"	9 SF
P.14	PL	1' - 0"	8' - 9 1/2"	9 SF
P.14	PL	6"	4' - 7"	2 SF
P.15	PL	1' - 0"	8' - 4"	8 SF
P.15	PL	4"	7' - 0"	2 SF
P.16	PL	1' - 0"	2' - 6"	3 SF
P.17	PL	1' - 0"	2' - 6"	3 SF

3RD-5TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
P.18	PL	1' - 3"	8' - 0"	10 SF
P.19	PL	1' - 0"	7' - 8"	8 SF
P.20	PL	1' - 0"	3' - 0"	3 SF
P.21	PL	1' - 0"	7' - 6"	7 SF
P.22	PL	1' - 0"	2' - 4"	2 SF
P.23	PL	1' - 0"	14' - 5 1/2"	15 SF
P.24	PL	6"	9' - 0"	4 SF
P.25	PL	4"	3' - 8"	1 SF
P.26	PL	1' - 0"	2' - 6"	3 SF
P.27	PL	1' - 0"	19' - 10"	19 SF
P.28	PL	1' - 0"	2' - 6"	3 SF
P.29	PL	1' - 0"	3' - 0"	3 SF
P.30	PL	1' - 0"	5' - 6"	6 SF
P.31	PL	6"	2' - 6"	1 SF
P.32	PL	10 1/2"	3' - 11 1/2"	3 SF
P.33	PL	6"	4' - 6 1/2"	2 SF
P.34	PL	6"	6' - 0"	3 SF
P.35	PL	6"	5' - 6"	3 SF
P.36	PL	1' - 0"	13' - 8"	14 SF
P.37	PL	6"	5' - 0"	2 SF
P.38	PL	6"	7' - 3"	4 SF
P.39	PL	8"	3' - 10"	3 SF
P.40	PL	6"	5' - 6"	3 SF
P.41	PL	6"	6' - 0"	3 SF
PL				258 SF
REF	REFUSE	3' - 0"	4' - 0"	12 SF
REFUSE				12 SF
TOTAL DEDUCTIONS: 50				891 SF

6TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	71' - 10 1/2"	359 SF
D2	DENSITY & DAYLIGHT	5' - 0"	27' - 1"	135 SF
D3	DENSITY & DAYLIGHT	3' - 0"	10' - 11"	33 SF
DENSITY & DAYLIGHT				527 SF
P.2	PL	1' - 0"	16' - 5 1/2"	16 SF
P.2	PL	6"	2' - 6"	1 SF
P.2	PL	6"	2' - 6"	1 SF
P.3	PL	1' - 0"	8' - 4"	8 SF
P.4	PL	1' - 0"	2' - 0 1/2"	2 SF
P.5	PL	1' - 0"	14' - 5 1/2"	15 SF
P.6	PL	1' - 0"	5' - 6"	6 SF
P.7	PL	1' - 0"	2' - 0 1/2"	2 SF
P.8	PL	1' - 0"	14' - 10"	15 SF
P.10	PL	1' - 0"	2' - 4"	2 SF
P.11	PL	1' - 0"	14' - 6"	14 SF
P.12	PL	1' - 0"	5' - 6"	6 SF
P.13	PL	6"	5' - 6"	3 SF
P.14	PL	1' - 0"	2' - 4"	2 SF
P.15	PL	1' - 0"	7' - 2 1/2"	7 SF
P.16	PL	1' - 0"	13' - 7 1/2"	14 SF
P.16	PL	8"	3' - 10"	3 SF
P.18	PL	6"	5' - 0"	2 SF
P.19	PL	1' - 0"	3' - 0"	3 SF

6TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
P.20	PL	1' - 0"	8' - 9 1/2"	9 SF
P.21	PL	6"	6' - 0"	3 SF
P.22	PL	1' - 0"	8' - 9 1/2"	9 SF
P.23	PL	10"	3' - 4 1/2"	3 SF
P.24	PL	6"	9' - 0"	4 SF
P.24	PL	4"	2' - 10 1/2"	1 SF
P.25	PL	1' - 0"	8' - 4"	8 SF
P.25	PL	4"	3' - 8"	1 SF
P.26	PL	1' - 0"	2' - 6"	3 SF
P.27	PL	6"	7' - 3"	4 SF
P.28	PL	1' - 0"	2' - 6"	3 SF
P.29	PL	1' - 3"	8' - 0"	10 SF
P.30	PL	1' - 0"	7' - 8"	8 SF
P.31	PL	6"	4' - 6 1/2"	2 SF
P.32	PL	1' - 0"	3' - 0"	3 SF
P.33	PL	6"	2' - 6"	1 SF
P.34	PL	1' - 0"	7' - 6"	7 SF
P.35	PL	1' - 0"	2' - 4"	2 SF
P.36	PL	6"	5' - 6"	3 SF
P.37	PL	1' - 0"	8' - 4"	8 SF
PL				212 SF
REF	REFUSE	3' - 0"	4' - 0"	12 SF
REFUSE				12 SF
TOTAL DEDUCTIONS: 43				751 SF

DEDUCTION TYPE LEGEND

- BULKHEAD
- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- PL
- RECREATION
- REFUSE
- VEHICLE PARKING

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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ZONING FLOOR AREA DEDUCTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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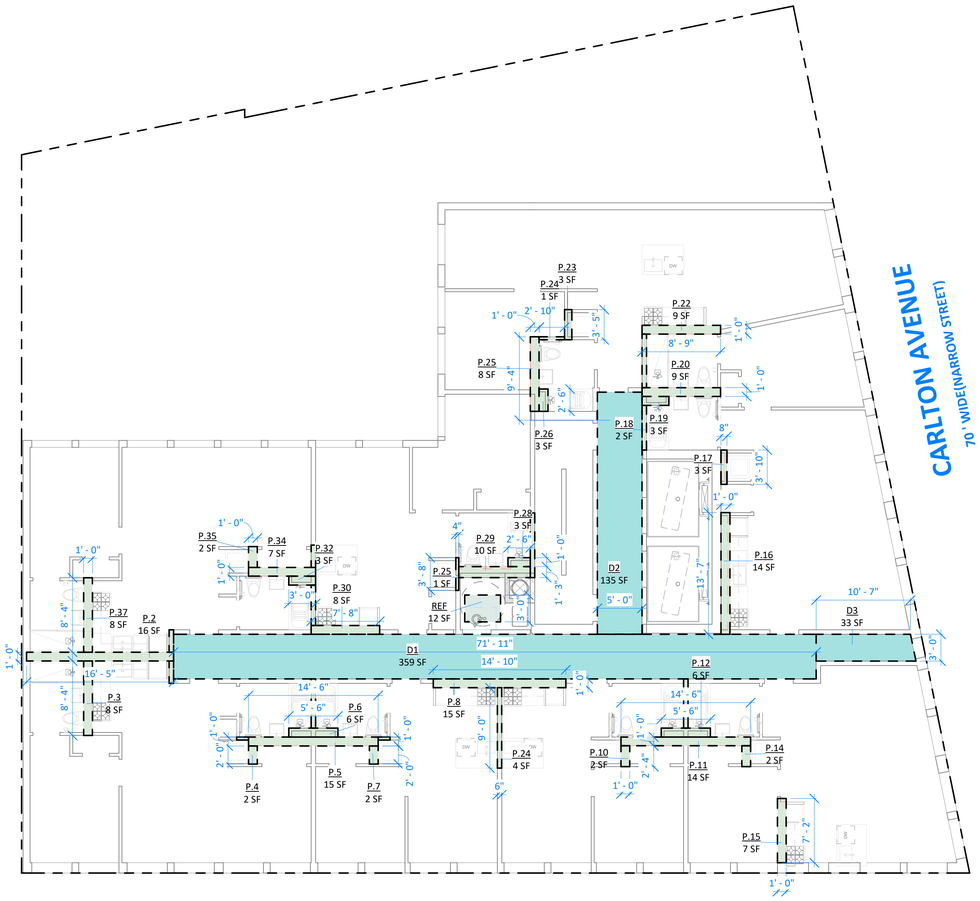
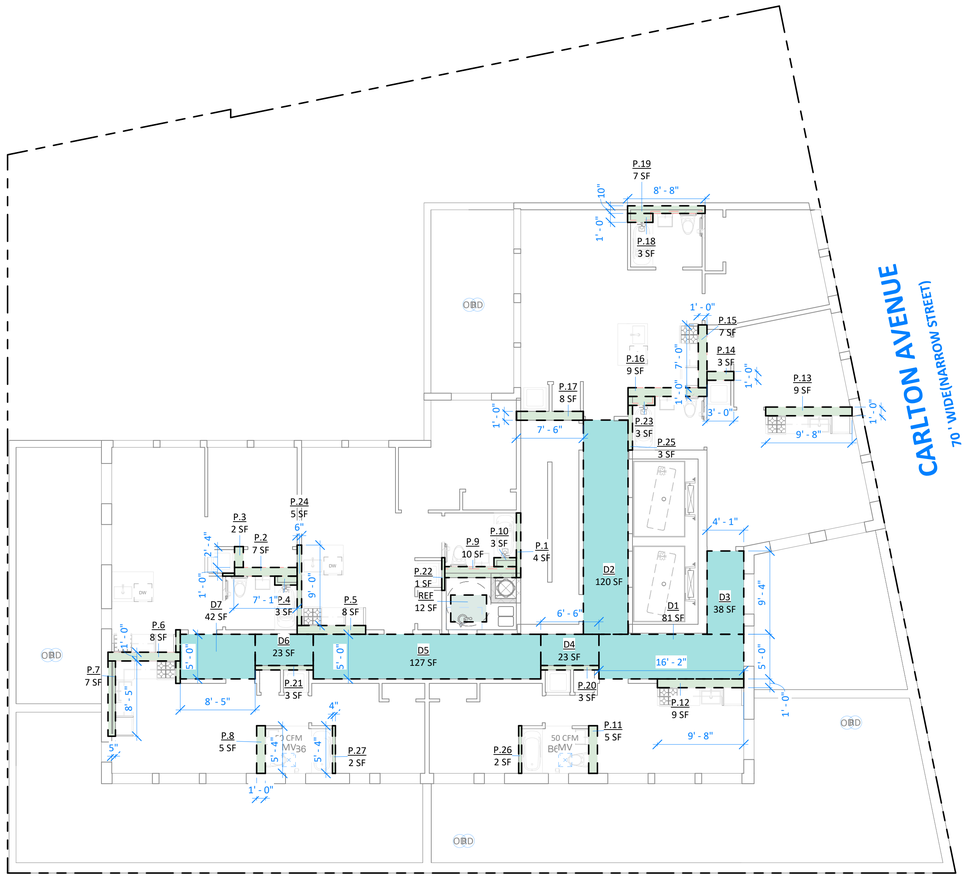


1 7TH FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"



2 8TH FLOOR Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"

DEDUCTION TYPE LEGEND

- BULKHEAD
- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- PL
- RECREATION
- REFUSE
- VEHICLE PARKING

7TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	71' - 10 1/2"	359 SF
D2	DENSITY & DAYLIGHT	5' - 0"	27' - 1"	135 SF
D3	DENSITY & DAYLIGHT	3' - 0"	10' - 11"	33 SF
DENSITY & DAYLIGHT				527 SF
P.1	PL	6"	4' - 6 1/2"	2 SF
P.2	PL	1' - 0"	16' - 5 1/2"	16 SF
P.2	PL	6"	2' - 6"	1 SF
P.2	PL	6"	2' - 6"	1 SF
P.3	PL	1' - 0"	8' - 4"	8 SF
P.4	PL	1' - 0"	2' - 0 1/2"	2 SF
P.5	PL	1' - 0"	14' - 5 1/2"	15 SF
P.6	PL	1' - 0"	5' - 6"	6 SF
P.7	PL	1' - 0"	2' - 0 1/2"	2 SF
P.8	PL	1' - 0"	14' - 10"	15 SF
P.10	PL	1' - 0"	2' - 4"	2 SF
P.11	PL	1' - 0"	14' - 6"	14 SF
P.12	PL	1' - 0"	5' - 6"	6 SF
P.13	PL	6"	5' - 6"	3 SF
P.14	PL	1' - 0"	2' - 4"	2 SF
P.15	PL	1' - 0"	7' - 2 1/2"	7 SF
P.16	PL	1' - 0"	13' - 7 1/2"	14 SF
P.17	PL	8"	3' - 10"	3 SF
P.18	PL	6"	5' - 0"	2 SF
P.19	PL	1' - 0"	3' - 0"	3 SF

7TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
P.20	PL	1' - 0"	8' - 9 1/2"	9 SF
P.21	PL	6"	6' - 0"	3 SF
P.22	PL	1' - 0"	8' - 9 1/2"	9 SF
P.23	PL	10"	3' - 4 1/2"	3 SF
P.24	PL	6"	9' - 0"	4 SF
P.24	PL	4"	2' - 10 1/2"	1 SF
P.25	PL	1' - 0"	8' - 4"	8 SF
P.25	PL	4"	3' - 8"	1 SF
P.26	PL	1' - 0"	2' - 6"	3 SF
P.27	PL	6"	7' - 3"	4 SF
P.28	PL	1' - 0"	2' - 6"	3 SF
P.29	PL	1' - 3"	8' - 0"	10 SF
P.30	PL	1' - 0"	7' - 8"	8 SF
P.32	PL	1' - 0"	3' - 0"	3 SF
P.33	PL	6"	2' - 6"	1 SF
P.34	PL	1' - 0"	7' - 6"	7 SF
P.35	PL	1' - 0"	2' - 4"	2 SF
P.36	PL	6"	5' - 6"	3 SF
P.37	PL	1' - 0"	8' - 4"	8 SF
PL				212 SF
REF	REFUSE	3' - 0"	4' - 0"	12 SF
REFUSE				12 SF
TOTAL DEDUCTIONS: 43				751 SF

8TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
D1	DENSITY & DAYLIGHT	5' - 0"	16' - 2 1/2"	81 SF
D2	DENSITY & DAYLIGHT	5' - 0"	23' - 11 1/2"	120 SF
D3	DENSITY & DAYLIGHT	4' - 1 1/2"	9' - 4"	38 SF
D4	DENSITY & DAYLIGHT	3' - 6"	6' - 6"	23 SF
D5	DENSITY & DAYLIGHT	5' - 0"	25' - 5 1/2"	127 SF
D6	DENSITY & DAYLIGHT	3' - 6"	6' - 6"	23 SF
D7	DENSITY & DAYLIGHT	5' - 0"	8' - 4 1/2"	42 SF
DENSITY & DAYLIGHT				454 SF
P.1	PL	6"	7' - 3"	4 SF
P.2	PL	1' - 0"	7' - 0"	7 SF
P.3	PL	1' - 0"	2' - 4"	2 SF
P.4	PL	1' - 0"	2' - 6"	3 SF
P.5	PL	1' - 0"	7' - 8"	8 SF
P.6	PL	1' - 0"	8' - 1"	8 SF
P.6	PL	6"	2' - 6"	1 SF
P.6	PL	6"	2' - 6"	1 SF
P.7	PL	10"	8' - 5"	7 SF
P.8	PL	1' - 0"	5' - 4"	5 SF
P.9	PL	1' - 3"	8' - 0"	10 SF
P.10	PL	1' - 0"	2' - 6"	3 SF
P.11	PL	1' - 0"	5' - 4"	5 SF
P.12	PL	1' - 0"	9' - 8"	9 SF
P.13	PL	1' - 0"	9' - 8"	9 SF
P.14	PL	1' - 0"	3' - 0"	3 SF

8TH FLOOR ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
P.15	PL	1' - 0"	7' - 0 1/2"	7 SF
P.16	PL	1' - 0"	8' - 10"	9 SF
P.17	PL	1' - 0"	7' - 5 1/2"	8 SF
P.18	PL	1' - 0"	2' - 10"	3 SF
P.19	PL	10 1/2"	8' - 8"	7 SF
P.20	PL	6"	6' - 6"	3 SF
P.21	PL	6"	6' - 6"	3 SF
P.22	PL	4"	3' - 8"	1 SF
P.23	PL	1' - 0"	3' - 0"	3 SF
P.24	PL	6"	9' - 0"	5 SF
P.25	PL	6"	5' - 0"	3 SF
P.26	PL	4"	5' - 4"	2 SF
P.27	PL	4"	5' - 4"	2 SF
PL				139 SF
REF	REFUSE	3' - 0"	4' - 0"	12 SF
REFUSE				12 SF
TOTAL DEDUCTIONS: 37				605 SF

N

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STRUCTURAL ENGINEER:
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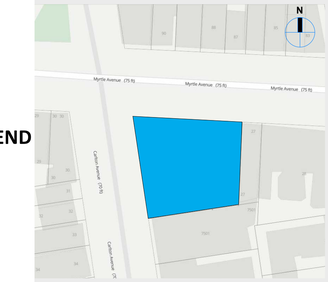
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ZONING FLOOR AREA DEDUCTIONS

DOB # :

DOB BSCAN + STAMP :

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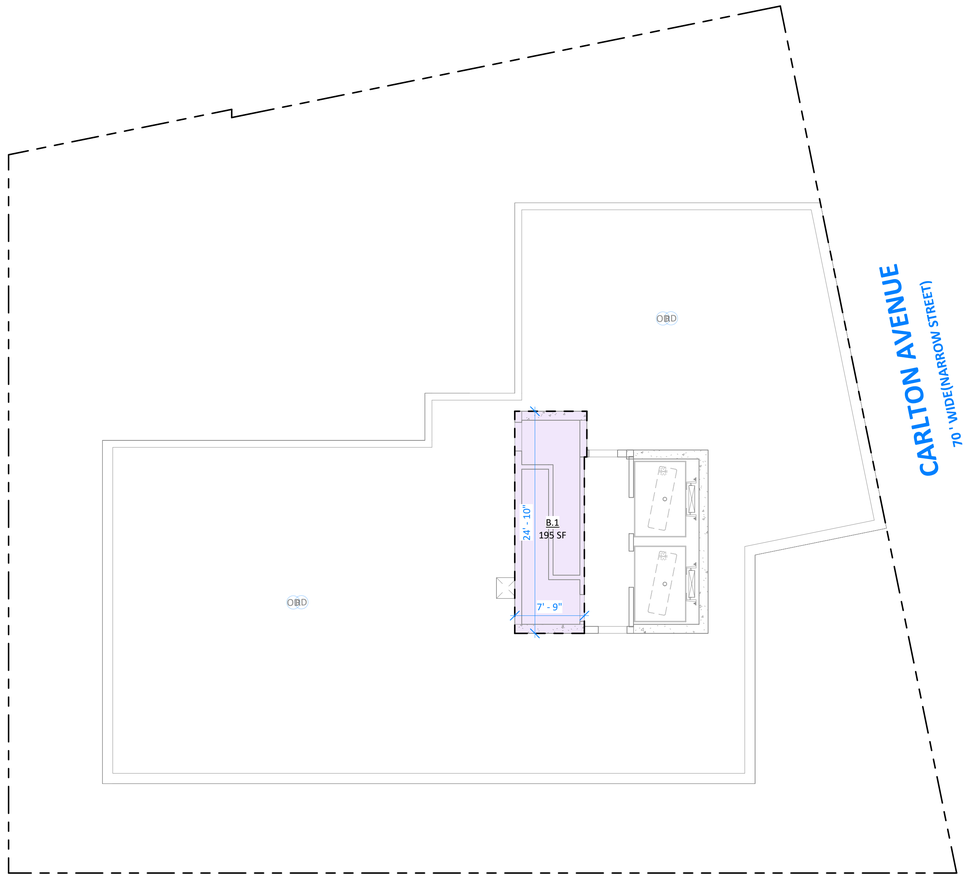

MYRTLE AVENUE

75' WIDE (WIDE STREET)

1 ROOF Z.F.A. DEDUCTIONS

SCALE: 1/8" = 1'-0"

ROOF ZFA DEDUCTIONS

AREA	AREA - DEDUCT - TYPE	LENGTH	WIDTH	AREA DEDUCTION
B.1	BULKHEAD	7' - 9"	25' - 2"	195 SF
BULKHEAD				195 SF
TOTAL DEDUCTIONS: 1				195 SF

DEDUCTION TYPE LEGEND

- BULKHEAD
- DAYLIGHT
- DENSITY
- DENSITY & DAYLIGHT
- PL
- RECREATION
- REFUSE
- VEHICLE PARKING

ZONING FLOOR AREA SCHEDULE

LEVEL	USE	GFA	DEDUCTION AREA	ZFA	F.A.R.	LOT AREA	LOT COVERAGE	USE GROUP	OCCUPANCY GROUP	DWELLING UNITS
COMMERCIAL										
CELLAR	COMMERCIAL	4,747 SF	4,747 SF	0 SF	0.00	8,598 SF	55%	6	M	0
1ST FLOOR	COMMERCIAL	408 SF	0 SF	408 SF	0.05	8,598 SF	5%	6	M	0
		5,155 SF	4,747 SF	408 SF	0.05					0
PARKING										
1ST FLOOR	PARKING	5,041 SF	5,041 SF	0 SF	0.00	8,598 SF	59%	2A	R2	0
		5,041 SF	5,041 SF	0 SF	0.00					0
RESIDENTIAL										
CELLAR	RESIDENTIAL	3,831 SF	3,831 SF	0 SF	0.00	8,598 SF	45%	2A	R2	0
1ST FLOOR	RESIDENTIAL	2,304 SF	1,625 SF	679 SF	0.08	8,598 SF	27%	2A	R2	0
2ND FLOOR	RESIDENTIAL	6,893 SF	887 SF	6,006 SF	0.70	8,598 SF	80%	2A	R2	9
3RD FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
4TH FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
5TH FLOOR	RESIDENTIAL	6,893 SF	891 SF	6,002 SF	0.70	8,598 SF	80%	2A	R2	9
6TH FLOOR	RESIDENTIAL	6,136 SF	751 SF	5,385 SF	0.63	8,598 SF	71%	2A	R2	8
7TH FLOOR	RESIDENTIAL	6,136 SF	751 SF	5,385 SF	0.63	8,598 SF	71%	2A	R2	8
8TH FLOOR	RESIDENTIAL	3,995 SF	605 SF	3,390 SF	0.39	8,598 SF	46%	2A	R2	6
ROOF	RESIDENTIAL	479 SF	195 SF	284 SF	0.03	8,598 SF	6%	2A	R2	0
		50,454 SF	11,318 SF	39,136 SF	4.55					58
TOTALS		60,650 SF	21,107 SF	39,544 SF	4.60					58

< 39,550 SF < 4.60 THEREFORE OK

N

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ZONING FLOOR AREA DEDUCTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:38:42 AM
SCALE: 1/8" = 1'-0"
DRAWN BY: XX

Z-109.00

SHEET: 11 OF 88

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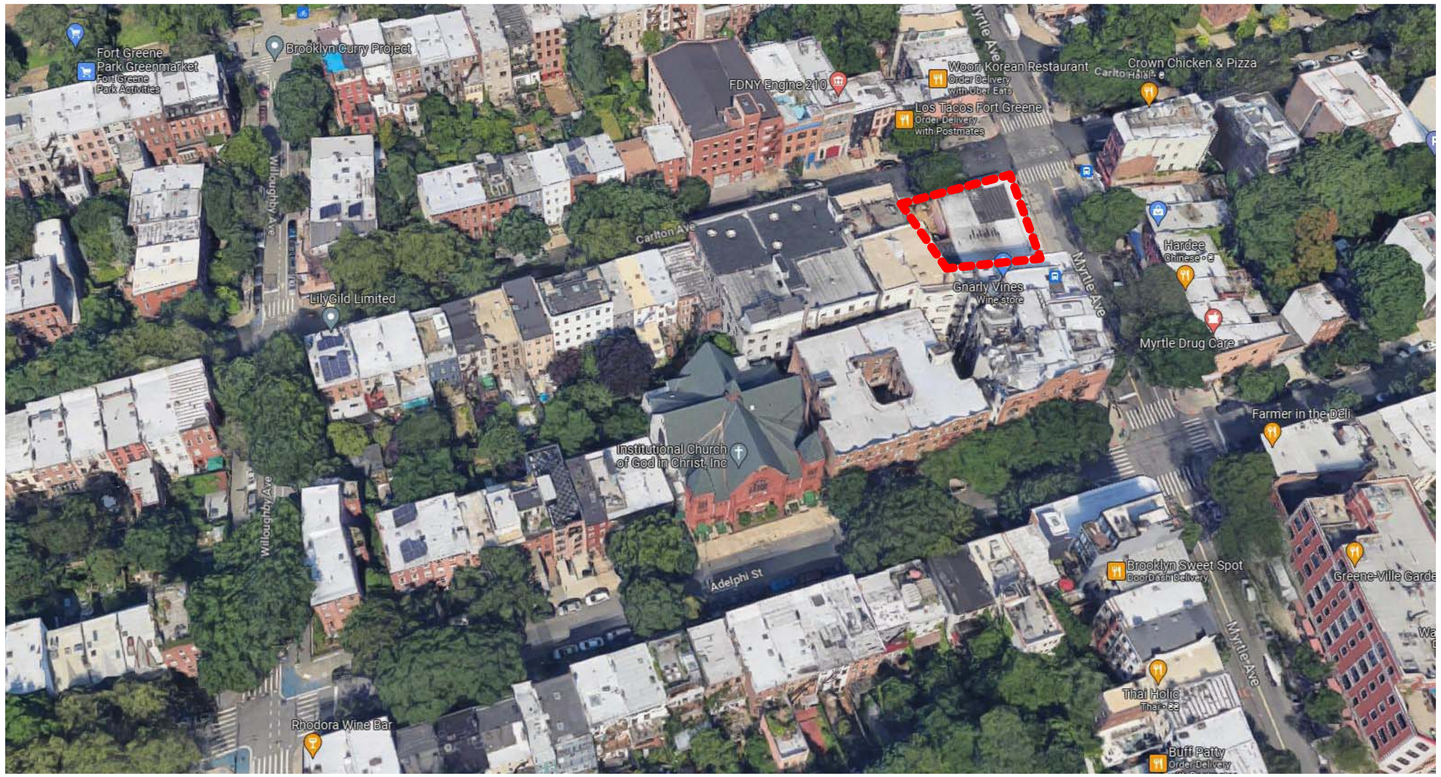
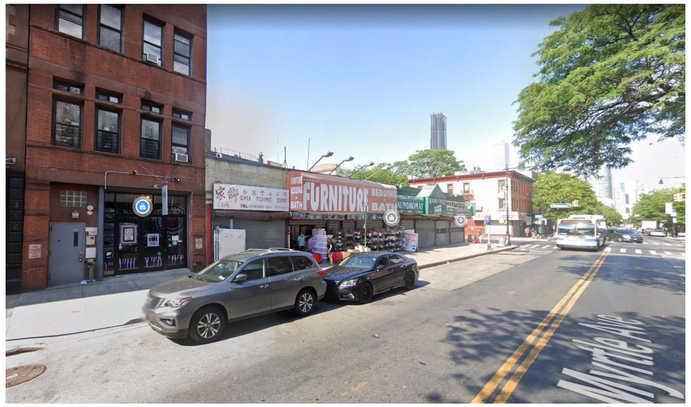
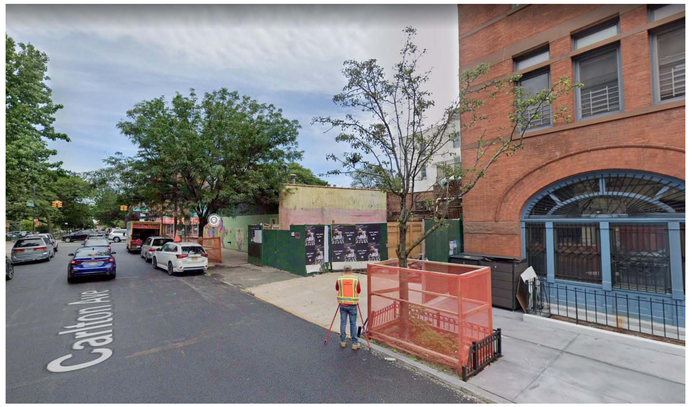
5/12/2023 1:38:42 AM







S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
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STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

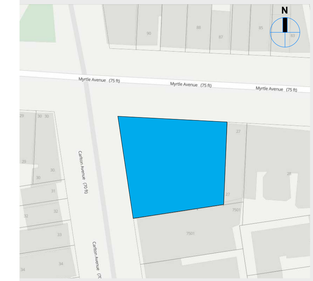
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

SITE IMAGES

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:38:46 AM
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SHEET: 12 OF 88

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ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	AIR CONDITIONING
ACM	ASBESTOS CONTAINING MATERIAL
ACOUS	ACOUSTICAL
ACP	ACOUSTICAL CEILING PANEL
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN/ACCESS DOOR
ADD	ADDENDUM
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
ADJC	ADJACENT
AFF	ABOVE FINISH FLOOR
AGGR	AGGREGATE
AL/ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED (ANODIC COATING)
AP	ACCESS PANEL
APPROX	APPROXIMATE(LY)
APT	APARTMENT
ARCH	ARCHITECT(URAL)
ASC	ABOVE SUSPENDED CEILING
ASPH	ASPHALT(IC)
AST	ASSISTANT
ASST	ASTRAGAL
AUTO	AUTOMATIC
AUX	AUXILARY
AV	AUDIO/VISUAL
AVG	AVERAGE
BC	BOTTOM/BACK OF CURB
BD	BOARD
BTWN	BETWEEN
BIT	BITUMINOUS
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BLW	BELOW
BM	BEAM/BENCHMARK
BOT	BOTTOM
BP	BASE PLATE
BR	BED ROOM
BRG	BEARING
BRNZ	BRONZE
BS	BOTH SIDES
BSMT	BASEMENT
BUR	BUILT-UP ROOF
BW	BOTH WAYS
C	COURSES
C/C	CENTER TO CENTER
CAB	CABINET
CB	CATCH BASIN
CCTV	CLOSED CIRCUIT TELEVISION
CEM	CEMENT
CER	CERAMIC
CG	CORNER GUARD
CHAM	CHAMFER
CHAN	CHANNEL
CHKBD	CHALKBOARD
CHK PL	CHECKER PLATE
CI	CAST IRON
CIP	CAST IN PLACE
CJ	CONTROL/CONSTRUCTION JOINT
CL	CENTER LINE/CLEARANCE
CLG	CEILING
CLL	CONTRACT LIMIT LINE
CLR	CLEAR(ANCE)
CLO	CLOSET
CLOS	CLOSURE
CM	CENTIMETER
CMT	CERAMIC MOSAIC TILE
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER/CENTER
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION/COMBUSTIBLE
COMP	COMPRESS(ION)(ED)/COMPOSITE
CONC	CONCRETE
CONF	CONFERENCE
CONN	CONNECTION
CONSTR	CONSTRUCTION
CONT	CONTINUOUS(ATION)
CONTR	CONTRACT(OR)
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CSK	COUNTERSUNK
CSWK	CASEWORK
CT	CERAMIC TILE
CTP	CERAMIC TILE PAVER
CTR	CENTER
CTV	CABLE TELEVISION
CU	CUBIC
CUB	CUBICLE
CUH	CABINET UNIT HEATER
CW	COLD WATER
CWT	CERAMIC WALL TILE
DBL	DOUBLE
DEG	DEGREE(S)
DEMO	DEMOLISHED, DEMOLITION
DEP	DEPRESSED
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DSIT	DISTANCE
DIV	DIVISION/DIVIDER
DMPFG	DAMPPROOFING
DMPR	DAMPER
DMPS	DEMOUNTABLE MTL PARTITION SYSTEM
DMT	DEMOUNTABLE
DN	DOWN
DO	DOOR OPENING
DOM	DOMESTIC
DR	DOOR/DINING ROOM
DS	DOWNSPOUT
DSP	DRY STANDPIPE
DW	DISHWASHER
DWL	DOWEL
DWTR	DUMBWAITER
DWG	DRAWING
DWR	DRAWER
E	EAST
EA	EACH
EB	EXPANSION BOLT
EF	EACH FACE
EFS	EXTERIOR FINISH SYSTEM
EG	END GUARD
EHD	ELECTRICAL HAND DRYER
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAST	ELASTROMETRIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
EMR	ELEVATOR MACHINE ROOM
ENAM	ENAMEL(ED)
ENCL	ENCLOSE(URE)
ENGR	ENGINEER
ENTR	ENTRANCE
EP	ELECTRICAL PANEL
EPCMU	EPOXY PAINTED CMU
EPCONC	EPOXY PAINTED CONCRETE
EPDM	ETHYLENE PROPYCENE DIENE MONOMER
EPFL	EPOXY FLOORING
EPGWB	EPOXY PAINTED GYPSUM BOARD
EPNT	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
ESC	EXCAVATED(ION)
ESCAL	ESCALATOR
EST	ESTIMATE(D)
ETC	ET CETERA
EW	EACH WAY
EWC	ELECTRICAL WATER COOLER
EXAM	EXAMINING(ATION)
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION/EXPOSED
EXP BT	EXPANSION BOLT
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
FA	FIRE ALARM
FAB	FABRIC/FABRICATOR(ATE)
FB	FACE BRICK
FBO	FURNISH BY OTHERS
FC	FOOTCANDLE
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDPR	FIRE DAMPER
FDV	FIRE DEPARTMENT VALVE
FDVC	FIRE DEPARTMENT VALVE CABINET
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH(ED)
FFE	FINISH FLOOR ELEVATION
FFL	FINISH FLOOR LINE
FGL	FIBERGLASS
FH	FIRE HOSE
FHC	FIRE HYDRANT/FUME HOOD
FHEC	FIRE HOSE & EXTINGUISHER CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FHWS	FLAT HEAD WOOD SCREW
FIN	FINISH(ED)
FL	FLOOR/FLOOR LINE
FLDG	FOLDING
FLEX	FLEXIBLE
FLR	FLOOR(ING)
FLR REG	FLOOR REGISTER
FLR SK	FLOOR SINK
FLUOR	FLUORESCENT
FMBD	FORMBOARD
FN	FENCE
FOB	FACE OF BUILDING
FOF	FACE OF FINISH
FOS	FACE OF STUD
FP	FIRE PROTECTION
FPL	FIRE PLACE
FPRF	FIREPROOFING
FR	FIRE RATING/FRAME
FR MIR	FRAMED MIRROR
FRT	FIRE RETARDANT
FS	FULL SIZE/FLOOR SINK
FSH	FIRE SPRINKLER HEAD
FSP	FIRE STANDPIPE
FT	FOOT/FEET
FTC	FINNED TUBE CONVECTOR
FTG	FOOTING
FTR	FINNED TUBE RADIATION(OR)
FURN	FURNITURE
FURR	FURRING
FUT	FUTURE
FVC	FIRE VALVE CABINET
FXD	FIXED
G	GAS
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GEN	GENERATOR
GENL	GENERAL
GF	GROUND FACE
GFI	GROUND FAULT INTERRUPTER
GL	GLASS, GLAZING
GLAM	GLUE LAMINATED
GLZ	GLAZING
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GR	GRADE(ING)/GUARD RAIL
GRTG	GRATING
GSKT	GASKET
GT	GROUT
GV	GRAVITY VENT
GYP	GYPSUM
GWB	GYPSUM WALL BOARD
GWT	GLAZED WALL TILE
H	HIGH
HB	HOSE BIBB
HC	HOLLOW CORE/HANDICAP(PED)/ HOSE CABINET
HCW	HOT & COLD WATER
HD	HAND DRYER/HEAD/HEAVY DUTY
HDBD	HARDBOARD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HEX	HEXAGONAL
HGR	HANGER
HT	HEIGHT
HM	HOLLOW METAL
HO	HOLD-OPEN
HORIZ	HORIZONTAL
HP	HORSEPOWER/HIGH POINT
HR	HOUR/HANDRAIL
HS	HIGH STRENGTH
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HVY	HEAVY
HW	HOT WATER
HWY	HIGHWAY
ID	INSIDE DIAMETER
IG	INSULATED GLASS
IN	INCH
IND	INDUSTRIAL
INCAND	INCANDESCENT
INCL	INCLUDE(S)
INCIN	INCINERATOR
INFO	INFORMATION
INSTL	INSTALLATION
INSTR	INSTRUMENT
INSUL	INSULATION
INTER	INTERSECTION/INTERMEDIATE
INTERCOM	INTERCOMMUNICATION
INT	INTERIOR
INV	INVERT
IMP	INSULATED METAL PANEL
IPS	INSIDE PIPE SIZE
ISO	ISOMETRIC/POLYISOCYANURATE
JAN	JANITOR
JB	JUNCTION BOX
JC	JANITOR'S CLOSET
JCT	JUNCTION
JST	JOIST
JT	JOINT
K	KIP (1000LBS)/KILOMETER
KB	KNEE BRACE
KD	KILN DRIED/KNOCK DOWN
KIT	KITCHEN
KO	KNOCK OUT
KOP	KNOCK OUT PANEL
KPL	KICK PLATE
L	LEFT
LAB	LABORATORY
LAD	LADDER
LAM	LAMINATION
LAV	LAVATORY
LB	POUND
LBL	LABEL
LBR	LUMBER
LCD	LINEAR CEILING DIFFUSER
LD	LINEAR DIFFUSER/LOAD
LDG	LANDING
LDR	LEADER
LF	LINEAR FOOT/LINEAL FOOT
LG	LENGTH/LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LHRB	LEFT HAND REVERSE BEVEL
LIB	LIBRARY
LIN	LINEAR
LIQ	LIQUID
LKR	LOCKER
LL	LIVE LOAD
LNTL	LINTEL
LP	LIGHT POLE/LIGHTPROOF/ LOW POINT
LPC	LAMINATED PLASTIC COVER
LR	LIVING ROOM
LRG	LARGE
LT	LIGHT(ING)
LW	LIGHTWEIGHT
LTG	LIGHTING
LV	LOW VOLTAGE
LVL	LEVEL(ER)
LVR	LOUVER
M	METER
MACH	MACHINE
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MATV	MASTER ANTENNA TELEVISION
MAX	MAXIMUM
MBR	MASTER BEDROOM/MEMBER
MC	MEDICINE CABINET
MCC	MOTOR CONTROL CENTER
MDF	MEDIUM DENSITY FIBERBOARD
MECH	MECHANICAL
MED	MEDIUM/MEDICINE
MEJ	MASONRY EXPANSION JOINT
MEMB	MEMBRANE
MER	MECHANICAL EQUIPMENT ROOM
MEZZ	MEZZANINE
MFB	MINERAL FIBER BOARD
MFG	MANUFACTURING
MFR	MANUFACTURER
MGR	MANAGER
MH	MANHOLE
MI	MALLEABLE IRON/MILE
MIC	MICROPHONE
MIN	MINIMUM/MINUTE
MIR	MIRROR
MISC	MISCELLANEOUS
ML	METAL LATH
MLDG	MOLDING
MLP	METAL LATH & PLASTER
MLWK	MILLWORK
MM	MILLIMETER
MO	MASONRY OPENING
MOD	MODULE(AR)/MODIFIED
MOV	MOVABLE
MP	METAL PANEL
MRB	MINERAL FIBER BOARD
MRGWB	MOISTURE RESISTANT GYPSUM WALL BOARD
MT	MARBLE TILE
MTD	MOUNTED
MTG	MEETING
MTL	METAL
MTR	MORTAR
MULL	MULLION
MULT	MULTIPLE
N	NORTH
NA	NOT APPLICABLE
NAT	NATURAL
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NS	NONSLIP
NTS	NOT TO SCALE
O/O	OUT TO OUT
OA	OUTSIDE AIR/OVERALL
OBS	OBSCURE
OC	ON CENTER
OCC	OCCUPANCY
OD	OUTSIDE DIAMETER
OFD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OFF	OFFICE
OH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
ORIG	ORIGINAL
OVHD	OVERHEAD
OXY	OXYGEN
OZ	OUNCE
P	POLE
PA	PUBLIC ADDRESS
PAR	PARAGRAPH
PB	PANIC BAR/PULL BOX/ PUSHBUTTON
PBD	PARTICLEBOARD
PC	PARTLAND CEMENT/PULL CHAIN/ PRECAST
PCF	POUNDS PER CUBIC FOOT
PCMU	PAINTED CONCRETE MASONRY UNIT
PCONC	PAINTED CONCRETE
PED	PEDESTAL
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PFB	PREFABRICATE(D)
PG	PLATE GLASS
PGBD	PEG BOARD
PGWB	PAINTED GYPSUM WALL BOARD
PH()	PHASE
PDK	PACKAGE
PL	PLATE/PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLAT	PLATFORM
PLBG	PLUMBING
PLF	POUND PER LINEAR FOOT
PLYWD	PLYWOOD
PNEU	PNEUMATIC
PNL	PANEL
PNT	PAINT(ED)
POL	POLISH(ED)
PORT	PORTABLE
PP	PUSH PLATE
\PR	PAIR/PRINTER
PRCST	PRECAST
PRESS	PRESSURE
PRF	PREFORMED
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRELIM	PRELIMINARY
PREP	PREPARATION
PRKG	PARKING
PROD	PRODUCT
PROJ	PROJECT/PROJECTION
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSTL	PAINTED STEEL
PT	POINT
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PVC	POLYVINYL CHLORIDE
PVF	POLYVINYL IDINE FLUORIDE
PVR	PAVER
PVG	PAVING
PVMT	PAVEMENT
PWR	POWER
R	RADIUS/RISER
R&S	ROD & SHELF
RAD	RADIATOR/RADIUS
RAG	RETURN AIR GRILLE
RCWY	RACEWAY
RD	ROOF DRAIN/ROAD
RECEP	RECEPTACLE/RECEPTION
RECIRC	RECIRCULATION
RECT	RECTANGLE
RECV'D	RECEIVED
REF	REFERENCE
REFR	REFRIGERATOR
REG	REGULATOR/REGLET/ REGISTER
REINF	REINFORCE(D)(ING)(MENT)
REM	REMOVE(ABLE)
REQD	REQUIRED
RESIL	RESILIENT
RET	RETURN
REV	REVISION(S)/REVISED
RFG	ROOFING
RFH	ROOF HATCH
RFL	REFLECT(ED)(IVE)(OR)
RH	RIGHT HAND
RHB	RECESSED HOSE BIBB
RHMS	ROUND HEAD MACHINE SCREW
RHR	RIGHT HAND REVERSE
RHRB	RIGHT HAND REVERSE BEVEL
RHWS	ROUND HEAD WOOD SCREW
RLG	RAILING
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RS	RESILIENT SHEET
RT	RESILIENT TILE
RTN	RETURN
RVS	REVERSE
RWC	RAIN WATER CONDUCTOR
RWD	REDWOOD
S	SOUTH
S&V	STAIN & VARNISH
SAB	SOUND ATTENUATING BATT
SAHC	SEALED & HARDENED CONCRETE
SALB	SALVAGE
SAN	SANITARY
SB	SPLASH BLOCK
SC	SOLID CORE
SCHED	SCHEDULE
SCMD	SMOKE / CARBON MONOXIDE DETECTORS
SCN	SCREEN
SCONC	SEALED CONCRETE
SCW	SOLID CORE WOOD
SD	SOAP DISPENSER
SDL	SADDLE
SEC	SECOND
SECT	SECTION
SF	SQUARE FEET
SFP	SPRAYED ON FIREPROOFING
SGFT	STRUCTURAL GLAZED FACING TILE
SGL	SINGLE
SHR	SHOWER
SHT	SHEET(ING)
SHTHG	SHEATHING
SHV	SHELVES(ING)
SIM	SIMILAR
SK	SINK
SL	SLAB
SLV	SLEEVE
SM	SHEET METAL
SND	SANITARY NAPKIN DISPENSER
SDR	SANITARY NAPKIN RECEPTACLE
SNT	SEALANT
SP	SOUNDPROOF/STANDPIPE/ SHEAR PLATE
SPC	SPACE/SPECIAL
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SPKR	SPEAKER
SPL	SPECIAL
SQ	SQUARE
SSK	SERVICE SINK
SS/SST	STAINLESS STEEL
ST	STREET
STA	STATION
STAG	STAGGERED
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STG	SEATING
STL	STEEL
STOR	STORAGE
STR	STRAIGHT
STRL	STRUCTURAL
STRUCT	STRUCTURAL
SUBFL	SUBFLOOR(ING)
SUP	SUPPLY
SUPP	SUPPORT
SUPPL	SUPPLEMENT
SURF	SURFACE
SUSP	SUSPENDED
SVIN	SHEET VINYL
SW	SIDEWALK/SWITCH
SWBD	SWITCHBOARD
SWR	SEWER
SYM	SYMBOL
SYMM	SYMMETRY(ICAL)
SYNTH	SYNTHETIC
SYS	SYSTEM
T	TREAD
T/	TOP OF
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
TB	TOWEL BAR
TB-XX	TEST BORING-XX
TC	TOP OF CURB
TD	TOWEL DISPENSER/TRENCH DRAIN
TDR	TOWEL DISPENSER & RECEPTACLE
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPERATURE/TEMPORARY
TERR	TERRAZZO
TERM	TERMINAL
TG	TEMPERED GLASS
THERM	THERMAL
THK	THICKNESS
THRES	THRESHOLD
THRU	THROUGH
TJ	TELEPHONE JACK
TKBD	TACKBOARD
TMPD	TEMPERED
TOC	TOP OF CONCRETE/TOP OF CURB
TOF	TOP OF FOOTING
TOIL	TOILET
TOL	TOLERANCE
TOS	TOP OF SLAB/TOP OF STEEL
TOT	TOTAL
TOW	TOP OF WALL
TP	TOP OF PAVEMENT
TPD	TOILET PAPER DISPENSER
TPH	TOILET PAPER HOLDER
TPTN	TOILET PARTITION
TR	TRANSOM
TRANS	TRANSPARENT
TRK	TRACK
TV	TELEVISION
TYP	TYPICAL
U	UP
UB	UNDERSIDE OF BEAM
UC	UNDERCUT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UNIF	UNIFORM
UNIV	UNIVERSAL
UON	UNLESS OTHERWISE NOTED
UR	URINAL
US	UNDERSIDE OF SLAB
UTIL	UTILITY
UV	ULTRAVIOLET
V	VOLT/VINYL
VAR	VARIABLE/VARNISH/VARIES
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VEH	VEHICLE
VEL	VELOCITY
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VG	VERTICAL GRAIN
VIT	VINYL IMPREGNATED TACKBOARD
VJ	V-JOINT (E.I.F.S.)
VNR	VENEER
VOL	VOLUME
VP	VAPOR PROOF
VWB	VINYL WALL BASE
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
W/O	WITHOUT
W/W	WALL TO WALL
WB	WALL BUMPER
WC	WATER CLOSET
WCG	WALL COVERING
WD	WIDTH/WOOD
WDIM	WINDOW DIMENSION
WDW	WINDOW
WF	WIDE FLANGE BEAM
WG	WALL GRILLE
WGL	WIRE GLASS
WH	WALL HUNG/WATER
WI	HYDRANT
WL	WROUGHT IRON
WM	WATERLINE
WMP	WIRE MESH
WO	WIRE MESH PARTITION
WP	WINDOW OPENING
WR	WATERPROOFING/WORK POINT
WS	WASTE RECEPTACLE/
WSCT	WATER RESISTANT
WT	WATER STOP/WEATHER
WWB	STRIPPING
WWF	WAINSCOT
	WEIGHT
	WOOD WALL BASE
	WELDED WIRE FABRIC
YD	YARD DRAIN
X	TIMES
XPS	EXTRUDED POLYSTYRENE

LEGEND

MATERIAL + SYMBOLS

EARTH/COMPACT FILL

CONCRETE

CONCRETE MASONRY UNIT (CMU)

BRICK

BRICK (PLAN VIEW)

STEEL / METAL

WOOD BLOCKING

GLASS

GLASS BLOCK

BATT INSULATION

SPRAY FOAM INSULATION

RIGID INSULATION

PLYWOOD

ALUMINUM

FINISH WOOD

GYPSUM BOARD

0 — COLUMN LINE / GRID INDICATOR

MV 50 CFM — MECH. VENT

1 — REVISION INDICATOR

SOG1.1 | 7'5"-10" | A-400 — FLOOR ELEVATION SYMBOL

MAIN ENTRY — ENTRY LABEL

BICYCLE STORAGE 150 SF

R.L.	XX
P.L.	XX
R.A.	XX
P.A.	XX

ROOM TAG

SPOT ELEVATION SYMBOL

SPR — SPRINKLER HEAD

17.32' 17.29' — ELEVATION CHANGE SYMBOL

8'-0" — CEILING ELEVATION

EMERGENCY WALL LIGHT

NORTH ARROW

NON-FIRE RATED PARTITION

FIRE RATED PARTITION

HARD WIRED SMOKE & CARBON- MONOXIDE DETECTOR SHALL COMPLY TO NYC REG. SEE REFLECTED CEILING PLANS

(TV)|Wx — WINDOW SCHEDULE TAG
SEE WINDOW SCHEDULE FOR DETAILED INFORMATION

K3 — BATHROOM / KITCHEN TAG
SEE BATHROOM / KITCHEN SCHEDULE FOR ADDITIONAL INFORMATION

Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET

1i — PARTITION TYPE TAG

S-02 — STOREFRONT TYPE TAG

EXIT — EXIT SIGN SYMBOL

HANDICAPPED SYMBOL

FD. — FLOOR DRAIN

RD. — ROOF DRAIN

1 — REVISION TAG

CENTER LINE SYMBOL

BUILDING SECTION TAG
SECTION DETAIL NUMBER
DRAWING SHEET NUMBER

BUILDING ELEVATION TAG
SECTION DETAIL NUMBER
DRAWING SHEET NUMBER

WALL SECTION TAG
SECTION DETAIL NUMBER
DRAWING SHEET NUMBER

ENLARGED DETAIL TAG
SECTION DETAIL NUMBER
DRAWING SHEET NUMBER

INTERIOR ELEVATION TAG
SECTION DETAIL NUMBER
DRAWING SHEET NUMBER

S. WIEDER ARCHITECT PC

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T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

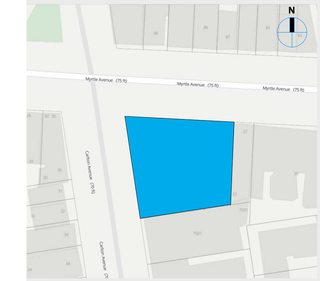
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

GENERAL NOTES

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:38:49 AM
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G-100.00

SHEET: 13 OF 88

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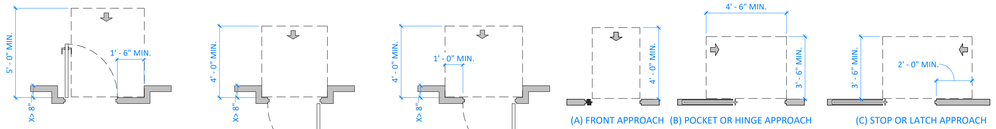


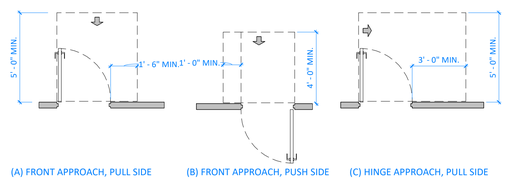
(A) PULL SIDE (B) PUSH SIDE (C) PUSH SIDE, DOOR PROVIDED WITH BOTH CLOSER AND LATCH

FIG. 404.2.3.4

(A) FRONT APPROACH (B) POCKET OR HINGE APPROACH (C) STOP OR LATCH APPROACH

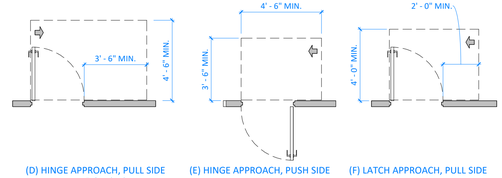
FIG. 404.2.4.2

MANEUVERING CLEARANCE AT RECESSED DOORS



(A) FRONT APPROACH, PULL SIDE (B) FRONT APPROACH, PUSH SIDE (C) HINGE APPROACH, PULL SIDE

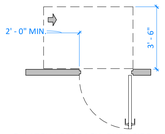
MANEUVERING CLEARANCE AT SLIDING AND FOLDING DOORS



(D) HINGE APPROACH, PULL SIDE (E) HINGE APPROACH, PUSH SIDE (F) LATCH APPROACH, PULL SIDE

FIG. 404.2.4.1

MANEUVERING CLEARANCE AT SWINGING DOORS



(G) LATCH APPROACH, PUSH SIDE

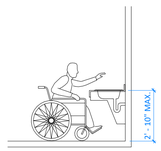
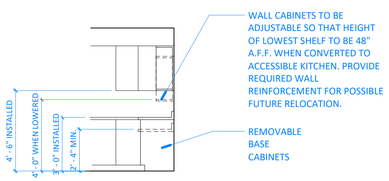
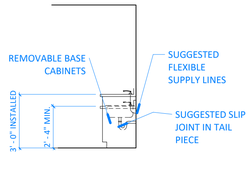


FIG. 606.3

HEIGHT OF LAVATORIES AND SINKS



LOWERABLE WORK SURFACE/LOWERABLE WALL CABINETS



LOWERABLE SINK COUNTER

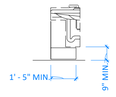
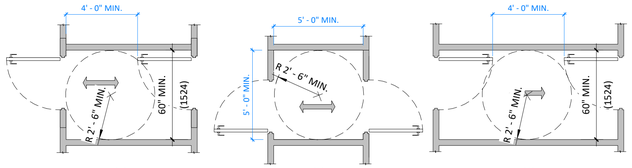


FIG. 306.2

TOE CLEARANCE



(A) (B) (C)

FIG. 404.2.6

TWO DOORS IN A SERIES

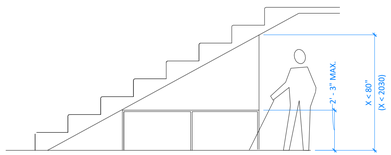
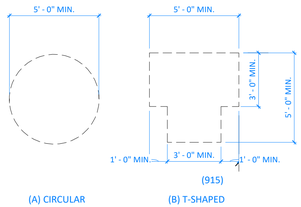


FIG. 307.4

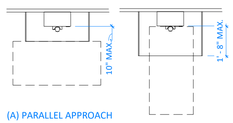
REDUCED VERTICAL CLEARANCE



(A) CIRCULAR (B) T-SHAPED

FIG. 304.3

SIZE OF WHEELCHAIR TURNING SPACE



(A) PARALLEL APPROACH (B) FORWARD APPROACH

FIG. 704.2.1

CLEAR FLOOR GROUND SPACE FOR TELEPHONE

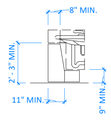
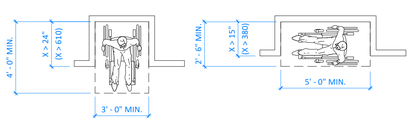


FIG. 306.3

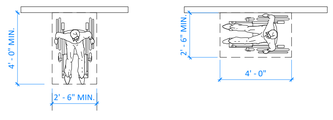
KNEE CLEARANCE



(A) FORWARD APPROACH (B) PARALLEL APPROACH

FIG. 305.7

MANEUVERING CLEARANCE IN AN ALCOVE



(A) FORWARD (B) PARALLEL

FIG. 405.5

POSITION OF CLEAR FLOOR OR GROUND SPACE

SPECIAL INSPECTION NOTES:

1. GENERAL (SECTION BC* 110) EXCEPT AS OTHERWISE SPECIFICALLY PROVIDED, INSPECTIONS REQUIRED BY 2022 NYC BC OR BY DEPARTMENT DURING THE PROGRESS OF WORK MAY BE PERFORMED ON BEHALF OF THE OWNER BY APPROVED INSPECTION AGENCIES OR, IF APPLICABLE, BY SPECIAL INSPECTORS. HOWEVER, IN THE INTEREST OF PUBLIC SAFETY, THE COMMISSIONER MAY DIRECT THAT ANY OF SUCH INSPECTIONS BE PERFORMED BY THE DEPARTMENT. ALL INSPECTIONS SHALL BE PERFORMED AT THE SOLE COST AND EXPENSE OF THE OWNER. REFER TO CHAPTER 1 OF TITLE 28 OF THE ADMINISTRATIVE CODE OF 2022 NYC BC, FOR ADDITIONAL PROVISIONS RELATING TO INSPECTIONS.

2. REQUIRED PROGRESS INSPECTIONS. (SECT. 109.3) THE INSPECTIONS SET FORTH 109.3.1 THROUGH 109.3.8 SHALL BE MADE DURING THE PROGRESS OF WORK TO VERIFY SUBSTANTIAL COMPLIANCE WITH THE CODE AND WITH APPROVED CONSTRUCTION DOCUMENTS.

3. A LOG OR OTHER DOCUMENTATION SHALL BE MAINTAINED AT THE JOB SITE INDICATING THE DATES WHEN CONTROLLED
INSPECTIONS WERE PERFORMED, THE IDENTITY OF THE INSPECTOR, AND THE SCOPE OF THE WORK WHICH WAS PERFORMED.

4. WHEN A "TR-1" CONTROLLED INSPECTION FORM IS FILED AT THE BUILDING DEPARTMENT, SUCH FORM SHALL BE ACCOMPANIED BY A REPORT WHICH SHALL INCLUDE THE DATES OF INSPECTIONS, THE IDENTITY OF THE INSPECTOR, AND THE SCOPE OF WORK WHICH WAS OBSERVED.

5. WHEN A TRADE INSTALLING MECHANICAL WORK CAUSES STRUCTURAL MEMBERS OR RATED ASSEMBLIES TO LOSE THEIR
INTEGRITY, REPAIRS SHALL BE PERFORMED UNDER THE SUPERVISION OF A DESIGNATED PERSON.

6. BUILDING DEPARTMENT INSPECTORS SHALL REVIEW RECORDS AT JOB SITES TO MAKE CERTAIN THAT THERE IS ADEQUATE SELF-INSPECTION.

7. AS PER CHAPTER 1 OF TITLE 28-116.2.3 OF THE ADMINISTRATIVE C ODE OF 2022 NYC BC THE PERMIT APPLICATION SHALL SET FORTH AN INSPECTION PROGRAM FOR THE JOB. SUCH INSPECTORS MAY BE MADE BY APPROVED AGENCIES OR
BY THE DEPARTMENT AS PROVIDED IN THIS CODE OR IN THE RULES OF THE DEPARTMENT. SPECIAL INSPECTIONS SHALL BE PERFORMED ONLY BY INDIVIDUALS WHO ARE SPECIAL INSPECTORS. THE PERMIT HOLDER SHALL NOTIFY THE RELEVANT SPECIAL
INSPECTORS IN WRITING AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY WORK REQUIRING SPECIAL INSPECTION.
-THE NAME AND BUSINESS ADDRESSES OF SPECIAL INSPECTORS AND APPROVED AGENCIES SHALL BE SET FORTH IN THE WORK PERMIT APPLICATION.
-A RECORD OF ALL INSPECTIONS SHALL BE KEPT BY THE PERSON PERFORMING THE INSPECTION.
-THE COMMISSIONER MAY REQUIRE INSPECTION REPORTS TO BE FILED WITH THE DEPARTMENT.
- RECORDS OF INSPECTIONS MADE BY APPROVED AGENCIES AND SPECIAL INSPECTORS SHALL BE MAINTAINED BY SUCH
PERSONS FOR A PERIOD OF SIX YEARS AFTER SIGN-OFF OF THE JOB OR FOR SUCH OTHER PERIOD OF TIME AS THE COMMISSIONER MAY REQUIRE AND SHALL BE MADE AVAILABLE TO THE DEPARTMENT UPON REQUEST.

SPECIAL INSPECTIONS BC 2014/ECC 2020		
Y/N	ITEM	
No	MASONRY	
No	WALL PANELS, CURTAIN WALLS, AND VENEERS	
No	SPRAYED FIRE-RESISTANCE MATERIALS	
No	MASTIC AND INTUMESCENT FIRE-RESISTANT COATINGS	
Yes	EXTERIOR INSULATION FINISH SYSTEMS (EIFS)	
No	ALTERNATIVE MATERIALS - OTCR BUILDING BULLETIN # 2015-015	
Yes	FIRE-RESISTANT PENETRATIONS AND JOINTS	
No	FLOOD ZONE COMPLIANCE (ATTACH FEMA ELEVATION/DRY FLOODPROOFING CERTIFICATE WHERE APPLICABLE)	
Yes	LUMINOUS EGRESS PATH MARKINGS	TR7
Yes	EMERGENCY AND STANDBY POWER SYSTEMS (GENERATORS)	
No	LOWEST FLOOR ELEVATION	
Yes	ENERGY CODE COMPLIANCE INSPECTIONS	TR8
Yes	FIRE-RESISTANCE RATED CONSTRUCTION	
No	PUBLIC ASSEMBLY EMERGENCY LIGHTING	

ENERGY CODE COMPLIANCE INSPECTIONS		
Yes	PROTECTION OF EXPOSED FOUNDATION INSULATION	
Yes	INSULATION PLACEMENT & R VALUES	
Yes	FENESTRATION AND DOOR U-FACTOR AND PRODUCT RATINGS	
Yes	FENESTRATION AIR LEAKAGE	
Yes	FENESTRATION AREAS	
Yes	AIR BARRIER - VISUAL INSPECTION	
No	AIR BARRIER - TESTING	
Yes	AIR BARRIER CONTINUITY PLAN TESTING	
Yes	VESTIBULES	
No	FIREPLACES	
No	DUCT LEAKAGE TESTING, INSULATION AND DESIGN	
Yes	METERING	
Yes	LIGHTING IN DWELLING UNITS	
Yes	INTERIOR LIGHTING POWER	
Yes	EXTERIOR LIGHTING POWER	
Yes	LIGHTING CONTROLS	
Yes	ELECTRIC MOTORS AND ELEVATORS	
Yes	MAINTENANCE INFORMATION	
No	PERMANENT CERTIFICATE	
No	ELECTRIC VEHICLE SERVICE EQUIPMENT REQUIREMENTS	

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OWNER:
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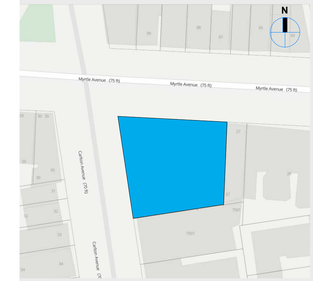
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

GENERAL NOTES

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:38:54 AM
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MOTOR VEHICLE NOTES

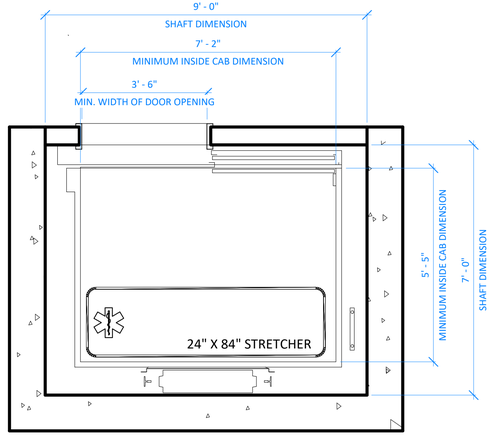
SECTION	DESCRIPTION	NOTE
BC 406.2	DEFINITIONS	THE FOLLOWING WORDS AND TERMS SHALL, FOR THE PURPOSES OF THIS CHAPTER AND AS USED ELSEWHERE IN THIS CODE, HAVE THE MEANINGS SHOWN HEREIN. CARPORT. A STRUCTURE OR PORTION OF A STRUCTURE, ACCESSORY TO A GROUP R-2 OR R-3 OCCUPANCY, OPEN ON AT LEAST TWO SIDES AND UNENCLOSED FOR AT LEAST 50 PERCENT OF PERIMETER, USED FOR THE PARKING OR STORAGE OF PASSENGER MOTOR VEHICLES. SUCH FACILITY SHALL NOT EXCEED 650 SQUARE FEET IN AREA AND ONE STORY IN HEIGHT PRIVATE GARAGE. AN ENCLOSED STRUCTURE OR PORTION OF A STRUCTURE, ACCESSORY TO A GROUP R-2 OR R-3 OCCUPANCY, USED FOR THE PARKING OR STORAGE OF PASSENGER MOTOR VEHICLES. SUCH FACILITY SHALL NOT EXCEED 650 SQUARE FEET IN AREA AND ONE STORY IN HEIGHT.
BC 406.3	PRIVATE GARAGES AND CARPORTS	
BC 406.3.1	CLASSIFICATION	PRIVATE GARAGES AND CARPORTS, AS DEFINED BY THIS SECTION, SHALL BE CLASSIFIED AS GROUP U OCCUPANCY
BC 406.3.2	CLEAR HEIGHT	IN PRIVATE GARAGES AND CARPORTS, THE CLEAR HEIGHT IN VEHICLE AND PEDESTRIAN TRAFFIC AREAS SHALL BE NOT LESS THAN 7'-0". VEHICLE AND PEDESTRIAN AREAS ACCOMMODATING VAN-ACCESSIBLE PARKING SHALL COMPLY WITH SECTION 1106.5
BC 406.3.3	FLOOR CONSTRUCTION	PRIVATE GARAGE AND CARPORT FLOORS SHALL BE OF CONCRETE OR EQUIVALENT NONCOMBUSTIBLE MATERIAL THAT WILL NOT ABSORB FLAMMABLE LIQUIDS. THE AREA OF FLOOR USED FOR PARKING OF VEHICLES SHALL BE SLOPED TO FACILITATE THE MOVEMENT OF LIQUIDS TO A DRAIN. THE SILLS OF ALL DOOR OPENINGS CONNECTING A DWELLING UNIT TO A PRIVATE GARAGE SHALL BE RAISED AT LEAST 4 INCHES ABOVE THE FLOOR LEVEL OF THE GARAGE. EXCEPTION: ASPHALT SURFACES SHALL BE PERMITTED AT GROUND LEVEL IN CARPORTS.
BC 406.3.3.1	RAMPS	RAMPS SHALL HAVE A GRADIENT NOT EXCEEDING ONE IN SEVEN, WITH NON-SLIP SURFACES, AND SHALL BE LOCATED ENTIRELY WITHIN THE PROPERTY LINE. HOWEVER, UPON APPLICATION TO THE COMMISSIONER, STEEPER GRADIENTS MAY BE ACCEPTED, BUT IN NO EVENT GREATER THAN ONE IN THREE
BC 406.3.4	SEPARATION	SEPARATIONS SHALL COMPLY WITH THE FOLLOWING: 1. THE PRIVATE GARAGE SHALL BE SEPARATED FROM THE DWELLING UNIT AND ITS ATTIC AREA BY MEANS OF A MINIMUM 1-HOUR FIRE-RATED CONSTRUCTION. GARAGES BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 1-HOUR FIRE-RATED CONSTRUCTION. OPENINGS FROM A PRIVATE GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED. 2. NO AIR USED FOR HEATING, COOLING, OR VENTILATION SHALL BE CIRCULATED THROUGH PRIVATE GARAGES TO DWELLING AREAS. 3. A SEPARATION IS NOT REQUIRED BETWEEN A GROUP R-3 OCCUPANCY AND A CARPORT, PROVIDED THE CARPORT DOES NOT HAVE ANY ENCLOSED AREAS ABOVE. 4. FOR FREE STANDING PRIVATE GARAGES WHERE THE FIRE SEPARATION DISTANCE FROM THE NEAREST EXTERIOR WALL IS LESS THAN 5'-0", SUCH EXTERIOR WALLS SHALL HAVE A FIRE-RESISTANCE RATING NOT LESS THAN ONE HOUR.
BC 406.3.5	AUTOMATIC GARAGE DOOR OPENERS	AUTOMATIC GARAGE DOOR OPENERS, IF PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325
BC 406.4	PARKING GARAGES, OPEN OR ENCLOSED	PARKING GARAGES, OTHER THAN PRIVATE PARKING GARAGES, SHALL BE CLASSIFIED AS PUBLIC PARKING GARAGES AND SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 406.4.2 THROUGH 406.4.10 AND SHALL BE CLASSIFIED AS EITHER AN OPEN PARKING GARAGE OR AN ENCLOSED PARKING GARAGE. OPEN PARKING GARAGES SHALL ALSO COMPLY WITH SECTION 406.5. ENCLOSED PARKING GARAGES SHALL ALSO COMPLY WITH SECTION 406.6. SEE SECTION 510 FOR SPECIAL PROVISIONS FOR PARKING GARAGES
BC 406.4.1	CLEAR HEIGHT	THE CLEAR HEIGHT OF EACH FLOOR LEVEL IN VEHICLE AND PEDESTRIAN TRAFFIC AREAS SHALL BE NOT LESS THAN 7'-0". VEHICLE AND PEDESTRIAN AREAS ACCOMMODATING VAN-ACCESSIBLE PARKING SHALL COMPLY WITH SECTION 1106.5
BC 406.4.2	GUARDS	GUARDS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 1015. GUARDS SERVING AS VEHICLE BARRIER SYSTEMS SHALL COMPLY WITH SECTIONS 406.4.3 AND 1015
BC 406.4.3	VEHICLE BARRIER SYSTEMS	VEHICLE BARRIERS NOT LESS THAN 2'-9" IN HEIGHT SHALL BE PLACED WHERE THE VERTICAL DISTANCE FROM THE FLOOR OF A DRIVE LANE OR PARKING SPACE TO THE GROUND OR SURFACE DIRECTLY BELOW IS GREATER THAN 1'-0". VEHICLE BARRIERS SHALL COMPLY WITH THE LOADING REQUIREMENTS OF SECTION 1607.9 EXCEPTION: VEHICLE BARRIERS ARE NOT REQUIRED IN VEHICLE STORAGE COMPARTMENTS IN A MECHANICAL ACCESS PARKING GARAGE
BC 406.4.4	RAMPS	RAMPS SHALL HAVE A GRADIENT NOT EXCEEDING ONE IN SEVEN, WITH NONSLIP SURFACES. A LEVEL LANDING HAVING A MINIMUM DIMENSION OF 20'-0" SHALL BE PROVIDED AT THE DISCHARGE POINT OF ALL RAMPS AT THE STREET LEVEL, WITHIN THE PROPERTY LINE. RAMPS USED FOR THE MOVEMENT OF MOTOR VEHICLES NEED NOT BE ENCLOSED WHEN SERVING TIERS ABOVE GRADE. VEHICLE RAMPS MAY SERVE AS PART OF A MEANS OF EGRESS IN ACCORDANCE WITH SECTION 1006.4
BC 406.4.5	FLOOR SURFACE	PARKING SURFACES SHALL BE OF CONCRETE OR SIMILAR NON-COMBUSTIBLE AND NON-ABSORBENT MATERIALS. THE AREA OF FLOOR USED FOR PARKING OF VEHICLES SHALL BE SLOPED TO FACILITATE THE MOVEMENT OF LIQUIDS TO A DRAIN. EXCEPTIONS: 1. ASPHALT PARKING SURFACES SHALL BE PERMITTED AT GROUND LEVEL. 2. FLOORS OF GROUP S-2 PARKING GARAGES SHALL NOT BE REQUIRED TO HAVE A SLOPED SURFACE
BC 406.4.6	SEPARATION	PARKING GARAGES SHALL BE SEPARATED FROM OTHER OCCUPANCIES IN ACCORDANCE WITH SECTION 508.1.
BC 406.4.7	SPECIAL HAZARDS	OPENINGS FROM A PARKING GARAGE TO ANY ROOM IN WHICH THERE IS A FUEL-FIRED APPLIANCE SHALL BE BY MEANS OF A VESTIBULE PROVIDING A TWO-DOORWAY SEPARATION. SUCH VESTIBULE AND DOORWAY SHALL BE MINIMUM 1-HOUR RATED CONSTRUCTION. EXCEPTION: A SINGLE DOOR, IN COMPLIANCE WITH TABLE 715.4, SHALL BE PERMITTED, PROVIDED THE SOURCES OF IGNITION IN THE APPLIANCE ARE AT LEAST 18 INCHES (457 MM) ABOVE THE FLOOR.
BC 406.4.8	ATTACHED TO ROOMS	OPENINGS FROM A PARKING GARAGE DIRECTLY INTO A ROOM USED FOR SLEEPING PURPOSES SHALL NOT BE PERMITTED.
BC 406.4.9	FIRE-FIGHTER AISLES	IN ANY PARKING GARAGE OR LOT, ONE OR MORE AISLES, AT LEAST 24 INCHES (610 MM) IN WIDTH, SHALL BE PROVIDED TO PERMIT ACCESS BY FIRE FIGHTING PERSONNEL TO ALL PARTS OF THE GARAGE OR LOT. THERE SHALL NOT BE MORE THAN THREE ROWS OF PARKED MOTOR VEHICLES BETWEEN AISLES.
BC 406.4.10	ELECTRIC VEHICLE CHARGING STATIONS	PARKING GARAGES SHALL BE CAPABLE OF SUPPORTING ELECTRICAL VEHICLE CHARGING STATIONS IN ACCORDANCE WITH THIS SECTION. ELECTRICAL RACEWAY TO THE ELECTRICAL SUPPLY PANEL SERVING THE GARAGE SHALL BE CAPABLE OF PROVIDING A MINIMUM OF 3.1 KW OF ELECTRICAL CAPACITY TO AT LEAST 20 PERCENT OF THE PARKING SPACES OF THE GARAGE. THE ELECTRICAL ROOM SUPPLYING THE GARAGE MUST HAVE THE PHYSICAL SPACE FOR AN ELECTRICAL SUPPLY PANEL SUFFICIENT TO PROVIDE 3.1 KW OF ELECTRICAL CAPACITY TO AT LEAST 20 PERCENT OF THE PARKING SPACES OF THE GARAGE. SUCH RACEWAY AND ALL COMPONENTS AND WORK APPURTENANT THERETO SHALL BE IN ACCORDANCE WITH THE YORK CITY ELECTRICAL CODE. EXCEPTIONS: 1. THE PROVISIONS OF THIS SECTION SHALL NOT APPLY TO PARKING GARAGES FOR BUILDINGS OF OCCUPANCY GROUP M (MERCANTILE). 2. THE COMMISSIONER MAY WAIVE COMPLIANCE WITH THIS SECTION IF THE COMMISSIONER DETERMINES THAT THE PARKING GARAGE IS A TEMPORARY FACILITY THAT WILL BE IN SERVICE NO LONGER THAN 3 YEARS. 3. THE PROVISIONS OF THIS SECTION SHALL NOT APPLY TO PARKING GARAGES FOR BUILDINGS IN WHICH NOT LESS THAN FIFTY PERCENT OF THE RESIDENTIAL UNITS ARE FOR HOUSEHOLDS EARNING UP TO SIXTY PERCENT OF THE AREA MEDIAN INCOME AS DETERMINED BY THE UNITED STATES DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

ICC/ANSI A117.1- 2009 & ASME/ANSI 17.1-2000 ELEVATOR NOTES

SECTION	DESCRIPTION	NOTE
407	ELEVATORS	
407.1	GENERAL	ELEVATORS SHALL COMPLY WITH SECTION 407 AND ASME A17.1 LISTED IN SECTION 105.2.5. ELEVATORS SHALL BE PASSENGER ELEVATORS AS CLASSIFIED BY ASME A17.1. ELEVATOR OPERATION SHALL BE AUTOMATIC.
407.2.1	CALL CONTROLS	CALL BUTTONS SHALL BE RAISED OR FLUSH. OBJECTS BENEATH HALL CALL BUTTONS SHALL PROTRUDE 1 INCH MAXIMUM. CALL BUTTONS AND KEYPADS SHALL BE LOCATED 15-48" ABOVE THE GROUND MEASURED TO THE CENTER LINEOF THE HIGHEST OPERABLE POINT. CALL BUTTONS SHALL BE .75" INCH MINIMUM IN THE SMALLEST DIMENSION. A CLEAR FLOOR SPACE OF 30" X 48" MINIMUM SHALL BE PROVIDED AT ALL CALL CONTROLS. THE CALL BUTTON THAT DESIGNATES THE UP DIRECTION SHALL BE LOCATED ABOVE THE CALL BUTTON THAT DESIGNATES THE DOWN DIRECTION. CALL BUTTONS SHALL HAVE VISIBLE SIGNALS TO INDICATE WHEN EACH CALL IS REGISTERED AND WHEN EACH CALL IS ANSWERED.407.2.2 HALL SIGNALS. A VISUAL AND AUDIBLE SIGNAL SHALL BE PROVIDED AT EACH HOISTWAY ENTRANCE TO INDICATE WHICH CAR IS ANSWERING A CALL AND THE CARS' DIRECTION OF TRAVEL. WHERE IN-CAR SIGNALS ARE PROVIDED THEY SHALL BE VISIBLE FROM THE FLOOR AREA ADJACENT TO THE HALL CALL BUTTONS. VISIBLE SIGNAL FIXTURES SHALL BE CENTERED AT 72" MINIMUM ABOVE THE FLOOR. THE VISUAL SIGNAL ELEMENTS SHALL BE 2.5 INCHES MINIMUM MEASURED ALONG THE VERTICAL CENTERLINE OF THE ELEMENT. SIGNALS SHALL BE VISIBLE FROM THE FLOOR AREA ADJACENT TO THE HALL CALL BUTTON. AUDIBLE SIGNALS SHALL SOUND ONCE FOR THE UP DIRECTION AND TWICE FOR THE DOWN DIRECTION AT MAXIMUM FREQUENCY OF 1500 HZ, OR SHALL HAVE VERBAL ANNUNCIATORS THAT STATE THE WORD "UP" OR "DOWN" BETWEEN A FREQUENCY OF 300 AND 3,000 HZ. THE AUDIBLE SIGNAL OR VERBAL ANNUNCIATOR SHALL BE 10 DBA MINIMUM ABOVE AMBIENT BUT SHALL NOT EXCEED 80 DBA, MEASURED AT THE HALL CALL BUTTON
407.2.3	HOISTWAY SIGNS	FLOOR DESIGNATIONS SHALL BE PROVIDED IN TACTILE CHARACTERS LOCATED ON BOTH JAMBS OF THE ELEVATOR HOISTWAY ENTRANCES. TACTILE CHARACTERS SHALL BE 2" MINIMUM IN HEIGHT. A TACTILE STAR SHALL BE PROVIDED ON BOTH JAMBS AT THE MAIN ENTRY LEVEL
407.3.2	ELEVATOR DOOR REQUIREMENTS	ELEVATOR DOORS SHALL BE HORIZONTAL SLIDING TYPE. CAR GATES SHALL BE PROHIBITED. ELEVATOR HOISTWAY AND CAR DOORS SHALL OPEN AND CLOSE AUTOMATICALLY
407.3.3	REOPENING DEVICE	ELEVATOR DOORS SHALL BE PROVIDED WITH A REOPENING DEVICE COMPLYING WITH SECTION 703.3 OF ANSI A117.1 THAT SHALL STOP AND REOPEN A CAR DOOR AND HOISTWAY DOOR AUTOMATICALLY IF THE DOOR BECOMES OBSTRUCTED BY AN OBJECT OR PERSON. THE REOPENING DEVICE SHALL REMAIN EFFECTIVE FOR 20 SECONDS MINIMUM
407.3.4	DOOR AND SIGNAL TIMING	THE MINIMUM ACCEPTABLE TIME FROM THE NOTIFICATION THAT A CAR IS ANSWERING A CALL UNTIL THE DOORS OF THAT CAR START TO CLOSE SHALL BE CALCULATED FROM THE FOLLOWING EQUATION:T = D/(1.5 FT/S) OR T = D/ (455MM/S) = 5 SECONDS MINIMUM. WHERE T = THE TOTAL TIME IN SECONDS AND D = THE DISTANCE (IN FEET OR MILLIMETERS) FROM THE POINT IN THE LOBBY OR CORRIDOR 60 INCHES DIRECTLY IN FRONT OF THE FARTHEST CALL BUTTON CONTROLLING THAT CAR TO THE CENTERLINE OF THE DOOR
407.3.5	DOOR DELAY	ELEVATOR DOORS SHALL REMAIN FULLY OPEN IN RESPONSE TO A CAR CALL FOR 3 SECONDS MINIMUM.
407.4.1	CAR DIMENSIONS	INSIDE OF CAR DIMENSIONS SHALL COMPLY WITH TABLE 407.4.1 AS MODIFIED BY BC 3002.4 STATING THE MINIMUM INSIDE DIMENSIONS OF ELEVATOR CARS SHALL ACCOMMODATE A 24" BY 76" HOSPITAL STRETCHER. 407.4.2 FLOOR SURFACES IN ELEVATORS SHALL BE STABLE, FIRM, AND SLIP RESISTANT AND SHALL COMPLY WITH SECTION 302 OF ICC/ANSI A117.1. 407.4.5 ILLUMINATION. THE LEVEL OF ILLUMINATION AT THE CAR CONTROLS, PLATFORM, CAR THRESHOLD AND CAR LANDING SILL SHALL BE A 5 FOOT-CANDLES (54 LUX) MINIMUM.
407.4.6	ELEVATOR CAR CONTROLS	CONTROLS SHALL BE LOCATED 15-48" ABOVE THE GROUND MEASURED TO THE CENTER LINE OF THE HIGHEST OPERABLE POINT. EXCEPTION WHERE THE ELEVATOR SERVES MORE THAN 16 OPENINGS AND A PARALLEL APPROACH TO THE CONTROLS IS PROVIDED, IN WHICH CASE BUTTONS WITH FLOOR DESIGNATIONS SHALL BE PERMITTED TO BE 54 INCHES MAXIMUM ABOVE THE FLOOR
407.4.6.2	CAR CONTROL BUTTONS	WITH FLOOR DESIGNATIONS SHALL BE RAISED OR FLUSH, AND 3/4 INCH MINIMUM IN THEIR SMALLEST DIMENSION. BUTTONS SHALL BE ARRANGED IN ASCENDING ORDER. WHEN TWO OR MORE COLUMNS OF BUTTONS ARE PROVIDED THEY SHALL BE READ FROM LEFT TO RIGHT.
407.4.6.4	EMERGENCY CONTROLS	EMERGENCY CONTROL BUTTONS SHALL HAVE THEIR CENTERLINES 35 INCHES MINIMUM ABOVE THE FLOOR. EMERGENCY CONTROLS, INCLUDING THE EMERGENCY ALARM SHALL BE GROUPED AT THE BOTTOM OF THE PANEL
407.4.7	DESIGNATIONS AND INDICATORS OF CAR CONTROLS	CONTROL BUTTONS SHALL BE IDENTIFIED BY TACTILE CHARACTERS COMPLYING WITH SECTION 703.3. TACTILE CHARACTER AND BRAILLE DESIGNATIONS SHALL BE PLACED IMMEDIATELY TO THE LEFT OF THE CONTROL BUTTON TO WHICH THE DESIGNATIONS APPLY. BUTTONS WITH FLOOR DESTINATIONS SHALL BE PROVIDED WITH VISIBLE INDICATORS TO SHOW THAT A CALL HAS BEEN REGISTERED. THE VISIBLE INDICATION SHALL EXTINGUISH WHEN THE CAR ARRIVES AT THE DESIGNATED FLOOR.
407.4.9	CAR POSITION INDICATORS	AUDIBLE AND VISIBLE CAR POSITION INDICATORS SHALL BE PROVIDED IN ELEVATOR CARS. VISIBLE INDICATORS SHALL BE LOCATED ABOVE THE CAR CONTROL PANELS OR ABOVE THE DOOR; CHARACTERS SHALL BE 1/2 INCH HIGH MINIMUM IN HEIGHT. AS THE CAR PASSES A FLOOR AND WHEN A CAR STOPS AT A FLOOR SERVED BY THE ELEVATOR, THE CORRESPONDING CHARACTER SHALL ILLUMINATE. AUDIBLE INDICATORS SHALL SIGNAL AS AN AUTOMATIC VERBAL ANNUNCIATOR THE ANNOUNCES THE FLOOR AT WHICH THE CAR IS ABOUT TO STOP; THE VERBAL ANNOUNCEMENT INDICATING THE FLOOR SHALL BE COMPLETED PRIOR TO THE INITIATION OF THE DOOR OPENING. THE VERBAL ANNUNCIATOR SHALL BE 10 DBA MINIMUM ABOVE AMBIENT BUT SHALL NOT EXCEED 80 DBA, MEASURED AT THE ANNUNCIATOR
407.4.10	EMERGENCY COMMUNICATIONS	EMERGENCY TWO WAY COMMUNICATION SYSTEMS BETWEEN THE ELEVATOR CAR AND A POINT OUTSIDE THE HOISTWAY SHALL COMPLY WITH SECTION 407.4.10 AND ASME/ANSI A17.1 LISTED IN SECTION 105.2.5. THE MIDPOINT OF THE HIGHEST OPERABLE PART OF A TWO WAY COMMUNICATION SYSTEM SHALL NOT EXCEED 48 INCHES; TACTILE CHARACTERS AND SYMBOLS SHALL BE PROVIDED ADJACENT TO THE DEVICE IN COMPLIANCE WITH SECTIONS 703.3 AND 407.4.7.1.3 OF ICC/ANSI A117.1-2003

ICC/ANSI A117.1- 2003 COMMON LAUNDRY ROOM NOTES

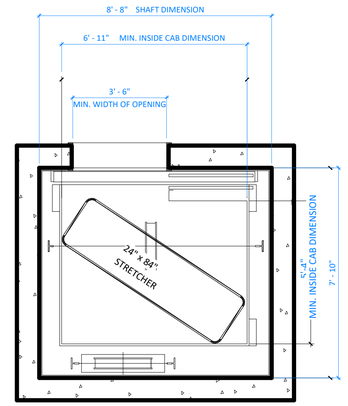
SECTION	DESCRIPTION	NOTE
CHAPTER 6	PLUMBING ELEMENTS AND FACILITIES	
611	WASHING MACHINES AND CLOTHES DRYERS	
611.1	GENERAL	ACCESSIBLE WASHING MACHINES AND CLOTHES DRYERS SHALL COMPLY WITH SECTION 611.
611.2	CLEAR FLOOR SPACE	A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305, POSITIONED FOR PARALLEL APPROACH, SHALL BE PROVIDED. THE CLEAR FLOOR SPACE SHALL BE CENTERED ON THE APPLIANCE.
611.3	OPERABLE PARTS	OPERABLE PARTS, INCLUDING DOORS, LINT SCREENS, DETERGENT AND BLEACH COMPARTMENTS, SHALL COMPLY WITH SECTION 309
611.4	HEIGHT	TOP LOADING MACHINES SHALL HAVE THE DOOR TO THE LAUNDRY COMPARTMENT 36 INCHES MAXIMUM ABOVE THE FLOOR. FRONT LOADING MACHINES SHALL HAVE THE BOTTOM OF THE OPENING TO THE LAUNDRY COMPARTMENT 15 INCHES MINIMUM AND 34 INCHES MAXIMUM ABOVE THE FLOOR.
CHAPTER 9	BUILT-IN FURNISHINGS AND EQUIPMENT	
902	DINING SURFACES AND WORK SURFACES	
902.1	GENERAL	ACCESSIBLE DINING SURFACES AND WORK SURFACES SHALL COMPLY WITH SECTION 902
902.2	CLEAR FLOOR SPACE	CLEAR FLOOR SPACE COMPLYING WITH SECTION 305, POSITIONED FOR A FORWARD APPROACH, SHALL BE PROVIDED. KNEE AND TOE CLEARANCE COMPLYING WITH SECTION 306 SHALL BE PROVIDED.
902.3	HEIGHT	THE TOPS OF DINING SURFACES AND WORK SURFACES SHALL BE 28 INCHES (710 mm) MINIMUM AND 34 INCHESMAXIMUM IN HEIGHT ABOVE THE FLOOR.



OPTION 1

NOTE

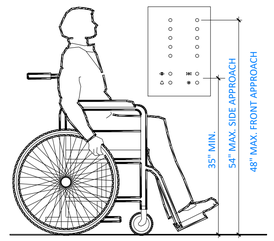
AT LEAST ONE ELEVATOR IN EACH BANK TO BE STRETCHER ACCESSIBLE WITH 24 X 84 CLEAR SPACE AND CLEAR OF HANDRAIL AND 3500 LB. CAPACITY TO MEET 2022 NYC BUILDING CODE



OPTION 2

1 TYPICAL ADA ELEVATOR PLAN

SCALE: 1/2" = 1'-0"



ELEVATOR REQUIREMENTS

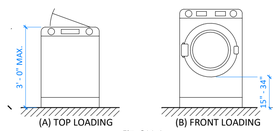
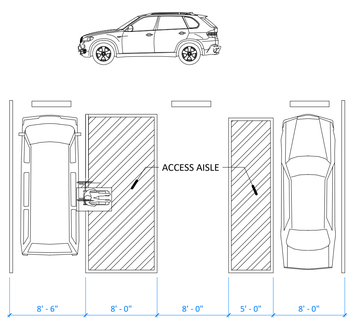
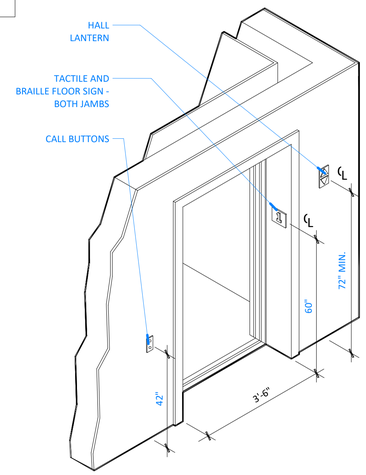


Fig. 611.4

HEIGHT OF LAUNDRY EQUIPMENT



DIMENSIONS OF PARKING SPACES



C405.8 VERTICAL AND HORIZONTAL
TRANSPORTATION SYSTEMS AND EQUIPMENT.
VERTICAL AND HORIZONTAL TRANSPORTATION SYSTEMS AND EQUIPMENT SHALL COMPLY WITH THIS SECTION.

C405.8.1 ELEVATOR EQUIPMENT AND CABS.
FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NOT LESS THAN 35 LUMENS PER WATT. VENTILATION FANS IN ELEVATORS THAT DO NOT HAVE THEIR OWN AIR-CONDITIONING SYSTEM SHALL NOT CONSUME MORE THAN 0.33 WATTS/CFM AT THE MAXIMUM RATED SPEED OF THE FAN. CONTROLS SHALL BE PROVIDED THAT WILL DE-ENERGIZE VENTILATION FANS AND LIGHTING SYSTEMS WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES.

C405.8.1.1 POWER CONVERSION SYSTEM.
NEW TRACTION ELEVATORS WITH A RISE OF 75'-0" OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS C405.8.1.1.1 THROUGH C405.8.1.1.3.

C405.8.1.1.1 MOTOR.
INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATING, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.

C405.8.1.1.2 TRANSMISSION.
TRANSMISSIONS SHALL NOT REDUCE THE EFFICIENCY OF THE COMBINED MOTOR/TRANSMISSION BELOW THAT SHOWN FOR THE CLASS IE2 MOTOR FOR ELEVATORS WITH CAPACITIES BELOW 4,000 POUNDS. GEARLESS MACHINES SHALL BE ASSUMED TO HAVE A 100% TRANSMISSION EFFICIENCY.

C405.8.1.1.3 DRIVE.
POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDING ELECTRICAL SYSTEM.

C405.8.2 ESCALATORS AND MOVING WALKS.
ESCALATORS AND MOVING WALKS SHALL COMPLY WITH ASME A17.1/CSA B44 AND SHALL HAVE AUTOMATIC CONTROLS CONFIGURED TO REDUCE SPEED TO THE MINIMUM PERMITTED SPEED IN ACCORDANCE WITH ASME A17.1/CSA B44 OR APPLICABLE LOCAL CODE WHEN NOT CONVEYING PASSENGERS.
EXCEPTION: A VARIABLE VOLTAGE DRIVE SYSTEM THAT REDUCES OPERATING VOLTAGE IN RESPONSE TO LIGHT LOADING CONDITIONS IS AN ALTERNATIVE TO THE REDUCED SPEED FUNCTION.

C405.8.2.1 REGENERATIVE DRIVE.
AN ESCALATOR DESIGNED EITHER FOR ONE-WAY DOWN OPERATION ONLY OR FOR REVERSIBLE OPERATION SHALL HAVE A VARIABLE FREQUENCY REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDING ELECTRICAL SYSTEM WHEN THE ESCALATOR IS LOADED WITH PASSENGERS WHOSE COMBINED WEIGHT EXCEEDS 750 POUNDS.

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

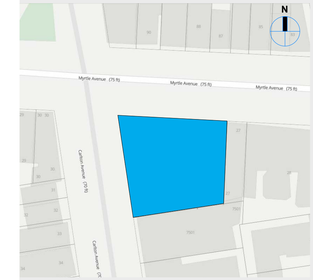
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

GENERAL NOTES

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:39:03 AM
SCALE: As indicated
DRAWN BY: XX

G-102.00

SHEET: 15 OF 88

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5/12/2023 1:39:03 AM

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NEW YORK CITY BUILDING CONSTRUCTION CODE. ALL WORK SHALL ALSO CONFORM TO THE REQUIREMENTS OF ANY OTHER AUTHORITIES HAVING JURISDICTION.

2. ALL CONSTRUCTION WORK TO BE DONE BY A LICENSED CONTRACTOR AND AN APPLICATION FOR PERMIT SHALL BE FILED WITH , AND PERMIT ISSUED FROM, THE NYC DEPT. OF BUILDINGS BOROUGH OFFICE IN WHICH THE PROPOSED WORK IS LOCATED.

3. ALL PLANS REQUIRED BY THE BUILDING DEPARTMENT AND OTHER CITY AGENCIES FOR THESE PREMISES ARE SUBJECT TO REVIEW, COMMENTS AND/OR APPROVAL OF THE BUILDING DEPARTMENT, AND NO CONSTRUCTION SHALL COMMENCE UNTIL SO APPROVED, AND PERMIT HAS BEEN OBTAINED.

4. CONTRACTOR SHALL COORDINATE THE WORK WITH ALL UTILITY COMPANIES.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSURANCE, LICENSES, AND SHALL PAY FEES FOR AND OBTAIN ALL NECESSARY PERMITS REQUIRED BY ALL CITY AGENCIES.

6. ALL ELECTRICAL WORK TO BE DONE BY A LICENSED ELECTRICIAN AND APPLICATION FOR PERMIT TO BE FILED WITH, AND PERMIT ISSUED, FROM THE BUREAU OF ELECTRICAL CONTROL LOCATED AT 60 HUDSON ST., NEW YORK, NY.

7. ALL PLUMBING WORK TO BE DONE BY A LICENSED PLUMBER AND AN APPLICATION FOR PERMIT SHALL BE FILED WITH, AND PERMIT ISSUED FROM, THE BOROUGH OFFICE THE NYC DEPT. OF BUILDINGS.

8. ALL MECHANICAL WORK TO BE DONE BY A LICENSED CONTRACTOR AND AN APPLICATION FOR PERMIT SHALL BE FILED WITH, AND PERMIT ISSUED FROM, THE BOROUGH OFFICE THE NYC DEPT. OF BUILDINGS.

9. THE LICENSED PROFESSIONAL ARCHITECT SERVICES AND RESPONSIBILITIES AS A DESIGN APPLICANT ARE LIMITED TO THE PREPARATION OF PLANS, BUILDING DEPARTMENT FILINGS TO OBTAIN APPROVAL. IT IS THE RESPONSIBILITY OF OWNER/ CONTRACTOR TO RETAIN AND HAVE ON SITE A NYC CERTIFIED PE OR RA AS THE SPECIAL/PROGRESS INSPECTOR.

10. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS, NOTES, WORK, ETC. AT THE JOB SITE BEFORE THE WORK IS STARTED, REPORT ANY AND ALL DISCREPANCIES TO THE ARCHITECT-REFER TO WRITTEN DIMENSIONS ONLY.

11. THE CONTRACTOR FOR THIS PROJECT HAS BEEN SELECTED FOR HIS SPECIAL KNOWLEDGE IN THIS TYPE OF CONSTRUCTION. DRAWINGS HAVE BEEN PREPARED AS A DIAGRAMMATIC GUIDELINE AND FOR COMPLIANCE WITH APPLICABLE CODES. ANY DISCREPANCIES, DEVIATIONS, OR ADVERSE CONDITIONS OBSERVED AT THE SITE SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY IN WRITING.

12. WHEN THE DRAWINGS AND NOTES DO NOT COVER PARTICULAR ITEMS, THE SUBCONTRACTOR SHALL ASK THE GENERAL CONTRACTOR FOR THE METHOD AND INTENT OF PERFORMING THE WORK. IN THE ABSENCE OF INQUIRIES, IT WILL BE ASSUMED THAT THE SUBCONTRACTOR HAS INCLUDED A CONTINGENCY FACTOR FOR ALL NECESSARY ITEMS TO PROVIDE A COMPLETE SYSTEM AND IN STRICT ACCORDANCE WITH ALL CODE REQUIREMENTS.

13. DO NOT SCALE DRAWINGS-REFER TO WRITTEN DIMENSION ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ON-SITE CONDITIONS PRIOR TO COMMENCING WORK. CONTRACTOR SHALL NOTIFY ARCHITECT IN WRITHING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

14. CONTRACTOR SHALL PROVIDE ALL PROTECTION MEASURES NECESSARY FOR THE SAFETY OF THE PUBLIC AND WORKMEN AT THE JOB SITE DURING THE COURSE OF THE WORK.

15. CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING HIS BEST SKILLS AND ATTENTION. HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK. THE ARCHITECT OF RECORD IS NOT RESPONSIBLE FOR THE SUPERVISION.

16. CONTRACTOR SHALL MAKE NO DEVIATIONS FROM DESIGN DRAWINGS WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.

17. GENERAL CONTRACTOR TO PROVIDE A 2-HOUR RATED WATER RESISTANT ENCLOSURE FOR THE EXISTING BUSDUCTS THROUGHOUT THE ENTIRE VERTICAL AND HORIZONTAL RUN WITH-IN THE AREA OF WORK

18. IT IS THE INTENTION OF THESE DRAWINGS AND NOTES TO PROVIDE FOR THE COMPLETE CONSTRUCTION OF THE WORKS. SHOULD ANYTHING BE OMITTED FROM THE DRAWINGS NECESSARY FOR THE PROPER CONSTRUCTION OF WORK HEREIN DESCRIBED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE RA.

19. THE RA MAY IN HIS ABSOLUTE DISCRETION ISSUE FURTHER DRAWINGS, DETAILS AND/OR WRITTEN INSTRUCTIONS, DIRECTION AND EXPLANATIONS IN REGARD TO:
(A) THE VARIATION OF THE DESIGN OR THE OMISSION OR SUBSTITUTION OF ANY WORK.
(B) THE OPENING UP FOR INSPECTION OF ANY WORK COVERED UP.
(C) THE AMENDING AND CORRECTING OF ANY DEFECTS OR OTHER FAULTS DUE TO MATERIAL AND WORKMANSHIP NOT IN ACCORDANCE WITH THIS CONTRACT ARE MADE BY THE CONTRACTOR AT HIS OWN COST.

SAFETY OF PUBLIC AND PROPERTY NOTES

1. PROVIDE ALL EQUIPMENT AND TEMPORARY CONSTRUCTION NECESSARY TO SAFEGUARD ALL PERSONS AND PROPERTY.

2. PERSONS SUPERINTENDING THE WORK SHALL INSPECT ALL DEVICES FOR ADEQUATE SAFETY.

3. DETERMINE LOCATION, PROJECT AND SAFEGUARD ALL UTILITIES ON AND ADJACENT TO THE SITE. NOTIFY UTILITY COMPANIES AFFECTED BY THE WORK AT LEAST 72 HOURS BEFORE COMMENCEMENT OF WORK.

4. PROVIDE FIRE FIGHTING EQUIPMENT AS REQUIRED BY THE FIRE DEPARTMENT.

5. ALL MACHINERY, TOOLS, SERVICE LINES, SHALL BE GUARDED, SHIELDED, OR BARRICADED TO PROVE SAFETY TO THE PUBLIC.

6. AREAS USED BY PUBLIC SHALL BE MAINTAINED FREE FROM ICE, SNOW, GREASE, DEBRIS, EQUIPMENT, MATERIALS, ETC.

7. WASTE MATERIALS OR DEBRIS SHALL BE DISPOSED FROM THE SITE.

8. NO MATERIALS OR DEBRIS SHALL BE DISPOSED OF OR THROWN OUTSIDE THE EXTERIOR OF THE WALLS OF THE BUILDING, ON SIDEWALKS, COURTS, YARDS OR SCAFFOLDING. NO WASTE MATERIAL IS TO BE STORED ON SCAFFOLDING, SIDEWALK SHEDS, SIDEWALK BRIDGES AND PUBLIC AREAS.

9. CONTRACTOR SHALL FURNISH AND OBTAIN ALL PERMITS REQUIRED TO MAINTAIN ALL EQUIP. SUCH AS TEMP. STAIRS, LADDERS, RAMPS, SCAFFOLDS, HOISTS, RUNWAYS DERRICKS, CHUTES, ETC. AS REQ..

PARTITION NOTES

1. DEFLECTION FOR ALL PARTITIONS SHALL NOT EXCEED 1/240TH OF THE SPAN MAXIMUM FOR TYPICAL GYPSUM PARTITIONS, OR 1/360 FOR WOOD-CLAD PARTITIONS, OR STONE-CLAD PARTITION SYSTEMS.

2. WATER RESISTANT DRYWALL (FOR THE FULL HEIGHT OF THE PARTITION CONSTRUCTION) SHALL BE USED IN TOILETS, SHOWERS, SERVICE ROOMS, ETC. USE STANDARD GYPSUM BOARD FOR CEILING CONSTRUCTION.

3. PENETRATIONS: COORDINATE WITH MECHANICAL CONTRACTOR FOR OPENINGS REQUIRED FOR RETURN AIR IN FULL HEIGHT PARTITIONS.

4. PROVIDE LATERAL BRACING TO STRUCTURE ABOVE FINISHED CEILINGS FOR PARTITIONS EXCEEDING UNSUPPORTED HEIGHTS INDICATED ON DRAWINGS.

5. PROVIDE HORIZONTAL CONTROL JOINTS AT 12'-0" O.C. IN THE VERTICAL DIRECTION UNLESS NOTED OTHERWISE.

6. PROVIDE CONTROL JOINTS IN GYPSUM WALLBOARD CONSTRUCTION SUCH THAT PARTITION OR FURRING RUNS DO NOT EXCEED 30', AND
CEILING DIMENSIONS DO NOT EXCEED 50' IN EITHER DIRECTION WITH PERIMETER RELIEF OR 30' WITHOUT PERIMETER RELIEF.

7. PROVIDE VERTICAL CONTROL JOINTS WITH SEALANT IN MASONRY WALLS AS SHOWN IN DRAWINGS WITH MAXIMUM SPACING OF 25'-0".

8. COMPLETELY SEAL WITH ACOUSTICAL SEALANT HEADS, BASES, AND ENDS, PLUS ALL PENETRATIONS(INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, AND PLUMBING WORK).

9. PROVIDE SOUND BLANKETS AS INDICATED.

MULTIPLE DWELLING LAW & HOUSING MAINTENANCE CODE

1. PAINTING OF PUBLIC HALLWAYS AND WITHIN DWELLING TO COMPLY WITH SEC. 26-12.01 H.M.C.

2. PAINTING OF WINDOW FRAMES AND BALCONIES TO COMPLY WITH SEC. D26-03 H.M.C.

3. PROPER ELECTRIC LIGHTING EQUIPMENT WITHIN DWELLING TO BE PROVIDED AND MAINTAINED AS PER SEC. D26-19.01, D26-19.08 AND D26-19.05 H.M.C.

4. EVERY VESTIBULE, ENTRANCE AND PUBLIC HALL TO HAVE LIGHTS AS PER SEC. D26-19.05 H.M.C.

5. ONE LIGHT (100 WATTS) EACH SIDE OF ENTRANCE WAY TO BE PROVIDED AS PER SEC. 26 SUBD. 7A M.D.L., DEPT. OF W.S.G. & E., AND DEPARTMENT RULES AND REGULATIONS AND D26-19.07 H.M.C.

6. PROPER ELECTRIC LIGHTS TO BE PROVIDED NEAR ENTRANCES WAYS, YARDS AND COURTS AS PER SEC. D26-19.07 H.M.C., ON SEPARATE CIRCUIT OR CONNECTED TO HOUSE LINE SERVICING PUBLIC HALL AND IN ACCORDANCE WITH REQUIREMENTS AND APPROVAL OF THE DEPT. OF WATER SUPPLY GAS AND ELECTRICITY.

7. PREMISES TO BE MAINTAINED AND KEPT FREE OF RODENT AND INSECT INFESTATION AS PER SEC. D26-13.03 AND D26-13.05 H.M.C.

8. RECEPTACLES FOR COLLECTION OF WASTE MATTER TO BE PROVIDED AS PER SEC. D26-14.03 AND 05 H.M.C.

9. KEY LOCK IN ENTRANCE DOOR TO EACH DWELLING UNIT WITH AT LEAST ONE KEY TO BE PROVIDED BY OWNER AS PER SEC. D26-20.05 H.M.C.

10. PROVIDE HEAVY DUTY LATCH SET, DEAD BOLT, THUMB TURN INSIDE, ALSO HEAVY DUTY CHAIN DOOR GUARD FOR ALL APT. DOORS, AS PER SEC. D26-20.05.

11. BOARD OF STANDARDS & APPEALS APPROVED PEEPHOLES, APPROX. 5' ABOVE FINISHED FLOOR TO BE PROVIDED IN ENTRANCE DOORS OF DWELLING UNITS, AS PER SEC. D26-20.01 H.M.V. AND DEPT. RULES & REGULATIONS.

12. APPROVED MAIL RECEPTACLES AND DIRECTORY OF PERSONS LIVING IN DWELLING TO BE PROVIDED AS PER SEC. D26-21.01 H.M.C. AND REGULATIONS OF U.S. POSTAL SERVICE.

13. PROPER FLOOR SIGNS TO BE PROVIDED IN PUBLIC HALL NEAR STAIRS AND ELEVATOR AND WITHIN STAIR ENCLOSURE AS PER SEC. D26-21.03 H.M.C.

14. PROPER HOUSE NUMBER TO BE PROVIDED IN FRONT OF THE DWELLING AS PER SEC. 82(3)-1.0 ADMINISTRATIVE CODE, SEC. D26-21.05 H.M.C., SEC. 885 CHARTER AND RULES AND REGULATIONS OF THE BOROUGH PRESIDENT.

15. PROPER JANITORIAL SERVICES TO BE PROVIDED AS PER SEC. D-22.03 AND D26-22.05 H.M.C.

16. EVERY KITCHEN AND KITCHENETTE TO BE PROVIDED WITH A SINK HAVING MINIMUM 2" WASTE AND TRAP AS PER SEC. D26-32.01 H.M.C. CEILING TO BE 1-HOUR RATED (5/8" S/R F.C.60)

17. ALL COMBUSTIBLE MATERIALS WITHIN 1' OF COOKING APPARATUS TO BE PROPERLY FIRE RETARDED AND MINIMUM 2' CLEARANCE MAINTAINED ABOVE EXPOSED COOKING SURFACE. COMBUSTIBLE MATERIAL BETWEEN 2' AND 3' ABOVE EXPOSED COOKING SURFACE TO BE FIRE RETARDED WITH 1-HOUR S.R.F.C. 60 AND 26 GA. METAL AS PER SEC. D26-32.05 H.M.C. AND DEPARTMENT RULES & REGULATIONS. ALL GAS RANGERS TO BE A.G.A. APPROVED.

18. NO KITCHEN SHALL BE OCCUPIED FOR SLEEPING PURPOSES, AS PER SEC. D-26-33 H.M.C.

19. FLOORS OF BATHROOMS INCLUDING TOILETS ROOMS TO HAVE CERAMIC TILE FLOOR AND 6" TILE BASE W/R PLASTERBOARD FINISHED WALLS AND CEILINGS AS PER SEC. 76 M.D.L. AND SEC. D26-32.03 & 05 H.M.C.

20. VENT DUCTS TO BE ON GALV METAL, 18 GA. FOR ALL KITCHENETTES AND 24 GA. FOR ALL BATHROOMS. VERTICAL DUCTS TO HAVE RATED ENCLOSURE TO BE FIRE STOPPED WITH TWO LAYERS OF 1/2" PLASTERBOARDS BETWEEN BEAMS AND ROOF PROVIDE REGISTERS, FIRE DAMPERS (BSA APPROVED), ACCESS DOORS ETC. FANS TO BE CONTROLLED BY TIME CLOCKS. FANS FOR KITCHENETTES SHALL PROVIDE AT LEAST 6 AIR CHANGES PER HOUR (SEC. 33 M.D.L.) AND 2 CFM. PER SQ.FT. OF FLOOR AREA (C26-1207.2). BATHROOM EXHAUST FANS SHALL DELIVER AT LEAST 4 AIR CHANGES PER HOUR (SEC. 76 M.D.L.) AND 50 CFM (SEC. C26-1207.3).

21. DOORS LEADING TO BATHROOMS TO HAVE 1/2" MIN. CLEAR SPACE BETWEEN BOTTOM OF DOORS AND SADDLES.

22. ALL FIRE DAMPERS TO BE APPROVED BY THE BOARD OF STANDARD & APPEALS.

23. BUILDING TO COMPLY WITH SEC. D26-33.01 MAXIMUM OCCUPANCY AND MINIMUM ROOM AREA.

24. REGISTRATION STATEMENTS TO BE FILLED AS PER SEC. D26-41.01 AND 03 H.M.C.

25. REGISTRATION IDENTIFICATION SIGN CONTAINING DWELLING SERIAL NUMBER TO BE POSTED AS PER SEC. D26-41.15 H.M.C.

26. IDENTIFICATION OF MANAGING AGENT OR OWNER TO BE INDICATES ON TENANT'S RENT RECEIPT AS PER SEC. D26-41.17 H.M.C.

27. ENTIRE BUILDING TO COMPLY WITH LOCAL LAWS APPLICABLE AND DEPARTMENT RULES AND REGULATIONS.

28. WALLS OF COURTS AND SHAFTS TO BE LIGHT COLORED SURFACE AS PER SEC. D26-12.05 H.M.C.

29. DRAINAGE FOR ROOFS, COURTS AND YARDS TO COMPLY WITH SEC. D26-16.03 H.M.C.

30. DRAINS AND AREAWAYS, YARDS AND ROOF TO COMPLY WITH SEC. 77 M.D.L.

31. HEATING SYSTEM SUBJECT TO APPROVAL BY APPROPRIATE CITY AGENCIES AS PER SEC. D26-17.01 H.M.C.

32. BUILDING TO COMPLY WITH SEC. D26-17.01 IN REFERENCE TO HEATING AND WATER SUPPLY.

33. BUILDING TO COMPLY WITH SEC. 64 M.D.L. - GAS METERS, GAS APPLIANCES AND ARTIFICIAL LIGHTING.

34. BUILDING ENTRANCES AND OTHER EXTERIOR ENTRANCES SHALL BE EQUIPPED WITH APPROVED TYPE AUTOMATIC SELF - CLOSING AND SELF - LOCKING DOORS.

35. ENTRANCE DOORS TO EACH DWELLING UNITS SHALL HAVE DOOR BELL, CHIME OR KNOCKER.

36. BOILER ROOMS SHALL COMPLY WITH SEC. 65 M.D.L.

37. BUILDING ENTRANCE DOORS AND OTHER EXTERIOR DOORS SHALL BE PROVIDED WITH HEAVY DUTY LOCK SETS WITH AUXILIARY LATCH BOLTS TO PREVENT THE LATCH FROM BEING MANIPULATED BY OTHER THAN A KEY.

38. DOORS TO DWELLING UNITS SHALL BE EQUIPPED WITH HEAVY DUTY HINGES AND DOOR STOPS.

39. ALL OPERABLE WINDOWS SHALL BE EQUIPPED WITH SASH LOCKS DESIGNED TO BE OPERABLE FROM THE INSIDE ONLY.

40. BUILDING CLASSIFIED IN OCCUPANCY GROUP R-2 CONTAINING EIGHT OR MORE DWELLING UNITS SHALL BE PROVIDED WITH AN INTERCOMMUNICATION LOCATED AT THE DOOR GIVING ACCESS TO THE MAIN ENTRANCE HALL OR LOBBY.

BOILER ROOM ENCLOSURE:
FILING PROCEDURE AND MINIMUM REQUIREMENTS FOR NEW BOILER ROOM ENCLOSURES FOR MULTIPLE DWELLING AS PER AMENDED SECTION 56 OF THE MULTIPLE DWELLING LAW.

1. BUILDING NOTICED APPLICATION WITH PLAN OF ENTIRE CELLAR TO BE FILED BY REGISTERED ARCHITECT, PROFESSIONAL ENGINEER OR OWNER.

2. AN APPROVED COPY OF THE PLANS ARE REQUIRED INDICATING COMPLIANCE WITH SEC. 65 OF THE MULTIPLE DWELLING LAW.

3. WALLS ENCLOSING BOILER TO BE OF FIREPROOF MATERIAL HAVING A ONE (1) HOUR FIRE RATING NOTE 4" SOLID CONC. BLOCK OR 4" STEEL STUD W/ 5/8" GWB BOTH SIDES IS GENERALLY USED.

4. CEILING OF ENTIRE BOILER ROOM REQUIRED TO BE PROPERLY FIRE RETARDED
NOTE: APPROVED METHODS OF FIRE RETARDING ARE FOLLOWING:
A) 1/2" GWB COVERED WITH 26 GAL. METAL
B) METAL LATH AND 3/4" CEMENT OR 1" GYPSUM MORTAR
C) ROCK LATH AND 3/4" GYPSUM MORTAR.

5. FLOOR OF BOILER ROOM TO BE CONCRETE CONSTRUCTION.

6. FIXED VENTILATION TO OUTER AIR FOR BOILER ROOM REQUIRED, MINIMUM AREA EQUAL TO SMOKE STACK (NORMALLY 64 SQ.IN.)
NOTE: WHERE DUCT IS REQUIRED TO PROVIDE FIXED VENTILATION, SAME MUST BE ENCLOSED IN METAL LATH AND CEMENT OR GYPSUM MORTAR, FIXED VENTILATION FOR BOILERS PERMITTED BY MEANS OF LOUVRE WITH FUSIBLE LINK DAMPER AT BOTTOM OF ENCLOSURE AND FIXED LOUVRE IN OUTSIDE WALL OF OPEN CELLAR.

7. METERS, DUMBWAITER SHAFTS, ELEVATOR SHAFTS, INTERIOR STAIRS OR REQUIRED OUTSIDE CELLAR ENTRANCES CANNOT BE LOCATED WITHIN BOILER ROOM.

8. A MINIMUM OF 18" CLEARANCE REQUIRED BETWEEN BOILER AND ENCLOSING WALLS PER RS14-15.

9. DOOR TO BOILER ROOM TO BE ONE (1) HOUR FIRE RATED SELF-CLOSING AS PER BOARD OF STANDARDS AND APPEALS APPROVAL.

10. ELECTRIC LIGHT TO BE PROVIDED WITHIN BOILER ROOM.

11. OIL BURNER REMOTE CONTROL SWITCH MUST BE LOCATED OUTSIDE BOILER ROOM.

12. NO STORAGE PERMITTED WITHIN BOILER ROOM.

13. AFTER APPROVAL OF PLANS AND APPLICATION, IT IS NECESSARY TO OBTAIN A "PERMIT TO BUILD" BEFORE ANY WORK IS STARTED.

ALARMS (HANDICAP COMPLIANCE PER THE REQUIREMENTS OF ANSI A117.1 OF 1986)
1. GENERAL 4.26.1 - EMERGENCY WARNING SYSTEMS SHALL INCLUDE BOTH AUDIBLE ALARMS COMPLYING WITH 4.26.2 AND VISUAL ALARMS COMPLYING WITH 4.26.3. AUXILIARY VISUAL ALARMS SHALL COMPLY WITH 4.26.4.

2. AUDIBLE ALARMS 4.26.2 - AUDIBLE EMERGENCY ALARMS SHALL PRODUCE A SOUND THAT EXCEEDS THE PREVAILING EQUIVALENT SOUND LEVEL IN THE ROOM OR SPACE BY AT LEAST 15 DECIBELS OR EXCEEDS ANY MAXIMUM SOUND LEVEL WITH A DURATION OF 30 SECONDS BY 5 DECIBELS, WHICHEVER IS LOUDER. SOUND LEVELS FOR ALARM SIGNALS SHALL NOT EXCEED 120 DECIBELS.

3. VISUAL ALARMS. 4.26.3 - VISUAL ALARMS SHALL BE FLASHING LIGHTS ARRAIGNED TO FLASH IN CONJUNCTION WITH THE AUDIBLE EMERGENCY ALARMS. THE FLASHING FREQUENCY OF VISUAL ALARMS SHALL BE APPROXIMATELY 1 HR. SPECIALIZED SYSTEM USING ADVANCED TECHNOLOGY MAY BE SUBSTITUTED IF EQUIVALENT PROTECTION IS AFFORDED HANDICAPPED USERS OF THE BUILDING OR FACILITY.

4. AUXILIARY ALARMS. 4.26.4 - SENSORY ALARMS PROVIDED FOR PERSONS WITH HEARING IMPAIRMENTS SHALL BE CONNECTED TO THE BUILDING EMERGENCY SYSTEM OR THERE SHALL BE A STANDARD 110 VOLT ELECTRICAL RECEPTACLE INTO WHICH AN ALARM UNIT CAN BE CONNECTED TO BE ACTIVATED BY THE BUILDING ALARM SYSTEM. INSTRUCTIONS FOR USE OF THE AUXILIARY ALARM OR CONNECTION SHALL BE PROVIDED.

MDL33- KITCHEN WALL-ONE HOUR RATED.

MDL35- PROVIDE AT LEAST 5 SQUARE OF GLAZED SURFACE ENTRANCE HALL DOOR.

MDL51A-PEEPHOLES.

MDL57-MAIL BOXES

SMOKE DETECTOR & CARBON MONOXIDE NOTES AS PER 907 & 908

1.SMOKE/ CARBON MONOXIDE DETECTORS OR DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE HOUSING MAINTENANCE CODE,MULTIPLE DWELLING LAW,THE NYC BUILDING CODE AND NYC ELECTRICAL CODE.

2.SMOKE AND CARBON MONOXIDE DETECTORS MAY BE COMBINED PROVIDING THE DEVICES COMPLY WITH THE PROVISIONS OF THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK AND ANY APPLICABLE RULES PROMULGATED THEREUNDER.

3.EACH SMOKE/ CARBON MONOXIDE DETECTOR SHALL BE INSTALLED OUTSIDE OF EACH SLEEPING ROOM IN THE IMMEDIATE VICINITY OR WITHIN 15' OF THE ENTRANCE TO A SLEEPING ROOM.

4.EACH SMOKE/ CARBON MONOXIDE DETECTOR SHALL BE OF A TYPE THAT ALLOWS FOR READILY TESTING OF SUCH DEVICE.

5.DUPLEX UNITS SHALL HAVE A DEVICE LOCATED ON EACH LEVEL IF ONLY ONE MEANS OF EGRESS II PROVIDED

6. CEILING MOUNTED DEVICES SHALL BE A MINIMUM DISTANCE OF 4" FROM ANY WALL OR AT LOCATIONS AND HEIGHTS RECOMMENDED BY THE MANUFACTURER.

7.WALL MOUNTED DEVICE SHALL BE A MINIMUM OF 4" TO A MAXIMUM OF 12" FROM THE CEILING OR AT LOCATIONS AND HEIGHTS RECOMMENDED BY THE MANUFACTURER.

8 SUCH SMOKE/ CARBON MONOXIDE DETECTOR MUST BE EITHER THE IONIZATION OR PHOTOELECTRIC TYPE AS PER NYC BUILDING CODE

9. A CERTIFICATE OF SATISFACTORY INSTALLATION FOR SMOKE/CARBON MONOXIDE DETECTORS MUST BE FILED WITH THE DIVISION OF CODE ENFORCEMENT, TEN (10) DAYS AFTER INSTALLATION.

10.TO ENSURE PROPER OPERATION, DO NOT INSTALL CO DETECTORS NEXT TO BATHROOMS, WHICH ARE SOURCES OF HUMIDITY, OR NEAR GAS STOVES, GAS DRYERS, ETC. DETECTORS SHOULD NOT BE PLACED IN AREAS LIKELY TO BE DAMAGED BY CHILDREN OR PETS.

WATERPROOFING NOTES

FOR CELLAR FOUNDATION WALLS

1. BEFORE ANY WATERPROOFING OF FOUNDATION WALLS IS APPLIED. ALL SURFACES SHALL BE DRY, CLEAN, AND FREE OF ALL LOOSE MORTAR OR ANY MATERIAL WHERE THE FOUNDATION WALL IS CONCRETE. ALL THE WIRES SHALL BE CUT AND ALL SPACES AROUND SERVICE PIPES SHALL BE SEALED.

2. THE WATERPROOFING OF A FOUNDATION SHALL BE APPLIED FROM A LEVEL AT THE BOTTOM OF THE FOOTING AT THE LEVEL OF THE FINISHED EXTERIOR GRADE. WHERE FOUNDATION WALLS ARE OF CONCRETE UP TO OR NEAR GRADE LEVEL, THE WATERPROOFING SHALL EXTEND AT LEAST 6" ABOVE FINISHED GRADE. WATERPROOFING IS TO CONSIST OF A HEAVY BRUSH COAT, TROWEL COAT OF A COMMERCIAL ASPHALT PREPARATION, OR AN APPLICATION OF HOT ROOFERS PATCH, NO BACKFILLING SHALL BE DONE UNTIL THE WATERPROOFING HAS BEEN INSPECTED AND ACCEPTED BY THE DEPARTMENTS' INSPECTOR. ONLY CLEAN EARTH SHALL BE USED FOR THE BACKFILLING. BACKFILLING IS TO BE DONE IN SUCH A MANNER, AS TO NOT DAMAGE THE WATERPROOFING, BACKFILLING IS TO BE DONE WELL TAMPED AND GRADED TO PITCH AWAY FROM THE FOUNDATION WALLS.

MODULAR CONSTRUCTION

THIS PROJECT DOES NOT INCLUDE MODULAR CONSTRUCTION.

FIRE PROTECTION CONSTRUCTION REQUIREMENTS PER BC 2022 CODE

1. THE FIRE-RESISTANCE RATING OF BUILDING ELEMENTS,COMPONENTS OR ASSEMBLIES SHALL BE DETERMINED IN ACCORDANCE WITH THE TEST PROCEDURES SET FORTH IN
- ASTM E 119 OR UL 263
- OR IN ACCORDANCE WITH SECTION 703.3.
- WHERE MATERIALS, SYSTEMS OR DEVICES THAT HAVE NOT BEEN TESTED AS PART OF A FIRE-RESISTANCE-RATED ASSEMBLY ARE INCORPORATED INTO THE BUILDING ELEMENT, COMPONENT OR ASSEMBLY, SUFFICIENT DATA SHALL BE MADE AVAILABLE TO THE COMMISSIONER TO SHOW THAT THE REQUIRED FIRE-RESISTANCE RATING IS NOT REDUCED.
- MATERIALS AND METHODS OF CONSTRUCTION USED TO PROTECT JOINTS AND PENETRATIONS IN FIRE-RESISTANCE-RATED BUILDING ELEMENTS, COMPONENTS OR ASSEMBLIESSHALL NOT REDUCE THE REQUIRED FIRE-RESISTANCE RATING

2. GENERAL.OPENING PROTECTIVES REQUIRED BY OTHER SECTIONS OF THIS CODE SHALL COMPLY WITH THE PROVISIONS OF BC* 716
- FIRE DOOR ASSEMBLIES LOCATED IN CORRIDOR WALLS OR SMOKEBARRIER WALLS HAVING A FIRE-RESISTANCE RATING IN ACCORDANCE WITH TABLE 716.5 SHALL BE TESTED IN ACCORDANCE WITH NFPA252 OR UL 10C
  1. VIEWPORTS THAT REQUIRE A HOLE NOT LARGER THAN 1 INCH (25 MM) IN DIAMETER THROUGH THE DOOR, HAVE AT LEAST AN0.25-INCH-THICK (6.4 MM) GLASS DISC AND THE HOLDER IS OF METAL THAT WILL NOT MELT OUT WHERE SUBJECT TO TEMPERATURES OF 1,700°F (927°C).
- FIRE-RESISTANCE-RATEDGLAZING TESTED AS PART OF A FIRE-RESISTANCE-RATED WALL ASSEMBLY IN ACCORDANCE WITH ASTM E 119 OR UL 263 AND LABELED IN ACCORDANCE WITH SECTION 703.5 SHALL BE PERMITTED IN FIRE DOORS AND FIRE WINDOW ASSEMBLIES IN ACCORDANCE WITH THEIR LISTINGS AND SHALL NOT OTHERWISE BE REQUIRED TO COMPLY WITH THIS SECTION.
- AUTOMATIC-CLOSING FIRE DOOR ASSEMBLIES SHALL BE SELF-CLOSING IN ACCORDANCE WITH NFPA 80

3. THE FIRE-RESISTANCE RATING OF FLOOR AND ROOF ASSEMBLIES SHALL NOT BE LESS THAN THAT REQUIRED BY THE BUILDING TYPE OF CONSTRUCTION. HORIZONTAL ASSEMBLIES SEPARATING DWELLING UNITS IN GROUP I-1 OR R OCCUPANCIES SHALL BE A MINIMUM OF 1-HOUR FIRE-RESISTANCE-RATED CONSTRUCTION.

4. FIREBLOCKING AND DRAFTSTOPPING SHALL BE INSTALLED IN COMBUSTIBLE AND NONCOMBUSTIBLE CONCEALED LOCATIONS IN ACCORDANCE WITH THIS SECTION. FIREBLOCKING SHALL COMPLY WITH SECTION 717.2. DRAFTSTOPPING IN FLOOR/CEILING SPACES AND ATTIC SPACES SHALL COMPLY WITH SECTIONS 718.3 AND 717.4, RESPECTIVELY. THE PERMITTED USE OF COMBUSTIBLE MATERIALS IN CONCEALED SPACES OF BUILDINGS OF TYPE I OR II CONSTRUCTION SHALL BE LIMITED TO THE APPLICATIONS INDICATED IN SECTION 718.5. INSTALLATIONS OF FIREBLOCKING AND DRAFTSTOPPING SHALL COMPLY WITH THE SPECIAL INSPECTION REQUIREMENTS OF CHAPTER 17

5. INTERIOR WALL AND CEILING FINISH MATERIALS SHALL BE TESTED AND ACCORDED INDICES FOR FLAME SPREAD AND SMOKE DEVELOPMENT IN ACCORDANCE WITH ASTM E 84 OR UL 723
- SUCH INTERIOR FINISH MATERIALS SHALL BE GROUPED IN THE FOLLOWING FLAME SPREAD CLASSES IN ACCORDANCE WITH THEIR FLAME SPREAD INDEX.
  CLASS A: FLAME SPREAD 0-25.
  CLASS B: FLAME SPREAD 26-75.
  CLASS C: FLAMESPREAD 76-200
- THICKNESS EXEMPTION. MATERIALS HAVING A THICKNESS LESS THAN 0.036 INCH (0.9 MM) APPLIED DIRECTLY TO THE SURFACE OF WALLS OR CEILINGS SHALL NOT BE REQUIRED TO BE TESTED.

OFFICE OF REMEDIATION

SITE IS NOT CLASSIFIED AS LITTLE 'E' . OER IS NOT APPLICABLE

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
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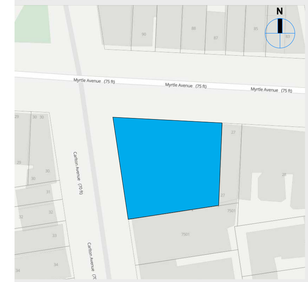
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

GENERAL NOTES

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:39:06 AM
SCALE:
DRAWN BY: XX

G-103.00

SHEET: 16 OF 88

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NYC BUILDING CODE 2022

UNLESS OTHERWISE NOTED, ALL REFERENCED SECTIONS ARE FROM TITLE 27, CHAPTER 1 OF THE NYC BUILDING CODE. HMC = NYC HOUSING MAINTENANCE CODE

1. THESE NOTES ARE PART OF THE PLANS AND SPECIFICATIONS AND ARE TO BE COMPLIED WITH IN ALL RESPECTS. MORE RESTRICTIVE NOTES APPEARING ELSEWHERE IN THE CONTRACT DOCUMENTS OR REFERRED TO SECTIONS ARE TO TAKE PRECEDENCE OVER THE FOLLOWING:

2. THE BUILDING OWNER SHALL BE RESPONSIBLE FOR THE SAFE MAINTENANCE OF THE BUILDING AND ITS FACILITIES PER SECTIONS 28-301.1

3. ALL MATERIALS, ASSEMBLIES, FORMS AND METHODS OF CONSTRUCTION CONFORM TO THE REQUIREMENTS CHAPTER 5 THROUGH 33 OF THE NYC 2022 BUILDING CODE

4. MECHANICAL VENTILATION WORK SHALL CONFORM TO THE 2022 MECHANICAL CODE NYC.

5. PLUMBING MATERIALS AND FIXTURES SHALL CONFORM TO THE 2022 PLUMBING CODE NYC AND GAS PIPING AND WORK SHALL CONFORM TO THE 2022 FUEL GAS CODE NYC.

6. ELECTRICAL WORK SHALL CONFORM TO THE NYC ELECTRICAL CODE AND BE DONE BY A LICENSED ELECTRICIAN.

7. DIFFERENT TENANT SPACES SHALL BE SEPARATED FROM EACH OTHER BY FIRE SEPARATIONS HAVING FIRE RESISTANCE RATING LISTED IN TABLE 503 AND TABLE 508.4.3 BUT NO LESS THAN 1-HOUR PER SECTION BC* 510.

8. DUCTS, PIPES, AND CONDUITS PASSING THROUGH RATED CONSTRUCTION SHALL COMPLY WITH SECTION BC* 712.

9. INTERIOR FINISHES SHALL COMPLY WITH SECTION BC* 801 REGARDING THEIR FLAME SPREAD RATING AND SMOKE DEVELOPED RATING.

10. ALL GRADE ELEVATIONS SHALL BE REFERRED TO U.S. COAST AND GEODETIC SURVEY MEAN SEA LEVEL DATUM OF 1981 PER SECTION 28-104.7.6 OF THE NEW YORK CITY ADMINSTRATIVE CODE.

11. AS PER SECTION BC* 106, CONTRACTOR SHALL POST AT THE JOBSITE A PERMIT CARD BEARING THE DOB PERMIT NUMBER AND THE DOB APPLICATION NUMBER PRIOR TO THE COMMENCEMENT OF ANY WORK FOR WHICH A PERMIT HAS BEEN ISSUED.

12. AS PER SECTION BC* 3301, AT LEAST 24 HOURS WRITTEN NOTICE SHALL BE GIVEN TO THE COMMISSIONER OF DOB BEFORE THE COMMENCEMENT OF ANY WORK FOR WHICH A PERMIT HAS BEEN ISSUED. THE PERSON RESPONSIBLE FOR ANY CONTROLLED INSPECTIONS SHALL BE NOTIFIED AT LEAST 72 HOURS PRIOR TO THE COMMENCEMENT OF THE WORK FOR WHICH SUCH INSPECTIONS ARE REQUIRED.

13. AT LEAST TEN DAYS PRIOR WRITTEN NOTICE SHALL BE GIVEN TO OWNERS AFFECTED BY PROPOSED DEMOLITION OR REMOVAL WORK BEFORE ISSUANCE OF A PERMIT FOR THAT WORK PER SECTION BC* 3304.3.2, AND SAID WORK SHALL BE PERFORMED PER SECTION BC* 3304.

14. AN ACCURATE AND COMPLETE LOT SURVEY MADE BY A LICENSED SURVEYOR SHALL BE SUBMITTED WITH THE APPLICATION FOR THE CERTIFICATE OF OCCUPANCY AND SHALL INDICATE THE REQUIRED INFORMATION PER SECTION 28-118 OF THE NEW YORK CITY ADMINSTRATIVE CODE.

15. SOIL INVESTIGATIONS SHALL COMPLY WITH SUBCHAPTER 11, ARTICLE 2 AND WITH SECTIONS BC* 1801 AND 1803,1803.5 TEST PITS MAY BE SUBSTITUTED FOR BORINGS PER SECTION BC* 1803.5.2.

16. ALL FOUNDATION WORK SHALL BEAR ON SOIL HAVING ADEQUATE BEARING CAPACITY TO SUPPORT THE TOTAL IMPOSED LOAD AND BE PROPORTIONED TO LIMIT SETTLEMENTS TO MAGNITUDES THAT WILL NOT CAUSE DAMAGE TO THE PROPOSED CONSTRUCTION OR TO EXISTING ADJACENT OR NEARBY BUILDINGS PER SECTION BC* 1806.

17. THE DEPTH OF FOUNDATIONS SHALL COMPLY WITH SECTION BC* 1809.3. BOTTOM SURFACE OF ANY FOOTING, PIER, PILE CAP OR OTHER FOUNDATION CONSTRUCTION OTHER THAN GRADE BEAMS SHALL BE AT LEAST 4'-0" MIN. BELOW THE LOWEST LEVEL OF THE ADJOINING GROUND OR PAVEMENT THAT IS EXPOSED TO FROST EXCEPT AS LISTED IN SECTION BC* 1806.3. GRADE BEAMS SHALL BE A MIN. OF 18 INCHES BELOW THE SAME PREVIOUSLY MENTIONED LEVEL.

18. CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 19 AND BC* 1901.

19. MASONRY WORK SHALL CONFORM TO THE REQUIREMENTS OF CHAPTER 21 BC* 2101.

20. PRE-CAST AND PRE-STRESSED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF BC* CHAPTER 19.

21. STEEL MATERIALS DESIGN AND CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF BC* CHAPTER 22.

22. STRUCTURAL MEMBERS REQUIRING FIRE PROTECTION PER TABLE 601 SHALL BE FIRE PROTECTED PER SECTION BC* 703, LINTELS FIRE PROTECTED PER SECTION BC* 704.

23. CHIMNEYS AND GAS VENTS SHALL CONFORM TO BC* CHAPTER 28. GAS VENTS SHALL BE BSA APPROVED AND COMPLY WITH CHAPTER 29 OF THE ABOVE AND BE ENCLOSED WITH CONSTRUCTION HAVING A FIRE RESISTANCE RATING FUEL GAS CODE AND COMPLYING WITH CHAPTER 5 OF THE 2022 FUEL GAS CODE 2022.

23. CHIMNEYS AND GAS VENTS SHALL CONFORM TO BC* CHAPTER 28. GAS VENTS SHALL BE BSA APPROVED AND COMPLY WITH CHAPTER 29 OF THE ABOVE AND BE ENCLOSED WITH CONSTRUCTION HAVING A FIRE RESISTANCE RATING FUEL GAS CODE AND COMPLYING WITH CHAPTER 5 OF THE 2022 FUEL GAS CODE 2022.

24. BOILER CONSTRUCTION, INSTALLATION, MAINTENANCE AND OPERATION SHALL COMPLY WITH SECTION 631 OF FUEL GAS CODE 2022 AND MC 1001.

25. GAS FIRED EQUIPMENT CONSTRUCTION, AND INSTALLATION SHALL COMPLY WITH SECTION FGC 304. COMBUSTION AIR SHALL BE PROVIDED PER SECTION 27-8079 (B). FLUE DAMPERS SHALL CONFORM TO SECTION MC 803.6 2022.

26. BATHROOMS AND TOILET ROOMS WITHOUT WINDOWS SHALL BE VENTILATED MECHANICALLY PER SECTION MC 401, MC 403.

27. INTERIOR STAIRS SHALL COMPLY WITH SECTION BC* 1011.5.2 THE SUM OF TWO RISERS PLUS ONE TREAD (EXCLUSIVE OF NOSING) SHALL BE NOT LESS THAN 24" NOR MORE THAN 25 1/2".
LANDINGS AND PLATFORMS SHALL BE PROVIDED AT THE HEAD AND FOOT OF EACH FLIGHT OF STAIRS. HAND RAILS SHALL BE PROVIDED AS PER SECTION BC* 1011.11 AND LOCAL LAW 58/87.

28. FIRE-STOPPING MATERIALS SHALL BE NON-COMBUSTIBLE MATERIALS IN CONCEALED SPACES OF FIRE DIVISION, AND WHEN IN CONTACT WITH FIREPLACES, FLUES AND CHIMNEYS. FIRE-STOPPING SHALL BE PLACED AROUND DUCTS AND PIPES AT EVERY FLOOR LEVEL WHERE THEY ARE NOT ENCLOSED IN RATED CONSTRUCTION REQUIRED FOR SHAFT ENCLOSURES. ALL FIRE-STOPPING SHALL COMPLY WITH BC* CHAPTER 7.

29. ROOF COVERINGS SHALL COMPLY WITH SECTION BC* 1505. REFER TO RS 5-9 FOR FIRE RESISTANCE CLASSIFICATION OF ROOFING MATERIALS.

30. LOT GRADING WHEN PITCH OF GRADE DOES NOT EXCEED 5%, ALL UNPAVED AREAS TO BE SEEDED UNLESS OTHERWISE NOTED. WHEN PITCH OF GRADE EXCEEDS 5%, ALL UNPAVED AREAS TO BE SODDED UNLESS OTHERWISE NOTED. THE GRADING WILL BE DESIGNED SO AS NOT TO RESULT IN PONDING OR UNSTABLE GRADES IN THE SURROUNDING AREA.

31. THE STREET ON WHICH THE BUILDING(S) FRONTS, IS OR WILL BE IMPROVED TO THE EXTENT THAT THE WATER MAIN, SEWER(S), GAS SERVICE, ELECTRIC SERVICE, ROADWAY PAVEMENT, SIDEWALK AND CURB WILL BE INSTALLED. SIDEWALK AND ROADWAY CONSTRUCTION REQUIRE A SEPARATE APPROVAL/PERMIT FROM THE DEPT. OF HIGHWAYS PRIOR TO THE START OF THAT WORK.

32. HEATING SYSTEM SHALL BE ADEQUATE TO CONFORM TO H.M.C. SECTIONS 27-2028 AND 27-2029 AND SHALL MEET THE REQUIREMENTS OF THE N.Y.C. ENERGY CONSERVATION CODE. THE MORE STRINGENT OF THE TWO SHALL APPLY.

33. ARTIFICIAL LIGHT SHALL BE PROVIDED IN COMPLIANCE WITH BC* CHAPTER 12 SECTION 1205 AND PER H.M.C. SECTION 27-2037.

34. SAFETY OF THE PUBLIC AND PROPERTY DURING CONSTRUCTION OPERATIONS SHALL BE PROVIDED AND COMPLY WITH THE PROVISIONS OF BC* CHAPTER 33.

35. BUILDINGS CLASSIFIED AS R-2 OCCUPANCY GROUP SHALL COMPLY WITH THE SEISMIC CODE REQUIREMENTS OF LOCAL LAW 17/95.

36. WHERE PIPES, WIRES, CONDUITS, DUCTS, ETC., PIERCE FIRE PROTECTION OF INDIVIDUALLY ENCASED STRUCTURAL MEMBERS, SUCH PENETRATION SHALL NOT EXCEED 2% OF ANY ONE FACE OF SUCH PARTITION, AND SHALL BE CLOSED OFF WITH CLOSE FITTING METAL ESCUTCHEONS OR PLATES, PER SECTION BC* 704.

