NEWTOWN CREEK COMBINED SEWER OVERFLOW (CSO) STORAGE TUNNEL PROJECT

Draft Environmental Impact Statement (DEIS)

Environmental Protection

CEQR Number: 24DEP053Y
ULURP Numbers: 260063PCY
260064PSY

Lead Agency:

New York City
Department of Environmental Protection (DEP)

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Newtown Creek Combined Sewer Overflow (CSO)
Storage Tunnel Project
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

September 5, 2025

CEQR No.:	24DEP053Y
ULURP Nos.:	260063PCY 260064PSY
Type of Action:	Type I
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Lead Agency:	New York City Department of Environmental Protection, Bureau of Environmental Planning and Analysis
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The Newtown Creek CSO Storage Tunnel Project DEIS is available on the CEQR Access website: https://a002-ceqraccess.nyc.gov/ceqr/ (search CEQR # 24DEP053Y)

The Newtown Creek CSO Storage Tunnel Project DEIS is also available on the website of the New York City Department of City Planning via the Newtown Creek CSO Storage Tunnel Project page on the Zoning Application Portal (ZAP): https://zap.planning.nyc.gov/projects/2025Y0129

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A. INTRODUCTION

New York City (City) Department of Environmental Protection (DEP) is issuing this Draft Environmental Impact Statement (DEIS) pursuant to the New York State Environmental Quality Review Act (SEQRA), City Environmental Quality Review (CEQR), and the Uniform Land Use Review Procedure (ULURP). In accordance with SEQRA and CEQR, DEP is examining the potential for significant adverse environmental impacts that could occur as a result of the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project (the "Proposed Project").

B. PROJECT OVERVIEW

Newtown Creek, located on the border of Brooklyn and Queens, is a tidal creek that flows into the East River (see **Figure S-1**). Under typical wet-weather conditions, there are 21 CSO outfalls that discharge to Newtown Creek. More than 90 percent of the total CSO discharge to Newtown Creek, however, is from the four largest CSO outfalls: Bowery Bay (BB)-026, Newtown Creek Queens (NCQ)-077, Newtown Creek Brooklyn (NCB)-083, and NCB-015 (see **Figure S-2**). As part of an Order on Consent to reduce CSOs, DEP prepared the Newtown Creek CSO Long-Term Control Plan (LTCP), which the New York State Department of Environmental Conservation (NYSDEC) approved in June 2018. Pursuant to the CSO Order on Consent and the LTCP (and recently approved modifications to the LTCP-recommended project), DEP is proposing a 3.26-mile-long tunnel with a storage volume of 50 million gallons (MG) to divert overflows at the four largest CSO outfalls. The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

C. BACKGROUND INFORMATION

NEWTOWN CREEK AND WATERSHED

The current conditions of Newtown Creek and its drainage area are considerably different than its pre-urbanized condition. Newtown Creek was originally a stream that drained the uplands of western Long Island, and was served by five tributaries: Dutch Kills, Whale Creek, Maspeth Creek, English Kills, and the East Branch (shown on **Figure S-1**). As New York City developed, Newtown Creek was dredged, straightened, and bulkheaded as the surrounding area was drained, urbanized, and industrialized. By 1930, Newtown Creek had been transformed to a condition similar to its present configuration and served as a major industrial waterway through which materials were brought to and

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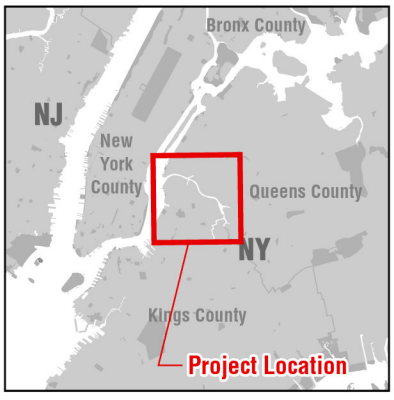

Newtown Creek

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure S-1

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Newtown Creek-Principal CSO Outfalls

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure S-2

from area industries, including major oil refineries and terminals, smelting operations, manufactured gas plants, and other heavy industries. During World War II, Newtown Creek was one of the busiest ports in the nation.

By that time, the surrounding area had been fully urbanized and industrialized, sewage and industrial wastes were discharging directly to Newtown Creek without treatment, and natural marshlands and freshwater streams had been filled or damaged. The urbanization of the surrounding drainage area, with natural areas replaced by buildings and pavement, resulted in an estimated 500 percent increase in impervious surfaces, and the loss of natural stormwater drainage resulted in a doubling of the annual runoff volume to Newtown Creek. The impact of runoff to Newtown Creek was exacerbated by the loss of marshland and natural freshwater flow, which deprived Newtown Creek of natural response mechanisms that may have absorbed the increased hydraulic and pollutant loads. Newtown Creek's limited circulation and exchange with the East River allowed pollutants to build up, resulting in a significant deterioration of water quality.

Efforts to address water quality in Newtown Creek date back to the 1960s. New York City constructed WRRFs to treat sewage and industrial wastes during dry weather and to capture a portion of the combined sewage generated during wet-weather events. Two WRRFs service the Newtown Creek drainage area: the Bowery Bay WRRF, which began operating in 1938, and the Newtown Creek WRRF, which began operating in 1967.

The Newtown Creek watershed is comprised of approximately 6,815 acres: the majority of the watershed (5,920 acres) is served by the Newtown Creek WRRF, and a smaller portion (895 acres) on the northern shore is served by the Bowery Bay WRRF (see **Figure S-3**). The Newtown Creek WRRF serves a total area of 15,033 acres in the boroughs of Manhattan, Brooklyn, and Queens. Similarly, the Bowery Bay WRRF, which is located in the Astoria neighborhood in northern Queens, serves a total area of approximately 15,203 acres in the northern portion of Queens.

During dry weather, the combined and sanitary sewer systems convey sewage to the Newtown Creek and Bowery Bay WRRFs for treatment. The State Pollutant Discharge Elimination System (SPDES) permit for the Newtown Creek WRRF requires a wet-weather treatment capacity of 700 million gallons per day (mgd). The SPDES permit for the Bowery Bay WRRF requires a wet-weather treatment capacity of 300 mgd. During wet-weather events, combined sewage flow that exceeds the capacity of the WRRFs and the combined sewer system may discharge to Newtown Creek and its tributaries through one or more of the 21 SPDES-permitted CSO outfalls. Approximately 90 percent of the average annual CSO volume to Newtown Creek is attributable to four CSO outfalls: three CSO outfalls that provide wet-weather relief to the combined sewer system tributary to the Newtown Creek WRRF (NCQ-077, NCB-083, and NCB-015); and one CSO outfall that provides wet-weather relief to the combined sewer system tributary to the Bowery Bay WRRF (BB-026). In addition, 12 stormwater outfalls that are permitted under New York City's MS4 SPDES permit discharge to Newtown Creek.

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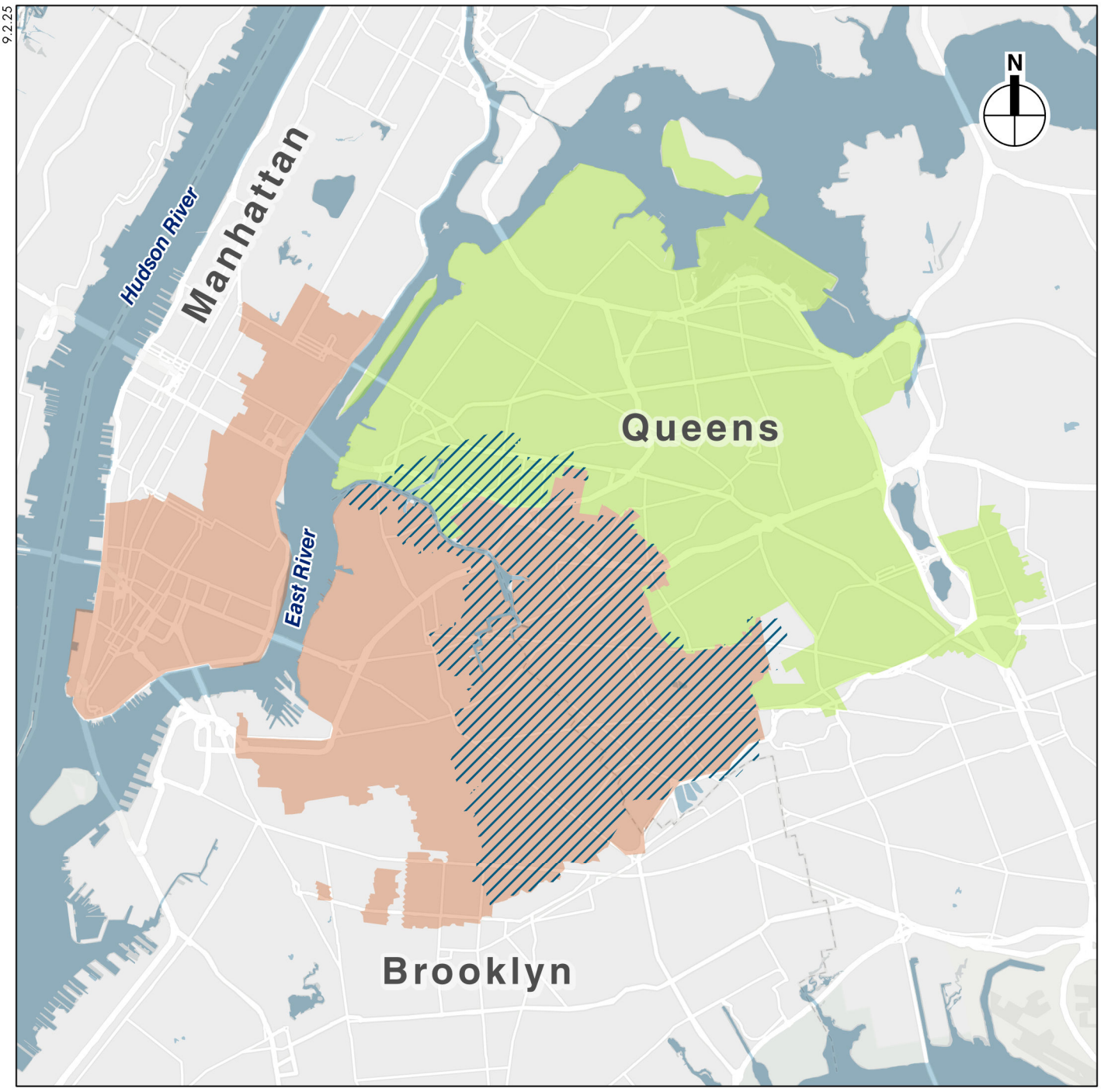


*Approximate area contributing to Newtown Creek CSOs

Newtown Creek WRRF and
Bowery Bay WRRF Drainage Areas

NYSDEC CONSENT ORDER AND LONG-TERM CONTROL PLAN

In 2005, the City of New York and NYSDEC entered into an Order on Consent[1] to address CSOs in New York City, and over the past 20 years, DEP has implemented several specific projects to improve water quality in Newtown Creek.

The projects have included upgrades to the Newtown Creek WRRF, installation of bending weirs at the four major CSO outfalls, and construction of aeration facilities at several locations along Newtown Creek (including English Kills and the East Branch). DEP has also included Newtown Creek as a priority watershed for the Green Infrastructure (GI) Program, which seeks to install GI to reduce CSO volumes. These GI improvements have included right-of-way (ROW) practices, public property retrofits, and GI implementation on private properties. In connection with these projects, DEP has worked to restore natural resources and provide community benefits along the Creek, including creation of a public waterfront open space (the Newtown Creek Nature Walk) near the Newtown Creek WRRF and Whale Creek, as well as salt marsh plantings. In 2011, NYSDEC and DEP identified numerous modifications to the 2005 Order, including integration of green infrastructure and substitution of more cost-effective grey infrastructure, which were included in a modified Order on Consent issued in 2012.[2] The 2005 and 2012 Orders and subsequent minor modifications are collectively referred to as the "CSO Order."

Per the CSO Order, DEP agreed to develop 10 waterbody-specific LTCPs and one citywide LTCP to reduce CSOs and improve water quality in the City's waterbodies and waterways. Newtown Creek was identified in the CSO Order as one of the 10 waterbodies in New York City requiring an LTCP to identify, with public input, appropriate CSO controls necessary to reduce the frequency and volume of CSO discharges resulting in improved water quality within Newtown Creek. The Newtown Creek LTCP was prepared by DEP and submitted to NYSDEC in 2017, and the plan was approved by NYSDEC in 2018.

As part of the development of the LTCP, DEP evaluated several alternative CSO control measures, focusing on the four largest CSO outfalls: BB-026, NCQ-077, NCB-083, and NCB-015. The LTCP considered one set of measures to control CSOs for outfalls NCQ-077, NCB-083, and NCB-015, and a separate set of measures to control CSOs at outfall BB-026, which is much closer to the Newtown Creek WRRF and closer to DEP's Borden Avenue Pump Station, a facility that was planned for improvements.

For outfalls NCQ-077, NCB-083, and NCB-015, the LTCP considered alternatives—individual storage tanks or various tunnel storage options; for outfall BB-026, the LTCP considered alternatives that included diverting overflow from outfall BB-026 to the Borden Avenue Pump Station and providing additional wet-weather pumping capacity, along with a new forcemain to convey wet-weather flow from the pump station to a location just upstream of the Newtown Creek WRRF. Through a detailed evaluation of the alternatives based on multiple considerations, including public input, environmental

[1] NYSDEC Case No. C02-20000107-8

[2] NYSDEC Case No. C02-20110512-25

and water quality benefits, and costs, the LTCP determined that the preferred alternative should include a 39-MG CSO storage tunnel for outfalls NCQ-077, NCB-083, and NCB-015, and that the preferred alternative for outfall BB-026 should include a 26-mgd wet-weather expansion of the Borden Avenue Pump Station and a new forcemain that would run under Newtown Creek that would convey wet-weather flow to the Newtown Creek WRRF.

Following the completion of the LTCP, the two projects entered preliminary design and planning, during which a conceptual design was developed to combine the projects by diverting CSOs from outfall BB-026 by gravity into the CSO storage tunnel serving the other three outfalls and increasing the tunnel's storage volume from 39 MG to 50 MG. This change was determined to have several benefits: eliminating the need to expand the Borden Avenue Pump Station, eliminating the need to construct a forcemain to the Newtown Creek WRRF, and providing a greater overall reduction of CSO discharge volumes. DEP began discussing this proposed modification request with NYSDEC in 2023 and met with both NYSDEC and the U.S. Environmental Protection Agency (EPA) regarding this modification request. EPA indicated that the proposed modification was consistent with the Record of Decision (ROD) that required a CSO reduction target and that this modification would exceed that target (discussed below). Afterwards, DEP met with stakeholders and elected officials regarding this proposed modification and submitted the official modification request to NYSDEC on July 1, 2024. On October 10, 2024, NYSDEC issued a letter notifying DEP of its concurrence with the proposed modification; following a public noticing period, NYSDEC issued a letter approving the modification on December 23, 2024.

EPA SUPERFUND REMEDIATION OF NEWTOWN CREEK

In September 2010, Newtown Creek was designated a federal Superfund site by EPA under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, commonly known as Superfund) and placed on the National Priorities List (NPL). In July 2011, EPA issued an Administrative Order to six Potentially Responsible Parties (PRPs) for a remedial investigation and feasibility study of Newtown Creek; the City of New York was identified as one of the PRPs, related to CSO discharges into Newtown Creek. In April 2021, EPA issued a ROD concluding that "the volume reduction set forth in the LTCP will be sufficient for the purposes of a CERCLA response action regarding current and reasonably anticipated future discharges from the CSOs to the Newtown Creek Study Area" and that "to ensure that the assumptions made in reaching this conclusion remain valid, monitoring will be required at least until it is subsumed by the monitoring requirements of a future remedial decision document for the site."

As of 2025, independent of the Proposed Project, EPA has selected a remedy for the East Branch (near outfall NCB-083) of Newtown Creek. This remedy includes dredging to allow the placement of a cap, which would stabilize the contaminants in the bed of Newtown Creek, with localized deeper dredging. Elsewhere in Newtown Creek, EPA is investigating the prevalence of contaminated materials and considering remediation measures.

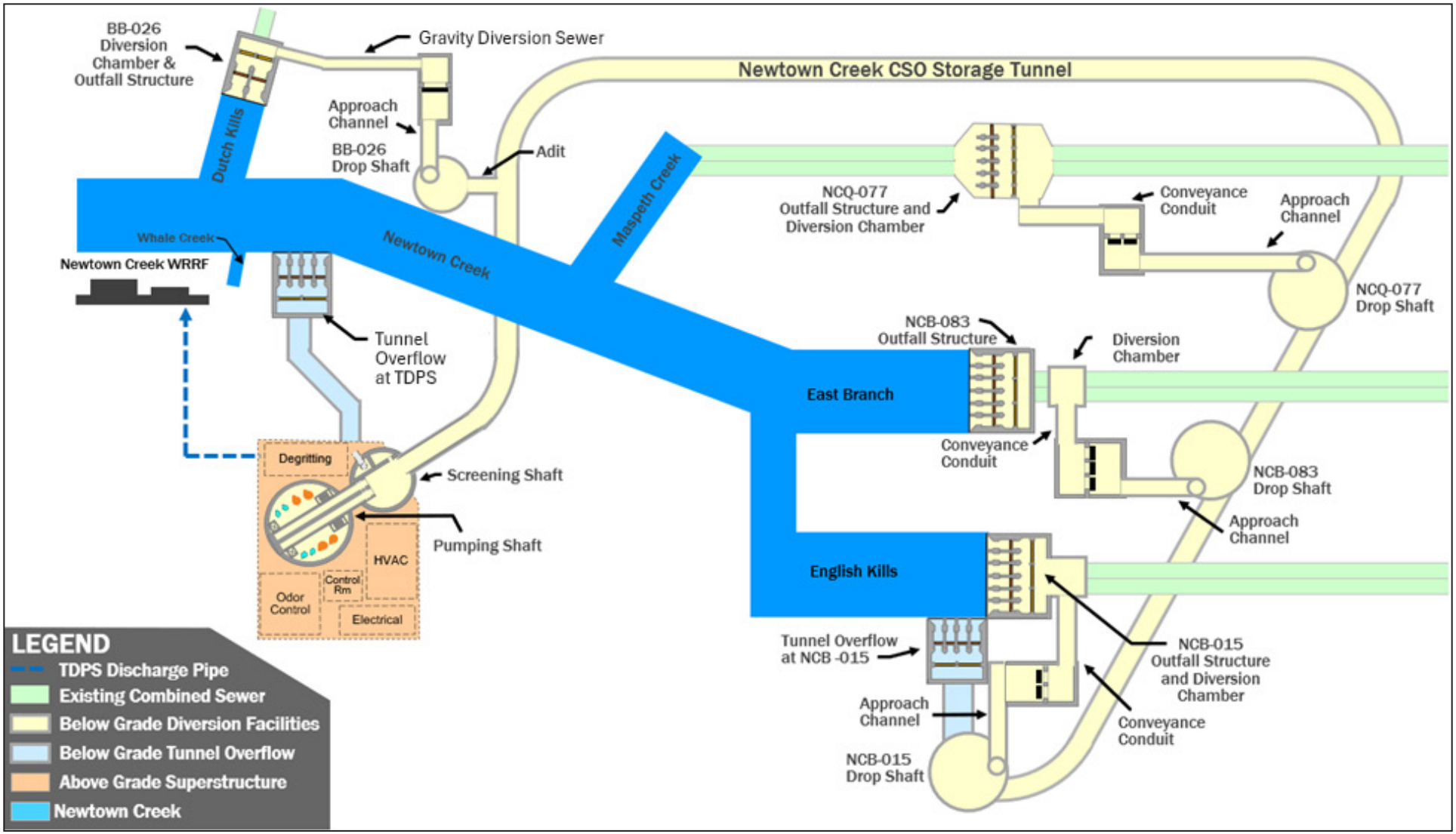
D. DESCRIPTION OF THE PROJECT

The Proposed Project, which includes the construction of a 50-MG CSO storage tunnel along with the TDPS, diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems, would control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015. During wet-weather events, the CSO storage tunnel facilities would divert and store CSOs from the combined sewer system at the four outfall locations, which currently discharge to Newtown Creek. The CSOs stored in the tunnel would be pumped to the Newtown Creek WRRF for treatment after the wet-weather event. A schematic illustration of the Proposed Project is provided in **Figure S-4**.

The proposed CSO storage tunnel would be approximately 26 feet in outer diameter and at a depth ranging from 80 to 130 feet below existing ground surface; the tunnel mining operation would start in bedrock at the TDPS site, and then transition to a mixed face condition before ending in soil. The downstream terminus of the tunnel is located at the end of Kingsland Avenue in Brooklyn (on the southern side of Newtown Creek) near Whale Creek and the Newtown Creek WRRF; this site is controlled by the New York City Department of Sanitation (DSNY). This site would contain a TDPS that would operate to remove the stored combined sewage from the tunnel on an intermittent basis following wet-weather events, as well as to remove inflow and infiltration in the tunnel as needed during dry weather, when the Newtown Creek WRRF has capacity to receive tunnel dewatering flows. The TDPS may also operate at the beginning of a storm to remove flow from the tunnel when the Newtown Creek WRRF has capacity, thereby maximizing the CSOs diverted and stored during a wet-weather event. Wet-weather events requiring TDPS operation are anticipated to occur between three and seven times per month.

From the TDPS on the south side of Newtown Creek, tunnel construction would follow an alignment east under the Creek into the Blissville neighborhood of Queens. At this location north of Newtown Creek, a new gravity diversion sewer would be constructed to connect outfall BB-026 to the tunnel. Beginning at the BB-026 diversion facility, the new gravity diversion sewer would run along 47th Avenue and 30th Street, to Borden Avenue, where it would run west and south to connect to the Borden Avenue Pump Station. This initial section of the gravity diversion sewer would be constructed prior to the completion of the tunnel and would allow for diversion of CSO flows from BB-026 in the interim period before the tunnel is operational: CSOs would be stored in the gravity diversion sewer during a wet-weather event, and then removed from the gravity diversion sewer by the pump station and conveyed to the Bowery Bay WRRF. Modifications would be made to the Borden Avenue Pump Station to construct the connection to the gravity diversion sewer. From the Borden Avenue Pump Station, the gravity diversion sewer would run south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration). Once the tunnel, TDPS, and drop shaft are complete, CSO flows would be diverted from the Borden Avenue Pump Station and conveyed to the tunnel.

The tunnel alignment would continue south and east along Review Avenue and the Kosciuszko Bridge toward the Maspeth neighborhood of Queens, where it would connect to outfall NCQ-077. From outfall NCQ-077, the tunnel alignment would curve south and then west into Brooklyn, to connect to outfall



NOTE: Schematic design; not to scale

Proposed Project – Newtown Creek CSO Facility Overview

NCB-083. Finally, the tunnel alignment would continue south and connect to outfall NCB-015, located near English Kills. The tunnel would be constructed at a constant slope to allow gravity flow from the eastern extent of the tunnel at outfall NCB-015 to the TDPS site at Whale Creek.

Facilities would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015 to divert flow from the outfalls to the tunnel. During a wet-weather event, combined sewer flows that exceed the capacity of the existing dry-weather regulator would flow into the diversion chamber at each facility and would then be conveyed from the diversion chamber to the conveyance conduits. The conveyance conduits would deliver wet-weather flow to the approach channel and drop shaft, which would connect to the tunnel. The diversion facilities at NCQ-077, NCB-083, and NCB-015 would include ventilation systems at the drop shafts to manage airflow in the tunnel (this would include odor control systems, except at the facility at BB-026, which would not need odor control because the connection would be via an approach channel and adit,[3] thereby limiting air exchange). The existing outfalls at NCB-015 and BB-026 would be modified by removing the existing bending weirs and flap gates. At all four diversion facilities, new outfall structures, including bending weirs and flap gates, would be constructed downstream of each diversion chamber to allow overflow to discharge to Newtown Creek when the tunnel is full or when flow rates exceed the facilities' design flow rates. In addition, at the TDPS, a discharge pipe would be constructed along Kingsland Avenue and Greenpoint Avenue to connect the TDPS to the Newtown Creek WRRF. Finally, at the TDPS and the NCB-015 site, tunnel overflow structures would be constructed to mitigate the risk of flooding associated with a surge or a transient wave within the tunnel when it is filling.

The proposed tunnel alignment and location of the proposed diversion facilities are shown on **Figure S-5**.

E. PURPOSE AND NEED FOR THE PROPOSED PROJECT

The Proposed Project would reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Specifically, the Proposed Project would result in a significant reduction in CSOs from four outfalls—BB-026, NCQ-077, NCB-083, and NCB-015—which contribute the majority of the CSO discharges to Newtown Creek. As outlined in the LTCP, the proposed CSO storage tunnel and related infrastructure would provide appropriate CSO controls to reduce the volume and frequency of overflow events and fulfill the requirements of the Consent Order entered into by New York City and NYSDEC to address CSOs (discussed above). The reduction of CSO volume resulting from the Proposed Project, combined within the removal of accumulated sediments to improve flow at the outfall sites, would help to improve water quality and aquatic habitat within Newtown Creek. By improving water quality, the Proposed Project would also meet some of the goals of the Superfund remediation of Newtown Creek, as outlined in the EPA ROD related to CSO discharges.

[3] An "adit" is a horizontal underground passageway used for access, drainage, or ventilation.



Proposed Project – Tunnel Alignment and Diversion Facilities

To facilitate the Proposed Project, DEP must lease or acquire several parcels located near the four outfalls to construct the diversion facilities that would convey flow to the proposed CSO storage tunnel; each diversion facility would include a diversion chamber, outfall structure, conveyance conduits, approach channel, and drop shaft.[4] DEP must record permanent surface and subterranean easements on parcels along the proposed tunnel and gravity diversion sewer alignments for security concerns and long-term maintenance. Temporary surface easements are also necessary to facilitate construction on select properties. The properties needed for fee simple acquisition and acquisition of permanent and temporary easements are provided in **Appendix A**.

F. PROJECT APPROVALS AND COORDINATION

Implementation of the Proposed Project would require federal, state, and local permits/approvals. DEP would closely coordinate with EPA, the U.S. Army Corps of Engineers (USACE), NYSDEC, New York State Department of State (NYSDOS), New York State Historic Preservation Office (NYSHPO), and New York City agencies, as necessary, for the Proposed Project.

To facilitate the Proposed Project, discretionary land use approvals are required that are subject to review under ULURP, including site selection of a capital project and acquisition of property. The Proposed Project is a major capital project, which involves site selection of all properties affected by the Proposed Project under the New York City Charter. Currently, construction of the Proposed Project is expected to require full fee simple acquisition of up to four properties to facilitate construction of the proposed diversion facilities at NCQ-077, NCB-083, and NCB-015. Construction of the diversion facility at BB-026 would be facilitated by the acquisition of easements. Acquisition of the TDPS site would not be required since it is a City-owned property (currently being used by DSNY).

In addition, the Proposed Project is expected to require property leasing during various stages of construction. The acquisition of permanent surface and subterranean easements is also expected to be required at several properties for long-term maintenance and security. In total, the Proposed Project would affect up to 99 properties: 9 properties are City-owned and require only site selection approval, and 90 properties are privately owned and require both site selection and acquisition approval. Of the up to 90 properties requiring both site selection and acquisition approval, 4 require fee simple acquisition (for the diversion facilities at NCQ-077, NCB-083, and NCB-015, noted above), up to 83 require subterranean easements along the proposed tunnel and gravity diversion sewer alignments (including one property that also requires both acquisition of a permanent surface easement and a temporary construction easement, and one property that also requires acquisition of a temporary construction easement), and 3 properties require both acquisition of permanent surface and temporary construction easements (but no subterranean easement). The fee simple acquisition, property leasing, and establishment of subterranean and surface easements would be facilitated by the proposed acquisition action under ULURP. Given the early stage of design at the time of CEQR and ULURP, additional subterranean easement properties are included in the land use application in the event that

[4] The TDPS, which would convey stored CSOs to the Newtown Creek WRRF, would be located on a City-owned parcel; therefore, property leasing/acquisition is not required for this facility.

the tunnel alignment changes slightly. The properties currently expected to be subject to the proposed site selection and acquisition approvals are provided in **Appendix A.**

Table S-1 summarizes the major permits and approvals that may be required for the Proposed Project.

Table S-1
Potential Major Permits, Approvals and Coordination

Agency/Entity	Permit/Approval/Consultation/Coordination
FEDERAL	
U.S. Environmental Protection Agency (EPA)	CERCLA coordination and consultation
Coastal Zone Management Act	Projects affecting New York's coastal zone must be consistent with the Coastal Zone Management Act, through the New York State Department of State's Coastal Management Program and approved Local Waterfront Revitalization Plans
U.S. Army Corps of Engineers (USACE)	Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Nationwide Permit 7 "Outfall Structures" and Nationwide Permit 3 "Maintenance," as applicable
	Approval under Section 408 of the Rivers and Harbors Act for tunnel crossings of Newtown Creek in areas under USACE jurisdiction
United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)	Consultations under Section 7 of the Endangered Species Act
Advisory Council on Historic Preservation	Consultation under Section 106 of the National Historic Preservation Act of 1966
STATE	
New York State Department of State (NYSDOS)	Coastal Zone Management Consistency
New York State Office of General Services (NYSOGS)	Potential easement(s) for tunnel alignment under portions of Newtown Creek that are under State jurisdiction
New York State Department of Environmental Conservation (NYSDEC)	State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001: erosion and sediment control and post-construction stormwater management in accordance with the stormwater pollution prevention plan (SWPPP)
	Water Withdrawal Permits for dewatering that may occur during construction of underground infrastructure
	Individual SPDES Permit or Application Form NY-2C for Industrial Facilities (Dewatering activities requiring discharge to surface water)
	Tidal Wetlands Permit for construction activities in tidal wetlands and their adjacent areas
	Long Island Well Permit for dewatering activities in Queens and Brooklyn
	Protection of Waters Permit Navigable Waters (Excavation or Fill)
	Section 401 Water Quality Certification
	Natural Heritage Program database review to determine potential presence of threatened or endangered species listed in New York State
New York State Historic Preservation Office (SHPO)	Consultation to determine potential archaeological significance and/or the presence of historic resources and determine project's potential effects
Metropolitan Transportation Authority (MTA)	Approval of easements affecting MTA-controlled property
NEW YORK CITY	
New York City Planning Commission (CPC) / New York City Department of City Planning (DCP)	ULURP for property acquisition and site selection New York City Waterfront Revitalization Program—Consistency Assessment
New York City Landmarks Preservation Commission (LPC)	Consultation to determine potential archaeological significance and/or the presence of historic resources
New York City Public Design Commission	Review of design for above-grade facilities and public amenities, including architecture and landscape architecture.
New York City Department of Transportation (DOT) Office of Construction Mitigation and Coordination (OCMC)	Street closure and roadway construction permits

G. ANALYSIS FRAMEWORK

The DEIS considers both the construction and operational impacts of the Proposed Project, as well as its potential benefits. As the Proposed Project would involve a substantial multi-year construction effort related to various project elements over several sites around Newtown Creek, with relatively limited operational impacts anticipated, the DEIS includes a modified analytical approach. The DEIS impact analysis chapters focus primarily on the construction of the Proposed Project, with potential operational impacts addressed in each chapter as warranted.

For each impact category, the DEIS discusses existing conditions, conditions in the future without the Proposed Project (the "No Action" condition), and conditions in the future with the Proposed Project (the "With Action condition"). The technical analysis and identification of potential significant adverse impacts is focused on the incremental change that the Proposed Project would potentially create as compared with the future No Action condition.

The DEIS analysis framework is as follows:

EXISTING CONDITIONS

Each technical analysis describes the existing condition in the relevant study area for that analysis in order to establish a baseline against which future conditions can be projected.

FUTURE WITHOUT THE PROPOSED PROJECT

Using existing conditions as a baseline, conditions known to occur or expected to occur in the future regardless of the Proposed Project, will be evaluated for the Proposed Project's analysis year. This No Action condition is the baseline condition against which the effects of the future with the Proposed Project are measured.

In the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities (discussed in Chapter 1, "Project Description") would also remain in their existing condition. The TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

Where relevant, the technical analysis includes a discussion of projects expected to be completed independent of the Proposed Project by the proposed analysis year in the relevant study area(s), in addition to baseline growth for each applicable technical area.

FUTURE WITH THE PROPOSED PROJECT

Using the No Action condition as a baseline, conditions known to occur or expected to occur in the With Action condition are evaluated for the Proposed Project's analysis year.

In the With Action condition, the Proposed Project, which includes the construction of a 50-MG CSO storage tunnel along with the TDPS, diversion chambers, drop shafts, conveyance sewers, outfall

structures, and odor control systems, would control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015, as described in Chapter 1, "Project Description."

ANALYSIS YEAR

The analysis year refers to the future year when a Proposed Project is likely to affect its environmental setting. The analysis year is representative of the anticipated completion date of the Proposed Project's major construction. The Proposed Project's expected year of completion is 2040.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

Potential changes resulting from temporary construction or operation of the Proposed Project (the With Action condition) are compared to the No Action condition to assess the potential for significant adverse impacts. This comparison provides for an understanding of the potential impacts that could result with the Proposed Project. Future conditions are evaluated and represent a "reasonable worst-case scenario" in order to determine the probable impacts of the Proposed Project.

Each technical analysis in the DEIS begins with an assessment of the Proposed Project's potential to result in significant adverse impacts based on the screening criteria presented in the *City Environmental Quality Review (CEQR) Technical Manual.* Where it is determined that the Proposed Project would not exceed the relevant screening criteria, it is concluded that the Proposed Project would not result in a significant adverse impact, and additional analysis is not warranted. Where it is determined that the Proposed Project would exceed the relevant screening criteria, more detailed analysis is performed following the methodology outlined in the *CEQR Technical Manual.* Through that detailed analysis, it is determined whether the effects of the Proposed Project would exceed the criteria presented in the *CEQR Technical Manual* for effects that are considered significant adverse impacts, which are described below by technical area (see below in "Probable Impacts of the Proposed Project").

Where significant adverse impacts are identified for the Proposed Project, measures to mitigate those impacts are identified and described (see below in "Mitigation"). Where impacts cannot be practicably mitigated, they are disclosed as unavoidable adverse impacts (see below in "Unavoidable Adverse Impacts").

H. PROBABLE IMPACTS OF THE PROPOSED PROJECT

LAND USE, ZONING, AND PUBLIC POLICY

The analysis concludes that the Proposed Project would be compatible with existing land use in the surrounding area and that construction and operation of the Proposed Project would not result in any significant adverse impacts to land use, zoning, or public policy. The Proposed Project would include new infrastructure that would primarily be underground, and which would not result in changes to land use at the affected properties; changes to land use would occur at the diversion facility sites, which currently contain primarily surface parking, vacant land/buildings, and manufacturing uses. However, the Proposed Project's facilities would be part of the extensive sewer infrastructure system present in the study area and would be compatible with the existing sewer infrastructure and other uses in the

study area. The Proposed Project would meet all applicable zoning requirements and would be consistent with and supportive of the public policies applicable to the Proposed Project sites and the study area, including the New York City Waterfront Revitalization Program (WRP).

SOCIOECONOMIC CONDITIONS

The Proposed Project would affect 11 parcels, two of which are City-owned. Use of City-owned lots would not result in displacement of businesses or employees. Therefore, the Proposed Project involves acquisition of nine sites, including eight proposed for permanent acquisition and one proposed for temporary acquisition during construction.[5] Permanent acquisition of the eight parcels would displace the current uses on these lots. However, because one of the lots proposed for permanent acquisition is vacant and three are used for storage and/or parking, which would not displace employees or businesses, the Proposed Project is only expected to result in the permanent displacement of 35 employees and 3 businesses on the remaining four sites: (1) SRM Concrete, (2) FedEx, and (3) MetroExpress.[6]

Based on the screening analysis that was conducted, the Proposed Project would not displace any residents and would not result in adverse effects on specific industries; however, the Proposed Project could potentially displace a business that could be considered unusually important and would be difficult to relocate (i.e., SRM Concrete). Therefore, a Preliminary Assessment was conducted to assess the Proposed Project's potential to result in significant direct or indirect business displacement. The Preliminary Assessment found that individually and collectively, the three businesses and 35 employees that could be directly displaced do not provide products or services essential to the local economy that would no longer be available to local residents or businesses in their "trade areas" due to the difficulty of either relocating the businesses or establishing new, comparable businesses. The three businesses are also not in a category of businesses or institutions that may be the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect them. Their displacement would not significantly affect business conditions in any industry or any category of business within or outside the study area. In addition, the Proposed Project would not introduce any residential or commercial development that could lead to indirect displacement. Therefore, the Proposed Project would not result in any significant adverse socioeconomic impacts.

[5] Of the eight permanent acquisition sites, four would only require permanent acquisition easements.

[6] While the Proposed Project would require permanent acquisition of two lots owned by Patriot Maspeth GP, LLC, these lots are used for storage and parking and are not expected to displace the overall business operating on these lots—F.W. Webb, which has its warehouse and additional parking and storage areas on an adjacent lot.

COMMUNITY FACILITIES AND SERVICES

The Proposed Project would not have a direct effect on community facilities because there are no community facilities at the Proposed Project sites.[7] Therefore, the CSO tunnel, gravity diversion sewer, TDPS, and diversion facility sites would not physically displace or alter any on-site community facilities.

Concerning the Proposed Project's potential effects on community facilities due to construction, no community facilities (i.e., public or publicly funded schools, libraries, child care centers, health care facilities, and fire and police stations) would be directly affected by construction activities. Overall, the Proposed Project would not result in any significant adverse impacts to community facilities.

OPEN SPACE

Overall, the Proposed Project would not result in the permanent loss of or alteration to any existing open space, and operation of the Proposed Project would not result in any permanent effects from noise, air pollutants, odors, or shadows which would adversely affect the usefulness of the adjacent open spaces or recreational resources. Although construction of the Proposed Project at the TDPS site would result in significant adverse noise impacts at the Newtown Creek Nature Walk and North Henry Street Restoration open spaces, the construction noise, while noticeable and potentially intrusive during the most intensive construction activities, would not significantly affect the usability of the open spaces. Furthermore, at the TDPS site and four diversion facility sites, the surface layouts of the sites are currently being designed, and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project. Therefore, construction and operation of the Proposed Project would not result in direct impacts on open space and recreational resources.

SHADOWS

The Proposed Project at the TDPS site would result in new shadows on several nearby sunlight-sensitive resources, including sections of the Newtown Creek Nature Walk, the planned North Henry Street Restoration Project, and the adjacent tributaries of Newtown Creek. However, the new shadows would be limited in extent and duration and would not cause significant adverse shadow impacts to these resources.

[7] The TDPS site (Brooklyn Block 2508, Lot 1) and one of the properties that would contain the diversion facility at outfall NCQ-077 (Queens Block 2575, Lot 26) are City-owned, controlled by DSNY and DEP, respectively. However, these sites do not contain any community facility uses as defined by the *CEQR Technical Manual*; therefore, analysis of these sites is not warranted.

HISTORIC AND CULTURAL RESOURCES

ARCHAEOLOGICAL RESOURCES

Pursuant to CEQR and Section 106 of the National Historic Preservation Act (NHPA), consultation was initiated with the New York City Landmarks Preservation Commission (LPC) and the New York State Historic Preservation Office (SHPO). Based on LPC and SHPO feedback, a Phase 1A Archaeological Documentary Study (Phase 1A Study) of the area identified by LPC was prepared by AKRF in March 2025. The study area for the Phase 1A Study ("Phase 1A Study Area") includes that portion of the tunnel alignment that extends through Block 2520, Lots 6, 22, and 30, and Block 2508, Lot 1. The Phase 1A Study concluded that the Proposed Project would not affect archaeological resources or remains within Calvary Cemetery. In comment letters issued on April 1, 2025 and May 5, 2025, respectively, LPC and SHPO concurred with the conclusions of the Phase 1A Study and determined that no further archaeological analysis is required. Further, in a comment letter issued on August 7, 2025, SHPO determined that the Proposed Project "will have No Adverse Effect on historic or archaeological resources" (see **Appendix D**). Therefore, the Proposed Project would not result in significant adverse impacts on archaeological resources.

ARCHITECTURAL RESOURCES

There are no known or potential historic architectural resources on the project sites; therefore, the Proposed Project would not result in any significant adverse impacts to historic architectural resources on the project sites. In its August 7, 2025 comment letter, SHPO determined that the Proposed Project "will have No Adverse Effect on historic or archaeological resources" with the following conditions:

1. Provide a Construction Protection Plan (CPP) for work taking place adjacent to the industrial building and garage at 47-09 30th Street, a contributing building within Degnon Terminal Historic District (State/National Register of Historic Places-eligible [S/NR-eligible]) and the Miller Building (S/NR-eligible) at 425 Greenpoint Avenue;
2. Provide design drawings for the above-ground structures being constructed within 90 feet of any historic resources for SHPO's continued review (see **Appendix D**).

There are two known architectural resources in the study areas. The industrial building and garage complex at 47-09 30th Street is located within the S/NR-eligible Degnon Terminal Historic District. This resource is located in the study area of the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station. A CPP would be prepared and implemented during project construction to protect this architectural resource from inadvertent construction-related damage. The S/NR-eligible Miller Building at 425 Greenpoint Avenue is located within 90 feet of the gravity discharge pipe. Should the portion of the gravity discharge pipe be constructed using a cut and cover method within 90 feet of the Miller Building, a CPP would also be prepared and implemented to protect the Miller Building from any unintended construction-related impacts (e.g., vibration effects) to this architectural resource. With the implementation of a CPP, there would be no significant adverse impacts on these historic architectural resources. There are no other known or potential architectural resources in any study areas; therefore, the Proposed Project would not result in any significant adverse impacts on historic architectural resources.

URBAN DESIGN AND VISUAL RESOURCES

The Proposed Project would comply with applicable zoning regulations regarding bulk and built form and would result in physical and visual changes consistent with zoning regulations along Newtown Creek. Therefore, the Proposed Project is not anticipated to result in any significant adverse impacts to urban design and visual resources or the pedestrian's experience of these characteristics of the built and natural environment and no detailed analysis beyond a preliminary analysis is warranted.

NATURAL RESOURCES

Construction of the Proposed Project would not result in any significant adverse impacts to natural resources. Potential impacts due to suspended sediment resulting from dredging, placement of temporary stone fill, and installation and removal of the temporary cofferdams would be minimized by turbidity curtains and best management practices. These impacts are expected to be minimal, localized to the vicinity of sheet pile installation. Any resuspended sediment would settle over similar substrate within a short period of time and, therefore, would not result in significant adverse impacts to water quality, sediment quality, or aquatic biota. Underwater noise increases would intermittently and temporarily result in avoidance behavior by fish and excluding them from potential foraging habitat near the Proposed Project sites. However, this temporary loss of some foraging habitat would not result in significant adverse impacts to fish populations within Newtown Creek, and fish would be expected to return to the area during breaks in pile installation and after the temporary cofferdams are in place. Because most of the upland habitats are developed areas with limited vegetation, upland disturbance would have limited potential to adversely affect terrestrial resources, which comprise generalist and urban-tolerant plants and wildlife species.

Operation of the Proposed Project would not result in significant adverse impacts to natural resources, and would ultimately contribute to improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek through the reduction of CSO volume. The minimal alteration of unvegetated littoral zone tidal wetlands and aquatic habitat where the removal of bottom material in front of the outfalls would result in deeper water, would not result in significant adverse impacts to habitat or aquatic biota. The deepened portions in front of the outfalls would improve flow at the head of the tributaries within Newtown Creek at the outfall sites, leading to water quality and sediment quality improvements from improved tidal flushing. The permanent loss of trees and vegetation along certain sections of shoreline would be minimal and limited to generalist and invasive plant species and would not result in significant adverse impacts to terrestrial habitat.

HAZARDOUS MATERIALS

A review of historic resources including Sanborn maps, aerial photographs, topographic maps and previously prepared environmental assessments revealed widespread contamination throughout the vicinity of the Project Area. Many of the contaminants documented are associated with numerous remedial efforts across several regulatory programs. These programs include the Federal Superfund, State Superfund (Registry of Inactive Hazardous Waste Disposal Sites [SHWS]), the Voluntary Cleanup Program (VCP), and the NYSDEC Brownfield Cleanup Program (BCP), among others. Several high priority remediation sites characterized as part of this analysis are located directly within,

adjacent to, or proximate to the CSO tunnel corridor and gravity diversion sewer. Remediation sites in regulatory programs are similarly located adjacent and/or proximate to the TDPS site, discharge pipe, and diversion facility parcels. Further, certain parcels associated with two of the four diversion facilities (Block 2984 Lot 85 at the NCB-083 diversion facility site and Block 2575 Lot 26 at the NCQ-077 diversion facility site) are participating in remedial regulatory programs which have specific regulatory requirements that must be followed. Based on this review, contamination may be, or is likely present in the soil and groundwater, which could be encountered during construction at all locations (i.e., along the CSO tunnel corridor, along the gravity diversion sewer, and at the TDPS site, discharge pipe, and all diversion facility parcels).

To address any hazardous materials located within the Project Areas during construction, supplemental investigations would be conducted to properly characterize subsurface conditions within the limits of disturbance. The potential for exposure to hazardous materials would be minimized during construction based upon the requirement to investigate and remediate potential hazardous materials within the Project Area in accordance with Remedial Action Plans (RAPS) or Remedial Action Work Plans (RAWPs) that would be prepared and approved by the respective agency that maintains oversight of the respective portions of the Project Areas (i.e., by DEP for the majority of the Project Areas, or NYSDEC for parcels participating in the ERP and BCP). Construction Health and Safety Plans (CHASPs) would be implemented to protect construction workers and occupants during construction. In addition, any suspect asbestos-containing material (ACM), lead-based paint (LBP), and mercury- and/or polychlorinated biphenyl (PCB)-containing building materials, if encountered during construction on the diversion facility parcels subject to regulatory program requirements, would be evaluated and abated in accordance with applicable local, state and federal regulatory requirements as part of standard demolition procedures.

Beyond construction, all post-remedial requirements during operation, including potential future institutional controls (ICs) or engineering controls (ECs) placed within the Project Area would be followed in accordance with regulatory agency-approved Site Management Plans (SMPs).

With the measures described above, no significant adverse construction or operational impacts relating to hazardous materials would result from the Proposed Project.

WATER AND SEWER INFRASTRUCTURE

The Proposed Project would meet the goals of the NYSDEC Consent Order and the EPA ROD, and would not adversely affect wastewater treatment performance at the Newtown Creek and Bowery Bay WRRFs or sanitary and stormwater drainage and management. Therefore, the Proposed Project would not result in any adverse impacts on water and sewer infrastructure.

SOLID WASTE AND SANITATION

Operation of the Proposed Project would result in a level of solid waste generation that would be easily accommodated by existing waste transfer operators serving the Proposed Project sites and the surrounding neighborhood. Therefore, the Proposed Project would not result in any adverse impacts on solid waste and sanitation services.

ENERGY

Operation of the Proposed Project is expected to result in an energy demand of approximately 13,137 million British thermal units (MMBtu) of energy per year (approximately 0.006 percent of New York City's forecast future total annual energy demand). During construction of the Proposed Project, the use of an electric-power tunnel boring machine (TBM) is estimated to result in a temporary demand of up to 596,057 kilowatt-hours (kWh) (2,034 MMBtu) of electricity within a single year—less than the total projected energy consumption during operation of the Proposed Project. Consequently, construction and operation of the Proposed Project would generate incremental increases in energy demand that would be considered negligible when compared with the overall demand within the Consolidated Edison (Con Edison) New York City and Westchester County service area. Therefore, the Proposed Project would not result in any significant adverse impacts related to energy.

TRANSPORTATION

While the operation of the completed Proposed Project would generate minimal travel activities and no disruptions to the surrounding transportation network, there would be construction worker and truck activities at each outfall and diversion facility, as well as temporary disruptions to the surrounding roadways and pedestrian facilities, during construction of the Proposed Project. To assess the anticipated effects from these activities, detailed construction period analyses were prepared for vehicular traffic, pedestrians, street user safety, and parking. These analyses concluded that potential significant adverse impacts would be expected for 11 lane groups at four traffic intersections over one or more of the eight analysis time periods, as shown in **Table S-2**. Conclusions from the construction-period pedestrian analyses are that there would not be any significant adverse impacts to pedestrian elements (sidewalks, corner reservoirs, and crosswalks). Since a detailed transit analysis was determined to not be warranted, the Proposed Project would also not result in any significant adverse transit impacts. In addition to the traffic and pedestrian impact analyses, street user safety and parking assessments were prepared to identify high crash locations and disclose the potential for project-induced parking shortfalls. Neither of these assessments concluded the potential for additional transportation-related impacts.

Table S-2
Summary of Significant Adverse Traffic Impacts

Analysis Peak Hour	No. of Impacted Intersections/Lane Groups
Construction Analysis Peak Hour	
Weekday 6-7 AM	2/3
Weekday 7-8 AM	3/6
Weekday 2-3 PM	2/5
Weekday 3-4 PM	2/5
Total During Any Construction Analysis Peak Hour	3/8
Typical Analysis Peak Hour	
Weekday AM	4/8
Weekday Midday	3/8
Weekday PM	4/8
Saturday Afternoon	1/1
Total During Any Typical Analysis Peak Hour	4/10
Total During Any Analysis Peak Hour	**4/11**

AIR QUALITY

OPERATIONAL AIR QUALITY

The Proposed Project's odor control units would not result in an exceedance of the 1 parts per billion (ppb) significant odor threshold for sensitive receptors or the 10 ppb New York State Ambient Air Quality Standard (NYSAAQS) in ambient air. There would be no on-site combustion sources and no regular traffic generated by the operation of the Proposed Project. Therefore, the Proposed Project would not result in significant adverse operational air quality impacts.

CONSTRUCTION AIR QUALITY

An emissions reduction program would be implemented to minimize the effects of construction activities on the surrounding community. Measures would include dust suppression measures, use of ultra-low sulfur diesel (ULSD) fuel, idling restrictions, diesel equipment reduction, and best available technologies as required by New York City Local Law 97 of 2003. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both nonroad and on-road sources determined that particulate matter (PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers [$PM_{2.5}$] and particles with an aerodynamic diameter of less than or equal to 10 micrometers [PM_{10}, which includes $PM_{2.5}$]), nitrogen dioxide (NO_2), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds and/or National Ambient Air Quality Standard (NAAQS), respectively, from activities at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. PM_{10}, NO_2, and CO concentrations from construction sources at the NCQ-077 diversity facility site were also determined to be below the applicable NAAQS. However, the $PM_{2.5}$ concentrations from construction sources at the NCQ-077 diversion facility site were determined to exceed the short-term and annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site, but all concentrations were below the NAAQS. Based on the

magnitude of the predicted concentrations, the duration of the impact on the sidewalk locations adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, these impacts are considered temporary and transient in nature and would not result in significant adverse construction air quality impacts.

The predicted non-criteria pollutant concentrations from the groundwater treatment systems would not exceed the applicable Short-term Guideline Concentrations (SGCs) and the Annual Guideline Concentrations (AGCs). Finally, to mitigate odors to the greatest extent practicable, DEP would implement an odor control program during construction and all necessary means would be employed to prevent on- and off-site odor nuisances. The Proposed Project would implement a Community Air Monitoring Program (CAMP) during soil disturbance activities to monitor applicable threshold levels and to implement any corrective actions if necessary. If applicable threshold levels in the CAMP are exceeded, to minimize and control on- and off-site odor nuisances, the Proposed Project would implement odor control measures during construction that could include wet suppression, daily cover foams/shells, covered conveyors, and activated carbon scrubbers. Therefore, no significant adverse air quality impacts are anticipated from the construction of the Proposed Project.

GREENHOUSE GAS EMISSIONS (GHG) AND CLIMATE CHANGE

While the Proposed Project would include permanent buildings to house TDPS pumping, screening, and degritting facilities for CSO stored in the tunnel, the buildings will be designed to utilize fully electric systems and would not represent a substantial increase in energy demand. Additionally, the Proposed Project would result in the construction of facilities that require electricity use at the diversion facilities but would not include permanent buildings. Therefore, the Proposed Project would be consistent with the efficient buildings goal, and clean power goal defined in *CEQR Technical Manual* as part of the City's GHG reduction goal. The total fossil fuel use in all forms associated with construction under the Proposed Project would result in up to approximately 39,489 metric tons of carbon dioxide equivalent (CO_2e) emissions. Under high-end (90th percentile) estimated flood levels, the Proposed Project would be resilient to anticipated future flood elevations for the TDPS building's lifetime considering anticipated future flood levels and would be resilient to projected flood increases through about the end-of-the-century. Consequently, the Proposed Project would be resilient to future climate conditions.

NOISE

OPERATIONAL NOISE

Noise resulting from operation of the Proposed Project would not result in any exceedances of the *CEQR Technical Manual* noise impact criteria or the New York City Noise Control Code noise level limits for circulation devices. Additionally, the Proposed Project would introduce minimal traffic within the surrounding areas once complete. Consequently, operation of the Proposed Project would not result in any significant adverse noise impacts.

CONSTRUCTION NOISE

Construction of the Proposed Project is predicted to result in elevated noise levels at several of the analyzed receptors, which represent the residences, hotels, and publicly accessible open spaces.

Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. Construction of the TDPS would result in noticeable and potentially intrusive increases in noise levels at the Newtown Creek Nature Walk and the future North Henry Street Restoration open spaces and total noise levels that would be considered "clearly unacceptable" at the future North Henry Street Restoration open space. Potentially intrusive noise level increases at the Nature Walk are predicted to occur for a duration of 12 consecutive months. Potentially intrusive noise level increases are predicted to occur for a duration of 110 months at the North Henry Street Restoration project, with "clearly unacceptable" noise levels predicted to occur for up to 16 of those months.

CONSTRUCTION VIBRATION

Historic buildings and other structures located within 90 feet of the Proposed Project sites, as appropriate, would incorporate vibration monitoring, and peak particle velocity (PPV) during construction would not be permitted to exceed the 0.50 inches/second threshold. Vibration-producing equipment would not operate in proximity to non-historic structures such that it could potentially result in damage to these structures, which are less-vibration sensitive than historic structures. Furthermore, construction of the Proposed Project would not result in extended periods of perceptible or annoying vibration at surrounding receptors. Blasting would be carefully controlled to conform to Federal and NYC standards and monitored by the Fire Department of New York (FDNY) with explosives being detonated sequentially, breaking the rock while spreading the release of energy from the explosives over a period of approximately 5 seconds so as not to compromise the integrity of the surrounding structures (e.g., the shafts) due to vibrations. Notification would be provided in advance of planned work and a warning horn would be sounded prior to each blast to alert the surrounding community. Therefore, construction of the Proposed Project would not have the potential to result in significant adverse vibration impacts.

PUBLIC HEALTH

Although the Proposed Project would result in significant adverse noise impacts during construction, these impacts would not have a significant effect on public health. As the significant adverse noise impacts would only occur during construction, they would be temporary and would not affect a significant population. In addition, the significant adverse noise impacts would not exceed standards related to health outcomes. Therefore, the Proposed Project would not result in a significant adverse impact to public health.

NEIGHBORHOOD CHARACTER

The defining features of the neighborhood around the Proposed Project include the neighborhood's low-scale industrial land uses, industrial history, and waterfront location along Newtown Creek. A preliminary assessment did not identify any potentially significant adverse impacts to neighborhood

character either singularly, or in combination with potential impacts in other relevant technical areas. Many of the Proposed Project's components are below ground, which limits their ability to impact neighborhood character. The Proposed Project's above-ground components are consistent with the neighborhood's low-scale industrial land uses and existing water and sewer infrastructure. Although the Proposed Project would result in potential temporary significant adverse noise impacts during construction, these impacts would be limited to the construction period and would only occur at open space receptors immediately adjacent to the TDPS; therefore, they would not result in widespread noise impacts affecting the area's neighborhood character. Additionally, while the Proposed Project would result in significant adverse traffic impacts at four intersections during construction, the temporary impacts would be limited to portions of the construction period, for approximately as little as 2 years to no longer than 6 years in duration and would occur in areas that already experience high levels of truck and other industrial traffic, and a detailed neighborhood character analysis is not necessary.

Overall, the Proposed Project would be consistent with the existing low-scale industrial land uses and water and sewer infrastructure in the neighborhood and would not detract from any of the neighborhood's defining features.

ENVIRONMENTAL JUSTICE

The analysis of effects on Disadvantaged Communities (DACs) and minority and low-income communities (collectively, "environmental justice communities") concluded that the Proposed Project would not result in disproportionate impacts on environmental justice communities, nor would it cause or increase a disproportionate pollution burden.

MITIGATION

Significant adverse impacts resulting from the Proposed Project have been identified for transportation and noise during construction.

Potential improvement measures (i.e., signal timing adjustments) have been recommended for DOT consideration to mitigate significant adverse traffic impacts identified at one of the four impacted intersections. At all four impacted intersections, the identified impacts during one or more analysis peak hours would remain unmitigated and would be unavoidable significant adverse impacts of the Proposed Project. Additional mitigation strategies, such as the deployment of Traffic Enforcement Agents (TEAs) and the placement of Variable Message Signs (VMSs) could be considered at intersections where identified impacts could not be readily mitigated with typical mitigation measures (e.g., signal timing adjustments) to potentially improve traffic operations during construction.

Construction activities would result in noise levels at Newtown Creek Nature Walk and future North Henry Street Restoration open spaces that would constitute a significant adverse noise impact. No practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the applicable threshold. Therefore, at these receptors, the significant adverse construction noise impacts would be unavoidable.

ALTERNATIVES

NO ACTION ALTERNATIVE

The No Action Alternative is the No Action condition, as discussed in Chapter 2, "Analysis Framework," and analyzed in this EIS. Under the No Action Alternative, the Proposed Project would not be constructed: the sites that would be affected by the Proposed Project for construction of the diversion facilities would remain in their existing condition, the TDPS site would be vacated, and there would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

The No Action Alternative would not result in any significant adverse impacts; in particular, it would avoid the significant adverse impacts to traffic and noise that would occur during construction of the Proposed Project. However, as the No Action Alternative would not provide a reduction in CSO volumes, it would not have the beneficial effect that would occur with the Proposed Project (particularly improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek), and unlike the Proposed Project, it would not further the goals of the LTCP and the NYSDEC CSO Consent Order.

NO UNMITIGATED IMPACT ALTERNATIVE

The No Unmitigated Impact Alternative considers an alternative that would eliminate the Proposed Project's unmitigated significant adverse impacts. The EIS analyses identified significant adverse impacts for which no practicable mitigation has been identified to fully mitigate the impacts in the areas of traffic and noise during the construction period.

There is no practicable alternative that could be developed to avoid all of the unmitigated significant adverse impacts of the Proposed Project. In order to eliminate the Proposed Project's unmitigated significant adverse impacts in the areas of traffic and noise during construction, the Proposed Project would have to be modified to a point where it would not realize the goals and objectives of the Proposed Project, which include reducing CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Therefore, there is no practicable alternative that could be developed to avoid the unmitigated significant adverse impacts of the Proposed Project.

UNAVOIDABLE SIGNIFICANT ADVERSE IMPACTS OF THE PROPOSED PROJECT

As described above in "Mitigation," the Proposed Project would result in significant adverse transportation and noise impacts during construction. To the extent practicable, mitigation has been proposed for the identified significant adverse impacts. However, no practicable mitigation was identified to fully mitigate the significant adverse construction transportation and noise impacts; therefore, they would constitute unavoidable significant adverse impacts.

GROWTH-INDUCING ASPECTS OF THE PROPOSED PROJECT

While the Proposed Project would include the construction of new infrastructure, it would not result in an expansion of the sewer infrastructure capacity and is not anticipated to induce additional development.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The Proposed Project would utilize a minimum amount of land and would result in a negligible commitment of other resources such as labor, energy, and building materials; and would reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order.

Chapter 1: Project Description

A. INTRODUCTION

New York City (City) Department of Environmental Protection (DEP) is issuing this Draft Environmental Impact Statement (DEIS) pursuant to the New York State Environmental Quality Review Act (SEQRA), City Environmental Quality Review (CEQR), and the Uniform Land Use Review Procedure (ULURP). In accordance with SEQRA and CEQR, DEP is examining the potential for significant adverse environmental impacts that could occur as a result of the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project (the "Proposed Project").

B. PROJECT OVERVIEW

Newtown Creek, located on the border of Brooklyn and Queens, is a tidal creek that flows into the East River (see **Figure 1-1**). Under typical wet-weather conditions, there are 21 CSO outfalls that discharge to Newtown Creek. More than 90 percent of the total CSO discharge to Newtown Creek, however, is from the four largest CSO outfalls: Bowery Bay (BB)-026, Newtown Creek Queens (NCQ)-077, Newtown Creek Brooklyn (NCB)-083, and NCB-015 (see **Figure 1-2**). As part of an Order on Consent to reduce CSOs, DEP prepared the Newtown Creek CSO Long-Term Control Plan (LTCP), which the New York State Department of Environmental Conservation (NYSDEC) approved in June 2018. Pursuant to the CSO Order on Consent and the LTCP (and recently approved modifications to the LTCP-recommended project), DEP is proposing a 3.26-mile-long tunnel with a storage volume of 50 million gallons (MG) to divert overflows at the four largest CSO outfalls. The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

C. BACKGROUND INFORMATION

NEWTOWN CREEK AND WATERSHED

The current conditions of Newtown Creek and its drainage area are considerably different than its pre-urbanized condition. Newtown Creek was originally a stream that drained the uplands of western Long Island, and was served by five tributaries: Dutch Kills, Whale Creek, Maspeth Creek, English Kills, and the East Branch (shown on **Figure 1-1**). As New York City developed, Newtown Creek was dredged, straightened, and bulkheaded as the surrounding area was drained, urbanized, and industrialized. By 1930, Newtown Creek had been transformed to a condition similar to its present configuration and served as a major industrial waterway through which materials were brought to and

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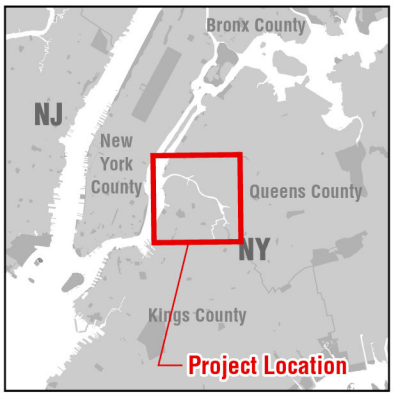

Newtown Creek

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 1-1

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Newtown Creek-Principal CSO Outfalls

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 1-2

from area industries, including major oil refineries and terminals, smelting operations, manufactured gas plants, and other heavy industries. During World War II, Newtown Creek was one of the busiest ports in the nation.

By that time, the surrounding area had been fully urbanized and industrialized, sewage and industrial wastes were discharging directly to Newtown Creek without treatment, and natural marshlands and freshwater streams had been filled or damaged. The urbanization of the surrounding drainage area, with natural areas replaced by buildings and pavement, resulted in an estimated 500 percent increase in impervious surfaces, and the loss of natural stormwater drainage resulted in a doubling of the annual runoff volume to Newtown Creek. The impact of runoff to Newtown Creek was exacerbated by the loss of marshland and natural freshwater flow, which deprived Newtown Creek of natural response mechanisms that may have absorbed the increased hydraulic and pollutant loads. Newtown Creek's limited circulation and exchange with the East River allowed pollutants to build up, resulting in a significant deterioration of water quality.

Efforts to address water quality in Newtown Creek date back to the 1960s. New York City constructed WRRFs to treat sewage and industrial wastes during dry weather and to capture a portion of the combined sewage generated during wet-weather events. Two WRRFs service the Newtown Creek drainage area: the Bowery Bay WRRF, which began operating in 1938, and the Newtown Creek WRRF, which began operating in 1967.

The Newtown Creek watershed is comprised of approximately 6,815 acres: the majority of the watershed (5,920 acres) is served by the Newtown Creek WRRF, and a smaller portion (895 acres) on the northern shore is served by the Bowery Bay WRRF (see **Figure 1-3**). The Newtown Creek WRRF serves a total area of 15,033 acres in the boroughs of Manhattan, Brooklyn, and Queens. Similarly, the Bowery Bay WRRF, which is located in the Astoria neighborhood in northern Queens, serves a total area of approximately 15,203 acres in the northern portion of Queens.

During dry weather, the combined and sanitary sewer systems convey sewage to the Newtown Creek and Bowery Bay WRRFs for treatment. The State Pollutant Discharge Elimination System (SPDES) permit for the Newtown Creek WRRF requires a wet-weather treatment capacity of 700 million gallons per day (mgd). The SPDES permit for the Bowery Bay WRRF requires a wet-weather treatment capacity of 300 mgd. During wet-weather events, combined sewage flow that exceeds the capacity of the WRRFs and the combined sewer system may discharge to Newtown Creek and its tributaries through one or more of the 21 SPDES-permitted CSO outfalls. Approximately 90 percent of the average annual CSO volume to Newtown Creek is attributable to four CSO outfalls: three CSO outfalls that provide wet-weather relief to the combined sewer system tributary to the Newtown Creek WRRF (NCQ-077, NCB-083, and NCB-015); and one CSO outfall that provides wet-weather relief to the combined sewer system tributary to the Bowery Bay WRRF (BB-026). In addition, 12 stormwater outfalls that are permitted under New York City's MS4 SPDES permit discharge to Newtown Creek.

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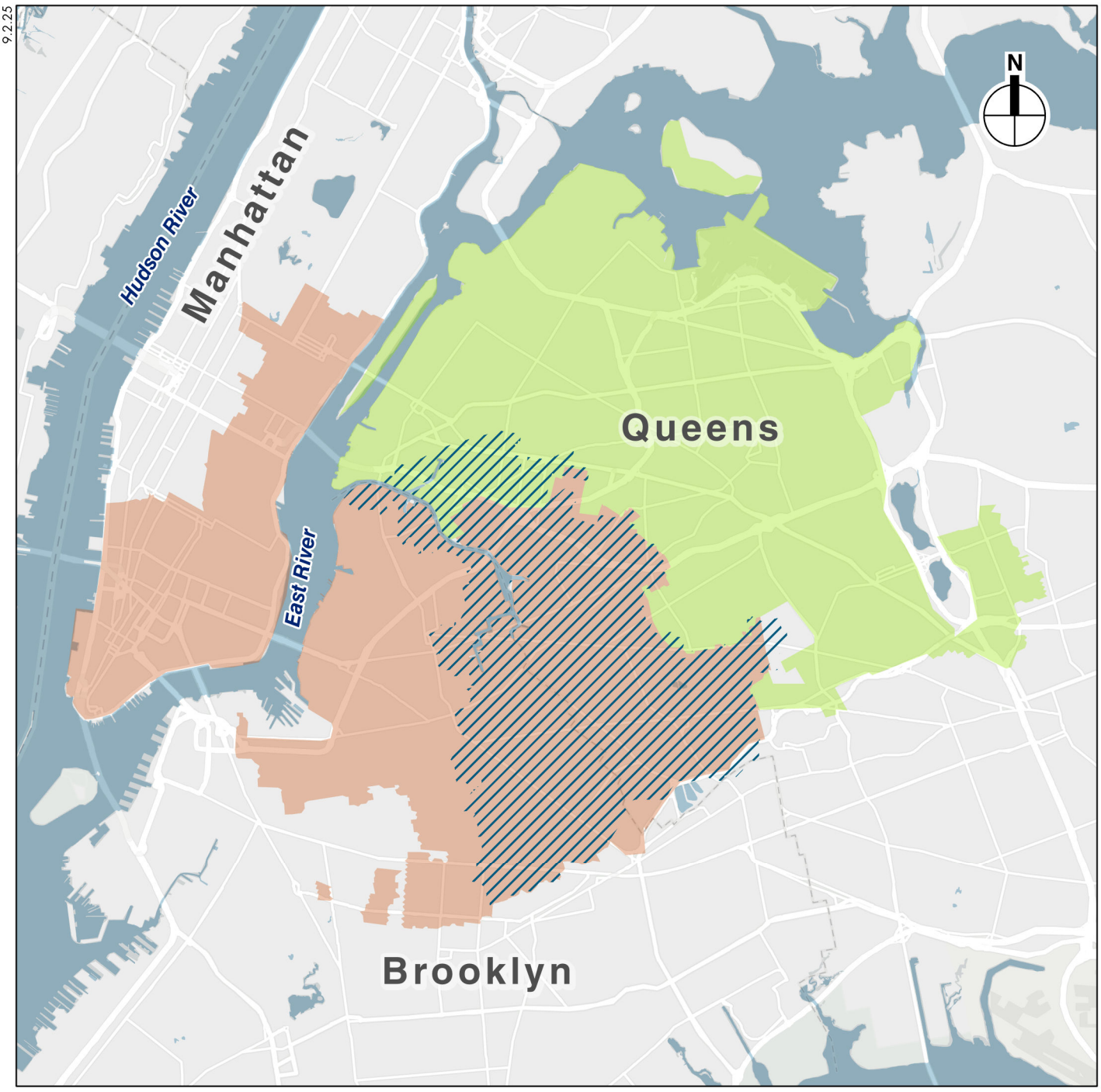

*Approximate area contributing to Newtown Creek CSOs

Newtown Creek WRRF and
Bowery Bay WRRF Drainage Areas

NYSDEC CONSENT ORDER AND LONG-TERM CONTROL PLAN

In 2005, the City of New York and NYSDEC entered into an Order on Consent[1] to address CSOs in New York City, and over the past 20 years, DEP has implemented several specific projects to improve water quality in Newtown Creek.

The projects have included upgrades to the Newtown Creek WRRF, installation of bending weirs at the four major CSO outfalls, and construction of aeration facilities at several locations along Newtown Creek (including English Kills and the East Branch). DEP has also included Newtown Creek as a priority watershed for the Green Infrastructure (GI) Program, which seeks to install GI to reduce CSO volumes. These GI improvements have included right-of-way (ROW) practices, public property retrofits, and GI implementation on private properties. In connection with these projects, DEP has worked to restore natural resources and provide community benefits along the Creek, including the creation of a public waterfront open space (the Newtown Creek Nature Walk) near the Newtown Creek WRRF and Whale Creek, as well as salt marsh plantings. In 2011, NYSDEC and DEP identified numerous modifications to the 2005 Order, including integration of GI and substitution of more cost-effective grey infrastructure, which were included in a modified Order on Consent issued in 2012.[2] The 2005 and 2012 Orders and subsequent minor modifications are collectively referred to as the "CSO Order."

Per the CSO Order, DEP agreed to develop 10 waterbody-specific LTCPs and one citywide LTCP to reduce CSOs and improve water quality in the City's waterbodies and waterways. Newtown Creek was identified in the CSO Order as one of the 10 waterbodies in New York City requiring an LTCP to identify, with public input, appropriate CSO controls necessary to reduce the frequency and volume of CSO discharges resulting in improved water quality within Newtown Creek. The Newtown Creek LTCP was prepared by DEP and submitted to NYSDEC in 2017, and the plan was approved by NYSDEC in 2018.

As part of the development of the LTCP, DEP evaluated several alternative CSO control measures, focusing on the four largest CSO outfalls: BB-026, NCQ-077, NCB-083, and NCB-015. The LTCP considered one set of measures to control CSOs for outfalls NCQ-077, NCB-083, and NCB-015, and a separate set of measures to control CSOs at outfall BB-026, which is much closer to the Newtown Creek WRRF and closer to DEP's Borden Avenue Pump Station, a facility that was planned for improvements.

For outfalls NCQ-077, NCB-083, and NCB-015, the LTCP considered alternatives—individual storage tanks or various tunnel storage options; for outfall BB-026, the LTCP considered alternatives that included diverting overflow from outfall BB-026 to the Borden Avenue Pump Station and providing additional wet-weather pumping capacity, along with a new forcemain to convey wet-weather flow from the pump station to a location just upstream of the Newtown Creek WRRF. Through a detailed evaluation of the alternatives based on multiple considerations, including public input, environmental

[1] NYSDEC Case No. C02-20000107-8

[2] NYSDEC Case No. C02-20110512-25

and water quality benefit, and costs, the LTCP determined that the preferred alternative should include a 39-MG CSO storage tunnel for outfalls NCQ-077, NCB-083, and NCB-015, and that the preferred alternative for outfall BB-026 should include a 26-mgd wet-weather expansion of the Borden Avenue Pump Station and a new forcemain that would run under Newtown Creek and convey wet-weather flow to the Newtown Creek WRRF.

Following the completion of the LTCP, the two projects entered preliminary design and planning, during which a conceptual design was developed to combine the projects by diverting CSOs from outfall BB-026 by gravity into the CSO storage tunnel serving the other three outfalls and increasing the tunnel's storage volume from 39 MG to 50 MG. This change was determined to have several benefits: eliminating the need to expand the Borden Avenue Pump Station, eliminating the need to construct a forcemain to the Newtown Creek WRRF, and providing a greater overall reduction of CSO discharge volumes. DEP began discussing this proposed modification request with NYSDEC in 2023 and met with both NYSDEC and the U.S. Environmental Protection Agency (EPA) regarding this modification request. EPA indicated that the proposed modification was consistent with the Record of Decision (ROD) that required a CSO reduction target and that this modification would exceed that target (discussed below). Afterwards, DEP met with stakeholders and elected officials regarding this proposed modification and submitted the official modification request to NYSDEC on July 1, 2024. On October 10, 2024, NYSDEC issued a letter notifying DEP of its concurrence with the proposed modification; following a public noticing period, NYSDEC issued a letter approving the modification on December 23, 2024.

EPA SUPERFUND REMEDIATION OF NEWTOWN CREEK

In September 2010, Newtown Creek was designated a federal Superfund site by EPA under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, commonly known as Superfund) and placed on the National Priorities List (NPL). In July 2011, EPA issued an Administrative Order to six Potentially Responsible Parties (PRPs) for a remedial investigation and feasibility study of Newtown Creek; the City of New York was identified as one of the PRPs, related to CSO discharges into Newtown Creek. In April 2021, EPA issued a ROD concluding that "the volume reduction set forth in the LTCP will be sufficient for the purposes of a CERCLA response action regarding current and reasonably anticipated future discharges from the CSOs to the Newtown Creek Study Area" and that "to ensure that the assumptions made in reaching this conclusion remain valid, monitoring will be required at least until it is subsumed by the monitoring requirements of a future remedial decision document for the site."

As of 2025, independent of the Proposed Project, EPA has selected a remedy for the East Branch (near outfall NCB-083) of Newtown Creek. This remedy includes dredging to allow the placement of a cap, which would stabilize the contaminants in the bed of Newtown Creek, with localized deeper dredging. Elsewhere in Newtown Creek, EPA is investigating the prevalence of contaminated materials and considering remediation measures.

D. DESCRIPTION OF THE PROJECT

The Proposed Project, which includes the construction of a 50-MG CSO storage tunnel along with the TDPS, diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems, would control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015. During wet-weather events, the CSO storage tunnel facilities would divert and store CSOs from the combined sewer system at the four outfall locations, which currently discharge to Newtown Creek. The CSOs stored in the tunnel would be pumped to the Newtown Creek WRRF for treatment after the wet-weather event. A schematic illustration of the Proposed Project is provided in **Figure 1-4**.

The proposed CSO storage tunnel would be approximately 26 feet in outer diameter and at a depth ranging from 80 to 130 feet below existing ground surface; the tunnel mining operation would start in bedrock at the TDPS site, and then transition to a mixed face condition before ending in soil. The downstream terminus of the tunnel is located at the end of Kingsland Avenue in Brooklyn (on the southern side of Newtown Creek) near Whale Creek and the Newtown Creek WRRF; this site is controlled by the New York City Department of Sanitation (DSNY). This site would contain a TDPS that would operate to remove the stored combined sewage from the tunnel on an intermittent basis following wet-weather events, as well as to remove inflow and infiltration in the tunnel as needed during dry weather, when the Newtown Creek WRRF has capacity to receive tunnel dewatering flows. The TDPS may also operate at the beginning of a storm to remove flow from the tunnel when the Newtown Creek WRRF has capacity, thereby maximizing the CSOs diverted and stored during a wet-weather event. Wet-weather events requiring TDPS operation are anticipated to occur between three and seven times per month.

From the TDPS on the south side of Newtown Creek, tunnel construction would follow an alignment east under the Creek into the Blissville neighborhood of Queens. At this location north of Newtown Creek, a new gravity diversion sewer would be constructed to connect outfall BB-026 to the tunnel. Beginning at the BB-026 diversion facility, the new gravity diversion sewer would run along 47th Avenue and 30th Street to Borden Avenue, where it would run west and south to connect to the Borden Avenue Pump Station. This initial section of the gravity diversion sewer would be constructed prior to the completion of the tunnel and would allow for diversion of CSO flows from BB-026 in the interim period before the tunnel is operational: CSOs would be stored in the gravity diversion sewer during a wet-weather event, and then removed from the gravity diversion sewer by the pump station and conveyed to the Bowery Bay WRRF. Modifications would be made to the Borden Avenue Pump Station to construct the connection to the gravity diversion sewer. From the Borden Avenue Pump Station, the gravity diversion sewer would run south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration). Once the tunnel, TDPS, and drop shaft are complete, CSO flows would be diverted from the Borden Avenue Pump Station and conveyed to the tunnel.

The tunnel alignment would continue south and east along Review Avenue and the Kosciuszko Bridge toward the Maspeth neighborhood of Queens, where it would connect to outfall NCQ-077. From outfall NCQ-077, the tunnel alignment would curve south and then west into Brooklyn, to connect to outfall

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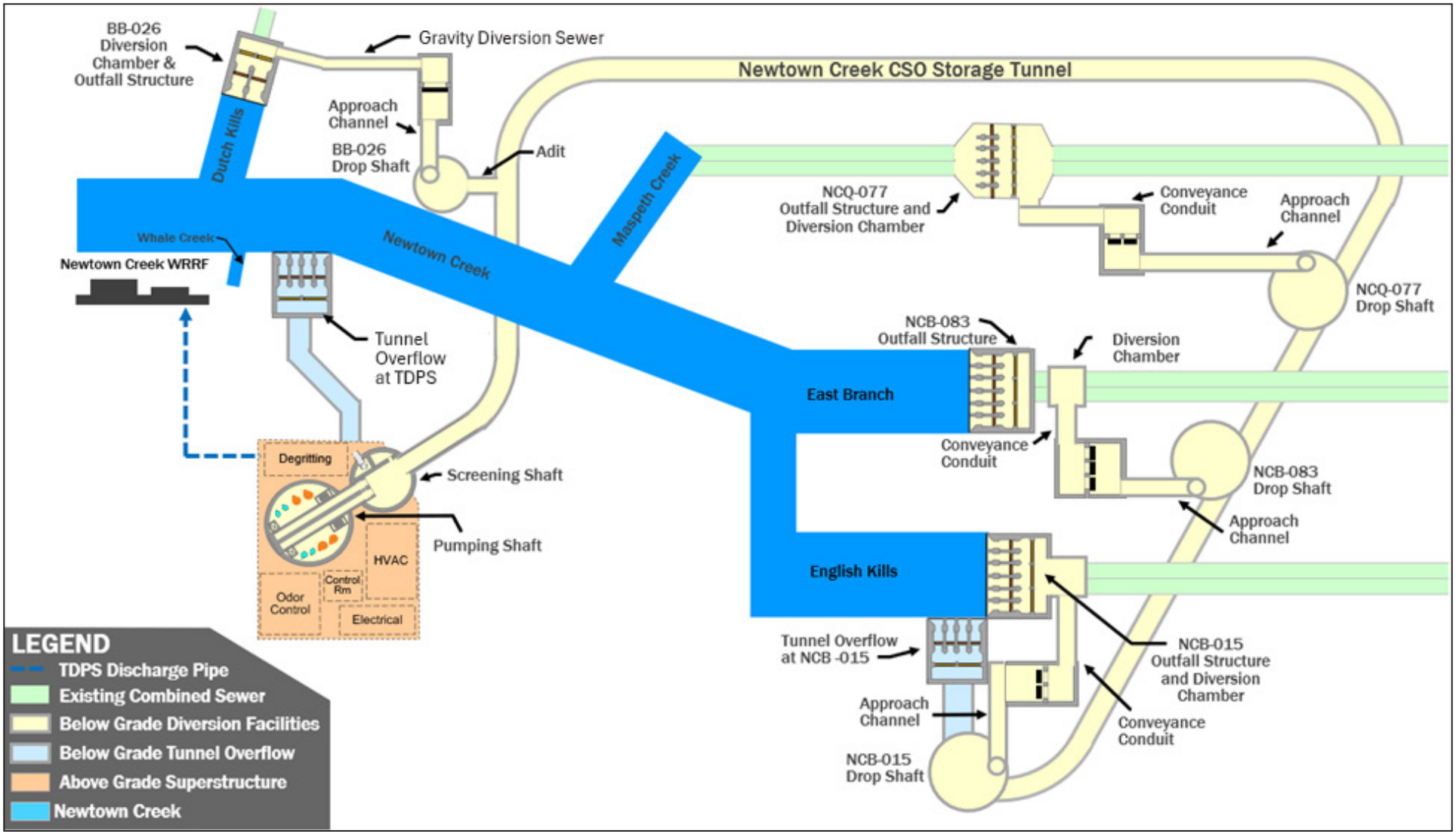

NOTE: Schematic design; not to scale

Proposed Project – Newtown Creek CSO Facility Overview

NCB-083. Finally, the tunnel alignment would continue south and connect to outfall NCB-015, located near English Kills. The tunnel would be constructed at a constant slope to allow gravity flow from the eastern extent of the tunnel at outfall NCB-015 to the TDPS site at Whale Creek.

Facilities would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015 to divert flow from the outfalls to the tunnel. During a wet-weather event, combined sewer flows that exceed the capacity of the existing dry-weather regulator would flow into the diversion chamber at each facility and would then be conveyed from the diversion chamber to the conveyance conduits. The conveyance conduits would deliver wet-weather flow to the approach channel and drop shaft, which would connect to the tunnel. The diversion facilities at NCQ-077, NCB-083, and NCB-015 would include ventilation systems at the drop shafts to manage airflow in the tunnel (this would include odor control systems, except at the facility at BB-026, which would not need odor control because the connection would be via an approach channel and adit,[3] thereby limiting air exchange). The existing outfalls at NCB-015 and BB-026 would be modified by removing the existing bending weirs and flap gates. At all four diversion facilities, new outfall structures, including bending weirs and flap gates, would be constructed downstream of each diversion chamber to allow overflow to discharge to Newtown Creek when the tunnel is full or when flow rates exceed the facilities' design flow rates. In addition, at the TDPS, a discharge pipe would be constructed along Kingsland Avenue and Greenpoint Avenue to connect the TDPS to the Newtown Creek WRRF. Finally, at the TDPS and the NCB-015 site, tunnel overflow structures would be constructed to mitigate the risk of flooding associated with a surge or a transient wave within the tunnel when it is filling.

The proposed tunnel alignment and location of the proposed diversion facilities are shown on **Figure 1-5**.

E. PURPOSE AND NEED FOR THE PROPOSED PROJECT

The Proposed Project would reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Specifically, the Proposed Project would result in a significant reduction in CSOs from four outfalls—BB-026, NCQ-077, NCB-083, and NCB-015—which contribute the majority of the CSO discharges to Newtown Creek. As outlined in the LTCP, the proposed CSO storage tunnel and related infrastructure would provide appropriate CSO controls to reduce the volume and frequency of overflow events and fulfill the requirements of the Consent Order entered into by New York City and NYSDEC to address CSOs (discussed above). The reduction of CSO volume resulting from the Proposed Project, combined within the removal of accumulated sediments to improve flow at the outfall sites, would help to improve water quality and aquatic habitat within Newtown Creek. By improving water quality, the Proposed Project would also meet some of the goals of the Superfund remediation of Newtown Creek, as outlined in the EPA ROD related to CSO discharges.

[3] An "adit" is a horizontal underground passageway used for access, drainage, or ventilation.



Proposed Project – Tunnel Alignment and Diversion Facilities

To facilitate the Proposed Project, DEP must lease or acquire several parcels located near the four outfalls to construct the diversion facilities that would convey flow to the proposed CSO storage tunnel; each diversion facility would include a diversion chamber, outfall structure, conveyance conduits, approach channel, and drop shaft.[4] DEP must record permanent surface and subterranean easements on parcels along the proposed tunnel and gravity diversion sewer alignments for security concerns and long-term maintenance. Temporary surface easements are also necessary to facilitate construction on select properties. The properties needed for fee simple acquisition and acquisition of permanent and temporary easements are provided in **Appendix A**.

F. PROJECT APPROVALS AND COORDINATION

Implementation of the Proposed Project would require federal, state, and local permits/approvals. DEP would closely coordinate with EPA, the U.S. Army Corps of Engineers (USACE), NYSDEC, New York State Department of State (NYSDOS), New York State Historic Preservation Office (NYSHPO), and New York City agencies, as necessary, for the Proposed Project.

To facilitate the Proposed Project, discretionary land use approvals are required that are subject to review under ULURP, including site selection of a capital project and acquisition of property. The Proposed Project is a major capital project, which involves site selection of all properties affected by the Proposed Project under the New York City Charter. Currently, construction of the Proposed Project is expected to require full fee simple acquisition of up to four properties to facilitate construction of the proposed diversion facilities at NCQ-077, NCB-083, and NCB-015. Construction of the diversion facility at BB-026 would be facilitated by the acquisition of easements. Acquisition of the TDPS site would not be required since it is a City-owned property (currently being used by DSNY).

In addition, the Proposed Project is expected to require property leasing during various stages of construction. The acquisition of permanent surface and subterranean easements is also expected to be required at several properties for long-term maintenance and security. In total, the Proposed Project would affect up to 99 properties: 9 properties are City-owned and require only site selection approval, and 90 properties are privately owned and require both site selection and acquisition approval. Of the up to 90 properties requiring both site selection and acquisition approval, 4 require fee simple acquisition (for the diversion facilities at NCQ-077, NCB-083, and NCB-015, noted above), up to 83 require subterranean easements along the proposed tunnel and gravity diversion sewer alignments (including one property that also requires both acquisition of a permanent surface easement and a temporary construction easement, and one property that also requires acquisition of a temporary construction easement), and 3 properties require both acquisition of permanent surface and temporary construction easements (but no subterranean easement). The fee simple acquisition, property leasing, and establishment of subterranean and surface easements would be facilitated by the proposed acquisition action under ULURP. Given the early stage of design at the time of CEQR and ULURP, additional subterranean easement properties are included in the land use application in the event that

[4] The TDPS, which would convey stored CSOs to the Newtown Creek WRRF, would be located on a City-owned parcel; therefore, property leasing/acquisition is not required for this facility.

the tunnel alignment changes slightly. The properties currently expected to be subject to the proposed site selection and acquisition approvals are provided in **Appendix A.**

Table 1-1 summarizes the major permits and approvals that may be required for the Proposed Project.

Table 1-1
Potential Major Permits, Approvals and Coordination

Agency/Entity	Permit/Approval/Consultation/Coordination
FEDERAL	
U.S. Environmental Protection Agency (EPA)	CERCLA coordination and consultation
Coastal Zone Management Act	Projects affecting New York's coastal zone must be consistent with the Coastal Zone Management Act, through the New York State Department of State's Coastal Management Program and approved Local Waterfront Revitalization Plans
U.S. Army Corps of Engineers (USACE)	Permits under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, including Nationwide Permit 7 "Outfall Structures" and Nationwide Permit 3 "Maintenance," as applicable
	Approval under Section 408 of the Rivers and Harbors Act for tunnel crossings of Newtown Creek in areas under USACE jurisdiction
United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)	Consultations under Section 7 of the Endangered Species Act
Advisory Council on Historic Preservation	Consultation under Section 106 of the National Historic Preservation Act of 1966
STATE	
New York State Department of State (NYSDOS)	Coastal Zone Management Consistency
New York State Office of General Services (NYSOGS)	Potential easement(s) for tunnel alignment under portions of Newtown Creek that are under State jurisdiction
New York State Department of Environmental Conservation (NYSDEC)	State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity - GP-0-10-001: erosion and sediment control and post-construction stormwater management in accordance with the stormwater pollution prevention plan (SWPPP)
	Water Withdrawal Permits for dewatering that may occur during construction of underground infrastructure
	Individual SPDES Permit or Application Form NY-2C for Industrial Facilities (Dewatering activities requiring discharge to surface water)
	Tidal Wetlands Permit for construction activities in tidal wetlands and their adjacent areas
	Long Island Well Permit for dewatering activities in Queens and Brooklyn
	Protection of Waters Permit Navigable Waters (Excavation or Fill)
	Section 401 Water Quality Certification
	Natural Heritage Program database review to determine potential presence of threatened or endangered species listed in New York State
New York State Historic Preservation Office (SHPO)	Consultation to determine potential archaeological sensitivity and/or the presence of historic resources and determine project's potential effects
Metropolitan Transportation Authority (MTA)	Approval of easements affecting MTA-controlled property
NEW YORK CITY	
New York City Planning Commission (CPC) / New York City Department of City Planning (DCP)	ULURP for property acquisition and site selection New York City Waterfront Revitalization Program—Consistency Assessment
New York City Landmarks Preservation Commission (LPC)	Consultation to determine potential archaeological sensitivity and/or the presence of historic resources
New York City Public Design Commission	Review of design for above-grade facilities and public amenities, including architecture and landscape architecture.
New York City Department of Transportation (DOT) Office of Construction Mitigation and Coordination (OCMC)	Street closure and roadway construction permits

G. SCOPE AND METHODOLOGY OF THE ENVIRONMENTAL IMPACT STATEMENT

The purpose of the EIS is to provide a discussion of the potential significant adverse environmental impacts associated with implementation of the Proposed Project and to the maximum extent practicable, avoid or mitigate such impacts, consistent with social, economic, and other essential considerations. The 2021 *CEQR Technical Manual* has been used to evaluate the Proposed Project's impacts. Chapter 2, "Analytical Framework," discusses the framework for the EIS technical analyses.

The EIS contains:

- A description of the Proposed Project and the environmental setting;
- A description of the methodologies utilized for each technical area;
- A discussion of the analysis and the results;
- A statement of the potential significant adverse environmental impacts of the Proposed Project;
- An identification of any potential significant adverse impacts that cannot be avoided if the Proposed Project is implemented;
- An identification of irreversible and irretrievable commitments of resources that would be involved if the Proposed Project is built; and
- A description of measures proposed to minimize or fully mitigate any potential significant adverse environmental impacts.

H. PUBLIC REVIEW PROCESS

UNIFORM LAND USE REVIEW PROCEDURE (ULURP)

The Proposed Project requires actions that are subject to the City's ULURP process. As noted above, DEP is seeking ULURP approval for acquisition and site selection to facilitate the Proposed Project. The ULURP process, mandated by Sections 197-c and 197-d of the New York City Charter, is designed to allow public review of ULURP applications at four levels: Community Board, Borough President, City Planning Commission (CPC), and City Council. The procedure sets time limits for each level of review to ensure a maximum total review period of approximately seven months.

The process begins with certification by the Department of City Planning that the ULURP application is complete. The application is then referred to the relevant Community Boards. In the case of the Proposed Project, the tunnel alignment and related infrastructure span three Community Boards: Brooklyn Community Board 1 and Queens Community Boards 2 and 5. The Community Boards have up to 60 days to review and discuss the proposal, hold a public hearing, and adopt an advisory resolution on the ULURP application. The Borough President then has up to 30 days to review the application. CPC then has up to 60 days, during which time a public hearing is held on the ULURP application. If CPC approves the application it is forwarded to the City Council, which has 20 days to decide whether to review the proposed ULURP actions. When an approval is "called-up" by the Council, within 50

days of receipt of the CPC report the Council must hold a public hearing, and approve, approve with modifications, or disapprove CPC's decision.

NEW YORK CITY ENVIRONMENTAL QUALITY REVIEW (CEQR)

Pursuant to SEQRA and its implementing regulations, New York City has established rules for its own environmental review process known as CEQR. The CEQR process provides a means for decision-makers to systematically consider environmental effects along with other aspects of project planning and design, to evaluate reasonable alternatives, and to identify, and when practicable mitigate, significant adverse environmental impacts. CEQR rules guide environmental review through the following steps:

- **Establish a Lead Agency**. Under CEQR, the "lead agency" is the public entity responsible for conducting the environmental review. The lead agency is typically the entity principally responsible for carrying out, funding, or approving the proposed action. For the Proposed Project, DEP is the lead agency.
- **Determine Significance**. The lead agency's first charge is to determine whether the Proposed Project may have a significant impact on the environment. DEP, as lead agency, has determined that the Proposed Project has the potential to result in significant adverse environmental impacts and issued a Positive Declaration on February 5, 2025. Therefore, an EIS must be prepared.
- **Scoping**. Next, the lead agency must issue a draft scope of work for the EIS. "Scoping," or creating the scope of work, is the process of establishing the type and extent of the environmental impact analyses to be studied in the EIS. Along with a Positive Declaration, the Draft Scope of Work was also issued on February 5, 2025. A virtual public scoping meeting was held on March 12, 2025. The period for submitting written comments remained open until April 11, 2025. A Final Scope of Work, taking into consideration comments received during the public comment period, was issued on **September 5, 2025**.
- **Draft Environmental Impact Statement (DEIS)**. In accordance with the final scope of work, a DEIS is prepared. The lead agency reviews all aspects of the document, calling on other City agencies to participate as appropriate. Once the lead agency is satisfied that the DEIS is complete, it issues a Notice of Completion and circulates the DEIS for public review. When a DEIS is required, it must be deemed complete before the ULURP application can be certified as complete. The DEIS was deemed complete, and the Notice of Completion was issued on **September 5, 2025**.
- **Public Review**. Publication of the DEIS and issuance of the Notice of Completion signals the start of the public review period. During this period, which must extend for a minimum of 30 days, the public may review and comment on the DEIS either in writing or at a public hearing convened for the purpose of receiving such comments. When the CEQR process is coordinated with another City process that requires a public hearing, such as ULURP, the hearings may be held jointly. The lead agency must publish a notice of the hearing at least 14 days before it takes place and must accept written comments for at least 10 days following the close of the hearing. All substantive comments become part of the CEQR record and are summarized and responded to in the Final Environmental Impact Statement (FEIS).

- **Final Environmental Impact Statement**. After the close of the public comment period for the DEIS, the lead agency prepares the FEIS. The FEIS incorporates relevant comments on the DEIS (in a separate chapter), and changes to the body of the text, graphics, and tables. Once the lead agency determines that the FEIS is complete, it will issue a Notice of Completion and circulate the FEIS.
- **Findings**. To demonstrate that the responsible public decision-maker has taken a hard look at the environmental consequences of a project, any agency taking a discretionary action regarding a project must adopt a formal set of written findings, reflecting its conclusions about the significant adverse environmental impacts of the project, potential alternatives, and potential mitigation measures. The findings may not be adopted until 10 days after the Notice of Completion (pursuant to CEQR) has been issued for the FEIS. Once an agency adopts findings, the agency may take its actions.

A. INTRODUCTION

This chapter discusses the framework for the Draft Environmental Impact Statement (DEIS) technical analyses. As described in Chapter 1, "Project Description," the Proposed Project consists of the design and construction of a combined sewer overflow (CSO) storage tunnel and related infrastructure to reduce the volume of CSOs entering Newtown Creek. The proposed CSO storage tunnel would be 3.26 miles long with storage volume of 50 million gallons (MG) to intercept overflow at the four outfalls that discharge the largest volumes of CSO to Newtown Creek: Bowery Bay (BB)-026, Newtown Creek Queens (NCQ)-077, Newtown Creek Brooklyn (NCB)-083, and NCB-015. The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF).

B. ANALYSIS FRAMEWORK

The DEIS considers both the construction and operational impacts of the Proposed Project, as well as its potential benefits. As the Proposed Project would involve a substantial multi-year construction effort related to various project elements over several sites around Newtown Creek, with relatively limited operational impacts anticipated, the DEIS includes a modified analytical approach. The DEIS impact analysis chapters focus primarily on the construction of the Proposed Project, with potential operational impacts addressed in each chapter as warranted.

For each impact category, the DEIS discusses existing conditions, conditions in the future without the Proposed Project (the "No Action" condition), and conditions in the future with the Proposed Project (the "With Action condition"). The technical analysis and identification of potential significant adverse impacts is focused on the incremental change that the Proposed Project would potentially create as compared with the future No Action condition.

The DEIS analysis framework is as follows:

EXISTING CONDITIONS

Each technical analysis describes the existing condition in the relevant study area for that analysis in order to establish a baseline against which future conditions can be projected.

FUTURE WITHOUT THE PROPOSED PROJECT

Using existing conditions as a baseline, conditions known to occur or expected to occur in the future regardless of the Proposed Project, will be evaluated for the Proposed Project's analysis year. This No

Action condition is the baseline condition against which the effects of the future with the Proposed Project are measured.

In the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities (discussed in Chapter 1, "Project Description,") would also remain in their existing condition. The TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

Where relevant, the technical analysis includes a discussion of projects expected to be completed independent of the Proposed Project by the proposed analysis year in the relevant study area(s), in addition to baseline growth for each applicable technical area.

FUTURE WITH THE PROPOSED PROJECT

Using the No Action condition as a baseline, conditions known to occur or expected to occur in the With Action condition are evaluated for the Proposed Project's analysis year.

In the With Action condition, the Proposed Project, which includes the construction of a 50-MG CSO storage tunnel along with the TDPS, diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems, would control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015, as described in Chapter 1, "Project Description."

ANALYSIS YEAR

The analysis year refers to the future year when a Proposed Project is likely to affect its environmental setting. The analysis year is representative of the anticipated completion date of the Proposed Project's major construction. The Proposed Project's expected year of completion is 2040.

PROBABLE IMPACTS OF THE PROPOSED PROJECT

Potential changes resulting from temporary construction or operation of the Proposed Project (the With Action condition) are compared to the No Action condition to assess the potential for significant adverse impacts. This comparison provides for an understanding of the potential impacts that could result with the Proposed Project. Future conditions are evaluated and represent a "reasonable worst-case scenario" in order to determine the probable impacts of the Proposed Project.