37. LINTELS SUPPORTING MASONRY WALLS OVER 4 FEET IN WIDTH, SHALL BE FIRE PROTECTED WITH MATERIALS HAVING THE REQUIRED FIRE RESISTANCE RATING OF THE WALL SUPPLIED.

38. OPENING PROTECTIVES INCLUDING FRAMES, SELF-CLOSING DEVICES AND HARDWARE SHALL COMPLY WITH ASTM E-152-1966 "STANDARD METHODS OF FIRE TEST OF DOOR ASSEMBLIES" ANSI NFPA 257 IN ACCORDANCE WITH NFPA NO. 80-1967 "INSTALLATION OF FIRE DOORS AND WINDOWS". OPENING PROTECTIVES SHALL BE LABELED, CERTIFYING PERFORMANCE RATING. PER SECTION BC* 716.

39. DUCTS, PIPES AND CONDUITS PASSING THROUGH RATED CONSTRUCTED SHALL MEET REQUIREMENTS AS SET FOR IN BC* CHAPTER 7.

40. ALL EXITS SHALL BE KEPT READILY ACCESSIBLE AND UNOBSTRUCTED AT ALL TIMES, BC* 1001.3 AND NYC FIRE CODE.

41. TREADS, STRINGERS, AND LANDINGS SHALL BE BUILT OF OR SURFACED WITH NONSKID MATERIALS.

42. FINISH FLOORING IN ALL EXITS SHALL BE OF NON-COMBUSTIBLE MATERIALS, PER BC* SECTION 804.

43. ILLUMINATION LEVELS OF NOT LESS THAN 1 FOOT-CANDLE MEASURED AT THE FLOOR LEVEL SHALL BE MAINTAINED CONTINUOUSLY IN EXITS AND THEIR ACCESS FACILITIES, PER SECTION BC* 1008.1 AND BC* 1008.2.

44. EXIT LIGHTING SHALL BE ON CIRCUITS THAT ARE SEPARATE FROM ANY OTHER CIRCUITS, TAKEN OFF AHEAD OF THE MAIN SWITCH.

45. WHERE REQUIRED, LOCATION OF EVERY EXIT ON EVERY FLOOR SHALL BE CLEARLY INDICATED BY EXIT SIGNS, PLACED, IF REQUIRED, AT AN ANGLE WITH THE EXIT OPENING. INSTALL DIRECTIONAL SIGNS, TO SERVE AS GUIDE FROM ALL PORTIONS OF THE CORRIDOR OR FLOOR, SIGNS SHALL BE ON SEPARATE CIRCUITS, CONTRACTOR TO REFER TO ELECTRICAL DRAWINGS FOR FULL SCOPE OF WORK.

46. EXIT SIGNS SHALL BE INTERNALLY LIGHTED, HAVING AN INITIAL BRIGHTNESS OF THE LETTERS OF AT LEAST 25 FEET LAMBERT. LETTERS SHALL BE RED, THE BACKGROUND SHALL BE WHITE, LETTERS SHALL BE BLOCK LETTERING, AT LEAST 6" HIGH, WITH 9/16" STROKES, PER SECTION BC* 1013 AND ICC A117.1.

47. ALL OPERABLE WINDOWS SHALL BE EQUIPPED WITH SASH LOCKS DESIGNED TO BE OPERABLE FROM THE INSIDE ONLY.

48. CORRIDORS AND EXIT PASSAGEWAYS SHALL HAVE A MINIMUM CLEAR HEIGHT OF 7'-6" FOR AT LEAST 75% OF THE FLOOR AREA WITH NO POINT LESS 7'-0" IN HEIGHT. PROJECTION BELOW THE CEILING SHALL NOT OBSTRUCT FULL VIEW OF EXIT SIGNS BC* 1003.2.

49. CONDUITS IN FIRE-RATED PARTITIONS WILL NOT EXCEED 3/4" DIAMETER. OUTLETS IN SUCH PARTITIONS SHALL BE BACKED UP WITH APPROVED MATERIALS.

50. NO CONDUITS, PIPES MEDICINE CABINETS, ETC. SHALL ENCROACH UPON FIRE RATED PARTITIONS ENCLOSING PUBLIC CORRIDORS, STAIRS, ELEVATOR SHAFTS OR VENT SHAFTS.

51. EXIT DOORS SHALL BE READILY OPERABLE AT ALL TIMES FROM THE SIDE FROM WHICH EGRESS IS TO BE MADE. DOORS OPENING INTO INTERIOR ENCLOSED STAIR SHALL NOT BE LOCKED FROM EITHER SIDE EXPECT THAT DOORS MAY BE LOCKED TO PREVENT ACCESS TO THE STAIR FROM THE OUTDOORS AT THE STREET LEVEL.

52. ALL CLEANING OF WINDOWS WILL BE IN CONFORMITY WITH THE STATE LABOR LAW & WINDOW CLEANING CODE.

53. ELEVATOR DESIGN & INSTALLATION SHALL CONFORM WITH BC* CHAPTER 30, SEE 3001.1, 3001.2, AND 3001.3 AND ASME A17.1-2000 AND CHAPTER K-1.

54. SUSPENDED CEILINGS SHALL COMPLY WITH APPENDIX R, WITH METAL HANGERS, PURLINS AND RUNNERS AS REQUIRED.

55. ALL DOORS TO REQUIRED EXIT STAIRS SHALL BE 3'-0" WIDE EXCEPT IF OTHERWISE NOTED.

56. DOORS AND ASSEMBLIES SHALL HAVE THE FOLLOWING FIRE RESISTIVE RATINGS PER SECTION BC* 716: DOORS TO STAIRS 1-1/2 HOUR, EXCEPT WHERE OTHERWISE NOTED, DOORS TO ELEVATORS SHAFT 1-1/2 HOUR.

57. CONCRETE BLOCK SHALL MEET THE REQUIREMENTS SET FORTH IN BC* SECTION 1904

58. 24 HOUR ILLUMINATION TO BE PROVIDED ADJACENT TO THE MAILBOXES.

59. ELEVATOR SHAFTS SHALL BE ENCLOSED WITH 2 HOUR FIRE RATING IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE, BC* 707, BC* 708.

60. INTERIOR REQUIRED (FIRE) STAIRS SHALL BE ENCLOSED WITH 2 HOUR FIRE RATING IN ACCORDANCE WITH NEW YORK CITY BUILDING CODE, BC* 707.

61. ALL VENT DUCT SHAFTS SHALL BE ENCLOSED WITH 2 HOUR ENCLOSURE, NO DUCT VENTS TO PASS THROUGH STAIR ENCLOSURES. 1-1/2 HOUR AUTOMATIC CLOSING FIRE DAMPERS TO BE INSTALLED IN VENT DUCTS WHEN THEY PENETRATE PUBLIC CORRIDORS.

62. STANDPIPE WILL BE INSTALLED IF REQUIRED IN ACCORDANCE WITH BC* Q105, THE NYC FIRE CODE AND BC* 905. SEPARATE STANDPIPE APPLICATION WILL BE FILED.

63. NO WORK TO BE DONE BEYOND BUILDING LINES WITHOUT APPROVAL OF THE NYC DEPT. OF TRANSPORTATION.

64. SIDEWALKS TO BE LAID IN ACCORDANCE WITH RULES OF THE NYC DEPARTMENT OF TRANSPORTATION.

65. ALL PAVED WALKS, SURFACES, AND AREAWAYS TO BE DRAINED ADEQUATELY WITHIN THE SITE.

66. VENTILATION OF EACH REQUIRED STAIR EXTENDING TO THE ROOF SHALL CONFORM WITH SECTION MC 311.

67. MASONRY MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF BC* 2103. THE DESIGN OF MASONRY WALLS IS PREDICATED UPON ANALYSIS OF STRESSES AS PER BC* 2101.2. ALL MASONRY LOAD BEARING AND NON-LOAD BEARING WALLS TO BE BONDED IN ACCORDANCE WITH BC* 1405.

68. WALLS TO BE ANCHORED AS PER BC* 1405.6.

69. PIPE SPACE AND WALL FURRINGS SHALL CONSIST OF METAL CHANNELS AND 5/8" GYPSUM WALLBOARD EXCEPT AS OTHERWISE SHOWN.

70. A MINIMUM CEILING HEIGHT OF 8'-0" SHALL BE MAINTAINED IN ALL LIVING ROOMS.

71. WALLS, PARTITIONS AND FLOOR-CEILING CONSTRUCTION SEPARATING DWELLING UNITS FROM EACH OTHER OR FROM PUBLIC CORRIDORS OR STAIRS SHALL HAVE SOUND TRANSMISSION CLASS MINIMUM RATING OF 50 FOR AIRBORNE NOISE SECTION BC* 1207. APARTMENT ENTRANCE DOORS SHALL HAVE SOUND TRANSMISSION CLASS MINIMUM RATING OF 30 FOR AIRBORNE NOISE.

72. A REFUSE COLLECTION ROOM IN COMPLIANCE WITH SECTION BC* 1213 AND 27-837 AND RULES OF THE DEPARTMENT OF BUILDINGS SHALL BE PROVIDED FOR REFUSE REDUCTION SYSTEM WHICH UTILIZES METHODS OTHER THAN BURNING. SUCH ROOM SHALL BE USED FOR NO OTHER PURPOSE AND SHALL BE SEPARATED FROM ALL OTHER OCCUPANCIES BY 3 HOUR FIRE RATED PARTITIONS. DOORS INTO SUCH SPACES SHALL BE FPSC. 1-1/2 HOUR FIRE RATED. REFUSE COLLECTION ROOM SHALL BE SPRINKLERED. THE COMPACTING MACHINE SHALL BE LOCATED WITHIN THE REFUSE ROOM (SEE 81 NYS MDL, SEE 2021 NYC AMC).

73. SIGNS OVER HOPPER DOORS SHALL BE PROVIDED AS PER CODE AND RULES. INTAKE HOPPER DOORS AT REFUSE CHUTE SHALL HAVE B.S.A. APPROVAL 73-58 SM AND M.E.A. APPROVAL 2-69-E.

74. COMPACTING EQUIPMENT SHALL MEET THE CRITERIA OF THE ENVIROMENTAL PROTECTION ADMINISTRATION AND BE APPROVED PER SECTION BC* 1213.2 ALSO ALL REQUIREMENTS OF ANY OTHER AUTHORITY HAVING JURISDICTION.

A. REFUSE CHUTE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL APPLICABLE RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS AND ANY OTHER AUTHORITY HAVING JURISDICTION, B.S.A. OR M.E.A. APPROVED.

B. REFUSE CHUTES TO BE PREFABRICATED #16 GAUGE ALUMINIZED STEEL, 2'-0" OUTSIDE DIAMETER. SLAB OPENING TO BE 2'-4" DIAMETER. CHUTE SHALL HAVE SOUND DEADENING APPLIED TO THE EXTERIOR AT THE FACTORY. CHUTE SHALL BE SUPPORTED AT EACH FLOOR ON SOUND VIBRATION PADS AS PER MANUFACTURER'S APPROVED TYPE DETAIL. PROVIDE SPRINKLER AND SANITIZING UNIT AT REFUSE CHUTES.

75. LAUNDRY MACHINES ARE AN ACCESSORY USE FOR TENANTS OF THE BUILDING ONLY AND WILL NOT BE USED FOR BUSINESS PURPOSES. MACHINES MUST MEET BUILDING CODE, ADA AND ENERGY STAR REQUIREMENTS.

76. EXTERIOR MECHANICAL EQUIPMENT IN A YARD OR COURT OR ON A ROOF OR WHERE THE EQUIPMENT OPENS TO THE EXTERIOR OF THE BUILDING SHALL CONFORM WITH BC* 1203 AND BC* 2801.

77. EQUIPMENT USE PERMITS, INSPECTIONS, AND TESTS PERMITS WILL BE OBTAINED FOR USE OF THE FOLLOWING EQUIPMENT:

A. AIR CONDITIONING AND VENTILATION SYSTEMS - NYC FIRE CODE.
B. ELEVATORS. (CHAPTER 30)

78. EQUIPMENT REQUIRING USE PERMITS SHALL BE INSPECTED AND TESTED TO DETERMINE PROPER FUNCTIONING AND COMPLIANCE WITH THE BUILDING CODE AND OTHER APPLICABLE LAWS AND REGULATIONS. ALL INSPECTIONS AND TESTS SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIRED INSPECTION AND TEST PROCEDURES. SIGNED COPIES OF REQUIRED INSPECTIONS AND TEST REPORTS SHALL BE FILED WITH THE DEPARTMENT OF BUILDINGS AND FORM PART OF THE PAPERS ACCOMPANYING THE PERMIT APPLICATION. IN THE CASE OF HEATING SYSTEM, A SIGNED STATEMENT BY THE ARCHITECT OR ENGINEER SHALL BE SUBMITTED WITH THE PERMIT APPLICATION, STATING THAT THE SYSTEM HAS BEEN OPERATING AND FUNCTIONS SATISFACTORILY, AND THAT TO THE BEST OF KNOWLEDGE AND BELIEF, THE SYSTEM MEETS THE CODE TEMPERATURE REQUIREMENT.

SAFETY NOTES

PROTECTION OF ADJACENT PROPERTY (BC* 3309)

1. THIS WORK WILL BE PERFORMED IN COMPLETE COMPLIANCE WITH FEDERAL OSHA STANDARDS THE ADMINISTRATIVE CODE OF THE CITY OF NEW YORK, DEP REGULATIONS REGARDING DISPOSAL OF SOIL, THE NEW YORK CITY FIRE, AND THOSE OF ALL OTHER AGENCIES HAVING JURISDICTION OVER THIS PROJECT.

2. SAFEGUARDS DURING CONSTRUCTION OR DEMOLITION:
THE PROVISIONS OF CHAPTER 33 OF THE 2022 NYC BUILDING CODE SHALL GOVERN THE CONDUCT OF ALL CONSTRUCTION OR DEMOLITION OPERATIONS WITH REGARD TO THE SAFETY OF THE PUBLIC & PROPERTY. FOR REGULATIONS RELATING TO THE SAFETY OF PERSONS EMPLOYED IN CONSTRUCTION OR DEMOLITION OPERATIONS, OSHA STANDARDS SHALL APPLY & IN CONFORMANCE WITH THE NEW YORK CITY FIRE.

3. RESPONSIBILITY FOR SAFETY (BC* 3301.1.1)
AS PER THIS CHAPTER 33, "NOTHING IN THIS CHAPTER SHALL BE CONSTRUED TO RELIEVE PERSON ENGAGED IN CONSTRUCTION OR DEMOLITION OPERATIONS FROM *COMPLYING WITH OTHER APPLICABLE PROVISIONS OF LAW*, NOR IS IT INTENDED TO ALTER
OR DIMINISH ANY OBLIGATION OTHERWISE IMPOSED BY LAW ON THE OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR, CONTRACTORS, MATERIAL MEN, REGISTERED DESIGN PROFESSIONALS, OR OTHER PARTY INVOLVED IN A CONSTRUCTION OR DEMOLITION PROJECT TO ENGAGE IN SOUND DESIGN & ENGINEERING, SAFE CONSTRUCTION OR DEMOLITION PRACTICES, INCLUDING BUT NOT LIMIT TO DEBRIS REMOVAL, & TO ACT IN A REASONABLE & RESPONSIBLE MANNER TO MAINTAIN A SAFE CONSTRUCTION OR DEMOLITION SITE."

4. SAFETY MEASURES AND STANDARDS: (BC* 3301.2)
CONTRACTORS, CONSTRUCTION MANAGERS, & SUBCONTRACTORS ENGAGED IN BUILDING WORK SHALL INSTITUTE AND MAINTAIN SAFETY MEASURES & PROVIDE ALL EQUIPMENT OR TEMPORARY CONSTRUCTION NECESSARY TO SAFEGUARD ALL PERSONS & PROPERTY AFFECTED BY SUCH CONTRACTOR'S OPERATIONS.

5. SAFETY IN EXCAVATIONS: (BC* 3304)
NOTIFICATION OF DEPARTMENT (BC* 3304.3.1) VIA PHONE OR ELECTRONICALLY, BY THE PERMIT HOLDER.
- NOTIFICATION TO DOB REQUIRED AT LEAST 24 HOURS IN ADVANCE, BUT NO MORE THAN 48 HOURS PRIOR TO COMMENCEMENT OF EARTHWORK OPERATIONS.
EXCEPTIONS:
-HAND EXCAVATION 5 FEET OR LESS, & 2 FEET OR MORE FROM AN EXISTING FOOTING, AND NOT IN A BASEMENT OR CELLAR THAT ADJOIN AN EXISTING FOUNDATION.
- GEOTECHNICAL TEST PITS 1 0 FEET OR LESS IN PLAN
- BURIAL IN CEMETERIES .
- HPD EMERGENCY WORK NOTIFICATION OF ADJACENT BUILDING OWNERS (3304.3.2)
BY WRITING.
. NOTIFICATION TO ADJACENT BUILDINGS OWNERS ARE REQUIRED NOT LESS THAN 10 DAYS IN ADVANCE OF CERTAIN EARTHWORK
OPERATIONS:
- EXCAVATIONS BETWEEN 5 FEET & 10 FEET DEEP, & WITHIN 10 FEET OF AN ADJACENT BUILDINGS
. NOTIFICATION MUST PROVIDE:
- DESCRIPTION OF WORK.
- TIMEFRAME & SCHEDULE.
- CONTACT INFORMATION OF PERSON CAUSING EXCAVATION & DOB.

EACH SUBCONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION OF EXCAVATION SITES.

PROTECTION OF EXCAVATION SITES (BC* 3304.4) PROTECTION OF SIDES OF EXCAVATION:
EXCAVATIONS 5 FEET OR GREATER IN DEPTH REQUIRE PROTECTION METHODS, INCLUDING:
-SHORING
-BRACING
-SHEETING
-SHEETING PILING

SPECIAL INSPECTION REQUIRED WHEN PROTECTION METHODS EMPLOYED.
-ALTERNATIVE: SLOPE SIDE OF EXCAVATION PER SOILS REPORT WITH DOB APPROVAL.
SPECIAL INSPECTION REQUIRED WHEN PROTECTION METHODS EMPLOYED.
-ALTERNATIVE: SLOPE SIDE OF EXCAVATION PER SOILS REPORT WITH DOB APPROVAL.

6. PROTECTION OF ADJOINING PROPERTY (BC* 3309.4 NYC BC)
. RESPONSIBILITY FOR PROTECTION:
-THE PERSON CAUSING THE EXCAVATION OR FILL IS RESPONSIBLE TO PROTECT ADJOINING PROPERTIES, REGARDLESS OF DEPTH.
-IF THE ADJOINING PROPERTY OWNER REFUSES ACCESS TO PERSON CAUSING EXCAVATION, ADJACENT PROPERTY OWNER IS RESPONSIBLE FOR PROTECTION AND CAN BE ISSUED VIOLATIONS FOR FAILING TO DO SO.

PROTECTION REQUIRED (BC* 3309.1)
"ADJOINING PUBLIC AND PRIVATE PROPERTY SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION OR DEMOLITION WORK. PROTECTION MUST BE PROVIDED FOR FOOTINGS, FOUNDATIONS, PARTY WALL, CHIMNEYS, SKYLIGHTS AND ROOFS. PROVISIONS SHALL BE MADE TO CONTROL WATER RUN-OFF AND EROSION DURING CONSTRUCTION OR DEMOLITION ACTIVITIES."

PHYSICAL EXAMINATION OF ADJOINING PROPERTIES IS REQUIRED: (BC* 3309.3):
- PRIOR TO COMMENCEMENT OF WORK
- DURING THE PROGRESS OF WORK CONDITIONS OBSERVED ARE REQUIRED TO BE DOCUMENTED & MADE AVAILABLE TO DOB UPON REQUEST.

PRE-CONSTRUCTION SURVEY (BC* 3309.4):
PRE-CONSTRUCTION SURVEYS OF ADJOINING PROPERTIES ARE REQUIRED TO BE SUBMITTED TO DOB PRIOR TO COMMENCEMENT FOR :
-EXCAVATIONS BETWEEN 5 & 10 FEET DEEP WITHIN 10 FEET OF AN ADJACENT BUILDING.
-ALL EXCAVATION> 10 FEET DEEP.
ENHANCED DEMOLITION REQUIREMENTS

CATEGORIES:
- FULL DEMOLITION: THE DISMANTLING. RAZING. OR REMOVAL OF ALL OF A BUILDING OR STRUCTURE, & ALL OPERATIONS INCIDENTAL THERETO.
-PARTIAL DEMOLITION: THE DISMANTLING, RAZING, OR REMOVAL OF STRUCTURAL MEMBERS, FLOORS, INTERIOR BEARING WALLS, AND/OR EXTERIOR WALLS OR PORTIONS THEREOF, INCLUDING ALL OPERATIONS INCIDENTAL THERETO.

THE DEMOLITION SAFETY REQUIREMENTS APPLY WHENEVER ANY DEMOLITION OPERATIONS ARE BEING PERFORMED, REGARDLESS OF THE PERMIT TYPE ISSUED.

DEMOLITION NOTIFICATION
-DEPARTMENT NOTIFICATION
-AT LEAST 24 HOURS IN ADVANCE, BUT NOT MORE THAN 48 HOURS PRIOR TO COMMENCING EITHER FULL OR PARTIAL DEMOLITION OPERATIONS.

DEMOLITION NOTIFICATION
-DEPARTMENT NOTIFICATION
-AT LEAST 24 HOURS IN ADVANCE, BUT NOT MORE THAN 48 HOURS PRIOR TO COMMENCING EITHER FULL OR PARTIAL DEMOLITION OPERATIONS.

ADJACENT PROPERTY OWNERS
-WRITTEN NOTICE AT LEAST 10 DAYS IN ADVANCE OF FULL OR PARTIAL DEMOLITION OPERATIONS.
-EXCEPTION: PARTIAL INTERIOR DEMOLITION OPERATIONS, WHERE ONLY HAND-HELD MECHANICAL DEMOLITION EQUIPMENT IS USED. MECHANICAL DEMOLITION THE USE OF MECHANICAL DEMOLITION EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, IN FULL AND PARTIAL DEMOLITION OPERATIONS.
- CONSTRUCTION DOCUMENTS SHALL BE FILED BY A REGISTERED PROFESSIONAL ENGINEER.
- MECHANICAL PARTIAL & FULL DEMOLITION WITHIN THE BUILDING ARE SUBJECT TO SPECIAL INSPECTION.

INCLUDED IN THIS AGREEMENT IS THE RESPONSIBILITY OF THIS CONTRACTOR IN THE OBSERVANCE OF RELEVANT PROVISIONS OF THE FOLLOWING:
A. FEDERAL OSHA REGULATIONS.
B. NEW YORK CITY BUILDING DEPARTMENT AND CODE REGULATIONS.
C. ENVIRONMENTAL PROTECTION AGENCY REGULATIONS.
D. ANSI-A10.5-1975 SAFETY REQUIREMENTS FOR MATERIAL HOISTS.
E. A 10.6-1969AMERICAN NATIONAL STANDARD SAFETY REQUIREMENTS FOR DEMOLITION.
F. A 10.10-1970 SAFETY REQUIREMENTS FOR TEMPORARY AND PORTABLE SPACEHEATING DEVICES AND EQUIPMENT USED IN THE CONSTRUCTION INDUSTRY.
G. Z 49.2 STANDARD FOR SAFEGUARDING BUILDING CONSTRUCTION AND DEMOLITION OPERATIONS.

THIS CONTRACTOR SHALL INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE ALL SCAFFOLDING AS REQUIRED. SCAFFOLDING SHALL CONFORM TO ALL APPLICABLE OSHA AND NEW YORK CITY BUILDING DEPARTMENT REGULATIONS. ALL COSTS FOR SCAFFOLDING ARE INCLUDED IN THE CONTRACT AMOUNT.

CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS GENERATED BY THE OPERATION IN A SAFE AND LEGAL MANNER.

THE CONTRACTOR SHALL BE RESPONSIBLE, AT NO ADDITIONAL COST FOR PROVISION, UPKEEP, MAINTENANCE AND SUBSEQUENT REMOVAL OF THE FOLLOWING TEMPORARY FACILITIES:
A. TOILETS FOR PERSONNEL.
B. BARRIERS AND RAILINGS ON-SITE AND WITHIN THE BUILDING FOR SAFETY OF PERSONNEL.
C. ALL SUCH PROTECTION AND TEMPORARY FACILITIES MENTIONED ABOVE SHALL MEET OSHA AND/OR NEW YORK CITY REGULATIONS.

7. PROVIDE FOR CONSTRUCTION OF A JOB FENCE, EIGHT (8) FEET TALL, WITH TOP AND BOTTOM RAILS. INSTALL A GATE WITH HASPS AND LOCKS OF SUFFICIENT STRENGTH TO WITHSTAND CONSTANT USE WHERE SHOWN ON THE DRAWINGS AND IN LOCATION(S) AGREED UPON JOINTLY BY OWNERS' REPRESENTATIVE AND THE CONTRACTORS.

8. THIS CONTRACTOR WARRANTS THAT HE HAS INSPECTED THE SITE AND HAS CAREFULLY EXAMINED THE WORK FOR SCOPE AND DIFFICULTY OF EXECUTION, AND HAS REVIEWED THE SITE SURVEYS ATTACHED HERETO, SPECIFICATIONS AND BORING DATA.

9. THIS CONTRACTOR SHALL CLEAN AND BROOM SWEEP SIDEWALKS UPON THE COMPLETION OF EACH DAY'S WORK.

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

NEW YORK CITY BUILDING CODE 2022 ANALYSIS

BC* CHAPTER 3: USE & OCCUPANCY CLASSIFICATION

OCCUPANCY	OCCUPANCY GROUP
RESIDENTIAL	R-2
STORAGE ROOM OVER 100 SF	INCIDENTAL USE
TRASH COMPACTOR ROOM	INCIDENTAL USE
MECHANICAL AND/OR ELECTRICAL EQUIP. ROOM	INCIDENTAL USE
LAUNDRY ROOM OVER 100 SF	INCIDENTAL USE
PER SECTION BC 303.1 EXCEPTION #2:	
TENANT COMMUNITY ROOM	R-2
TENANT ROOF DECK	R-2
OFFICE	R-2
STORAGE	
ROOM OVER 100 SF	S-2
BUSINESS	
RETAIL	B

BC* CHAPTER 5: GENERAL BUILDING HEIGHTS AND AREAS; SEPARATION OF OCCUPANCIES

TABLE 504: ALLOWABLE HEIGHT AND BUILDING AREAS

PROPOSED CONSTRUCTION:	TYPE I-B
MAX. AREA:	UNLIMITED
MAX. STORIES:	UNLIMITED
SPRINKLERED BUILDING	YES

TABLE 504.3[a]
ALLOWABLE BUILDING HEIGHT IN FEET ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV[d]	TYPE V	
		A	B[f]	A	B	A	B	HT	A	B
A-1	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
A-2	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
A-3	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
A-4	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
A-5	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
B	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
E	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
F-1	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
F-2	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
H-1	S	UL	160	65	55	65	55	65	50	NP
H-2[c]	S	UL	160	65	55	65	55	65	50	40
H-3[c]	S	UL	160	65	55	65	55	65	50	40
H-4	S	UL	180	85	75	85	75	85	70	60
H-5	S	UL	160	65	55	65	55	65	50	40
I-1	S13D	60	60	60	NP	60	55	60	NP	NP
	S13R									
	S	UL	420	85		85	75	85	NP	NP
I-2	S	UL	180	85	55	65	55	65	50	NP
I-3	S	UL	180	85	75	85	75	85	70	NP
I-4	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
M	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
R-1	S13R	60	60	60	NP	60	NP	60	NP	NP
	S	UL	420	85		85	75	85		
R-2	S13R	60	60	60	NP	60	60	60	NP	NP
	S	UL	420	85		85	75	85		
R-3	NS[b,e]	UL	160	65	55	65	55	65	50[h]	40[g]
	S13D	60	60	60	60	60	55	60		
	S13R							60	60[h]	60[g]
	S	UL	420	85	75	85	75	85	70[h]	
S-1	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60
S-2[d,e]	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	420	85	75	85	75	85	70	60
U*	NS[b,e]	UL	160	65	55	65	55	65	50	40
	S	UL	180	85	75	85	75	85	70	60

= Not permitted in Fire District = Not permitted in Fire District without sprinklers

For SI: 1 foot = 304.8 mm.

Note: UL = Unlimited; NP = Not permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See the following sections for general exceptions to Table 504.3:
   1. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
   2. Section 506.3, Allowable area increase due to frontage.
   3. Section 507, Unlimited area building.
b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
c. The NS value is only for use in buildings not required by this code to be equipped throughout with an automatic sprinkler system.
d. For open parking structures, see Section 406.5.
e. For private garages, see Section 406.3.
f. See Section 415.8 for limitations.
g. See Exception 9 of Section D105.1 for allowances of Type VA and VB construction for R-3 occupancies.
h. See Exception 12 of Section D105.1 for allowances of Type VA construction and height limitations for R-3 occupancies in Lower Density Growth Management Areas.
i. See Section 403.2.1 for additional requirements for high-rise buildings.
j. Type IV construction utilizing cross-laminated timber or structural composite lumber shall be sprinklered where required by Section 903.2.13.

BC* 508: INCIDENTAL USE AREAS AND MIXED OCCUPANCIES:

TABLE 508.4 REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

BETWEEN R-2 AND S-2 TENANCIES	1HR
BETWEEN R-2 AND B TENANCIES	1HR

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A, E		I-1, I-3, I-4		I-2		R[4]		F-2, S-2[3], U		B		F-1		M		S-1		H-1		H-2		H-3, H-4		H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A, E	N	N	1	2	2	NP	1	2	N	1	1	2	1	2	1	2	1	2	NP	NP	3	4	2	3	2	NP
I-1, I-3, I-4	--	--	N	N	2	NP	1	NP	1	2	1	2	1	2	1	2	1	2	NP	NP	3	NP	2	NP	2	NP
I-2	--	--	--	--	N	N	2	NP	2	NP	2	NP	2	NP	2	NP	2	NP	NP	NP	3	NP	2	NP	2	NP
R[4]	--	--	--	--	--	--	N	N	1[5]	2[5]	1	2	1	2	1	2	1	2	NP	NP	3	NP	2	NP	2	NP
F-2, S-2[3], U	--	--	--	--	--	--	--	--	N	N	1	2	1	2	1	2	1	2	NP	NP	3	4	2	3	2	NP
B	--	--	--	--	--	--	--	--	--	--	N	N	2	3	1	2	2	3	NP	NP	2	3	1	2	1	NP
F-1	--	--	--	--	--	--	--	--	--	--	--	--	N	N	2	3	2	3	NP	NP	2	3	1	2	1	NP
M	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	N	2	3	NP	NP	2	3	1	2	1	NP
S-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	N	NP	NP	2	3	1	2	1	NP
H-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	NP	NP	NP	NP	NP	NP	NP
H-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	NP	1	NP	1	NP
H-3, H-4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	NP	1	NP
H-5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	N	NP

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.
a. See Section 420.
b. The required separation from areas used only for private or pleasure vehicles shall be reduced by 1 hour but to not less than 1 hour.
c. See Section 406.3.4.
d. Separation is not required between occupancies of the same classification.

TABLE 504.4[a,b]
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV[c]	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
A-2	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
A-3	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
A-4	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
A-5	NS[b,e]	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S	UL	UL	UL	UL	UL	UL	7	UL	UL
B	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
E	NS[b,e]	UL	UL	4	3	4	3	6	3	2
	S	UL	UL	5	4	5	4	7	4	3
F-1	NS[b,e]	6	3	5	3	5	2	5	3	2
	S	UL	UL	7	4	6	3	6	4	3
F-2	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
H-1	S	1	1	1	1	1	1	1	1	NP
H-2[c]	S	UL	3	2	1	2	1	2	1	1
H-3[c]	S	UL	6	4	2	4	2	4	2	1
H-4	S	UL	8	6	4	6	4	6	4	3
H-5	S	3	3	3	3	3	3	3	3	2
I-1	S13D	6	6	6	NP	4	3	4	NP	NP
	S13R	UL	UL			5	4	5		
	S	UL	UL	7	NP					
I-2	S	UL	7	5	4	5	3	5	3	NP
I-3	S	UL	5	4	3	5	3	5	4	NP
I-4	NS[b,e]	UL	UL	3	3	3	3	3	2	2
	S	UL	UL	4	4	4	4	4	3	3
M	NS[b,e]	UL	UL	6	3	6	3	6	3	2
	S	UL	UL	7	4	7	4	7	4	3
R-1	S13R	6	6	6	NP	6	NP	6	NP	NP
	S	UL	UL	7	NP	7	NP	7	NP	NP
R-2	S13R	6	6	6	NP	6	NP	6	NP	NP
	S	UL	UL	7	NP	7	NP	7	NP	NP
R-3	NS[b,e]								3[g,h]	3[g]
	S13D	6	6	6	3	6	3	6		
	S13R				4		4		4[g,h]	4[g]
	S	UL	UL	7		7		7		
S-1	NS[b,e]	6	5	3	4	3	4	3	3	2
	S	UL	7	6	4	5	4	5	4	3
S-2[d,e]	NS[b,e]	UL	UL	6	3	6	4	6	3	2
	S	UL	UL	7	4	7	5	7	4	3
U*	NS[b,e]	UL	5	4	2	3	2	4	2	1
	S	UL	6	5	3	4	3	5	3	2

= Not permitted in Fire District = Not permitted in Fire District without sprinklers

= Number of stories in nonsprinklered 1- & 2-family buildings shall be limited by Section 903.2.8

Note: UL = Unlimited; NP = Not Permitted; NS = Buildings not equipped throughout with an automatic sprinkler system; S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See the following sections for general exceptions to Table 504.4:
   1. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
   2. Section 506.3, Allowable area increase due to frontage.
   3. Section 507, Unlimited area building.
b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
c. The NS value is only for use in buildings not required by this code to be equipped throughout with an automatic sprinkler system.
d. For open parking structures, see Section 406.5.
e. For private garages, see Section 406.3.
f. See Section 415.8 for limitations.
g. See Exception 9 of Section D105.1 for allowances of Type VA and VB construction for R-3 occupancies.
h. See Exception 12 of Section D105.1 for allowances of Type VA construction and height limitations for R-3 occupancies in Lower Density Growth Management Areas.
i. Type IV construction utilizing cross-laminated timber or structural composite lumber shall be sprinklered where required by Section 903.2.13.

TABLE 509 INCIDENTAL USE AREAS

ROOM OR AREA	FIRE SEPARATION PROTECTION PROVIDED
RESIDENTIAL	
STORAGE OVER 100 SF	2HR
TRASH COMPACTOR ROOMS	3HR
MECHANICAL AND/OR ELECTRICAL EQUIP. ROOM	2HR
LAUNDRY ROOMS OVER 100 SF	0HR

TABLE 506.2[a]
ALLOWABLE AREA FACTOR (At = NS, S1, S13D, S13R, or SM, as applicable) IN SQUARE FEET

OCCUPANCY CLASSIFICATION	SEE FOOTNOTES	TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV[c]	TYPE V	
		A	B	A	B	A	B	HT	A	B
A-1	NS[b,e]	UL	UL	17,500	10,500	14,700	5,600	15,000	8,400	5,500
	S1	UL	UL	52,500	31,500	44,100	16,800	45,000	25,200	16,500
	SM	UL	UL	35,000	21,000	29,400	11,200	30,000	16,800	11,000
A-2	NS[b,e]	UL	UL	17,500	9,500	14,000	5,600	15,000	8,400	5,500
	S1	UL	UL	52,500	28,500	42,000	16,800	45,000	25,200	16,500
	SM	UL	UL	35,000	19,000	28,000	11,200	30,000	16,800	11,000
A-3	NS[b,e]	UL	UL	17,500	9,500	14,000	5,600	15,000	8,400	5,500
	S1	UL	UL	52,500	28,500	42,000	16,800	45,000	25,200	16,500
	SM	UL	UL	35,000	19,000	28,000	11,200	30,000	16,800	11,000
A-4	NS[b,e]	UL	UL	17,500	9,500	14,000	5,600	15,000	8,400	5,500
	S1	UL	UL	52,500	28,500	42,000	16,800	45000	25,200	16,500
	SM	UL	UL	35,000	19,000	28,000	11,200	30,000	16,800	11,000
A-5	NS[b,e]	UL	UL	UL	UL	UL	UL	UL	UL	UL
	S1									
	SM									
B	NS[b,e]	UL	UL	37,500	10,500	28,500	5,600	36,000	8,400	5,500
	S1	UL	UL	112,500	31,500	85,500	16,800	108,000	25,200	16,500
	SM	UL	UL	75,000	21,000	57,000	11,200	72,000	16,800	11,000
E	NS[b,e]	UL	UL	26,000	10,500	21,500	5,600	25,500	8,400	5,500
	S1	UL	UL	78,000	31,500	70,500	16,800	76,500	25,200	16,500
	SM	UL	UL	52,000	21,000	47,000	11,200	51,000	16,800	11,000
F-1	NS[b,e]	UL	UL	12,500	7,500	7,500	3,000	10,000	3,000	1,000
	S1	UL	UL	37,500	22,500	22,500	9,000	30,000	9,000	3,000
	SM	UL	UL	25,000	15,000	15,000	6,000	20,000	6,000	2,000
F-2	NS[b,e]	UL	UL	37,500	10,500	28,500	5,600	30,000	8,400	5,500
	S1	UL	UL	112,500	31,500	85,500	16,800	90,000	25,200	16,500
	SM	UL	UL	75,000	21,000	57,000	11,200	60,000	16,800	11,000
H-1	NS[b,e]	21,000	16,500	11,000	7,500	9,500	7,000	10,500	7,500	NP
	S1									
H-2[f]	NS[b,e]	31,000	16,500	11,000	7,500	9,500	7,000	10,500	7,500	3,000
	S1									
H-3[f]	NS[b,e]	UL	60,000	26,500	14,000	17,500	13,000	25,000	10,000	5,000
	SM									
H-4	NS[b,e]	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
	S1	UL	UL	112,500	52,500	85,500	52,500	108,000	54,000	19,500
	SM	UL	UL	75,000	35,000	57,000	35,000	72,000	36,000	13,000
H-5	NS[b,e]	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	9,000
	S1	UL	UL	112,500	69,000	85,500	57,000	108,000	54,000	27,000
	SM	UL	UL	75,000	46,000	57,000	38,000	72,000	36,000	18,000
I-1	NS[b,e]	UL	UL	19,000	NP	16,500	5,600	18,000	NP	NP
	S13D	UL	UL	19,000	NP	16,500	5,600	18,000	NP	NP
	S1	UL	UL	57,000		49,500	16,800	54,000	NP	NP
	SM	UL	UL	38,000	NP	33,000	11,200	36,000	NP	NP
I-2	NS[b,e]	UL	UL	7,000	3,500	5,000	1,200	6,500	2,000	NP
	S1	UL	UL	21,000	10,500	15,000	3,600	19,500	6,000	NP
	SM	UL	UL	14,000	7,000	10,000	2,400	13,000	4,000	NP
I-3	NS[b,e]	UL	UL	7,000	3,500	5,000	1,200	6,500	2,000	NP
	S1	UL	UL	21,000	10,500	15,000	3,600	19,500	6,000	NP
	SM	UL	UL	14,000	7,000	10,000	2,400	13,000	4,000	NP
I-4	NS[b,e]	UL	UL	26,500	9,500	23,500	5,600	25,500	8,400	5,500
	S1	UL	UL	79,500	28,500	70,500	16,800	76,500	25,200	16,500
	SM	UL	UL	53,000	19,000	47,000	11,200	51,000	16,800	11,000
M	NS[b,e]	UL	UL	21,500	7,500	18,500	5,600	14,000	8,400	5,500
	S1	UL	UL	64,500	22,500	55,500	16,800	42,000	25,200	16,500
	SM	UL	UL	43,000	15,000	37,000	11,200	28,000	16,800	11,000
R-1	NS[b,e]	UL	UL	UL	NP	24,000	NP	20,500	NP	NP
	S13R									
	S1	UL	UL	UL	NP	72,000	NP	61,500	NP	NP
	SM	UL	UL	UL	NP	48,000	NP	41,000	NP	NP
R-2	NS[b,e]	UL	UL	UL	NP	24,000	5,600	20,500	NP	NP
	S13R									
	S1	UL	UL	UL	NP	72,000	16,800	61,500	NP	NP
	SM	UL	UL	UL	NP	48,000	11,200	41,000	NP	NP
R-3	NS[b,e]	UL	UL	17,500	10,500	14,700	5,600	30,000	8,400[a,b]	5,500[g]
	S13D						5,600			
	S13R									
	S1	UL	UL	52,500	31,500	44,100	16,800	90,000		
	SM	UL	UL	35,000	21,000	29,400	11,200	60,000		
S-1	NS[b,e]	UL	UL	48,000	12,000	31,500	7,500	7,500	5,000	1,000
	S1	UL	UL	144,000	36,000	22,500	22,500	22,500	15,000	3,000
	SM	UL	UL	96,000	24,000	15,000	15,000	15,000	10,000	2,000
S-2[d,e]	NS[b,e]	UL	UL	15,000	10,000	10,000	8,500	10,000	8,400	5,500
	S1	UL	UL	45,000	30,000	30,000	25,500	30,000	25,200	16,500
	SM	UL	UL	30,000	20,000	20,000	17,000	20,000	16,800	11,000
U*	NS[b,e]	UL	UL	35,000	19,000	8,500	14,000	8,500	9,000	5,500
	S1	UL	UL	105,000	57,000	25,500	42,000	25,500	54,000	27,000	16,500
	SM	UL	UL	70,000	38,000	17,000	28,000	17,000	36,000	18,000	11,000

= Not permitted in Fire District = Not permitted in Fire District without sprinklers

Note: UL = Unlimited; NP = Not permitted;

For SI: 1 square foot = 0.0929 m².

NS = Buildings not equipped throughout with an automatic sprinkler system; S1 = Buildings a maximum of one story above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; SM = Buildings two or more stories above grade plane equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1; S13R = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.2; S13D = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.3.

a. See the following sections for general exceptions to Table 506.2:
   1. See Chapters 4 and 5 for specific exceptions to the allowable height in this chapter.
   2. Section 506.3, Allowable area increase due to frontage.
   3. Section 507, Unlimited area building.
b. See Section 903.2 for the minimum thresholds for protection by an automatic sprinkler system for specific occupancies.
c. The NS value is only for use in buildings not required by this code to be equipped throughout with an automatic sprinkler system.
d. For open parking structures, see Section 406.5.
e. For private garages, see Section 406.3.
f. See Section 415.8 for limitations.
g. See Exception 9 of Section D105.1 for allowances of Type VA and VB construction for R-3 occupancies.
h. See Exception 12 of Section D105.1 for allowances of Type VA construction and height limitations for R-3 occupancies in Lower Density Growth Management Areas.
i. Type IV construction utilizing cross-laminated timber or structural composite lumber shall be sprinklered where required by Section 903.2.13.

BC* CHAPTER 6: TYPES OF CONSTRUCTION

TYPE I NON-COMBUSTIBLE (FROM TABLE 601 & TABLE 602)	CLASS 1-B

TABLE 601: FIRE RESISTANCE RATING FOR BUILDING ELEMENTS	RATING IN HOURS
STRUCTURAL FRAME	2
BEARING WALLS EXTERIOR	2
BEARING WALLS INTERIOR	2
NONBEARING WALLS AND PARTITIONS EXTERIOR *	1*
NONBEARING WALLS AND PARTITIONS INTERIOR	0
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	2
ROOF CONSTRUCTION	1

* BASED ON TABLE 602, FOR FIRE SEPARATION DISTANCE < 5FT FIRE RESISTANCE RATING FOR EXTERIOR NON BEARING WALLS FOR OCCUPANCY R = 1 HR

TABLE 601
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V[d]	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
Primary structural frame[f,g] (see Section 202)	3[a]	2[a]	1	0	1	0	HT	1	0
Bearing walls Exterior[e,f,g]	3	2	1	0	2	2	2	1	0
Interior	3[a]	2[a]	1	0	1	0	1/HT	1	0
Nonbearing walls and partitions Exterior	See Table 602								
Nonbearing walls and partitions Interior[e]	0	0	0	0	0	0	See Section 602.4.6	0	0
Floor construction[i] and secondary members (see Section 202)	2	2	1	0	1	0	HT	1	0
Roof construction and secondary members (see Section 202)	1½[b,c]	1[b,c]	1[b,c]	0[b,c]	1[b,c]	0	HT	1[b,c]	0

TABLE 602
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a,e,g,h]

FIRE SEPARATION DISTANCE =X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H[f]	OCCUPANCY GROUP F-1, M, S-1[g]	OCCUPANCY GROUP A, B, E, F-2, I, R, S-2, U[h]
X< 5[c]	All	3	2	1
5 ≤X< 10	IA	3	2	1
	Others	2	1	1
10 ≤X< 30	IA,IB	2	1	1[d]
	IIB,VB	1	0	0
	Others	1	1	1[d]
X≥30	All	0	0	0

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

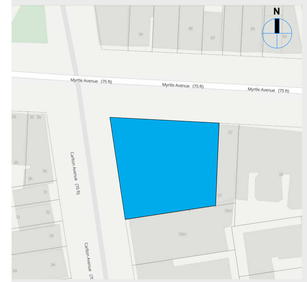
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
BUILDING CODE ANALYSIS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:39:13 AM
SCALE:
DRAWN BY: XX

G-106.00

SHEET: 18 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

Effective November 7, 2022

5/12/2023 1:39:13 AM

BC* CHAPTER 7: FIRE RESISTANCE RATED CONSTRUCTION

TABLE 705.8: MAXIMUM AREA OF EXTERIOR WALL OPENINGS

LOT LINE WINDOWS

FIRE SEPARATION DISTANCE	CLASSIFICATION OF OPENING	MAX ALLOWED RATIO
0'	PROTECTED	10% PER STORY

NOTE: THESE OPENINGS DO NOT CREDIT TOWARDS MEETING ANY MANADATORY NATURAL LIGHT OR VENTILATION REQUIREMENTS.

705.8.2 PROTECTED OPENINGS.

WHERE OPENINGS ARE REQUIRED TO BE PROTECTED,FIRE DOORS AND FIRE SHUTTERS SHALL COMPLY WITH SECTION 716.4 AND FIRE WINDOW ASSEMBLIES SHALL COMPLY WITH SECTION 716.5.

EXCEPTION:

OPENING PROTECTIVES ARE NOT REQUIRED WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 AND THE EXTERIOR OPENINGS ARE PROTECTED BY A WATER CURTAIN USING AUTOMATIC SPRINKLERS APPROVED FOR THAT USE. THE SPRINKLERS AND THE WATER CURTAIN SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13, AS MODIFIED IN APPENDIX Q.

TABLE 705.8
MAXIMUM AREA OF EXTERIOR WALL OPENINGS BASED ON FIRE SEPARATION DISTANCE AND DEGREE OF OPENING PROTECTION[n]

FIRE SEPARATION DISTANCE (feet)	DEGREE OF OPENING PROTECTION	ALLOWABLE AREA[a]
0 to less than 3[b,c]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[j]	Not Permitted
	Protected (P)	Not Permitted[j,k]
3 to less than 5[d,e]	Unprotected, Nonsprinklered (UP, NS)	Not Permitted
	Unprotected, Sprinklered (UP, S)[j]	15%
	Protected (P)	15%[l]
5 to less than 10[e,f]	Unprotected, Nonsprinklered (UP, NS)	10%[b]
	Unprotected, Sprinklered (UP, S)[j]	25%
	Protected (P)	25%[l]
10 to less than 15[e,f,g]	Unprotected, Nonsprinklered (UP, NS)	15%[b]
	Unprotected, Sprinklered (UP, S)[j]	45%
	Protected (P)	45%[l]
15 to less than 20[e,f,g]	Unprotected, Nonsprinklered (UP, NS)	25%
	Unprotected, Sprinklered (UP, S)[j]	75%
	Protected (P)	75%[l]
20 to less than 25[e,f,g]	Unprotected, Nonsprinklered (UP, NS)	45%
	Unprotected, Sprinklered (UP, S)[j]	No Limit
	Protected (P)	No Limit[l]
25 to less than 30[e,f,g]	Unprotected, Nonsprinklered (UP, NS)	70%
	Unprotected, Sprinklered (UP, S)[j]	No Limit
	Protected (P)	No Limit[l]
30 or greater	Unprotected, Nonsprinklered (UP, NS)	No Limit
	Unprotected, Sprinklered (UP, S)[j]	Not Required
	Protected (P)	Not Required

For SI: 1 foot = 304.8 mm.
UP, NS = Unprotected openings in buildings not equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
UP, S = Unprotected openings in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
P = Openings protected with an opening protective assembly in accordance with Section 705.8.2.

a. Values indicated are the percentage of the area of the exterior wall, per story.
b. For the requirements for fire walls of buildings with differing heights, see Section 706.6.
c. For openings in a fire wall for buildings on the same tax lot, see Section 706.8.
d. The maximum percentage of unprotected and protected openings shall be 25 percent for Group R-3 occupancies.
e. Unprotected openings shall not be permitted for openings with a fire separation distance of less than 15 feet for Group H-2 and H-3 occupancies.
f. The area of unprotected and protected openings shall not be limited for Group R-3 occupancies, as applicable in Section 101.2, with a fire separation distance of 5 feet or more.
g. The area of openings in an open parking structure with a fire separation distance of 10 feet or greater shall not be limited.
h. Includes buildings accessory to Group R-3.
i. Not applicable to Group H-1, H-2 and H-3 occupancies.
j. Protected openings through a wall or walls between buildings shall comply with Section 705.8.
k. Protected openings within a fire separation distance of 3 feet or less are permitted for Occupancy Groups R-2 and R-3 provided such openings do not exceed 10 percent of the area of the façade of the story in which they are located. These openings shall not be credited towards meeting any mandatory natural light or ventilation requirements unless they also comply with applicable provisions of Chapter 12 and the *Zoning Resolution*.
l. In Group R-2 and R-3 occupancies with an exterior separation distance greater than 3 feet, openings shall be in accordance with percentages indicated as "Protected Classification of Opening" in Table 705.8. However, such openings shall not be required to be protected.
m. Upon special application, the commissioner may permit exterior wall openings to be constructed in excess of the permitted area established by Table 705.8 provided that such openings are protected and provided that at the time of their construction they are located at least 60 feet in a direct line, measured at any angle, including vertically and horizontally, from any neighboring building, unless otherwise permitted by Section 705.3 for buildings on the same tax lot. The construction class of the neighboring building shall not be factored into the measurement of the distance between the openings and adjoining building. If any neighboring building is later altered or constructed to come within the above distance limitation, the affected exterior openings shall immediately be closed with construction meeting the fire-resistance-rating requirements for exterior wall construction of the building in which they are located. Such additional openings shall not be credited toward meeting any of the mandatory natural light or ventilation requirements unless they also comply with applicable provisions of Chapter 12 and the *New York City Zoning Resolution*.

TABLE 803.11
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY[k]

GROUP	SPRINKLERED[j]			NONSPRINKLERED		
	Interior exit stairways, interior exit ramps and exit passageways[a,b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]	Interior exit stairways, interior exit ramps and exit passageways[a,b]	Corridors and enclosure for exit access stairways and exit access ramps	Rooms and enclosed spaces[c]
A-1 & A-2	B	B	C	A	A[d]	B[e]
A-3[f], A-4, A-5	B	B	C	A	A[d]	C
B, E, M, R-1	B	B	B	A	A	B
F	B	C	C	A	B	B
H	B	B	C[g]	A	A	B
I-1	B	C	C	A	B	B
I-2	B	B	B[h,i]	A	A	B
I-3	A	A[j]	C	A	A	B
I-4	B	B	B[h,i]	A	A	B
R-2	B	B	C	A	A	C
S	B	C	C	A	B	C
U	No restrictions			No restrictions		

For SI: 1 inch = 25.4 mm, 1 square foot = 0.0929 m².

a. Class C interior finish materials shall be permitted for wainscotting or paneling of not more than 1,000 square feet (92 m²) of applied surface area in the grade lobby where applied directly to a noncombustible base or over furring strips applied to a noncombustible base and fireblocked as required by Section 803.13.1.
b. In other than Group I-3 occupancies in buildings less than three stories above grade plane, Class B interior finish for nonsprinklered buildings and Class C interior finish for sprinklered buildings shall be permitted in interior exit stairways and ramps.
c. Requirements for rooms and enclosed spaces shall be based upon spaces enclosed by partitions. Where a fire-resistance rating is required for structural elements, the enclosing partitions shall extend from the floor to the ceiling. Partitions that do not comply with this shall be considered enclosing spaces and the rooms or spaces on both sides shall be considered one. In determining the applicable requirements for rooms and enclosed spaces, the specific occupancy thereof shall be the governing factor regardless of the group classification of the building or structure.
d. Lobby areas in Group A-1, A-2 and A-3 occupancies shall not be less than Class B materials.
e. Class C interior finish materials shall be permitted in places of assembly with an occupant load of 300 persons or less.
f. For places of religious worship, wood used for ornamental purposes, trusses, paneling or chancel furnishing shall be permitted.
g. Class B material is required where the building exceeds two stories.
h. Class C interior finish materials shall be permitted in administrative spaces.
i. Class C interior finish materials shall be permitted in rooms with a capacity of four persons or less.
j. Class B materials shall be permitted as wainscoting extending not more than 48 inches above the finished floor in corridors and exit access stairways and ramps.
k. Finish materials as provided for in other sections of this code.
l. Applies when protected by an automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.

BC* CHAPTER 8: INTERIOR FINISH FLAME SPREAD INDEX

TABLE 803.11 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	SPRINKLERED		
	VERTICAL EXITS AND EXIT PASSAGEWAYS	EXIT ACCESS CORRIDORS AND OTHER EXITWAYS	ROOMS AND ENCLOSED SPACES
R-2	B	B	C
S-2	B	C	C
B	B	B	B

BC* CHAPTER 10: MEANS OF EGRESS

REFER TO LIFE SAFETY PLAN EGRESS ANALYSIS

TABLE 1004.1.3
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	OCCUPANT LOAD FACTOR[a]
Accessory storage areas, mechanical equipment room	300 gross
Agricultural building	300 gross
Aircraft hangars	500 gross
Assembly Gaming floors (keno, slots, etc.) Exhibit gallery and museum	11 gross 30 net
Assembly with fixed seats	See Section 1004.3
Assembly without fixed seats Concentrated (chairs only – not fixed)	7 net
Dance floor Dance floor (ballroom) Standing space Unconcentrated (tables and chairs)	5 net 10 net 5 net 15 net
Bowling centers, allow 5 persons for each lane including 15 feet of runway, and for additional areas	7 net
Business areas, including accessory areas on terraces and rooftops	100 gross[b,d]
Courtrooms – other than fixed seating areas	40 net
Day Care: Age under 6 months Age 6 months – 2 years Age 2 years – 6 years Age above 6 years	50 net 40 net 30 net 50 net
Dormitories	50 gross
Educational Classroom area Shops and other vocational room areas Kindergarten, and pre-kindergarten	20 net 50 net 30 net
Exercise rooms	50 gross
Gymnasiums	15 net
Group H-5 Fabrication and manufacturing areas	200 gross
Industrial areas	100 gross
Institutional areas Inpatient treatment areas Outpatient areas Sleeping areas	240 gross 100 gross 120 gross
Kitchens, commercial	200 gross
Library Reading rooms Stack area	50 net 100 gross
Locker rooms	50 gross
Mall buildings – covered and open	See Section 402.8.2
Mercantile Areas on other floors Basement and grade floor areas Storage, stock, shipping areas	60 gross 30 gross 300 gross
Parking garages	200 gross
Passenger terminal Baggage claim Baggage handling Concourse Passenger terminal or platform Waiting area (Standing) Waiting areas (Seated)	20 gross 300 gross 100 gross 1.5 X C* 15 gross 5 net
Residential Within dwelling units Rooftop and terrace accessory to Groups R-2 and R-3 Indoor residential amenity spaces accessory to Group R-2 (concentrated)[e] Indoor residential amenity spaces accessory to Group R-2 (unconcentrated)[e]	200 gross 200 gross[b,c,d] 15 net 50 net
Skating rinks, swimming pools Rink and pool Decks	50 gross 15 gross
Stages and platforms	15 net for performing area and 50 net remaining area
Warehouses	500 gross

C*-capacity of all passenger vehicles that can be unloaded simultaneously.
For SI: 1 square foot = 0.0929 m², 1 foot = 304.8 mm.

a. Floor area in square feet per occupant.
b. For the purposes of occupant load calculation, permanent fixtures and amenities such as shrubs, decorative pools, non-walkable paving surfaces, etc. may be deducted from the total floor area.
c. A rooftop or terrace in Group R-2 or R-3 occupancies that is provided for the incidental, recreational use by the residential tenants residing in the same residential building.
d. Where the maximum occupant load of the rooftop or terrace exceeds 74 persons based on occupant load calculations, a Place of Assembly Certificate of Operation is required pursuant to Section 28-117.1 of the Administrative Code and Item 1 of Section 303.7 of this code.
e. To be used only when the occupant load for the function of the space is not listed elsewhere in Table 1004.1.3.

TABLE 1017.2
EXIT ACCESS TRAVEL DISTANCE[a]

OCCUPANCY	WITHOUT SPRINKLER SYSTEM (feet)	WITH SPRINKLER SYSTEM (feet)
A	See Section 1029.7	
E, F-1, M, R, S-1	150	200[b]
B	200	300[b]
F-2, S-2[c]	200	250[b]
H-1	Not Permitted	75[d]
H-2	Not Permitted	100[d]
H-3	Not Permitted	150[d]
H-4	Not Permitted	175[d]
H-5	Not Permitted	200[c]
I-1, I-2, I-3, I-4	Not Permitted	200[c]

For SI: 1 foot = 304.8 mm.

a. See the following sections for modifications to exit access travel distance requirements:
Section 402.8: For the distance limitation in malls.
Section 404.9: For the distance limitation through an atrium space.
Section 407.4: For the distance limitation in Group I-2.
Sections 408.6.1 and 408.8.1: For the distance limitations in Group I-3.
Section 411.4: For the distance limitation in special amusement buildings.
Section 1006.3.2: For buildings with one exit.
Section 1029.7: For increased limitation in assembly seating.
Section 3103.4: For temporary structures.
Section 3104.9: For pedestrian walkways.
b. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where sprinkler systems are permitted in accordance with Section 903.3.1.2.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
d. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.1.

TABLE 1020.1.1
INTERIOR CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	OCCUPANT LOAD SERVED BY INTERIOR CORRIDOR	REQUIRED FIRE-RESISTANCE RATING (hours)	
		Without sprinkler system	With sprinkler system[a]
H-1, H-2, H-3	All	Not Permitted	1
H-4, H-5	Greater than 30	Not Permitted	1
A, B, E, F, M, S, U	Greater than 30	1	0
R	Greater than 10	1[b]	0
I-2[c], I-4	All	Not Permitted	0
I-1, I-3	All	Not Permitted	1[b]

a. For requirements for occupancies in Group I-2, see Sections 407.2 and 407.3.
b. For a reduction in the fire-resistance rating for occupancies in Group I-3, see Section 408.8.
c. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2 where allowed.
d. Interior corridors within dwelling or sleeping units in Group R occupancies pursuant to Section 1020.1.1; Exception 2 shall not require fire-resistance rating.

TABLE 1020.1.2
PUBLIC CORRIDOR FIRE-RESISTANCE RATING

OCCUPANCY	REQUIRED FIRE-RESISTANCE RATING (hours)
H-1, H-2, H-3	2
H-4, H-5	1
A, E, F, M, S, U	1
B	1[a]
R (Nonpombustible)	1[c]
R (Combustible)	2[b]
I-1, I-2, I-3, I-4	1

a. Public corridors need not be fire rated in high-rise buildings in Occupancy Group B equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where such building is provided with smokeproof enclosures in stairways in accordance with Section 403.5.4.
b. Public corridors in buildings not exceeding two stories in height, or flat are fire stories in height and occupied by not more than one family on each story, may be constructed with 1-hour fire-resistance rating.
c. Corridors serving accessory rooms or spaces in Group R-2 occupancies pursuant to Section 1004.1.1.2.3 shall be constructed with fire barriers with 1-hour fire-resistance rating, and 2-hour fire-resistance rating where the dead-end distance exceeds 40 feet (12 192 mm) in length.

BC* CHAPTER 11: ACCESSIBILITY

BC* 1107.2.4
ALL OPERABLE WINDOWS IN ROOM OR SPACES IN TYPE B DWELLING UNIT OR SLEEPING UNIT SHALL HAVE OPERABLE PARTS COMPLYING WITH SECTION 309(OPERABLE PARTS) OF ICC A117.1

BC* CHAPTER 12: INTERIOR ENVIRONMENT

BC* 1203
NATURAL VENTILATION REQUIREMENTS AS PER BC* 1203.
NATURAL LIGHT AND VENTILATION HAS TO BE PROVIDED THROUGH LEGAL WINDOW.
MAXIMUM DEPTH OF A ROOM IS 30 FEET FROM OUTER FACE OF THE WINDOW.

BC* 1207.2.2
ROOM CONTAINING HVAC UNITS ON EACH FLOOR HAS TO COMPLY WITH BC* 1207.2. MINIMUM SOUND TRANSMISSION CLASS (STC) FOR AIR-BORN NOISE OF NOT LESS THAN 50. TYP.

BC* CHAPTER 16: STRUCTURAL DESIGN

BC* 1613 EARTHQUAKE LOADS
1613.1 SCOPE. EVERY STRUCTURE, AND PORTION THEREOF, INCLUDING NONSTRUCTURAL COMPONENTS THAT ARE PERMANENTLY ATTACHED TO STRUCTURES AND THEIR SUPPORTS AND ATTACHMENTS, SHALL BE DESIGNED AND CONSTRUCTED TO RESIST THE EFFECTS OF EARTHQUAKE MOTIONS IN ACCORDANCE WITH ASCE 7-10, EXCLUDING CHAPTER 14 AND APPENDIX 11A. THE SEISMIC DESIGN CATEGORY FOR A STRUCTURE SHALL BE DETERMINED IN ACCORDANCE WITH EITHER SECTION 1613 OR ASCE 7-10.
EXCEPTIONS:
1. ONE-AND TWO-FAMILY DWELLINGS THREE STORIES OR LESS IN HEIGHT.
2. THE SEISMIC-FORCE-RESISTING SYSTEM OF WOOD-FRAME BUILDINGS THAT CONFORM TO THE PROVISIONS OF SECTION 2308.
3. AGRICULTURAL STORAGE STRUCTURES INTENDED ONLY FOR INCIDENTAL HUMAN OCCUPANCY.
4.STRUCTURES THAT REQUIRE SPECIAL CONSIDERATION OF THEIR RESPONSE CHARACTERISTICS AND ENVIRONMENT THAT ARE NOT ADDRESSED BY THIS CODE OR ASCE 7-10 AND FOR WHICH OTHER REGULATIONS PROVIDE SEISMIC CRITERIA, SUCH AS VEHICULAR BRIDGES, ELECTRICAL TRANSMISSION TOWERS, HYDRAULIC STRUCTURES, BURIED UTILITY LINES AND THEIR APPURTENANCES AND NUCLEAR REACTORS.

WIND LOADS AND EARTHQUAKE LOADS REFER TO STRUCTURAL DRAWINGS FOR ANALYSIS

BC* CHAPTER 21: MASONRY CHIMNEYS

BC* 2113. 1.5 EXISTING CHIMNEYS AND VENTS
ADJOINING CHIMNEYS AND VENTS SHALL BE IN ACCORDANCE WITH SECTIONS 2113.1.5.1 TO 2113.1.5.8.

BC* 2113.1.5.1 RESPONSIBILITY OF OWNER OF TALLER BUILDING
WHENEVER A BUILDING IS ERECTED, ENLARGED, OR INCREASED IN HEIGHT SO THAT ANY PORTION OF SUCH BUILDING, EXCEPT CHIMNEYS OR VENTS, EXTENDS HIGHER THAN THE TOP OF ANY PREVIOUSLY CONSTRUCTED CHIMNEYS OR VENTS WITHIN 100 FEET (30 480 MM), THE OWNER OF SUCH NEW OR ALTERED BUILDING SHALL HAVE THE RESPONSIBILITY OF ALTERING SUCH CHIMNEYS OR VENTS TO MAKE THEM CONFORM WITH THE REQUIREMENTS OF THIS CHAPTER.

BC* 2113.1.5.5 REFUSAL OF CONSENT
IF CONSENT IS NOT GRANTED BY THE OWNER OF THE PREVIOUSLY CONSTRUCTED BUILDING TO DO THE ALTERATION WORK REQUIRED BY THIS SECTION, SUCH OWNER SHALL SIGNIFY HIS OR HER REFUSAL IN WRITING TO THE OWNER OF THE NEW OR ALTERED BUILDING AND TO THE COMMISSIONER; AND THE OWNER OF THE NEW OR ALTERED BUILDING HAVING SUBMITTED PROVIDED THE NOTICES REQUIRED BY 2113.1.5.3 SHALL THEREUPON BE RELEASED FROM ANY RESPONSIBILITY FOR THE PROPER OPERATION OF THE EQUIPMENT DUE TO LOSS OF DRAFT AND FOR ANY HEALTH HAZARD OR NUISANCE THAT MAY OCCUR AS A RESULT OF THE NEW OR ALTERED BUILDING.

BC* CHAPTER 27: ELECTRICAL

BC* 2702.1 INSTALLATION.
EMERGENCY AND STANDBY POWER SYSTEMS SHALL BE INSTALLED INACCORDANCE WITH THE NEW YORK CITY ELECTRICAL CODE, NFPA 110 AND NFPA 111.

2702.2.2 SMOKE CONTROL SYSTEMS.
STAND-BY POWER SHALL BE PROVIDED FOR SMOKE CONTROL SYSTEMS IN ACCORDANCE WITH SECTION 909.11.

2702.2.3 EXIT SIGNS.
EMERGENCY POWER SHALL BE PROVIDED FOR EXIT SIGNS IN ACCORDANCE WITH SECTION 1013.6.3.

2702.2.4 MEANS OF EGRESS ILLUMINATION.
EMERGENCY POWER SHALL BE PROVIDED FOR MEANS OF EGRESS ILLUMINATION IN ACCORDANCE WITH SECTION 1008.3.

2702.2.5 ACCESSIBLE MEANS OF EGRESS ELEVATORS.
STAND-BY POWER SHALL BE PROVIDED FOR ELEVATORS THAT ARE PART OF AN ACCESSIBLE MEANS OF EGRESS IN ACCORDANCE WITH SECTION 1009.4.

2702.2.17 ELEVATORS.
STAND-BY POWER FOR ELEVATORS, INCLUDING ELEVATORS PROVIDED TO ACCOMMODATE AMBULANCE STRETCHERS PURSUANT TO SECTION 3002.4, SHALL BE PROVIDED AS SET FORTH IN SECTION 3003.1.

ELEVATORS CONTROLS, ELEVATOR CAB LIGHT, VENTILATION AND ASSOCIATED EQUIPMENT REQUIRED FOR ELEVATOR OPERATION SHALL BE CONNECTED TO EMERGENCY POWER.

S. WIEDER ARCHITECT PC
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STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

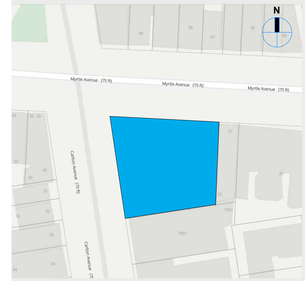
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

BUILDING CODE ANALYSIS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:39:17 AM
SCALE:
DRAWN BY: XX

G-107.00

SHEET: 19 OF 88

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Effective November 7, 2022

5/12/2023 1:39:17 AM

BC* CHAPTER 10: MEANS OF EGRESS

BC* 1003 GENERAL MEANS OF EGRESS

BC* 1003.2 CEILING HEIGHT

THE MEANS OF EGRESS SHALL HAVE A CEILING HEIGHT OF NOT LESS THAN 7 FEET, 6 INCHES.

EXCEPTIONS:

1. CEILINGS THAT ARE PERMITTED TO BE LESS THAN 7'-6" IN ACCORDANCE WITH SECTION 1208.2.
2. CEILINGS OF DWELLING UNITS AND SLEEPING UNITS WITHIN RESIDENTIAL OCCUPANCIES IN ACCORDANCE WITH SECTION 1208.2.
3. ALLOWABLE PROJECTIONS IN ACCORDANCE WITH SECTION 1003.3.
4. STAIR HEADROOM IN ACCORDANCE WITH SECTION 1011.3.
5. RAMP HEADROOM IN ACCORDANCE WITH SECTION 1012.5.2.
6. THE CLEAR HEIGHT OF FLOOR LEVELS IN VEHICULAR AND PEDESTRIAN TRAFFIC AREAS IN PARKING GARAGES IN ACCORDANCE WITH SECTION 406.4.1.
7. AREAS ABOVE AND BELOW MEZZANINE FLOORS IN ACCORDANCE WITH SECTION 505.2

TABLE 1004.1.3 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

RESIDENTIAL: 200 GROSS WITHIN DWELLING UNITS

BC* 1005.1 GENERAL.

ALL PORTIONS OF THE MEANS OF EGRESSSYSTEM SHALL BE SIZED IN ACCORDANCE WITH THIS SECTION.

EXCEPTION:

AISLES AND AISLE ACCESSWAYS IN ROOMS OR SPACES USED FOR ASSEMBLY PURPOSES COMPLYING WITH SECTION 1029

BC* 1005 MEANS OF EGRESS SIZING

BC* 1005.3 REQUIRED CAPACITY BASED ON OCCUPANT LOAD.

THE REQUIRED CAPACITY, IN INCHES, OF THE MEANS OF EGRESS FOR ANY ROOM, AREA, SPACE OR STORY SHALL BE NOT LESS THAN THAT DETERMINED IN ACCORDANCE WITH SECTIONS 1005.3.1 AND 1005.3.2.

BC* 1005.3.1 STAIRWAYS.

THE CAPACITY, IN INCHES, OF MEANS OF EGRESS STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH STAIRWAYS BY A MEANS OF EGRESS CAPACITY FACTOR OF **0.3 INCH** PER OCCUPANT. WHERE STAIRWAYS SERVE MORE THAN ONE STORY, ONLY THE OCCUPANT LOAD OF EACH STORY CONSIDERED INDIVIDUALLY SHALL BE USED IN CALCULATING THE REQUIRED CAPACITY OF THE STAIRWAYS SERVING THAT STORY.

EXCEPTIONS:

1. FACILITIES WITH SMOKE-PROTECTED ASSEMBLY SEATING SHALL BE PERMITTED TO USE THE CAPACITY FACTORS IN TABLE 1029.6.2 INDICATED FOR STEPPED AISLES FOR EXIT ACCESS OR EXIT STAIRWAYS WHERE THE ENTIRE PATH FOR MEANS OF EGRESS FROM THE SEATING TO THE EXIT DISCHARGE IS PROVIDED WITH A SMOKE CONTROL SYSTEM COMPLYING WITH SECTION 909.
2. ACILITIES WITH OUTDOOR SMOKE-PROTECTED ASSEMBLY SEATINGSHALL BE PERMITTED TO THE CAPACITY FACTORS IN SECTION 1029.6.3 INDICATED FOR STEPPED AISLES FOR EXIT ACCESSOR EXIT STAIRWAYS WHERE THE ENTIRE PATH FOR MEANS OF EGRESS FROM THE SEATING TO THE EXIT DISCHARGE IS OPEN TO THE OUTDOORS.

BC* 1005.3.2 OTHEREGRESS COMPONENTS.

THE CAPACITY, IN INCHES, OF MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS SHALL BE CALCULATED BY MULTIPLYING THE OCCUPANT LOAD SERVED BY SUCH COMPONENT BY A MEANS OF EGRESS CAPACITY FACTOR OF 0.2 INCH PER OCCUPANT.

EXCEPTIONS:

1. FACILITIES WITH SMOKE-PROTECTED ASSEMBLY SEATING SHALL BE PERMITTED TO USE THE CAPACITY FACTORS IN TABLE 1029.6.2 INDICATED FOR LEVEL OR RAMPED AISLES FOR MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS WHERE THE ENTIRE PATH FOR MEANS OF EGRESS FROM THE SEATING TO THE EXIT DISCHARGE IS PROVIDED WITH A SMOKE CONTROL SYSTEM COMPLYING WITH SECTION 909.
2. FACILITIES WITH OUTDOOR SMOKE-PROTECTED ASSEMBLY SEATING SHALL BE PERMITTED TO THE CAPACITY FACTORS IN SECTION 1029.6.3 INDICATED FOR LEVEL OR RAMPED AISLES FOR MEANS OF EGRESS COMPONENTS OTHER THAN STAIRWAYS WHERE THE ENTIRE PATH FOR MEANS OF EGRESS FROM THE SEATING TO THE EXIT DISCHARGE IS OPEN TO THE OUTDOORS.

BC* 1005.4 CONTINUITY.

THE MINIMUM WIDTH OR REQUIRED CAPACITY OF THE MEANS OF EGRESS REQUIRED FROM ANY STORY OF A BUILDING SHALL NOT BE REDUCED ALONG THE PATH OF EGRESS TRAVEL UNTIL ARRIVAL AT THE PUBLIC WAY

BC* 1006 NUMBER OF EXITS AND EXIT ACCESS DOORWAYS

BC* 1006.2 EGRESS FROM SPACES.

ROOMS, AREAS OR SPACES, INCLUDING MEZZANINES, WITHIN A STORYOR BASEMENT SHALL BE PROVIDED WITH THE NUMBER OF EXITS OR ACCESS TO EXITS IN ACCORDANCE WITH THIS SECTION.

BC* 1006.2.1 EGRESS BASED ON OCCUPANT LOAD AND COMMON PATH OF EGRESS TRAVEL DISTANCE.

TWO EXITS OR EXIT ACCESS DOORWAYS FROM **ANY** SPACE SHALL BE PROVIDED WHERE THE DESIGN OCCUPANT LOAD OR THE COMMON PATH OF EGRESS TRAVEL DISTANCE EXCEEDS THE VALUES LISTED IN TABLE 1006.2.1.

EXCEPTION:

CARE SUITES IN GROUP I-2 OCCUPANCIES COMPLYING WITH SECTION 407.4.

BC* 1010 DOORS, GATES AND TURNSTILES

BC* 1010.1 DOORS.

MEANS OF EGRESS DOORS SHALL MEET THE REQUIREMENTS OF THIS SECTION. DOORS SERVING A MEANS OF EGRESS SYSTEM SHALL MEET HE REQUIREMENTS OF THIS SECTION AND SECTION 1022.2. DOORS PROVIDED FOR EGRESS PURPOSES IN NUMBERS GREATER THAN REQUIRED BY THIS CODE SHALL MEET THE REQUIREMENTS OF THIS SECTION.

1010.1.1 SIZE OF DOORS.

THE MINIMUM WIDTH AND HEIGHT OF EACH DOOR OPENING SHALL BE INACCORDANCE WITH THIS SECTION.

BC* 1010.1.1.1 DOOR WIDTH.

THE REQUIRED CAPACITY OF EACH DOOR OPENING SHALL BE SUFFICIENT FOR THE OCCUPANT LOAD THEREOF AND SHALL PROVIDE A MINIMUM CLEAR WIDTH OF **32 INCHES**. CLEAR OPENINGS OF DOORWAYS WITH SWINGING DOORS SHALL BE MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES. WHERE THIS SECTION REQUIRES A MINIMUM CLEAR WIDTH OF **32 INCHES** AND A DOOR OPENING INCLUDES TWO DOOR LEAVES WITHOUT A MULLION, ONE LEAF SHALL PROVIDE A CLEAR OPENING WIDTH OF **32 INCHES**. THE MAXIMUM WIDTH OF A SWINGING DOOR LEAF SHALL BE **48 INCHES** NOMINAL. THE MAXIMUM WIDTH OF A SWINGING DOOR LEAF SHALL BE **48 INCHES** NOMINAL. MEANS OF EGRESS DOORS IN A GROUP I-2 OCCUPANCY USED FOR THE MOVEMENT OF BEDS SHALL PROVIDE A CLEAR WIDTH NOT LESS THAN 41½ INCHES.

EXCEPTIONS:

1. THE MINIMUM AND MAXIMUM WIDTH SHALL NOT APPLY TO DOOR OPENINGS THAT ARE **NOT** PART OF THE REQUIRED MEANS OF EGRESS IN GROUP R-2 AND R-3 OCCUPANCIES.
2. DOOR OPENINGS TO RESIDENT SLEEPING UNITS IN GROUP I-3 OCCUPANCIES SHALL HAVE A CLEAR WIDTH OF NOT LESS THAN 28 INCHES.
3. DOOR OPENINGS TO STORAGE CLOSETS LESS THAN 10SF IN AREA SHALL NOT BE LIMITED BY THE MINIMUM WIDTH.
4. WIDTH OF DOOR LEAVES IN REVOLVING DOORS THAT COMPLY WITH SECTION 1010.1.4.1 SHALL NOT BE LIMITED.
5. IN OTHER THAN GROUP R-1 OCCUPANCIES, THE MINIMUM WIDTHS SHALL NOT APPLY TO INTERIOR EGRESS DOORS WITHIN A DWELLING UNIT OR SLEEPING UNIT THAT IS NOT REQUIRED TO BE AN ACCESSIBLE UNIT, TYPE B+NYC OR TYPE B UNIT.
6. DOORS TO WALK-IN FREEZERS AND COOLERS LESS THAN 1,000SF IN AREA SHALL HAVE A MAXIMUM WIDTH OF **60 INCHES**.
7. IN GROUP R-1 DWELLING UNITS OR SLEEPING UNITS NOT REQUIRED TO BE ACCESSIBLE UNITS, THE MINIMUMWIDTH SHALL NOT APPLY TO DOORS FOR SHOWERS OR SAUNAS.

BC* 1011 STAIRWAYS

BC* 1011.1 GENERAL.

STAIRWAYS SERVING OCCUPIED PORTIONS OF A BUILDING SHALL COMPLY WITH THE REQUIREMENTS OF SECTIONS 1011.2 THROUGH 1011.13. ALTERNATING TREAD DEVICES SHALL COMPLY WITH SECTION 1011.14. SHIPS LADDERS SHALL COMPLY WITH SECTION 1011.15. LADDERS SHALL COMPLY WITH SECTION 1011.16.

EXCEPTION:

WITHIN ROOMS OR SPACES USED FOR ASSEMBLY PURPOSES, STEPPED AISLES SHALL COMPLY WITH SECTION 1029.

BC* 1011.2 WIDTH AND CAPACITY.

THE REQUIRED CAPACITY OF STAIRWAYS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005, BUT THE MINIMUM WIDTH SHALL BE NOT LESS THAN **44 INCHES**. SEE SECTION 1009.3 FOR ACCESSIBLE MEANS OF EGRESS STAIRWAYS.

EXCEPTIONS:

1. A WIDTH OF NOT LESS THAN **36 INCHES** SHALL BE PERMITTED IN:
   1. A STAIRWAY THAT SERVES AN OCCUPANT LOAD OF **50 OR LESS** CUMULATIVE FOR **ALL** STORIES; OR
   2. A STAIRWAY THAT PROVIDES EGRESS TO THE EXIT DISCHARGE SOLELY FOR THE USE OF GROUP R-2 OCCUPANCIES, PROVIDED THE BUILDING IT SERVES IS 125'-0" OR LESS IN HEIGHT, AND PROVIDED SUCH A STAIRWAY SERVES NOT MORE THAN **30** OCCUPANTS PER FLOOR.
2. SPIRAL STAIRWAYS AS PROVIDED FOR IN SECTION 1011.10.
3. WHERE AN INCLINED PLATFORM LIFT OR A STAIRWAY CHAIRLIFT IS INSTALLED ON STAIRWAYS SERVING OCCUPANCIES IN GROUP R-3, OR WITHIN DWELLING UNITS IN OCCUPANCIES IN GROUP R-2, A CLEAR PASSAGE WIDTH NOT LESS THAN **20 INCHES** SHALL BE PROVIDED. WHERE THE SEAT AND PLATFORM CAN BE FOLDED WHEN NOT IN USE, THE DISTANCE SHALL BE MEASURED FROM THE FOLDED POSITION..

BC* 1016 EXIT ACCESS

BC* 1016.3 INTERVENING PUBLIC HALL IN GROUP R-2 OCCUPANCIES.

BUILDINGS IN OCCUPANCY GROUP R-2 SHALL COMPLY WITH THE INTERVENING PUBLIC HALL REQUIREMENTS IN ACCORDANCE WITH SECTIONS 1016.3.1 AND 1016.3.2.

1016.3.1 GROUP R-2 NONHIGH-RISE OCCUPANCIES.

IN BUILDINGS IN OCCUPANCY GROUP R-2 NOT SUBJECT TO SECTION 403, A DOOR FROM A DWELLING UNIT SHALL OPEN INTO AN INTERVENING PUBLIC HALL. SUCH PUBLIC HALL SHALL BE CONSTRUCTED AS A PUBLIC CORRIDOR IN ACCORDANCE WITH SECTION 1020. OPENING PROTECTIVES IN ACCORDANCE WITH EXCEPTION 3 OF SECTION 707.6 SHALL NOT BE PERMITTED.

EXCEPTIONS:

1. NO INTERVENING PUBLIC HALL SHALL BE REQUIRED FOR ANY OF THE FOLLOWING:
   1. A BUILDING THAT IS BOTH THREE STORIES OR LESS IN HEIGHT, AND CONTAINS TWO OR FEWER DWELLING UNITS PER STORY; OR
   2. A BUILDING THAT COMPLIES WITH ITEM 6 OF SECTION 1006.3.2.
2. NO INTERVENING PUBLIC HALL SHALL BE REQUIRED WHERE THE DOORS OPENING TO THE APARTMENTS ARE SMOKE AND DRAFT CONTROLLED DOORS COMPLYING WITH UL 1784 WITHOUT ARTIFICIAL BOTTOM SEALS, IN ACCORDANCE WITH SECTIONS 716.5 AND 716.5.7.3 OF THIS CODE, AND THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1 OF THIS CODE. THIS EXCEPTION SHALL NOT APPLY TO ANY BUILDING THAT COMPLIES WITH ITEM 7 OF SECTION 1006.3.2 OF THIS CODE WHERE THERE IS MORE THAN ONE APARTMENT PER STORY.

1016.3.2 GROUP R-2 HIGH-RISE OCCUPANCIES.

IN HIGH-RISE BUILDINGS IN OCCUPANCY GROUP R-2, ALL DOORS FROM A DWELLING UNIT SHALL OPEN INTO AN INTERVENING PUBLIC HALL. SUCH PUBLIC HALL SHALL BE CONSTRUCTED AS A PUBLIC CORRIDOR IN ACCORDANCE WITH SECTION 1020. OPENING PROTECTIVES IN ACCORDANCE WITH EXCEPTION 3 OF SECTION 707.6 SHALL NOT BE PERMITTED. SUCH PUBLIC HALL SHALL PROVIDE ACCESS TO AT LEAST TWO EXITS. **EXCEPTION:**

WHERE THE ONLY DWELLING UNITS ON A STORY OF A BUILDING ARE THE UPPER STORIES OF MULTI-STORY (DUPLEX) DWELLING UNITS;

1. ANY PUBLIC HALLS SHALL BE PERMITTED TO PROVIDE ACCESS TO ONLY ONE EXIT; OR
2. NO SUCH PUBLIC HALL SHALL BE REQUIRED WHERE SMOKE AND DRAFT CONTROLLED DOORS COMPLYING WITH UL 1784 WITHOUT ARTIFICIAL BOTTOM SEALS, IN ACCORDANCE WITH SECTIONS 716.5 AND 716.5.7.3 OF THIS CODE, ARE PROVIDED. THIS EXCEPTION SHALL NOT BE CONSTRUED TO EFFECT, ALTER, OR CHANGE ANY REQUIREMENT OF THIS CODE TO PROVIDE TWO MEANS OF EGRESS FROM EACH APARTMENT ON EACH STORY.

BC* 1007 EXIT AND EXIT ACCESSDOORWAY CONFIGURATION

BC* 1007.1.1 TWO EXITS OR EXIT ACCESS DOORWAYS.

WHERE TWOEXITS, EXIT ACCESS DOORWAYS, EXIT ACCESS STAIRWAYS OR RAMPS, OR ANY COMBINATION THEREOF, ARE REQUIRED FROM ANY PORTION OF THE EXIT ACCESS, THEY SHALL BE PLACED A DISTANCE APART EQUAL TO NOT LESS THAN ONE-HALF OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING OR AREA TO BE SERVED MEASURED IN A STRAIGHT LINE BETWEEN THEM. STAIRS SHARING ANY COMMON WALL, FLOOR, CEILING, SCISSOR STAIR ASSEMBLY, OR OTHER ENCLOSURE SHALL BE COUNTED AS ONE EXIT STAIRWAY.

EXCEPTIONS:

1. **CORRIDOR MEASUREMENTS.** WHERE INTERIOR EXIT STAIRWAYS OR RAMPS ARE INTERCONNECTED BY A 1-HOUR FIRE-RESISTANCE-RATED CORRIDOR CONFORMING TO THE REQUIREMENTS OF SECTION 1020, THE REQUIRED EXIT SEPARATION SHALL BE MEASURED ALONG THE SHORTEST DIRECT LINE OF TRAVEL WITHIN THE CORRIDOR.
2. **REMOTE LOCATION IN SPRINKLERED BUILDINGS.** WHERE A BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2, THE SEPARATION DISTANCE SHALL BE NOT LESS THAN ONE-THIRD OF THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED.
3. **GROUP R-2 OCCUPANCIES.** IN GROUP R-2 OCCUPANCIES, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES:
   1. THE EXIT DOORS TO SUCH STAIRS SHALL BE PLACED A DISTANCE APART EQUAL TO NO LESS THAN **15 FEET** ; AND
   2. SUCH STAIRS SHALL BE PERMITTED TO SHARE COMMON WALLS, FLOORS, CEILINGS OR SCISSOR STAIRS ASSEMBLIES OR OTHER ENCLOSURES PROVIDED THAT THE CONSTRUCTION SEPARATINGTHE STAIRS IS ALSO OF AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES.
4. **GROUP B OCCUPANCIES.** IN GROUP B OCCUPANCIES OF CONSTRUCTION TYPE I OR II NOT EXCEEDING 60 FEET IN HEIGHT, NOT EXCEEDING 2,000 SF ON ANY STORY AND NOT EXCEEDING A TRAVEL DISTANCE OF 50 FEET ON ANY STORY, WHERE STAIRS ARE ENCLOSED IN WALLS HAVING AT LEAST A 2-HOUR FIRE-RESISTANCE RATING AND CONSTRUCTED OF MASONRY OR MASONRY EQUIVALENT IN ACCORDANCE WITH DEPARTMENT RULES:
   1. THE EXIT DOORS TO SUCH STAIRS SHALL BE PLACED A DISTANCE APART EQUAL TO NO LESS THAN 15 FEET ; AND
   2. SUCH STAIRS SHALL BE PERMITTED TO SHARE COMMON WALLS, FLOORS, CEILINGS OR SCISSOR STAIRS ASSEMBLIES.

BC* 1007.1.1.1 MEASUREMENT POINT.

THE SEPARATION DISTANCE REQUIRED IN SECTION 1007.1.1 SHALL BE MEASURED IN ACCORDANCE WITH THE FOLLOWING:

1. THE SEPARATION DISTANCE TO EXIT OR EXIT ACCESS DOORWAYS SHALL BE MEASURED TO THE CENTERPOINT OF THE REQUIRED DOORWAY.
2. THE SEPARATION DISTANCE TO EXIT ACCESS STAIRWAYS SHALL BE MEASURED TO THE CENTER POINT OF THE CLOSEST RISER.
3. THE SEPARATION DISTANCE TO EXIT ACCESS RAMPS SHALL BE MEASURED TO THE CENTER POINT OF THE START OF THE RAMP RUN.

BC* 1007.1.2 THREE OR MORE EXITS OR EXIT ACCESS DOORWAYS.

WHERE ACCESS TO THREE OR MORE EXITS IS REQUIRED, NOT LESS THAN TWO EXITOR EXIT ACCESS DOORWAYS SHALL BE ARRANGED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 1007.1.1. ADDITIONAL REQUIRED EXIT OR EXIT ACCESS DOORWAYS SHALL BE ARRANGED A REASONABLE DISTANCE APART SO THAT IF ONE BECOMES BLOCKED, THE OTHERS WILL BE AVAILABLE.

BC* 1007.1.3 REMOTENESS OF EXIT ACCESS STAIRWAYS OR RAMPS.

WHERE TWO EXIT ACCESS STAIRWAYS OR RAMPS PROVIDE THE REQUIRED MEANS OF EGRESS TO EXITS AT ANOTHER STORY, THE REQUIRED SEPARATION DISTANCE SHALL BE MAINTAINED FOR ALL PORTIONS OF SUCH EXIT ACCESS STAIRWAYS OR RAMPS.

BC* 1007.1.3.1 THREE OR MORE EXIT ACCESS STAIRWAYS OR RAMPS.

WHERE MORE THAN TWO EXIT ACCESS STAIRWAYS OR RAMPS PROVIDE THE REQUIRED MEANS OF EGRESS, NOT LESS THAN TWO SHALL BE ARRANGED IN ACCORDANCE WITH SECTION 1007.1.3.

MEANS OF EGRESS

BC* 1020 CORRIDORS

BC* 1020.2 WIDTH AND CAPACITY.

THE REQUIRED CAPACITY OF CORRIDORS SHALL BE DETERMINED AS SPECIFIED IN SECTION 1005, BUT THE MINIMUM WIDTH SHALL BE NOT LESS THAN THAT SPECIFIED IN TABLE 1020.2.

EXCEPTION:

IN GROUP I-2 OCCUPANCIES, CORRIDORS ARE NOT REQUIRED TO HAVE A CLEAR WIDTH OF 96 INCHES IN AREAS WHERE THERE WILL NOT BE STRETCHER OR BED MOVEMENT FOR ACCESS TO CARE OR AS PART OF THE DEFEND-IN-PLACE STRATEGY.

TABLE 1020.2
MINIMUM CORRIDOR WIDTH

OCCUPANCY	MINIMUM WIDTH (inches)
Any facilities not listed below	44
Access to and utilization of mechanical, plumbing or electrical systems or equipment	24
With an occupant load of 50 or less, except as otherwise required by Chapter 11	36
Within a dwelling unit, in Occupancy Groups I-1 and R-1, except as otherwise required by Section 1107	36
Within a dwelling unit, in Occupancy Groups R-2 and R-3, except as otherwise required by Section 1107	30
In Group E serving classrooms	66
In corridors and areas serving stretcher traffic in occupancies where patients receive outpatient medical care that causes the patients to be incapable of self-preservation	72
Group I-2 in areas where required for bed movement	96

BC* 1020.4 DEAD ENDS.

WHERE MORE THAN ONE EXIT OR EXIT ACCESS DOORWAY IS REQUIRED, THE EXIT ACCESS SHALL BE ARRANGED SUCH THAT THERE ARE NO DEAD ENDS IN CORRIDORS MORE THAN **20 FEET** IN LENGTH.

EXCEPTIONS:

1. IN OCCUPANCIES IN GROUP I-3 OF CONDITION 2, 3 OR 4, THE DEAD END IN A CORRIDOR SHALL NOT EXCEED **50 FEET**.
2. IN OCCUPANCIES IN GROUPS B, E, F, I-1, M, R-1, S AND U, WHERE THE BUILDING IS EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH SECTION 903.3.1.1, THE LENGTH OF THE DEAD-END CORRIDORS SHALL NOT EXCEED **50 FEET**.
3. DEAD-END LENGTH NOT EXCEEDING 2.5 TIMES THE LEAST WIDTH OF THE DEAD-END CORRIDOR.
4. IN OCCUPANCIES IN GROUP R-2, THE DEAD END IN A CORRIDOR SHALL NOT EXCEED **40 FEET**. HOWEVER, WHERE THE CORRIDORS ARE COMPLETELY ENCLOSED IN CONSTRUCTION HAVING A 2-HOUR FIRE-RESISTANCE RATING WITH ALL DOORS OPENING INTO THE CORRIDOR BEING SELF-CLOSING AND HAVING A FIRE-RESISTANCE RATING OF 1½ HOURS, THE LENGTH OF DEAD-END CORRIDOR SHALL NOT EXCEED **80 FEET**.

BC* 1028 EXIT DISCHARGE

BC* 1028.1 GENERAL.

EXITS SHALL DISCHARGE DIRECTLY TO THE EXTERIOR OF THE BUILDING. THE EXIT DISCHARGE SHALL BE AT GRADE OR SHALL PROVIDE A DIRECT PATH OF EGRESS TRAVEL TO GRADE. THE EXIT DISCHARGE SHALL NOT RE-ENTER A BUILDING. THE COMBINED USE OF EXCEPTIONS 1 AND 2 BELOW SHALL NOT EXCEED **50%** OF THE NUMBER AND MINIMUM WIDTH OR REQUIRED CAPACITY OF THE REQUIRED EXITS.

EXCEPTIONS:

1. NOT MORE THAN **50%** OF THE NUMBER AND MINIMUM WIDTH OR REQUIRED CAPACITY OF INTERIOR EXIT STAIRWAYS AND RAMPS IS PERMITTED TO EGRESS THROUGH PROTECTED AREAS ON THE LEVEL OF DISCHARGE PROVIDED ALL OF THE FOLLOWING CONDITIONS ARE MET:
   1. SUCH PROTECTED AREA SHALL BE PROVIDED WITH A FREE AND UNOBSTRUCTED PATH OF TRAVEL TO AN EXTERIOR EXIT DOOR AND SUCH EXIT IS READILY VISIBLE AND IDENTIFIABLE WITHIN 40 FEET FROM THE POINT OF TERMINATION OF THE ENCLOSURE.
   2. THE PROTECTED AREA OF THE LEVEL OF EXIT DISCHARGE IS SEPARATED FROM AREAS BELOW BY CONSTRUCTION CONFORMING TO THE FIRE-RESISTANCE RATING FOR THE ENCLOSURE.
   3. THE PROTECTED AREA SHALL BE PROVIDED WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM. PORTIONS OF THE LEVEL OF EXIT DISCHARGE WITH ACCESS TO THE EGRESS PATH SHALL BE EITHER EQUIPPED THROUGHOUT WITH AN AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 903.3.1.1 OR 903.3.1.2, OR SEPARATED FROM THE EGRESS PATH IN ACCORDANCE WITH THE REQUIREMENTS FOR THE ENCLOSURE OF INTERIOR EXIT STAIRWAYS OR RAMPS.
   4. WHERE A REQUIRED INTERIOR EXIT STAIRWAY OR RAMP AND AN EXIT ACCESS STAIRWAY OR RAMP SERVE THE SAME FLOOR LEVEL AND TERMINATE AT THE SAME LEVEL OF EXIT DISCHARGE, THE TERMINATION OF THE EXIT ACCESS STAIRWAY OR RAMP AND THE EXIT DISCHARGE DOOR OF THE INTERIOR EXIT STAIRWAY OR RAMP SHALL BE SEPARATED BY A DISTANCE OF NOT LESS THAN 30 FEET OR NOT LESS THAN ONE-FOURTH THE LENGTH OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE BUILDING, WHICHEVER IS LESS. THE DISTANCE SHALL BE MEASURED IN A STRAIGHT LINE BETWEEN THE EXIT DISCHARGE DOOR FROM THE INTERIOR EXIT STAIRWAY OR RAMP AND THE LAST TREAD OF THE EXIT ACCESS STAIRWAY OR TERMINATION OF SLOPE OF THE EXIT ACCESS RAMP.
   5. THE CAPACITY OF THE PROTECTED AREA SHALL NOT BE LESS THAN REQUIRED BY SECTION 1028.2 IN ADDITION TO THE OCCUPANT LOAD OF ALL EXITS SERVING COMMUNICATION SPACES.
2. NOT MORE THAN **50%** OF THE NUMBER AND MINIMUM WIDTH OR REQUIRED CAPACITY OF THE INTERIOR EXIT STAIRWAYS AND RAMPS IS PERMITTED TO EGRESS THROUGH A VESTIBULE PROVIDED ALL OF THE FOLLOWING CONDITIONS ARE MET:
   1. THE ENTIRE AREA OF THE VESTIBULE IS SEPARATED FROM AREAS BELOW BY CONSTRUCTION CONFORMING TO THE FIRE-RESISTANCE RATING OF THE INTERIOR EXIT STAIRWAY OR RAMP ENCLOSURE.
   2. THE DEPTH FROM THE EXTERIOR OF THE BUILDING IS NOT GREATER THAN 10 FEET AND THE LENGTH IS NOT GREATER THAN 30 FEET.
   3. THE AREA IS SEPARATED FROM THE REMAINDER OF THE LEVEL OF EXIT DISCHARGE BY A FIRE PARTITION CONSTRUCTED IN ACCORDANCE WITH SECTION 708.
      EXCEPTION: THE MAXIMUM TRANSMITTED TEMPERATURE RISE IS NOT REQUIRED.
   4. THE AREA IS USED ONLY FOR MEANS OF EGRESS AND EXITS DIRECTLY TO THE OUTSIDE.
3. IN BUILDINGS IN OCCUPANCY GROUP R-2, UP TO **100%** OF THE NUMBER AND MINIMUM WIDTH AND REQUIRED CAPACITY OF THE INTERIOR EXIT STAIRWAYS AND RAMPS ARE PERMITTED TO EGRESS THROUGH A PROTECTED AREA ON THE LEVEL OF DISCHARGE, IF ALL OF THE FOLLOWING CONDITIONS ARE MET:
   1. EGRESS IS PROVIDED IN TWO DIFFERENT DIRECTIONS FROM THE DISCHARGE POINTS OF ALL INTERIOR EXIT STAIRWAYS AND RAMPS TO THE EXTERIOR OF THE BUILDING THAT ARE REMOTE FROM EACH OTHER.
   2. THE EXIT DISCHARGES ARE ARRANGED AND CONSTRUCTED SO AS TO MINIMIZE THE POSSIBILITY THAT ALL EXIT DISCHARGES WOULD BE COMPROMISED BY SMOKE, FIRE OR OTHER EMERGENCY CONDITION.
   3. SUCH PROTECTED AREAS SHALL COMPLY WITH ALL REQUIREMENTS OF EXCEPTION 1 ABOVE.
4. HORIZONTAL EXITS COMPLYING WITH SECTION 1026 SHALL NOT BE REQUIRED TO DISCHARGE DIRECTLY TO THE EXTERIOR OF THE BUILDING.

TABLE 1006.2.1
SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD OF SPACE	MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE (feet)		
		Without Sprinkler System (feet)		With Sprinkler System (feet)
		Occupant Load		
		OL ≤ 30	OL > 30	
A[c], E[f], M	74	75	75	75[a]
B	74	100	75	100[a]
F	49	75	75	100[a]
H-1, H-2, H-3	3	NP	NP	25[b]
H-4[b], H-5[b], I-1, I-3, I-4	10	NP	NP	75[a]
I-2[d]	See Section 407	NP	NP	75[a]
R-1	20	NP	NP	75[a]
R-2	20[g]	NP	NP	125[a]
S	29	100	75[e]	100[a]
U	74	100	75	75[a]

For SI: 1 foot = 304.8 mm.
NP = Not Permitted.

a. Buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1 or 903.3.1.2. See Section 903 for occupancies where automatic sprinkler systems are permitted in accordance with Section 903.3.1.2.
b. Group H occupancies equipped throughout with an automatic sprinkler system in accordance with Section 903.2.5.
c. For a room or space used for assembly purposes having fixed seating, see Section 1029.8.
d. For the travel distance limitations in Group I-2, see Section 407.4.
e. The length of common path of egress travel distance in a Group S-2 open parking garage shall be not more than 100 feet (30 480 mm).
f. Day care maximum occupant load is 10.
g. Rooms, areas, or spaces that are accessory to a Group R-2 occupancy may have a maximum occupant load of 49.

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LEGEND

1-HOUR RATED PARTITION

2-HOUR RATED PARTITION

3-HOUR RATED PARTITION

TRAVEL DISTANCE — T.D. X'-X"

COMMON PATH OF EGRESS TRAVEL — C.P. X'-X"

EXIT SIGN — EXIT

CARBON MONOXIDE DETECTOR/SMOKE DETECTOR — CO/D

PROVIDE HARDWIRED COMBINATION CARBON MONOXIDE/SMOKE CEILING MOUNTED DETECTOR WITHIN EACH ENCLOSED SLEEPING AREA AND WITHIN 15'-0" OF SLEEPING AREA DOORS ON PATH OF EGRESS.
ALL DEVICES IN EACH UNIT TO BE INTERCONNECTED AT 120V

EXIT ACCESS

EXIT

EXIT DISCHARGE

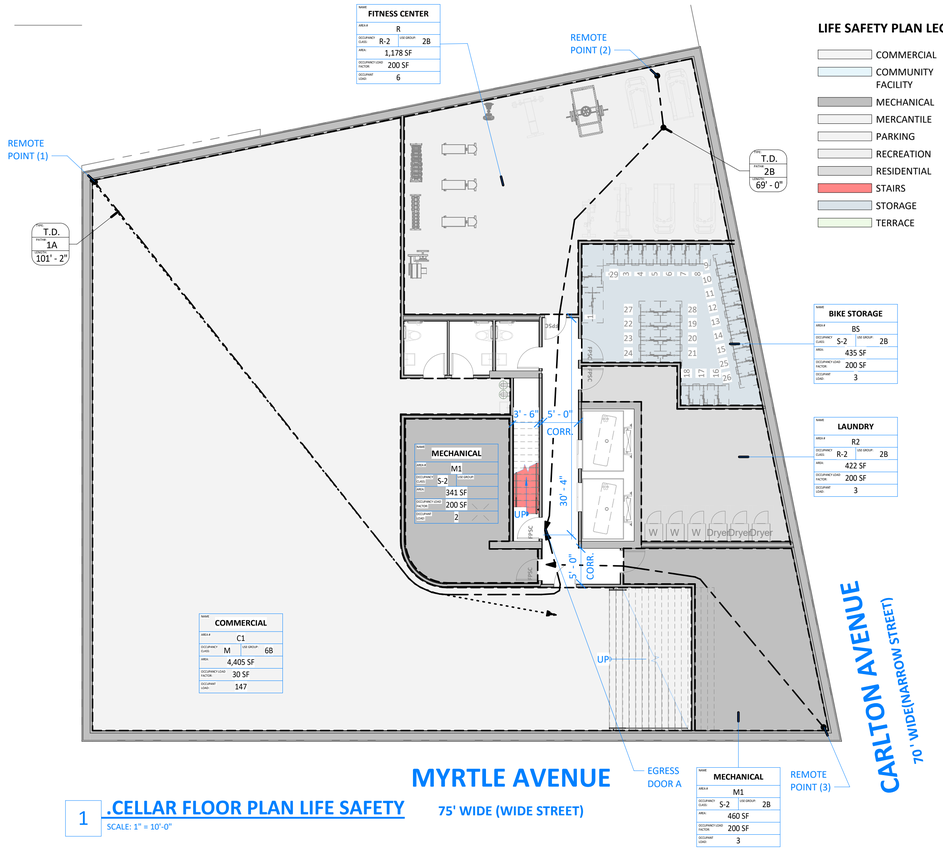
NOTES:

1. ALL SHAFT WALLS TO BE 2-HOUR RATED CONSTRUCTION
2. ALL CORRIDOR WALLS TO BE 2-HOUR RATED CONSTRUCTION WITH MAXIMUM DEAD END TRAVEL DISTANCE OF 80'-0"
3. ALL DEMISING WALLS TO BE 1-HOUR RATED CONSTRUCTION
4. ALL MECHANICAL ROOMS AND ELECTRICAL ROOMS TO HAVE 2-HOUR RATED CONSTRUCTION
5. ALL REFUSE ROOMS TO HAVE 3-HOUR RATED CONSTRUCTION
6. ALL STORAGE ROOMS (MODERATE HAZARD) TO HAVE 3-HOUR RATED CONSTRUCTION

BC* 1006.3.2 SINGLE EXITS.

A SINGLE EXIT OR CCESS TO A SINGLE EXIT SHALL BE PERMITTED FROM ANY STORY OR OCCUPIED ROOF DESIGNED FOR HUMAN OCCUPANCY OR USE WHERE ONE OF THE FOLLOWING CONDITIONS EXISTS:

1. THE OCCUPANT LOAD, NUMBER OF DWELLING UNITS AND EXIT ACCESS TRAVEL DISTANCE DO NOT EXCEED THE VALUES IN TABLE 1006.3.2.
2. ROOMS, AREAS AND SPACES COMPLYING WITH SECTION 1006.2.1 WITH EXITS THAT DISCHARGE DIRECTLY TO THE EXTERIOR AT THE LEVEL OF EXIT DISCHARGE ARE PERMITTED TO HAVE ONE EXITOR ACCESS TO A SINGLE EXIT.
3. OPEN OR ENCLOSED PARKING GARAGES WHERE VEHICLES ARE MECHANICALLY PARKED SHALL BE PERMITTED TO HAVE ONE EXIT PROVIDED SUCH EXIT SHALL NOT BE A VEHICLE RAMP.
4. GROUP R-3 OCCUPANCIES SHALL BE PERMITTED TO HAVE ONE EXIT OR ACCESS TO A SINGLE EXIT.
5. INDIVIDUAL SINGLE-STORY OR MULTISTORY DWELLING UNITS SHALL BE PERMITTED TO HAVE A SINGLE EXIT OR ACCESS TO A SINGLE EXIT FROM THE DWELLING UNIT PROVIDED THAT BOTH OF THE FOLLOWING CRITERIA ARE MET:
   1. THE DWELLING UNIT COMPLI

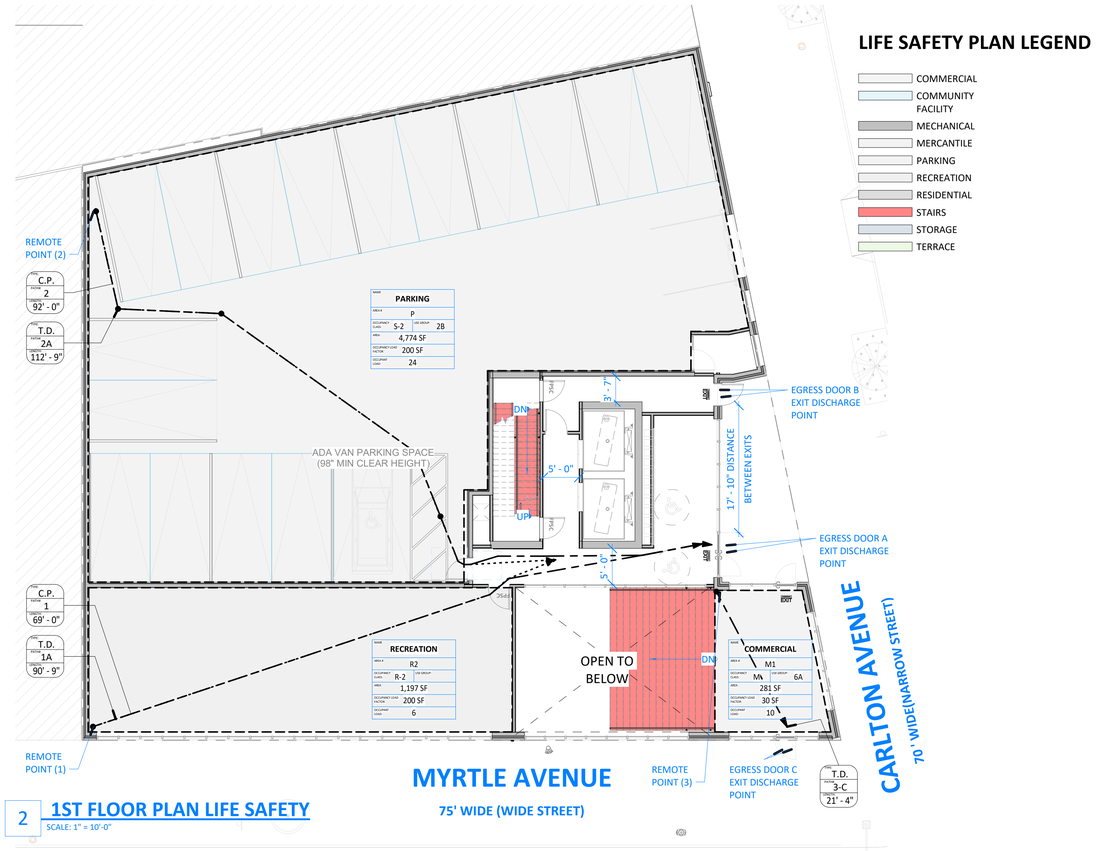


LIFE SAFETY PLAN LEGEND

- COMMERCIAL
- COMMUNITY FACILITY
- MECHANICAL
- MERCANTILE
- PARKING
- RECREATION
- RESIDENTIAL
- STAIRS
- STORAGE
- TERRACE

1 .CELLAR FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"



LIFE SAFETY PLAN LEGEND

- COMMERCIAL
- COMMUNITY FACILITY
- MECHANICAL
- MERCANTILE
- PARKING
- RECREATION
- RESIDENTIAL
- STAIRS
- STORAGE
- TERRACE

2 1ST FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"

OCCUPANCY CALCULATIONS (BC* 1004) - CELLAR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
M1	MECHANICAL	S-2	MECHANICAL	460 SF	200 SF	3	20	1
M1	MECHANICAL	S-2	MECHANICAL	341 SF	200 SF	2	20	1
2				801 SF		5		
C1	COMMERCIAL	M	MERCANTILE (AT GRADE)	4,405 SF	30 SF	147	74	2
1				4,405 SF		147		
R2	LAUNDRY	R-2	RESIDENTIAL / CELLAR ACCESSORY SPACE	422 SF	200 SF	3	20	1
BS	BIKE STORAGE	S-2	RESIDENTIAL / CELLAR ACCESSORY SPACE	435 SF	200 SF	3	20	1
2				857 SF		6		
R	FITNESS CENTER	R-2	RESIDENTIAL ACCESSORY / PUBLIC TERRACE	1,178 SF	200 SF	6	20	1
1				1,178 SF		6		
CELLAR				7,241 SF		164		

EGRESS DISTANCE CALCULATIONS - CELLAR

PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
M			
COMMON PATH OF TRAVEL			
1	M	75' - 0"	92' - 6"
TRAVEL DISTANCE			
1A	M	200' - 0"	101' - 2"
R-2			
TRAVEL DISTANCE			
2B	R-2	200' - 0"	69' - 0"
S-2			
TRAVEL DISTANCE			
3-A	S-2	250' - 0"	48' - 8"

CORRIDOR REQUIREMENTS - CELLAR

AREA TYPE	DISTANCE BETWEEN EXITS		DEAD END	
	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
RESIDENTIAL	15' - 0''	0"	80' - 0"	27' - 11"

EGRESS WIDTH - CELLAR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	164	0.3	49"	44"	42"
DOOR A	R-2 RESIDENTIAL	164	0.2	33"	36"	36"
CORRIDOR	RESIDENTIAL	164	0.2	33"	36"	60"

PLUMBING FIXTURE REQUIREMENTS (PC 403.1) - 2ND FLOOR

AREA #	AREA TYPE	CALCULATED OCCUPANTS	MEN	WOMEN	MEN						WOMEN						DRINKING FOUNTAIN			SERVICE SINK	
					WC/URINAL			LAVS			WC			LAVS			REQUIRED		PROPOSED	REQUIRED	PROPOSED
					REQUIRED		PROPOSED	REQUIRED		PROPOSED	REQUIRED		PROPOSED	REQUIRED		PROPOSED					
C1	MERCANTILE	147	73.5	73.5	1 PER 500	0.147	1	1 PER 750	0.098	1	1 PER 500	0.147	1	1 PER 750	0.098	1	1 PER 1000	0.147	1	1	1

OCCUPANCY CALCULATIONS (BC* 1004) - 1ST FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
R2	RECREATION	R-2	RESIDENTIAL ACCESSORY / PUBLIC TERRACE	1,197 SF	200 SF	6	20	1
P	PARKING	S-2	RESIDENTIAL / CELLAR ACCESSORY SPACE	4,774 SF	200 SF	24	20	2
M1	COMMERCIAL	M	RESIDENTIAL ACCESSORY / PUBLIC TERRACE	281 SF	30 SF	10	20	1
1ST FLOOR				6,252 SF		40		

EGRESS DISTANCE CALCULATIONS - 1ST FLOOR

PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
M			
TRAVEL DISTANCE			
3-C	M	200' - 0"	21' - 4"
R-2			
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	69' - 0"
2	R-2	125' - 0"	92' - 0"
TRAVEL DISTANCE			
1A	R-2	200' - 0"	90' - 9"
2A	R-2	200' - 0"	112' - 9"

CORRIDOR REQUIREMENTS - 1ST FLOOR

AREA TYPE	DISTANCE BETWEEN EXITS		DEAD END	
	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
RESIDENTIAL	15' - 0''	18' - 0"	80' - 0"	44' - 0"
RESIDENTIAL	15' - 0''	18' - 0"	80' - 0"	44' - 0"

EGRESS WIDTH - 1ST FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
DOOR B	R-2 RESIDENTIAL	30	0.2	6"	36"	36"
DOOR A	R-2 RESIDENTIAL	30	0.2	6"	36"	36"
CORRIDOR	RESIDENTIAL	164	0.2	33"	36"	60"

LIFE SAFETY LEGEND

SMOKE AND CARBON MONOXIDE DETECTOR

SPOT ELEVATION SYMBOL

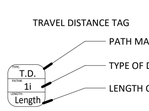
EXIT SIGN

STAIR

COMMON PATH OF TRAVEL

PATH OF TRAVEL

TRAVEL DISTANCE TAG



OCCUPANCY TAG

EMERGENCY WALL LIGHT

1-HOUR RATED PARTITION

2-HOUR RATED PARTITION

3-HOUR RATED PARTITION

N

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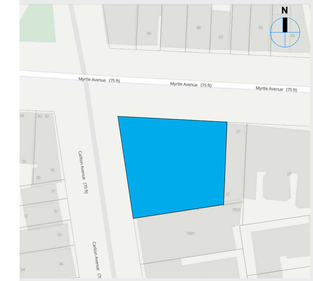
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

LIFE SAFETY PLANS

DOB # :

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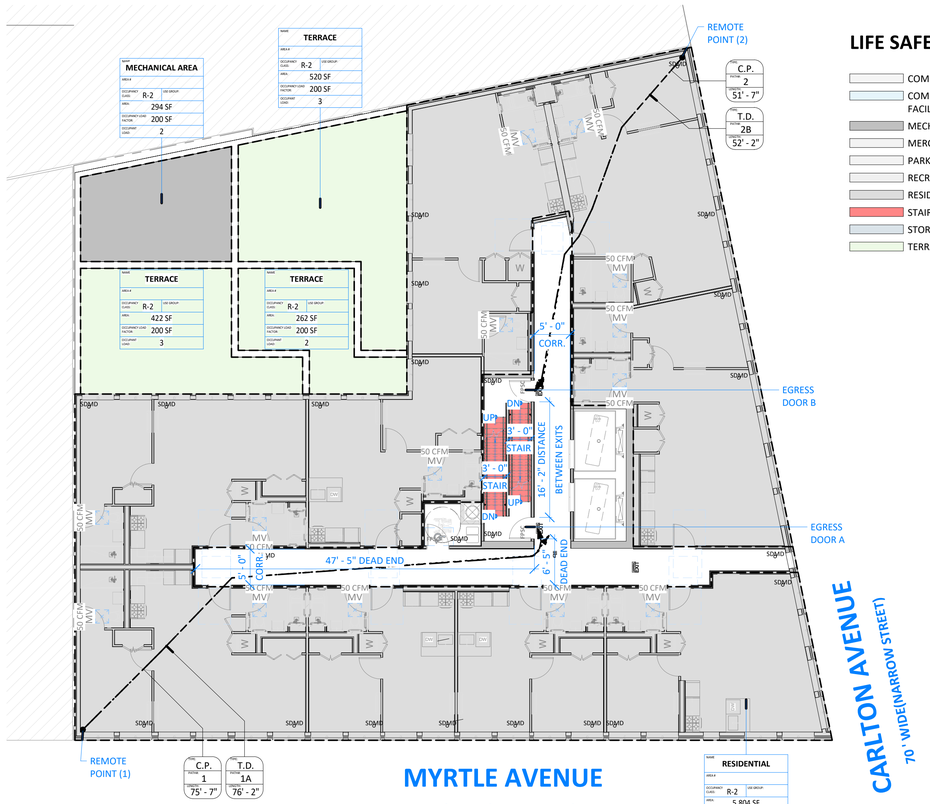


1 2ND FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"

LIFE SAFETY PLAN LEGEND

- COMMERCIAL
- COMMUNITY FACILITY
- MECHANICAL
- MERCANTILE
- PARKING
- RECREATION
- RESIDENTIAL
- STAIRS
- STORAGE
- TERRACE

OCCUPANCY CALCULATIONS (BC* 1004) - 2ND FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
	RESIDENTIAL	R-2	RESIDENTIAL	5,804 SF	200 SF	30	20	2
	TERRACE	R-2	RESIDENTIAL	262 SF	200 SF	2	20	1
	TERRACE	R-2	RESIDENTIAL	520 SF	200 SF	3	20	1
	TERRACE	R-2	RESIDENTIAL	422 SF	200 SF	3	20	1
	MECHANICAL AREA	R-2	RESIDENTIAL	294 SF	200 SF	2	20	1
2ND FLOOR				7,304 SF		40		

EGRESS DISTANCE CALCULATIONS - 2ND FLOOR

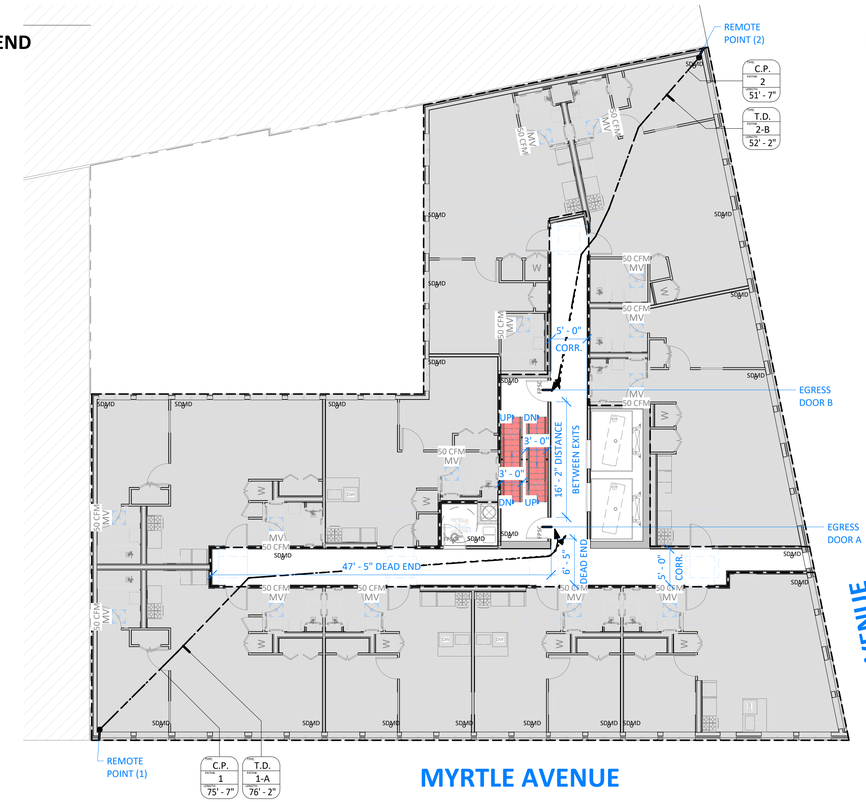
PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	75' - 7"
2	R-2	125' - 0"	51' - 7"
TRAVEL DISTANCE			
1A	R-2	200' - 0"	76' - 2"
2B	R-2	200' - 0"	52' - 2"

CORRIDOR REQUIREMENTS - 2ND FLOOR

	DISTANCE BETWEEN EXITS		DEAD END	
AREA TYPE	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
R-2 RESIDENTIAL	15' - 0''	16' - 2"	80' - 0"	53' - 10"

EGRESS WIDTH - 2ND FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	40	0.3	12"	36"	36"
STAIR B	R-2 RESIDENTIAL	40	0.3	12"	36"	36"
DOOR B	R-2 RESIDENTIAL	40	0.2	8"	36"	36"
DOOR A	R-2 RESIDENTIAL	40	0.2	8"	36"	36"
CORRIDOR	R-2 RESIDENTIAL	40	0.2	8"	36"	60"



3 3RD-5TH FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"

LIFE SAFETY PLAN LEGEND

- COMMERCIAL
- COMMUNITY FACILITY
- MECHANICAL
- MERCANTILE
- PARKING
- RECREATION
- RESIDENTIAL
- STAIRS
- STORAGE
- TERRACE

OCCUPANCY CALCULATIONS (BC* 1004) - 3RD-5TH FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
	RESIDENTIAL	R-2	RESIDENTIAL	5,804 SF	200 SF	30	20	2
3RD FLOOR				5,804 SF		30		

EGRESS DISTANCE CALCULATIONS - 3RD-5TH FLOOR

PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	75' - 7"
2	R-2	125' - 0"	51' - 7"
TRAVEL DISTANCE			
1-A	R-2	200' - 0"	76' - 2"
2-B	R-2	200' - 0"	52' - 2"

CORRIDOR REQUIREMENTS - 3RD FLOOR

	DISTANCE BETWEEN EXITS		DEAD END	
AREA TYPE	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
R-2 RESIDENTIAL	15' - 0''	16' - 2"	80' - 0"	53' - 10"

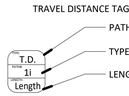
EGRESS WIDTH - 3RD FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	30	0.3	9"	36"	36"
STAIR B	R-2 RESIDENTIAL	30	0.3	9"	36"	36"
DOOR B	R-2 RESIDENTIAL	40	0.2	8"	36"	36"
DOOR A	R-2 RESIDENTIAL	40	0.2	8"	36"	36"
CORRIDOR	R-2 RESIDENTIAL	30	0.2	6"	36"	60"

LIFE SAFETY LEGEND

- SMOKE AND CARBON MONOXIDE DETECTOR
- SPOT ELEVATION SYMBOL
- EXIT SIGN
- STAIR
- COMMON PATH OF TRAVEL
- PATH OF TRAVEL

TRAVEL DISTANCE TAG



OCCUPANCY TAG

- EMERGENCY WALL LIGHT
- 1-HOUR RATED PARTITION
- 2-HOUR RATED PARTITION
- 3-HOUR RATED PARTITION

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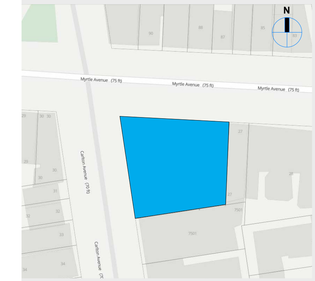
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

LIFE SAFETY PLANS

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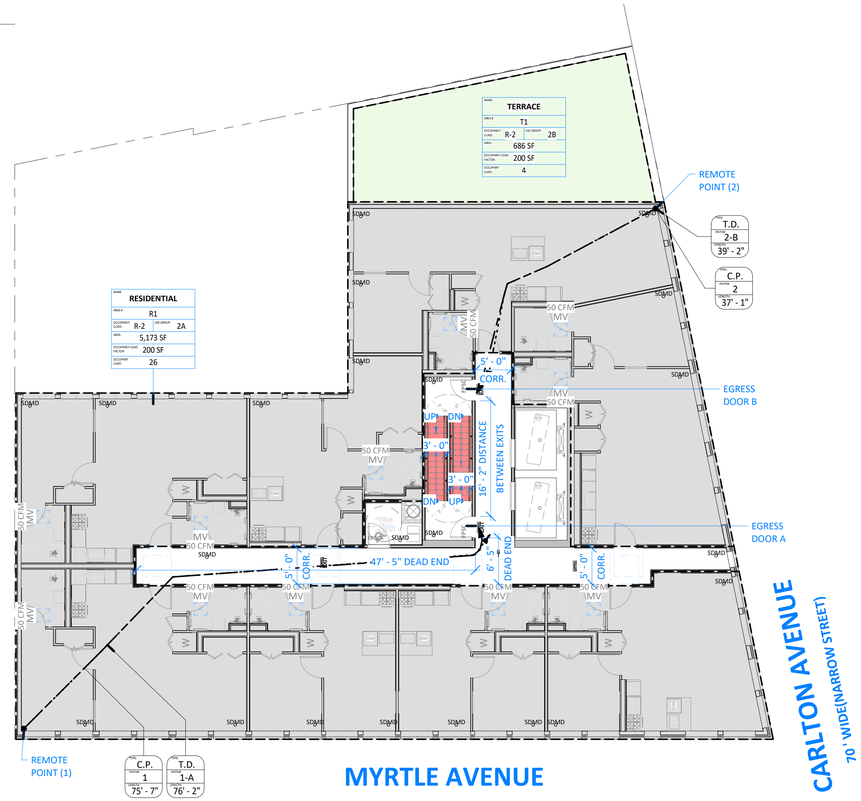
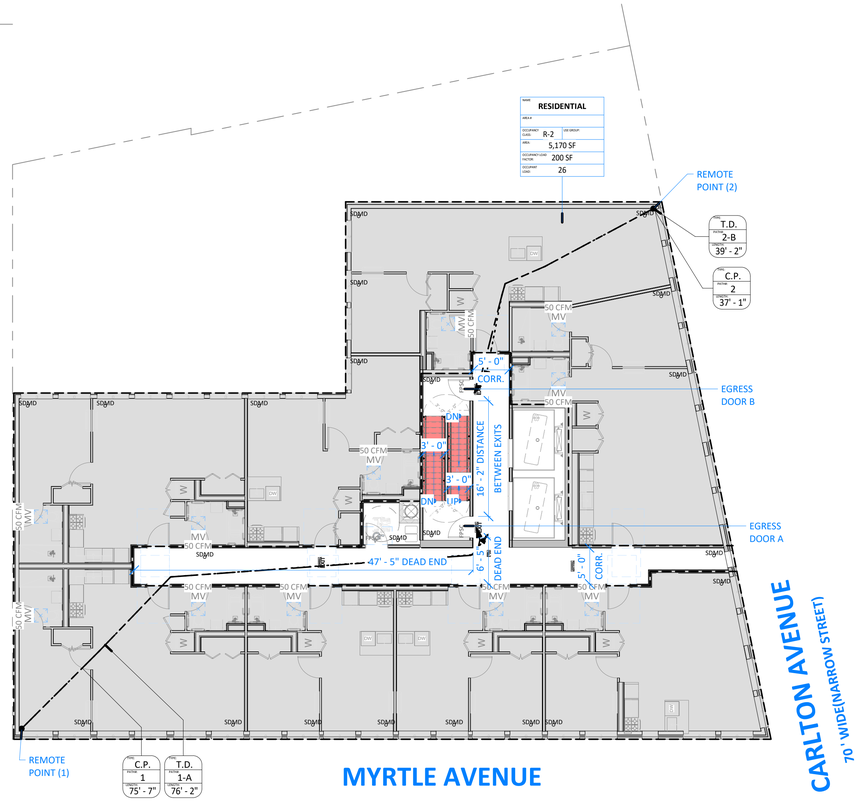


1 6TH FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"



2 7TH FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"

OCCUPANCY CALCULATIONS (BC* 1004) - 6TH FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
T1	TERRACE	R-2	RESIDENTIAL	686 SF	200 SF	4	20	1
R1	RESIDENTIAL	R-2	RESIDENTIAL	5,173 SF	200 SF	26	20	2
6TH FLOOR				5,859 SF		30		

EGRESS DISTANCE CALCULATIONS - 4TH FLOOR

PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	75' - 7"
2	R-2	125' - 0"	37' - 1"
TRAVEL DISTANCE			
1-A	R-2	200' - 0"	76' - 2"
2-B	R-2	200' - 0"	39' - 2"

CORRIDOR REQUIREMENTS - 6TH FLOOR

AREA TYPE	DISTANCE BETWEEN EXITS		DEAD END	
	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
R-2 RESIDENTIAL	15' - 0''	16' - 2''	80' - 0"	53' - 10"

EGRESS WIDTH - 6TH FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	30	0.3	9"	36"	36"
STAIR B	R-2 RESIDENTIAL	30	0.3	9"	36"	36"
DOOR B	R-2 RESIDENTIAL	30	0.2	6"	36"	36"
DOOR A	R-2 RESIDENTIAL	30	0.2	6"	36"	36"
CORRIDOR	R-2 RESIDENTIAL	30	0.2	6"	36"	60"

OCCUPANCY CALCULATIONS (BC* 1004) - 7TH FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
	RESIDENTIAL	R-2	RESIDENTIAL	5,170 SF	200 SF	26	20	2
7TH FLOOR				5,170 SF		26		

EGRESS DISTANCE CALCULATIONS - 7TH FLOOR

PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	75' - 7"
2	R-2	125' - 0"	37' - 1"
TRAVEL DISTANCE			
1-A	R-2	200' - 0"	76' - 2"
2-B	R-2	200' - 0"	39' - 2"

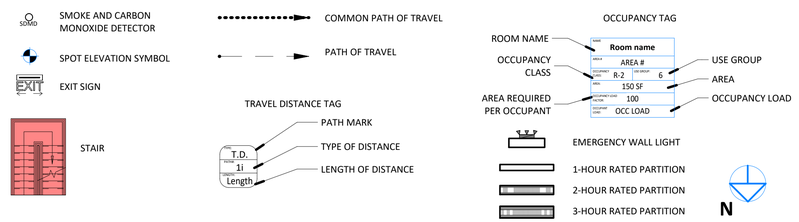
CORRIDOR REQUIREMENTS - 7TH FLOOR

AREA TYPE	DISTANCE BETWEEN EXITS		DEAD END	
	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
R-2 RESIDENTIAL	15' - 0''	16' - 2''	80' - 0"	53' - 10"

EGRESS WIDTH - 7TH FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	26	0.3	8"	36"	36"
STAIR B	R-2 RESIDENTIAL	26	0.3	8"	36"	36"
DOOR B	R-2 RESIDENTIAL	26	0.2	5"	36"	36"
DOOR A	R-2 RESIDENTIAL	26	0.2	5"	36"	36"
CORRIDOR	R-2 RESIDENTIAL	26	0.2	5"	36"	60"

LIFE SAFETY LEGEND



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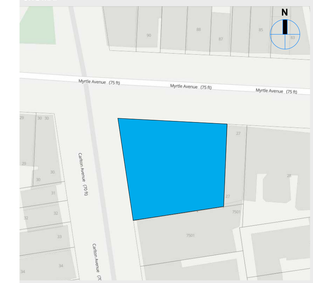
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

LIFE SAFETY PLANS

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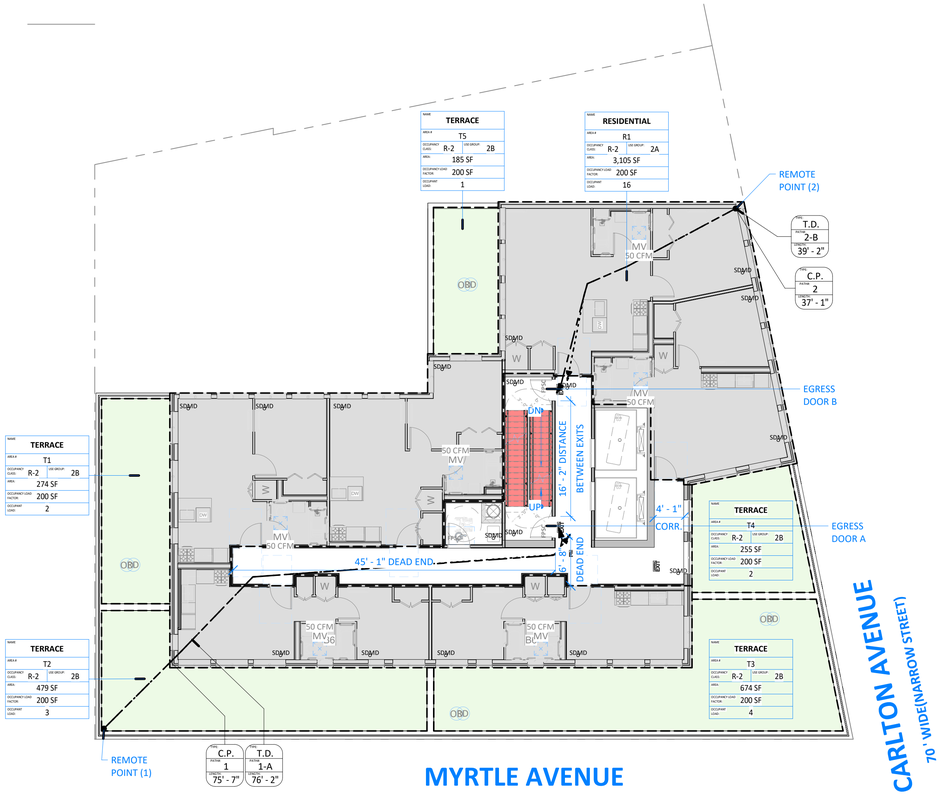


3 8TH FLOOR PLAN LIFE SAFETY

SCALE: 1" = 10'-0"

OCCUPANCY CALCULATIONS (BC* 1004) - 8TH FLOOR

AREA #	NAME	OCCUPANCY CLASS	AREA TYPE	AREA	AREA REQUIRED PER OCCUPANT	PROPOSED OCCUPANT LOAD	MAXIMUM OCCUPANT LOAD 1 EXIT	REQUIRED NUMBER OF EXITS
R1	RESIDENTIAL	R-2	RESIDENTIAL	3,105 SF	200 SF	16	20	1
T5	TERRACE	R-2	RESIDENTIAL	185 SF	200 SF	1	20	1
T4	TERRACE	R-2	RESIDENTIAL	255 SF	200 SF	2	20	1
T3	TERRACE	R-2	RESIDENTIAL	674 SF	200 SF	4	20	1
T2	TERRACE	R-2	RESIDENTIAL	479 SF	200 SF	3	20	1
T1	TERRACE	R-2	RESIDENTIAL	274 SF	200 SF	2	20	1
8TH FLOOR				4,973 SF		28		

EGRESS DISTANCE CALCULATIONS - 8TH FLOOR

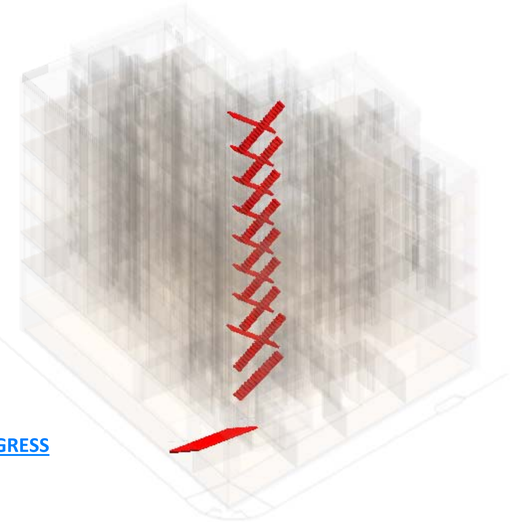
PATH #	OCCUPANCY	MAX. DISTANCE PERMITTED	PROPOSED LENGTH
COMMON PATH OF TRAVEL			
1	R-2	125' - 0"	75' - 7"
2	R-2	125' - 0"	37' - 1"
TRAVEL DISTANCE			
1-A	R-2	200' - 0"	76' - 2"
2-B	R-2	200' - 0"	39' - 2"

CORRIDOR REQUIREMENTS - 8TH FLOOR

AREA TYPE	DISTANCE BETWEEN EXITS		DEAD END	
	MINIMUM	PROPOSED	MAX. PERMITTED	MAX. PROPOSED
R-2 RESIDENTIAL	15' - 0''	16' - 2"	80' - 0"	51' - 9"

EGRESS WIDTH - 8TH FLOOR

#	USE	REQUIRED				PROPOSED WIDTH
		OCCUPANT LOAD	OCCUPANT LOAD FACTOR	WIDTH	MIN. WIDTH	
STAIR A	R-2 RESIDENTIAL	28	0.3	8 1/2"	36"	36"
STAIR B	R-2 RESIDENTIAL	28	0.3	8 1/2"	36"	36"
DOOR A	R-2 RESIDENTIAL	28	0.2	5 1/2"	36"	36"
DOOR B	R-2 RESIDENTIAL	28	0.2	5 1/2"	36"	36"
CORRIDOR	R-2 RESIDENTIAL	28	0.2	5 1/2"	36"	60"



2 3D EGRESS

SCALE:

LIFE SAFETY LEGEND

SMOKE AND CARBON MONOXIDE DETECTOR

SPOT ELEVATION SYMBOL

EXIT SIGN

STAIR

COMMON PATH OF TRAVEL

PATH OF TRAVEL

TRAVEL DISTANCE TAG

PATH MARK

TYPE OF DISTANCE

LENGTH OF DISTANCE

OCCUPANCY TAG

ROOM NAME

OCCUPANCY CLASS

AREA REQUIRED PER OCCUPANT

USE GROUP

AREA

OCCUPANCY LOAD

EMERGENCY WALL LIGHT

1-HOUR RATED PARTITION

2-HOUR RATED PARTITION

3-HOUR RATED PARTITION

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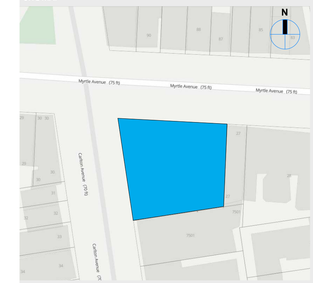
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

LIFE SAFETY PLANS

DOB # :

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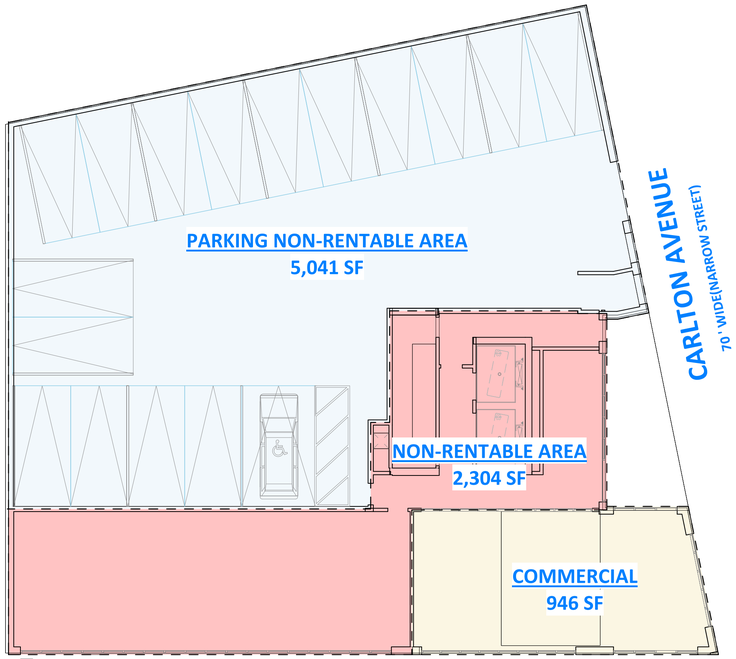
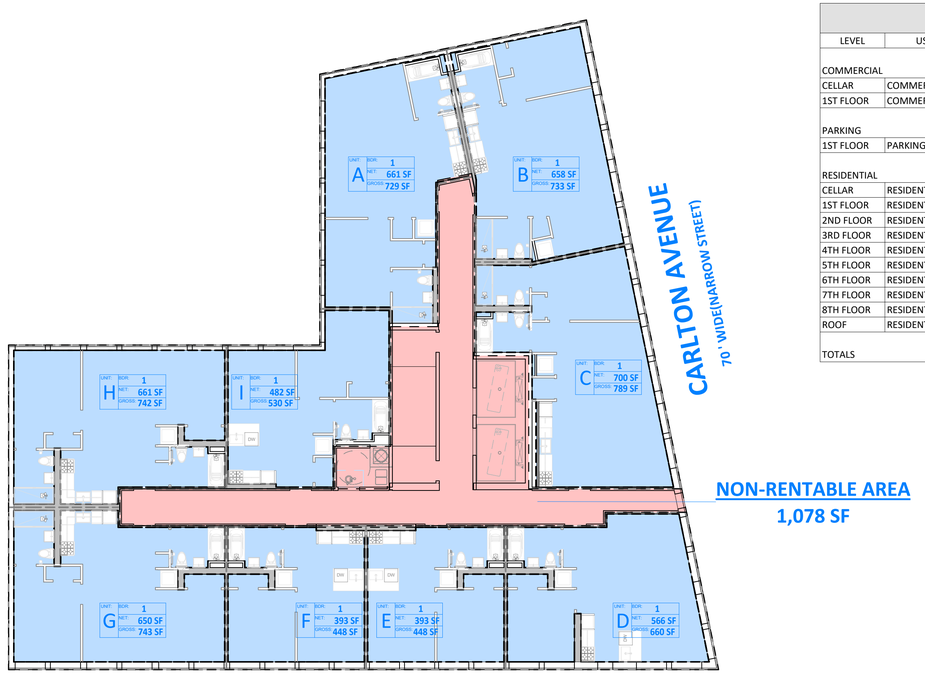


1 1ST FLOOR NET RENTABLE AREA
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



3 3RD-5TH FLOOR NET RENTABLE AREA
SCALE: 3/32" = 1'-0"

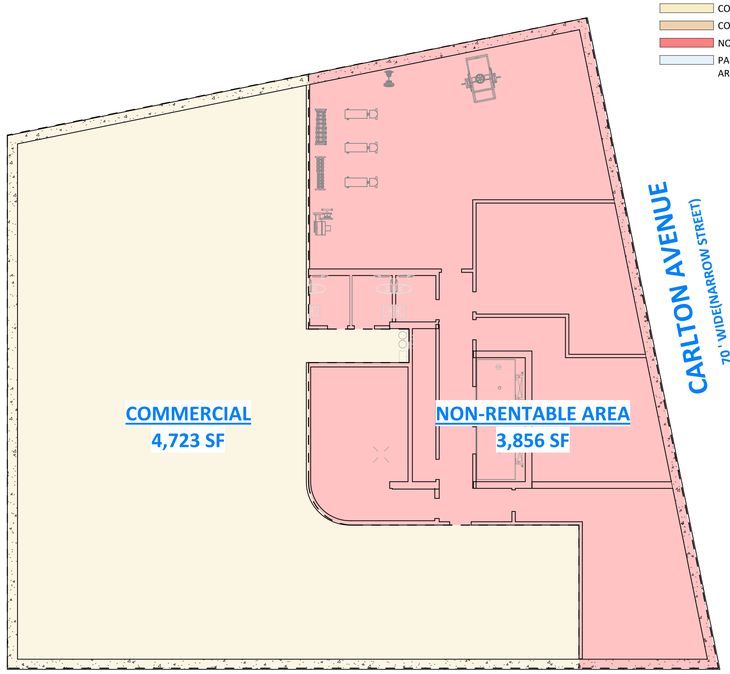
MYRTLE AVENUE
75' WIDE (WIDE STREET)

NET FLOOR AREA SCHEDULE

LEVEL	USE	GROSS AREA	NON RENTABLE	NET RENTABLE AREA	%
COMMERCIAL					
CELLAR	COMMERCIAL	4,747 SF	0 SF	4,747 SF	1.00
1ST FLOOR	COMMERCIAL	408 SF	0 SF	408 SF	1.00
		5,155 SF	0 SF	5,155 SF	
PARKING					
1ST FLOOR	PARKING	5,041 SF	4,989 SF	52 SF	0.01
		5,041 SF	4,989 SF	52 SF	
RESIDENTIAL					
CELLAR	RESIDENTIAL	3,831 SF	1,480 SF	2,351 SF	0.61
1ST FLOOR	RESIDENTIAL	2,304 SF	0 SF	2,304 SF	1.00
2ND FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
3RD FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
4TH FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
5TH FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
6TH FLOOR	RESIDENTIAL	6,136 SF	971 SF	5,165 SF	0.84
7TH FLOOR	RESIDENTIAL	6,136 SF	971 SF	5,165 SF	0.84
8TH FLOOR	RESIDENTIAL	3,995 SF	904 SF	3,091 SF	0.77
ROOF	RESIDENTIAL	479 SF	479 SF	0 SF	0.00
		50,454 SF	9,115 SF	41,339 SF	
TOTALS		60,650 SF	14,104 SF	46,546 SF	

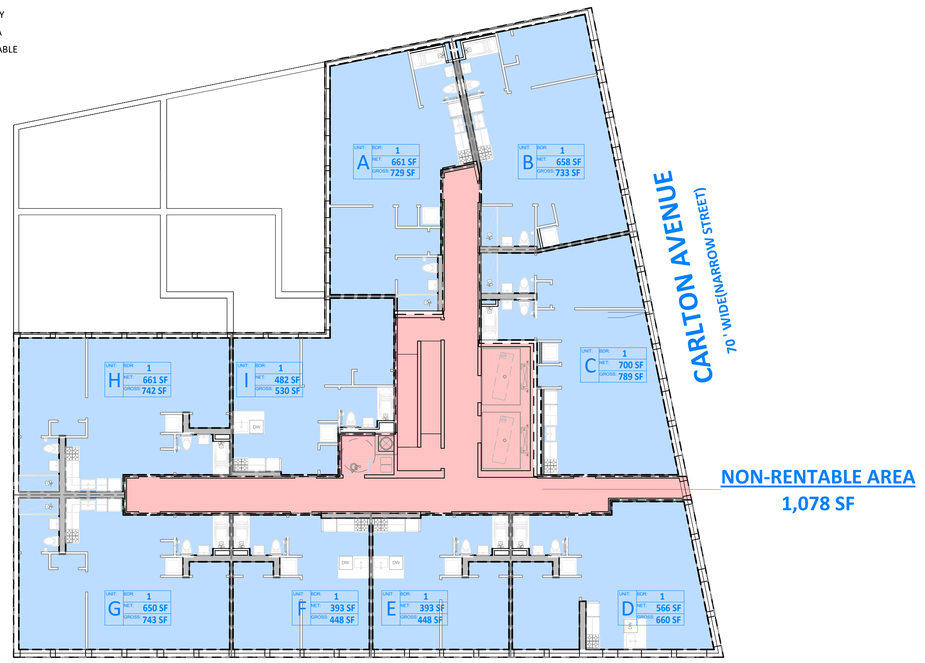
AREA LEGEND

- COMMERCIAL
- COMMUNITY FACILITY
- NON-RENTABLE AREA
- PARKING NON-RENTABLE AREA



4 CELLAR NET RENTABLE AREA
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



2 2ND FLOOR NET RENTABLE AREA
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)

UNIT TYPE LEGEND

- STUDIO
- 1 BEDROOM
- 2 BEDROOM
- 3 BEDROOM

N

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

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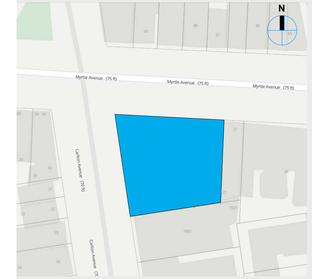
SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
NET AREA PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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G-300.00

SHEET: 25 OF 88

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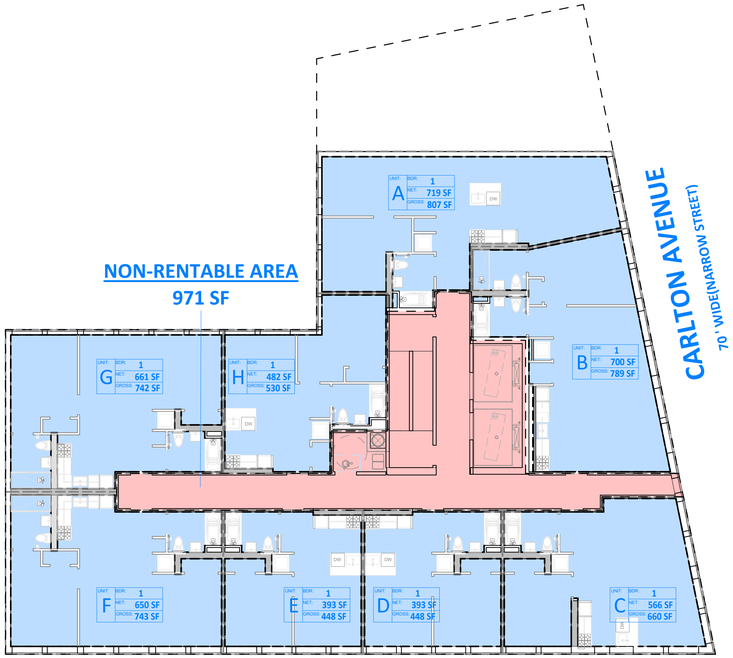
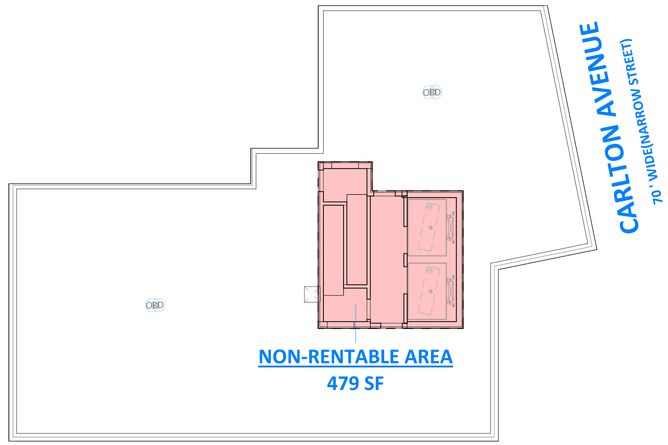


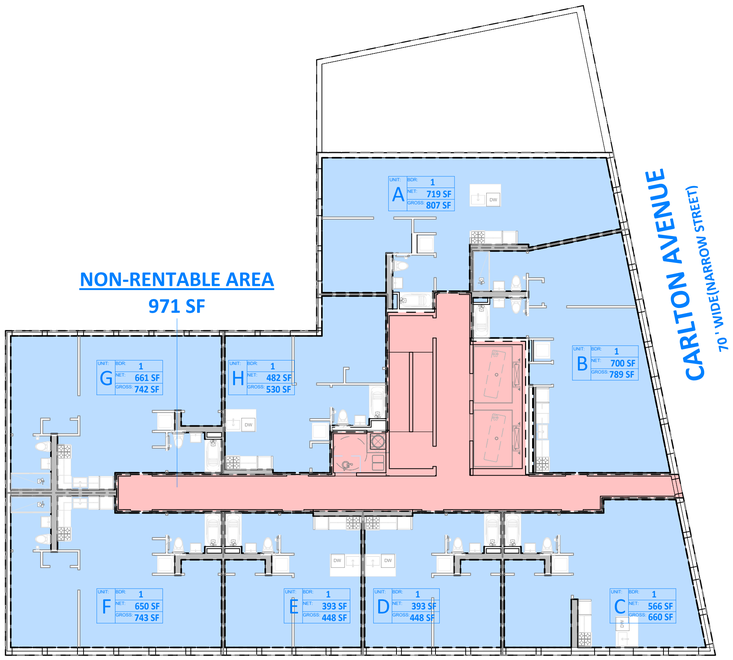
2 **7TH FLOOR NET RENTABLE AREA**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



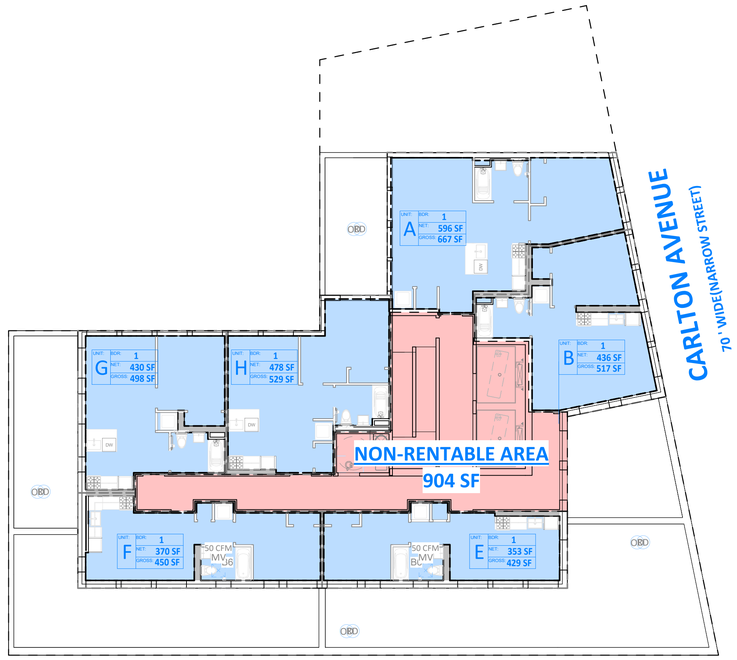
4 **ROOF NET RENTABLE AREA**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



1 **6TH FLOOR NET RENTABLE AREA**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)



3 **8TH FLOOR NET RENTABLE AREA**
SCALE: 3/32" = 1'-0"

MYRTLE AVENUE
75' WIDE (WIDE STREET)

N

UNIT BEDROOM SCHEDULE

LEVEL	UNIT	AREA	BEDROOMS
1			
2ND FLOOR	A	661 SF	1
2ND FLOOR	B	658 SF	1
2ND FLOOR	C	700 SF	1
2ND FLOOR	D	566 SF	1
2ND FLOOR	E	393 SF	1
2ND FLOOR	F	393 SF	1
2ND FLOOR	G	650 SF	1
2ND FLOOR	H	661 SF	1
2ND FLOOR	I	482 SF	1
3RD FLOOR	A	661 SF	1
3RD FLOOR	B	658 SF	1
3RD FLOOR	C	700 SF	1
3RD FLOOR	D	566 SF	1
3RD FLOOR	E	393 SF	1
3RD FLOOR	F	393 SF	1
3RD FLOOR	G	650 SF	1
3RD FLOOR	H	661 SF	1
3RD FLOOR	I	482 SF	1
6TH FLOOR	A	719 SF	1
6TH FLOOR	B	700 SF	1
6TH FLOOR	C	566 SF	1
6TH FLOOR	D	393 SF	1
6TH FLOOR	E	393 SF	1
6TH FLOOR	F	650 SF	1
6TH FLOOR	G	661 SF	1
6TH FLOOR	H	482 SF	1
7TH FLOOR	A	719 SF	1
7TH FLOOR	B	700 SF	1
7TH FLOOR	C	566 SF	1
7TH FLOOR	D	393 SF	1
7TH FLOOR	E	393 SF	1
7TH FLOOR	F	650 SF	1
7TH FLOOR	G	661 SF	1
7TH FLOOR	H	482 SF	1
8TH FLOOR	A	596 SF	1
8TH FLOOR	B	436 SF	1
8TH FLOOR	E	353 SF	1
8TH FLOOR	F	370 SF	1
8TH FLOOR	G	430 SF	1
8TH FLOOR	H	478 SF	1
1: 40		22,119 SF	
Grand total: 40		22,119 SF	

UNIT AREA

LEVEL	UNIT	AREA NET	AREA GROSS	BEDROOMS
2ND FLOOR				
2ND FLOOR	A	661 SF	1,920 SF	1
2ND FLOOR	B	658 SF	733 SF	1
2ND FLOOR	C	700 SF	789 SF	1
2ND FLOOR	D	566 SF	660 SF	1
2ND FLOOR	E	393 SF	448 SF	1
2ND FLOOR	F	393 SF	0 SF	1
2ND FLOOR	G	650 SF	0 SF	1
2ND FLOOR	H	661 SF	742 SF	1
2ND FLOOR	I	482 SF	530 SF	1
2ND FLOOR		5,164 SF	5,822 SF	
3RD FLOOR				
3RD FLOOR	A	661 SF	1,920 SF	1
3RD FLOOR	B	658 SF	733 SF	1
3RD FLOOR	C	700 SF	789 SF	1
3RD FLOOR	D	566 SF	660 SF	1
3RD FLOOR	E	393 SF	448 SF	1
3RD FLOOR	F	393 SF	0 SF	1
3RD FLOOR	G	650 SF	0 SF	1
3RD FLOOR	H	661 SF	742 SF	1
3RD FLOOR	I	482 SF	530 SF	1
3RD FLOOR		5,164 SF	5,822 SF	
6TH FLOOR				
6TH FLOOR	A	719 SF	807 SF	1
6TH FLOOR	B	700 SF	789 SF	1
6TH FLOOR	C	566 SF	660 SF	1
6TH FLOOR	D	393 SF	448 SF	1
6TH FLOOR	E	393 SF	448 SF	1
6TH FLOOR	F	650 SF	743 SF	1
6TH FLOOR	G	661 SF	742 SF	1
6TH FLOOR	H	482 SF	530 SF	1
6TH FLOOR		4,564 SF	5,166 SF	
7TH FLOOR				
7TH FLOOR	A	719 SF	807 SF	1
7TH FLOOR	B	700 SF	789 SF	1
7TH FLOOR	C	566 SF	660 SF	1
7TH FLOOR	D	393 SF	448 SF	1
7TH FLOOR	E	393 SF	448 SF	1
7TH FLOOR	F	650 SF	743 SF	1
7TH FLOOR	G	661 SF	742 SF	1
7TH FLOOR	H	482 SF	530 SF	1
7TH FLOOR		4,564 SF	5,166 SF	
8TH FLOOR				
8TH FLOOR	A	596 SF	667 SF	1
8TH FLOOR	B	436 SF	517 SF	1
8TH FLOOR	E	353 SF	429 SF	1
8TH FLOOR	F	370 SF	450 SF	1
8TH FLOOR	G	430 SF	498 SF	1
8TH FLOOR	H	478 SF	529 SF	1
8TH FLOOR		2,663 SF	3,091 SF	
Grand total		22,119 SF	25,067 SF	

NET FLOOR AREA SCHEDULE

LEVEL	USE	GROSS AREA	NON RENTABLE	NET RENTABLE AREA	%
COMMERCIAL					
CELLAR	COMMERCIAL	4,747 SF	0 SF	4,747 SF	1.00
1ST FLOOR	COMMERCIAL	408 SF	0 SF	408 SF	1.00
		5,155 SF	0 SF	5,155 SF	
PARKING					
1ST FLOOR	PARKING	5,041 SF	4,989 SF	52 SF	0.01
		5,041 SF	4,989 SF	52 SF	
RESIDENTIAL					
CELLAR	RESIDENTIAL	3,831 SF	1,480 SF	2,351 SF	0.61
1ST FLOOR	RESIDENTIAL	2,304 SF	0 SF	2,304 SF	1.00
2ND FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
3RD FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
4TH FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
5TH FLOOR	RESIDENTIAL	6,893 SF	1,078 SF	5,816 SF	0.84
6TH FLOOR	RESIDENTIAL	6,136 SF	971 SF	5,165 SF	0.84
7TH FLOOR	RESIDENTIAL	6,136 SF	971 SF	5,165 SF	0.84
8TH FLOOR	RESIDENTIAL	3,995 SF	904 SF	3,091 SF	0.77
ROOF	RESIDENTIAL	479 SF	479 SF	0 SF	0.00
		50,454 SF	9,115 SF	41,339 SF	
TOTALS		60,650 SF	14,104 SF	46,546 SF	

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75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
NET AREA PLANS

DOB # :

DOB BSCAN + STAMP :

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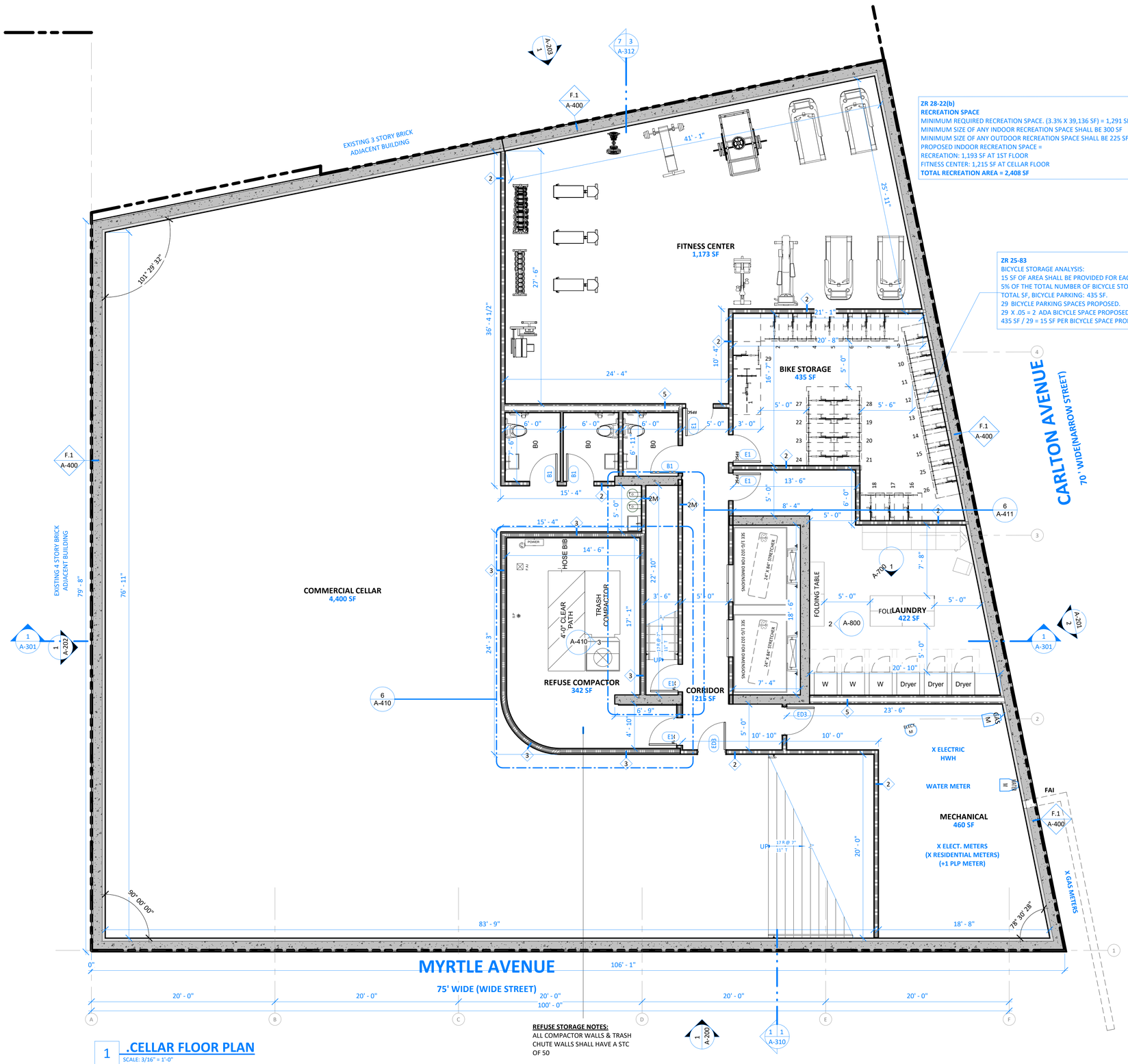

ZR 28-22(b)
RECREATION SPACE
MINIMUM REQUIRED RECREATION SPACE. (3.3% X 39,136 SF) = 1,291 SF
MINIMUM SIZE OF ANY INDOOR RECREATION SPACE SHALL BE 300 SF
MINIMUM SIZE OF ANY OUTDOOR RECREATION SPACE SHALL BE 225 SF
PROPOSED INDOOR RECREATION SPACE =
RECREATION: 1,193 SF AT 1ST FLOOR
FITNESS CENTER: 1,215 SF AT CELLAR FLOOR
TOTAL RECREATION AREA = 2,408 SF

ZR 25-83
BICYCLE STORAGE ANALYSIS:
15 SF OF AREA SHALL BE PROVIDED FOR EACH BICYCLE SPACE.
5% OF THE TOTAL NUMBER OF BICYCLE STORAGE SPACES MUST BE ACCESSIBLE.
TOTAL SF, BICYCLE PARKING: 435 SF.
29 BICYCLE PARKING SPACES PROPOSED.
29 X .05 = 2 ADA BICYCLE SPACE PROPOSED.
435 SF / 29 = 15 SF PER BICYCLE SPACE PROPOSED.

REFUSE STORAGE NOTES:
ALL COMPACTOR WALLS & TRASH CHUTE WALLS SHALL HAVE A STC OF 50

3 HOUR RATED CEILING,
PROPOSED 8" CONC. SLAB
4 HOUR RATING AS PER
TABLE BC* 721.2.2.1

CONCRETE FLOOR SLOPED TO DRAIN

1 .CELLAR FLOOR PLAN
SCALE: 3/16" = 1'-0"

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT (MV, 50 CFM, SPR)
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- BICYCLE STORAGE 150 SF — ROOM TAG
- LIGHT AND AIR TAG (R.L. XX, P.L. XX, R.A. XX, P.A. XX)
  R.L. = REQUIRED LIGHT
  P.L. = PROVIDED LIGHT
  R.A. = REQUIRED AIR VENTILATION
  P.A. = PROVIDED AIR VENTILATION
- UNIT A, BDR. 3, NET NET SF, GROSS — UNIT TAG
  TUNIT TYPE
  SECTION 504
  HPD UNIT TYPE
- EMERGENCY WALL LIGHT
- SOG1.1 | 75'-10" | A-400 — FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- (TV) Wx — WINDOW SCHEDULE TAG
  SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET
- 1i — PARTITION TYPE TAG
- S-02 — STOREFRONT TYPE TAG
- 0 — COLUMN LINE / GRID INDICATOR
- SCMDD — SMOKE AND CARBON MONOXIDE DETECTOR
- EV — ELECTRIC VEHICLE CHARGING STATION

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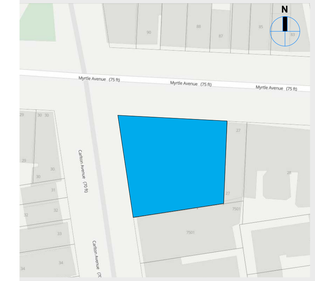
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

CELLAR PLAN

DOB # :

DOB BSCAN + STAMP :

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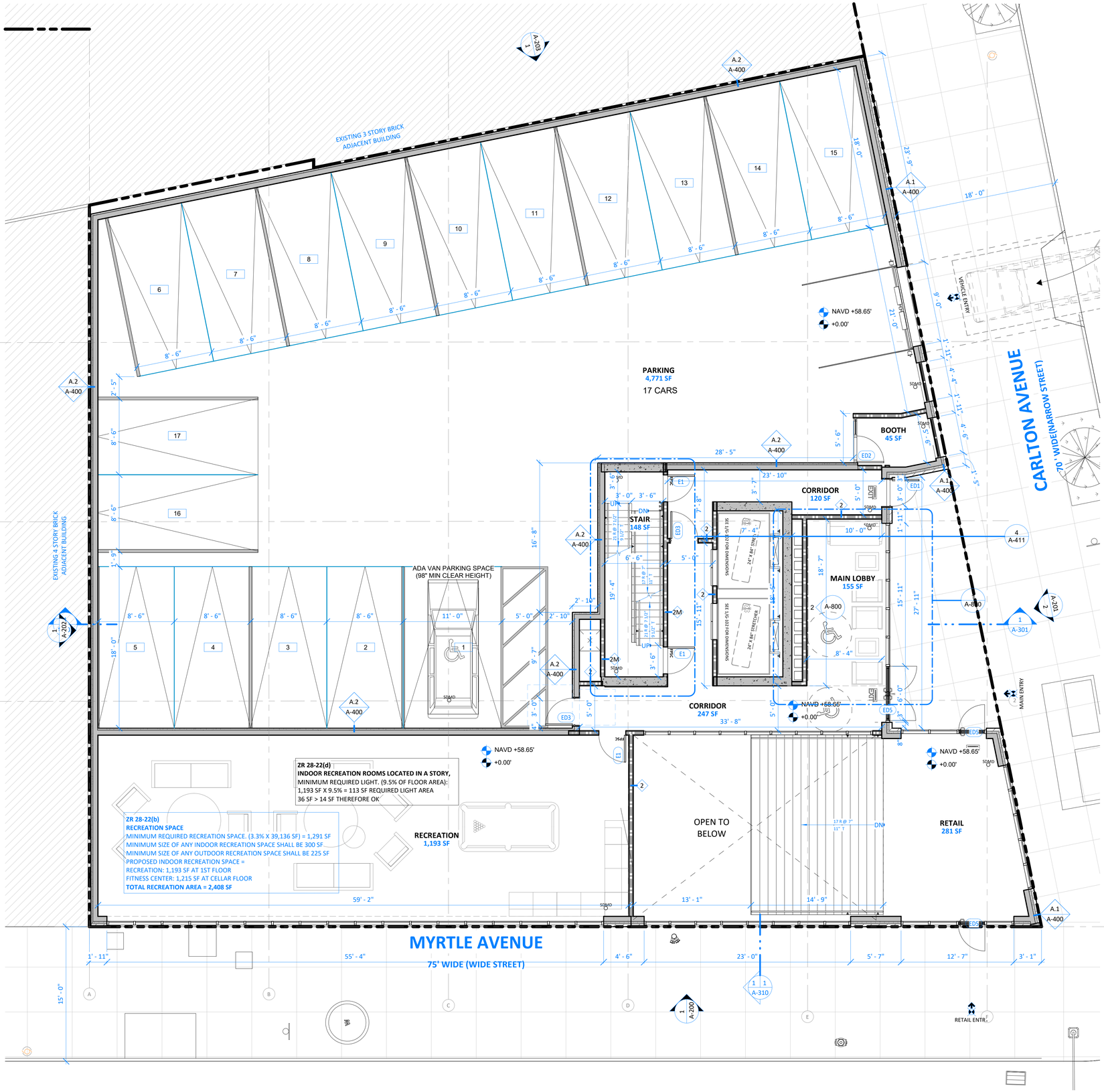

1 **1ST FLOOR PLAN**
SCALE: 3/16" = 1'-0"

4 Z-101

CAR MANUVABILITY

BC 1009.4 ELEVATORS.
TO BE CONSIDERED PART OF AN ACCESSIBLE MEANS OF EGRESS, AN ELEVATOR SHALL COMPLY WITH THE EMERGENCY OPERATION AND SIGNALING DEVICE REQUIREMENTS OF SECTION 2.27 OF ASME A17.1 AND SECTION 1109.7.
STANDBY POWER SHALL BE PROVIDED IN ACCORDANCE WITH CHAPTER 27 AND SECTION 3003.

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT (MV, 50 CFM)
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- BICYCLE STORAGE 150 SF
- ROOM TAG
- LIGHT AND AIR TAG (R.L. = REQUIRED LIGHT; P.L. = PROVIDED LIGHT; R.A. = REQUIRED AIR VENTILATION; P.A. = PROVIDED AIR VENTILATION)
- UNIT TAG (UNIT TYPE, SECTION 504, HPD UNIT TYPE)
- EMERGENCY WALL LIGHT
- FLOOR ELEVATION SYMBOL (e.g. SOG1.1 | 75'-10" | A-400)
- SPOT ELEVATION SYMBOL
- WINDOW SCHEDULE TAG — SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- DOOR TYPE, SEE DOOR SCHEDULE SHEET
- PARTITION TYPE TAG
- STOREFRONT TYPE TAG
- COLUMN LINE / GRID INDICATOR
- SMOKE AND CARBON MONOXIDE DETECTOR
- ELECTRIC VEHICLE CHARGING STATION

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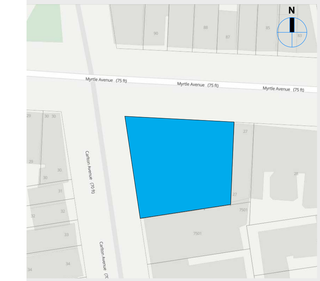
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

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PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

1ST FLOOR PLAN

DOB # :

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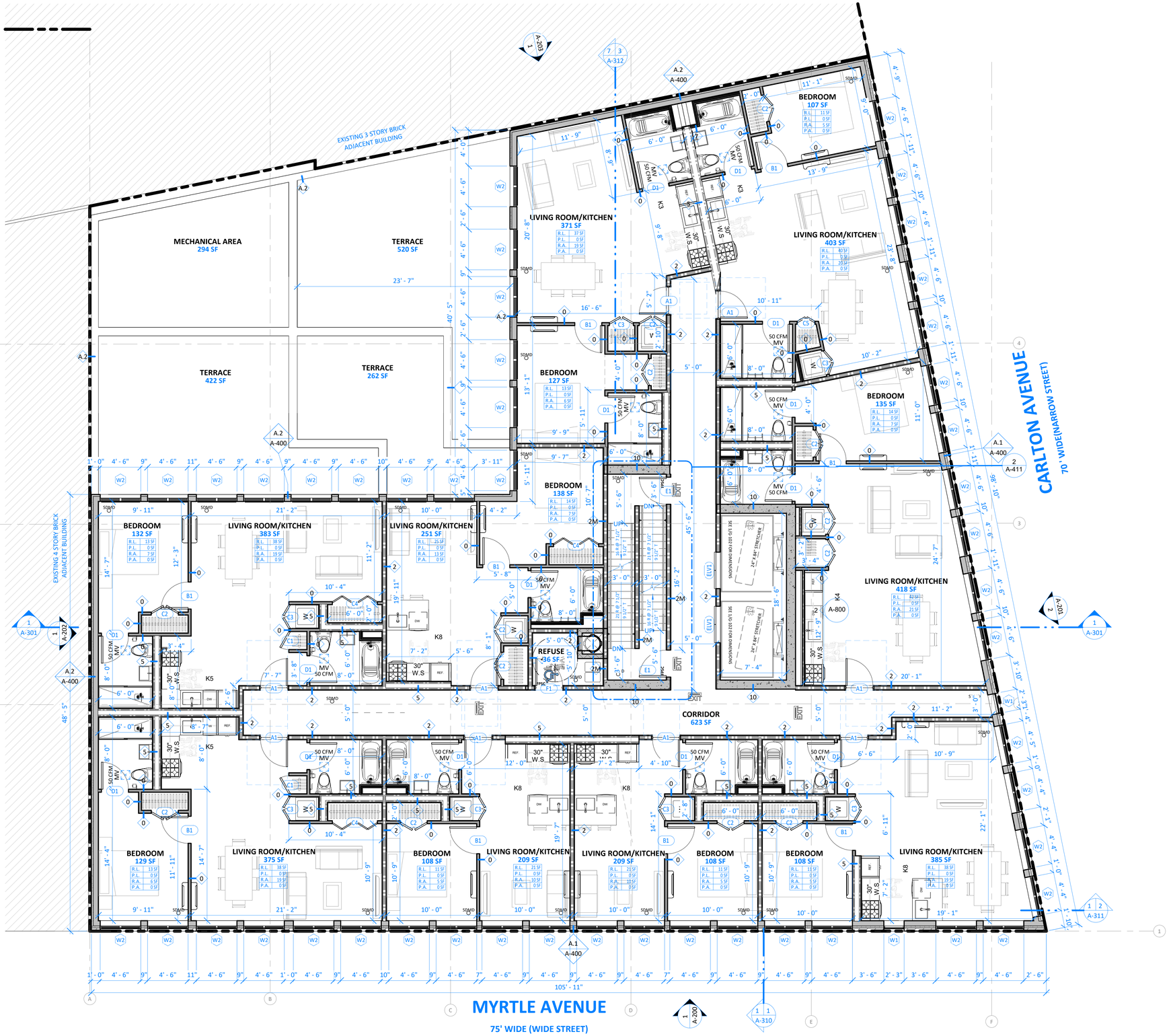

1 2ND FLOOR PLAN

SCALE: 3/16" = 1'-0"

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- ROOM TAG
  LIGHT AND AIR TAG
  R.L. = REQUIRED LIGHT
  P.L. = PROVIDED LIGHT
  R.A. = REQUIRED AIR VENTILATION
  P.A. = PROVIDED AIR VENTILATION
- UNIT TAG
- EMERGENCY WALL LIGHT
- SOG1.1 75'-10" A-400 — FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- (TV) Wx — WINDOW SCHEDULE TAG
  SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET
- 1i — PARTITION TYPE TAG
- S-02 — STOREFRONT TYPE TAG
- 0 — COLUMN LINE / GRID INDICATOR
- SCAND — SMOKE AND CARBON MONOXIDE DETECTOR
- EV — ELECTRIC VEHICLE CHARGING STATION

BICYCLE STORAGE
150 SF

R.L.	XX
P.L.	XX
R.A.	XX
P.A.	XX

UNIT A | BDR. 3 | NET NET SF | GROSS

TUNIT TYPE
SECTION 504
HPD UNIT TYPE

S. WIEDER ARCHITECT PC

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T: (718) 484-3201

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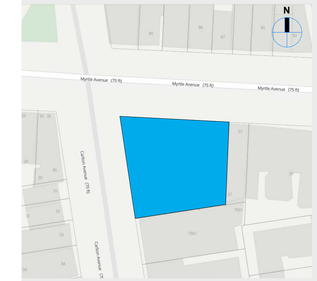

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

2ND FLOOR PLAN

DOB # :

DOB BSCAN + STAMP :

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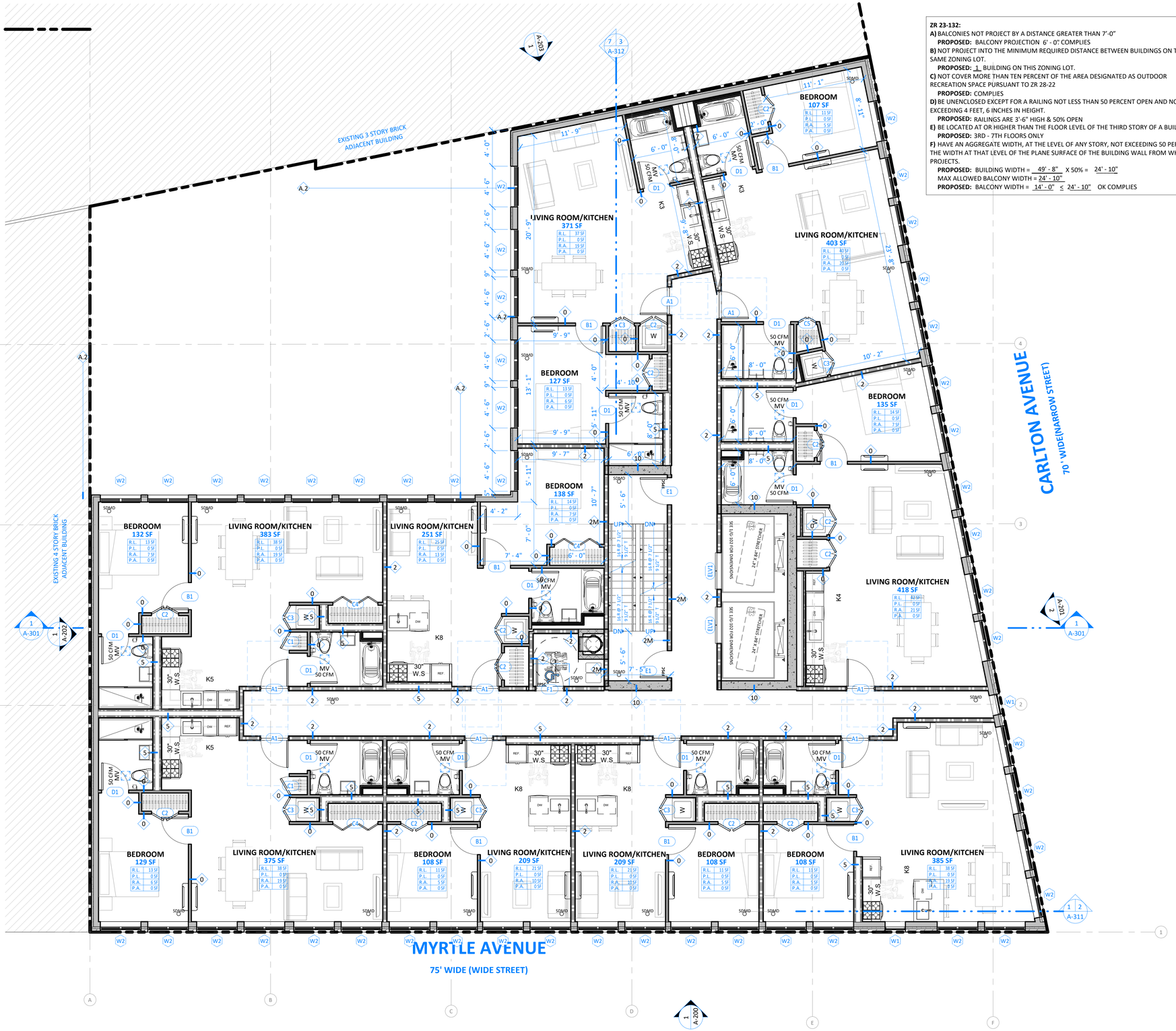

1 **3RD FLOOR PLAN**
SCALE: 3/16" = 1'-0"

ZR 23-132:
A) BALCONIES NOT PROJECT BY A DISTANCE GREATER THAN 7'-0"
PROPOSED: BALCONY PROJECTION 6' - 0" COMPLIES
B) NOT PROJECT INTO THE MINIMUM REQUIRED DISTANCE BETWEEN BUILDINGS ON THE SAME ZONING LOT.
PROPOSED: 1 BUILDING ON THIS ZONING LOT.
C) NOT COVER MORE THAN TEN PERCENT OF THE AREA DESIGNATED AS OUTDOOR RECREATION SPACE PURSUANT TO ZR 28-22
PROPOSED: COMPLIES
D) BE UNENCLOSED EXCEPT FOR A RAILING NOT LESS THAN 50 PERCENT OPEN AND NOT EXCEEDING 4 FEET, 6 INCHES IN HEIGHT.
PROPOSED: RAILINGS ARE 3'-6" HIGH & 50% OPEN
E) BE LOCATED AT OR HIGHER THAN THE FLOOR LEVEL OF THE THIRD STORY OF A BUILDING.
PROPOSED: 3RD - 7TH FLOORS ONLY
F) HAVE AN AGGREGATE WIDTH, AT THE LEVEL OF ANY STORY, NOT EXCEEDING 50 PERCENT OF THE WIDTH AT THAT LEVEL OF THE PLANE SURFACE OF THE BUILDING WALL FROM WHICH IT PROJECTS.
PROPOSED: BUILDING WIDTH = 49' - 8" X 50% = 24' - 10"
MAX ALLOWED BALCONY WIDTH = 24' - 10"
PROPOSED: BALCONY WIDTH = 14' - 0" ≤ 24' - 10" OK COMPLIES

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT (MV, 50 CFM, SPS)
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- BICYCLE STORAGE 150 SF (R.L. XX, P.L. XX, R.A. XX, P.A. XX) — ROOM TAG
- LIGHT AND AIR TAG
  R.L. = REQUIRED LIGHT
  P.L. = PROVIDED LIGHT
  R.A. = REQUIRED AIR VENTILATION
  P.A. = PROVIDED AIR VENTILATION
- UNIT A, BDR. 3, NET NET SF, INCOME — TUNIT TYPE, SECTION 504, HPD UNIT TYPE — UNIT TAG
- EMERGENCY WALL LIGHT
- SOG1.1 75'-10" A-400 — FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- (TV) Wx — WINDOW SCHEDULE TAG
  SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET
- 1i — PARTITION TYPE TAG
- S-02 — STOREFRONT TYPE TAG
- 0 — COLUMN LINE / GRID INDICATOR
- SOMD — SMOKE AND CARBON MONOXIDE DETECTOR
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T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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NO.	DESCRIPTION	DATE
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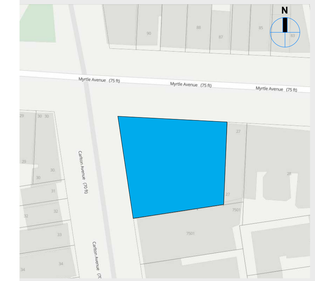
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
3RD-5TH FLOOR PLAN

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:42:23 AM
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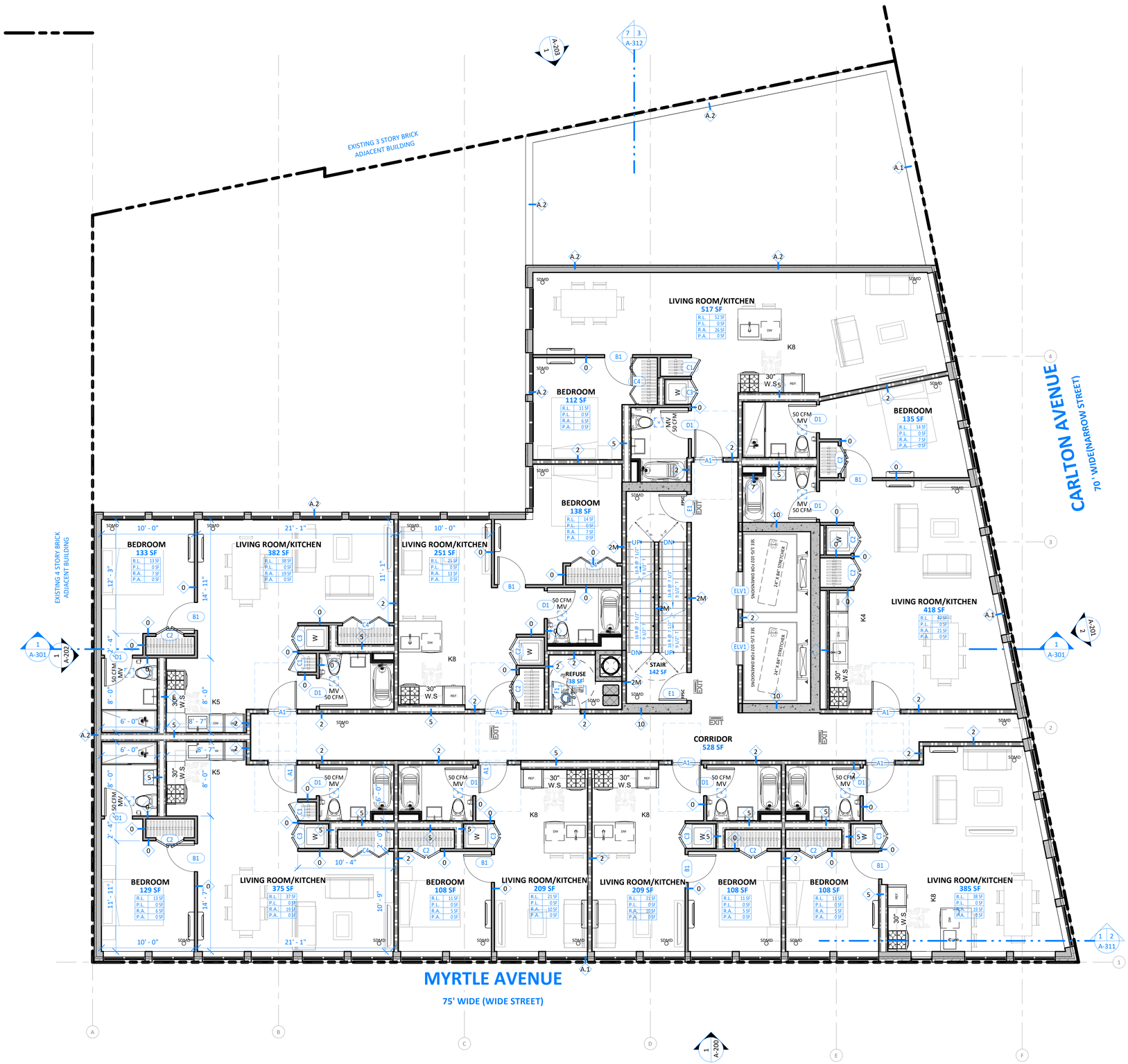

1 6TH FLOOR PLAN

SCALE: 3/16" = 1'-0"

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- ROOM TAG
- LIGHT AND AIR TAG
  - R.L. = REQUIRED LIGHT
  - P.L. = PROVIDED LIGHT
  - R.A. = REQUIRED AIR VENTILATION
  - P.A. = PROVIDED AIR VENTILATION
- UNIT TAG
- EMERGENCY WALL LIGHT
- FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- WINDOW SCHEDULE TAG SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- DOOR TYPE, SEE DOOR SCHEDULE SHEET
- PARTITION TYPE TAG
- STOREFRONT TYPE TAG
- COLUMN LINE / GRID INDICATOR
- SMOKE AND CARBON MONOXIDE DETECTOR
- ELECTRIC VEHICLE CHARGING STATION

N

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203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
...

OWNER:
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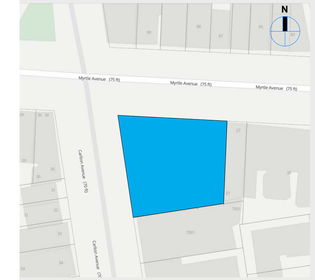
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

6TH FLOOR PLAN

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:42:34 AM
SCALE: As indicated
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SHEET: 31 OF 88

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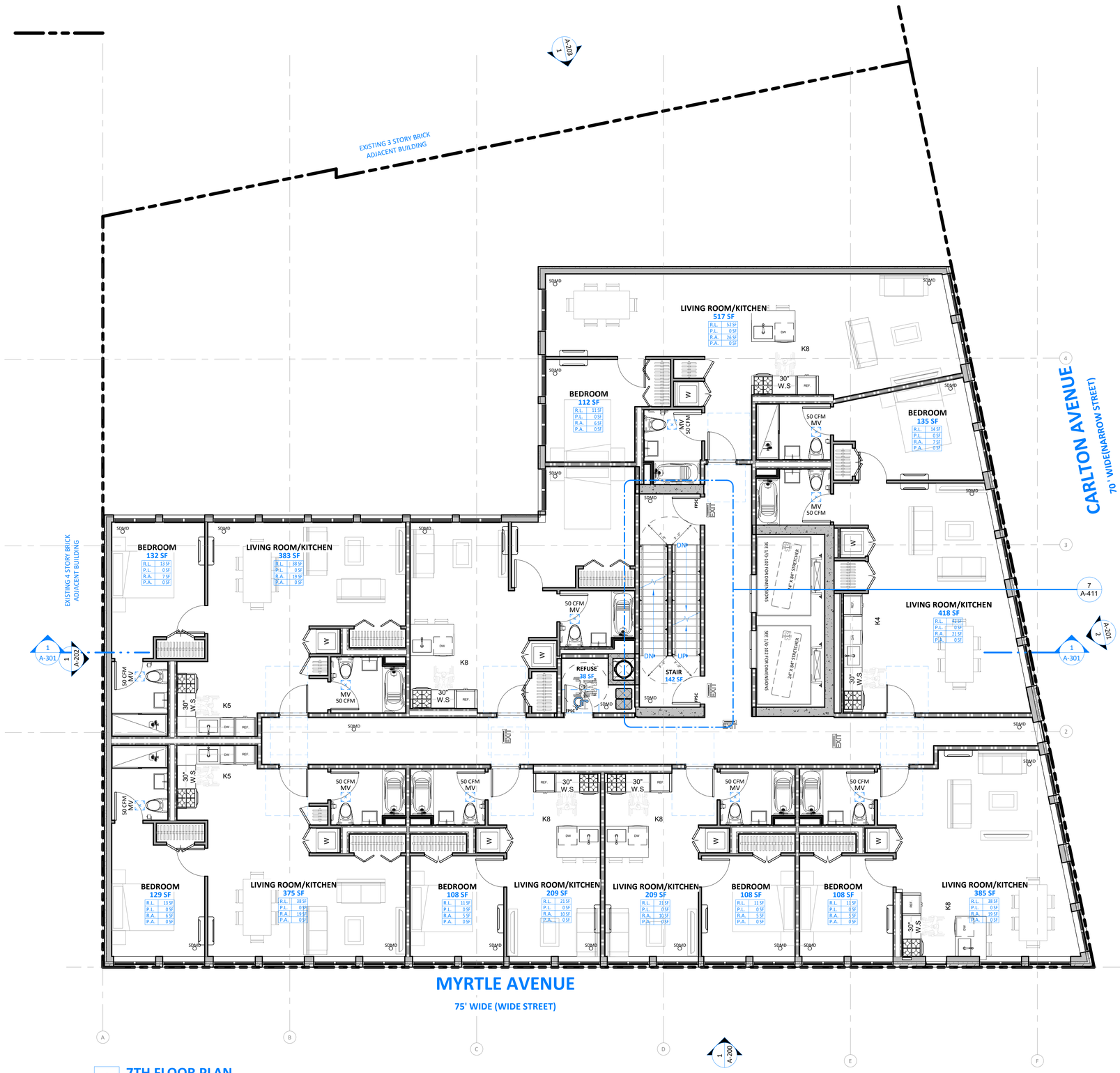

1 7TH FLOOR PLAN

SCALE: 3/16" = 1'-0"

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT (MV 50 CFM SPR)
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- BICYCLE STORAGE 150 SF (R.L. XX, P.L. XX, R.A. XX, P.A. XX) — ROOM TAG
- LIGHT AND AIR TAG
  - R.L. = REQUIRED LIGHT
  - P.L. = PROVIDED LIGHT
  - R.A. = REQUIRED AIR VENTILATION
  - P.A. = PROVIDED AIR VENTILATION
- UNIT A, BDR 3, NET NET SF, GROSS — TUNIT TYPE, SECTION 504 HFD UNIT TYPE — UNIT TAG
- EMERGENCY WALL LIGHT
- SOG1.1 75'-10" A-400 — FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- (TV) Wx — WINDOW SCHEDULE TAG, SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET
- 1i — PARTITION TYPE TAG
- S-02 — STOREFRONT TYPE TAG
- 0 — COLUMN LINE / GRID INDICATOR
- SDMD — SMOKE AND CARBON MONOXIDE DETECTOR
- EV — ELECTRIC VEHICLE CHARGING STATION

N

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STRUCTURAL ENGINEER:
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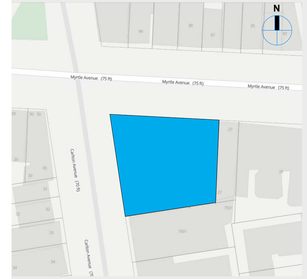
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

7TH FLOOR PLAN

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:42:43 AM
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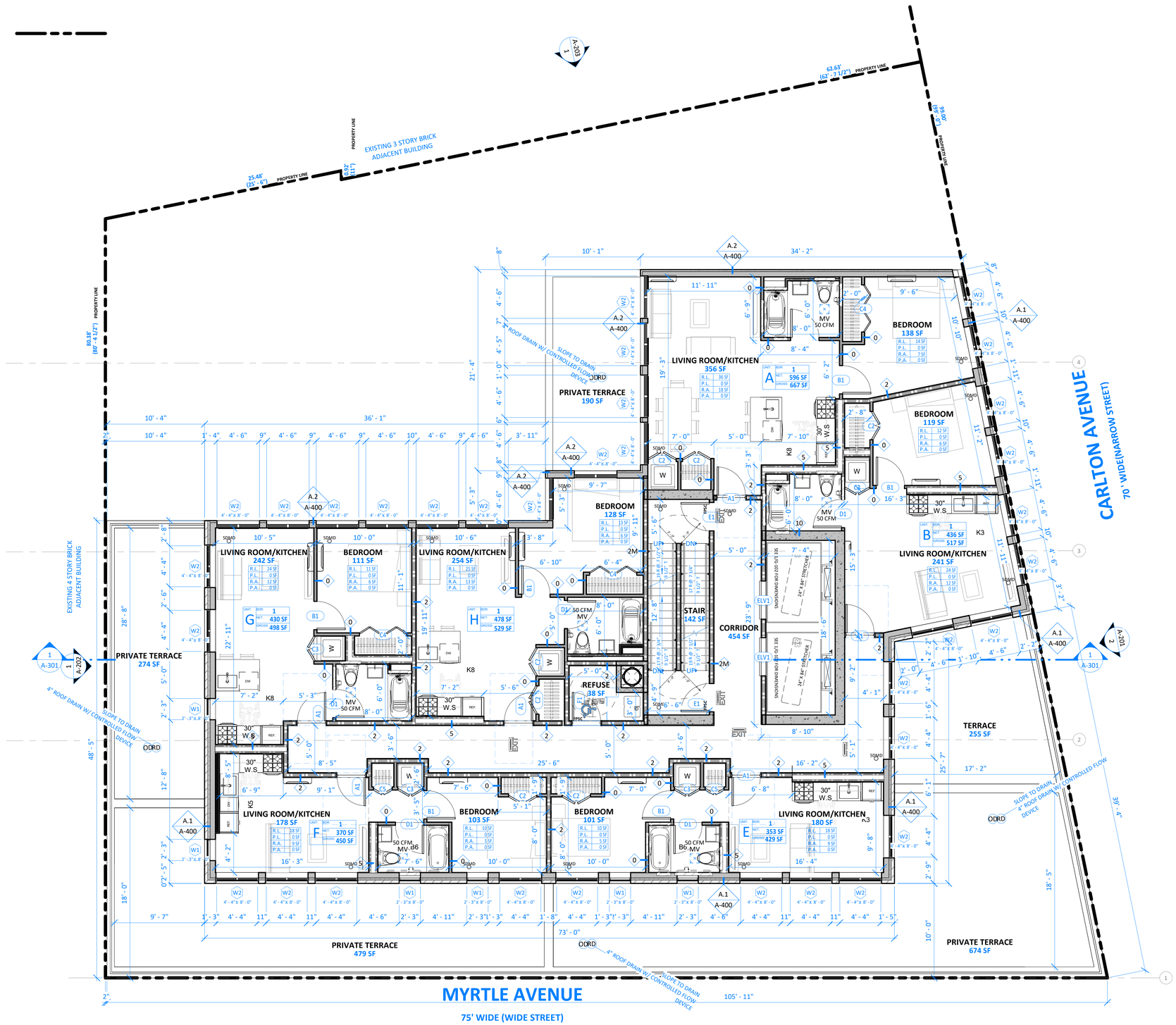

1 8TH FLOOR PLAN

SCALE: 3/16" = 1'-0"

FLOOR LEGEND

MATERIAL + SYMBOLS

- CONCRETE
- CMU
- STEEL / METAL
- RIGID INSULATION
- GYPSUM BOARD
- BRICK
- EXISTING BUILDING
- NON-FIRE RATED PARTITION
- FIRE RATED PARTITION
- MECH. VENT
- SPRINKLER HEAD
- EXIT SIGN SYMBOL
- HANDICAPPED SYMBOL
- FD — FLOOR DRAIN
- BICYCLE STORAGE 150 SF — ROOM TAG
- LIGHT AND AIR TAG
  - R.L. = REQUIRED LIGHT
  - P.L. = PROVIDED LIGHT
  - R.A. = REQUIRED AIR VENTILATION
  - P.A. = PROVIDED AIR VENTILATION
- UNIT TAG
- EMERGENCY WALL LIGHT
- SOG1.1 75'-10" A-400 — FLOOR ELEVATION SYMBOL
- SPOT ELEVATION SYMBOL
- (TV) Wx — WINDOW SCHEDULE TAG; SEE WINDOW SCHEDULE FOR DETAILED INFORMATION
- Dx — DOOR TYPE, SEE DOOR SCHEDULE SHEET
- 1i — PARTITION TYPE TAG
- S-02 — STOREFRONT TYPE TAG
- 0 — COLUMN LINE / GRID INDICATOR
- SCMD — SMOKE AND CARBON MONOXIDE DETECTOR
- EV — ELECTRIC VEHICLE CHARGING STATION

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T: (718) 484-3201

STRUCTURAL ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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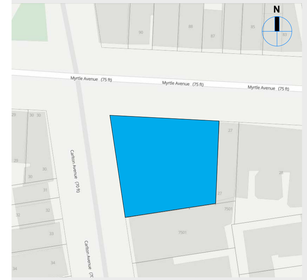
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

8TH FLOOR PLAN

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:42:52 AM
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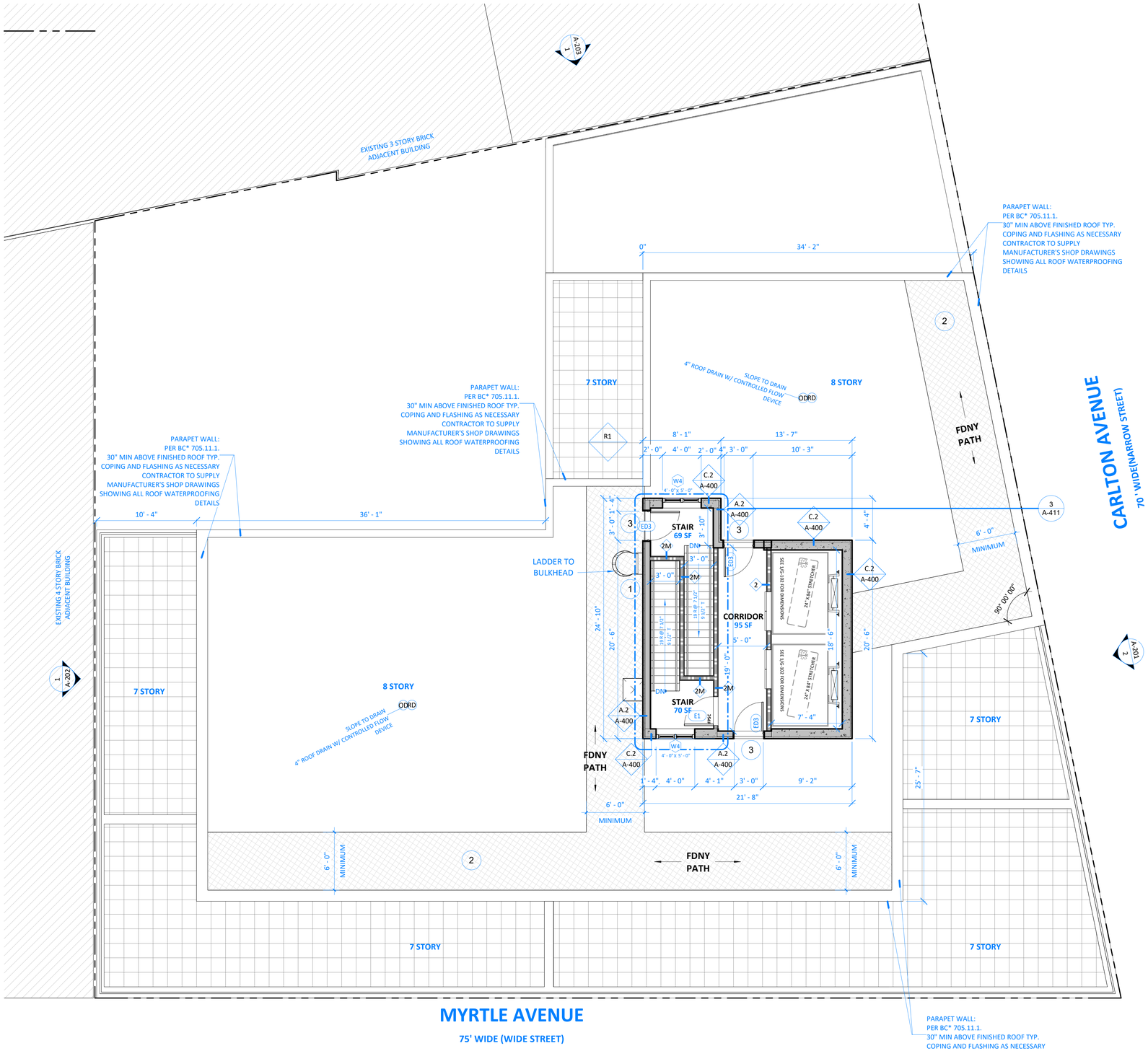

1 ROOF PLAN
SCALE: 3/16" = 1'-0"

NOTES

1. C403.7.7 STAIRWAY AND SHAFT VENT DAMPERS.
STAIRWAY AND SHAFT VENTS WITH CLASS I MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 FM/FT2 (20.3 L/S • M2) AT 1.0 INCH WATER GAUGE (W.G.) (249 PA) WHEN TESTED IN ACCORDANCE WITH AMCA 500D. STAIRWAY AND SHAFT VENT DAMPERS SHALL BE INSTALLED WITH CONTROLS SO THAT THEY ARE CAPABLE OF AUTOMATICALLY OPENING UPON: THE INTERRUPTION OF POWER TO THE DAMPER.

2. MC 801.1.1.1
ADJACENT EXISTING CHIMNEYS TO BE EXTENDED
3'-0" MIN.ABOVE HIGHEST STRUCTURE
IN A 10'-0" RADIUS (TYP)
PRIOR TO PERMIT ,A LICENSE PER MC 801.1.1.1.3, TO NOTIFY THE OWNER(S) OF THE ADJACENT PROPERTY OF THE REQUIRED WORK AND SECURE CONSENT TO INSPECT AND PERFORM ANY WORK THAT MAY BE NECESSARY TO SAFEGUARD THE ADJACENT PROPERTY.

3. CHIMNEYS AND VENTS
FGC 503.5.4 CHIMNEY TERMINATION.
CHIMNEYS SERVING GAS-FIRED EQUIPMENT SHALL COMPLY WITH THE APPLIANCE LISTING, THE MANUFACTURER' INSTRUCTIONS AND THE FOLLOWING REQUIREMENTS: CHIMNEYS SERVING APPLIANCES SHALL EXTEND AT LEAST 3 FEET ABOVE THE HIGHEST CONSTRUCTION, SUCH AS A ROOF RIDGE, PARAPET WALL, OR PENTHOUSE, WITHIN 10 FEET OF THE CHIMNEY OUTLET, WHETHER THE CONSTRUCTION IS ON THE SAME BUILDING AS THE CHIMNEY OR ON ANOTHER BUILDING. HOWEVER, SUCH CONSTRUCTIONS DO NOT INCLUDE OTHER CHIMNEYS, VENTS, OR OPEN STRUCTURAL FRAMING. ANY CHIMNEY LOCATED BEYOND 10 FEET FROM SUCH CONSTRUCTION, SHALL BE AT LEAST AS HIGH AS THE CONSTRUCTION.

4. EXTEND WALLS FROM REFUSE CHUTE A MINIMUM OF 6'-0" ABOVE ROOF LEVEL

5. BUILDINGS BULLETIN 2019-010
C. AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE
RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.

!!!!! BC* 2014 CODE ONLY !!!!

4. BC* 3004.5.1 VENTS IN THE HOISTWAY ENCLOSURES.
HOISTWAY ENCLOSURES MAY BE VENTED IN ACCORDANCE WITH THE FOLLOWING:
1.LOCATION OF VENTS.
1.1. THE VENTS IN THE SIDE OF THE HOISTWAY ENCLOSURE BELOW THE ELEVATOR MACHINE ROOM FLOOR OR IN THE ROOF OF THE HOISTWAY SHALL OPEN EITHER DIRECTLY TO THE OUTER AIR OR THROUGH NONCOMBUSTIBLE DUCTS TO THE OUTER AIR.

COMPLIES

1.2. THE VENTS IN THE WALL OR ROOF OF AN OVERHEAD ELEVATOR MACHINE ROOM THROUGH THE SMOKE HOLE IN THE TOP OF THE ELEVATOR HOISTWAY SHALL BE VENTED TO THE OUTER AIR THROUGH NONCOMBUSTIBLE DUCTS

COMPLIES. PROPOSED METAL VENT DUCT.

2.AREA OF VENTS.THE AREA OF VENTS IN THE HOISTWAY OR THE ELEVATOR MACHINE ROOM AND THE SMOKE HOLE SHALL BE NOT LESS THAN 3% PERCENT OF THE AREA OF THE HOISTWAY NOR LESS THAN 3 SQUARE FEET (0.28 M2) FOR EACH ELEVATOR CAR, WHICHEVER IS GREATER. SUCH VENTS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

HOISTWAY AREA: 72 SF X 3.5% = 2.52 SF
PROPOSED VENT SIZE: 2'X 2' = 4 SF

2.1. OPEN VENTS. OF THE TOTAL REQUIRED VENT AREA, NOT LESS THAN ONE-THIRD SHALL BE PERMANENTLY OPEN OR EQUIPPED WITH AN OPENABLE HINGED DAMPER. THE SMOKE HOLE SHALL BE PERMANENTLY OPEN.

2.2. CLOSED VENTS. THE TWO-THIRDS CLOSED PORTION OF THE REQUIRED VENT AREA EITHER IN THE HOISTWAY ENCLOSURE OR IN THE ELEVATOR MACHINE ROOM MAY CONSIST OF WINDOWS OR SKYLIGHTS GLAZED WITH ANNEALED GLASS NOT MORE THAN 1/8-INCH (3.2 MM) THICK. A CLOSED DAMPER THAT OPENS UPON THE ACTIVATION OF A SMOKE DETECTOR PLACED AT THE TOP OF THE HOISTWAY SHALL BE CONSIDERED CLOSE

ROOF LEGEND

FDNY	FNDY PATH
RD	ROOF DRAIN
OD	ROOF DRAIN OVERFLOW
	MECHANICAL SHAFTS
GREEN ROOF SYSTEM XXX SF	GREEN ROOF TAG
	GREEN ROOF

FC 504 ROOFTOP ACCESS LEGEND:

1. ROOFTOP ACCESS AND LANDING LOCATIONS
2. 6' WIDE CLEAR PATH
3. 6' WIDE DOOR CLEARANCE

N

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203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
...

OWNER:
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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

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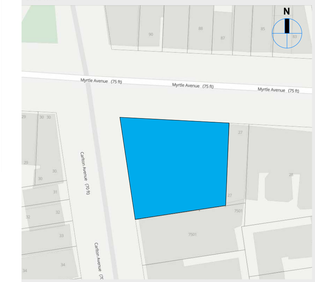
SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ROOF PLAN

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:42:56 AM
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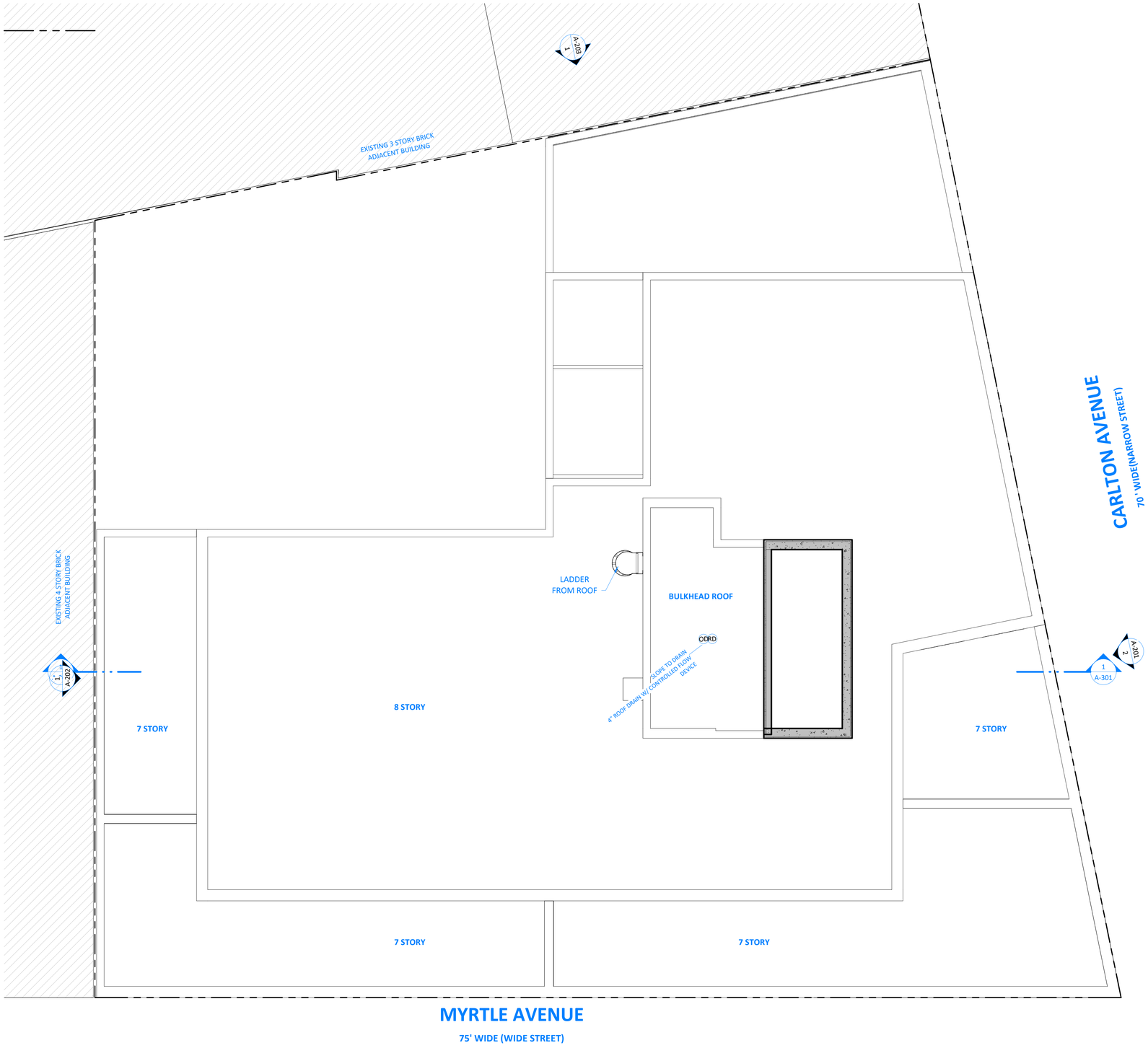

1 BULKHEAD PLAN

SCALE: 3/16" = 1'-0"

NOTES

1. C403.7.7 STAIRWAY AND SHAFT VENT DAMPERS.
STAIRWAY AND SHAFT VENTS WITH CLASS I MOTORIZED DAMPERS WITH A MAXIMUM LEAKAGE RATE OF 4 FM/FT2 (20.3 L/S • M2) AT 1.0 INCH WATER GAUGE (W.G.) (249 PA) WHEN TESTED IN ACCORDANCE WITH AMCA 500D. STAIRWAY AND SHAFT VENT DAMPERS SHALL BE INSTALLED WITH CONTROLS SO THAT THEY ARE CAPABLE OF AUTOMATICALLY OPENING UPON: THE INTERRUPTION OF POWER TO THE DAMPER.

2. MC 801.1.1.1
ADJACENT EXISTING CHIMNEYS TO BE EXTENDED
3'-0" MIN.ABOVE HIGHEST STRUCTURE
IN A 10'-0" RADIUS (TYP)
PRIOR TO PERMIT ,A LICENSE PER MC 801.1.1.1.3, TO NOTIFY THE OWNER(S) OF THE ADJACENT PROPERTY OF THE REQUIRED WORK AND SECURE CONSENT TO INSPECT AND PERFORM ANY WORK THAT MAY BE NECESSARY TO SAFEGUARD THE ADJACENT PROPERTY.

3. CHIMNEYS AND VENTS
FGC 503.5.4 CHIMNEY TERMINATION.
CHIMNEYS SERVING GAS-FIRED EQUIPMENT SHALL COMPLY WITH THE APPLIANCE LISTING, THE MANUFACTURER' INSTRUCTIONS AND THE FOLLOWING REQUIREMENTS: CHIMNEYS SERVING APPLIANCES SHALL EXTEND AT LEAST 3 FEET ABOVE THE HIGHEST CONSTRUCTION, SUCH AS A ROOF RIDGE, PARAPET WALL, OR PENTHOUSE, WITHIN 10 FEET OF THE CHIMNEY OUTLET, WHETHER THE CONSTRUCTION IS ON THE SAME BUILDING AS THE CHIMNEY OR ON ANOTHER BUILDING. HOWEVER, SUCH CONSTRUCTIONS DO NOT INCLUDE OTHER CHIMNEYS, VENTS, OR OPEN STRUCTURAL FRAMING. ANY CHIMNEY LOCATED BEYOND 10 FEET FROM SUCH CONSTRUCTION, SHALL BE AT LEAST AS HIGH AS THE CONSTRUCTION.

4. EXTEND WALLS FROM REFUSE CHUTE A MINIMUM OF 6'-0" ABOVE ROOF LEVEL

5. BUILDINGS BULLETIN 2019-010
C. AREAS EXEMPTED FROM SUSTAINABLE ROOFING ZONE
RECREATIONAL SPACES THAT ARE INTEGRAL TO THE PRINCIPAL USE OF THE BUILDING ON WHICH THE ROOFTOP IS LOCATED, INCLUDING BUT NOT LIMITED TO PLAYGROUNDS AND PARTICIPANT SPORT AREAS FOR SPORTS FACILITIES AND SCHOOLS, QUALITY HOUSING RECREATION SPACES, ROOF TERRACES AND PASSIVE RECREATION AREAS THAT ARE DOCUMENTED ON THE CERTIFICATE OF OCCUPANCY OR DEPARTMENT OF BUILDINGS APPROVED FILING AS OUTLINED IN BUILDING BULLETIN 2018-002.

!!!!! BC* 2014 CODE ONLY !!!!

4. BC* 3004.5.1 VENTS IN THE HOISTWAY ENCLOSURES.
HOISTWAY ENCLOSURES MAY BE VENTED IN ACCORDANCE WITH THE FOLLOWING:
1.LOCATION OF VENTS.
1.1. THE VENTS IN THE SIDE OF THE HOISTWAY ENCLOSURE BELOW THE ELEVATOR MACHINE ROOM FLOOR OR IN THE ROOF OF THE HOISTWAY SHALL OPEN EITHER DIRECTLY TO THE OUTER AIR OR THROUGH NONCOMBUSTIBLE DUCTS TO THE OUTER AIR.

COMPLIES

1.2. THE VENTS IN THE WALL OR ROOF OF AN OVERHEAD ELEVATOR MACHINE ROOM THROUGH THE SMOKE HOLE IN THE TOP OF THE ELEVATOR HOISTWAY SHALL BE VENTED TO THE OUTER AIR THROUGH NONCOMBUSTIBLE DUCTS

COMPLIES. PROPOSED METAL VENT DUCT.

2.AREA OF VENTS.THE AREA OF VENTS IN THE HOISTWAY OR THE ELEVATOR MACHINE ROOM AND THE SMOKE HOLE SHALL BE NOT LESS THAN 3½ PERCENT OF THE AREA OF THE HOISTWAY NOR LESS THAN 3 SQUARE FEET (0.28 M2) FOR EACH ELEVATOR CAR, WHICHEVER IS GREATER. SUCH VENTS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

HOISTWAY AREA: 72 SF X 3.5% = 2.52 SF
PROPOSED VENT SIZE: 2'X 2' = 4 SF

2.1. OPEN VENTS. OF THE TOTAL REQUIRED VENT AREA, NOT LESS THAN ONE-THIRD SHALL BE PERMANENTLY OPEN OR EQUIPPED WITH AN OPENABLE HINGED DAMPER. THE SMOKE HOLE SHALL BE PERMANENTLY OPEN.

2.2. CLOSED VENTS. THE TWO-THIRDS CLOSED PORTION OF THE REQUIRED VENT AREA EITHER IN THE HOISTWAY ENCLOSURE OR IN THE ELEVATOR MACHINE ROOM MAY CONSIST OF WINDOWS OR SKYLIGHTS GLAZED WITH ANNEALED GLASS NOT MORE THAN 1/8-INCH (3.2 MM) THICK. A CLOSED DAMPER THAT OPENS UPON THE ACTIVATION OF A SMOKE DETECTOR PLACED AT THE TOP OF THE HOISTWAY SHALL BE CONSIDERED CLOSE

ROOF LEGEND

- FNDY PATH
- RD — ROOF DRAIN
- OD — ROOF DRAIN OVERFLOW
- MECHANICAL SHAFTS
- GREEN ROOF SYSTEM XXX SF — GREEN ROOF TAG
- GREEN ROOF

FC 504 ROOFTOP ACCESS LEGEND:

1. ROOFTOP ACCESS AND LANDING LOCATIONS
2. 6' WIDE CLEAR PATH
3. 6' WIDE DOOR CLEARANCE

N

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

BULKHEAD PLAN

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:43:00 AM
SCALE: As indicated
DRAWN BY: XX

A-108.00

SHEET: 35 OF 88

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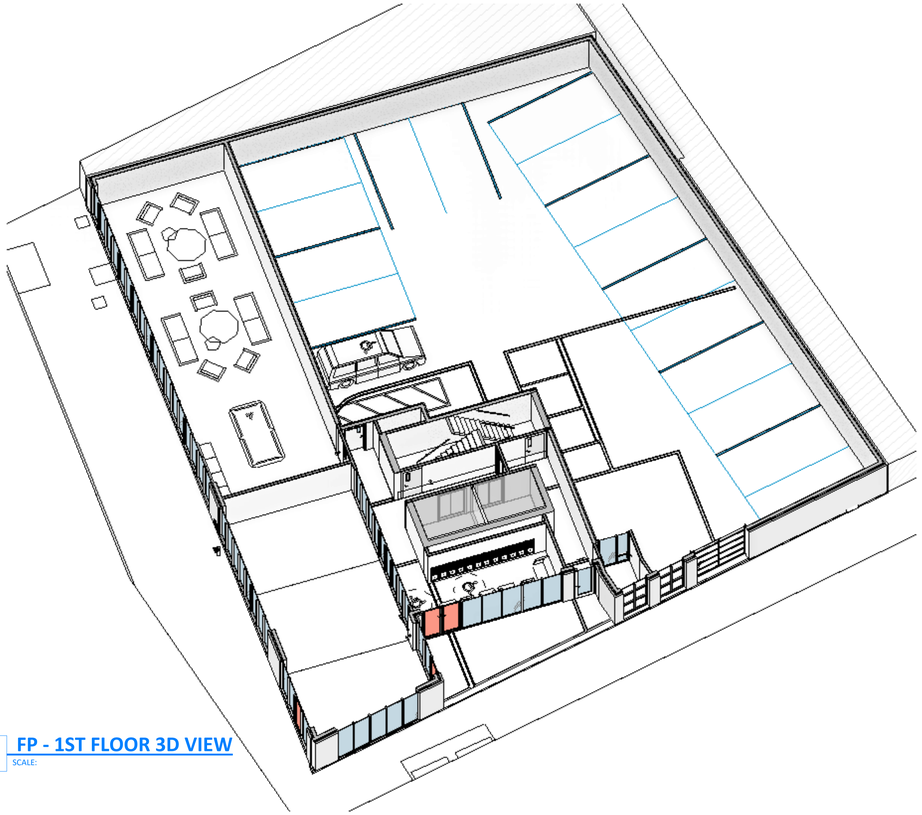
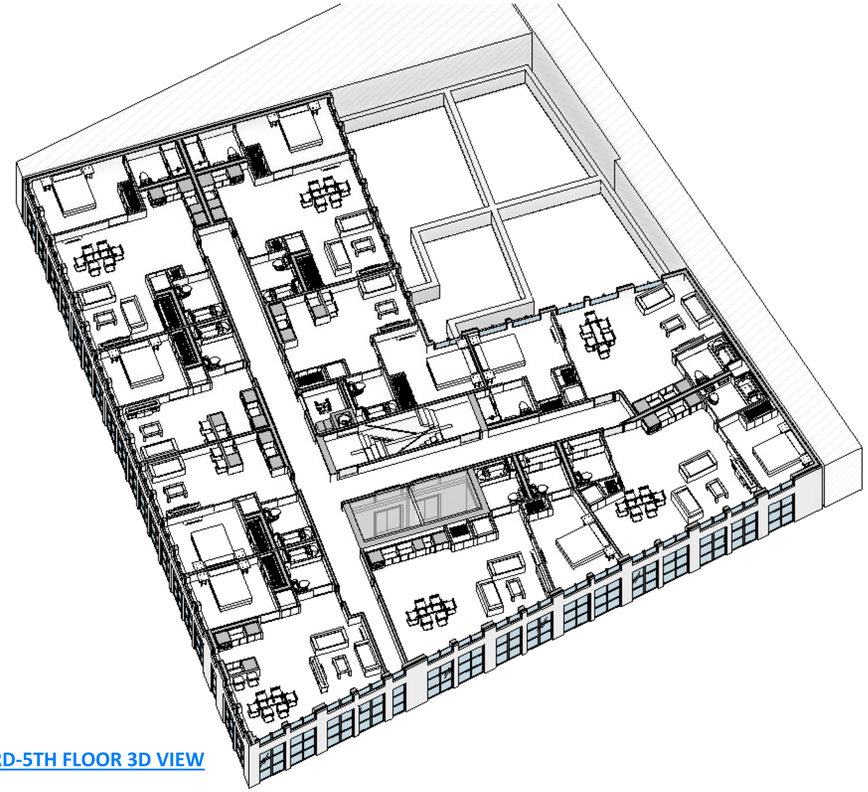
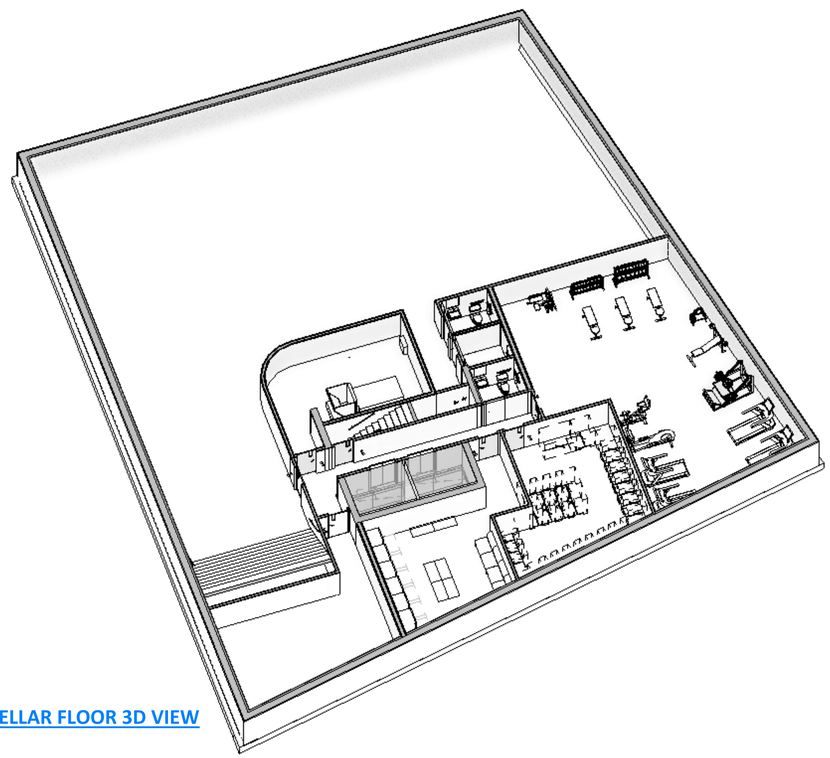


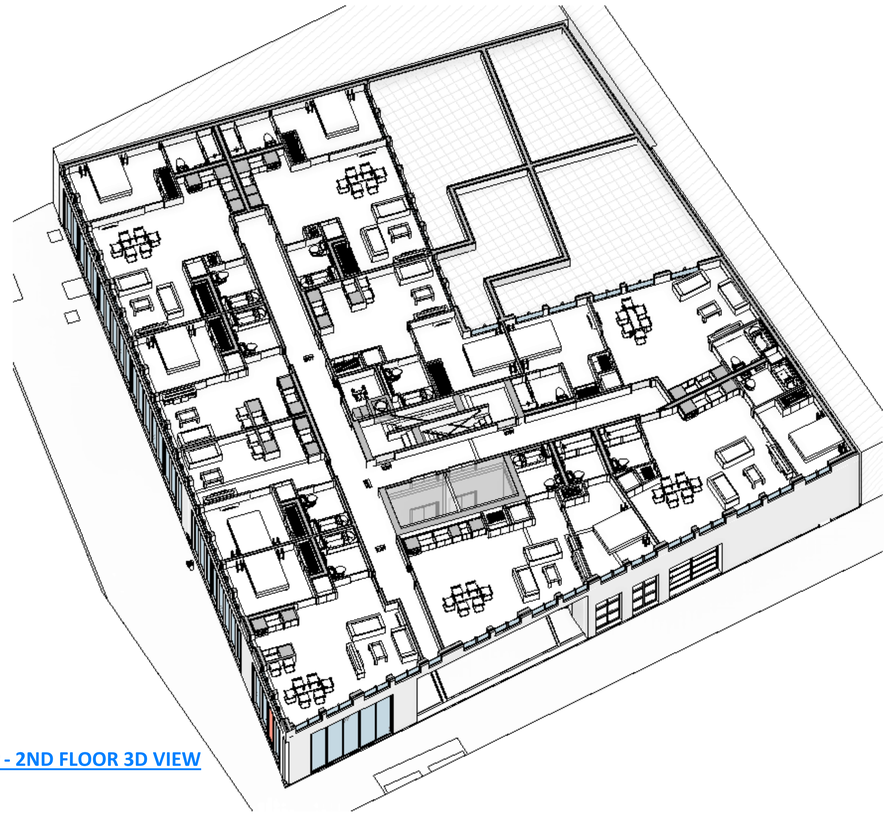
1 **FP - 1ST FLOOR 3D VIEW**
SCALE:



4 **FP - 3RD-5TH FLOOR 3D VIEW**
SCALE:



3 **FP - CELLAR FLOOR 3D VIEW**
SCALE:



2 **FP - 2ND FLOOR 3D VIEW**
SCALE:

S. WIEDER ARCHITECT PC

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T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

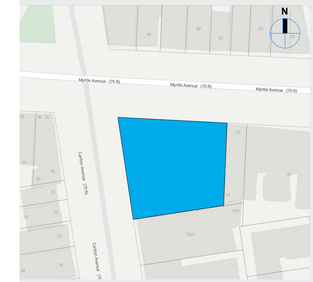
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

3D FLOOR PLAN VIEWS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

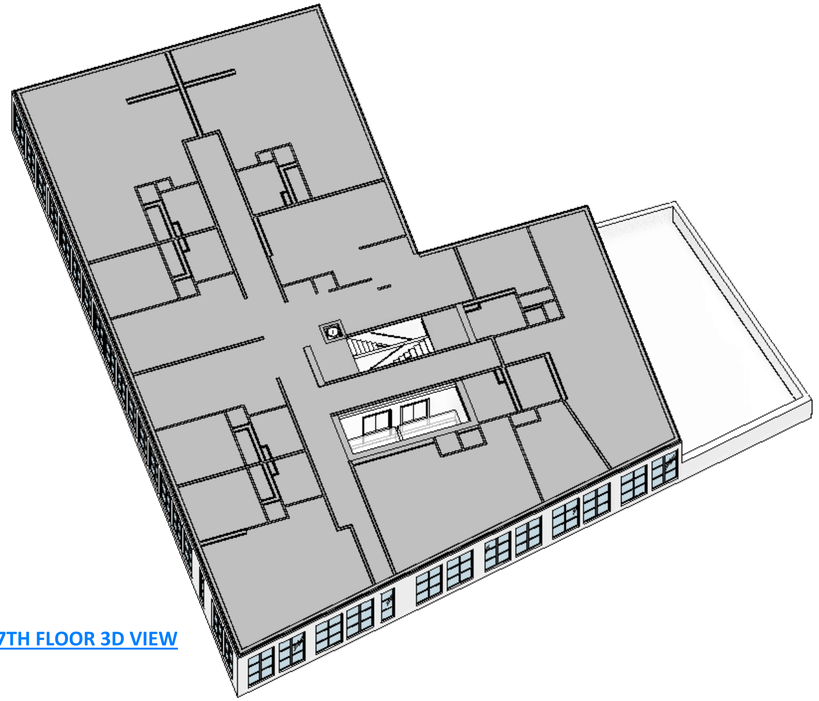
DATE: 5/12/2023 1:43:11 AM
SCALE:
DRAWN BY: XX

A-120.00

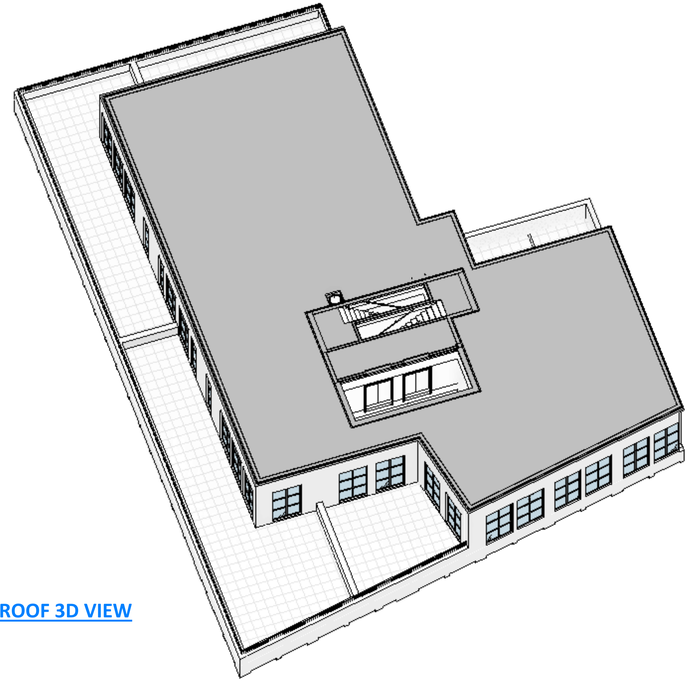
SHEET: 36 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

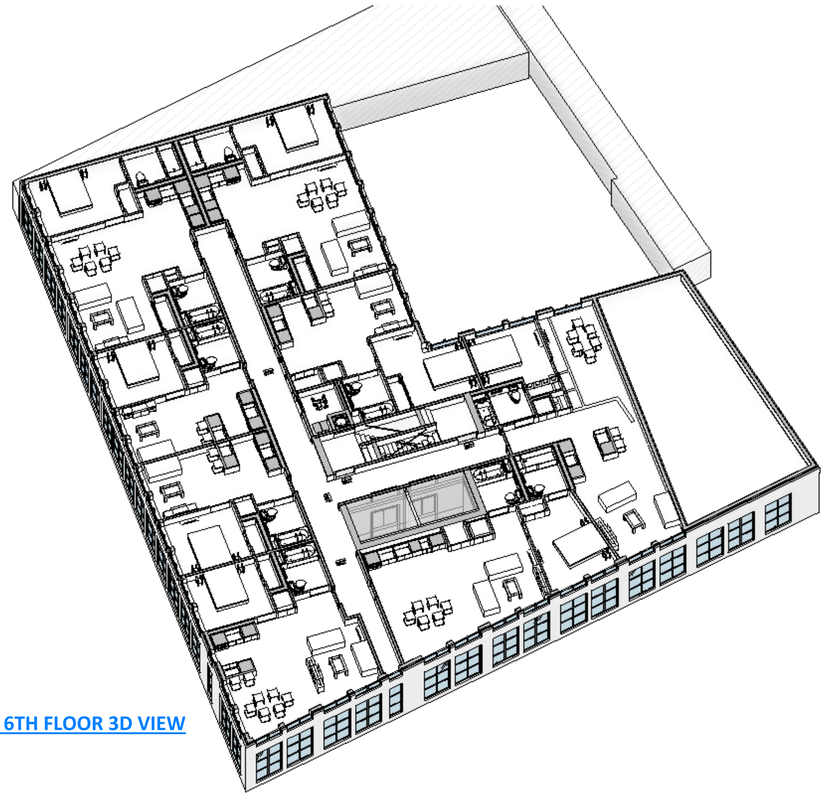
5/12/2023 1:43:11 AM



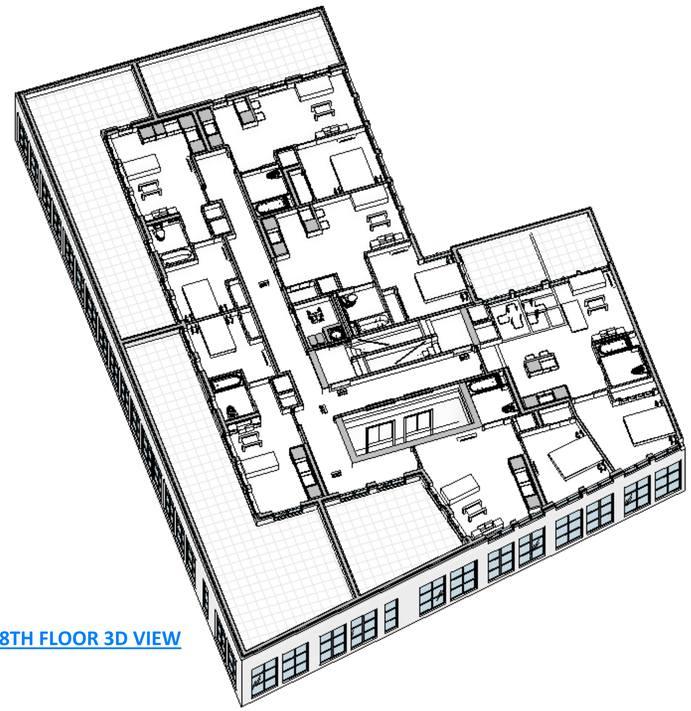
2 **FP - 7TH FLOOR 3D VIEW**
SCALE:



4 **FP - ROOF 3D VIEW**
SCALE:



1 **FP - 6TH FLOOR 3D VIEW**
SCALE:



3 **FP - 8TH FLOOR 3D VIEW**
SCALE:

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

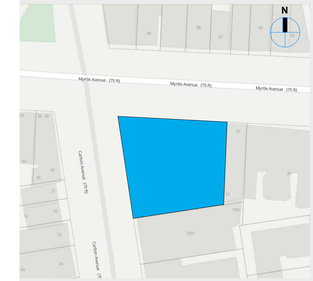
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
3D FLOOR PLAN VIEWS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:43:21 AM
SCALE:
DRAWN BY: XX

A-121.00

SHEET: 37 OF 88

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5/12/2023 1:43:21 AM

1 **NORTH (MYRTLE AVENUE) ELEVATION**
SCALE: 3/16" = 1'-0"

E2
EIFS - 2
MANUFACTURE
DESCRIPTION

B1
BRICK - BLACK
MANUFACTURE
DESCRIPTION

M1
METAL - A
MANUFACTURE
DESCRIPTION

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

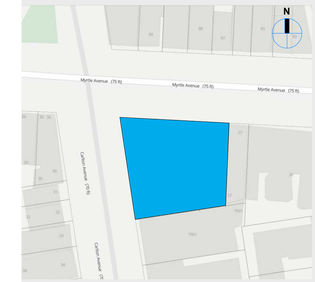
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

NORTH (MYRTLE AVENUE) ELEVATION

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:43:33 AM
SCALE: As indicated
DRAWN BY: XX

A-200.00

SHEET: 38 OF 88

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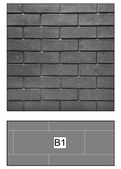
5/12/2023 1:43:33 AM

2 **WEST (CARLTON AVENUE) ELEVATION**
SCALE: 3/16" = 1'-0"

NOTE:
ALL EXTERIOR LIGHTING SHALL HAVE PHOTOSENSOR ,TIME OR ASTRONOMICAL CONTROLS

EIFS - 2
MANUFACTURE
DESCRIPTION



BRICK - BLACK
MANUFACTURE
DESCRIPTION

METAL - A
MANUFACTURE
DESCRIPTION

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

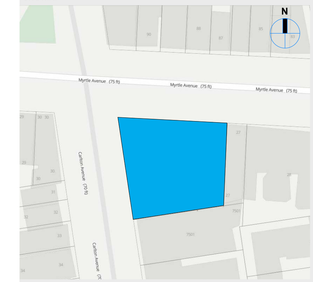
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

WEST (CARLTON AVENUE) ELEVATION

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:43:40 AM
SCALE: As indicated
DRAWN BY: XX

A-201.00

SHEET: 39 OF 88

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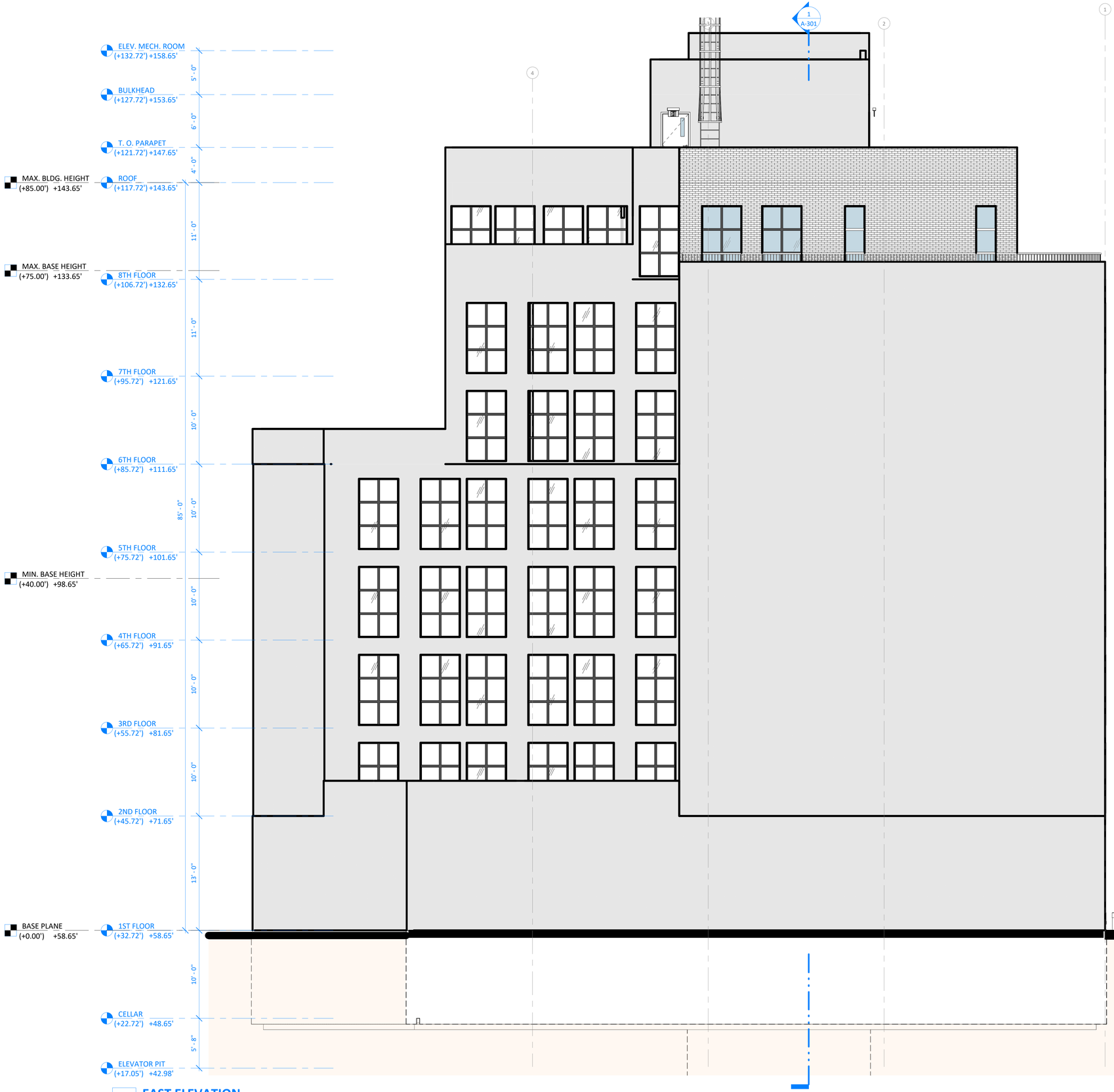
5/12/2023 1:43:40 AM



1 **EAST ELEVATION**
SCALE: 3/16" = 1'-0"

E2

EIFS - 2
MANUFACTURE
DESCRIPTION

B1

BRICK - BLACK
MANUFACTURE
DESCRIPTION

M1

METAL - A
MANUFACTURE
DESCRIPTION

S. WIEDER ARCHITECT PC

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T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

EAST ELEVATION

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:43:52 AM
SCALE: As indicated
DRAWN BY: XX

A-202.00

SHEET: 40 OF 88

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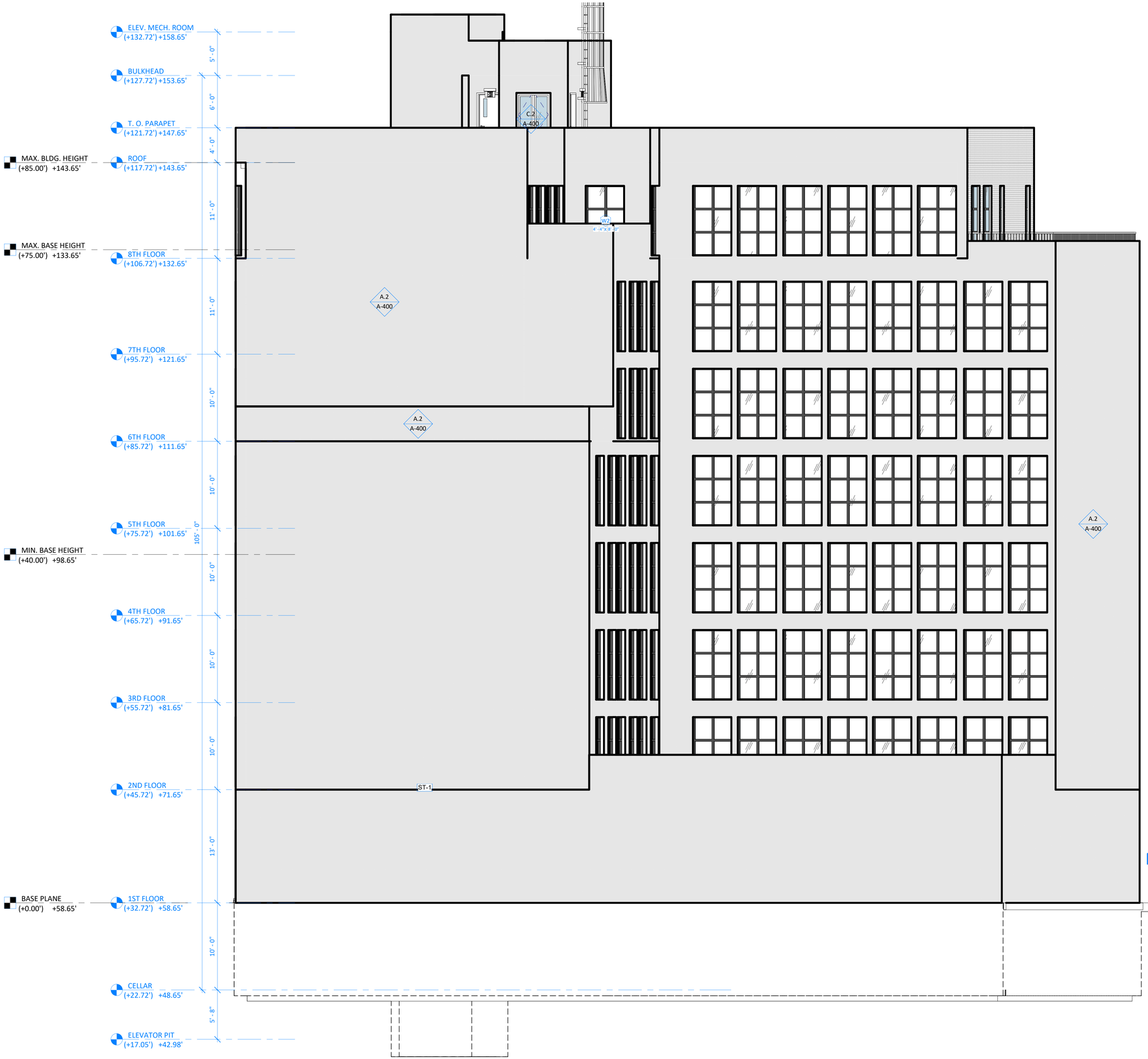
5/12/2023 1:43:52 AM



1 **SOUTH (REAR) ELEVATION**
SCALE: 3/16" = 1'-0"

E2
EIFS - 2
MANUFACTURE
DESCRIPTION

B1
BRICK - BLACK
MANUFACTURE
DESCRIPTION

M1
METAL - A
MANUFACTURE
DESCRIPTION

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

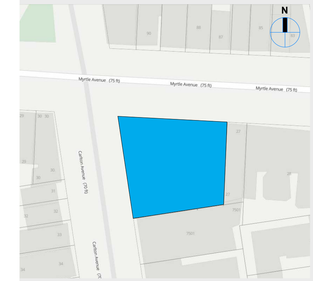
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
SOUTH (REAR) ELEVATION

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:44:04 AM
SCALE: As indicated
DRAWN BY: XX

A-203.00

SHEET: 41 OF 88

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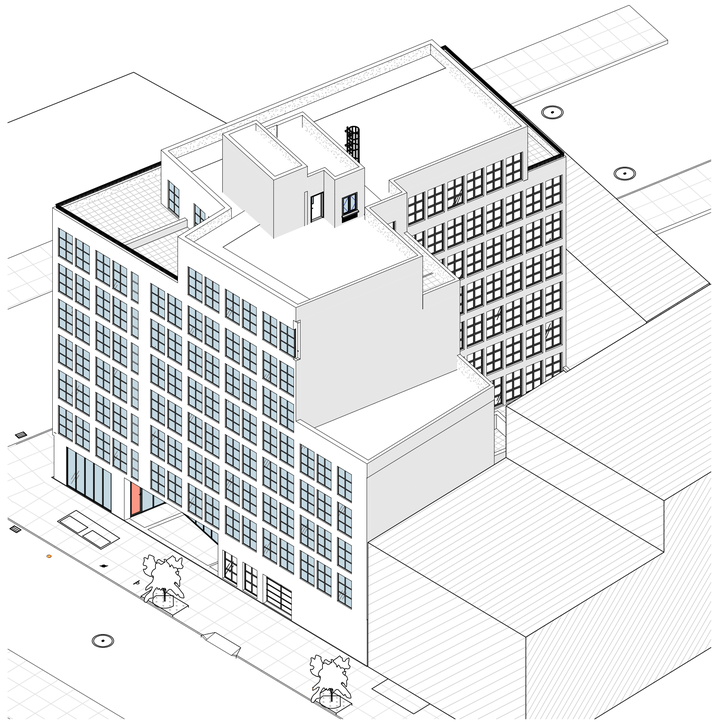
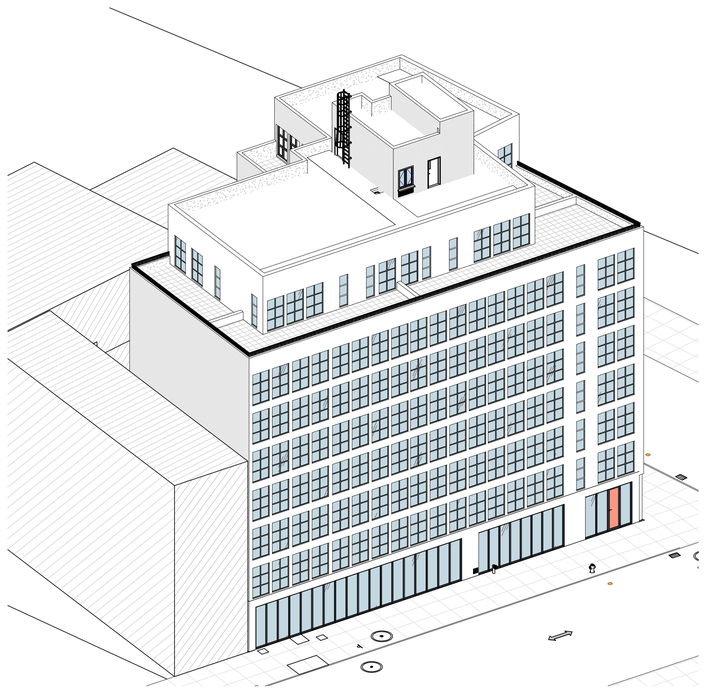
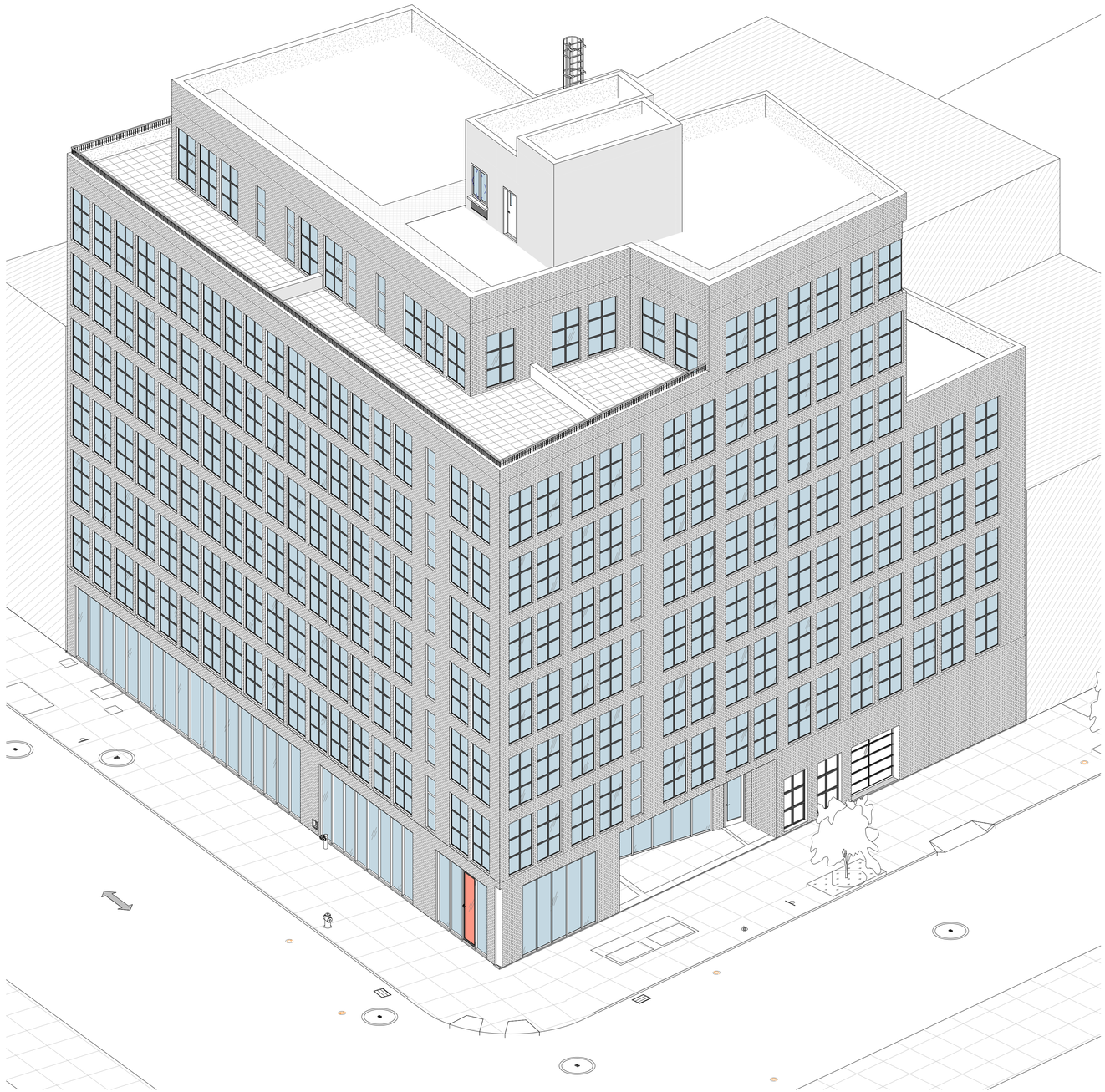
5/12/2023 1:44:04 AM



3 **BLDG 3D VIEW 3**
SCALE:



1 **BLDG 3D VIEW 1**
SCALE:



2 **BLDG 3D VIEW 2**
SCALE:

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

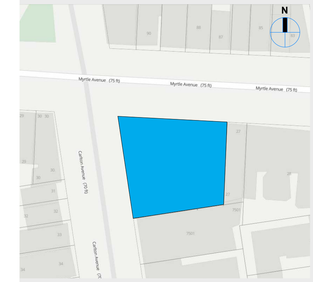
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
3D VIEWS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:44:42 AM
SCALE:
DRAWN BY: XX

A-210.00

SHEET: 42 OF 88

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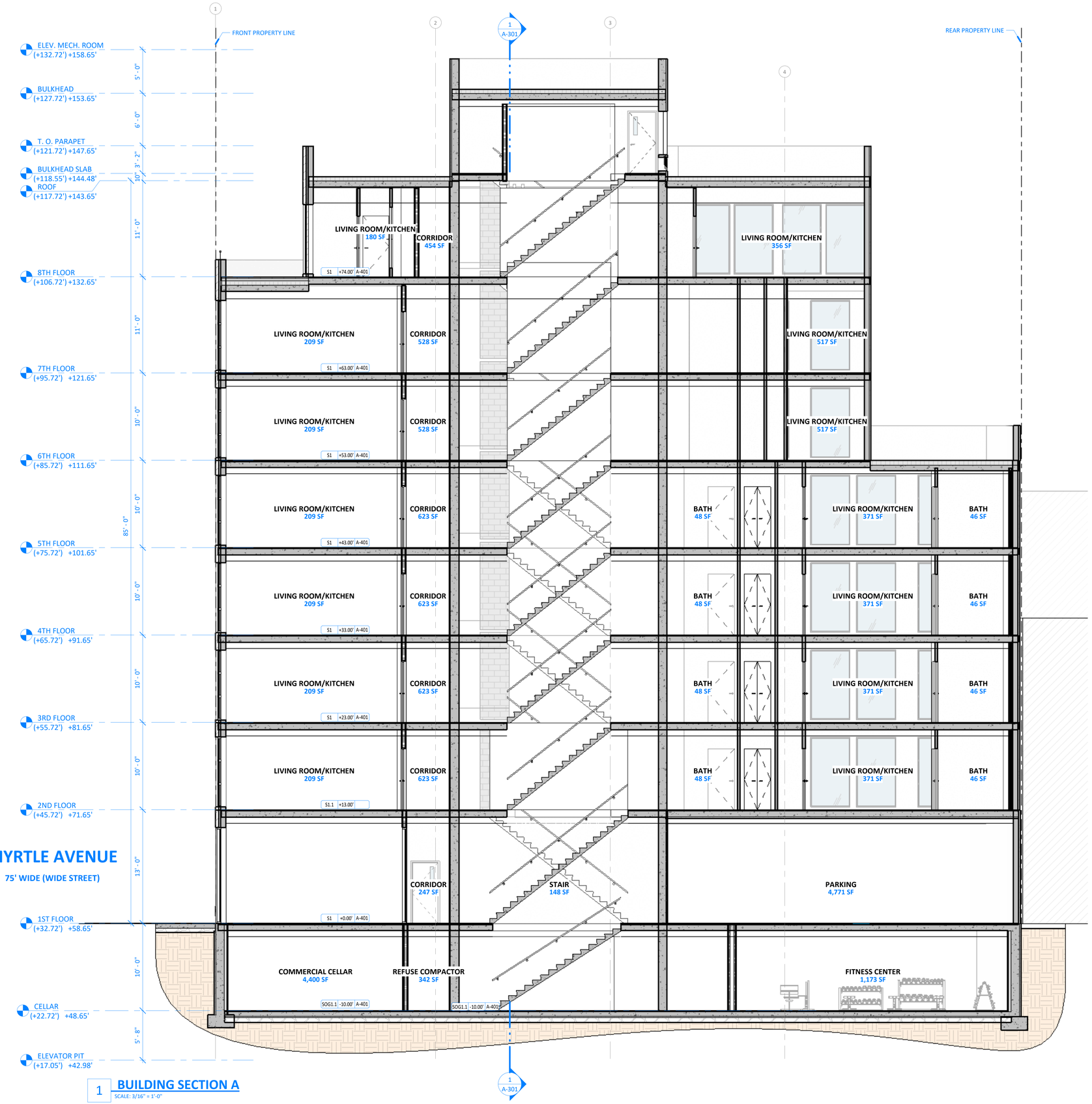
5/12/2023 1:44:42 AM



1 **BUILDING SECTION A**
SCALE: 3/16" = 1'-0"

NOTE:
REFER TO STRUCTURAL DRAWINGS FOR STRUCTURAL DESIGN

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
BUILDING SECTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:44:46 AM
SCALE: 3/16" = 1'-0"
DRAWN BY: XX

A-300.00

SHEET: 43 OF 88

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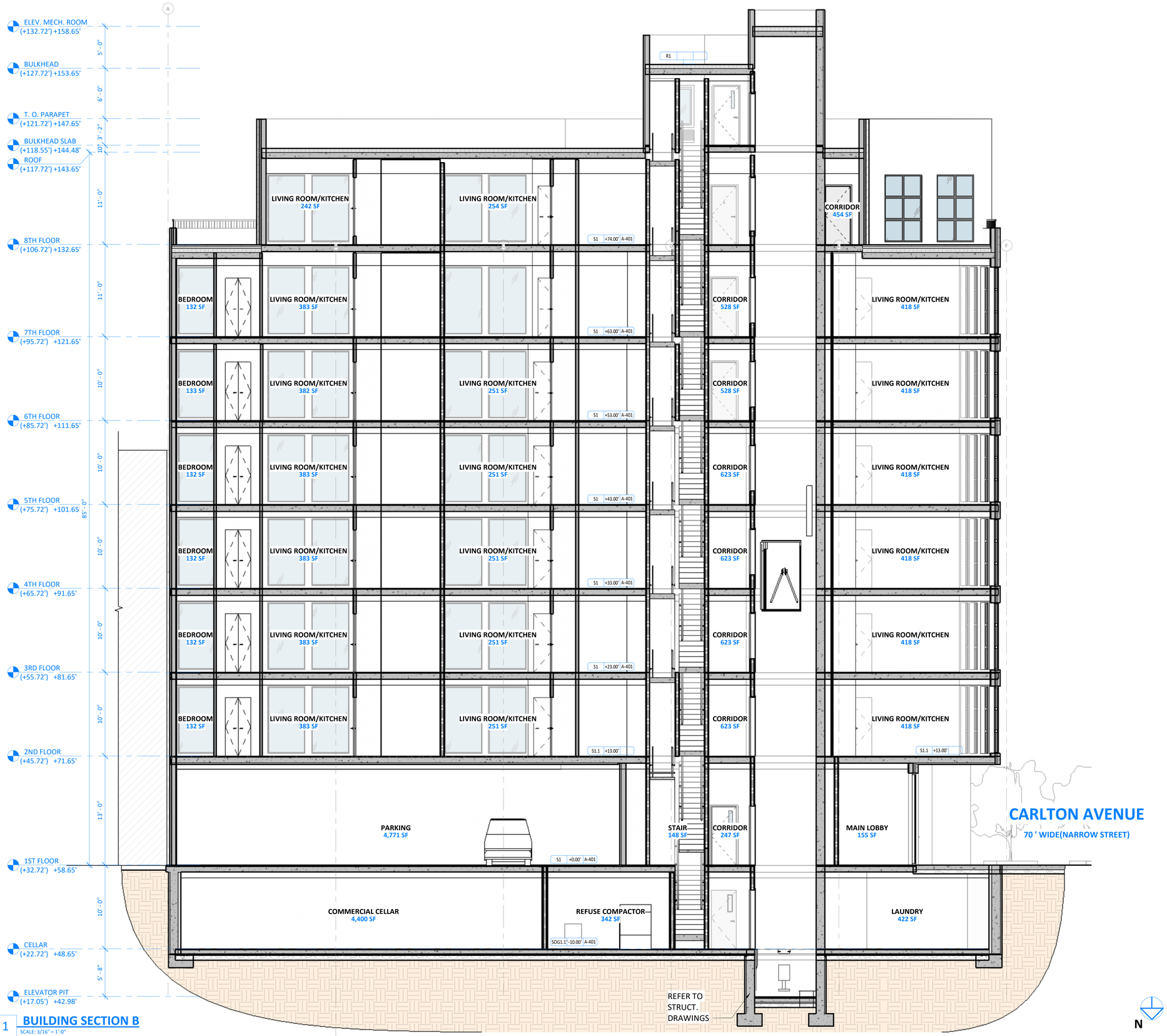
5/12/2023 1:44:46 AM



1 **BUILDING SECTION B**
SCALE: 3/16" = 1'-0"

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

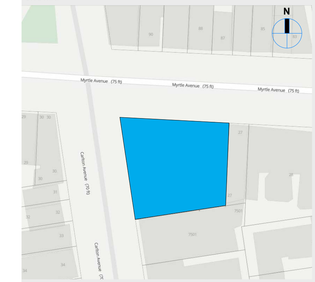
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
BUILDING SECTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:44:50 AM
SCALE: 3/16" = 1'-0"
DRAWN BY: XX

A-301.00

SHEET: 44 OF 88

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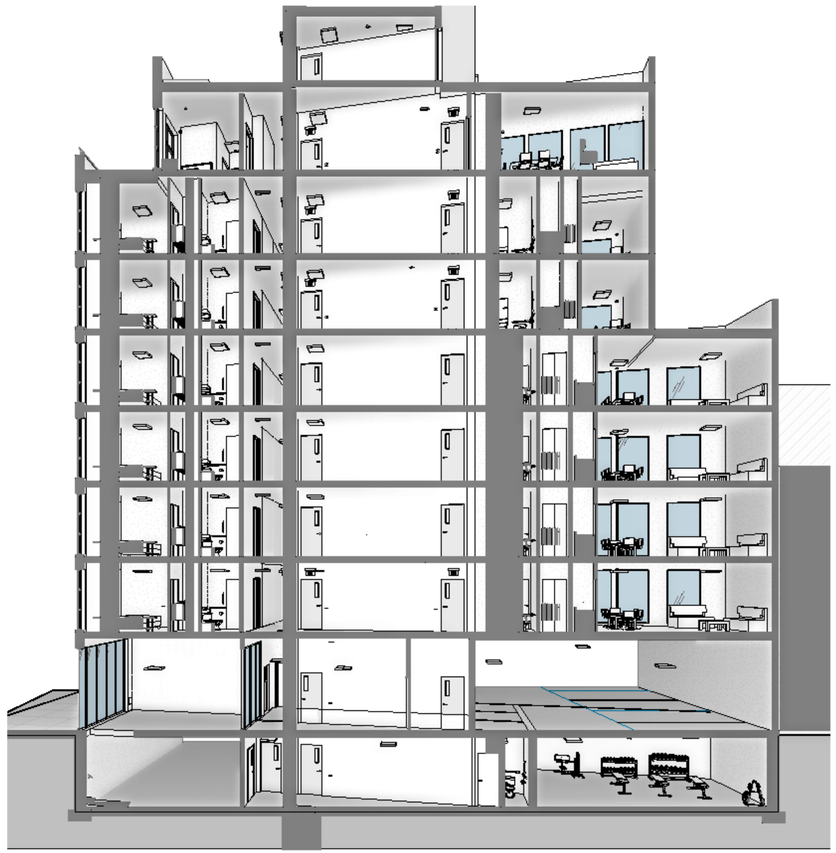
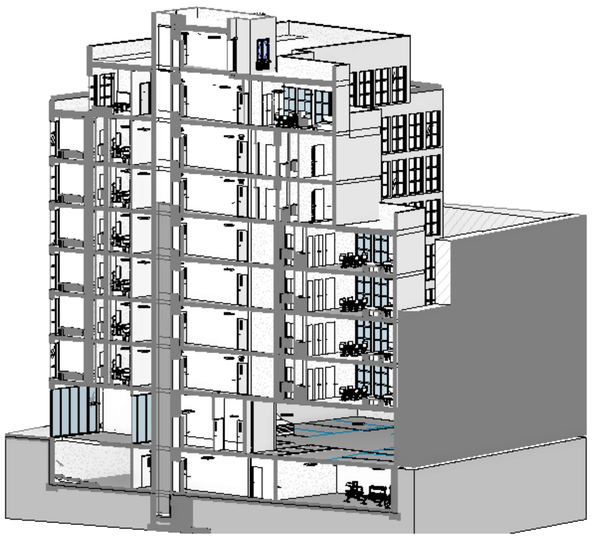


2 **3D SECTION A**
SCALE:

3 **3D SECTION B**
SCALE:



4 **3D SECTION A AXON**
SCALE:

NOTE:
REFER TO STRUCTURAL DRAWINGS FOR STRUCTURAL DESIGN

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

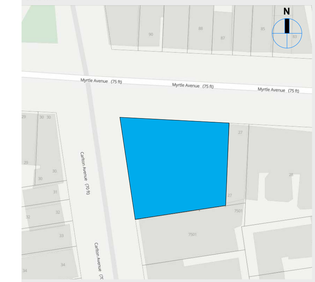
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
BUILDING SECTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:45:05 AM
SCALE:
DRAWN BY: XX

A-302.00

SHEET: 45 OF 88

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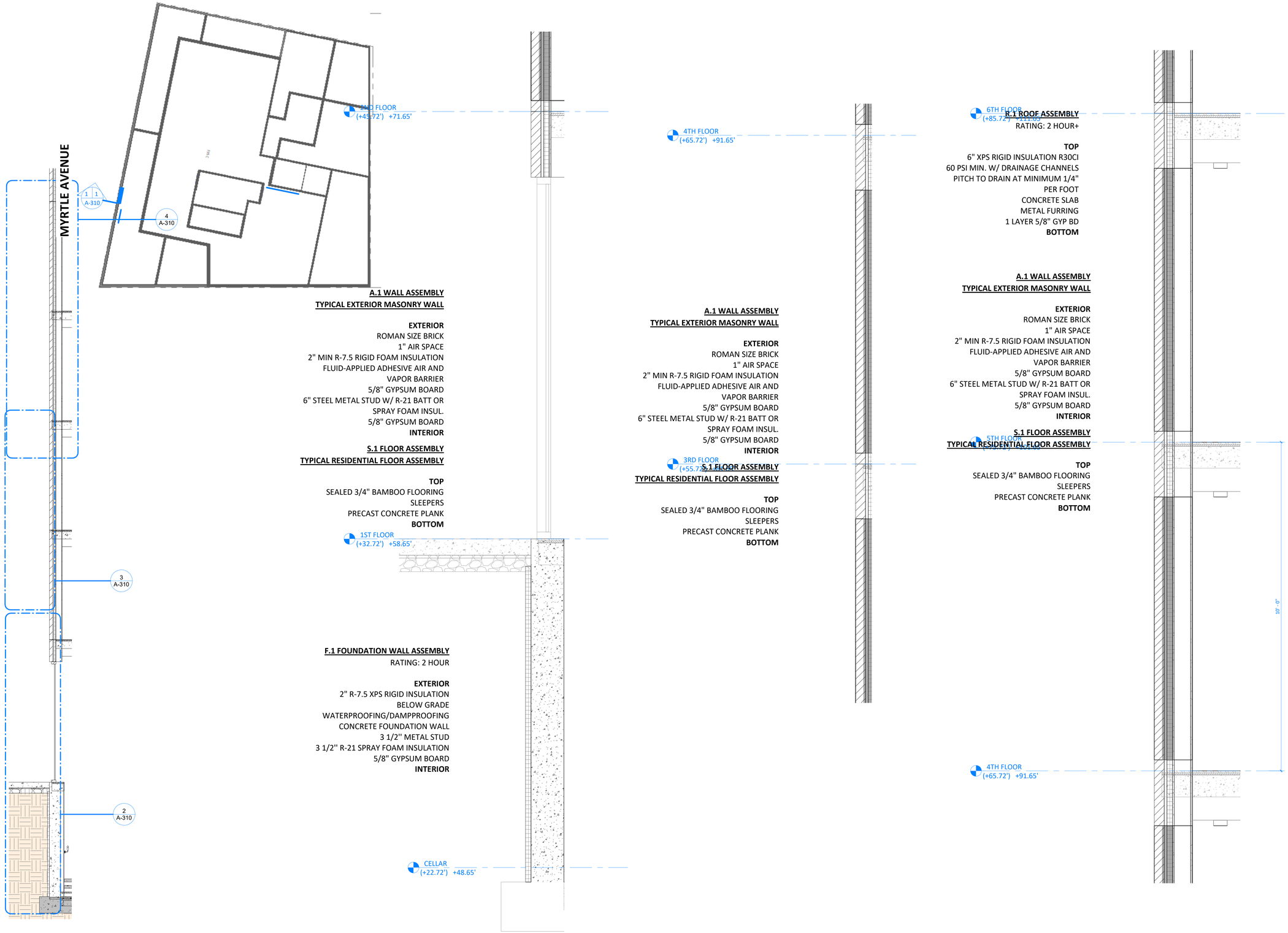


A.1 WALL ASSEMBLY
TYPICAL EXTERIOR MASONRY WALL

EXTERIOR
ROMAN SIZE BRICK
1" AIR SPACE
2" MIN R-7.5 RIGID FOAM INSULATION
FLUID-APPLIED ADHESIVE AIR AND
VAPOR BARRIER
5/8" GYPSUM BOARD
6" STEEL METAL STUD W/ R-21 BATT OR
SPRAY FOAM INSUL.
5/8" GYPSUM BOARD
INTERIOR

S.1 FLOOR ASSEMBLY
TYPICAL RESIDENTIAL FLOOR ASSEMBLY

TOP
SEALED 3/4" BAMBOO FLOORING
SLEEPERS
PRECAST CONCRETE PLANK
BOTTOM

F.1 FOUNDATION WALL ASSEMBLY
RATING: 2 HOUR

EXTERIOR
2" R-7.5 XPS RIGID INSULATION
BELOW GRADE
WATERPROOFING/DAMPPROOFING
CONCRETE FOUNDATION WALL
3 1/2'' METAL STUD
3 1/2'' R-21 SPRAY FOAM INSULATION
5/8" GYPSUM BOARD
INTERIOR

R.1 ROOF ASSEMBLY
RATING: 2 HOUR+

TOP
6" XPS RIGID INSULATION R30CI
60 PSI MIN. W/ DRAINAGE CHANNELS
PITCH TO DRAIN AT MINIMUM 1/4"
PER FOOT
CONCRETE SLAB
METAL FURRING
1 LAYER 5/8" GYP BD
BOTTOM

1 **WALL SECTION 1**
SCALE: 1/4" = 1'-0"

2 **WALL SECTION 1.1**
SCALE: 3/4" = 1'-0"

3 **WALL SECTION 1.2**
SCALE: 3/4" = 1'-0"

4 **WALL SECTION 1.3**
SCALE: 3/4" = 1'-0"

N

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

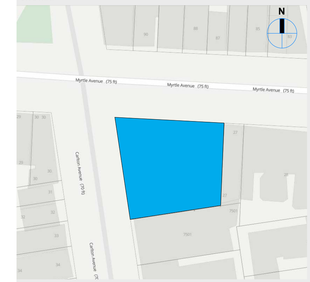
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
WALL SECTION 1

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:45:13 AM
SCALE: As indicated
DRAWN BY: XX

A-310.00

SHEET: 46 OF 88

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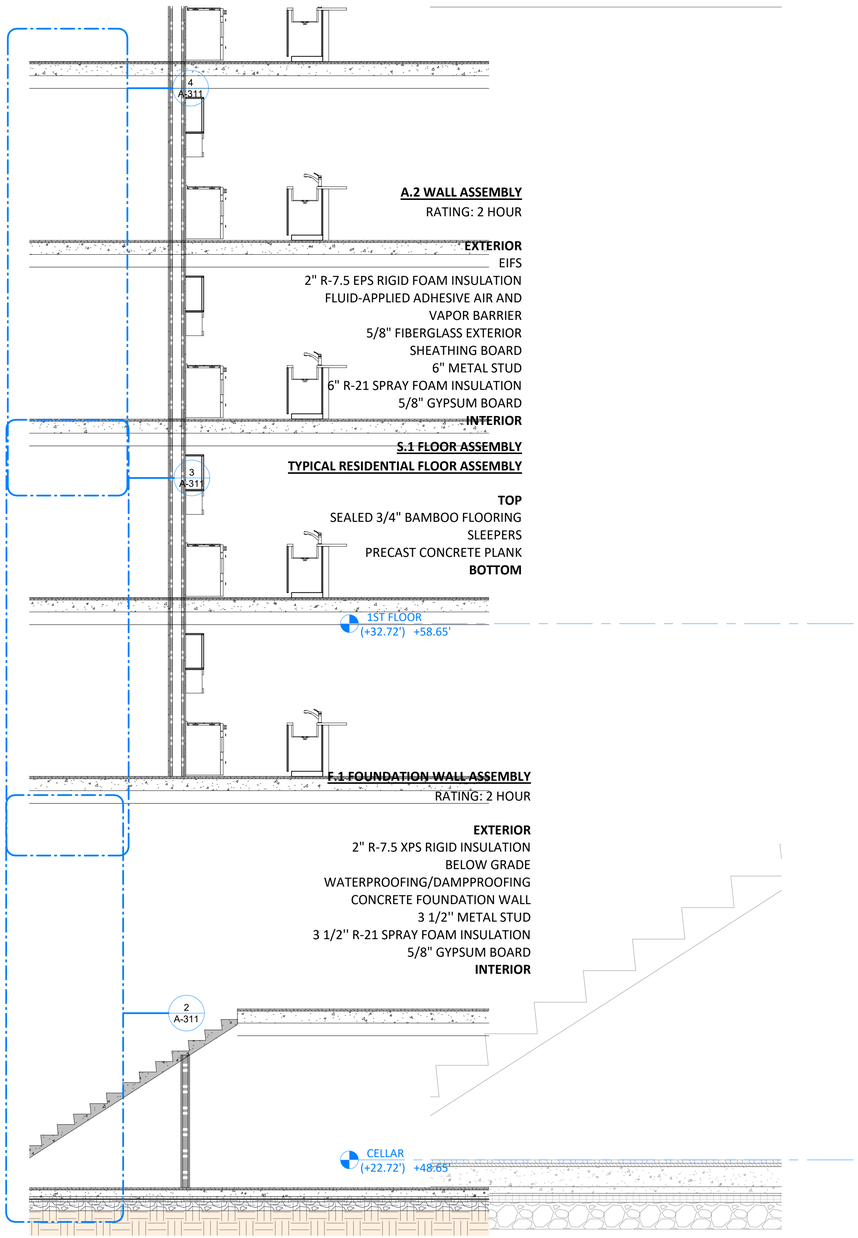
5/12/2023 1:45:13 AM