Each technical analysis in the DEIS begins with an assessment of the Proposed Project's potential to result in significant adverse impacts based on the screening criteria presented in the *City Environmental Quality Review (CEQR) Technical Manual.* Where it is determined that the Proposed Project would not exceed the relevant screening criteria, it is concluded that the Proposed Project would not result in a significant adverse impact, and additional analysis is not warranted. Where it is determined that the Proposed Project would exceed the relevant screening criteria, more detailed analysis is performed following the methodology outlined in the *CEQR Technical Manual.* Through that detailed analysis, it is determined whether the effects of the Proposed Project would exceed the criteria presented in the *CEQR Technical Manual* for effects that are considered significant adverse impacts.

Where significant adverse impacts are identified for the Proposed Project, measures to mitigate those impacts are identified and described (see Chapter 23, "Mitigation"). Where impacts cannot be practicably mitigated, they are disclosed as unavoidable adverse impacts (see Chapter 25, "Unavoidable Adverse Impacts").

A. INTRODUCTION

The New York City Department of Environmental Protection (DEP) is undertaking the design and construction of a combined sewer overflow (CSO) storage tunnel and related infrastructure to reduce the volume of combined sewer overflows[1] entering Newtown Creek, under the Newtown Creek CSO Storage Tunnel project (the "Proposed Project"). The Proposed Project includes the construction of diversion facilities at four outfalls to convey wet-weather flows to the tunnel, a 50-million-gallon CSO storage tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored combined sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

This chapter summarizes the construction program for the Proposed Project and includes a discussion of the activities likely to occur during construction, the types of equipment that are likely to be used, the construction schedule, the anticipated construction logistics (i.e., equipment operation and staging area locations), and potential barging operations. Based on this information, potential impacts from the Proposed Project's construction activities for the relevant technical areas are analyzed and presented in subsequent chapters.

PROJECT AREA

The Project Area consists of the area directly affected by the Proposed Project including the proposed CSO tunnel, gravity diversion sewer, TDPS, and diversion facilities. The proposed tunnel alignment and location of the proposed diversion facilities are shown on Figure 1-5.

CSO TUNNEL

The proposed CSO tunnel would be 3.26 miles long and stretches from the TDPS site in the north to the NCB-015 diversion facility site in the south (see Figure 1-5). From the TDPS on the south side of Newtown Creek, tunnel construction would follow an alignment east underneath Newtown Creek and into the Blissville neighborhood of Queens. The tunnel would continue south and east along Review Avenue, underneath the Kosciuszko Bridge and toward the Maspeth neighborhood of Queens, where it would connect to outfall NCQ-077. From outfall NCQ-077, the tunnel would curve south and then west into Brooklyn to connect to outfall NCB-083. Finally, the tunnel would continue south and connect to

[1] CSOs occur when wet weather flows exceed the capacity of the dry weather flow regulators and untreated combined sewage enters a receiving waterbody.

outfall NCB-015, located near English Kills. The tunnel would be constructed at a constant slope to allow gravity flow from its eastern extent at outfall NCB-015 toward the TDPS site at Whale Creek.

GRAVITY DIVERSION SEWER

The gravity diversion sewer would be a below-grade pipe that connects the BB-026 outfall to the Borden Avenue Pump Station and the CSO storage tunnel. Beginning at the BB-026 outfall, the new gravity diversion sewer would run along 47th Avenue and 30th Street, to Borden Avenue, where it would run west and south to connect to the Borden Avenue Pump Station. Modifications would be made to the Borden Avenue Pump Station to construct the connection to the gravity diversion sewer. From the Borden Avenue Pump Station, the gravity diversion sewer would run south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at the end of 35th Street.

TDPS (NEW YORK CITY DEPARTMENT OF SANITATION [DSNY]) SITE

The proposed TDPS site would be located at 1 Kingsland Avenue (Brooklyn Block 2508, Lot 1) in the Greenpoint neighborhood of Brooklyn and adjacent to Newtown Creek and the Newtown Creek WRRF. The lot is currently occupied by the former Greenpoint Marine Transfer Station (MTS) and its access ramp, warehouses, dock facilities, and sludge handling facilities. The MTS, its access ramp, and warehouses are owned and operated by DSNY, while the dock facilities and sludge handling facilities are operated by DEP.

TDPS DISCHARGE PIPE

To convey flow from the TDPS facility to the Newtown Creek WRRF, a gravity discharge pipe would be constructed. The TDPS discharge pipe would run under the city right-of-way (ROW), along the west side of Kingsland Avenue between the TDPS and Greenpoint Avenue. It would then continue west for three blocks along the north side of Greenpoint Avenue to Russell Street before connecting to the Morgan Avenue interceptor just upstream of the Newtown Creek WRRF.

DIVERSION FACILITIES SITES

The Proposed Project includes four diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

BB-026 Diversion Facility Site

The site for the proposed BB-026 diversion facility is located on the northern edge of Dutch Kills (Queens Block 115, Lots 56, 86, and 150) and is currently occupied by a two-story concrete-manufacturing facility, associated parking facility, community garden, and unmapped 29th Street. The site is not coterminous with the three lots; the site of the diversion facility includes a portion of Lots 56 and 86 and the entirety of Lot 150. The existing outfall BB-026 flows southward from 47th Avenue to Dutch Kills and traverses the site below grade through the approximate center of the site, approximately 160 feet west from 29th Street.

NCQ-077 Diversion Facility Site

The site for the proposed NCQ-077 diversion facility is located on the eastern side of Maspeth Creek between 49th Street and 49th Lane (Queens Block 2575, Lots 26, 225, and 240), and is currently occupied by surface parking facilities. The existing outfall NCQ-077 flows westward from Rust Street to Maspeth Creek and traverses the site below the southeastern most portion of the site before discharging at the upstream terminus of Maspeth Creek on the northeastern corner.

NCB-083 Diversion Facility Site

The site for the proposed NCB-083 diversion facility is located adjacent to the East Branch of Newtown Creek along Metropolitan Avenue (Brooklyn Block 2948, Lot 85) and currently contains vacant buildings, but had previously been occupied by industrial uses. The existing NCB-083 outfall discharges combined sewage to Newtown Creek at the upstream end of the East Branch and flows northward along Scott Avenue from Troutman Street to the East Branch on Metropolitan Avenue.

NCB-015 Diversion Facility Site

The site for the proposed NCB-015 diversion facility is located on the southern-most part of Newtown Creek on Johnson Avenue (Brooklyn Block 2974, Lots 162 and 170) and is currently occupied by industrial and manufacturing uses as well as parking facilities. The existing NCB-015 outfall traverses below the street on Johnson Avenue toward English Kills.

B. DESCRIPTION OF CONSTRUCTION ACTIVITIES

The Proposed Project is currently anticipated to be constructed under three major construction contracts, which were identified based on DEP's ability to coordinate key components of the Proposed Project while taking into consideration the milestones in the CSO Consent Order.[2] Additional construction contracts may be identified as design progresses but the major site-specific activities required for the Proposed Project would remain the same. The three major construction contracts as currently envisioned are as follows:

- Construction Package 1 (CP-1): TDPS Site Preparation – Demolition of structures and site preparation activities at the TDPS site.
- Construction Package 2 (CP-2): Tunnel and Diversion Facilities – Construction of the 50-million-gallon (MG) CSO storage tunnel; four diversion facilities at BB-025, NCQ-077, NCB-015, and NCB-083; a gravity diversion sewer that connects the BB-026 outfall to the Borden Avenue Pump Station (BAPS)[3]; and six shafts (a screening shaft and a pump station shaft at the TDPS site, a drop shaft at the NCQ-077, NCB-083, and NCB-015diversion facility sites, and a drop shaft and adit,

[2] NYSDEC Case No. C02-20000107-8

[3] The segment of the gravity diversion sewer leading to the BAPS, located on Borden Avenue, is being designed and constructed by the New York City Department of Design and Construction (DDC) and is anticipated to be constructed by 2031, prior to the completion of the tunnel in 2039, allowing for the diversion of CSO flows from BB-026 to the Bowery Bay WRRF before the tunnel is operational.

which is a relatively short horizontal tunnel, connecting the BB-026 outfall to the CSO storage tunnel).

- Construction Package 3 (CP-3): Tunnel Dewatering Pump Station – Construction of the TDPS facility which includes a pump station and screenings room superstructure, a degritting facility, odor control equipment, a tunnel overflow structure, and the construction of a discharge pipe to convey stored sewer overflows from the TDPS to the Newtown Creek WRRF.

This section describes the site-specific construction activities that would occur for the Proposed Project under each of these three construction contracts.

CP-1: TDPS SITE PREPARATION

The main scope of CP-1 includes the installation of site fencing and temporary erosion and sediment control (ESC) measures, demolition activities of above-grade structures, removal of existing foundation elements, assessment of and potential renovations to the MTS, select renovations and upgrades of the cellular cofferdam, site utilities work, and coordination with Con Edison for temporary power at the TDPS site.

On-site construction activities for CP-1 are anticipated to take approximately 1.5 years to complete, from April 2028 to October 2029.

INSTALLATION OF SITE FENCING AND ESC MEASURES

The TDPS site would first be fenced off to minimize interference between passersby and the construction work. Additional public safety measures, such as signs, would be installed. Access points to the TDPS site would also be established and portable toilets, dumpsters for trash, and construction trailers for on-site workers and DEP staff would be brought to the site and installed. In addition, temporary ESC measures such as filter socks and sediment traps would be installed. Equipment used for fencing and ESC measures installation activities is anticipated to include fence post augers, air compressors, and pavement breakers.

Installation of site fencing and ESC measures are anticipated to take approximately one month to complete, from April 2028 to June 2028.

DEMOLITION ACTIVITIES

After installation of site fencing and ESC measures, demolition activities at the TDPS site would begin. Demolition activities would involve the removal of an existing trailer, pavements, and various site objects such as bollards and signages as well as the demolition of existing building structures and any associated foundation and below-grade elements, including the removal of foundation piles, piles caps (thick concrete mats that rest on piles to enhance the stability of the foundations), and grade beams that may interfere with the construction of the tunnel shafts and the TDPS. Specifically, the building structure elements anticipated to be demolished and/or removed at the TDPS site include (see **Figure 3-1)**:

- DSNY Storage Warehouse – removal of building superstructure and concrete base slab, demolition of select pile caps and grade beams, and extraction of foundation piles.



Preliminary Demolition Plan at TDPS Site

- Greenpoint Incinerator Building – demolition of pile caps and removal of the underlying foundation piles used to support the building superstructure's concrete base slab that are in the vicinity of the proposed shafts.
- MTS – demolition of the fire pump building and, potentially, portions of the primary structure; the approach ramp to the MTS would likely remain during the construction of the shafts and tunnel to support barging operations. However, after tunnel construction the ramp may be demolished if necessary to facilitate the construction of a below-grade conduit at the TDPS site. Once construction is complete, the ramp may be reconstructed to restore access to the MTS. Since the CP-1 construction package includes the evaluation and assessment of the potential future reuse of the MTS, restored access to the MTS may not be required. However. for the purposes of the construction analysis, these construction activities are included as a conservative assumption.

Equipment used for demolition activities is anticipated to include crawler cranes, dozers, excavators, graders, compactors, air compressors, drill rigs, and pavement breakers.

Demolition activities at the TDPS site are anticipated to take approximately 1.5 years to complete, from April 2028 to October 2029.

DEMOLITION OF MTS STRUCTURE AND RENOVATION OF CELLULAR COFFERDAM

No permanent TDPS facilities would be constructed within the footprint of the MTS. The potential future reuse of the MTS would be reviewed and advanced as design progresses; however, it is currently anticipated that the MTS structure would be demolished but the area could still be used to accommodate barging as part of the Proposed Project.

A cellular cofferdam seawall, consisting of interlocking sheet piles that extend between 3 feet to 60 feet below existing grade, lines the northwestern portion of the TDPS site, just south of the MTS (see **Figure 3-2**). The cellular cofferdam serves as the retaining wall at this portion of the TDPS site along Whale Creek and Newtown Creek. A portion of the cellular cofferdam would be removed to facilitate the construction of the overflow structure for the TDPS with the remaining portions of the cellular cofferdam refurbished as part of the Proposed Project. The overall condition of the cellular cofferdam is being investigated as design advances to determine if any repairs need to be made due to the structure's current age and anticipated degradation over time. CP-1 is not expected to include any in-water activities that would require state or federal permits. However, if the investigation during CP-1 concludes that the cellular cofferdam needs to be repaired, that work would occur under a later contract (e.g., CP-2 or CP-3).

Equipment used for MTS and cellular cofferdam activities is anticipated to include crawler cranes, dozers, excavators, compactors, graders, air compressors, pavement breakers, concrete pump, concrete vibrator, and jet grout rig.

Activities associated with the MTS and cellular cofferdam are anticipated to take approximately one year to complete, from August 2028 to September 2029.

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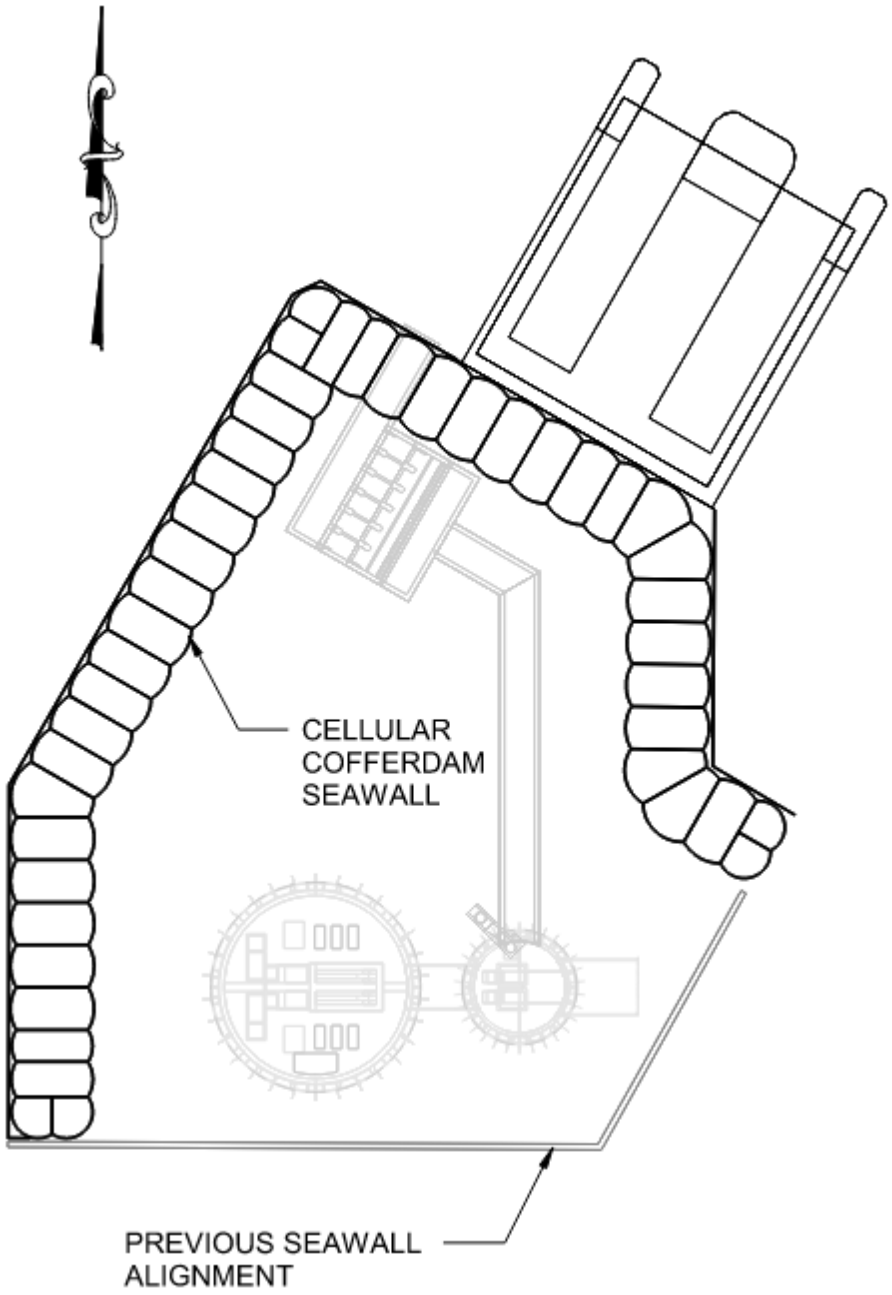


Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NOTE: CONCEPTUAL DESIGN

Cellular Cofferdam Seawall Alignment

SITE UTILITIES WORK

Prior to the start of demolition, existing buildings at the TDPS site would have their utilities disconnected and any subsurface utilities removed and disposed of as required for the construction of new facilities at the site. Site utilities work would also include establishment of temporary site power through coordination with Con Edison to set up temporary power service at the TDPS site to support construction activities and the power needs for the Tunnel Boring Machine (TBM).

Equipment used for site utilities work typically includes crawler cranes, dozers, excavators, compactors, graders, air compressors, and pavement breakers.

Site utilities work is anticipated to take approximately two months to complete, from July 2028 to June 2029.

CP-2: TUNNEL AND DIVERSION FACILITIES

The main scope of CP-2 involves the construction of the 50-MG CSO storage tunnel; four diversion facilities at BB-026, NCQ-077, NCB-083, and NCB-015; a gravity diversion sewer; and six shafts (a screening shaft and a pump station shaft at the TDPS site, a drop shaft at the NCQ-077, NCB-083, and NCB-015 diversion facility sites, and a drop shaft connecting the BB-026 gravity diversion sewer to the tunnel via an adit).

On-site construction activities for CP-2 are anticipated to take approximately six years to complete, from October 2029 to October 2035.

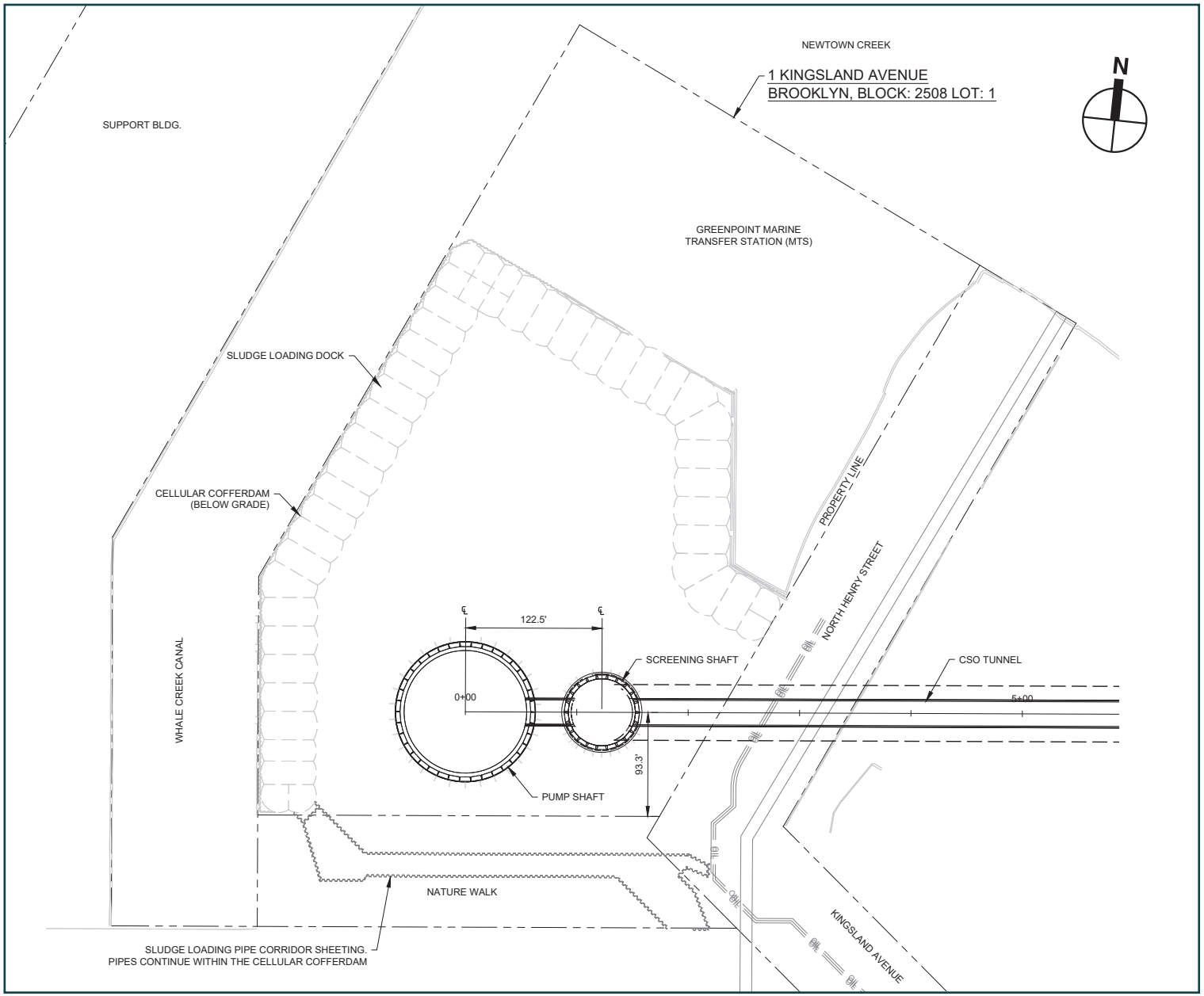
TDPS SITE

The proposed TDPS facility would contain a screening shaft and a pump station shaft. Flow from the tunnel would first be screened in the screening shaft before entering the pump station shaft where the flow would then be pumped to the degritting facility. Chapter 1, “Project Description.” provides additional details on the overall process facility flow and Figure 1-4 presents a schematic illustration of the Proposed Project.

The layout of the screening and pump station shafts and the tunnel alignment at the TDPS site is presented in **Figure 3-3.** Based on current design, the screening and pump station shafts would have finished internal diameters of approximately 55 and 110 feet, respectively. These shafts would be used to launch the TBM and support subsequent tunneling activities, including the removal of excavated materials. The tunneling support activities would entail gantry cranes, elevators, and conveyors to allow material to be raised or lowered between the ground surface and the tunnel elevation.

Screening and Pump Station Shafts

Slurry walls are anticipated to be used for the support of excavation (SOE) system for the upper portion of these two shafts that are in soil. Slurry walls involve excavating overlapping rectangular panels using specialized drilling equipment with clam-shell buckets or hydromills. These panels are dug from the surface and temporarily supported during construction with slurry (typically a bentonite clay or polymer mixed with water). Once each slurry panel has been excavated to its final depth, a reinforcement cage is lowered into the hole, and concrete is poured to displace the slurry and form the permanent SOE



NOTE: CONCEPTUAL DESIGN

Screening and Pump Station Station Shafts Layout

system. A series of overlapping panels are arranged in a circle to create a relatively stiff and impermeable overall SOE system. **Figures 3-4 and 3-5** illustrate the cross-sections of the screening shaft and the pump station shaft, respectively, with the slurry walls. Equipment used for slurry wall construction is anticipated to include specialized drilling equipment that use clam-shell buckets or hydromills to excavate the panels, separation plants to remove the soil from the slurry, cranes, loaders, excavators, compressors, and generators.

After the slurry walls are constructed, soil excavation activities would proceed with the use of excavators. The excavated soil would either be trucked or barged off-site for disposal. Once the excavation reaches bedrock, the SOE system would transition to rock dowels and shotcrete. Rock dowels, which are used to stabilize rock wedges, are un-tensioned steel bars inserted into drilled holes and are grouted into place. Shotcrete and wire mesh would likely be used in addition to the rock dowels to further support the rock. Excavation below the bedrock surface would use drill-and-blast methods which are discussed further below under "Starter and Connector (Tail) Tunnel." This process would be repeated until the final depth of excavation is reached, where a mud mat (a slab of concrete typically a few inches thick) would be installed as a working surface at the bottom of the shaft along with a drainage layer beneath it to prevent hydrostatic pressure from damaging the base slab. Equipment used for shaft excavation and SOE rock dowels and shotcrete activities is anticipated to include drill rigs, impact hammers, excavators, loaders, crawler cranes, generators, and compressors.

The screening shaft is anticipated to take approximately 15 months to complete, from October 2029 to January 2031, while the pump station shaft is anticipated to take approximately two years to complete, from June 2030 to July 2032.

Starter and Connector (Tail) Tunnels

A starter tunnel may be used to facilitate the launch of the TBM. A starter tunnel is a short horizontal excavation along the tunnel alignment that is slightly larger in diameter than the TBM. TBMs pull a train of equipment behind them as they advance that can be several hundred feet long. Starter tunnels enable more of this equipment to be in place during the TBM launch. The rock between the screening and pump station shafts would be removed with drill and blast methods to connect the two circular excavations. If the two shafts are constructed tangent to each other, the rock removal would extend from the base of the overlying slurry panels to the bottom of the excavation. **Figure 3-6** illustrates a potential layout of the screening and pump station shafts under this configuration. If the two shafts are separated horizontally, the rock would be removed locally at the tunnel elevation to form a connector tunnel. The configuration of the shafts will be refined as the design progresses.

Conventional drill-and-blast mining techniques would be employed for the excavation of the starter and connector tunnels. **Figure 3-7** depicts the drill and blast cycle. A series of holes would first be drilled into the rock mass in a distributed pattern with a drill jumbo and loaded with a small amount of explosives. Under carefully controlled and monitored conditions, the explosives would be detonated sequentially, breaking the rock while spreading the release of energy from the explosives over a period of several seconds so as not to compromise the integrity of the surrounding structures (e.g., the shafts) due to vibrations. After each blast, the work area would be ventilated before workers are allowed to return. The rock that has been fractured by the blast would be subsequently excavated, loose material

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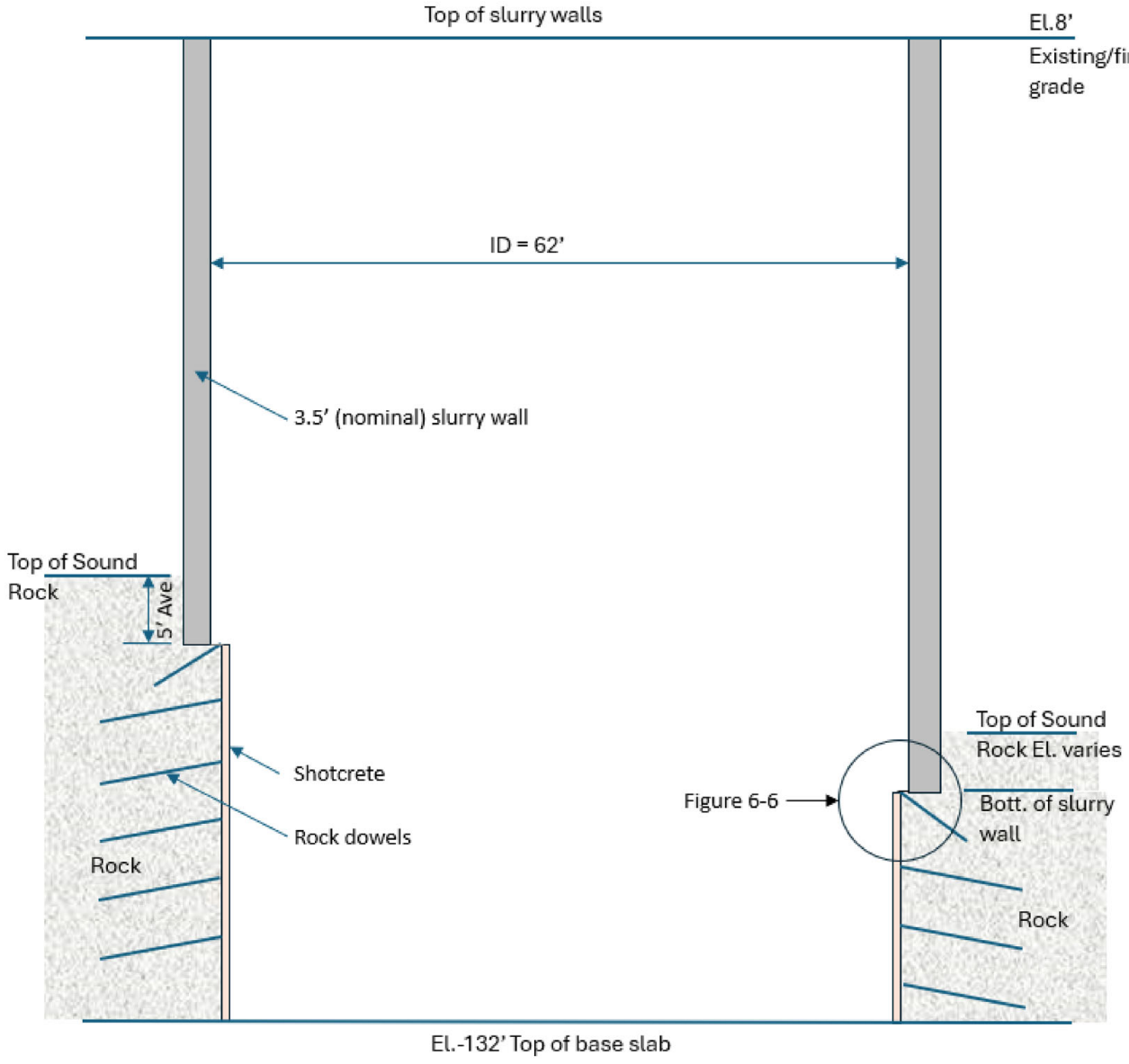

NOTE: CONCEPTUAL DESIGN

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

Screening Shaft Cross-Section During Construction

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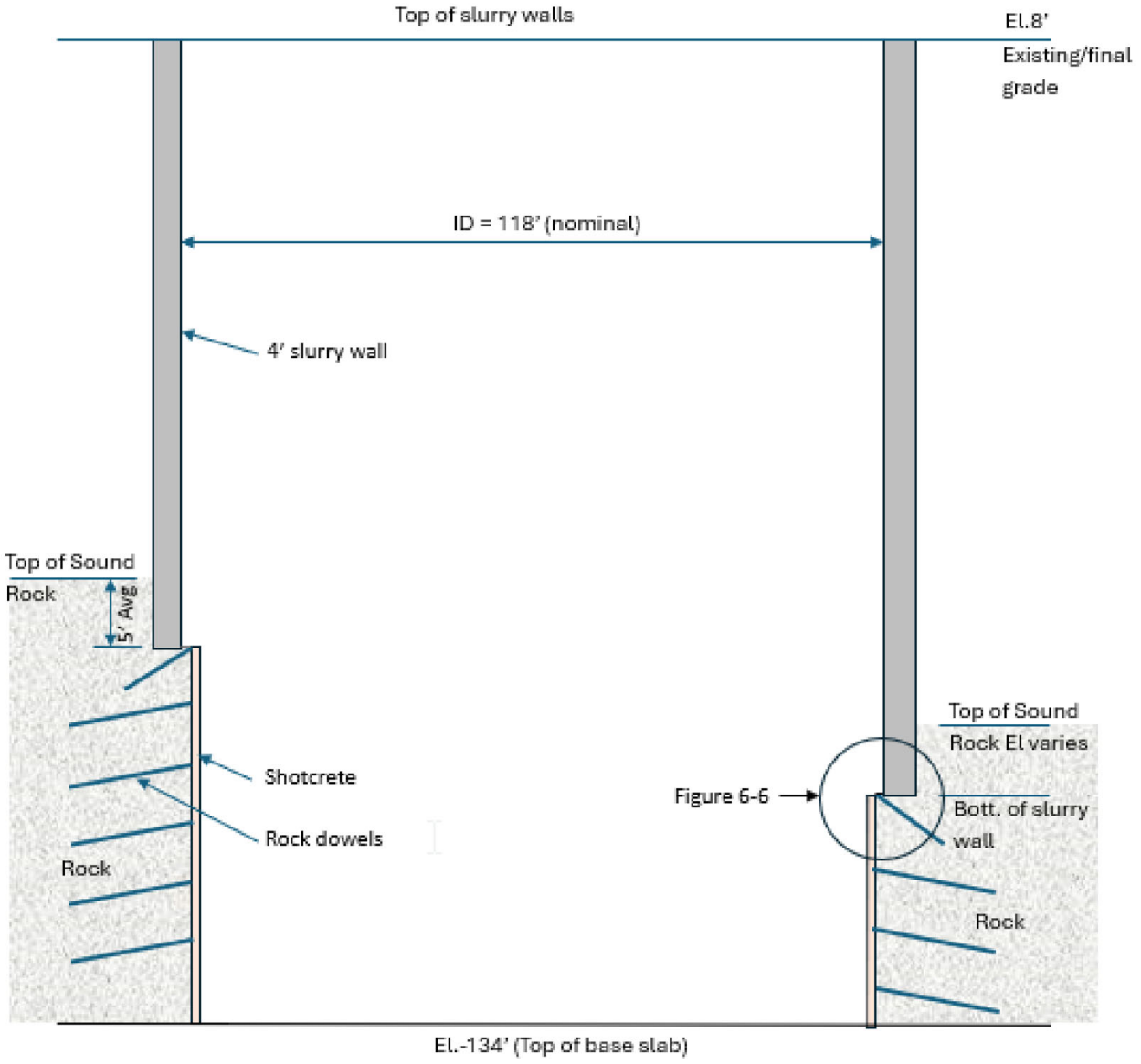
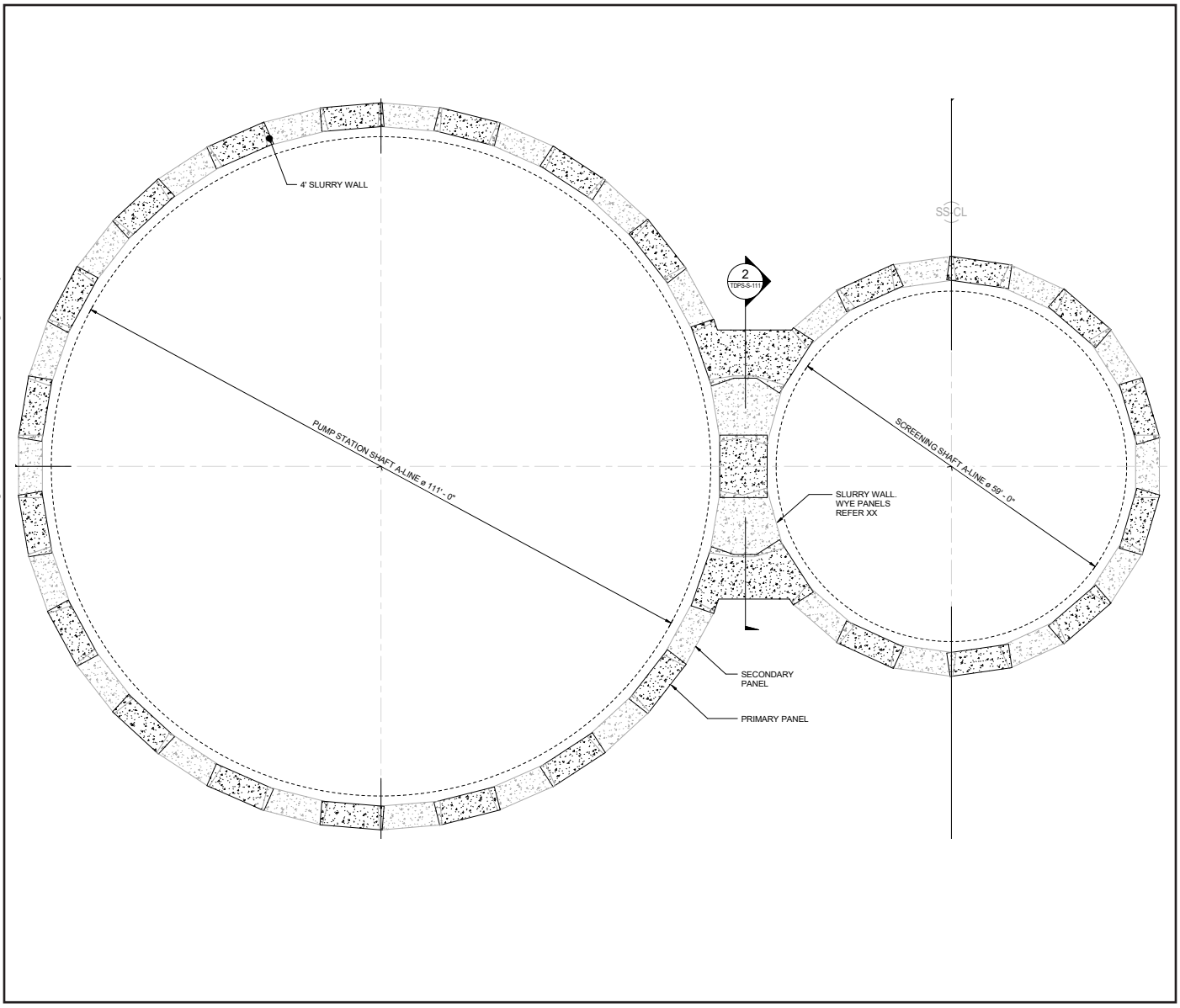


NOTE: CONCEPTUAL DESIGN

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

Pump Station Shaft Cross-Section During Construction



Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

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NOTE: CONCEPTUAL DESIGN

Tunnel Shafts Layout

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 3-6

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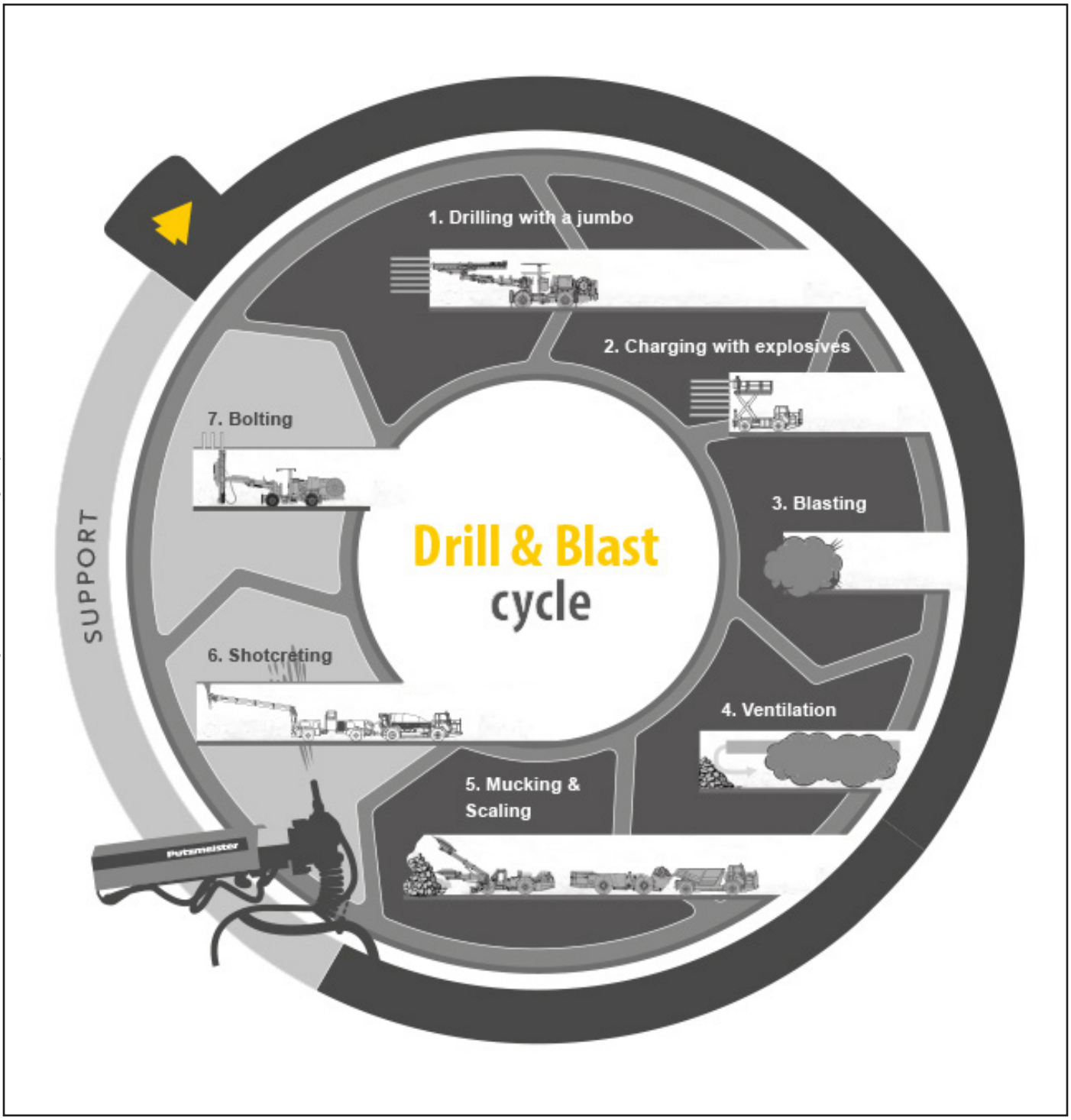

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

Drill and Blast Cycle

would be removed from the perimeter, and rock support would be installed to stabilize the rock faces and prevent any fragments from falling. Starter and connector tunnel construction is anticipated to include a drill jumbo, crawler crane, loaders, shotcrete plants, excavators, impact hammers and compressors.

The starter tunnel is anticipated to take approximately four months to complete, from January 2031 to May 2031, while the connector tunnel is anticipated to take approximately one month to complete in July 2032.

TBM Assembly

After the starter and connector tunnels are constructed, the modular components of the TBM would be brought to the TDPS site either by barge or by truck and lowered down the screening shaft for assembly approximately 140 feet below grade (see **Figure 3-4**). The TBM would consist of a cutter head, shield (i.e., a cylindrical steel shell) and several hundred feet of trailing gear (see **Figure 3-8**). The trailing gear includes computerized control rooms as well as support equipment such as pumps, transformers, grouting equipment, and conveyors. The trailing gear provides power to the cutterhead and jacks that enable the TBM to move forward, pumps grout into the annular space between the tunnel liner and the surrounding soil and moves excavated material from the TBM to a conveyor belt at the end of the trailing gear.

TBM assembly is anticipated to include a construction hoist/elevator, a hydraulic crane, a crawler crane, loaders, and compressors.

TBM assembly is anticipated to take approximately eight months to complete, from May 2031 to December 2031.

Tunnel Construction

The circular cutter head of the TBM would be outfitted with numerous rotating, hardened steel roller bits and drag teeth, which would cut as they rotate, producing a circular tunnel. At the rear of the TBM, hydraulic jacks would exert balancing pressure against the tunnel liner to push the machine's drilling head against the rock or soil face. The TBM would operate by installing pre-cast concrete tunnel liners (segments) concurrently with the excavation. Excavated materials from the tunneling operation would be removed at the rear of the TBM and brought out of the tunnel at the screening shaft. The excavated materials would then be loaded to an overland conveyor and transferred to an on-site stockpile for future transport offsite for disposal by trucks or straight onto a barge for off-site disposal. The concrete tunnel liners would create the tunnel's interior walls. As the concrete liner is installed, voids between the liner and the rock would be sealed by injecting cement slurry under high pressure into the annular space. This backfilling operation increases the stability of the pre-cast tunnel liner system and would reduce the potential for settlements above the tunnel. The seepage of groundwater into the tunnel would be controlled by the use of gaskets installed around the perimeter of each pre-cast section. These gaskets would be compressed against each other during construction of the tunnel liner to form a relatively impermeable system.

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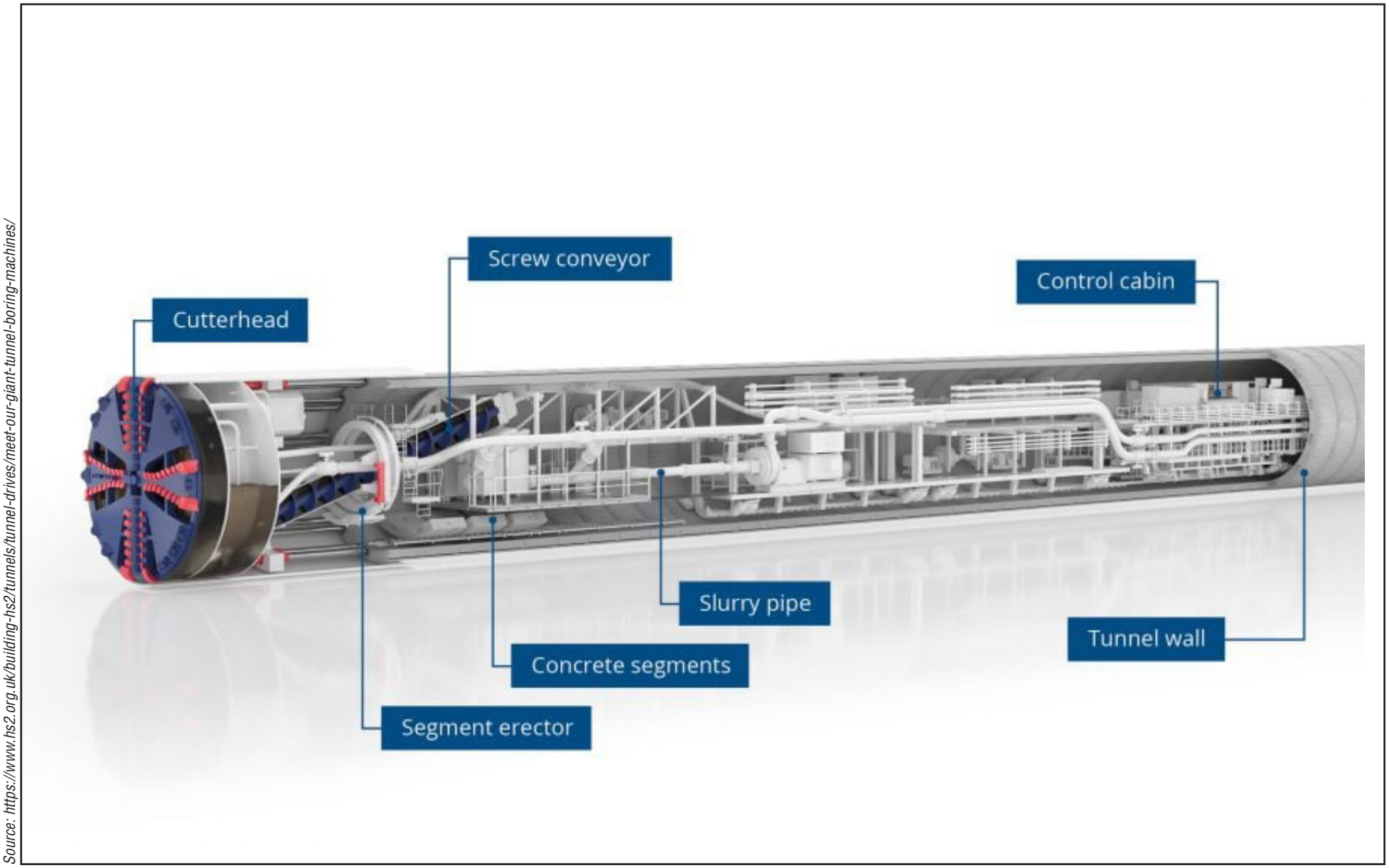

Source: https://www.hs2.org.uk/building-hs2/tunnels/tunnel-drives/meet-our-giant-tunnel-boring-machines/

Tunnel Boring Machine

Tunnel construction is anticipated to include a TBM, hydraulic crane, crawler crane, loaders, locomotives, conveyors, compressors, grout plants, and barges and trucks to transport excavated materials and segments to and from the site. There are different types of TBMs and some use slurries to support the soil and rock during excavation. Separation plants and a slurry mixing system would be used if the TBM incorporates a slurry system. Temporary utilities would also be installed in the tunnel to support tunnel construction.

Tunnel construction is anticipated to take approximately two years to complete, from August 2031 to July 2033.

TBM Disassembly and Removal

After tunnel construction is complete, the TBM's cutterhead and shield would be disassembled and removed from the upstream end of the tunnel at the NCB-015 drop shaft. The trailing gear, gantry cranes, and temporary utilities would be removed from the shafts at the TDPS site. TBM disassembly and removal activities is anticipated to include a construction elevator/hoist, a hydraulic crane, a crawler crane, loaders, compressors, and generators.

TBM disassembly and removal is anticipated to take approximately two months to complete, from July 2033 to September 2033.