MYRTLE AVENUE

SHOW PROPERTY LINE
add details from revit file library



A.2 WALL ASSEMBLY
RATING: 2 HOUR

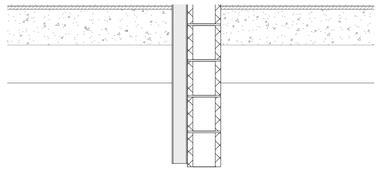
EXTERIOR
EIFS
2" R-7.5 EPS RIGID FOAM INSULATION
FLUID-APPLIED ADHESIVE AIR AND
VAPOR BARRIER
5/8" FIBERGLASS EXTERIOR
SHEATHING BOARD
6" METAL STUD
6" R-21 SPRAY FOAM INSULATION
5/8" GYPSUM BOARD
INTERIOR

S.1 FLOOR ASSEMBLY
TYPICAL RESIDENTIAL FLOOR ASSEMBLY

TOP
SEALED 3/4" BAMBOO FLOORING
SLEEPERS
PRECAST CONCRETE PLANK
BOTTOM

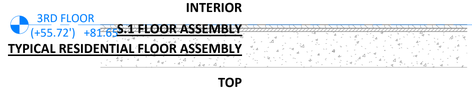
F.1 FOUNDATION WALL ASSEMBLY
RATING: 2 HOUR

EXTERIOR
2" R-7.5 XPS RIGID INSULATION
BELOW GRADE
WATERPROOFING/DAMPPROOFING
CONCRETE FOUNDATION WALL
3 1/2'' METAL STUD
3 1/2'' R-21 SPRAY FOAM INSULATION
5/8" GYPSUM BOARD
INTERIOR



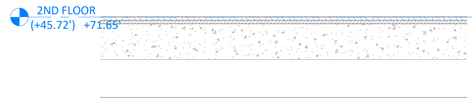
C.2 WALL ASSEMBLY
RATING: 2 HOUR

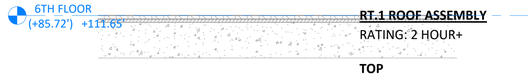
EXTERIOR
EIFS
2" R-7.5 EPS RIGID FOAM INSULATION
FLUID-APPLIED ADHESIVE AIR AND
VAPOR BARRIER
5/8" FIBERGLASS EXTERIOR
SHEATHING BOARD
CONCRETE WALL
3 1/2" METAL STUD
3 1/2" R-21 BATT OR SPRAYED FOAM
INSULATION
5/8" GYPSUM BOARD
INTERIOR



S.1 FLOOR ASSEMBLY
TYPICAL RESIDENTIAL FLOOR ASSEMBLY

TOP
SEALED 3/4" BAMBOO FLOORING
SLEEPERS
PRECAST CONCRETE PLANK
BOTTOM



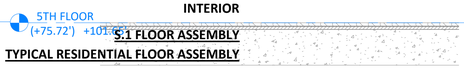


RT.1 ROOF ASSEMBLY
RATING: 2 HOUR+

TOP
STONE PAVERS
2" MIN. AIR SPACE FOR ROOF PONDING
6" XPS RIGID INSULATION R30CI
60 PSI MIN. W/ DRAINAGE CHANNELS
PITCH TO DRAIN AT MINIMUM 1/4" PER FOOT
CONCRETE SLAB
METAL FURRING
1 LAYER 5/8" GYP BD
BOTTOM

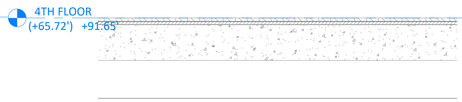
A.1 WALL ASSEMBLY
TYPICAL EXTERIOR MASONRY WALL

EXTERIOR
ROMAN SIZE BRICK
1" AIR SPACE
2" MIN R-7.5 RIGID FOAM INSULATION
FLUID-APPLIED ADHESIVE AIR AND
VAPOR BARRIER
5/8" GYPSUM BOARD
6" STEEL METAL STUD W/ R-21 BATT OR
SPRAY FOAM INSUL.
5/8" GYPSUM BOARD
INTERIOR



S.1 FLOOR ASSEMBLY
TYPICAL RESIDENTIAL FLOOR ASSEMBLY

TOP
SEALED 3/4" BAMBOO FLOORING
SLEEPERS
PRECAST CONCRETE PLANK
BOTTOM



1 **WALL SECTION 2**
SCALE: 1/4" = 1'-0"

2 **WALL SECTION 2.1**
SCALE: 3/4" = 1'-0"

3 **WALL SECTION 2.2**
SCALE: 3/4" = 1'-0"

4 **WALL SECTION 2.3**
SCALE: 3/4" = 1'-0"

N

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203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
WALL SECTION 2

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:45:18 AM
SCALE: As indicated
DRAWN BY: XX

A-311.00

SHEET: 47 OF 88

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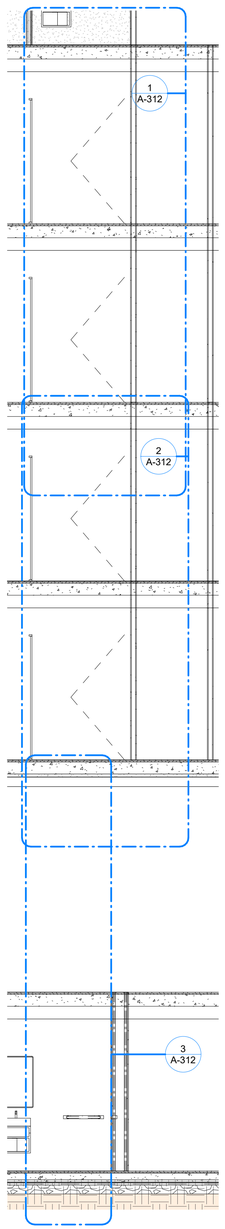
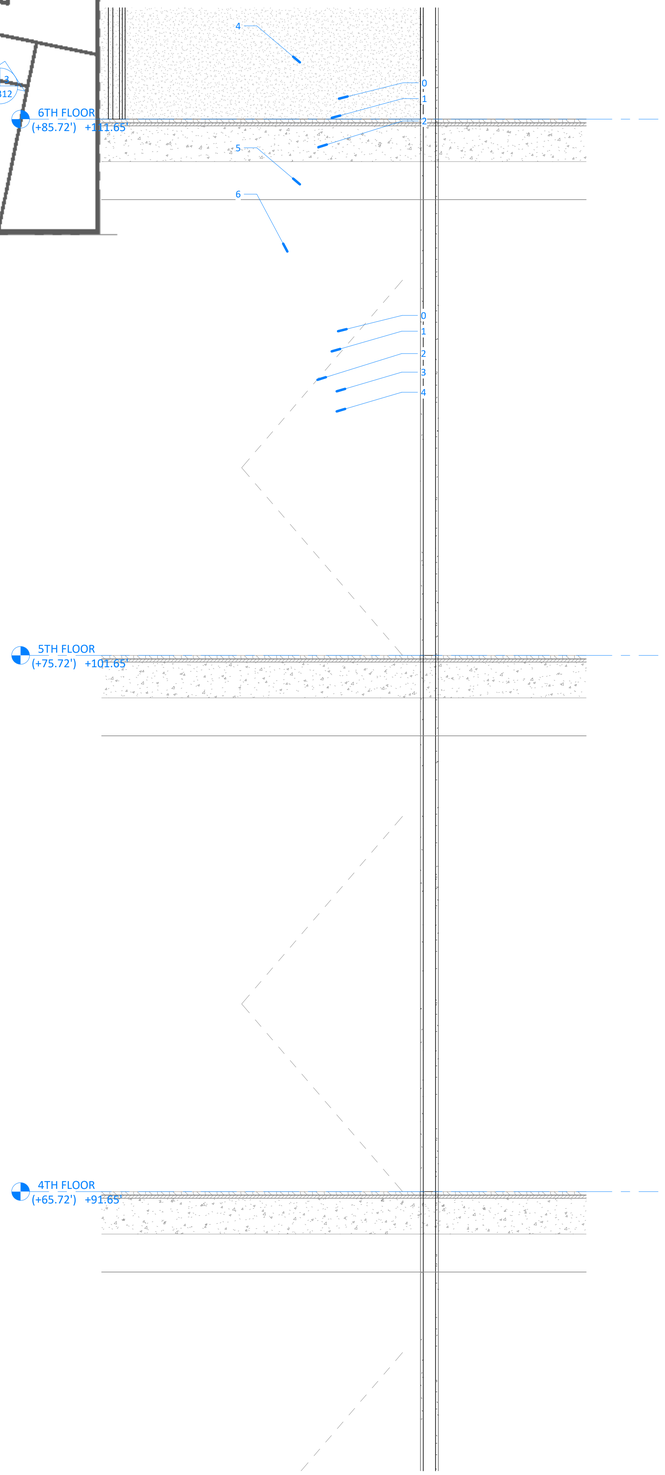
5/12/2023 1:45:18 AM

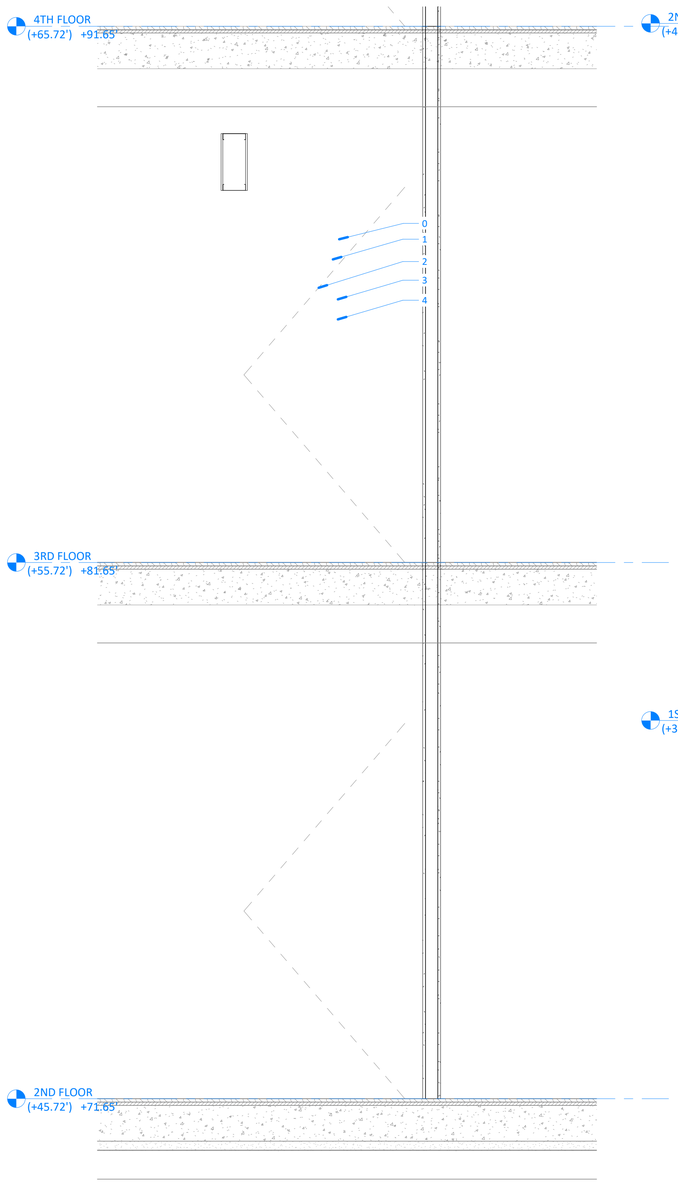
MYRTLE AVENUE



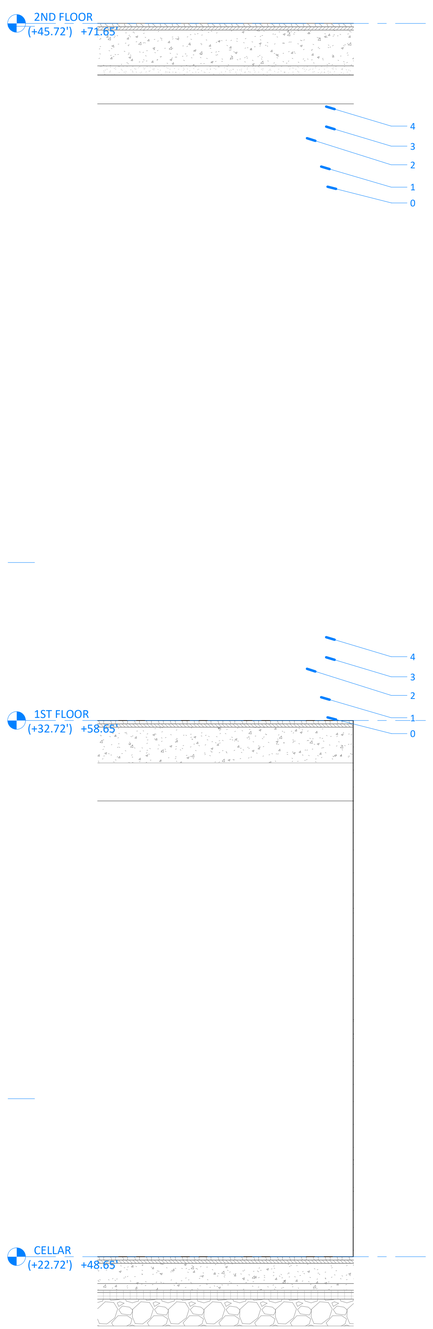
7 **WALL SECTION 3**
SCALE: 1/4" = 1'-0"



1 **WALL SECTION 3.1**
SCALE: 3/4" = 1'-0"



2 **WALL SECTION 3.2**
SCALE: 3/4" = 1'-0"



3 **WALL SECTION 3.3**
SCALE: 3/4" = 1'-0"

N

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203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

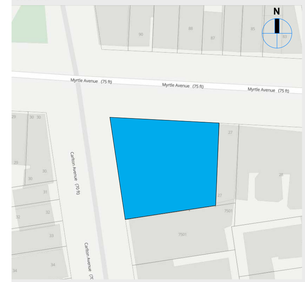
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
WALL SECTION 3

DOB # :

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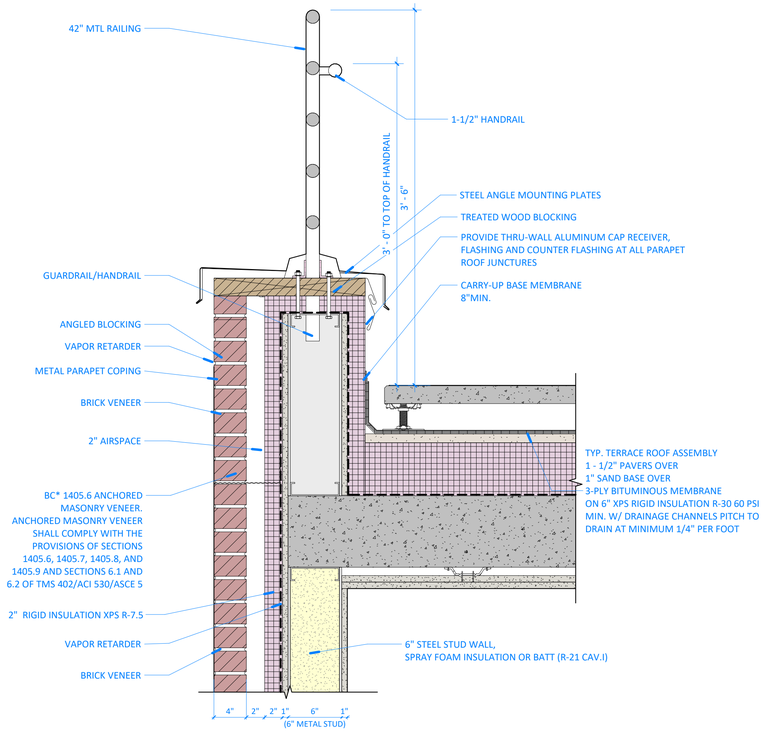
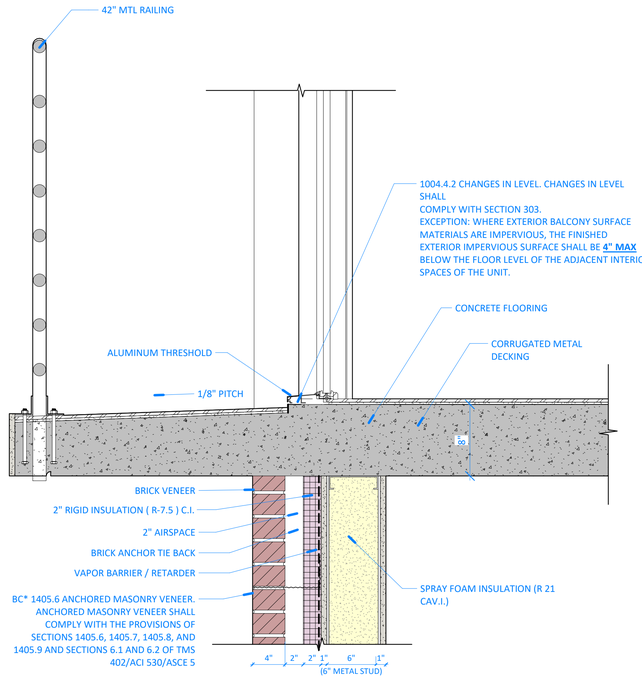


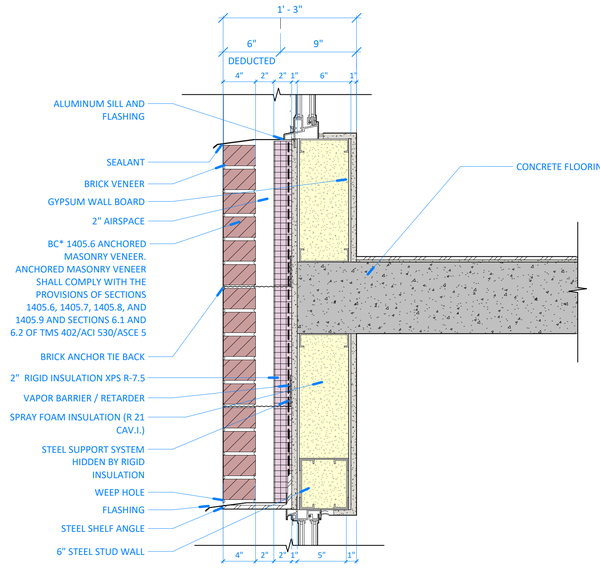
3 STEEL STUD WITH BRICK @ TERRACE WITH RAILING OVER SLAB

SCALE: 1 1/2" = 1'-0"



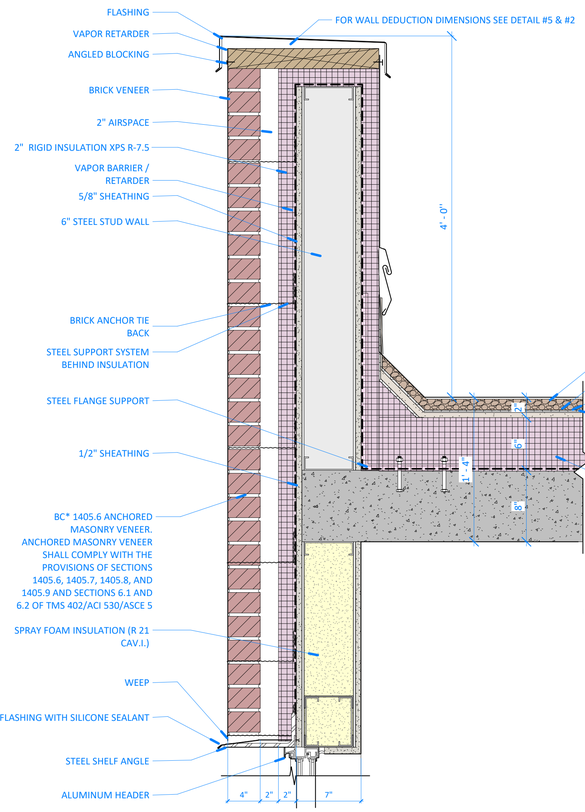
5 STEEL STUD WITH BRICK @ BALCONY_ FLOOR SLAB

SCALE: 1 1/2" = 1'-0"



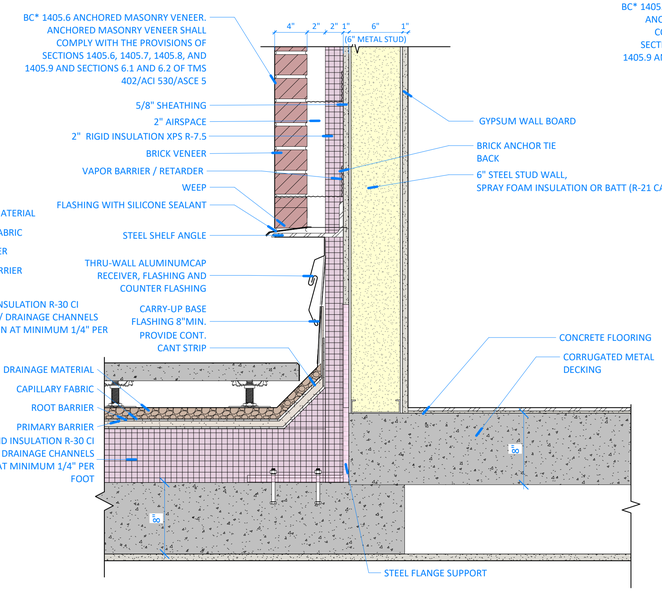
1 STEEL STUD WITH BRICK @ FLOOR SLAB

SCALE: 1 1/2" = 1'-0"



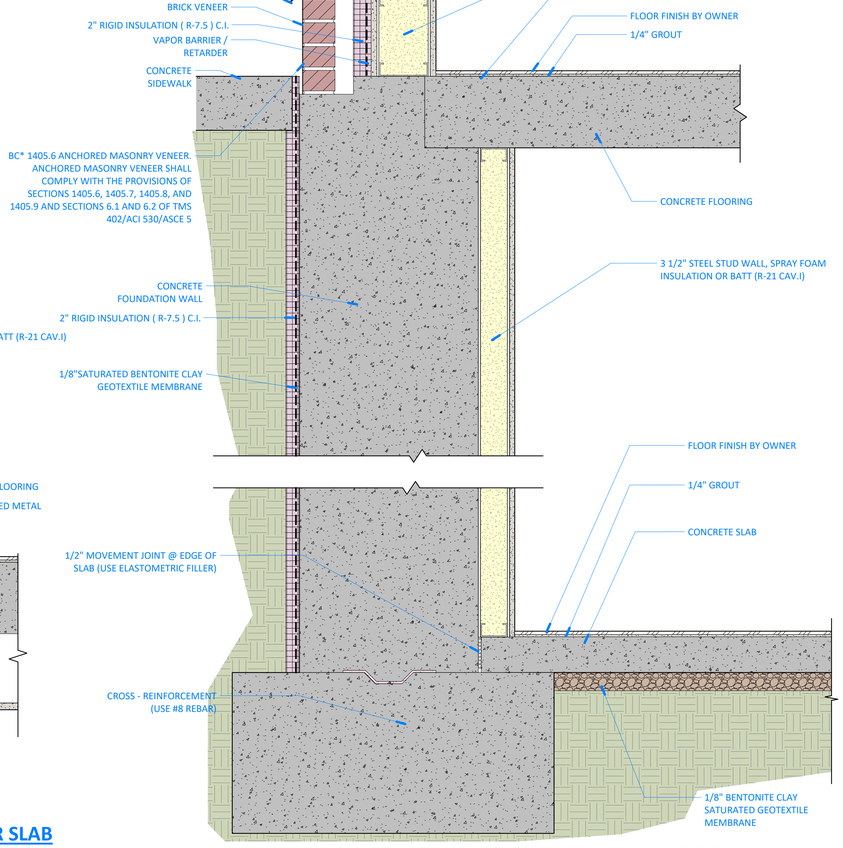
2 STEEL STUD WITH BRICK @ ROOF SLAB

SCALE: 1 1/2" = 1'-0"



6 STEEL STUD WITH BRICK @ ROOF/COURT WALL_ FLOOR SLAB

SCALE: 1 1/2" = 1'-0"



4 STEEL STUD WITH BRICK @ FOUNDATION_ SLAB FLOOR

SCALE: 1 1/2" = 1'-0"

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T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

WALL DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:45:28 AM
SCALE: 1 1/2" = 1'-0"
DRAWN BY: XX

A-320.00

SHEET: 49 OF 88

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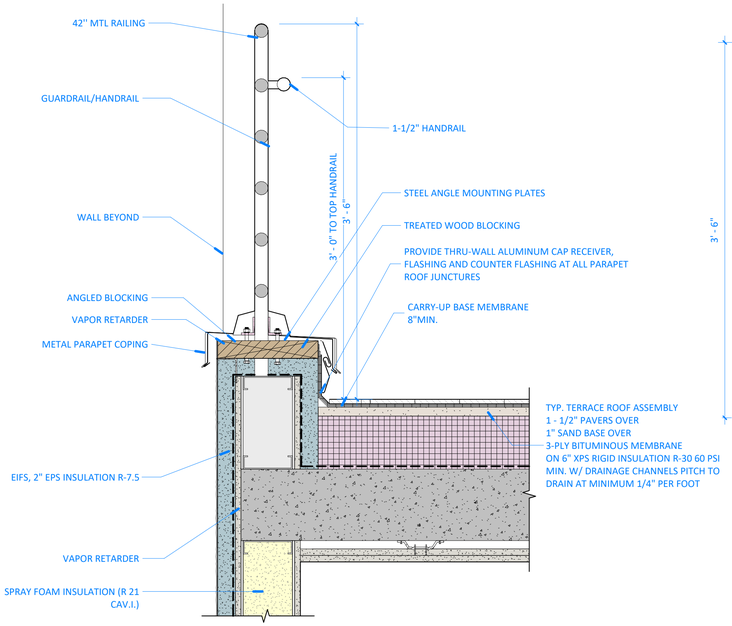
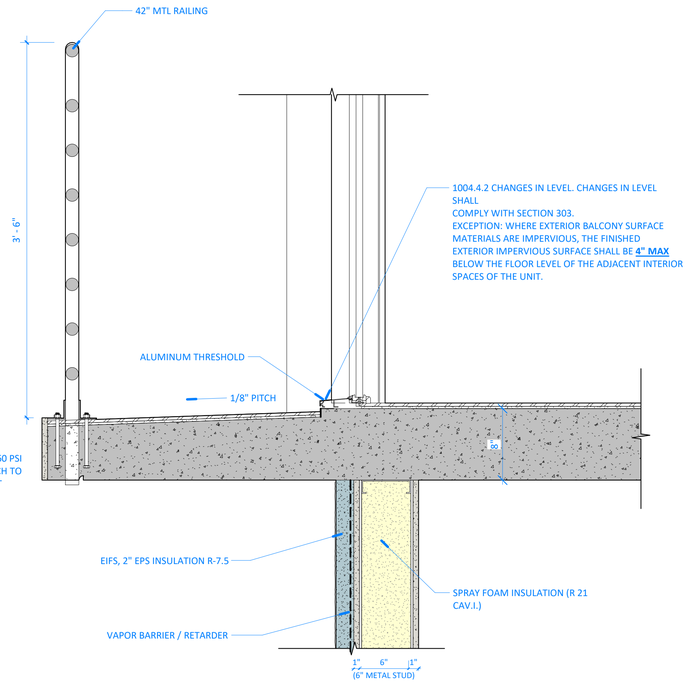


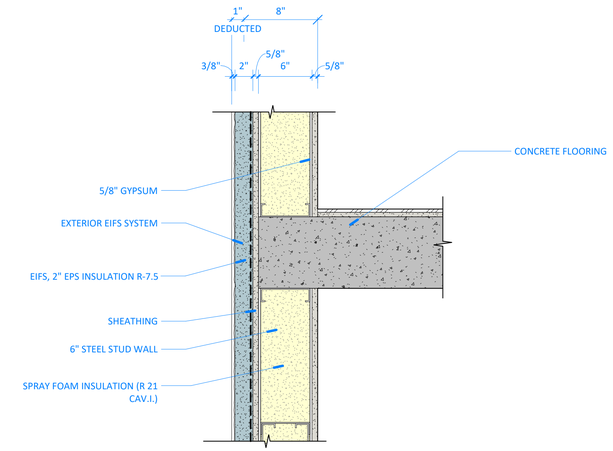
4 STEEL STUD WITH EIFS @ TERRACE WITH RAILING OVER SLAB

SCALE: 1 1/2" = 1'-0"



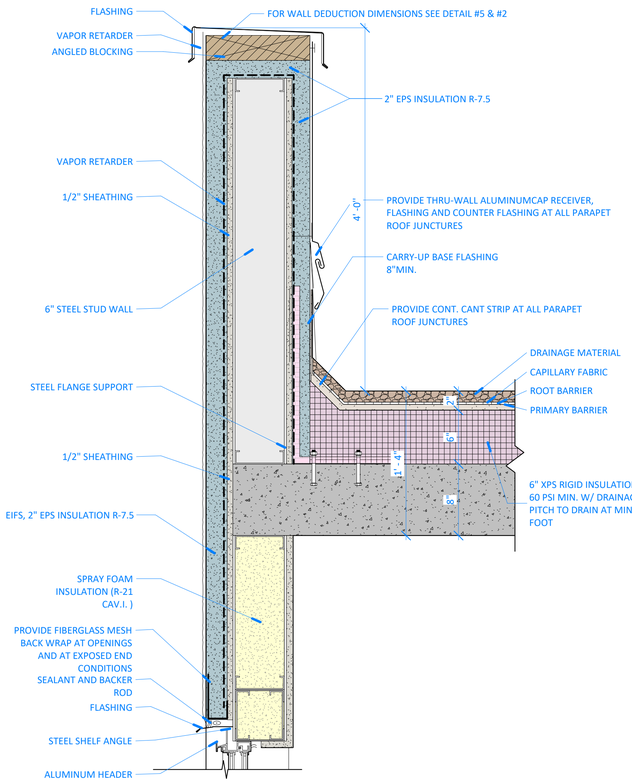
6 STEEL STUD WITH EIFS @ BALCONY_FLOOR SLAB

SCALE: 1 1/2" = 1'-0"



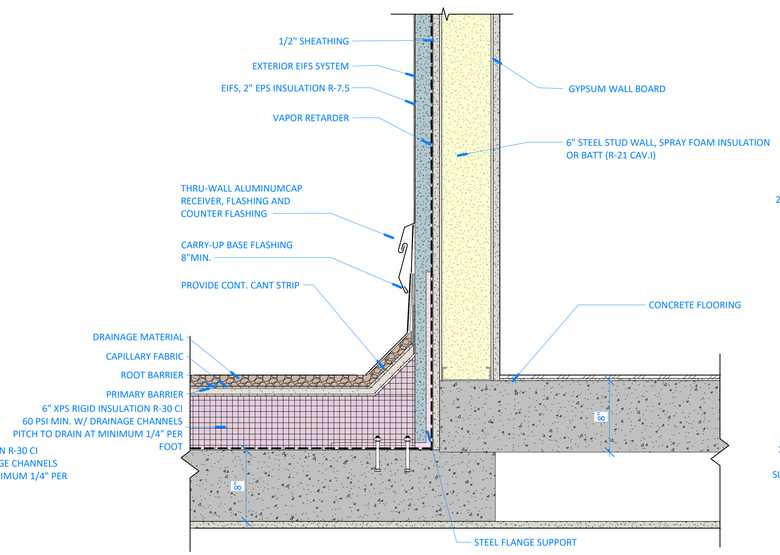
2 STEEL STUD WITH EIFS @ SLAB FLOOR

SCALE: 1 1/2" = 1'-0"



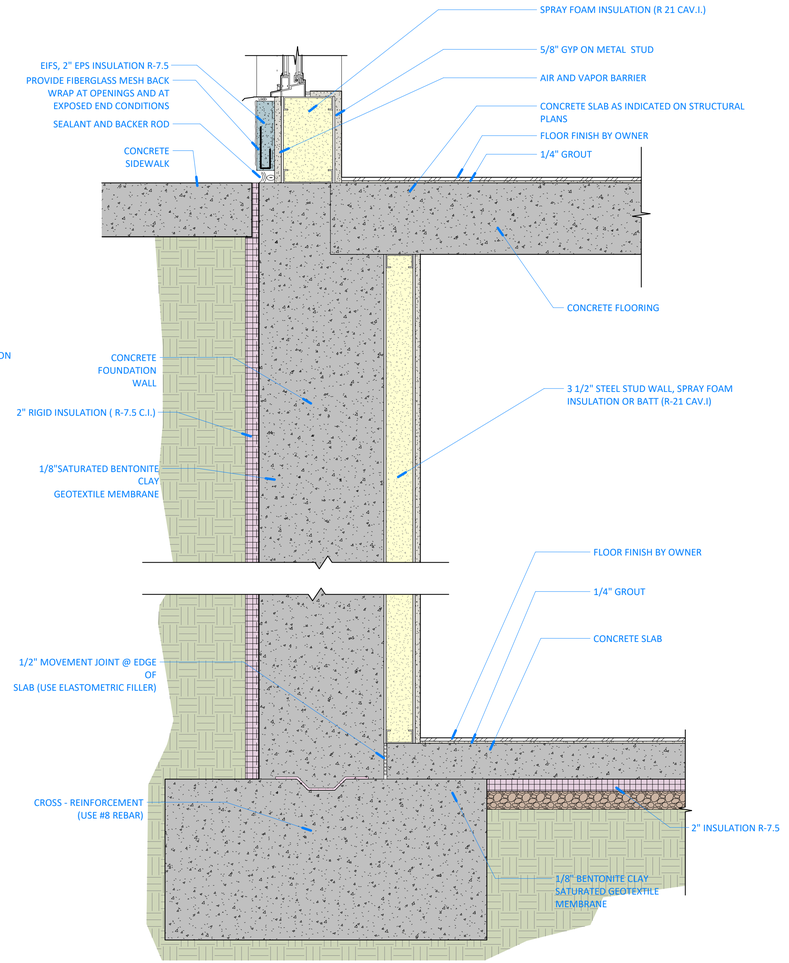
3 STEEL STUD WITH EIFS @ ROOF SLAB

SCALE: 1 1/2" = 1'-0"



5 STEEL STUD WITH EIFS @ ROOF/COURT WALL SLAB FLOOR

SCALE: 1 1/2" = 1'-0"



1 STEEL STUD WITH EIFS @ FOUNDATION

SCALE: 1 1/2" = 1'-0"

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BROOKLYN NY, 11216
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
...

OWNER:
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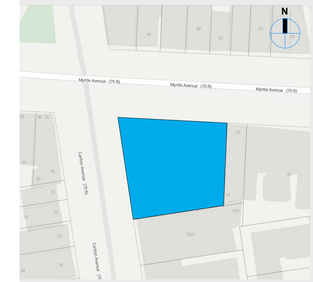
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

WALL DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:45:32 AM
SCALE: 1 1/2" = 1'-0"
DRAWN BY: XX

A-321.00

SHEET: 50 OF 88

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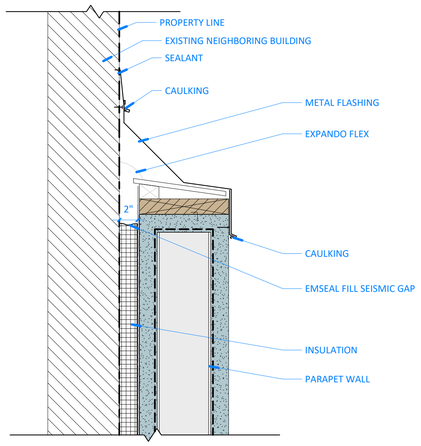
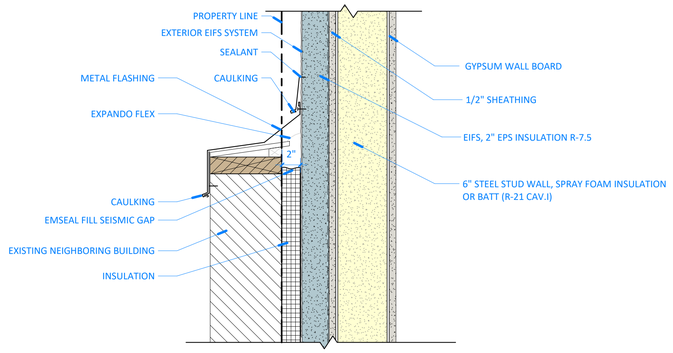


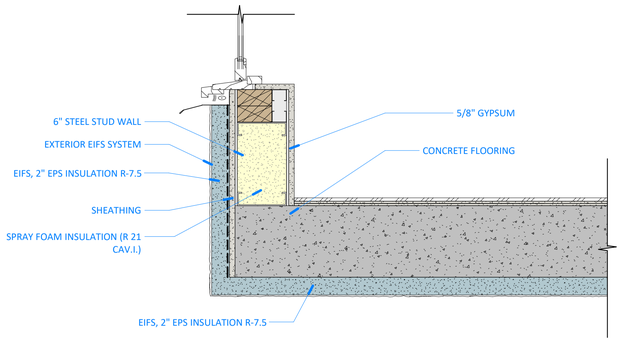
STEEL STUD WITH EIFS @ ADJACENT PROPERTY ROOF

1 SCALE: 1 1/2" = 1'-0"



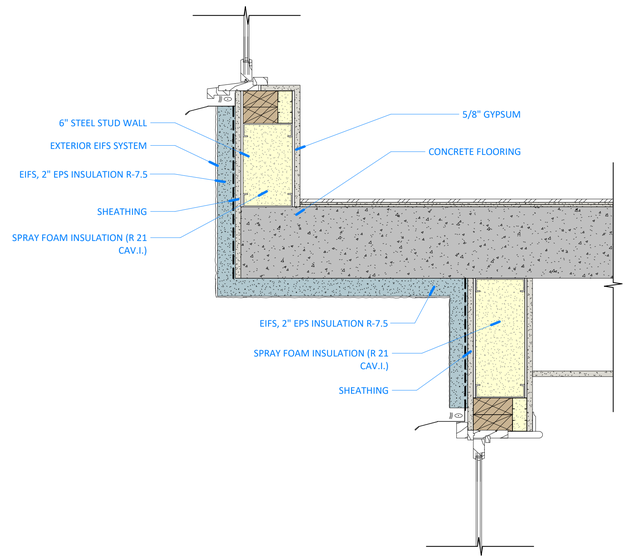
STEEL STUD WITH EIFS @ ADJACENT PROPERTY ROOF

2 SCALE: 1 1/2" = 1'-0"



0_STEEL STUD WITH EIFS @ SLAB FLOOR S1.1

3 SCALE: 1 1/2" = 1'-0"



0_STEEL STUD WITH EIFS @ SLAB FLOOR S1.1

4 SCALE: 1 1/2" = 1'-0"

N

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
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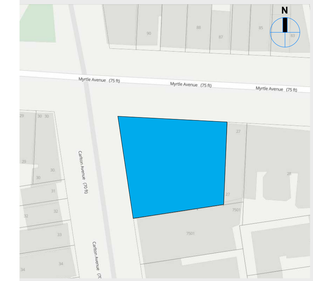
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

WALL DETAILS

DOB # :

DOB BSCAN + STAMP :

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SCALE: 1 1/2" = 1'-0"
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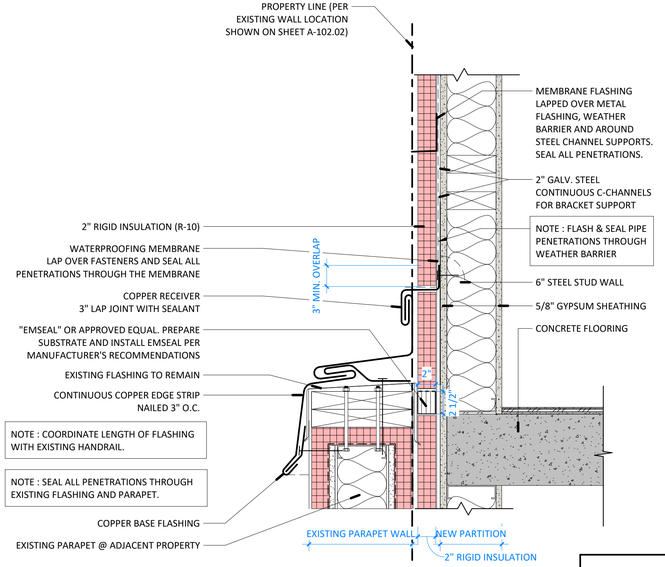
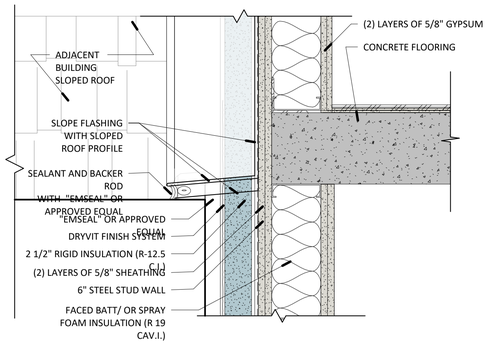


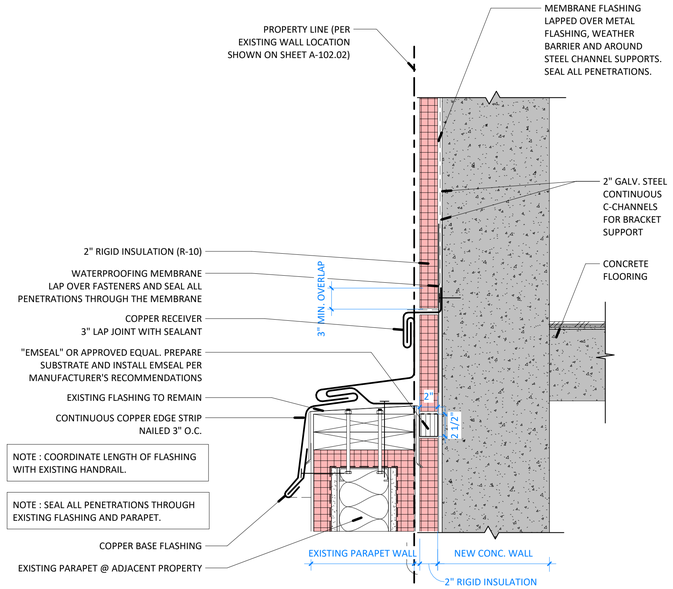
4 FLASHING @ADJ. PARAPET TYP. @STUD WALL

SCALE: 1 1/2" = 1'-0"



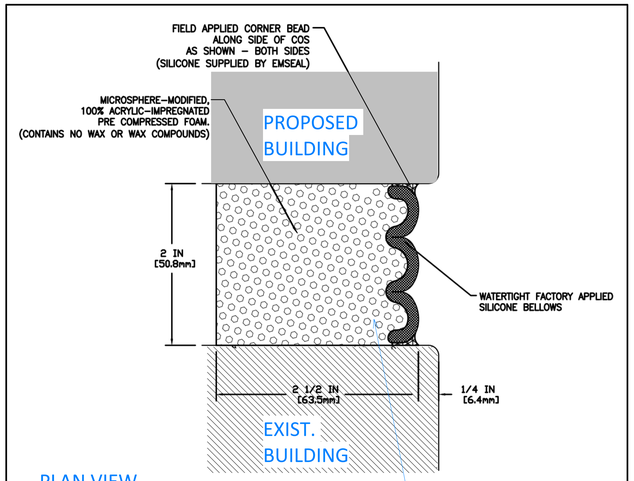
5 FLASHING DETAIL @ ADJACENT PROPERTY ROOF

SCALE: 1 1/2" = 1'-0"



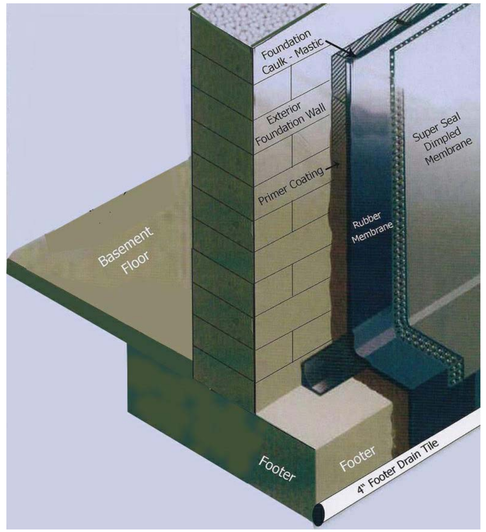
3 FLASHING @ADJ. PARAPET TYP. @CONCRETE WALL

SCALE: 1 1/2" = 1'-0"



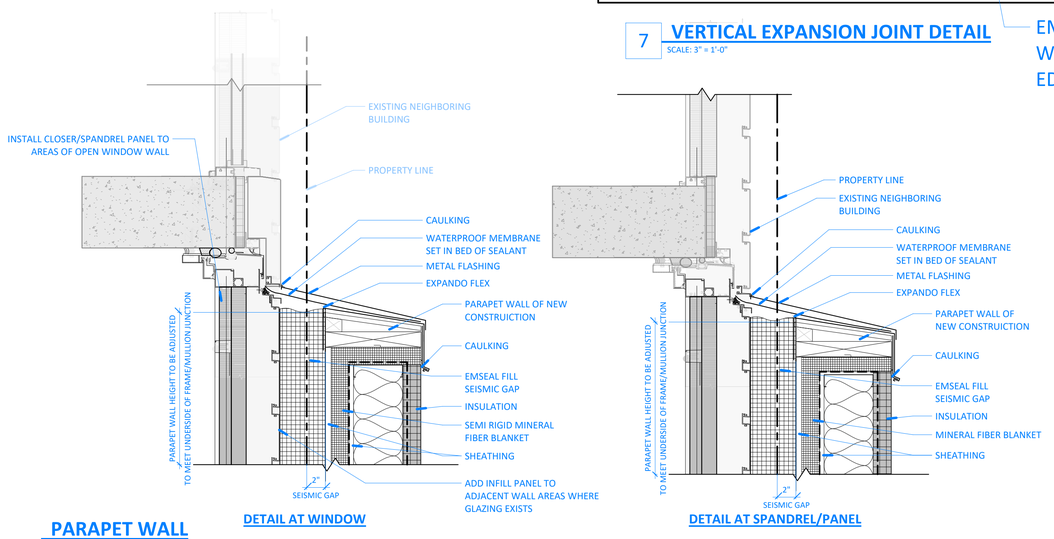
7 VERTICAL EXPANSION JOINT DETAIL

SCALE: 3" = 1'-0"



STEPS TO WEATHER PROOFING MATERIAL TO NEIGHBORING ADJACENT FOUNDATION WALL

1. REMOVE EXISTING CONTINOUS INSULATION IF NEEDED
2. APPLY LIQUID WEATHER PROOFING MEMBRANE ON EXTERIOR WALL OF FOUNDATION WALL
3. AFTER APPLYING LIQUID MEMBRANE ON FOUNDATION, INSTALL RUBBER MEMBRANE OF DRAINAGE COMPOSITE PANEL
4. INSTALL SUPER SEAL DIMPLED MEMBRANE (EXTERIOR LAYER OF DRAINAGE COMPOSITE PANEL)
5. APPLY FLASHING ON TOP OF DRAINAGE COMPOSITE PANEL

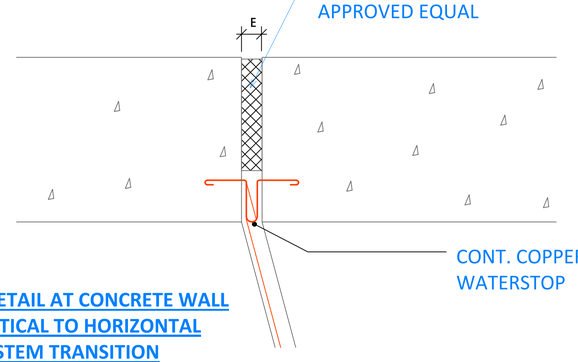


1 PARAPET WALL @ ADJACENT PROPERTY WINDOW WALL

SCALE: 1 1/2" = 1'-0"

6 FLASHING DETAIL @ FOUNDATION ALONG NEXT TO NEIGHBORING EXISTING FOUNDATION WALL

SCALE: 3" = 1'-0"



2 EXPANSION JOINT DETAIL AT CONCRETE WALL BELOW GRADE & VERTICAL TO HORIZONTAL EXPANSION JOINT SYSTEM TRANSITION

SCALE: 3/16" = 1'-0"

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

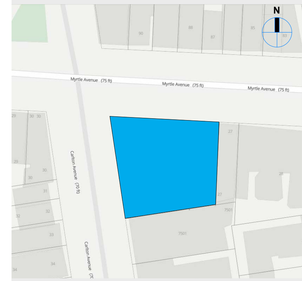
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
FLASHING DETAILS AT ADJACENT EXISTING

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:45:59 AM
SCALE: As indicated
DRAWN BY: XX

A-328.00

SHEET: 52 OF 88

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5/12/2023 1:45:59 AM

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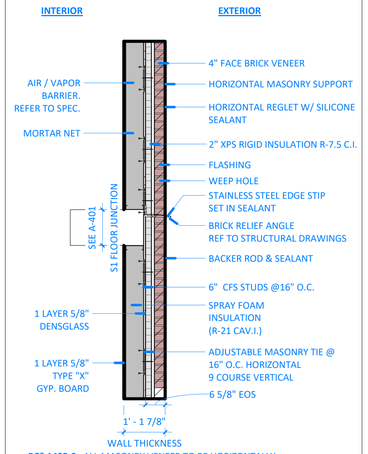
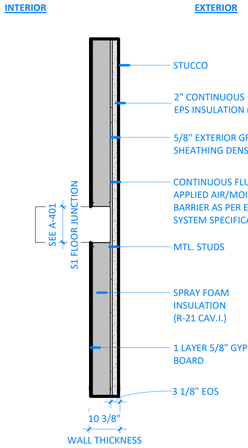
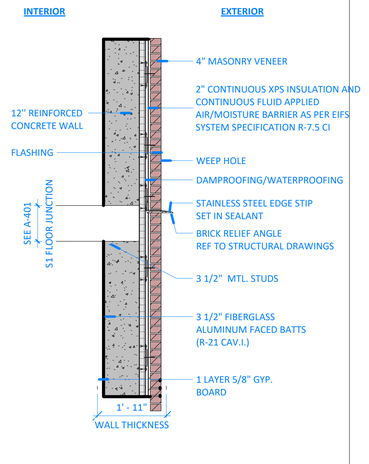
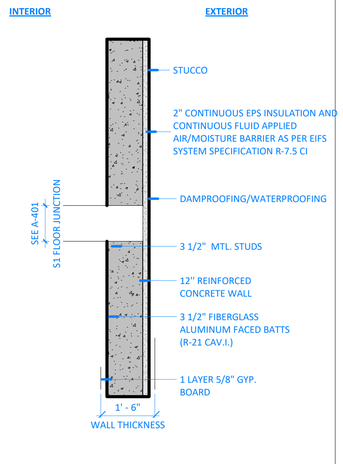
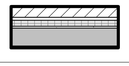
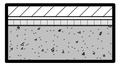
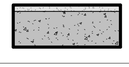
SECTION VIEW				
PLAN VIEW				
	EXTERIOR METAL FRAMED BRICK VEENER NON- BEARING WALL 1 HR UL U425 722.2.1.1 MIN 50 STC NR 1405.6 ANCCHORED MASONRY VENNER. ANCHORED MASONRY VENEER SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 1405.6, 1405.7, 1405.8, AND 1405.9AND SECTIONS 6.1 AND 6.2 OF TMS 402/ACI 530/ASCE 5 EXTERIOR: 5/8" DENSGLASS SHEATHING APPLIED VERTICALLY TO MIN. 3-1/2" CORROSION RESISTANT 20-GAUGE STEEL STUDS 24" O.C. WITH 1" TYPE S CORROSION RESISTANT BUGLE HEAD SCREWS 8" O.C. INTERIOR: 5/8" DENSARMOR PLUS FIREGUARD OR 5/8" TOUGH ROCK FIREGUARD X™ PRODUCTS APPLIED VERTICALLY TO FRAMING WITH 1" TYPE S BUGLE HEAD SCREWS 12" O.C. INSULATION TO COMPLETELY FILL STUD CAVITY.	**EXTERIOR METAL FRAMED EIFS NON- BEARING WALL** 1 HR UL U425 722.2.1.1 MIN 50 STC NR EXTERIOR: 5/8" DENSGLASS SHEATHING APPLIED VERTICALLY TO MIN. 3-1/2" CORROSION RESISTANT 20-GAUGE STEEL STUDS 24" O.C. WITH 1" TYPE S CORROSION RESISTANT BUGLE HEAD SCREWS 8" O.C. INTERIOR: 5/8" DENSARMOR PLUS FIREGUARD OR 5/8" TOUGH ROCK FIREGUARD X™ PRODUCTS APPLIED VERTICALLY TO FRAMING WITH 1" TYPE S BUGLE HEAD SCREWS 12" O.C. INSULATION TO COMPLETELY FILL STUD CAVITY.	**EXTERIOR CONCRETE BRICK BEARING WALL** 4 HR 722.2.1.1 MIN 50 STC NR 1405.6 ANCCHORED MASONRY VENNER. ANCHORED MASONRY VENEER SHALL COMPLY WITH THE PROVISIONS OF SECTIONS 1405.6, 1405.7, 1405.8, AND 1405.9AND SECTIONS 6.1 AND 6.2 OF TMS 402/ACI 530/ASCE 5 EXTERIOR: 5/8" DENSGLASS SHEATHING APPLIED VERTICALLY TO MIN. 3-1/2" CORROSION RESISTANT 20-GAUGE STEEL STUDS 24" O.C. WITH 1" TYPE S CORROSION RESISTANT BUGLE HEAD SCREWS 8" O.C. INTERIOR: 5/8" DENSARMOR PLUS FIREGUARD OR 5/8" TOUGH ROCK FIREGUARD X™ PRODUCTS APPLIED VERTICALLY TO FRAMING WITH 1" TYPE S BUGLE HEAD SCREWS 12" O.C. INSULATION TO COMPLETELY FILL STUD CAVITY.	**EXTERIOR CONCRETE EIFS BEARING WALL** 4 HR 722.2.1.1 MIN 50 STC NR

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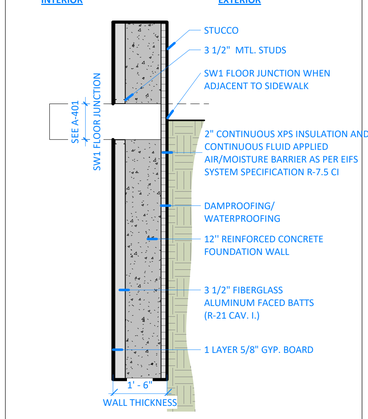
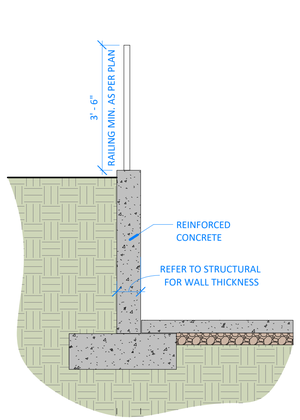
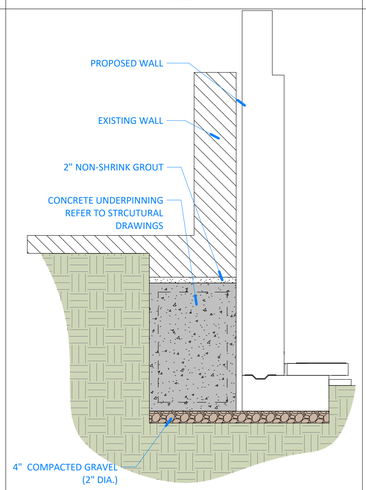
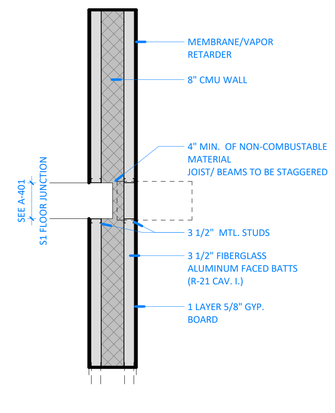
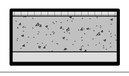
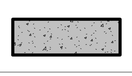
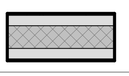
SECTION VIEW				
PLAN VIEW				
	EXTERIOR CONCRETE FOUNDATION BEARING WALL 4 HR 722.2.1.1 MIN 50 STC NR	**EXTERIOR CONCRETE RETAINING WALL**	**EXTERIOR CONCRETE UNDERPINING WALL**	**EXTERIOR CMU PARTY BEARING WALL** 3 HR UL U914 722.2.1.1 MIN 50 STC NR

BC* 1405.6: ALL MASONRY VENEER TO BE HORIZONTALLY REINFORCED PER 12.1 & 12.2 OF TMS 402 ACI 530 ASCE 530/ASCE 5 AS MODIFIED BY NYCBC* 2022 CHAPTER 21

5/12/2023 1:46:10 AM

CARLISLE SPRAY FOAM INSULATION

TECHNICAL DATA SHEET

OPEN CELL FOAM
SealTite PRO No Trim 21

SealTite PRO No Trim 21 is a two component, light density, one to one by volume spray applied polyurethane foam. A single pass at 5" of SealTite PRO No Trim 21, in a typical 2X6 wall cavity, will achieve an R21 without trimming of excess material. To produce SealTite PRO No Trim 21 requires the use of an "A" component (ISO) and a blended "B" component (RESIN), which contains ZERO ozone depleting blowing agents, catalysts, polyols and fire retarding materials. SealTite PRO No Trim 21 is an insulation system designed for use in residential applications. Use in lieu of more traditional forms of insulating materials such as fiberglass, cellulose or other loose fill products. Typical area's where spray polyurethane foam is applied are exterior walls, interior walls, vented attics, un-vented attic assemblies between floors, and ceilings.

SealTite PRO

TYPICAL PHYSICAL PROPERTIES:

Property	SealTite	Test
R-Value	4.4 @ 1"	ASTM C 518
Core Density	0.75 LB / Cubic Foot	ASTM D 1622
Open Cell Content	> 97%	ASTM D 6226
Sound Transmission Coefficient	30	ASTM E 413
Water Vapor Transmission - Permeance	15 Perms at 1"	ASTM E 96
Air Impermeable	< 0.02 (L/s-m²) @ 3.5"	ASTM E 283
Noise Reduction Coefficient	0.10	ASTM C 423
Tensile Strength (PSI)	4.7	ASTM D 1623
Dimensional Stability	< 4%	ASTM D 2126

Building Code Certifications / Fire Test Data		
Evaluation Service Report	IAPMO	UES 618
Building Types	Approved	V-B: Nonstructural Insulation material
Flame Spread	ASTM E84	Class I < 20
Smoke Development	ASTM E84	Class I < 400
NFPA 286 AC377 Appendix X	Pass: Complies with the applicable requirements of ICC-ES AC377 Appendix X for use in attics and crawlspaces when covered with one of the approved intumescent coatings as shown on page 2.	
UL Listing	FWFX.R38039	Exterior Wall System Component
UL Listing	FWFO.EWS0013 & EWS0029	Exterior Wall System

100 Enterprise Drive • Cartersville, GA 30120 • 844.922.2355
www.carlisleifi.com

OWENS CORNING

FOAMULAR® Insulating Sheathing
Extruded Polystyrene (XPS) Rigid Foam Insulation

Product Data Sheet

Standards, Codes Compliance

- Meets ASTM C578 Type X
- UL Classified. A copy of UL Classification Certificate U-197 is available at www.foamular.com
- See ICC-ES Evaluation Report ESR-1061 at www.icc-es.org
- ASTM E119 Fire Resistance Rated Wall Assemblies. See www.foamular.com for details
- Meets California Quality Standards and HUD UM #71a
- Compliance verification by RADCO (AA-650)

Certifications and Sustainable Features of FOAMULAR® XPS Insulation

- FOAMULAR® XPS Insulation is reusable and remnants from manufacturing are recycled back into new XPS Insulation
- FOAMULAR® XPS Insulation is made with a zero ozone depletion formula
- Certified by Scientific Certification Systems to contain a minimum of 20% pre-consumer recycled polystyrene
- Certified to meet indoor air quality standards under the stringent GREENGUARD Certification Program and GREENGUARD Gold Certification Program

Typical Physical Properties[1]
FOAMULAR® Insulating Sheathing Insulation

Property	Test Method[1]	Value
Thermal Resistance[2], R-Value (180 day) minimum, h•ft²•°F/Btu (RSI, °C•m²/W)		
@ 75°F (24°C) mean temperature	ASTM C518	
½" Thickness[4]		3.0 (0.53)
¾" Thickness		4.0 (0.70)
1" Thickness		5.0 (0.88)
@ 40°F (4.4°C) mean temperature		
½" Thickness[4]		3.2 (0.57)
¾" Thickness		4.3 (0.76)
1" Thickness		5.4 (0.95)
Long Term Thermal Resistance, LTTR Value[3] h•ft²•°F/Btu (RSI, °C•m²/W)		
@ 75°F (24°C) mean temperature	CAN/ULC S770-03	
½" Thickness[4]		N/A
¾" Thickness		N/A
1" Thickness		5.0 (0.88)
Flexural Strength[5], minimum psi (kPa)	ASTM C203	
½" Thickness[4]		N/A
¾" Thickness		N/A
1" Thickness		65 (448)
Compressive Strength[6], minimum psi (kPa)	ASTM D1621	15 (103)
Water Absorption[7], maximum % by volume	ASTM C272	0.10
Water Vapor Permeance[8], maximum perm (ng/Pa•s•m²)	ASTM E96	0.2 (11.5)
Dimensional Stability, maximum % linear change	ASTM D2126	2.0
Flame Spread[9,10]	ASTM E84	5
Smoke Developed[9, 10,11]	ASTM E84	45-175
Oxygen Index[9], minimum % by volume	ASTM D2863	24
Service Temperature, maximum °F (°C)		165 (74)
Linear Coefficient of Thermal Expansion, in/in/°F (m/m/°C)	ASTM E228	3.5 x 10⁻⁵ (6.3 x 10⁻⁵)

1. Properties shown are representative values for core 1" thick material, unless otherwise specified.
2. Modified as required to meet ASTM C578.
3. R means the resistance to heat flow; the higher the value, the greater the insulation power. This insulation must be installed properly to get the marked R-value. Follow the manufacturer's instructions carefully. If a manufacturer's fact sheet is not provided with the material shipment, request this and review it carefully. R-values vary depending on many factors including the mean temperature at which the test is conducted, and the age of the sample at the time of testing. Because rigid foam plastic insulation products are not all aged in accordance with the same standards, it is useful to publish comparison R-value data. The R-value for FOAMULAR® XPS insulation is provided from testing at two mean temperatures, 40°F and 75°F, and from two aging (conditioning) techniques. 180 day real-time aged (as mandated by ASTM C578) and a method of accelerated aging sometimes called "Long Term Thermal Resistance", (LTTR) per CAN/ULC S770-03. The R-value at 180 day real-time age and 75°F mean temperature is commonly used to compare products and is the value printed on the product.
4. The ½" is actually a nominal half-inch of 9/16ch needed to achieve 3.0 R-value.
5. Value at yield or 5%, whichever occurs first.
6. Values at yield or 10% deflection, whichever occurs first.
7. Data ranges from 0.00 to value shown due to the level of precision of the test method.
8. Water vapor permeance decreases as thickness increases.
9. These laboratory tests are not intended to describe the hazards presented by this material under actual fire conditions.
10. Data From Underwriters Laboratories Inc.® classified. See Classification Certificate U-197.
11. ASTM E84 is thickness-dependent, therefore a range of values is given.

Typical Physical Properties[1]

Property	Test Method[1]	Value
Classification (ASTM C 578)		Type 1
Density, lb/ft³ (kg/m³)		0.95 (15.2) min. 1.25 (20.0) max.
Thermal Resistance of 1.00 in (25 mm) thickness, min. F-ft²-h-Btu (K-m²/W)		
40 °F (4.4 °C)		4.00 (0.70)
75 °F (23.9 °C)		3.60 (0.63)
Compressive strength, min., psi (kPa)		10.0 (69)
Tensile strength, min., psi (kPa)		15.0 (103)
Flexural strength, min., psi (kPa)		25.0 (172)
Water vapor permeance of 1.00 in (25 mm) thickness, max., perm (ng/Pa·s·m²)		5.0 (287)
Water absorption by total immersion, max., volume %		4.0
Dimensional stability (change in dimensions), max. %		2.0
Oxygen index, min., volume %		24.0
Flame spread, max.		25.0
Smoke development, max.		450
Board thickness, Class PB and PM		
Maximum		See Note*
Minimum		3/4 in (19 mm)
Board width, max.		
Class PB		24 in (610 mm)
Class PM		24 in (610 mm)
Board length, max.		
Class PB		48 in (1219 mm)
Class PM		96 in (2438 mm)

* **NOTE: Contact Dryvit System, Inc. Engineering Department for thicknesses exceeding 4 inches.**

EXPANDED POLYSTYRENE (EPS) INSULATION BOARD SPECIFICATIONS DS131

TABLE I

Properties and Requirements of EPS for Use in Dryvit EIFS

Classification (ASTM C 578)	Type 1
Density, lb/ft³ (kg/m³)	0.95 (15.2) min. 1.25 (20.0) max.
Thermal Resistance of 1.00 in (25 mm) thickness, min. F-ft²-h-Btu (K-m²/W)	
40 °F (4.4 °C)	4.00 (0.70)
75 °F (23.9 °C)	3.60 (0.63)
Compressive strength, min., psi (kPa)	10.0 (69)
Tensile strength, min., psi (kPa)	15.0 (103)
Flexural strength, min., psi (kPa)	25.0 (172)
Water vapor permeance of 1.00 in (25 mm) thickness, max., perm (ng/Pa·s·m²)	5.0 (287)
Water absorption by total immersion, max., volume %	4.0
Dimensional stability (change in dimensions), max. %	2.0
Oxygen index, min., volume %	24.0
Flame spread, max.	25.0
Smoke development, max.	450
Board thickness, Class PB and PM	
Maximum	See Note*
Minimum	3/4 in (19 mm)
Board width, max.	
Class PB	24 in (610 mm)
Class PM	24 in (610 mm)
Board length, max.	
Class PB	48 in (1219 mm)
Class PM	96 in (2438 mm)

* **NOTE: Contact Dryvit System, Inc. Engineering Department for thicknesses exceeding 4 inches.**

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

EXTERIOR WALL DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:46:10 AM
SCALE: 1/2" = 1'-0"
DRAWN BY: XX

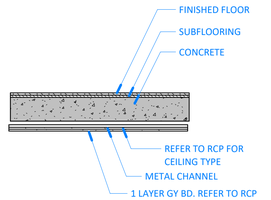
A-400.00

SHEET: 53 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

S1

SECTION VIEW



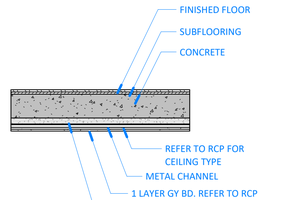
INTERIOR FLOOR
CONCRETE

PERFORMANCE

2 HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
58 STC		NR	IIC 50

S1.1

SECTION VIEW



INTERIOR FLOOR
CONCRETE

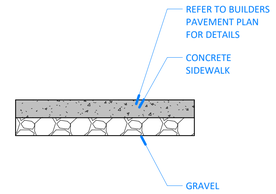
PERFORMANCE

2 HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
58 STC		NR	IIC 50

MARK

SW 1

SECTION VIEW



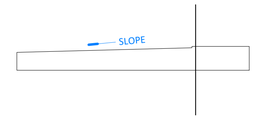
CONCRETE SIDEWALK

PERFORMANCE

MARK

SB 1

SECTION VIEW



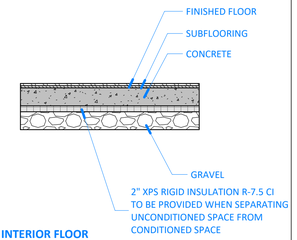
BALCONY

PERFORMANCE

MARK

SOG 1.1

SECTION VIEW



INTERIOR FLOOR
CONCRETE

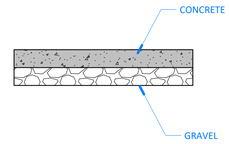
PERFORMANCE

X HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
		NR	

MARK

SOG 1.2

SECTION VIEW



EXTERIOR FLOOR
CONCRETE

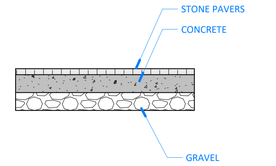
PERFORMANCE

X HR		XXX	
		NR	

MARK

SOG 1.3

SECTION VIEW



EXTERIOR FLOOR
CONCRETE

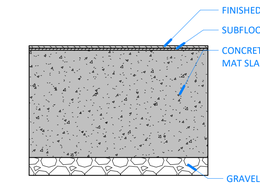
PERFORMANCE

X HR		XXX	
		NR	

MARK

SOG 1.4

SECTION VIEW



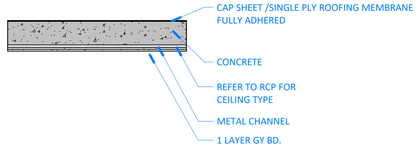
INTERIOR FLOOR
CONCRETE MAT SLAB

PERFORMANCE

X HR		XXX	
		NR	

R1.2

SECTION VIEW



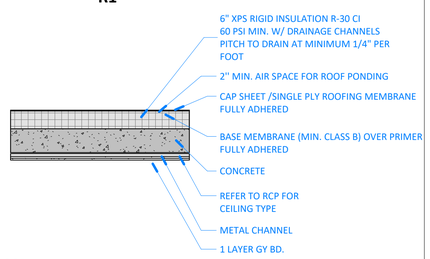
ROOF
CONCRETE

PERFORMANCE

2 HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
MIN 50 STC		NR	IIC MIN 50

R1

SECTION VIEW



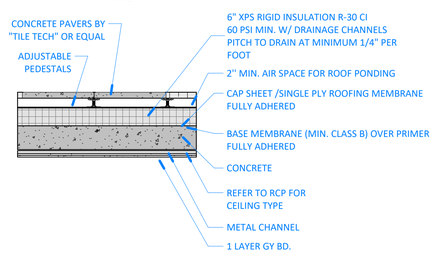
ROOF
CONCRETE

PERFORMANCE

2 HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
MIN 50 STC		NR	IIC MIN 50

RT1

SECTION VIEW



ROOF
CONCRETE & PAVERS

PERFORMANCE

2 HR	MIN. 5'' SLAB THICKNESS	XXX	MIN. 5'' SLAB THICKNESS
MIN 50 STC		NR	IIC MIN 50

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
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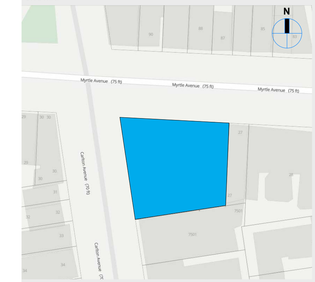
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

FLOOR AND ROOF DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:46:13 AM
SCALE: 1/2" = 1'-0"
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SHEET: 54 OF 88

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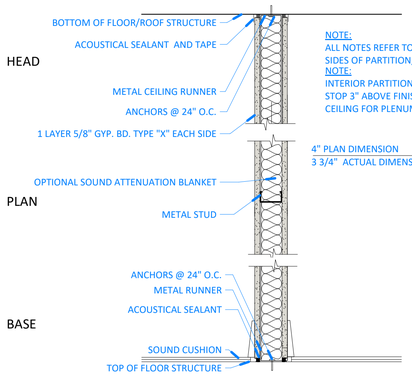


INTERIOR PARTITIONS TO BE AS FOLLOWS:
ONE LAYER OF 5/8" GYP. BD. TYPE "X" EACH SIDE OF 22 GAUGE 2 1/2" METAL STUDS.
0A - OPTIONAL SOUND ATTENUATION BLANKET

MAXIMUM CLEAR HEIGHTS ALLOWED FOR:

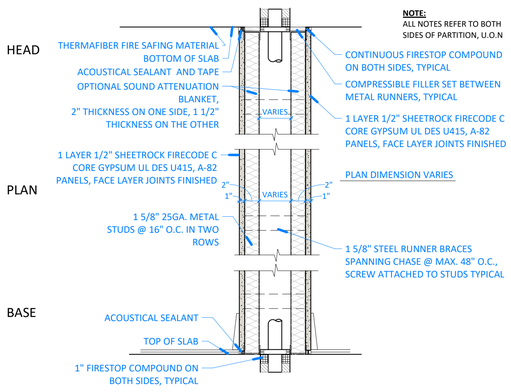
	2 1/2" METAL STUD	4" METAL STUD	6" METAL STUD
24" O.C.	11'-6"	16'-3"	22'-0"
16" O.C.	13'-0"	18'-6"	25'-3"

IF CLEAR HEIGHT IS GREATER THAN INDICATED, A WIDER METAL STUD MUST BE USED.

0 — NON-RATED INTERIOR PARTITION WALL

1 HR

STC 45



NOTE:
ALL NOTES REFER TO BOTH SIDES OF PARTITION, U.O.N

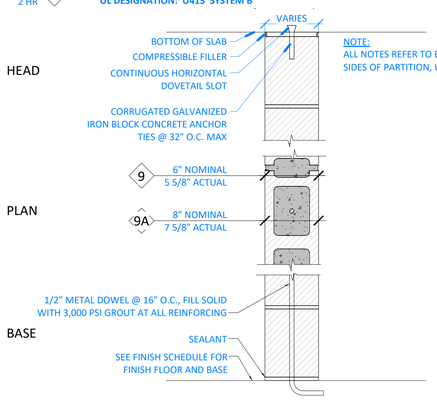
1HR - CHASE WALLS TO BE AS FOLLOWS:
CMU OR MASONRY WALL
1 5/8" METAL 25 GAUGE STUDS 16" O.C. IN TWO ROWS.
1 LAYER OF 1/2" SHEETROCK FIRECODE C CORE GYPSUM PANELS, FACE LAYER JOINTS FINISHED

4A - OPTIONAL WALL TYPE AS NOTED ABOVE WITH 2" THICK SOUND ATTENUATION BLANKET

4 — 1 HR - CHASE WALLS

2 HR

UL DESIGNATION: U415 SYSTEM B



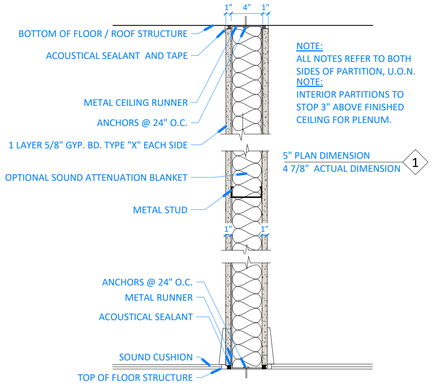
9: 6" CMU FILLED SOLID
9A: 8" CMU FILLED SOLID
9B: 12" CMU FILLED SOLID
9C: 6" CMU FILLED SOLID (3 HOUR FIRE RATING , COMPACTOR ROOM)

NOTES
1. SEE STRUCTURAL DRAWINGS FOR REBAR SIZE, SPACING & CMU HEIGHT RESTRICTIONS
2. REINFORCED MASONRY SUBJECT TO CONTROL INSPECTION
3. CONTRACTOR TO SUBMIT FIRE RESISTANCE RATING OF CMU FROM MANUFACTURER

8 — CMU WALL

1, 2, & 3-HR FIRE RATED

NOTE: BLOCK TO BE FILLED SOLID WITH 3,000 PSI GROUT WHERE REQUIRED FOR SEISMIC REINFORCING. SEE STRUCTURAL DRAWINGS FOR MORE INFORMATION ON MASONRY WALLS



INTERIOR PARTITIONS TO BE AS FOLLOWS:
ONE LAYER OF 5/8" GYP. BD. TYPE "X" EACH SIDE OF 22 GAUGE 2 1/2" METAL STUDS.
OPTIONAL SOUND ATTENUATION BLANKET

MAXIMUM CLEAR HEIGHTS ALLOWED FOR:

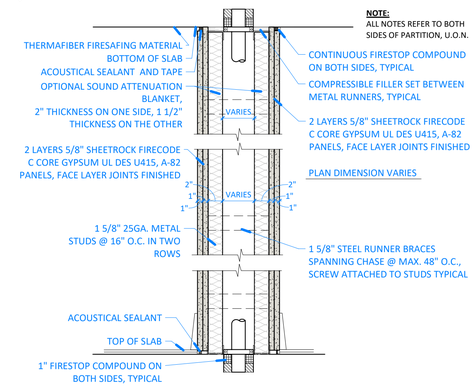
	2 1/2" METAL STUD	4" METAL STUD	6" METAL STUD
24" O.C.	11'-6"	16'-3"	22'-0"
16" O.C.	13'-0"	18'-6"	25'-3"

IF CLEAR HEIGHT IS GREATER THAN INDICATED, A WIDER METAL STUD MUST BE USED.

1 — 1 HR - INTERIOR PARTITION WALL

1 HR

UL DESIGNATION: U419, STC 51



NOTE:
ALL NOTES REFER TO BOTH SIDES OF PARTITION, U.O.N.

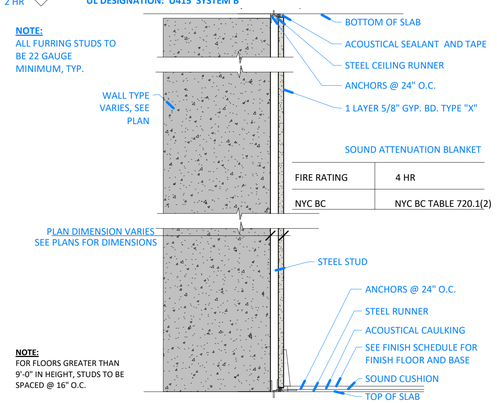
2HR - CHASE WALLS TO BE AS FOLLOWS:
CMU OR MASONRY WALL
1 5/8" METAL 25 GAUGE STUDS 16" O.C. IN TWO ROWS.
2 LAYERS OF 5/8" SHEETROCK FIRECODE C CORE GYPSUM PANELS, FACE LAYER JOINTS FINISHED

5A - OPTIONAL WALL TYPE AS NOTED ABOVE WITH 2" THICK SOUND ATTENUATION BLANKET

5 — 2 HR - CHASE WALLS

2 HR

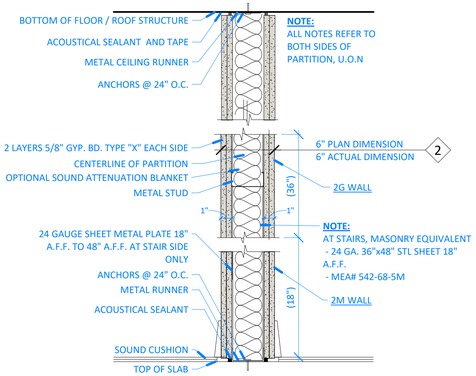
UL DESIGNATION: U415 SYSTEM B



FIRE RATING	4 HR
NYC BC	NYC BC TABLE 720.1(2)

INSULATED WALL FURRING TO BE AS FOLLOWS:
- OPTIONAL WALL TYPE AS NOTED ABOVE WITH 2 1/2" STEEL STUDS @ 16" O.C. WITH 2" THICK SOUND ATTENUATION BLANKET.
- OPTIONAL WALL TYPE AS NOTED ABOVE WITH 3 5/8" STEEL STUDS @ 16" O.C. WITH 3" THICK SOUND ATTENUATION BLANKET.
- OPTIONAL WALL TYPE AS NOTED ABOVE WITH 3 5/8" STEEL STUDS @ 16" O.C. WITH 3" THICK SOUND ATTENUATION BLANKET.
- OPTIONAL WALL TYPE AS NOTED ABOVE WITH 6" STEEL STUDS @ 24" O.C. WITH 5 1/2" THICK SOUND ATTENUATION BLANKET.
- OPTIONAL WALL TYPE AS NOTED ABOVE WITH 6" STEEL STUDS @ 16" O.C. WITH 5 1/2" THICK SOUND ATTENUATION BLANKET.

9 — CONCRETE WALL



PARTITIONS BETWEEN STAIRS, AND PUBLIC CORRIDORS TO BE AS FOLLOWS: TWO LAYERS OF 5/8" GYP. BD. TYPE "X" EACH SIDE OF 22 GAUGE 3 1/2" METAL STUDS.
2A - OPTIONAL SOUND ATTENUATION BLANKET
2G - GAS METER WALL
2M - MASONRY EQUIVALENT: ADD 24GA. 36" X 48" STEEL SHEET SECURED BETWEEN GYPSUM PANELS 18" A.F.F. WITH 3 1/2" 20 GA. METAL STUD AND ASTM 1629 IMPACT CLASSIFICATION LEVEL 2 WALL BOARD

MAXIMUM CLEAR HEIGHTS ALLOWED FOR:

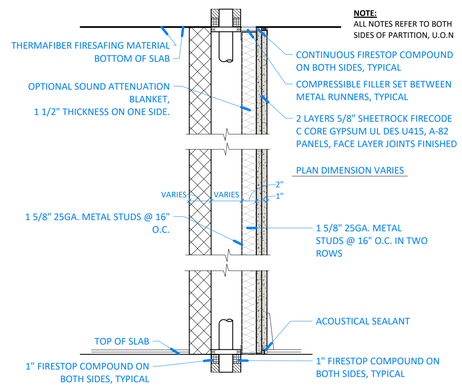
	2 1/2" METAL STUD	4" METAL STUD	6" METAL STUD
24" O.C.	11'-3"	14'-3"	15'-0"
16" O.C.	13'-6"	17'-3"	20'-0"

IF CLEAR HEIGHT IS GREATER THAN INDICATED, A WIDER METAL STUD MUST BE USED.

2 — 2 HR INTERIOR PARTITION WALL

2 HR

UL DESIGNATION: U419, STC 51



NOTE:
ALL NOTES REFER TO BOTH SIDES OF PARTITION, U.O.N

NOTE:
PROVIDE 36" x 48" 24 GA. METAL PLATE AT 18" ABOVE FINISH FLOOR WITHIN ENTIRE PARTITION AT STAIR ENCLOSURES.

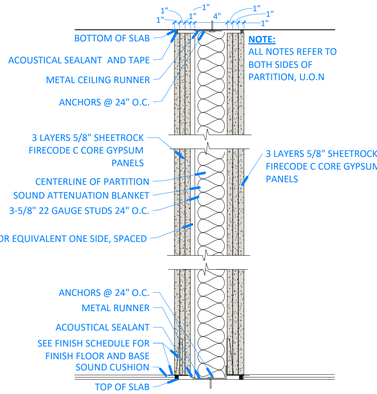
2HR - CHASE WALLS TO BE AS FOLLOWS:
CMU OR MASONRY WALL
1 5/8" METAL 25 GAUGE STUDS 16" O.C. IN TWO ROWS.
2 LAYERS OF 5/8" SHEETROCK FIRECODE C CORE GYPSUM PANELS, FACE LAYER JOINTS FINISHED

6A - OPTIONAL WALL TYPE AS NOTED ABOVE WITH 2" THICK SOUND ATTENUATION BLANKET

6 — 2 HR - CHASE WALLS @ CMU / CONCRETE

2 HR

UL DESIGNATION: U415 SYSTEM B



PARTITIONS BETWEEN REFUSE COMPACTOR ROOM, AND PUBLIC CORRIDORS TO BE AS FOLLOWS:
THREE LAYERS OF 5/8" GYP. BD. TYPE "X" EACH SIDE OF 22 GAUGE 3 1/2" METAL STUDS.
3A - OPTIONAL SOUND ATTENUATION BLANKET

MAXIMUM CLEAR HEIGHTS ALLOWED FOR:

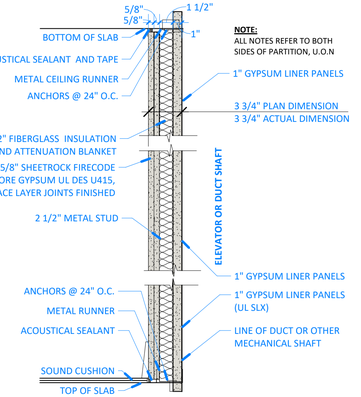
	4" METAL STUD	6" METAL STUD
24" O.C.	14'-3"	15'-0"
16" O.C.	17'-3"	20'-0"

IF CLEAR HEIGHT IS GREATER THAN INDICATED, A WIDER METAL STUD MUST BE USED.

3 — 3 HR INTERIOR PARTITION WALL

VARIES

3 HR MIN FIRE RATED, USG - U419 3 HR 7 7/8" STC 63 USG 920584 ULX



2HR - SHAFT WALLS TO BE AS FOLLOWS:
(2) 5/8" SHEETROCK GYPSUM PANELS, FACE LAYER JOINTS FINISHED (TYPE ULIX)
2-1/2" USG C-H STUDS 20 GAUGE 24" O.C..
1" SHEETROCK GYPSUM LINER PANELS (UL SLX)

OPTIONAL WALL TYPE AS NOTED ABOVE WITH 2" THICK SOUND ATTENUATION BLANKET

7 — 2 HR - SHAFT WALL

2 HR

UL415 SYSTEM B - 2 HR 3 3/4" STC 37 USG-170522 - TYPE C,SLX

PARTITION GENERAL NOTES:

1. AT ALL KITCHEN CABINET AREAS SPACE STUDS 12" O.C.
2. AT ALL PARTITIONS INDICATED TO RECEIVE TILE, SPACE STUDS 16" O.C. UNLESS STUDS ARE INDICATED AS 12" O.C.
3. PROVIDE ADDITIONAL LAYER OR LAYERS OF GYPSUM BOARD AS REQUIRED FOR PARTITIONS WHERE ADJACENT LAYERS NEED TO BE ALIGNED OR FLUSH.
4. PROVIDE SOUND ATTENUATION WRAP AROUND HORIZONTAL DUCT RUNNING ACROSS AN APARTMENT ONLY. 10'-0" MINIMUM HORIZONTAL LENGTH FROM ROOF FAN. COORDINATE WITH HVAC (SEE MISCELLANEOUS DETAILS AT HORIZONTAL OFFSET DUCT).
5. ELECTRICAL AND SERVICE OUTLETS FOR ADJACENT ROOMS ARE TO BE POSITIONED A MINIMUM 24" APART AND IN SEPARATE STUD SPACES.
6. NO GYPSUM BOARD LAYERS ARE TO BE CONTINUOUS BETWEEN TWO ADJACENT ROOMS.
7. DEMISING PARTITIONS TO CLOSE THROUGH PERIMETER FASCIA TO THE BASE BUILDING CONSTRUCTION, SUCH AS COLUMN ENCLOSURES, ETC.
8. PROVIDE CONTINUOUS ACOUSTICAL (NON-HARDENING) CAULKING BEADS ON EACH SIDE OF THE TOP AND BOTTOM STUD RUNNER AT THE 3-WAY INTERSECTION BETWEEN THE RUNNER, FLOOR, AND GYPSUM BOARD.
9. PROVIDE ACOUSTICAL (NON-HARDENING) CAULKING TO CLOSE GAPS BETWEEN ALL RECEPTACLE OUTLETS (ELECTRICAL, TELEPHONE, DATA, ETC.) AND GYPSUM BOARD.
10. MULTIPLE LAYERS OF GYPSUM BOARD ARE TO BE APPLIED WITH JOINTS STAGGERED AT LEAST 16" RELATIVE TO ONE ANOTHER.
11. WALL PENETRATIONS WIDER THAN 24" TO BE FRAMED OUT BY STEEL STUDS, OTHERWISE TO BE BETWEEN FULL HEIGHT STUDS. THE FRAMING SHALL MAINTAIN LESS THAN A 2" GAP AROUND DUCTWORK OR OTHER SERVICE PENETRATING THE WALL.
12. PENETRATIONS THROUGH SOUND CRITICAL PARTITIONS (DUCTS, PIPES, CONDUITS, ETC.) ARE TO BE HANDLED AS FOLLOWS:
    A. GAPS GREATER THAN 2" REQUIRE GYPSUM BOARD PATCHING FROM BOTH SIDES, CAREFULLY CUT OUT AROUND PENETRATING ELEMENTS. BATT INSULATION SHALL BE PACKED AROUND PENETRATING ELEMENTS WITHIN THE AREA OF THE PENETRATION.
    B. 2" GAPS OR LESS FILLED FROM EACH SIDE WITH HEAVY DENSITY PUTTY WHICH MEETS THE REQUIRED FIRE RATINGS.
    C. CABLE TRAYS TO BE PACKED TIGHTLY WITH HEAVY DENSITY PUTTY AS ABOVE, ONCE CABLES ARE PULLED.
13. ALL DEMISING PARTITIONS ARE TO BE BUILT FULL-HEIGHT FROM THE FLOOR SLAB TO THE CEILING SLAB ABOVE, U.O.N.
14. INTERIOR PARTITIONS WITHIN APARTMENTS TO STOP 3" ABOVE FINISHED CEILING FOR PLENUM. SEE MECHANICAL DRAWINGS FOR MORE INFO REGARDING CEILING PLENUMS.
15. FILL IN SLOT OPENINGS OR SLEEVES ON ALL WALL AND SLAB PENETRATIONS AS REQUIRED WITH THERMAFIBER SAFING INSULATION (HIGH DENSITY), OR EQUAL AFTER THE INSTALLATION OF DUCTS AND PIPING.
16. ALL SLOT OPENINGS OR SLEEVES AT SHEARWALLS, REINFORCED CONCRETE WALLS, COLUMNS, AND BEAMS TO BE APPROVED BY STRUCTURAL ENGINEER AND TO BE COORDINATED WITH MEP ENGINEER.
17. ALL PARTITIONS ENCLOSING BEDROOMS TO HAVE 2" THICK SOUND ATTENUATION BLANKET, FLOOR SLAB TO TOP OF PARTITION.
18. PROVIDE REQUIRED FIRE RATED FIRESTOPPING WHERE DIFFERENT PARTITION TYPES INTERSECT. WHEN PARTITIONS/SLABS/STRUCTURAL ELEMENTS OF VARYING REQUIRED FIRE RATINGS MEET, PROVIDE REQUIRED FIRESTOPPING TO MATCH THE GREATER RATING. (EX. CONCRETE BLOCK/GYPSUM BOARD, STRUCTURAL ELEMENTS WITH SPRAY-ON FIREPROOFING/GYPSUM, ETC.)
19. AT ALL LOCATIONS WHERE GYPSUM BOARD TERMINATES AT THE WINDOW JAMBS, THERE SHALL BE NO MECHANICAL FASTENING INTO THE FRAMES. THE GYPSUM BOARD SHALL RECEIVE A J-BEAD AND ADHERED DIRECTLY TO THE WINDOW FRAME WITH 3M VHB 5952 SERIES STRUCTURAL TAPE, OR APPROVED EQUAL.
20. ALL STEEL MEMBERS TO BE GALVANIZED.
21. PROVIDE MOLD AND MOISTURE RESISTANT GYPSUM BOARD U.O.N.
22. PROVIDE MOLD AND MOISTURE RESISTANT FIBERGLASS FACED TILE BACKER BOARD AT ALL AREAS TO RECEIVE TILE, TYP.
23. ALL PARTITIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH USG CONSTRUCTION GUIDELINES TO ENSURE INTENDED FIRE RATING AND ACOUSTICAL PERFORMANCE IS ACHIEVED IN THE FIELD.
24. ALL NOTES REFER TO BOTH SIDES OF PARTITION, U.O.N.

MASONRY EQUIVALENT NOTE:
2M AND 5M PARTITIONS

1 RCNY §1014-01
MASONRY EQUIVALENT EXIT ENCLOSURES.

(A) SCOPE. THIS RULE PROVIDES THE CONSTRUCTION REQUIREMENTS FOR MASONRY EQUIVALENT EXIT ENCLOSURES IN GROUPS R-1, R-2 AND B OCCUPANCIES.
(B) REFERENCES. SEE SECTIONS 1014.2.1 (TWO EXITS AND EXIT ACCESS DOORWAYS, EXCEPTIONS 3 AND 4) AND 1019.1 (ENCLOSURES REQUIRED EXCEPTION 10) OF THE BUILDING CODE.
(C) STUD WALL CONSTRUCTION REQUIREMENTS. A MASONRY EQUIVALENT EXIT ENCLOSURE CONSTRUCTED AS STUD AND WALL BOARD ASSEMBLY SHALL SATISFY THE FOLLOWING REQUIREMENTS:
(1) PRESCRIPTIVE STUD AND WALL BOARD ASSEMBLY. A COMPLIANT WALL ASSEMBLY SHALL BE SUBSTANTIALLY IDENTICAL TO, AND SHALL PROVIDE AN IMPACT RESISTANCE EQUIVALENT TO OR EXCEEDING, THE PERFORMANCE OF ONE (1) OF THE FOLLOWING:
(I) MATERIALS. IMPACT RESISTANT WALL BOARD SHEATHED ON THE INTERIOR SURFACE OF THE EXIT ENCLOSURE WALL ASSEMBLY SHALL BE TESTED BY AN APPROVED TESTING AGENCY. THE WALL BOARD USED AS THE INTERIOR FACE PANEL SHALL BE LISTED BY AN APPROVED AGENCY TO ASTM C 1629-06, STANDARD CLASSIFICATION FOR ABUSE-RESISTANT NONDECORATED INTERIOR GYPSUM PANEL PRODUCTS AND FIBER-REINFORCED CEMENT PANELS, IMPACT CLASSIFICATION LEVEL 2, AND THE BASE LAYER PANEL SHALL BE A MINIMUM ¾ INCH GYPSUM WALL BOARD. WALL BOARD APPLIED TO THE INTERIOR SURFACE OF THE EXIT ENCLOSURE WALL SHALL NOT REDUCE THE CLEAR WIDTH OF THE EXIT STAIRS BELOW THAT REQUIRED FOR MEANS OF EGRESS BY CHAPTER 10 OF THE BUILDING CODE.
(II) ASSEMBLY. THE WALL ASSEMBLY SHALL BE AT LEAST TWO-HOUR FIRE RESISTANCE RATED.
(III) INSTALLATION SHALL COMPLY WITH THE FOLLOWING:
(A) STUDS SHALL BE MINIMUM 3-½ INCHDEPTH COLD-FORMED STEEL FRAMING, AT LEAST 33 MILS THICK (20 GAUGE).
(B) VERTICAL STUDS SHALL BE SPACED AT A MAXIMUM DISTANCE OF 24 INCHES , ON CENTER.
(C) RUNNERS SHALL BE SECURELY ATTACHED AT THE FLOOR AND CEILING TO STRUCTURAL ELEMENT MEMBERS AND SHALL COMPLY WITH THE STRUCTURAL REQUIREMENTS OF THE BUILDING CODE.
(D) WALL BOARDS SHALL BE ATTACHED WITH NO. 8 SELF-DRILLING BUGLE-HEAD SCREWS, 12 INCHES (305 MM), ON CENTER MAXIMUM, WITH A MINIMUM DEPTH OF ¾ INCH PENETRATION INTO THE WALL CAVITY.
(E) JOINTS BETWEEN ADJOINING SHEETS OF WALL BOARD SHALL BE STAGGERED FROM BASE LAYER WITH FACE PANEL LAYER.
(2) PERFORMANCE-BASED REQUIREMENTS. FOR A WALL ASSEMBLY NOT CLASSIFIED IN SUBDIVISION (1) ABOVE, A MASONRY EQUIVALENT WALL ASSEMBLY SHALL SATISFY THE FOLLOWING REQUIREMENTS:
(I) MATERIALS. MATERIALS CONSTITUTING THE INTERIOR SIDE OF THE EXIT ENCLOSURE WALL ASSEMBLY SHALL BE TESTED BY AN APPROVED TESTING AGENCY TO ASTM C1629, HARD BODY IMPACT CLASSIFICATION LEVEL 3.
(II) ASSEMBLY. THE WALL ASSEMBLY SHALL HAVE A MINIMUM TWO-HOUR FIRE RESISTANCE RATING. THE WALL ASSEMBLY SHALL BE TESTED BY AN APPROVED TESTING AGENCY TO ASTM C1629, SOFT BODY IMPACT CLASSIFICATION LEVEL 2.
(III) INSTALLATION. WALL ASSEMBLIES SHALL BE ANCHORED TO STRUCTURAL MEMBERS AND SHALL COMPLY WITH THE STRUCTURAL REQUIREMENTS OF THE BUILDING CODE.

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

PARTITION DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:46:17 AM
SCALE: 1 1/2" = 1'-0"
DRAWN BY: XX

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SHEET: 55 OF 88

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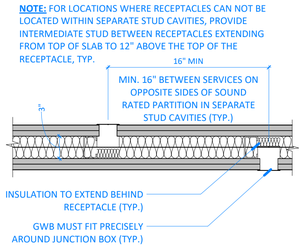
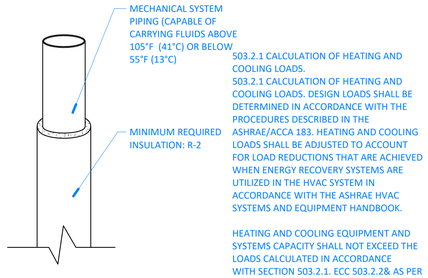


8 OFFSET OF RECESSED ELECTRICAL RECEPTACLE AT TYPICAL APRTMENT DEMISING PARTITIONS

SCALE: 1 1/2" = 1'-0"

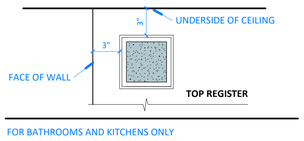


503.2.1 CALCULATION OF HEATING AND COOLING LOADS.
503.2.1 CALCULATION OF HEATING AND COOLING LOADS. DESIGN LOADS SHALL BE DETERMINED IN ACCORDANCE WITH THE PROCEDURES DESCRIBED IN THE ASHRAE/ACCA 183. HEATING AND COOLING LOADS SHALL BE ADJUSTED TO ACCOUNT FOR LOAD REDUCTIONS THAT ARE ACHIEVED WHEN ENERGY RECOVERY SYSTEMS ARE UTILIZED IN THE HVAC SYSTEM IN ACCORDANCE WITH THE ASHRAE HVAC SYSTEMS AND EQUIPMENT HANDBOOK.

HEATING AND COOLING EQUIPMENT AND SYSTEMS CAPACITY SHALL NOT EXCEED THE LOADS CALCULATED IN ACCORDANCE WITH SECTION 503.2.1. ECC 503.2.2& AS PER ASHRAE / ACCA 183

9 PIPING INSULATION DETAI

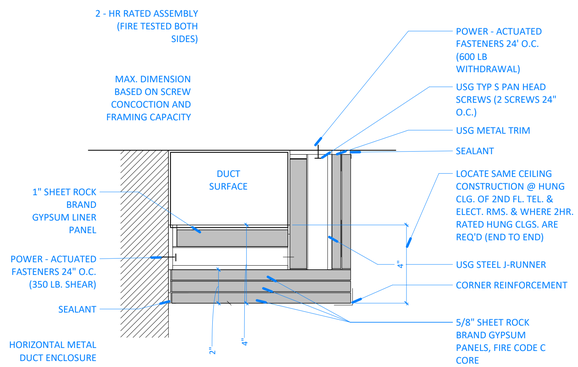
SCALE: 12" = 1'-0"



FOR BATHROOMS AND KITCHENS ONLY

11 TYPICAL TOP REGISTER LOCATION, U.O.N.

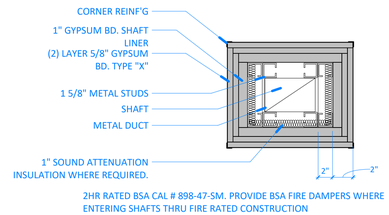
SCALE: 1 1/2" = 1'-0"



2 HR FIRE RATING BSA # 893.47 SM

10 TYPICAL DUCT FIREPROOFING DETAIL AT HORIZONTAL OFFSETS

SCALE: 3" = 1'-0"

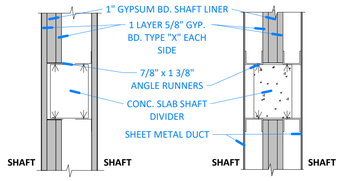


2HR RATED BSA CAL # 898-47-SM. PROVIDE BSA FIRE DAMPERS WHERE ENTERING SHAFTS THRU FIRE RATED CONSTRUCTION

4 2 HR FIRE RATING TYPICAL FREESTANDING BSA # 893.47 SM

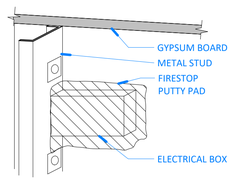
SCALE: 1 1/2" = 1'-0"

HORIZONTAL SHAFT - WALL ASSEMBLIES USE CAVITY SHAFT - WALLS INSTALLED HORIZONTALLY ECONOMICAL CONSTRUCTION FOR FIRE - RESISTIVE DUCT PROTECTION, CORRIDOR AND OTHER CEILINGS AND STAIRWAY SOFFITS. WITH 1" LINER PANELS INSERTED IN C-H / CH-L STUDS 24" O.C. AND TRIPLE LAYER 5/8" BRAND GYP. PANELS FIRE CODE C CORE (TYPE X), SCREW - ATTACHED TO STUDS, THE GREATER SPANS AND 2-HR PROTECTION FROM FIRE EITHER INSIDE OR OUTSIDE THE DUCT. NOTE: PROVIDE B.S.A. FIRE DAMPERS WHERE ENTERING SHAFTS OR THRU RATED CONSTRUCTIONS.



5 BACK TO BACK SHEET METAL AND GYP. BD SHAFT

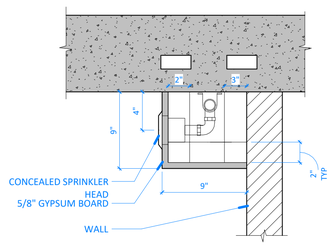
SCALE: 1 1/2" = 1'-0"



TO BE USED WHERE RATED WALLS/SHAFTS ARE PENETRATED BY OUTLETS, SWITCHES, ETC.

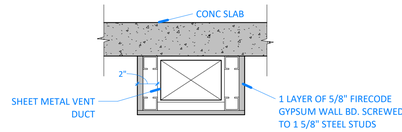
6 FIRESTOP PUTTY PAD ASTM E 84, MEA-102-99M

SCALE: 1 1/2" = 1'-0"



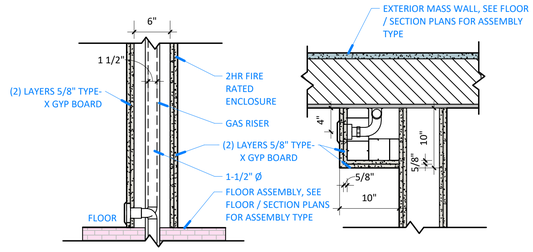
7 FURRING AT SPRINKLER

SCALE: 1 1/2" = 1'-0"



3 1 HR FIRE RATING TYPICAL DUCT FIREPROOFING DETAIL @ HORIZONTAL OFFSETS

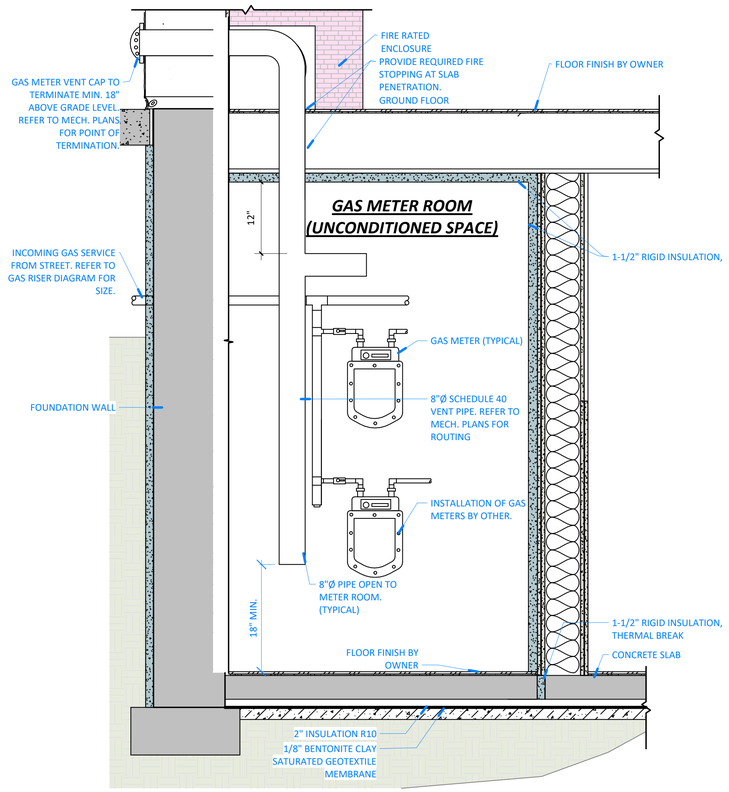
SCALE: 1 1/2" = 1'-0"



SECTION VIEW **PLAN VIEW**

2 2 HR ENCLOSED GAS PIPING

SCALE: 1" = 1'-0"



1 GAS METER ROOM DETAIL

SCALE: 1" = 1'-0"

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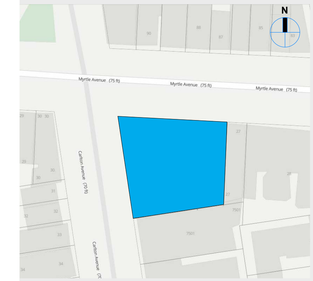
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

DETAILS

DOB # :

DOB BSCAN + STAMP :

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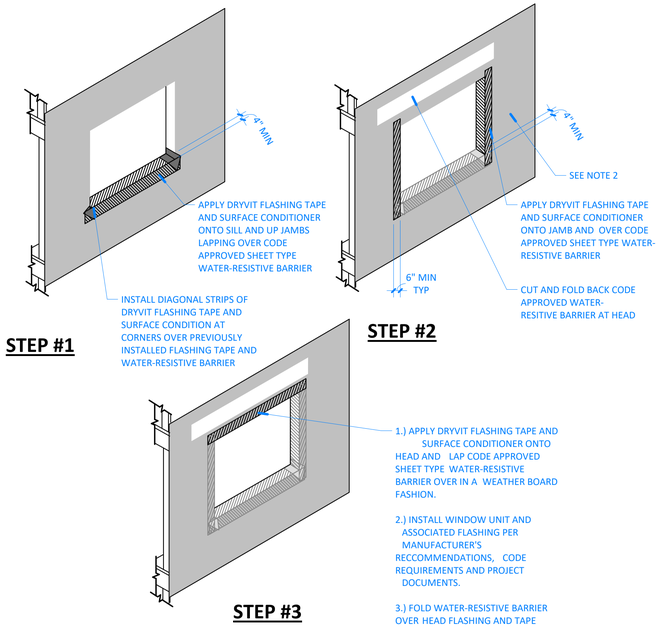
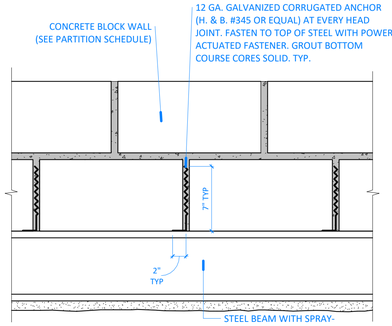
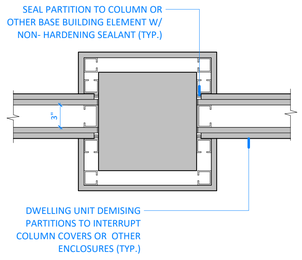


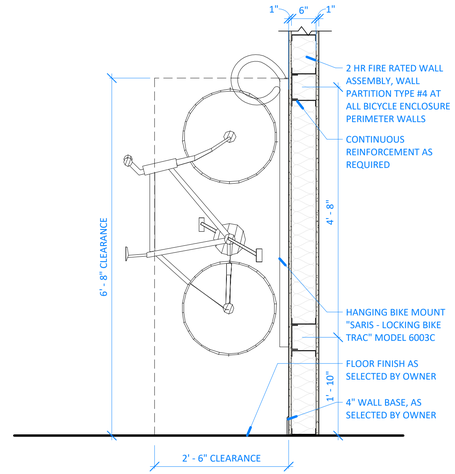
12 EIFS AIR SEALING
SCALE: 1" = 1'-0"



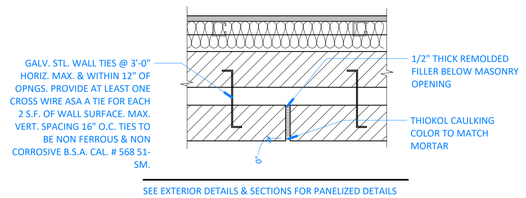
11 CORRUGATED ANCHOR AT CONCRETE BLOCK ON STEEL BEAM
SCALE: 1 1/2" = 1'-0"



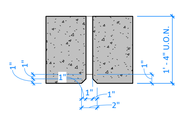
10 APARTMENT DEMISING PARTITION AT INTERSECTION WITH COLUMN
SCALE: 1 1/2" = 1'-0"



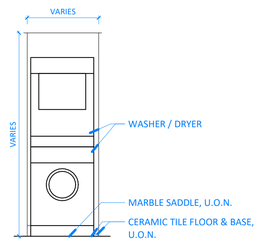
5 BICYCLE STORAGE DETAIL
SCALE: 3/4" = 1'-0"



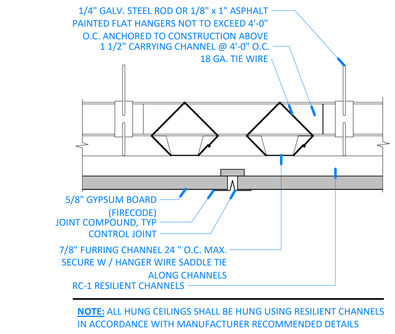
8 EXTERIOR CONTROL JOINT DETAIL
SCALE: 1 1/2" = 1'-0"



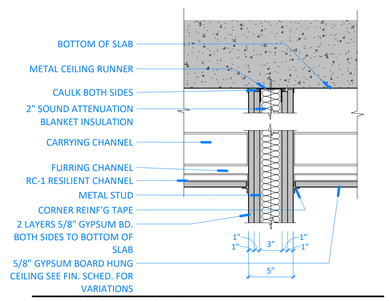
7 CONCRETE CONTROL JOINT AT PARAET
SCALE: 1 1/2" = 1'-0"



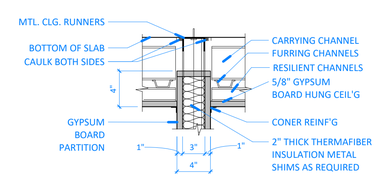
6 ELEVATION OF WASHER/DRYER CLOSET
SCALE:N.T.S.



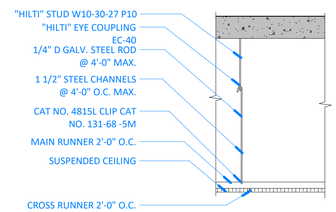
4 TYPICAL GYPSUM BOARD HUNG CEILING
SCALE: 1 1/2" = 1'-0"



3 HUNG CEILING @ PARTITION BETWEEN APARTMENTS AND BETWEEN APARTMENT AND CORRIDOR
SCALE: 1 1/2" = 1'-0"



2 HUNG CEILING DETAIL AT 3-3/4" PARTITION WITHIN APARTMENTS
SCALE: 1 1/2" = 1'-0"



1 TYPICAL ACCOUSTICAL TILE HUNG CEILING DETAIL
SCALE: 1 1/2" = 1'-0"

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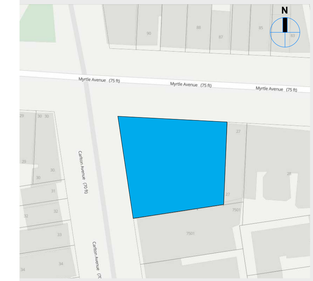
SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
DETAILS

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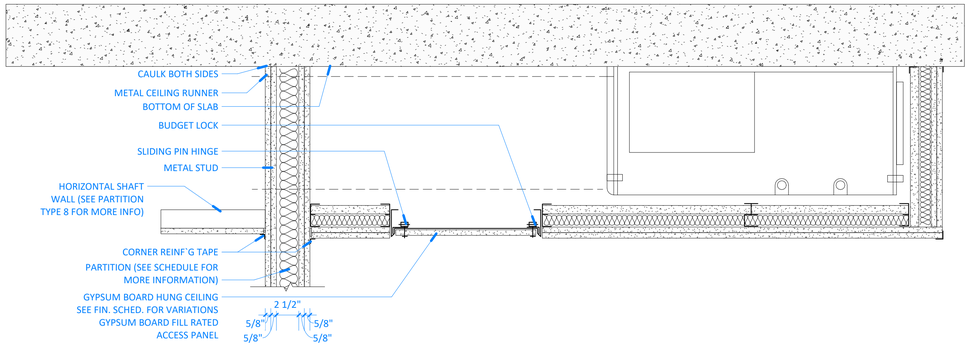
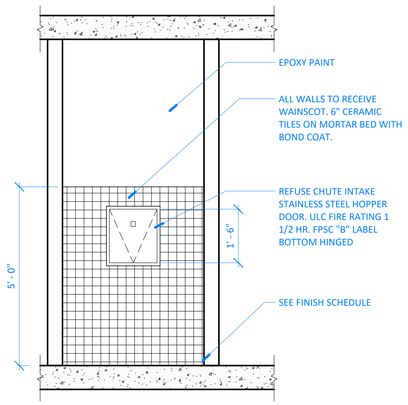


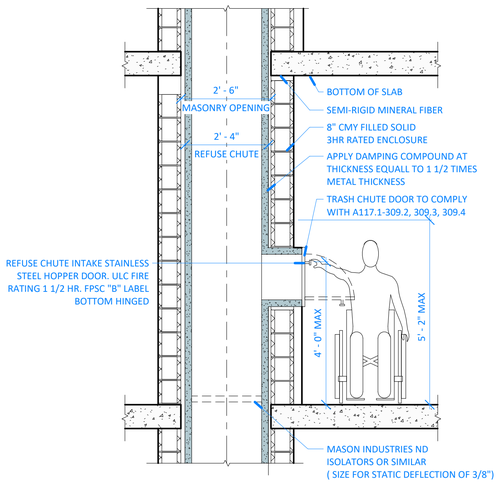
4 2HR FIRE RATED HUNG CEILING @ PUBLIC CORRIDOR

SCALE:N.T.S.



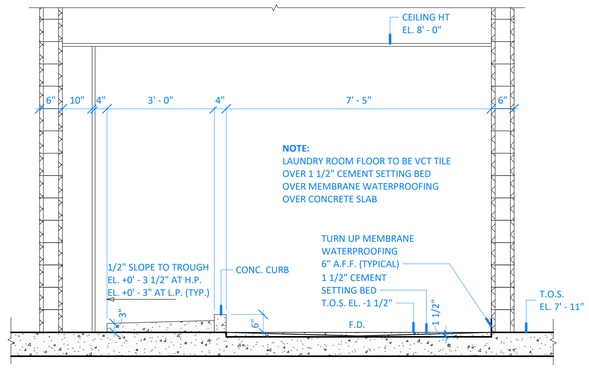
1 ELEVATION AT REFUSE CHUTE

SCALE:N.T.S.



2 SECTION AT REFUSE CHUTE

SCALE:N.T.S.



3 SECTION AT LAUNDRY

SCALE:N.T.S.

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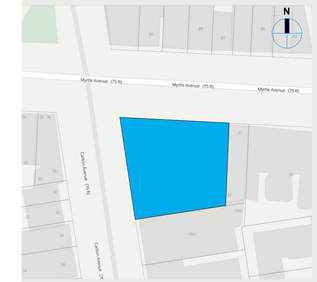
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

DETAILS

DOB # :

DOB BSCAN + STAMP :

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1 RCNY §24-01

CHAPTER 24 REFUSE CHUTES AND REFUSE ROOMS

§24-01 CONSTRUCTION AND MAINTENANCE OF REFUSE CHUTES AND REFUSE ROOMS.

(A) REFUSE CHUTE ENCLOSURES.
REFUSE CHUTES USED FOR CONVEYANCE OF GARBAGE AND RUBBISH FROM UPPER FLOORS OF A BUILDING TO A CELLAR OR OTHER LOCATION SHALL BE CONSTRUCTED WITH AN ENCLOSURE OF BRICK MASONRY AT LEAST EIGHT INCHES IN THICKNESS OR OF REINFORCED CONCRETE AT LEAST SIX INCHES IN THICKNESS, EXCEPT AS OTHERWISE PROVIDED IN THIS SECTION.

(B) HEIGHT AND SERVICE OPENINGS.
REFUSE CHUTES SHALL EXTEND FROM THE REFUSE COLLECTION ROOM TO A HEIGHT OF AT LEAST SIX FEET ABOVE THE ROOF. A SPARK ARRESTOR SHALL BE PROVIDED AT THE TOP OF THE CHUTE ABOVE THE ROOF. SERVICE OPENINGS INTO THE CHUTE SHALL BE EQUIPPED WITH APPROVED SELF-CLOSING HOPPERS SO CONSTRUCTED THAT THE CHUTE IS CLOSED OFF WHILE THE HOPPER IS BEING LOADED AND SO THAT NO PART WILL PROJECT INTO THE CHUTE. THE AREA OF SERVICE OPENING SHALL NOT EXCEED ONE THIRD THE AREA OF THE CHUTE. HOPPER DOORS SHALL HAVE A FIRE RESISTIVE RATING OF AT LEAST ONE HOUR, UNLESS SEPARATED FROM THE CORRIDOR BY A FIREPROOF, SELF-CLOSING DOOR IN WHICH CASE THEY SHALL BE CONSTRUCTED OF INCOMBUSTIBLE MATERIAL.

(C) EXISTING FLUES AND REFUSE CHUTES.
FLUES FOR EXISTING INCINERATORS MAY BE USED FOR REFUSE CHUTES PROVIDED SUCH FLUES ARE IN GOOD CONDITION AND PROVIDED THE FLUES COMPLY WITH THE PROVISIONS OF SUBDIVISIONS (A) AND (B) OF THIS SECTION. EXISTING REFUSE CHUTES MAY BE CONTINUED IN USE PROVIDED THEY CONFORM TO THE PROVISIONS OF SUBDIVISIONS (A) AND (B) OF THIS SECTION, EXCEPT THAT EXISTING REFUSE CHUTES OF OTHER CONSTRUCTION, WHICH HAVE BEEN APPROVED BY THE DEPARTMENT MAY BE RETAINED.

(D) REFUSE CHUTES IN NEW CONSTRUCTION.
WHERE REFUSE COMPACTING SYSTEMS ARE REQUIRED HEREAFTER IN NEW CONSTRUCTION, REFUSE CHUTES SHALL BE REQUIRED FOR CONVEYANCE OF GARBAGE AND RUBBISH TO REFUSE COLLECTION ROOMS, EXCEPT THAT REFUSE CHUTES WILL NOT BE REQUIRED IN CLASS A MULTIPLE DWELLINGS WHICH ARE FOUR STORIES OR LESS IN HEIGHT. REFUSE CHUTES ERECTED HEREAFTER IN NEW CONSTRUCTION SHALL BE OF A TYPE APPROVED BY THE BOARD OR SHALL COMPLY WITH THE REQUIREMENTS OF SUBDIVISIONS (A) AND (B) OF THIS SECTION. CHUTES SHALL BE CONSTRUCTED STRAIGHT AND PLUMB, WITHOUT PROJECTIONS OF ANY KIND WITHIN THE CHUTE. REFUSE CHUTES SHALL HAVE AN INSIDE DIMENSION OF AT LEAST TWENTY-FOUR INCHES FOR THE FULL HEIGHT OF THE CHUTE. ALL CHUTES SHALL BE SUPPORTED ON FIREPROOF CONSTRUCTION HAVING AT LEAST A THREE HOUR RESISTIVE RATING.

(E) REFUSE COLLECTION ROOMS.
A REFUSE COLLECTION ROOM SHALL BE PROVIDED AT THE BOTTOM OF ALL CHUTES AT THE CELLAR OR LOWEST STORY LEVEL TO RECEIVE THE REFUSE. SUCH ROOMS SHALL BE ENCLOSED WITH WALLS AND ROOFS CONSTRUCTED OF MATERIAL HAVING A MINIMUM FIRE RESISTIVE RATING OF THREE HOURS, EXCEPT THAT GYPSUM MASONRY MAY NOT BE USED FOR SUCH ENCLOSURE WALLS. OPENINGS TO SUCH ROOMS SHALL BE PROVIDED WITH FIREPROOF, SELF-CLOSING DOORS HAVING A MINIMUM FIRE RESISTIVE RATING OF ONE AND ONE-HALF HOURS. IT SHALL BE UNLAWFUL TO KEEP SUCH DOORS OPEN. REFUSE CHUTES SHALL EXTEND TO THE UNDERSIDE OF THE ROOF OF THE REFUSE ROOM OR LOWER. ROOFS SHALL BE AT LEAST SIX INCHES AWAY FROM COMBUSTIBLE FLOOR OR WALL CONSTRUCTION. REFUSE ROOMS SHALL BE USED ONLY FOR RECEIPT OF REFUSE AND FOR REFUSE COMPACTING EQUIPMENT. REFUSE ROOMS SHALL BE PROVIDED WITH SUFFICIENT SPRINKLERS TO SPRINKLE ALL PARTS OF THE ROOM, WITH AT LEAST TWO SPRINKLER HEADS PROVIDED AND WITH SPRINKLERS SO SEPARATED AS TO SPRINKLE A MAXIMUM AREA OF THE ROOM WHEN ONE OF THE SPRINKLERS IS BLOCKED OR NOT OPERATING. A HOSE CONNECTION SHALL BE PROVIDED WITHIN THE REFUSE ROOM. EXISTING REFUSE ROOMS AND INCINERATOR ROOMS THAT HAVE BEEN APPROVED BY THE DEPARTMENT FOR SUCH USE MAY BE RETAINED AS APPROVED.

(F) COLLECTION ROOM FLOORS.
THE FLOOR WITHIN THE ROOM FOR THE COLLECTION OF REFUSE SHALL BE CONSTRUCTED OF CONCRETE AND SHALL BE SLOPED TO A FLOOR DRAIN WITHIN THE ROOM CONNECTED TO THE HOUSE DRAIN. THE DRAIN SHALL BE PROVIDED WITH A PROTECTIVE SCREEN TO RETAIN SOLID MATERIAL. FLOOR DRAIN TRAPS SHALL BE READILY ACCESSIBLE FOR CLEANING.

(G) USE OF EXISTING COMBUSTION CHAMBERS.
EXISTING INCINERATOR COMBUSTION CHAMBERS MAY BE USED IN WHOLE OR IN PART AS REFUSE COLLECTING ROOMS FOR COLLECTION OF REFUSE AND FOR COMPACTING EQUIPMENT PROVIDED THE GRATES ARE REMOVED AND PROVIDED THEY COMPLY WITH THE PROVISIONS OF SUBDIVISION (E) OF THIS SECTION.

(H) SPRINKLER OPERATION AND WATER SUPPLY.
SPRINKLERS SHALL BE DESIGNED TO OPERATE AUTOMATICALLY AT A TEMPERATURE NOT
EXCEEDING ONE HUNDRED SIXTY-FIVE DEGREES FAHRENHEIT. THEY MAY BE ELECTRICALLY CONTROLLED PROVIDED SUCH SPRINKLERS ARE APPROVED BY THE BOARD OF STANDARDS AND APPEALS. SPRINKLERS MAY BE CONNECTED TO THE COLD WATER SUPPLY OF THE BUILDING AT THE POINT WHERE SUCH SERVICE ENTERS THE BUILDING OR AT THE BASE OF A WATER SUPPLY RISER PROVIDED THE PIPING OF SUCH SERVICE OR RISER IS OF ADEQUATE SIZE. NO CONNECTIONS, EXCEPT THOSE FOR SPRINKLERS, SHALL BE MADE TO THE SPRINKLER PIPING.

(I) HOPPERS, CUT OFF DOORS AND COMPACTORS.
A HOPPER AND CUT OFF DOOR SHALL BE PROVIDED AT THE BOTTOM OF THE REFUSE CHUTE TO REGULATE AND GUIDE THE FLOW OF REFUSE INTO CONTAINERS. WHERE COMPACTORS ARE INSTALLED SO THAT THE REFUSE FLOWS DIRECTLY INTO THE COMPACTING EQUIPMENT, THE EQUIPMENT MAY BE USED IN PLACE OF THE HOPPER AND CUT OFF DOOR. COMPACTING EQUIPMENT SHALL BE ARRANGED TO OPERATE AUTOMATICALLY WHEN THE LEVEL OF RUBBISH IS NOT HIGHER THAN THREE FEET BELOW THE LOWEST DOOR. COMPACTORS SHALL BE LOCATED ENTIRELY WITHIN THE ENCLOSURE OF THE REFUSE ROOM AND FORMER COMBUSTION CHAMBER WHERE THE LATTER IS RETAINED, EXCEPT THAT MOTORS, PUMPS AND CONTROLS MAY BE INSTALLED IN ADJACENT ROOMS. WHERE REFUSE IS REMOVED MANUALLY, THE REFUSE SHALL BE REMOVED WITH SUFFICIENT FREQUENCY SO THAT IT WILL AT NO TIME EXTEND LESS THAN THREE FEET BELOW THE LEVEL OF THE LOWEST HOPPER DOOR OPENING INTO THE CHUTE.

(J) NUMBER OF SPRINKLER HEADS.
SUFFICIENT SPRINKLERS SHALL BE INSTALLED IN THE REFUSE ROOM AND FORMER COMBUSTION CHAMBER TO PROVIDE SPRINKLER COVERAGE FOR THE ENTIRE AREA OF EACH UNIT.
(1) ADEQUATE LIGHTING SHALL BE PROVIDED IN REFUSE ROOMS.
(2) REFUSE CHUTES, REFUSE ROOMS, HOPPERS AND ALL PARTS OF THE REFUSE COLLECTING SYSTEM SHALL BE MAINTAINED IN A CLEAN AND SANITARY CONDITION AT ALL TIMES, FREE OF VERMIN, ODORS AND DEFECTS, AND SHALL BE MAINTAINED IN GOOD OPERATING CONDITION. FUSED SPRINKLER HEADS SHALL BE REPLACED PROMPTLY.
(3) THE OWNER SHALL ESTABLISH A PROGRAM TO ENSURE THAT THE REFUSE CHUTE AND THE REFUSE ROOM AND APPURTENANCES WILL BE TREATED AS OFTEN AS MAY BE NECESSARY TO PREVENT INFESTATION WITH INSECTS OR RODENTS. THE OWNER SHALL MAINTAIN A RECORD OF SUCH TREATMENTS WHICH SHALL BE AVAILABLE AT ALL TIMES FOR INSPECTION BY THE DEPARTMENT.

(K) THESE RULES SHALL APPLY ONLY TO REFUSE CHUTES IN NEW CONSTRUCTION AND TO REFUSE CHUTES RESULTING FROM THE CONVERSION OFEXISTING INCINERATOR FLUES AND TO EXISTING REFUSE CHUTES.

(L) COLLECTION AND DISPOSAL OF REFUSE WITHIN PREMISES.
THE COLLECTION AND DISPOSAL OF REFUSE WITHIN ANY BUILDING OR ON ANY PREMISES SHALL BE PERFORMED AS DEEMED NECESSARY TO PROVIDE FOR THE SAFETY, HEALTH AND WELL BEING OF THE OCCUPANTS OF BUILDINGS AND OF THE PUBLIC. THE CONSTRUCTION, OPERATION, MAINTENANCE, CLEANLINESS AND SANITATION OF REFUSE CHUTES AND REFUSE ROOMS AND EXTERMINATION TREATMENT FOR INSECTS AND RODENTS, AND THE KEEPING OF RECORDS OF SUCH TREATMENTS FOR REFUSE CHUTES AND REFUSE ROOMS SHALL BE IN ACCORDANCE WITH REGULATIONS ESTABLISHED BY THIS DEPARTMENT IN CONSULTATION WITH THE DEPARTMENT OF HEALTH.

BC* 1213.1
IN GROUP R-2 OCCUPANCIES, SPACE SHALL BE PROVIDED FOR THE STORAGE OF REFUSE AND RECYCLABLES AS A COMMON ACCESSORY SPACE. THE LOCATION OF SUCH REFUSE AND RECYCLABLES STORAGE SPACE SHALL BE CLEARLY IDENTIFIED ON THE CONSTRUCTION DOCUMENTS AND CONFIGURED TO PERMIT SEPARATE UNOBSTRUCTED ACCESS BY BUILDING PERSONNEL TO STORED REFUSE AND RECYCLABLES. SUCH REFUSE AND RECYCLABLES STORAGE SPACE SHALL BE A MINIMUM OF 1.5 SQUARE FEET PER DWELLING UNIT, OR A MINIMUM OF 350 SQUARE FEET WHICHEVER IS LESS, FOR THE STORAGE OF COLLECTED REFUSE AND RECYCLABLES.

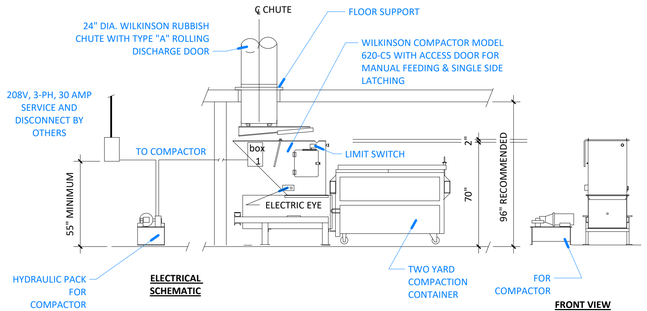
EXCEPTIONS:
1. IN MULTIPLE DWELLINGS REQUIRED TO HAVE A COMPACTOR IN ACCORDANCE WITH SECTION 1213.2, SUCH REFUSE AND RECYCLABLES STORAGE SPACE SHALL BE, IN ADDITION TO SPACE REQUIRED FOR EQUIPMENT OR CIRCULATION, A MINIMUM OF 1.0 SF PER DWELLING UNIT, OR A MINIMUM OF 350 SF WHICHEVER IS LESS, FOR THE STORAGE OF COLLECTED REFUSE AND RECYCLABLES

(58) DWELLING UNITS (58 D.U. X 1 SF) = 58 SF REQUIRED: COMPLIES

REFUSE & RECYCLEBLE AREA AS PER BC* 1213.1
(58 D.U. x 1.5 SF) = 87 SF MIN REQUIRED
PROVIDED 342 SF > 87 SF

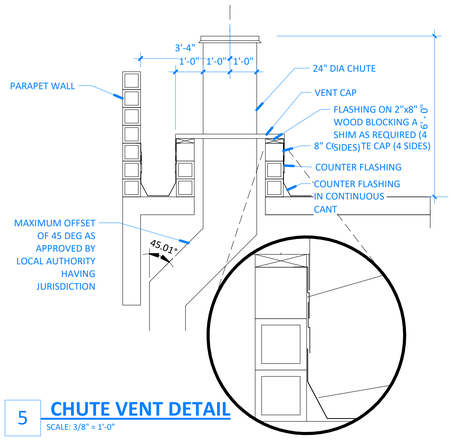
ZR 28-12
ENCLOSED REFUSE AREA TO BE PROVIDED AT A RATE OF 2.9 C.F. PER D.U., A MIN. OF 12 S.F.(MIN. DIM. 3 FT.)

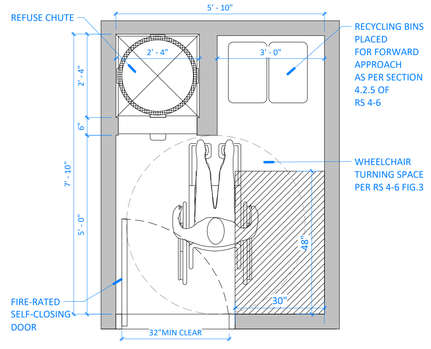
58 UNITS X 2.9 CF= 168.2 CF



ELEVATION / SECTION

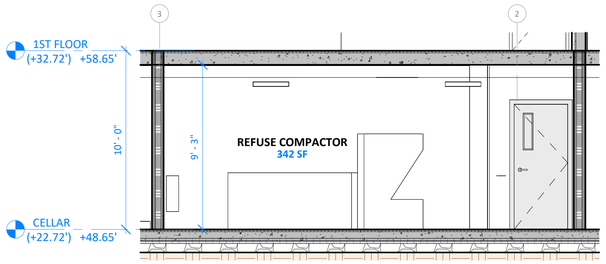
1 REFUSE COLLECTION ROOM & COMPACTOR DETAIL
SCALE: 1/4" = 1'-0"

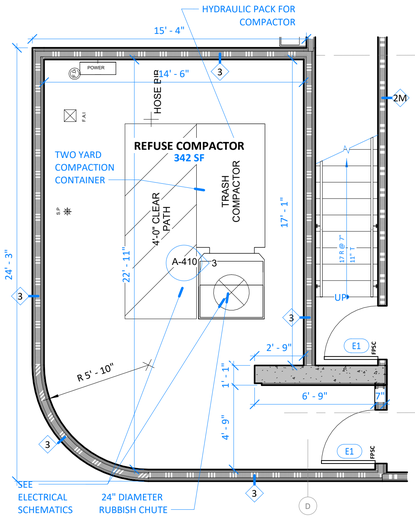




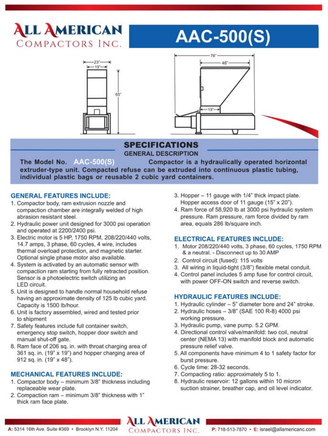
5 CHUTE VENT DETAIL
SCALE: 3/8" = 1'-0"

4 TYPICAL REFUSE DISPOSAL/STORAGE ROOM
SCALE: 1/2" = 1'-0"





3 REFUSE COLLECTION ROOM ELEVATION
SCALE: 1/4" = 1'-0"



6 REFUSE COLLECTION ROOM PLAN
SCALE: 1/4" = 1'-0"

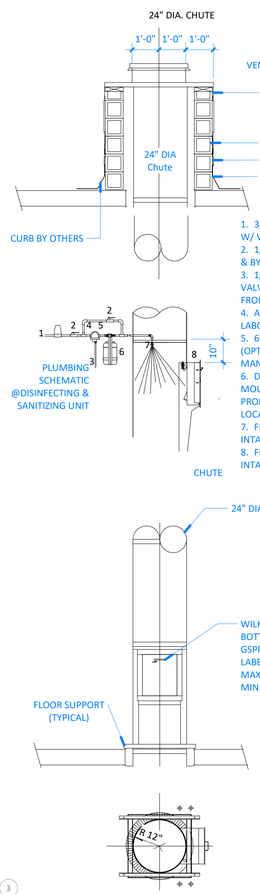
SHOW COMPLIANCE WITH TRASH COMPACTOR ROOM REQUIREMENT, INCLUDING BUT NOT LIMITED TO:
1. CLEARLY MARKED "TRASH COMPACTOR ROOM" WITH ROOM DIMENSIONS
2. TRASH COMPACTOR SIZE, DIMENSIONS AND LOCATION
3. CLEARANCE SPACE SURROUNDING THE TRASH COMPACTOR
4. SPRINKLER LOCATIONS IN THE TRASH COMPACTOR ROOM
5. ELECTRICAL POWER ACCESS FOR TRASH COMPACTOR EQUIPMENT
6. VENTILATION ACCESS TO FRESH AIR
7. FLOOR DRAIN CONNECTED TO THE BUILDING DRAIN IN THE TRASH COMPACTOR ROOM
8. HOSE BIB LOCATION IN THE TRASH COMPACTOR ROOM
9. A MINIMUM FIRE RESISTIVE RATING OF 3HR FOR THE COMPACTOR ROOM WALLS AND CEILING MATERIAL ASSEMBLIES.
10. A FIRE-PROTECTIVE SELF-CLOSING DOOR
11. CONSTRUCTION DETAILS FOR WALL MATERIAL ASSEMBLIES
12. SOUND TRANSMISSION CLASS RATINGS ARE REQUIRED FOR WALLS AND TRASH-CHUTE WALLS AND TRASH DISPOSAL ROOM WALLS
13. STC AND IMPACT INSULATING CLASS RATINGS FOR FLOOR CONSTRUCTION ABOVE THE COMPACTOR ROOM.

REFUSE STORAGE NOTES:
ALL COMPACTOR WALLS & TRASH CHUTE WALLS SHALL HAVE A STC OF 50

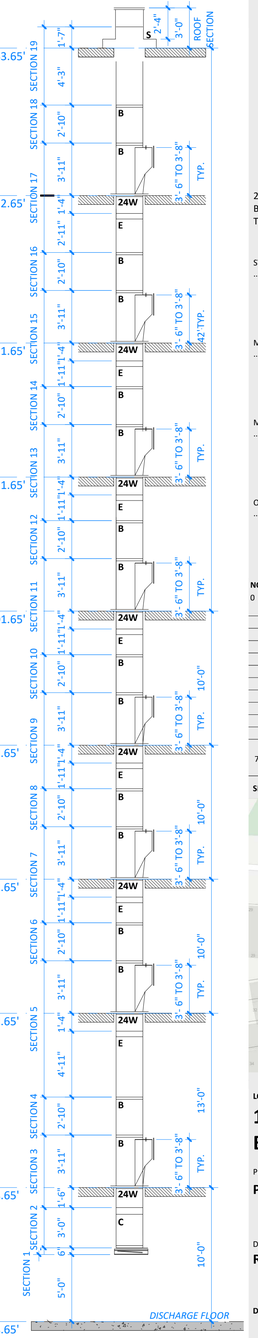
3 HOUR RATED CEILING,
PROPOSED 8" CONC. SLAB
4 HOUR RATING AS PER
TABLE BC* 722.2.1.1

CONCRETE FLOOR SLOPED TO DRAIN. THE DRAIN SHALL BE PROVIDED WITH A PROTECTIVE SCREEN TO RETAIN SOLID MATERIAL. FLOOR DRAIN TRAPS SHALL BE READILY ACCESSIBLE FOR CLEANING.