NCQ-077 DIVERSION FACILITY SITE

A diversion facility would be constructed at the NCQ-077 combined sewer outfall (and at outfalls NCB-083, NCB-015, and BB-026) to divert flow from the outfall to the tunnel. The diversion facility at NCQ-077 would include a new diversion chamber and outfall structure, a flap gate chamber to prevent flows from the tunnel backflowing upstream into the combined sewer system or downstream to the Creek, an approach channel to allow for the conveyance of flows from the diversion chamber to a drop shaft, installation of sheet piles in Maspeth Creek and the dewatering of the outfall, and a temporary maintenance of flow (MOF) channel over the sheet piling to allow wet weather flow to discharge to Newtown Creek while the diversion chambers and outfall structures are being constructed. The sheet piles would be used to create a dry construction area and would reduce the risk of any tidal water from entering the construction site to allow for the tie-in of new outfall structure to the existing sewer. The drop shaft, which would be used to convey flow into the tunnel, would include a ventilation system to manage airflow in the tunnel. An odor control system would also be installed in a below grade vault near the drop shaft approach channel. The diversion chamber and new outfall structure components, including bending weirs and flap gates, would be constructed to allow overflow to discharge to Newtown Creek when the tunnel is full or when flow rates exceed the diversion facilities' maximum design flow rates. The preliminary site plan at the NCQ-077 diversion facility site is presented in **Figure 3-9**. A temporary water treatment plant would also be installed on-site to support construction. Additional detail on the anticipated construction activities based on current design at the NCQ-077 site is described below.

Activities at the NCQ-077 diversion facility site are anticipated to take approximately 5.5 years to complete, from November 2029 to June 2035.

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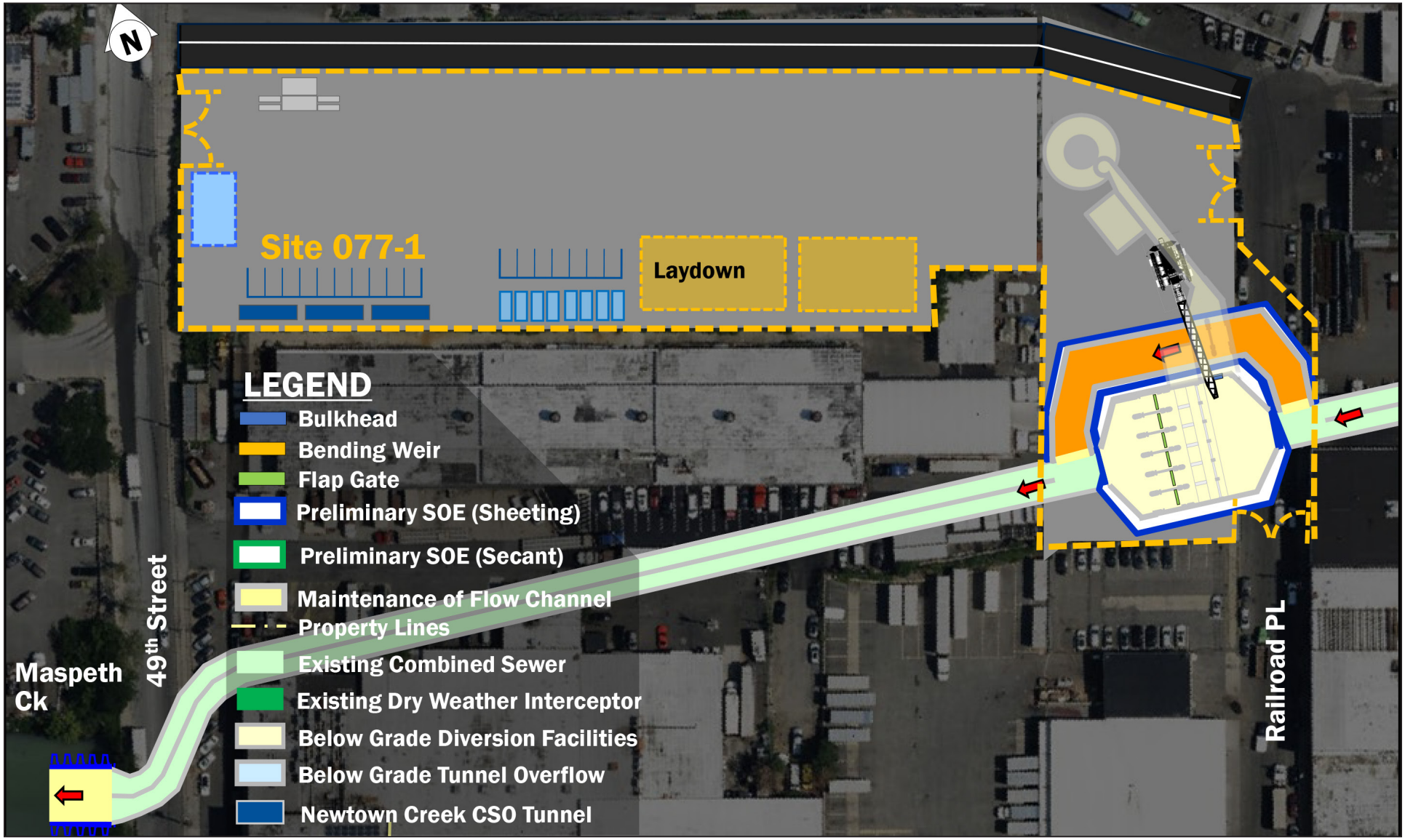


Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report (updated in May 2025)

NOTE: CONCEPTUAL DESIGN

NCQ-077 Preliminary Construction Site Plan

Demolition

At the NCQ-077 diversion facility site, site demolition would first be conducted to accommodate new facility construction. Site demolition activities are anticipated to include clearing and grubbing, removal of existing pavement and concrete curbing, removal of utilities, and removal of various site objects such as fencing and signages. Demolition activities are anticipated to include excavators, loaders, compactors, stump chippers, pavement breakers, and compressors.

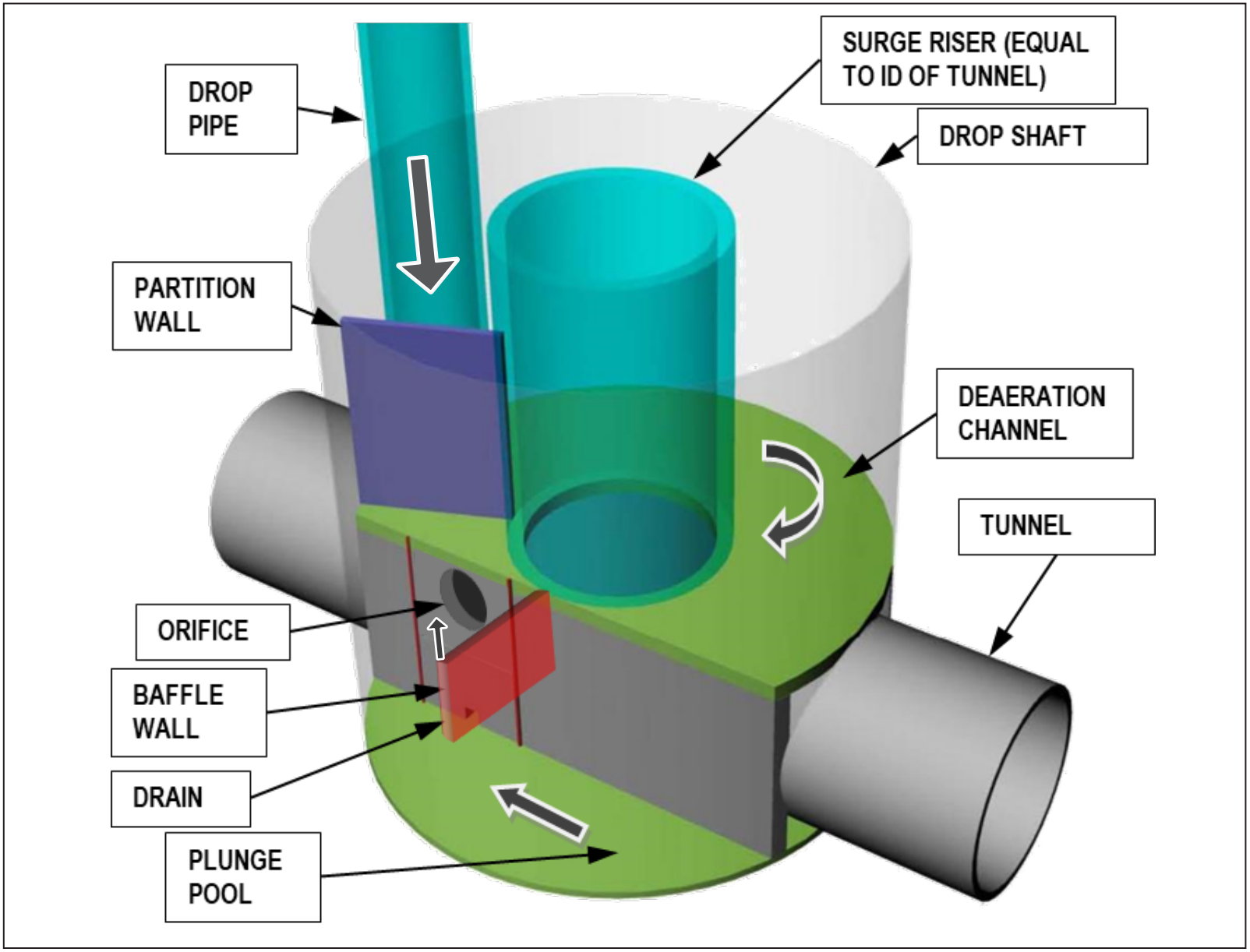
Drop Shaft Construction

Similar to the screening and pump station shafts, the drop shaft at the NCQ-077 diversion facility site would include a slurry wall SOE system. After the slurry wall is constructed, the shaft would be excavated and a reinforced concrete base slab would be installed at the bottom of the shaft. Excavation of the drop shaft at the NCQ-077 diversion facility site would be completed prior to the TBM reaching this location. Once the tunnel construction has been completed and the tunnel cleaned, the shaft final lining system consisting of cast-in-place reinforced concrete would be installed along with a precast reinforced concrete roof system. Hydraulic control structures, including partition walls, channels, risers, and orifices, would also be installed within the finished drop shaft. These control structures allow for deaeration (a process to remove dissolved gases from water streams) within the drop shafts prior to the flow entering the tunnel. **Figure 3-10** presents the schematic of a typical vortex drop shaft, which is the type of hydraulic control structure that is anticipated to be used for the Proposed Project. Flow would enter the drop pipe and drop down approximately 66 feet from the invert of the approach channel to base of the deaeration channel. Arrows on **Figure 3-10** show flow moving along the deaeration channel and dropping approximately 30 feet into the plunge pool, then continuing towards the orifice to flow into the tunnel. Drop shaft construction is anticipated to include a hydraulic crane, a crawler crane, excavators, loaders, compressors, and generators.

Diversion Facility Construction

The NCQ-077 diversion facility would involve the construction of a new diversion chamber, an outfall structure that includes bending weirs and flap gates, an MOF channel to allow flow to continue during construction, and modifications to the existing outfall. The general sequence of construction activities for the diversion facility would be as follows:

- Install sheet piling SOE system for the MOF channel.
- Construct the MOF channel.
- Place sheet piling (steel piles with a vertical interlocking system to create a continuous wall) in Maspeth Creek to allow tie-in to the existing outfall and reduce the risk of any tidal water entering the NCQ-077 diversion facility site and dewater the outfall.
- Place bulkhead gates (structures that allow diversion facility components to be isolated during construction and maintenance) within the existing sewer and demolish the walls to connect to the MOF channel to allow flow to continue discharging to Maspeth Creek.
- Demolish the existing double-barrel sewer at the location of the proposed outfall structure.



Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

Schematic of a Typical Vortex Drop Shaft

- Place the secant piling SOE system (alternating primary and secondary piles where the primary piles are installed first, followed by the secondary piles that are partially cut into either side of the primary piles to form a continuous watertight barrier) for the diversion facility and excavate the area.
- Construct the diversion chamber and outfall structure including weirs and gates.

Once the diversion chamber and outfall structure have been constructed and the bulkhead gates removed, the MOF channel would be demolished, and wet weather flows would pass through the diversion chamber and discharge to Maspeth Creek.

Diversion facility construction is anticipated to include crawler cranes, drill rigs, excavators, pavement breakers, concrete pumps, concrete vibrators, jet grouts, compressors, and generators.

NCB-083 DIVERSION FACILITY SITE

A diversion facility would be constructed at outfall NCB-083 to divert flow from the outfall to the tunnel. The facility at NCB-083 would include a drop shaft, a new diversion chamber and outfall structure, a flap gate chamber to prevent flows from the Tunnel backflowing upstream into the combined sewer system or downstream to the Creek, an approach channel for conveyance of flows from the diversion chamber to a drop shaft, an odor control system in a below grade vault near the drop shaft approach channel, installation of sheet piles in the Newtown Creek East Branch and the dewatering of the outfall, a temporary water treatment plant, and modifications to the existing combined sewer for MOF during construction. The preliminary site plan at the NCB-083 diversion facility site is presented in **Figure 3-11**. Additional detail on the anticipated construction activities based on current design at the NCB-083 diversion facility site is described below.

Activities at the NCB-083 diversion facility site are anticipated to take approximately five years to complete, from November 2029 to August 2030 and October 2031 to December 2035.

Demolition

At the NCB-083 diversion facility site, site demolition would first be conducted to accommodate new facility construction. Site demolition activities are anticipated to include clearing and grubbing, removal of existing pavement and concrete curbing, demolition of the existing single-story building on-site, removal of utilities, demolition of existing bulkheads, and removal of various site objects such as fencing and signages. Demolition activities are anticipated to include excavators, compactors, loaders, stump chippers, pavement breakers, and compressors.

Drop Shaft Construction

The drop shaft construction at the NCB-083 diversion facility site would be the similar to the approach as described above for the drop shaft at the NCQ-077 diversion facility site.

Diversion Facility Construction

The NCB-083 diversion facility would involve the construction of a new diversion chamber and outfall structure that includes bending weirs and flap gates. The general sequence of construction activities for the diversion facility is as follows:

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NOTE: CONCEPTUAL DESIGN

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NCB-083 Preliminary Construction Site Plan

- Excavate the area of the diversion facility and install the secant piling SOE system.
- Construct the diversion facility.
- Install sheet piling in Newtown Creek East Branch and dewater the outfall.
- To maintain flow during MOF, place a bulkhead gate in the left barrel of the existing combined sewer and demolish the shared wall between the two barrels to send flow from the left barrel into the right barrel to allow for discharge to Newtown Creek (see **Figure 3-11** for the bypass flow).
- Construct the diversion chamber in front of the left barrel, transition the flow to the left barrel by removing the bulkhead gate in the left barrel and placing it in the right barrel, and construct the final portion of the diversion chamber in front of the right barrel.

Diversion facility construction is anticipated to include crawler cranes, excavators, pavement breakers, concrete pumps, concrete vibrators, jet grouts, compressors, and generators.

NCB-015 DIVERSION FACILITY SITE

A diversion facility would be constructed at outfall NCB-015 to divert flow from the outfall to the tunnel. The diversion facility at NCB-015 would include a drop shaft, new outfall structures, a diversion chamber, a flap gate chamber to prevent flows from the Tunnel backflowing upstream into the combined sewer system or downstream to the Creek, an approach channel for conveyance of flows from the diversion chamber to a drop shaft, an overflow channel to allow overflows from the Tunnel when it is full, a temporary MOF channel to allow wet weather flow to discharge to Newtown Creek while the outfall structure and diversion chamber are being constructed, modifications to the existing outfall, an odor control system in a below grade vault near the drop shaft approach channel, installation of sheet piles in English Kills and the dewatering of the outfall, and a temporary water treatment plant. The preliminary site plan at the NCB-015 diversion facility site is presented in **Figure 3-12**. Additional detail on the anticipated construction activities based on current design at the NCB-015 diversion facility site is described below.

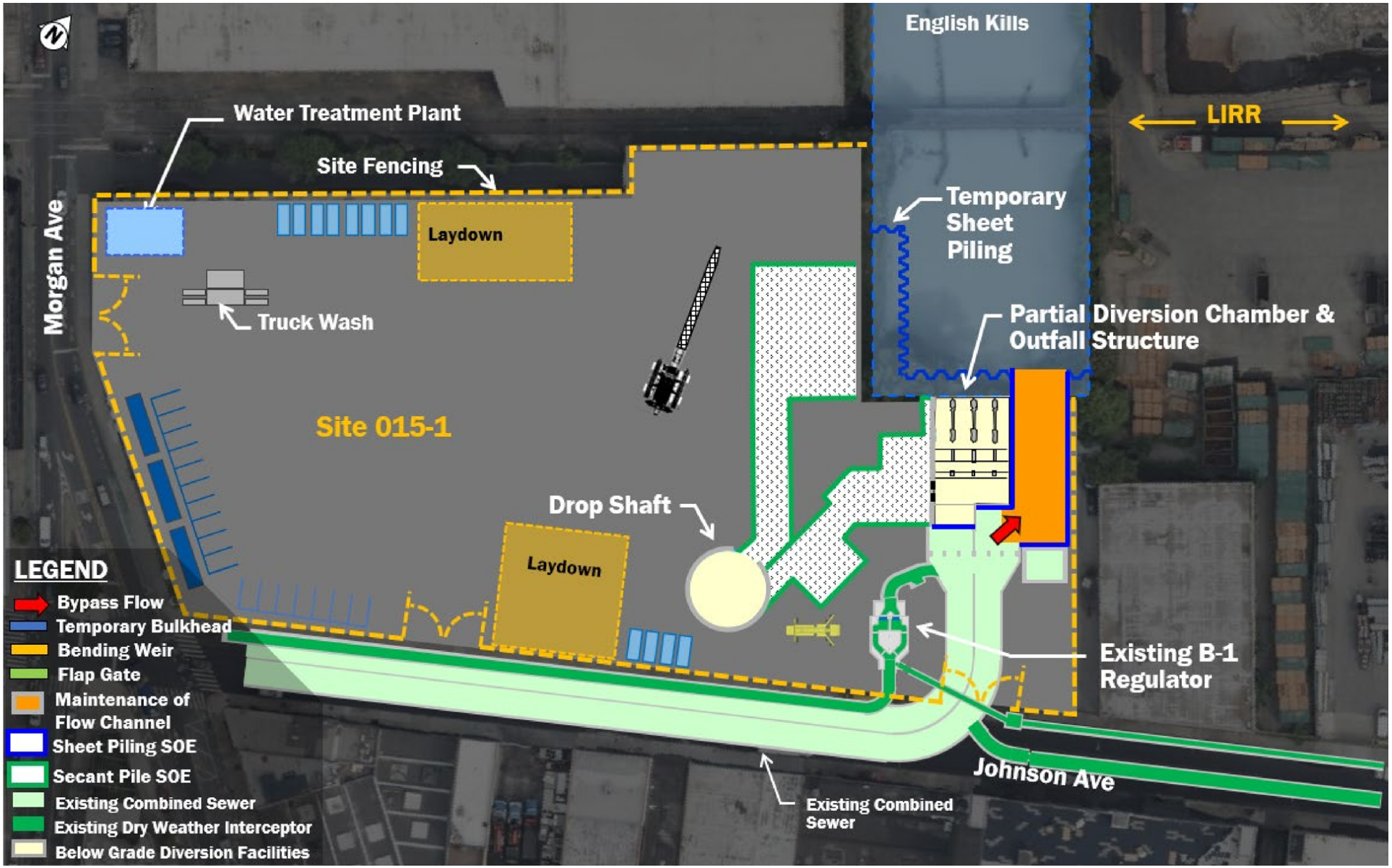
Activities at the NCB-015 diversion facility site are anticipated to take approximately six years to complete, from November 2029 to January 2036.

Demolition

At the NCB-015 diversion facility site, site demolition would first be conducted to accommodate new facility construction. Site demolition activities are anticipated to include clearing and grubbing, removal of existing pavement and concrete curbing, demolition of the existing single-story building on-site, removal of utilities, demolition of existing bulkheads, and removal of various site objects such as fencing and signages. Demolition activities are anticipated to include excavators, compactors, loaders, stump chippers, pavement breakers, and compressors.

Drop Shaft Construction

The drop shaft construction at the NCB-015 diversion facility site would be similar to the approach as described above for the drop shaft at the NCQ-077 diversion facility site.



Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NOTE: CONCEPTUAL DESIGN

NCB-015 Preliminary Construction Site Plan

Diversion Facility Construction

The NCB-015 diversion facility would involve the construction of a new diversion chamber and outfall structure that includes weirs and gates, the construction of an MOF channel to allow flow to continue during construction, and modifications to the existing outfall. The general sequence of construction activities for the diversion facility would be as follows:

- Construct the MOF channel adjacent to the existing outfall.
- Place sheet piling in English Kills and dewater the outfall.
- Place bulkhead gates in the existing outfall during dry weather and demolish the wall of the conduit to connect to the channel.
- Demolish existing outfall conduits downstream of bulkhead gates.
- Excavate the area and construct secant piling SOE system for the outfall structure and diversion facilities.
- Construct the majority portion of the diversion chamber and outfall structure; after the first portion of the outfall structure is constructed, overflows can discharge through there while the remaining portion is constructed.
- Remove the bulkhead gates from the existing outfall conduits and place bulkhead gates within constructed outfall structure.
- Demolish the MOF channel.
- Construct the remainder of the diversion chamber and outfall structure.

Diversion facility construction is anticipated to include crawler cranes, excavators, compactors, pavement breakers, concrete pumps, concrete vibrators, jet grouts, compressors, and generators.

BB-026 DIVERSION FACILITY SITE

A diversion facility would be constructed at outfall BB-026 to divert flow from the outfall to the tunnel. The diversion facility at BB-026 would include a new diversion chamber, outfall structure, a temporary MOF channel to allow wet weather flow to discharge to Newtown Creek while the diversion facilities are being constructed, installation of sheet piles in Dutch Kills and the dewatering of the outfall, and a temporary water treatment plant. The preliminary site plan at the BB-026 diversion facility site is presented in **Figure 3-13**. Additional detail on the anticipated construction activities based on current design at the BB-026 diversion facility site is described below. In addition, a gravity diversion sewer would be constructed to connect the diversion facility at outfall BB-026 to the drop shaft and the nearby subgrade elements including the flap gate structure and approach channel and tunnel and is described in further detail below under “Gravity Diversion Sewer.”

Activities at the BB-026 diversion facility site are anticipated to take approximately two years to complete, from July 2028 to September 2030.



Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NOTE: CONCEPTUAL DESIGN

BB-026 Preliminary Construction Site Plan

Demolition

At the BB-026 diversion facility site, site demolition would first be conducted to accommodate new facility construction. Site demolition activities are anticipated to include clearing and grubbing, removal of existing concrete walls and curbing, removal of utilities, demolition of existing bulkheads, and removal of various site objects such as fencing and signages. Demolition activities are anticipated to include cranes, excavators, compactors, loaders, stump chippers, pavement breakers, and compressors.

Diversion Facility Construction

The BB-026 diversion facility would involve the construction of a new diversion chamber and outfall structure that includes bending weirs and flap gates, the construction of an MOF channel to allow flow to continue during construction, and modifications to the existing outfall. The general sequence of construction activities for the diversion facility would be as follows:

- Install sheet piling SOE system for the MOF channel.
- Construct the MOF channel.
- Place sheet piling in Dutch Kills and dewater the outfall.
- Place bulkhead gates within the existing outfall and demolish the walls to connect to the MOF channel.
- Demolish outfall downstream of bulkhead gate.
- Excavate the area and construct the secant piling SOE system for the diversion chamber, outfall structure, and portion of diversion sewer within the BB-026 diversion facility site.
- Construct the diversion chamber and outfall structure.

Once the outfall structure has been constructed, the bulkhead would be removed and the MOF channel would be demolished. Wet weather flows could then pass through the diversion chamber and through the gravity diversion sewer, once constructed, to the tunnel.

Diversion facility construction is anticipated to include crawler cranes, excavators, compactors, pavement breakers, concrete pumps, concrete vibrators, compressors, and generators.

BB-026 Drop Shaft

Unlike the drops shafts at NCQ-077, NCB-083, and NCB-015, the drop shaft for BB-026 would not be located at the diversion facility site. Instead, the BB-026 drop shaft would be constructed in the City ROW at either north of the intersection of Review Avenue and 35th Street near the tunnel alignment or south of this intersection (see **Figures 3-14a and 3-14b** for preliminary layout plans). The BB-026 drop shaft would be constructed using drilled shaft excavation techniques where a drill rig would first be used to bore a hole into the ground. Permanent pipes would be lowered to the base of that hole and the annular space between the outer drill casing and permanent pipe would be filled with grout. A vent shaft would also need to be installed at this location to properly de-aerate the flows before they enter the CSO storage tunnel. The vent shaft would be installed using a similar method as the drop shaft. The BB-026 drop shaft would connect the base of the drop and vent shafts to the tunnel via an adit, which would be constructed using drill and blast methods. The drill and blast work for the adit would be

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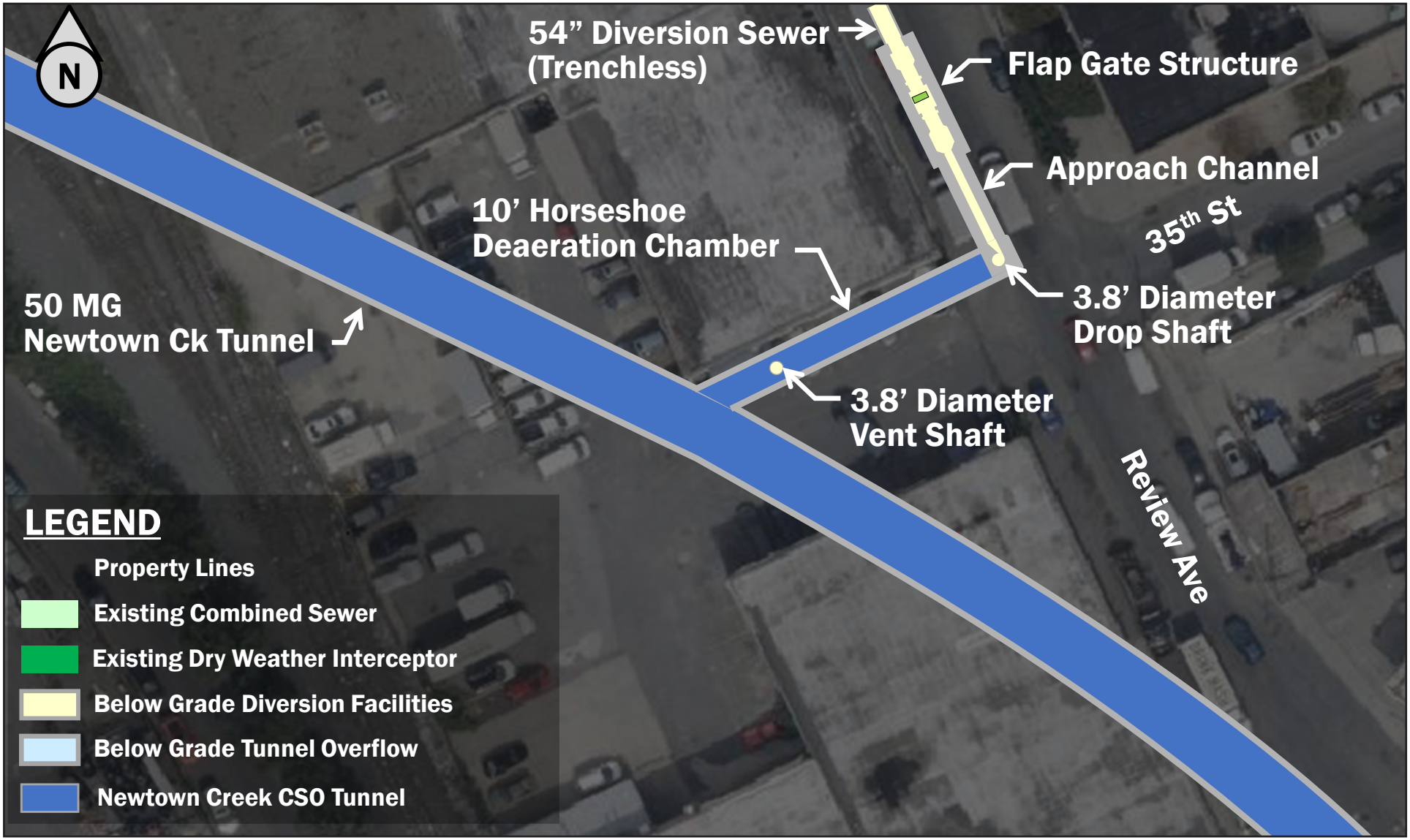

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report (updated in May 2025)

NOTE: CONCEPTUAL DESIGN

BB-026: Preliminary Layout Plan for the Drop Shaft and Adit (North Location)

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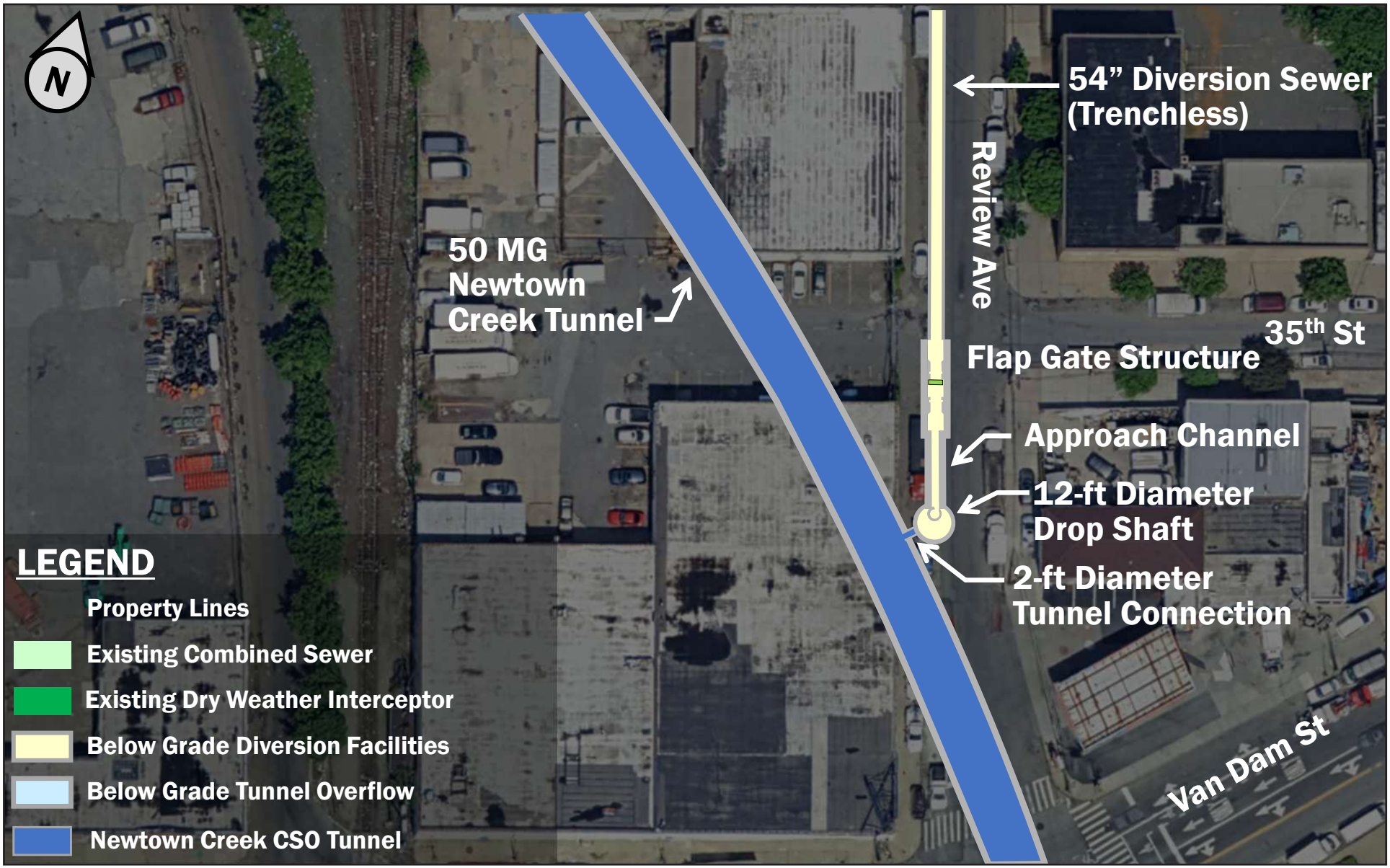

NOTE: CONCEPTUAL DESIGN

BB-026: Preliminary Layout Plan for the Drop Shaft and Adit (South Location)

performed starting from the tunnel and working its way towards the drop pipe. Excavation of the drop shaft and the construction of the adit would be completed prior to the TBM reaching this location.

BB-026 drop shaft construction is anticipated to include a crawler crane, specialty drill rigs, excavators, concrete breakers, a loader, concrete pumps, jet grouts, and generators.

The construction methods for the BB-026 site will be refined during the design and as geotechnical information on the area is received. The methods described herein assume that the adit would be entirely constructed within bedrock. If bedrock is lower than is currently anticipated, a slurry wall supported drop shaft or ground improvement may be used at this site to facilitate construction

GRAVITY DIVERSION SEWER

The Proposed Project would include the construction of a new 54-inch gravity diversion sewer to control CSO discharge from outfall BB-026. A segment of the proposed gravity diversion sewer is being designed and constructed by the New York City Department of Design and Construction (DDC), and would first divert CSO by gravity from the BB-026 outfall to the BAPS. The gravity diversion sewer leading to the BAPS, located on Borden Avenue, would be constructed using a cut and cover technique and would be constructed prior to the completion of the tunnel allowing for diversion of some CSO flows from the BB-026 outfall to the BAPS several years before the tunnel is operational (the connection to BAPS is anticipated to be completed by 2031). CSO would be stored in the gravity diversion sewer during a wet weather event, and then removed by the BAPS and conveyed to the Bowery Bay WRRF. Modifications would be made to the BAPS for the connection of the gravity diversion sewer to the pump station. From the BAPS, the second segment of the gravity diversion sewer, being designed and constructed by DEP, would be micro-tunneled, running south along Review Avenue, and would connect to the tunnel at the proposed BB-026 drop shaft to be constructed near Newtown Creek at the end of 35th Street. Once the tunnel and drop shaft are complete, CSO flows would be diverted from the BAPS and conveyed to the tunnel. Additional details on the cut-and-cover and microtunneling techniques are discussed below.

Cut-and Cover

The gravity diversion sewer segment between the BB-026 diversion facility site and the BAPS would be constructed approximately 20 to 25 feet below grade within the right-of-way using a cut-and-cover (open-cut) method. In this technique, a trench would be excavated from the ground surface. When the work is complete, the area would be backfilled and the surface restored. During construction at street crossings, the trench may be temporarily covered with a deck to allow traffic to pass over the work. Cut-and-cover construction is anticipated to include excavators, compactors, backhoes, loaders, and compressors.

Microtunneling

The segment between the Borden Avenue Pump Station and the BB-026 drop shaft would be installed at an approximate depth of 50 feet below grade. For the microtunnel installation, a 30-foot-long jacking shaft with a secant piling SOE system would first be constructed at the intersection of 29th Street Extension and Review Avenue. The jacking shaft would be used to accommodate the launch of the

microtunnel boring machine (MBTM). The MTBM is similar to the TBM, as both machines use a cutter head to excavate the ground material and construct underground tunnels. However, the MTBM is substantially smaller than the TBM and is controlled at the surface whereas the TBM has a train of equipment, including a control room, behind the cutterhead. After excavation activities for the jacking shaft are completed, a thrust block and a jacking frame, which are used to propel the MTBM forward, would be installed. An entry seal, which would prevent groundwater or slurry from blowing back into the shaft, would also be constructed, followed by the construction of a concrete slab to support the MTBM and pipe sections. Next, the MTBM would be lowered into the jacking shaft to begin the microtunneling operation, with pipe sections for the new gravity diversion sewer loaded into the shaft for installation as the MTBM advances towards the BB-026 drop shaft. During the microtunneling operation, the excavated materials would be mixed with a slurry and then transported to the surface at the jacking shaft, where the mixture would enter a slurry plant for separation.

A receiving shaft would be installed at Review Avenue and 35th Avenue for removal of the MTBM. The receiving shaft would also have a secant piling SOE system but would have a smaller length as compared to the jacking shaft (15 feet instead of 30 feet) since the receiving shaft would only be needed to accommodate machine removal and headwalls for entry seals.

Access shafts would be installed at each end of the microtunnel and along the cut-and-cover portion of the alignment.

In addition to the MTBM, equipment used for microtunneling includes cranes, loaders, compressors, and generators. A slurry plant would also be needed to separate the slurry from the excavated materials. At the slurry plant, the excavated materials would be removed from the slurry so that the clean slurry could be reused during the microtunneling operation.

Gravity diversion sewer activities are anticipated to take approximately 2.5 years to complete, from May 2028 to October 2030, with final lining and connection activities taking an additional nine months to complete from August 2034 to April 2035.

CP-3: TUNNEL DEWATERING PUMP STATION

The main scope of CP-3 involves the final lining for the screening and pump station shafts as well as construction of the TDPS facilities, including a pump station building, a screenings facility, a degritting facility, odor control, electrical, instrumentation, and mechanical equipment, a tunnel overflow structure, a gravity discharge pipe to the Newtown Creek WRRF, yard piping, and site work.

On-site activities for CP-3 are anticipated to take approximately 7 years to complete, from July 2032 to June 2039.

FINAL LINING FOR SCREENING AND PUMP STATION SHAFTS

The final lining system for the screening and pump station shafts would be installed as part of CP-3. The final lining of the screening shaft would consist of reinforced concrete and would range from approximately 2 to 3 feet thick (see **Figure 3-15**). The final lining of the pump station shaft would also consist of reinforced concrete and would range from approximately 3 to 4 feet thick (see **Figure 3-16**).

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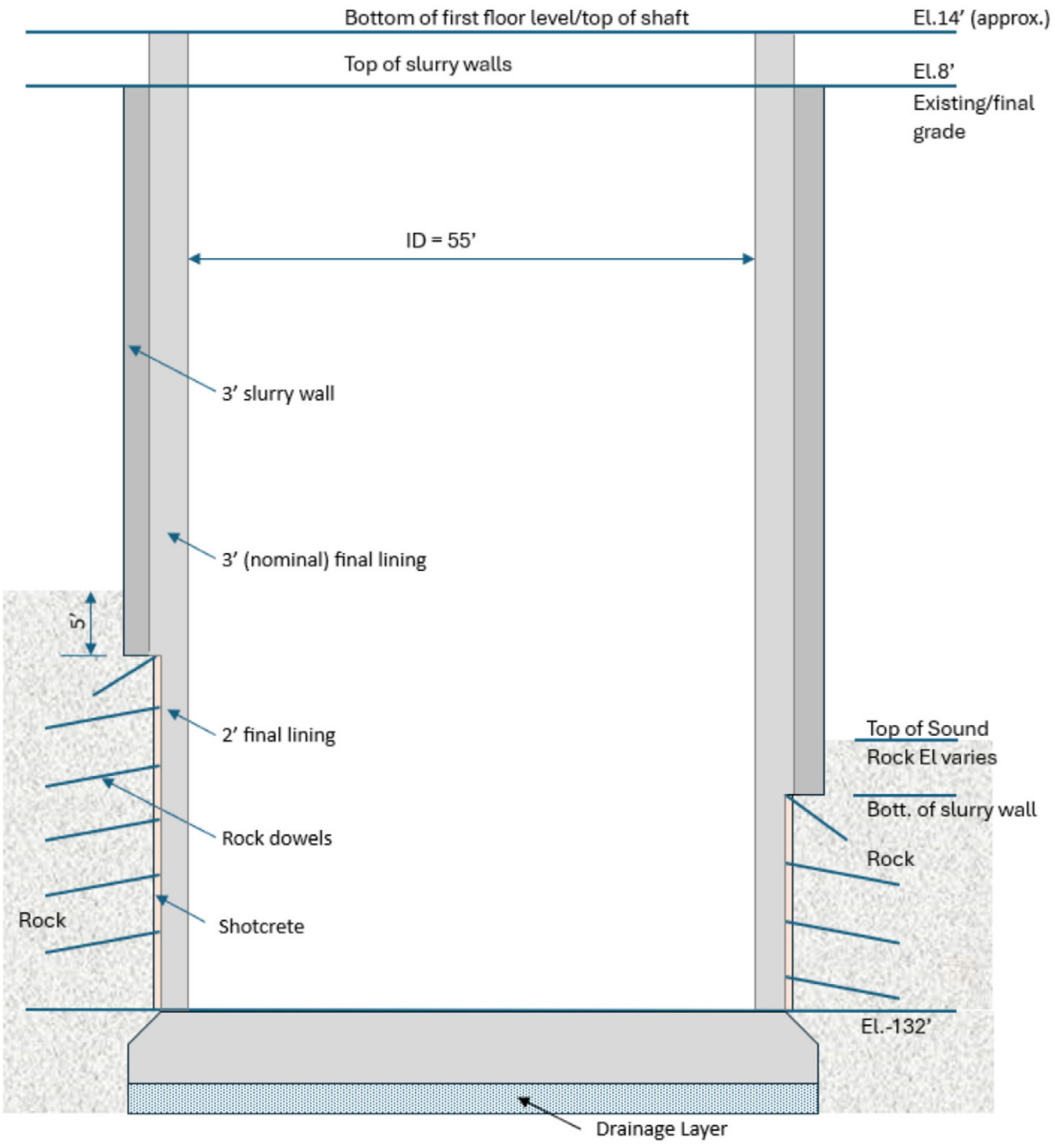

Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NOTE: CONCEPTUAL DESIGN

Screening Shaft Cross-Section (with Final Lining)

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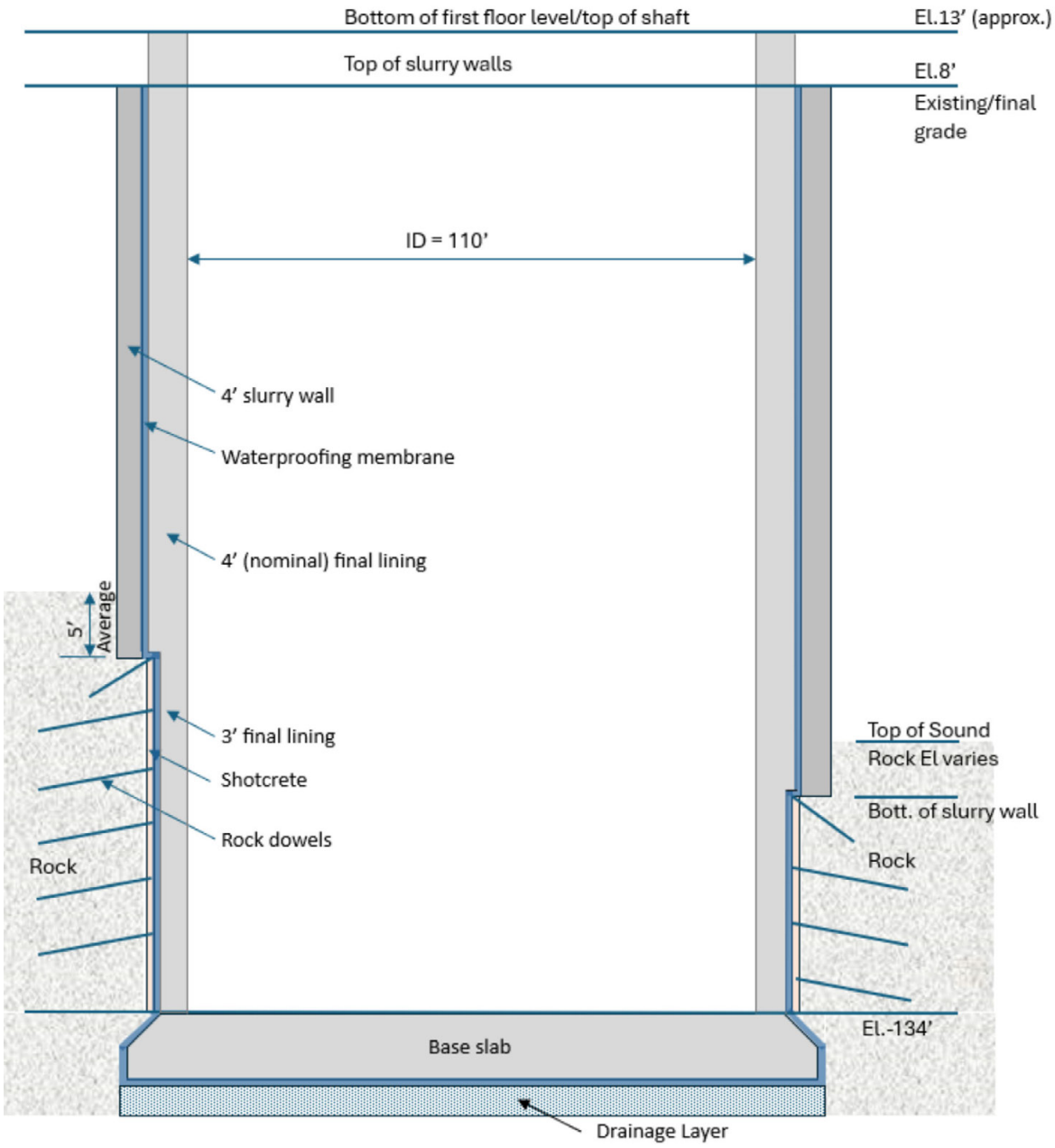


Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report

NOTE: CONCEPTUAL DESIGN

Pump Station Shaft Cross-Section (with Final Lining)

Final lining activities are anticipated to include cranes, wheel loaders, concrete pumps, concrete vibrators, and compressors.

Final lining for the pump station shaft is anticipated to take approximately one year to complete, from September 2032 to August 2033, while final lining for the screening shaft is anticipated to take approximately six months to complete, from November 2033 to April 2034.

TUNNEL DEWATERING PUMP STATION FACILITIES

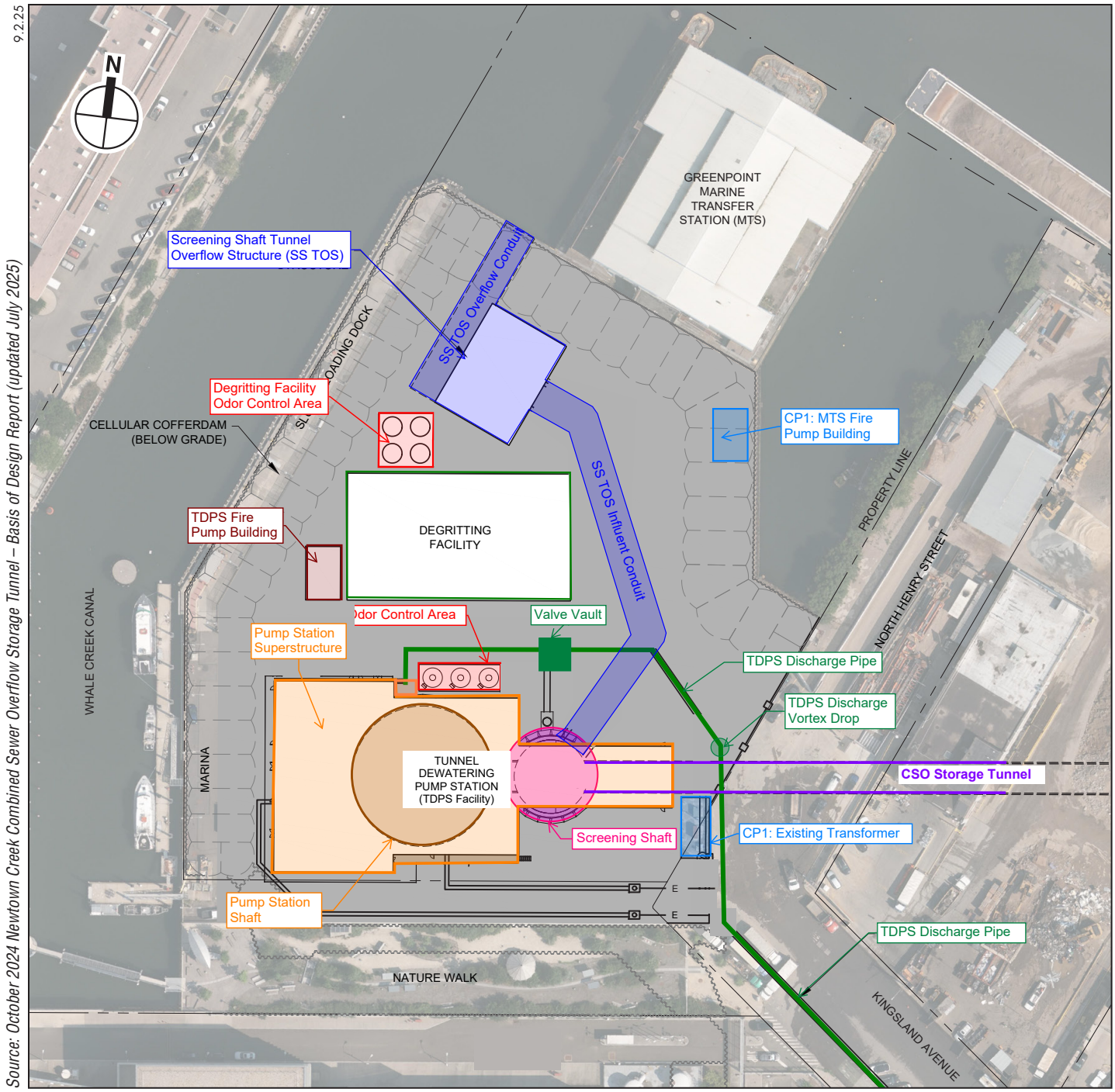
The facilities at the TDPS site would consist of a screening facility that removes large debris from incoming flow that could accumulate or damage downstream equipment, a pump station that pumps stored combined sewage to above-grade structures for degritting or for gravity conveyance to the Newtown Creek WRRF for treatment, a degritting facility to remove grit, odor control equipment to minimize odors, and associated electrical, mechanical and control equipment. The screening facility would be equipped with a vortex drop structure that safely recycles flow back to the screening facility. The TDPS site would also include a screening shaft tunnel overflow structure, which would be connected to the screening shaft through a conduit, to minimize the risk of flooding due to surges and transient activities within the tunnel. **Figure 3-17** presents the preliminary layout of the facilities at the TDPS site.

Facilities construction would begin with excavation of the soils and the construction of the foundations. Next, the below-grade and above-grade structures would be constructed. Finally, mechanical, electrical, plumbing, fire protection, and instrumentation systems would be installed. Facility construction activities are anticipated to include cranes, loaders, dozers, excavators, compactors, concrete pumps, concrete vibrators, saws, welders, and rollers.

Construction of the TDPS facilities is anticipated to take approximately six years to complete, from August 2033 to June 2039.

TDPS DISCHARGE PIPE

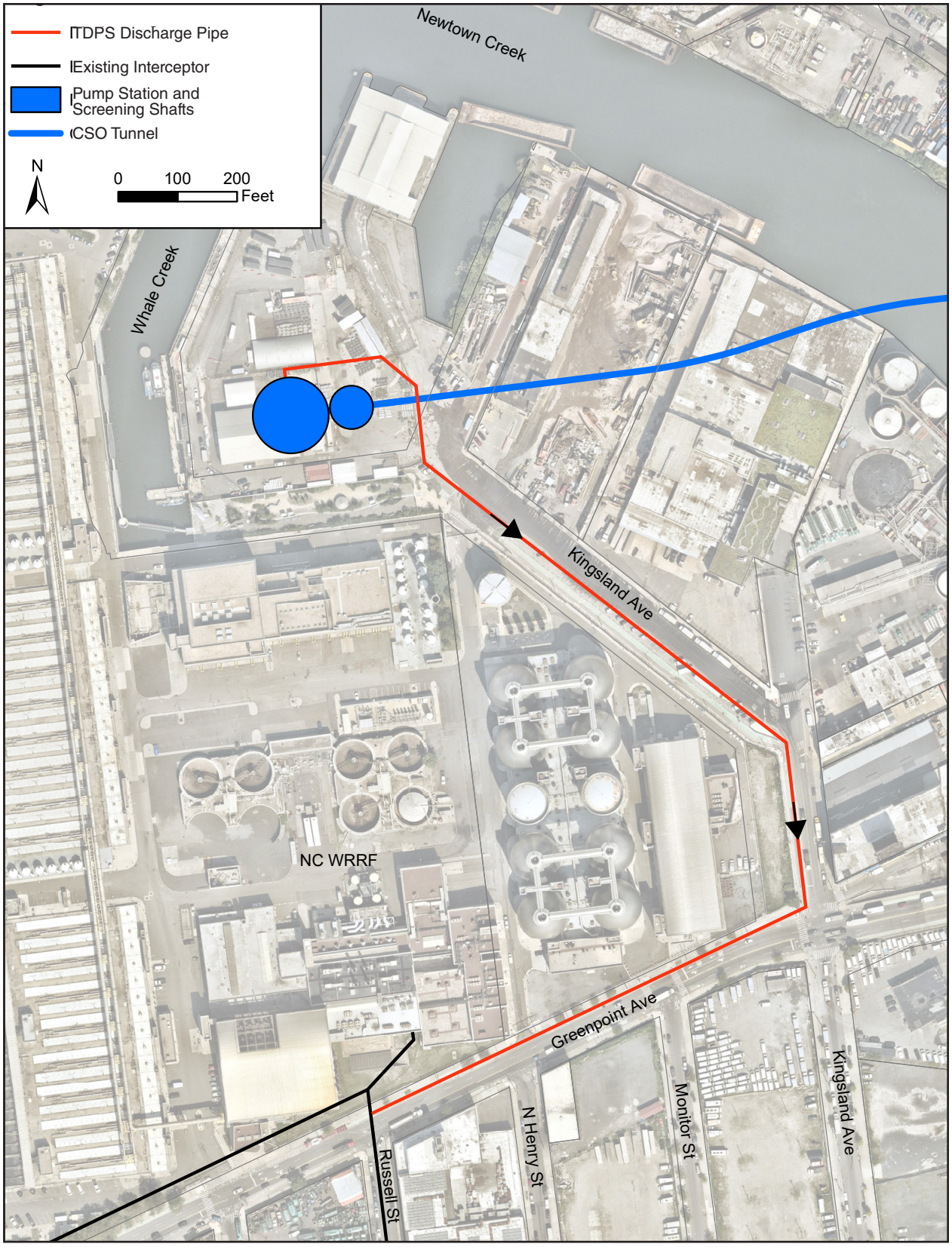
To convey flow from the TDPS facility to the Newtown Creek WRRF, a gravity discharge pipe would be constructed. Either microtunneling techniques or cut-and-cover method as described above for the gravity diversion sewer would be employed for the construction of the gravity discharge pipe. If microtunneling techniques are used, as with the gravity diversion sewer, jacking and receiving shafts are required at all changes in the alignment direction for the discharge pipe. An SOE system approximately 30 feet in diameter would be placed at each change in direction along the alignment and at the crossing of the existing storm sewer at North Henry Street. SOE construction at the shaft locations could range from sheet pile to secant pile design depending on subsurface variables, such as soil type and groundwater elevation. If cut-and-cover method is used, an SOE system would be placed along the entire alignment. Under both construction options, manholes would be installed at each change in direction along the alignment. The TDPS discharge pipe would be constructed under the city ROW, along the west side of Kingsland Avenue between the TDPS and Greenpoint Avenue (see **Figure 3-18**). It would then continue west for three blocks along the north side of Greenpoint Avenue to Russell Street before connecting to the Morgan Avenue interceptor just upstream of the Newtown Creek



NOTE: CONCEPTUAL DESIGN

Proposed TDPS Facility Site Plan

9.2.25



Source: October 2024 Newtown Creek Combined Sewer Overflow Storage Tunnel – Basis of Design Report (updated July 2025)

NOTE: CONCEPTUAL DESIGN

TDPS Discharge Pipe Alignment

WRRF. TDPS discharge pipe construction is also anticipated to include cranes, excavators, MTBM, dozers, and compressors.

Construction of the TDPS discharge pipe is anticipated to take approximately six months to complete, from January 2035 to June 2035.

SITE WORK

Site work activities at the TDPS site could include a combination of pavement, curbing, landscaping, planting, and utility pole restoration. Site work activities are anticipated to include a hydraulic crane, backhoe loaders, dozers, and rollers.

Site work activities are anticipated to take approximately three months to complete, from October 2036 to January 2037.

C. CONSTRUCTION SCHEDULE

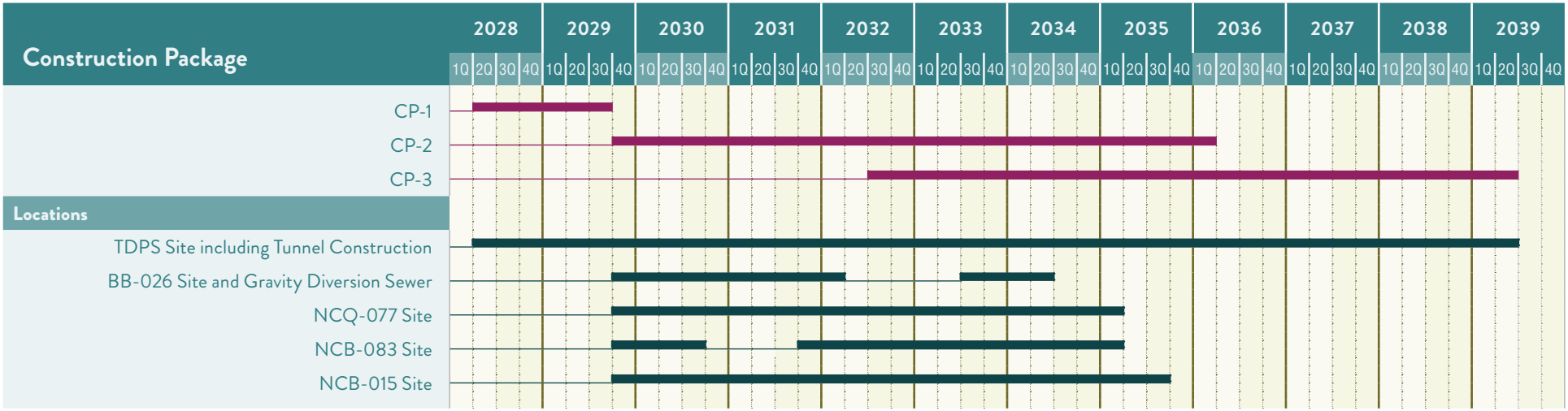
Figure 3-19 illustrates the anticipated construction schedule and durations for the Proposed Project. The overall construction of the Proposed Project is currently anticipated to take approximately 11 years to complete, from April 2028 to June 2039, with full operation in 2040 after testing and commissioning. As discussed above, on-site construction activities for CP-1 are anticipated to take approximately 1.5 years to complete, from April 2028 to October 2029. On-site construction activities for CP-2 are anticipated to take approximately 6 years to complete, from October 2029 to October 2035. On-site activities for CP-3 are anticipated to take approximately 7 years to complete, from July 2032 to June 2039.

D. CONSTRUCTION PRACTICES

This section describes the construction practices that would be employed for the Proposed Project, including hours of work, site access, sidewalk, land, and street closures, parking, public safety, pest control, erosion and sediment control plans, and barging operations.

HOURS OF WORK

Permissible construction hours in accordance with New York City laws and regulations are from 7 AM to 6 PM on weekdays. The construction schedule for the Proposed Project assumes that with the exception of tunnel construction, final lining work for the shafts, and microtunneling of the gravity diversion sewer, construction activities would typically occur in one 10-hour shift from 7 AM to 5 PM, five days a week on weekdays with the potential for some work on weekends to make up for weather delays and/or accelerate the project construction schedule as determined by the construction contractor. Tunnel construction and associated support activities at the TDPS site are anticipated to occur 24 hours per day in three 8-hour shifts, at least five days a week with weekend maintenance. Final lining work for the six shafts (pump station and screening shafts at the TDPS site and the drops shafts for the BB-026, NCQ-077, NCB-083, and NCB-015 outfalls) are also anticipated to be conducted over three 8-hour shifts, five days a week. Microtunneling activities are anticipated to be conducted over two 12-hour shifts, five days a week.



NOTE: Overall construction is currently anticipated from April 2028 to June 2039, with full operation in 2040 after testing and commissioning

Anticipated Construction Schedule

Applicable work permits from the New York City Department of Buildings (DOB) would be obtained for any necessary work outside of the permissible construction hours (7 AM to 6 PM on weekdays) for weekend or night work.

SITE ACCESS

Based on the current design, the vehicular access/egress locations at each of the project sites are anticipated to be as follows:

- TDPS Site – one access/egress point along Kingsland Avenue at North Henry Street (see **Figure 3-1**)
- NCQ-077 Site – one access/egress point along 49th Street and one access/egress point along Railroad Place (see **Figure 3-8**)
- NCB-083 Site – one access/egress point along Metropolitan Avenue (see **Figure 3-9**)
- NCB-015 Site – one access/egress point along Morgan Avenue and two access/egress points along Johnson Avenue at two locations (see **Figure 3-11**)
- BB-026 Site – two access/egress points along 47th Avenue (see **Figure 3-12**)
- BB-026 Drop Shaft and Adit – two access/egress points along Review Avenue

SIDEWALK, LANE, AND STREET CLOSURES

Maintenance and Protection of Traffic (MPT) plans would be developed for any required temporary sidewalk, lane, and/or street closures to ensure the safety of the construction workers and the public passing through the area. Approval of these plans and implementation of the closures would be coordinated with the New York City Department of Transportation (NYCDOT) Office of Construction Mitigation and Coordination (OCMC). Measures specified in the MPT plans that are anticipated to be implemented may include but are not limited to the following: sidewalk closures; curbside moving lane closures; safety signs; safety barriers; and construction fencing. The final MPT plans, together with Traffic Stipulations to be issued by the NYCDOT, would be implemented as part of the Proposed Project.

Based on preliminary logistics plans, the following areas may result in the narrowing and closure of the city ROW, including roadways (i.e., travel and parking lanes) and pedestrian facilities (sidewalks, corner reservoirs, and crosswalks):

- TDPS site – minimal roadway disruptions are anticipated, as all activities would occur within the site.
- TDPS discharge pipe – If cut-and-cover method is used, the discharge pipe construction between the TDPS site and Newtown Creek WRRF would temporarily displace parking (approximately 73 spaces along Kingsland Avenue) and other curbside uses along affected roadways, including bike lanes on the north side of Greenpoint Avenue. However, travel/passage of all roadway users are expected to be maintained throughout. If microtunneling techniques are used, the disruptions would be limited to the jacking and receiving shaft locations that are required at all changes in the alignment direction for the discharge pipe.

- Gravity diversion sewer – the cut-and-cover portion of the gravity diversion sewer would temporarily displace approximately up to 193 parking spaces, including the spaces along 30th Street between Borden Avenue and Hunters Point Avenue, along 30th Street between Hunters Point Avenue and 48th Avenue, along Review Avenue between 29th Street and 35th Street, and along 47th Avenue between 29th Street and 30th Street on one or both sides of the affected roadways, however, travel lanes on the majority of the affected roadways would be maintained throughout. In addition, at the BB-026 jacking shaft (near the intersection of Review Avenue and 30th Street) and drop shaft locations (near the intersection of Review Avenue and 35th Street), as with the cut-and-cover construction, construction would extend into the city ROW roadways to accommodate construction and one or more travel lanes may be temporarily closed at these locations.
- NCQ-077 diversion facility site – Railroad Place would be closed at the southeastern portion of the site to accommodate construction of the MOF channel and the outfall structure (see **Figure 3-8**). To accommodate traffic during the construction period, a new two-way detour access roadway would be constructed along the northern edge of the NCQ-077 site, connecting to 49th Street, to accommodate access to the construction site, as well as adjacent businesses, including the Amazon distribution facility. The closure of Railroad Place would result in the temporary displacement of up to approximately 20 parking spaces. It should be noted that since the Railroad Place closure is expected to last longer than 180 days, a Community Reassessment, Impact and Amelioration (CRIA) statement, which is a form of an EAS, is typically required. However, since public review would be undertaken as part of the approval process for this Environmental Impact Statement (EIS), the completion of that process would also satisfy the corresponding CRIA requirements.
- NCB-083 diversion facility site – the traffic lanes on Metropolitan Avenue south of the NCB-083 site are expected to be shifted south to accommodate construction activities at the NCB-083 site **(**see **Figure 3-9)** with temporary displacement of up to approximately 14 parking spaces, however all travel lanes along Metropolitan Avenue are expected to be maintained throughout.
- NCB-015 diversion facility site – no roadway disruptions are anticipated as all activities are anticipated to occur within the site.
- BB-026 diversion facility site – no roadway disruptions are anticipated as all activities are anticipated to occur within the site.

The potential transportation effects of these disruptions are presented in Chapter 15, "Traffic and Transportation."

PARKING

Each of the project sites (TDPS site and BB-026, NCQ-077, NCB-083, and NC-015 diversion facility sites) are anticipated to include some level of on-site parking for construction workers to accommodate portions or all of the parking needs during the construction period. Parking for construction workers would also be generally available with on-street parking spaces within a ¼-mile radius of the project sites.

PUBLIC SAFETY

A variety of measures would be employed to ensure public safety during the construction of the Proposed Project. These would include the erection of construction site perimeter fences and safety signs. Flaggers would be posted as necessary to control trucks entering and exiting the construction areas and/or to provide guidance for pedestrian and bicyclist safety. All applicable safety requirements (i.e., New York City Department of Buildings [DOB]) would be followed, and construction of the Proposed Project would be undertaken to ensure the safety of the public and minimize the disruption to the community.

PEST CONTROL

Construction contracts may include provisions for a pest control program. Before the start of construction, the contractor would survey and bait the appropriate areas and provide for proper site sanitation. During construction, the contractor would carry out a maintenance program, as necessary. Signage would be posted, and coordination would be conducted with appropriate public agencies.

EROSION AND SEDIMENT CONTROL PLANS

As discussed in detail in Chapter 11, "Natural Resources," construction of the Proposed Project would be undertaken in accordance with erosion and sediment control plans and best management practices incorporated into the stormwater pollution prevent plans (SWPPP) prepared for the Proposed Project, as required under the State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities. Erosion and sediment control measures implemented in accordance with the SWPPPs (e.g., silt fencing, inlet protection) would minimize the discharge of materials to Newtown Creek during upland construction activities. This may include the installation of hydrodynamic separators upstream of stormwater discharge points to provide water quality controls.

BARGING OPERATION

Barging may be used in lieu of trucks to transport excavated materials generated during construction from the TDPS site since it is the location where excavated materials would be removed from tunnel construction, screening shaft, and pump station shaft construction. Being adjacent to Newtown Creek and its inlet, Whale Creek, the TDPS site contains the MTS where indoor and outdoor mooring slips exist to accommodate barge loading.

A typical scenario would use barges with a load capacity of approximately 1,600 tons and dimensioning consistent to allow up to two barges within the available space inside the MTS with additional mooring adjacent to the facility on the Whale Creek side. This would allow for up to four barges to be filled per day during peak production rates estimated at 5,500 tons per day while tunneling through soil. While tunneling through bedrock, one to two barges per day can be expected to be utilized during peak production generating an estimated volume of 1,800 tons per day. Approximately one barge per day is assumed during shaft excavation when approximately 800 to 900 tons per day of excavated material are expected to be generated.

Once a barge becomes full, a tugboat would remove it from the work area and replace it with an empty one. Two barges could be moored within the MTS during loading while two more barges could be moored just west of the MTS along Whale Creek. Having the availability for the extra barge slips may allow for segregation of potentially contaminated soils within the barges reducing the need for onsite stockpiles. The barging contractor would tie the full barges into a tow of two or more barges and navigate them to an unloading or transfer facility to reduce the overall number of navigational trips from the site to the destination facility.

In addition to barges that support tunnel and shaft excavation activities, equipment delivery and supply barges may also be utilized during construction of the Proposed Project. This could include large equipment (e.g., TBM) and pre-cast tunnel segment delivery. Barging allows for a greater volume of material to be moved at a time and would significantly reduce congestion on local roadways and traffic patterns. The use of barges and associated tugboats would have a positive benefit on construction traffic by reducing construction trucks on local roadways transporting materials to/from the TDPS site. However. although the reduction in truck traffic would result in lower air and noise emissions along these local roadways, there could be an increase in air and noise emissions along Newtown Creek from the tugboats that are required to maneuver the barges. The potential air quality and noise effects of tugboat operations are analyzed and presented in Chapter 17, “Air Quality,” and Chapter 19, “Noise,” respectively.

A. INTRODUCTION

A land use, zoning, and public policy analysis evaluates the uses and development trends in an area that may be affected by a project and determines whether that project is compatible with those conditions or may affect them. This chapter considers the consistency with the uses in the area around Newtown Creek and the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project (the "Proposed Project") and the Proposed Project's compliance with, and potential effect on, the area's zoning and other applicable public policies, including the City's Waterfront Revitalization Program (WRP).

PRINCIPAL CONCLUSIONS

The analysis concludes that the Proposed Project would be compatible with existing land use in the surrounding area and that construction and operation of the Proposed Project would not result in any significant adverse impacts to land use, zoning, or public policy. The Proposed Project would include new infrastructure that would primarily be underground, and which would not result in changes to land use at the affected properties; changes to land use would occur at the diversion facility sites, which currently contain primarily surface parking, vacant land/buildings, and manufacturing uses. However, the Proposed Project's facilities would be part of the extensive sewer infrastructure system present in the study area and would be compatible with the existing sewer infrastructure and other uses in the study area. The Proposed Project would meet all applicable zoning requirements and would be consistent with and supportive of the public policies applicable to the Proposed Project sites and the study area.

B. METHODOLOGY

The 2021 *City Environmental Quality Review (CEQR) Technical Manual* indicates that a land use, zoning, and public policy assessment should be provided for all projects that would affect land use, zoning, or public policy, regardless of the project's anticipated effects. Accordingly, an analysis has been prepared that describes the existing land uses in the area of the Proposed Project, as well as the current zoning regulations applicable to the Proposed Project site(s) and the surrounding area, and any relevant public policies. The analysis also describes anticipated future conditions for the 2040 analysis year, including anticipated changes in land use and any anticipated modifications to zoning regulations and public policies. The analysis considers any changes to land use that would occur as a result of the Proposed Project and identifies those changes, if any, that could be adverse, such as a use that is incompatible with other uses in the surrounding area. The analysis also describes any changes to zoning regulations and/or public policies that would occur as a result of the Proposed Project and assesses the

Proposed Project's compatibility with those regulations and policies. In particular, the analysis provides an assessment of the Proposed Project's consistency with the City's coastal policies in the WRP.

The primary study area for the land use, zoning, and public policy analysis encompasses the Proposed Project: the CSO tunnel alignment,[1] the gravity diversion sewer connecting outfall BB-026 to the CSO tunnel, the tunnel dewatering pump station (TDPS), the TDPS discharge pipe, and diversion facilities.

The secondary study area is an area within a 400-foot radius of the Proposed Project and includes communities and uses that could potentially be affected by the Proposed Project. As shown in **Figure 4-1**, the 400-foot secondary study area generally extends from Skillman Avenue, in Queens, in the north, Whale Creek, in Brooklyn, in the west, Calvary Cemetery and 56th Road to the east, Page Place and Grand Avenue to the southeast, and Ingraham Street to the south.

Existing land uses were identified through review of a combination of sources, including field surveys and secondary sources, as well as the City's Primary Land Use Tax Lot Output (PLUTO) data files for 2024 and websites, such as New York City's Zoning and Land Use Map (ZoLa[2]) and NYCityMap.[3] New York City Zoning Maps and the New York City Zoning Resolution (ZR) were consulted to describe existing zoning districts and provided the basis for the zoning evaluation of the future No Action and future With Action conditions. Relevant public documents including documents recognized by City agencies were utilized to describe existing public policies pertaining to the study areas.

As described in Chapter 1, "Project Description," the Proposed Project would affect up to 99 properties: 9 properties are City-owned and require only site selection approval, and up to 90 properties are privately owned and require both site selection and acquisition approval. Of the 90 properties requiring both site selection and acquisition approval, 4 require fee simple acquisition (for the diversion facilities at NCQ-077, NCB-083, and NCB-015), up to 83[4] require subterranean easements along the proposed tunnel and gravity diversion sewer alignments (including one property that also requires both acquisition of a permanent surface easement and a temporary construction easement, and one property that also requires acquisition of a temporary construction easement), and 3 properties require both acquisition of permanent surface and temporary construction easements (but no subterranean easement) at the BB-026 diversion facility site. The properties currently expected for acquisition and mapping of easements are provided in **Appendix A.**

[1] The project limits for the CSO tunnel includes potential CSO tunnel alignment alternatives currently under consideration. As such, the CSO tunnel alignment study area is inclusive of the project limits.

[2] https://zola.planning.nyc.gov

[3] http://gis.nyc.gov/doitt/nycitymap/

[4] Total number of properties potentially requiring subterranean easements includes all properties where subterranean easement is potentially needed for the CSO tunnel based on tunnel alignment alternatives currently under consideration.



Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-1

C. EXISTING CONDITIONS

PRIMARY STUDY AREA

The primary study area includes the area directly affected by the Proposed Project, including the proposed CSO tunnel, gravity diversion sewer, TDPS, TDPS discharge pipe, and diversion facilities.

CSO TUNNEL

The proposed CSO tunnel would be 3.26 miles long and stretch from Blissville, Queens, in the north to East Williamsburg, Brooklyn, in the south (see **Figures 4-2a to 4-2i**). The CSO tunnel, while below grade, would cross underneath Newtown Creek and its tributaries, potentially up to approximately 96 publicly and privately owned lots,[5] and public streets and sidewalks in Brooklyn and Queens. The existing zoning and land uses of the areas adjacent to Newtown Creek are primarily industrial, and the lots the CSO tunnel would traverse are generally industrial, manufacturing, parking, or vacant.

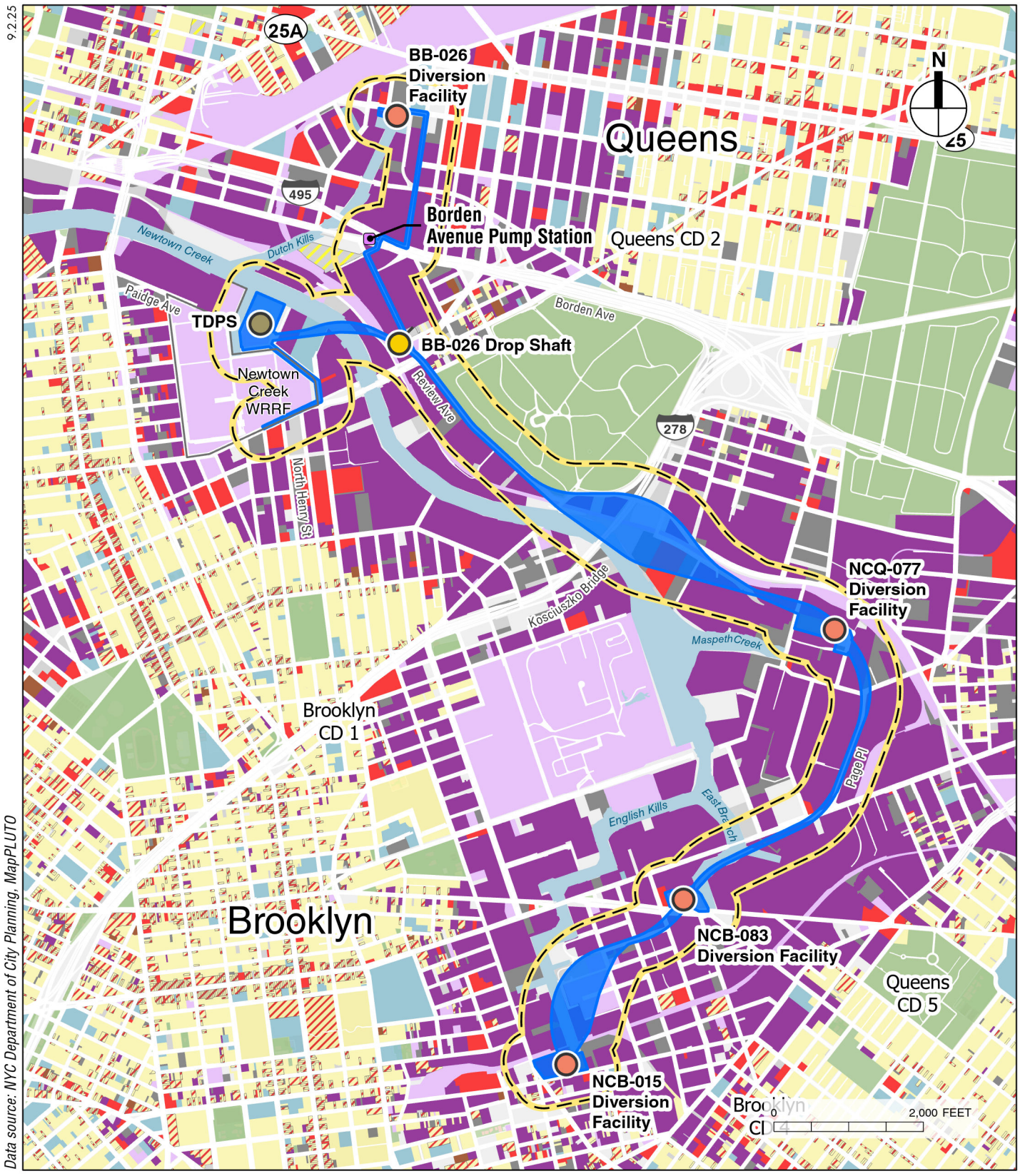
GRAVITY DIVERSION SEWER

The gravity diversion sewer would be a below-grade pipe located in Blissville, Queens that connects the BB-026 outfall to the Borden Avenue Pump Station (BAPS) and the CSO tunnel (see **Figure 4-2b**). The gravity diversion sewer alignment would begin at the BB-026 diversion facility and would run east along 47th Avenue to 30th Street where it would connect to the BAPS at Borden Avenue and Review Avenue, then would continue south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration). Unlike the CSO tunnel, the gravity diversion sewer would be located within the City's right-of-way, and would not cross underneath Newtown Creek, its tributaries, or publicly or privately owned lots.

TDPS SITE

The proposed TDPS site would include one property located at 1 Kingsland Avenue (Brooklyn Block 2508, Lot 1) located in the Greenpoint neighborhood of Brooklyn (see **Figure 4-2b**). The lot is owned by the New York City Department of Sanitation (DSNY) and is currently occupied by the former Greenpoint Marine Transfer Station (MTS) and its access ramp, warehouses, docking facilities, and sludge handling facilities. The MTS, its access ramp, and warehouses are owned and operated by DSNY while the docking facilities and sludge handling facility are operated by the New York City Department of Environmental Protection (DEP). The site contains four buildings ranging from one to two stories in height. These buildings are generally set back from the street frontages with the DSNY-owned MTS elevated on the northern peninsula of the site and surrounded by water on three sides. The MTS was originally used to load refuse onto barges for transport to disposal facilities throughout the City but is now used for material storage and as a docking station for DEP boats. The MTS ramp is approximately

[5] The total of 96 properties does not include three additional lots at the BB-026 site that would be affected by the diversion facility and gravity diversion sewer, but which are not along the CSO tunnel alignment.



NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Land Use

Figure 4-2a

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

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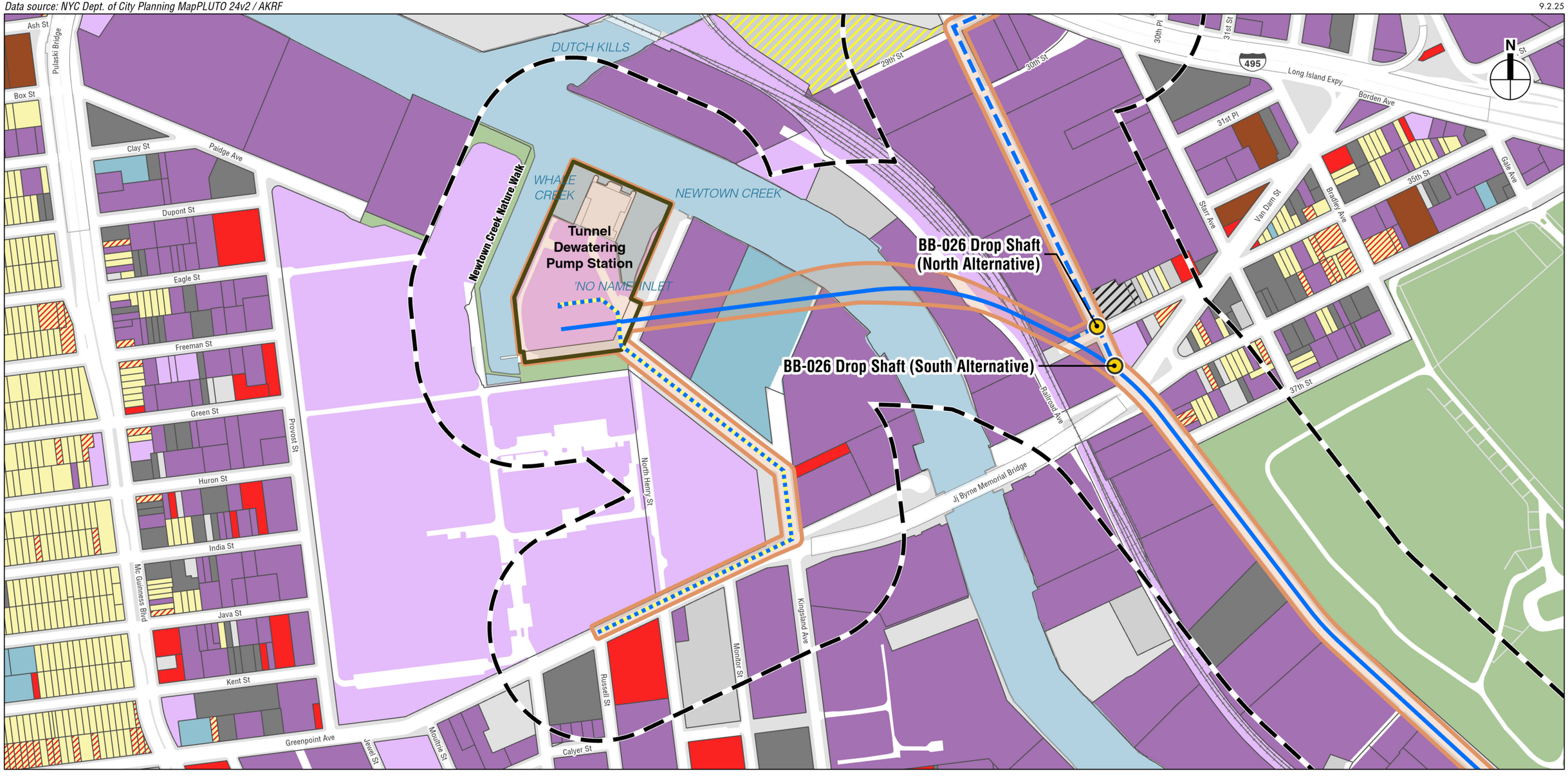


Project Limits

Study Area (400-foot perimeter)

TDPS Site

Potential CSO Tunnel Alignment

Gravity Diversion Sewer

TDPS Discharge Pipe

Approximate Drop Shaft Location

Commercial and Office Buildings

Hotels

Industrial and Manufacturing

Open Space and Outdoor Recreation

Parking Facilities

Public Facilities and Institutions

Residential

Residential with Commercial Below

Transportation and Utility

Under Construction

Vacant Building

Vacant Land



0 200 FEET

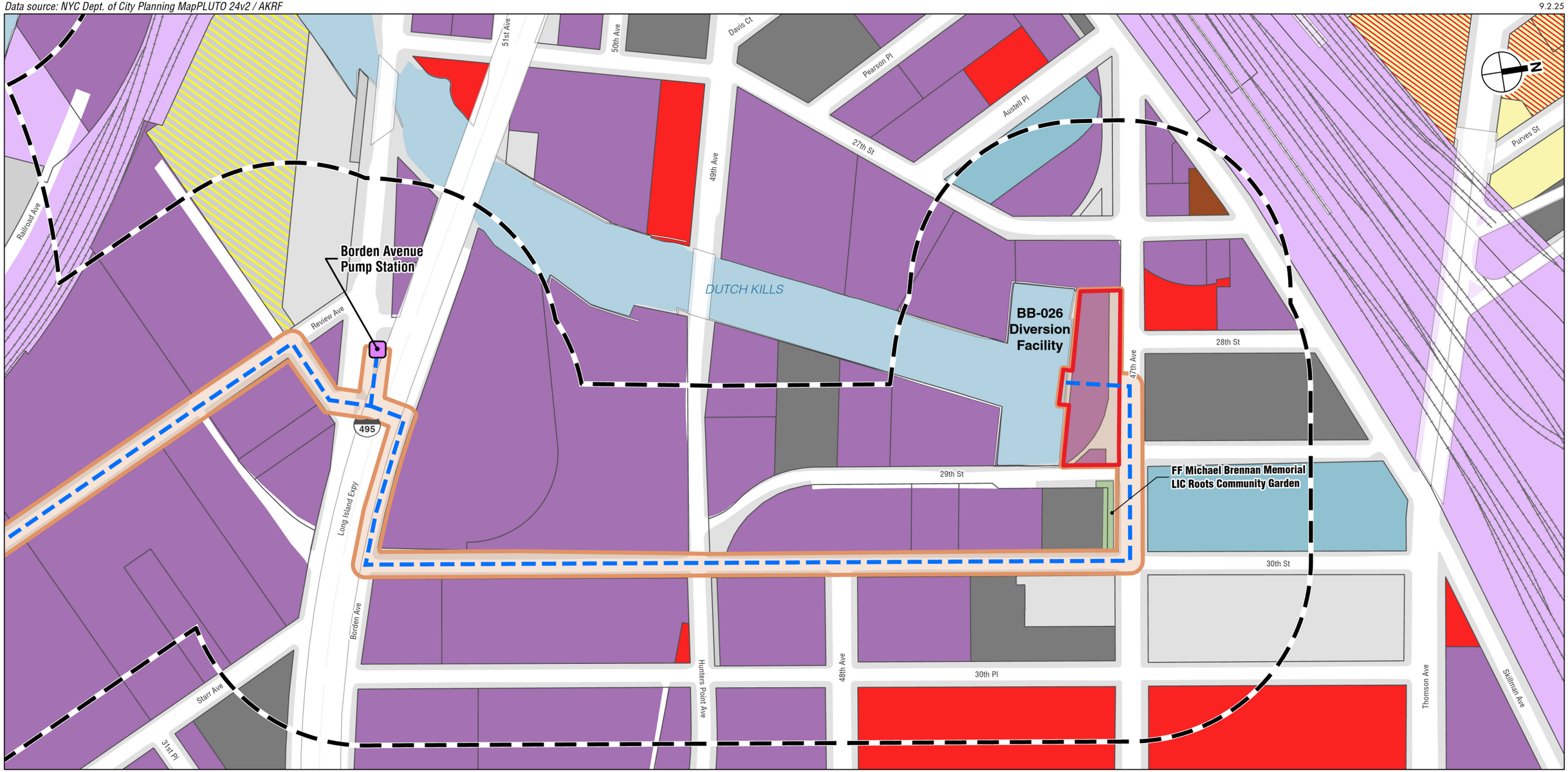
Existing Land Use

Figure 4-2b

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Gravity Diversion Sewer

Commercial and Office Buildings

Hotels

Industrial and Manufacturing

Parking Facilities

Public Facilities and Institutions

Residential

Residential with Commercial Below

Transportation and Utility

Under Construction

Vacant Land



0 200 FEET

Existing Land Use

Figure 4-2c

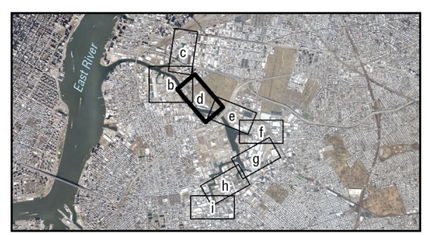
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

9.2.25



- *Project Limits*
- *Study Area (400-foot perimeter)*
- *Potential CSO Tunnel Alignment*
- *Gravity Diversion Sewer*
- *Approximate Drop Shaft Location*
- *Commercial and Office Buildings*
- *Hotels*
- *Industrial and Manufacturing*
- *Open Space and Outdoor Recreation*
- *Parking Facilities*
- *Public Facilities and Institutions*
- *Residential*
- *Residential with Commercial Below*
- *Transportation and Utility*
- *Vacant Building*
- *Vacant Land*



0 200 FEET

Existing Land Use

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-2d

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

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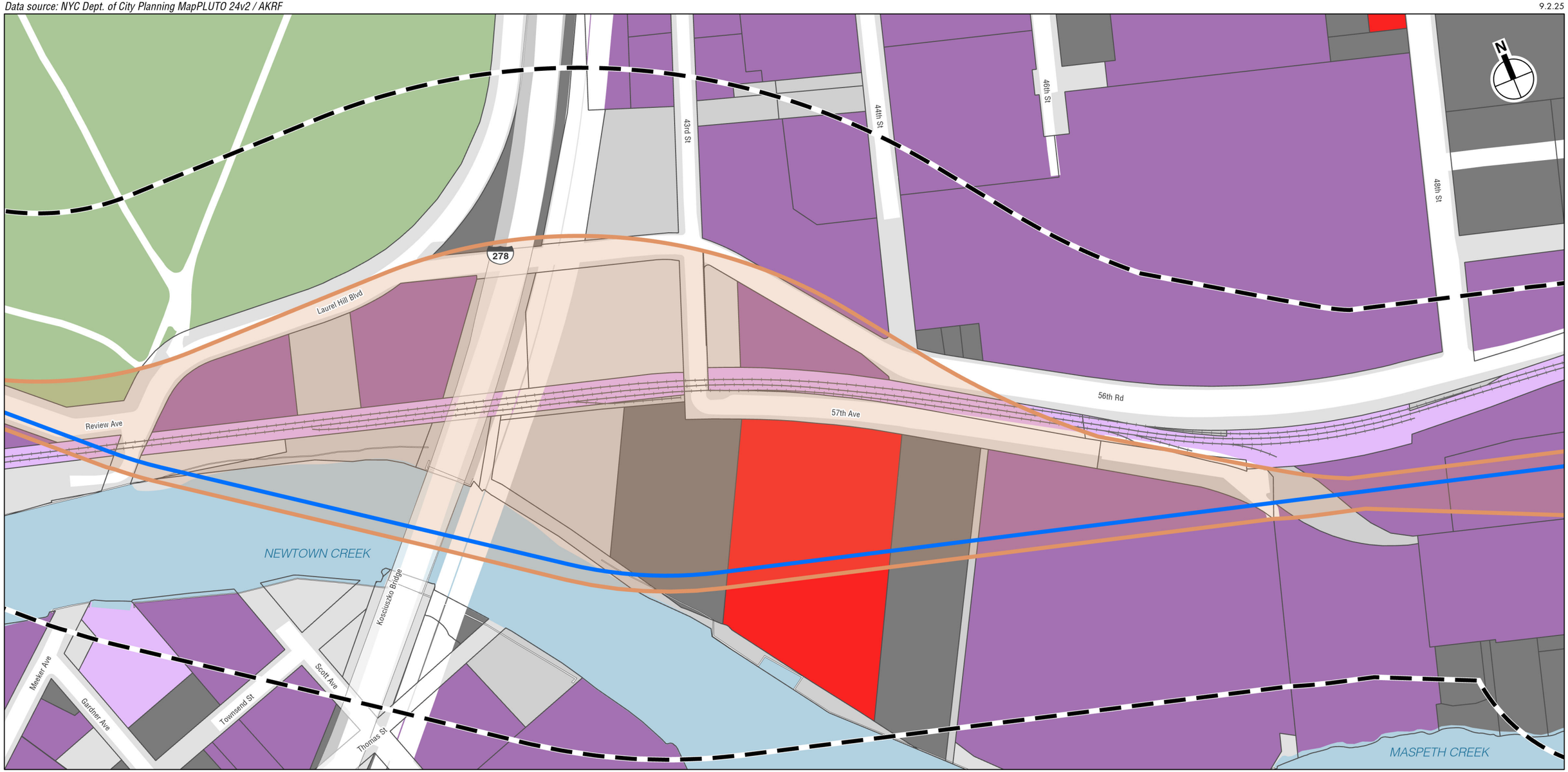


Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Commercial and Office Buildings

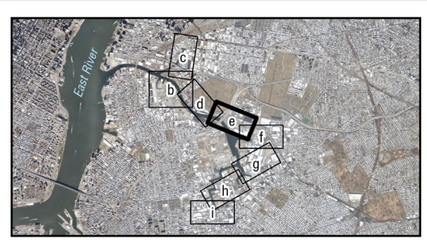
Industrial and Manufacturing

Open Space and Outdoor Recreation

Parking Facilities

Transportation and Utility

Vacant Land



0 200 FEET

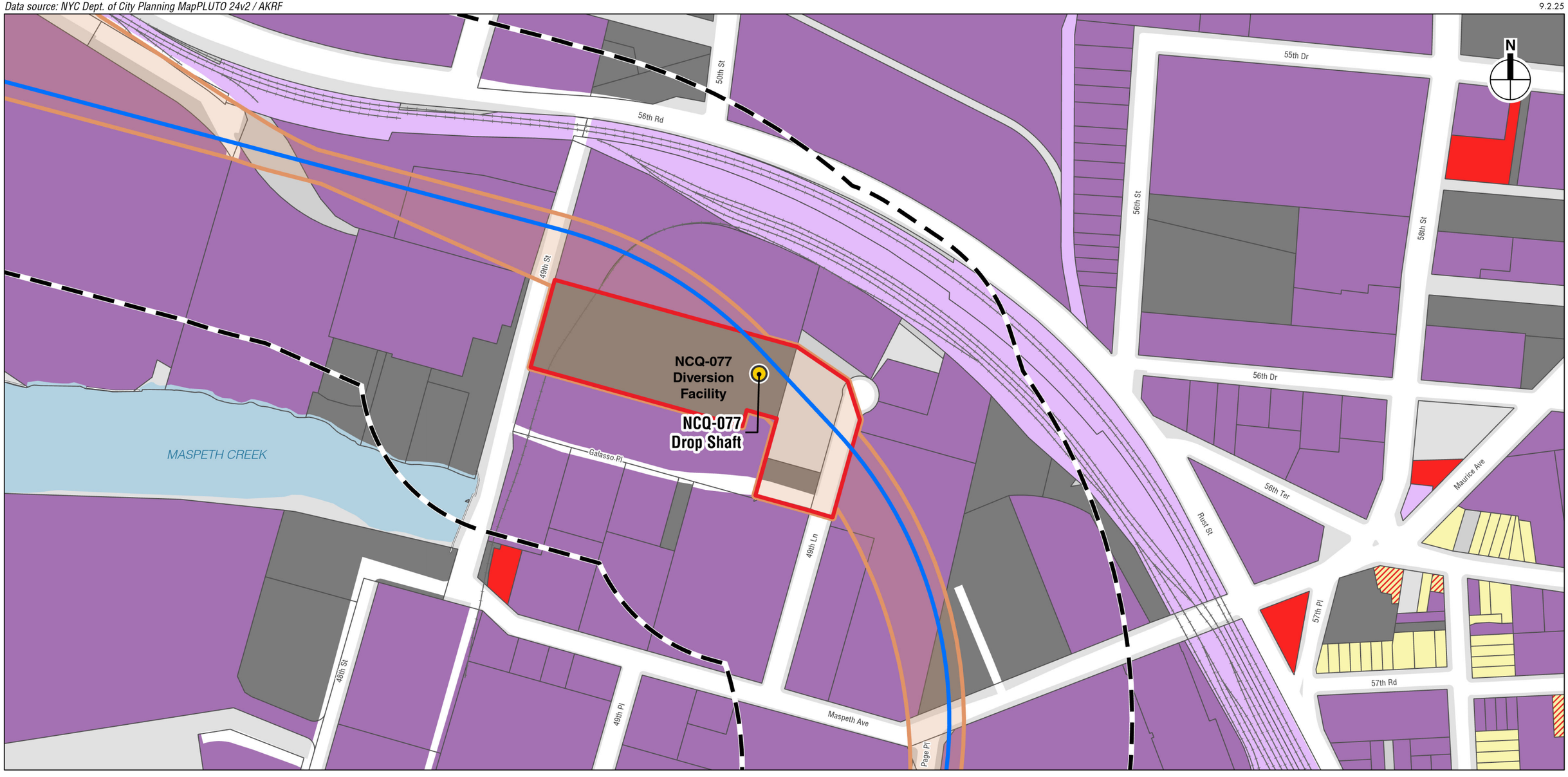
Existing Land Use

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-2e

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Commercial and Office Buildings

Industrial and Manufacturing

Parking Facilities

Residential

Residential with Commercial Below

Transportation and Utility

Vacant Land



0 200 FEET

Existing Land Use

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-2f

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

9.2.25



Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Commercial and Office Buildings

Industrial and Manufacturing

Parking Facilities

Residential with Commercial Below

Transportation and Utility

Vacant Land



0 200 FEET

Existing Land Use

Figure 4-2g

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

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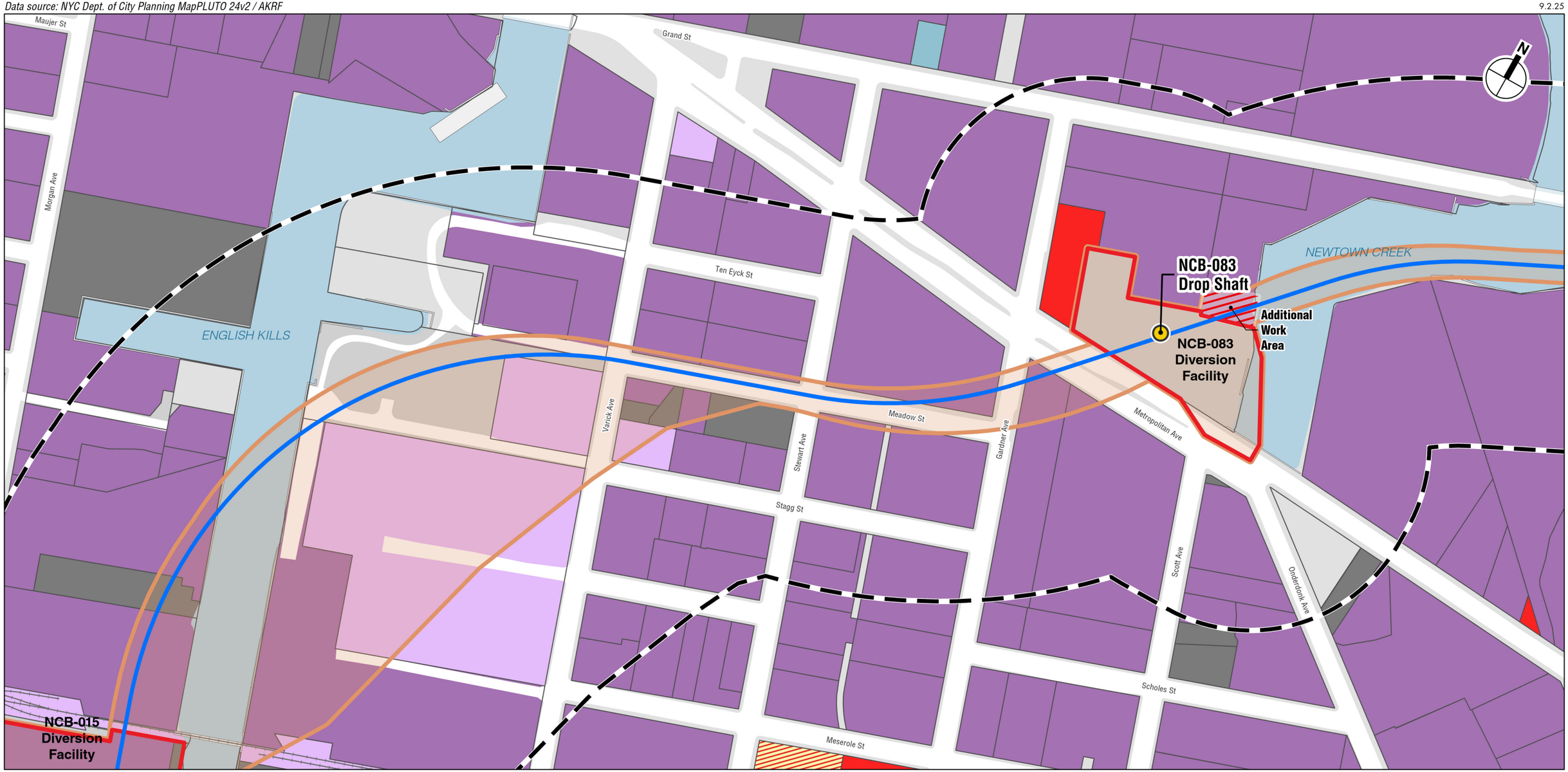

Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Commercial and Office Buildings

Industrial and Manufacturing

Parking Facilities

Public Facilities and Institutions

Residential with Commercial Below

Transportation and Utility

Vacant Land



0 200 FEET

Existing Land Use

Figure 4-2h

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning MapPLUTO 24v2 / AKRF

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Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Commercial and Office Buildings

Hotels

Industrial and Manufacturing

Parking Facilities

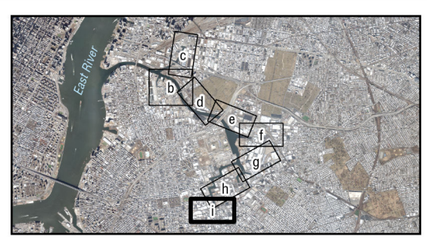
Public Facilities and Institutions

Residential

Residential with Commercial Below

Transportation and Utility

Vacant Land



0 200 FEET

Existing Land Use

Figure 4-2i

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

270 feet long and contains storage underneath it. The DEP-operated docking facilities house DEP boats, and the sludge handling facility enables sludge to be pumped and loaded onto barges.