2 TRASH CHUTE
SCALE: 3/8" = 1'-0"



8 TYPICAL TRASH CHUTE ELEVATION
SCALE: 3/16" = 1'-0"



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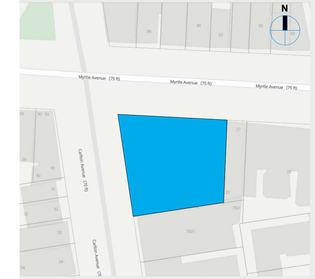
SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
REFUSE DETAILS

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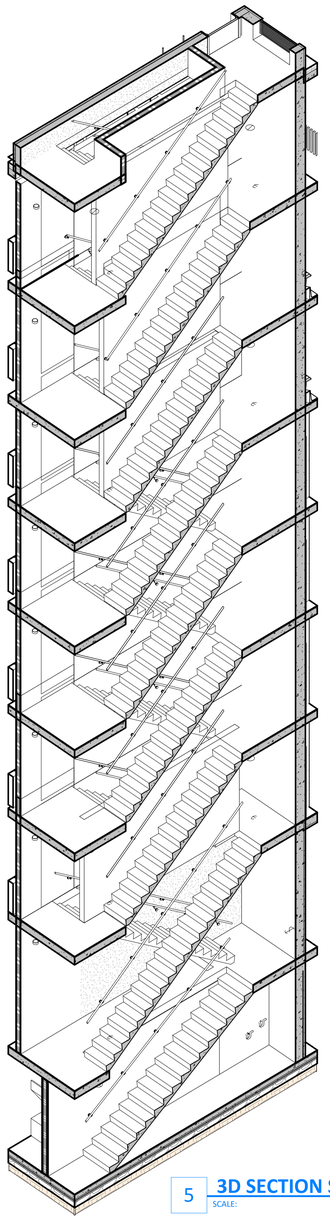
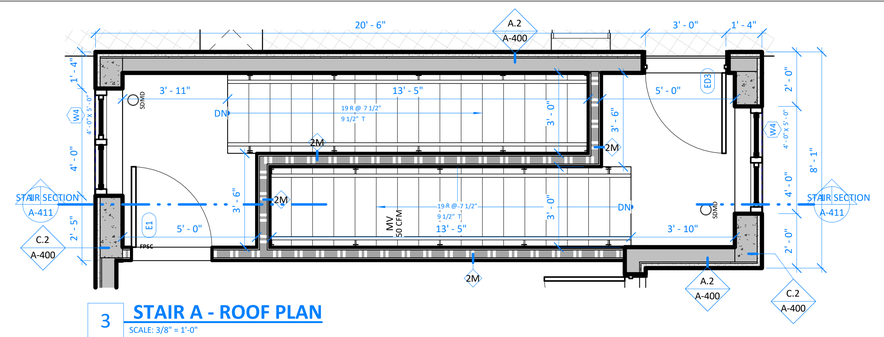
STAIR SCHEDULE

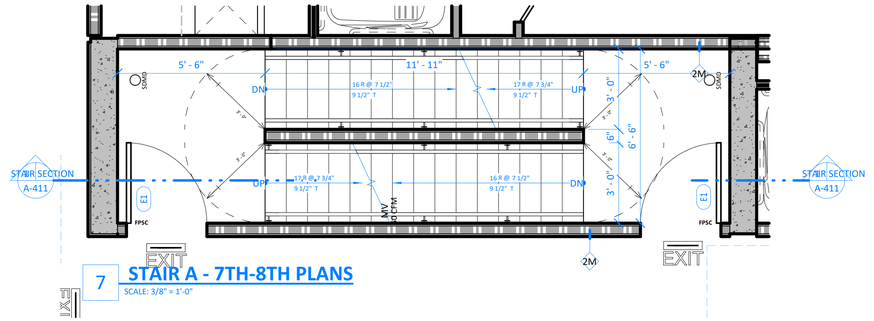
BASE LEVEL	TOP LEVEL	STAIR WIDTH	STAIR HEIGHT	# RISERS	RISER HEIGHT	TREAD DEPTH	STAIR TYPE
STAIR A							
2ND FLOOR	3RD FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
1ST FLOOR	2ND FLOOR	3' - 0"		21	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
CELLAR	1ST FLOOR	3' - 6"		17	7"	11"	CAST IN PLACE CONCRETE
3RD FLOOR	4TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
4TH FLOOR	5TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
5TH FLOOR	6TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
6TH FLOOR	7TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
7TH FLOOR	8TH FLOOR	3' - 0"		17	8"	9 1/2"	CAST IN PLACE CONCRETE
8TH FLOOR	BULKHEAD SLAB	3' - 0"		19	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
STAIR B							
1ST FLOOR	2ND FLOOR	3' - 0"		21	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
2ND FLOOR	3RD FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
3RD FLOOR	4TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
4TH FLOOR	5TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
5TH FLOOR	6TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
6TH FLOOR	7TH FLOOR	3' - 0"		16	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
7TH FLOOR	8TH FLOOR	3' - 0"		17	8"	9 1/2"	CAST IN PLACE CONCRETE
8TH FLOOR	BULKHEAD SLAB	3' - 0"		19	7 1/2"	9 1/2"	CAST IN PLACE CONCRETE
STAIR C							
CELLAR	1ST FLOOR			17	7"	11"	CAST IN PLACE CONCRETE



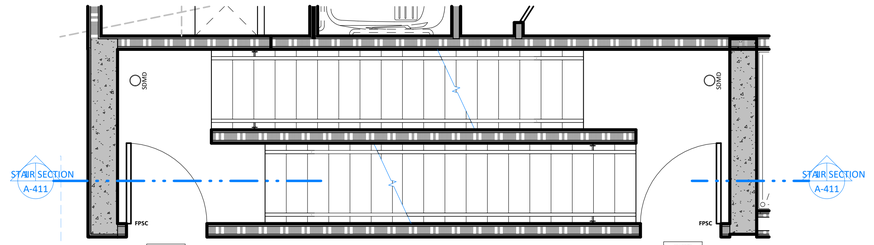
5 **3D SECTION STAIR A**
SCALE:



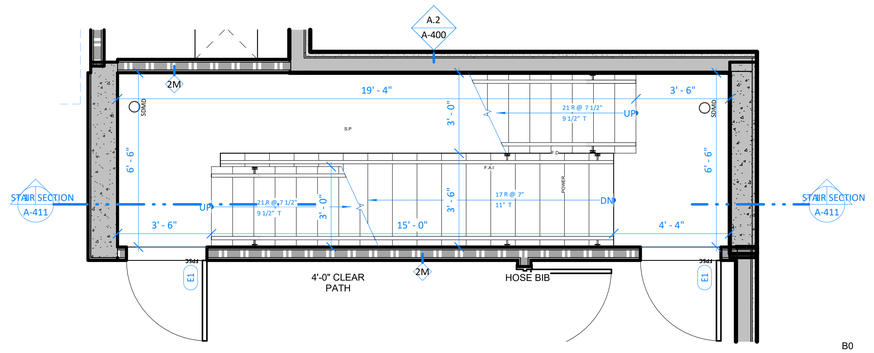
3 **STAIR A - ROOF PLAN**
SCALE: 3/8" = 1'-0"



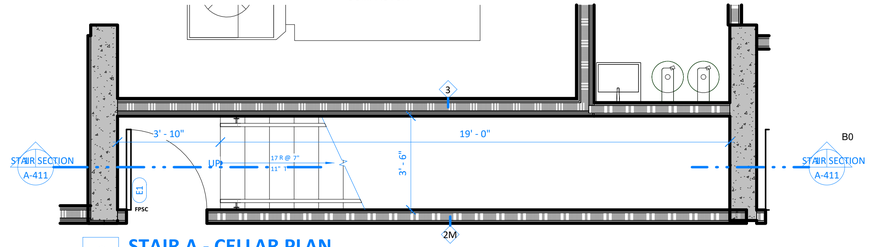
7 **STAIR A - 7TH-8TH PLANS**
SCALE: 3/8" = 1'-0"



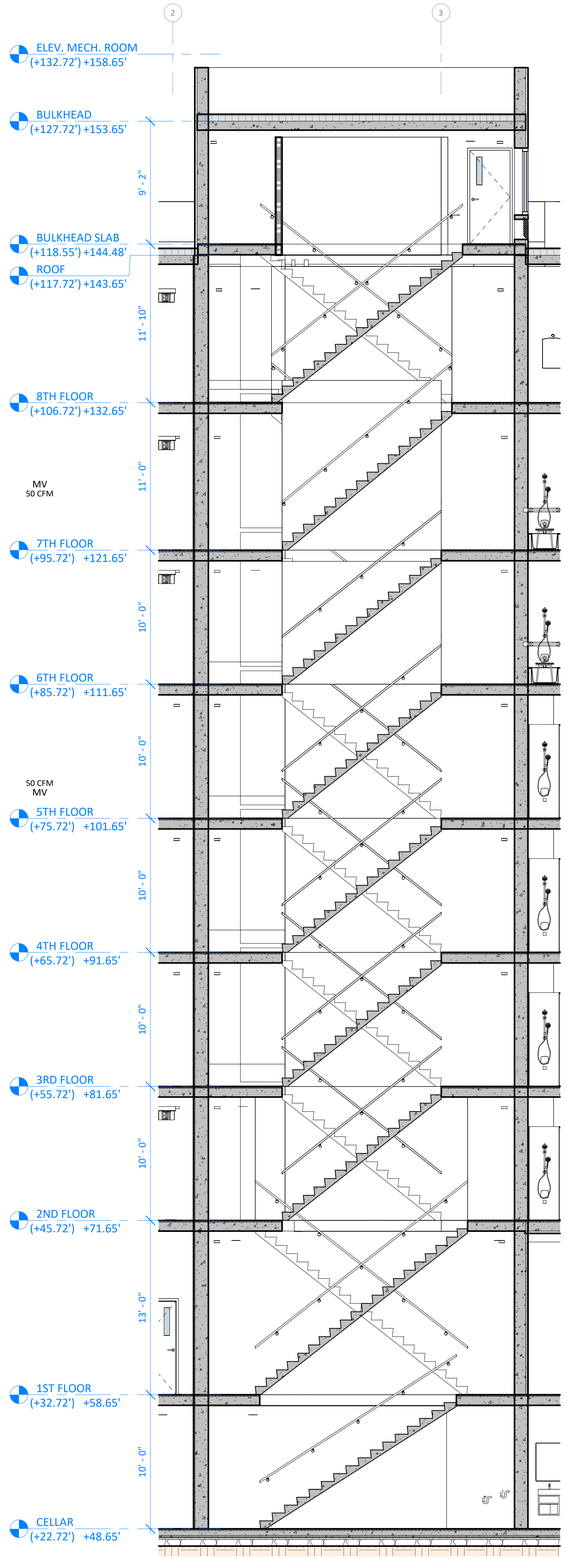
2 **STAIR A - 2ND-6TH FLOOR**
SCALE: 3/8" = 1'-0"



4 **STAIR A - 1ST PLAN**
SCALE: 3/8" = 1'-0"



6 **STAIR A - CELLAR PLAN**
SCALE: 3/8" = 1'-0"



1 **STAIR SECTION**
SCALE: 3/16" = 1'-0"

N

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SITE MAP

LOCATION:
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PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
STAIR PLANS

DOB # :

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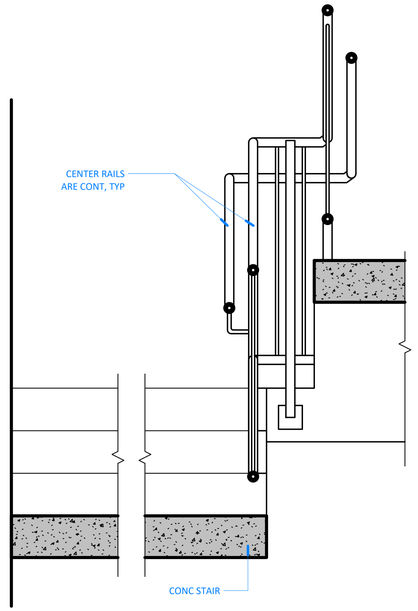
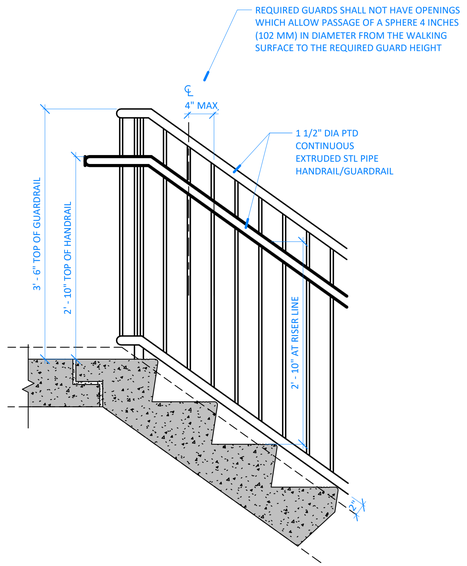
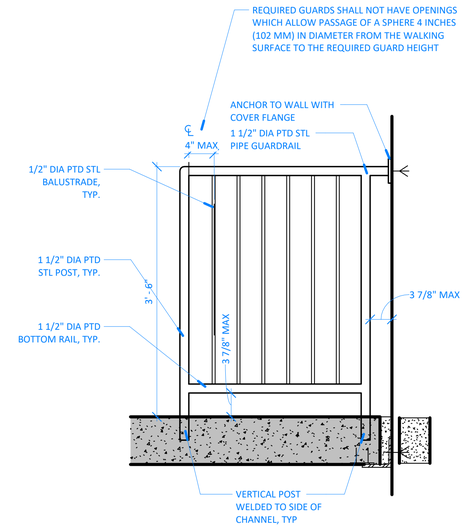


7 CROSS SECTION @ STAIR,TYP.
SCALE : 1" = 1' - 0"



6 DETAIL @ TOP LANDING
SCALE : 1" = 1' - 0"



5 GUARD RAIL DETAIL
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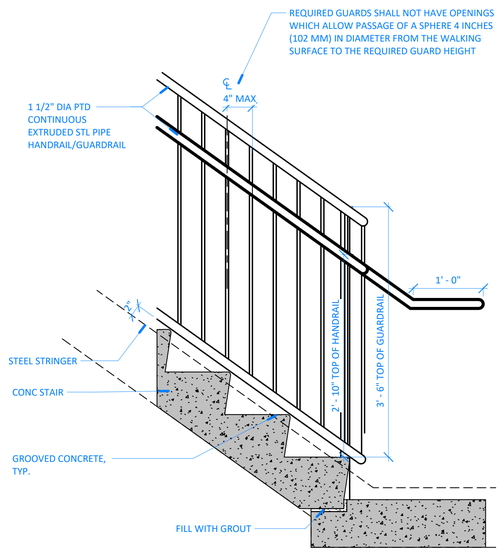

4 DETAIL @ INTERIM LANDING
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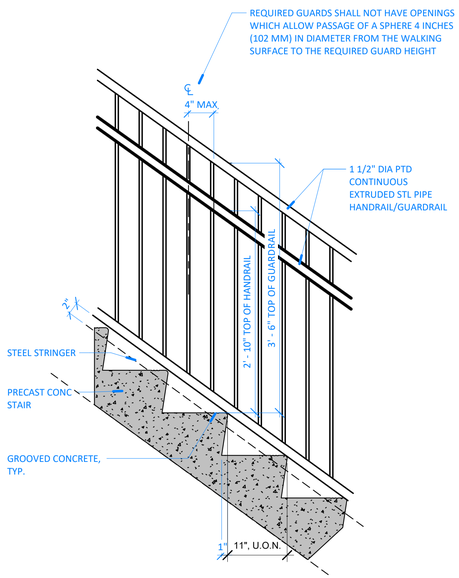

3 DETAIL @ MIDRUN RAILING
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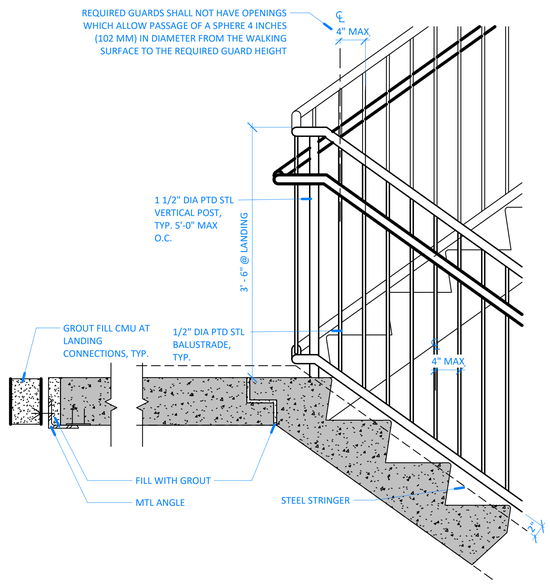

2 RAILING RETURN DETAIL
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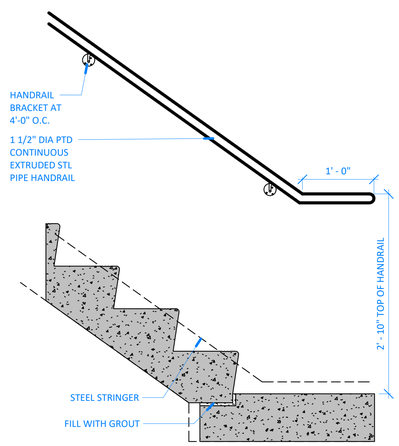

1 DETAIL @ BOTTOM LANDING
SCALE : 1" = 1' - 0"

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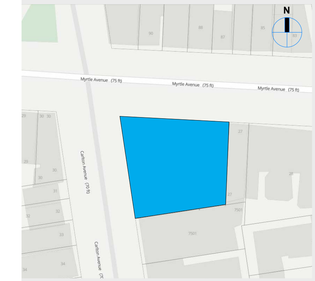
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

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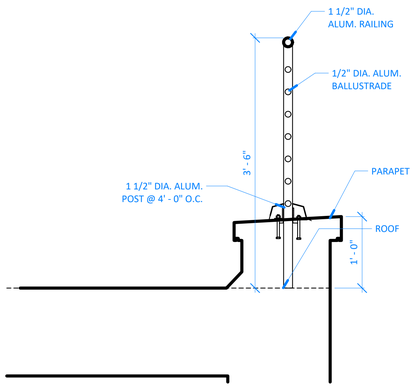
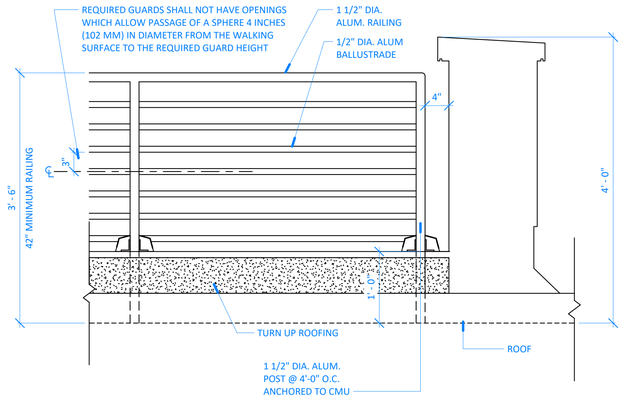
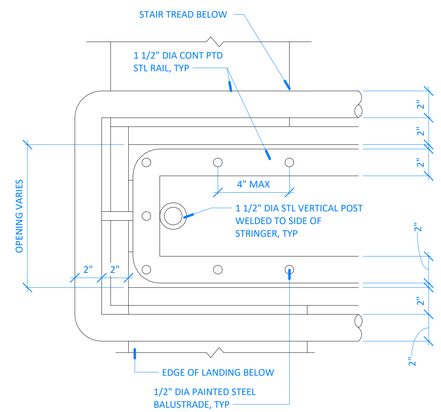


6 ROOF RAILING AT TERRACE

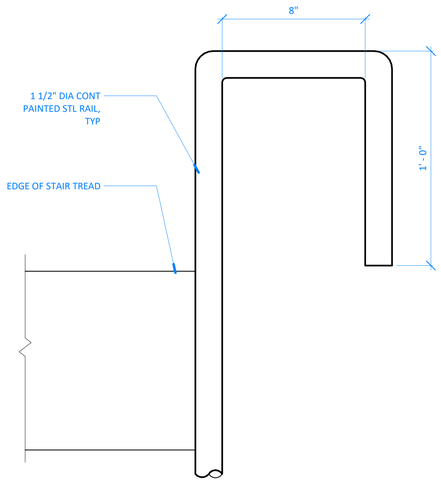
SCALE: 1" = 1'-0"

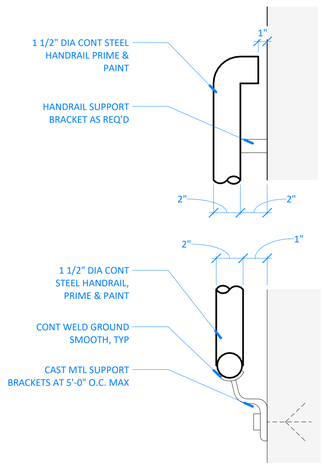




4 RAILING DETAIL PLAN

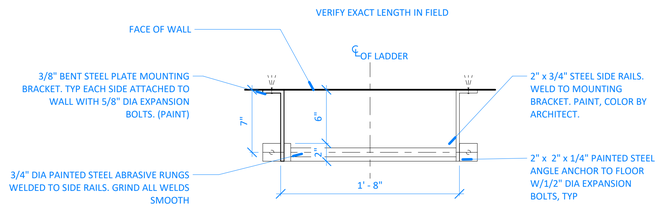
SCALE: 3" = 1'-0"





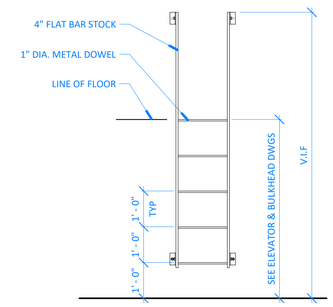
3 RAILING DETAIL

SCALE: 3" = 1'-0"



2 LADDER PLAN

SCALE: 1 1/2" = 1'-0"



1 LADDER ELEVATION

SCALE: 1/2" = 1'-0"

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MUNICIPAL CONSULTANT:
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OWNER:
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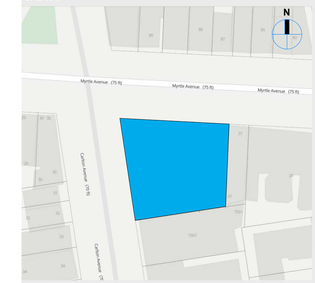
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

RAILING & LADDER DETAILS

DOB # :

DOB BSCAN + STAMP :

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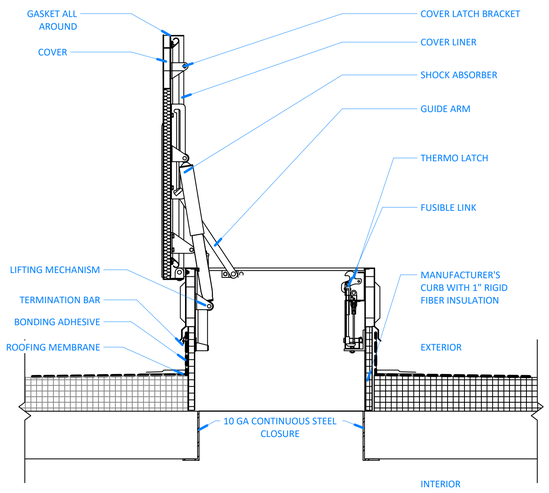
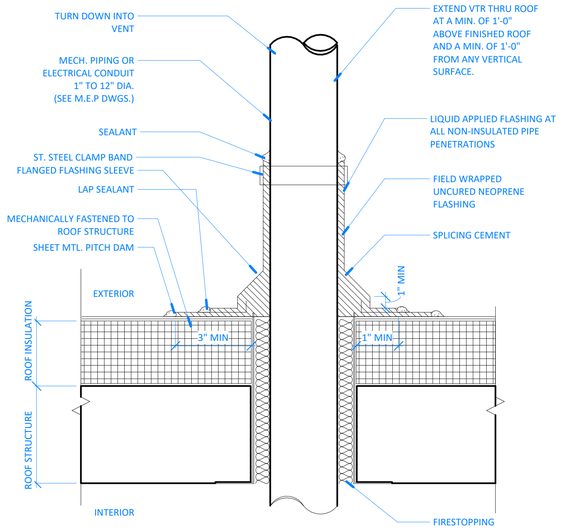


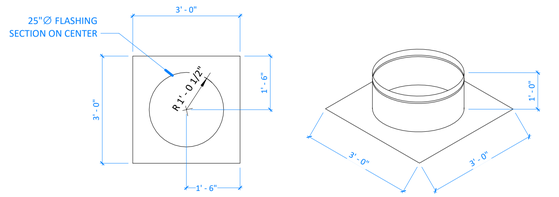
6 ROOF HATCH DETAIL

SCALE: 1" = 1'-0"



5 INSULATED PIPE PENETRATION DETAIL

SCALE: 3" = 1'-0"



FLAT ROOF FLASHING PLAN VIEW

FLAT ROOF FLASHING 3D

4 VENT CAP AND FLASHING DETAIL

SCALE: 1/2" = 1'-0"

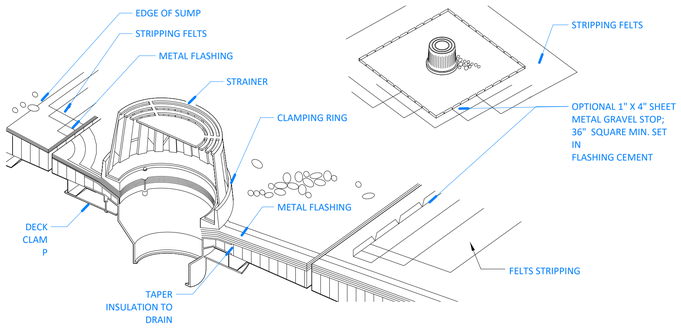
AIR SEALING NOTES:

DRAINS AND PLUMBING VENTS
WHEN THE JOINT IS ACCESSIBLE FROM ABOVE, SEAL THE FLANGE OF THE METAL COLLAR TO THE ROOF MEMBRANE USING A COMPATIBLE ROOFING MEMBRANE OR MASTIC.

WHEN THE SYSTEM IS ACCESSIBLE FROM BELOW, SEAL PIPES AND VENTS TO THE SURROUNDING DECK FROM BELOW USING FOAM SEALANT.

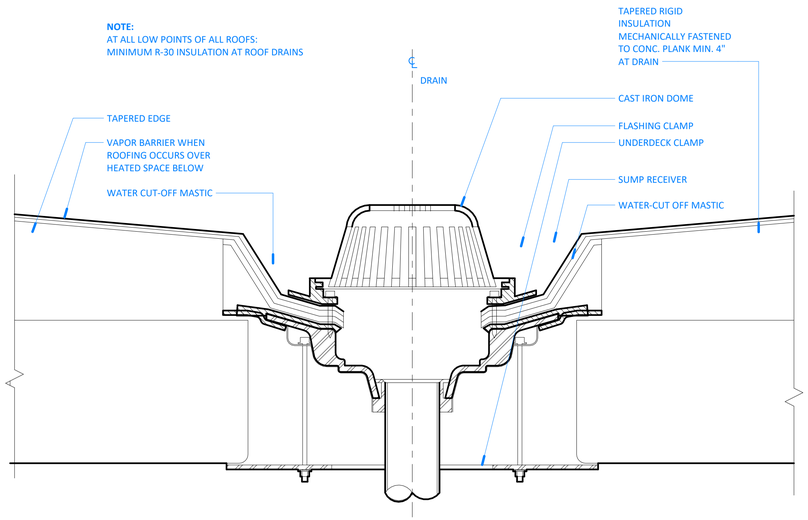
CHIMNEYS AND HOT VENTS
SEAL FLANGE OF METAL COLLAR TO THE ROOF MEMBRANE USING A COMPATIBLE ROOFING MEMBRANE OR MASTIC. SEAL METAL COLLAR OF HOT VENTS TO THE VENT WITH HIGH TEMPERATURE SILICONE CAULKING PRIOR TO INSTALLATION OF RAIN DEFLECTION FLASHING.

ALTERNATIVELY, IF THE UNDERSIDE OF THE ROOF DECK IS THE AIR LEAKAGE CONTROL SYSTEM, A METAL COLLAR CAN BE APPLIED AROUND THE CHIMNEY OR VENT. THE COLLAR MAY BE MADE AIRTIGHT USING A HIGH TEMPERATURE CAULKING PRODUCT.



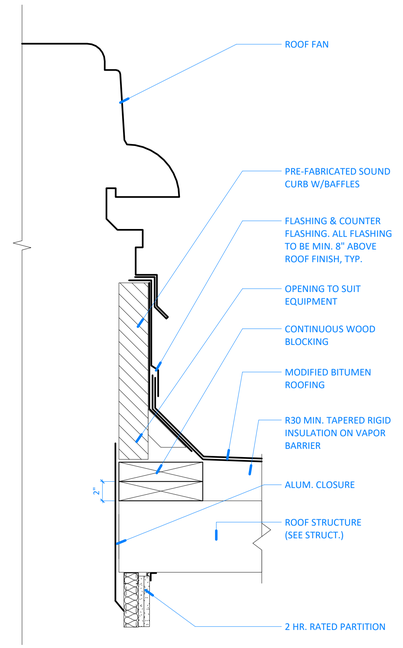
3 ROOF DRAIN DETAIL

SCALE: 1 1/2" = 1'-0"



2 ROOF DRAIN DETAIL

SCALE: 3" = 1'-0"



1 ROOF FAN CURB DETAIL

SCALE: 1 1/2" = 1'-0"

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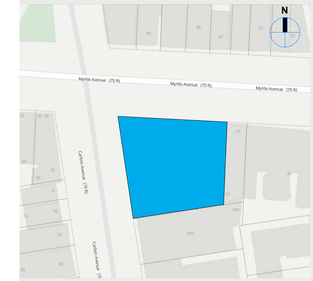
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ROOFING DETAILS

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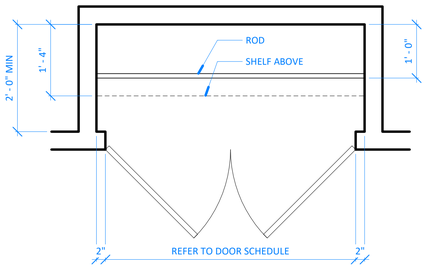
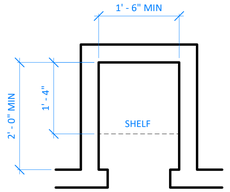


CLOSET DIMENSIONS VARY THROUGHOUT - REFER TO ARCHITECTURAL PLANS FOR BALANCE OF NOTES.

GC TO COORDINATE PARTITION FRAMING LAYOUT @ TYPICAL APARTMENTS WITH ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK

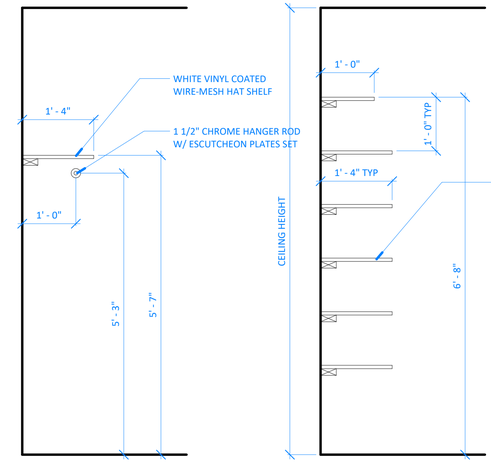
TYPICAL COAT CLOSET

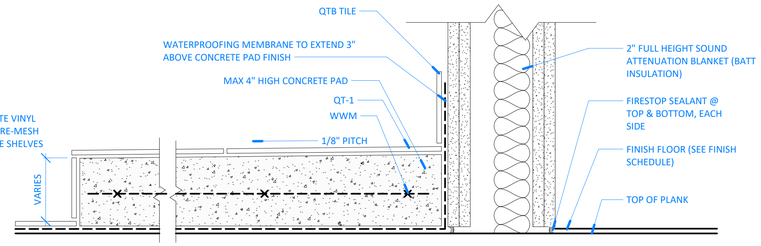


NOTE: SECURE ALL SHELVING AND HANGER RODS TO METAL STUDS

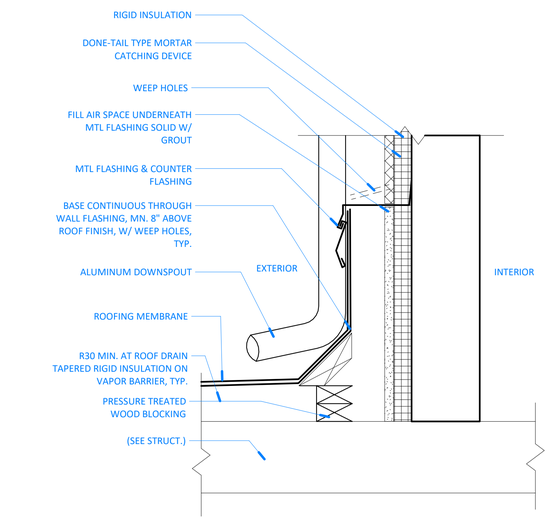
TYPICAL LINEN CLOSET

9 CLOSET DETAILS
SCALE: 3/4" = 1'-0"

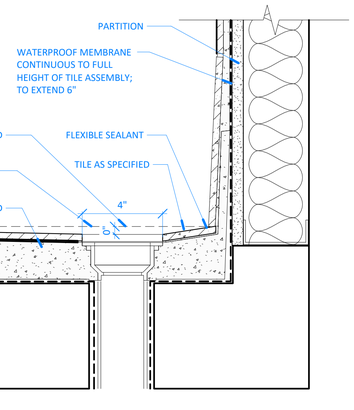




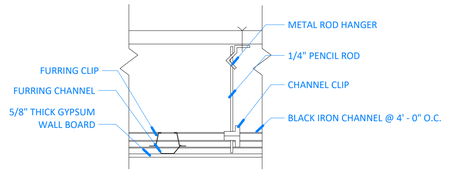
8 LAUNDRY PAD DETAIL
SCALE: 3" = 1'-0"



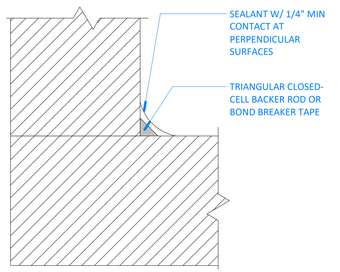
6 DOWNSPOUT AND SPLASH BLOCK DETAIL
SCALE: 1 1/2" = 1'-0"



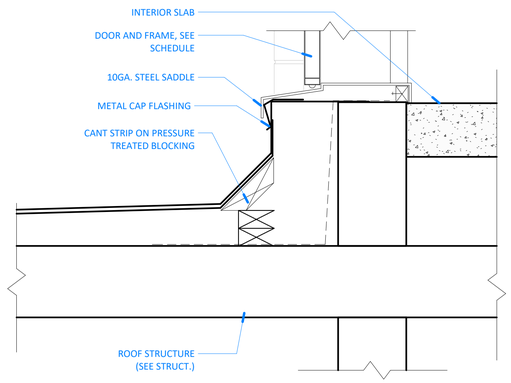
7 ADA ROLL-IN SHOWER DETAIL
SCALE: 3" = 1'-0"



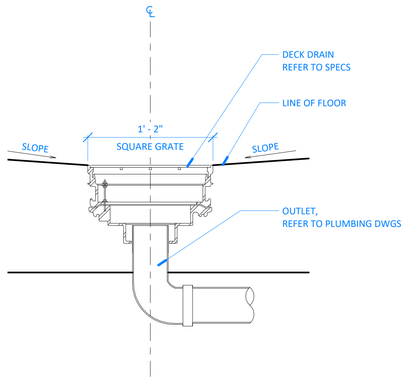
22 SUSPENDED GYPSUM BOARD CEILING
SCALE: 1 1/2" = 1'-0"



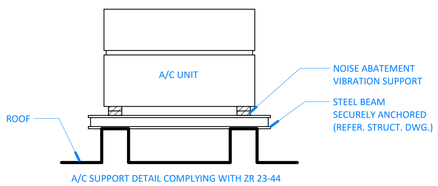
4 JOINT FILLER
SCALE: 6" = 1'-0"



3 SECTION @ DOOR TO ROOF
SCALE: 1 1/2" = 1'-0"

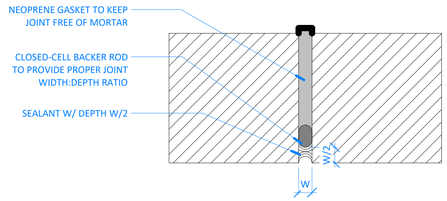


5 FLOOR DRAIN DETAIL
SCALE: 1 1/2" = 1'-0"



A/C SUPPORT DETAIL COMPLYING WITH ZR 23-44

2 HVAC ROOF DETAIL
SCALE: 3/8" = 1'-0"



1 VERTICAL CONTROL JOINT
SCALE: 6" = 1'-0"

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OWNER:
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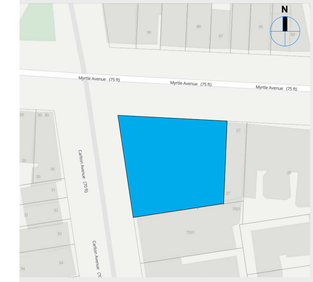
SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
MISC DETAILS

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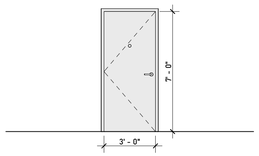
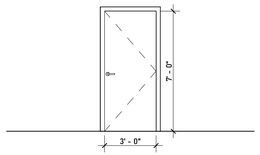
A1
3' - 0" x 7' - 0"
Count: 58



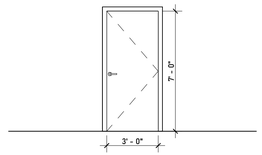
DOOR_DESCRIPTION	DWELLING UNIT ENTRANCE, W/ PEEPHOLE
OITC	N/A
FIRE PROTECTION	FPSC 1.5HR
OITC NOTES	

B1
3' - 0" x 7' - 0"
Count: 61



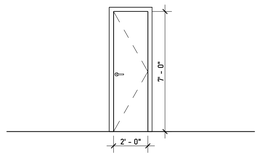
DOOR_DESCRIPTION	HOLLOW CORE BEDROOM
OITC	
FIRE PROTECTION	N/A
OITC NOTES	

D1
3' - 0" x 7' - 0"
Count: 84



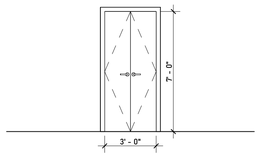
DOOR_DESCRIPTION	HOLLOW CORE SINGEL PANEL
OITC	N/A
FIRE PROTECTION	N/A
OITC NOTES	

C1
2' - 0" x 7' - 0"
Count: 14



DOOR_DESCRIPTION	HOLLOW CORE WOOD, SINGLE PANEL CLOSET
OITC	N/A
FIRE PROTECTION	N/A
OITC NOTES	

C2
3' - 0" x 7' - 0"
Count: 79



DOOR_DESCRIPTION	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET
OITC	N/A
FIRE PROTECTION	N/A
OITC NOTES	

FIRE RATING NOTES

FIRE DOOR ASSEMBLIES SHALL BE LABELED BY AN APPROVED AGENCY. THE LABELS SHALL COMPLY WITH NFPA 80, AND SHALL BE PERMANENTLY AFFIXED TO THE DOOR FRAME

FIRE PROTECTION RATED WIRED GLAZING IN FIRE DOORS LOCATE IN FIRE WALLS SHALL BE PROHIBITED EXCEPT THAT WHEN SERVING IN A FIRE DOOR IN A HORIZONTAL EXIT , A SELF CLOSING SWINGING DOOR SHALL BE PERMITTED TO HAVE A VISION PANEL OF NOT MORE THAT 100 SQUARE INCHES, WITHOUT A DIMENSION EXCEEDING WIDTH 10 INCHES & HEIGHT 33 INCHED

NOTE:
DOORS LEADING TO HAZARDOUS AREAS SHALL HAVE A DETECTABLE WARNING ON OPERATING HARDWARE OR SURFACE IN COMPLIANCE WITH BC* 1109.10

GLAZING NOTES
1. ALL STOREFRONTS TO BE FULLY THERMALLY BROKEN SYSTEMS.

2. SEE SPECIFICATIONS FOR HARDWARE SETS.

3. ALL EXTERIOR STOREFRONT GLASS BELOW 18" A.F.F. TO BE SAFETY GLASS

4. ALL WOOD BLOCKING AT CMU TO BE PRESSURE TREATED.

5. WEATHER STRIPPING SHOULD BE INSTALLED AT ALL EXTERIOR DOORS, APARTMENT ENTRANCE DOORS, STAIRWELL DOORS, AND UNCONDITIONED MECHANICAL ROOMS.

6. HEIGHT OF ALL EXTERIOR DOORS TO BE COORDINATED WITH EXTERIOR SIDEWALK ELEVATIONS. DOOR HEAD HEIGHTS TO BE CONSISTENT AT BUILDING PERIMETER.

7. REFER TO SPECIFICATIONS FOR DOOR HARDWARE.

8. ALL SADDLE & TRANSITION STRIPS TO BE ADA COMPLIANT.

9. DOOR SWEEPS AT EXTERIOR DOORS MUST BE HARD FASTENED AT THE BOTTOM.

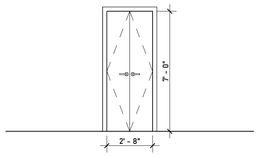
10. ALL OPAQUE AND GLAZED EXTERIOR DOORS MUST HAVE PERFORMANCE TESTING RESULTS, INCLUDING U-VALUE AND AIR LEAKAGE.

11. WEATHER STRIPPING AT MANDATORY LOCATIONS SHALL BE INSTALLED WITH RIGID FASTENER AND REPLACEABLE FOAM GASKET SPECIFIED FOR DURABILITY AND LESS MAINTENANCE.

12. WEATHER STRIPPING SHALL BE INSTALLED TO NOT INTERFERE WITH DOOR CLOSING PROPERLY.

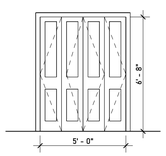
13. RATED DOORS MUST LATCH.

C3
2' - 8" x 7' - 0"
Count: 44



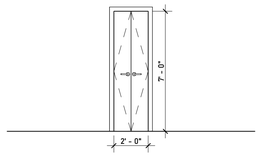
DOOR_DESCRIPTION	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET
OITC	N/A
FIRE PROTECTION	N/A
OITC NOTES	

C4
5' - 0" x 6' - 8"
Count: 23



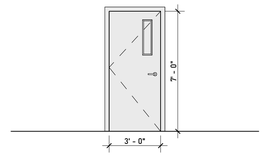
DOOR_DESCRIPTION	APARTMENT CLOSET DOOR - DOUBLE BI-FOLD HOLLOW CORE WOOD
OITC	
FIRE PROTECTION	
OITC NOTES	

C5
2' - 0" x 7' - 0"
Count: 6



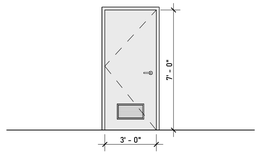
DOOR_DESCRIPTION	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET
OITC	N/A
FIRE PROTECTION	N/A
OITC NOTES	

E1
3' - 0" x 7' - 0"
Count: 23



DOOR_DESCRIPTION	METAL UNINSULATED W/VISION PANEL
OITC	N/A
FIRE PROTECTION	FPSC 1.5 HR
OITC NOTES	

F1
3' - 0" x 7' - 0"
Count: 7



DOOR_DESCRIPTION	UNINSULATED METAL DOOR
OITC	N/A
FIRE PROTECTION	FPSC 1.5 HR
OITC NOTES	

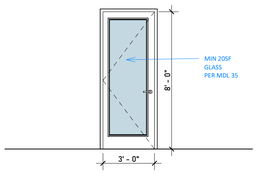
EXTERIOR DOOR SCHEDULE

TYPE MARK	DOOR_DESCRIPTION	SIZE WIDTH	SIZE HEIGHT	FIRE RATING	NOTES	QUANTITY
ED1	ENTRANCE DOOR - SINGLE DOOR w/TEMPERED GLASS PANEL	3' - 0"	8' - 0"			1
ED2		5' - 0"	8' - 0"	1.5 HR	FPSC	1
ED3	VISION PANEL DOOR - w/TEMPERED AND WIRED GLASS PANEL	3' - 0"	7' - 0"	1.5 HR	FPSC	7
ED4		9' - 0"	8' - 4"			1
ED5		<varies>	10' - 7"			4
TOTAL EXTERIOR DOORS: 14						

INTERIOR DOOR SCHEDULE

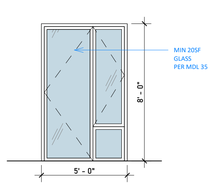
TYPE MARK	DOOR_DESCRIPTION	SIZE WIDTH	SIZE HEIGHT	FIRE RATING	NOTES	QUANTITY
A1	DWELLING UNIT ENTRANCE, W/ PEEPHOLE	3' - 0"	7' - 0"	FPSC 1.5HR		59
B1	HOLLOW CORE BEDROOM	3' - 0"	7' - 0"	N/A		61
C1	HOLLOW CORE WOOD, SINGLE PANEL CLOSET	2' - 0"	7' - 0"	N/A		14
C2	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET	3' - 0"	7' - 0"	N/A		79
C3	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET	2' - 8"	7' - 0"	N/A		44
C4	APARTMENT CLOSET DOOR - DOUBLE BI-FOLD HOLLOW CORE WOOD	5' - 0"	6' - 8"	1.5 HR	FPSC	23
C5	HOLLOW CORE WOOD, DOUBLE PANEL CLOSET	2' - 0"	7' - 0"	N/A		6
D1	HOLLOW CORE SINGEL PANEL	3' - 0"	7' - 0"	N/A		84
E1	METAL UNINSULATED W/VISION PANEL	3' - 0"	7' - 0"	FPSC 1.5 HR		23
ELV1	ELEVATOR DOOR - SLIDING METAL	0"	0"			20
F1	UNINSULATED METAL DOOR	3' - 0"	7' - 0"	FPSC 1.5 HR	FPSC	7
TOTALINTERIOR DOORS: 420						

ED1
3' - 0" x 8' - 0"
Count: 1



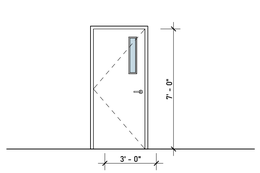
AIR LEAKAGE	0.10 CFM/SF
V.L.T	0.37
UFACTOR / SHGC	0.40 / 0.36
LIGHT AREA	21
VENT AREA	21
DOOR_DESCRIPTION	ENTRANCE DOOR - SINGLE DOOR w/TEMPERED GLASS PANEL
OITC	
FIRE PROTECTION	
OITC NOTES	

ED2
5' - 0" x 8' - 0"
Count: 1



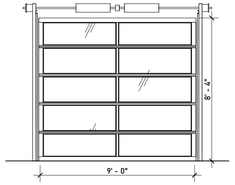
AIR LEAKAGE	0.10 CFM/SF
V.L.T	0.37
UFACTOR / SHGC	0.40/ 0.36
LIGHT AREA	-
VENT AREA	-
DOOR_DESCRIPTION	
OITC	N/A
FIRE PROTECTION	
OITC NOTES	

ED3
3' - 0" x 7' - 0"
Count: 7



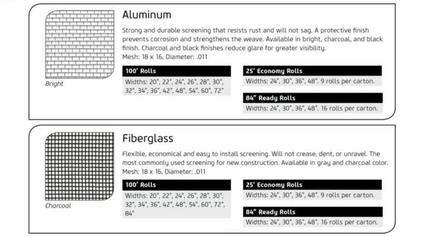
AIR LEAKAGE	0.10 CFM/SF
V.L.T	0.37
UFACTOR / SHGC	0.31 / 0.36
LIGHT AREA	-
VENT AREA	-
DOOR_DESCRIPTION	VISION PANEL DOOR - w/TEMPERED AND WIRED GLASS PANEL
OITC	
FIRE PROTECTION	
OITC NOTES	

ED4
9' - 0" x 8' - 4"
Count: 1



AIR LEAKAGE	
V.L.T	
UFACTOR / SHGC	
LIGHT AREA	-
VENT AREA	-
DOOR_DESCRIPTION	
OITC	
FIRE PROTECTION	
OITC NOTES	

Standard Screen & Screen Accessories



	Ease of Installation	Air Flow	Curb Appeal	Privacy	Durability	Pet & Tear Resistant	Pool Enclosures	Large Openings	Sun Control	Insect Protection
Clear Advantage™	✓✓✓	✓✓✓	✓✓✓	✖	✓✓✓	✖	✖	✓	✖	✓✓
Extra Strength	✓✓	✓✓	✓✓	✖	✓✓✓	✓✓	✓✓✓	✓✓✓	✖	✓✓
Pet Resistant	✓✓	✓✓	✓	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	✓✓
Pollen Guard	✓✓✓	✓✓	✓✓	✓	✓✓	✖	✓✓	✓✓	✖	✓✓✓
Pool & Patio	✓✓	✓✓	✓✓	✖	✓✓✓	✓✓	✓✓	✓✓✓	✓	✓✓
Porch & Patio	✓✓	✓✓	✓✓	✖	✓✓✓	✓✓	✓✓✓	✓✓✓	✓	✓✓
Small Insect	✓✓	✓✓	✓✓	✓✓	✓✓✓	✖	✓✓✓	✓✓	✓✓	✓✓✓
Sun Guard	✓✓	✓✓	✓	✓✓✓	✓✓	✓✓	✓✓	40 x 40 ✓✓✓ 56 x 78 ✓✓	40 x 40 ✓✓✓ 54 x 78 ✓✓	40 x 40 ✓✓✓ 54 x 78 ✓✓
Doorway Alert	✓✓	✓✓	✓	✓	✓✓	✓✓	✖	✓✓	✖	✓✓
Standard Fiberglass	✓✓	✓✓	✓✓	Charcoal ✖ Gray ✓✓	✓✓	✓✓	✓✓	✓✓	✖	✓✓
Aluminum	✓	✓✓	✓	Black ✖ Bright ✓✓ Charcoal ✖	✓✓✓	✓✓✓	✖	✓✓	✓✓	✓✓

BIRD FRIENDLY MATERIALS
BIRD HAZARD INSTALLATIONS, AND FLY-THROUGH CONDITIONS SHALL BE CONSTRUCTED OF BIRD FRIENDLY MATERIALS AS DEFINED IN BC 1402.1

TYPICAL BIRD HAZARD INSTALLATIONS:
- INSECT SCREENS SHALL BE INSTALLED AT ALL DWELLING UNIT EXTERIOR OPERABLE WINDOWS AND DOOR **OPENINGS**.
- THREAT FACTOR: 1 (ANY TYPE)

- UNSCREENED AREAS OF GLAZING INSTALLATIONS THAT PROVIDE A CLEAR LINE OF SIGHT ON THE EXTERIOR OF BUILDINGS TO BE PROVIDED WITH
- MAXIMUM THREAT FACTOR: 25

BC* 1403.8: ALL EXTERIOR MATERIALS AND GLAZING HAVE BEEN EVALUATED FOR COMPLIANCE WITH BC 1403.8. WHERE EXTERIOR WALL ENVELOPE, BIRD HAZARD INSTALLATIONS, FLY-THROUGH CONDITIONS, OR ADJACENCIES TO GREEN ROOFS ARE PRESENT IN THE DESIGN, BIRD FRIENDLY MATERIALS WITH A THREAT FACTOR RATING OF 25 OR LESS HAVE BEEN SPECIFIED AS INDICATED IN THE MATERIAL LOCATION THREAT FACTOR TABLE WITH AN APPROVED MATERIAL/ASSEMBLY.

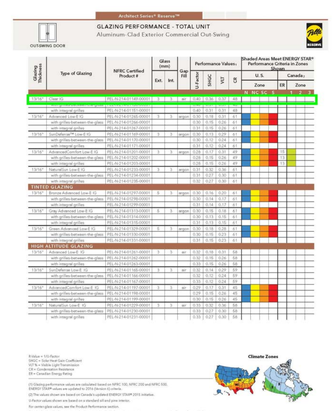
BC* 1402.1:
FLY-THROUGH CONDITIONS: ONE OR MORE PANELS OF GLASS THAT PROVIDE A CLEAR LINE OF SIGHT THROUGH SUCH ELEMENTS CREATING THE ILLUSION OF A VOID LEADING TO THE OTHER SIDE, INCLUDING PARALLEL GLASS ELEMENTS, AT A DISTANCE OF 17'-0" OR LESS, OR A CONVERGENCE OF GLASS SIDES CREATING A PERPENDICULAR, ACUTE OR OBTUSE CORNER.

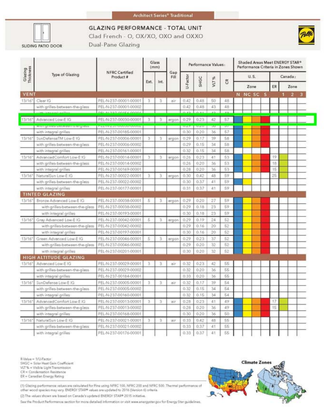
BIRD HAZARD INSTALLATIONS: MONOLITHIC GLAZING INSTALLATIONS THAT PROVIDE A CLEAR LINE OF SIGHT ON THE EXTERIOR OF BUILDINGS, INCLUDING, BUT NOT LIMITED TO, GLASS AWNINGS, GLASS HANDRAILS AND GUARDS, GLASS WIND BREAK PANELS, OR GLASS ACOUSTIC BARRIERS.

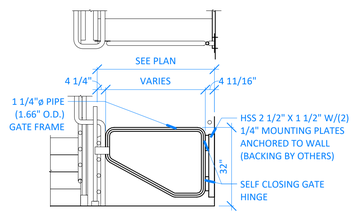
BIRD FRIENDLY MATERIAL: A MATERIAL OR ASSEMBLY THAT HAS, OR HAS BEEN TREATED TO HAVE A MAXIMUM THREAT FACTOR OF 25 IN ACCORDANCE WITH THE AMERICAN BIRD CONSERVANCY BIRD COLLISION DETERRENCE MATERIAL THREAT FACTOR REFERENCE STANDARD, OR WITH THE AMERICAN BIRD CONSERVANCY BIRD-FRIENDLY MATERIALS EVALUATION PROGRAM AT CARNEGIE MUSEUM'S AVIAN RESEARCH CENTER TEST PROTOCOL, OR WITH A RELEVANT ASTM STANDARD.

BIRD FRIENDLY MATERIALS

MATERIAL/ASSEMBLY	LOCATION	THREAT FACTOR
3/4" LAMINATED GLASS WITH UV PATTERN	ALL WIND SCREENS	25
1/2" LAMINATED GLASS	BALUSTRADES	20
INSULATING GLASS WITH UV PATTERN	GLASS BELOW 75' UNLESS OTHERWISE NOTED.	20
INSULATING GLASS UNIT WITH CUSTOM FRIT PATTERN COVERING 90% OF THE UNIT	GROUND FLOOR STOREFRONT/WINDOW CURTAIN WALL	25







NOTE: GATE MATERIAL TO BE 1 1/2"ø (1.66" O.D.) PIPE

BC* 1023.8 DISCHARGE IDENTIFICATION: AN APPROVED BARRIER SHALL CONSIST OF PARTITIONS, DOORS, OR GATES SEPARATING THE PORTION OF THE VERTICAL EXIT ABOVE GRADE FROM THE PORTION BELOW GRADE. WHERE DOORS OR GATES ARE PROVIDED AS APPROVED BARRIERS, SUCH DOORS OR GATES SHALL BE SELF-CLOSING AND OPENING IN THE DIRECTION OF EXIT TRAVEL FROM THE FLOORS BELOW GRADE.

PACIFIC STAIR CORPORATION
8690 STAIR WAY NE SALEM, OR 97305
WWW.PACIFICSTAIR.COM \ 503.390.8305

E3 - SINGLE SWING GATE
SCALE: 3" = 1'-0"

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

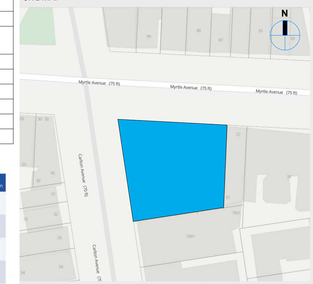
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
DOOR SCHEDULE

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

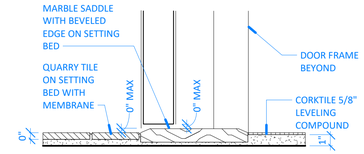
DATE: 5/12/2023 1:47:16 AM
SCALE: As indicated
DRAWN BY: XX

A-600.00

SHEET: 65 OF 88

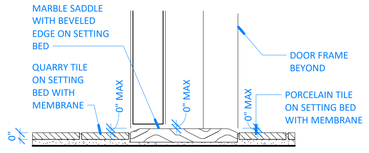
C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

5/12/2023 1:47:16 AM



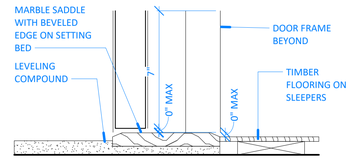
S20 SADDLE TYPE CORK TILE TO QUARRY TILE

SCALE: 3" = 1' - 0"



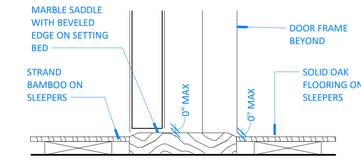
S19 SADDLE TYPE PORCELAIN TILE TO QUARRY TILE

SCALE: 3" = 1' - 0"



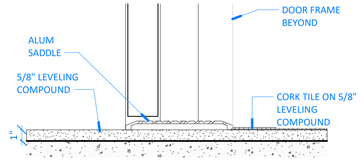
S18 SADDLE TYPE SELF LEVELING COMPOUND TO TIMBER

SCALE: 3" = 1' - 0"



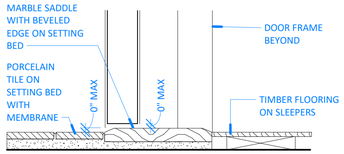
S17 SADDLE TYPE STRAND BAMBOO TO STRAND BAMBOO

SCALE: 3" = 1' - 0"



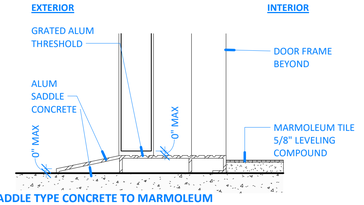
S16 SADDLE TYPE CONCRETE TO CORK

SCALE: 3" = 1' - 0"



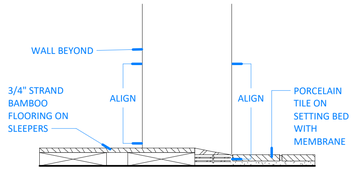
S15 SADDLE TYPE PORCELAIN TILE TO TIMBER

SCALE: 3" = 1' - 0"



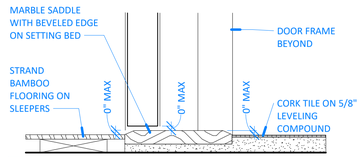
S14 SADDLE TYPE CONCRETE TO MARMOLEUM

SCALE: 3" = 1' - 0"



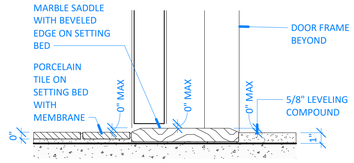
S13 SADDLE TYPE WOOD FLOORING TO PORCELAIN TILE

SCALE: 3" = 1' - 0"



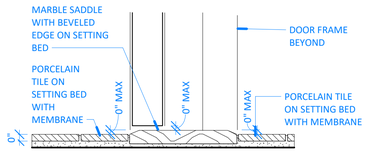
S12 SADDLE TYPE STRAND BAMBOO TO CORK TILE

SCALE: 3" = 1' - 0"



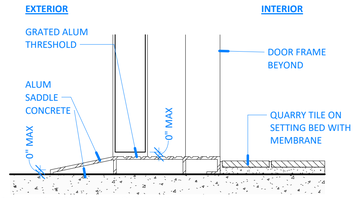
S11 SADDLE TYPE SELF LEVELING COMPOUND TO PORCELAIN TILE

SCALE: 3" = 1' - 0"



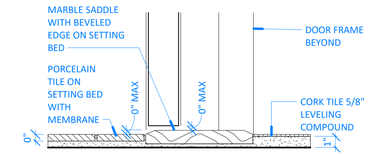
S10 SADDLE TYPE PORCELAIN TILE TO PORCELAIN TILE

SCALE: 3" = 1' - 0"



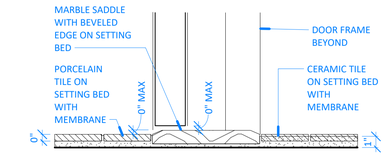
S9 SADDLE TYPE CONCRETE TO QUARRY TILE

SCALE: 3" = 1' - 0"



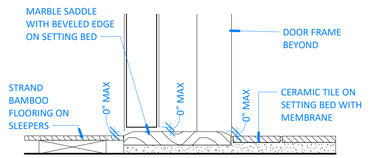
S8 SADDLE TYPE CORK TO PORCELAIN TILE

SCALE: 3" = 1' - 0"



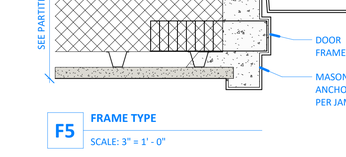
S7 SADDLE TYPE PORCELAIN TILE TO CERAMIC TILE

SCALE: 3" = 1' - 0"



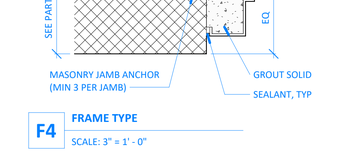
S6 SADDLE TYPE STRAND BAMBOO TO CERAMIC TILE

SCALE: 3" = 1' - 0"



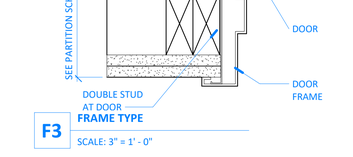
S5 SADDLE TYPE CORK TO CORK

SCALE: 3" = 1' - 0"



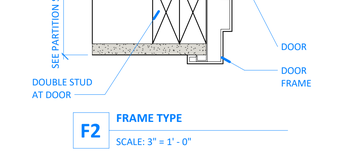
S4 SADDLE TYPE CONCRETE TO WOOD FLOORING

SCALE: 3" = 1' - 0"



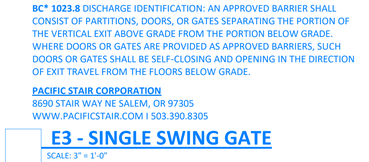
S3 SADDLE TYPE CONCRETE TO CONCRETE

SCALE: 3" = 1' - 0"



S2 SADDLE TYPE CONCRETE TO PORCELAIN TILE

SCALE: 3" = 1' - 0"



S1 SADDLE TYPE CONCRETE TO CONCRETE

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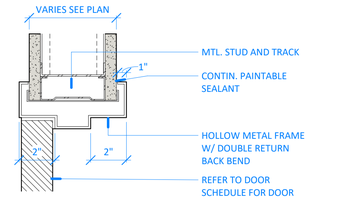
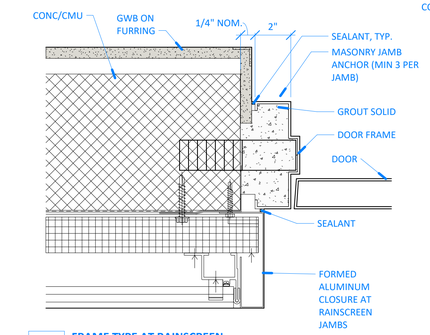


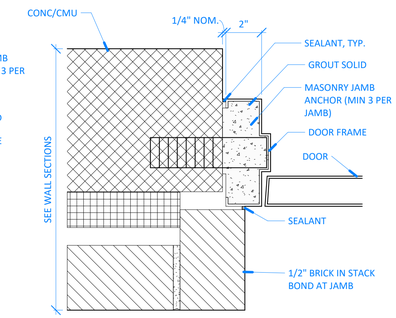
F10 FRAME TYPE AT GYPSUM WALL ASSEMBLY

SCALE: 3" = 1' - 0"



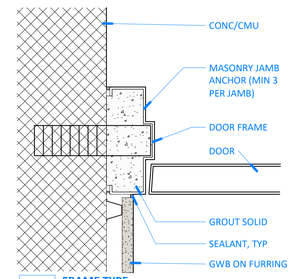
F9 FRAME TYPE AT RAINSCREEN

SCALE: 3" = 1' - 0"



F8 FRAME TYPE AT BRICK WALL

SCALE: 3" = 1' - 0"



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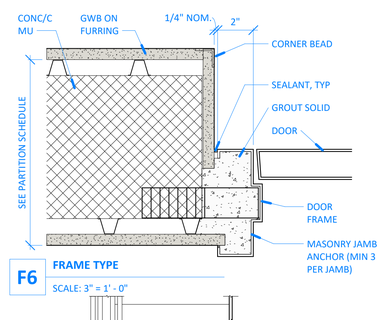

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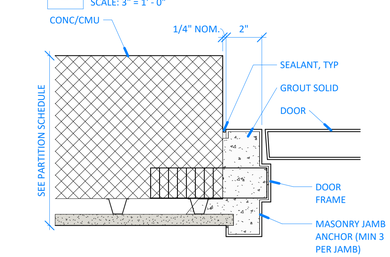

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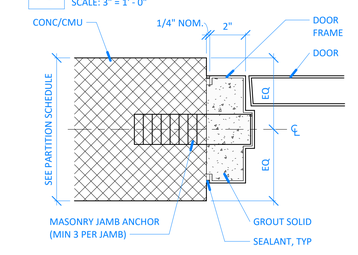

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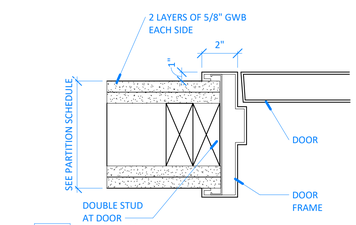

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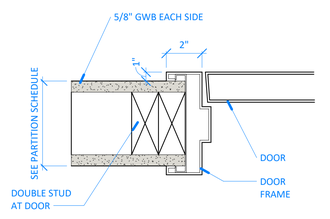

F2 FRAME TYPE

SCALE: 3" = 1' - 0"

NOTE: GATE MATERIAL TO BE 1 1/2"ø (1.66" O.D.) PIPE

BC* 1023.8 DISCHARGE IDENTIFICATION: AN APPROVED BARRIER SHALL CONSIST OF PARTITIONS, DOORS, OR GATES SEPARATING THE PORTION OF THE VERTICAL EXIT ABOVE GRADE FROM THE PORTION BELOW GRADE. WHERE DOORS OR GATES ARE PROVIDED AS APPROVED BARRIERS, SUCH DOORS OR GATES SHALL BE SELF-CLOSING AND OPENING IN THE DIRECTION OF EXIT TRAVEL FROM THE FLOORS BELOW GRADE.

PACIFIC STAIR CORPORATION
8690 STAIR WAY NE SALEM, OR 97305
WWW.PACIFICSTAIR.COM I 503.390.8305

E3 - SINGLE SWING GATE

SCALE: 3" = 1'-0"

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203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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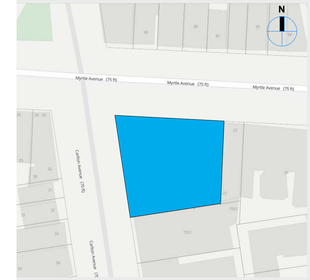
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

DOOR DETAILS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:47:21 AM
SCALE: 3" = 1'-0"
DRAWN BY: XX

A-601.00

SHEET: 66 OF 88

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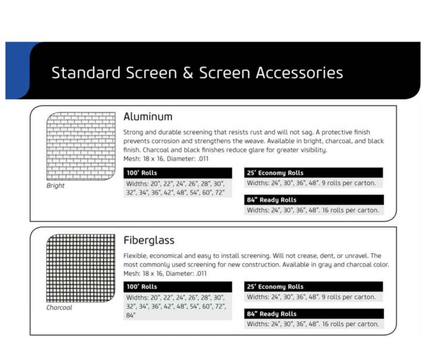
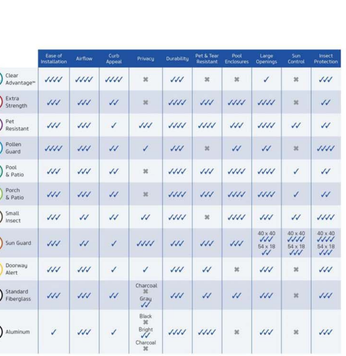
WINDOW SCHEDULE TYPE

TYPE MARK	SIZE WIDTH	SIZE HEIGHT	MANUFACTURER	AIR LEAKAGE	U FACTOR / SHGC	AIR LEAKAGE	NOTES	QUANTITY	LIGHT AREA	VENT AREA
W1	2' - 3"	8' - 0"	PELLA		U = 0.33, / SHGC = 0.34	.1 CFM / SF		18		
W2	4' - 4"	8' - 0"	PELLA		U = 0.33, / SHGC = 0.34	.1 CFM / SF		307		
W4	4' - 0"	5' - 0"	PELLA		U = 0.33, / SHGC = 0.34	AIR LEAKAGE 0.10 CFM/SF		2	20 SF	10 SF





BIRD FRIENDLY MATERIALS
BIRD HAZARD INSTALLATIONS, AND FLY-THROUGH CONDITIONS SHALL BE CONSTRUCTED OF BIRD FRIENDLY MATERIALS AS DEFINED IN BC 1402.1

TYPICAL BIRD HAZARD INSTALLATIONS:
- INSECT SCREENS SHALL BE INSTALLED AT ALL DWELLING UNIT EXTERIOR OPERABLE WINDOWS AND DOOR **OPENINGS**.
- THREAT FACTOR: 1 (ANY TYPE)

- UNSCREENED AREAS OF GLAZING INSTALLATIONS THAT PROVIDE A CLEAR LINE OF SIGHT ON THE EXTERIOR OF BUILDINGS TO BE PROVIDED WITH
- MAXIMUM THREAT FACTOR: 25

BC* 1403.8: ALL EXTERIOR MATERIALS AND GLAZING HAVE BEEN EVALUATED FOR COMPLIANCE WITH BC 1403.8. WHERE EXTERIOR WALL ENVELOPE, BIRD HAZARD INSTALLATIONS, FLY-THROUGH CONDITIONS, OR ADJACENCIES TO GREEN ROOFS ARE PRESENT IN THE DESIGN, BIRD FRIENDLY MATERIALS WITH A THREAT FACTOR RATING OF 25 OR LESS HAVE BEEN SPECIFIED AS INDICATED IN THE MATERIAL LOCATION THREAT FACTOR TABLE WITH AN APPROVED MATERIAL/ASSEMBLY.

BC* 1402.1:
FLY-THROUGH CONDITIONS: ONE OR MORE PANELS OF GLASS THAT PROVIDE A CLEAR LINE OF SIGHT THROUGH SUCH ELEMENTS CREATING THE ILLUSION OF A VOID LEADING TO THE OTHER SIDE, INCLUDING PARALLEL GLASS ELEMENTS, AT A DISTANCE OF 17'-0" OR LESS, OR A CONVERGENCE OF GLASS SIDES CREATING A PERPENDICULAR, ACUTE OR OBTUSE CORNER.

BIRD HAZARD INSTALLATIONS: MONOLITHIC GLAZING INSTALLATIONS THAT PROVIDE A CLEAR LINE OF SIGHT ON THE EXTERIOR OF BUILDINGS, INCLUDING, BUT NOT LIMITED TO, GLASS AWNINGS, GLASS HANDRAILS AND GUARDS, GLASS WIND BREAK PANELS, OR GLASS ACOUSTIC BARRIERS.

BIRD FRIENDLY MATERIAL: A MATERIAL OR ASSEMBLY THAT HAS, OR HAS BEEN TREATED TO HAVE A MAXIMUM THREAT FACTOR OF 25 IN ACCORDANCE WITH THE AMERICAN BIRD CONSERVANCY BIRD COLLISION DETERRENCE MATERIAL THREAT FACTOR REFERENCE STANDARD, OR WITH THE AMERICAN BIRD CONSERVANCY BIRD-FRIENDLY MATERIALS EVALUATION PROGRAM AT CARNEGIE MUSEUM'S AVIAN RESEARCH CENTER TEST PROTOCOL, OR WITH A RELEVANT ASTM STANDARD.

BIRD FRIENDLY MATERIALS

MATERIAL/ASSEMBLY	LOCATION	THREAT FACTOR
3/4" LAMINATED GLASS WITH UV PATTERN	ALL WIND SCREENS	25
1/2" LAMINATED GLASS	BALUSTRADES	20
INSULATING GLASS WITH UV PATTERN	GLASS BELOW 7'5" UNLESS OTHERWISE NOTED.	20
INSULATING GLASS UNIT WITH CUSTOM FRIT PATTERN COVERING 90% OF THE UNIT	GROUND FLOOR STOREFRONT/WINDOW CURTAIN WALL	25

WINDOW NOTES

1. COLOR CLEAR ANODIZED.
2. CASEMENT WINDOWS SHALL HAVE A LIMIT STOP OF 3.5" MAX. OPENING & LIMITER/OPERATOR CONCEALED IN THE FRAME.
3. WINDOWS AT PUBLIC AREAS TO BE KEY OPERATED.
4. PROVIDE OPERABLE INSECT SCREEN, TYP.
5. ALL DIMENSIONS SHOWN ON WINDOW ELEVATIONS & FLOOR PLANS ARE ROUGH DIMENSIONS. GC TO COORDINATE & PROVIDE SHOP DRAWINGS FOR OPENINGS & WINDOW DIMENSIONS PRIOR TO CONSTRUCTION.
6. ALL WINDOW PANES WITHIN 18" ABOVE FLOOR TO RECEIVE TEMPERED GLASS PER 2022 NYC BC* 2406.4
7. SEE SPECIFICATIONS FOR THERMAL VALUES.
8. WINDOW FRAMES SHALL BE SEPARATED FROM CONDUCTIVE FRAMING WITH INSULATION DESIGNED TO SERVE AS A THERMAL BREAK
9. AIR LEAKAGE OF WINDOW/DOOR ASSEMBLIES SHALL BE DETERMINED IN ACCORDANCE WITH NFRC 400 BY AN ACCREDITED. INDEPENDENT LABORATORY, AND LABELED AND CERTIFIED BY THE MANUFACTURER SAND SHALL NOT EXCEED 1.0 CFM PER SQUARE FOOD FOR GLAZED SWINGING ENTRANCE DOORS AND FOR REVOLVING DOORS AND NO MORE THAN 0.4 CFM PER SQUARE FOOD FOR ALL OTHER PRODUCT.
10. PER 2022 NYC BC* 1010.4.3, ALL OPERABLE WINDOWS SHALL BE EQUIPPED WITH SASH LOCKS DESIGNED TO BE OPERABLE FROM THE INSIDE ONLY. GRILLES LOCKABLE FROM THE INSIDE ONLY MAY BE PLACED ON THE INSIDE OR OUTSIDE OF WINDOWS THAT ARE ACCESSIBLE FROM GRADE BUT THAT DO NOT SERVE TO PROVIDE ACCESS TO EXITS.

IN ALL BUILDINGS WITH THREE OR MORE APARTMENTS, NEW YORK CITY (NYC) LAW REQUIRES THAT BUILDING OWNERS INSTALL WINDOW GUARDS IF A CHILD AGE 10 YEARS OR YOUNGER LIVES THERE, OR IF THE TENANT OR OCCUPANT REQUESTS WINDOW GUARDS FOR ANY REASON.

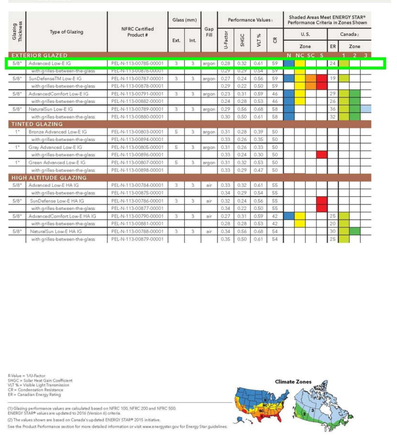
ALL WINDOWS OF ALL TYPES — INCLUDING THOSE WITH SCREENS — MUST HAVE WINDOW GUARDS OR LIMITING DEVICES, EXCEPT

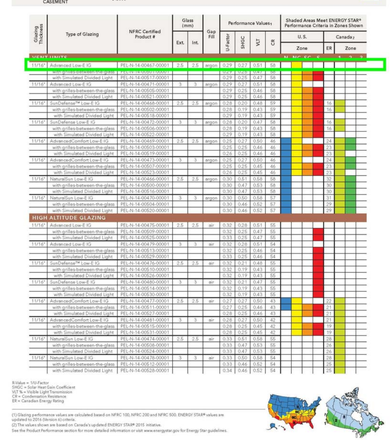
- (1) WINDOWS LEADING TO FIRE ESCAPES OR THOSE DESIGNATED FOR OTHER EMERGENCY ESCAPES, (2) SECONDARY EXIT WINDOWS IN FIRST-FLOOR APARTMENTS AND (3) WINDOWS IN WHICH AIR CONDITIONER (AC) UNITS ARE PERMANENTLY INSTALLED DETAILS).
- DOUBLE-HUNG WINDOWS: WINDOW GUARDS MUST BE MADE OF RIGID METAL AND BE A MINIMUM OF 15 INCHES TALL WITH THREE OR MORE HORIZONTAL BARS. SPACE BETWEEN THE HORIZONTAL BARS SHOULD BE NO MORE THAN 4 1/2 INCHES WIDE. EACH WINDOW GUARD MUST HAVE A HEALTH DEPARTMENT APPROVAL NUMBER IMPRINTED ON A STILE (VERTICAL BAR) OF THE WINDOW GUARD.
- NON-DOUBLE-HUNG WINDOWS (SUCH AS SLIDING CASEMENT, SLIDER, TILT AND TURN, AWNING, PROJECT-OUT, HOPPER): HEALTH DEPARTMENT-APPROVED LIMITING DEVICES, WITH AN IMPRINTED APPROVAL NUMBER, MUST BE INSTALLED IN PAIRS TO PREVENT THE WINDOW FROM OPENING MORE THAN4 1/2 INCHES IN ANY DIRECTION.

BC* 1015.9
WINDOWS AND OPENINGS IN GROUP R-2 OCCUPANCIES.
WINDOWS AND OPENINGS THAT DO NOT ALLOW PASSAGEWAY ONTO GRADE, BALCONY, TERRACE, SETBACK, ROOF OR OTHER WALKING SURFACES IN GROUP R-2 OCCUPANCIES SHALL BE SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE WITH REGARD TO WINDOW GUARDS.

GLAZING NOTES

1. ALL STOREFRONTS TO BE FULLY THERMALLY BROKEN SYSTEMS.
2. SEE SPECIFICATIONS FOR HARDWARE SETS.
3. ALL EXTERIOR STOREFRONT GLASS BELOW 18" A.F.F. TO BE SAFETY GLASS
4. ALL WOOD BLOCKING AT CMU TO BE PRESSURE TREATED.
5. WEATHER STRIPPING SHOULD BE INSTALLED AT ALL EXTERIOR DOORS, APARTMENT ENTRANCE DOORS, STAIRWELL DOORS, AND UNCONDITIONED MECHANICAL ROOMS.
6. HEIGHT OF ALL EXTERIOR DOORS TO BE COORDINATED WITH EXTERIOR SIDEWALK ELEVATIONS. DOOR HEAD HEIGHTS TO BE CONSISTENT AT BUILDING PERIMETER.
7. REFER TO SPECIFICATIONS FOR DOOR HARDWARE.
8. ALL SADDLE & TRANSITION STRIPS TO BE ADA COMPLIANT.
9. DOOR SWEEPS AT EXTERIOR DOORS MUST BE HARD FASTENED AT THE BOTTOM.
10. ALL OPAQUE AND GLAZED EXTERIOR DOORS MUST HAVE PERFORMANCE TESTING RESULTS, INCLUDING U-VALUE AND AIR LEAKAGE.
11. WEATHER STRIPPING AT MANDATORY LOCATIONS SHALL BE INSTALLED WITH RIGID FASTENER AND REPLACEABLE FOAM GASKET SPECIFIED FOR DURABILITY AND LESS MAINTENANCE.
12. WEATHER STRIPPING SHALL BE INSTALLED TO NOT INTERFERE WITH DOOR CLOSING PROPERLY.
13. RATED DOORS MUST LATCH.





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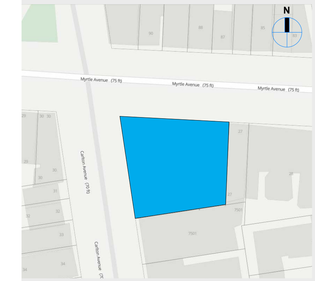
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
WINDOW SCHEDULE

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:47:27 AM
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SHEET: 67 OF 88

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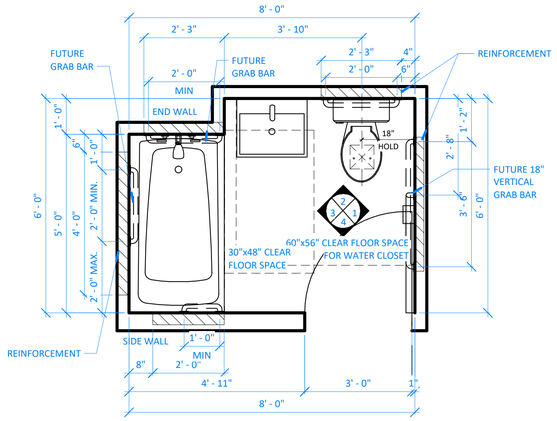
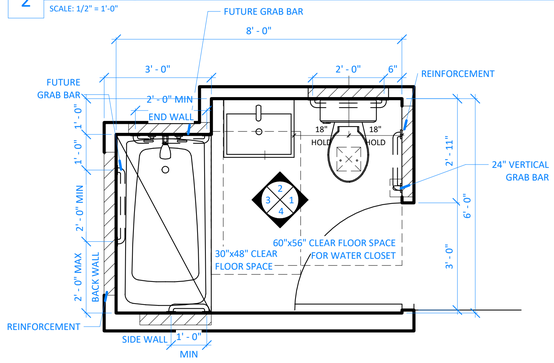


P102.3 DOORS. DOORS SHALL COMPLY WITH SECTION 1107.2.1. DOORS SHALL NOT SWING INTO THE CLEAR FLOOR OR GROUND SPACE OR CLEARANCE FOR ANY FIXTURE.EXCEPTION:DOORS MAY SWING INTO THE CLEAR FLOOR OR GROUNDSPACE OR CLEARANCES FOR FIXTURES WHEREA CLEAR FLOOR OR GROUND SPACE COMPLYING WITH SECTION 305.3 OF ICC A117.1 IS PROVIDED WITHIN THE ROOM, BEYOND THE ARC OF THE DOOR SWING

NOTE: HAND OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET, AS PER 2022 NYC BC*.

2 BATH (B2) APPENDIX "P" / ADAPTABLE - FRONT APPROACH

SCALE: 1/2" = 1'-0"



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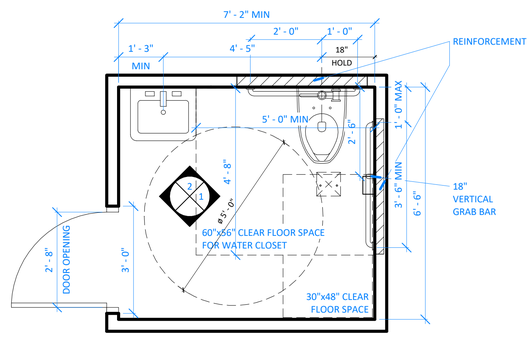
NOTE: HAND OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET, AS PER 2022 NYC BC*.

1 BATH (B1) APPENDIX "P" / ADAPTABLE - SIDE APPROACH

SCALE: 1/2" = 1'-0"

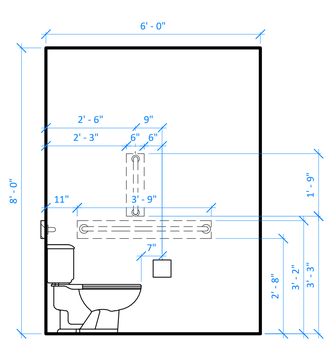


PARALLEL APPROACH
1/2" = 1'-0"

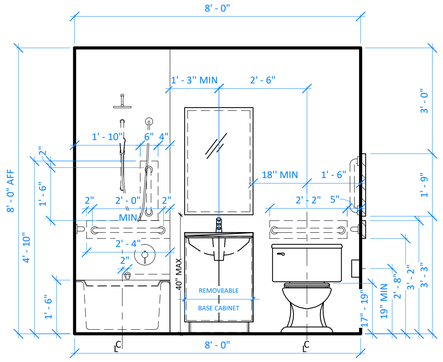
NOTE: HAND OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET, AS PER 2022 NYC BC*.

0 BATH (B0) APPENDIX "P" / COMMON FRONT APPROACH

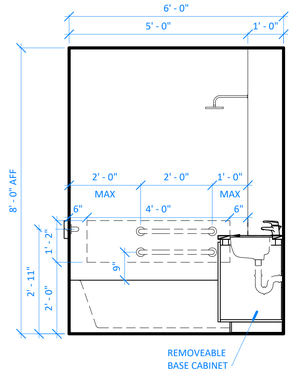
SCALE: 1/2" = 1'-0"



BATHROOM ELEV. 1
1/2" = 1'-0"



BATHROOM ELEV. 2
1/2" = 1'-0"



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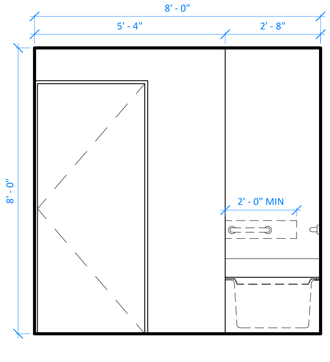


BATHROOM ELEV. 4
1/2" = 1'-0"

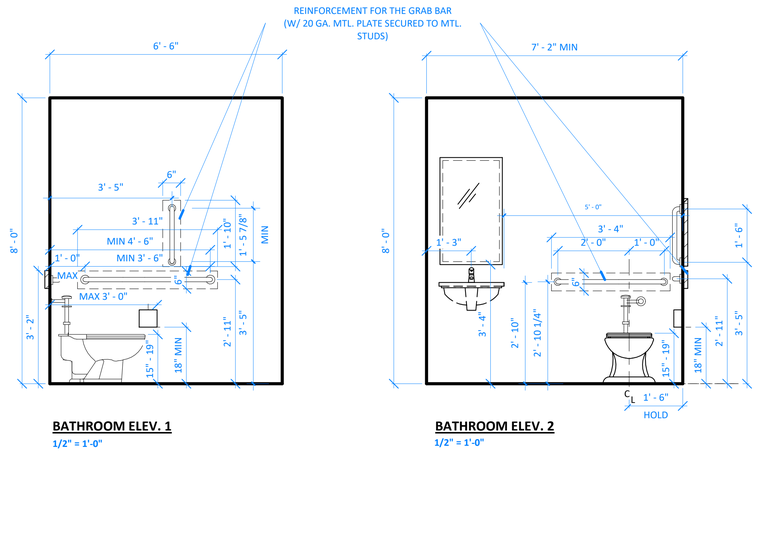
BATHROOM ELEV. 1
1/2" = 1'-0"

REINFORCEMENT FOR THE FUTURE GRAB BAR (W/ 20 GA. MTL. PLATE SECURED TO MTL. STUDS)

BATHROOM ELEV. 2
1/2" = 1'-0"

BATHROOM ELEV. 3
1/2" = 1'-0"

BATHROOM ELEV. 4
1/2" = 1'-0"



BATHROOM ELEV. 1
1/2" = 1'-0"

BATHROOM ELEV. 2
1/2" = 1'-0"

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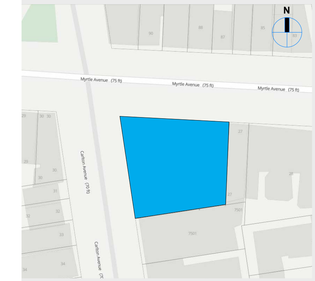
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENLARGED BATH PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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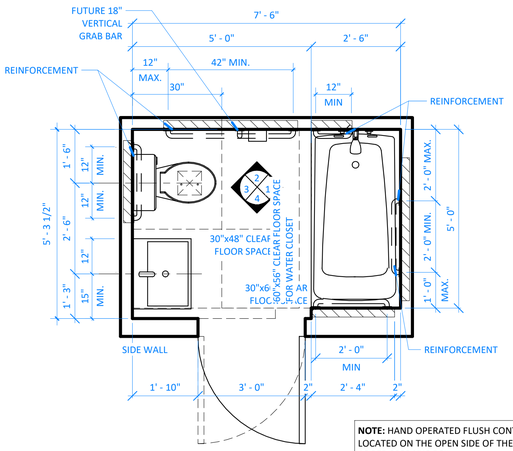

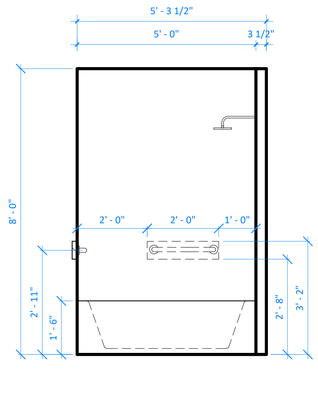

BATHROOM ELEV. 1
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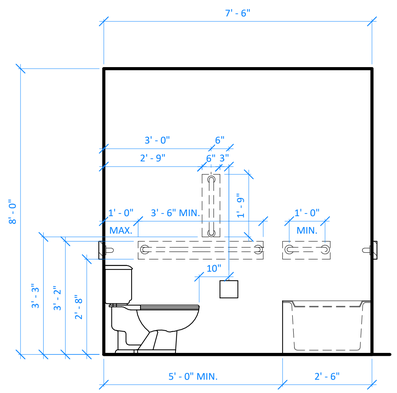
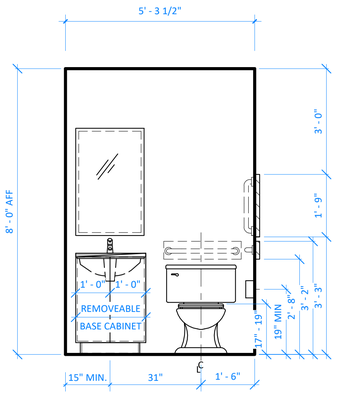
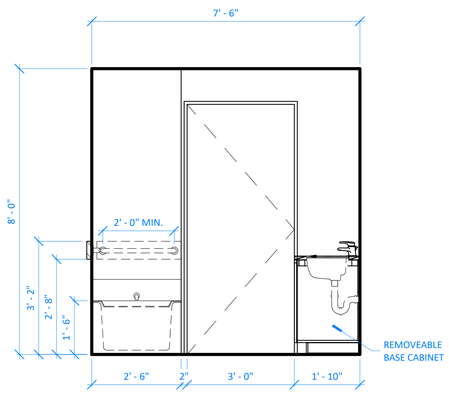


BATHROOM ELEV. 2
1/2" = 1'-0"



BATHROOM ELEV. 3
1/2" = 1'-0"



BATHROOM ELEV. 4
1/2" = 1'-0"

NOTE: HAND OPERATED FLUSH CONTROLS SHALL BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET, AS PER 2022 NYC BC*..

2 BATH (B6) APPENDIX "P" / ADAPTABLE - FRONT APPROACH

SCALE: 1/2" = 1'-0"

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENLARGED BATH PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

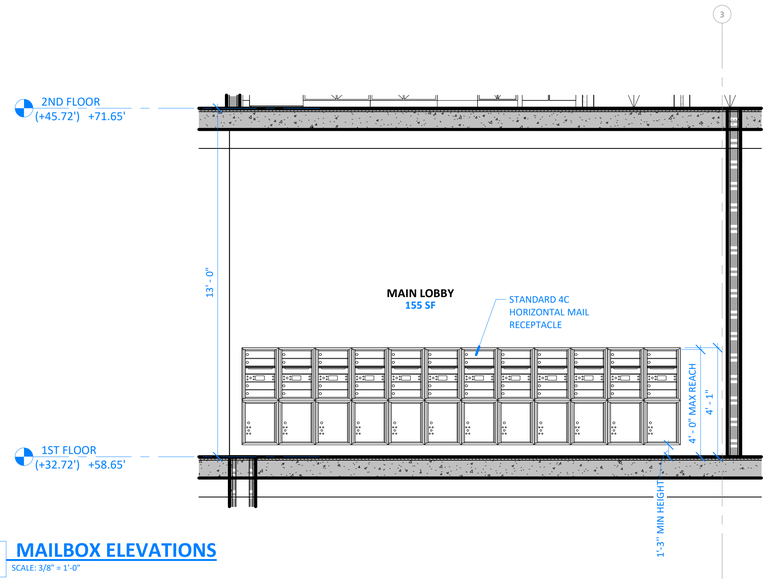
DATE: 5/12/2023 1:47:37 AM
SCALE: 1/2" = 1'-0"
DRAWN BY: XX

A-702.00

SHEET: 70 OF 88

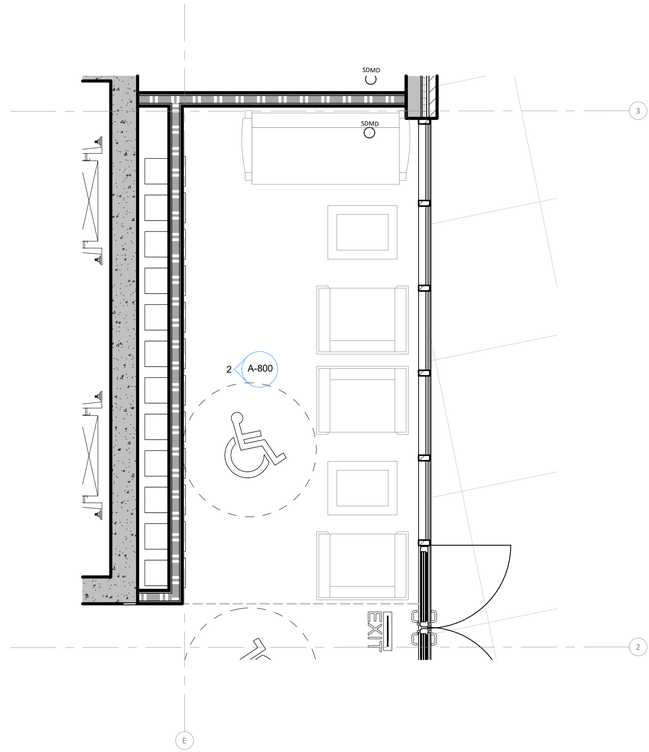
C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

5/12/2023 1:47:37 AM



TOTAL:
60 HORIZONTAL MAIL RECEPTACLE
12 PARCEL BOXES

2 **MAILBOX ELEVATIONS**
SCALE: 3/8" = 1'-0"



1 **1ST FLOOR PLAN -MAILBOX ELEVATIONS**
SCALE: 3/8" = 1'-0"

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

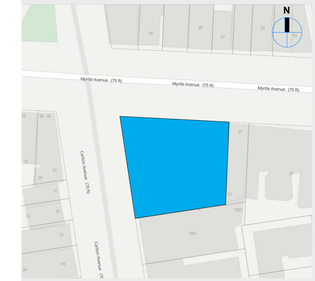
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
MAILBOX ELEVATIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:47:40 AM
SCALE: 3/8" = 1'-0"
DRAWN BY: XX

A-800.00

SHEET: 71 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

5/12/2023 1:47:40 AM

SIGNAGE DETAILS NOTES:

1. EXIT AND EXIT PASSAGEWAYS MUST COMPLY WITH LOCAL LAW 26.

A. DOORS OPENING TO EXITS AND EXIT PASSAGEWAYS SHALL BE MARKED WITH A PHOTOLUMINESCENT DOOR SIGN ON THE BOTTOM OF THE DOOR OR ON THE WALL ADJACENT TO THE DOOR. SEE DETAIL 17/A-518.

B. THE LEADING EDGE OR SIDE EDGE OF EACH STEP SHALL BE MARKED WITH A SOLID AND CONTINUOUS STRIPE OF PHOTOLUMINESCENT MATERIAL WITHIN ALL EXITS AND EXIT PASSAGEWAYS.

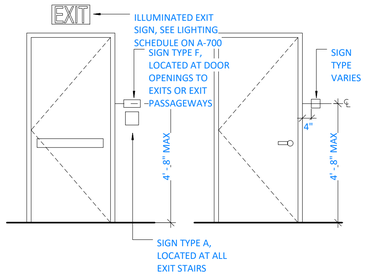
C. THE LEADING EDGE OF ALL LANDINGS SHALL BE MARKED WITH A SOLID AND CONTINUOUS STRIPE OF PHOTOLUMINESCENT MATERIAL WITHIN ALL EXITS AND EXIT PASSAGEWAYS.

D. OBSTACLES AT OR BELOW 6'-6" IN HEIGHT AND/OR PROJECTING MORE THAN 4" INTO THE EGRESS PATH SHALL BE OUTLINED WITH A BANDED STRIPE OF PHOTOLUMINESCENT AND BLACK MATERIAL WITHIN ALL EXITS AND EXIT PASSAGEWAYS.

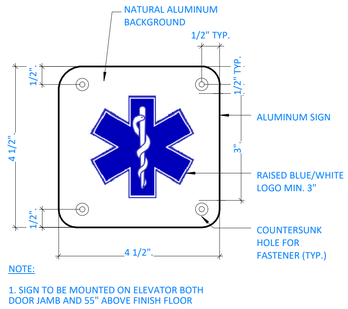
E. FLOOR PERIMETERS OF EXITS AND EXIT PASSAGEWAYS SHALL BE MARKED WITH A CONTINUOUS STRIPE OF PHOTOLUMINESCENT MATERIAL.

F. DOOR HARDWARE OF ALL INTERMEDIATE AND FINAL EXIT DOORS HALL BE MARKED WITH A BANDED STRIPE OF PHOTOLUMINESCENT AND BLACK MATERIAL.

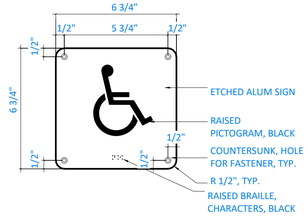
G. DOOR FRAMES OF ALL INTERMEDIATE AND FINAL EXIT DOORS SHALL BE MARKED WITH A BANDED STRIPE OF PHOTOLUMINESCENT AND BLACK MATERIAL.



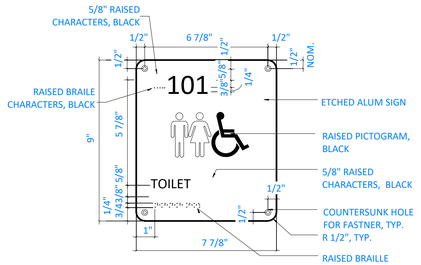
19 SIGN MOUNTING DIAGRAMS
3/8" = 1'-0"



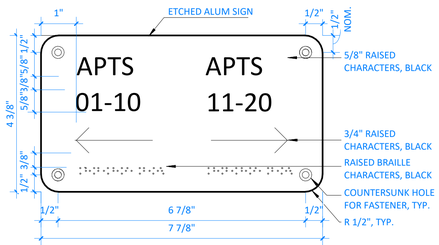
18 SIGN TYPE R
6" = 1'-0"
STAR OF LIFE



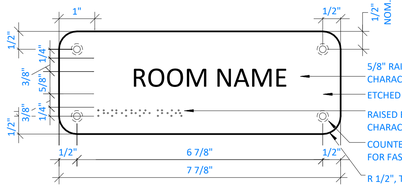
17 SIGN TYPE Q
3" = 1'-0"



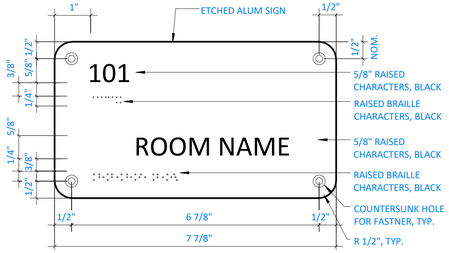
16 SIGN TYPE P
3" = 1'-0"
PUBLIC BATHROOMS



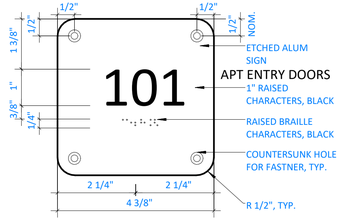
15 SIGN TYPE O
6" = 1'-0"
LOCATE OPPOSITE ELEVATOR @ 5'-0" A.F.F.



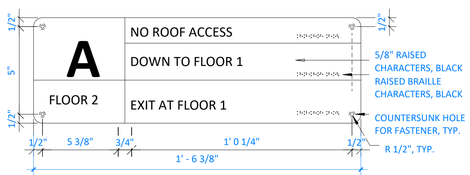
14 SIGN TYPE N
6" = 1'-0"



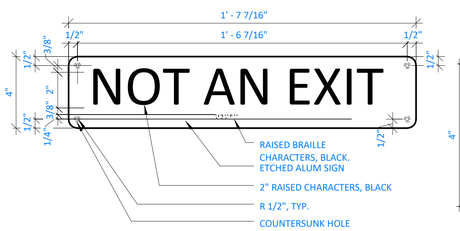
13 SIGN TYPE M
6" = 1'-0"



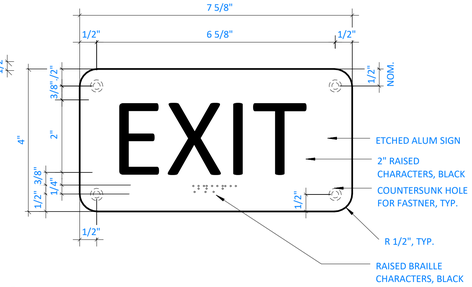
12 SIGN TYPE L
6" = 1'-0"



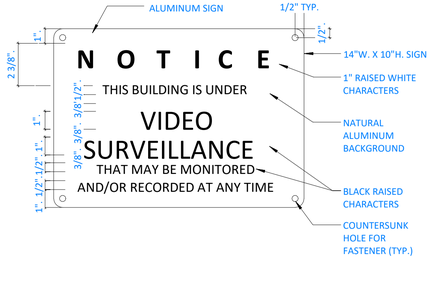
11 SIGN TYPE K
3" = 1'-0"
STAIR DOORS
STAIRWELL SIDE OF DOOR



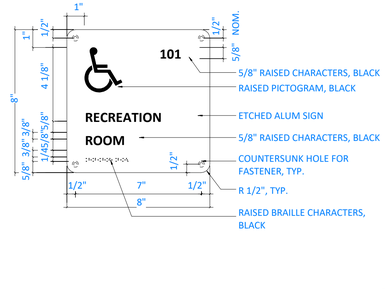
10 SIGN TYPE J
3" = 1'-0"
AT EXTERIOR DOORS NOT SERVICING AS AN EXIT



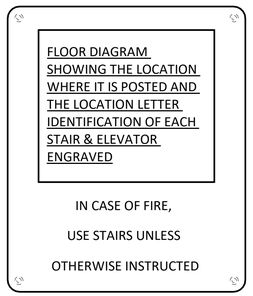
9 SIGN TYPE I
6" = 1'-0"
DOOR OPENINGS TO EXITS OR EXIT PASSAGEWAYS



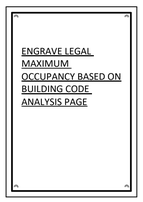
8 SIGN TYPE H
3" = 1'-0"
STAIRWELLS, ELEVATORS, ROOF, RESIDENTIAL ENTRANCES, LANDING TO BASEMENT



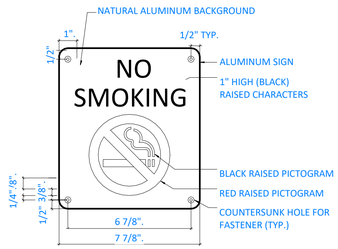
7 SIGN TYPE G
3" = 1'-0"
COMMUNITY ROOM



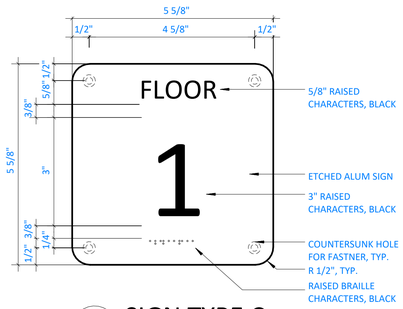
6 SIGN TYPE F
6" = 1'-0"
NEXT TO ELEVATORS



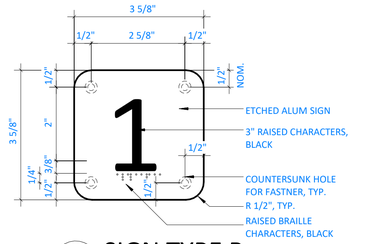
5 SIGN TYPE E
3" = 1'-0"
RECREATION



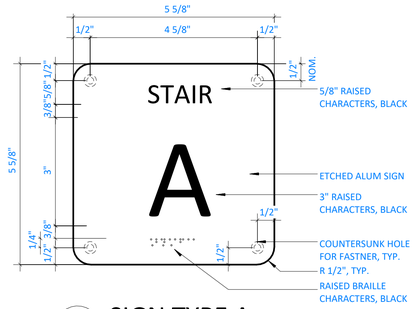
4 SIGN TYPE D
3" = 1'-0"



3 SIGN TYPE C
6" = 1'-0"
STAIRWELLS



2 SIGN TYPE B
6" = 1'-0"
ELEVATOR DOOR JAMBS, BOTH SIDES



1 SIGN TYPE A
6" = 1'-0"
STAIR DOORS CORRIDOR SIDE OF DOOR

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

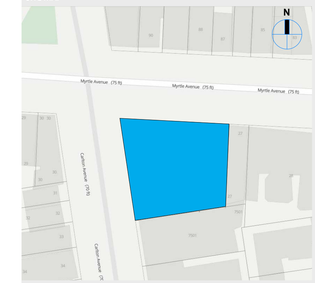
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
SIGNAGE

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:47:44 AM
SCALE: As indicated
DRAWN BY: XX

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SHEET: 72 OF 88

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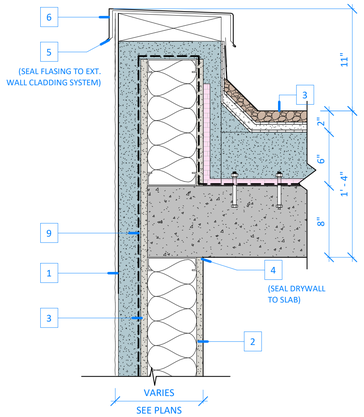
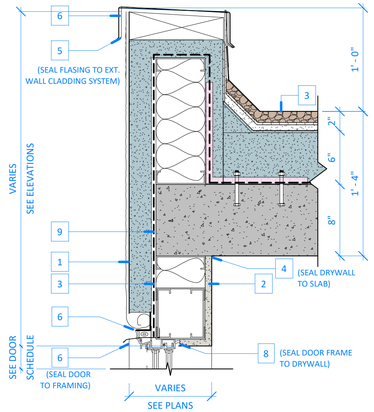


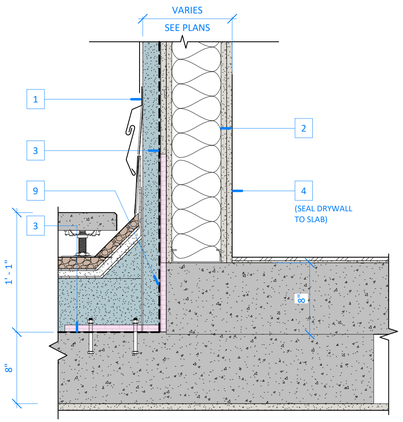
AB-1 SECTION DETAIL @ BULKHEAD PARAPET

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



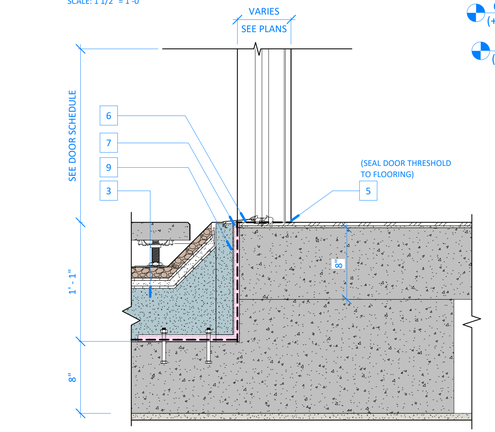
AB-2 SECTION DETAIL @ BULKHEAD PARAPET

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



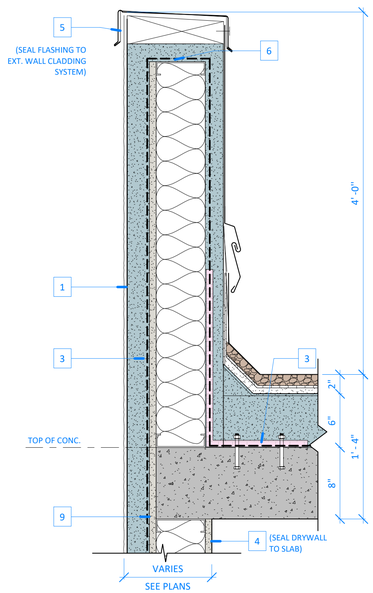
AB-3 SECTION DETAIL @ BULKHEAD

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



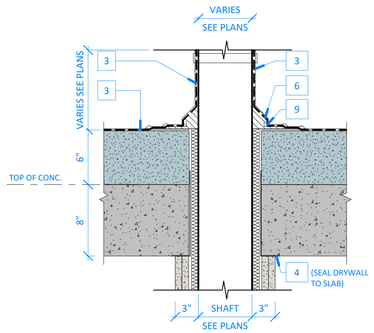
AB-4 SECTION DETAIL @ BULKHEAD DOOR

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



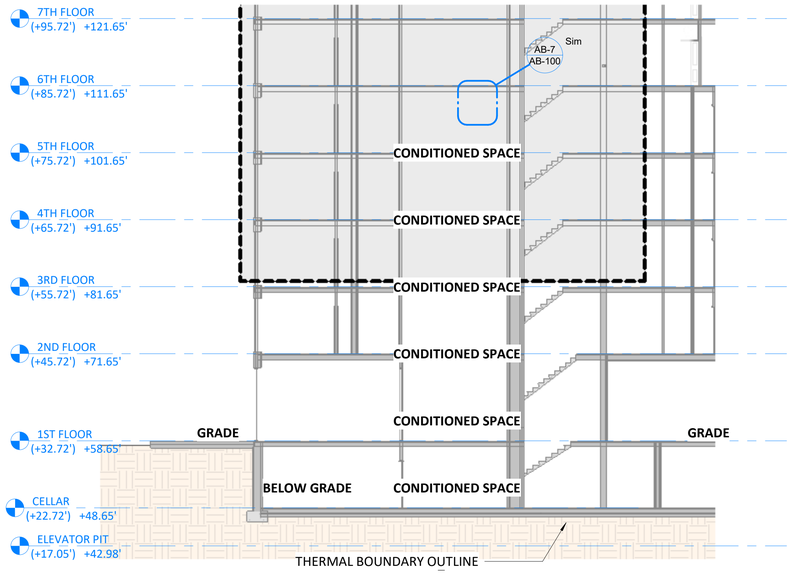
AB-5 SECTION DETAIL @ PARAPET

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



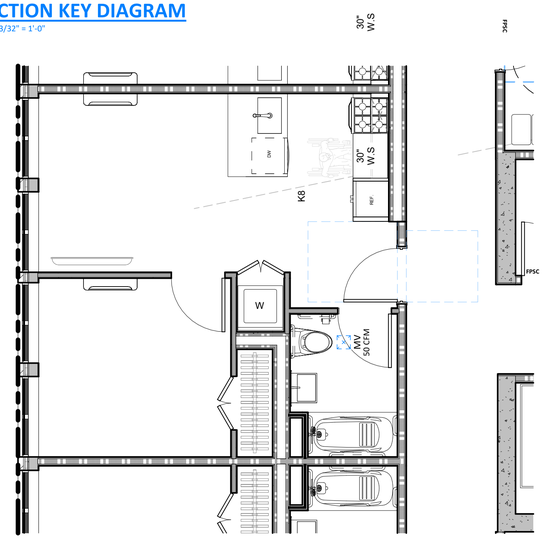
AB-6 SECTION DETAIL @ ROOF OPENING

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



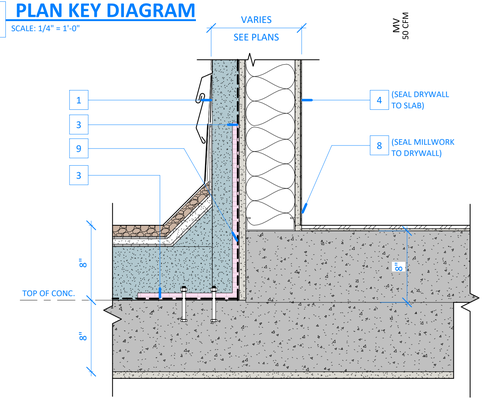
1 SECTION KEY DIAGRAM

SCALE: 3/32" = 1'-0"



2 PLAN KEY DIAGRAM

SCALE: 1/4" = 1'-0"



AB-7 SECTION DETAIL @ ROOF/TERRACE

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"

AIR BARRIER KEY NOTES

- 1. EXT. WALL CLADDING SYSTEM - w/EXT. RIGID INSULATION AS SPECIFIED ON DETAILS AND ENERGY ANALYSIS. (SEE WALL TYPES ON EN-102).
- 2. INT. WALL COMPONENT SYSTEM -(SHOWN IS CMU WALL w/DUR-O-WAL).
- 3. CONTINUOUS EXTERIOR AIR & MOISTURE BARRIER (SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS) SEAL ALL JOINTS AND PENETRATIONS.
- 4. INTERIOR AIR BARRIER SYSTEM - FINISHED DRYWALL w/INT. INSULATION AS SPECIFIED ON DETAILS AND ENERGY ANALYSIS AND VAPOR BARRIER (IF SPECIFIED). - 5/8" G.W.B. SEALED AT ANY GAPS JOINTS AND PENETRATIONS.
- 5. BUILDING EXTERIOR ENVELOPE SEALER FOR CONSTRUCTION JOINTS, GAPS AND PENETRATIONS. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.
- 6. TRANSITION MEMBRANE MIN. 3" OVERLAPPING THE CONTINUOUS METAL FLASHING. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.
- 7. CONTINUOUS FLEXIBLE METAL FLASHING AROUND WINDOWS/DOORS. VERIFY INSTALLATION REQUIREMENTS w/WINDOW/DOOR MANUFATURER.
- 8. SEAL ELECTRICAL/PLUMBING/MECHANICAL GAPS AND/OR PENETRATIONS WITH SEALER.
- 9. USE TRANSITION SHEET AT THE INTERFACE OF STRUCTURAL SUPPORTS AND JUNCTIONS OF DISSIMILAR MATERIALS, FLOOR SLAB TO WALL CONNECTIONS AND ACROSS SHEAR WALLS. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.

AIR BARRIER NOTES (2020 NYCECC CODE)

- 1. AIR BARRIER ASSEMBLIES ARE TO CONSIST OF AIR BARRIER COMPONENTS AND MATERIELAS SUCH AS WALLS, WINDOWS AND EXTERIOR DOORS AND AIR BARRIER ACCESSORIES SUCH AS TRANSITION STRIPS, SEALANTS, TAPES, BACKER RODS ETC. USED TO BRIDGE BETWEEN DIFFERENT MATERIALS AND SURFACES.
- 2. AIR BARRIER SYSTEM TO INCLUDE THE FOLLOWING:
- A. RIGID INSULATION BOARDS WITH A MINIMUM AIR PERMEABILITY OF 0.004 SHALL ACT AS A CONTINUOUS AIR BARRIER THROUGHOUT THE BUILDING ENVELOPE. ALL JOINTS SHALL BE SEALED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. FLUID APPLIED OR ADHESIVE WATERPROOFING/AIR BARRIER MEMRANE.
- C. LOW-EXPANDABLE SPRAY-APPLIED POLYURETHANE FOAM SEALANT TO BE INSTALLED CONTINUOS AT FENESTRATION ROUGH OPENINGS. ALL JOINTS AND SEALS TO BE SEALED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SEALANTS TO BE SELECTED TEMPERATURE-APPROPRIATE (E.G. HIGH-TEMP CAULK AT FLUES AND HEATING PIPES).
- D. ALL FENESTRATION TO HAVE THE FOLLOWING AIR LEAKAGE RATES AS PER MANUFACTURER'S SPECIFICATIONS:
  - WINDOWS / SLIDING DOORS / SWINGING DOORS / SKYLIGHTS (ALL OTHER) £ 0.20 CFM/SF
  - SKYLIGHTS (WITH CONDENSATION WEEPAGE OPENINGS) £ 0.30 CFM/SF
  - CURTAIN WALLS / STOREFRONT GLAZING £ 0.06 CFM/SF
  - COMMERCIAL GLAZED SWINGING ENTRANCE DOORS / POWER-OPERATED SLIDING & FOLDING DOORS / REVOLVING DOORS / ROLLING DOORS £ 1.00 CFM/SF
  - GARAGE DOORS £ 0.40 CFM/SF
  - HIGH-SPEED DOORS £ 1.30 CFM/SF
- E. INTERIOR DRYWALL - 1/2" OR 5/8" GYPSUM BOARDEFFECTIVELY SEALED AT ALL GAPS AND PENETRATIONS.
- 3. ALL NEW OPENINGS FROM CONDITIONED SPACE TO SHAFTS, CHUTES, STAIRWAYS AND ELEVATOR LOBBIES TO BE GASKETED, WEATHERSTRIPPED, OR SEALED.
- 4. CARGO AND LOADING DOCK DOORS TO BE EQUIPPED WITH WEATHERSEALS.
- 5. DOORS OPENING INTO AND OUT OF VESTIBULES AT BUILDING ENTRANCES TO BE EQUIPPED WITH SELF-CLOSING DEVICES.
- 6. SEE THE FOLLOWING SECTIONS OF THE SPECIFICATIONS BOOK FOR SPECS:
  - SECTION 07190 FOR AIR BARRIER SPECS
  - SECTION 079200 FOR SEALENT SPECS
- AIR BARRIER – TESTING:
  VISUAL VERIFICATION OF COMPLIANCE WITH MANUFACTURERS RECOMMENDED APPLICATION METHODS OR INDUSTRY STANDARDS REQUIRED AT A MINIMUM OF 10% OF EACH UNIQUE ASSEMBLY TYPE. INSPECTOR TO ENSURE AGAINST ROLL ON BARRIER SLOUGHING, CRATERS, DELAMINATION AND PROPER APPLICATION COVERAGE ETC. FOR MEMBRANE APPLIED BARRIER ENSURE AGAINST FISHMOUTH, BRIDGING, AIR BUBBLES/BALLOONING, CONTAMINATED ADHESIVE ETC.
  ALTERNATIVELY, WHOLE BUILDING OR PER UNIT TESTING PER ASTM E779 MAY BE SUBSTITUTED IN LIEU OF VISUAL VERIFICATION. ASSEMBLY TESTING OF MATERIALS AND COMPONENTS SHALL NOT EXCEED AN AVERAGE AIR LEAKAGE OF 0.04 CFM/FT2 (0.2 L/S •M2) UNDER A PRESSURE DIFFERENTIAL OF 0.3 INCH OF WATER GAUGE (W.G.)(75 PA) WHEN TESTED IN ACCORDANCE WITH ASTM E2357, ASTM E1677, OR ASTM E283."

N

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

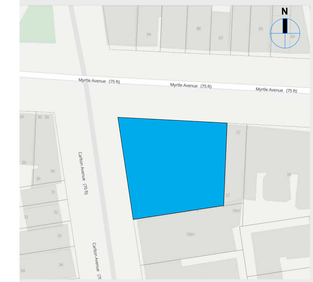
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

AIR BARRIER PLAN

DOB # :

ST NUMBER

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:47:49 AM
SCALE: As indicated
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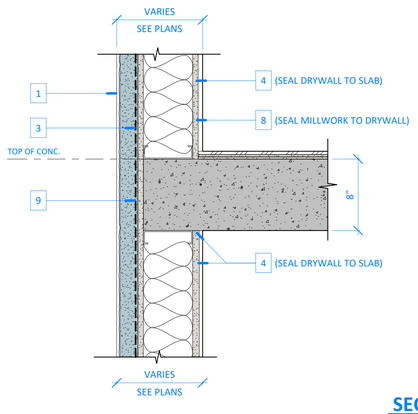
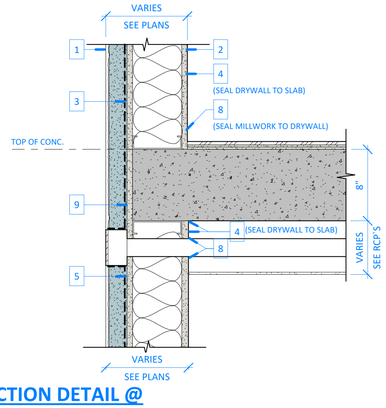


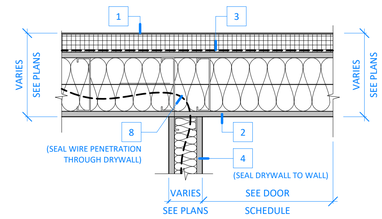
AB-8 SECTION DETAIL @ WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



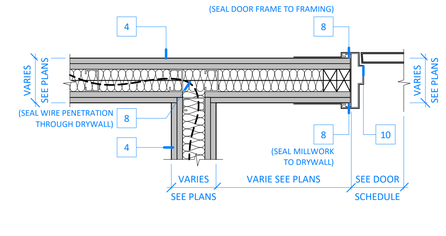
AB-9 SECTION DETAIL @ PENETRATION THROUGH WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



AB-10 SECTION DETAIL @ INTERIOR PARTITION AT EXTERIOR WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"

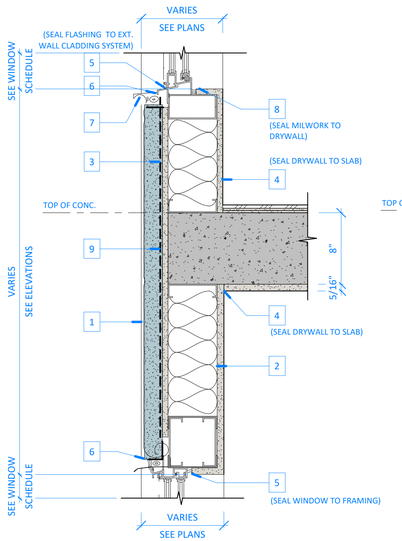


AB-11 SECTION DETAIL @ INTERIOR PARTITION AT FIRE-RATED WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"

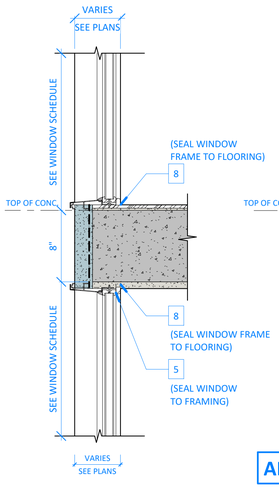
AIR BARRIER KEY NOTES

- 1. EXT. WALL CLADDING SYSTEM - w/EXT. RIGID INSULATION AS SPECIFIED ON DETAILS AND ENERGY ANALYSIS. (SEE WALL TYPES ON EN-102).
- 2. INT. WALL COMPONENT SYSTEM -(SHOWN IS CMU WALL w/DUR-O-WAL).
- 3. CONTINUOUS EXTERIOR AIR & MOISTURE BARRIER (SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS) SEAL ALL JOINTS AND PENETRATIONS.
- 4. INTERIOR AIR BARRIER SYSTEM - FINISHED DRYWALL w/INT. INSULATION AS SPECIFIED ON DETAILS AND ENERGY ANALYSIS AND VAPOR BARRIER (IF SPECIFIED). - 5/8" G.W.B. SEALED AT ANY GAPS JOINTS AND PENETRATIONS.
- 5. BUILDING EXTERIOR ENVELOPE SEALER FOR CONSTRUCTION JOINTS, GAPS AND PENETRATIONS. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.
- 6. TRANSITION MEMBRANE MIN. 3" OVERLAPPING THE CONTINUOUS METAL FLASHING. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.
- 7. CONTINUOUS FLEXIBLE METAL FLASHING AROUND WINDOWS/DOORS. VERIFY INSTALLATION REQUIREMENTS w/WINDOW/DOOR MANUFATURER.
- 8. SEAL ELECTRICAL/PLUMBING/MECHANICAL GAPS AND/OR PENETRATIONS WITH SEALER.
- 9. USE TRANSITION SHEET AT THE INTERFACE OF STRUCTURAL SUPPORTS AND JUNCTIONS OF DISSIMILAR MATERIALS, FLOOR SLAB TO WALL CONNECTIONS AND ACROSS SHEAR WALLS. SEE AIR BARRIER INSPECTION / TESTING REQUIREMENTS.



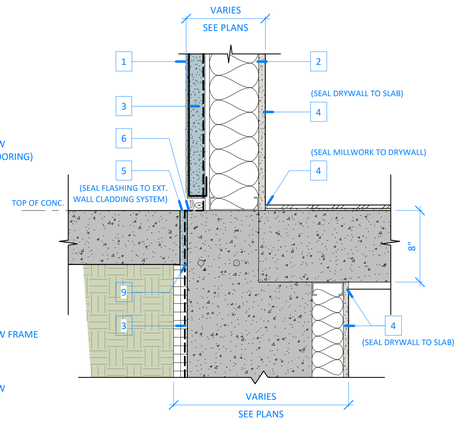
AB-12 SECTION DETAIL @ WINDOW

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



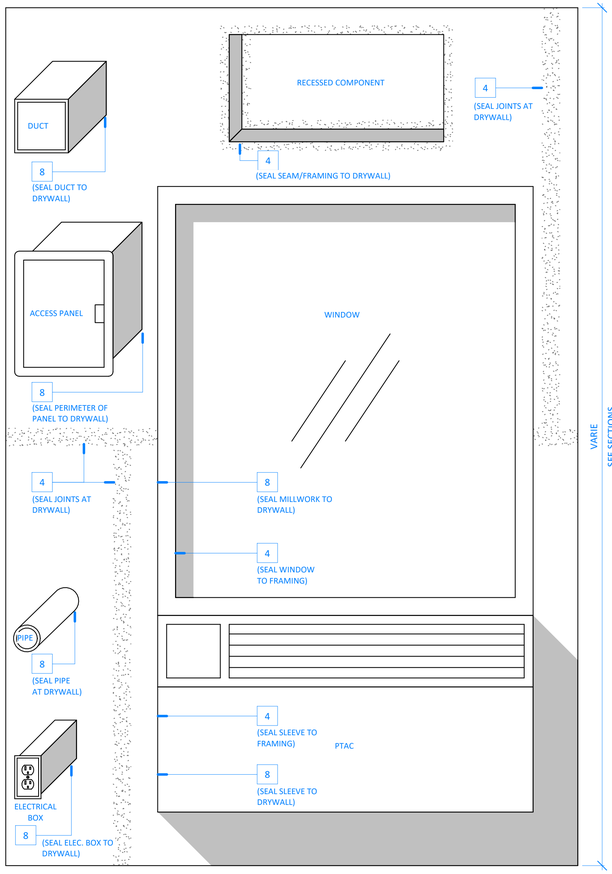
AB-13 SECTION DETAIL @ WINDOW

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



AB-14 SECTION DETAIL @ GROUND CONDITION

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"

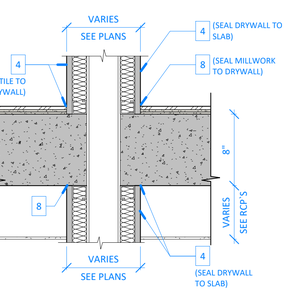


AB-18 ELEVATION DETAIL @ INTERIOR OPAQUE WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1" = 1'-0"

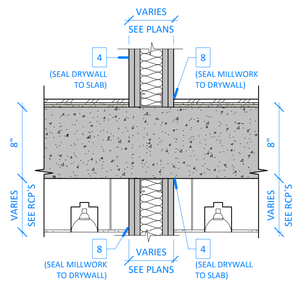
AIR BARRIER NOTES (2020 NYCECC CODE)

- 1. AIR BARRIER ASSEMBLIES ARE TO CONSIST OF AIR BARRIER COMPONENTS AND MATERIELAS SUCH AS WALLS, WINDOWS AND EXTERIOR DOORS AND AIR BARRIER ACCESSORIES SUCH AS TRANSITION STRIPS, SEALANTS, TAPES, BACKER RODS ETC. USED TO BRIDGE BETWEEN DIFFERENT MATERIALS AND SURFACES.
- 2. AIR BARRIER SYSTEM TO INCLUDE THE FOLLOWING:
- A. RIGID INSULATION BOARDS WITH A MINIMUM AIR PERMEABILITY OF 0.004 SHALL ACT AS A CONTINUOUS AIR BARRIER THROUGHOUT THE BUILDING ENVELOPE. ALL JOINTS SHALL BE SEALED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. FLUID APPLIED OR ADHESIVE WATERPROOFING/AIR BARRIER MEMRANE.
- C. LOW-EXPANDABLE SPRAY-APPLIED POLYURETHANE FOAM SEALANT TO BE INSTALLED CONTINUOS AT FENESTRATION ROUGH OPENINGS. ALL JOINTS AND SEALS TO BE SEALED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SEALANTS TO BE SELECTED TEMPERATURE-APPROPRIATE (E.G. HIGH-TEMP CAULK AT FLUES AND HEATING PIPES).
- D. ALL FENESTRATION TO HAVE THE FOLLOWING AIR LEAKAGE RATES AS PER MANUFACTURER'S SPECIFICATIONS:
  - WINDOWS / SLIDING DOORS / SWINGING DOORS / SKYLIGHTS (ALL OTHER) £ 0.20 CFM/SF
  - SKYLIGHTS (WITH CONDENSATION WEEPAGE OPENINGS) £ 0.30 CFM/SF
  - CURTAIN WALLS / STOREFRONT GLAZING £ 0.06 CFM/SF
  - COMMERCIAL GLAZED SWINGING ENTRANCE DOORS / POWER-OPERATED SLIDING & FOLDING DOORS / REVOLVING DOORS / ROLLING DOORS £ 1.00 CFM/SF
  - GARAGE DOORS £ 0.40 CFM/SF
  - HIGH-SPEED DOORS £ 1.30 CFM/SF
- E. INTERIOR DRYWALL - 1/2" OR 5/8" GYPSUM BOARDEFFECTIVELY SEALED AT ALL GAPS AND PENETRATIONS.
- 3. ALL NEW OPENINGS FROM CONDITIONED SPACE TO SHAFTS, CHUTES, STAIRWAYS AND ELEVATOR LOBBIES TO BE GASKETED, WEATHERSTRIPPED, OR SEALED.
- 4. CARGO AND LOADING DOCK DOORS TO BE EQUIPPED WITH WEATHERSEALS.
- 5. DOORS OPENING INTO AND OUT OF VESTIBULES AT BUILDING ENTRANCES TO BE EQUIPPED WITH SELF-CLOSING DEVICES.
- 6. SEE THE FOLLOWING SECTIONS OF THE SPECIFICATIONS BOOK FOR SPECS:
  - SECTION 07190 FOR AIR BARRIER SPECS
  - SECTION 079200 FOR SEALENT SPECS
- AIR BARRIER – TESTING:
  VISUAL VERIFICATION OF COMPLIANCE WITH MANUFACTURERS RECOMMENDED APPLICATION METHODS OR INDUSTRY STANDARDS REQUIRED AT A MINIMUM OF 10% OF EACH UNIQUE ASSEMBLY TYPE. INSPECTOR TO ENSURE AGAINST ROLL ON BARRIER SLOUGHING, CRATERS, DELAMINATION AND PROPER APPLICATION COVERAGE ETC. FOR MEMBRANE APPLIED BARRIER ENSURE AGAINST FISHMOUTH, BRIDGING, AIR BUBBLES/BALLOONING, CONTAMINATED ADHESIVE ETC.
  ALTERNATIVELY, WHOLE BUILDING OR PER UNIT TESTING PER ASTM E779 MAY BE SUBSTITUTED IN LIEU OF VISUAL VERIFICATION. ASSEMBLY TESTING OF MATERIALS AND COMPONENTS SHALL NOT EXCEED AN AVERAGE AIR LEAKAGE OF 0.04 CFM/FT2 (0.2 L/S •M2) UNDER A PRESSURE DIFFERENTIAL OF 0.3 INCH OF WATER GAUGE (W.G.)(75 PA) WHEN TESTED IN ACCORDANCE WITH ASTM E2357, ASTM E1677, OR ASTM E283."



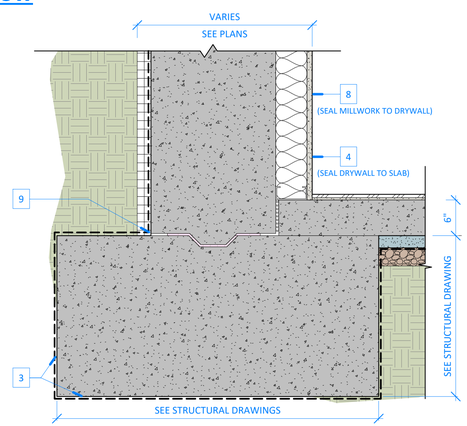
AB-15 SECTION DETAIL @ PIPE CHASE

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



AB-16 SECTION DETAIL @ WINDOW

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"



AB-17 STEEL STUD WITH EIFS @ CELLAR WALL

AIR BARRIER CONTINUITY PLAN
SCALE: 1 1/2" = 1'-0"

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BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

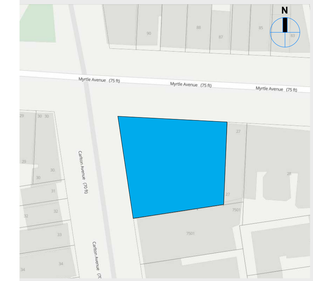
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

AIR BARRIER DETAILS

DOB # :

ST NUMBER

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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SHEET: 74 OF 1

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3. PROGRESS INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH BUILDING CODE THE CONTRACTOR MUST NOTIFY THE ARCHITECT OR ENGINEER FOR PROGRESS INSPECTIONS AT LEAST 72 HOURS BEFORE THE SPECIFIC WORK COMMENCES OF REQUIRED INSPECTIONS. SPECIFIC INSPECTIONS REQUIREMENTS FOR ENERGY CODE COMPLIANCE ARE INDICATED ON THE "EN" SERIES DRAWINGS.

MANDATORY AIR LEAKAGE PROVISIONS:

1. AIR LEAKAGE: PROVIDE FLASHING, WINDOW DAMS, EXPANDABLE FOAM SEALANT, AND CAULKING AT ROUGH OPENING/WINDOW FRAME JOINTS TO CREATE A CONTINUOUS AIR BARRIER WITH SURROUNDING WALL SYSTEM.
2. AIR LEAKAGE: PROVIDE FLASHING, EXPANDABLE FOAM SEALANT, AND CAULKING AT ROUGH OPENING/DOOR FRAME JOINTS TO CREATE A CONTINUOUS AIR BARRIER WITH SURROUNDING WALL SYSTEM.
3. AIR LEAKAGE: PROVIDE FLASHING, EXPANDABLE FOAM SEALANT, AND CAULKING AT ROUGH OPENING/LIGHT FIXTURE FRAME JOINTS TO CREATE A CONTINUOUS AIR BARRIER WITH SURROUNDING WALL/CEILING SYSTEM.
4. SEE A-600 SHEETS FOR WINDOW ELEVATIONS., SEE A-500 SHEETS FOR FIXTURE PENETRATION DETAILS

- COMCHECK
- SAVE FILE TO FOLDER
- ASK ENGINEER IF NYCECC OR ASHRAE 90.1 2013
- ASK ENGINEER IF COMMISIONING IS REQUIRED

THERMAL BRIDGE SCHEDULE

CLEAR FIELD THERMAL BRIDGES

CFTB. #	ASSEMBLY / THERMAL BRIDGE DESCRIPTION	ASSEMBLY ID IN ENERGY ANALYSIS (1)	SECTION DETAIL LOCATION
CFTB.1	R1 - ROOF INSULATION ENTIRELY ABOVE DECK. R-30 C.I.	R1	A-401 / EN-103
CFTB.2	RT1 - ROOF INSULATION ENTIRELY ABOVE DECK. R-30 C.I.	RT1	A-401 / EN-103
CFTB.3	S1.1 - SLAB OVER UNCONDITIONED SPACE. R-10 C.I.	S1.1	A-401 / EN-103
CFTB.4	SOG 1.1 - SLAB ON GRADE AT 1ST FLOOR LEVEL. R-10 C.I.	SOG 1.1	A-401 / EN-103

(1). ENVELOPE COMCHECK REPORT ON EN-100

POINT THERMAL BRIDGES

PTB. #	ASSEMBLY / THERMAL BRIDGE DESCRIPTION	SIZE (SQ. INCHES)	NUMBER OF OCCURRENCE	SECTION DETAIL LOCATION
NO POINT THERMAL BRIDGE LOCATIONS PROPOSED ON PROJECT				

LINEAR THERMAL BRIDGES PARAPET

LTB.#	TYPE OF THERMAL BRIDGE	Ψ- VALUE [BTU/HR•ft•°F]	Ψ- VALUE SOURCE / CALCULATION	TOTAL LENGTH/AREA (FT/SF)	ASSEMBLY ID IN ENERGY ANALYSIS (1)	SECTION DETAIL LOCATION
	PARAPET			546 LF		<varies>
LTB.1	FLOOR SLAB AREA	0.42	DEFAULT VALUE FROM TABLE 5.4.4	384 LF	N/A	A-400 / EN-103
LTB.3	FLOOR SLAB AREA	0.44	DEFAULT VALUE FROM TABLE 5.4.4	1,701 SF	S1	A-401 / EN-103
LTB.4	FLOOR SLAB AREA	0.44	DEFAULT VALUE FROM TABLE 5.4.4	216 SF	R1	A-401 / EN-103
LTB.5	FLOOR SLAB AREA	0.44	DEFAULT VALUE FROM TABLE 5.4.4	32 SF	RT1	A-401 / EN-103
LTB.6	FLOOR SLAB AREA	0.50	DEFAULT VALUE FROM TABLE 5.4.4	294 SF	S1.1	A-401 / EN-103

SCHEDULE

FOR ASHRAE 2016 AND LATER

10.4.5 WHOLE-BUILDING ENERGY MONITORING
MEASUREMENT DEVICES SHALL BE INSTALLED AT THE BUILDING SITE TO MONITOR THE ENERGY USE OF EACH NEW BUILDING.

10.4.5.1 MONITORING
MEASUREMENT DEVICES SHALL BE INSTALLED TO MONITOR THE BUILDING USE OF THE FOLLOWING TYPES OF ENERGY SUPPLIED BY A UTILITY, ENERGY PROVIDER, OR PLANT THAT IS NOT WITHIN THE BUILDING:
A. NATURAL GAS.
B. FUEL OIL.
C. PROPANE.
D. STEAM.
E. CHILLED WATER.
F. HOT WATER.

10.4.5.2 RECORDING AND REPORTING
THE ENERGY USE OF EACH BUILDING ON THE BUILDING SITE SHALL BE RECORDED AT A MINIMUM OF EVERY 60 MINUTES AND REPORTED AT LEAST HOURLY, DAILY, MONTHLY, AND ANNUALLY. THE SYSTEM SHALL BE CAPABLE OF MAINTAINING ALL DATA COLLECTED FOR A MINIMUM OF 36 MONTHS AND CREATING USER REPORTS SHOWING AT LEAST HOURLY, DAILY, MONTHLY, AND ANNUAL ENERGY CONSUMPTION AND DEMAND.

EXCEPTIONS TO 10.4.5.1 AND 10.4.5.2
1. BUILDINGS OR ADDITIONS LESS THAN 25,000 FT2.
2. INDIVIDUAL TENANT SPACES LESS THAN 10,000 FT2.
3. DWELLING UNITS.
4. RESIDENTIAL BUILDINGS WITH LESS THAN 10,000 FT2 OF COMMON AREA.
5. FUEL USED FOR ON-SITE EMERGENCY EQUIPMENT.