TDPS DISCHARGE PIPE

The TDPS gravity discharge pipe would be a below-grade pipe located in Greenpoint, Brooklyn, that would connect the TDPS facility to the Newtown Creek Water Resource Recovery Facility (WRRF) (see **Figure 4-2b**). The gravity discharge pipe would begin underneath the TDPS site (Brooklyn Block 2508, Lot 1) and would run along Kingsland Avenue in a southeastern direction where it would then run southwest along Greenpoint Avenue to join below-grade infrastructure at the intersection of Russell Street and Greenpoint Avenue. Much like the gravity diversion sewer described above, the TDPS discharge pipe would be located within the City's right-of-way, and would not cross underneath Newtown Creek, its tributaries, or publicly or privately owned lots.

DIVERSION FACILITIES SITES

The Proposed Project includes four diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

The site for the proposed BB-026 diversion facility is located on the northern edge of Dutch Kills (Queens Block 115, Lots 56, 86, and 150) and is currently occupied by a two-story concrete-manufacturing facility, an associated parking facility, community garden, and unmapped 29th Street (see **Figure 4-2c**). The site is not coterminous with the three lots; the site of the diversion facility includes a portion of Lots 56 and 86 and the entirety of Lot 150. Lot 56 is privately owned, while Lots 86 and 150 are owned by the Metropolitan Transportation Authority (MTA) Long Island Railroad (LIRR). There is an existing Real Estate of Utility Companies (REUC) easement recorded on Lot 86: a REUC easement is designated for utility companies only, such as gas, electricity, and telecommunications companies. The REUC on Lot 86 (number A326-E66, effective tax year 2013-2014) is owned and operated by Consolidated Edison.

The existing outfall BB-026 flows southward from 47th Avenue to Dutch Kills and traverses the site below grade through the approximate center of the site, approximately 160 feet west from 29th Street. As discussed above, the alignment of the gravity diversion sewer associated with the outfall would run east towards 30th Street, then continue south along Review Avenue and connect with the CSO tunnel at Review Avenue and 35th Street. This portion of the gravity diversion sewer would be located within the City's right-of-way and would not cross underneath any publicly or privately owned lots.

The site for the proposed NCQ-077 diversion facility is located to the east of Maspeth Creek between 49th Street and 49th Lane (Queens Block 2575, Lots 26, 225, and 240) and is currently occupied by surface parking facilities (see **Figure 4-2f**). Lot 26 is owned by DEP, while Lots 225 and 240 are privately owned. The existing outfall NCQ-077 flows westward from Rust Street to Maspeth Creek and traverses the site below the southeastern most portion of the site before discharging at the upstream terminus of Maspeth Creek on the northeastern corner.

The site for the proposed NCB-083 diversion facility is located on the eastern branch of Newtown Creek along Metropolitan Avenue (Brooklyn Block 2948, Lot 85) and currently contains vacant

buildings, but had previously been occupied by industrial uses (see **Figure 4-2h**). Lot 85 is privately owned. The existing NCB-083 outfall discharges combined sewage to Newtown Creek at the upstream end of the East Branch and flows northward along Scott Avenue from Troutman Street to the East Branch on Metropolitan Avenue.

The site for the proposed NCB-015 diversion facility is located on the southern-most part of Newtown Creek on Johnson Avenue (Brooklyn Block 2974, Lots 162 and 170) and is currently occupied by industrial and manufacturing uses as well as parking facilities (see **Figure 4-2i**). City Water Tunnel 3 runs underneath the site, and there is an easement for the water tunnel recorded on both Lots 162 and 170. Lot 162 is owned by MTA LIRR, and Lot 170 is privately owned. The existing NCB-015 outfall traverses below the street on Johnson Avenue toward English Kills.

SECONDARY STUDY AREA

The 400-foot secondary study area encompasses all areas with the potential to experience indirect impacts as a result of the Proposed Project, defined as those caused by the Proposed Project on properties that are farther away from the primary study area (i.e., properties adjacent to those that would contain the Proposed Project). It includes all areas within a 400-foot radius of the Proposed Project (the CSO tunnel, gravity diversion sewer, TDPS and discharge pipe, and diversion facilities).

CSO TUNNEL

The area within a 400-foot radius of the CSO tunnel alignment primarily contains residential, light industrial, heavy industrial, open space, transportation, commercial, parking, and vacant land uses. Residential uses are located along Greenpoint Avenue and Van Dam Street in Long Island City, Queens, and south of Johnson Avenue in Bushwick, Brooklyn. Residential uses include multi-family walk-up buildings and one- and two-family buildings, plus mixed-use residential and commercial buildings. These buildings range from one to four stories and are generally built to the lot line. Mixed-use residential and commercial buildings contain ground floor retail uses, which include restaurants, bars, and tattoo shops, as well as vacant storefronts. The largest residential building in terms of total dwelling units (DUs) is a 10-DU building located at 53-36 Van Dam Street.

Industrial uses include light and heavy industrial uses, which are located throughout the study area; they include wholesale warehouses—such as roofing, plumbing, baking, and furnishing wholesalers—distribution centers, freight lines, building materials, and large depots. These industrial uses range from one to four stories but constitute the largest use by lot size. They are either set back from or built to the lot line and include accessory surface parking spaces pursuant to zoning.

Open space uses include 29th Street (discussed in detail below), Penny Bridge Park, Under the "K" Bridge Park, and Calvary Cemetery. Penny Bridge Park is an approximately 0.5-acre park located on the Brooklyn side of Newtown Creek: the park was formerly the site of the Meeker Avenue Bridge connecting Brooklyn and Queens (also known as the Penny Bridge), which was demolished in 1939. Under the "K" Bridge Park is a recently constructed park that was opened in 2019, coinciding with the construction of the new Kosciuszko Bridge. The park traverses the entire underside of the bridge: although the park totals 6.7-acres, only approximately 0.5 acres are located within the study area.

Calvary Cemetery is a Roman Catholic cemetery and one of the City's largest cemeteries; it has the most interments with over three million burials. Although the cemetery contains approximately 365 acres in total, only 44 acres (approximately 12 percent) of the southern portion of the cemetery are located within the study area.

Transportation uses consist of gas stations, autobody shops, public services, and railroads. Gas stations are located on the corner of Van Dam Street and Review Avenue in Queens and on the corner of Varrick Avenue and Metropolitan Avenue in Brooklyn. Public services include a DSNY waste management transfer station located on Varick Avenue in Brooklyn, a DSNY garage—Brooklyn North 04—located on the corner of Varick Avenue and Stagg Street in Brooklyn, and the Newtown Creek WRRF in Greenpoint, Brooklyn. Railroads in the study area are under the jurisdiction of LIRR and are described in detail below.

There are few commercial uses located within the study area. They include retailers such as a restaurant supplier and an auto parts retailer. Other commercial uses are located in the mixed-use residential and commercial buildings described above.

GRAVITY DIVERSION SEWER

The area within a 400-foot radius of the gravity diversion sewer primarily consists of industrial uses with few commercial uses. Industrial uses include light and heavy industrial uses, which are located along 30th Street and Review Avenue. They include distribution centers, warehouses, self-storage facilities, and construction suppliers. These industrial uses range from one to four stories. They are built to the lot line and include accessory parking.

Commercial uses include lofts converted into offices and studios. These include 48-02 30th Place, 47-07 30th Place, and 30-30 Thomson Avenue, which are located east of 30th Street. They range from 3 to 10 stories and are built to the lot line. Other commercial uses include a deli on the corner of 30th Place and Hunters Point Avenue, and an office building on the corner of 35th Street and Review Avenue.

TDPS SITE

The area within the 400-foot radius of the TDPS site primarily contains industrial and transportation uses as well as Newtown Creek to the north and Whale Creek to the west. To the south and west of the TDPS site is the Newtown Creek WRRF, an approximately two million-square-foot lot containing 25 buildings used to manage the City's wastewater. The Newtown Creek WRRF is the largest of the City's 14 wastewater recovery facilities; it serves approximately one million residents in a drainage area of more than 25 square miles across portions of three boroughs. Areas to the east of the TDPS site contain other heavy and light industrial uses. The buildings within the study area range from one to two stories, although the Newtown Creek WRRF buildings are higher than 100 feet tall to accommodate the wastewater treatment uses. Only the northern portion of the Newtown Creek WRRF is located within the study area.

Directly south and west of the TDPS site is the Newtown Creek Nature Walk, a ½-mile-long waterfront esplanade that wraps around the waterfront edge of Newtown Creek and crosses Whale Creek. The

nature walk contains native plants and vegetation as well as public art. It is open to the public from dawn to dusk, weather permitting, and is accessible via Paidge Avenue to the west and Kingsland Avenue to the south.

TDPS DISCHARGE PIPE

The areas within a 400-foot radius of the TDPS discharge pipe contain mainly industrial, transportation, and commercial uses. Commercial uses are located east of Kingsland Avenue and south of Greenpoint Avenue: a two-story building containing a heating oil supplier and a three-story building containing the Broadway Stages film studios, respectively. Industrial uses include both heavy and light industrial uses. Buildings range from one- to three-stories with the tallest being five-stories. They are located on large lots with accessory off-street parking. There is also one vacant lot located on Greenpoint Avenue between Monitor Street and North Henry Street and one parking facility located on Greenpoint Avenue and Russell Street. Other uses include the Newtown Creek WRRF and Newtown Creek Nature Walk, which are described above.

DIVERSION FACILITIES SITES

The areas within a 400-foot radius of the four diversion facilities consist of diverse land uses and building types. The uses within a 400-foot radius of the BB-026 diversion facility site include public facilities, open space, industrial, commercial, and parking. Building heights for the industrial and commercial uses generally range from one- to two-stories with the tallest being six stories. These buildings are largely built to the lot line. Where accessory parking is required, the buildings are set back to accommodate the parking requirement. The public facilities include Bard High School Early College Queens, the Academy of Finance and Enterprise, the High School of Applied Communication, and LaGuardia Community College, and are eight- and nine-stories, respectively. There is one community garden located directly east of the BB-026 diversion facility site on 47th Avenue between 29th Street and 30th Street: FF Michael Brennan Memorial Long Island City Roots Community Garden contains raised plant beds and seating areas. In addition, 29th Street south of 47th Avenue is shown as open space and outdoor recreation uses, according to PLUTO, but it is not shown on the City Map, and is therefore not a legally mapped street. As such, the street is not maintained by the City. The street is used by businesses as an entry driveway and for informal parking, and does not contain any open spaces or recreational space.

The areas within a 400-foot radius of the NCQ-077 diversion facility site contain industrial, manufacturing, transportation, and parking uses. These uses range in building heights from one to two stories with the tallest being four stories. Most of the buildings are built to the lot line, but accessory surface parking lots occupy much of the land area. To the north, lots are controlled by the LIRR and are comprised of railroad tracks. The railroad serves freight rail activity under the control of the New York and Atlantic Railway, which runs in a northern direction from the terminal on Grand Avenue. Freight activity occurs approximately three times a day.

The area within a 400-foot radius of the NCB-083 diversion facility site contains industrial and manufacturing uses with one commercial use. The commercial use is located at 1281 Metropolitan Avenue and is directly adjacent to the diversion facility site. It contains a single-story lumber warehouse

and accessory parking. The remaining uses are industrial/manufacturing uses that range from one to two stories. Most of them are set back from the street and contain accessory surface parking lots. The East Branch of Newtown Creek is east of the NCB-083 diversion facility site.

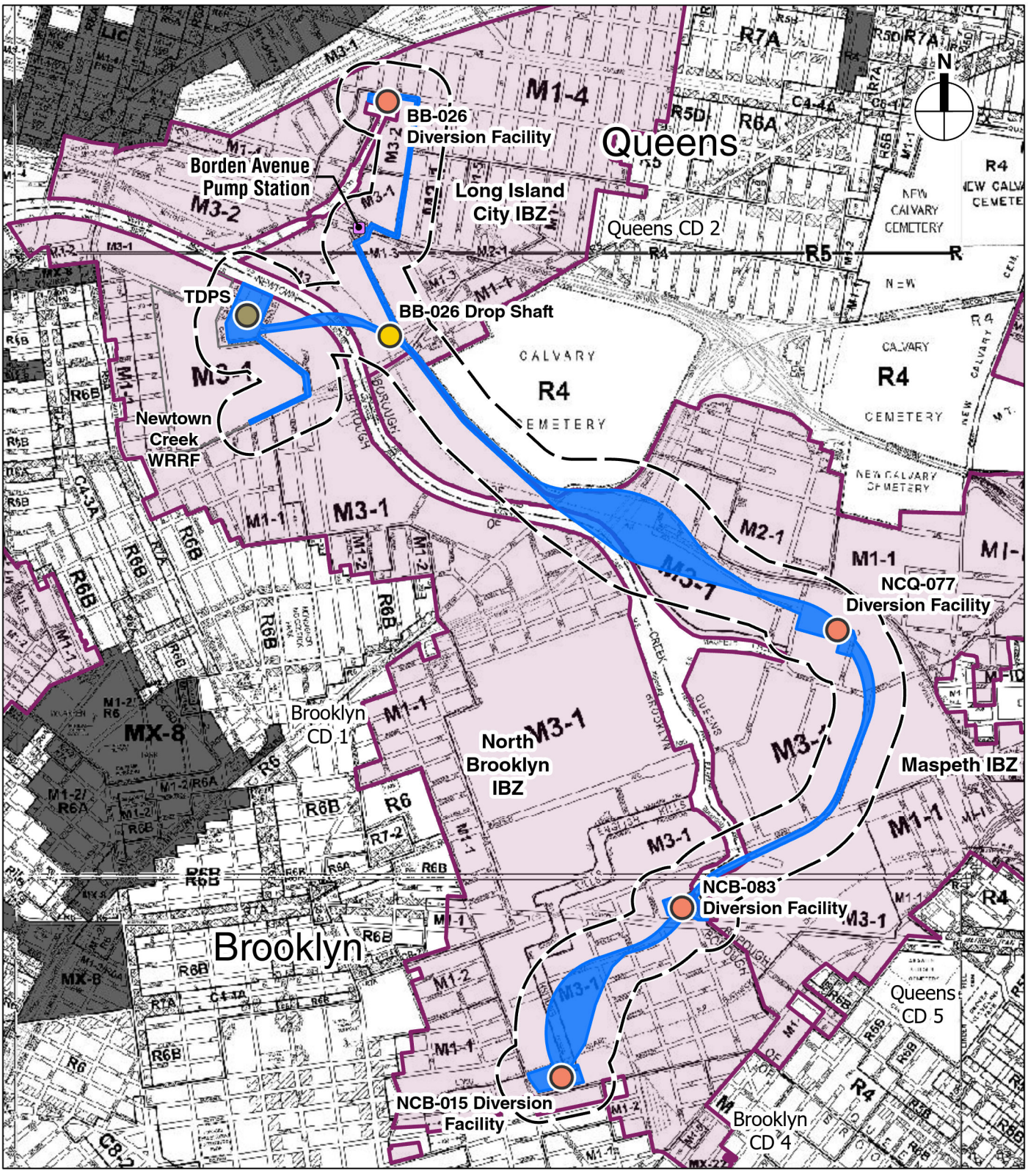
The area within a 400-foot radius of the NCB-015 diversion facility site contains residential, commercial, industrial, manufacturing, transportation, and parking uses. Residential uses are located south of Johnson Avenue and west of Porter Avenue. They include multi-family walk-up buildings as well as mixed-use commercial and residential buildings. These buildings are two or three stories tall and are all built to the lot line. Ground floor commercial uses include bars and tattoo shops with few vacant storefronts. Commercial uses are also located south of Johnson Avenue and are one-story, aside from 474 Johnson Avenue, which is a four-story converted loft building. The only public facility building is located at 89 Porter Avenue on the corner of Johnson Avenue and Porter Avenue and is a four-story building containing 45 units of transitional housing units totaling 400 residents.[6] It was converted to transitional housing from lofts in 2003. Industrial and manufacturing uses are located throughout the study area. They range from one to four stories and are built to the lot line. Transportation uses include lots associated with MTA. The Bushwick Terminal, part of the Bushwick Branch of LIRR, serves as the terminus for freight rail activity under the control of the New York and Atlantic Railway. A small rail bridge that crosses English Kills is north of the NCB-015 diversion facility site.

ZONING

As shown in **Figures 4-3a to 4-3i**, the CSO tunnel, gravity diversion sewer, TDPS site, TDPS discharge pipe, and diversion facilities sites are located within manufacturing zoning districts (M3-1 and M3-2), which extend along both sides of Newtown Creek east and south of the Pulaski Bridge. A very small portion of the CSO tunnel is located within a residential (R4) zoning district beneath Calvary Cemetery as well as very small portions of M1-3 and M2-1 manufacturing zoning districts. M1 zoning districts permit light industrial uses and are often buffers between residential/commercial zoning districts and M2 and M3 zoning districts. M3 zoning districts permit heavy industrial uses that generate noise, traffic or pollutants such as waste transfer facilities or recycling plants. M3 zoning districts are usually located near the waterfront and buffered from residential areas. R4 zoning districts permit low-density residential uses. Certain community facilities are also permitted in R4 zoning districts.

Table 4-1 summarizes the zoning districts within the study areas and their applicable regulations, and **Figures 4-3a to 4-3i** show their locations.

[6] https://www.doe.org/programs/housing/



9.2.25

Data source: NYC Department of City Planning, NYC GIS Zoning Features/Georeferenced NYC Zoning Maps

Project Limits

Industrial Business Zone (IBZ) Boundary

Diversion Facility Site

Drop Shaft Site

TDPS Site

Study Area (400-foot perimeter)

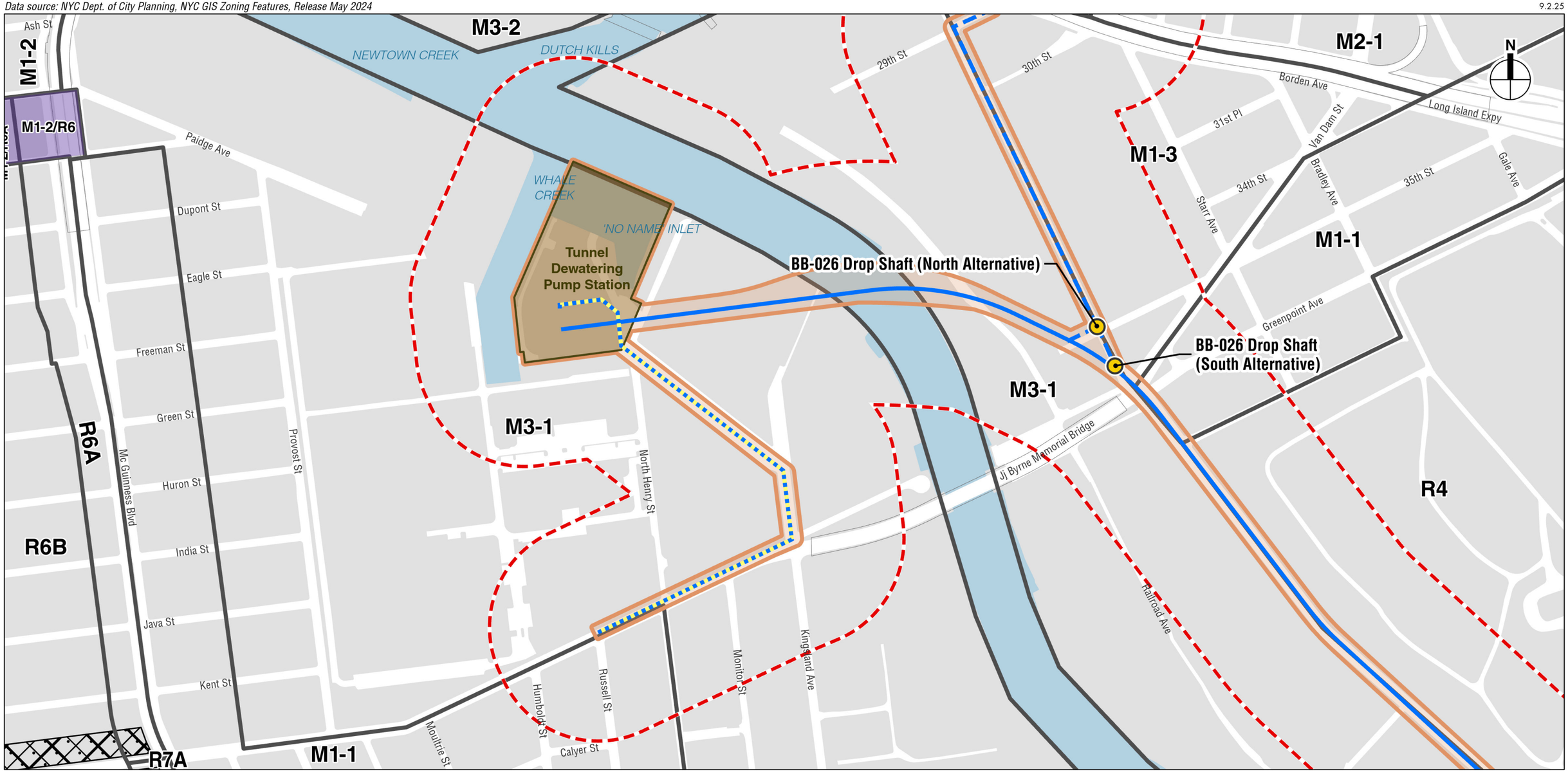
Zoning

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-3a

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

TDPS Site

Potential CSO Tunnel Alignment

Gravity Diversion Sewer

TDPS Discharge Pipe

Approximate Drop Shaft Location

Zoning District Boundary

C2-4

Special Mixed Use District (MX-8)



0 200 FEET

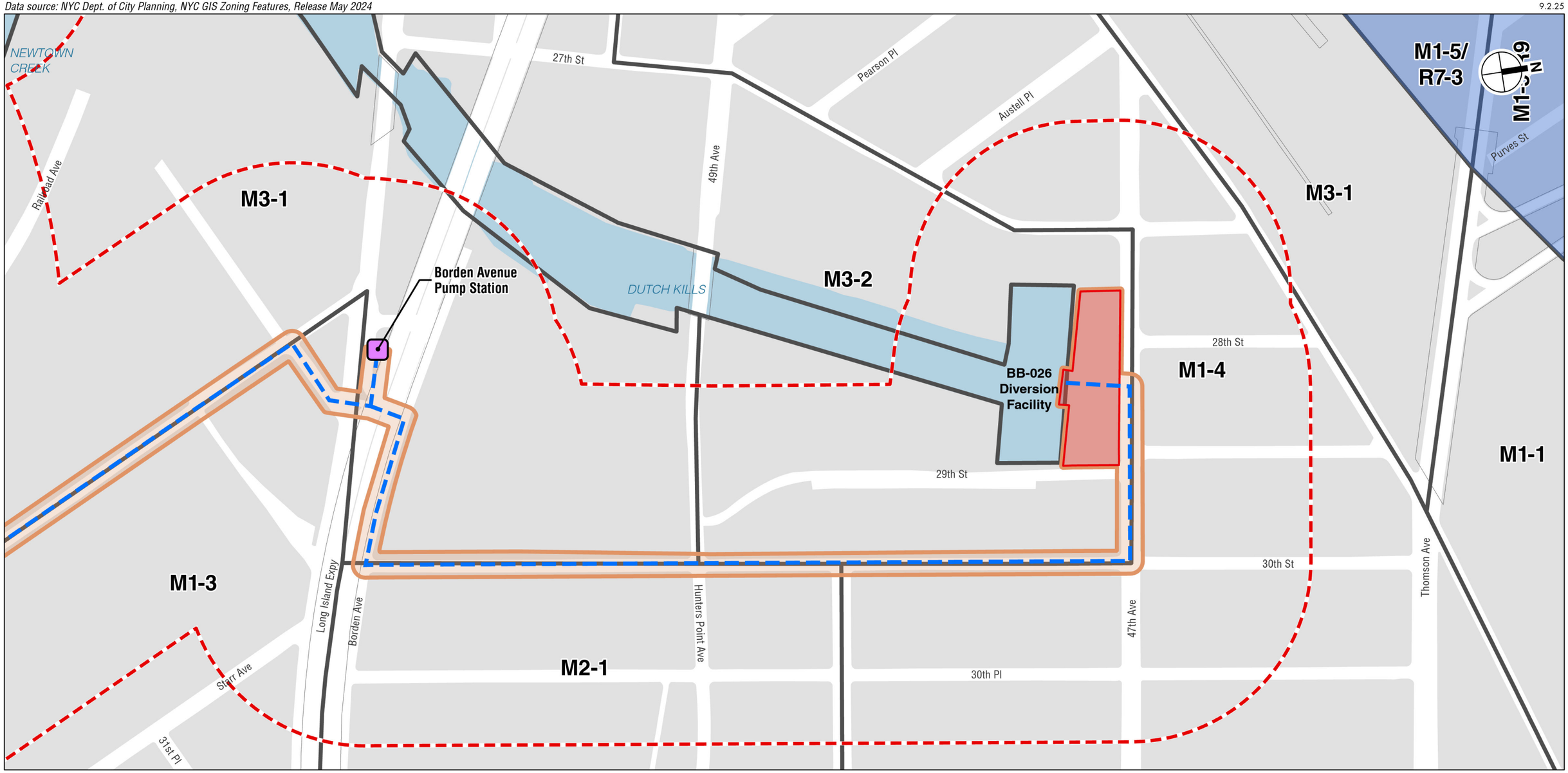
Existing Zoning

Figure 4-3b

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

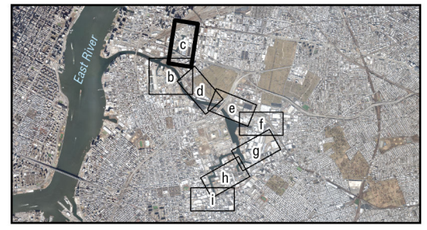
Study Area (400-foot perimeter)

Diversion Facility Site

Gravity Diversion Sewer

Zoning District Boundary

Special Long Island City Mixed Use District



0 200 FEET

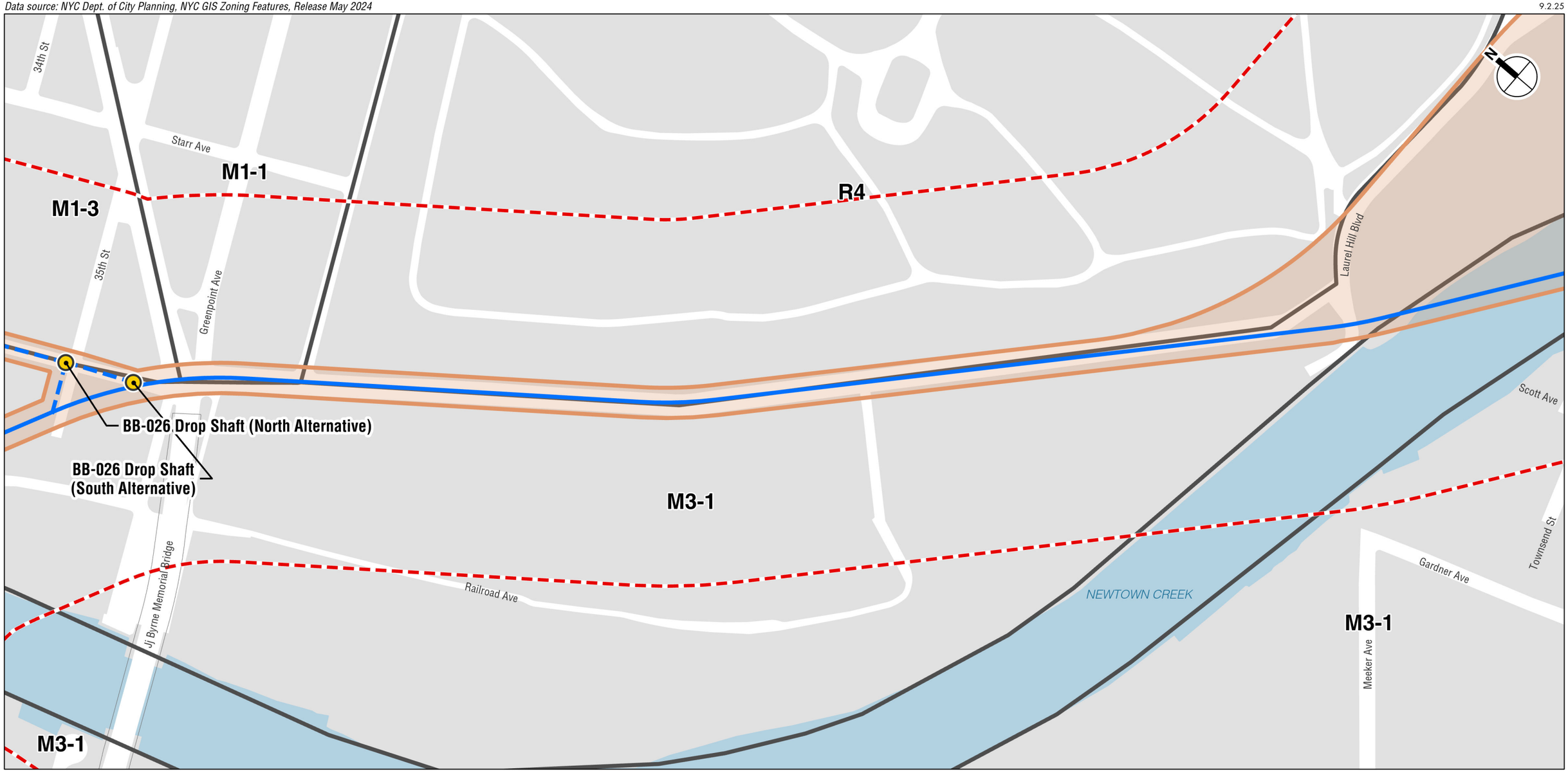
Existing Zoning

Figure 4-3c

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

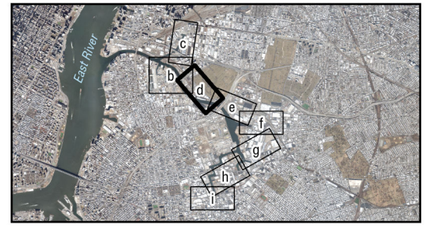
Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Gravity Diversion Sewer

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

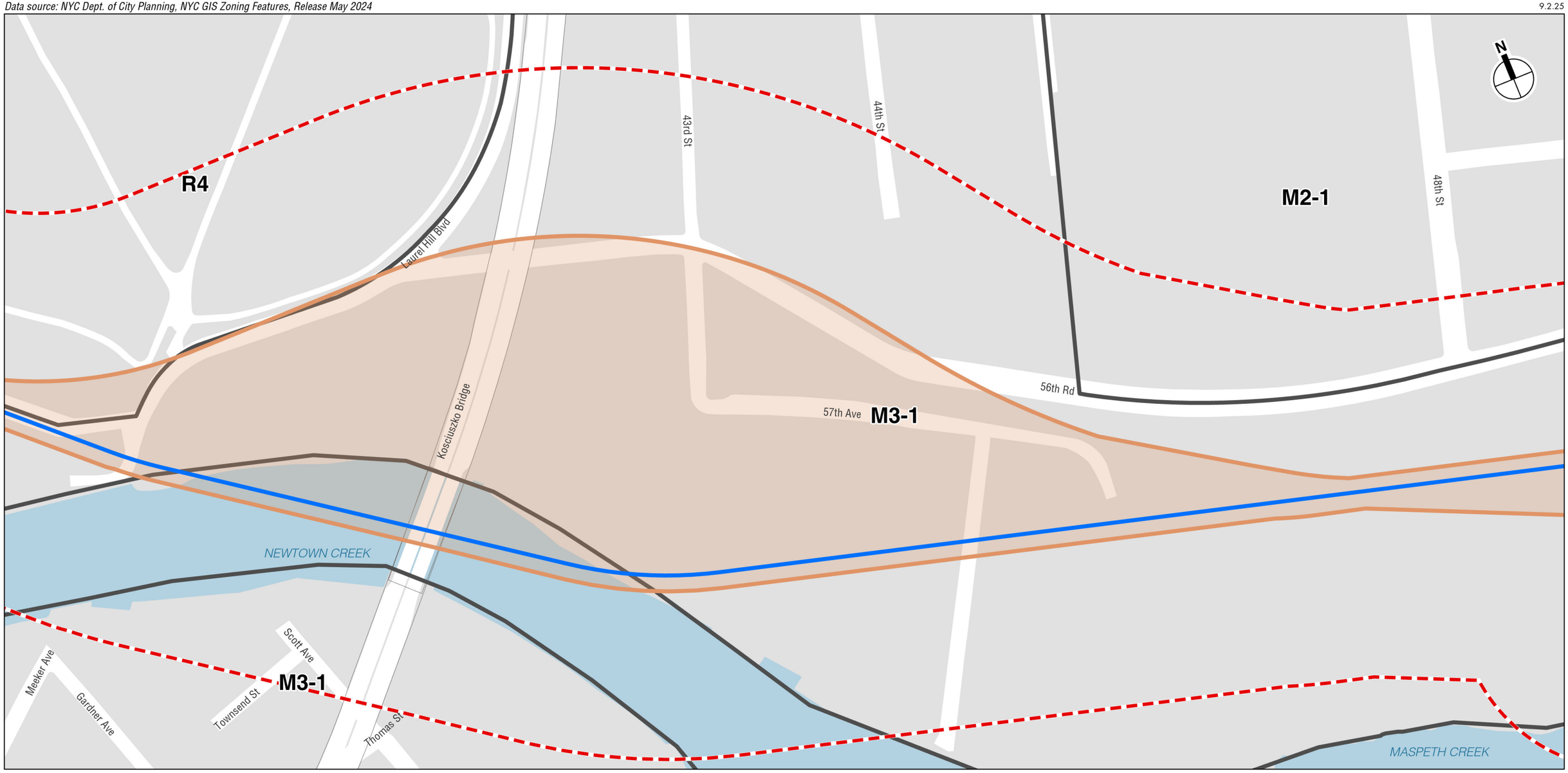
Existing Zoning

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-3d

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Zoning District Boundary



0 200 FEET

Existing Zoning

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-3e

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

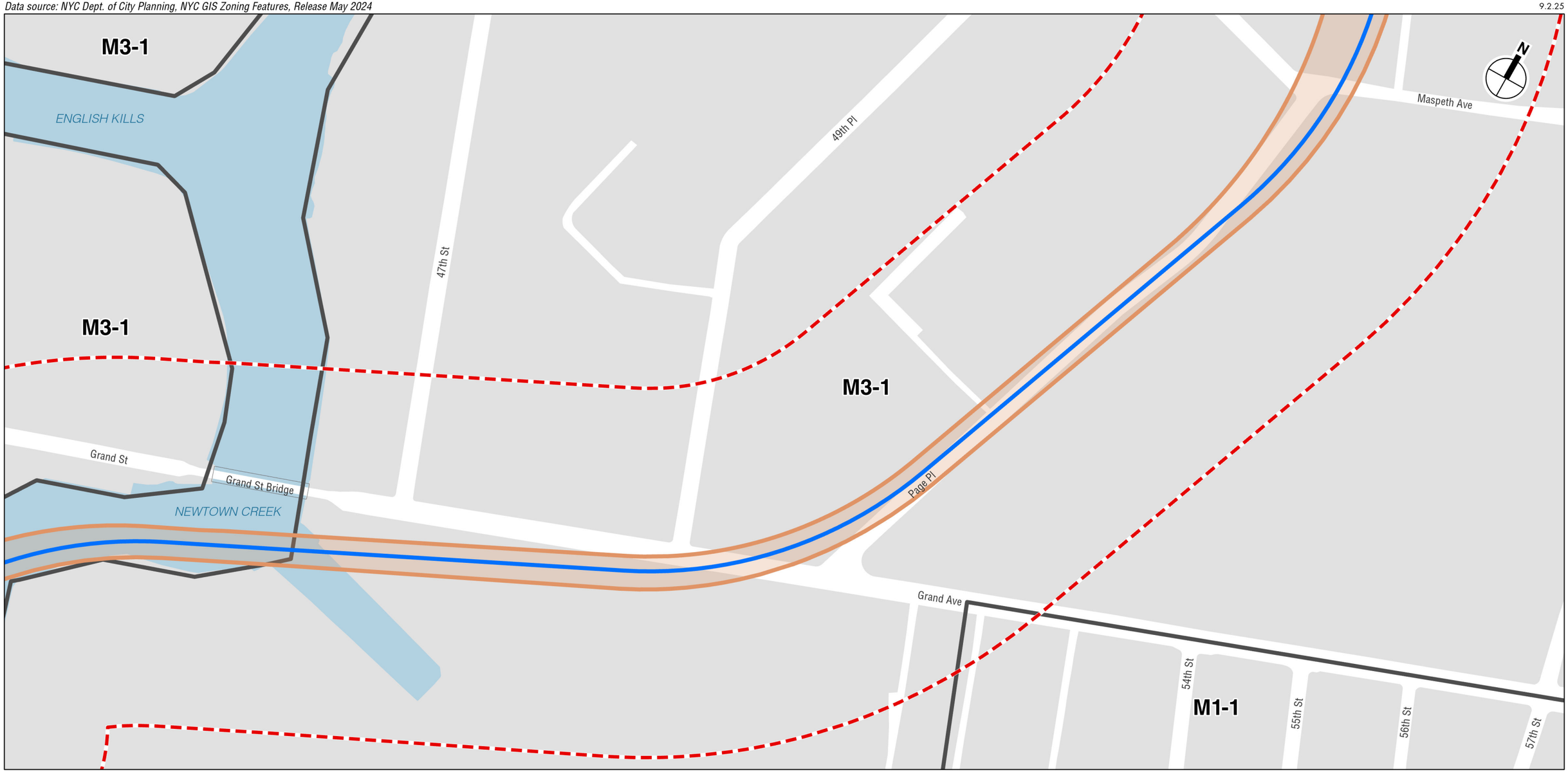
Existing Zoning

Figure 4-3f

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Zoning District Boundary



0 200 FEET

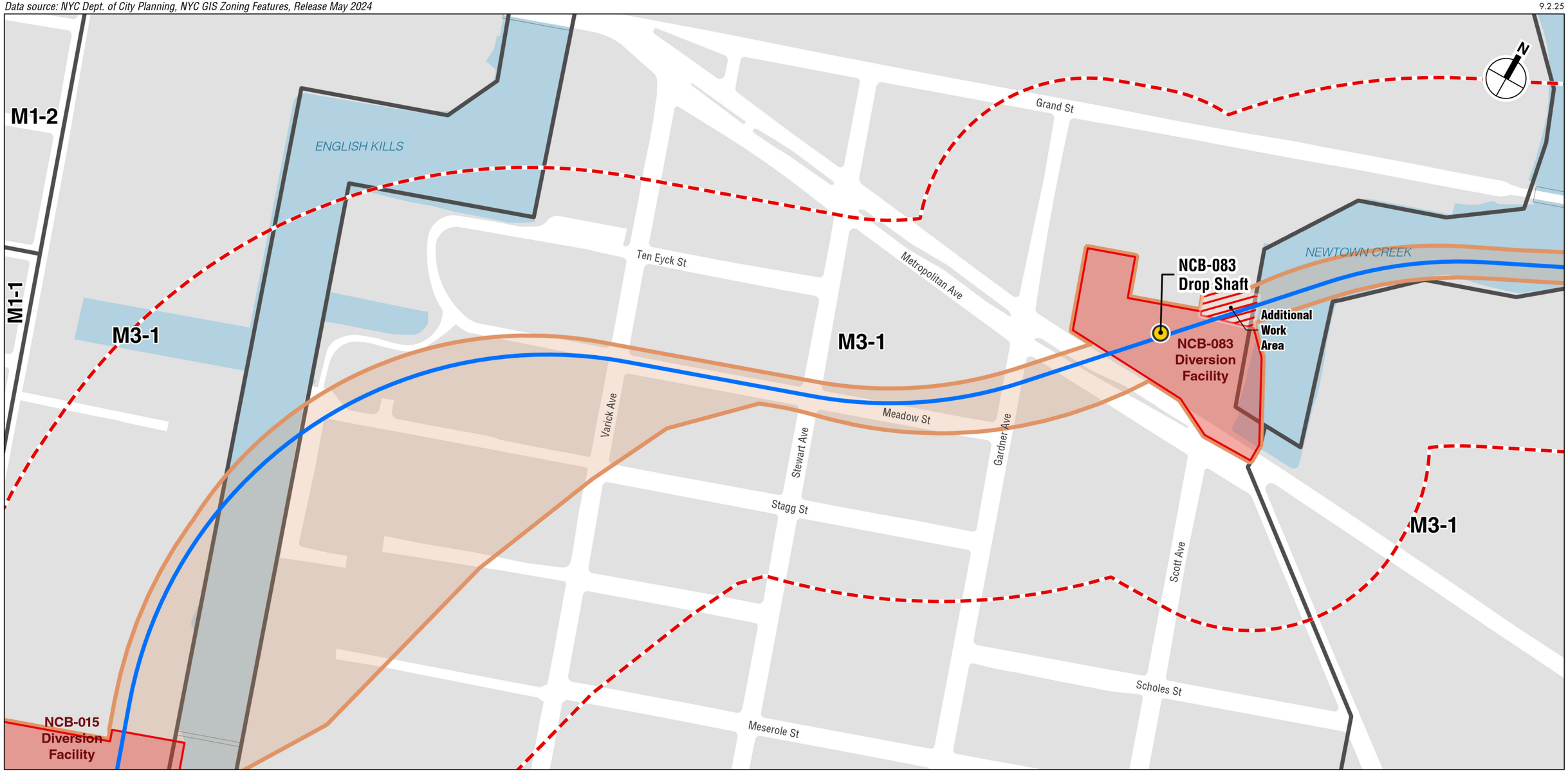
Existing Zoning

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-3g

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

Existing Zoning

Figure 4-3h

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

Existing Zoning

Figure 4-3i

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Table 4-1
Zoning Districts in the Study Area

Zoning District	Maximum FAR[1]	Uses/Zoning Type
Project Site Zoning		
M1-3	5.0 for manufacturing and commercial 4.8 for community facilities	Light industrial uses (high performance), commercial and certain community facilities
M2-1	2.0 for manufacturing and commercial	General manufacturing; mainly mapped along waterfront industrial areas
M3-1	2.0 for manufacturing and commercial	Heavy manufacturing; designated for waterfront areas with heavy industrial uses including power plants, solid waste transfer facilities, and fuel supply depots
M3-2	2.0 for manufacturing and commercial	Heavy manufacturing; designated for waterfront areas with heavy industrial uses including power plants, solid waste transfer facilities, and fuel supply depots
R4	1.0 for residential (general) 1.5 for residential (Qualifying Residential Sites) 2.0 for community facilities	Low-density residential and certain community facility uses; one- to three-story residential walk-up buildings and community facilities the provide educational, religious, health, and public facilities (requiring special permits)
Secondary Study Area Zoning		
M1-1	1.0 for manufacturing and commercial 2.4 for community facilities	Light industrial uses (high performance), commercial and certain community facilities
M1-2	2.0 for manufacturing and commercial 4.8 for community facilities	Light industrial uses (high performance), commercial and certain community facilities
M1-4	2.0 for manufacturing and commercial 6.5 for community facilities	Light industrial uses (high performance), commercial and certain community facilities

Notes:
[1] Floor Area Ratio (FAR) is a measure of density establishing the amount of development allowed in a proportion to the base lot area.

The TDPS site, diversion facilities sites, and other sites along Newtown Creek within the study areas are located on waterfront zoning lots as defined by Article VI, Chapter 2 of the Zoning Resolution ("Waterfront Zoning") and are subject to Waterfront Zoning regulations. These regulations, among other policy objectives, encourage active water-dependent uses and improved access to the City's waterfront. Waterfront zoning regulations mandate that most residential, commercial, and community facility developments on waterfront zoning lots provide public open space along the water's edge with pedestrian links to upland communities; however, the waterfront open space requirement is generally not applicable to certain heavy commercial and industrial uses under Use Groups IV(B), IX, and X or certain infrastructure facilities (such as airports). In addition, waterfront zoning regulations provide for visual corridors (unobstructed views of the shoreline from upland public areas) through special urban design rules, which include special rules relating to building heights and required yards. In general,

building structures are not permitted within visual corridors; however, as with the open space requirement, visual corridor requirements are not applicable to Use Groups IV(B), IX, and X.

The City of New York recently enacted the City of Yes, a series of text amendments to the Zoning Resolution that seeks to update zoning regulations to support small businesses, create affordable housing, and promote sustainability. The City of Yes has three focused initiatives that changed the existing zoning. They include City of Yes for Carbon Neutrality, which updated zoning to ease the process allowing green infrastructure; City of Yes for Economic Opportunity, which updated zoning to allow greater flexibility for commercial uses; and City of Yes for Housing Opportunity, which changed zoning regulations in residential districts.[7] All text amendments were introduced separately; the New York City Council adopted City of Yes for Carbon Neutrality in December 2023, City of Yes for Economic Opportunity was adopted in June 2024, and City of Yes for Housing Opportunity was adopted in December 2024.

The City of Yes zoning text amendments changed the Zoning Resolution to provide more flexibility to existing zoning districts and regulations. Changes to residential zoning, which were spurred under the City of Yes for Housing Opportunity, include increased density in all residential zoning districts, updated regulations for affordable-housing related density bonuses, legalization of accessory dwelling units, modified height and bulk regulations to accommodate the additional density, and streamlining the approval process for residential housing projects. Changes to commercial and industrial zoning, which was spurred under City of Yes for Economic Opportunity, include clarification of permitted uses and increased flexibility of uses within existing commercial and manufacturing districts, as well as the creation of new commercial and manufacturing zoning districts with increased density for commercial and manufacturing uses, allowance of certain mixed-use developments in commercial and manufacturing zoning districts as-of-right, and allowance of larger FARs to accommodate these mixed-use developments. Changes to sustainability and sustainable development, which was spurred under the City of Yes for Carbon Neutrality, include promotion of sustainable building practices and design, allowance of sustainable industries through identifying green industries and permitting uses within existing commercial and manufacturing districts, and new incentives for electric and energy-efficient buildings.

PUBLIC POLICY

LOCATION OF CITY FACILITIES

Pursuant to City policy, City capital projects requiring a site selection approval must undergo a Fair Share analysis that applies the *Criteria for the Location of City Facilities* as set forth in Appendix A to Title 62 of the Rules of the City of New York (RCNY).[8] A Fair Share analysis attempts to foster an equitable distribution of public facilities throughout the city. The criteria for a Fair Share analysis applies only to a City facility, namely a facility whose siting is controlled by a City agency and which is operated directly by the City on City-owned or leased property greater than 750 square feet (sf) in

[7] https://www.nyc.gov/site/planning/plans/city-of-yes/city-of-yes-overview.page

[8] https://www.nyc.gov/assets/planning/download/pdf/about/publications/fair_share_guide.pdf

floor area, or used primarily for a program (or programs) that derive at least 50 percent and at least $50,000 of its annual operating costs from City-funded contracts. As the Proposed Project is a project requiring site selection and would result in the creation of new City facilities, a Fair Share analysis is required; the completed Fair Share analysis is provided in **Appendix B**.

ONENYC: THE PLAN FOR A STRONG AND JUST CITY

In April 2015, *One New York: The Plan for a Strong and Just City* (OneNYC) was released by the administration of former Mayor Bill de Blasio.[9] It builds upon the sustainability goals established by PlaNYC, a comprehensive and integrated approach to planning for New York City's future first published in 2007. The plan was further updated in April 2019, when it was retitled *OneNYC 2050: Building a Strong and Fair City*. Sustainability and resiliency remain the core goals of OneNYC, but with the poverty rate remaining high and income inequality continuing to grow, the de Blasio administration added equity as a guiding principle throughout the plan. In addition to the focuses of population growth, aging infrastructure, and global climate change, OneNYC brings new attention to additional concerns. OneNYC includes updates on the progress towards the 2011 sustainability initiatives and 2013 resiliency initiatives, with additional goals and new initiatives under the organization of four visions: growth, equity, resiliency, and sustainability. Since this is a city-wide guideline, the Proposed Project and the study area is subject to this policy.

CLIMATE RESILIENCY DESIGN GUIDELINES

The NYC Mayor's Office of Climate and Environmental Justice (MOCEJ) published the preliminary version of the New York City-wide Climate Resiliency Design Guidelines in April 2017, with subsequent revisions in April 2018, March 2019, and September 2020. The most recent update, Version 4.1 was published in May 2022.[10] These guidelines, applicable to new City facilities or substantial improvement projects, integrate cutting-edge climate change data and projections into technical guidance for engineers and architects. The guidelines provide instructions for incorporating resiliency into facility design to withstand the estimated climate change during the facility's useful life. This ensures that city capital projects are both designed to be resilient against future extreme weather and continue to deliver essential services. Since this is a city-wide guideline applicable to new City facilities, the Proposed Project is subject to this policy.

COASTAL ZONE AND NEW YORK CITY WATERFRONT REVITALIZATION PROGRAM

The federal Coastal Management Act (CZMA) of 1972 was enacted to support and protect the distinctive character of the waterfront and to set forth standard policies for reviewing proposed projects along coastlines. The program responded to city, state, and federal concerns about the deterioration and inappropriate use of waterfront areas. The CZMA emphasizes the primacy of state decision-making regarding the coastal zone. In accordance with the CZMA, New York State adopted its own Coastal Management Program, administered by the New York State Department of State (NYSDOS), designed

[9] https://climate.cityofnewyork.us/reports/onenyc-2050/

[10] https://climate.cityofnewyork.us/initiatives/climate-resiliency-design-guidelines/

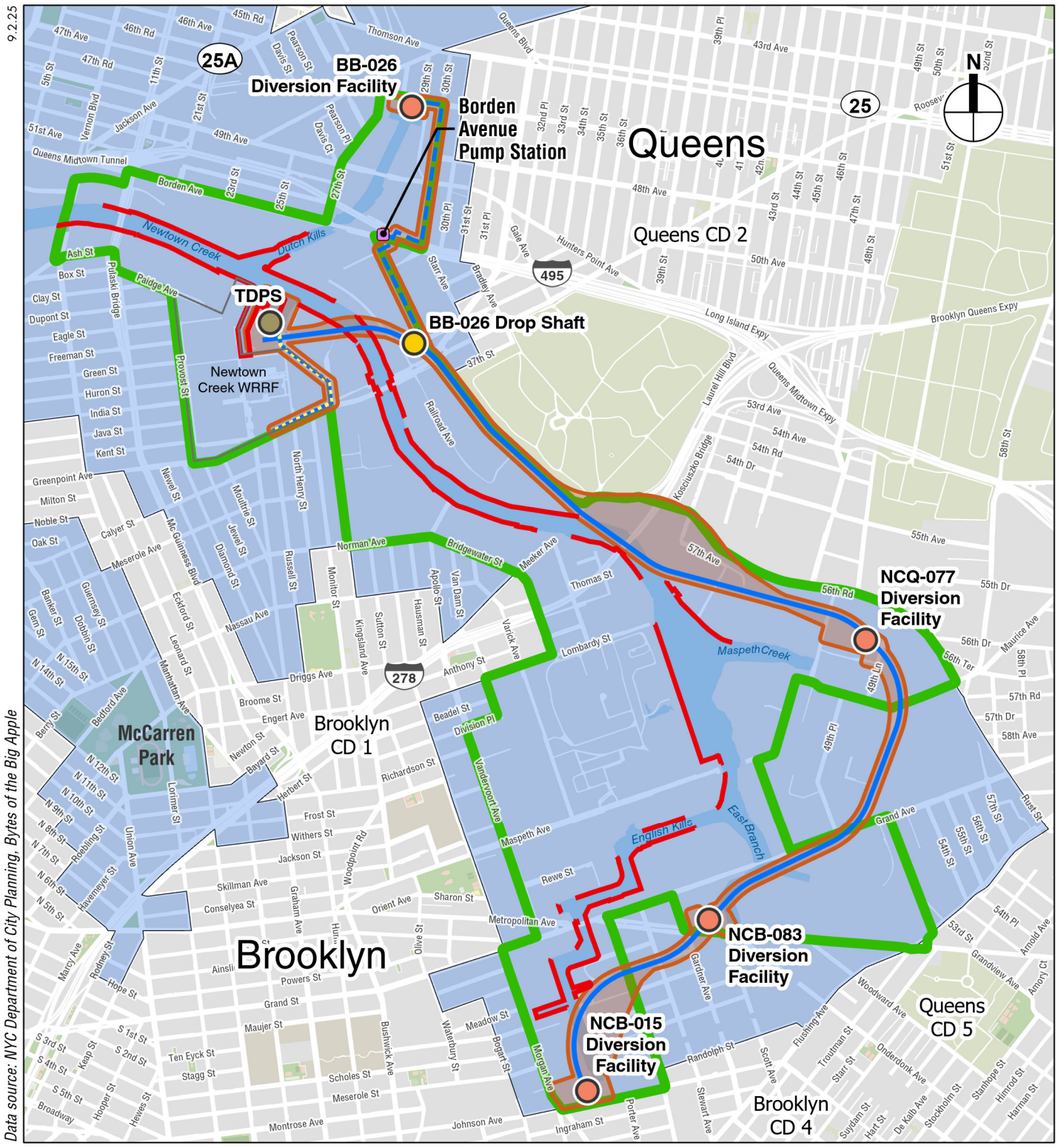
to balance economic development and preservation by promoting waterfront revitalization and water-dependent uses while protecting fish and wildlife, open space and scenic areas, farmland, and public access to the shoreline, and minimizing adverse changes to ecological systems and erosion and flood hazards. The New York State Coastal Management Program provides for local implementation when a municipality adopts a local waterfront revitalization program (LWRP), as is the case in the City of New York, described in detail below.

As shown on **Figure 4-4**, the study area is located within New York City's designated Coastal Zone. All projects that are subject to CEQR, the Uniform Land Use Review Procedure (ULURP), or other local, state, or federal agency discretionary actions that are situated within the City's Coastal Zone boundary must be reviewed and assessed for their consistency with New York City's WRP.[11] The WRP is the City's principal coastal zone management tool and establishes a broad range of public policies for the City's coastal areas. The guiding principle of the WRP is to maximize the benefits derived from economic development, environmental conservation, and public use of the waterfront, while minimizing the conflicts among these objectives. A local WRP, such as New York City's, is subject to approval by the New York State Department of State (NYSDOS) with the concurrence of the United States Department of Commerce, pursuant to applicable state and federal law, including the Waterfront Revitalization of Coastal Areas and Inland Waterways Act and the Federal Coastal Zone Management Act.

The WRP was originally adopted in 1982 and revised in 2002. Additional revisions were approved by the New York City Council in 2013 and approved by NYSDOS (with the concurrence of the U.S. Department of Commerce) in 2016. The recent revisions include incorporation of climate change and sea level rise considerations to increase the resiliency of the waterfront area, promotion of waterfront industrial development as well as commercial and recreational water-borne activities, increased restoration of ecologically significant areas, and best practices for the design of waterfront open spaces. In addition, as part of the WRP revisions, the Coastal Zone boundary has been extended further inland in many locations to reflect alterations to Federal Emergency Management Agency (FEMA) flood zone maps.

Because the Proposed Project would be within the Coastal Zone and requires local, state, and federal discretionary actions (and/or equivalency reviews of regulatory compliance by responsible agencies), an assessment of the Proposed Project's consistency with applicable WRP policies was conducted. In addition, activities occurring within the State's coastal zone that are receiving federal financial assistance (e.g., grants, loans, subsidies, etc.) must be reviewed by NYSDOS for consistency with the State's Coastal Management Program. The Proposed Project is receiving funding through the NYS Clean Water State Revolving Fund (SRF), which provides financing for wastewater and sewer infrastructure projects to municipalities throughout New York State. The SRF is administered by the U.S. Environmental Protection Agency (EPA). Because the Proposed Project is receiving federal funding, a Federal Consistency Assessment Form (FCAF) has been prepared to demonstrate the

[11] https://www.nyc.gov/site/planning/planning-level/waterfront/wrp/wrp.page



Coastal Zone

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-4

Proposed Project's consistency with the applicable policies of the NYS Coastal Management Program. The WRP assessment and the FCAF are provided in **Appendix C**.

INDUSTRIAL BUSINESS ZONE PROGRAM

The study area is located within the Long Island, Maspeth, and North Brooklyn Industrial Business Zones (IBZs), three of the 21 IBZs located throughout New York City and administered by the New York City Economic Development Corporation (NYCEDC). These IBZs were designated in 2006, and provide expanded services for industrial and manufacturing businesses, as well as tax credits to businesses that relocate to an IBZ, with the goal of protecting existing manufacturing districts and encouraging industrial growth citywide.[12]

NORTH BROOKLYN BROWNFIELD OPPORTUNITY AREA NOMINATION STUDY

In October 2017, the North Brooklyn Brownfield Opportunity Area (BOA) Nomination Study[13] was undertaken to develop an economic development strategy aimed at fostering new mixed-use investment in North Brooklyn. The BOA study area includes over 720 acres, comprising 200 blocks, 3,000 lots, and over 22 million square feet (sf) of built industrial space. In order to design policy recommendations with localized physical and market dynamics, the BOA study area is divided into five subareas, each reflecting a consistent set of zoning and land use patterns, infrastructure, and economic conditions. The Proposed Project is located within Subarea B.1 and Subarea B.2. Subarea B is the industrial heart of the BOA and further divided into two more subareas: B.1 in the north and B.2 in the south. The strategy seeks to revitalize the area's businesses and buildings while preserving and supporting the existing heavy industry zone, and safeguarding essential jobs and services. The BOA study examines the key opportunities, challenges, and market dynamics of North Brooklyn as an industrial location, and assesses the needs of the area's businesses, industrial property owners, and workers. It supports the goal of promoting and maintaining both industrial and essential businesses within the designated study area.

NORTH BROOKLYN INDUSTRY & INNOVATION PLAN

The North Brooklyn Industry & Innovation Plan[14] was adopted in November 2018 by the New York City Department of City Planning (DCP). In April 2019, DCP released an update to the plan, outlining strategies to better align local land use policies within the North Brooklyn Industrial Business Zone (IBZ) study area, an area bounded by Newtown Creek to the north and east, Flushing Avenue to the south, and McGuinness Boulevard, Morgan Avenue, Kingland Avenue, and Bushwick Avenue to the west. The plan introduces a new land use framework aimed at bolstering existing industrial businesses in the Core Industrial Area along Newtown Creek while fostering growth in diverse business sectors within Transition and Growth Districts. It seeks to create a balanced approach that promotes and encourages industries while simultaneously recommending strategies which aim to enhance the quality

[12] https://edc.nyc/industry/industrial-and-manufacturing

[13] https://docs.dos.ny.gov/opd/boa/NorthBrooklynBOA.pdf

[14] https://www.nyc.gov/site/planning/plans/north-brooklyn-vision-plan/north-brooklyn-vision-plan.page

of life for workers and residents and identifies transportation and infrastructure improvements to support economic growth. The plan does not allow for any new residential land uses in the study area, except for some small areas on the periphery. The Proposed Project would be located within the identified "Core District" areas of the study.

COMBINED SEWER OVERFLOW LONG TERM CONTROL PLAN FOR NEWTOWN CREEK

In June 2017, the DEP developed the Long Term Control Plan (LTCP) for Newtown Creek in compliance with the New York State Department of Environmental Conservation (NYSDEC) CSO Order on Consent.[15] This mandate requires DEP to submit ten waterbody-specific LTCPs and one citywide LTCP to NYSDEC. The Newtown Creek LTCP is one of the 10 LTCPs required by the Order on Consent. Its goal is to determine the necessary CSO controls to meet water quality standards for Newtown Creek, in alignment with the Federal CSO Control Policy and related guidelines. As discussed in Chapter 1, "Project Description," the Newtown Creek LTCP was prepared by DEP and submitted to NYSDEC in 2017, and the plan was approved by NYSDEC in 2018. The Proposed Project would be located within the study area of the LTCP.

NEWTOWN CREEK VISION PLAN

In January 2018, Riverkeeper and Newtown Creek Alliance, two community-based organizations, released the Newtown Creek Vision Plan. This plan builds upon the 12 Guiding Principles established by the Newtown Creek Superfund Community Advisory Group (CAG) for Newtown Creek remediation. The Vision Plan serves as a community-driven catalog that highlights ongoing efforts, presents new investment and innovation ideas, and documents barriers related to pollution, access, and investment.[16] The Vision Plan is a comprehensive plan with the goals to improve the water quality of Newtown Creek, the shoreline, and adjacent immediate upland areas. These goals were reached through community input, comprehensive planning, and neighborhood needs. The plan proposes physical changes to the built and natural environment of the Creek and immediate surrounding areas in order to better prepare for a future with a working waterfront and better engage with neighboring businesses and residents. Drawing from decades of planning and visioning by various community members and organizations, the study proposes a transformative approach for Newtown Creek's future functionality. Resiliency is a significant focus of the proposed system solutions to achieve a more transformative Newtown Creek. The Vision Plan supports stormwater solutions—including means to capture stormwater and support CSO runoff—that would improve the water quality in the Creek. The Proposed Project would be located within the study area of the plan.

NEW YORK STATE EMPIRE ZONE PROGRAM

The Proposed Project study area would be located within the State-designated North Brooklyn Empire Zone. The Empire Zone program is administered by Empire State Development (ESD) and provides

[15] https://www.nyc.gov/assets/dep/downloads/pdf/water/nyc-waterways/newtown-creek/ltcp-newtown-creek-cso.pdf

[16] https://www.newtowncreekalliance.org/newtown-creek-vision-plan/

tax incentives to businesses in targeted areas in order to support expansions and job growth. Although the Empire Zone program ceased accepting new businesses in 2010, businesses already accepted into the program may continue to apply for and receive benefits.

GREENPOINT 197-A PLAN

A 197-A plan is a community-based plan for the development of New York City: Section 197-A of the City Charter authorizes plans for improvement of the city, boroughs, and communities. They are usually sponsored by Community Boards, Borough Boards, local elected officials, or City agencies. The Greenpoint 197-A Plan was submitted by Brooklyn Community Board 1 to the City Planning Commission (CPC) in 1998 and was adopted in 2002. Recommendations proposed under the Greenpoint 197-A Plan are aimed at strengthening and diversifying the economic, social, historic, and cultural base of the Greenpoint neighborhood. The Plan proposes changes in policies related to zoning, environment, waterfront access, open space, housing, historic preservation, economic development, community facilities, transportation, and infrastructure, including improving the water quality of Newtown Creek and implementing CSO abatement. The Brooklyn portions of the Proposed Project, including the TDPS site and TDPS discharge pipe, are located within the area subject to the Greenpoint 197-A Plan.

D. FUTURE WITHOUT THE PROPOSED PROJECT

LAND USE

In the future without the Proposed Project (the No Action condition), the proposed CSO tunnel, TDPS, gravity diversion sewer, and diversion facilities would not be constructed. Excepting the TPDS site, there would be no changes to the sites containing these facilities, which would remain in their current condition; the TDPS site would be vacated by DSNY.

In the No Action condition, land uses within the secondary study area (all areas within a 400-foot radius of the Proposed Project) are expected to be generally the same as existing conditions as described above. As summarized below, some properties in the secondary study area are expected to be redeveloped in the No Action condition due to other projects planned or expected to be constructed by the Proposed Project's analysis year, 2040, in addition to the other activities in the area that are independent of the Proposed Project. However, these projects are not expected to significantly change the land use character of the study area, which primarily contains industrial, transportation, and commercial use.

CSO TUNNEL

There are three projects currently planned or under construction within a 400-foot radius of the CSO tunnel. Two of the projects are enlargements or alterations to existing facilities: 38-60 Review Avenue (Block 312, Lot 350) in Sunnyside, Queens, which is anticipated to be a roof enlargement and alteration, and 520 Kingsland Avenue (Block 2517, Lot 27) in Greenpoint, Brooklyn, which is anticipated to be a roof enlargement. The third project is the replacement of the Grand Street Bridge, a swing bridge (built in 1903) which spans the East Branch of Newtown Creek in Maspeth Creek: this project would reconstruct the bridge, which is reaching the end of its useful life and features structural and geometric

deficiencies. The project is also expected to include a temporary bridge to maintain the crossing during construction. If completed, these projects would not alter the land use character of the 400-foot study area of the CSO tunnel, which is projected to continue the current mix of mostly industrial uses.

GRAVITY DIVERSION SEWER

There are five projects currently planned or under construction within a 400-foot radius of the gravity diversion sewer. The Review Avenue Complex is a planned new six-story, approximately 736,400-gross-square-foot (gsf) building that would house future industrial uses and provide accessory parking. The project is located partially within the 400-foot study area to the west of the CSO tunnel alignment at 28-90 Review Avenue (Block 294, Lot 106) in Sunnyside, Queens. Another planned new building is located at 47-46 30th Street (Block 115, Lot 181) in Blissville, Queens and is anticipated to be a new industrial use. The remaining three projects are enlargements to existing facilities. The High School of Applied Communication located at 30-20 Thomson Avenue (Block 274, Lots 1), 30-30 Thomson Avenue (Block 277, Lot 1), and 53-26 Van Dam Street (Block 298, Lot 1), all located in Sunnyside, Queens, are all currently undergoing enlargements to existing buildings located on these sites. If completed, these five projects would not alter the land use character of the 400-foot study area of the gravity diversion sewer, which is projected to continue the current mix of industrial uses.

TDPS SITE AND TDPS DISCHARGE PIPE

There are two development projects currently under construction within a 400-foot radius of the TDPS site and TDPS discharge pipe. One includes 520 Kingsland Avenue, which is discussed above. The other includes the Newtown Creek WRRF at 327 Greenpoint Avenue (Block 2525, Lot 1), which is anticipated to construct a new single-story warehouse building within the facility. If completed, these projects would not alter the land use character of the 400-foot study area of the TDPS site, which would continue to be industrial uses.

In addition, two new open spaces are expected to be constructed in the area near the TDPS site and TDPS discharge pipe: the Gateway to Greenpoint and North Henry Street Restoration projects. Gateway to Greenpoint is a proposed 0.42-acre public open space located on the corner of Greenpoint Avenue and Kingsland Avenue on the grounds of the Newtown Creek WRRF southeast of the TDPS site. The North Henry Street Restoration project is a proposed 0.45-acre public open space located on the northern end of North Henry Street adjacent to Newtown Creek on a sliver of land owned by DSNY; the open space also occupies a portion of a marginal street that is owned by the New York City Department of Small Business Services (SBS)/NYCEDC. These projects are discussed further in Chapter 7, “Open Space.”

DIVERSION FACILITIES SITES

There are three projects currently planned or under construction within a 400-foot radius of the diversion facilities. These three projects are located near the NCB-015 diversion facility, west of the NCB-015 outfall. One project, located within the 400-foot radius to the northwest, is located at 131 Morgan Avenue (Block 3056, Lot 140), which is currently vacant, and will be a new building owned and operated by Verizon as a garage work center. Another project is located at 121 Morgan Avenue (Block 3056, Lot 168), which is currently a two-story building undergoing an alteration that will contain

commercial uses. And the third project is located to the southwest at 74 Bogart Street (Block 3084, Lot 1), which is anticipated to be a new 8-story, 240,000-square-foot art storage development.[17] If completed, these three projects would not alter the land use character of the 400-foot study area of the four diversion facilities.

Table 4-2 below summarizes the 11 anticipated future projects in the 400-foot study area of the Proposed Project, and **Figures 4-5a to 4-5d** show their locations.

Table 4-2
Planned Future Projects in the Study Area

Ref. No.[1]	BBL	Project Name/Address	Project Description/Program	Anticipated Completion Date
Gravity Diversion Sewer Study Area				
1	4002940106	Review Avenue Complex/28-90 Review Avenue	Manufacturing/Industrial: New six-story warehouse totaling approximately 736,400-gsf	Fall 2025
2	4001150181	47-46 30th Street	Manufacturing/Industrial: New concrete processing facility	UC
3	4002740001	High School of Applied Communication/30-20 Thomson Avenue	Public Facility/Institution: Interior alterations of existing school	UC
4	4002770001	30-30 Thomson Avenue	Commercial/Office Building: Interior alteration of existing office building	UC
5	4002980001	53-26 Van Dam Street	Transportation/Utility: Alteration of existing gas station	UC
CSO Tunnel Alignment Study Area				
6	4003120350	38-60 Review Avenue	Manufacturing/Industrial: Interior alterations and vertical extension	UC
7	3025170027	520 Kingsland Avenue	Manufacturing/Industrial: Interior alterations and vertical extension	UC
8	N/A	Grand Street Bridge Replacement	Reconstruction of existing bridge spanning the East Branch	2034
TDPS Study Area				
9	3025250001	Newtown Creek Wastewater Treatment Facility/327 Greenpoint Avenue	Transportation/Utility: New one-story, 228-gsf warehouse within the facility	UC
10	N/A	Gateway to Greenpoint	0.42-acre public park located on the corner of Greenpoint Avenue	TBD

[17] The 74 Bogart Street project is seeking a rezoning of the property from a M1-2 district to a M1-4A district, which is currently undergoing public review (ULURP No. C250064ZMK).

Table 4-2
Planned Future Projects in the Study Area

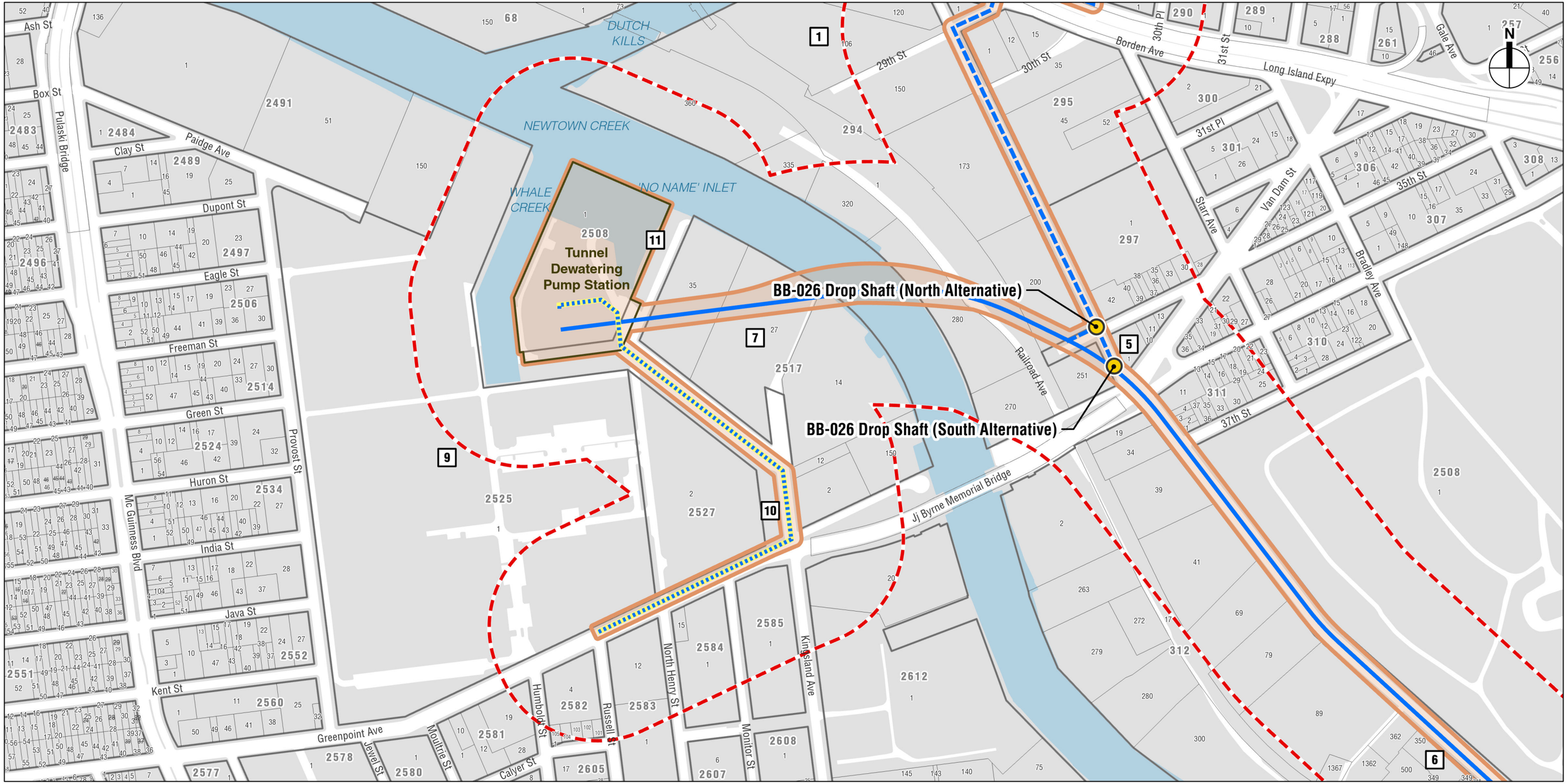
Ref. No.[1]	BBL	Project Name/Address	Project Description/Program	Anticipated Completion Date
			and Kingsland Avenue on the grounds of the Newtown Creek WRRF.	
11	3025080001	North Henry Street Restoration	0.45-acre public open space located on the northern end of North Henry Street adjacent to Newtown Creek	2027
Diversion Facilities Study Area[2]				
12	3030560140	131 Morgan Avenue	Manufacturing/Industrial: New Verizon garage work center	UC
13	3030560168	121 Morgan Avenue	Manufacturing/Industrial: Complete renovation and alteration of existing two-story warehouse	UC
14	3030840001	74 Bogart Street[3]	Manufacturing/Industrial: New 8-story, 240,000-square foot art storage development	2027

Notes:
UC: Under Construction (assumed to be completed by 2040 build year)
[1] Refer to **Figures 4-5a to 4-5e**.
[2] There are no new build or alterations within the study areas of BB-026, NCQ-077, and NCB-083.
[3] Project is seeking a rezoning of the property from a M1-2 district to a M1-4A district, which is currently undergoing public review (ULURP No. C250064ZMK).
Sources:
NYC Department of Buildings (DOB); NYC Department of Transportation (NYCDOT); DCP; FHI Studio field survey, August 2024.

ZONING

There are no changes to zoning applicable to the CSO tunnel, gravity diversion sewer, TDPS site, TDPS discharge pipe, and diversion facilities sites in the No Action condition, and the Proposed Project sites would remain within manufacturing zoning districts (M3-1 and M3-2). Zoning in the secondary study area is also expected to remain largely the same as in existing conditions; at one site (the 74 Bogart Street project described above), a rezoning has been proposed and is currently undergoing public review which would modify the existing M1-2 district to a M1-4A district (ULURP No. C250064ZMK), however, with this change, the site would remain within a manufacturing district. No other modifications to zoning within the study area are currently anticipated or proposed by the 2040 analysis year. As discussed above, zoning regulations citywide have been modified under the recently adopted City of Yes text amendments.

9.2.25



Project Limits

Study Area (400-foot perimeter)

TDPS Site

Potential CSO Tunnel Alignment

Gravity Diversion Sewer

TDPS Discharge Pipe

Approximate Drop Shaft Location

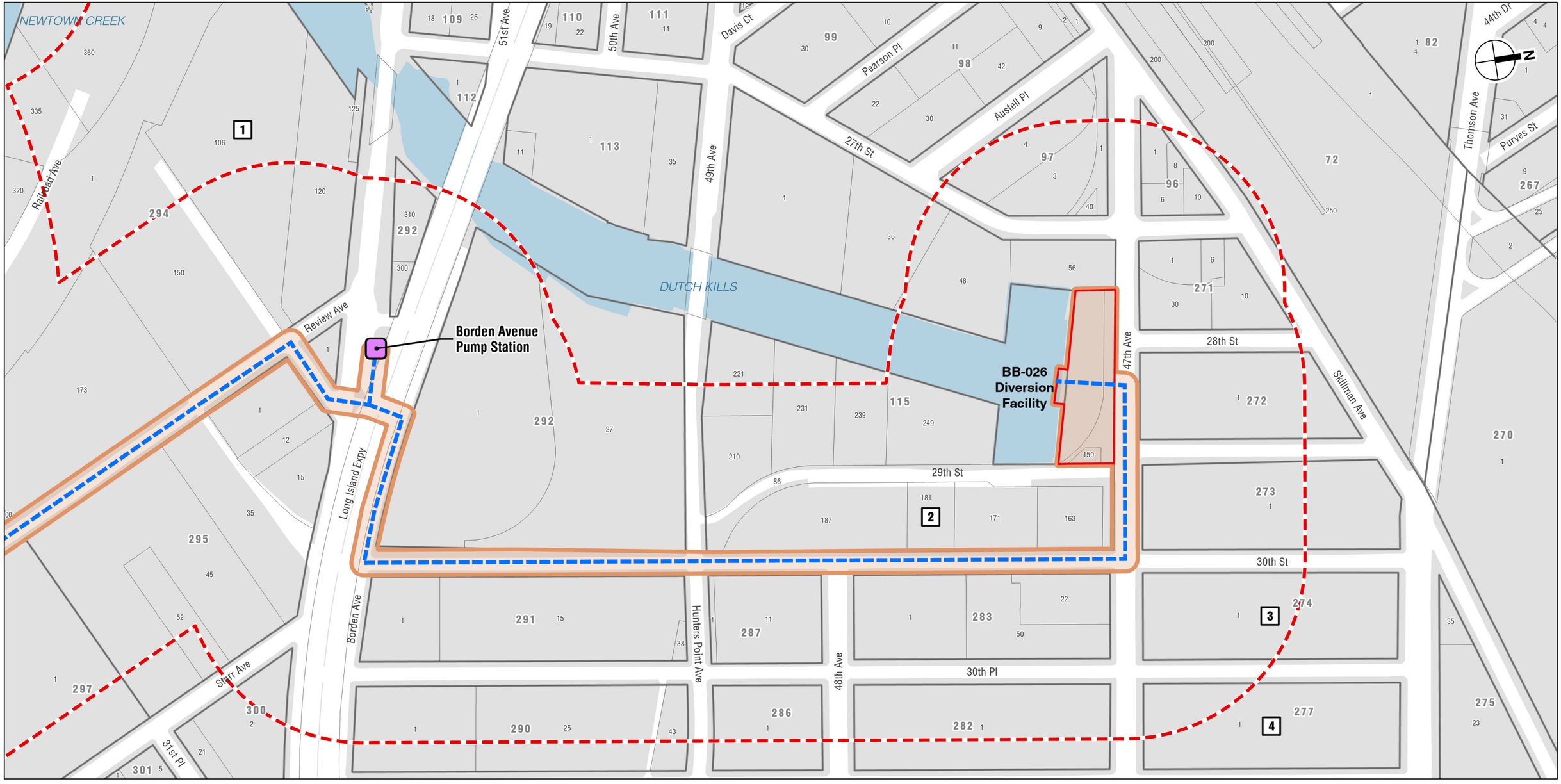
0 200 FEET

No Build Projects

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-5a

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

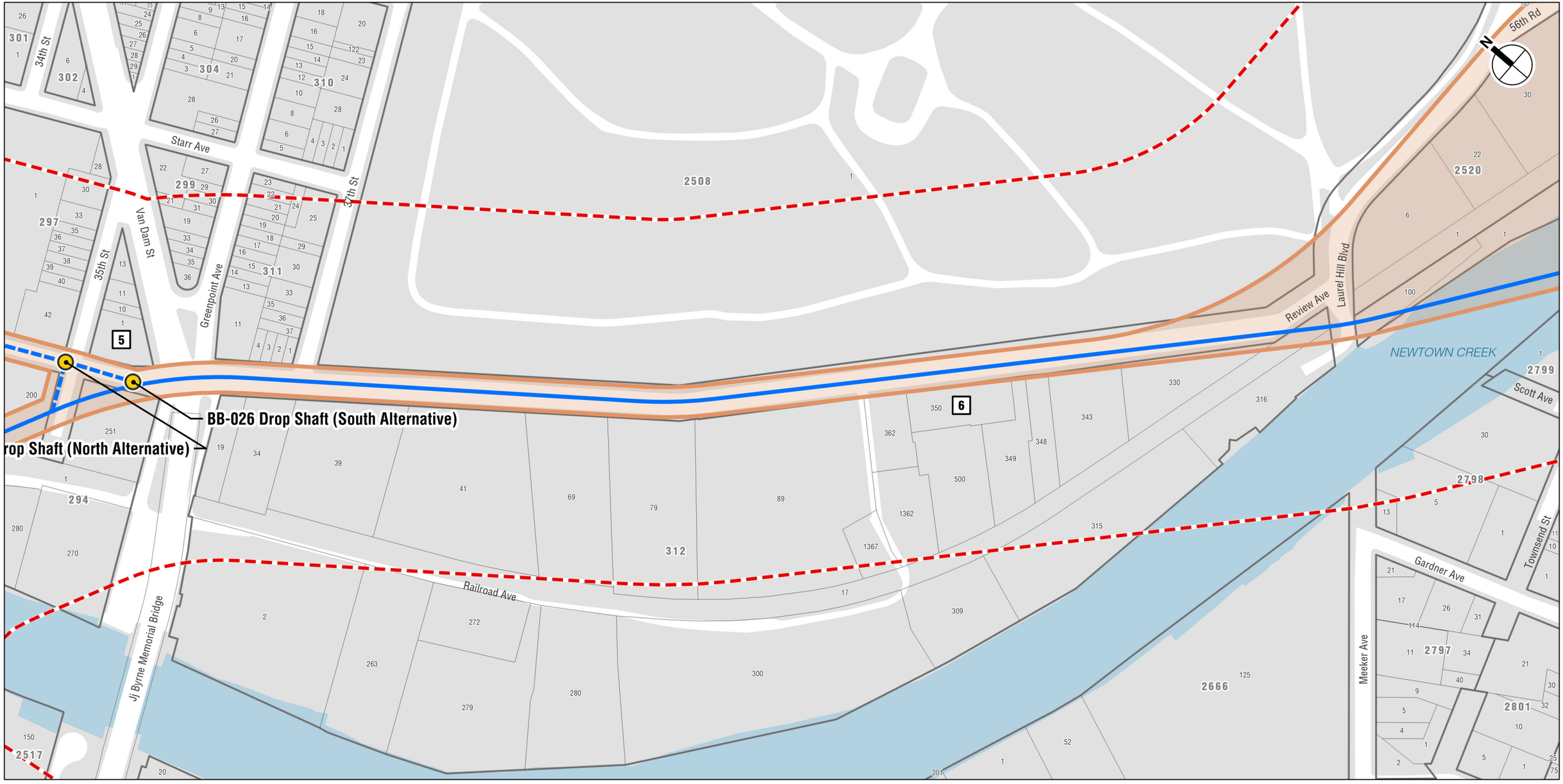
Gravity Diversion Sewer

No Build Projects

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-5b

9.2.25



No Build Projects

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-5c

ENGLISH KILLS

NEWTOWN CREEK

47th St

49th Pl

Maspeth Ave

Grand St

Grand Ave

Page Pl

54th St

55th St

56th St

57th St

2928 2930 2601 2602 2603 2575 2610 2948 2611 2629 2630 2631

8

Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

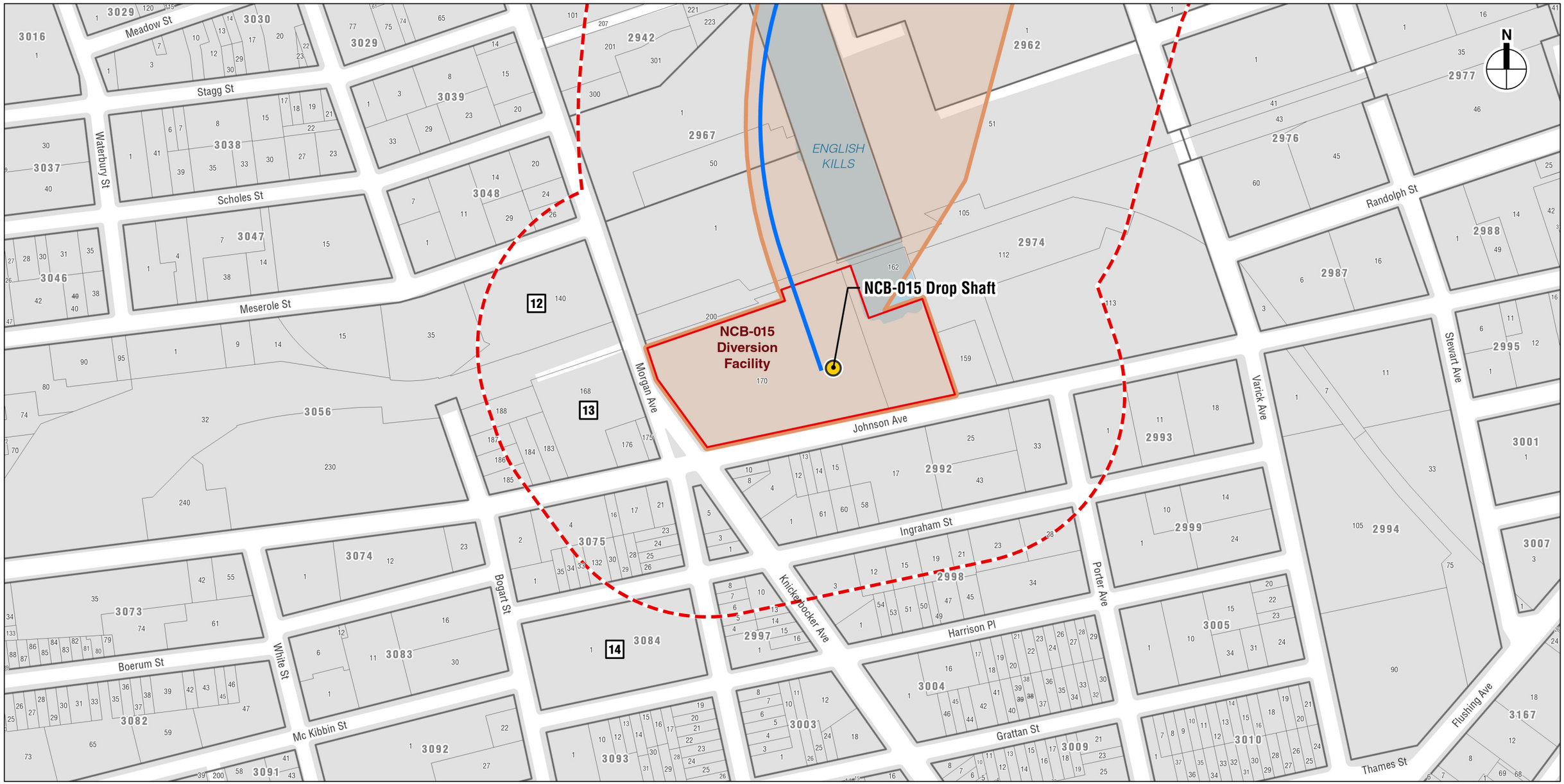
0 200 FEET

No Build Projects

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 4-5d

9.2.25



Project Limits

Study Area (400-foot perimeter)

Diversion Facility Site

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

No Build Projects

Figure 4-5e

PUBLIC POLICY

No modifications to public policies within the study area are currently anticipated or proposed by the 2040 analysis year.

E. FUTURE WITH THE PROPOSED PROJECT

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

According to the *CEQR Technical Manual*, a construction impact analysis for land use and neighborhood character is typically needed if construction would require continuous use of property for an extended duration, thereby having the potential to affect the nature of the land use and character of the neighborhood.

Construction activities for the CSO tunnel would primarily involve below-grade construction along the tunnel alignment. Construction activities for the gravity diversion sewer would involve cut-and-cover construction from the BB-026 outfall to the BAPS and then microtunneling from the BAPS to the drop shaft for the CSO tunnel. In the primary study area, above-grade construction activities would occur on the TDPS site, the gravity diversion sewer alignment (cut-and-cover), at the diversion facilities sites, and at other locations (such as the drop shaft site for outfall BB-026). Construction activities at these locations would affect land use on the Proposed Project sites with the construction of new infrastructure facilities (discussed further below, under Operational Impacts of the Proposed Project), but would not affect land use conditions and patterns outside of these areas. As is typical with construction projects, during periods of peak activity there would be some disruption to the nearby area. There would be construction trucks and construction workers coming to the area, as well as trucks and other vehicles backing up, loading, and unloading. Disruptions due to these construction activities would be most pronounced in areas immediately adjacent to the Proposed Project sites, but would be more limited in the larger study area away from the Proposed Project sites. In particular, surface construction activities associated with CSO tunnel construction would be concentrated at the TDPS site (which would be the start of the tunnel mining operation), which is in a primarily industrial area, and there would be limited effects from tunnel construction along the majority of the alignment. In particular, as discussed in Chapter 19, "Noise," construction of the Proposed Project is expected to result in significant adverse noise impacts at public open spaces adjacent to the TDPS, but would not result in significant adverse noise impacts at any other site within the study area. In addition, construction of the Proposed Project (including operation of the tunnel boring machine [TBM]) would not result in vibration levels with the potential to cause structural or architectural damage to buildings, or extended periods of perceptible or annoying vibration that would constitute a significant adverse impact. Overall, the temporary and localized nature of construction would not result in any significant adverse impacts on local land use patterns of the nearby area.

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

LAND USE

Project Sites

As discussed in Chapter 1, "Project Description," the Proposed Project would result in the demolition of existing structures at the TDPS and at all four diversion facilities sites.

CSO Tunnel

As discussed in Chapter 1, "Project Description," the Proposed Project would result in the construction of a new CSO tunnel. The construction of a 50-MG CSO storage tunnel and additional infrastructure (diversion chambers, connection to the drop shafts, drop shafts, new outfalls, and odor control systems) would be constructed below grade, with the exception of electrical control panels and manholes for future access to the tunnel and diversion facilities. The proposed CSO storage tunnel would be at an average depth of between 80 feet to 130 feet below grade and approximately 26 feet in outer diameter. Permanent subterranean easements would be mapped for the tunnel alignment along a number of parcels. However, it would not result in the disturbance of the existing structures or buildings on the easement parcels. The tunnel alignment is generally located under properties that are restricted to low-density manufacturing uses by zoning, and most of the area is located in IBZs, which limit opportunities for redevelopment of manufacturing facilities, including by ensuring that the IBZ areas remain zoned for manufacturing. As the Proposed Project is limited to an easement for the tunnel, any future development on properties along the tunnel alignment would remain subject to the existing restrictions under zoning and IBZ regulations. Therefore, it is not expected that the tunnel would result in limitations on future uses on the sites, and the Proposed Project would not result in any effects to land use on the sites containing the tunnel easement.

Gravity Diversion Sewer

The Proposed Project would include the construction of a new 54-inch gravity diversion sewer and additional infrastructure (diversion chambers, connection to the drop shafts, drop shafts, and flap gates) to control CSO discharge from outfall BB-026. The proposed sewer would divert CSOs by gravity from the BB-026 outfall to the tunnel alignment via the BAPS. As described in Chapter 1, "Project Description," the gravity sewer leading to the BAPS, located on Borden Avenue, would be constructed prior to the completion of the tunnel and would allow for diversion of CSO flows from BB-026 in the interim period before the tunnel is operational: CSO would be stored in the gravity sewer during a wet-weather event, and then removed from the gravity sewer by the pump statoin and conveyed to the Bowery Bay WRRF. Modifications would be made to the BAPS to construct the connection to the gravity sewer. From the BAPS, the gravity sewer would be micro-tunneled,[18] running south along Review Avenue, and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration, see **Figure 4-2b**). Once the tunnel,

[18] As described in Chapter 3, "Construction Means and Methods," micro-tunneling would generally be at depths ranging between 40 and 50 feet below grade.

TDPS, and drop shaft are complete, CSO flows would be diverted from the BAPS and conveyed to the tunnel.

TDPS Site

As discussed in Chapter 1, "Project Description," the Proposed Project would result in the construction of the TDPS on a City-owned property that currently contains light industrial uses. The TDPS facility would consist of above- and below-grade structures. The above-grade structures include a degritting facility, a screening facility, a pump station, and odor control vessels. The below-grade structures include a pump station, screening shaft, tunnel overflow structure, and discharge pipe. The pump station and screening facility would be in a connected building located on the south side of the TDPS site, while the degritting facility would be in a separate building sited to the north toward the center of the TDPS site. The odor control vessels would be located adjacent to the degritting facility and pump station. The pump station and screening facility would be constructed above the pump and screening shafts, which would be directly underground. The below-grade pump station would pump sewage from the tunnel to the discharge pipe (discussed below), which would handle flow from the TDPS facility to the Newtown Creek WRRF for treatment. The screening shaft tunnel overflow structure would be used to mitigate risks of flooding associated with surge events due to rapid filling of the tunnel. The pump station and discharge pipe would be located on the southern portion of the site, while the screening shaft tunnel overflow structure would be located on the northern portion of the site. The existing Greenpoint MTS and the ramp providing access to the MTS would be demolished and the entire TDPS site would be repaved.

The TDPS would operate to remove the stored combined sewage from the CSO tunnel on an intermittent basis following wet-weather events, as well as to remove inflow and infiltration in the tunnel as needed during dry weather, when the Newtown Creek WRRF has capacity to receive tunnel dewatering flows. The TDPS may also operate at the beginning of a storm to remove flow from the tunnel when the Newtown Creek WRRF has capacity, thereby maximizing the CSOs diverted and stored during a wet-weather event. Wet-weather events requiring TDPS operation are anticipated to occur between three and seven times per month. The surface layout of the site is currently being designed, and use of the site would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project.

TDPS Discharge Pipe

As mentioned above, the TDPS discharge pipe would convey flow from the TDPS facility to Newtown Creek WRRF. The below-grade discharge pipe would pump sewage via gravity from infrastructure below the pump station on the TDPS site to the Newtown Creek WRRF. The pipe would be below ground on Kingsland Avenue where it would continue west on Greenpoint Avenue and join an existing interceptor pipe below-grade on the corner of Greenpoint Avenue and Russell Street. The flow from the discharge pipe would join with flow from the existing interceptor pipe to the Newtown Creek WRRF.

Diversion Facilities Sites

Construction of the diversion facilities associated with the four outfall sites—including new pipes, sewers, and diversion facility infrastructure below grade—would result in changes to land use at each site, with the new infrastructure use replacing existing manufacturing/industrial uses and parking areas. Access to the below-grade facilities would be constructed on the sites. The below-grade facilities include new diversion chambers, diversion sewers, flap gate chambers, drop shaft approach channels, vortex drop shafts, and overflow weirs. There would also be odor control systems included at three diversion facilities (NCQ-077, NCB-083, and NCB-015).