EXTERIOR WALL AREA	STOREFRONT WALL AREA	WINDOW AREA
Area	Area	AREA
22,541 SF	2,275 SF	11,007 SF

GLAZING AREA:
(STOREFRONT + WINDOW)/EXTERIOR WALL AREA*100%

NOTES - ENERGY
SCALE: 12" = 1'-0"

LINEAR THERMAL BRIDGES

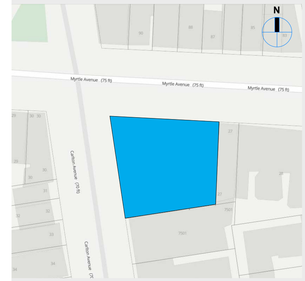
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
ENERGY ANALYSIS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:48:03 AM
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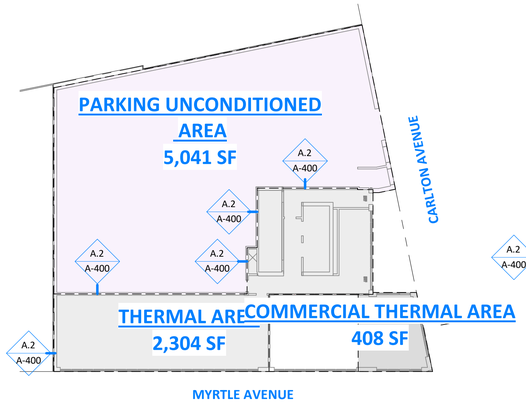
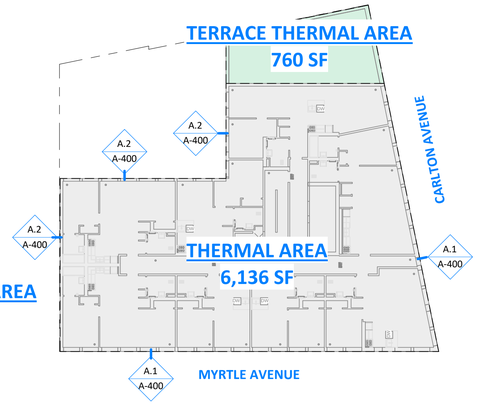


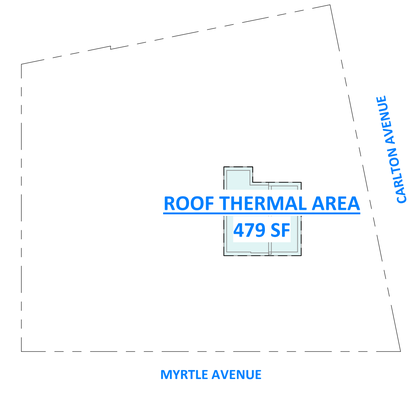
2 1ST FLOOR WALL THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



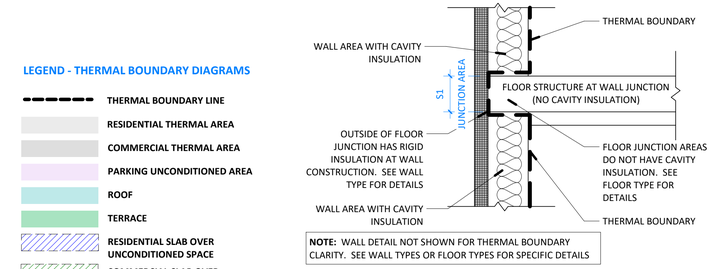
6 6TH-7TH FLOOR THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



12 BULKHEAD THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



NOTE: WALL DETAIL NOT SHOWN FOR THERMAL BOUNDARY CLARITY. SEE WALL TYPES OR FLOOR TYPES FOR SPECIFIC DETAILS

9 JUNCTION S1

SCALE: 3/4" = 1'-0"

LEGEND - THERMAL BOUNDARY DIAGRAMS

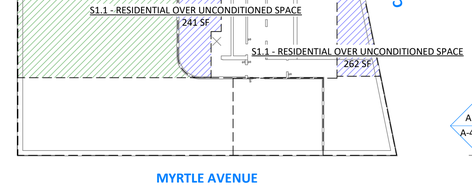
- THERMAL BOUNDARY LINE
- RESIDENTIAL THERMAL AREA
- COMMERCIAL THERMAL AREA
- PARKING UNCONDITIONED AREA
- ROOF
- TERRACE
- RESIDENTIAL SLAB OVER UNCONDITIONED SPACE
- COMMERCIAL SLAB OVER UNCONDITIONED SPACE

ENERGY THERMAL ENVELOPE SCHEDULE

LEVEL	USE	AREA
CELLAR	COMMERCIAL	4,747 SF
1ST FLOOR	COMMERCIAL	408 SF
COMMERCIAL		5,155 SF
1ST FLOOR	PARKING	5,041 SF
PARKING		5,041 SF
CELLAR	RESIDENTIAL	3,831 SF
1ST FLOOR	RESIDENTIAL	2,304 SF
2ND FLOOR	RESIDENTIAL	6,893 SF
3RD FLOOR	RESIDENTIAL	6,893 SF
4TH FLOOR	RESIDENTIAL	6,893 SF
5TH FLOOR	RESIDENTIAL	6,893 SF
6TH FLOOR	RESIDENTIAL	6,136 SF
7TH FLOOR	RESIDENTIAL	6,136 SF
8TH FLOOR	RESIDENTIAL	3,995 SF
ROOF	RESIDENTIAL	479 SF
RESIDENTIAL		50,454 SF
TOTAL		60,650 SF

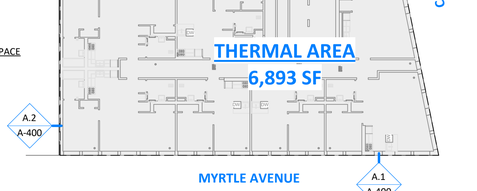
ENERGY SLAB THERMAL ENVELOPE SCHEDULE

LEVEL	USE	AREA
CELLAR	S1.1 - COMMERCIAL OVER UNCONDITIONED SPACE	2,857 SF
COMMERCIAL		
CELLAR	S1.1 - RESIDENTIAL OVER UNCONDITIONED SPACE	241 SF
CELLAR	S1.1 - RESIDENTIAL OVER UNCONDITIONED SPACE	262 SF
CELLAR	S1.1 - RESIDENTIAL OVER UNCONDITIONED SPACE	1,944 SF
2ND FLOOR	S1.1 - RESIDENTIAL OVER UNCONDITIONED SPACE	262 SF
2ND FLOOR	S1.1 - RESIDENTIAL OVER UNCONDITIONED SPACE	3,381 SF
RESIDENTIAL		
ROOF	CFTB.1 - ROOF	3,517 SF
BULKHEAD	CFTB.1 - ROOF	479 SF
CFTB.1 - ROOF		3,995 SF
2ND FLOOR	CFTB.2 - TERRACE	1,653 SF
6TH FLOOR	CFTB.2 - TERRACE	760 SF
8TH FLOOR	CFTB.2 - TERRACE	214 SF
8TH FLOOR	CFTB.2 - TERRACE	1,927 SF
CFTB.2 - TERRACE		4,554 SF



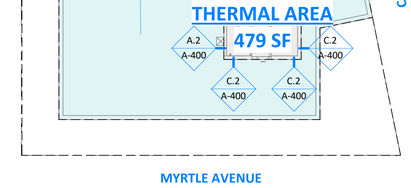
4 CELLAR FLOOR SLAB THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



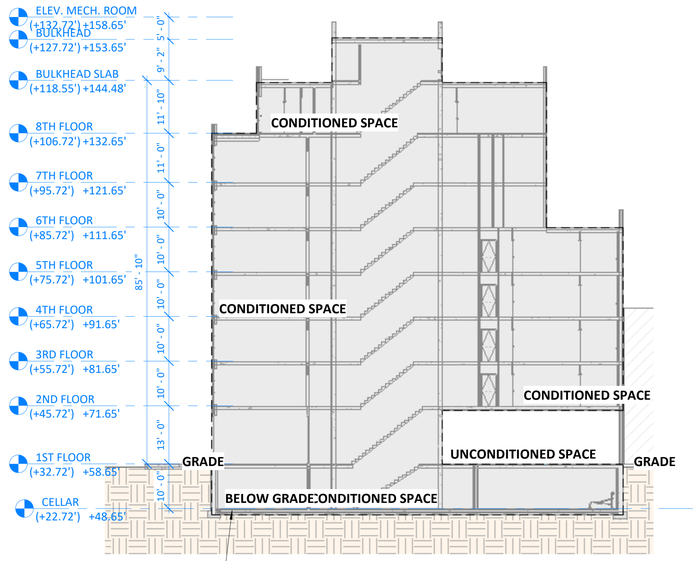
3 2ND-5TH FLOOR THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



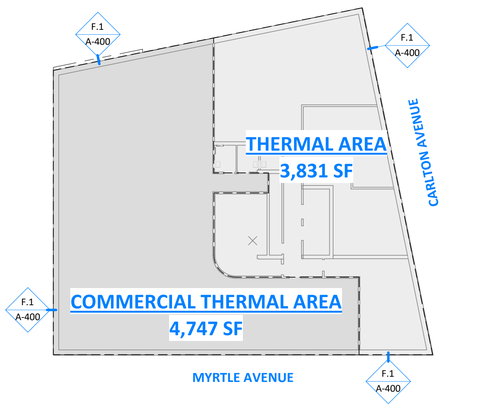
8 ROOF THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



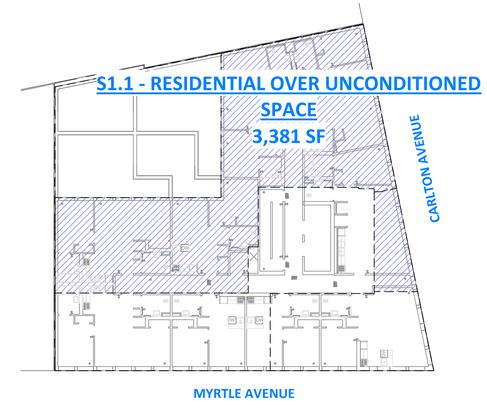
7 THERMAL BOUNDARY DIAGRAM

SCALE: 1/16" = 1'-0"



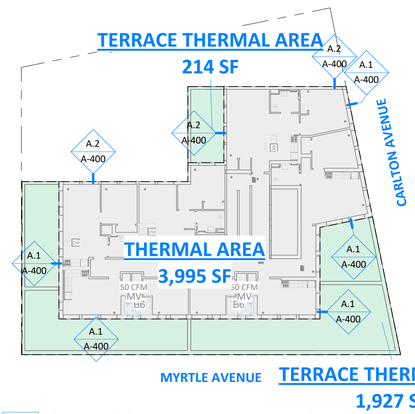
1 .CELLAR THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



5 2ND FLOOR SLAB THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"



11 8TH FLOOR THERMAL ENVELOPE DIAGRAM

SCALE: 1" = 20'-0"

TERRACE THERMAL AREA
1,927 SF

N

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BROOKLYN NY, 11216
T: (718) 484-3201

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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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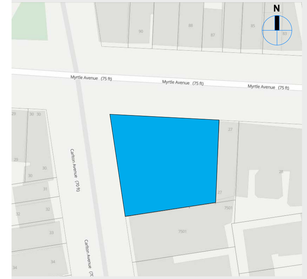
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY THERMAL ENVELOPE DIAGRAM

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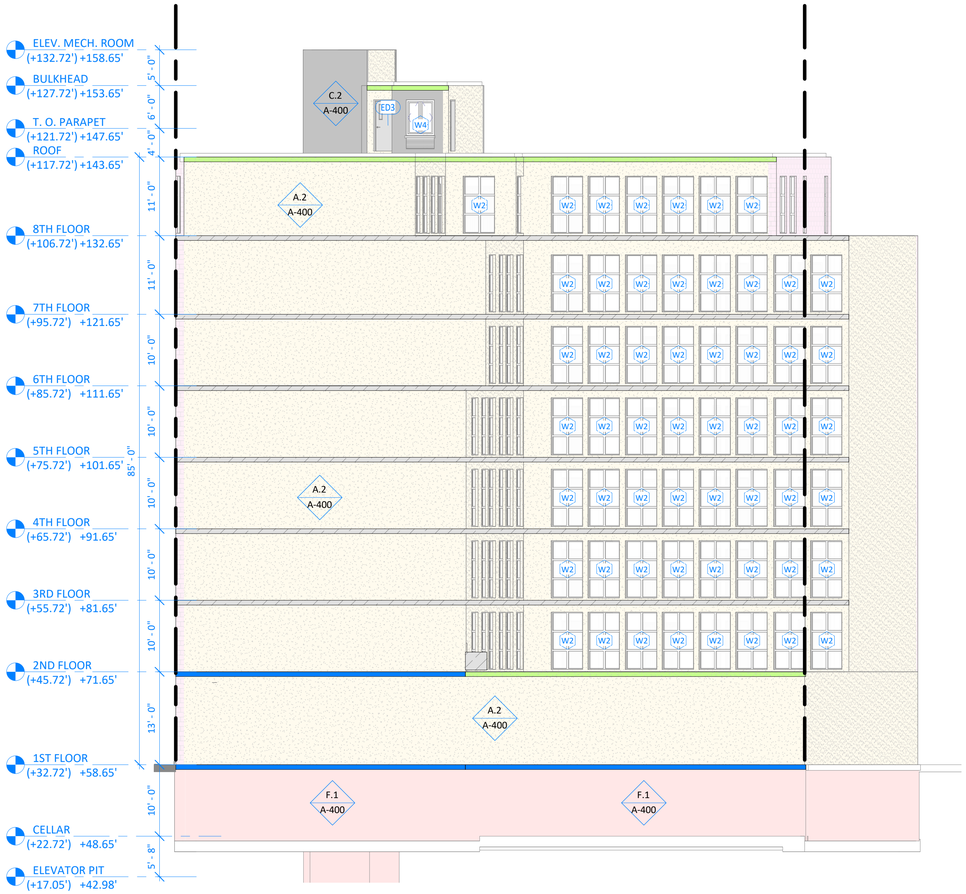
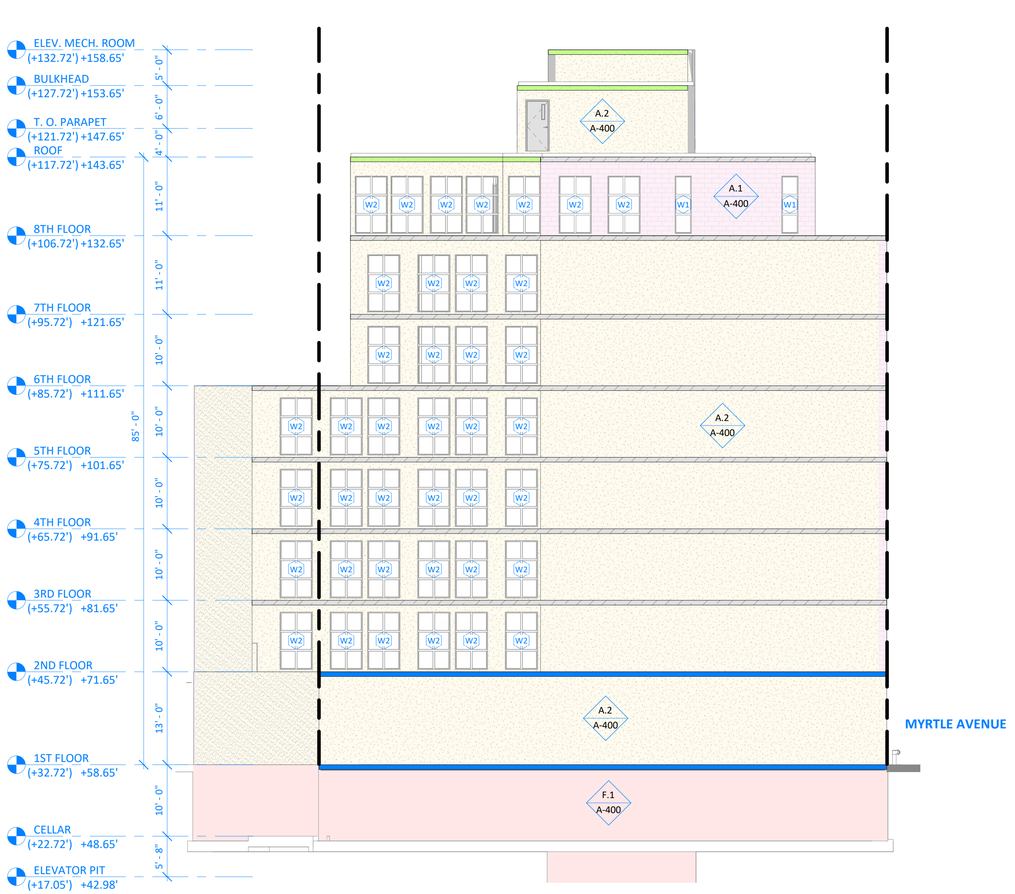


1 SOUTH ELEVATION W.W.R.

SCALE: 1" = 10'-0"



2 EAST ELEVATION W.W.R.1

SCALE: 1" = 10'-0"

JUNCTIONS/UNINSULATED - SOUTH ELEVATION		
TYPE	EN- DESCRIPTION	REGION_AREA
R1	FLOOR SLAB AREA	63 SF
RT1	FLOOR SLAB AREA	32 SF
SOUTH ELEVATION - A.2 - COMMERCIAL		95 SF
S1	FLOOR SLAB AREA	377 SF
S1.1	FLOOR SLAB AREA	54 SF
SOUTH ELEVATION - A.2 - RESIDENTIAL		431 SF
S1.1	FLOOR SLAB AREA	32 SF
SOUTH ELEVATION - F.1 - COMMERCIAL		32 SF

WINDOW AREA - SOUTH ELEVATION				
TYPE MARK	WIDTH	HEIGHT	COUNT	AREA
W2	4' - 4"	8' - 0"	55	1,907 SF
SOUTH ELEVATION - A.2 - RESIDENTIAL				1,907 SF
W4	4' - 0"	5' - 0"	1	20 SF
SOUTH ELEVATION - C.2 - RESIDENTIAL				20 SF

DOOR AREA - SOUTH ELEVATION				
TYPE MARK	WIDTH	HEIGHT	COUNT	AREA
ED5	2' - 10 1/2"	10' - 7"	1	30 SF
SOUTH ELEVATION - A.1 - COMMERCIAL				30 SF
ED3	3' - 0"	7' - 0"	1	21 SF
SOUTH ELEVATION - A.2 - RESIDENTIAL				21 SF

OPAQUE WALL AREA SOUTH ELEVATION		
WALL TYPE	DESCRIPTION	AREA
F.1		504 SF
SOUTH ELEVATION - F.1 - RESIDENTIAL		504 SF
F.1		486 SF
SOUTH ELEVATION - F.1 - COMMERCIAL		486 SF
C.2		184 SF
SOUTH ELEVATION - C.2 -RESIDENTIAL		184 SF
A.2		1,130 SF
SOUTH ELEVATION - A.2 -PARKING		1,130 SF
A.2		4,179 SF
SOUTH ELEVATION - A.2 - RESIDENTIAL		4,179 SF
A.1		46 SF
G.2	CURTAIN WALL	105 SF
SOUTH ELEVATION - A.1 - COMMERCIAL		150 SF
		6,634 SF

OPAQUE WALL AREA EAST ELEVATION		
WALL TYPE	DESCRIPTION	AREA
F.1		774 SF
EAST ELEVATION - F.1 - COMMERCIAL		774 SF
A.2		4,324 SF
EAST ELEVATION - A.2 - RESIDENTIAL		4,324 SF
A.2		1,024 SF
EAST ELEVATION - A.2 - PARKING		1,024 SF
A.1		315 SF
EAST ELEVATION - A.1 - RESIDENTIAL		315 SF
		6,437 SF

JUNCTIONS/UNINSULATED - EAST ELEVATION		
TYPE	EN- DESCRIPTION	REGION_AREA
S1	FLOOR SLAB AREA	26 SF
EAST ELEVATION - A.1 - RESIDENTIAL		26 SF
R1	FLOOR SLAB AREA	47 SF
S1	FLOOR SLAB AREA	337 SF
S1.1	FLOOR SLAB AREA	53 SF
EAST ELEVATION - A.2 - RESIDENTIAL		437 SF
S1.1	FLOOR SLAB AREA	53 SF
EAST ELEVATION - F.1 - COMMERCIAL		53 SF

WINDOW AREA - EAST ELEVATION				
TYPE MARK	WIDTH	HEIGHT	COUNT	AREA
W1	2' - 3"	8' - 0"	2	36 SF
W2	4' - 4"	8' - 0"	2	69 SF
EAST ELEVATION - A.1 - RESIDENTIAL				105 SF
W2	4' - 4"	8' - 0"	37	1,283 SF
EAST ELEVATION - A.2 - RESIDENTIAL				1,283 SF

DOOR AREA - EAST ELEVATION				
TYPE MARK	WIDTH	HEIGHT	COUNT	AREA
ED3	3' - 0"	7' - 0"	1	21 SF
EAST ELEVATION - A.2 - RESIDENTIAL				21 SF

BUILDING ENVELOPE LEGEND

WALL TYPES

- A.1 — METAL FRAMED BRICK
- A.2 — METAL FRAMED EIFS
- C.2 — CONCRETE EIFS
- F.1 — CONCRETE FOUNDATION

WALL AT SLABS

- S1 — WALL AREA AT FLOOR STRUCTURE RIGID INSULATION (R-10 C.I.)
- SB1
- SW1
- S1.1 — WALL AREA AT FLOOR STRUCTURE RIGID INSULATION (R-10 C.I.)

FENESTRATION TYPES

- W1
- W2
- W3
- W4
- ED1
- ED2
- ED4

NOTE:
REFER TO SECTION & DETAILS FOR ASSEMBLIES

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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY AREA DIAGRAMS

DOB # :

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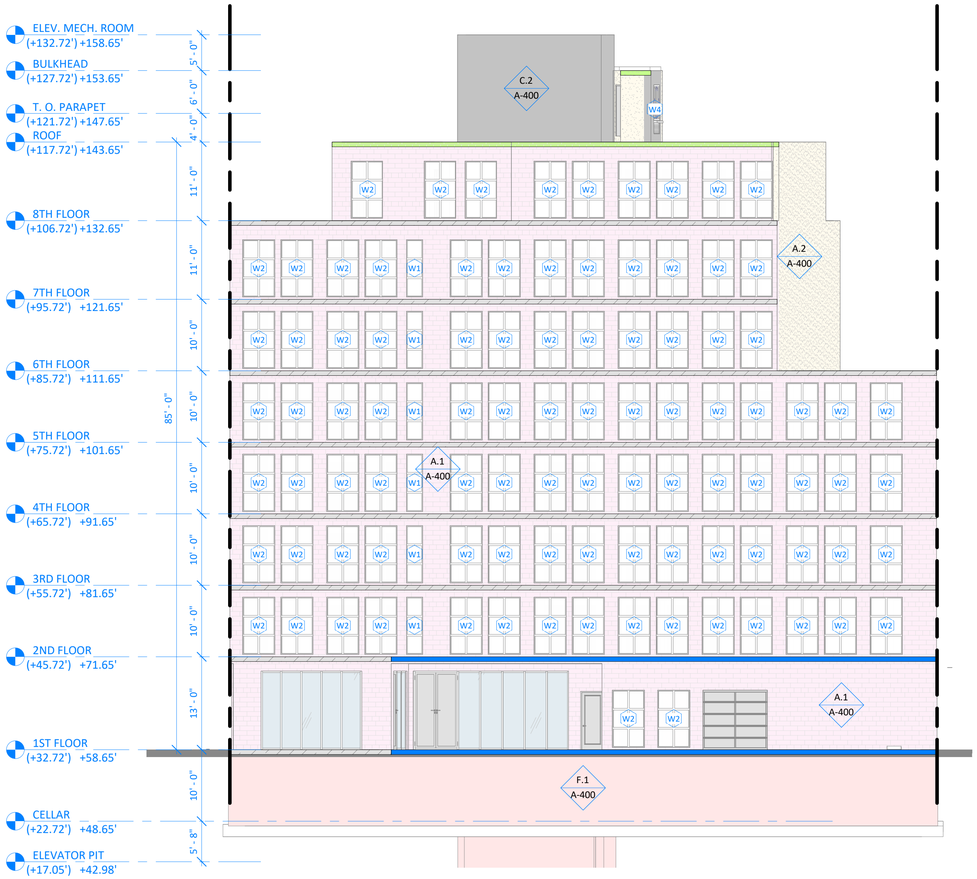
2 NORTH ELEVATION W.W.R.1

SCALE: 1" = 10'-0"



1 WEST ELEVATION W.W.R.1

SCALE: 1" = 10'-0"

JUNCTIONS/UNINSULATED - NORTH ELEVATION		
TYPE	**EN- DESCRIPTION**	**REGION_AREA**
S1	FLOOR SLAB AREA	31 SF
NORTH ELEVATION - A.1 - COMMERCIAL		31 SF
R1	FLOOR SLAB AREA	62 SF
S1	FLOOR SLAB AREA	534 SF
NORTH ELEVATION - A.1 - RESIDENTIAL		596 SF

WINDOW AREA - NORTH ELEVATION				
TYPE MARK	**WIDTH**	**HEIGHT**	**COUNT**	**AREA**
W1	2' - 3"	8' - 0"	10	180 SF
W2	4' - 4"	8' - 0"	118	4,091 SF
NORTH ELEVATION - A.1 - RESIDENTIAL				4,271 SF
W4	4' - 0"	5' - 0"	1	20 SF
NORTH ELEVATION - C.2 - RESIDENTIAL				20 SF

DOOR AREA - NORTH ELEVATION				
TYPE MARK	**WIDTH**	**HEIGHT**	**COUNT**	**AREA**
ED5	2' - 11"	10' - 7"	1	31 SF
NORTH ELEVATION - A.1 - COMMERCIAL				31 SF
ED3	3' - 0"	7' - 0"	1	21 SF
NORTH ELEVATION - A.1 - RESIDENTIAL				21 SF

OPAQUE WALL AREA NORTH ELEVATION		
WALL TYPE	**DESCRIPTION**	**AREA**
F.1		1,075 SF
NORTH ELEVATION - F.1 - COMMERCIAL		1,075 SF
C.2		165 SF
NORTH ELEVATION - C.2 - RESIDENTIAL		165 SF
A.2		33 SF
NORTH ELEVATION - A.2 - RESIDENTIAL		33 SF
A.1		3,228 SF
G.2	CURTAIN WALL	609 SF
NORTH ELEVATION - A.1 - RESIDENTIAL		3,837 SF
A.1		187 SF
G.2	CURTAIN WALL	391 SF
NORTH ELEVATION - A.1 - COMMERCIAL		578 SF
		5,688 SF

OPAQUE WALL AREA WEST ELEVATION		
WALL TYPE	**DESCRIPTION**	**AREA**
F.1		1,200 SF
WEST ELEVATION - F.1 - RESIDENTIAL		1,200 SF
C.2		293 SF
WEST ELEVATION - C.2 - RESIDENTIAL		293 SF
A.2		33 SF
WEST ELEVATION - A.2 - RESIDENTIAL		33 SF
A.1		2,802 SF
G.2	CURTAIN WALL	244 SF
WEST ELEVATION - A.1 - RESIDENTIAL		3,046 SF
A.1		462 SF
WEST ELEVATION - A.1 - PARKING		462 SF
A.1		135 SF
G.2	CURTAIN WALL	155 SF
WEST ELEVATION - A.1 - COMMERCIAL		290 SF
		5,325 SF

DOOR AREA - WEST ELEVATION				
TYPE MARK	**WIDTH**	**HEIGHT**	**COUNT**	**AREA**
ED4	9' - 0"	8' - 4"	1	75 SF
WEST ELEVATION - A.1 - PARKING				75 SF
ED1	3' - 0"	8' - 0"	1	24 SF
ED5	<varies>	10' - 7"	2	64 SF
WEST ELEVATION - A.1 - RESIDENTIAL				88 SF

WINDOW AREA - WEST ELEVATION				
TYPE MARK	**WIDTH**	**HEIGHT**	**COUNT**	**AREA**
W2	4' - 4"	8' - 0"	2	69 SF
WEST ELEVATION - A.1 - PARKING				69 SF
W1	2' - 3"	8' - 0"	6	108 SF
W2	4' - 4"	8' - 0"	93	3,224 SF
WEST ELEVATION - A.1 - RESIDENTIAL				3,332 SF

JUNCTIONS/UNINSULATED - WEST ELEVATION		
TYPE	**EN- DESCRIPTION**	**REGION_AREA**
R1	FLOOR SLAB AREA	44 SF
S1	FLOOR SLAB AREA	381 SF
S1	FLOOR SLAB AREA	15 SF
S1.1	FLOOR SLAB AREA	102 SF
WEST ELEVATION - A.1 - RESIDENTIAL		542 SF

BUILDING ENVELOPE LEGEND

WALL TYPES

- A.1 — METAL FRAMED BRICK
- A.2 — METAL FRAMED EIFS
- C.2 — CONCRETE EIFS
- F.1 — CONCRETE FOUNDATION

WALL AT SLABS

- S1 — WALL AREA AT FLOOR STRUCTURE RIGID INSULATION (R-10 C.I.)
- SB1
- SW1
- S1.1 — WALL AREA AT FLOOR STRUCTURE RIGID INSULATION (R-10 C.I.)

FENESTRATION TYPES

W1, W2, W3, W4, ED1, ED2, ED3, ED4

NOTE:
REFER TO SECTION & DETAILS FOR ASSEMBLIES

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T: (718) 484-3201

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NO.	DESCRIPTION	DATE
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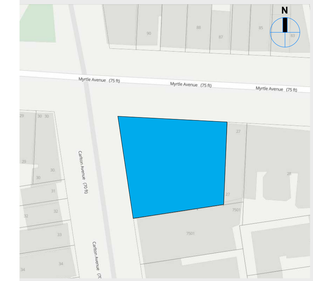
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY AREA DIAGRAMS

DOB # :

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TABLE II – PROGRESS INSPECTIONS FOR ENERGY CODE COMPLIANCE – COMMERCIAL BUILDINGS

	Inspection/Test	Periodic (minimum)	Reference Standard (See ECC Chapter C6) or Other Criteria	ECC or Other Citation
IIA	**Envelope Inspections**			
IIA1	**Protection of exposed foundation insulation:** Insulation must be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slab-on-grade floors.	As required during foundation work and prior to backfill	Approved construction documents, ASTM C272	C303.2.1; ASHRAE 90.1 – 5.8.1, 5.9
IIA2	**Insulation placement and R-values:** Installed insulation for each component of the conditioned space envelope and at junctions between components, including thermal bridges and heated slab insulation, must be visually inspected to ensure that the R-values are marked, that such R-values conform to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation also be visually inspected.	As required to verify continuous enclosure while walls, ceilings and floors are open	Approved construction documents	C303.1, C303.2, C402.1, C402.2, C402.6, C406; ASHRAE 90.1 –5.5, 5.6, 5.8, 5.9, 11 or Appendix G, Appendix I
IIA3	**Fenestration and door U-factor and product ratings:** U-factors, SHGC and VT values of installed fenestration must be visually inspected for conformance with the U-factors, SHGC and VT values identified in the construction drawings by verifying the manufacturer's NFRC labels or, where not labeled, using the ratings in ECC Tables C303.1.3(1), (2) and (3).	As required during installation	Approved construction documents; NFRC 100, NFRC 200, NFRC 300, ANSI/DASMA 105, ASTM E972	C303.1, C303.1.3, C402.1.4, C402.4, C406; ASHRAE 90.1 –5.4.2, 5.5, 5.6, 5.8.2, 5.9, 11 or Appendix G, Appendix I
IIA4	**Fenestration air leakage:** Windows and door assemblies, except site-built windows and/or doors, must be visually inspected to verify that installed assemblies are listed and labeled by the manufacturer to the referenced standard. For curtain wall, storefront glazing, commercial entrance doors and revolving doors, the testing reports must be reviewed to verify that the installed assembly complies with the standard cited in the approved plans. Weatherseals at loading docks must be visually verified.	As required during installation; prior to final construction inspection	NFRC 400, AAMA/WDMA/CSA 101/I.S.2/A440; ASTM E283; ANSI/DASMA 105	C402.5.2, C402.5.6; ASHRAE 90.1 – 5.4.3.2, 5.4.3.3, 5.8.2, 5.9
IIA5	**Fenestration areas:** Dimensions of windows, doors and skylights must be verified by visual inspection.	Prior to final construction inspection	Approved construction documents	C402.4; ASHRAE 90.1 – 5.4, 5.5.4, 5.6, 5.9, 11 or Appendix G
IIA6	**Air barrier visual inspection:** Openings and penetrations in the building envelope, including site-built fenestration and doors, must be visually inspected to verify that a continuous air barrier around the envelope forms an air-tight enclosure. The progress inspector must visually inspect to verify that materials and/or assemblies have been tested and meet the requirements of the respective standards, or must observe the testing of the building and/or assemblies and verify that the building and/or assemblies meet the requirements of the standard, in accordance with the standard(s) cited in the approved plans.	As required during construction	Approved construction documents; ASTM E2178, ASTM E2357, ASTM E1677, ASTM E779, ASTM E283.	C402.5; ASHRAE 90.1 – 5.4.3.1, 5.4.3.5, 5.9
IIA7	**Air barrier testing**: Testing must be performed in accordance with section ECC C402.5.1.3.1 or ASHRAE 90.1 section 5.4.3.1.3, and shall be accepted if the building meets the requirements detailed in such section. Test results shall be retained in accordance with the provisions of Title 28 of the Administrative Code. Testing must be performed by a third-party independent of the contractor and acceptable to the department.	As required during construction, or prior to final construction inspection	Approved construction documents; ASTM E 779, ANSI/BOMA Z65.1, ASTM E3158, RESNET/ICC 380	C402.5, C402.5.1.3, C406; ASHRAE 90.1 – 5.4.3.1.3, 5.9, Appendix I
IIA8	**Air barrier continuity plan testing:** Each unique air barrier joint or seam must be tested or inspected for compliance. Documentation includes the method of test performed on each unique air barrier joint or seam and the results of the test. If an air barrier joint or seam has a deficiency, the deficiency must be noted, and retested until it complies with the testing requirements. Test results must be retained in accordance with the provisions of Title 28 of the Administrative Code. Testing must be performed by a third-party independent of the contractor and acceptable to the department.	As required during construction	Approved construction documents; ASTM E779, ASTM E1186, ASTM E2813, ASTM E3158	C402.5.1.3; ASHRAE 90.1 – 5.4.3.1.3, 5.9
IIA9	**Vestibules**: Required entrance vestibules must be visually inspected for proper operation.	Prior to final construction inspection	Approved construction documents	C402.5.7; ASHRAE 90.1 – 5.4.3.4
IIB	**Mechanical and Service Water Heating Inspections**			
IIB1	**Fireplaces:** Provision of combustion air and tight-fitting fireplace doors must be verified by visual inspection.	Prior to final construction inspection	Approved construction document; UL 127	C402.2.8; BC 2111; MC Chapters 7, 8, 9; FGC Chapter 6
IIB2	**Shutoff dampers**: Dampers for stair and elevator shaft vents and other outdoor air intakes and exhaust openings integral to the building envelope must be visually inspected to verify that such dampers, except where permitted to be gravity dampers, comply with approved construction drawings.	As required during installation	Approved construction documents; AMCA 500D	C402.5.5, C403.7.7; ASHRAE 90.1 – 6.4.3.4
IIB3	**HVAC-R, commercial kitchen equipment, and service water heating equipment:** Equipment sizing, efficiencies, pipe sizing and other performance factors of all major equipment units, as determined by the applicant of record, and no less than 15% of minor equipment units, must be verified by visual inspection and, where necessary, review of manufacturer's data. Pool heaters and covers must be verified by visual inspection.	Prior to final plumbing and construction inspection	Approved construction documents, ASHRAE 183, ASHRAE HVAC Systems and Equipment Handbook	C403.1, C403.2, C403.3, C403.7.5, C404.2, C404.5, C404.9, C404.10, C406; ASHRAE 90.1 – 6.3, 6.4, 6.5, 6.7, 7.4, 7.5, 7.8, 10.4.6, Appendix I
IIB4	**HVAC-R and service water heating system controls:** No less than 20% of each type of required controls must be verified by visual inspection and tested for functionality and proper operation. Such controls must include, but are not limited to: ▪ Thermostatic ▪ Off-hour ▪ Zones ▪ Freeze protection/Snow- and ice-melt system ▪ Ventilation System and Fan Controls ▪ Energy recovery systems ▪ Kitchen/lab exhaust systems ▪ Fan systems serving single and multiple zones ▪ Outdoor heating systems ▪ HVAC control in hotel/motel guest rooms ▪ Air/Water Economizers & controls ▪ Hydronic systems ▪ Heat rejection systems ▪ Hot gas bypass limitation ▪ Refrigeration systems ▪ Door switches ▪ Computer room systems ▪ Service water heating systems ▪ Pool heater and time switches **Controls with seasonally dependent functionality:** Controls whose complete operation cannot be demonstrated due to prevailing weather conditions typical of the season during which progress inspections will be performed shall be permitted to be signed off for the purpose of a Temporary Certificate of Occupancy with only a visual inspection, provided, however, that the progress inspector must perform a supplemental inspection where the controls are visually inspected and tested for functionality and proper operation during the next immediate season thereafter. The owner must provide full access to the progress inspector within two weeks of the progress inspector's request for such access to perform the progress inspection. For such supplemental inspections, the Department must be notified by the approved progress inspection agency of any unresolved deficiencies in the installed work within 180 days of such supplemental inspection.	After installation and prior to final construction inspection	Approved construction documents, ASHRAE 183, ASHRAE HVAC Systems and Equipment Handbook	C403.1, C403.2, C403.3, C403.7.5, C404.2, C404.5, C404.9, C404.10, C406; ASHRAE 90.1 – 6.3, 6.4, 6.5, 6.7, 7.4, 7.5, 7.8, 10.4.6, Appendix I
IIB5	**HVAC-R and service water piping design and insulation:** Installed piping insulation must be visually inspected to verify proper insulation placement and values.	After installation and prior to closing shafts,	Approved construction documents;	C403.11, C404.4, C404.5; MC 603.9; ASHRAE 90.1 – 6.3, 6.4.4, 6.8.2, 6.8.3; 7.4.3
IIB6	**Duct leakage testing, insulation and design:** For duct systems designed to operate at static pressures in excess of 3 inches w.g. (747 Pa), representative sections, as determined by the progress inspector, totaling at least 25% of the duct area, must be tested to verify that actual air leakage is below allowable amounts. Installed duct insulation must be visually inspected to verify proper insulation placement and values. Joints, longitudinal and transverse seams and connections in ductwork must be visually inspected for proper sealing.	After installation and sealing and prior to closing shafts, ceilings and walls	Approved construction documents; SMACNA HVAC Air Duct Leakage Test Manual; SMACNA Duct Construction Standards, Metal and Flexible	C403.11; ASHRAE 90.1 – 6.4.4.2.2
IIC	**Electrical Power and Lighting Systems**			
IIC1	**Metering:** The presence and operation of all required meters for monitoring total electrical energy usage and/or total fuel use, system energy usage, tenant energy usage, or electrical energy usage in the building, in individual dwelling units, or in tenant spaces must be verified by visual inspection.	Prior to final electrical and construction inspection	Approved construction documents	C405.5, C405.11, C405.12; ASHRAE 90.1 – 8.4.3, 8.4.5, 8.4.6, 10.4.5
IIC2	**Lighting in dwelling units:** Lamps in permanently installed lighting fixtures must be visually inspected to verify compliance with high-efficacy requirements.	Prior to final electrical and construction inspection	Approved construction documents	C405.1; ASHRAE 90.1 – 9.1.1
IIC3	**Interior lighting power:** Installed lighting must be verified for compliance with the lighting power allowance by visual inspection of fixtures, lamps, ballasts and transformers.	Prior to final electrical and construction inspection	Approved construction documents	C405.3, C406; ASHRAE 90.1 –9.1, 9.2, 9.5, 9.6, 9.7; 1RCNY §101-07(c)(3)(v)(C)4, Appendix I
IIC4	**Exterior lighting power:** Installed lighting must be verified for compliance with source efficacy and/or the lighting power allowance by visual inspection of fixtures, lamps, ballasts and relevant transformers.	Prior to final electrical and construction inspection	Approved construction documents	C405.4; ASHRAE 90.1 –9.4.2; 1RCNY §101-07(c)(3)(v)(C)4
IIC5	**Lighting controls**: Each type of required lighting controls, including: ▪ occupant sensors ▪ manual interior lighting controls ▪ light-reduction controls ▪ automatic lighting shut-off ▪ daylight zone controls ▪ sleeping unit controls ▪ exterior lighting controls ▪ egress illumination controls must be verified by visual inspection and tested for functionality and proper operation.	Prior to final electrical and construction inspection	Approved construction documents, including control system narratives	C405.2, C406; ASHRAE 90.1 – 9.4.1, 9.4.3, 9.7, Appendix I
IIC6	**Electric motors and elevators:** Where required by the construction documents for energy code compliance, motor listing or labels be visually inspected to verify that they comply with the respective energy requirements in the construction documents. Elevators and escalators must be inspected for compliance with regenerative drive requirements.	Prior to final electrical and construction inspection	Approved construction documents	C403.8, C405.6, C405.7, C405.8, C405.9; ASHRAE 90.1 – 8.4.4, 10.4, 10.8
IID	**Other**			
IID1	**Maintenance information:** Maintenance manuals for mechanical, service hot water and electrical equipment and systems requiring preventive maintenance must be reviewed for applicability to installed equipment and systems before such manuals are provided to the owner. Labels required for such equipment or systems mustl be inspected for accuracy and completeness.	Prior to sign-off or issuance of Final Certificate of Occupancy	Approved construction documents, including electrical drawings where applicable; ASHRAE Guideline 4: Preparation of Operating and Maintenance Documentation for Building Systems	C408.11, C408.2.5.2, C408.3.2; ASHRAE 90.1 – 4.2.2.3, 6.7.2.2, 6.7.2.3.5.2, 8.7.2, 9.4.3.2.2, 9.7.2.2

(i) Energy Analysis of Constructed Conditions. In accordance with Section 28-104.3 of the Administrative Code and section ECC 103.4, if constructed work differs from the last-approved full energy analysis, an as-

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

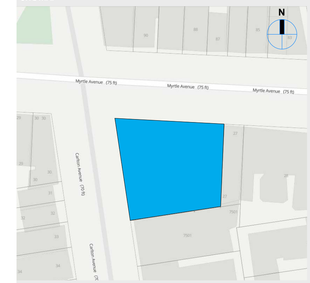
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY INSPECTIONS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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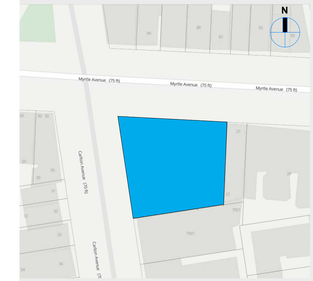
SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY INSPECTIONS

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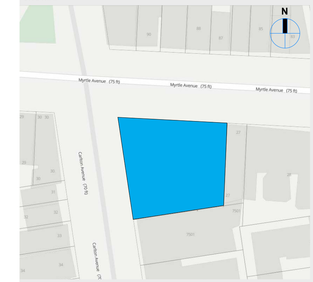
NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

ENERGY INSPECTIONS

DOB # :

DOB BSCAN + STAMP :

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ALL EXIT SIGNS INTERNALLY ILLUMINATED OF MAXIMUM OF 5 WATTS PER SIDE.

OUTDOOR LIGHTING CONTROL SYSTEM

FURNISH AND INSTALL LIGHTING CONTROL SYSTEM IN A NEMA 1 SURFACE MOUNTED ENCLOSURE OPERATING ON 120V SYSTEM. SYSTEM SHALL PROVIDE EXTERNAL SWITCH TO MANUALLY TURN SYSTEM OFF/ON. SYSTEM SHALL INCLUDE A 7 DAY CALENDAR DIAL TYPE MECHANICAL TIMER & MECHANICALLY HELD LIGHTING CONTACTORS. APPROVED SYSTEM IS "ASCO" MODEL 641A. PHOTOCONTROL TO BE REMOTELY INSTALLED IN APPROPRIATE OUTSIDE LOCATION. IT SHALL BE FULLY TEMPERATURE COMPENSATED AND SHALL PROVIDE FOR TIMER DELAY OF AT LEAST 15 SECONDS TO PREVENT FALSE SWITCHING. PHOTOCONTROL SHALL RUN ON 120V SYSTEM. APPROVED MODEL IS "TORK"-2104

ALL EXTERIOR LIGHTING SHALL BE PROVIDED WITH A CONTROL THAT AUTOMATICALLY TURNS OFF THE LIGHTING WHEN DAYLIGHT IS AVAILABLE. WHERE LIGHTING THE BUILDING FAÇADE OR LANDSCAPE, THE LIGHTING SHALL ALSO BE PROVIDED WITH CONTROLS THAT AUTOMATICALLY SHUT OFF THE LIGHTING FROM 12 MIDNIGHT OR WITHIN ONE HOUR OF THE END OF BUSINESS OPERATIONS, WHICHEVER IS LATER UNTIL 6 A.M. OR BUSINESS OPENING WHICHEVER IS EARLIER. EXTERIOR LIGHTING OTHER THAN BUILDING FAÇADE OR LANDSCAPE LIGHTING SHALL BE PROVIDED WITH CONTROLS CONFIGURED TO AUTOMATICALLY REDUCE THE CONNECTED LIGHTING POWER BY AT LEAST 30 PERCENT FROM 12 MIDNIGHT OR WITHIN ONE HOUR OF THE END OF BUSINESS OPERATIONS, WHICHEVER IS LATER UNTIL 6 A.M. OR BUSINESS OPENING WHICHEVER IS EARLIER OR DURING ANY PERIOD WHEN NO ACTIVITY HAS BEEN DETECTED FOR A TIME OF NO LONGER THAN 15 MINUTES. ALL CONTROLS THAT OPERATE AS A FUNCTION OF TIME SHALL BE CAPABLE OF RETAINING PROGRAMMING AND THE TIME SETTING DURING A LOSS OF POWER OF AT LEAST 10 HOURS.

ELECTRICAL CONTRACTOR SHALL LOCATE PHOTOCELL CONTROLLING EXTERIOR LIGHTING AND LOCATE A WAY FROM SHADOWS AND LIGHT FROM FIXTURES SO THAT CELL SENSES THE DAWN AND DUSK WITHOUT
OBSTRUCTION.

C408.3.1 FUNCTIONAL TESTING:

TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION

DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AS PER BUILDING ENERGY CODE 'C408.3.1 FUNCTIONAL TESTING'.
WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:

1. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE.

2. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO
TURN THE LIGHTS OFF.

3.CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSORS CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED.

RCP ELEVATOR
10.4.3 ELEVATORS.
ELEVATOR SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THIS SECTION.

10.4.3.1 LIGHTING
FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NO LESS THAN 35 LM/W.

10.4.3.2 VENTILATION POWER LIMITATION
CAB VENTILATION FANS FOR ELEVATORS WITHOUT AIR CONDITIONING SHALL NOT CONSUME OVER 0.33W/CFM AT MAXIMUM SPEED.

10.4.3.3 STANDBY MODE.
WHEN STOPPED AND UNOCCUPIED WITH DOORS CLOSED FOR OVER 15 MINUTES, CAB INTERIOR LIGHTING AND VENTILATION SHALL BE DE-ENERGIZED UNTIL REQUIRED FOR OPERATION

NOTE:
REQUIREMENT SHALL BE VERIFEID FOR COMPLIANCE WITH THE CODE IN EFFECT AT TIME OF THE APPLICATION

BC* 1208.2 MINIMUM CEILING HEIGHTS.

HABITABLE ROOMS & SPACES: 8'-0"

OCCUPIABLE SPACES & CORRIDORS: 7'- 6".

KITCHENETTES IN I-1 OR R OCCUPANCIES, STORAGE ROOMS & LAUNDRY ROOMS: 7'-0"

BATHROOMS, TOILET ROOMS, KITCHENS IN OTHER THAN I-1 AND R OCCUPANCIES : 7'-0"

ALL MEASUREMENTS SHALL BE TAKEN FROM THE FINISHED FLOOR TO THE FINISHED UNDERSIDE OF THE CEILING OR CEILING BEAMS

NYECC 2020

RESIDENTIAL BUILDING UNITS AND DIRECTLY / ATTACHED SPACES

SYSTEM:TO BE PROVIDED THROUGHOUT DWELLING UNIT SPACES MANUAL ON AND OFF SWITCHES THAT ALLOW OCCUPANTS TO TURN LIGHT ON OR OFF - MANUAL CONTROL TO TURN OFF AND ON.

·PARKING GARAGE LIGHTING CONTROL

- PARKING GARAGE LIGHTING SHALL HAVE AUTOMATIC LIGHTING SHUTOFF PER SECTION 9.4.1.1(I).
- LIGHTING POWER OF EACH LUMINAIRE SHALL BE AUTOMATICALLY REDUCED BY A MINIMUM OF 30% WHEN THERE IS NO ACTIVITY DETECTED WITHIN A LIGHTING ZONE FOR 15 MINUTES. LIGHTING ZONES FOR THIS REQUIREMENT SHALL BE NO LARGER THAN 3600 SF.
- LIGHTING FOR COVERED VEHICLE ENTRANCES AND EXITS FROM BUILDINGS AND PARKING STRUCTURES SHALL BE SEPARATELY CONTROLLED BY A DEVICE THAT AUTOMATICALLY REDUCES THE LIGHTING BY AT LEAST 50% FROM SUNSET TO SUNRISE.
- THE POWER TO LUMINAIRES WITHIN 20 FT OF ANY PERIMETER WALL STRUCTURE THAT HAS A NET OPENING-TO-WALL RATIO OF AT LEAST 40% AND NO EXTERIOR OBSTRUCTIONS WITHIN 20 FT, SHALL BE AUTOMATICALLY REDUCED IN RESPONSE TO DAYLIGHT BY AT LEAST 50%.

EXTERIOR SPACES:

PRIMARY BUILDING ENTRANCE AREAS
- ALL EXTERIOR LIGHTING SHALL HAVE PHOTOSENSOR ,TIME OR ASTRONOMICAL CONTROLS

TIME-SWITCH CONTROLS (PROGRAMMED)

- TIME-SWITCH CONTROLS MUST BE DESIGNED TO:
- HAVE A MINIMUM 7-DAY CLOCK,
- ALLOW TO PROGRAM 7-DIFFERENT DAY TYPES/WEEK,
- HAVE AN AUTOMATIC HOLIDAY 'SHUTOFF' FEATURE,
- HAVE PROGRAM BACKUP CAPABILITIES IN CASE OF POWER INTERRUPTION, AND
- INCLUDE A MANUALLY-CONTROLLED OVERRIDE SWITCH THAT, WHEN INITIATED, PERMITS THE CONTROLLED LIGHTING TO REMAIN ON FOR A MAXIMUM OF 2 HOURS, AND THAT INDIVIDUALLY CONTROLS A MAXIMUM AREA OF 5,000 SF. C405.2.2.1

ELECTRICAL ENERGY MONITORING:
WHOLE BUILDING ENERGY MONITORING TO COMPLY WITH NYECC C405.11 & C405.12:
MEASUREMENT DEVICES TO INDIVIDUALLY MONITOR ENERGY USE OF EACH OF THE FOLLOWING TYPES OF ENERGY SUPPLIED BY A UTILITY, ENERGY PROVIDER, OR PLANT THAT IS NOT WITHIN THE BUILDING:
1. NATURAL GAS
2. FUEL OIL
3. PROPANE
4. STEAM
5. CHILLED WATER
6. HOT WATER

EXCEPTIONS TO C405.11:
1. BUILDINGS LESS THAN 25,000 SQUARE FEET (2325 M2).
2. GROUP R BUILDINGS WITH LESS THAN 10,000 SQUARE FEET (930 M2) OF COMMON AREA.
3. FUEL USE FOR ON-SITE EMERGENCY EQUIPMENT.

ELECTRICAL USAGE MONITORING FOR THE ENTIRE BUILDING SHALL COMPLY WITH C405.12
EACH NEW BUILDING SHALL HAVE A MEASUREMENT DEVICE CAPABLE OF RECORDING ELECTRICAL ENERGY USE EVERY 60 MINUTES AND THE CAPABILITY TO REPORT THAT USE ON AN HOURLY, DAILY, MONTHLY AND ANNUAL BASIS. THE MEASUREMENT DEVICE SHALL BE CAPABLE OF RETAINING THE RECORDED DATA FOR 36 MONTHS.

EXCEPTIONS TO C405.12:
1. BUILDINGS LESS THAN 25,000 SQUARE FEET (2325 M2).
2. GROUP R BUILDINGS WITH LESS THAN 10,000 SQUARE FEET (930 M2) OF COMMON AREA.
3. FUEL USE FOR ON-SITE EMERGENCY EQUIPMENT.

Power Meter, 120/240VAC, 110/250VDC Input Voltage, 3 Phase, 1, 5 Amps, Accuracy: ±1.00%
Item # 23UA10 Mfr. Model # 7KM31330BA003AA0 Catalog Page # N/A UNSPSC # 41113708

11. PUBLIC AREAS.

SEE KITCHEN AND BATHROOM DRAWINGS FOR ADDITIONAL INFORMATION ON LIGHTING.

11.1 SEE ELECTRICAL AND INTERIOR DESIGNER DRAWINGS FOR TYPES AND LOCATIONS OF

11.2 ALL CEILING FIXTURES, TYPICAL.

TO AVOID ANY CONFLICT, COORDINATE THE LOCATION OF ALL CEILING MOUNTED SPRINKLER HEADS WITH RECESSED CEILING LIGHT FIXTURES AND JUNCTION BOXES.

12. ALL ELECTRIC FIXTURE LOCATIONS TO HAVE PRIORITY OVER SPRINKLER LOCATIONS

13. NOTIFY SPRINKLER ENGINEER OF ANY CONFLICTS BETWEEN SPRINKLER HEADS AND CONCRETE BEAMS OR OTHER OBSTRUCTIONS. PROVIDE WALL. MOUNTED SPRINKLER HEADS AT THESE LOCATIONS WITH THE ENGINEER'S APPROVAL.

ALL DROPPED CEILINGS TO BE 5/8' THICK GYPSUM BOARD UNLESS OTHERWISE NOTED.

14. ALL MECHANICAL ELECTRIC, PLUMBING & SPRINKLER OFFSETS ARE TO BE ENCLOSED IN THE SPACE PROVIDED, MAINTAINING THE CEILING HEIGHTS INDICATED ON THE REFLECTED CEILING PLANS AND INTERIOR DESIGN DRAWINGS. COORDINATE ALL SLEEVES AND TUNNELS THROUGH CONCRETE BEAMS 'WITH FULL APPROVAL BY THE STRUCTURAL ENGINEER. CONTRACTOR TO NOTIFY ARCHITECT IF THESE HEIGHTS

15. CANNOT BE ACHIEVED PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, OR PLUMBING OF SPRINKLERS.

16. CONTRACTOR TO PROVIDE A COMPOSITE REFLECTED CEILING DRAWING WITH ALL MECHANICAL, ELECTRICAL, PLUMBING, COMMUNICATIONS AND SPRINKLER ITEMS COORDINATED, FOR REVIEW AND APPROVAL BY THE ARCHITECT, INTERIOR DESIGNER,

17. STRUCTURAL ENGINEER AND MECHANICAL ENGINEER.

18. ALL TRIMMED OPENING AND HEADERS TO MATCH TYPICAL DOOR HEIGHTS, TYPICAL U.O.N. (EX. 7'-0" DOOR HEADER TO BE 7'-0", U.O.N.)

19. WHERE CONCRETE BEAMS ARE TO REMAIN EXPOSED, SAND TO A SMOOTH FINISH AND APPLY PAINTED KADEX. WHERE CONCRETE BEAMS ARE TO BE FURRED OUT. FOLLOW TYPICAL CONSTRUCTION PROCEDURE FOR HUNG CEILINGS.

20. SEE SPECIFICATIONS FOR FURTHER INFORMATION, TYPICAL.

21. ALL LIGHT FIXTURES IN PUBLIC CORRIDOR ABOVE APARTMENT ENTRY DOORS TO BE CENTERED ON DOORS, TYP.

22. UNLESS OTHERWISE SPECIFIED ON REFLECTED CEILING PLAN DRAWINGS All LIGHT FIXTURES TO BE CENTERED AND SPACED IN KITCHENS, BATHROOMS, POWDER ROOMS, CORRIDORS, FOYERS AND CLOSETS, U.O.N.

23. PROVIDE SLEEVES WHERE REQ'D SEE MEP. DWGS. FOR LOCATIONS, TYP.SEE F.P. DWGS. FOR SPRINKLER PIPING AND HEAD LOCATIONS.

SPRINKLER HEADS ARE INDICATED FOR GENERAL LOCATIONS ONLY. THEY MUST MEET ALL CODE REQUIREMENTS.

24. LOCATE CLG, REGISTERS INSTEAD OF TOP REGISTERS WHERE DUCT ENTERS A KITCHEN OR BATHROOM FROM CLG. THAT IS HIGHER THAN THE KITCHEN OR BATHROOM CLG

WALL MOUNTED SMOKE / CARBON MONOXIDE DETECTORS TO BE LOCATED 6" FROM CEILING. TO CENTERLINE OF DETECTOR. SPACE PERMITTING, CENTERED IN WALL OR ABOVE DOORS, TYP. U.O.N. HARDWIRED CARBON MONOXIDE DETECTORS SHALL COMPLY WITH RS 17-13 AND INSTALLED IN ACCORDANCE WITH RS 17-14. IT SHALL BE PROVIDED IN EVERY DWELLING UNIT WITHIN 15'-0" ON THE PRIMARY ENTRANCE OF EACH BEDROOM.

SEE UNIT "B" RCP FOR TYPICAL BATHROOM, CLOSET, AND CORRIDOR LIGHT DIMENSIONS,

D — SWITCH CONTROL W/ DIMMER
(CONTINUOUS AND WITH CONTROL STEP OF 30%, 50% AND 70%)
LEGRAND RADIANT INCANDESCENT DIMMER - RH1103P 120V, 1100W, SINGLE POLE & 3-WAY OPERATION

DS — DAYLIGHT SENSOR
NCM ADCX CEILING MOUNT, ADAPTIVE/MANUAL 360 DEG. COVERAGE

TS — TIME SWITCH
HONEYWELL RPLS730B1000/U. WALLMOUNT ,7-DAY PROGRAMMABLE TIMER SWITCH WITH HIDDEN PROGRAMMING BUTTONS AND BUILT-IN RECHARGEABLE BATTERY

SDMD — SMOKE AND CARBON MONOXIDE DETECTOR

MV 50 CFM — MECHANICAL VENT TO ROOF

HVAC HEAT PUMP

EMERGENCY WALL LIGHT
PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES

SPR — SPRINKLER - PENDANT HEAD
NORMAL TYPE

SPR — SPRINKLER - PENDANT HEAD
UPRIGHT TYPE

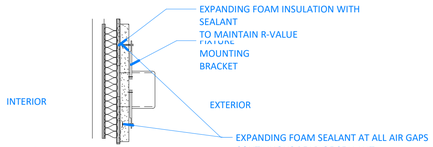
SPR — SPRINKLER - WALL
MOUNTED NORMAL TYPE

SPR — SPRINKLER - WALL
MOUNTED UPRIGHT TYPE

OCCUPANCY SENSOR EXITS
OCCUPANCY SENSOR AT STAIRS & CORRIDORS SHALL HAVE A DIMMER & WILL NOT REDUCE THE LIGHTING LESS A FOOT CANDLE AS REQUIRED BY NYC BC*

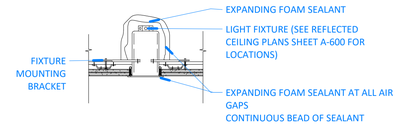
EXIT SIGN
UNIVERSAL MOUNT EXIT SIGN - 1 FACE WITH BATTERY BACK UP.
SHADING INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF EGRESS.
LITHONIA LHQM LEDWRS MAX. 5 WATTS PER SIDE

MANUAL LIGHT SWITCH
SINGLE POLE OPERATION



LIGHT FIXTURE PENETRATION DETAIL

2 EXTERIOR
SCALE: 3/4" = 1'-0"



LIGHT FIXTURE PENETRATION DETAIL

1 SCALE: 3/4" = 1'-0"

ARCHITECT:
S.WIEDER ARCHITECT PC
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MUNICIPAL CONSULTANT:
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OWNER:
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NO.	DESCRIPTION	DATE
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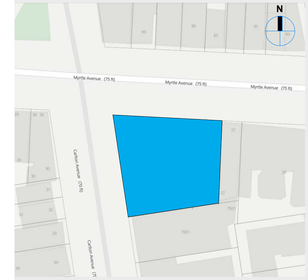
75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:
155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:
PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:
REFLECTED CEILING PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

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ASHRAE 90.1

ELECTRICAL ENERGY MONITORING:
WHOLE BUILDING ELECTRICAL ENERGY MONITORING TO COMPLY WITH ASHRAE 90.1 SECTION 8.4.3:
MONITORING MEASUREMENT DEVICES PER SECTION 8.4.3.1 TO MONITOR THE ELECTRICAL ENERGY USAGE FOR EACH OF THE FOLLOWING SEPARATELY:
A. TOTAL ELECTRICAL ENERGY
B. HVAC SYSTEMS
C. INTERIOR LIGHTING
D. EXTERIOR LIGHTING
E. RECEPTACLE CIRCUITS

FOR BUILDINGS WITH TENANTS, THESE SYSTEMS SHALL BE SEPARATELY MONITORED FOR THE TOTAL BUILDING AND (EXCLUDING SHARED SYSTEMS) FOR EACH INDIVIDUAL TENANT.

USAGE SHALL BE REPORTED PER ASHRAE 8.4.3.2 TO BE RECORDED A MINIMUM OF EVERY 15 MINUTES AND REPORTED AT LEAST HOURLY, DAILY, MONTHLY, AND ANNUALLY. THE SYSTEM SHALL BE CAPABLE OF MAINTAINING ALL DATA COLLECTED FOR A MINIMUM OF 36 MONTHS.

8.4.2 AUTOMATIC RECEPTACLE CONTROL
THE FOLLOWING SHALL BE AUTOMATICALLY CONTROLLED:
A. AT LEAST 50% OF ALL 125V, 15 AND 20 AMP RECEPTACLES IN ALL PRIVATE OFFICES, CONFERENCE ROOMS, ROOMS USED PRIMARILY FOR PRINTING AND/OR COPYING FUNCTIONS, BREAK ROOMS, CLASSROOMS, AND INDIVIDUAL WORKSTATIONS.
B. AT LEAST 25% OF BRANCH CIRCUIT FEEDERS INSTALLED FOR MODULAR FURNITURE NOT SHOWN ON THE CONSTRUCTION DOCUMENTS.
THIS CONTROL SHALL FUNCTION ON
A. A SCHEDULED BASIS USING A TIME-OF-DAY OPERATED CONTROL DEVICE THAT TURNS RECEPTACLES OFF AT SPECIFIC PROGRAMMED TIMES—AN INDEPENDENT PROGRAM SCHEDULE SHALL BE PROVIDED FOR CONTROLLED AREAS OF NO MORE THAN 5000 FT2 AND NOT MORE THAN ONE FLOOR (THE OCCUPANT SHALL BE ABLE TO MANUALLY OVERRIDE THE CONTROL DEVICE FOR UP TO TWO HOURS);
B. AN OCCUPANT SENSOR THAT SHALL TURN RECEPTACLES OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING A SPACE; OR
C. AN AUTOMATED SIGNAL FROM ANOTHER CONTROL OR ALARM SYSTEM THAT SHALL TURN RECEPTACLES OFF WITHIN 20 MINUTES AFTER DETERMINING THAT THE AREA IS UNOCCUPIED. ALL CONTROLLED RECEPTACLES SHALL BE PERMANENTLY MARKED TO VISUALLY DIFFERENTIATE THEM FROM UNCONTROLLED RECEPTACLES AND ARE TO BE UNIFORMLY DISTRIBUTED THROUGHOUT THE SPACE. PLUG-IN DEVICES SHALL NOT BE USED TO COMPLY WITH SECTION 8.4.2.

EXCEPTIONS TO SECTION 8.4.2
RECEPTACLES FOR THE FOLLOWING SHALL NOT REQUIRE AN AUTOMATIC CONTROL DEVICE:
1. RECEPTACLES SPECIFICALLY DESIGNATED FOR EQUIPMENT REQUIRING CONTINUOUS OPERATION (24/DAY, 365 DAYS/YEAR).
2. SPACES WHERE AN AUTOMATIC CONTROL WOULD ENDANGER THE SAFETY OR SECURITY OF THE ROOM OR BUILDING OCCUPANTS.

C405.8.1 ELEVATOR EQUIPMENT AND CABS.
ELEVATOR CAB LUMINAIRES, NOT INCLUDING SIGNALS AND DISPLAYS. SHALL NOT BE LESS THAN 25 LUMENS PER WATT.

VENT FANS IN ELEVATORS WITHOUT AIR-CONDITIONING SYSTEM SHALL NOT CONSUME MORE THAN 0.33 WATTS/CFM AT THE MAX RATED SPEED. PROVIDE CONTROLS TO DE-ENERGIZE VENT FANS AND LIGHTING SYSTEMS WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED AND WITH ITS DOORS CLOSED FOR OVER 15 MINUTES

LIGHTING CONTROL NARRATIVE

ROOM NAME/SPACE DESCRIPTION	CONTROL TYPE REQUIREMENTS
PARKING/BICYCLE PARKING AREA (INTERIOR)	**9.4.1.2** • (a) PARKING GARAGE LIGHTING SHALL HAVE AUTOMATIC LIGHTING SHUTOFF PER SECTION 9.4.1.1(I). • (b) LIGHTING POWER OF EACH LUMINAIRE SHALL BE AUTOMATICALLY REDUCED BY A MINIMUM OF 30% WHEN THERE IS NO ACTIVITY DETECTED WITHIN A LIGHTING ZONE FOR 15 MINUTES. LIGHTING ZONES FOR THIS REQUIREMENT SHALL BE NO LARGER THAN 3,600 SF. • (c) LIGHTING FOR COVERED VEHICLE ENTRANCES AND EXITS FROM BUILDINGS AND PARKING STRUCTURES SHALL BE SEPARATELY CONTROLLED BY A DEVICE THAT AUTOMATICALLY REDUCES THE LIGHTING BY AT LEAST 50% FROM SUNSET TO SUNRISE. • (d) THE POWER TO LUMINAIRES WITHIN 20 FT OF ANY PERIMETER WALL STRUCTURE THAT HAS A NET OPENING-TO-WALL RATIO OF AT LEAST 40% AND NO EXTERIOR OBSTRUCTIONS WITHIN 20 FT, SHALL BE AUTOMATICALLY REDUCED IN RESPONSE TO DAYLIGHT BY AT LEAST 50%. **NOTE:** LIGHTING IN DAYLIGHT TRANSITION ZONES AND RAMPS WITHOUT PARKING ARE EXEMPT FROM 9.4.1.2
CORRIDORS/LOBBY/MAILROOM **BUILDING ENTRANCES (LOBBY) AND EXITS**	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. • (e) ANY SPACE WITHIN A PRIMARY SIDELIGHTED AREA WHERE THE COMBINED INPUT POWER OF ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN THE PRIMARY SIDELIGHTED AREAS IS 100W OR GREATER, THE GENERAL LIGHTING IN THE PRIMARY SIDELIGHTED AREAS SHALL BE CONTROLLED BY PHOTO CONTROLS. • (f) ANY SPACE WITHIN A PRIMARY TOPLIGHTED AREA WHERE THE COMBINED INPUT POWER FOR ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN DAYLIGHT AREA UNDER SKYLIGHTS AND DAYLIGHT AREA UNDER ROOF MONITORS IS 100W OR GREATER, GENERAL LIGHTING IN THE DAYLIGHT AREA SHALL BE CONTROLLED BY PHOTO CONTROLS. • (g) THE GENERAL LIGHTING POWER IN THE SPACE SHALL BE AUTOMATICALLY REDUCED BY AT LEAST 50% WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. (ADD2) REQUIRED CONTROL TYPES (h) & (i) WITHIN EGRESS AREAS • NEITHER ADD2 CONTROL TYPE SHALL BE REQUIRED WITHIN SPACES WHERE AUTOMATIC SHUTOFF WOULD ENDANGER THE SAFETY OR SECURITY OF THE BUILDING OCCUPANTS **9.4.3** INTERNALLY ILLUMINATED EXIT SIGNS SHALL NOT EXCEED 5W PER FACE **NOTE:** THE MEANS OF EGRESS ILLUMINATION LEVEL, SHALL NOT BE LESS THAN 1 FOOT-CANDLE (11 LUX) AT THE WALKING SURFACE, SENSORS AND CONTROLS SHALL COMPLY WITH **BC 1006.2.1**
EXIT STAIRWAY	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. (ADD2) REQUIRED CONTROL TYPES (h) & (i) WITHIN EGRESS AREAS • NEITHER ADD2 CONTROL TYPE SHALL BE REQUIRED WITHIN SPACES WHERE AUTOMATIC SHUTOFF WOULD ENDANGER THE SAFETY OR SECURITY OF THE BUILDING OCCUPANTS **9.4.3** INTERNALLY ILLUMINATED EXIT SIGNS SHALL NOT EXCEED 5W PER FACE **NOTE:** THE MEANS OF EGRESS ILLUMINATION LEVEL, SHALL NOT BE LESS THAN 1 FOOT-CANDLE (11 LUX) AT THE WALKING SURFACE, SENSORS AND CONTROLS SHALL COMPLY WITH **BC 1006.2.1**
ELECTRICAL/MECHANICAL/REFUSE AREAS	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. • (e) ANY SPACE WITHIN A PRIMARY SIDELIGHTED AREA WHERE THE COMBINED INPUT POWER OF ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN THE PRIMARY SIDELIGHTED AREAS IS 100W OR GREATER, THE GENERAL LIGHTING IN THE PRIMARY SIDELIGHTED AREAS SHALL BE CONTROLLED BY PHOTO CONTROLS. • (f) ANY SPACE WITHIN A PRIMARY TOPLIGHTED AREA WHERE THE COMBINED INPUT POWER FOR ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN DAYLIGHT AREA UNDER SKYLIGHTS AND DAYLIGHT AREA UNDER ROOF MONITORS IS 100W OR GREATER, GENERAL LIGHTING IN THE DAYLIGHT AREA SHALL BE CONTROLLED BY PHOTO CONTROLS.
ELEVATOR	**10.4.3.1** • FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS (AS DESCRIBED IN SECTION 9.1.4) SHALL BE NO LESS THAN 35 LM/W **10.4.3.3** • STANDBY MODE: WHEN STOPPED AND UNOCCUPIED WITH DOORS CLOSED FOR OVER 15 MINUTES, CAB INTERIOR LIGHTING AND VENTILATION SHALL BE DE-ENERGIZED UNTIL REQUIRED FOR OPERATION
DWELLING UNITS/BALCONIES	**9.1.1** DWELLING UNITS WITHIN COMMERCIAL BUILDINGS SHALL NOT BE REQUIRED TO COMPLY WITH THIS SECTION PROVIDED THAT NOT LESS THAN 75% OF THE PERMANENTLY INSTALLED FIXTURES, OTHER THAN LOW-VOLTAGE LIGHTING, SHALL BE FITTED FOR, AND CONTAIN ONLY, HIGH EFFICACY LAMPS.
LAUNDRY/WASHING AREA **EXERCISE ROOM** **LIBRARY/READING ROOM** **HEALTHCARE ("ADD1" IS NOT APPLICABLE)**	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. • (e) ANY SPACE WITHIN A PRIMARY SIDELIGHTED AREA WHERE THE COMBINED INPUT POWER OF ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN THE PRIMARY SIDELIGHTED AREAS IS 100W OR GREATER, THE GENERAL LIGHTING IN THE PRIMARY SIDELIGHTED AREAS SHALL BE CONTROLLED BY PHOTO CONTROLS. • (f) ANY SPACE WITHIN A PRIMARY TOPLIGHTED AREA WHERE THE COMBINED INPUT POWER FOR ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN DAYLIGHT AREA UNDER SKYLIGHTS AND DAYLIGHT AREA UNDER ROOF MONITORS IS 100W OR GREATER, GENERAL LIGHTING IN THE DAYLIGHT AREA SHALL BE CONTROLLED BY PHOTO CONTROLS. (ADD1) REQUIRED CONTROL TYPE (b) OR (c) SHAL BE IMPLEMENTED FOR SPACE • (b) RESTRICTED TO MANUAL ON: NONE OF THE LIGHTING SHALL BE AUTOMATICALLY TURNED ON • (c) RESTRICTED TO PARTIAL AUTOMATIC ON: NO MORE THAN 50% OF THE LIGHTING POWER FOR THE GENERAL LIGHTING SHALL BE ALLOWED TO BE AUTOMATICALLY TURNED ON, AND NONE OF THE REMAINING LIGHTING SHALL BE AUTOMATICALLY TURNED ON. (ADD2) REQUIRED CONTROL TYPE (h) OR (i) SHAL BE IMPLEMENTED FOR SPACE • (h) AUTOMATIC FULL OFF: ALL LIGHTING SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. A CONTROL DEVICE MEETING THIS REQUIREMENT SHALL CONTROL NO MORE THAN 5,000 SF. • (i) SCHEDULED SHUTOFF: ALL LIGHTING IN THE SPACE SHALL BE AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED USING EITHER 1. A TIME-OF-DAY OPERATED CONTROL DEVICE THAT AUTOMATICALLY TURNS THE LIGHTING OFF AT SPECIFIC PROGRAMMED TIMES (OR) 2. A SIGNAL FROM ANOTHER AUTOMATIC CONTROL DEVICE OR ALARM/SECURITY SYSTEM. THE CONTROL DEVICE OR SYSTEM SHALL PROVIDE INDEPENDENT CONTROL SEQUENCES THAT 1. CONTROL THE LIGHTING FOR AN AREA OF NO MORE THAN 25,000 SF 2. INCLUDE NO MORE THAN ONE FLOOR, (AND) 3. SHALL BE PROGRAMMED TO ACCOUNT FOR WEEKENDS AND HOLIDAYS. ANY MANUAL CONTROL INSTALLED TO PROVIDE OVERRIDE OF THE SCHEDULED SHUTOFF CONTROL SHALL NOT TURN THE LIGHTING ON FOR MORE THAN TWO HOURS PER ACTIVATION DURING SCHEDULED OFF PERIODS AND SHALL NOT CONTROL MORE THAN 5,000 SF
EXTERIOR BUILDING SPACES	**9.4.1.4 EXTERIOR LIGHTING CONTROL:** • (a) LIGHTING SHALL BE CONTROLLED BY A DEVICE THAT AUTOMATICALLY TURNS OFF THE LIGHTING WHEN SUFFICIENT DAYLIGHT IS AVAILABLE. • (b) ALL BUILDING FAÇADE AND LANDSCAPE LIGHTING SHALL BE AUTOMATICALLY SHUT OFF BETWEEN MIDNIGHT OR BUSINESS CLOSING, WHICHEVER IS LATER, AND 6 A.M. OR BUSINESS OPENING, WHICHEVER COMES FIRST, OR BETWEEN TIMES ESTABLISHED BY THE AUTHORITY HAVING JURISDICTION. • (c) LIGHTING NOT SPECIFIED IN SECTION (b) AND LIGHTING FOR SIGNAGE SHALL BE CONTROLLED BY A DEVICE THAT AUTOMATICALLY REDUCES THE CONNECTED LIGHTING POWER BY AT LEAST 30% FOR AT LEAST ONE OF THE FOLLOWING CONDITIONS: 1. FROM 12 MIDNIGHT OR WITHIN (1) HOUR OF THE END OF BUSINESS OPERATIONS, WHICHEVER IS LATER, UNTIL 6 A.M. OR BUSINESS OPENING, WHICHEVER IS EARLIER 2. DURING ANY PERIOD WHEN NO ACTIVITY HAS BEEN DETECTED FOR A TIME OF NO LONGER THAN 15 MINUTES. ALL TIME SWITCHES SHALL BE CAPABLE OF RETAINING PROGRAMMING AND THE TIME SETTING DURING LOSS OF POWER FOR A PERIOD OF AT LEAST TEN HOURS. **EXCEPTIONS:** 1. LIGHTING FOR COVERED VEHICLE ENTRANCES OR EXITS FROM BUILDINGS OR PARKING STRUCTURES WHERE REQUIRED FOR SAFETY, SECURITY, OR EYE ADAPTATION 2. LIGHTING THAT IS INTEGRAL TO SIGNAGE AND INSTALLED IN THE SIGNAGE BY THE MANUFACTURER
PARKING ENTRANCE	**9.4.1.2 PARKING LIGHTING CONTROLS:** (c) LIGHTING FOR COVERED VEHICLE ENTRANCES AND EXITS FROM BUILDINGS AND PARKING STRUCTURES SHALL BE SEPARATELY CONTROLLED BY A DEVICE THAT AUTOMATICALLY REDUCES THE LIGHTING BY AT LEAST 50% FROM SUNSET TO SUNRISE.

LIGHTING CONTROL NARRATIVE

PARKING ENTRANCE	**9.4.1.2 PARKING LIGHTING CONTROLS:** (c) LIGHTING FOR COVERED VEHICLE ENTRANCES AND EXITS FROM BUILDINGS AND PARKING STRUCTURES SHALL BE SEPARATELY CONTROLLED BY A DEVICE THAT AUTOMATICALLY REDUCES THE LIGHTING BY AT LEAST 50% FROM SUNSET TO SUNRISE.
RESTROOMS	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. • (h) AUTOMATIC FULL OFF: ALL LIGHTING SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. A CONTROL DEVICE MEETING THIS REQUIREMENT SHALL CONTROL NO MORE THAN 5,000 SF
RETAIL (SALES AREA)	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. (ADD2) REQUIRED CONTROL TYPE (h) OR (i) SHAL BE IMPLEMENTED FOR SPACE • (h) AUTOMATIC FULL OFF: ALL LIGHTING SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. A CONTROL DEVICE MEETING THIS REQUIREMENT SHALL CONTROL NO MORE THAN 5,000 SF. • (i) SCHEDULED SHUTOFF: ALL LIGHTING IN THE SPACE SHALL BE AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED USING EITHER 1. A TIME-OF-DAY OPERATED CONTROL DEVICE THAT AUTOMATICALLY TURNS THE LIGHTING OFF AT SPECIFIC PROGRAMMED TIMES (OR) 2. A SIGNAL FROM ANOTHER AUTOMATIC CONTROL DEVICE OR ALARM/SECURITY SYSTEM. THE CONTROL DEVICE OR SYSTEM SHALL PROVIDE INDEPENDENT CONTROL SEQUENCES THAT 1. CONTROL THE LIGHTING FOR AN AREA OF NO MORE THAN 25,000 SF 2. INCLUDE NO MORE THAN ONE FLOOR, (AND) SHALL BE PROGRAMMED TO ACCOUNT FOR WEEKENDS AND HOLIDAYS. ANY MANUAL CONTROL INSTALLED TO PROVIDE OVERRIDE OF THE SCHEDULED SHUTOFF CONTROL SHALL NOT TURN THE LIGHTING ON FOR MORE THAN TWO HOURS PER ACTIVATION DURING SCHEDULED OFF PERIODS AND SHALL NOT CONTROL MORE THAN 5,000 SF
STORAGE **< 50 SF** **"REQ":(a), "ADD2":(h)(i)** **≥ 50 SF AND ≤ 1,000 SF** **"REQ":(a)(e)(f)(h), "ADD1":(b)(c)** **ALL OTHER STORAGE ROOMS** **"REQ":(a)(e)(f)(G), "ADD1":(b)(c), "ADD2":(h)(i)**	**9.4.1.1 (PER TABLE 9.6.1)** • (a) LOCAL CONTROL: ONE OR MORE MANUAL LIGHTING CONTROLS THAT CONTROLS ALL OF THE LIGHTING. EACH CONTROL DEVICE SHALL CONTROL AN AREA (1) NO LARGER THAN 2,500 SF. IF THE AREA IS ≤ 10,000 SF AND (2) NO LARGER THAN 10,000 SF OTHERWISE. THE DEVICE SHALL BE READILY ACCESSIBLE AND LOCATED SO THAT THE OCCUPANTS CAN SEE THE CONTROLLED LIGHTING WHEN USING THE CONTROL DEVICE. • (e) ANY SPACE WITHIN A PRIMARY SIDELIGHTED AREA WHERE THE COMBINED INPUT POWER OF ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN THE PRIMARY SIDELIGHTED AREAS IS 100W OR GREATER, THE GENERAL LIGHTING IN THE PRIMARY SIDELIGHTED AREAS SHALL BE CONTROLLED BY PHOTO CONTROLS. • (f) ANY SPACE WITHIN A PRIMARY TOPLIGHTED AREA WHERE THE COMBINED INPUT POWER FOR ALL GENERAL LIGHTING COMPLETELY OR PARTIALLY WITHIN DAYLIGHT AREA UNDER SKYLIGHTS AND DAYLIGHT AREA UNDER ROOF MONITORS IS 100W OR GREATER, GENERAL LIGHTING IN THE DAYLIGHT AREA SHALL BE CONTROLLED BY PHOTO CONTROLS. • (g) THE GENERAL LIGHTING POWER IN THE SPACE SHALL BE AUTOMATICALLY REDUCED BY AT LEAST 50% WITHIN 15 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. (ADD1) REQUIRED CONTROL TYPE (b) OR (c) SHAL BE IMPLEMENTED FOR SPACE • (b) RESTRICTED TO MANUAL ON: NONE OF THE LIGHTING SHALL BE AUTOMATICALLY TURNED ON • (c) RESTRICTED TO PARTIAL AUTOMATIC ON: NO MORE THAN 50% OF THE LIGHTING POWER FOR THE GENERAL LIGHTING SHALL BE ALLOWED TO BE AUTOMATICALLY TURNED ON, AND NONE OF THE REMAINING LIGHTING SHALL BE AUTOMATICALLY TURNED ON. (ADD2) REQUIRED CONTROL TYPE (h) OR (i) SHAL BE IMPLEMENTED FOR SPACE • (h) AUTOMATIC FULL OFF: ALL LIGHTING SHALL BE AUTOMATICALLY SHUT OFF WITHIN 20 MINUTES OF ALL OCCUPANTS LEAVING THE SPACE. A CONTROL DEVICE MEETING THIS REQUIREMENT SHALL CONTROL NO MORE THAN 5,000 SF. • (i) SCHEDULED SHUTOFF: ALL LIGHTING IN THE SPACE SHALL BE AUTOMATICALLY SHUT OFF DURING PERIODS WHEN THE SPACE IS SCHEDULED TO BE UNOCCUPIED USING EITHER 1. A TIME-OF-DAY OPERATED CONTROL DEVICE THAT AUTOMATICALLY TURNS THE LIGHTING OFF AT SPECIFIC PROGRAMMED TIMES (OR) 2. A SIGNAL FROM ANOTHER AUTOMATIC CONTROL DEVICE OR ALARM/SECURITY SYSTEM. THE CONTROL DEVICE OR SYSTEM SHALL PROVIDE INDEPENDENT CONTROL SEQUENCES THAT 1. CONTROL THE LIGHTING FOR AN AREA OF NO MORE THAN 25,000 SF 2. INCLUDE NO MORE THAN ONE FLOOR, (AND) 3. SHALL BE PROGRAMMED TO ACCOUNT FOR WEEKENDS AND HOLIDAYS. ANY MANUAL CONTROL INSTALLED TO PROVIDE OVERRIDE OF THE SCHEDULED SHUTOFF CONTROL SHALL NOT TURN THE LIGHTING ON FOR MORE THAN TWO HOURS PER ACTIVATION DURING SCHEDULED OFF PERIODS AND SHALL NOT CONTROL MORE THAN 5,000 SF

INTERIOR LIGHTING NOTES:
MAXIMUM ALLOWABLE COMMERCIAL LIGHTING WATTAGE: X,XXX WATTS
MAXIMUM ALLOWABLE COMMUNITY FACILITY LIGHTING WATTAGE: X,XXX WATTS
PROPOSED COMMERCIAL AND COMMUNITY FACILITY LIGHTING VALUES SHOWN IN COMCHECK WITH MAXIMUM PERMITTED WATTAGE ALLOWABLE FOR THOSE SPACES.

S. WIEDER ARCHITECT PC

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STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

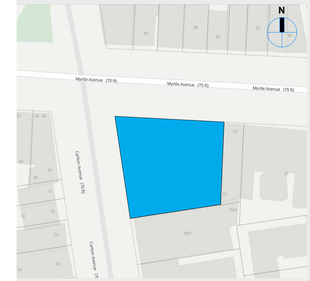
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

REFLECTED CEILING PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:49:28 AM
SCALE:
DRAWN BY: XX

EN-301.00

SHEET: 83 OF 88

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COMMON SPACE AREA SCHEDULE

CONFERENCE/MEETING/MULTIPURPOSE	
RECREATION	1,193 SF
	1,193 SF
CORRIDOR	
CORRIDOR	4,679 SF
MAIN LOBBY	155 SF
	4,834 SF
ELECTRICAL/MECHANICAL	
LAUNDRY	422 SF
MECHANICAL	460 SF
REFUSE	262 SF
REFUSE COMPACTOR	342 SF
	1,485 SF
GYM	
FITNESS CENTER	1,173 SF
	1,173 SF
PARKING	
ATTENDANT BOOTH	29 SF
BOOTH	45 SF
PARKING	4,771 SF
	4,844 SF
RESTROOM	
RESTROOM	131 SF
	131 SF
RETAIL	
COMMERCIAL CELLAR	4,400 SF
RETAIL	281 SF
	4,682 SF
STAIRWELL	
STAIR	1,380 SF
	1,380 SF
STORAGE	
BIKE STORAGE	435 SF
	435 SF

LIGHTING FIXTURE INTERIOR SCHEDULE

SYMBOL	TYPE	MANUFACTURER / FIXTURE TYPE	LAMP TYPE	LAMPS PER FIXTURE	BALLAST	LUMENS PER WATT	WATTS PER FIXTURE	NOTES	TOTAL NUMBER OF FIXTURES	SPACE TYPE	TOTAL WATTAGE
	L1	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20	WITHIN DWELLING UNITS, NOT LESS THAN 90% OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL USE LAMPS WITH AN EFFICACY OF AT LEAST 65 LM/W OR HAVE A TOTAL LUMINAIRE EFFICACY OF AT LEAST 45 LM/W.	296	DWELLING UNIT	5920 W
	L2	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20	THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT-CANDLE (11LUX) AT THE WALKING SURFACE, SENSORS AND CONTROLS SHALL COMPLY WITH BC 1006.2.1	60	CORRIDORS < 8FT WIDE	1200 W
	L3	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	60	20	THE MEANS OF EGRESS ILLUMINATION LEVEL SHALL NOT BE LESS THAN 1 FOOT-CANDLE (11LUX) AT THE WALKING SURFACE, SENSORS AND CONTROLS SHALL COMPLY WITH BC 1006.2.1	19	CORRIDORS < 8FT WIDE	380 W
	L4	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		12	ELECTRICAL/MECHANICAL ROOM	240 W
	L5	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		3	LAUNDRY	60 W
	L6	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		11	PARKING	220 W
	L7	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		10	RETAIL	200 W
	L8	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		2	STORAGE	40 W
	L10	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		4	GYMNASIUM	80 W
	L11	7" SQUARE SURFACE MOUNT OUTDOOR / INDOOR LIGHT FIXTURE	REJUVENTAION 40 W/ A19 LED / APLIANCE BULB HIGH EFFICACY, 1 LAMPS/FIXTURE	2	ELECTRONIC	65	20		3	RESTROOM	60 W

LIGHTING FIXTURE EXTERIOR SCHEDULE

SYMBOL	TYPE	MANUFACTURER / FIXTURE TYPE	LAMP TYPE	LAMPS PER FIXTURE	BALLAST	LUMENS PER WATT	WATTS PER FIXTURE	NOTES	TOTAL NUMBER OF FIXTURES	TOTAL WATTAGE
	EL2	COOPER INDUSTRIES, INC. SHAPER 673-W	25": L3:2000 NOMINAL LUMENS AT MAX 20W	1	ELECTRONIC	45	7	BALCONY/TERRACE	2	14 W
	EL3	COOPER INDUSTRIES, INC. SHAPER 673-W	25": L3:2000 NOMINAL LUMENS AT MAX 20W	1	ELECTRONIC	45	7	PEDESTRIAN ENTRANCES	1	7 W

N

S. WIEDER ARCHITECT PC

203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
...

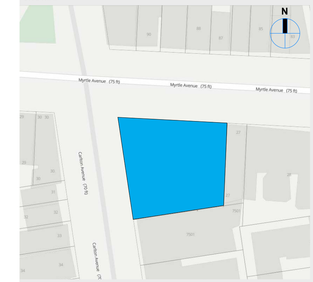
MUNICIPAL CONSULTANT:
...

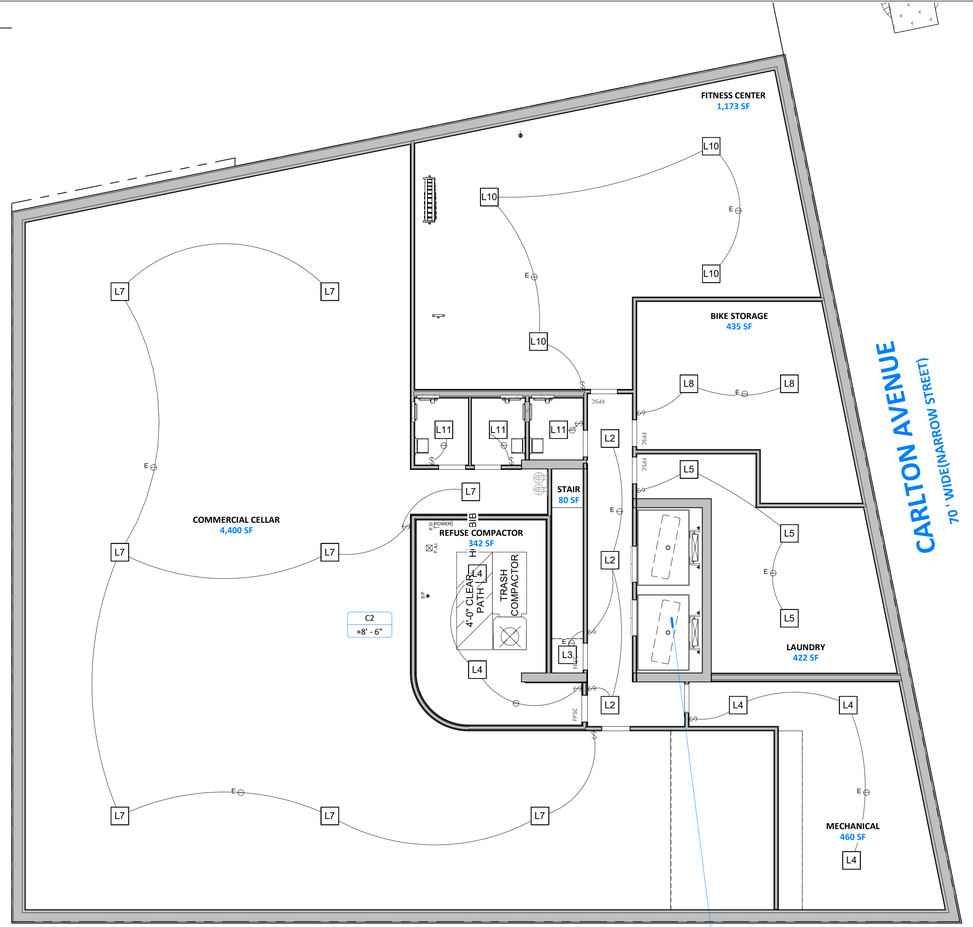
OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



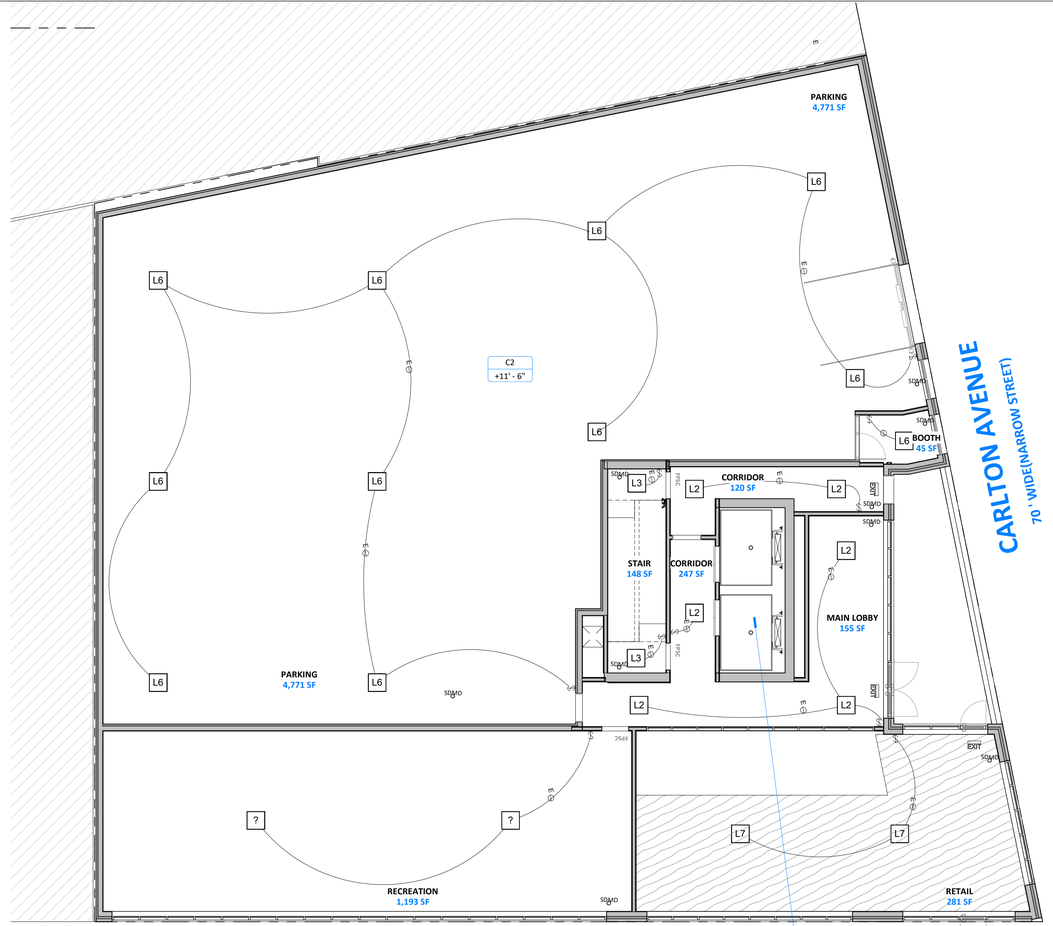


MYRTLE AVENUE

75' WIDE (WIDE STREET)

2 .CELLAR FLOOR RCP

SCALE: 1/8" = 1'-0"



MYRTLE AVENUE

75' WIDE (WIDE STREET)

1 1ST FLOOR RCP

SCALE: 1/8" = 1'-0"

NOTE: ALL LIGHTING FIXTURES WITHIN COMMERCIAL OR COMMUNITY FACILITY SPACES ARE SHOWN FOR FILING PURPOSES ONLY. ANY FUTURE TENANT WILL MEET NYCECC MAXIMUM ALLOWABLE LIGHTING POWER REQUIREMENTS IN AFFECT AT THE TIME OF ALTERATION APPLICATION.

PARKING NOTES:
PARKING GARAGE LIGHTING CONTROLS TO REDUCE POWER OF EACH LUMINAIRE BY 30% WHEN NO OCCUPANCY IS DETECTED FOR 20 MINUTES. OCCUPANCY SENSORS TO BE INSTALLED IN LOCATIONS AS INDICATED IN DRAWING BELOW

RCP NOTES

1. HUNG CEILING HEIGHTS ARE THE MINIMUM ALLOWABLE. CONSULT WITH ARCHITECT PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, PLUMBING OR SPRINKLERS IF ANY CEILING IS TO BE LOWER THAN INDICATED.
2. PROVIDE CEILING ACCESS PANELS FOR HVAC AND PLUMBING AS REQUIRED. CONSULT WITH ARCHITECT PRIOR TO INSTALLATION OF ANY ACCESS PANELS IN PUBLICLY VISIBLE AREAS.
3. FILL ALL SLAB OPENINGS AND SLEEVES THROUGH BEAMS AS APPROVED BY STRUCTURAL ENGINEER [TO BE COORDINATED WITH HVAC, ELECTRIC, PLUMBING AND SPRINKLER).
4. FILL ALL SLAB OPENINGS AND SLEEVES THROUGH BEAMS WITH THERMAFIBER FIRESTOPPING AS REQUIRED AFTER THE INSTALLATION OF ALL DUCTWORK AND PIPEWORK.
5. PROVIDE RAISED POCKETS ALONG LENGTH OF WINDOW WHERE DROPPED CEILING IS LOWER THAN WINDOW TRANSOM. POCKET SHOULD BE LARGE ENOUGH SO AS NOT TO IMPEDE THE FULL OPENING OF A WINDOW FOR CLEANING PURPOSES.
6. SEE SPRINKLER DRAWINGS FOR SPRINKLER HEAD DETAILS AND FURTHER INFORMATION.
7. ALL TRIMMED OPENINGS TO BE CONSISTENT WITH THE TOP OF ADJACENT DOORS, TYPICAL.
8. SEE INTERIOR DRAWINGS FOR FURTHER REFLECTED CEILING INFORMATION AT THE PUBLIC AREAS.
9. SEE KITCHEN AND BATHROOM DRAWINGS FOR ADDITIONAL INFORMATION ON LIGHTING.
10. SEE ELECTRICAL AND INTERIOR DESIGNER DRAWINGS FOR TYPES AND LOCATIONS OF ALL CEILING FIXTURES, TYPICAL.
11. TO AVOID ANY CONFLICT, COORDINATE THE LOCATION OF ALL CEILING MOUNTED SPRINKLER HEADS WITH RECESSED CEILING LIGHT FIXTURES AND JUNCTION BOXES.

11.1 ALL ELECTRIC FIXTURE LOCATIONS TO HAVE PRIORITY OVER SPRINKLER LOCATIONS

11.2 NOTIFY SPRINKLER ENGINEER OF ANY CONFLICTS BETWEEN SPRINKLER HEADS AND CONCRETE BEAMS OR OTHER OBSTRUCTIONS. PROVIDE WALL MOUNTED SPRINKLER HEADS AT THESE LOCATIONS WITH THE ENGINEER'S APPROVAL.

12. ALL DROPPED CEILINGS TO BE 5/8' THICK GYPSUM BOARD UNLESS OTHERWISE NOTED.
13. ALL MECHANICAL ELECTRIC, PLUMBING & SPRINKLER OFFSETS ARE TO BE ENCLOSED IN THE SPACE PROVIDED, MAINTAINING THE CEILING HEIGHTS INDICATED ON THE REFLECTED CEILING PLANS AND INTERIOR DESIGN DRAWINGS. COORDINATE ALL SLEEVES AND TUNNELS THROUGH CONCRETE BEAMS "WITH FULL APPROVAL BY THE STRUCTURAL ENGINEER. CONTRACTOR TO NOTIFY ARCHITECT IF THESE HEIGHTS CANNOT BE ACHIEVED PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, OR PLUMBING OF SPRINKLERS.
14. CONTRACTOR TO PROVIDE A COMPOSITE REFLECTED CEILING DRAWING WITH ALL MECHANICAL, ELECTRICAL, PLUMBING, COMMUNICATIONS AND SPRINKLER ITEMS COORDINATED, FOR REVIEW AND APPROVAL BY THE ARCHITECT, INTERIOR DESIGNER, STRUCTURAL ENGINEER AND MECHANICAL ENGINEER.
15. ALL TRIMMED OPENING AND HEADERS TO MATCH TYPICAL DOOR HEIGHTS, TYPICAL U.O.N. (EX. 7'-0" DOOR HEADER TO BE 7'-0", U.O.N.)
16. WHERE CONCRETE BEAMS ARE TO REMAIN EXPOSED, SAND TO A SMOOTH FINISH AND APPLY PAINTED KADEX. WHERE CONCRETE BEAMS ARE TO BE FURRED OUT. FOLLOW TYPICAL CONSTRUCTION PROCEDURE FOR HUNG CEILINGS.
17. SEE SPECIFICATIONS FOR FURTHER INFORMATION, TYPICAL.
18. ALL LIGHT FIXTURES IN PUBLIC CORRIDOR ABOVE APARTMENT ENTRY DOORS TO BE CENTERED ON DOORS, TYP.
19. UNLESS OTHERWISE SPECIFIED ON REFLECTED CEILING PLAN DRAWINGS All LIGHT FIXTURES TO BE CENTERED AND SPACED IN KITCHENS, BATHROOMS, POWDER ROOMS, CORRIDORS, FOYERS AND CLOSETS, U.O.N.
20. PROVIDE SLEEVES WHERE REQ'D SEE MEP. DWGS. FOR LOCATIONS, TYP.SEE F.P. DWGS. FOR SPRINKLER PIPING AND HEAD LOCATIONS.
21. SPRINKLER HEADS ARE INDICATED FOR GENERAL LOCATIONS ONLY. THEY MUST MEET ALL CODE REQUIREMENTS.
22. LOCATE CLG, REGISTERS INSTEAD OF TOP REGISTERS WHERE DUCT ENTERS A KITCHEN OR BATHROOM FROM CLG. THAT IS HIGHER THAN THE KITCHEN OR BATHROOM CLG
23. WALL MOUNTED SMOKE / CARBON MONOXIDE DETECTORS TO BE LOCATED 6" FROM CEILING. TO CENTERLINE OF DETECTOR. SPACE PERMITTING, CENTERED IN WALL OR ABOVE DOORS, TYP. U.O.N. HARDWIRED CARBON MONOXIDE DETECTORS SHALL COMPLY WITH RS 17-13 AND INSTALLED IN ACCORDANCE WITH RS 17-14. IT SHALL BE PROVIDED IN EVERY DWELLING UNIT WITHIN 15'-0" ON THE PRIMARY ENTRANCE OF EACH BEDROOM.
24. SEE UNIT "B" RCP FOR TYPICAL BATHROOM, CLOSET, AND CORRIDOR LIGHT DIMENSIONS,

CEILING LEGEND

- INDICATES PAINTED GWB HUNG CEILING
- INDICATES PAINTED EXPOSED CONCRETE SLAB (UNLESS OTHERWISE NOTED)
- INDICATES ACOUSTIC CEILING TILE 2' - 0" X 2' - 0"
- 1i / 1' - 0" — CEILING HEIGHT TAG

ELECTRICAL FIXTURE LEGEND

- **OCCUPANCY SENSOR** — AUTOMATICALLY TURN-OFF LIGHTS AFTER 15 MINUTES OF BEEING UNOCCUPIED. IN ADDITION SENSORS ARE MANUAL-ON TO NOT MORE THAN 50%.
- **OCCUPANCY SENSOR EXITS** — OCCUPANCY SENSOR AT STAIRS & CORRIDORS SHALL HAVE A DIMMER & WILL NOT REDUCE THE LIGHTING LESS A FOOT CANDLE AS REQUIRED BY NYC BC*
- **EXIT SIGN** — UNIVERSAL MOUNT EXIT SIGN - 1 FACE WITH BATTERY BACK UP. SHADING INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF EGRESS. LITHONIA LHQM LEDWRS MAX. 5 WATTS PER SIDE
- MANUAL LIGHT SWITCH SINGLE POLE OPERATION
- SWITCH CONTROL W/ DIMMER (CONTINUOUS AND WITH CONTROL STEP OF 30%, 50% AND 70%) LEGRAND RADIANT INCANDESCENT DIMMER - RH1103P 120V, 1100W, SINGLE POLE & 3-WAY OPERATION
- DS — DAYLIGHT SENSOR NCM ADCX CEILING MOUNT, ADAPTIVE/MANUAL 360 DEG. COVERAGE
- TS — TIME SWITCH HONEYWELL RPLS730B1000/U. WALLMOUNT ,7-DAY PROGRAMMABLE TIMER SWITCH WITH HIDDEN PROGRAMMING BUTTONS AND BUILT-IN RECHARGEABLE BATTERY
- SD/CO — SMOKE AND CARBON MONOXIDE DETECTOR
- MV 50 CFM — MECHANICAL VENT TO ROOF
- HVAC HEAT PUMP
- EMERGENCY WALL LIGHT PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES
- SPR — SPRINKLER - PENDANT HEAD NORMAL TYPE
- SPR — SPRINKLER - PENDANT HEAD UPRIGHT TYPE
- SPR — SPRINKLER - WALL MOUNTED NORMAL TYPE
- SPR — SPRINKLER - WALL MOUNTED UPRIGHT TYPE

ELEVATOR SYSTEMS

10.4.3.1 LIGHTING:
ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, SHALL BE NO LESS THAN 35 LM/W.
COMPLIES

10.4.3.2 VENTILATION POWER LIMITATION:
FOR ELEVATORS WITHOUT AIR CONDITIONING VENTILATION FANS SHALL NOT USE MORE THAN 0.33 W/CFM AT MAX AIRFLOW SETTING.
COMPLIES

10.4.3.3 STANDBY MODE:
ELEVATORS NOT OCCUPIED FOR MORE THAN 15 MINUTES WHILE ELEVATOR IS STOPPED WITH DOORS CLOSED SHALL DE-ENERGIZE ELEVATOR LIGHTING AND VENTILATION UNTIL OPERATION IS RESUMED.
COMPLIES, OCCUPANCY SENSORS PROVIDED

10.4.3.4 DESIGN DOCUMENTS
DESIGN DOCUMENTS SHALL LIST THE FOLLOWING FOR NEW ELEVATORS:
A. USAGE CATEGORY AS DEFINED IN ISO 25745-2 BETWEEN 1 AND 6.
B. ENERGY EFFICIENCY CLASSES A THROUGH G PER ISO 25745-2, TABLE 7.
COMPLIES

10.4.3.5 POWER CONVERSION SYSTEM
NEW TRACTION ELEVATORS WITH A RISE OF 75 FEET OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS 10.4.3.5.1 THROUGH 10.4.3.5.3.
COMPLIES

10.4.3.5.1MOTOR
INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATINGS, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.
COMPLIES

10.4.3.5.2 TRANSMISSION
TRANSMISSIONS SHALL NOT REDUCE THE EFFICIENCY OF THE COMBINED MOTOR/TRANSMISSION BELOW THAT SHOWN FOR THE CLASS IE2 MOTOR FOR ELEVATORS WITH CAPACITIES BELOW 4,000 LBS. GEARLESS MACHINES SHALL BE ASSUMED TO HAVE A 100%TRANSMISSION EFFICIENCY.
COMPLIES

10.4.3.5.3 DRIVE
POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDINGELECTRICAL SYSTEM
COMPLIES

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T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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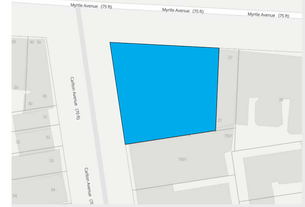
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

REFLECTED CEILING PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:49:41 AM
SCALE: As indicated
DRAWN BY: XX

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SHEET: 85 OF 88

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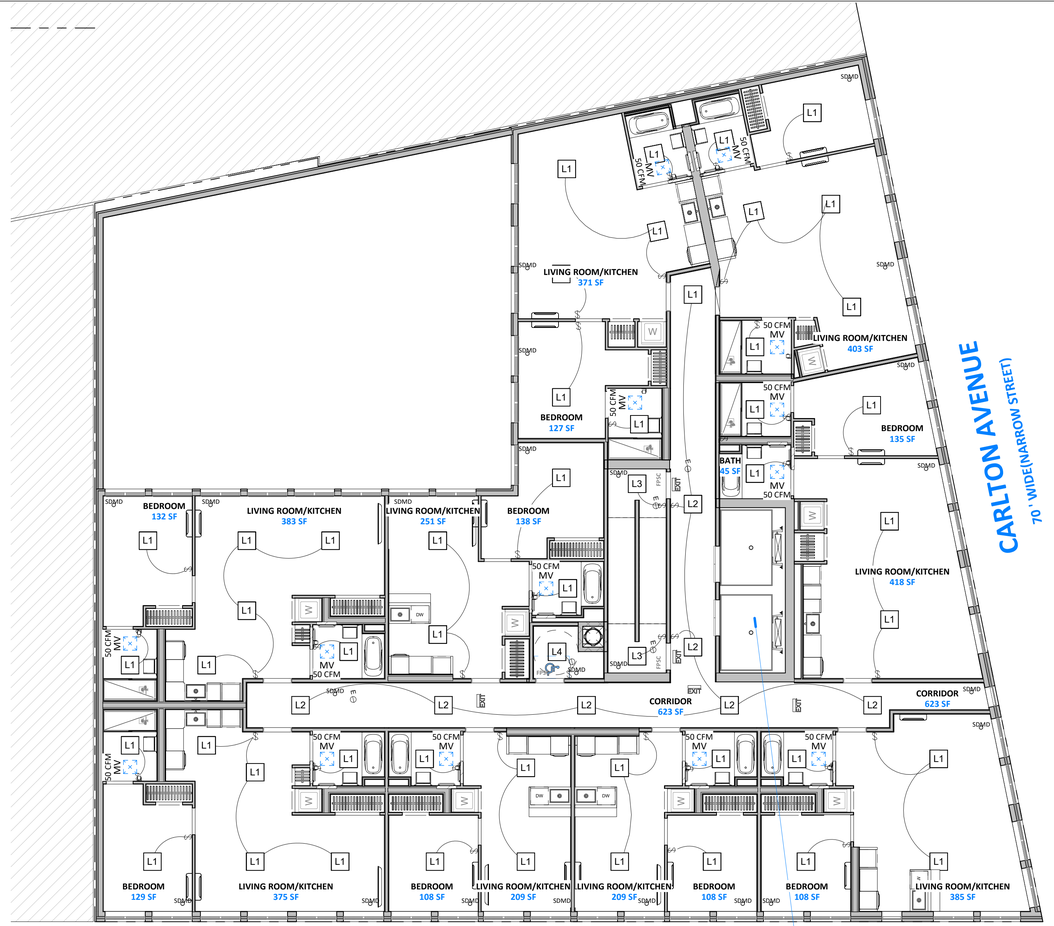


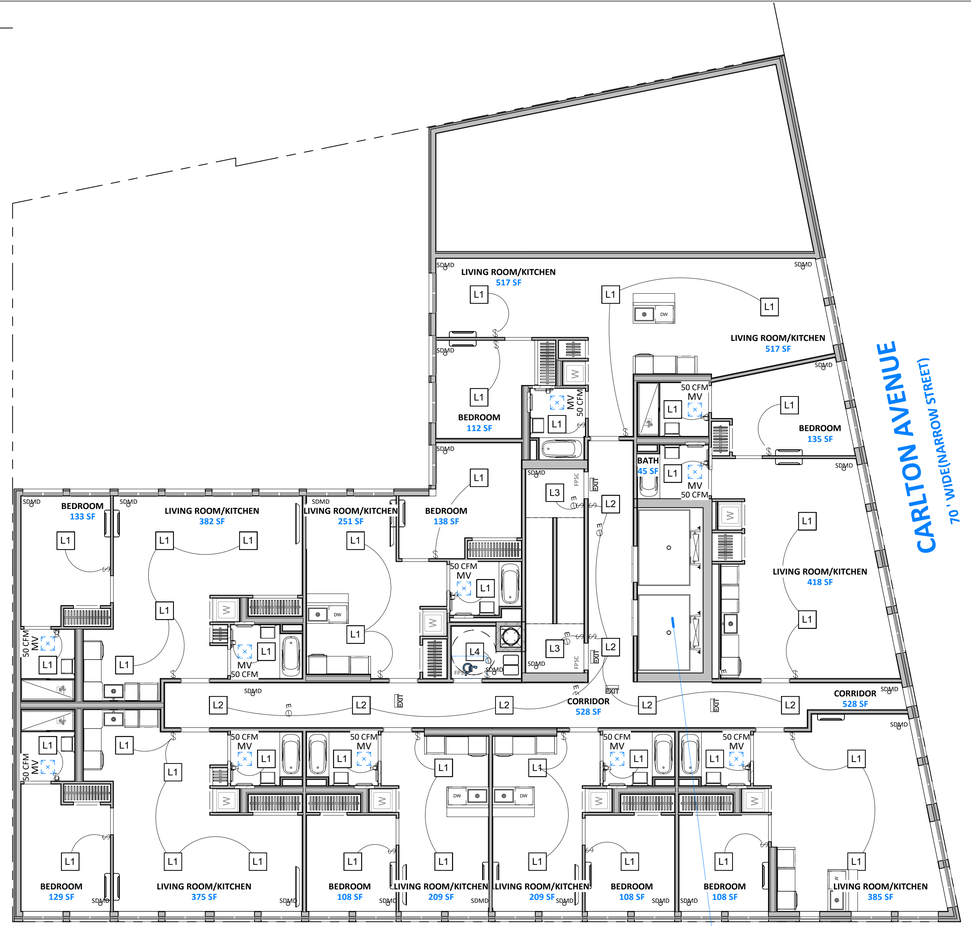
2 2ND-5TH FLOOR RCP

SCALE: 1/8" = 1'-0"

MYRTLE AVENUE

75' WIDE (WIDE STREET)

ELEVATOR LIGHTING PROVIDED BY ELEVATOR MANUFACTURER SHALL CONFORM TO 10.4.3.1



1 6TH-7TH FLOOR RCP

SCALE: 1/8" = 1'-0"

MYRTLE AVENUE

75' WIDE (WIDE STREET)

ELEVATOR LIGHTING PROVIDED BY ELEVATOR MANUFACTURER SHALL CONFORM TO 10.4.3.1

RCP NOTES

1. HUNG CEILING HEIGHTS ARE THE MINIMUM ALLOWABLE. CONSULT WITH ARCHITECT PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, PLUMBING OR SPRINKLERS IF ANY CEILING IS TO BE LOWER THAN INDICATED.
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ELECTRICAL FIXTURE LEGEND

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- TS TIME SWITCH HONEYWELL RPLS730B1000/U. WALLMOUNT ,7-DAY PROGRAMMABLE TIMER SWITCH WITH HIDDEN PROGRAMMING BUTTONS AND BUILT-IN RECHARGEABLE BATTERY
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- SPR SPRINKLER - WALL MOUNTED NORMAL TYPE
- SPR SPRINKLER - WALL MOUNTED UPRIGHT TYPE

ELEVATOR SYSTEMS

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ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, SHALL BE NO LESS THAN 35 LM/W.
COMPLIES

10.4.3.2 VENTILATION POWER LIMITATION:
FOR ELEVATORS WITHOUT AIR CONDITIONING VENTILATION FANS SHALL NOT USE MORE THAN 0.33 W/CFM AT MAX AIRFLOW SETTING.
COMPLIES

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COMPLIES, OCCUPANCY SENSORS PROVIDED

10.4.3.4 DESIGN DOCUMENTS
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B. ENERGY EFFICIENCY CLASSES A THROUGH G PER ISO 25745-2, TABLE 7.
COMPLIES

10.4.3.5 POWER CONVERSION SYSTEM
NEW TRACTION ELEVATORS WITH A RISE OF 75 FEET OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS 10.4.3.5.1 THROUGH 10.4.3.5.3.
COMPLIES

10.4.3.5.1MOTOR
INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATINGS, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.
COMPLIES

10.4.3.5.2 TRANSMISSION
TRANSMISSIONS SHALL NOT REDUCE THE EFFICIENCY OF THE COMBINED MOTOR/TRANSMISSION BELOW THAT SHOWN FOR THE CLASS IE2 MOTOR FOR ELEVATORS WITH CAPACITIES BELOW 4,000 LBS. GEARLESS MACHINES SHALL BE ASSUMED TO HAVE A 100%TRANSMISSION EFFICIENCY.
COMPLIES

10.4.3.5.3 DRIVE
POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDINGELECTRICAL SYSTEM
COMPLIES

N

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
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MEP ENGINEER:
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MUNICIPAL CONSULTANT:
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OWNER:
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NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP

LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

REFLECTED CEILING PLANS

DOB # :

DOB BSCAN + STAMP :

SEALAND SIGNATURE

DATE: 5/12/2023 1:49:49 AM
SCALE: As indicated
DRAWN BY: XX

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SHEET: 86 OF 88

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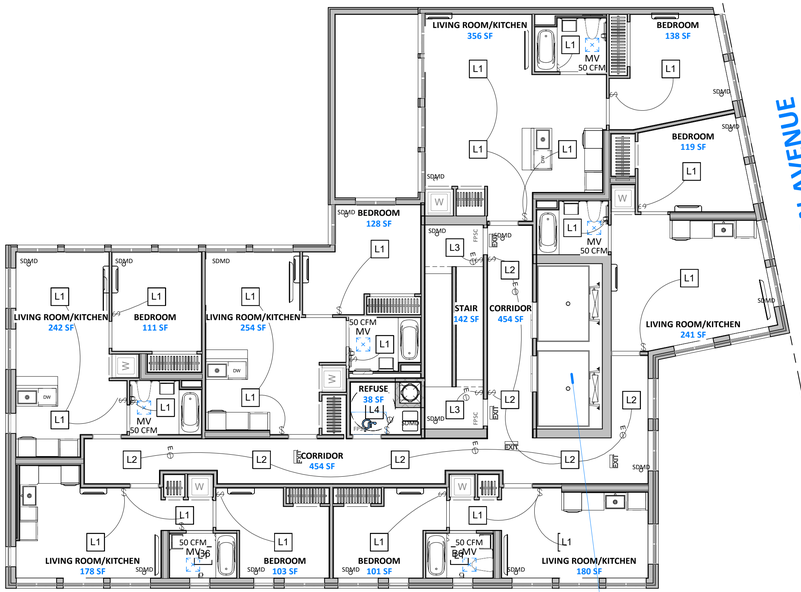
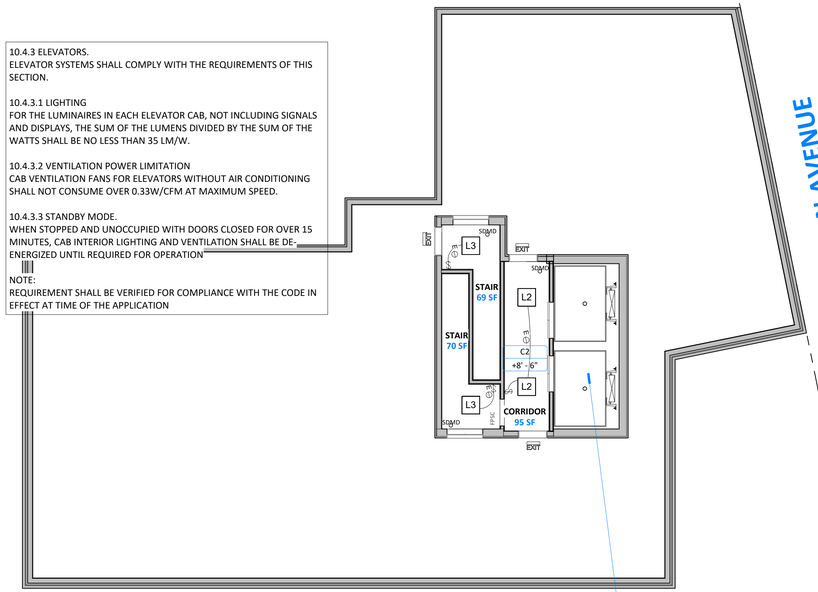




CARLTON AVENUE
70 ' WIDE(NARROW STREET)

ELEVATOR LIGHTING PROVIDED BY ELEVATOR MANUFACTURER SHALL CONFORM TO 10.4.3.1

10.4.3 ELEVATORS.
ELEVATOR SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THIS SECTION.

10.4.3.1 LIGHTING
FOR THE LUMINAIRES IN EACH ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, THE SUM OF THE LUMENS DIVIDED BY THE SUM OF THE WATTS SHALL BE NO LESS THAN 35 LM/W.

10.4.3.2 VENTILATION POWER LIMITATION
CAB VENTILATION FANS FOR ELEVATORS WITHOUT AIR CONDITIONING SHALL NOT CONSUME OVER 0.33W/CFM AT MAXIMUM SPEED.

10.4.3.3 STANDBY MODE.
WHEN STOPPED AND UNOCCUPIED WITH DOORS CLOSED FOR OVER 15 MINUTES, CAB INTERIOR LIGHTING AND VENTILATION SHALL BE DE-ENERGIZED UNTIL REQUIRED FOR OPERATION

NOTE:
REQUIREMENT SHALL BE VERIFIED FOR COMPLIANCE WITH THE CODE IN EFFECT AT TIME OF THE APPLICATION

MYRTLE AVENUE
75' WIDE (WIDE STREET)

1 8TH FLOOR RCP
SCALE: 1/8" = 1'-0"

3 ROOF RCP
SCALE: 1/8" = 1'-0"

RCP NOTES

1. HUNG CEILING HEIGHTS ARE THE MINIMUM ALLOWABLE. CONSULT WITH ARCHITECT PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, PLUMBING OR SPRINKLERS IF ANY CEILING IS TO BE LOWER THAN INDICATED.
2. PROVIDE CEILING ACCESS PANELS FOR HVAC AND PLUMBING AS REQUIRED. CONSULT WITH ARCHITECT PRIOR TO INSTALLATION OF ANY ACCESS PANELS IN PUBLICLY VISIBLE AREAS.
3. FILL ALL SLAB OPENINGS AND SLEEVES THROUGH BEAMS AS APPROVED BY STRUCTURAL ENGINEER [TO BE COORDINATED WITH HVAC, ELECTRIC, PLUMBING AND SPRINKLER).
4. FILL ALL SLAB OPENINGS AND SLEEVES THROUGH BEAMS WITH THERMAFIBER FIRESTOPPING AS REQUIRED AFTER THE INSTALLATION OF ALL DUCTWORK AND PIPEWORK.
5. PROVIDE RAISED POCKETS ALONG LENGTH OF WINDOW WHERE DROPPED CEILING IS LOWER THAN WINDOW TRANSOM. POCKET SHOULD BE LARGE ENOUGH SO AS NOT TO IMPEDE THE FULL OPENING OF A WINDOW FOR CLEANING PURPOSES.
6. SEE SPRINKLER DRAWINGS FOR SPRINKLER HEAD DETAILS AND FURTHER INFORMATION.
7. ALL TRIMMED OPENINGS TO BE CONSISTENT WITH THE TOP OF ADJACENT DOORS, TYPICAL.
8. SEE INTERIOR DRAWINGS FOR FURTHER REFLECTED CEILING INFORMATION AT THE PUBLIC AREAS.
9. SEE KITCHEN AND BATHROOM DRAWINGS FOR ADDITIONAL INFORMATION ON LIGHTING.
10. SEE ELECTRICAL AND INTERIOR DESIGNER DRAWINGS FOR TYPES AND LOCATIONS OF ALL CEILING FIXTURES, TYPICAL.
11. TO AVOID ANY CONFLICT, COORDINATE THE LOCATION OF ALL CEILING MOUNTED SPRINKLER HEADS WITH RECESSED CEILING LIGHT FIXTURES AND JUNCTION BOXES.

11.1 ALL ELECTRIC FIXTURE LOCATIONS TO HAVE PRIORITY OVER SPRINKLER LOCATIONS

11.2 NOTIFY SPRINKLER ENGINEER OF ANY CONFLICTS BETWEEN SPRINKLER HEADS AND CONCRETE BEAMS OR OTHER OBSTRUCTIONS. PROVIDE WALL. MOUNTED SPRINKLER HEADS AT THESE LOCATIONS WITH THE ENGINEER'S APPROVAL.

12. ALL DROPPED CEILINGS TO BE 5/8' THICK GYPSUM BOARD UNLESS OTHERWISE NOTED.
13. ALL MECHANICAL ELECTRIC, PLUMBING & SPRINKLER OFFSETS ARE TO BE ENCLOSED IN THE SPACE PROVIDED, MAINTAINING THE CEILING HEIGHTS INDICATED ON THE REFLECTED CEILING PLANS AND INTERIOR DESIGN DRAWINGS. COORDINATE ALL SLEEVES AND TUNNELS THROUGH CONCRETE BEAMS 'WITH FULL APPROVAL BY THE STRUCTURAL ENGINEER. CONTRACTOR TO NOTIFY ARCHITECT IF THESE HEIGHTS CANNOT BE ACHIEVED PRIOR TO THE INSTALLATION OF ANY MECHANICAL, ELECTRIC, OR PLUMBING OF SPRINKLERS.
14. CONTRACTOR TO PROVIDE A COMPOSITE REFLECTED CEILING DRAWING WITH ALL MECHANICAL, ELECTRICAL, PLUMBING, COMMUNICATIONS AND SPRINKLER ITEMS COORDINATED, FOR REVIEW AND APPROVAL BY THE ARCHITECT, INTERIOR DESIGNER, STRUCTURAL ENGINEER AND MECHANICAL ENGINEER.
15. ALL TRIMMED OPENING AND HEADERS TO MATCH TYPICAL DOOR HEIGHTS, TYPICAL U.O.N. (EX. 7'-0" DOOR HEADER TO BE 7'-0", U.O.N.)
16. WHERE CONCRETE BEAMS ARE TO REMAIN EXPOSED, SAND TO A SMOOTH FINISH AND APPLY PAINTED KADEX. WHERE CONCRETE BEAMS ARE TO BE FURRED OUT. FOLLOW TYPICAL CONSTRUCTION PROCEDURE FOR HUNG CEILINGS.
17. SEE SPECIFICATIONS FOR FURTHER INFORMATION, TYPICAL.
18. ALL LIGHT FIXTURES IN PUBLIC CORRIDOR ABOVE APARTMENT ENTRY DOORS TO BE CENTERED ON DOORS, TYP.
19. UNLESS OTHERWISE SPECIFIED ON REFLECTED CEILING PLAN DRAWINGS All LIGHT FIXTURES TO BE CENTERED AND SPACED IN KITCHENS, BATHROOMS, POWDER ROOMS, CORRIDORS, FOYERS AND CLOSETS, U.O.N.
20. PROVIDE SLEEVES WHERE REQ'D SEE MEP. DWGS. FOR LOCATIONS, TYP.SEE F.P. DWGS. FOR SPRINKLER PIPING AND HEAD LOCATIONS.
21. SPRINKLER HEADS ARE INDICATED FOR GENERAL LOCATIONS ONLY. THEY MUST MEET ALL CODE REQUIREMENTS.
22. LOCATE CLG, REGISTERS INSTEAD OF TOP REGISTERS WHERE DUCT ENTERS A KITCHEN OR BATHROOM FROM CLG. THAT IS HIGHER THAN THE KITCHEN OR BATHROOM CLG
23. WALL MOUNTED SMOKE / CARBON MONOXIDE DETECTORS TO BE LOCATED 6" FROM CEILING. TO CENTERLINE OF DETECTOR. SPACE PERMITTING, CENTERED IN WALL OR ABOVE DOORS, TYP. U.O.N. HARDWIRED CARBON MONOXIDE DETECTORS SHALL COMPLY WITH RS 17-13 AND INSTALLED IN ACCORDANCE WITH RS 17-14. IT SHALL BE PROVIDED IN EVERY DWELLING UNIT WITHIN 15'-0" ON THE PRIMARY ENTRANCE OF EACH BEDROOM.
24. SEE UNIT "B" RCP FOR TYPICAL BATHROOM, CLOSET, AND CORRIDOR LIGHT DIMENSIONS,

CEILING LEGEND

INDICATES PAINTED GWB HUNG CEILING

INDICATES PAINTED EXPOSED CONCRETE SLAB (UNLESS OTHERWISE NOTED)

INDICATES ACOUSTIC CEILING TILE
2' - 0" X 2' - 0"

1i / 1' - 0" CEILING HEIGHT TAG

ELECTRICAL FIXTURE LEGEND

OCCUPANCY SENSOR
AUTOMATICALLY TURN-OFF LIGHTS AFTER 15 MINUTES OF BEEING UNOCCUPIED. IN ADDITION SENSORS ARE MANUAL-ON TO NOT MORE THAN 50%.

OCCUPANCY SENSOR EXITS
OCCUPANCY SENSOR AT STAIRS & CORRIDORS SHALL HAVE A DIMMER & WILL NOT REDUCE THE LIGHTING LESS A FOOT CANDLE AS REQUIRED BY NYC BC*

EXIT SIGN
UNIVERSAL MOUNT EXIT SIGN - 1 FACE WITH BATTERY BACK UP.
SHADING INDICATES ILLUMINATED FACE, ARROW INDICATES DIRECTION OF EGRESS.
LITHONIA LHQM LEDWRS MAX. 5 WATTS PER SIDE

MANUAL LIGHT SWITCH
SINGLE POLE OPERATION

SWITCH CONTROL W/ DIMMER
(CONTINUOUS AND WITH CONTROL STEP OF 30%, 50% AND 70%)
LEGRAND RADIANT INCANDESCENT DIMMER - RH1103P 120V, 1100W, SINGLE POLE & 3-WAY OPERATION

DS DAYLIGHT SENSOR
NCM ADCX CEILING MOUNT, ADAPTIVE/MANUAL 360 DEG. COVERAGE

TS TIME SWITCH
HONEYWELL RPLS730B1000/U. WALLMOUNT ,7-DAY PROGRAMMABLE TIMER SWITCH WITH HIDDEN PROGRAMMING BUTTONS AND BUILT-IN RECHARGEABLE BATTERY

SDMD SMOKE AND CARBON MONOXIDE DETECTOR

MV 50 CFM MECHANICAL VENT TO ROOF

HVAC HEAT PUMP

EMERGENCY WALL LIGHT
PROVIDE POWER FOR A DURATION OF NOT LESS THAN 90 MINUTES AND SHALL CONSIST OF STORAGE BATTERIES

SPR SPRINKLER - PENDANT HEAD
NORMAL TYPE

SPR SPRINKLER - PENDANT HEAD
UPRIGHT TYPE

SPR SPRINKLER - WALL
MOUNTED NORMAL TYPE

SPR SPRINKLER - WALL
MOUNTED UPRIGHT TYPE

ELEVATOR SYSTEMS

10.4.3.1 LIGHTING:
ELEVATOR CAB, NOT INCLUDING SIGNALS AND DISPLAYS, SHALL BE NO LESS THAN 35 LM/W.
COMPLIES

10.4.3.2 VENTILATION POWER LIMITATION:
FOR ELEVATORS WITHOUT AIR CONDITIONING VENTILATION FANS SHALL NOT USE MORE THAN 0.33 W/CFM AT MAX AIRFLOW SETTING.
COMPLIES

10.4.3.3 STANDBY MODE:
ELEVATORS NOT OCCUPIED FOR MORE THAN 15 MINUTES WHILE ELEVATOR IS STOPPED WITH DOORS CLOSED SHALL DE-ENERGIZE ELEVATOR LIGHTING AND VENTILATION UNTIL OPERATION IS RESUMED.
COMPLIES, OCCUPANCY SENSORS PROVIDED

10.4.3.4 DESIGN DOCUMENTS
DESIGN DOCUMENTS SHALL LIST THE FOLLOWING FOR NEW ELEVATORS:
A. USAGE CATEGORY AS DEFINED IN ISO 25745-2 BETWEEN 1 AND 6.
B. ENERGY EFFICIENCY CLASSES A THROUGH G PER ISO 25745-2, TABLE 7.
COMPLIES

10.4.3.5 POWER CONVERSION SYSTEM
NEW TRACTION ELEVATORS WITH A RISE OF 75 FEET OR MORE IN NEW BUILDINGS SHALL HAVE A POWER CONVERSION SYSTEM THAT COMPLIES WITH SECTIONS 10.4.3.5.1 THROUGH 10.4.3.5.3.
COMPLIES

10.4.3.5.1MOTOR
INDUCTION MOTORS WITH A CLASS IE2 EFFICIENCY RATINGS, AS DEFINED BY IEC EN 60034-30, OR ALTERNATIVE TECHNOLOGIES, SUCH AS PERMANENT MAGNET SYNCHRONOUS MOTORS THAT HAVE EQUAL OR BETTER EFFICIENCY, SHALL BE USED.
COMPLIES

10.4.3.5.2 TRANSMISSION
TRANSMISSIONS SHALL NOT REDUCE THE EFFICIENCY OF THE COMBINED MOTOR/TRANSMISSION BELOW THAT SHOWN FOR THE CLASS IE2 MOTOR FOR ELEVATORS WITH CAPACITIES BELOW 4,000 LBS. GEARLESS MACHINES SHALL BE ASSUMED TO HAVE A 100%TRANSMISSION EFFICIENCY.
COMPLIES

10.4.3.5.3 DRIVE
POTENTIAL ENERGY RELEASED DURING MOTION SHALL BE RECOVERED WITH A REGENERATIVE DRIVE THAT SUPPLIES ELECTRICAL ENERGY TO THE BUILDINGELECTRICAL SYSTEM
COMPLIES

N

S. WIEDER ARCHITECT PC
203 CLIFTON PLACE, SUITE #20
BROOKLYN NY, 11216
T: (718) 484-3201

STRUCTURAL ENGINEER:
...

MEP ENGINEER:
...

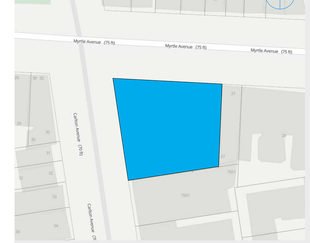
MUNICIPAL CONSULTANT:
...

OWNER:
...

NO.	DESCRIPTION	DATE
0	DOB FILING	XX/XX/202X

75% CONSTRUCTION DRAWINGS

SITE MAP



LOCATION:

155 CARLTON AVENUE, BROOKLYN, NY, 11205

PROJECT:

PROPOSED 8 STORY MIXED NEW BUILDING

DRAWING TITLE:

REFLECTED CEILING PLANS

DOB # :

DOB BSCAN + STAMP :

SEAL AND SIGNATURE

DATE: 5/12/2023 1:49:54 AM
SCALE: As indicated
DRAWN BY: XX

EN-305.00

SHEET: 87 OF 88

C COPYRIGHT 2022 S.WIEDER ARCHITECT PC

5/12/2023 1:49:54 AM

Appendix B

NYSDOH Generic Community Air Monitoring Plan

New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. “Periodic” monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix C
Construction Health and Safety Plan

Health and Safety Plan

for
340 Myrtle Avenue
Remedial Action Work Plan

340 Myrtle Avenue
Brooklyn, New York 11205
BCP Site # C224340

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
340 Myrtle Development LLC
1213 Rogers Avenue, 1st Floor
Brooklyn, NY 11226

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

October 2023

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1.0 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared in conformance with the Occupational Safety and Health Administration (OSHA) standards and guidance that govern site investigation activities, other applicable regulations, and Tenen Environmental, LLC (Tenen) health and safety policies and procedures. The purpose of this HASP is the protection of Tenen field personnel and others during the implementation of the Remedial Action Work Plan (RAWP).

The Site is located on the southeast corner of the intersection of Myrtle Avenue and Carlton Avenue, in the Fort Greene section of Brooklyn, New York. The Site is currently occupied by a one-story commercial building with a full cellar that occupies the majority of the lot. The onsite building is currently vacant; the most recent tenants of the Site building include a commercial laundry and a bedding and bath store. The development project consists of a new eight-story mixed-use commercial and residential building with a full cellar that will occupy the entirety of the Site. The development project will require excavation to approximately 15 feet below sidewalk grade (ft-bsg) across the Site, with localized deeper excavation to accommodate the installation of foundational elements and the elevator pit.

1.1 Scope of HASP

This HASP includes safety procedures to be used by Tenen staff during the following activities:

- Implementation of the community air monitoring plan (CAMP) and remedial oversight during Remedial Action activities, including excavation and foundation installation;
- Implementation of monitored natural attenuation (MNA) of cVOCs in groundwater;
- Installation of a sub-slab depressurization system (SSDS) to mitigate soil vapor intrusion into the new building; and,
- Collection of post-excavation end-point soil samples and post-remedial groundwater and indoor air samples.

Subcontractors will ensure that performance of the work is in compliance with this HASP and applicable laws and regulations.

2.0 PROJECT SAFETY AUTHORITY

The following personnel are responsible for project health and safety under this HASP.

- Project Manager, Alana Carroll
- Health and Safety Officer (HSO), Ashley Platt

In addition, each individual working at the Site will be responsible for compliance with this HASP and general safe working practices. All Site workers will have the authority to stop work if a potentially hazardous situation or event is observed.

2.1 Designated Personnel

The Project Manager is responsible for the overall operation of the project, including compliance with the HASP and general safe work practices. The Project Manager may also act as the Health and Safety Officer (HSO) for this project.

Tenen will appoint one of its on-site personnel as the on-site HSO. This individual will be responsible for the implementation of the HASP. The HSO will have a 4-year college degree in occupational safety or a related science/engineering field, and at least two (2) years of experience in implementation of air monitoring and hazardous materials sampling programs. The HSO will have completed a 40-hour training course that meets OSHA requirements of 29 CFR Part 1910, Occupational Safety and Health Standards.

The HSO will be present on-site during all field operations involving drilling or other subsurface disturbance, and will be responsible for all health and safety activities and the delegation of duties to the field crew. The HSO has stop-work authorization, which he/she will execute on his/her determination of an imminent safety hazard, emergency situation, or other potentially dangerous situation. If the HSO must be absent from the field, a replacement who is familiar with the Construction Health and Safety Plan, air monitoring and personnel protective equipment (PPE) will be designated.

3.0 HAZARD ASSESSMENT AND CONTROL MEASURES

Lot 21 was initially developed sometime prior to 1887 with several three-story commercial buildings. By 1938, three commercial buildings were demolished and, by 1950, this portion of the Site was used for parking. By 1961, the Site was occupied by a one-story commercial building. Dry cleaning is depicted in the eastern portion of the building and parking is shown on the southwestern portion of the lot on Sanborn maps dated 1969-2007. City directory listings document historic residential and commercial uses of the Site, with commercial uses including dry cleaning, restaurants, grocery stores, a gift shop, a meat market, and a barber shop.

Lot 22 was initially developed sometime prior to 1887 with a three-story residential building with a basement. By 1978, the building was demolished and the lot has remained vacant ever since. Between April 2022 and September 2022, the lot was excavated to a depth of approximately 9.5 ft-bsg and foundational elements (i.e., piles and support of excavation) were installed in support of the redevelopment of the lot. The planned development project for Lot 22 consisted of a four-story single family home with a full cellar. The redevelopment plan was abandoned in late 2022; the lot was never backfilled. During the course of excavation on Lot 22, an abandoned gasoline UST was discovered. The UST was cleaned, removed and disposed of offsite in accordance with all Federal, State and local laws as part of the Remedial Action.

Investigations and sampling efforts conducted at the Site are described in the following reports:

- *Phase I Screening Summary, 155 Carlton Avenue, Brooklyn, NY.* Environmental Business Consultants, February 2021.
- *Remedial Investigation Report, 155 Carlton Avenue, Brooklyn, NY.* Environmental Business Consultants, March 2021.
- *Preliminary Geotechnical Engineering Report, 340 Myrtle Avenue, Brooklyn, NY.* Hartland Engineering, DPC, June 1, 2021.
- *Phase I Environmental Site Assessment, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, July 2021.
- *Phase II Environmental Site Investigation, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, August 2021.
- *Draft Remedial Investigation Report, 340 Myrtle Avenue, Brooklyn, NY.* Tenen Environmental, LLC, September 2023.

Summaries of the above-mentioned reports are provided below.

Phase I Screening Summary, 155 Carlton Avenue, Brooklyn, New York, Environmental Business Consultants, February 2021.

A Phase I Environmental Site Assessment (ESA) conducted by EBC in February 2021 did not identify any recognized environmental conditions (RECs) in connection with Lot 22. However, EBC did identify one environmental concern:

- Lot 22 was formerly developed with a three-story residential building with a basement from circa 1887 through the 1970s. The residence was demolished between 1977 and 1979. Following demolition, the building basement was backfilled to grade. Fill material may have included construction and demolition (C&D) debris associated with the

building demolition and/or material from an unknown offsite source. As no documentation regarding the nature or source of the fill materials utilized to backfill the basement of the former building following its demolition was provided for review, there is a potential for contaminated and/or structurally unsuitable fill material to be present on Lot 22.

Remedial Investigation Report, 155 Carlton Avenue, Brooklyn, NY. Environmental Business Consultants, March 2021.

A Remedial Investigation (RI) was completed at Lot 22 in February 2021 by EBC to evaluate the quality of soil, groundwater, and soil vapor across the Site. The results of the RI were presented in a Remedial Investigation Report (RIR), dated March 2021. The scope of work performed during the RI included the installation of three soil borings, the collection of seven soil samples (including QA/QC samples), the installation of one temporary groundwater monitoring well, the installation of two temporary soil vapor sample points, and the collection of two soil vapor samples. Temporary groundwater monitoring wells were attempted to be installed at four locations across the lot; however, refusal was repeatedly encountered at depths ranging from 30 to 37 ft-bsg. One temporary groundwater monitoring well was installed at the deepest refusal depth of 37 ft-bsg; however, no groundwater was present within the monitoring well. All soil samples were analyzed for full scan Part 375 analytes and one soil sample was also analyzed for 1,4-dioxane and PFAS. All soil vapor samples were analyzed for VOCs. A summary of the results is included below:

Soil

- One VOC, acetone, was detected in exceedance of its Unrestricted Use SCO, but below its Restricted-Residential Use SCO, in two shallow soil samples. Acetone is a common laboratory contaminant.
- A variety of SVOCs, specifically polyaromatic hydrocarbons (PAHs), were detected in exceedance of Unrestricted Use SCOs in shallow and deep soil samples collected across the lot, including benzo(a)anthracene (max. 53 mg/kg), benzo(a)pyrene (max. 46 mg/kg), benzo(b)fluoranthene (max. 40 mg/kg), benzo(k)fluoranthene (max. 31 mg/kg), chrysene (max. 49 mg/kg), dibenzo(a,h)anthracene (max. 6.4 mg/kg), indeno(1,2,3-cd)pyrene (max. 27 mg/kg), and dibenzofuran (max. 9.2 mg/kg). Of these, all aforementioned analytes except dibenzofuran also exceeded their respective Restricted-Residential Use SCOs in one or more soil samples. The highest concentrations of all SVOCs were detected in SB-3 (0-2), collected from the center of the Site.
- A variety of metals, including barium (max. 1,860 mg/kg), cadmium (max. 2.58 mg/kg), chromium (max. 107 mg/kg), copper (max. 192 mg/kg), lead (max. 3,160 mg/kg), mercury (max. 0.5 mg/kg), and zinc (max. 1,110 mg/kg), were detected in one or more shallow and deep soil samples in exceedance of Unrestricted Use SCOs. Of these, barium and lead were also detected in exceedance of Restricted-Residential Use SCOs in the duplicate soil sample only.
- Four pesticides, 4,4'-DDD (max. 0.027 mg/kg), 4,4'-DDE (max. 0.03 mg/kg), 4,4'-DDT (max. 0.026 mg/kg), and dieldrin (max. 0.031 mg/kg) were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one or more soil samples.

- One PCB, aroclor 1254, and total PCBs were detected slightly in exceedance of their Unrestricted Use SCOs, but below their Restricted-Residential Use SCOs, in one soil sample, SB-1 (6-8).
- One PFAS analyte, perfluorooctanesulfonic acid (PFOS), was detected in exceedance of its proposed Unrestricted Use SCO, but below its proposed Restricted-Residential Use SCO, in soil sample SB-2 (6-8). PFOS was detected at a concentration of 1.83 nanograms per gram (ng/g) with a proposed Unrestricted Use SCO of 0.88 ng/g and a proposed Restricted-Residential Use SCO of 44 ng/g. 1,4-dioxane was not detected in any soil sample.

Soil Vapor

- Two cVOCs, PCE and chloroform, were detected at low concentrations in both soil vapor samples collected. PCE was detected at a max. concentration of 3.06 micrograms per cubic meter (ug/m3) and chloroform was detected at a max. concentration of 2.58 ug/m3. No other cVOCs were detected in any soil vapor samples.
- A variety of petroleum-related VOCs were detected at low concentrations in both soil vapor samples. The total concentration of benzene, toluene, ethylbenzene, and xylenes (collectively, BTEX) within the two soil vapor samples ranged from 8.04 ug/m3 to 12.51 ug/m3.

Preliminary Geotechnical Engineering Report, 340 Myrtle Avenue, Brooklyn, New York, Hartland Engineering, DPC, June 1, 2021.

A Geotechnical Engineering Report was prepared for Lot 21 by Hartland Engineering, DPC (Hartland) in June 2021. The 2021 Geotechnical Engineering Report indicates that uncontrolled fill material (silt, gravel, and construction debris) exists onsite from the ground surface to approximately ten to 13 ft-bsg. The fill layer is underlain by native soil (loose and medium silt), followed by a layer of glacial till.

Phase I Environmental Site Assessment, 340 Myrtle Avenue, Brooklyn, New York, Tenen Environmental, LLC, July 2021.

A Phase I Environmental Site Assessment (ESA) conducted by Tenen in July 2021 identified the following recognized environmental conditions (RECs) in connection with Lot 21:

- The documented presence of historic fill at Lot 21;
- Historic use of Lot 21 for dry cleaning; and,
- Historic use of the south adjoining property for auto repair and manufacturing.

Phase II Environmental Site Investigation, 340 Myrtle Avenue, Brooklyn, New York, Tenen Environmental, LLC, August 2021.

A Phase II Environmental Site Investigation (ESI) was conducted at Lot 21 by Tenen in July 2021. The Phase II ESI consisted of the advancement of eight soil borings (seven interior and one exterior), installation of two permanent groundwater monitoring wells (one onsite and one offsite), the collection of two groundwater samples, installation of five temporary sub-slab soil vapor points, and collection of five sub-slab soil vapor samples. For all soil borings, a surface

soil sample (0-2 ft-bbg interval for interior borings and 0-2 ft-bsg for the exterior boring) and a subsurface soil sample (2-4 ft-bbg interval for interior borings and 2-4 ft-bsg for the exterior boring) were collected. All soil and groundwater samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), target analyte list (TAL) metals (total and dissolved for groundwater), pesticides, and PCBs. In addition, one soil sample and both groundwater samples were also analyzed for per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. All sub-slab soil vapor samples were analyzed for VOCs.

A third permanent groundwater monitoring well was originally planned to be installed within the southern sidewalk of Myrtle Avenue, west of MW-2; however, during the attempted installation, a location for the well could not be located due to the substantial presence of underground utilities and multiple overhead impediments. These access restrictions ultimately resulted in abandonment of the installation of MW-3.

A geophysical survey was conducted at Lot 21 to investigate the potential presence of underground storage tanks (USTs) and/or other subgrade obstructions. No USTs or obstructions were identified during the performance of the geophysical investigation.

Soil

- The cVOC PCE was detected in one shallow soil sample, SB-3 (0-2), in exceedance of its Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs. PCE was also detected at low concentrations, below the Unrestricted Use, Protection of Groundwater, and Restricted-Residential Use SCOs, in the remaining 15 soil samples and the duplicate sample. PCE was detected at a max. concentration of 100 mg/kg in SB-3 (0-2), collected from the southern portion of the former dry cleaner footprint.
- A variety of SVOCs, specifically PAHs, were detected in exceedance of Unrestricted Use SCOs and/or Restricted-Residential Use SCOs in one or more of three shallow (0-2 ft-bg) soil samples, including chrysene (max. 3.8 mg/kg), benzo(k)fluoranthene (max. 1.9 mg/kg), benzo(a)anthracene (max. 4.5 mg/kg), benzo(a)pyrene (max. 5.3 mg/kg), benzo(b)fluoranthene (max. 6.1 mg/kg), indeno(1,2,3-cd)pyrene (max. 4.1 mg/kg), and dibenzo(a,h)anthracene (max. 0.96 mg/kg). The highest concentrations of all SVOCs were detected in SB-3 (0-2).
- A variety of metals, including copper (max. 154 mg/kg), lead (max. 638 mg/kg), mercury (max. 1.14 mg/kg), and zinc (max. 317 mg/kg), were detected in one or more soil samples in exceedance of Unrestricted Use SCOs. Of these, lead and mercury were also detected in exceedance of Restricted-Residential Use SCOs in one or more samples.
- Two pesticides, 4,4'-DDE (max. 0.106 mg/kg) and 4,4'-DDT (max. 0.108 mg/kg), were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one or more soil samples, with the highest concentrations occurring in SB-1 (2-4).
- One PCB, aroclor 1260, and total PCBs were detected slightly in exceedance of their Unrestricted Use SCO in one soil sample, SB-1 (0-2) (concentration of 0.109 mg/kg for both).
- One PFAS analyte, PFOS, was detected in exceedance of its proposed Unrestricted Use SCO, but below its proposed Restricted-Residential Use SCO, in soil sample SB-1 (0-2). PFOS was detected at a concentration of 5.14 ng/g with a proposed Unrestricted Use

SCO of 0.88 ng/g and a proposed Restricted-Residential Use SCO of 44 ng/g. 1,4-dioxane was not detected in any soil sample.

Groundwater

- One cVOC, PCE, was detected in exceedance of its Class GA Standard of 5 micrograms per liter (ug/l) in both groundwater samples and the duplicate sample. PCE was detected at a max. concentration of 32 ug/l in MW-2 and MW-2_DUP, collected from the southern sidewalk of Myrtle Avenue, adjacent to the formeronsite dry cleaner.
- A variety of SVOCs, specifically PAHs, were detected slightly in exceedance of their respective Class GA Standards in both groundwater samples and the duplicate sample, including benzo(a)anthracene (max. 0.11 ug/l), benzo(b)fluoranthene (max. 0.08 ug/l), benzo(k)fluoranthene (max. 0.02 ug/l), chrysene (max. 0.09 ug/l), and indeno(1,2,3-cd)pyrene (max. 0.03 ug/l). The highest concentrations of all SVOCs were detected in MW-1, located in the exterior portion of the Site.
- One metal, chromium, was detected in one total groundwater sample, MW-2, at a concentration of 53 ug/l, slightly in exceedance of its Class GA Standard of 50 ug/l. Chromium was not detected in any dissolved groundwater samples.
- A variety of naturally-occurring earth metals, including iron, magnesium, manganese, and sodium, were detected in both total groundwater samples and the duplicate sample in exceedance of Class GA Standards.
- Pesticides and PCBs were not detected in exceedance of Class GA Standards in any groundwater sample.
- Two PFAS analytes, PFOS and perfluorooctanoic acid (PFOA), were detected in exceedance of their respective Class GA Standards in both groundwater samples and the duplicate sample. PFOS was detected at a max. concentration of 12.2 nanograms per liter (ng/l) in MW-1 with a Class GA Standard of 2.7 ng/l and PFOA was detected at a max. concentration of 91 ng/l in MW-2_DUP with a Class GA Standard of 6.7 ng/l.
- Low concentrations of 1,4-dioxane were detected in one groundwater sample, MW-2, and the duplicate sample below the Class GA Standard of 0.35 ug/l. 1,4-Dioxane was detected at a max. concentration of 0.0747 ug/l in MW-2_DUP.

Soil Vapor

- A variety of cVOCs, including PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-DCE, and chloroform were detected in one or more sub-slab soil vapor samples.
    - PCE was detected in all five sub-slab soil vapor samples at concentrations ranging from 1,250 micrograms per cubic meter (ug/m3) in SS-5 to 351,000 ug/m3 in SS-2
    - TCE was detected in four of five sub-slab soil vapor samples at concentrations ranging from 38.2 ug/m3 in SS-4 to 1,410 ug/m3 in SS-3
    - Cis-1,2-DCE and trans-1,2-DCE were each detected in one sub-slab soil vapor sample (SS-3) at concentrations of 2,890 ug/m3 and 205 ug/m3, respectively
    - Chloroform was detected in three sub-slab soil vapor samples at concentrations ranging from 5.23 ug/m3 in SS-5 to 406 ug/m3 in SS-2.
- PCE is part of NYSDOH Matrix B and TCE and cis-1,2-DCE are part of NYSDOH Matrix A. Comparison of PCE, TCE, and cis-1,2-DCE concentrations to the applicable

NYSDOH Matrix (Matrix B for PCE and Matrix A for TCE and cis-1,2-DCE) indicates that mitigation would be required for PCE at all five sample locations regardless of the potential co-located indoor air concentrations; mitigation would be required for TCE at three sample locations (SS-1, SS-2, andSS-3) regardless of the potential co-located indoor air concentrations; and, mitigation would be required for cis-1,2-DCE at one sample locations (SS-3) regardless of the potential co-located indoor air concentration. Trans-1,2-DCE and chloroform are not part of the NYSDOH Decision Matrices. All other cVOCs listed in the NYSDOH Decision Matrices, including 1,1-DCE, carbon tetrachloride, 1,1,1- trichloroethane, methylene chloride, and vinyl chloride were not detected in any sub-slab soil vapor sample.

Draft Remedial Investigation Report, 340 Myrtle Avenue, Brooklyn, NY. Tenen Environmental, LLC, October 2023.

Remedial Investigation activities for Lot 21 were conducted in May 2023 and June 2023 by Tenen to further evaluate the quality of soil, groundwater, and soil vapor across the Site and offsite. Soil sampling of Lot 22 was completed by others in September 2022 in accordance with a NYC OER-approved RAP. Additional sampling of soil was completed on Lot 22 by Tenen in August 2023 as requested by NYSDEC on a conference call dated August 17, 2023. The results of these investigations were presented in a draft RIR, dated September 2023. The scope of work performed during the RI included the installation of 24 soil borings, the collection of 61 soil samples (including QA/QC samples), the installation of seven permanent groundwater monitoring wells, the collection of nine groundwater samples (including QA/QC samples), the installation of four permanent soil vapor sample points, the collection of four soil vapor samples, and the collection of two ambient air samples. All soil characterization samples and groundwater samples were analyzed for full scan Part 375 analytes, 1,4-dioxane, and PFAS; all cVOC delineation soil samples were analyzed for VOCs; all lead and mercury delineation soil samples were analyzed for total lead, total mercury, toxicity characteristic leachate procedure (TCLP) lead, and/or TCLP mercury; all bottom of excavation end-point soil samples collected from Lot 22 by EBC in September 2022 were analyzed for SVOCs and TAL metals; all UST bottom soil samples collected from Lot 22 by EBC in September 2022 were analyzed for CP-51 VOCs and CP-51 SVOCs; all surface soil samples collected by Tenen from Lot 22 in August 2023 were analyzed by PFAS; and, all soil vapor samples were analyzed for VOCs. A summary of the results is included below:

<u>Soil</u>

- The cVOC PCE was detected in exceedance of the Unrestricted Use and Protection of Groundwater SCO in four soil characterization samples and six of 13 analyzed cVOC delineation samples. Of these, PCE was also detected in exceedance of its Restricted-Residential Use SCO in one cVOC delineation sample.
- A cVOC source area has been identified beneath the basement in the southern portion of the former onsite dry cleaner footprint. The source area is approximately 2,300-SF in size and extends from zero to two ft-bbg.
- A variety of SVOCs, specifically PAHs, were detected in exceedance of Unrestricted Use and Restricted-Residential Use SCOs in two shallow (0-2 ft-bbg) soil samples collected from the historic fill layer beneath the basement of the Site building and four soil samples and a duplicate sample collected from the bottom of excavation (9.5 ft-bsg) at Lot 22.

- A variety of metals, specifically barium, cadmium, copper, nickel, zinc, lead, and mercury, were detected in exceedance of Unrestricted Use and/or Restricted-Residential Use SCOs in one or more soil samples.
- TCLP lead was detected in exceedance of the USEPA allowable level of 5 mg/L in one mercury and lead delineation sample, SB-1E (4-6).
- Two pesticides, 4,4'-DDE and 4,4'-DDT, were each detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one soil sample collected from the historic fill layer beneath the basement of the Site building and one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Aroclor 1260 and total PCBs were detected in exceedance of Unrestricted Use SCOs, but below Restricted-Residential Use SCOs, in one duplicate sample collected from the historic fill layer in the exterior portion of the Site.
- Two PFAS, PFOA and PFOS, were detected in exceedance of the proposed Unrestricted Use SCOs in soil samples collected across the Site and offsite, with the highest concentrations generally occurring in samples collected from SB-11, located in the exterior portion of Lot 21.
- Herbicides and 1,4-dioxane were not detected in exceedance of Unrestricted Use or Restricted-Residential SCOs in any soil samples analyzed.

<u>Groundwater</u>

- PCE was detected in all eight groundwater monitoring wells at concentrations exceeding the Class GA Standard of 5 ug/l, with the highest concentration occurring in intermediate monitoring well MW-3I, located in the PCE source area in the southern portion of the former dry cleaner.
- The petroleum-related VOC, toluene, was detected slightly in exceedance of its Class GA Standard in MW-5, located in the southern sidewalk of Myrtle Avenue, adjacent to the Site.
- SVOCs, specifically PAHs, were detected slightly in exceedance of Class GA Standards in two onsite groundwater monitoring wells, MW-1 and MW-3I, and one offsite groundwater monitoring well, MW-4, with the highest concentrations generally occurring in MW-4. In addition, one phthalate was detected slightly in exceedance of its Class GA Standard in one groundwater monitoring well, MW-3S.
- No pesticides, herbicides, or PCBs were detected above Class GA Standards in any groundwater samples analyzed.
- Naturally occurring earth metals, including iron, magnesium, manganese, and sodium were detected in total (unfiltered) and dissolved (filtered) groundwater samples across the Site and offsite.
- PFAS were detected in groundwater samples across the Site and offsite. PFOA and PFOS were each detected in exceedance of their respective Class GA Standards in all eight groundwater monitoring wells. 1,4-Dioxane was detected at low concentrations below the Class GA Standard in three of eight monitoring wells.

<u>Soil Vapor:</u>

- PCE was detected in all four exterior soil vapor samples at elevated concentrations. TCE was detected in three exterior soil vapor samples at concentrations exceeding ambient air concentrations, and cis-1,2-DCE was detected in one exterior soil vapor sample at a concentration exceeding the ambient air concentration. The highest concentrations of

cVOCs were detected in SV-1, located adjacent to the former onsite dry cleaner. No other cVOCs included on the NYSDOH Matrices were detected in any exterior soil vapor samples.

- A variety of petroleum-related VOCs were detected at low concentrations in exterior soil vapor collected from sidewalks surrounding the Site.

3.1 Human Exposure Pathways

The media of concern at the Site include potentially-impacted soil, groundwater and soil vapor. Potential exposure pathways include dermal contact, incidental ingestion and inhalation of vapors. The risk of dermal contact and incidental ingestion will be minimized through general safe work practices, a personal hygiene program and the use of PPE. The risk of inhalation will be minimized through the use of an air monitoring program for VOCs and particulates.

3.2 Chemical Hazards

Based on historic uses, the following contaminants of concern may be present at the Site:

Chlorinated Solvents

- Tetrachloroethene (PCE)
- Trichloroethene (TCE)
- Cis-1,2-dichloroethene (cis-1,2-DCE)

SVOCs

- PAHs

Metals

- Barium
- Lead
- Mercury

Material Safety Data Sheets (MSDSs) for each contaminant of concern are included in Appendix C. All personnel are required to review the MSDSs included in this HASP.

3.3 Physical Hazards

The physical hazards associated with the field activities likely present a greater risk of injury than the chemical constituents at the Site. Activities within the scope of this project shall comply with New York State and Federal OSHA construction safety standards.

<u>Head Trauma</u>
To minimize the potential for head injuries, field personnel will be required to wear National Institutes of Occupational Safety and Health (NIOSH)-approved hard hats during field activities. Hats must be worn properly and not altered in any way that would decrease the degree of protection provided.

Foot Trauma
To avoid foot injuries, field personnel will be required to wear steel-toed safety shoes while field activities are being performed. To afford maximum protection, all safety shoes must meet American National Standards Institute (ANSI) standards.

Eye Trauma
Field personnel will be required to wear eye protection (safety glasses with side shields) while field activities are being performed to prevent eye injuries caused by contact with chemical or physical agents.

Noise Exposure
Field personnel will be required to wear hearing protection (ear plugs or muffs) in high noise areas (noise from heavy equipment) while field activities are being performed.

Buried Utilities and Overhead Power Lines
Boring locations will be cleared by an underground utility locator service. In addition, prior to intrusive activities, the drilling subcontractor will contact the One Call Center to arrange for a utility mark-out, in accordance with New York State requirements. Protection from overhead power lines will be accomplished by maintaining safe distances of at least 15 feet at all times.

Thermal Stress
The effects of ambient temperature can cause physical discomfort, personal injury, and increase the probability of accidents. In addition, heat stress due to lack of body ventilation caused by protective clothing is an important consideration. Heat-related illnesses commonly consist of heat stroke and heat exhaustion.

The symptoms of heat stroke include: sudden onset; change in behavior; confusion; dry, hot and flushed skin; dilated pupils; fast pulse rate; body temperature reaching 105° or more; and/or, deep breathing later followed by shallow breathing.

The symptoms of heat exhaustion include: weak pulse; general weakness and fatigue; rapid shallow breathing; cold, pale and clammy skin; nausea or headache; profuse perspiration; unconsciousness; and/or, appearance of having fainted.

Heat-stress monitoring will be conducted if air temperatures exceed 70 degrees Fahrenheit. The initial work period will be set at 2 hours. Each worker will check his/her pulse at the wrist for 30 seconds early in each rest period. If the pulse rate exceeds 110 beats per minute, the next work period will be shortened by one-third.

One or more of the following precautions will reduce the risk of heat stress on the Site:

- Provide plenty of liquids to replace lost body fluids; water, electrolytic drinks, or both will be made available to minimize the risk of dehydration and heat stress
- Establish a work schedule that will provide appropriate rest periods
- Establish work regimens consistent with the American Conference of Governmental Industrial Hygienists (ACGIH) guidelines
- Provide adequate employee training on the causes of heat stress and preventive measures

In the highly unlikely event of extreme low temperatures, reasonable precautions will be made to avoid risks associated with low temperature exposure.

Traffic

Field activities will occur near public roadways. As a result, vehicular traffic will be a potential hazard during these activities and control of these areas will be established using barricades or traffic cones. Additional staff will be assigned, as warranted, for the sole purpose of coordinating traffic. Personnel will also be required to wear high-visibility traffic vests while working in the vicinity of the public roadways and local requirements for lane closure will be observed as needed. All work in public rights-of-way will be coordinated with local authorities and will adhere to their requirements for working in traffic zones.

Hazardous Weather Conditions

All Site workers will be made aware of hazardous weather conditions, specifically including extreme heat, and will be requested to take the precautions described herein to avoid adverse health risks. All workers are encouraged to take reasonable, common sense precautions to avoid potential injury associated with possible rain or high wind, sleet, snow or freezing.

Slip, Trip and Fall

Areas at the Site may be slippery from mud or water. Care should be taken by all Site workers to avoid slip, trip, and fall hazards. Workers shall not enter areas that do not have adequate lighting. Additional portable lighting will be provided at the discretion of the HSO.

Biological Hazards

Drugs and alcohol are prohibited from the Site. Any on-site personnel violating this requirement will be immediately expelled from the site.

Any worker or oversight personnel with a medical condition that may require attention must inform the HSO of such condition. The HSO will describe appropriate measures to be taken if the individual should become symptomatic.

Due to the Site location in an urban area, it is highly unlikely that poisonous snakes, spiders, plants and insects will be encountered. However, other animals (dogs, cats, etc.) may be encountered and care should be taken to avoid contact.

4.0 COVID-19 HEALTH AND SAFETY

The following requirements apply to all Tenen employees working on project sites for the duration of the COVID-19 pandemic. These guidelines are based on information provided by the Centers for Disease Control, the Occupational Safety and Health Administration and the New York State "New York Forward" Covid-19 management plans. Information regarding the health status of Tenen employees will be kept confidential, with the exception of required notifications to health authorities. The following are guidelines. **As with any potential workplace hazard, employees should report any concerns related to potential Covid-19 exposure to the Project Manager.**

Communication/Reporting:

Employees should not report to work and should notify the Project Manager immediately in the event of the following:

- You are exhibiting flu-like symptoms (fever, body aches, cough, difficulty breathing). Contact your health care provider and follow their instructions.
- You do not exhibit symptoms but have a sick (i.e., diagnosed with Covid-19 or exhibiting flu-like symptoms) family member at home. Remember that the virus can be spread by asymptomatic individuals.
- You have been exposed to someone who has been diagnosed with Covid-19.

In each of the above cases, inform your Project Manager regarding others who may have been exposed in order to facilitate any necessary notification or contact tracing efforts.

Hygiene

- Wash hands frequently with soap and water for at least 20 seconds or use hand sanitizer with at least 60% alcohol if soap and water are not available. Key times for employees to clean their hands include:
    - Before and after work shifts
    - Before and after work breaks
    - After blowing the nose, coughing, or sneezing
    - After using the restroom
    - Before eating or preparing food
    - After putting on, touching, or removing face coverings
- Avoid touching the eyes, nose, and mouth with unwashed hands.
- Practice good respiratory etiquette, including covering coughs and sneezes.
- To the extent possible, avoid sharing tools and sampling equipment. Shared tools and equipment should be regularly disinfected.

Physical Distancing

- Minimize contact with others, maintaining a distance of at least six feet to the extent possible
- Employees should wear masks over their nose and mouth to prevent spread of the virus; this is especially important when a minimum 6-foot distance cannot be maintained.
- Maintain the 6-foot distance to the extent possible during sampling efforts and pickup and delivery of sampling equipment and containers.
- Keep job site meetings to a minimum and of short duration; limit the number of people involved and maintain social distance.

5.0 AIR MONITORING

The NYSDOH Generic Community Air Monitoring Plan (CAMP), included as Appendix 1A of DER-10, will be implemented during all ground-intrusive sampling activities.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring should be performed using equipment appropriate for the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.
3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.
4. All 15-minute readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10

particulate levels do not exceed 150 mcg/m3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m3 of the upwind level and in preventing visible dust migration.
3. All readings must be recorded and be available for State (NYSDEC and NYSDOH) personnel to review.

6.0 PERSONAL PROTECTIVE EQUIPMENT

The personal protection equipment required for various kinds of site investigation tasks is based on 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response, "General Description and Discussion of the Levels of Protection and Protective Gear" and the Centers for CDC COVID-19 "Guidelines on How to Protect Yourselves and Others".

Tenen field personnel and other site personnel will wear Modified Level D-1 personal protective equipment. During activities such as drilling, well installation, or sampling, where there is a chance of contact with contaminated materials, Modified Level D-2 equipment will be worn. The protection will be upgraded to Level C if warranted by the results of the air monitoring. A six-foot minimum distance between individuals (both workers and non-workers) will be maintained at all times. A description of the personnel protective equipment for Levels D and C is provided below.

Modified Level D-1
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, long pants, nitrile gloves

Modified Level D-2
Respiratory Protection: Cloth face covering
Protective Clothing: Hard hat, steel-toed shoes, coveralls/tyvek, nitrile gloves

Level C
Respiratory Protection: Air purifying respirator with organic vapor cartridges and filters.
Protective Clothing: Same as Modified Level D-2

7.0 EXPOSURE MONITORING

7.1 Hazardous Materials

Selective monitoring of workers in the exclusion area may be conducted, as determined by the HSO, if sources of hazardous materials are identified. Personal monitoring may be conducted in the breathing zone at the discretion of the Project Manager or HSO. All monitoring will comply with the CDCs Guidance on Social Distancing.

7.2 COVID-19

For any employee that may have come into contact with a person who has COVID-19, a 14-day quarantine will be imposed for that individual and any employee that individual was in contact with.

8.0 SITE ACCESS

Access to the Site during the investigation will be controlled by the Project Manager or HSO. Unauthorized personnel will not be allowed access to the sampling areas.

9.0 WORK AREAS

During any activities involving drilling or other subsurface disturbance, the work area must be divided into various zones to prevent the spread of contamination, clarify the type of protective equipment needed, and provide an area for decontamination.

The Exclusion Zone is defined as the area where potentially contaminated materials are generated as the result of drilling, sampling, or similar activities. The Contamination Reduction Zone (CRZ) is the area where decontamination procedures take place and is located adjacent to the Exclusion Zone. The Support Zone is the area where support facilities such as vehicles, a field phone, fire extinguisher and/or first aid supplies are located. The emergency staging area (part of the Support Zone) is the area where all Site workers will assemble in the event of an emergency. These zones shall be designated daily, depending on that day's activities. All field personnel will be informed of the location of these zones before work begins.

Control measures such as "Caution" tape and traffic cones will be placed around the perimeter of the work area when work is being done in the areas of concern (i.e., areas with exposed soil) to prevent unnecessary access.

10.0 DECONTAMINATION PROCEDURES

Personnel Decontamination
Personnel decontamination (decon), if deemed necessary by the HSO, will take place in the designated decontamination area delineated for each sampling location. Personnel decontamination will consist of the following steps:

- Soap and potable water wash and potable water rinse of gloves;
- Tyvek removal;
- Glove removal;
- Disposable clothing removal; and
- Field wash of hands and face.

Equipment Decontamination
Sampling equipment, such as split-spoons and bailers, will be decontaminated in accordance with U.S. Environmental Protection Agency methodologies, as described in the work plan.

Disposal of Materials
Purged well water, water used to decontaminate any equipment and well cuttings will be containerized and disposed off-site in accordance with federal, state and local regulations.

11.0 GENERAL SAFE WORK PRACTICES

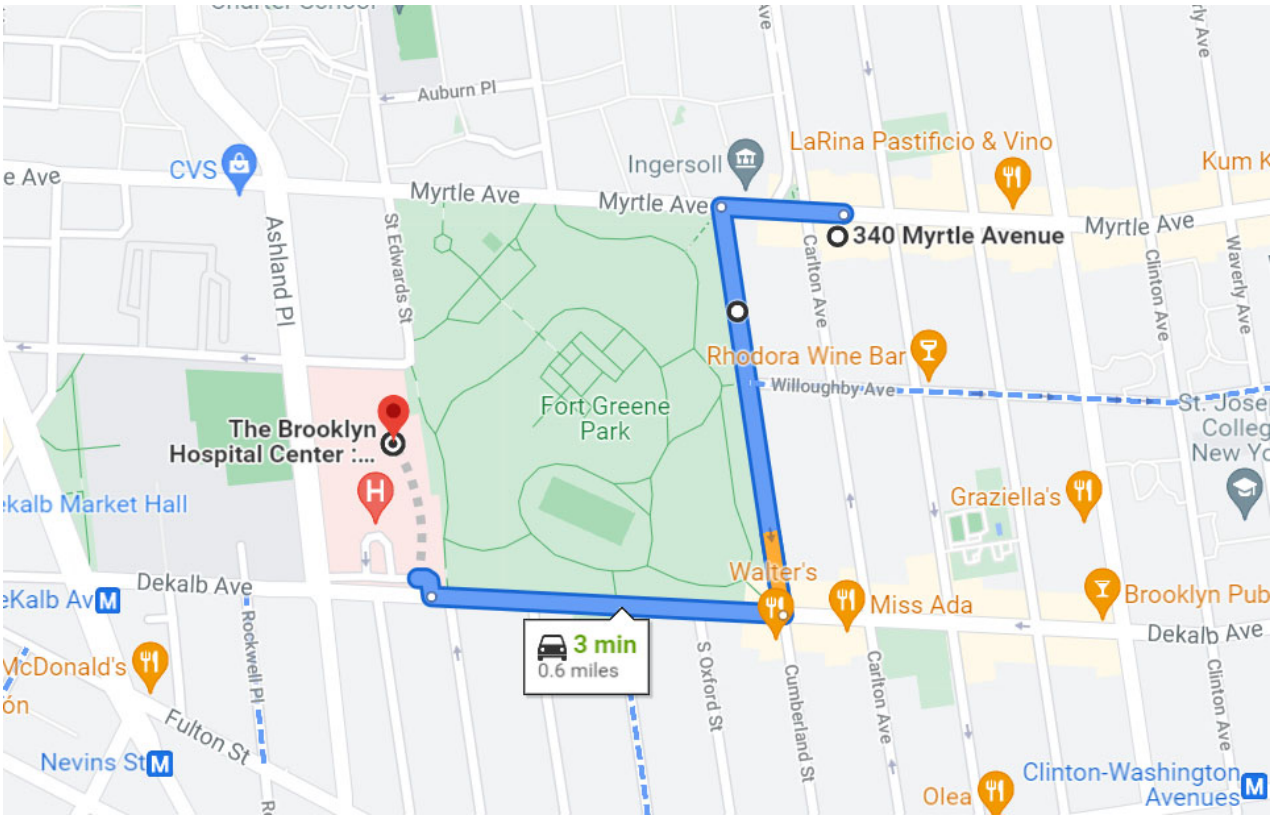
To protect the health and safety of the field personnel, all field personnel will adhere to the guidelines listed below during activities involving subsurface disturbance.

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited, except in designated areas on the site. These areas will be designated by the HSO.
- Workers must wash their hands and face thoroughly on leaving the work area and before eating, drinking, or any other such activity. The workers should shower as soon as possible after leaving the site.
- Removal of potential contamination from PPE and equipment by blowing, shaking or any means that may disperse materials into the air is prohibited.
- Contact with contaminated or suspected surfaces should be avoided.
- The buddy system should always be used; each buddy should watch for signs of fatigue, exposure, and heat stress.
- Personnel will be cautioned to inform each other of symptoms of chemical exposure such as headache, dizziness, nausea, and irritation of the respiratory tract and heat stress.
- No excessive facial hair that interferes with a satisfactory fit of the face-piece of the respirator to the face will be allowed on personnel required to wear respiratory protective equipment.
- On-site personnel will be thoroughly briefed about the anticipated hazards, equipment requirements, safety practices, emergency procedures, and communications methods.

12.0 EMERGENCY PROCEDURES

The field crew will be equipped with emergency equipment, such as a first aid kit and disposable eye washes. In the case of a medical emergency, the HSO will determine the nature of the emergency and will have someone call for an ambulance, if needed. If the nature of the injury is not serious—i.e., the person can be moved without expert emergency medical personnel—onsite personnel should drive injured person to a hospital. **The nearest emergency room is located at the Brooklyn Hospital Center located at 121 Dekalb Avenue, Brooklyn, NY 11201. The phone number is (718) 250-8000.** The route to the hospital is shown and detailed on the next page.

12.1 Route to Hospital



Driving directions to **The Brooklyn Hospital Center** from **340 Myrtle Avenue, Brooklyn, New York.**

Driving Directions

1. Head west on Myrtle Avenue towards Carlton Avenue (400 ft).
2. Turn left onto Washington Park (0.3 mi).
3. Turn right onto Dekalb Avenue (0.2 mi).
4. Turn right into the Emergency Room entrance (95 ft).

12.2 Emergency Contacts

There will be an on-site field phone. Emergency and contact telephone numbers are listed below:

Table 1 – Emergency Contacts	
Ambulance	911
Emergency Room	(718) 918-5000
NYSDEC Spill Hotline	(800) 457-7362
NYSDEC	(518) 402-8013
Project Manager, Alana Carroll	(917) 428-2094
On-site Personnel, HP Lau	(917) 365-8720
Client representative, David Halberstam	(718) 705-8825

13.0 TRAINING

All personnel performing the field activities described in this HASP will have received the initial safety training required by 29 CFR, 1910.120. Current refresher training status also will be required for all personnel engaged in field activities.

All those who enter the work area while intrusive activities are being performed must recognize and understand the potential hazards to health and safety. All field personnel must attend a training program covering the following areas:

- potential hazards that may be encountered;
- the knowledge and skills necessary for them to perform the work with minimal risk to health and safety;
- the purpose and limitations of safety equipment; and
- protocols to enable field personnel to safely avoid or escape from emergencies.

Each member of the field crew will be instructed in the above objectives before he/she goes onto the site. The HSO will be responsible for conducting the training program.

14.0 MEDICAL SURVEILLANCE

All Tenen and subcontractor personnel performing field work involving drilling or other subsurface disturbance at the site are required to have passed a complete medical surveillance examination in accordance with 29 CFR 1910.120 (f). The medical examination for Tenen employees will, at a minimum, be provided annually and upon termination of hazardous waste site work.

Appendix A

Acknowledgement of HASP

ACKNOWLEDGMENT OF HASP

Below is an affidavit that must be signed by all Tenen Environmental employees who enter the site. A copy of the HASP must be on-site at all times and will be kept by the HSO.

AFFIDAVIT

I have read the Construction Health and Safety Plan (HASP) for the 340 Myrtle Avenue site in Brooklyn, NY. I agree to conduct all on-site work in accordance with the requirements set forth in this HASP and understand that failure to comply with this HASP could lead to my removal from the site.

Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____
Signature: _____ Date: _____

Appendix B

Injury Reporting Form (OSHA Form 300)

OSHA's Form 300 (Rev. 01/2004)

Log of Work-Related Injuries and Illnesses

Attention: This form contains information relating to employee health and must be used in a manner that protects the confidentiality of employees to the extent possible while the information is being used for occupational safety and health purposes.

Year 20__ __

U.S. Department of Labor
Occupational Safety and Health Administration

Form approved OMB no. 1218-0176

You must record information about every work-related death and about every work-related injury or illness that involves loss of consciousness, restricted work activity or job transfer, days away from work, or medical treatment beyond first aid. You must also record significant work-related injuries and illnesses that are diagnosed by a physician or licensed health care professional. You must also record work-related injuries and illnesses that meet any of the specific recording criteria listed in 29 CFR Part 1904.8 through 1904.12. Feel free to use two lines for a single case if you need to. You must complete an Injury and Illness Incident Report (OSHA Form 301) or equivalent form for each injury or illness recorded on this form. If you're not sure whether a case is recordable, call your local OSHA office for help.

Establishment name _____

City _____ State _____

Identify the person			Describe the case			Classify the case (CHECK ONLY ONE box for each case based on the most serious outcome for that case:)				Enter the number of days the injured or ill worker was:		Check the "Injury" column or choose one type of illness:					
								Remained at Work				(M)					
(A) Case no.	(B) Employee's name	(C) Job title (*e.g., Welder*)	(D) Date of injury or onset of illness	(E) Where the event occurred (*e.g., Loading dock north end*)	(F) Describe injury or illness, parts of body affected, and object/substance that directly injured or made person ill (*e.g., Second degree burns on right forearm from acetylene torch*)	Death (G)	Days away from work (H)	Job transfer or restriction (I)	Other record-able cases (J)	Away from work (K)	On job transfer or restriction (L)	Injury (1)	Skin disorder (2)	Respiratory condition (3)	Poisoning (4)	Hearing loss (5)	All other illnesses (6)
			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
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			___/ month/day			☐	☐	☐	☐	___ days	___ days	☐	☐	☐	☐	☐	☐
Page totals ➤						___	___	___	___	___	___	___	___	___	___	___	___

Be sure to transfer these totals to the Summary page (Form 300A) before you post it.

Public reporting burden for this collection of information is estimated to average 14 minutes per response, including time to review the instructions, search and gather the data needed, and complete and review the collection of information. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. If you have any comments about these estimates or any other aspects of this data collection, contact: US Department of Labor, OSHA Office of Statistical Analysis, Room N-3644, 200 Constitution Avenue, NW, Washington, DC 20210. Do not send the completed forms to this office.

Injury (1) | Skin disorder (2) | Respiratory condition (3) | Poisoning (4) | Hearing loss (5) | All other illnesses (6)

Appendix C

Material Safety Data Sheets (MSDS)

Barium Chloride Dihydrate

SECTION 1 : Identification of the substance/mixture and of the supplier

Product name : **Barium Chloride Dihydrate**

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: **S25187A**

Recommended uses of the product and uses restrictions on use:

Manufacturer Details:

AquaPhoenix Scientific
9 Barnhart Drive, Hanover, PA 17331

Supplier Details:

Fisher Science Education
15 Jet View Drive, Rochester, NY 14624

Emergency telephone number:

Fisher Science Education Emergency Telephone No.: 800-535-5053

SECTION 2 : Hazards identification

Classification of the substance or mixture:

Toxic
Acute toxicity (oral, dermal, inhalation), category 3

Irritant
Acute toxicity (oral, dermal, inhalation), category 4

AcTox Oral 3
AcTox Inhaln. 4

Signal word :Danger

Hazard statements:
Toxic if swallowed
Harmful if inhaled
Precautionary statements:
If medical advice is needed, have product container or label at hand
Keep out of reach of children
Read label before use
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapours/spray
Wash skin thoroughly after handling
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Specific treatment (see supplemental first aid instructions on this label)
Call a POISON CENTER or doctor/physician if you feel unwell
Store locked up

Dispose of contents and container as instructed in Section 13

Other Non-GHS Classification:

WHMIS

D1B

NFPA/HMIS

NFPA SCALE (0-4)

HMIS RATINGS (0-4)

SECTION 3 : Composition/information on ingredients

Ingredients:		
CAS 10326-27-9	Barium Chloride Dihydrate	100 %
		Percentages are by weight

SECTION 4 : First aid measures

Description of first aid measures

After inhalation: Loosen clothing as necessary and position individual in a comfortable position.Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen.Seek medical attention.Do NOT use mouth - to - mouth resuscitation.

After skin contact: Wash affected area with soap and water. Rinse exposed skin with water for 20 minutes.Enter emergency shower rinsing while removing contaminated clothing and shoes.Transport victim to the hospital.

After eye contact: Protect unexposed eye. Rinse or flush exposed eye gently using water for 15-20 minutes. Occasionally lift the upper and lower eyelids while rinsing.Immediately seek medical attention.

After swallowing: Rinse mouth thoroughly. Do not induce vomiting. Do not perform mouth-to-mouth on an unconscious person.Never give anything by mouth to an unconscious person.Call Poison Control Center or a physician immediately.

Most important symptoms and effects, both acute and delayed:

Irritation.Nausea.Headache.Shortness of breath.;Eye, Skin, & Gastrointestinal irritation.Muscular stimulation

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention provide SDS document to physician.

SECTION 5 : Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use water, dry chemical, chemical foam, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.Decomposes at high temperatures, resulting in toxic and corrosive products.

Advice for firefighters:

Protective equipment: Wear protective eyeware, gloves, and clothing.

Additional information (precautions): Normal ventilation is adequate.

SECTION 6 : Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure that air-handling systems are operational.Ensure adequate ventilation.

Environmental precautions:

Prevent from reaching drains, sewer, or waterway. Should not be released into environment.

Methods and material for containment and cleaning up:

Wear protective eyeware, gloves, and clothing. Refer to Section 8.Always obey local regulations.If necessary use trained response staff or contractor.Evacuate personnel to safe areas. Containerize for disposal. Refer to Section 13.Keep in suitable closed containers for disposal.

Reference to other sections:

SECTION 7 : Handling and storage

Precautions for safe handling:

Avoid contact with skin, eyes, and clothing.Follow good hygiene procedures when handling chemical materials. Refer to Section 8.Follow proper disposal methods. Refer to Section 13.Do not eat, drink, smoke, or use personal products when handling chemical substances.Avoid ingestion and inhalation.

Conditions for safe storage, including any incompatibilities:

Store in a cool location.Store in a cool location.Protect from freezing and physical damage.Provide ventilation for containers.Keep container tightly sealed. Store away from incompatible materials.

SECTION 8 : Exposure controls/personal protection

Control Parameters:	10326-27-9, Barium chloride dihydrate, TWA 0.5 mg/m3 USA. NIOSH 10326-27-9 , Barium chloride dihydrate, WA 0.5 mg/m3 USA. OSHA 10326-27-9, Barium chloride dihydrate, TWA 0.5 mg/m3 USA. ACGIH
Appropriate Engineering controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above.
Respiratory protection:	Normal ventilation is adequate.

Protection of skin:	Select glove material impermeable and resistant to the substance.Select glove material based on rates of diffusion and degradation. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.Use proper glove removal technique without touching outer surface. Avoid skin contact with used gloves.Wear protective clothing.
Eye protection:	Safety glasses with side shields or goggles.Wear equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
General hygienic measures:	Wash hands before breaks and at the end of work. Avoid contact with skin, eyes, and clothing.Remove contaminated clothing and shoes.Before wearing wash contaminated clothing.Perform routine housekeeping.

SECTION 9 : Physical and chemical properties

Appearance (physical state,color):	White solid	**Explosion limit lower**: **Explosion limit upper**:	Not Determined Not Determined
Odor:	Odorless	**Vapor pressure**:	Not Determined
Odor threshold:	Not Determined	**Vapor density**:	Not Determined
pH-value:	5.0 - 8.0 at 50 g/l at 25 °C	**Relative density**:	3.100 g/cm3
Melting/Freezing point:	962 °C	**Solubilities**:	Soluble in water
Boiling point/Boiling range:	1560 °C	**Partition coefficient (n-octanol/water)**:	Not Determined
Flash point (closed cup):	Not Determined	**Auto/Self-ignition temperature**:	Not Determined
Evaporation rate:	Not Determined	**Decomposition temperature**:	> 100°C
Flammability (solid,gaseous):	Not Determined	**Viscosity**:	a. Kinematic:Not Determined b. Dynamic: Not Determined
Density: Not Determined			

SECTION 10 : Stability and reactivity

Reactivity: Nonreactive under normal conditions.
Chemical stability: Stable under normal conditions.
Possible hazardous reactions: None under normal processing
Conditions to avoid: Excessive heat.Incompatible materials.Dust formation.
Incompatible materials: Oxidizing Agents
Hazardous decomposition products: Hydrogen chloride gas, chlorine.

SECTION 11 : Toxicological information

Acute Toxicity:		
Oral:	10326-27-9	LD50 oral - rat: 118 mg/kg

Chronic Toxicity: No additional information.	
Corrosion Irritation: No additional information.	
Sensitization:	Irritation: Irritating to eyes and skin
Single Target Organ (STOT):	No additional information.
Numerical Measures:	No additional information.
Carcinogenicity:	No additional information.
Mutagenicity:	No additional information.
Reproductive Toxicity:	No additional information.

SECTION 12 : Ecological information

Ecotoxicity Persistence and degradability: Readily degradable in the environment.
Bioaccumulative potential:
Mobility in soil:
Other adverse effects:

SECTION 13 : Disposal considerations

Waste disposal recommendations:

It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Product or containers must not be disposed together with household garbage. Contact a licensed professional waste disposal service to dispose of this material.Consult federal, state, provincial, and local regulations regarding the proper disposal of waste material that may incorporate some amount of this product. Dilute with water and flush to sewer.

SECTION 14 : Transport information

UN-Number

1564

UN proper shipping name

Barium Compounds, N.O.S.

Transport hazard class(es)

Class:
6.1 Toxic substances

Packing group:III
Environmental hazard:
Transport in bulk:
Special precautions for user:

SECTION 15 : Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):

Acute, Chronic

SARA Section 313 (Specific toxic chemical listings):

10326-27-9 Barium chloride dihydrate

RCRA (hazardous waste code):

10326-27-9, Not applicable

TSCA (Toxic Substances Control Act):

All ingredients are listed.

CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):

None of the ingredients is listed

Proposition 65 (California):

Chemicals known to cause cancer:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed

Chemicals known to cause developmental toxicity:

None of the ingredients is listed

Canada

Canadian Domestic Substances List (DSL):

All ingredients are listed.

Canadian NPRI Ingredient Disclosure list (limit 0.1%):

None of the ingredients is listed

Canadian NPRI Ingredient Disclosure list (limit 1%):

None of the ingredients is listed

SECTION 16 : Other information

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.Note:. The responsibility to provide a safe workplace remains with the user.The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment.The information contained herein is, to the best of our knowledge and belief, accurate.However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material.It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

GHS Full Text Phrases:

Abbreviations and acronyms:

IMDG: International Maritime Code for Dangerous Goods
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)

Effective date : 12.21.2014
Last updated : 03.23.2015

SAFETY DATA SHEET

Creation Date 22-Sep-2009 **Revision Date** 23-Jan-2018 **Revision Number** 3

1. Identification

Product Name **cis-1,2-Dichloroethylene**

Cat No. : **AC113380000; AC113380025; AC113380100; AC113380500**

Synonyms cis-Acetylene dichloride.

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number
For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11
Emergency Number **US:**001-201-796-7100 / **Europe:** +32 14 57 52 99
CHEMTREC Tel. No.**US:**001-800-424-9300 / **Europe:**001-703-527-3887

2. Hazard(s) identification

Classification
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 4
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	

Label Elements

Signal Word
Danger

Hazard Statements
Highly flammable liquid and vapor
Harmful if swallowed
Harmful if inhaled

Causes serious eye irritation
Causes skin irritation
May cause respiratory irritation

Precautionary Statements
Prevention
Wear protective gloves/protective clothing/eye protection/face protection
Use only outdoors or in a well-ventilated area
Avoid breathing dust/fume/gas/mist/vapors/spray
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed
Ground/bond container and receiving equipment
Take precautionary measures against static discharge
Do not eat, drink or smoke when using this product
Response
Call a POISON CENTER or doctor/physician if you feel unwell
Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician if you feel unwell
Skin
IF ON SKIN: Wash with plenty of soap and water
Take off contaminated clothing and wash before reuse
If skin irritation occurs: Get medical advice/attention
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Ingestion
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Fire
Explosion risk in case of fire
Fight fire with normal precautions from a reasonable distance
Evacuate area
Storage
Store in a well-ventilated place. Keep cool
Store in a closed container
Store locked up
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
cis-1,2-Dichloroethylene	156-59-2	97

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.
Inhalation	Remove to fresh air. Get medical attention. If not breathing, give artificial respiration.
Ingestion	Do NOT induce vomiting. Get medical attention.
Most important symptoms and effects	Difficulty in breathing. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray. Carbon dioxide (CO_2). Dry chemical. Water mist may be used to cool closed containers. Chemical foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	No information available
Flash Point	6 °C / 42.8 °F
Method -	No information available
Autoignition Temperature	440 °C / 824 °F

Explosion Limits

Upper	12.80%
Lower	9.70%
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical
Flammable. Vapors may travel to source of ignition and flash back. Containers may explode when heated. Vapors may form explosive mixtures with air.

Hazardous Combustion Products
Carbon monoxide (CO). Carbon dioxide (CO_2). Hydrogen chloride gas.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health	Flammability	Instability	Physical hazards
2	3	0	N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing.
Environmental Precautions	See Section 12 for additional Ecological Information. Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and storage

Handling

Ensure adequate ventilation. Wear personal protective equipment/face protection. Use spark-proof tools and explosion-proof equipment. Use only non-sparking tools. Avoid contact with skin, eyes or clothing. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid ingestion and inhalation. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharges. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.

Storage

Keep in a dry, cool and well-ventilated place. Refer product specification and/or product label for specific storage temperature requirement. Keep container tightly closed. Keep away from heat, sparks and flame. Flammables area. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
cis-1,2-Dichloroethylene	TWA: 200 ppm			TWA: 200 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

Engineering Measures

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

No protective equipment is needed under normal use conditions.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Colorless
Odor	aromatic
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-80 °C / -112 °F
Boiling Point/Range	60 °C / 140 °F @ 760 mmHg
Flash Point	6 °C / 42.8 °F
Evaporation Rate	No information available
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	12.80%
Lower	9.70%
Vapor Pressure	201 mmHg @ 25 °C
Vapor Density	3.34 (Air = 1.0)
Specific Gravity	1.280
Solubility	No information available
Partition coefficient; n-octanol/water	No data available

Autoignition Temperature	440 °C / 824 °F
Decomposition Temperature	No information available
Viscosity	No information available
Molecular Formula	C2 H2 Cl2
Molecular Weight	96.94

10. Stability and reactivity

Reactive Hazard None known, based on information available

Stability Stable under normal conditions.

Conditions to Avoid Keep away from open flames, hot surfaces and sources of ignition. Exposure to air. Exposure to light. Incompatible products. Exposure to moist air or water.

Incompatible Materials Bases

Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO_2), Hydrogen chloride gas

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation Irritating to eyes, respiratory system and skin

Sensitization No information available

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
cis-1,2-Dichloroethylene	156-59-2	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects No information available

Reproductive Effects No information available.

Developmental Effects No information available.

Teratogenicity No information available.

STOT - single exposure Respiratory system

STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects,both acute and delayed Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
cis-1,2-Dichloroethylene	Not listed	Not listed	EC50 = 721 mg/L 5 min EC50 = 905 mg/L 30 min	Not listed

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its volatility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

TDG

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IATA

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

IMDG/IMO

UN-No UN1150
Proper Shipping Name 1,2-DICHLOROETHYLENE
Hazard Class 3
Packing Group II

15. Regulatory information

United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
cis-1,2-Dichloroethylene	156-59-2	X	ACTIVE	-

Legend:
TSCA - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
cis-1,2-Dichloroethylene	156-59-2	-	X	205-859-7	-	X	X	X	KE-10124

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
cis-1,2-Dichloroethylene	X	-	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date 22-Sep-2009
Revision Date 23-Jan-2018
Print Date 23-Jan-2018
Revision Summary This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

Material Safety Data Sheet
Lead

ACC# 12510

Section 1 - Chemical Product and Company Identification

MSDS Name: Lead
Catalog Numbers: S71957, S719571, S75257, S80049, L18-500, L246-500, L27-1LB, L27-1RL, NC9657609, NC9888945, XXL24625KG
Synonyms: Lead metal.
Company Identification:
Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410
For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7439-92-1	Lead	99.8	231-100-4

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: bluish white, silvery gray solid.
Warning! Possible cancer hazard. May cause cancer based on animal data. Causes eye and skin irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May be absorbed through intact skin. May cause central nervous system depression. May cause kidney damage. May cause adverse reproductive effects. May cause fetal effects.
Target Organs: Kidneys, central nervous system, blood forming organs.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Causes skin irritation. May be absorbed through the skin.
Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. Ingestion of lead compounds can cause toxic effects in the blood-forming organs, kidneys and central nervous system. Symptoms of lead poisoning or plumbism include weakness, weight loss, lassitude, insomnia, and hypotension. It also includes constipation, anorexia, abdominal discomfort and colic.
Inhalation: May cause respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause effects similar to those described for ingestion.
Chronic: Possible cancer hazard based on tests with laboratory animals. Chronic exposure may cause reproductive disorders and teratogenic effects. Chronic exposure to lead may result in plumbism which is characterized by lead line in gum, headache, muscle weakness, mental changes.

Section 4 - First Aid Measures

Eyes: Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner which limits further exposure.
Ingestion: Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.
Antidote: The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel. The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel. The use of Calcium disodium EDTA as a chelating agent should be determined by qualified medical personnel.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use extinguishing media appropriate to the surrounding fire. Substance is noncombustible. Dust can be an explosion hazard when exposed to heat or flame.
Extinguishing Media: For small fires, use water spray, dry chemical, carbon dioxide or chemical foam. Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.
Flash Point: Not available.
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Wash clothing before reuse.
Storage: Store in a cool, dry place. Keep from contact with oxidizing materials. Keep containers tightly closed.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below

the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Lead	0.05 mg/m3 TWA	0.050 mg/m3 TWA 100 mg/m3 IDLH	50 æg/m3 TWA; 50 æg/m3 TWA (as Pb); 30 æg/m3 Action Level (as Pb. Poison - see 29 CFR 1910.10 25)

OSHA Vacated PELs: Lead: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid

Appearance: bluish white, silvery gray

Odor: none reported

pH: Not applicable.

Vapor Pressure: 1.3 mm Hg @ 970C

Vapor Density: Not available.

Evaporation Rate: Not applicable.

Viscosity: Not applicable.

Boiling Point: 1740 deg C

Freezing/Melting Point:327.4 deg C

Decomposition Temperature: Not available.

Solubility: Insoluble in water.

Specific Gravity/Density:11.3

Molecular Formula: Pb

Molecular Weight:207.2

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation, excess heat.

Incompatibilities with Other Materials: Strong oxidizing agents.

Hazardous Decomposition Products: Lead/lead oxides.

Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:

CAS# 7439-92-1: OF7525000

LD50/LC50:

Not available.

Carcinogenicity:

CAS# 7439-92-1:

- **ACGIH:** A3 - Confirmed animal carcinogen with unknown relevance to humans
- **California:** carcinogen, initial date 10/1/92
- **NTP:** Suspect carcinogen
- **IARC:** Group 2A carcinogen

Epidemiology: There are several reports that certain lead compounds administered to animals in high doses are carcinogenic, primarily producing renal tumors. Salts demonstrating carcinogenicity in animals are usually soluble salts. Epidemiological studies have not shown a relationship between lead exposure and the incidence of cancer in lead workers. However, one study of lead-exposed workers demonstrated a statistically significant elevation in the standardized mortality ratio for gastric and lung cancer in battery plant workers only.
Teratogenicity: Lead penetrates the placental barrier and has caused fetal abnormalities in animals. Excesssive exposure to lead during pregnancy has caused neurological disorders in infants.
Reproductive Effects: Reproductive effects from lead have been documented in animals and human beings of both sexes. In battery workmen with a mean exposure of 8.5 years to lead, there was an increased frequency of sperm abnormalities as compared with a control group.
Mutagenicity: Mutagenic effects have occurred in humans.
Neurotoxicity: Subtle neurologic effects have been demonstrated with relatively low blood levels of lead. The performance of lead workers on various neurophysiological tests was mildly reduced when compared with a control group. Anxiety, depression, poor concentration, forgetfulness, mild reductions in motor and sensory nerve conduction velociities have been documented in lead-exposed workers.
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. LC50 Japanese quail (Coturnix japonica), males or females, 14 days old, oral (5-day adlibitum in diet) >5,000 ppm; at 1000, 2236 & 5000 onset of toxic signs began at 7, 7 & 7 days and remissed at 11, 11 & 12 days, respectively, no mortality was observed; control references were dieldrin & dicrotophos; corn oil diluent was added to diet at ratio of 2:98 by wt; (extreme concentrations: 1,000-5,000 ppm) /Lead metal, 100%.
Environmental: Terrestrial: Extremely stable metal. While some corrosion may be expected in soil, generally an inert coat of an insoluble salt will form and limit further corrosion. Aquatic: Lead will simply sink into the sediment. Atmospheric: Will be in particulate matter and be subject to washout and gravitational settling. Will biodegrade and bioconcentrate.
Physical: No information available.
Other: For more information, see "HANDBOOK OF ENVIRONMENTAL FATE AND EXPOSURE DATA."

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	Not regulated	Not Regulated
Hazard Class:		
UN Number:		
Packing Group:		

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 7439-92-1 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 7439-92-1: 10 lb final RQ (no reporting of releases of this hazardous substance is required
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 7439-92-1: immediate, delayed.
Section 313
This material contains Lead (CAS# 7439-92-1, 99.8%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA. CAS# 7439-92-1 is listed as a Priority Pollutant under the Clean Water Act. CAS# 7439-92-1 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 7439-92-1 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:
WARNING: This product contains Lead, a chemical known to the state of California to cause cancer.
WARNING: This product contains Lead, a chemical known to the state of California to cause male reproductive toxicity.
California No Significant Risk Level: CAS# 7439-92-1: 15 æg/day NSRL (oral)

European/International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:
T N
Risk Phrases:
R 20/22 Harmful by inhalation and if swallowed.
R 33 Danger of cumulative effects.
R 61 May cause harm to the unborn child.
R 62 Possible risk of impaired fertility.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:
S 45 In case of accident or if you feel unwell, seek medical advice

immediately (show the label where possible).
S 53 Avoid exposure - obtain special instructions before use.
S 60 This material and its container must be disposed of as hazardou
s waste.
S 61 Avoid release to the environment. Refer to special instructions
/safety data sheets.

WGK (Water Danger/Protection)

CAS# 7439-92-1: No information available.

Canada - DSL/NDSL

CAS# 7439-92-1 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7439-92-1 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/29/1999
Revision #5 Date: 5/22/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

Safety Data Sheet
Mercury (Metallic)

SDS Revision Date: **05/01/2015**

1. Identification

1.1. Product identifier

Product Identity	Mercury (Metallic)
Alternate Names	Quicksilver; Hydrargyrum; Liquid Silver

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use	See Technical Data Sheet.
Application Method	See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name	WM Mercury Waste Inc. 21211 Durand Avenue Union Grove, WI 53182
Emergency	
CHEMTREC (USA)	(800) 424-9300
Customer Service: WM Mercury Waste Inc.	(800) 741-3343

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Acute Tox. 2;H330	Fatal if inhaled.
Repr. 1B;H360D	May damage the unborn child.
STOT RE 1;H372	Causes damage to organs through prolonged or repeated exposure. Specific Target Organs: (Central Nervous System)
Aquatic Chronic 1;H410	Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Danger

H330 Fatal if inhaled.

H360D May damage the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

SDS Revision Date: **05/01/2015**

[Prevention]:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe mist / vapors / spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P281 Use personal protective equipment as required.

P284 Wear respiratory protection.

[Response]:

P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308+313 IF exposed or concerned: Get medical advice / attention.

P310 Immediately call a POISON CENTER or doctor / physician.

P314 Get Medical advice / attention if you feel unwell.

P320 Specific treatment is urgent (see information on this label).

P391 Collect spillage.

[Storage]:

P403+233 Store in a well ventilated place. Keep container tightly closed.

P405 Store locked up.

[Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Mercury **CAS Number: 0007439-97-6**	**100**	**Repr. 1B;H360D** **Acute tox. 2;H330** **STOT RE 1;H372** **Aquatic Acute 1;H400** **Aquatic Chronic 1;H410**	**[1][2]**

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General In all cases of doubt, or when symptoms persist, seek medical attention.
Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed, wash out mouth with water, obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

4.2. Most important symptoms and effects, both acute and delayed

Overview **Eye:** Contact with eyes may cause severe irritation, and possible eye burns. Vapors may cause eye irritation.
Skin: May cause skin irritation. May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. Chronic exposure to mercury may cause permanent central nervous system damage, fatigue, weight loss, tremors, and personality changes.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause effects similar to those for inhalation exposure.
Inhalation: Causes respiratory tract irritation. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. May cause central nervous system effects including vertigo, anxiety, depression, muscle incoordination, and emotional instability. May cause severe respiratory tract irritation.
Chronic: Chronic exposure to mercury may cause permanent central nervous system damage, fatigue, weight loss, tremors, and personality changes.

Notes to Physician: Treat symptomatically and supportively.
Antidote: The use of Dimercaprol or BAL (British Anti-Lewisite) as a chelating agent should be determined by qualified medical personnel. The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel. See section 2 for further details.

Inhalation Fatal if inhaled.

5. Fire-fighting measures

5.1. Extinguishing media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Mercury/mercury oxides.

Do not breathe mist / vapors / spray.

5.3. Advice for fire-fighters

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Combustion generates toxic fumes.

ERG Guide No. 172

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

Vacuum or sweep up material and place into a suitable disposal container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section).

7. Handling and storage

7.1. Precautions for safe handling

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid breathing dust, vapor, mist, or gas. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid ingestion and inhalation.

See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Incompatible materials: Acetylene, ammonia, boron phosphodiiodide, chlorine, chlorine dioxide, methyl azide, sodium carbide, halogens, strong oxidizers.

Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from metals. Poison room locked.

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

SDS Revision Date: **05/01/2015**

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0007439-97-6	Mercury	OSHA	TWA 0.1 mg/m3
		ACGIH	Alkyl compounds TWA: 0.01 mg/m3 STEL 0.03 mg/m3 Skin Aryl compounds TWA: 0.05 mg/m3 C 0.1 mg/m3 Skin Elemental/Inorganic 0.025mg/m3 Skin
		NIOSH	No Established Limit
		Supplier	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0007439-97-6	Mercury	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: Yes; Group 4: No;

8.2. Exposure controls

Respiratory Follow the OSHA respirator regulations found in 29CFR §1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

Eyes Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin Wear appropriate protective clothing to prevent skin exposure. Wear appropriate gloves to prevent skin exposure.

Engineering Controls Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	Silver Liquid
Odor	Odorless
Odor threshold	Not Measured
pH	Not Applicable
Melting point / freezing point	-38.87 deg C

SDS Revision Date: **05/01/2015**

Initial boiling point and boiling range	356.5 deg C @ 760.00mmHg
Flash Point	Not Measured
Evaporation rate (Ether = 1)	Not Available
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	**Lower Explosive Limit:** Not Measured **Upper Explosive Limit:** Not Measured
Vapor pressure (Pa)	0.002 mmHg @ 25C
Vapor Density	7 (Air=1)
Specific Gravity	13.5400g/cm3 (Water=1)
Solubility in Water	Insoluble
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Available
Viscosity (cSt)	1.554 cP 20.00
Molecular Formula	Hg
Molecular Weight	200.59

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal circumstances.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

High temperatures, incompatible materials, metals.

10.5. Incompatible materials

Acetylene, ammonia, boron phosphodiiodide, chlorine, chlorine dioxide, methyl azide, sodium carbide, halogens, strong oxidizers.

10.6. Hazardous decomposition products

Mercury/mercury oxides.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm

SDS Revision Date: **05/01/2015**

Mercury - (7439-97-6)	37.00, Rat - Category: 2	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	2	Fatal if swallowed.
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	2	Fatal if inhaled.
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	1B	May damage the unborn child.
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	1	Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	---	Not Applicable

12. Ecological information

12.1. Toxicity

Very toxic to aquatic life with long lasting effects.

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Mercury - (7439-97-6)	Not Available	0.0052, Daphnia magna	Not Available

12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

SDS Revision Date: **05/01/2015**

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	UN2809	UN2809	UN2809
14.2. UN proper shipping name	UN2809, Mercury, 8, III	Mercury	Mercury
14.3. Transport hazard class(es)	**DOT Hazard Class:** 8 (6.1)	**IMDG:** 8 **Sub Class:** 6.1	**Air Class:** 8
14.4. Packing group	III	III	III

14.5. Environmental hazards

IMDG Marine Pollutant: Yes (Mercury)

14.6. Special precautions for user

No further information

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification D1A

US EPA Tier II Hazards

Fire: No
Sudden Release of Pressure: No
Reactive: No
Immediate (Acute): Yes
Delayed (Chronic): Yes

EPCRA 311/312 Chemicals and RQs (lbs):

Mercury (1.00)

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

SDS Revision Date: **05/01/2015**

EPCRA 313 Toxic Chemicals:

Mercury

Proposition 65 - Carcinogens (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):
Mercury

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Mercury

Pennsylvania RTK Substances (>1%):

Mercury

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H330 Fatal if inhaled.

H360D May damage the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall WM Mercury Waste Inc. be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages.

End of Document

MATERIAL SAFETY DATA SHEET

Polyaromatic Hydrocarbons

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION	
IDENTITY Decanter Tank Tar Sludge Polyaromatic Hydrocarbons (TDG name - Toxic Solid, organic NOS (Waste) (Pyrene)	**DATE PREPARED** February 7, 2007
SYNONYMS, CHEMICAL NAMES, COMMON NAMES Aromatics, PAH, Yellow Sludge	**USE:** Waste Sludge
MANUFACTURER'S NAME Cancarb Ltd.	**EMERGENCY TELEPHONE NUMBER (Health)** (403) 502-6614
ADDRESS P.O. Box 1000, Station M Calgary, Alberta Canada, T2P 4K5	**TELEPHONE NUMBER – TECHNICALINFORMATION** (403)-527-1121

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS			
HAZARDOUS COMPONENTS	**OSHA PEL**	**ACGIH TLV**	**%/wt**
Variable blend of Polynuclear Aromatic Hydrocarbons (PAHs) plus inert solids in water. Concentrations will vary depending upon the extent of product dryness. Hazardous ingredients may include:			
Pyrene (CAS# 129-00-0)	0.2 mg m^{3*}	None established	<7%
Benzo (g,h,i) Fluoroanthrene (CAS# 203-12-3)	None established	None established	<6%
Fluoroanthene (CAS# 206-44-0)	None established	None established	<4%
Phenanthrene (CAS# 85-01-8)	0.2 mg/m^{3*}	None established	<2%
Cyclopenta(d,e,f)Phenanthrene (CAS#203-64-5)	None established	None established	<2%
Anthracene (CAS# 120-12-7)	0.2 mg/m^{3*}	None established	<1%
Benzo(a)Pyrene (CAS# 50-32-8)		None established	<0.1%
Benzo(a)Anthracene (CAS# 56-55-3)	0.2 mg/m^{3*}	None established	<0.1%
Benzo(b)Fluoroanthene CAS # 205-99-2)	None established	None established	<0.1%
Benzo(j)Fluoroanthene (CAS# 205-82-3)	None established	None established	<0.1%
Benzo(k)Fluoroanthene (CAS# 207-08-9)	None established	None established	<0.1%
Indeno(1,2,3)Pyrene (CAS# 193-39-5)	None established	None established	<0.1%
	None established		
*Coal Tar Pitch Volatile. Remaining components are not hazardous.			

EMERGENCY OVERVIEW
Black, brown or yellow aqueous sludge May cause skin and eye irritation Suspected carcinogenic components.

SECTION 3 -HAZARDS IDENTIFICATION

PRIMARY ROUTE(s) OF EXPOSURE: Skin; Eyes. Inhalation if Sludge is Dry

IRRITATION DATA: May cause irritation to skin and eyes and burns to skin with sunlight..

INHALATION:

ACUTE: Not a likely route of exposure in sludge state. Mist may cause respiratory irritation.

CHRONIC: Repeated and prolonged exposure may cause toxicity to the liver and blood. Suspected carcinogenicity .

SKIN CONTACT:

ACUTE: Prolonged and repeated contact may cause irritation. Contact in the presence of sunlight may enhance irritant effects leading to skin burns..

CHRONIC: Systemic toxicity. Suspected carcinogenicity.

EYE CONTACT:

ACUTE: May be irritating, resulting in tearing, reddening, and swelling.

CHRONIC: None known.

INGESTION:

ACUTE: May cause gastric irritation and disturbance.

CHRONIC: Chronic effects of phenanthrene ingestion include liver effects; chronic effects of pyrene ingestion include muscle contraction or spasticity and blood changes; effects of chronic fluoranthene ingestion include kidney, urethra, and bladder effects.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Persons with pre-existing skin disorders may be at increased risk from exposure.

SECTION 4 - EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove from exposure to fresh air immediately. If breathing has stopped, give artificial respiration. Oxygen may be given if breathing is difficult. Get medical attention.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Wash affected area with soap and water until no evidence of the chemical remains. Get medical attention if irritation develops.

EYE CONTACT: Flush thoroughly with water for at least 15 minutes, occasionally lifting the upper and lower lids, until no evidence of the chemical remains. Get medical attention if irritation develops.

INGESTION: Do not induce vomiting. Treat symptomatically and supportively. Get medical attention if irritation develops.

SECTION 5 - FIRE FIGHTING MEASURES

FLASH POINT: None	**FLAMMABLE LIMITS:**	**LEL:** Not applicable	**UEL:** Not applicable

AUTOIGNITION TEMPERATURE: Will not ignite as aqueous solution. If dried, will support combustion.

EXTINGUISHING MEDIA

Water spray, foam, or dry chemical powder. Carbon dioxide may be ineffective on large fires.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters should wear full protective NIOSH approved self-contained breathing apparatus.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None Known.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Stop discharge and control spill to avoid discharge to the environment. Use wet vacuum to limit spreading and place in suitable container for further handling and disposal. For dry material avoid generation of dust, use limited wetting to prevent spreading and use wet vacuum. Place in metal drum for disposal.

SECTION 7 - HANDLING AND STORAGE

Handling: KEEP WET. Do not allow to dry. Place wet vacuum discharge in metal drum. Empty drum into settling pond tanks. Avoid prolonged or repeated skin contact. Observe good personal and industrial hygiene practices.

Storage: Do not freeze.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

RESPIRATORY PROTECTION

Where airborne concentrations may exceed guidelines for permissible air concentrations, choose a respirator in accordance with OSHA Respirator Standard 29 CFR 1910.134. (i.e. organic vapor and P100 cartridges, powered air hoods.

VENTILATION

Use general dilution or local exhaust ventilation to maintain exposure below the exposure limits.

PROTECTIVE GLOVES

Choose appropriate gloves in accordance with OSHA Personal Protective Equipment Standard 29 CFR 1910.132.

EYE PROTECTION:

Safety glasses with side shields or choose in accordance with OSHA 29 CFR 1910.133.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Appropriate protective clothing to minimize repeated and prolonged skin contact. (i.e. Sarnex or Coated Sarnex).

RECOMMENDED EXPOSURE LIMITS

OH&S, OSHA and ACGIH have not set exposure limits for this waste mixture.
See Section 2 for exposure guidelines for the components of this waste.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES			
BOILING POINT	100° C	**SPECIFIC GRAVITY**	> 1
pH	Not available	**FREEZING POINT**	0° C
VAPOR PRESSURE (mm Hg)	Same as Water	**SOFTENING POINT**	Not applicable
VAPOR DENSITY (Air = 1)	Not available	**EVAPORATION RATE**	Not applicable
SOLUBILITY IN WATER	PAHs low solubility		
SOLUBILITY	Dry material soluble in hydrocarbon solvents		
COEFFICIENT OF WATER/OIL DISTRIBUTION:	Not available .		
APPEARANCE AND ODOR:	Black, Brown or Yellow Sludge.		

SECTION 10 - STABILITY AND REACTIVITY			
STABILITY	**Unstable**		**Conditions to Avoid**
	Stable	X	None Known. Stable under normal temperature and pressure.
INCOMPATIBILITY (Materials to Avoid) Strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition may release toxic and/or hazardous gases from dried sludge.			
HAZARDOUS	**May Occur**		**Conditions to Avoid**
POLYMERIZATION	**Will Not Occur**	X	None known.

SECTION 11 - TOXICOLOGICAL INFORMATION

This waste sludge has not been tested for acute or chronic toxicity. The following data is for its components >1%:

Pyrene	Oral LD_{50} (mouse): 800 mg/kg
	Inhalation LC_{50} (rat): 170 mg/m^3
Fluoranthene	Oral LD_{50} (rat): 2 gm/kg
	Dermal LD_{50}(rabbit): 3180 mg/kg
Phenanthrene	Oral LD_{50} (mouse): 700 mg/kg

TARGET ORGANS: Skin and eyes

CARCINOGENICITY: Some low level PAH components have been identified as suspected carcinogens by IARC and ACGIH. These include benzo(a)anthracene, benzo(a)pyrene, benz(b,j&k)fluoranthene, and indeno(1,2,3-cd) pyrene.

TUMORIGENIC DATA (RTECS): Phenanthrene, Clclopenta (def) phenanthrene, Benzo fluoranthrene, Pyrene, and fluoranthene.

MUTAGEN DATA (RTECS): Phenanthrene, Cyclopenta (def) phenanthrene, Pyrene, Benzo fluoroanthrene, Fluoranthene, Benzo (ghi) fluoranthene.

OTHER EFFECTS:

PAHs contained in the sludge have the property of photoallergenicity. In the presence of sunlight, these materials have the capacity to irritate the skin to a much greater degree, possibility leading to skin burns, than exposure without sunlight.

SECTION 12 - ECOLOGICAL INFORMATION

Sludge has not been tested for ecotoxicity.

SECTION 13 - DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable federal, provincial, and local environmental regulations. Residual solids may be present in any containers used to handle this sludge. Do not reuse for food, clothing or products for human or animal consumption.

SECTION 14 - TRANSPORT INFORMATION

PROPER SHIPPING NAME	TDG CLASSIFICATION	TDG UN/NA
Waste Type 97 Decantar Tank Tar Sludge	6.1 PG II	UN 9397

SECTION 15 - REGULATORY INFORMATION

OSHA: This material is classified as hazardous under OSHA regulations.

WHMS: This material is considered a D2A, D2B Controlled Product.
This material has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

IDL: The following components are on the Canadian Ingredient Disclosure List:

Pyrene
Fluoranthene
Benzanthracene
Phenanthrene
Indeno (1,2,3-cd) pyrene
Benzopyrene
Naphthalene
Anthacene

SARA Title III - Toxic chemicals list 40 CFR 372.65:

Pyrene
Naphthalene
Anthracene

CERCLA Toxic Chemicals List 40 CFR 302:

Pyrene	RQ: 5000 pounds
Fluoranthene	RQ: 100 pounds
Benzanthrcene	RQ: 10 pounds
Phenanthrene	RQ: 5000 pounds
Indeno (1,2,3-cd) pyrene	RQ: 100 pounds
Benzopyrene	RQ: 1 pound
Naphthalene	RQ: 100 pounds
Anthracene	RQ: 5000 pounds

RCRA Hazardous Waste Codes 40 CFR 261.24, 261.33 :

Fluoranthene	U120
Benzanthracene	U108
Indeno(1,2,3-cd)pyrene	U137
Benzopyrene	U022
Naphthalene	U165

SECTION 16 - OTHER INFORMATION

HMIS Ratings:

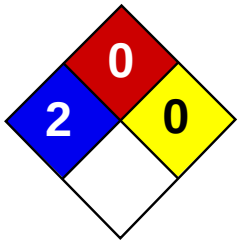
Health	2*
Flammability	1
Reactivity	0

where 0=minimal, 1=slight, 2=moderate, 3=serious, 4=severe

This MSDS was prepared by: CANCARB Health, Safety & Environment Department
Telephone Number (403) 527-1121

R: 45; 36/37/38
S: 36/37/39

The information and recommendations set forth herein are made in good faith and are believed to be accurate as of the date of preparation. CANCARB makes no warranty, either express or implied, with respect to this information and disclaims all liability from reliance thereon.



Health	2
Fire	0
Reactivity	0
Personal Protection	G

Material Safety Data Sheet
Tetrachloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Tetrachloroethylene

Catalog Codes: SLT3220

CAS#: 127-18-4

RTECS: KX3850000

TSCA: TSCA 8(b) inventory: Tetrachloroethylene

CI#: Not available.

Synonym: Perchloroethylene; 1,1,2,2-Tetrachloroethylene; Carbon bichloride; Carbon dichloride; Ankilostin; Didakene; Dilatin PT; Ethene, tetrachloro-; Ethylene tetrachloride; Perawin; Perchlor; Perclene; Perclene D; Percosolvel; Tetrachloroethene; Tetraleno; Tetralex; Tetravec; Tetroguer; Tetropil

Chemical Name: Ethylene, tetrachloro-

Chemical Formula: C2-Cl4

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Tetrachloroethylene	127-18-4	100

Toxicological Data on Ingredients: Tetrachloroethylene: ORAL (LD50): Acute: 2629 mg/kg [Rat]. DERMAL (LD): Acute: >3228 mg/kg [Rabbit]. MIST(LC50): Acute: 34200 mg/m 8 hours [Rat]. VAPOR (LC50): Acute: 5200 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of eye contact (irritant), of ingestion.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (anticipated carcinogen) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, peripheral nervous system, respiratory tract, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with skin. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, metals, acids, alkalis.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 25 (ppm) from OSHA (PEL) [United States] TWA: 25 STEL: 100 (ppm) from ACGIH (TLV) [United States] TWA: 170 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Ethereal.

Taste: Not available.

Molecular Weight: 165.83 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 121.3°C (250.3°F)

Melting Point: -22.3°C (-8.1°F)

Critical Temperature: 347.1°C (656.8°F)

Specific Gravity: 1.6227 (Water = 1)

Vapor Pressure: 1.7 kPa (@ 20°C)

Vapor Density: 5.7 (Air = 1)

Volatility: Not available.

Odor Threshold: 5 - 50 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; log(oil/water) = 3.4

Ionicity (in Water): Not available.

Dispersion Properties: Not available.

Solubility:
Miscible with alcohol, ether, chloroform, benzene, hexane. It dissolves in most of the fixed and volatile oils. Solubility in water: 0.015 g/100 ml @ 25 deg. C It slowly decomposes in water to yield Trichloroacetic and Hydrochloric acids.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Oxidized by strong oxidizing agents. Incompatible with sodium hydroxide, finely divided or powdered metals such as zinc, aluminum, magnesium, potassium, chemically active metals such as lithium, beryllium , barium. Protect from light.

Special Remarks on Corrosivity: Slowly corrodes aluminum, iron, and zinc.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2629 mg/kg [Rat]. Acute dermal toxicity (LD50): >3228 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 5200 4 hours [Mouse].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH. Classified 2A (Probable for human.) by IARC, 2 (Some evidence.) by NTP. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. May cause damage to the following organs: kidneys, liver, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS).

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of inhalation. Slightly hazardous in case of skin contact (permeator), of ingestion.

Special Remarks on Toxicity to Animals:
Lowest Publishe Lethal Dose/Conc: LDL [Rabbit] - Route: Oral; Dose: 5000 mg/kg LDL [Dog] - Route: Oral; Dose: 4000 mg/kg LDL [Cat] - Route: Oral; Dose: 4000 mg/kg

Special Remarks on Chronic Effects on Humans:
May cause adverse reproductive effects and birth defects(teratogenic). May affect genetic material (mutagenic). May cause cancer.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation with possible dermal blistering or burns. Symtoms may include redness, itching, pain, and possible dermal blistering or burns. It may be absorbed through the skin with possible systemic effects. A single prolonged skin exposure is not likely to result in the material being absorbed in harmful amounts. Eyes: Contact causes transient eye irritation, lacrimation. Vapors cause eye/conjunctival irritation. Symptoms may include redness and pain. Inhalation: The main route to occupational exposure is by inhalation since it is readily absorbed through the lungs. It causes respiratory tract irritation, . It can affect behavior/central nervous system (CNS depressant and anesthesia ranging from slight inebriation to death, vertigo, somnolence, anxiety, headache, excitement, hallucinations, muscle incoordination, dizziness, lightheadness, disorentiation, seizures, enotional instability, stupor, coma). It may cause pulmonary edema Ingestion: It can cause nausea, vomiting, anorexia, diarrhea, bloody stool. It may affect the liver, urinary system (proteinuria, hematuria, renal failure, renal tubular disorder), heart (arrhythmias). It may affect behavior/central nervous system with symptoms similar to that of inhalation. Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may result in excessive drying of the skin, and irritation. Ingestion/Inhalation: Chronic exposure can affect the liver(hepatitis,fatty liver degeneration), kidneys, spleen, and heart (irregular heartbeat/arrhythmias, cardiomyopathy, abnormal EEG), brain, behavior/ central nervous system/peripheral nervous system (impaired memory, numbness of extremeties, peripheral neuropathy and other

Section 12: Ecological Information

Ecotoxicity:
Ecotoxicity in water (LC50): 18.4 mg/l 96 hours [Fish (Fatthead Minnow)]. 18 mg/l 48 hours [Daphnia (daphnia)]. 5 mg/l 96 hours [Fish (Rainbow Trout)]. 13 mg/l 96 hours [Fish (Bluegill sunfish)].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Tetrachloroethylene UNNA: 1897 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Tetrachloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Tetrachloroethylene Connecticut hazardous material survey.: Tetrachloroethylene Illinois toxic substances disclosure to employee act: Tetrachloroethylene Illinois chemical safety act: Tetrachloroethylene New York release reporting list: Tetrachloroethylene Rhode Island RTK hazardous substances: Tetrachloroethylene Pennsylvania RTK: Tetrachloroethylene Minnesota: Tetrachloroethylene Michigan critical material: Tetrachloroethylene Massachusetts RTK: Tetrachloroethylene Massachusetts spill list: Tetrachloroethylene New Jersey: Tetrachloroethylene New Jersey spill list: Tetrachloroethylene Louisiana spill reporting: Tetrachloroethylene California Director's List of Hazardous Substances: Tetrachloroethylene TSCA 8(b) inventory: Tetrachloroethylene TSCA 8(d) H and S data reporting: Tetrachloroethylene: Effective date: 6/1/87; Sunset date: 6/1/97 SARA 313 toxic chemical notification and release reporting: Tetrachloroethylene CERCLA: Hazardous substances.: Tetrachloroethylene: 100 lbs. (45.36 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):
R40- Possible risks of irreversible effects. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. S23- Do not breathe gas/fumes/vapour/spray S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S37- Wear suitable gloves. S61- Avoid release to the environment. Refer to special instructions/Safety data sheets.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: g

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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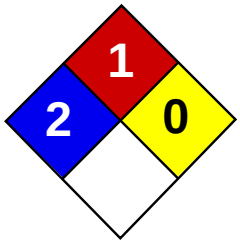

Material Safety Data Sheet
Trichloroethylene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Trichloroethylene

Catalog Codes: SLT3310, SLT2590

CAS#: 79-01-6

RTECS: KX4560000

TSCA: TSCA 8(b) inventory: Trichloroethylene

CI#: Not available.

Synonym:

Chemical Formula: C2HCl3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:
1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Trichloroethylene	79-01-6	100

Toxicological Data on Ingredients: Trichloroethylene: ORAL (LD50): Acute: 5650 mg/kg [Rat]. 2402 mg/kg [Mouse]. DERMAL (LD50): Acute: 20001 mg/kg [Rabbit].

Section 3: Hazards Identification

Potential Acute Health Effects: Hazardous in case of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Skin Contact:
After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cover the irritated skin with an emollient. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation: Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 420°C (788°F)

Flash Points: Not available.

Flammable Limits: LOWER: 8% UPPER: 10.5%

Products of Combustion: These products are carbon oxides (CO, CO2), halogenated compounds.

Fire Hazards in Presence of Various Substances: Not available.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:
SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards: Not available.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/

spray. Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

Storage:
Keep container dry. Keep in a cool place. Ground all equipment containing material. Carcinogenic, teratogenic or mutagenic materials should be stored in a separate locked safety storage cabinet or room.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 50 STEL: 200 (ppm) from ACGIH (TLV) TWA: 269 STEL: 1070 (mg/m3) from ACGIH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Not available.

Molecular Weight: 131.39 g/mole

Color: Clear Colorless.

pH (1% soln/water): Not available.

Boiling Point: 86.7°C (188.1°F)

Melting Point: -87.1°C (-124.8°F)

Critical Temperature: Not available.

Specific Gravity: 1.4649 (Water = 1)

Vapor Pressure: 58 mm of Hg (@ 20°C)

Vapor Density: 4.53 (Air = 1)

Volatility: Not available.

Odor Threshold: 20 ppm

Water/Oil Dist. Coeff.: The product is equally soluble in oil and water; log(oil/water) = 0

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, diethyl ether, acetone.

Solubility:
Easily soluble in methanol, diethyl ether, acetone. Very slightly soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity:
Extremely corrosive in presence of aluminum. Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Polymerization: No.

Section 11: Toxicological Information

Routes of Entry: Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
Acute oral toxicity (LD50): 2402 mg/kg [Mouse]. Acute dermal toxicity (LD50): 20001 mg/kg [Rabbit].

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified + (PROVEN) by OSHA. Classified A5 (Not suspected for human.) by ACGIH. The substance is toxic to kidneys, the nervous system, liver, heart, upper respiratory tract.

Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Passes through the placental barrier in human. Detected in maternal milk in human.

Special Remarks on other Toxic Effects on Humans: Not available.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are more toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Section 14: Transport Information

DOT Classification: CLASS 6.1: Poisonous material.

Identification: : Trichloroethylene : UN1710 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Trichloroethylene California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: Trichloroethylene Pennsylvania RTK: Trichloroethylene Florida: Trichloroethylene Minnesota: Trichloroethylene Massachusetts RTK: Trichloroethylene New Jersey: Trichloroethylene TSCA 8(b) inventory: Trichloroethylene CERCLA: Hazardous substances.: Trichloroethylene

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada):
CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R36/38- Irritating to eyes and skin. R45- May cause cancer.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 1

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Appendix D
Soils/Materials Management Plan

SOIL/MATERIALS MANAGEMENT PLAN

for
340 Myrtle Avenue
Remedial Action Work Plan

340 Myrtle Avenue
Brooklyn, NY
Block 2073, Lots 21 & 22
BCP Site # C224340

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
1 Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101

Prepared for:
340 Myrtle Development LLC
1213 Rogers Avenue, 1st Floor
Brooklyn, NY 11226

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

October 2023

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1.0 INTRODUCTION

This Soil/Materials Management Plan (SMMP) has been developed for the Remedial Action Work Plan (RAWP) prepared for 340 Myrtle Avenue (the Site).

The Site, located at 340 Myrtle Avenue and 155 Carlton Avenue in the Fort Greene neighborhood of Brooklyn, New York, is an irregularly-shaped parcel of land located on the southeast corner of the intersection of Myrtle Avenue and Carlton Avenue, identified by the New York City Department of Finance as Block 2073, Lots 21 and 22. The Site is bounded by Myrtle Avenue to the north, residential buildings to the south, Carlton Avenue to the west, and commercial and residential buildings to the east.

Lot 21 is currently occupied by a one-story commercial building with a full cellar that occupies the majority of the lot. The onsite building is currently vacant; the most recent tenants of the Site building include a commercial laundry and a bedding and bath store. The cellar extends to a depth of approximately 9.5 feet below sidewalk grade (ft-bsg). The southwestern portion of Lot 21 is unimproved, vacant, and was most recently utilized for parking.

Lot 22 was excavated to approximately 9.5 ft-bsg across the lot between April 2022 and September 2022 as part of previous redevelopment efforts conducted under a New York City Mayor's Office of Environmental Remediation (NYC OER)-approved Remedial Action Plan (RAP). Additionally, foundational elements (i.e., piles and support of excavation) were installed across Lot 22 in support of the previous redevelopment efforts. The planned development project for Lot 22 consisted of a four-story single family home with a full cellar. The redevelopment plan was abandoned in late 2022; the lot was never backfilled. During the course of excavation on Lot 22, an abandoned underground storage tank (UST) was discovered. The UST was cleaned, removed, and disposed of in accordance with all Federal, State and local laws as part of the Remedial Action.

A Site location map is included as Figure 1 of the RAWP. A Site boundary map is included as Figure 2 of the RAWP.

1.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional or experienced field geologist under the supervision of the Remedial Engineer (RE) and will be reported in the Final Engineering Report (FER). Soil Screening will be performed during all remedial excavations into known or potentially contaminated material regardless of when the invasive work is done prior to issuance of a Certificate of Completion (COC).

1.2 Soil Staging Methods

Excavated soil from suspected areas of contamination will be stockpiled separately and will be segregated from clean soil and construction materials. Stockpiles will be used only when necessary and will be removed as soon as practicable. While stockpiles are in place, they will be inspected daily, and before and after every storm event. Results of inspections will be recorded in a logbook,

maintained at the Site and available for inspection by the New York State Department of Environmental Conservation (NYSDEC). Excavated soils will be stockpiled on double layers of 8-mil minimum-thickness sheeting, at a minimum. Stockpiles will be kept covered when not in use with appropriately anchored plastic tarps and will be routinely inspected. Broken or ripped tarps will be promptly replaced.

All stockpile management will be compliant with applicable laws and regulations. Soil stockpile areas will be appropriately graded to control run-off in accordance with applicable laws and regulations. Stockpiles of excavated soils and other materials shall be located at least 50 feet from the property boundaries, where possible. Hay bales or equivalent will surround soil stockpiles except for areas where access by equipment is required. Silt fencing and hay bales will be used as needed near catch basins, surface waters and other discharge points.

1.3 Characterization of Excavated Materials

Soil/fill or other excavated media that is transported off the Site for disposal will be sampled in a manner required by the receiving facility, and in compliance with applicable laws and regulations. Soils are not proposed for reuse on-Site.

1.4 Materials Excavation, Load-Out and Departure

The RE overseeing the remedial activities, or a qualified environmental professional under his/her supervision, will:

- Oversee remedial work and the excavation and load-out of excavated material;
- Ensure that there is a party responsible for the safe execution of invasive and other work performed under this Remedial Action Work Plan;
- Ensure that Site development activities and development-related grading cuts will not interfere with, or otherwise impair or compromise remedial activities at the Site;
- Ensure that the presence of utilities and easements on the Site has been investigated and that any identified risks from work proposed under this Remedial Action Work Plan are properly addressed by appropriate parties;
- Ensure that all loaded outbound trucks are inspected and cleaned if necessary before leaving the Site;
- Ensure that all egress points for truck and equipment transport from the Site will be kept clean of Site-derived materials during Site remediation.

Locations where vehicles exit the Site shall be inspected daily for evidence of soil tracking off premises. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials. Mechanical processing of historical fill and contaminated soil on the Site is prohibited.

1.5 Off-Site Materials Transport

Loaded vehicles leaving the Site will comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws and regulations, including use of licensed haulers in accordance with 6 NYCRR Part 364. If loads contain wet material capable of causing leakage from trucks, truck liners will be used. Queuing of trucks will be performed on the Site, when possible in order to minimize offsite disturbance. Offsite queuing will be minimized.

Trucks leaving the Site will turn right onto Carlton Avenue and make the first left onto Myrtle Avenue. Once on Myrtle Avenue, trucks will make the first right onto Navy Street, then make the first left onto Tillary Street. Trucks will continue to the end of Tillary Street and turn right onto Cadman Plaza West. Trucks will then continue onto Old Fulton Street and keep left for the entrance to the Brooklyn Queens Expressway (I-278 West) and Verrazano-Narrows Bridge, which is a truck through route. The truck route is presented in Figure 10 of the RAWP.

This is the most appropriate route and take into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) limiting total distance to major highways; (d) promoting safety in access to highways; and (e) overall safety in transport. All trucks loaded with Site materials will exit the vicinity of the Site using only the most-current New York City Department of Transportation (NYCDOT)-approved truck routes (currently the 2022 New York City Truck Route Map).

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

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

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

1.6 Materials Disposal Off-Site

To document that the disposal of regulated material exported from the Site complies with applicable laws and regulations, the following documentation will be established and reported by the RE for each disposal destination used in this project:

(1) a letter from the RE or Applicant to each disposal facility describing the material to be disposed and requesting written acceptance of the material. This letter will state that material to be disposed is regulated material generated at an environmental remediation Site in New York under a governmental remediation program. The letter will provide the project identity and the name and phone number of the RE or Applicant, and will include as an attachment a summary of all chemical data for the material being transported; and

(2) a letter from each disposal facility stating it is in receipt of the correspondence, (1) above, and is approved to accept the material.

These documents will be included in the FER.

The FER will include an itemized account of the destination of all material removed from the Site during remedial activities. Documentation associated with disposal of all material will include records and approvals for receipt of the material. This information will be presented in the FER.

All soil, fill and other waste excavated and removed from the Site will be managed as regulated material (municipal solid waste per 6 NYCRR Part 360-1.2) and will be disposed in accordance with applicable laws and regulations. Historic fill and material that does not meet Track 1 Unrestricted Use soil cleanup objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6 NYCRR Part 360-16 Registration Facility). Historic fill and contaminated soils taken off-Site will be handled as solid waste and will not be disposed at a Part 360-16 Registration Facility (also known as a Soil Recycling Facility).

Approximately 2,000 cubic yards (CY) of soil is proposed for off-Site disposal. Final disposal facilities will be identified to NYSDEC prior to shipping material to any facility. Waste characterization was performed for off-Site disposal in a manner required by the receiving facilities and in conformance with applicable permits. Waste characterization sampling and analytical methods, sampling frequency, analytical results and QA/QC will be reported in the FER. A manifest system for off-Site transportation of exported materials will be employed. Manifest information will be reported in the FER. Hazardous wastes derived from on-Site will be stored, transported and disposed of in compliance with applicable laws and regulations.

If disposal of soil and fill from this Site is proposed for unregulated disposal (i.e., clean soil removed for development purposes), including transport to a Part 360-16 Registration Facility, a formal request will be made for approval by NYSDEC with an associated plan compliant with 6 NYCRR Part 360-16. This request and plan will include the location, volume and a description of the material to be recycled, including verification that the material is not impacted by site uses and that the material complies with receipt requirements for recycling under 6 NYCRR Part 360. This material will be appropriately handled on-Site to prevent mixing with impacted material.

1.7 Materials Reuse On-Site

“Reuse on-Site” means material that is excavated during the remedy or development does not leave the property, and is relocated within the same property and on comparable soil/fill material, and addressed pursuant to Engineering Controls. The RE will ensure that reused materials are segregated from other materials to be exported from the Site and that procedures defined for material reuse in this SMMP are followed. Soil reuse is not proposed. Reused soil must be non-hazardous and meet the Use-based SCOs and Protection of Groundwater SCOs in accordance with the predetermined beneficial use determination listed in 6 NYCRR Part 360-1.15(b). If any of the waste materials are used for an end use specified in 6 NYCRR Part 360-1.15(b), it will not be considered a solid waste. Reuse of soil will be coordinated in advance with the NYSDEC project manager.

Organic matter (wood, roots, stumps, etc.) or other waste derived from clearing and grubbing the Site will not be buried onsite. Soil and fill excavated from the Site for grading or other purposes will not be reused within a cover soil layer or within landscaping berms.

1.8 Demarcation

After completion of hotspot removal and any other invasive remedial activities, and prior to backfilling, the top of the residual soil/fill will be defined by one of three methods:

(1) Placement of a demarcation layer. The demarcation layer will consist of geo-synthetic fencing or equivalent material to be placed on the surface of residual soil/fill to provide an observable reference layer. A description or map of the approximate depth of the demarcation layer will be provided in the FER;
(2) A land survey of the top elevation of residual soil/fill before placement of cover soils, pavement, and associated sub-soils, or other materials or structures; and,
(3) All materials beneath the approved cover will be considered impacted and subject to Site management after the remedy is complete.

Demarcation may be established by one or any combination of the above three methods. As appropriate, a map showing the method of demarcation for the Site and all associated documentation will be presented in the FER. The demarcation will constitute the top of the Site management horizon, if necessary.

1.9 Import of Backfill Soil from Off-Site Sources

Import of soil is not anticipated on this project. However, if materials are imported, they will be in compliance with: (1) 6 NYCRR 375-6.7(d) and (2) all Federal, State and local rules and regulations for handling and transport of material.

The following presents the requirements for imported fill materials to be used below the cover layer and within the clean soil cover layer. The backfill and cover soil quality objectives will be the lower of the Protection of Groundwater or Unrestricted Use SCOs.

A process will be established to evaluate sources of backfill and cover soil to be imported to the Site, and will include an examination of source location, current and historical use(s), and any applicable documentation. Material from industrial sites, spill sites, environmental remediation sites or other potentially contaminated sites will not be imported to the Site.

The following potential sources may be used pending attainment of backfill and cover soil quality objectives:

- Clean soil from construction projects at non-industrial sites in compliance with applicable laws and regulations;
- Clean soil from roadway or other transportation-related projects in compliance with applicable laws and regulations;

- Clean recycled concrete aggregate (RCA) from facilities permitted or registered by the regulations of NYSDEC.

All materials received for import to the Site will be approved by a PE/QEP and will be in compliance with applicable City, State and Federal laws and requirements. The source of the fill, evidence that an inspection was performed on the source, chemical sampling results, frequency of testing, and a Site map indicating the locations where backfill or soil cover was placed will be reported to NYSDEC at the end of construction activities and before obtaining a Certificate of Occupancy or Department of Building Letter of Completion.

Source Screening and Testing
Inspection of imported fill material will include visual, olfactory and PID screening for evidence of contamination. Materials imported to the Site will be subject to inspection, as follows:

- Trucks with imported fill material will be in compliance with applicable laws and regulations and will enter the Site at designated locations;
- The PE/QEP is responsible to ensure that every truck load of imported material is inspected for evidence of contamination; and
- Fill material will be free of solid waste including pavement materials, debris, stumps, roots, and other organic matter, as well as ashes, oil, perishables or foreign matter.

Composite and discrete samples of imported material will be taken consistent with Table 5.4(e)10 of DER-10. Once it is determined that the fill material meets imported backfill or cover soil chemical requirements and is non-hazardous, and lacks petroleum contamination, the material will be loaded onto trucks for delivery to the Site.

Recycled concrete aggregate (RCA) will be imported from facilities permitted or registered by NYSDEC. Facilities will be reported to NYSDEC at the end of construction activities and before obtaining a Certificate of Occupancy or Department of Building Letter of Completion. A PE/QEP is responsible for ensuring that the facility is compliant with 6 NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. RCA imported from compliant facilities will not require additional testing, unless required by NYSDEC under its terms for operation of the facility. RCA imported to the Site must be derived from recognizable and uncontaminated concrete. RCA material is not acceptable for, and will not be used, as cover material.

1.10 Fluids Management

All liquids to be removed from the Site will be handled, transported and disposed in accordance with applicable laws and regulations. Excavation into the water table will be required for installation of the elevator pits, and dewatering is anticipated for the elevator pits only. Liquids discharged into the New York City sewer system will receive prior approval by the New York City Department of Environmental Protection (NYC DEP). The NYC DEP regulates discharges to the New York City sewers under Title 15, Rules of the City of New York Chapter 19. Discharge to

the New York City sewer system will require an authorization and sampling data demonstrating that the groundwater meets the City's discharge criteria. The dewatering fluid will be pretreated as necessary to meet the NYC DEP discharge criteria. If discharge to the City sewer system is not appropriate, the dewatering fluids will be managed by transportation and disposal at an offsite treatment facility.

Discharge of water generated during remedial construction to surface waters (i.e., a stream or river) is prohibited without a SPDES permit issued by NYSDEC.

1.11 Stormwater Pollution Prevention

Applicable laws and regulations pertaining to stormwater pollution prevention will be addressed during the remedial program. The Site is less than one acre in area, therefore, a Stormwater Pollution Prevention Plan (SWPPP) is not required.

1.12 Erosion and Sediment Control Measures

Erosion and sediment control measures identified in this Soil/Materials Management Plan will be installed around the entire perimeter of the remedial construction area and inspected one a week and after every storm event to ensure that they are operating appropriately. Discharge locations will be inspected to determine whether erosion control measures are effective in preventing significant impacts to receptors. Results of inspections will be recorded in a logbook, maintained at the Site and available for inspection by NYSDEC. All necessary repairs shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion off the silt fence anchor will be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

1.13 Contingency Plan

This contingency plan is developed for the remedial construction to address the discovery of unknown structures or contaminated media during excavation. Identification of unknown contamination source areas during invasive Site work will be promptly communicated to the NYSDEC Project Manager. Petroleum spills will be reported to the NYSDEC Spill Hotline. These findings will be included in applicable daily report(s). If previously unidentified contaminant sources are found during on-Site remedial excavation or development-related excavation, sampling will be performed on contaminated source material and surrounding soils and reported to NYSDEC. Analysis will be performed for Full List volatiles and semi-volatiles, pesticides/PCBs, and TAL metals, as appropriate.

1.14 Odor, Dust and Nuisance Control

The New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP) is included as Appendix B of the Remedial Action Work Plan.

Odor Control

All necessary means will be employed to prevent on- and off-Site odor nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) shrouding open excavations with tarps and other covers; and may include (c) use of foams to cover exposed odorous soils. If odors develop and cannot otherwise be controlled, additional means to eliminate odor nuisances will include: (d) live loading of soils into trucks for off-Site disposal; and (e) use of chemical odorants in spray or misting systems.

This odor control plan is capable of controlling emissions of nuisance odors. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC will be notified of all odor complaint events. Implementation of all odor controls, including halt of work, will be the responsibility of the Remedial Engineer (RE), who is responsible for certifying the FER.

Dust Control

Dust management during invasive on-Site work will include, as necessary:

- Use of a dedicated water spray method for roads, excavation areas, and stockpiles;
- Use of properly anchored tarps to cover stockpiles;
- Exercise of extra care during dry and high-wind periods; and
- Use of gravel or recycled concrete aggregate on egress and other roadways to provide a clean and dust-free road surface.

This dust control plan is capable of controlling emissions of dust. If nuisance dust emissions are identified, work will be halted and the source of dusts will be identified and corrected. Work will not resume until all nuisance dust emissions have been abated. NYSDEC will be notified of all dust complaint events. Implementation of all dust controls, including halt of work, will be the responsibility of the RE.

Other Nuisances

Noise control will be exercised during the remedial program. All remedial work will conform, at a minimum, to NYC noise control standards.

Rodent control will be provided during Site clearing and grubbing, and during the remedial program, as necessary, to prevent nuisances.

1.15 Import of Clean Cover and Fill Material

Soil import is not anticipated. If fill material is imported, any imported soil will be uncontaminated soil that meets the lower of the appropriate NYSDEC 6 NYCRR Part 375-6.8(a) Unrestricted Use soil cleanup objectives (SCOs) and the NYSDEC 6 NYCRR Part 375-6.8(b) Protection of Groundwater SCOs.

Any imported uncontaminated soil cover will be from an approved source/facility and will be evaluated by the RE to ensure the following:

(1) That a segregated stockpile for less than 750 tons (500 cubic yards) is properly maintained at the source and will not be comingled with any other material prior to importing and grading the clean soil material at the Site;
(2) That the material does not include any solid waste, including construction and demolition material, as prohibited;
(3) That screening for evidence of contamination by visual, olfactory and PID soil screening practices prior to testing at the source, as well as upon importing to the Site for grading, is completed; and
(4) That a maximum five-part composite sample will be collected from the segregated stockpile at the source at a minimum frequency of one sample per 250 cubic yards and analyzed for the following Full List parameters:
    - VOCs by EPA Method 8260C
    - SVOCs by EPA Method 8270D
    - Pesticides by EPA Method 8081B
    - PCBs by EPA Method 8082A
    - TAL Metals by EPA Method 6010C/7471B

Upon receipt of the segregated stockpile analytical results collected at the source, a Clean Soil Sampling Report will be submitted to NYSDEC for review/approval prior to importing. The report will include the following:

(1) A summary of the sample quantities collected and analyzed, tabulated data and comparison to the Unrestricted Use SCOs;
(2) Analytical data sheets and chain-of-custody (COC) documentation;
(3) Estimate of the amount of soil/material stockpiled in tons and cubic yards;
(4) Photographs from the segregated stockpile at the source with sample point locations identified;
(5) An affidavit from the source/facility on company letterhead stating that the segregated stockpile has been properly maintained at the source and complies with the requirements listed above; and
(6) A copy of the source/facility NYSDEC permit(s).

If fill material is imported, a highly visible demarcation barrier (i.e., orange geo-synthetic material or equivalent) will be installed beneath the clean soil/fill surface cover. Upon importing and grading any NYSDEC-approved clean soil cover on top of a highly visible demarcation barrier, the following documentation will be presented in the FER:

(1) Copies of purchase invoices;
(2) Truck transportation slips from the source to the Site;
(3) Confirmation of the number of tons and cubic yards of NYSDEC-approved clean soil cover material imported and graded at the Site on top of a highly visible demarcation barrier;
(4) A Site plan depicting all areas where the NYSDEC-approved clean soil cover has been placed; and

(5) Photographs documenting the importing and grading of the NYSDEC-approved clean soil cover across the Site with the underlying highly visible demarcation barrier (i.e., orange geo-synthetic material or equivalent).

Appendix E
Quality Assurance Project Plan

Quality Assurance Project Plan

for
340 Myrtle Avenue
Remedial Action Work Plan

340 Myrtle Avenue
Brooklyn, NY
Block 2073, Lots 21 & 22
BCP Site # C224340

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Prepared for:
340 Myrtle Development LLC
1213 Rogers Avenue, 1st Floor
Brooklyn, NY 11226

Prepared by:
TENEN ENVIRONMENTAL
121 West 27th Street, Suite 702
New York, NY 10001

October 2023

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been developed for the Remedial Action Work Plan (RAWP) prepared for the 340 Myrtle Avenue property (the Site).

The Site, located at 340 Myrtle Avenue and 155 Carlton Avenue in the Fort Greene neighborhood of Brooklyn, New York, is an irregularly-shaped parcel of land, identified by the New York City Department of Finance as Block 2073, Lots 21 and 22. The Site is located on the southeast corner of the intersection of Myrtle Avenue and Carlton Avenue and is bounded by Myrtle Avenue to the north, residential buildings to the south, Carlton Avenue to the west, and commercial and residential buildings to the east.

Lot 21 is currently occupied by a one-story commercial building with a full cellar that occupies the majority of the lot. The onsite building is currently vacant; the most recent tenants of the Site building include a commercial laundry and a bedding and bath store. The cellar extends to a depth of approximately 9.5 feet below sidewalk grade (ft-bsg). The southwestern portion of Lot 21 is unimproved, vacant, and was most recently utilized for parking.

Lot 22 was excavated to approximately 9.5 ft-bsg across the lot between April 2022 and September 2022 as part of previous redevelopment efforts conducted under a New York City Mayor's Office of Environmental Remediation (NYC OER)-approved Remedial Action Plan (RAP). Additionally, foundational elements (i.e., piles and support of excavation) were installed across Lot 22 in support of the previous redevelopment efforts. The planned development project for Lot 22 consisted of a four-story single family home with a full cellar. The redevelopment plan was abandoned in late 2022; the lot was never backfilled. During the course of excavation on Lot 22, an abandoned gasoline underground storage tank (UST) was discovered. The UST was cleaned, removed and disposed of offsite in accordance with all Federal, State and local laws as part of the Remedial Action.

1.1 Project Scope and QAPP Objective

The proposed scope of work includes the following:

- Implementation of the community air monitoring plan (CAMP) and remedial oversight during Remedial Action activities, including excavation and disposal of soil and foundation installation;
- Implementation of monitored natural attenuation (MNA) of chlorinated volatile organic compounds (cVOCs) in groundwater;
- Installation of a sub-slab depressurization system (SSDS) to mitigate soil vapor intrusion into the new building; and,
- Collection of post-excavation end-point soil samples and post-remedial groundwater and indoor air samples.

The objective of the QAPP is to detail the policies, organization, objectives, functional activities and specific quality assurance/quality control activities designed to achieve the data quality goals

or objectives of the Remedial Action Work Plan. This QAPP addresses how the acquisition and handling of samples and the review and reporting of data will be documented for quality control (QC) purposes. Specifically, this QAPP addresses the following:

- The procedures to be used to collect, preserve, package, and transport samples;
- Field data collection and record keeping;
- Data management;
- Chain-of-custody procedures; and,
- Determination of precision, accuracy, completeness, representativeness, decision rules, comparability and level of quality control effort.

2.0 PROJECT ORGANIZATION

The personnel detailed are responsible for the implementation of the QAPP. Tenen Environmental, LLC (Tenen) will implement the RAWP on behalf of 340 Myrtle Development LLC (the Participant) once it has been approved by the New York State Department of Environmental Conservation (NYSDEC).

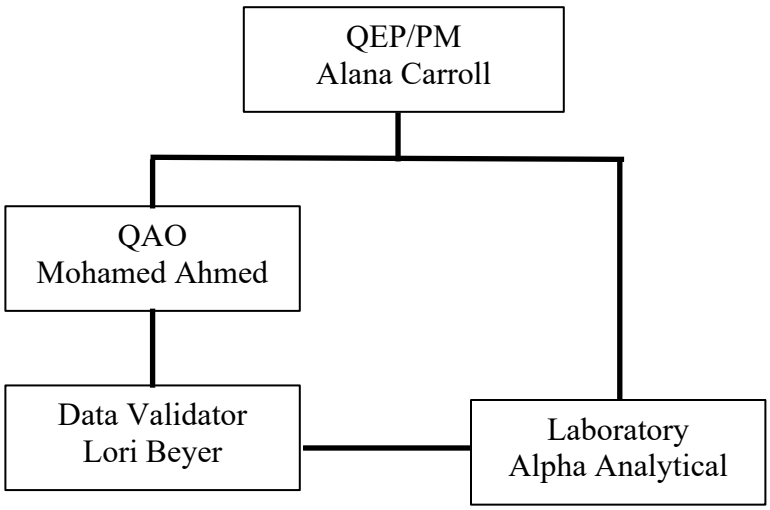
The Project Manager and Qualified Environmental Professional (QEP) will be Mrs. Alana Carroll, CPG, managing scientist at Tenen. Mrs. Carroll is a certified professional geologist with experience in all aspects of site assessment, development and implementation of remedial strategies. Her experience involves projects from inception through investigation, remediation and closure. Her expertise includes soil, soil vapor and groundwater remediation; remedial selection and design; field/health and safety oversight and preparation of work plans and reports to satisfy the requirements of various regulatory agencies. Mrs. Carroll received her BS in Geology from Hofstra University; her resume is included in Appendix A.

The Quality Assurance Officer will be Mohamed Ahmed, Ph.D., CPG, principal at Tenen. Dr. Ahmed is a certified professional geologist with over 20 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems, and soil remediation. He has managed numerous projects focused on compliance with the requirements of the New York State Brownfield Cleanup Program and spills programs and the New York City E-designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the New York City Department of Environmental Protection, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation. Dr. Ahmed holds advanced degrees in geology and Earth and Environmental Sciences from Brooklyn College and the Graduate Center of the City University of New York; his resume is included in Appendix A.

In addition, Tenen will utilize subcontractors for laboratory services (Alpha Analytical of Westborough, MA) and data validation (L.A.B. Validation Corp. of East Northport, NY). The resume for the DUSR preparer, Ms. Lori Beyer, is included in Appendix A.

Contact Information
Remedial Party (340 Myrtle Development LLC), David Halberstam, 718.705.8825
Tenen Environmental, Mohammed Ahmed or Alana Carroll, 646.606.2332

An organization chart for the implementation of the Remedial Action Work Plan and QAPP is below.



3.0 SAMPLING AND DECONTAMINATION PROCEDURES

A detailed description of the procedures to be used during this program for collection of the soil, groundwater, and indoor air samples is provided below. Proposed end-point sample locations and post-remedial groundwater sample locations are shown on Figures 7 and 12 of the Remedial Action Work Plan, respectively. An Analytical Methods/Quality Assurance Summary is provided in Table 1, included in Section 3.11.

3.1 Level of Effort for QC Samples

Field blank, trip blank, field duplicate and matrix spike (MS) / matrix spike duplicate (MSD) samples will be analyzed to assess the quality of the data resulting from the field sampling and analytical programs. Each type of QC sample is discussed below.

- Field and trip blanks consisting of distilled water will be submitted to the analytical laboratories to provide the means to assess the quality of the data resulting from the field-sampling program. Field (equipment) blank samples are analyzed to check for procedural chemical constituents that may cause sample contamination. Trip blanks are used to assess the potential for contamination of samples due to contaminant migration during sample shipment and storage.

- Duplicate samples are analyzed to check for sampling and analytical reproducibility.

- MS/MSD samples provide information about the effect of the sample matrix on the digestion and measurement methodology.

The general level of QC effort will be one field duplicate and one field blank (when non-dedicated equipment is used) for every 20 or fewer investigative samples of a given matrix. Additional sample volume will also be provided to the laboratory to allow one site-specific MS/MSD for every 20 or fewer investigative samples of a given matrix. One trip blank will be included along with each sample delivery group of volatile organic compound (VOC) samples. One equipment blank will be collected at a frequency of one per day that PFAS samples are collected for a given matrix.

The analytical laboratory, Alpha Analytical, is certified under the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) as Lab IDs 11148 and 11627. NYSDEC Analytical Services Protocol (ASP) Category B deliverables will be prepared by the laboratory.

3.2 Sample Handling

Samples will either be picked up by the laboratory, delivered to the laboratory in person by the sampler, or transported to the laboratory by overnight courier. All samples will be shipped to the laboratory to arrive within 48 hours after collection, and the laboratory will adhere to the analytical holding times for these analyses, as listed in the current version of the New York State ASP.

3.3 Custody Procedures

Sample custody will be controlled and maintained through the chain-of-custody procedures. The chain of custody is the means by which the possession and handling of samples is tracked from the site to the laboratory. Sample containers will be cleaned and preserved at the laboratory before shipment to the Site. The following sections (Sections 3.4 and 3.5) describe procedures for maintaining sample custody from the time samples are collected to the time they are received by the analytical laboratory.

3.4 Sample Storage

Samples will be stored in secure limited-access areas. Walk-in coolers or refrigerators will be maintained at 4°C, +/- 2°C, or as required by the applicable regulatory program. The temperatures of all refrigerated storage areas are monitored and recorded a minimum of once per day. Deviations of temperature from the applicable range require corrective action, including moving samples to another storage location, if necessary.

3.5 Sample Custody

Sample custody is defined by this QAPP as the following:

- The sample is in someone's actual possession;
- The sample is in someone's view after being in his or her physical possession;
- The sample was in someone's possession and then locked, sealed, or secured in a manner that prevents unsuspected tampering; or,
- The sample is placed in a designated and secured area.

Samples will be removed from storage areas by the sample custodian or laboratory personnel and transported to secure laboratory areas for analysis. Access to the laboratory and sample storage areas is restricted to laboratory personnel and escorted visitors only; all areas of the laboratory are therefore considered secure.

Laboratory documentation used to establish chain of custody and sample identification may include the following:

- Field chains of custody or other paperwork that arrives with the sample;
- Laboratory chain of custody;
- Sample labels or tags attached to each sample container;
- Sample custody seals;
- Sample preparation logs (i.e., extraction and digestion information) recorded in hardbound laboratory books, filled out in legible handwriting, and signed and dated by the chemist;
- Sample analysis logs (e.g., metals, GC/MS, etc.) information recorded in hardbound laboratory books that are filled out in legible handwriting, and signed and dated by the chemist;
- Sample storage log (same as the laboratory chain of custody); and,

- Sample disposition log, which documents sample disposal by a contracted waste disposal company.

3.6 Sample Tracking

All samples will be maintained in the appropriate coolers prior to and after analysis. Laboratory analysts will remove and return their samples, as needed. Samples that require internal chain of custody procedures will be relinquished to the analysts by the sample custodians. The analyst and sample custodian will sign the original chain of custody relinquishing custody of the samples from the sample custodian to the analyst. When the samples are returned, the analyst will sign the original chain of custody returning sample custody to the sample custodian. Sample extracts will be relinquished to the instrumentation analysts by the preparatory analysts. Each preparation department will track internal chain of custody through their logbooks/spreadsheets.

Any change in the sample during the time of custody will be noted on the chain of custody (e.g., sample breakage or depletion).

3.7 Post-Excavation End-Point Sampling Methodology

End-point samples will be collected from the base of the excavation every 900 square feet (SF) and from the sidewalls of the excavation every 30 linear feet (LF). At development depth, end-point samples will be collected from the bottom of the excavation and sidewalls of the excavation. It is anticipated that a total of ten base of excavation documentation end-point samples and twelve sidewall documentation end-point samples (where sidewalls are not inaccessible due to support of excavation elements) will be collected following implementation of the Remedial Action. Figure 7 of the RAWP presents a generalized post-excavation sampling location map.

All post-excavation sample results will be compared with the Unrestricted Use and Restricted-Residential Use SCOs.

All end-point samples will be analyzed for the following analytes on the Part 375 list with a Category B deliverable package:

- Target Compound List (TCL) VOCs by EPA Method 8260C;
- TCL Semivolatile Organic Compounds (SVOCs) by EPA Method 8270C;
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082A;
- Pesticides by EPA Method 8081B;
- Target Analyte List (TAL) Metals by EPA Method 6010C / 7471B;
- PFAS by EPA Method 1633 [reporting limit of 0.5 parts per billion (ppb)]; and,
- 1,4-Dioxane by EPA Method 8270.

Field methods can impact the analysis of PFAS. PFAS samples will be collected using dedicated disposable sampling equipment when possible. If dedicated disposable sampling equipment cannot be used, samples will be collected with stainless steel tools (spoons, bowls, etc.) and

decontaminated using detergent (Alconox) and clean, PFAS-free water. Sampling containers for PFAS will be made of high-density polyethylene (HDPE) with caps that will not be lined with polytetrafluoroethylene (PTFE). PFAS sampling containers will be kept in separate coolers from all other sampling containers and only regular ice will be used to cool the samples. Field staff conducting the sampling will not wear clothing that contains PTFE material or that has been waterproofed with PFAS material during sampling and all clothing worn will be laundered multiple times. Any bug spray or sunscreen utilized by field staff conducting the sampling will be PFAS free. A sampling guide is included in Appendix B.

3.8 Post-Remedial Quarterly Groundwater Sampling Methodology

Prior to sample collection, static water levels will be measured and recorded from all monitoring wells. Monitoring wells will also be gauged for the presence of light non-aqueous phase liquid (LNAPL). In the event that LNAPL is detected, Tenen will record the thickness and will not collect a sample. If LNAPL is not detected, Tenen will purge and sample monitoring wells using low-flow/minimal drawdown purge and sample collection procedures (bladder pump). Prior to sample collection, groundwater will be evacuated from each well at a low-flow rate (typically less than 0.1 L/min). Field measurements for pH, temperature, turbidity, dissolved oxygen, specific conductance, oxidation-reduction potential and water level, as well as visual and olfactory field observations, will be periodically recorded and monitored for stabilization. Purging will be considered complete when pH, specific conductivity, dissolved oxygen and temperature stabilize and when turbidity measurements fall below 50 Nephelometric Turbidity Units (NTU) or become stable above 50 NTU. If stabilization does not occur or the well has been purged and recovery cannot maintain the pace of low flow purging, a sample will be collected and a notation will be made in the field book.

Stability is defined as variation between field measurements of 10 percent or less and no overall upward or downward trend in the measurements. Upon stabilization of field parameters, groundwater samples will be collected and analyzed as discussed below.

Wells will be purged and sampled using dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures, as described above. The pump will be decontaminated between samples and the tubing will be replaced.

Groundwater samples will be collected for laboratory analysis through dedicated tubing. Prior to, and immediately following collection of groundwater samples, field measurements for pH, specific conductance, temperature, dissolved oxygen, turbidity and depth-to-water, as well as visual and olfactory field observations will be recorded. All collected groundwater samples will be placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to the designated laboratory for analysis.

Post-remedial groundwater sampling will be completed in accordance with a Site Management Plan (SMP). It is anticipated that groundwater samples will be collected from five previously installed wells at least 30 days after onsite soil source of PCE has been removed. Post-remedial

groundwater sampling will occur quarterly for the first year and annually thereafter. Proposed post-remedial groundwater sample locations are shown on Figure 12 of the RAWP.

Groundwater samples will be analyzed for chlorinated VOCs by EPA Method 8260C.

3.9 Post-Remedial Indoor Air Sampling Methodology

All post-remedial indoor air and ambient air samples will be collected in accordance with the NYSDOH Soil Vapor Guidance. Some sample locations may be adjusted based on field observations or conditions.

The post-remedial indoor air and ambient air samples will be collected from breathing height (three to five feet above the floor) from within the Site building. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for 24 hours in residential structures. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, identity of samplers, sampling methods and devices, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain-of-custody protocols.

Post-remedial indoor air and ambient air samples will be collected in laboratory-supplied 6-liter Summa canisters using 24-hour regulators in residential structures. Indoor air and ambient air samples will be analyzed for VOCs using EPA Method TO-15. One ambient air sample will be collected during each indoor air sampling event.

3.10 Analytical Methods/Quality Assurance Summary Table

A summary of the analytical methods and quality assurance methods are included in Table 1, below.

Table 1
Analytical Methods/Quality Assurance Summary

Matrix	Proposed Samples	QA/QC Samples					Total # Samples	Analytical Parameter	Method	Preservative	Holding Times	Container
		TB	FB	DUP	MS/MSD	EB						
Soil	22	2	2	2	2 / 2	0	32	VOCs	8260C	Cool to 4°C, No Headspace	14 days	(3) Encore samplers; (1) 2-oz plastic bottle
	22	0	2	2	2 / 2	0	30	SVOCs	8270D	Cool to 4°C		(1) 4-oz amber glass bottle
	22	0	2	2	2 / 2	0	30	Pesticides	8081B			
	22	0	2	2	2 / 2	0	30	PCBs	8082A			
	22	0	2	2	2 / 2	0	30	TAL Metals	8151A, 7196A, 3050B, 7471B, 9010C/9012B/ 9014, 3060A/7196		28 days for mercury; 6 months for all others	
	22	0	2	2	2 / 2	0	30	1,4-Dioxane	8270		14 days	
	22	0	2	2	2 / 2	1 per day	32	PFAS	1633		14 days to extraction, 28 days following extraction	(1) 8-oz HDPE bottle
Groundwater	5	1	1	1	1 / 1	0	10	CVOCs	8260C	Cool to 4°C, pH<2 with HCl	14 days to analysis	(3) 40 mL amber glass vials
Indoor Air	5	0	0	0	0	0	5	VOCs	TO-15	None	30 days	(1) 6-L Summa
Ambient Air	1	0	0	0	0	0	1					

TB – Trip Blank
FB – Field Blank
DUP – Duplicate

EB – Equipment Blank
°C – degrees Celsius
mL – milliliter
L – liter

3.11 Decontamination

Where possible, samples will be collected using new, dedicated sampling equipment so that decontamination is not required. All non-dedicated drilling tools and equipment will be decontaminated between boring locations using potable tap water and a phosphate-free detergent (e.g., Alconox) and/or a steam cleaner. All non-dedicated sampling equipment will also have a final rinse with deionized water. Decontamination water will be collected and disposed as investigation-derived waste (IDW).

3.12 Data Review and Reporting

The NYSDEC ASP Category B data package will be validated by an independent data validation subconsultant and a DUSR summarizing the results of the data validation process will be prepared. All reported analytical results will be qualified as necessary by the data validation and will be reviewed and compared against background concentrations and/or applicable New York State criteria:

Soil – Unrestricted Use Soil Cleanup Objectives (SCOs) as listed in 6 NYCRR Part 375;
Groundwater – Ambient Water Quality Standards (AWQS) and Guidance Values and Groundwater Effluent Limitations for groundwater as listed in NYSDEC Technical and Operations Guidance Series (TOGS) 1.1.1 and February 2023 Addendum.
Indoor Air – NYSDOH Matrices and Air Guideline Values (AGVs).

All end-point and indoor air analytical results will be documented in the Final Engineering Report (FER), which will describe Site conditions and document applicable observations made during the sample collection. In addition, the FER will include a description of the sampling procedures, tabulated sample results and an assessment of the data and conclusions. The laboratory data packages, DUSR, and field notes will be included in the FER as appendices. All data will also be submitted electronically to NYSDEC via the Environmental Information Management System (EIMS) in EqUIS format.

Appendix A

Resumes

Alana M. Carroll, PG
Senior Project Manager

PROFESSIONAL PROFILE

Ms. Alana Carroll is a professional geologist with experience managing a variety of environmental consulting projects in the New York metropolitan area and specializing in remedial investigations, conceptual site modeling, and remedial design and implementation. She provides analytical, technical, and regulatory guidance to clients, including developers and environmental attorneys, on a variety of projects in various stages of investigation, remediation, and redevelopment. Ms. Carroll has managed projects from inception through investigation, remediation, and closure in the New York State Brownfield Cleanup Program, the New York State Department of Environmental Conservation (NYSDEC) Spills and Voluntary Cleanup Programs, the New York State Superfund Program, and the New York City E-Designation Program.

CREDENTIALS AND PROFESSIONAL HONORS

New York State Licensed Professional Geologist #000979
Adjunct Professor, Manhattan College, School of Engineering
M.A., Earth and Environmental Sciences, Brooklyn College, New York
B.S., Geology, Hofstra University, Uniondale, New York

CONTINUING EDUCATION AND TRAINING

OSHA 10-Hour Construction Training (2015)
Hazardous Waste Operations and Emergency Response 40-Hour Certification
(2004; refreshers 2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014, and 2015)
First Aid and CPR Certified (2012)
Amtrak Contractor Safety Training (2010 and 2011)

PROFESSIONAL AFFILIATIONS

Member of Geologic Society of America
Member of New Partners for Community Revitalization

RELEVANT EXPERIENCE

New York State Brownfield Cleanup Program, Former West 18th Street MGP Site, Block 690, Lots 20 and 29, West Chelsea, Manhattan, New York—Successfully guided the client into the Brownfield Cleanup Program at the remediation stage. Prepared detailed remedial cost estimates for several redevelopment scenarios. Assisted in negotiating cleanup costs on behalf of the developer with the entity responsible for onsite contamination from former manufactured gas plant (MGP) operations. Designed and managed a pre-design investigation that delineated onsite coal tar impacts and differentiated petroleum impacts. Served on a team that designed an *in situ* stabilization treatability study. Prepared the Remedial Action Work Plan and Alternatives Analysis that included the excavation and removal of coal tar source material within two MGP gas holders and the encapsulation of residual coal tar. Performed an essential role on the construction and design team, coordinating with the structural, foundation, mechanical, and architectural contractors.

New York State Brownfield Cleanup Program, 520 West 28th Street, West Chelsea, Manhattan, New York—Managed several investigations to address New York State Spills, New York City E-Designation, and New York State Brownfield Cleanup programs. Prepared scopes of work to address requirements of both State and City regulatory agencies. Served as an essential member of the construction and design team, coordinating with the structural, foundation, mechanical, and architectural contractors. Managed access with adjacent property owners for full-scale excavation. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Coordinated and managed the characterization and disposal of over 35,000 tons of hazardous material and historic fill. Designed and managed the remedial action necessary to obtain a successful Track 1 Cleanup. Assisted in negotiating a nuanced approach to support excavation that allowed for a Track 1 Cleanup. Prepared the final engineering report that expedited the certificate of completion.

New York State Brownfield Cleanup Program, Teitelbaum Dry Cleaner, Long Island City, New York—Designed and managed multiple onsite and offsite investigations to address NYSDEC and New York State Department of Health (NYSDOH) regulatory requirements with respect to chlorinated solvent impacts to groundwater and soil vapor. Designed and managed chlorinated solvent plume delineation and remediation in both groundwater and soil vapor. Prepared a technical memorandum on the fate and transport of the onsite chlorinated solvent groundwater plume that established limited liability for downgradient impacts and identified a secondary source. Coordinated with multiple adjacent parties for access. Designed a remedial approach for the site building that included source removal, groundwater injection, and a retro-fitted sub-slab depressurization system (SSDS).

Confidential Project, Steuben County, NY—Performed a forensic review and analysis of environmental records associated with five parcels of land that the State deemed as illegal solid waste dumps. Prepared and presented two technical arguments to NYSDEC and NYSDOH detailing illegal dumping, historic fill material, human health exposure pathways, bioavailability of historic fill constituents and remedial alternatives. Designed a full-scale remedial investigation of soil, groundwater and sediments for five parcels of historically industrial land.

New York City Voluntary Cleanup Program, Gallery Row, West Chelsea, Manhattan, New York—Managed multiple investigations over five tax lots to address New York City E-Designation and Voluntary Cleanup Program requirements. Designed a remedial action that incorporates a phased and targeted excavation below Highline Park. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Served as an integral part of the construction and design team.

New York State Brownfield Cleanup Program, Former Nu-Brite Dry Cleaner, 1299 First Avenue, East Side, Manhattan, New York—Designed and managed multiple investigations to address onsite chlorinated solvent impacts to soil, groundwater, and soil vapor. Site challenges included investigation and remedial action within existing, occupied building sites. Designed and managed a bedrock fracture investigation to address potential impacts to bedrock. Designed and managed offsite delineation of chlorinated solvent plume in soil vapor. Directed multiple offsite soil vapor investigations within adjacent properties; assisted in negotiating several nuanced access agreements. Managed an onsite interim remedial measure including the installation of a retro coat vapor barrier and retro-fitted SSDS within the site building.

New York State Brownfield Cleanup Program, 34th Street and 42nd Street, West Side, Manhattan, New York—Designed and managed multiple investigations to address New York State Spills and Brownfield Cleanup programs. Prepared scopes of work to address requirements of both state regulations and those agreed to by the former owner. Coordinated

with NYSDEC to modify scopes based on field observations and limitations, which resulted in not having to mobilize for additional investigations. Coordinated with multiple entities for access to perform investigations, including Javits Convention Center, Amtrak, New York City Department of Transportation, Metropolitan Transit Authority, and their contractors. Developed a three-phase analysis plan with the laboratory to determine the minimum required extent of excavation next to an Amtrak line while limiting analytical costs, decreasing in the extent of excavation, and lowering disposal and structural support requirement costs.

New York State Brownfield Cleanup Program, 388 Bridge Street, Downtown Brooklyn, New York—Designed and managed all onsite and offsite investigations of soil, soil gas, groundwater, and indoor air, including coordination of staff and subcontractors. Prepared investigation reports for submittal to client, project team, NYSDEC, and NYSDOH. Participated in project team decision making with clients, lawyers, construction manager, and other consultants. Managed New York City Transit approvals for subsurface investigations near subway lines. Coordinated offsite access in residences, commercial spaces, and a private school. Participated in soil vapor extraction pilot test implementation and reporting. Assisted with implementation of an offsite SSDS in an existing building; activities included system design/layout, installation oversight, testing, and long-term operation and maintenance. Responsible for NYSDEC/NYSDOH coordination and reporting for all investigations. Tracked project activities for inclusion in NYSDEC/NYSDOH programmatic submittals, including monthly reports and remedial schedules.

New York Department of Environmental Remediation, Class 2 State Superfund, Laurel Hill Site, Queens, New York—Managed multiphase, multiparcel project involving design, installation, and ongoing operation, maintenance, and monitoring of six remedial caps. Site challenges included the division of the site into individual parcels that were independent of one another; subsequently, each parcel had a stormwater management design individual to the surrounding parcels. Other challenges included the site's position in a wetlands area fronting Newtown Creek, and working with the New York City Department of Transportation to facilitate its schedule for the adjacent Kosciusko Bridge restoration.

New York State Brownfield Cleanup Program, Willets Point Development, Queens, New York—Managed the Brownfield Cleanup Program application and Phase I environmental site assessment effort for 45 parcels of industrialized land. Coordinated with multiple interested parties, including New York City Department of Housing Preservation and Development and the Economic Development Corporation for access and contracting.

New York State Brownfield Cleanup Program, Uniforms for Industry, Queens, New York—Designed and managed an alternative approach to the offsite soil vapor intrusion investigation. Utilized soil vapor modeling to evaluate potential human health risks and migration probabilities. Provided support for the design of a retrofitted passive venting system.

New York State Spills Program, Gotham Center, Queens, New York—Responsible for proposal and budget development, subcontractor selection and coordination, negotiation, and preparation of subcontractor terms and agreements, budget, and invoice review for a comprehensive subsurface investigation. Prepared and implemented scope of work for delineation of soil contamination and calculation of contaminant mass estimates. Subsequent to interpretation of site data and subgrade characteristics, developed and presented remedial alternatives and associated costs for internal and client project teams. Prepared remedial investigation report in coordination with the New York City Economic Development Corporation and the client for submittal to state regulators.

Ashley Platt
Senior Environmental Scientist

PROFESSIONAL PROFILE

Ms. Ashley Platt is an environmental scientist with seven years of environmental consulting experience in the New York metropolitan area and specializing in brownfield redevelopment. She has experience in the preparation of various reports for regulatory compliance with local, State, and Federal entities, including Remedial Investigation Work Plans, Remedial Investigation Reports, Remedial Action Work Plans, Final Engineering Reports, and Site Management Plans. She also has an extensive field background which includes soil, groundwater, soil vapor and indoor air sampling and remediation, remedial oversight and installation of remedial systems, including soil vapor extraction systems and sub-slab depressurization systems. Ms. Platt has worked on projects from inception through investigation, remediation, and closure in the New York State Brownfield Cleanup Program and the New York City E-Designation Program.

CREDENTIALS AND PROFESSIONAL HONORS

P.S.M., Environmental Sciences, Stockton University, New Jersey (2016)
B.S., Biology, Minors in Chemistry and Business Studies, Stockton University, New Jersey (2014)

CONTINUING EDUCATION AND TRAINING

OSHA 30-Hour Construction Safety Training (2019)
Hazardous Waste Operations and Emergency Response 40-Hour Certification (2016; refreshers 2017, 2018, 2019, 2020, 2021, and 2022)
Hazardous Waste Operations and Emergency Response 8-Hour Supervisor Training (2017)
First Aid and CPR Certified (2016)

RELEVANT EXPERIENCE

New York State Brownfield Cleanup Program, 36-08 Review Avenue, Long Island City, Queens, New York

Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, indoor air, and oil samples; and, implementation of a community air monitoring plan. Coordinated with tenants of the site buildings to arrange access to perform the Remedial Investigation. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and Remedial Action Work Plan.

New York State Brownfield Cleanup Program, 555 West 22nd Street, West Chelsea, Manhattan, New York

Performed remedial oversight during redevelopment activities, including daily oversight of bulk excavation and soil/fill disposal offsite, implementation of a community air monitoring plan, and collection of post-remedial endpoint samples. Assisted in the preparation of a Final Engineering Report and Site Management Plan and the attainment of a Certificate of Completion. A mixed Track 2 and Track 4 cleanup was obtained. Assisted in the preparation of annual Periodic Review Reports following issuance of the Certificate of Completion.

New York City Voluntary Cleanup Program, Greenport II South, Far Rockaway, Queens, New York

Assisted in the preparation of a Phase I Environmental Site Assessment. Assisted in the preparation of a Remedial Investigation Work Plan and Remedial Investigation Report to address New York City E-Designation and Voluntary Cleanup Program requirements. Served an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis and management of the remedial action. Prepared and submitted daily reports to the New York City Mayor's Office of Environmental Remediation for

compliance with the New York City Voluntary Cleanup Program. Assisted in the preparation of a Remedial Action Report and obtained a Track 1 Cleanup. As a result of the Remedial Action conducted at the property, the new development was awarded a 2022 Big Apple Brownfield Award for Community Space.

New York State Brownfield Cleanup Program, 147-35 95th Avenue, Jamaica, Queens, New York
Assisted in the design and implementation of a Remedial Investigation and waste characterization sampling of soil. Served an integral role in guiding the client into the Brownfield Cleanup Program at the remediation stage, including the preparation of a Brownfield Cleanup Program Application, Remedial Investigation Report, Remedial Action Work Plan, and alternatives analysis. Coordinated with State and City agencies for the satisfaction of air, noise, and hazardous waste requirements. Managed the project during implementation of the Remedial Action, including coordination to obtain disposal facility approvals for disposal of soil/fill offsite, preparation and submission of daily and monthly reports to the New York State Department of Environmental Conservation, coordination with the New York State Department of Environmental Conservation for approval to import various fill materials and reuse soil onsite as backfill, and coordination for changes to the sub-slab depressurization system design. Served an integral role in the preparation of a Final Engineering Report, Site Management Plan, and electronic data deliverables.

New York State Brownfield Cleanup Program, 965 Mamaroneck Avenue, Village of Mamaroneck, New York
Assisted in guiding the client into the Brownfield Cleanup Program at the remediation stage. Assisted in the preparation of a Remedial Investigation Work Plan and Supplemental Remedial Investigation Work Plans and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, and indoor air samples; and, implementation of a community air monitoring plan. Coordinated with offsite property owners to complete soil vapor and indoor air sampling offsite. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and a Remedial Action Work Plan and alternatives analysis.

New York State Brownfield Cleanup Program, 2921 Westchester Avenue, Pelham Bay, Bronx, New York
Performed an integral role in the implementation of a due diligence investigation, including the installation of soil borings and monitoring wells and the collection of soil, groundwater, and indoor air samples. Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and performed an integral role in the implementation of the Remedial Investigation, including oversight during soil boring, monitoring well, and soil vapor point installation; collection of soil, groundwater, soil vapor, and indoor air samples; and, implementation of a community air monitoring plan. Coordinated with offsite tenants of the Site building to arrange access for sampling during due diligence and Remedial Investigation activities. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, and a Remedial Action Work Plan and alternatives analysis.

New York City Voluntary Cleanup Program, 2700 Atlantic Avenue, East New York, Brooklyn, New York
Assisted in the preparation of a Remedial Investigation Report and performed an integral role in guiding the client into the Voluntary Cleanup Program. Performed an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis and management of the remedial action. Prepared and implemented a waste characterization sampling plan and coordinated with the soil broker to obtain approvals to dispose of material offsite. Performed an integral role in the preparation of an Air Quality and Noise Remedial Action Plan.

New York City Voluntary Cleanup Program, 335 Ralph Avenue, Bedford Stuyvesant, Brooklyn, New York
Assisted in the preparation of a Remedial Investigation Work Plan and Remedial Investigation Report and performed an integral role in guiding the client into the Voluntary Cleanup Program. Performed an integral role in the preparation of a Remedial Action Work Plan and alternatives analysis, a Noise Remedial Action Plan, and management of the remedial action. Coordinated with the client, general contractor, and City agency to resolve issues related to importation of fill materials to the Site. Performed an integral role in the preparation of a Remedial Action Report.

New York City Voluntary Cleanup Program, Gallery Row, West Chelsea, Manhattan, New York
Performed remedial oversight during redevelopment activities over five tax lots, including daily oversight of bulk excavation and soil/fill disposal offsite, implementation of a community air monitoring plan, collection of post-remedial endpoint samples, and installation of a passive sub-slab depressurization system. Assisted in the preparation of a Remedial Action Report and the attainment of a Notice of Satisfaction for hazardous waste requirements.

New York State Brownfield Cleanup Program, Teitelbaum Dry Cleaner, Long Island City, Queens, New York
Performed an integral role in the preparation of a Remedial Investigation Report, Remedial Action Work Plan, and alternatives analysis. Assisted in the design of a remedial approach for the site building that included source removal, groundwater injections, and a retro-fitted sub-slab depressurization system. Performed remedial oversight during remedial action activities, including installation of a soil vapor extraction system, a retro-fitted sub-slab depressurization system, injection wells and groundwater injections.

New York City E-Designation Program, 2856 Webster Avenue, Bedford Park, Bronx, New York
Performed an integral role in the management of the remedial action, including preparing and submitting daily reports to NYC OER, coordinating soil reuse approvals for backfill onsite, and coordinating Petroleum Bulk Storage notifications and management of the disposal of abandoned underground storage tanks. Performed an integral role in the preparation of a Remedial Action Report and achieved a Track 4 cleanup.

New York State Brownfield Cleanup Program, 340 Myrtle Avenue, Fort Greene, Brooklyn, New York
Performed an integral role in the implementation of a Phase II Environmental Site Investigation to meet E-Designation requirements, including the installation of soil borings, monitoring wells, and soil vapor points and the collection of soil, groundwater, and sub-slab soil vapor samples. Assisted in guiding the client into the Brownfield Cleanup Program at the investigation stage. Assisted in the preparation of a Remedial Investigation Work Plan and managed the implementation of the Remedial Investigation. Served an integral role in the preparation of a Remedial Investigation Report, electronic data deliverables, Noise Remedial Action Plan, and a Remedial Action Work Plan and alternatives analysis.

Matthew Carroll, P.E.
Environmental Engineer/Principal

Experience Summary

Matthew Carroll is an environmental engineer experienced in all aspects of site assessment and development and implementation of remedial strategies. He has managed projects from inception through investigation, remediation and closure. His expertise includes soil, soil gas, and groundwater remediation, preparation of cost estimates, remedial alternative selection and design, soil characterization for disposal, field safety oversight, and preparation of work plans and reports to satisfy New York and New Jersey state requirements, and New York City "e" designation and restrictive declarations. Mr. Carroll's project management experience includes past management of a New York City School Construction Authority hazardous materials contract. He is responsible for all engineering work performed by Tenen and is currently the project manager and remedial engineer for several New York State Brownfield Cleanup Program sites.

Selected Project Experience

470 Kent Avenue, Brooklyn
As project manager, supported the client in due diligence and transactional activities, including a Phase I ESA, preliminary site investigation, and remedial cost estimate; preparation of BCP application and remedial investigation work plan. The former manufactured gas plant, sugar refinery and lumberyard will be developed as a mixed-use project with market rate and affordable housing and public waterfront access. As remedial engineer, will be responsible for development of remedial alternatives and oversight and certification of all remedial activities.

500 Exterior Street, Bronx
Designed and implemented the investigation of this former lumberyard and auto repair shop that will be redeveloped as mixed use development with an affordable housing component; prepared BCP application and subsequent work plans and reports. Designed a remedial strategy incorporating both interim remedial measures (IRMs) and remediation during the development phase.

Gateway Elton I and II, Brooklyn
Conducted soil disposal characterization, prepared Remedial Action Work Plans and designed methane mitigation systems for two phases of a nine-building residential development and commercial space; prepared and oversaw implementation of a Stormwater Pollution Prevention Plan during construction and prepared and certified the remedial closure reports for the project.

Affordable Housing Development, Rye, NY
Consultant to the City of Rye on environmental issues pertaining to a county-owned development site slated for an afford senior housing; reviewed environmental documentation for the project and prepared summary memorandum for City Council review; recommended engineering controls to address potential exposure to petroleum constituents, presented report findings at public meetings and currently providing ongoing environmental support during project implementation.

Queens West Development BCP Site, Long Island City, New York
Assistant Project Manager for two developers involved in the site.

- Responsible for oversight of remediation under the New York State Brownfield Cleanup Program
- Technical review of work plans and reports and coordination of the Applicant's investigation and oversight efforts
- Provided input for mass calculations and well placement for an in-situ oxidation remedy implemented on a proposed development parcel and within a City street
- Conducted technical review of work pertaining to a former refinery. Documents reviewed included work plans for characterization and contaminant delineation; pilot test (chemical oxidation); remediation (excavation and groundwater treatment). Managed field personnel conducting full time oversight and prepared progress summaries for distribution to project team
- Following implementation of remedial action, implemented the Site Management Plan and installation/design of engineering controls (SSDS, vapor barrier/concrete slab, NAPL recovery). Also responsible for coordination with NYSDEC

Brownfield Cleanup Program Redevelopment Sites – West Side, New York City
Managed remediation of a development consisting of four parcels being addressed under one or more State and city regulatory programs (NYS Brownfield Cleanup Program, NYS Spills, and NYC "e" designation program). Remediation includes soil removal, screening and disposal; treatment of groundwater during construction dewatering and implementation of a worker health and safety plan and community air monitoring plan (HASP/CAMP)

Managed an additional BCP site, supported the Applicant in coordination with MTA to create station access for the planned No. 7 subway extension; also provided support the client in coordination with Amtrak to obtain access for remedial activities on the portion of the site that is within an Amtrak easement. The site will eventually be used for construction of a mixed-use high-rise building.

BCP Site, Downtown Brooklyn, New York
Performed investigation on off-site properties and designed an SSDS for an adjacent building, retrofitting the system within the constraints of the existing structure; coordinated the installation of the indoor HVAC controls and vapor barrier; provided input to the design of a SVE system to address soil vapor issues on the site.

West Chelsea Brownfield Cleanup Program Site
Designed an in-situ remediation program and sub-slab depressurization system to address contamination remaining under the High Line Viaduct; SSDS design included specification of sub-grade components, fan modeling and selection, identifying exhaust location within building constraints and performance modeling; prepared the Operations Maintenance and Monitoring Plan and Site Management Plan sections pertaining to the SSDS.

Historic Creosote Spill Remediation – Queens, New York – New York State Voluntary Cleanup Program
Modeled contamination volume and extent and prepared mass estimates of historic fill constituents and creosote-related contamination; designed a soil vapor extraction (SVE) and dewatering system to address historic creosote release both above and below static

water table; coordinated with the Metropolitan Transit Authority and prepared drawings to secure approval to drill in the area of MTA subway tunnels.

NYSDEC Spill Site– Far West Side, Manhattan
Provided support to client during negotiations with a major oil company regarding allocation of remedial costs. Worked with client's attorney to develop a regulatory strategy to address the client's obligations under the NYSDEC Spills Program and the New York City "e" designation requirements.

Affordable Housing Site, Brooklyn, New York
Modified prior work plans for soil, soil vapor and groundwater investigation to address requirements for site entry into the New York City Brownfield Cleanup Program. Prepared technical basis for use of prior data previously disallowed by OER. Currently conducting site investigation.

New York City School Construction Authority Hazardous Materials Contract
Provided work scopes and cost estimates, managed and implemented concurrent projects, including Phase I site assessments, Phase II soil, groundwater and soil gas investigations, review of contractor bid documents, preparation of SEQR documents, specifications and field oversight for above- and underground storage tank removal, and emergency response and spill control.

Former Manufacturing Facility, Hoboken, New Jersey
Evaluated site investigation data to support a revision of the current property use to unrestricted; modified the John & Ettinger vapor intrusion model to apply the model to a site-specific, mixed use commercial/residential development; implemented a Remedial Action Work Plan that included the characterization, removal and separation of 9,500 cubic yards of historic fill; designed and implemented a groundwater characterization/delineation program using a real-time Triad approach; designed and implemented an innovative chemical oxidation technology for the property.

F**ormer Varnish Manufacturer – Newark, New Jersey**
Prepared a Phase I environmental site assessment; implemented soil and groundwater sampling to assess presence of petroleum and chlorinated compounds; prepared alternate cost remediation scenarios for settlement purposes and implemented a groundwater investigation plan, including pump tests and piezometer installation to assess the effect of subsurface utilities and unique drainage pathways upon contaminant transport.

Education and Certifications

Professional Engineer, New York
Bachelor of Engineering, Environmental; Stevens Institute of Technology, 2002
Bachelor of Science, Chemistry, New York University, 2002
Technical and Regulatory Training in Underground Storage Tanks, Cook College, Rutgers University, 2006

Mohamed Ahmed, Ph.D., C.P.G.
Sr. Geologist/Principal

Experience Summary

Mohamed Ahmed is a certified professional geologist with nearly 23 years of experience in the New York City metropolitan area. He has designed and implemented subsurface investigations and is proficient in groundwater modeling, design of groundwater treatment systems and soil remediation. He has managed numerous projects focused on compliance with the New York State Brownfield Cleanup and Spills programs and the New York City "e" designation program. Dr. Ahmed also has extensive experience in conducting regulatory negotiations with the New York State Department of Environmental Conservation, the NYC Office of Housing Preservation and Development, and the Mayor's Office of Environmental Remediation.

Selected Project Experience

Willoughby Square, Downtown Brooklyn
As Project Manager, directs all regulatory interaction and investigation on this joint public-private sector redevelopment that will include a public park and four-level underground parking garage. Prepared the remedial investigation work plan and remedial action work plan, conducted investigation activities and waste characterization, and negotiated with the NYC Department of Environmental Protection and the Mayor's Office of Environmental Remediation to transition the site into the NYC Voluntary Cleanup Program.

School Facility, Borough Park, Brooklyn
Managed all regulatory agency coordination, work plan and report preparation and remedial oversight; worked with OER to determine measures to retroactively address the hazardous materials and air quality E-designations on a previously constructed school building and prepared supporting documentation to justify the use of electrical units rather than natural gas.

LGA Hotel Site, East Elmhurst, Queens
Project manager for all work conducted at this former gasoline service station which is being remediated under the NYS Brownfield Cleanup Program; technical oversight of work plans, reports, and design and implementation of field and soil disposal characterization.

436 10th Avenue, Manhattan
As project manager and technical lead, assisted client in developing remedial cost estimates used for property transaction, developed regulatory strategy to address NYS Spills and NYC E-designation requirements, and currently overseeing remedial activities which include removal and disposal of petroleum-contaminated bedrock and dewatering and disposal of impacted groundwater.

Brownfield Cleanup Program Site, Downtown Brooklyn
Managed investigation and remediation under the BCP program for a proposed mixed-use development; designed the remedial investigation and prepared the remedial action work plan which includes an SVE system monitored natural attenuation. Prepared remedial cost

estimates for several scenarios. The project will include a 53-story mixed-use structure and parking garage.

Queens West Development, Long Island City
Directed project team and subcontractors for soil investigation/remediation studies on multiple properties; provided technical support for negotiations with NYSDEC during investigation and remediation.

Former Creosote Site, Long Island City
Designed and implemented a complex investigation to assess the nature and extent of historic creosote contamination at this former industrial site; conducted studies to optimize recovery of LNAPL and DNAPL and developed strategies using bioremediation and natural attenuation in conjunction with conventional remedial approaches. Performed pilot tests for soil vapor extraction system design and coordinated with NYSDEC and NYSDOH to implement sub-slab soil vapor sampling.

NYSDEC Spill Site – Far West Side, Manhattan
Developed a detailed remedial cost estimate for to support client negotiations with a major oil company. The estimate included costs pertaining to: chipping, removal and disposal of petroleum-impacted bedrock; removal/disposal of recycled concrete; costs for dewatering and disposal of impacted groundwater during construction; and design and installation of a vapor barrier below the redevelopment.

Active Industrial Facility, Newburgh, New York
Designed remedial investigation of soil and groundwater contaminated with trichloroethane; performed soil vapor pilot test and pump test to aid in design of soil and groundwater remediation alternatives; conducted sub-slab vapor sampling in accordance with NYSDOH guidance.

Former Dry Cleaning Facility, New York City
Conducted soil and groundwater investigations, designed and installed a soil vapor extraction system and performed extensive testing of indoor air. Negotiated the scope of the RI and IRM with NYSDEC.

Waterfront Redevelopment, Yonkers, NY
Designed and performed geophysics survey of six parcels to determine locations of subsurface features; supervised test pit excavation to confirm geophysics results and evaluate and classify soil conditions prior to development activities.

Prince's Point, Staten Island, New York
Performed soil, groundwater and sediment sampling to delineate the extent of contamination; used field-screening techniques to control analytical costs and supervised soil excavation and disposal.

Apartment Complex, New York City, New York
Coordinated with Con Edison, the owner of the adjacent property and NYSDEC to determine oil recovery protocol; assessed hydrogeological conditions and conducted pilot tests to design cost-effective recovery system; designed and supervised installation of recovery system.

Publications

"Impact of Toxic Waste Dumping on the Submarine Environment: A Case Study from the New York Bight". Northeastern Geology and Environmental Sciences, V. 21, No. 12, p. 102-120. (With G. Friedman)

Metals Fluxes Across the Water/Sediment Interface and the Influence of pH. Northeastern Geology and Environmental Sciences, in press. (With G. Friedman)

"Water and Organic Waste Near Dumping Ground in the New York Bight". International Journal of Coal Geology, volume 43. (With G. Friedman)

Education and Certifications

Ph.D., Earth and Environmental Sciences, Graduate Center of the City of New York (2001)
M.Ph., Earth and Environmental Sciences, City University of New York (1998)
M.A. Geology, Brooklyn College (1993)
B.S. Geology, Alexandria University, Egypt (1982)

American Institute of Professional Geologists, Certified Professional Geologist, 1997-2015

L.A.B. Validation Corp., 14 West Point Drive, East Northport, New York 11731

Lori A. Beyer

SUMMARY: General Manager/Laboratory Director with a solid technical background combined with Management experience in environmental testing industry. Outstanding organizational, leadership, communication and technical skills. Customer focused, quality oriented professional with consistently high marks in customer/employee satisfaction.

EXPERIENCE:

1998-Present L.A.B. Validation Corporation, 14 West Point Drive, East Northport, NY
President
- Perform Data Validation activities relating to laboratory generated Organic and Inorganic Environmental Data.

1998-Present American Analytical Laboratories, LLC. 56 Toledo Street, Farmingdale, NY
Laboratory Director/Technical Director
- Plan, direct and control the operation, development and implementation of programs for the entire laboratory in order to meet AAL's financial and operational performance standards.
- Ensures that all operations are in compliance with AAL's QA manual and other appropriate regulatory requirements.
- Actively maintains a safe and healthy working environmental that is demanded by local laws/regulations.
- Monitors and manages group's performance with respect to data quality, on time delivery, safety, analyst development/goal achievement and any other key performance indices.
- Reviews work for accuracy and completeness prior to release of results to customers.

1996-1998 Nytest Environmental, Inc. (NEI) Port Washington, New York
General Manager
- Responsible for controlling the operation of an 18,000 square foot facility to meet NEI's financial and operational performance standards.
- Management of 65 FTEs including Sales and Operations
- Ensure that all operations are in compliance with NEI's QA procedures
- Ensures that productivity indicators, staffing levels and other cost factors are held within established guidelines
- Maintains a quantified model of laboratory's capacity and uses this model as the basis for controlling the flow of work into and through the lab so as to ensure that customer requirements and lab's revenue and contribution targets are achieved.

1994-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Technical Project Manager
- Responsible for the coordination and implementation of environmental testing programs requirements between NEI and their customers
- Supervise Customer Service Department
- Assist in the development of major proposals
- Complete management of all Federal and State Contracts and assigned commercial contracts
- Provide technical assistance to the customer, including data validation and interpretation
- Review and Implement Project specific QAPP's.

1995-1996 Nytest Environmental, Inc. (NEI) Port Washington, New York
Corporate QA/QC Officer
- Responsible for the implementation of QA practices as required in the NJDEP and EPA Contracts
- Primary contact for NJDEP QA/QC issues including SOP preparation, review and approval
- Responsible for review, verification and adherence to the Contract requirements and NEI QA Plan

1992-1994 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Manager
- Responsible for the accurate compilation, review and delivery of analytical data to the company's customers. Directly and effectively supervised a department of 22 personnel.
- Managed activities of the data processing software including method development, form creation, and production
- Implement new protocol requirements for report and data management formats
- Maintained control of data storage/archival areas as EPA/CLP document control officer

1987-1991 Nytest Environmental, Inc. (NEI) Port Washington, New York
Data Review Specialist
- Responsible for the review of GC, GC/MS, Metals and Wet Chemistry data in accordance with regulatory requirements
- Proficient with USEPA, NYSDEC, NJDEP and NEESA requirements
- Review data generated in accordance with SW846, NYSDEC ASP, EPA/CLP and 40 CFR Methodologies

1986-1987 Nytest Environmental, Inc (NEI) Port Washington, New York
GC/MS VOA Analyst

EDUCATION:

1982-1985 State University of New York at Stony Brook, New York; BS Biology/Biochemistry
1981-1982 University of Delaware; Biology/Chemistry
5/91 Rutgers University; Mass Spectral Data Interpretation Course, GC/MS Training
8/92 Westchester Community College; Organic Data Validation Course
9/93 Westchester Community College; Inorganic Data Validation Course

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

ORGANIC DATA VALIDATION COURSE (35 HOURS)

Dr. John Samuelian

Date AUGUST 1992

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Westchester Community College
Professional Development Center

Awards this Certificate of Achievement To

LORI BEYER

for Successfully Completing

INORGANIC DATA VALIDATION

Instructor: Dale Boshart

Date MARCH 1993

Assistant Dean
Professional Development Center

President

The Professional Development Center

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Thomas C. Jorling
Commissioner

July 8, 1992

Ms. Elaine Sall
Program Coordinator
Westchester Community College
Valhalla, NY 10595-1698

Dear Elaine,

Thank you for your letter of June 29, 1992. I have reviewed the course outline for organic data validation, qualifications for teachers and qualifications for students. The course that you propose to offer would be deemed equivalent to that which is offered by EPA. The individuals who successfully complete the course and pass the final written exam would be acceptable to perform the task of organic data validation for the Department of Environmental Conservation, Division of Hazardous Waste Remediation.

As we have discussed in our conversation of July 7, 1992, you will forward to me prior to the August course deadline, the differences between the EPA SOW/90 and the NYSDEC ASP 12/91. You stated these differences will be compiled by Mr. John Samulian.

I strongly encourage you to offer an inorganic data validation course. I anticipate the same list of candidates would be interested in an inorganic validation course as well, since most of the data to be validated consists of both organic and inorganic data.

Thank you for you efforts and please contact me if I can be of any further assistance.

Sincerely,

Maureen P. Serafini

Maureen P. Serafini
Environmental Chemist II
Division of Hazardous Waste
Remediation

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

October 2, 1992

Ms. Lori Beyer
3 sparkill Drive
East Northport, NY 11731

Dear Ms. Beyer:

Congratulations upon successful completion of the Organic Data Validation course held August 17 - 21, 1992, through Westchester Community College, Professional Development Center. This course has been deemed by New York State Department of Environmental Conservation as equivalent to EPA's Organic Data Validation Course.

Enclosed is your Certificate. Holders of this Certificate are deemed competent to perform organic data validation for the New York State DEC Division of Hazardous Waste Remediation.

The Professional Development Center at Westchester Community College plans to continue to offer courses and seminars which will be valuable to environmental engineers, chemists and related personnel. Current plans include a TCLP seminar on November 17th and a conference on Environmental Monitoring Regulations on November 18th.

We look forward to seeing you again soon at another environmental program or event. Again, congratulations.

Very truly yours,

Passing Grade is 70%
Your Grade is 99%

Elaine Sall
Program Coordinator

ES/bf

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

The Professional
Development Center
AT
WESTCHESTER COMMUNITY COLLEGE

914 285-6619

June 21, 1993

Dear Ms. Beyer:

Enclosed is your graded final examination in the Inorganic Data Validation course you completed this past March. A score of 70% was required in order to receive a certificate of satisfactory completion. Persons holding this certificate are deemed acceptable to perform Inorganic Data Validation for the New York State Department of Environmental Conservation, Division of Hazardous Waste Remediation.

I am also enclosing a course evaluation for you to complete if you have not already done so. The information you provide will greatly aid us in structuring further courses. We wish to make these course offerings as relevant, targeted and comprehensive as possible. Your evaluation is vital to that end.

Congratulations on your achievement. I look forward to seeing you again at another professional conference or course. We will be co-sponsoring an environmental monitoring conference on October 21, 1993 with the New York Water Pollution Control Association, Lower Hudson Chapter, at IBM's Yorktown Heights, NY site. Information regarding this event will be going out in August.

Very truly yours,

Elaine Sall

Elaine Sall
Program Coordinator

ES/bf

Enclosures

SUNY
WESTCHESTER COMMUNITY COLLEGE
Valhalla, New York 10595

Appendix B

PFAS Field Sampling Guidelines

EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampling for PFAS via EPA 537 can be challenging due to the prevalence of these compounds in consumer products. The following guidelines are strongly recommended when conducting sampling.

Reference-NHDES https://www.des.nh.gov/organization/divisions/waste/hwrb/documents/pfc-stakeholder-notification-20161122.pdf

FIELD CLOTHING and PPE

- No clothing or boots containing Gore-Tex®
- All safety boots made from polyurethane and PVC
- No materials containing Tyvek®
- Do not use fabric softener on clothing to be worn in field
- Do not used cosmetics, moisturizers, hand cream, or other related products the morning of sampling
- Do not use unauthorized sunscreen or insect repellant (see reference above for acceptable products)

FOOD CONSIDERATIONS

No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

OTHER RECOMMENDATIONS

Sample for PFAS first! Other containers for other methods may have PFAS present on their sampling containers

SAMPLE CONTAINERS

- All sample containers made of HDPE or polypropylene
- Caps are unlined and made of HDPE or polypropylene (no Teflon® -lined caps)

WET WEATHER (AS APPLICABLE)

Wet weather gear made of polyurethane and PVC only

EQUIPMENT DECONTAMINATION

- "PFAS-free" water on-site for decontamination of sample equipment. No other water sources to be used
- Only Alconox and Liquinox can be used as decontamination materials

FIELD EQUIPMENT

- Must not contain Teflon® (aka PTFE) or LDPE materials
- All sampling materials must be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books can be used
- No plastic clipboards, binders, or spiral hard cover notebooks can be used
- No adhesives (i.e. Post-It® Notes) can be used
- Sharpies and permanent markers not allowed; regular ball point pens are acceptable
- Aluminum foil must not be used
- Keep PFC samples in separate cooler, away from sampling containers that may contain PFAS
- Coolers filled with regular ice only - Do not use chemical (blue) ice packs

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EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampler must wash hands before wearing nitrile gloves in order to limit contamination during sampling. Each sample set requires a set of containers to comply with the method as indicated below. **Sample set is composed of samples collected from the same sample site and at the same time.*

Container Count	Container Type	Preservative
3 Sampling Containers - Empty	250 mL container	Pre preserved with 1.25 g Trizma
1 Reagent Water for Field Blank use	250 mL container	Pre preserved with 1.25 g Trizma
P1 Field Blank (FRB) - Empty	250 mL container	Unpreserved

Sampling container must be filled to the neck. For instructional purposes a black line has been drawn to illustrate the required fill level for each of the 3 Sample containers

Field blanks are recommended and the containers have been provided, please follow the instructions below.

Field Blank Instructions:

1. Locate the Reagent Water container from the bottle order. The Reagent Water container will be pre-filled with PFAS-free water and is preserved with Trizma.
2. Locate the empty container labeled "Field Blank".
3. Open both containers and proceed to transfer contents of the "Reagent Water" container into the "Field Blank" container.
4. If field blanks are to be analyzed, they need to be noted on COC, and will be billed accordingly as a sample.

Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.

Sampling Instructions:

1. Each sampling event requires 3 containers to be filled to the neck of the provided containers for each sampling location.
2. Before sampling, remove faucet aerator, run water for 5 min, slow water to flow of pencil to avoid splashing and fill sample containers to neck of container (as previously illustrated) and invert 5 times.
3. Do not overfill or rinse the container.
4. Close containers securely. Place containers in sealed ZipLoc® bags, and in a separate cooler (no other container types).
5. Ensure Chain-of-Custody and all labels on containers contain required information. Place sample, Field Blank and empty Reagent Blank containers in ice filled cooler (do not use blue ice) and return to the laboratory. Samples should be kept at 4°C ±2. Samples must not exceed 10°C during first 48 hours after collection. Hold time is 14 days.

Please contact your Alpha Analytical project manager with additional questions or concerns.

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Appendix C

PFAS Compounds to be Analyzed and Associated MDLs

Appendix C

PFAS Compounds to be Analyzed and Associated MDLs

Analyte	Soil MDL (ng/g)	Groundwater MDL (ng/l)
Perfluorobutanoic Acid (PFBA)	0.0504	0.512
Perfluoropentanoic Acid (PFPeA)	0.056	0.428
Perfluorobutanesulfonic Acid (PFBS)	0.0432	0.268
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	0.0808	0.836
Perfluorohexanoic Acid (PFHxA)	0.0464	0.236
Perfluoropentanesulfonic Acid (PFPeS)	0.0232	0.14
Perfluoroheptanoic Acid (PFHpA)	0.0232	0.16
Perfluorohexanesulfonic Acid (PFHxS)	0.0592	0.192
Perfluorooctanoic Acid (PFOA)	0.052	0.348
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	0.28	1.08
Perfluoroheptanesulfonic Acid (PFHpS)	0.0368	0.216
Perfluorononanoic Acid (PFNA)	0.0784	0.252
Perfluorooctanesulfonic Acid (PFOS)	0.0792	0.364
Perfluorodecanoic Acid (PFDA)	0.0752	0.324
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	0.3872	1.244
Perfluorononanesulfonic Acid (PFNS)	0.0424	0.248
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	0.1	0.436
Perfluoroundecanoic Acid (PFUnA)	0.0512	0.348
Perfluorodecanesulfonic Acid (PFDS)	0.032	0.184
Perfluorooctanesulfonamide (FOSA)	0.0432	0.216
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.0824	0.432
Perfluorododecanoic Acid (PFDoA)	0.0408	0.368
Perfluorotridecanoic Acid (PFTrDA)	0.0528	0.3
Perfluorotetradecanoic Acid (PFTA)	0.1064	0.212
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid (HFPO-DA)	0.0984	0.448
4,8-Dioxa-3h-Perfluorononanoic Acid (ADONA)	0.1464	0.504
Perfluorododecane Sulfonic Acid (PFDoDS)	0.0384	0.304
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid (9Cl-PF3ONS)	0.196	0.66
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid (11Cl-PF3OUdS)	0.1672	0.66
N-Methyl Perfluorooctane Sulfonamide (NMeFOSA)	0.1	0.348
N-Ethyl Perfluorooctane Sulfonamide (NEtFOSA)	0.112	0.368
N-Methyl Perfluorooctanesulfonamido Ethanol (NMeFOSE)	0.2504	1.88
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)	0.5104	0.98
Perfluoro-3-Methoxypropanoic Acid (PFMPA)	0.0408	0.228
Perfluoro-4-Methoxybutanoic Acid (PFMBA)	0.0312	0.212
Perfluoro(2-Ethoxyethane)Sulfonic Acid (PFEESA)	0.0832	0.176
Nonafluoro-3,6-Dioxaheptanoic Acid (NFDHA)	0.0952	0.944
3-Perfluoropropyl Propanoic Acid (3:3FTCA)	0.144	1.32
2H,2H,3H,3H-Perfluorooctanoic Acid (5:3FTCA)	0.5048	4.68
3-Perfluoroheptyl Propanoic Acid (7:3FTCA)	1.76	3.156

Appendix D

Laboratory Standard Operating Procedures for PFAS Analysis

Method 1633 Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids and Tissue Samples by LC-MS/MS

References: Method 1633 - Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS (2nd Draft - June 2022)

DOD QSM (US Department of Defense Quality Systems Manual for Environmental Laboratories, version 5.4, 20221)

1. Scope and Application

Matrices: Drinking water, Non-potable Water, Tissues, Biosolids and Soil Matrices

Definitions: Refer to Alpha Analytical Quality Manual.

1.1 Method 1633 is for use in the Clean Water Act (CWA) for the determination of the per- and polyfluoroalkyl substances (PFAS) in Table 1 in aqueous, solid (soil, biosolids, sediment) and tissue samples by liquid chromatography/mass spectrometry (LC-MS/MS).

1.2 The method calibrates and quantifies PFAS analytes using isotopically labeled standards. Where linear and branched isomers are present in the sample and either qualitative or quantitative standards containing branched and linear isomers are commercially available, the PFAS analyte is reported as a single analyte consisting of the sum of the linear and branched isomer concentrations

1.3 This is a liquid chromatography/tandem mass spectrometry (LC/MS/MS) method for the determination of selected perfluorinated alkyl substances (PFAS) in Non-Drinking Water, tissue soil and biosolid Matrices. Accuracy and precision data have been generated for the compounds listed in Table 1.

1.4 The data report packages present the documentation of any method modification related to the samples tested. Depending upon the nature of the modification and the extent of intended use, the laboratory may be required to demonstrate that the modifications will produce equivalent results for the matrix. Approval of all method modifications is by one or more of the following laboratory personnel before performing the modification: Area Supervisor, Department Supervisor, Laboratory Director, or Quality Assurance Officer.

1.5 This method is restricted to use by or under the supervision of analysts experienced in the operation of the LC/MS/MS and in the interpretation of LC/MS/MS data. Each analyst must demonstrate the ability to generate acceptable results with this method by performing an initial demonstration of capability.

2. Summary of Method

2.1 Environmental samples are prepared and extracted using method-specific procedures. Sample extracts are subjected to cleanup procedures designed to remove interferences. Analyses of the sample extracts are conducted by LC-MS/MS in the multiple reaction monitoring (MRM) mode. Sample concentrations are determined by isotope dilution or extracted internal standard quantification using isotopically labeled compounds added to the samples before extraction.

2.2 Aqueous samples are spiked with isotopically labeled standards, extracted using solid-phase extraction (SPE) cartridges and undergo cleanup using carbon before analysis.

2.3 Solid samples are spiked with isotopically labeled standards, extracted into basic methanol, and cleaned up by carbon and SPE cartridges before analysis

2.4 Tissue samples are spiked with isotopically labeled standards, extracted in potassium hydroxide and acetonitrile followed by basic methanol, and cleaned up by carbon and SPE cartridges before analysis.

2.5 A sample extract is injected into an LC equipped with a C18 column that is interfaced to an MS/MS). The analytes are separated and identified by comparing the acquired mass spectra and retention times to reference spectra and retention times for calibration standards acquired under identical LC/MS/MS conditions. The concentration of each analyte is determined by using the isotope dilution technique. Extracted Internal Standards (EIS) analytes are used to monitor the extraction efficiency of the method analytes.

2.6 Method Modifications from Reference

N/A

3. Reporting Limits

The reporting limit for PFAS's are listed in Table 8.

4. Interferences

4.1 PFAS standards, extracts and samples should not come in contact with any glass containers or pipettes as these analytes can potentially adsorb to glass surfaces. PFAS analyte and EIS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers.

4.2 Method interferences may be caused by contaminants in solvents, reagents (including reagent water), sample bottles and caps, and other sample processing hardware that lead to discrete artifacts and/or elevated baselines in the chromatograms. The method analytes in this method can also be found in many common laboratory supplies and equipment, such as PTFE (polytetrafluoroethylene) products, LC solvent lines, methanol, aluminum foil, SPE sample transfer lines, etc. All items such as these must be routinely demonstrated to be free from interferences (less than 1/2 the RL for each method analyte) under the conditions of the analysis by analyzing laboratory reagent blanks as described in Section 9.1. Subtracting blank values from sample results is not permitted.

4.3 Matrix interferences may be caused by contaminants that are co-extracted from the sample. The extent of matrix interferences will vary considerably from source to source, depending upon the nature of the water. Humic and/or fulvic material can be co-extracted during SPE and high levels can cause enhancement and/or suppression in the electrospray ionization source or low recoveries on the SPE sorbent. Total organic carbon (TOC) is a good indicator of humic content of the sample.

4.4 SPE cartridges can be a source of interferences. The analysis of field and laboratory reagent blanks can provide important information regarding the presence or absence of such interferences. Brands and lots of SPE devices should be tested to ensure that contamination does not preclude analyte identification and quantitation.

5. Health and Safety

5.1 The toxicity or carcinogenicity of each reagent and standard used in this method is not fully established; however, each chemical compound should be treated as a potential health hazard. From this viewpoint, exposure to these chemicals must be reduced to the lowest possible level by whatever means available. A reference file of material safety data sheets is available to all personnel involved in the chemical analysis. Additional references to laboratory safety are available in the Chemical Hygiene Plan.

5.2 All personnel handling environmental samples known to contain or to have been in contact with municipal waste must follow safety practices for handling known disease causative agents.

5.3 PFOA has been described as “likely to be carcinogenic to humans.” Pure standard materials and stock standard solutions of these method analytes should be handled with suitable protection to skin and eyes, and care should be taken not to breathe the vapors or ingest the materials.

6. Sample Collection, Preservation, Shipping and Handling

6.1 Sample Collection for Aqueous Samples

6.1.1 Samples must be collected in two (2) 500-mL or 250-mL high density polyethylene (HDPE) container with an unlined plastic screw cap. All sample containers must have linerless HDPE or polypropylene caps.

6.1.2 The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAS contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples.

6.1.3 Open the tap and allow the system to flush until the water temperature has stabilized (approximately 3 to 5 min). Collect samples from the flowing system.

6.1.4 Fill sample bottles. Samples do not need to be collected headspace free.

6.1.5 After collecting the sample and cap the bottle. Keep the sample sealed from time of collection until extraction.

6.1.6 Maintain all aqueous samples protected from light at 0 - 6 ºC from the time of collection until shipped to the laboratory. Samples must be shipped as soon as practical with sufficient ice to maintain the sample temperature below 6 ºC during transport and be received by the laboratory within 48 hours of collection. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.2 Sample Collection for Soil and Sediment samples.

6.2.1 Grab samples are collected in polypropylene containers. Sample containers and contact surfaces containing PTFE shall be avoided. Samples should fill no more than ¾ full.

6.2.2 Maintain solid samples protected from light (in HDPE containers) at 0 - 6 ºC from the time of collection until receipt at the laboratory. The laboratory must confirm that the sample temperature is 0 - 6 ºC upon receipt. Once received by the laboratory, the samples must be stored at ≤ -20 ºC until sample preparation.

6.3 Sample Collection for fish and other tissue samples

6.3.1 Once received by the laboratory, the samples must be maintained protected from light at ≤ -20 ºC until prepared. Store unused samples in HDPE containers or wrapped in aluminum foil at ≤ -20 ºC.

6.3.2 The nature of the tissues of interest may vary by project. Field sampling plans and protocols should explicitly state the samples to be collected and if any processing will be conducted in the field (e.g., filleting of whole fish or removal of organs). All field procedures must involve materials and equipment that have been shown to be free of PFAS.

6.4 Sample Preservation

Not applicable.

6.5 Sample Shipping

Samples must be chilled during shipment and must not exceed 0 – 6 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 0 – 6 °C when the samples are received at the laboratory. Samples stored in the lab must be held at or below 6 °C until extraction but should not be frozen.

NOTE: Samples that are significantly above 0 – 6 ° C, at the time of collection, may need to be iced or refrigerated for a period of time, in order to chill them prior to shipping. This will allow them to be shipped with sufficient ice to meet the above requirements.

6.6 Sample Handling

6.6.1 Aqueous samples (including leachates) should be analyzed as soon as possible; however, samples may be held in the laboratory for up to 90 days from collection, when stored at ≤ -20 ºC and protected from the light. When stored at 0 - 6 ºC and protected from the light, aqueous samples may be held for up to 28 days, with the caveat that issues were observed with certain perfluorooctane sulfonamide ethanols and perfluorooctane sulfonamidoacetic acids after 7 days. These issues are more likely to elevate the observed concentrations of other PFAS compounds via the transformation of these precursors if they are present in the sample.

6.6.2 Solid samples (soils and sediments) and tissue samples may be held for up to 90 days, if stored by the laboratory in the dark at either 0 - 6 ºC or ≤ -20 ºC, with the caveat that samples may need to be extracted as soon as possible if NFDHA is an important analyte.

6.6.3 Biosolids samples may be held for up to 90 days, if stored by the laboratory in the dark at 0 - 6 ºC or at -20 ºC. Because microbiological activity in biosolids samples at 0 - 6 ºC may lead to production of gases which may cause the sample to be expelled from the container when it is opened, as well as producing noxious odors, EPA recommends that samples be frozen if they need to be stored for more than a few days before extraction. Store sample extracts in the dark at less than 0 - 4 ºC until analyzed. If stored in the dark at less than 0 - 4 ºC, sample extracts may be stored for up to 90 days, with the caveat that issues were observed for some ether sulfonates after 28 days. These issues may elevate the observed concentrations of the ether sulfonates in the extract over time. Samples may need to be extracted as soon as possible if NFDHA is an important analyte.

7. Equipment and Supplies

7.1 SAMPLE CONTAINERS – 500-mL or 250-mL high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.2 SAMPLE JARS – 8-ounce wide mouth high density polyethylene (HDPE) bottles fitted with unlined screw caps. Sample bottles must be discarded after use.

7.3 POLYPROPYLENE BOTTLES – 4-mL narrow-mouth polypropylene bottles.

7.4 CENTRIFUGE TUBES – 50-mL conical polypropylene tubes with polypropylene screw caps for storing standard solutions and for collection of the extracts.

7.5 AUTOSAMPLER VIALS – Polypropylene 0.7-mL autosampler vials with polypropylene caps.

7.5.1 NOTE: Polypropylene vials and caps are necessary to prevent contamination of the sample from PTFE coated septa. However, polypropylene caps do not reseal, so evaporation occurs after injection. Thus, multiple injections from the same vial are not possible.

7.6 POLYPROPYLENE GRADUATED CYLINDERS – Suggested sizes include 25, 50, 100 and 1000-mL cylinders.

7.7 Auto Pipets – Suggested sizes include 5, 10, 25, 50, 100, 250, 500, 1000, 5000 and 10,000-µls.

7.8 PLASTIC PIPETS – Polypropylene or polyethylene disposable pipets.

7.9 Silanized glass wool (Sigma-Aldrich, Cat # 20411 or equivalent) – store in a clean glass jar and rinsed with methanol (2 times) prior to use.

7.10 Disposable syringe filter, 25-mm, 0.2-µm Nylon membrane, PALL/Acrodisc or equivalent

7.11 Variable volume pipettes with disposable HDPE or polypropylene tips (10 µL to 5 mL) used for preparation of calibration standards and spiked samples.

7.12 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.0001 g.

7.13 ANALYTICAL BALANCE – Capable of weighing to the nearest 0.1 g.

7.14 SOLID PHASE EXTRACTION (SPE) APPARATUS FOR USING CARTRIDGES

7.14.1 SPE CARTRIDGES – (Waters Oasis WAX 150 mg, Cat # 186002493 or equivalent). The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction.

7.14.1.1 Note: SPE cartridges with different bed volume (e.g., 500 mg) may be used; however, the laboratory must demonstrate that the bed volume does not negatively affect analyte absorption and elution, by performing the initial demonstration of capability analyses described in Section.

7.14.2 VACUUM EXTRACTION MANIFOLD – A manual vacuum manifold with large volume sampler for cartridge extractions, or an automatic/robotic sample preparation system designed for use with SPE cartridges, may be used if all QC requirements discussed in Section 9 are met. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. Care must be taken with automated SPE systems to ensure the PTFE commonly used in these systems does not contribute to unacceptable analyte concentrations in the MB.

7.14.3 SAMPLE DELIVERY SYSTEM – Use of a polypropylene transfer tube system, which transfers the sample directly from the sample container to the SPE cartridge, is recommended, but not mandatory. Standard extraction manifolds come equipped with PTFE transfer tube systems. These can be replaced with 1/8” O.D. x 1/16” I.D. polypropylene or polyethylene tubing cut to an appropriate length to ensure no sample contamination from the sample transfer lines. Other types of non-PTFE tubing may be used provided it meets the MB and LCS QC requirements.

7.15 EXTRACT CONCENTRATION SYSTEM – Extracts are concentrated by evaporation with nitrogen using a water bath set no higher than 55 °C.

7.16 LABORATORY OR ASPIRATOR VACUUM SYSTEM – Sufficient capacity to maintain a vacuum of approximately 10 to 15 inches of mercury for extraction cartridges.

7.17 LIQUID CHROMATOGRAPHY (LC)/TANDEM MASS SPECTROMETER (MS/MS) WITH DATA SYSTEM

7.17.1 LC SYSTEM – Instrument capable of reproducibly injecting up to 10-µL aliquots and performing binary linear gradients at a constant flow rate near the flow rate used for development of this method (0.4 mL/min). The LC must be capable of pumping the water/methanol mobile phase without the use of a degasser which pulls vacuum on the mobile phase bottle (other types of degassers are acceptable). Degassers which pull vacuum on the mobile phase bottle will volatilize the ammonium acetate mobile phase causing the analyte peaks to shift to earlier retention times over the course of the analysis batch. The usage of a column heater is optional.

7.17.2 LC/TANDEM MASS SPECTROMETER – The LC/MS/MS must be capable of negative ion electrospray ionization (ESI) near the suggested LC flow rate of 0.4 mL/min. The system must be capable of performing MS/MS to produce unique product ions for the method analytes within specified retention time segments. A minimum of 10 scans across the chromatographic peak is required to ensure adequate precision.

7.17.3 DATA SYSTEM – An interfaced data system is required to acquire, store, reduce, and output mass spectral data. The computer software should have the capability of processing stored LC/MS/MS data by recognizing an LC peak within any given retention time window. The software must allow integration of the ion

abundance of any specific ion within specified time or scan number limits. The software must be able to calculate relative response factors, construct linear regressions or quadratic calibration curves, and calculate analyte concentrations.

7.17.4 INSTRUMENT COLUMNS

7.17.4.1 ANALYTICAL: C18 column, 1.7 µm, 50 x 2.1 mm (Waters Acquity UPLC® BEH or equivalent)

7.17.4.2 OPTIONAL GUARD COLUMN: (Phenomenex Kinetex® Evo C18 or equivalent)

8. Reagents and Standards

8.1 GASES, REAGENTS, AND SOLVENTS – Reagent grade or better chemicals must be used.

8.1.1 REAGENT WATER – Purified water which does not contain any measurable quantities of any method analytes or interfering compounds greater than 1/2 the RL for each method analyte of interest. Prior to daily use, at least 3 L of reagent water should be flushed from the purification system to rinse out any build-up of analytes in the system's tubing.

8.1.2 METHANOL (CH_3OH, CAS#: 67-56-1) – High purity, demonstrated to be free of analytes and interferences.

8.1.3 AMMONIUM ACETATE ($NH_4C_2H_3O_2$, CAS#: 631-61-8) – High purity, demonstrated to be free of analytes and interferences.

8.1.4 ACETIC ACID (H_3CCOOH, CAS#: 64-19-7) - High purity, demonstrated to be free of analytes and interferences.

8.1.5 1M AMMONIUM ACETATE/REAGENT WATER – High purity, demonstrated to be free of analytes and interferences.

8.1.6 2mM AMMONIUM ACETATE/METHANOL:WATER (5:95) – To prepare, mix 2 ml of 1M AMMONIUM ACETATE,1 ml ACETIC ACID and 50 ml METHANOL into l Liter of REAGENT WATER.

8.1.7 ACETONITRILE – UPLC grade or equivalent, store at room temperature

8.1.8 TOLUENE – HPLC grade or equivalent.

8.1.9 ACETONE – pesticide grade or equivalent

8.1.10 AMMONIUM ACETATE – (Caledon Ultra LC/MS grade or equivalent

8.1.11 AMMONIUM HYDROXIDE (NH_3, CAS#: 1336-21-6) – High purity, demonstrated to be free of analytes and interferences.

8.1.12 METHANOLIC AMMONIUM HYDROXIDE (0.3%) - add ammonium hydroxide (1 mL, 30%) to methanol (99 mL), store at room temperature, replace after 1 month

8.1.13 METHANOLIC AMMONIUM HYDROXIDE (1%) - add ammonium hydroxide (3.3 mL, 30%) to methanol (97 mL), store at room temperature, replace after 1 month

8.1.14 METHANOLIC AMMONIUM HYDROXIDE (2%) - add ammonium hydroxide (6.6 mL, 30%) to methanol (93.4 mL), store at room temperature, replace after 1 month

8.1.15 METHANOLIC POTASSIUM HYDROXIDE (0.05 M) – add 3.3 g of potassium hydroxide to 1 L of methanol, store at room temperature, replace after 3 months

8.1.16 METHANOL WITH 4% WATER, 1% AMMONIUM HYDROXIDE AND 0.625% ACETIC ACID - add ammonium hydroxide (3.3 mL, 30%), reagent water (1.7 mL) and acetic acid (0.625 mL) to methanol (92 mL), store at room temperature, replace after 1 month. This solution is used to prepare the instrument blank and calibration standards (Section 8.3.2).

8.1.17 FORMIC ACID – (greater than 96% purity or equivalent).

8.1.18 FORMIC ACID (aqueous, 0.1 M) - dissolve formic acid (4.6 g) in reagent water (1 L), store at room temperature, replace after 2 years

8.1.19 FORMIC ACID (aqueous, 0.3 M) - dissolve formic acid (13.8 g) in reagent water (1 L), store at room temperature, replace after 2 years

8.1.20 FORMIC ACID (aqueous, 5% v/v) - mix 5 mL formic acid with 95 mL reagent water, store at room temperature, replace after 2 years

8.1.21 FORMIC ACID (methanolic 1:1, 0.1 M formic acid/methanol) - mix equal volumes of methanol and 0.1 M formic acid, store at room temperature, replace after 2 years

8.1.22 FORMIC ACID (aqueous, 50% v/v) - mix 50 mL formic acid with 50 mL reagent water, store at room temperature, replace after 2 years

8.1.23 POTASSIUM HYDROXIDE – certified ACS or equivalent

8.1.24 CARBON - – EnviCarb® 1-M-USP or equivalent, verified by lot number before use, store at room temperature. Loose carbon allows for better adsorption of interferent organics. Note: The single-laboratory validation laboratory achieved better performance with loose carbon than carbon cartridges. Loose carbon will be used for the multi-laboratory validation to set statistically based method criteria.

8.1.25 NITROGEN – Used for the following purposes: Nitrogen aids in aerosol generation of the ESI liquid spray and is used as collision gas in some MS/MS instruments. The nitrogen used should meet or exceed instrument

manufacturer's specifications. In addition, Nitrogen is used to concentrate sample extracts (Ultra High Purity or equivalent).

8.1.26 ARGON – Used as collision gas in some MS/MS instruments. Argon should meet or exceed instrument manufacturer's specifications. Nitrogen gas may be used as the collision gas provided sufficient sensitivity (product ion formation) is achieved.

8.2 REFERENCE MATRICES - Matrices in which PFAS and interfering compounds are not detected by this method. These matrices are to be used to prepare the batch QC samples.

8.2.1 Reagent water - purified water, Type I

8.2.2 Solid reference matrix Ottawa Sand or equivalent

8.2.3 Tissue Reference matrix – Cod loin or other animal tissue demonstrated to be PFAS free

8.3 STANDARD SOLUTIONS – When a compound purity is assayed to be 96% or greater, the weight can be used without correction to calculate the concentration of the stock standard. PFAS analyte and IS standards commercially purchased in glass ampoules are acceptable; however, all subsequent transfers or dilutions performed by the analyst must be prepared and stored in polypropylene containers and are stored at ≤4 °C. Standards for sample fortification generally should be prepared in the smallest volume that can be accurately measured to minimize the addition of excess organic solvent to aqueous samples.

8.3.1 Stock standards and diluted stock standards are stored at ≤4 °C. Prepare a spiking solution, containing the method analytes listed in Table 1, in methanol from prime stocks. The solution is used to prepare the calibration standards and to spike the known reference QC samples that are analyzed with every batch. Quantitative standards containing a mixture of branched and linear isomers must be used for method analytes if they are commercially available. Currently, these include PFOS, PFHxS, NEtFOSAA, and NMeFOSAA.

8.3.2 Calibration standard solutions – A series of calibration solutions containing the target analytes and the Labeled extracted internal standards (EIS) and non-extracted internal standards (NIS) is used to establish the initial calibration of the analytical instrument. Table 4 represents the concentrations of the native, EIS and NIS analytes of the calibration curve. Calibration standard solutions are made using the solution described in section 8.1.16.

8.3.3 ISOTOPE DILUTION EXTRACTED INTERNAL STANDARD (EIS) – Isotopically labelled analogs of the target analytes to be used for the quantification of target analytes. EIS stock standard solutions are purchased in glass ampoules and are stored in accordance with the manufacturer's recommendations. The EIS stock solution to be used for the fortification of samples and QC in accordance with the isotope dilution procedure. Table 2 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

8.3.4 ISOTOPE DILUTION NON-EXTRACTED INTERNAL STANDARDS (NIS) – Isotopically labelled analogs to be added post extraction for the measurement of EIS extraction efficiency and is added to the final volume of all extractions. Table 3 represents the EIS concentrations and nominal sample amounts added to each field sample and QC element.

9. Quality Control

9.1 Method Blank

9.1.1 A Method Blank (MB) is required with each extraction batch to confirm that potential background contaminants are not interfering with the identification or quantitation of method analytes. An aliquot of reagent water that is treated exactly as a sample including exposure to all glassware, equipment, solvents, reagents and standards. Prep and analyze a MB for every 20 samples. If the MB produces a peak within the retention time window of any analyte that would prevent the determination of that analyte, determine the source of contamination, and eliminate the interference before processing samples. Background contamination must be reduced to an acceptable level before proceeding. Background from method analytes or other contaminants that interfere with the measurement of method analytes must be below the RL. If the method analytes are detected in the MB at concentrations equal to or greater than this level, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.2 Laboratory Control Sample (LCS)

9.2.1 Low Level LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LLCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at 2X the LOQ. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

9.2.2 An LCS or OPR (Ongoing Precision Recovery) sample is required with each extraction batch. A LCS or OPR samples is a method blank spiked with known quantities of analytes. The fortified concentration of the LCS is spiked at the midpoint of the calibration curve. Default limits of 70-130% of the true value may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. Calculate the percent recovery (%*R*) for each analyte using the equation:

$$\%R = \frac{A \times 100}{B}$$

Where:

A = measured concentration in the fortified sample
B =fortification concentration.

9.1.1 Where applicable, in the absence of additional sample volume required to perform matrix specific QC, LCSD's are to be extracted and analyzed. The concentration and analyte recovery criteria for the LCSD must be the same as the batch LCS The RSD's must fall within ≤30% of the true value for medium and high-level replicates, and ≤50% for low level replicates. Calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|LCS - LCSD|}{(LCS + LCSD) / 2} \times 100$$

9.1.2 If the LCS and or LCSD results do not meet these criteria for method analytes, then all data for the problem analyte(s) must be considered invalid for all samples in the extraction batch.

9.3 Non-extracted Internal Standard Area (NIS)

Each time an initial calibration is performed, use the data from all the initial calibration standards used to meet the linearity test in Section 10.3.3.3 to calculate the mean area response for each of the NIS compounds, using the equation below.

$$\text{Mean Area}_{NISi} = \sum \text{AREA}_{NISi} / n$$

where:

AreaNISi = Area counts for the ith NIS, where i ranges from 1 to 7, for the seven NIS compounds listed in Table 1
n = The number of ICAL standards (the default value is n = 6). If a different number of standards is used for the ICAL, for example, to increase the calibration range or by dropping a point at either end of the range to meet the linearity criterion, change 6 to match the actual number of standards used)
Record the mean areas for each NIS for use in evaluating results for sample analyses. There is no acceptance criterion associated with the mean NIS area data.

9.4 Extracted Internal Standards (EIS)

9.4.1 The EIS standard is fortified into all samples, CCVs, MBs, LCSs, MSs, MSDs, FD, and FRB prior to extraction. It is also added to the CAL standards. The EIS is a means of assessing method performance from extraction to final chromatographic measurement. Calculate the recovery (%R) for the EIS using the following equation:

$$\%R = (A / B) \times 100$$

Where:
A = calculated EIS concentration for the QC or Field Sample
B = fortified concentration of the EIS.

9.4.2 Default limits of 50-150% may be used for analytes until sufficient replicates have been analyzed to generate proper control limits. A low or high percent recovery for a sample, blank, or CCV does not require discarding the analytical data but it may indicate a potential problem with future analytical data. When EIS recovery from a sample, blank, or CCV are outside control limits, check 1) calculations to locate possible errors, 2) standard solutions for degradation, 3) contamination, and 4) instrument performance. For CCVs and QC elements spiked with all target analytes, if the recovery of the corresponding target analytes meet the acceptance criteria for the EIS in question, the data can be used but all potential

biases in the recovery of the EIS must be documented in the sample report. If the associated target analytes do not meet the acceptance criteria, the data must be reanalyzed.

9.5 Matrix Spike (MS/MSD)

9.5.1 Analysis of an MS is prepared one per preparation batch (if required).

9.5.2 Aliquots of field samples that have been fortified with a known concentration of target compounds, prior to sample preparation and extraction, and analyzed to measure the effect of matrix interferences. The use of MS/MSD samples is generally not required in isotope dilution methods because the labeled compounds added to every sample provide more performance data than spiking a single sample in each preparation batch. Aliquots of field samples

9.5.3 Analyte recoveries may exhibit matrix bias. For samples fortified at or above their native concentration, recoveries should range between 50-150%. If the accuracy of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCS, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6 Laboratory Duplicate

9.6.1 FIELD DUPLICATE OR LABORATORY FORTIFIED SAMPLE MATRIX DUPLICATE (FD or MSD) – Within each extraction batch (not to exceed 20 Field Samples), a minimum of one FD or MSD must be analyzed. Duplicates check the precision associated with sample collection, preservation, storage, and laboratory procedures. If method analytes are not routinely observed in Field Samples, an MSD should be analyzed rather than an FD.

9.6.2 Calculate the relative percent difference (*RPD*) for duplicate measurements (*FD1* and *FD2*) using the equation:

$$RPD = \frac{|FD1 - FD2|}{(FD1 + FD2) / 2} \times 100$$

9.6.3 RPDs for FDs should be ≤30%. Greater variability may be observed when FDs have analyte concentrations that are within a factor of 2 of the RL. At these concentrations, FDs should have RPDs that are ≤50%. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the CCV, the recovery is judged to be matrix biased. The result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.6.4 If an MSD is analyzed instead of a FD, calculate the relative percent difference (RPD) for duplicate MSs (MS and MSD) using the equation:

$$RPD = \frac{|MS - MSD|}{(MS + MSD) / 2} \times 100$$

9.6.5 RPDs for duplicate MSs should be ≤30% for samples fortified at or above their native concentration. Greater variability may be observed when MSs are fortified at analyte concentrations that are within a factor of 2 of the RL. MSs fortified at these concentrations should have RPDs that are ≤50% for samples fortified at or above their native concentration. If the RPD of any analyte falls outside the designated range, and the laboratory performance for that analyte is shown to be in control in the LCSD where applicable, the result is judged to be matrix biased. If no LCSD is present, the associated MS and MSD are to be re-analyzed to determine if any analytical has occurred. If the resulting RPDs are still outside control limits, the result for that analyte in the unfortified sample is labeled suspect/matrix to inform the data user that the results are suspect due to matrix effects.

9.7 Bile Salt Interference Check

9.7.1 The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the

9.8 Initial Calibration Verification (ICV)

9.8.1 After each ICAL, analyze a QCS sample from a source different from the source of the CAL standards. If a second vendor is not available, then a different lot of the standard should be used. The QCS should be prepared and analyzed just like a CCV. Acceptance criteria for the QCS are identical to the CCVs; the calculated amount for each analyte must be ± 30% of the expected value. If measured analyte concentrations are not of acceptable accuracy, check the entire analytical procedure to locate and correct the problem.

9.9 Instrument Sensitivity Check (ISC)

9.9.1 At the start of each 12-hour shift, analyze a standard at the LOQ. The signal-to-noise ratio of the ISC standard must be greater than or equal to 3:1. If the requirements cannot be met, the problem must be corrected before analyses can proceed

9.10 Continuing Calibration Verification (CCV)

9.10.1 CCV Standards must be analyzed at the beginning of each analysis batch, after every 10 Field Samples, and at the end of the analysis batch.

9.10.2 The recovery of native and isotopically labeled compounds for the CVs must be within 70 - 130%

9.10.3

9.11 Method-specific Quality Control Samples

9.11.1 Instrument Blank – During the analysis of a batch of samples, a solvent blank is analyzed after samples containing high level of target compounds (e.g., calibration, CV) to monitor carryover from the previous injection. The injection blank consists of the solution in

Section 8.1.16 fortified with the EIS and NIS for quantitation purposes.

9.12 Example Method Sequence

- INSTRUMENT BLANK
- INSTRUMENT SENSITIVITY CHECK
- CALIBRATION VERIFICATION STANDARD
- QUALITATIVE IDENTIFICATION STANDARDS
- TDCA STANDARD (only if analyzing tissues)
- INSTRUMENT BLANK
- METHOD BLANK
- LOW-LEVEL LCS/OPR
- OPR/LCS
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK
- SAMPLE (10 or fewer)
- CALIBRATION VERIFICATION STANDARD
- INSTRUMENT BLANK

10. Procedure

10.1 Equipment Set-up

10.1.1 This procedure may be performed manually or in an automated mode using a robotic or automatic sample preparation device. If an automated system is used to prepare samples, follow the manufacturer's operating instructions, but all extraction and elution steps must be the same as in the manual procedure. Extraction and/or elution steps may not be changed or omitted to accommodate the use of an automated system. If an automated system is used, the MBs should be rotated among the ports to ensure that all the valves and tubing meet the MB requirements.

10.1.2 Some of the PFAS's adsorb to surfaces, including polypropylene. Therefore, the aqueous sample bottles must be rinsed with the elution solvent whether extractions are performed manually or by automation. The bottle rinse is passed through the cartridge to elute the method analytes and is then collected.

10.1.3 The SPE cartridges and sample bottles described in this section are designed as single use items and should be discarded after use. They may not be refurbished for reuse in subsequent analyses.

10.1.4 All SPE apparatus, including manifolds, tubing and sample ports must be thoroughly rinsed following each use with 1% methanolic ammonium hydroxide, followed by Methanol and then DI water. Additionally, sample manifold ports and transfer tubing should be inspected regularly for signs of wear and/or discoloration. When such observations are made, the associated components should be replaced.

10.1.5 Prior to the start of any extraction, sample site information must be evaluated for any potentially high level PFAS concentrations or sample matrix irregularities that may impact the extraction process. If such samples are identified, aqueous samples may be pre-screened via direct aqueous injection prior to analysis to estimate the potential PFAS concentrations present.

10.1.6 To perform a direct aqueous injection (DAI) screen, the sample should be inverted several times to try and evenly disperse any organic matter present. A 1 ml aliquot (or less depending on the matrix) is to be taken from the parent sample, volume adjusted to 1 ml with reagent water if less than 1ml, fortified with EIS and NIS spiking solutions to match the concentrations of an extracted sample (typically 5 µl per 1 ml DAI), and then analyzed under the same analytical conditions as field samples.

10.2 Sample Preparation of Aqueous Samples

10.2.1 Samples are preserved, collected, and stored as presented in Section 6.

10.2.2 Determine sample volume. Weigh all samples to the nearest 1g. If visible sediment is present, centrifuge and decant into a new HDPE bottle and record the weight of the new container.

NOTE: Some of the PFAS's adsorb to surfaces, thus the sample volume may not be transferred to a graduated cylinder for volume measurement.

10.2.3 The MB, LCS and FRB may be prepared by measuring reagent water with a polypropylene graduated cylinder or filling an HDPE sample bottle to near the top.

10.2.4 Check that the pH is 6.5 ± 0.5. If necessary, adjust pH with 50% formic acid or ammonium hydroxide and 3% aqueous ammonium hydroxide. The extract is now ready for solid-phase extraction (SPE) and cleanup.

10.2.5 Add 20 µL of the EIS to each sample and QC, cap and invert to mix.

10.2.6 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3 Sample Prep and Extraction Protocol for Soils, Solids and Sediments.

10.3.1 Homogenize and weigh 5 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 5 grams of clean sand is used.

10.3.1.1 For Biosolids and other complex matrices, a small aliquot may be required due to co-extracted matrix interferences.

10.3.1.2 For batch QC samples using 5 g of reference solid, add 2.5 g of reagent water. The addition of reagent water to the sand provides a matrix closer in composition to real-world samples.

10.3.2 Add 20 µL of the EIS to each sample and QC.

10.3.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.3.4 Vortex the samples to evenly disperse the spiking solutions and allow to equilibrate for 30 minutes.

10.3.5 To all samples, add 10 ml of 0.3% methanolic ammonium hydroxide, cap, vortex for 25 seconds.

10.3.6 Following mixing, shake each sample for 30 minutes on a shaker table.

10.3.7 Centrifuge each sample at 2800RPM for 10 minutes.

10.3.8 Remove the supernatant and transfer to a clean 50 ml polypropylene centrifuge tube.

10.3.9 Repeat steps 10.3.4 to 10.3.7, with 15 ml of 0.3% methanolic ammonium hydroxide, combining the supernatants.

10.3.10 Add 5ml of 0.3% methanolic ammonium hydroxide to the sample, vortex for 25 seconds and centrifuge each sample at 2800RPM for 10 minutes.

10.3.11 Remove the supernatant and transfer to the same 50 ml polypropylene centrifuge tube containing eluates from the previous cycles.

10.3.12 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking for no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50 ml polypropylene centrifuge tube.

10.3.13 Dilute to approximately 35 mL with reagent water. Samples containing more than 50% water may yield extracts that are greater than 35 mL in volume; therefore, do not add water to these. Determine the water content in the sample as follows (percent moisture is determined from the % solids):

Water Content in Sample = (Sample Weight * Percent moisture) / 100

10.3.14 Concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume that is based on the water content of the sample (see table below). Allow extracts to concentrate for 10 minutes, then mix (by vortex if the volume is < 20. Continue concentrating and mixing every 5 minutes until the extract has been reduced to the required volume as specified in the table below. If the extract volume appears to stop dropping, the concentration must be stopped and the volume at which it was stopped recorded.

Water Content in Sample	Concentrated Final Volume
< 5 grams	15 ml
5-8 grams	15-20 ml
8-9 grams	20-22.5 ml
9-10 grams	22.5-25 ml

10.3.15 Add 40 - 50 mL of reagent water to the extract and vortex. Check that the pH is 6.5 ±0.5 and adjust as necessary with 50% formic acid or 30% ammonium

hydroxide, or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.4 Sample Prep and Extraction Protocol for Tissues.

10.4.1 Homogenize and weigh 2 grams of sample (measured to the nearest hundredth of a gram) into a 50 ml polypropylene centrifuge tube. For laboratory control blanks and spikes, 2 grams of clean tissue is used.

10.4.2 Add 20 µL of the EIS PDS to each sample and QC.

10.4.3 If the sample is an LCS, LCSD, MS, or MSD, add the necessary amount of analyte PDS. Cap and invert each sample to mix.

10.4.4 Add 10 mL of 0.05M KOH in methanol to each sample. Vortex to disperse the tissue then place tubes on a mixing table to extract for at 16 hours. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant in a 50-mL polypropylene centrifuge tube.

10.4.5 Add 10 mL of acetonitrile to remaining tissue in the 50-mL centrifuge tube, vortex to mix and disperse the tissue. Sonicate for 30 minutes. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the initial extract.

10.4.6 Add 5 mL of 0.05M KOH in methanol to the remaining sample in each centrifuge tube. Vortex to disperse the tissue and hand mix briefly. Centrifuge at 2800 rpm for 10 minutes and collect the supernatant, adding it to the 50-mL centrifuge tube containing the first two extracts.

10.4.7 Add 10 mg of carbon to the combined extract, mix by occasional hand shaking over a period of no more than five minutes and then centrifuge at 2800 rpm for 10 minutes. Immediately decant the extract into a 50-mL centrifuge tube.

10.4.8 Add 1 mL of reagent water to each tube and concentrate each extract at approximately 55 ºC with a gentle N2 flow to a final volume of 2.5 ml.

10.4.9 Add reagent water to each evaporation/concentrator tube to dilute the extracts to 50 mL. Check that the pH = 6.5 ± 0.5 and adjust as needed with 50% formic acid, or ammonium hydroxide or with 5% formic acid and 3% aqueous ammonium hydroxide. The extracts are ready for SPE and cleanup.

10.5 SPE Extract: All matrices

10.5.1 Pack clean silanized glass wool to half the height of the WAX SPE cartridge barrel.

10.5.2 Pre-condition the cartridges by washing them with 3 X 5 mL of 1% methanolic ammonium hydroxide, discarding the wash volumes.

10.5.3 Rinse the cartridge with 5 mL of 0.3M formic acid, allowing the cartridge to drain using gravity only, discarding the rinse volume. Do not allow the cartridge to go dry

10.5.4 Adjust the vacuum so that the approximate flow rate is ~5 mL/min and load the sample across the cartridge. Do not allow the cartridge to go dry before all the sample has passed through.

10.5.5 Once all the sample has passed across the cartridge, rinse the walls of the reservoir with 2 X 5 mL reagent water, loading the rinse across the cartridge.

10.5.6 Rinse the walls of the reservoir with 5 mL of 1:1 0.1M formic acid/methanol and pass the rinse through the cartridge using vacuum. Dry the cartridge by pulling air through for 15 seconds.

10.5.7 Rinse the inside of the sample bottle with 5 mL of 1% methanolic ammonium hydroxide. Use vacuum to pull the elution solvent through the cartridge and into the collection tubes. When the cartridge bed and glass wool are submerged, stop the cartridge flow by closing the valve, keeping the sorbent bed and wool submerged.

10.5.8 Let the wetted sorbent bed and wool soak for 1 minute.

10.5.9 Open the cartridge valve and collect the eluate into a 15 ml polypropylene collection tube.

10.5.10 Add 25 µL of concentrated acetic acid to each sample eluted in the collection tubes and vortex to mix.

10.5.11 Add 10 mg of carbon to each sample and batch QC extract, using a 10-mg scoop. Handshake occasionally for no more than 5 minutes. It is important to minimize the time the sample extract is in contact with the carbon. Immediately vortex (30 seconds) and centrifuge at 2800 rpm for 10 minutes.

10.5.12 Add NIS solution to a clean collection tube. Place a syringe filter (25-mm filter, 0.2-µm nylon membrane) on a 5-mL polypropylene syringe. Take the plunger out and carefully decant the sample supernatant into the syringe barrel. Replace the plunger and filter the entire extract into the new collection tube containing the NIS.

10.5.13 Vortex to mix and transfer a portion of the extract into a .7-mL polypropylene LC vial for LC-MS/MS analysis. Cap the collection tube containing the remaining extract and store at 4 °C

10.6 Sample Volume Determination

10.6.1 If using weight to determine volume, weigh the empty bottle to the nearest 1 g and determine the sample weight by subtraction of the empty bottle weight from the original sample weight. Assume a sample density of 1.0 g/mL. In either case, the sample volume will be used in the final calculations of the analyte concentration.

10.7 Initial Calibration - Demonstration and documentation of acceptable initial calibration is required before any samples are analyzed. After the initial calibration is successful, a CCV is required at the beginning and end of each period in which analyses are performed, and after every tenth Field Sample.

10.7.1 ESI-MS/MS TUNE

10.7.1.1 Calibrate the mass scale of the MS with the calibration compounds and procedures prescribed by the manufacturer.

10.7.1.2 Optimize the [M-H]- or [M-CO_2]- for each method analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (0.4 mL/min). This tune can be done on a mix of the method analytes. The MS parameters (voltages, temperatures, gas flows, etc.) are varied until optimal analyte responses are determined.

The method analytes may have different optima requiring some compromise between the optima.

The Mass spec conditions found in Table 7 show the Sciex Triple Quad 5500+ operation conditions used in this method.

10.7.1.3 Optimize the product ion for each analyte by infusing approximately 0.5-1.0 µg/mL of each analyte (prepared in the initial mobile phase conditions) directly into the MS at the chosen LC mobile phase flow rate (approximately 0.4 mL/min). This tune can be done on a mix of the method analytes. The MS/MS parameters (collision gas pressure, collision energy, etc.) are varied until optimal analyte responses are determined. Typically, the carboxylic acids have very similar MS/MS conditions, and the sulfonic acids have similar MS/MS conditions.

The conditions found on table 5 are representative of expected tune optimizations for each analyte. If conditions other the ones close to the values provided in table 5 are achieved, the process should be re-performed and/or instrument maintenance performed to resolve the problem.

10.7.2 Establish LC operating parameters that optimize resolution and peak shape. Modifying the standard or extract composition to more aqueous content to prevent poor shape is not permitted.

Table 6 represents the operation conditions of a Sciex Exion LC system when running this method.

10.7.3 Inject 2µl of a mid-level CAL standard under LC/MS conditions to obtain the retention times of each method analyte. Divide the chromatogram into retention time windows each of which contains one or more chromatographic peaks. During MS/MS analysis, fragment a small number of selected precursor ions ([M-H]-) for the analytes in each window and choose the most abundant product ion. For maximum sensitivity, small mass windows of ±0.5 daltons around the product ion mass were used for quantitation.

10.7.4 Inject a mid-level CAL standard under optimized LC/MS/MS conditions to ensure that each method analyte is observed in its MS/MS window and that there are at least 10 scans across the peak for optimum precision.

NOTE: PFHxS, PFOS, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to chromatographic resolution of the linear and branched isomers of these compounds. Most PFAS's are produced by two different processes. One process gives rise to linear PFAS's only while the other process produces both linear and branched isomers. Thus, both branched and linear PFAS's can potentially be found in the environment. For the aforementioned compounds that give rise to more than one peak, all the chromatographic peaks observed in the standard must be integrated and the areas totaled. Chromatographic peaks in a sample must be integrated in the same way as the CAL standard.

10.7.5 Prepare a set of CAL standards as outlined in table 5. The lowest concentration CAL standard must be at or below the LOQ.

10.7.6 The LC/MS/MS system is calibrated using the isotope dilution technique. Target analytes are quantitated against their isotopically labeled analog (Extracted Internal Standard) where commercially available. If a labeled analog is not

commercially available, the extracted internal standard with the closest retention time and /or closest chemical similarity is to be used. Use the LC/MS/MS data system software to generate a linear regression or quadratic calibration curve for each of the analytes. This curve must always be forced through zero and may be concentration weighted, if necessary. Forcing zero allows for a better estimate of the background levels of method analytes. A minimum of 5 levels are required for a linear calibration model and a minimum of 6 levels are required for a quadratic calibration model.

10.7.7 CALIBRATION ACCEPTANCE CRITERIA – A linear fit is acceptable if the calculated RSD or RSE for each target analyte is ≤20%. If linear or Quadratic regressions are used, coefficient of determination (r^2) values must be greater than 0.99. When quantitated using the initial calibration curve, each calibration point at or above the LOQ for each analyte must calculate to be within 70-130% of its true value. The calculate value of each EIS analyte must be within 50-150% of its true value. If these criteria cannot be met, corrective action is taken to reanalyze the CAL standards, restrict the range of calibration.

10.7.8 Bile salts interference check - The laboratory must analyze a TDCA standard after the initial calibration, prior to the analysis of tissue samples, to check for interferences caused by bile salts. If an interference is present, the chromatographic conditions must be modified to eliminate the interference from TDCA (e.g., changing the retention time of TDCA such that it falls outside the retention window for PFOS by at least one minute), and the initial calibration repeated.

10.8 CONTINUING CALIBRATION CHECK (CCV) – Minimum daily calibration verification is as follows. Verify the initial calibration at the beginning and end of each group of analyses, and after every tenth sample during analyses. In this context, a “sample” is considered to be a Field Sample. MBs, CCVs, LCSs, MSs, FDs FRBs and MSDs are not counted as samples. The beginning CCV of each analysis batch must be at or below the RL in order to verify instrument sensitivity prior to any analyses. If standards have been prepared such that all low CAL points are not in the same CAL solution, it may be necessary to analyze two CAL standards to meet this requirement. Alternatively, the analyte concentrations in the analyte PDS may be customized to meet these criteria. Subsequent CCVs should alternate between a medium and Low concentration CAL standard.

10.8.1 Inject an aliquot of the appropriate concentration CAL standard and analyze with the same conditions used during the initial calibration.

10.8.2 Calculate the concentration of each analyte and EIS in the CCV. The calculated amount for each native and EIS analyte for medium level CCVs must be within ± 30% of the true. If these conditions do not exist, then all data for the problem analyte must be considered invalid, and remedial action should be taken which may require recalibration. Any Field or QC Samples that have been analyzed since the last acceptable calibration verification should be reanalyzed after adequate calibration has been restored, with the following exception. If the CCV fails because the calculated concentration is greater than 130% for a particular method analyte, and Field Sample extracts show no detection for that method analyte, non-detects may be reported without re-analysis.

10.8.3 REMEDIAL ACTION – Failure to meet CCV QC performance criteria may require remedial action. Major maintenance, such as cleaning the electrospray probe, atmospheric pressure ionization source, cleaning the mass analyzer, replacing the LC column, etc., requires recalibration and verification of sensitivity by analyzing a CCV at or below the LOQ.

10.9 EXTRACT ANALYSIS

10.9.1 The same operating conditions used for the initial calibration and summarized in Tables 6 and 7 are to be used.

10.9.2 Prior to analysis of sample extracts, the Instrument mass calibration verification must be performed using standards whose mass range brackets the masses of interest and performed in the negative ion mode. The mass calibration is verified if the calculated mass is within ± .2 daltons of the specified mass.

10.9.3 Establish an appropriate retention time window for each analyte. This should be based on measurements of actual retention time variation for each method analyte in CAL standard solutions analyzed on the LC over the course of time. A value of plus or minus three times the standard deviation of the retention time obtained for each method analyte while establishing the initial calibration can be used to calculate a suggested window size. However, the experience of the analyst should weigh heavily on the determination of the appropriate retention window size.

10.9.4 Calibrate the system by either the analysis of a calibration curve or by confirming the initial calibration is still valid by analyzing a CCV.

10.9.5 Begin analyzing Field Samples, including QC samples, at their appropriate frequency by injecting the same size aliquots under the same conditions used to analyze the CAL standards.

10.9.6 For concentrations at or above the method LOQ, the total (branched and linear isomer) quantification ion response to the total (branched and linear isomer) confirmation ion response ratio must fall within ± 50% of the ratio observed in the midpoint initial calibration standard.

10.9.7 At the conclusion of data acquisition, use the same software that was used in the calibration procedure to identify peaks of interest in predetermined retention time windows. Use the data system software to examine the ion abundances of the peaks in the chromatogram. Identify an analyte by comparison of its retention time with that of the corresponding method analyte peak in a reference standard.

10.9.8 The analyst must not extrapolate beyond the established calibration range. If an analyte peak area exceeds the range of the initial calibration curve, the sample should be re-extracted with a reduced sample volume in order to bring the out of range target analytes into the calibration range. If a smaller sample size would not be representative of the entire sample, the following options are recommended. Re-extract an additional aliquot of sufficient size to ensure that it is representative of the entire sample. Spike it with a higher concentration of internal standard. Prior to LC/MS analysis, dilute the sample so that it has a concentration of internal standard equivalent to that present in the calibration standard. Then, analyze the diluted extract.3

10.9.9 In instances where re-extraction is not an option, dilute a subsample of the sample extract with 0.1% acetic acid by a factor no greater than 10x adjust the amount of the NIS in the diluted extract, and analyze the diluted extract. If the

responses for each EIS in the diluted extract meet the S/N and retention time, and the EIS recoveries from the analysis of the diluted extract are greater than 5%, then the compounds associated with those EISs may be quantified using isotope dilution. Use the EIS recoveries from the original analysis to select the dilution factor, with the objective of keeping the EIS recoveries in the dilution above that 5% lower limit. If the adjusted EIS recoveries are below 5%, the dilution is assumed invalid. If the adjusted EIS recoveries are greater than 5%, adjust the compound concentrations, detection limits, and minimum levels to account for the dilution.

11. Data Evaluation, Calculations and Reporting

11.1 Complete chromatographic resolution is not necessary for accurate and precise measurements of analyte concentrations using MS/MS. In validating this method, concentrations were calculated by measuring the product ions listed in Table 9.

11.2 Calculate analyte concentrations using the multipoint calibration established in Section 10.9. Do not use daily calibration verification data to quantitate analytes in samples. Adjust final analyte concentrations to reflect the actual sample volume determined in Section 10.8

C_{ex} = (Area of target analyte * Concentration of Labeled analog) / (area of labeled analog * CF)

C_s = (C_{ex} / sample volume in ml) * 1000

C_{ex} = The concentration of the analyte in the extract
CF = calibration factor from calibration.

11.3 Prior to reporting the data, the chromatogram should be reviewed for any incorrect peak identification or poor integration.

11.4 PFHxS, PFOS, PFOA, NMeFOSAA, and NEtFOSAA have multiple chromatographic peaks using the LC conditions in Table 7 due to the linear and branch isomers of these compounds (Sect. 10.10.4.). The areas of all the linear and branched isomer peaks observed in the CAL standards for each of these analytes must be summed and the concentrations reported as a total for each of these analytes.

11.5 Calculations must utilize all available digits of precision, but final reported concentrations should be rounded to an appropriate number of significant figures (one digit of uncertainty), typically two, and not more than three significant figures.

12. Contingencies for Handling Out-of-Control Data or Unacceptable Data

12.1 Section 9.0 outlines sample batch QC acceptance criteria. If non-compliant organic compound results are to be reported, the Organic Section Head and/or the Laboratory Director, and the Operations Manager must approve the reporting of these results. The laboratory Project Manager shall be notified and may choose to relay the non-compliance to the client, for approval, or other corrective action, such as re-sampling and re-analysis. The analyst, Data Reviewer, or Department Supervisor performing the secondary review initiates the project narrative, and the narrative must clearly document the non-compliance and provide a reason for acceptance of these results.

12.2 All results for the organic compounds of interest are reportable without qualification if extraction and analytical holding times are met, preservation requirements (including cooler temperatures) are met, all QC criteria are met, and matrix interference is not suspected during extraction or analysis of the samples. If any of the below QC parameters are not met, all associated samples must be evaluated for re-extraction and/or re-analysis.

13. Method Performance

13.1 Detection Limit Study (DL) / Limit of Detection Study (LOD) / Limit of Quantitation (LOQ)

13.1.1 The laboratory follows the procedure to determine the DL, LOD, and/or LOQ as outlined in Alpha SOP ID 1732. These studies performed by the laboratory are maintained on file for review.

13.2 Demonstration of Capability Studies

13.2.1 Refer to Alpha SOP ID 1739 for further information regarding IDC/DOC Generation.

13.2.2 The analyst must make a continuing, annual, demonstration of the ability to generate acceptable accuracy and precision with this method.

14. Pollution Prevention and Waste Management

14.1 Refer to Alpha's Chemical Hygiene Plan and Hazardous Waste Management and Disposal SOP for further pollution prevention and waste management information.

14.2 This method utilizes SPE to extract analytes from water. It requires the use of very small volumes of organic solvent and very small quantities of pure analytes, thereby minimizing the potential hazards to both the analyst and the environment as compared to the use of large volumes of organic solvents in conventional liquid-liquid extractions.

14.3 The analytical procedures described in this method generate relatively small amounts of waste since only small amounts of reagents and solvents are used. The matrices of concern are finished drinking water or source water. However, laboratory waste management practices must be conducted consistent with all applicable rules and regulations, and that laboratories protect the air, water, and land by minimizing and controlling all releases from fume hoods and bench operations. Also, compliance is required with any sewage discharge permits and regulations, particularly the hazardous waste identification rules and land disposal restrictions.

15. Referenced Documents

Chemical Hygiene Plan – ID 2124

SOP ID 1732 Detection Limit (DL), Limit of Detection (LOD) & Limit of Quantitation (LOQ) SOP

SOP ID 1739 Demonstration of Capability (DOC) Generation SOP

SOP ID 1728 Hazardous Waste Management and Disposal SOP

16. Attachments

Table 1: Names, Abbreviations, and CAS Registry Numbers for Target PFAS, Extracted Internal Standards and Non-extracted Internal Standards

Parameter	Acronym	CAS
PER- and POLYFLUOROALKYLETHER CARBOXYLIC ACIDS (PFECAs)		
Tetrafluoro-2-(heptafluoropropoxy)propanoic acid	HFPO-DA	13252-13-6
4,8-dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
PERFLUOROALKYLCARBOXILIC ACIDS (PFCAs)		

Perfluorobutanoic acid	PFBA	375-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUnA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTrDA	72629-94-8
Perfluoorotetradecanoic acid	PFTeDA	376-06-7
PERFLUOROALKYL SULFONIC ACIDS (PFASs)		
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluoropentanesulfonic acid	PFPeS	2706-91-4
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-92-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorononanesulfonic acid	PFNS	68259-12-1

Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorododecanesulfonic acid	PFDoS	79780-39-5
CHLORO-PERFLUOROALKYLSULFONATE		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	763051-92-9
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	756426-58-1
FLUOROTELOMER CARBOXYLIC ACIDS		
3-Perfluoropropyl propanoic acid	3:3FTCA	356-02-5
2H,2H,3H,3H-Perfluorooctanoic acid	5:3FTCA	914637-49-3
Perfluoroheptyl propanoic acid	7:3FTCA	812-70-4
PERFLUOROOCTANESULFONAMIDES		
Perfluorooctanesulfonamide	PFOSA	754-91-6
N-methylperfluoro-1-octanesulfonamide	NMeFOSA	31506-32-8
N-ethylperfluoro-1-octanesulfonamide	NEtFOSA	4151-50-2
PERFLUOROCTANE SULFONAMIDE ETHANOLS		
N-Methyl perfluorooctanesulfonamidoethanol	NMeFOSE	24448-09-7
N-ethyl perfluorooctanesulfonamidoethanol	NEtFOSE	1691-99-2
TELOMER SULFONIC ACIDS		

1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2)	4:2FTS	757124-72-4
1H,1H,2H,2H-perfluorooctanesulfonic acid (6:2)	6:2FTS	27619-97-2
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2)	8:2FTS	39108-34-4
PERFLUOROOCTANESULFONAMIDOACETIC ACIDS		
N-methyl perfluorooctanesulfonamidoacetic acid	NMeFOSAA	2355-31-9
N-ethyl perfluorooctanesulfonamidoacetic acid	NEtFOSAA	2991-50-6
PERFLUOROETHER AND POLYETHER CARBOXYLIC ACIDS		
Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	113507-82-7
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6

Table 2: Stock and Nominal Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M4PFBA	2000	40
M5PFPeA	1000	20
M5PFHxA	500	10
M4PFHpA	500	10
M8PFOA	500	10
M9PFNA	250	5
M6PFDA	250	5
M7PFUdA	250	5
MPFDoA	250	5
M2PFTeDA	250	5
M3PFBS	466	9.32
M3PFHxS	474	9.48
M8PFOS	479	9.58
M2-4:2FTS	938	18.8

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M2-6:2FTS	951	19
M2-8:2FTS	960	19.2
M8FOSA	500	10
d3-N-MeFOSA	500	10
d5-N-EtFOSA	500	10
d3-N-MeFOSAA	1000	20
d5-N-EtFOSAA	1000	20
d7-N-MeFOSE	5000	100
d9-N-EtFOSE	5000	100
M3HFPO-DA	2000	40

Table 3: Stock and Nominal Non-Extracted Internal Standard Concentrations

Isotope Labeled Standard	Conc. of EIS Stock (ng/mL)	Nominal amount of EIS added to extracts (ng)
M3PFBA	1000	40
M2PFHxA	500	10
M4PFOA	500	10
M5PFNA	250	5
M2PFDA	250	5
18O2PFHxS	474	9.48
M4PFOS	479	9.58

Table 4: Initial Calibration levels and Concentrations

Analyte	Cal A	Cal B (LOQ)	CAL C	Cal D	Cal E (CCV)	Cal F	Cal G	Cal H	Cal I
PFBA	.4	.8	2	5	10	20	50	250	500
PFPeA	.2	.4	1	2.5	5	10	25	125	250
PFHxA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFHpA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFOA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFNA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFUnA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFDoA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTrDA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFTA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
PFBS	0.089	0.177	0.444	1.11	2.22	4.44	11.1	55.4	111
PFPeS	0.094	0.188	0.471	1.18	2.35	4.71	11.8	58.8	118

PFHxS	0.091	0.183	0.457	1.14	2.29	4.57	11.4	57.1	114
PFHpS	0.095	0.191	0.477	1.19	2.38	4.77	11.9	59.6	119
PFOS	0.093	0.186	0.464	1.16	2.32	4.64	11.6	58	116
PFNS	0.096	0.192	0.481	1.20	2.41	4.81	12	60.1	120
PFDS	0.097	0.193	0.483	1.21	2.41	4.83	12.1	60.3	121
PFDOS	0.097	0.194	0.485	1.21	2.43	4.85	12.1	60.6	121.
4:2FTS	0.375	0.75	1.88	4.69	9.38	18.8	46.9	234	469
6:2FTS	0.38	0.76	1.9	4.75	9.5	19	47.5	238	475
8:2FTS	0.384	0.768	1.92	4.8	9.6	19.2	48	240	480
PFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NEtFOSAA	.1	.2	.5	1.25	2.5	5	12.5	62.5	125
NMeFOSE	1	2	5	12.5	25	50	125	625	1250
NEtFOSE	1	2	5	12.5	25	50	125	625	1250
HFPO-DA	.4	.8	2	5	10	20	50	250	500
ADONA	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
9Cl-PFONS	0.374	0.748	1.87	4.68	9.35	18.7	46.8	234	468
11Cl-PFOUdS	0.378	0.756	1.89	4.73	9.45	18.9	47.3	236	473
PFMPA	.2	.4	1	2.5	5	10	25	125	250
PFMBA	.2	.4	1	2.5	5	10	25	125	250
PFEESA	0.178	0.356	0.89	2.23	4.45	8.9	22.3	111	223
NFDHA	.2	.4	1	2.5	5	10	25	125	250
3:3FTCA	.5	1	2.5	6.25	12.5	25	62.5	312	624
5:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3120
7:3FTCA	2.5	5	12.5	31.3	62.5	125	312	1560	3125
M4PFBA	10	10	10	10	10	10	10	10	10
M5PFPeA	5	5	5	5	5	5	5	5	5
M5PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFHpA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M8PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M9PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M6PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M7PFUdA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
MPFDoA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25

M2PFTeDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M3PFBS	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33	2.33
M3PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M8PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
M2-4:2FTS	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69	4.69
M2-6:2FTS	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
M2-8:2FTS	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
M8FOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d5-N-EtFOSA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
d3-N-MeFOSAA	5	5	5	5	5	5	5	5	5
d5-N-EtFOSAA	5	5	5	5	5	5	5	5	5
d7-N-MeFOSE	25	25	25	25	25	25	25	25	25
d9-N-EtFOSE	25	25	25	25	25	25	25	25	25
M3HFPO-DA	10	10	10	10	10	10	10	10	10
M3PFBA	5	5	5	5	5	5	5	5	5
M2PFHxA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M4PFOA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
M5PFNA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
M2PFDA	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
18O2PFHxS	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37	2.37
M4PFOS	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4

Table 5: Expected Mass Transitions and instrument conditions.

Q1	Q2	Analyte	DP Volts	CE Volts
213.032	169.022	PFBA	-50	-14
263.039	219.03	PFPeA	-55	-12
263.039	68.9	PFPeA_2	-55	-55
313.047	269.037	PFHxA	-45	-12
313.047	119	PFHxA_2	-45	-28
363.055	319.045	PFHpA	-60	-12
363.055	169.022	PFHpA_2	-60	-24
413.063	369.053	PFOA	-65	-14
413.063	169.022	PFOA_2	-65	-23
463.071	419.061	PFNA	-70	-14
463.071	219.03	PFNA_2	-70	-24

513.078	469.069	PFDA	-80	-16
513.078	219.03	PFDA_2	-80	-30
563.086	519.076	PFUnA	-85	-18
563.086	269.037	PFUnA_2	-85	-25
613.094	569.084	PFDoA	-85	-18
613.094	319.045	PFDoA_2	-85	-28
663.102	619.092	PFTrDA	-85	-20
663.102	169.022	PFTrDA_2	-85	-36
713.11	669.1	PFTA	-70	-22
713.11	169.022	PFTA_2	-70	-38
299.092	80.062	PFBS	-100	-65
299.092	99.061	PFBS_2	-100	-40
349.1	80.062	PFPeS	-100	-75
349.1	99.061	PFPeS_2	-100	-60
399.107	80.062	PFHxS	-120	-75
399.107	99.061	PFHxS_2	-120	-80
449.115	80.062	PFHpS	-140	-95
449.115	99.061	PFHpS_2	-140	-80
499.113	80.062	PFOS	-145	-108
499.113	99.061	PFOS_2	-145	-85
549.131	80.062	PFNS	-180	-100
549.131	99.061	PFNS_2	-180	-100
599.139	80.062	PFDS	-170	-110
599.138	99.061	PFDS_2	-170	-100
699.154	80.062	PFDoS	-160	-150
699.154	99.061	PFDoS_2	-160	-130
327.146	307.139	4:2FTS	-100	-28
327.146	81.07	4:2FTS_2	-100	-50
427.161	407.155	6:2FTS	-120	-33
427.161	81.07	6:2FTS_2	-120	-65
527.177	507.17	8:2FTS	-140	-39
527.177	81.07	8:2FTS_2	-140	-85
498.146	78.07	FOSA	-150	-90
498.146	478	FOSA_2	-150	-35
512.163	219.03	NMeFOSA	-130	-35
512.163	169.022	NMeFOSA_2	-130	-40
526.192	219.03	NEtFOSA	-140	-35
526.192	169.022	NEtFOSA_2	-140	-35
570.202	419.061	NMeFOSAA	-100	-28

570.202	483	NMeFOSAA_2	-100	-22
584.229	419.061	NEtFOSAA	-100	-28
584.229	526.192	NEtFOSAA_2	-100	-38
616.1	58.9	NMeFOSE	-90	-70
630	58.9	NEtFOSE	-80	-75
285.035	169.022	HFPO-DA	-60	-12
285.035	184.9	HFPO-DA_2	-60	-18
377.06	251.028	ADONA	-65	-18
377.06	84.8	ADONA_2	-65	-48
530.8	351.05	9Cl-PFONS	-130	-38
532.8	353	9Cl-PFONS_2	-130	-38
630.9	451.031	11Cl-PFOUdS	-145	-41
632.9	452.9	11Cl-PFOUdS_2	-145	-41
241.085	177.069	3:3FTCA	-60	-12
241.085	117	3:3FTCA_2	-60	-50
341.101	237.072	5:3FTCA	-70	-20
341.101	217	5:3FTCA_2	-70	-35
441.117	316.9	7:3FTCA	-85	-30
441.117	337.088	7:3FTCA_2	-85	-20
315.093	135.013	PFEESA	-100	-35
315.093	82.9	PFEESA_2	-100	-25
229.032	85.006	PFMPA	-40	-25
279.042	85.006	PFMBA	-45	-25
295.032	201	NFDHA	-30	-15
295.032	84.9	NFDHA_2	-30	-40
217.001	171.999	MPFBA	-50	-14
268.001	222.999	M5PFPeA	-55	-12
318.009	273.007	M5PFHxA	-45	-12
367.024	322.022	M4PFHpA	-60	-12
421.002	376	M8PFOA	-65	-14
472.002	427	M9PFNA	-70	-14
519.033	474.03	M6PFDA	-80	-16
570.033	525.031	M7-PFUdA	-85	-18
615.079	570.033	MPFDoA	-85	-18
715.094	670.092	M2PFTeDA	-70	-22
302.069	80.062	M3PFBS	-100	-65
402.084	80.062	M3PFHxS	-120	-74
507.062	80.062	M8PFOS	-145	-85
329.13	81.07	M2-4:2FTS	-100	-50

429.162	81.07	M2-6:2FTS	-120	-65
529.162	81.07	M2-8:2FTS	-140	-85
506.077	78.07	M8FOSA	-150	-90
515.183	219.03	d3-NMeFOSA	-130	-35
531.222	219.03	d5-NEtFOSA	-140	-35
573.22	419.061	d3-NMeFOSAA	-75	-28
589.259	419.061	d5-NEtFOSAA	-90	-28
623.2	58.9	d7-NMeFOSE	-100	-28
639.2	58.9	d9-NEtFOSE	-100	-28
287.02	169.022	M3HFPO-DA	-60	-12
216.009	171.999	M3PFBA	-50	-14
315.032	270.03	M2PFHxA	-45	-12
417.032	372.03	M4PFOA	-65	-14
468.032	423.03	M5PFNA	-70	-14
515.063	470.061	M2PFDA	-80	-16
403.107	84.062	18O2-PFHxS	-120	-74
503.093	80.062	M4PFOS	-145	-85

Table 6: LC Method Conditions

Time (min)	2 mM Ammonium Acetate (5:95 CH/H_2O)	100% Acetonitrile	Gradient Curve
Initial	100.0	0.0	0
.2	100.0	0.0	2
4	70	30	7
7	45	55	8
9	25	80	8
10	5	95	6
10.4	98	2	10
11.8	100	0	7
12	100	0	1
Waters Aquity UPLC ® BEHC_{18} 2.1 x 50 mm packed with 1.7 µm BEH C_{18} stationary phase Flow rate of 0.4 mL/min 2 µL injection			

Table 7: ESI-MS Method Conditions

ESI Conditions	
Polarity	Negative ion
Curtain Gas	30
Collision gas	9
Ion Spray Voltage	-4500
Desolvation gas temp.	500 ºC
Ion Source Gas 1	30
Ion Source Gas 2	50
Entrance Poitential	-10
Exic Cell Potential	-11

Table 8. Reporting limits by Matrix

Compound	Aqueous (ng/L)	Solid (ng/g)	Tissue (ng/g)
PFBA	6.4	0.8	2
PFPeA	3.2	0.4	1
PFHxA	1.6	0.2	0.5
PFHpA	1.6	0.2	0.5
PFOA	1.6	0.2	0.5
PFNA	1.6	0.2	0.5
PFDA	1.6	0.2	0.5
PFUnA	1.6	0.2	0.5
PFDoA	1.6	0.2	0.5
PFTrDA	1.6	0.2	0.5
PFTA	1.6	0.2	0.5
PFBS	1.6	0.2	0.5
PFPeS	1.6	0.2	0.5
PFHxS	1.6	0.2	0.5
PFHpS	1.6	0.2	0.5
PFOS	1.6	0.2	0.5
PFNS	1.6	0.2	0.5
PFDS	1.6	0.2	0.5
PFDoS	1.6	0.2	0.5
4:2FTS	6.4	0.8	2
6:2FTS	6.4	0.8	2
8:2FTS	6.4	0.8	2
FOSA	1.6	0.2	2
NMeFOSA	1.6	0.2	0.5

NEtFOSA	1.6	0.2	0.5
NMeFOSAA	1.6	0.2	0.5
NEtFOSAA	1.6	0.2	0.5
NMeFOSE	16	2	5
NEtFOSE	16	2	5
HFPO-DA	6.4	0.8	2
ADONA	6.4	0.8	2
9Cl-PFONS	6.4	0.8	2
11Cl-PFOUdS	6.4	0.8	2
3:3FTCA	8	1	2.5
5:3FTCA	40	5	12.5
7:3FTCA	40	5	12.5
PFEESA	3.2	0.4	1
PFMPA	3.2	0.4	1
PFMBA	3.2	0.4	1
NFDHA	3.2	0.4	1

Appendix F
Citizen Participation Plan

NEW YORK STATE | Department of Environmental Conservation

Brownfield Cleanup Program

Citizen Participation Plan
for
340 Myrtle Avenue

October 2021

BCP Site No. TBD
340 Myrtle Avenue
Brooklyn
Kings County, New York

Contents

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* * * * *

Note: The information presented in this Citizen Participation Plan was current as of the date of its approval by the New York State Department of Environmental Conservation. Portions of this Citizen Participation Plan may be revised during the site's investigation and cleanup process.

Applicant: **F&D Myrtle Realty Co LLC and One Brooklyn Family Warehousing LLC ("Applicants")**
Site Name: **340 Myrtle Avenue ("Site")**
Site Address: **340 Myrtle Avenue, Brooklyn, NY 11205**
Site County: **Kings County**
Site Number: **TBD**

1. What is New York's Brownfield Cleanup Program?

New York's Brownfield Cleanup Program (BCP) works with private developers to encourage the voluntary cleanup of contaminated properties known as "brownfields" so that they can be reused and developed. These uses include recreation, housing, and business.

A *brownfield* is any real property that is difficult to reuse or redevelop because of the presence or potential presence of contamination. A brownfield typically is a former industrial or commercial property where operations may have resulted in environmental contamination. A brownfield can pose environmental, legal, and financial burdens on a community. If a brownfield is not addressed, it can reduce property values in the area and affect economic development of nearby properties.

The BCP is administered by the New York State Department of Environmental Conservation (NYSDEC) which oversees Applicants who conduct brownfield site investigation and cleanup activities. An Applicant is a person who has requested to participate in the BCP and has been accepted by NYSDEC. The BCP contains investigation and cleanup requirements, ensuring that cleanups protect public health and the environment. When NYSDEC certifies that these requirements have been met, the property can be reused or redeveloped for the intended use.

For more information about the BCP, go online at:
http://www.dec.ny.gov/chemical/8450.html .

2. Citizen Participation Activities

Why NYSDEC Involves the Public and Why It Is Important

NYSDEC involves the public to improve the process of investigating and cleaning up contaminated sites, and to enable citizens to participate more fully in decisions that affect their health, environment, and social well-being. NYSDEC provides opportunities for citizen involvement and encourages early two-way communication with citizens before decision makers form or adopt final positions.

Involving citizens affected and interested in site investigation and cleanup programs is important for many reasons. These include:

- Promoting the development of timely, effective site investigation and cleanup programs that protect public health and the environment

- Improving public access to, and understanding of, issues and information related to a particular site and that site's investigation and cleanup process

- Providing citizens with early and continuing opportunities to participate in NYSDEC's site investigation and cleanup process

- Ensuring that NYSDEC makes site investigation and cleanup decisions that benefit from input that reflects the interests and perspectives found within the affected community

- Encouraging dialogue to promote the exchange of information among the affected/interested public, State agencies, and other interested parties that strengthens trust among the parties, increases understanding of site and community issues and concerns, and improves decision making.

This Citizen Participation (CP) Plan provides information about how NYSDEC will inform and involve the public during the investigation and cleanup of the site identified above. The public information and involvement program will be carried out with assistance, as appropriate, from the Applicant.

Project Contacts

Appendix A identifies NYSDEC project contact(s) to whom the public should address questions or request information about the site's investigation and cleanup program. The public's suggestions about this CP Plan and the CP program for the site are always welcome. Interested people are encouraged to share their ideas and suggestions with the project contacts at any time.

Locations of Reports and Information

The locations of the reports and information related to the site's investigation and cleanup program also are identified in Appendix A. These locations provide convenient access to important project documents for public review and comment. Some documents may be placed on the NYSDEC web site. If this occurs, NYSDEC will inform the public in fact sheets distributed about the site and by other means, as appropriate.

Site Contact List

Appendix B contains the site contact list. This list has been developed to keep the community informed about, and involved in, the site's investigation and cleanup process. The site contact list will be used periodically to distribute fact sheets that provide updates about the status of the project. These will include notifications of upcoming activities at the site (such as fieldwork), as well as availability of project documents and announcements about public comment periods.
The site contact list includes, at a minimum:

- chief executive officer and planning board chairperson of each county, city, town and village in which the site is located;
- residents, owners, and occupants of the site and properties adjacent to the site;
- the public water supplier which services the area in which the site is located;
- any person who has requested to be placed on the site contact list;
- the administrator of any school or day care facility located on or near the site for purposes of posting and/or dissemination of information at the facility;
- location(s) of reports and information.

The site contact list will be reviewed periodically and updated as appropriate. Individuals and organizations will be added to the site contact list upon request. Such requests should be submitted to the NYSDEC project contact(s) identified in Appendix A. Other additions to the site contact list may be made at the discretion of the NYSDEC project manager, in consultation with other NYSDEC staff as appropriate.

Note: The first site fact sheet (usually related to the draft Remedial Investigation Work Plan) is distributed both by paper mailing through the postal service and through DEC Delivers, its email listserv service. The fact sheet includes instructions for signing up with the appropriate county listserv to receive future notifications about the site. See http://www.dec.ny.gov/chemical/61092.html .

Subsequent fact sheets about the site will be distributed exclusively through the listserv, except for households without internet access that have indicated the need to continue to receive site information in paper form. Please advise the NYSDEC site project manager identified in Appendix A if that is the case. Paper mailings may continue during the investigation and cleanup process for some sites, based on public interest and need.

CP Activities

The table at the end of this section identifies the CP activities, at a minimum, that have been and will be conducted during the site's investigation and cleanup program. The

flowchart in Appendix D shows how these CP activities integrate with the site investigation and cleanup process. The public is informed about these CP activities through fact sheets and notices distributed at significant points during the program. Elements of the investigation and cleanup process that match up with the CP activities are explained briefly in Section 5.

- **Notices and fact sheets** help the interested and affected public to understand contamination issues related to a site, and the nature and progress of efforts to investigate and clean up a site.

- **Public forums, comment periods and contact with project managers** provide opportunities for the public to contribute information, opinions and perspectives that have potential to influence decisions about a site's investigation and cleanup.

The public is encouraged to contact project staff at any time during the site's investigation and cleanup process with questions, comments, or requests for information.

This CP Plan may be revised due to changes in major issues of public concern identified in Section 3 or in the nature and scope of investigation and cleanup activities. Modifications may include additions to the site contact list and changes in planned citizen participation activities.

Technical Assistance Grant

NYSDEC must determine if the site poses a significant threat to public health or the environment. This determination generally is made using information developed during the investigation of the site, as described in Section 5.

If the site is determined to be a significant threat, a qualifying community group may apply for a Technical Assistance Grant (TAG). The purpose of a TAG is to provide funds to the qualifying group to obtain independent technical assistance. This assistance helps the TAG recipient to interpret and understand existing environmental information about the nature and extent of contamination related to the site and the development/implementation of a remedy.

An eligible community group must certify that its membership represents the interests of the community affected by the site, and that its members' health, economic well-being or enjoyment of the environment may be affected by a release or threatened release of contamination at the site.

As of the date the declaration (page 2) was signed by the NYSDEC project manager, **the significant threat determination for the site had not yet been made.**

To verify the significant threat status of the site, the interested public may contact the NYSDEC project manager identified in Appendix A.

For more information about TAGs, go online at
http://www.dec.ny.gov/regulations/2590.html

Note: The table identifying the citizen participation activities related to the site's investigation and cleanup program follows on the next page:

Citizen Participation Activities	Timing of CP Activity(ies)
Application Process:	
• Prepare site contact list • Establish document repository(ies)	At time of preparation of application to participate in the BCP.
• Publish notice in Environmental Notice Bulletin (ENB) announcing receipt of application and 30-day public comment period • Publish above ENB content in local newspaper • Mail above ENB content to site contact list • Conduct 30-day public comment period	When NYSDEC determines that BCP application is complete. The 30-day public comment period begins on date of publication of notice in ENB. End date of public comment period is as stated in ENB notice. Therefore, ENB notice, newspaper notice, and notice to the site contact list should be provided to the public at the same time.
After Execution of Brownfield Site Cleanup Agreement (BCA):	
• Prepare Citizen Participation (CP) Plan	Before start of Remedial Investigation **Note:** Applicant must submit CP Plan to NYSDEC for review and approval within 20 days of the effective date of the BCA.
Before NYSDEC Approves Remedial Investigation (RI) Work Plan:	
• Distribute fact sheet to site contact list about proposed RI activities and announcing 30-day public comment period about draft RI Work Plan • Conduct 30-day public comment period	Before NYSDEC approves RI Work Plan. If RI Work Plan is submitted with application, public comment periods will be combined and public notice will include fact sheet. Thirty-day public comment period begins/ends as per dates identified in fact sheet.
After Applicant Completes Remedial Investigation:	
• Distribute fact sheet to site contact list that describes RI results	Before NYSDEC approves RI Report
Before NYSDEC Approves Remedial Work Plan (RWP):	
• Distribute fact sheet to site contact list about draft RWP and announcing 45-day public comment period • Public meeting by NYSDEC about proposed RWP (if requested by affected community or at discretion of NYSDEC project manager) • Conduct 45-day public comment period	Before NYSDEC approves RWP. Forty-five day public comment period begins/ends as per dates identified in fact sheet. Public meeting would be held within the 45-day public comment period.
Before Applicant Starts Cleanup Action:	
• Distribute fact sheet to site contact list that describes upcoming cleanup action	Before the start of cleanup action.
After Applicant Completes Cleanup Action:	
• Distribute fact sheet to site contact list that announces that cleanup action has been completed and that NYSDEC is reviewing the Final Engineering Report • Distribute fact sheet to site contact list announcing NYSDEC approval of Final Engineering Report and issuance of Certificate of Completion (COC)	At the time the cleanup action has been completed. **Note:** The two fact sheets are combined when possible if there is not a delay in issuing the COC.

3. Major Issues of Public Concern

This section of the CP Plan identifies major issues of public concern that relate to the site. Additional major issues of public concern may be identified during the course of the site's investigation and cleanup process.

No shallow groundwater use exists in the area or vicinity of the Site. This eliminates potential wellhead issues, but does not take into account the vapor intrusion issues to which on-Site and adjacent buildings may become susceptible since groundwater contamination includes Volatile Organic Compounds (VOCs). Potable water is provided to residents by the New York City Department of Environmental Protection (NYCDEP) from upstate watersheds. There may also be impacts with regards to noise, odor, and truck traffic.

The Site is not located within a Potential Environmental Justice Area. Based on neighborhood 2020 census data, there is a sizable Hispanic-American community near the Site. Therefore, all future fact sheets will be translated into Spanish.

Upon conclusion of the BCP application 30 day public comment period, if issues of public concern are identified, this CP Plan will be amended to address any additional CP activities that may need to be implemented.

4. Site Information

Appendix C contains a map identifying the location of the site.

Site Description

The Site is an irregularly-shaped parcel located on the southeast corner of the intersection of Myrtle Avenue and Carlton Avenue, in the Fort Greene neighborhood of Brooklyn. The Site is identified on New York City tax maps as Block 2073 and Lot 21. The Site is bounded by Myrtle Avenue to the north, a residential building to the south, Carlton Avenue and vacant land to the west, and commercial and residential buildings to the east. Currently, the Site is occupied by a one-story commercial building with a cellar and is occupied by a commercial laundry, a bedding and bath store, and vacant commercial spaces.

History of Site Use, Investigation, and Cleanup

The Site was initially developed sometime prior to 1887 with several three-story commercial buildings. By 1938, three commercial buildings were demolished, and, by 1950, this portion of the Site was used for parking. By 1961, the Site was occupied by a

one-story commercial building. Prior uses of the Site include residential and commercial, with commercial uses including dry cleaning, restaurants, grocery stores, clothing stores, a gift shop, a meat market, a barber shop, and parking. The Site operated as a dry cleaning facility from at least 1969 to 2007.

Environmental investigations completed at the Site have included analysis of soil, groundwater, and soil vapor. The investigation was completed in 2021 to satisfy the requirements of the hazardous materials “E-designation” (E-183) that was placed on the Site as part of the Fort Greene/Clinton Hill Rezoning and Text Amendment.

Previous Environmental Studies

Preliminary Geotechnical Engineering Report (June 2021)

A Geotechnical Investigation was conducted at the Site in 2021 and detected the presence of uncontrolled fill material from grade to approximately 10 to 13 feet below grade (ft-bg). The fill material consists of silt, gravel, and construction debris. The fill layer is underlain by a native soil layer consisting of loose and medium-grained silt, followed by a layer of glacial till.

Phase I Environmental Site Assessment (July 2021)

A Phase I Environmental Site Assessment (ESA) was conducted in 2021 and identified the following Recognized Environmental Conditions (RECs) in connection with the Site as having the potential for negative environmental impacts:

- The documented presence of historic fill at the Site;
- Historic use of the Site for dry cleaning; and,
- Historic use of the south adjoining property for auto repair and manufacturing.

Phase II Environmental Site Investigation (2021)

Soil, groundwater, and soil vapor sampling was completed to further investigate the Phase I ESA findings and to satisfy the requirements of the hazardous materials “E-designation” (E-183) that was placed on the Site as part of the Forte Greene/Clinton Hill Rezoning and Text Amendment. A ground penetrating radar (GPR) was performed across the Site, 16 soil samples were collected from eight soil borings, two groundwater samples were collected from two newly installed permanent groundwater monitoring wells, and five sub-slab soil vapor samples were collected from five temporary sub-slab soil vapor points. All soil and groundwater samples were analyzed for VOCs, semivolatile organic compounds (SVOCs), target analyte list (TAL) metals (total and dissolved for groundwater), pesticides, and polychlorinated biphenyls. In addition, one

soil sample and both groundwater samples were also analyzed for emerging contaminants, including per- and polufluoroalkyl substances (PFAS) and 1,4-dioxane. All sub-slab soil vapor samples were analyzed for VOCs.

The GPR survey did not detect any anomalies indicative of underground storage tanks at the Site. The results of the soil sample analysis showed elevated concentrations of the chlorinated VOC (cVOC) tetrachloroethene (PCE) in one soil sample collected from the former dry cleaner footprint. Historic fill related SVOCs, specifically polyaromatic hydrocarbons (PAHs), were also detected at elevated concentrations in three soil samples. Historic fill related metals, specifically lead and mercury, were also detected at elevated concentrations in two soil samples collected from the exterior portion of the Site.

The results of the groundwater sample analysis showed elevated concentrations of the cVOC PCE in groundwater at the Site and offsite. In addition, a variety of SVOCs, specifically PAHs, were detected at elevated concentrations in groundwater at the Site and offsite. One metal, chromium, was detected at a slightly elevated concentration in the offsite total groundwater sample. However, chromium was not detected in any dissolved groundwater samples.

The results of the sub-slab soil vapor sample analysis showed elevated concentrations of cVOCs, specifically PCE, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), trans-1,2-dichloroethene (trans-1,2-DCE), and chloroform in one or more sub-slab soil vapor samples. Comparison of PCE, TCE, and cis-1,2-DCE concentrations to the New York State Department of Health (NYSDOH) Soil Vapor Intrusion Guidance indicates that mitigation would be required for PCE at all five sampling locations, for TCE at three sampling locations, and for cis-1,2-DCE at one sampling location.

5. Investigation and Cleanup Process

Application

The Applicant has applied for and been accepted into New York's Brownfield Cleanup Program as a **Participant**. This means **that the Applicant was the owner of the site at the time of the disposal or discharge of contaminants or was otherwise liable for the disposal or discharge of the contaminants. The Participant must fully characterize the nature and extent of contamination onsite, as well as the nature and extent of contamination that has migrated from the site. The Participant also must conduct a "qualitative exposure assessment," a process that characterizes the actual or potential exposures of people, fish and wildlife to contaminants on the site and to contamination that has migrated from the site.**

The Applicant in its Application proposes that the site will be used for **restricted-**

residential purposes.

To achieve this goal, the Applicant will conduct **investigation and cleanup** activities at the site with oversight provided by NYSDEC. The Brownfield Cleanup Agreement executed by NYSDEC and the Applicant sets forth the responsibilities of each party in conducting these activities at the site.

Investigation

The Applicant will conduct an investigation of the site officially called a “remedial investigation” (RI). This investigation will be performed with NYSDEC oversight. The Applicant must develop a remedial investigation workplan, which is subject to public comment.

The site investigation has several goals:

1) define the nature and extent of contamination in soil, surface water, groundwater and any other parts of the environment that may be affected;
2) identify the source(s) of the contamination;
3) assess the impact of the contamination on public health and the environment; and
4) provide information to support the development of a proposed remedy to address the contamination or the determination that cleanup is not necessary.

The Applicant submits a draft “Remedial Investigation Work Plan” to NYSDEC for review and approval. NYSDEC makes the draft plan available to the public review during a 30-day public comment period.

When the investigation is complete, the Applicant will prepare and submit a report that summarizes the results. This report also will recommend whether cleanup action is needed to address site-related contamination. The investigation report is subject to review and approval by NYSDEC.

NYSDEC will use the information in the investigation report to determine if the site poses a significant threat to public health or the environment. If the site is a “significant threat,” it must be cleaned up using a remedy selected by NYSDEC from an analysis of alternatives prepared by the Applicant and approved by NYSDEC. If the site does not pose a significant threat, the Applicant may select the remedy from the approved analysis of alternatives.

Interim Remedial Measures

An Interim Remedial Measure (IRM) is an action that can be undertaken at a site when a source of contamination or exposure pathway can be effectively addressed before the

site investigation and analysis of alternatives are completed. If an IRM is likely to represent all or a significant part of the final remedy, NYSDEC will require a 30-day public comment period.

Remedy Selection

When the investigation of the site has been determined to be complete, the project likely would proceed in one of two directions:

1. The Applicant may recommend in its investigation report that no action is necessary at the site. In this case, NYSDEC would make the investigation report available for public comment for 45 days. NYSDEC then would complete its review, make any necessary revisions, and, if appropriate, approve the investigation report. NYSDEC would then issue a “Certificate of Completion” (described below) to the Applicant.

or

2. The Applicant may recommend in its investigation report that action needs to be taken to address site contamination. After NYSDEC approves the investigation report, the Applicant may then develop a cleanup plan, officially called a “Remedial Work Plan”. The Remedial Work Plan describes the Applicant’s proposed remedy for addressing contamination related to the site.

When the Applicant submits a draft Remedial Work Plan for approval, NYSDEC would announce the availability of the draft plan for public review during a 45-day public comment period.

Cleanup Action

NYSDEC will consider public comments, and revise the draft cleanup plan if necessary, before approving the proposed remedy. The New York State Department of Health (NYSDOH) must concur with the proposed remedy. After approval, the proposed remedy becomes the selected remedy. The selected remedy is formalized in the site Decision Document.

The Applicant may then design and perform the cleanup action to address the site contamination. NYSDEC and NYSDOH oversee the activities. When the Applicant completes cleanup activities, it will prepare a final engineering report that certifies that cleanup requirements have been achieved or will be achieved within a specific time frame. NYSDEC will review the report to be certain that the cleanup is protective of public health and the environment for the intended use of the site.

Certificate of Completion

When NYSDEC is satisfied that cleanup requirements have been achieved or will be achieved for the site, it will approve the final engineering report. NYSDEC then will issue a Certificate of Completion (COC) to the Applicant. The COC states that cleanup goals have been achieved, and relieves the Applicant from future liability for site-related contamination, subject to certain conditions. The Applicant would be eligible to redevelop the site after it receives a COC.

Site Management

The purpose of site management is to ensure the safe reuse of the property if contamination will remain in place. Site management is the last phase of the site cleanup program. This phase begins when the COC is issued. Site management incorporates any institutional and engineering controls required to ensure that the remedy implemented for the site remains protective of public health and the environment. All significant activities are detailed in a Site Management Plan.

An *institutional control* is a non-physical restriction on use of the site, such as a deed restriction that would prevent or restrict certain uses of the property. An institutional control may be used when the cleanup action leaves some contamination that makes the site suitable for some, but not all uses.

An *engineering control* is a physical barrier or method to manage contamination. Examples include: caps, covers, barriers, fences, and treatment of water supplies.

Site management also may include the operation and maintenance of a component of the remedy, such as a system that pumps and treats groundwater. Site management continues until NYSDEC determines that it is no longer needed.

Appendix A -
Project Contacts and Locations of Reports and Information

Project Contacts

For information about the site's investigation and cleanup program, the public may contact any of the following project staff:

New York State Department of Environmental Conservation (NYSDEC):

{TBD}
Project Manager
NYSDEC
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233
Phone: {TBD}
Email: {TBD}

{TBD}
Citizen Participation Specialist
NYSDEC
Address: {TBD}
Phone: {TBD}
Email: {TBD}

New York State Department of Health (NYSDOH):

{TBD}
Project Manager
NYSDOH
Bureau of Environmental Exposure Investigation
Empire State Plaza Corning Tower,
Room 1787, Albany, NY 12237
Phone: {TBD}
Email: {TBD}

Locations of Reports and Information

The facilities identified below are being used to provide the public with convenient access to important project documents:

Brooklyn Community Board #2
350 Jay Street, 8th Floor
Brooklyn, NY 11201
Attn: Carol-Ann Church
Phone: (718) 596-5410
Hours:
Monday – Friday: 9 AM – 5 PM
Saturday & Sunday: Closed

Brooklyn Public Library – Walt Whitman Branch
93 St. Edwards Street
Brooklyn, NY 11205
Attn: Bayleigh Vidovich
Phone: (718) 935-0244
Hours:
Mon, Wed, & Fri: 10 AM – 6 PM
Tuesday: 1 PM – 8 PM
Thursday: 10 AM – 8 PM
Saturday: 10 AM – 5 PM
Sunday: Closed

NYSDEC
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, NY 12233
Attn: {TBD}
Phone: {TBD}
Hours: Call for appointment

Appendix B - Site Contact List

Contact List Information

B1. The Chief Executive Officer And Planning Board Chairperson Of Each County, City, Town And Village In Which The Property Is Located.

Mayor Bill de Blasio
City Hall
260 Broadway Avenue
New York, New York 10007

Marisa Lago, Commissioner
Department of City Planning
120 Broadway, 31st Floor
New York, NY 10271

Vincent Sapienza, Commissioner
New York City Department of Environmental Protection
59-17 Junction Boulevard
Flushing, NY 11373

Mark McIntyre, Esq., Acting Director
Mayor's Office of Environmental Remediation
100 Gold Street, 2nd Floor
New York, NY 10038

Julie Stein
Office of Environmental Assessment & Planning
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Flushing, NY 11373

Eric L. Adams
Brooklyn Borough President
209 Joralemon Street
Brooklyn, NY 11201

Department of City Planning
Brooklyn Borough Office
16 Court Street, 7th Floor
Brooklyn, NY 11241-0103

Rafael L. Espinal Jr.
Council Member, District 37
786 Knickerbocker Avenue
Brooklyn, NY 11207

Erik M. Dilan
Assembly Member, District 54
366 Cornelia Street
Brooklyn, NY 11237

Martin M. Dilan
State Senator, District 18
573 Metropolitan Avenue
Brooklyn, NY 11211

B2. Residents, Owners And Occupants Of The Property And Properties Adjacent To The Property.

Site Owner
F&D Myrtle Realty Co LLC
Attn: Marisol Diaz
340-348 Myrtle Avenue
Brooklyn, NY 11205

Perspective Site Owner
One Brooklyn Family Warehousing, LLC
Attn: Jamie Wiseman
97 North 10th Street, 2D
Brooklyn, NY 11249

Site Occupants
Mega Home Furniture
340 Mrytle Avenue
Brooklyn, NY 11205

Myrtle Avenue & Carlton Avenue
Open space park owned/occupied by: NYC Parks
Owner Address: The Arsenal, Central Park, 830 Fifth Avenue, New York, NY 10065

338 Myrtle Avenue
Mixed residential and Commercial building owned by: Zheng, Sheng Zhi
Owner Address: 154 Carlton Avenue, Brooklyn, NY 11208
Occupied by: Chung Chun Kitchen
Occupant Address: 338 Myrtle Avenue, Brooklyn, NY 11208

339 Myrtle Avenue
Mixed residential and Commercial building owned by: 339 Myrtle LLC
Owner Address: 339 Myrtle Avenue, Brooklyn, NY 11208
Occupied by: Crown Chicken & Pizza
Occupant Address: 339 Myrtle Avenue, Brooklyn, NY 11208

341 Myrtle Avenue
Mixed residential and Commercial building owned by: Hipotech, LLC
Owner Address: 543 Bedford Avenue, suite #139, Brooklyn, NY 11211
Occupied by: Vacant
Occupant Address: N/A

343 Myrtle Avenue
Mixed residential and Commercial building owned by: Taveras, Rose
Owner Address: 343 Myrtle Avenue, Brooklyn, NY 11208
Occupied by: Klevor Liquor

Occupant Address: 343 Myrtle Avenue, Brooklyn, NY 11208

345 Myrtle Avenue
Mixed residential and Commercial building owned by: 345 Myrtle LLC
Owner Address: 413 Park Avenue, Brooklyn, NY 11205
Occupied by: Myrtle 99 Cents Inc
Occupant Address: 345 Myrtle Avenue, Brooklyn, NY 11208

347 Myrtle Avenue
Mixed residential and
Owner Address: 347 Myrtle Avenue, Brooklyn, NY 11208
Occupied by: Vacant
Occupant Address: N/A

349 Myrtle Avenue
Mixed residential and Commercial building owned by: 349 Myrtle Ave LLC
Owner Address: 595 Madison Avenue, Suite 1101, NY 10022
Occupied by: Gangstas Making Astronomical Community Changes Inc.
Occupant Address: 475 Carlton Avenue 7G, Brooklyn, NY 11238

351 Myrtle Avenue
Mixed residential and commercial building owned by: Ni, Lam Yam
Owner Address: 349 Myrtle Avenue, Brooklyn, NY 11208
Occupied by: Hardee
Occupant Address: 351 Myrtle Avenue, Brooklyn, NY 11208

156 Carlton Avenue
Residential building owned by: D'avilar, Ruth
Owner Address: 156 Carlton Avenue, Brooklyn, NY 11208

158 Carlton Avenue
Residential building owned by: East Coast Realty L.P.
Owner Address: 39 Crosby Street, Suite 3N, NY, NY 10013

350 Myrtle Avenue
Commercial building owned by: Jin Fong Realty, Inc
Owner address:
Occupied by: Gnarly Vines
Occupant Address: 350 Myrtle Avenue, Brooklyn, NY 11208

26 Fountain Avenue
Residential building owned/occupied by: Iftekar Asalat or Occupant

B3. Local News Media From Which The Community Typically Obtains Information.

Brooklyn Eagle
30 Henry Street
Brooklyn, NY 11201

News 12 Brooklyn
164 20th Street
Brooklyn, NY 11232

New York Daily News
4 New York Plaza
New York, NY 10004

New York Post
1211 Avenue of the Americas
New York, NY 10036

B4. The Public Water Supplier Which Services The Area In Which The Property Is Located

Public water is provided from upstate New York reservoirs by the City of New York, Department of Environmental Protection (Consumer Service Center: 59-17 Junction Boulevard, 10th Floor, Flushing, NY 11373).

B5. Any Person Who Has Requested To Be Placed On The Contact List.

We are unaware of any requests for inclusion on the contact list.

B6. The Administrator Of Any School Or Day Care Facility Located On Or Near The Property.

There are no day care facilities within 1,000 feet of the site.

One school is within 1,000 feet of the site:

Transit Tech Career and Technical Education High School K615
1 Wells Street
Brooklyn, NY 11208
Marlon Bynum, Principal
(718) 647-5204

B7. Locations of the Document Repositories

Brooklyn Community Board #2
Attn: Carol-Ann Church
350 Jay Street, 8th Floor
Brooklyn, NY 11201

Brooklyn Public Library – Walt Whitman Branch
Attn: Bayleigh Vidovich, Library Supervisor
93 St. Edwards Street
Brooklyn, NY 11205

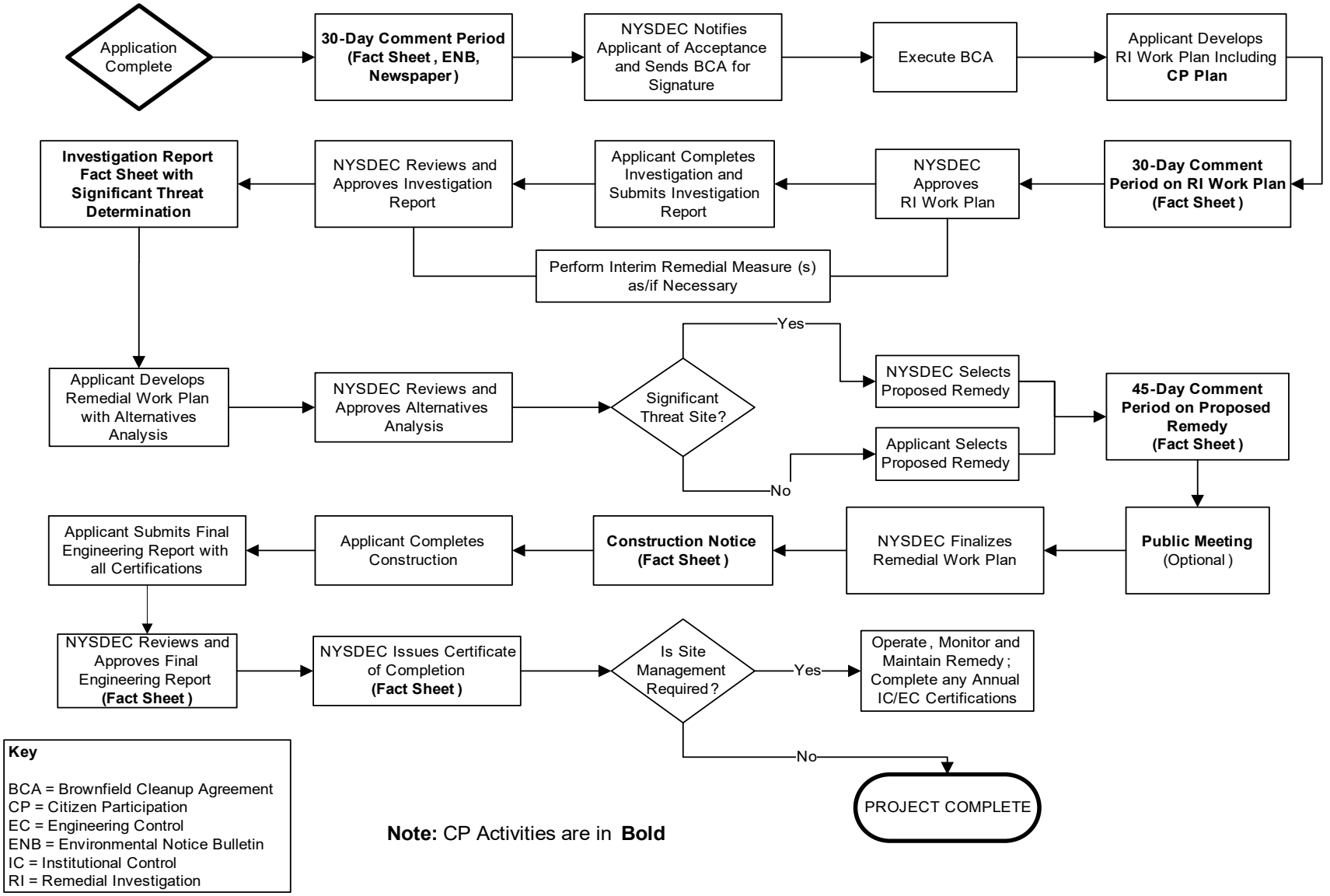
B8. In Cities With A Population of One Million or More, The Local Community Board If The Proposed Site Is Located Within Such Community Board's Boundaries

Brooklyn Community Board #2
350 Jay Street, 8th Floor
Brooklyn, NY 11201

Appendix C - Site Location Map

Site (340 Myrtle Avenue)
Myrtle Ave
Myrtle Ave
Myrtle Ave
Carlton Ave
Washington Park
Washington Park
Adelphi St
Carlton Ave
Ingersoll
Bravo Supermarkets
Klevor Liquor
Farmer in the Deli
Greene Ville Garden
Domino's Pizza
Gnarly Vines
Thai Holic
FDNY Engine 210
Feuchtwanger Stable
Bernd Wagenfeld
Institutional Church of God in Christ, Inc
OSSO Architecture
Google Earth
N
200 ft

Appendix D– Brownfield Cleanup Program Process



Key

BCA = Brownfield Cleanup Agreement
CP = Citizen Participation
EC = Engineering Control
ENB = Environmental Notice Bulletin
IC = Institutional Control
RI = Remedial Investigation

Note: CP Activities are in **Bold**

NEW YORK STATE OF OPPORTUNITY. | Department of Environmental Conservation

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern

Instructions

This Scoping Sheet assesses major issues of public concern; impacts of the site and its remedial program on the community; community interest in the site; information the public needs; and information needed from the public.

The information generated helps to plan and conduct required citizen participation (CP) activities, and to choose and conduct additional CP activities, if appropriate. The scoping sheet can be revisited and updated as appropriate during the site's remedial process to more effectively implement the site's CP program.

Note: Use the information as an aid to prepare and update the Major Issues of Public Concern section of the site CP Plan.

General Instructions

- When to prepare: During preparation of the CP Plan for the site. It can be revisited and updated anytime during the site remedial process.
- Fill in site name and other information as appropriate.
- The Scoping Sheet may be prepared by DEC or a remedial party, but must be reviewed and approved by the DER site project manager or his/her designee.

Instructions for Numbered Parts

Consider the bulleted issues and questions below and any others that may be unique or appropriate to the site and the community to help complete the five Parts of this Scoping Sheet. Identify the issue stakeholders in Parts 1 through 3 and adjust the site's contact list accordingly.

Part 1. List Major Issues of Public Concern and Information the Community Wants.

- Is our health being impacted? (e.g. Are there problems with our drinking water or air? Are you going to test our water, yards, sumps, basements? Have health studies been done?)
- There are odors in the neighborhood. Do they come from the site and are they hazardous?
- Are there restrictions on what we may do (e.g. Can our children play outside? Can we garden? Must we avoid certain areas? Can we recreate (fish, hunt, hike, etc. on/around the site?)
- How and when were the site's contamination problems created?
- What contaminants are of concern and why? How will you look for contamination and find out where it is going? What is the schedule for doing that?
- The site is affecting our property values!
- How can we get more information (e.g. who are the project contacts?)
- How will we be kept informed and involved during the site remedial process?
- Who has been contacted in the community about site remedial activities?
- What has been done to this point? What happens next and when?
- The site is going to be cleaned up for restricted use. What does that mean? We don't want redevelopment on a "dirty" site.

Part 2. List Important Information Needed From the Community, if Applicable.

- Can the community supplement knowledge about past/current uses of the site?
- Does the community have knowledge that the site may be significantly impacting nearby people, properties, natural resources, etc.?
- Are activities currently taking place at the site or at nearby properties that may need to be restricted?
- Who may be interested or affected by the site that has not yet been identified?
- Are there unique community characteristics that could affect how information is exchanged?
- Does the community and/or individuals have any concerns they want monitored?
- Does the community have information about other sources in the area for the contamination?

Part 3. List Major Issues and Information That Need to be Communicated to the Community.

- Specific site investigation or remediation activities currently underway, or that will begin in the near future.
- The process and general schedule to investigate, remediate and, if applicable, redevelop the site.
- Current understanding about the site contamination and effects, if any, on public health and the environment.
- Site impacts on the community and any restrictions on the public's use of the site and/or nearby properties.
- Planned CP activities, their schedule, and how they relate to the site's remedial process.
- Ways for the community to obtain/provide information (document repositories, contacts, etc.).

Part 4. Community Characteristics

a. - e. Obtain information from local officials, property owners and residents, site reports, site visits, "windshield surveys," other staff, etc.

f. Has the affected community experienced other **significant** present or past environmental problems unrelated to this site? Such experiences could significantly affect public concerns and perspectives about the site; how the community will relate to project staff; the image and credibility of project staff within the community; and the ways in which project staff communicate with the community.

g. In its remedial programs, DER seeks to integrate, and be consistent with, environmental justice principles set forth in *DEC Commissioner Policy 29 on Environmental Justice* and *DER 23 – Citizen Participation Handbook for Remedial Programs*. Is the site and/or affected community wholly or partly in an Environmental Justice (EJ) Area? Use the Search feature on DEC's public web site for "environmental justice". DEC's EJ pages define an EJ area, and link to county maps to help determine if the site and/or community are in an EJ area.

h. Consider factors such as:

- Is English the primary language of the affected community? If not, provisions should be considered regarding public outreach activities such as fact sheets, meetings, door-to-door visits and other activities to ensure their effectiveness.
- The age demographics of the community. For example, is there a significant number of senior citizens in the community? It may be difficult for some to attend public meetings and use document repositories. This may suggest adopting more direct interaction with the community with activities such as door-to-door visits, additional fact sheets, visits to community and church centers, nursing homes, etc.
- How do people travel about the community? Would most people drive to a public meeting or document repository? Is there adequate public transportation?

Part 5. Affected/Interested Public.

Individuals and organizations who need or want information and input can change during the site's remedial process. This need is influenced by real, potential, or perceived impacts of the site or the remedial process. Some people may want information and input throughout the remedial process. Others may participate only during specific remedial stages, or may only be interested in particular issues.

It is important to revisit this question when reviewing this scoping sheet. Knowing who is interested in the site – and the issues that are important to them – will help to select and conduct appropriate outreach activities, and to identify their timing and the information to be exchanged.

Check all affected/interested parties that apply to the site. **Note: Adjust the site's contact list appropriately.** The following are some ways to identify affected/interested parties:

- Tax maps of adjacent property owners
- Attendees at public meetings
- Telephone discussions
- Letters and e-mails to DER, the remedial party, and other agencies
- Political jurisdictions and boundaries
- Media coverage
- Current/proposed uses of site and/or nearby properties (recreational, commercial, industrial)
- Discussions with community organizations: grass roots organizations, local environmental groups, environmental justice groups, churches, and neighborhood advisory groups

Division of Environmental Remediation

Remedial Programs
Scoping Sheet for Major Issues of Public Concern (see instructions)

Site Name: 340 Myrtle Avenue

Site Number: TBD

Site Address and County: 340 Myrtle Avenue, Brooklyn, Kings County, NY 11205

Remedial Party(ies): F&D Myrtle Realty Co LLC and One Brooklyn Family Warehousing LLC

Note: For Parts 1. – 3. the individuals, groups, organizations, businesses and units of government identified should be added to the site contact list as appropriate.

Part 1. List major issues of public concern and information the community wants. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and information needs. **Use this information as an aid to prepare or update the Major Issues of Public Concern section of the site Citizen Participation Plan.**

Groundwater contamination included Volatile Organic Compounds (VOCs) which could pose soil vapor intrusion issues on-Site and in adjacent buildings. The Site is not located within a Potential Environmental Justice Area. Based on neighborhood 2020 census data, there is a sizable Hispanic-American community near the Site. Therefore, all future fact sheets will be translated into Spanish. There may also be impacts with regards to noise, odor, and truck traffic.

How were these issues and/or information needs identified?
A Phase II Environmental Site Investigation (ESI) was performed at the Site in 2021.

Part 2. List important information needed **from** the community, if applicable. Identify individuals, groups, organizations, businesses and/or units of government related to the information needed.
N/A

How were these information needs identified?
N/A

Part 3. List major issues and information that need to be communicated **to** the community. Identify individuals, groups, organizations, businesses and/or units of government related to the issue(s) and/or information.
Commercial tenants of the Site building and possible commercial and residential tenants of the surrounding properties.

How were these issues and/or information needs identified?
A Phase II ESI was performed at the Site in 2021.

Part 4. Identify the following characteristics of the affected/interested community. This knowledge will help to identify and understand issues and information important to the community, and ways to effectively develop and implement the site citizen participation plan (mark all that apply):

a. Land use/zoning at and around site:
☒ **Residential** ☐ **Agricultural** ☐ **Recreational** ☒ **Commercial** ☐ **Industrial**

b. Residential type around site:

☒ **Urban** ☐ **Suburban** ☐ **Rural**

c. Population density around site:
☒ **High** ☐ **Medium** ☐ **Low**

d. Water supply of nearby residences:
☒ **Public** ☐ **Private Wells** ☐ **Mixed**

e. Is part or all of the water supply of the affected/interested community currently impacted by the site?
☐ **Yes** ☒ **No**

Provide details if appropriate:
N/A

f. Other environmental issues significantly impacted/impacting the affected community?
☐ **Yes** ☒ **No**

Provide details if appropriate:
N/A

g. Is the site and/or the affected/interested community wholly or partly in an Environmental Justice Area?
☐ **Yes** ☒ **No**

h. Special considerations:
☒ **Language** ☐ **Age** ☐ **Transportation** ☐ **Other**

Explain any marked categories in **h:**
All future fact sheets will be translated in Spanish.

Part 5. The site contact list must include, at a minimum, the individuals, groups, and organizations identified in Part 2. of the Citizen Participation Plan under 'Site Contact List'. Are *other* individuals, groups, organizations, and units of government affected by, or interested in, the site, or its remedial program? (Mark and identify all that apply, then adjust the site contact list as appropriate.)

☒ **Non-Adjacent Residents/Property Owners:** See Site Contact List

☒ **Local Officials:** See Site Contact List

☒ **Media:** See Site Contact List

☒ **Business/Commercial Interests:** See Site Contact List

☐ **Labor Group(s)/Employees:** N/A

☐ **Indian Nation:** N/A

☐ **Citizens/Community Group(s):** N/A

☐ **Environmental Justice Group(s):** N/A

☐ **Environmental Group(s):** N/A

☐ **Civic Group(s):** N/A

☐ **Recreational Group(s):** N/A

☐ **Other(s):** N/A

Prepared/Updated By: Ashley Platt **Date:** 9/27/2021

Reviewed/Approved By: Click here to enter text. **Date:** Click here to enter text.

Appendix G
Request to Import/Reuse Fill or Soil Form

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e). Use of this form is not a substitute for reading the applicable Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 10 sieve? Choose an item

Does it contain less than 10%, by weight, material that would pass a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

Revised August 2014