DEP intends to utilize the diversion facility sites for accessory operations (such as equipment storage) or another DEP use: in particular, DEP has identified a need for facilities to support operations that can potentially be accommodated on the sites, such as crew quarters; parking for DEP maintenance and field vehicles; green infrastructure support; and warehouse and office spaces for equipment, material storage, and staff training. The existing structures on the sites (including a concrete manufacturing facility at the BB-026 diversion facility site, vacant former industrial buildings at the NCB-083 diversion facility site, and industrial and manufacturing buildings at the NCB-015 diversion facility site) would be demolished to accommodate the construction staging and diversion facilities; alternatively, portions of the buildings may be retained and repurposed into the additional DEP uses. The surface layouts of the sites are currently being designed; public access areas and/or amenities provided on the sites would be determined through additional facility design. The future DEP operational uses at the diversion facility sites would be determined later, and would be subject to separate approvals and environmental review if necessary.

Study Area

The Proposed Project would be limited to the construction of the CSO tunnel, gravity diversion sewer, TDPS, TDPS discharge pipe, and diversion facilities. The Proposed Project would not result in any new development or new uses on other sites within the study area. Therefore, the Proposed Project would not affect land uses in the secondary study area, which would remain primarily industrial, transportation, and commercial uses, as in the existing and No Action conditions described above.

Assessment

CSO Tunnel

The CSO tunnel would be part of the extensive sewer infrastructure system present in the study area—which includes existing CSO outfalls, sewers, pump stations, and wastewater treatment facilities—and would be compatible with the existing sewer infrastructure in the study area.

Gravity Diversion Sewer

Because the gravity diversion sewer is located along the right-of-way, it would not result in the disturbance or change in land use of any private or public properties. Therefore, the Proposed Project would not result in any effects to land use along the gravity diversion sewer alignment.

TDPS Site

Construction of the TDPS would affect the TDPS Site, which is currently a City-owned infrastructure facility; therefore it would not represent a change in land use. Similar to the CSO tunnel, the TDPS would be part of the extensive wastewater infrastructure system present in the study area and would be

compatible with existing sewer and wastewater treatment facilities in the area, in particular, the adjacent Newtown Creek WRRF. The TDPS facility would also be compatible with the other uses in the study area, which include light industrial uses and public facilities. There are no commercial or residential uses located adjacent to the TDPS site. The TDPS site is currently occupied by DSNY operations; however, DSNY would vacate the site prior to construction of the Proposed Project. The TDPS site would comply with the applicable M3-1 zoning and would therefore not result in a non-conforming use within the TDPS site study area.

TDPS Discharge Pipe

The TDPS discharge pipe would be part of the extensive sewer infrastructure system present in the study area—which includes existing CSO outfalls, sewers, pump stations, and wastewater treatment facilities—and would connect to an existing sewer line that connects to the Newtown Creek WRRF. Therefore, the TDPS discharge pipe would be compatible with the existing sewer infrastructure in the study area.

Diversion Facilities

Similar to the TDPS facility, the four diversion facilities would be part of the extensive sewer infrastructure system present in the study area and would be compatible with existing sewer infrastructure. The four diversion facilities would also be compatible with the other uses in the study area, which are predominantly light industrial uses, commercial uses, public facilities, transportation uses, and parking facilities. Buildings cannot be built over the drop shafts, diversion chambers/outfall structures, or overflow structures, as they would result in structural issues with the below-grade facilities and would impede access to the below-grade facilities for replacement or repair; as noted above, the existing structures on the sites would be demolished, or, alternatively, the buildings may be retained and repurposed into accessory facilities or another DEP use. The four diversion facility sites would comply with the applicable M3-1 and M3-2 zoning and would therefore not result in a non-conforming use within the study areas.

Overall, the Proposed Project would be compatible with existing land uses in the study area and would not result in significant adverse impacts to land uses.

ZONING

The proposed CSO tunnel, gravity diversion sewer, and TDPS discharge pipe would be located below-grade, therefore these components are not subject to zoning regulations under the New York City Zoning Resolution. The TDPS and diversion facilities are considered Use Group IV(B) under zoning, similar to other CSO facilities in the city, which are permitted uses under the existing applicable M3-1 and M3-2 zoning districts. The facilities are designed to meet all applicable zoning requirements. The Proposed Project would not result in any changes to the zoning regulations applicable to the TDPS site, diversion facilities sites, sites along the CSO tunnel alignment, or any other site within the study areas.

The TDPS site, diversion facilities sites, and other sites along Newtown Creek are subject to Waterfront Zoning regulations. However, as described above, these facilities fall under the Use Groups that are exempt from Waterfront Zoning requirements related to visual corridors and public open space. Although public open space on the TDPS and diversion facility sites is not required by zoning, DEP is

evaluating the potential for the sites to include accessible waterfront open space where it does not interfere or conflict with the operation of the Proposed Project.

The Proposed Project would not introduce new housing and therefore the recently adopted zoning text amendments under City of Yes for Housing Opportunity would not be applicable. The Proposed Project would comply with City of Yes for Carbon Neutrality and City of Yes for Economic Opportunity. Therefore, the Proposed Project would comply with all existing zoning and would not result in significant adverse impacts on zoning.

PUBLIC POLICY

The Proposed Project would not result in any change to public policies affecting the CSO tunnel, gravity diversion sewer, TDPS, or diversion facilities. The WRP consistency assessment concludes that the Proposed Project would be consistent with the policies of the WRP (WRP no. 24-163; see **Appendix C**). In addition, the Proposed Project would be consistent with the sustainability goals of OneNYC, in particular, the plan's goals relating to upgrading the City's core infrastructure necessary for delivering essential services, including wastewater treatment and stormwater management.

At the TDPS site and four diversion facilities, the Proposed Project would result in CSO facilities located in areas that are subject to public policies aiming at the preservation of industrial facilities, in particular the City's IBZ program. As discussed in Chapter 5, "Socioeconomic Conditions," construction of these uses would potentially displace industrial businesses. However, the displacement of these businesses is not expected to result in a significant loss of industrial employment or affect business conditions for the other industrial businesses in the area, therefore construction of the facilities would not conflict with the City's goal of retaining industrial uses within the IBZ.

As noted above, the Proposed Project requires approval of site selection and property acquisition actions subject to ULURP, and is therefore required to undergo a Fair Share analysis pursuant to criteria appended to Title 62 of the RCNY. The consideration of the Fair Share criteria is discussed and presented in **Appendix B,** and concludes that the Proposed Project is consistent with the City's Fair Share policy.

Overall, the Proposed Project would not result in any significant adverse impacts to public policy governing the CSO tunnel, gravity diversion sewer, TDPS, TDPS discharge pipe, diversion facilities, and the study areas.

CONCLUSION

As outlined in the assessments presented above, construction and operation of the Proposed Project would not result in any significant adverse impacts to land use, zoning, or public policy. The Proposed Project would include new infrastructure which would primarily be underground—the CSO tunnel, gravity diversion sewer connecting outfall BB-026 to the CSO tunnel and TDPS discharge pipe—that would not result in changes to land use at the affected properties; similarly, the TDPS would not result in a change in land use, as the site is currently a City-owned public use (operated by DSNY, who would vacate the site prior to construction of the Proposed Project). The diversion facilities would result in a change in land use on the affected properties, which currently contain primarily surface parking, vacant

land/buildings, and manufacturing uses. However, the Proposed Project's facilities would be part of the extensive sewer infrastructure system present in the study area—which includes existing CSO outfalls, sewers, pump stations, and wastewater treatment facilities—and would be compatible with the existing sewer infrastructure in the study area. The Proposed Project would also be compatible with the other uses in the study area, which are predominantly light industrial uses, commercial uses, public facilities, transportation uses, and parking facilities. The Proposed Project's below-grade components are not subject to zoning regulations, while the TDPS and diversion facilities are designed to meet all applicable zoning requirements, and the Proposed Project would not result in any changes to the zoning regulations applicable to the TDPS site, diversion facilities sites, sites along the CSO tunnel alignment, or any other site within the study areas. In addition, the Proposed Project would be consistent with and supportive of the public policies applicable to the Proposed Project sites and the study area, including the WRP.

Chapter 5: Socioeconomic Conditions

A. INTRODUCTION

This chapter describes the socioeconomic changes that could result from the Proposed Project and assesses whether such changes could result in potential significant adverse impacts. As described in the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, the socioeconomic character of an area is mainly a function of its population, housing, and economic activity. Socioeconomic changes may occur when a project directly or indirectly changes any of these elements. The objective of this analysis is to assess whether any changes would result in a significant adverse impact compared with the future without the Proposed Project.

In accordance with *CEQR Technical Manual* guidelines, a screening analysis was conducted to determine whether a preliminary socioeconomic assessment is warranted. The *CEQR Technical Manual* guidelines recommend examination of five ways in which a project could alter socioeconomic conditions: direct residential displacement; direct business displacement; indirect residential displacement; indirect business displacement; and adverse effects on specific industries. As detailed in Section C, "Screening Analysis," based on *CEQR Technical Manual* guidance, a preliminary assessment of direct and indirect business displacement is warranted.

PRINCIPAL CONCLUSIONS

The Proposed Project would affect 11 parcels, two of which are City-owned. Use of City-owned lots would not result in displacement of businesses or employees. Therefore, the Proposed Project involves acquisition of nine sites, including eight proposed for permanent acquisition and one proposed for temporary acquisition during construction.[1] Permanent acquisition of the eight parcels would displace the current uses on these lots. However, because one of the lots proposed for permanent acquisition is vacant and three are used for storage and/or parking, which would not displace employees or businesses, the Proposed Project is expected to result in the permanent displacement of 35 employees and 3 businesses on the remaining four sites: (1) SRM Concrete, (2) FedEx, and (3) MetroExpress.[2]

Based on the screening analysis that was conducted, the Proposed Project would not displace any residents and would not result in adverse effects on specific industries; however, the Proposed Project could potentially displace a business that could be considered unusually important and would be

[1] Of the eight permanent acquisition sites, four would only require permanent acquisition easements.

[2] While the Proposed Project would require permanent acquisition of two lots owned by Patriot Maspeth GP, LLC, these lots are used for storage and parking and are not expected to displace the overall business operating on these lots—F.W. Webb, which has its warehouse and additional parking and storage areas on an adjacent lot.

difficult to relocate (i.e., SRM Concrete). Therefore, a Preliminary Assessment was conducted to assess the Proposed Project's potential to result in significant direct or indirect business displacement. The Preliminary Assessment found that individually and collectively, the 3 businesses and 35 employees that could be directly displaced do not provide products or services essential to the local economy that would no longer be available to local residents or businesses in their "trade areas" due to the difficulty of either relocating the businesses or establishing new, comparable businesses. The three businesses are also not in a category of businesses or institutions that may be the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect them. Their displacement would not significantly affect business conditions in any industry or any category of business within or outside the study area. In addition, the Proposed Project would not introduce any residential or commercial development that could lead to indirect displacement. Therefore, the Proposed Project would not result in any significant adverse socioeconomic impacts.

B. METHODOLOGY

Changes to an area's socioeconomic character may occur directly or indirectly as a result of a project. Direct (or primary) displacement is defined by CEQR as the involuntary displacement of residents or businesses from a site or sites directly affected by a project. Examples of direct displacement include a proposed redevelopment of a currently occupied parcel for a new use or structure, or a proposed easement or right-of-way that would take a portion of a parcel, rendering it unfit for its current use.

Indirect (or secondary) displacement is defined by CEQR as the involuntary displacement of residents, businesses, or employees that results from a change in socioeconomic conditions created by a project. Examples of indirect displacement include lower-income residents compelled to leave due to rising rents caused by a new concentration of higher-income housing introduced by a project, or a similar turnover of industrial uses being compelled to leave in favor of higher-paying commercial tenants attracted to an area because of a successful office project.

Adverse effects on specific industries occur if the project affects the ability of a specific industry or industry sector to serve its customers or other businesses within the industry. Examples of effects on specific industries include the displacement of businesses that provide goods and services to a substantial number of residents or workers, or if the project would result in the loss or substantial diminishment of a particularly important product or service within the industry.

STUDY AREA DEFINITION

The socioeconomic study area is the area within which the Proposed Project has the greatest potential to directly or indirectly affect population, housing, and economic activities. Typically, the socioeconomic study area boundaries are similar to those of the land use study area. The study area encompasses the project sites and adjacent areas within approximately 400 feet, ¼ mile, or ½ mile, depending upon the project size and area characteristics. Additionally, because socioeconomic analyses depend on demographic data, it is appropriate to adjust the study area boundary to conform to the census tract delineation that most closely approximates the desired radius (in this case, it is a 400-foot radius surrounding the Proposed Project sites, based on the secondary land use study area described in Chapter

3, "Land Use, Zoning, and Public Policy"). The census tracts that comprise the "socioeconomic study area," or "study area," are shown on **Figure 5-1**. The study area includes the following 16 census tracts: 1.04, 171.01, 179.02, 199.01, 199.02, 199.03, 205, 219, 449.02, 453, 485, 535.02, 539.01, 579.02, 589.01, and 589.02.

In addition, subareas were selected for a conservative analysis to disclose whether the Proposed Project may have disparate effects on distinct populations that could be masked or overlooked within the larger study area (see **Figures 5-2a through 5-2e)**.

DATA SOURCES

Existing businesses on the proposed sites for potential acquisition were identified through field surveys supplemented by online information, including websites of the affected businesses, as well as Google Street View and New York City's Zoning and Land Use Map (ZoLa, https://zola.planning.nyc.gov). These sources were also used to confirm the presence of concrete mixing firms in and near the study area. Employment estimates for businesses observed on the sites are based on field observations, standard industry employment density ratios commonly used for CEQR analyses, as well as employment density ratios provided by the New York City Department of City Planning's (DCP) and industry databases such as Manta. Employment data for the study area were collected from the U.S. Census Bureau's OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2021).

C. SCREENING ANALYSIS

Following *CEQR Technical Manual* guidelines, a socioeconomic analysis begins with a screening assessment that determines the need for further analysis. This section describes the *CEQR Technical Manual* screening analysis threshold circumstances that can lead to socioeconomic changes warranting further analysis and compares those thresholds (in bold italics below) to the Proposed Project.

Direct residential displacement: Would the project directly displace population to the extent that the socioeconomic character of the neighborhood would be substantially altered? Displacement of fewer than 500 residents would not typically be expected to alter the socioeconomic character of a neighborhood.

The Proposed Project would not directly displace any residential uses. Therefore, an assessment of direct residential displacement is not warranted.

Direct and indirect business displacement: Would the project directly displace more than 100 employees, or would it displace any business that is unusually important because its products or services are uniquely dependent on its location, are subject to policies or plans aimed at its preservation, or that serves a population uniquely dependent on its services in its present location? For projects exceeding this threshold, assessments of direct business displacement and indirect business displacement are appropriate.

The Proposed Project has the potential to result in direct displacement of businesses and employees as a result of potential acquisition of up to nine sites.

9.2.25



Project Limits

400-Foot Radius

Potential CSO Tunnel Alignment

Gravity Diversion Sewer

TDPS Discharge Pipe

Affected Tax Lot

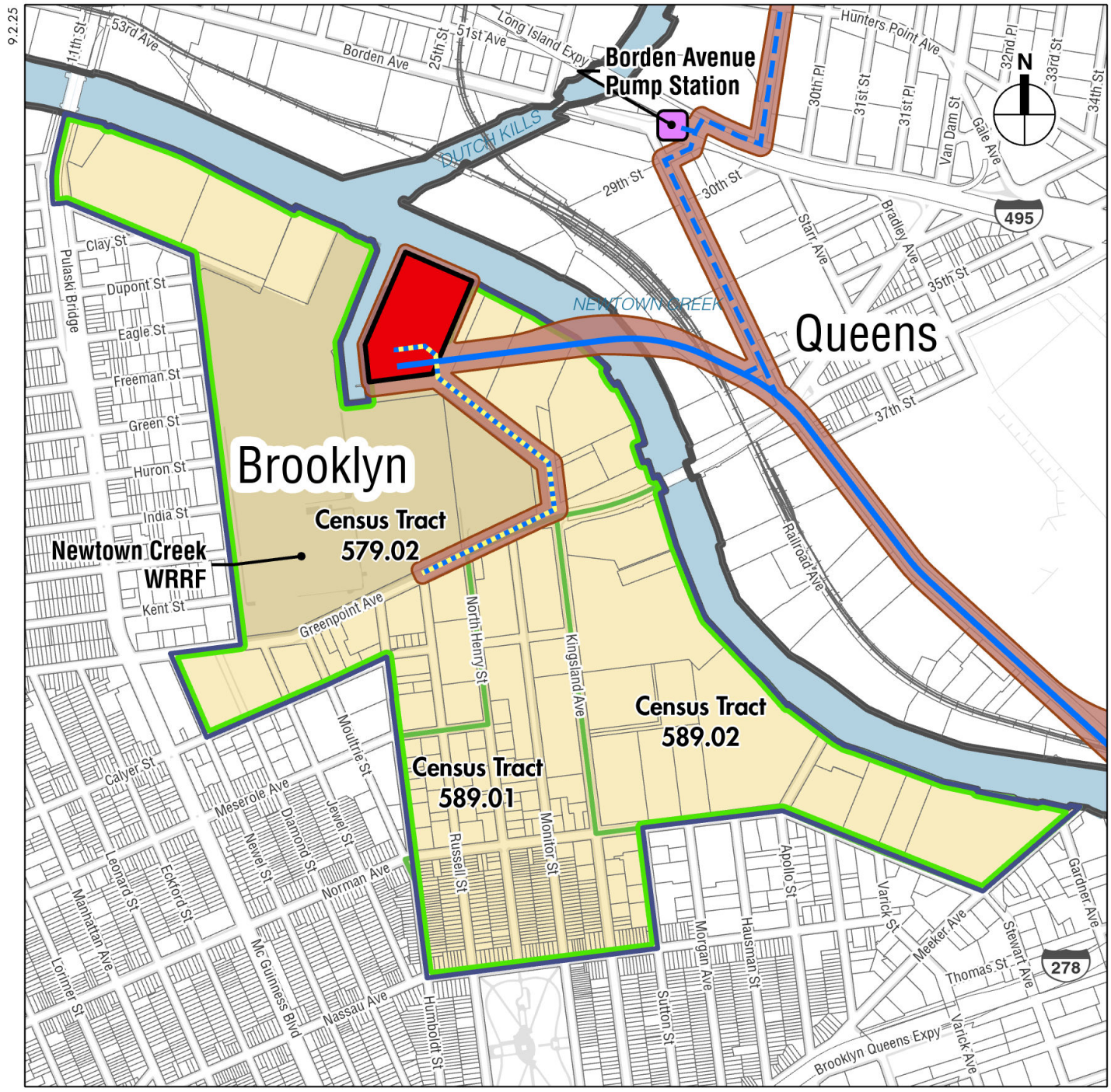
Socioeconomic Study Area

Socioeconomic Study Area Census Tract

Socioeconomic Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-1

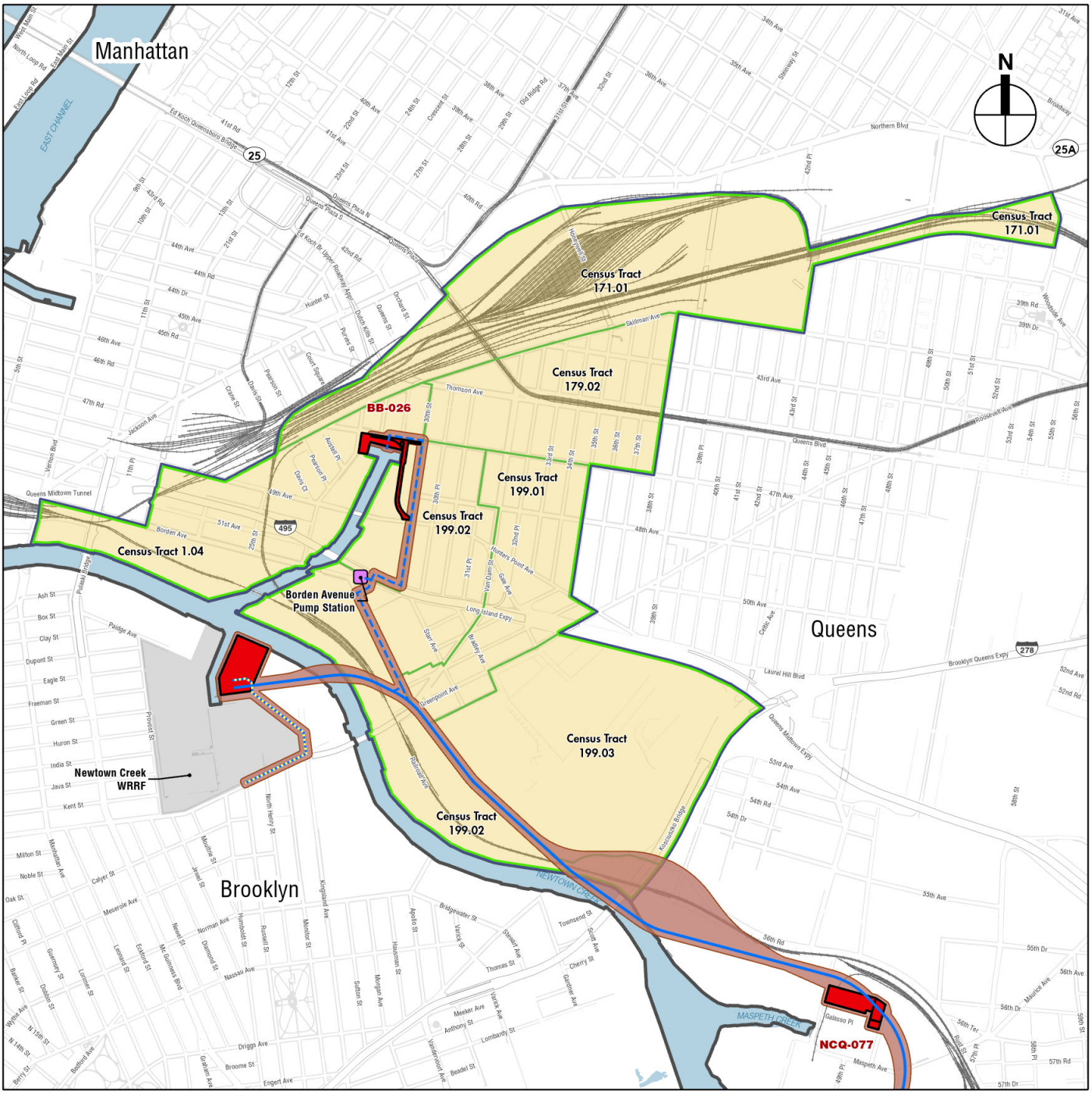


Socioeconomic Subareas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-2a

9.2.25



Socioeconomic Subareas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

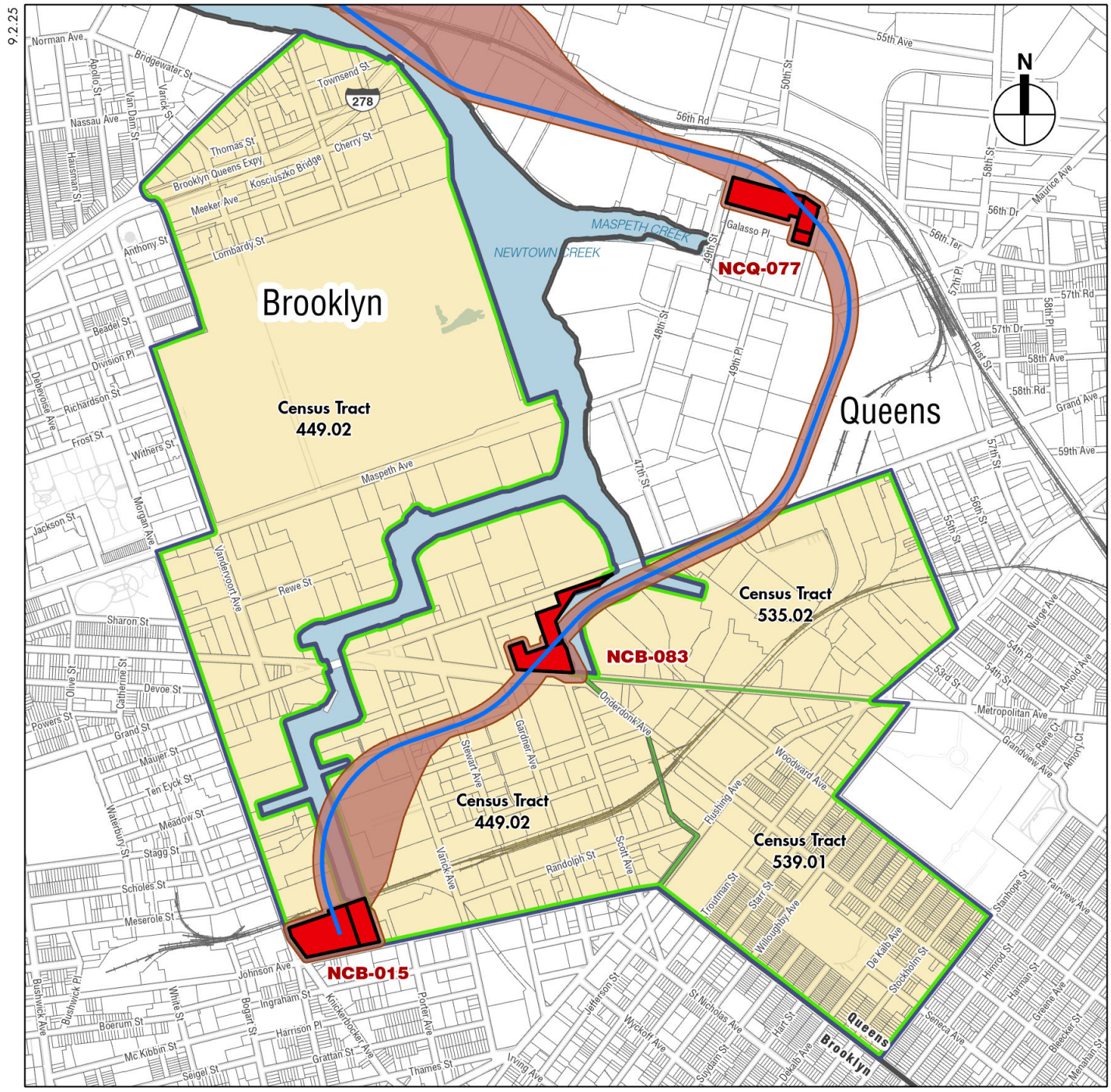
Figure 5-2b



Socioeconomic Subareas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-2c

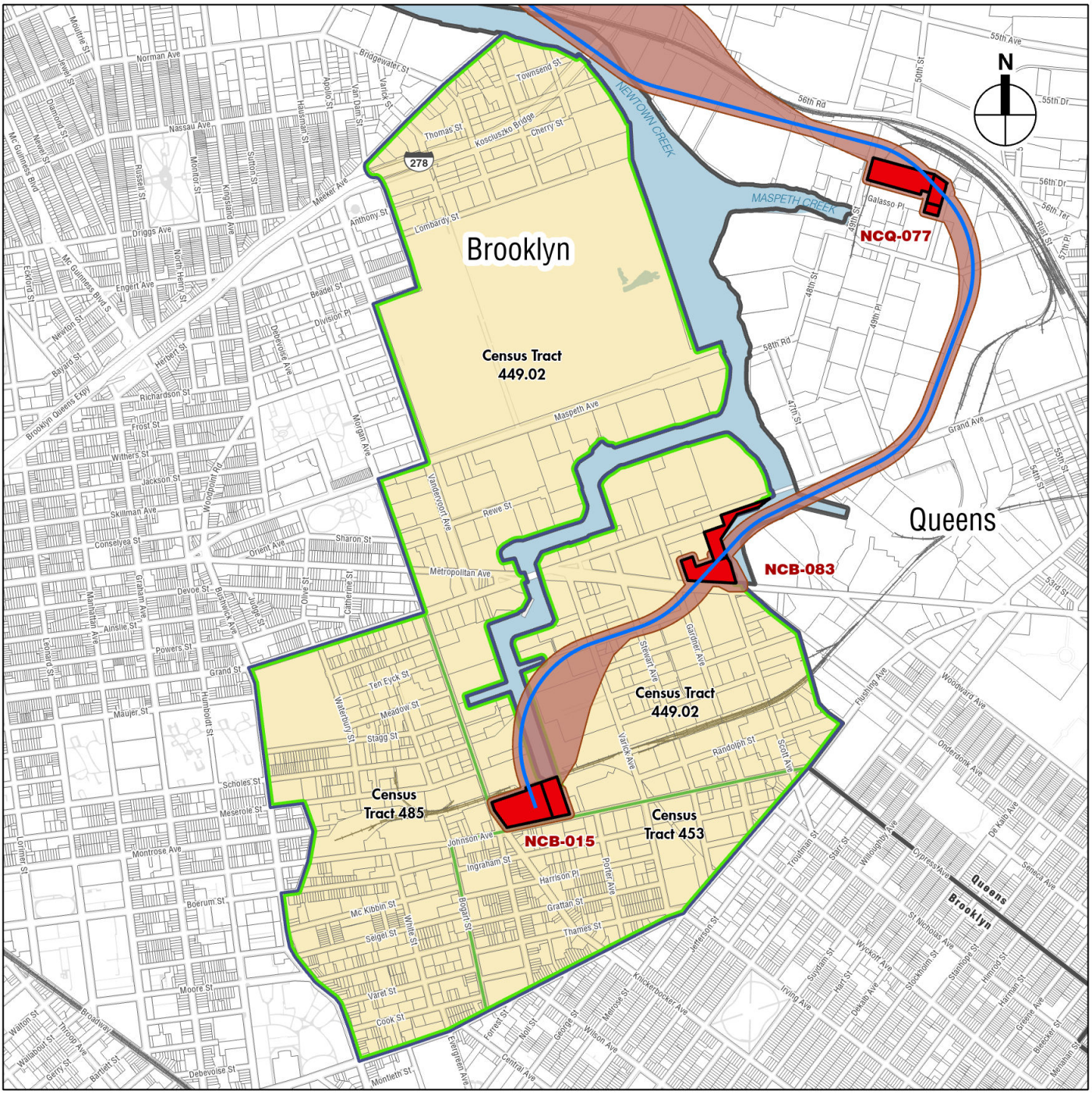


Socioeconomic Subareas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-2d

9.2.25



Socioeconomic Subareas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-2e

Because the Proposed Project has the potential to displace a concrete mixing plant due to the temporary (or permanent) interruption of operations during construction (construction of the diversion facility would occur in the area where the mixer trucks are stored), an assessment of the Proposed Project's potential to result in significant direct and indirect business displacement is provided in Section D, "Preliminary Assessment."

Indirect displacement due to increased rents: Would the project result in substantial new development that is markedly different from existing uses, development, and activities within the neighborhood? Residential development of 200 units or fewer or commercial development of 200,000 square feet or less would typically not result in significant socioeconomic impacts.

The Proposed Project would not introduce any residential or commercial development. Therefore, an assessment of potential indirect displacement due to increased rents is not warranted. Along with the evolving characteristics of the study area, including existing development forces and the proposed benefits the Proposed Project may have on Newtown Creek, indirect effects on rents and property values may occur in the study area that cannot be reflected/quantified in this analysis.

In most cases, indirect displacement of businesses occurs when a project would markedly increase property values and rents throughout an area, making it difficult for some categories of businesses to remain in the area. This is not a concern with the Proposed Project, because it is not introducing a substantial new use that could substantially alter or accelerate existing market trends in the area. Rather, the concern is whether the Proposed Project would directly displace a use that either directly supports businesses in the area or brings a customer base to the area for local businesses, or if it would directly or indirectly displace workers who form the customer base of existing businesses in the area (see Section D, "Preliminary Assessment").

Indirect business displacement due to market saturation: Would the project add to, or create a retail concentration that may draw a substantial amount of sales from existing businesses within the study area to the extent that certain categories of business close and vacancies in the area increase, thus resulting in a potential for disinvestment on local retail streets? Projects resulting in less than 200,000 square feet of retail on a single development site would not typically result in socioeconomic impacts.

The Proposed Project would not introduce any commercial development; therefore, an assessment of potential indirect business displacement due to market saturation is not warranted.

Adverse effects on specific industries: Is the project expected to affect conditions within a specific industry? An analysis is warranted if a substantial number of residents or workers depend on the goods or services provided by the affected businesses or if the project would result in the loss or substantial diminishment of a particularly important product or service within the industry.

An assessment of potential adverse effects on specific industries is warranted if a proposed project directly displaces businesses that are part of the value chain of a specific industry in the area. The types of businesses located at the sites under consideration for acquisition can be fairly categorized as Industrial/Manufacturing, Transportation and Warehousing, Other Services (Parking), and Construction. These business types/uses are common throughout the city. These businesses do not

provide a particularly important product or service for the industry supply chain. Based on the nature of the businesses located at the proposed acquisition sites, a preliminary assessment of adverse effects on specific industries is not warranted.

Based on the above screening assessment, the Proposed Project warrants further assessment of direct and indirect business displacement (see Section D, "Preliminary Assessment).

D. PRELMINARY ASSESSMENT

DIRECT AND INDIRECT BUSINESS DISPLACEMENT

DIRECT BUSINESS DISPLACEMENT

Table 5-1 details property information for each of the sites proposed for temporary or permanent acquisition. Where employment information was not readily identifiable, the conservative ratio of one employee for every 5,000 square feet of warehouse space was used to estimate the direct employment on the relevant site.[3] For properties having an industrial and/or manufacturing use, the ratio of one employee for every 1,000 square feet of space was used to estimate direct employment on the relevant site.[4] As shown in the table, the estimated employment, associated with these nine sites would not exceed the 100-employee CEQR threshold.

[3] Guidelines for the submission of the Racial Equity Report, provided by New York City agencies (DCP and the New York City Department of Housing Preservation and Development [HPD]), offer the ratio of one employee for every 15,000 square feet of warehouse space. Therefore, the ratio of one employee for every 5,000 square feet of warehouse space was identified as a conservative estimate.

[4] The Racial Equity Report guidelines provide an estimate of one worker per 1,000 square feet of industrial space.

Table 5-1
Existing Conditions

Block	Lot	Address	Lot Size	Building Size	Owner	Existing Use/ Businesses	Number of Employees (entire lot)	Primary Industry Sector	Type of Acquisition[1]
Tunnel Dewatering Pump Station (TDPS) (Whale Creek) Site									
2508	1	1 Kingsland Ave., Brooklyn	276,135 sf	200,000 sf	DSNY	DSNY	N/A*	N/A – City-Owned[1]	N/A
BB-026 Sites									
115	56	47-17 27th St., Queens	54,739 sf	10,000 sf	Chaves Development LLC	SRM Concrete	10	Manufacturing	Permanent Acquisition
115	86	29th Street, Queens	67,300 sf	N/A	MTA LIRR	SRM Concrete (parking area)	0	Manufacturing	Permanent Acquisition
115	150	47th Ave., Queens	1,980 sf	N/A	MTA LIRR	Vacant Land	0	N/A	Permanent Acquisition
NCB-015 Sites									
2974	162	Johnson Ave., Brooklyn	32,280 sf	N/A	MTA LIRR	Asphalt parking area	0	Transportation & Warehousing	Permanent Acquisition
2974	170	100 Knickerbocker Ave., Brooklyn	141,500 sf	102,000 sf	Berrybridge, Inc./Steel Equities	FedEx distribution facility	20	Transportation & Warehousing	Permanent Acquisition
NCB-083 Sites									
2948	13	1356 Grand St., Brooklyn	56,250 sf	N/A	Feldman Metropolitan Realty, LLC	Feldman Lumber (lumber yard)	0	Wholesale Trade	Temporary Acquisition
2948	85	1301 Metropolitan Ave., Brooklyn	84,630 sf	24,605 sf	1301 Metro-255 LLC	Warehouse for MetroExpress Services and lumber yard	5	Transportation & Warehousing	Permanent Acquisition
NCQ-077 Sites									
2575	26	49th Street, Queens	123,654 sf	N/A	DEP	Parking and/or truck storage area	N/A*	N/A – City-Owned[1]	N/A
2575	225	3 49 Lane, Queens	32,208 sf	N/A	Patriot Maspeth GP LLC	Truck storage area for F.W. Webb	0	Transportation & Warehousing	Permanent Acquisition
2575	240	49 Lane, Queens	11,739 sf	N/A	Patriot Maspeth GP, LLC	Parking for F.W. Webb	0	Transportation & Warehousing	Permanent Acquisition

Notes:
The following employment ratio were utilized to estimate employment where employment was otherwise unknown:
1 per 1000 sf industrial space; 1 per 5000 sf of warehouse space (where sf = square feet).
DSNY = New York City Department of Sanitation; MTA = New York City Metropolitan Transportation Authority; LIRR = Long Island Rail Road; DEP = New York City Department of Environmental Protection
Columns may not sum due to rounding.
[1] City-owned lots would not require acquisition and would not result in any displacement of businesses or employees. Lots proposed for permanent acquisition would result in direct displacement of the uses on those lots. The lot proposed for temporary acquisition during construction would not result in direct displacement of businesses or employees.
*For this analysis, it is assumed that no businesses or employment would be displaced on City-owned sites.
Sources: AKRF, May 2025; NYC ZoLa.

Based on this assessment, the Proposed Project would displace up to three businesses on nine sites: (1) SRM Concrete; (2) FedEx; and (3) MetroExpress. While two of the sites are associated with other businesses (Feldman Lumber and F.W. Webb) the Proposed Project would not displace these businesses. The lots considered for acquisition are tertiary to business operations and do not have employment associated with them, nor are they essential for the continuation of operations. The temporary acquisition of a small portion of a lumber yard operated by Feldman Lumber would not affect the overall operation of the business, which has its warehouse on an adjacent lot in addition to ample storage space available on these adjacent lots. The permanent acquisition of the lots used by F.W. Webb for parking and truck storage would not affect the overall operations of the business, as ample parking would still be available on other lots that the business operates on and/or in the surrounding area. Neither of these acquisitions would effectively displace business operations for these businesses.[5]

All the sites under consideration are associated with businesses that can be categorized within the following sectors: Manufacturing, Wholesale Trade, and Transportation and Warehousing. These business/land use types are common throughout the city with the NYC Industrial Plan (outlined in Local Law 172-2023) acknowledging that "NYC's industrial ecosystem is diverse and located all across the city – in every neighborhood and every borough."[6] While all businesses contribute to the community and provide value to the local economy, the three potentially displaced businesses are not considered "unusually important" per CEQR guidelines. Some of the sites are within an Industrial Business Zone (IBZ), such as the Northern Brooklyn IBZ and the Long Island City IBZ, created to protect industrial businesses from being displaced by residential uses. IBZs do not protect specific industry sectors or uses; rather, they ensure that zoning regulations for lots within these areas remain unchanged. Since the Proposed Project would not seek a change in zoning, it does not conflict with the statutes of the IBZ. Several of the sites are vacant land and/or currently used for parking, a use which is not inherently location dependent and is common throughout the Greenpoint, Williamsburg, Long Island City, Blissville/Woodside, and Astoria neighborhoods. **Table 5-2** offers examples of lots that are either vacant or being used for parking and are currently listed for sale, lease, or rent in neighborhoods surrounding Newtown Creek.

[5] These businesses would not be displaced by the proposed acquisitions; if they were, the displaced employment and operations associated with these businesses would not be considered a significant adverse impact under CEQR (16 employees at F.W. Webb and 22 employees at Feldman based on standard industry ratios). These businesses are not locationally dependent, nor do they provide uniquely important products or services.

[6] New York City Local Law 172-2023 as outlined in the "New York City Industrial Plan." Department of City Planning, 2023.

Table 5-2
Available Vacant/Parking Lots In Neighborhoods Surrounding Newtown Creek

Address	Lot Size	Land Use Classification	Asking Rent/Price
3870 Review Ave, Long Island City, NY 11101	0.41 Acres	Industrial	-*
215-221 Greenpoint Ter, Brooklyn, NY 11222	0.31 Acres	Commercial	$16/SF/YR
171 West St, Brooklyn, NY 11222	2.75 Acres	Commercial	-*
67 Meserole St, Brooklyn, NY 11206	0.23 Acres	Commercial	$13/SF/YR
46-73 Metropolitan Ave, Flushing, NY 11385	0.23-3.78 Acres	Industrial	-*
4010-12 Crescent St, Long Island City, NY 11101	0.17 Acres	Commercial	$4,400,000
1201 37th Ave, Long Island City, NY 11101	0.11 Acres	Commercial	-*
36-33 13th St, Queens, NY 11106	0.23 Acres	Commercial	$3,700,000
3755 57th St, Woodside, NY11377	0.06 Acres	Commercial	$13.44/SF/YR

Note: * In some cases rental/sale rates are only available upon request or are not provided upfront.
Source: LoopNet (accessed November 2024).

As shown in **Table 5-3**, the socioeconomic study area had a total of 57,664 employees in 2021 working throughout a variety of the U.S. Census Bureau's North American Industry Classification System (NAICS) industries. The sector with the most employment is Administration & Support, Waste Management & Remediation with an estimated 8,863 employees or 15.4 percent of the total workforce in the area. The Construction sector is the second highest in terms of employment with 8,215 employees or 14.2 percent of the total workforce in the area. The Wholesale Trade and Transportation/Warehousing sectors have the third and fourth highest share of the total workforce at 12.9 percent and 12.4 percent, respectively. Given the large percentage of the study area workforce employed in sectors comparable to that of the businesses operating on the sites proposed for acquisition, it can be reasonably concluded that employment on these sites is not unusually important.

As shown in **Table 5-4**, of the 12,636 employees working in the Manufacturing and Transportation/Warehousing sectors, an estimated 35 employees work on the sites proposed for acquisition. These 35 employees represent less than 0.10 percent of total employment throughout the socioeconomic study area and roughly 0.20 percent of the employment in the industries mentioned above. The displacement of these 35 employees does not represent socioeconomic change at a scale that can be expected to materially alter the local economy. The three potentially displaced businesses (1. SRM Concrete, 2. FedEx, 3. MetroExpress) do not represent a majority of study area businesses or employment for any given sector. While all businesses contribute to neighborhood character and provide value to the City's economy, alternative sources of goods, services, and employment are available within the socioeconomic study area or a reasonably proximal trade area.

Table 5-3
2021 Employment by NAICS Industry in the Socioeconomic Study Area

Industry	Number of Employees	Percentage of Total Employment
Agriculture, Forestry, Fishing and Hunting	124	0.2%
Mining, Quarrying, and Oil and Gas Extraction	30	0.1%
Utilities	361	0.6%
Construction	8,215	14.2%
Manufacturing	5,483	9.5%
Wholesale Trade	7,455	12.9%
Retail Trade	4,032	7.0%
Transportation and Warehousing	7,153	12.4%
Information	1,552	2.7%
Finance and Insurance	391	0.7%
Real Estate and Rental and Leasing	740	1.3%
Professional, Scientific, and Technical Services	1,649	2.9%
Management of Companies and Enterprises	262	0.5%
Administration & Support, Waste Management and Remediation	8,863	15.4%
Educational Services	2,203	3.8%
Health Care and Social Assistance	873	1.5%
Arts, Entertainment, and Recreation	154	0.3%
Accommodation and Food Services	706	1.2%
Other Services (excluding Public Administration)	604	1.0%
Public Administration	6,814	11.8%
Total	**57,664**	**100%**

Note: The socioeconomic study area is made up of the following census tracts: 1.04, 171.01, 179.02, 199.01, 199.02, 199.03, 205, 219, 449.02, 453, 485, 535.02, 539.01, 579.02, 589.01, and 589.02.
Sources: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2021).

Table 5-4
Businesses Potentially Directly Displaced by the Proposed Project

Industry Sector[2]	Estimated Firms Displaced	Estimated Employment Displaced[1]	Employees Working in the Study Area	Displaced Employment as a % of Industry Sector Employment in the Study Area
Manufacturing	1	10	5,483	0.18%
Transportation and Warehousing	2	25	7,153	0.35%
Total	**3**	**35**	**12,636**	**0.28%**

Notes:
[1] Employment estimates are based on standard industry employment density ratios commonly used for CEQR analysis.
[2] Businesses were classified based on their primary business function.
Columns may not sum due to rounding.
Sources: AKRF, Inc.; ZoLa; U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2021).

Additionally, even within the subareas the potentially displaced employment does not represent a significant portion of overall employment or sector specific employment (less than one percent).

The Tunnel Dewatering Pump Station (TDPS) is proposed near the Newtown Creek WRRF located at 1 Kingsland Ave., Brooklyn (Block 2508 Lot 1); this site is controlled by DSNY. Acquisition of the TDPS site would not be required since it is a City-owned property currently being used by DSNY. Similarly, a DEP-owned site located at 49th Street, Queens (Block 2575 Lot 26) is being considered for the NCQ-077 Diversion Facility. Acquisition of this site would not be required since

it is a City-owned property currently owned by DEP. For the City-owned sites, it is assumed that the City would make any necessary adjustments to avoid displacement of any employees or activities on these sites or to relocate those uses such that there would be no disruption in City services.

The following section provides more detailed information on the proposed sites for acquisition. Permanent subterranean easements are also required outside of publicly owned rights-of-way for the properties within the easement boundaries of the tunnel. Since the subterranean easements would be between 80 and 130 feet below grade, there is no anticipated impact on current operations on the relevant sites. Additionally, a gravity diversion sewer would be required from the BB-026 diversion facility to the BB-026 drop shaft; however, this would be located within the City's right of way and would not require any displacement of businesses.

Proposed Acquisition Sites

TDPS Site

As mentioned above, this site is owned by DSNY. This site will be relocated in the future without the Proposed Project as a result of a separate action; therefore, this analysis assumes that the existing use would not be displaced by the Proposed Project.

BB-026 Diversion Facility Site

It is conservatively assumed that acquisition of the upland parcels would displace the existing concrete manufacturing use (SRM Concrete) on Block 115, Lot 56, which is owned by Chaves Development LLC, in addition to the parking and materials storage areas on Lots 86 and 150 (owned by MTA LIRR). The site is north of Dutch Kills. While the acquisition would only affect the eastern portion of the site, there could be interruption of operations during construction (construction of the diversion facility would occur in the area where the mixer trucks are stored), as well as post construction with DEP able to access the site whenever needed. Post construction, the area would be re-paved and the trucks would be able to park there.

The concrete product has a 60–90-minute travel radius and presents a difficulty in terms of relocation of the site due to permitting. The legal use of a premise as a concrete production facility in New York City according to the Rules of the City of New York (1 RCNY Section 5-04) must be approved by the Department of Buildings (DOB). Concrete suppliers must submit a Material and Equipment Acceptance Application to the DOB to have approval that their concrete can be used in construction projects. Additionally, to be compliant with environmental regulations, concrete suppliers may need to obtain an air quality permit, which would involve applying to the Department of Environmental Protection (DEP). Other businesses that provide similar products in the area include All American Transit Mix, United Transit Mix, and Liberty Ready Mix.

As shown in **Figure 5-3** and **Table 5-5**, there are additional ready-mix concrete suppliers within and nearby the study area, including 4 suppliers in Queens and 8 suppliers in Brooklyn, totaling 12 firms that, in addition to several firms elsewhere in Queens and Brooklyn, as well as in the Bronx, Staten Island, and Nassau County, are potentially capable of providing concrete to the neighborhoods surrounding Newtown Creek and the City as a whole. Ready-mix concrete firms must be located within a 90-minute driving distance from their customers' construction sites to maintain the quality



Comparable Concrete Firms In or Near the Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 5-3

of their product; however, as **Figure 5-3** and **Table 5-5** demonstrate, the construction industry is well-served by concrete suppliers throughout Queens and Brooklyn. In sum, though one concrete supplier could potentially be displaced as a result of the Proposed Project, the remaining ready-mix concrete plants within and nearby the study area, as well as the additional concrete firms in Queens and Brooklyn would provide sufficient geographic coverage for the customers in the study area in the construction industry, which would therefore not result in a significant adverse impact.

Table 5-5
Concrete Mixing Firms In and Near the Study Area

Name	Address	Map ID Number
Tec-Crete Transit Mix Corp.	50-09 27th Street, Long Island City, NY 11101	1
DKN Ready Mix	270 Green Street, Brooklyn, NY 11222	2
Prime Ready Mix Corp.	470 Scott Avenue, Brooklyn, NY 11222	3
SRM Concrete	56-30 49th Street, Maspeth, NY 11378	4
Empire Transit Mix Inc.	430 Maspeth Avenue, Brooklyn, NY 11211	5
Alpine Ready Mix NYC	46-26 Metropolitan Avenue, Ridgewood, NY 11385	6
Gotham Ready Mix LLC	200 Morgan Avenue, Brooklyn, NY 11237	7
Advanced Transit Mix Corp.	239 Ingraham St, Brooklyn, NY 11237	8
Transit Mix Corp.	60 Morgan Avenue, Brooklyn, NY 11237	9
All American Transit Mix	46 Knickerbocker Ave, Brooklyn, NY 11237	10
United Transit Mix	318 Boerum Street, Brooklyn, NY 11206	11
MAC Concrete	47-46 30th Street, Long Island City, NY 11101	12

Notes: Map ID numbers correspond to **Figure 5-3**.
Sources: AKRF, July 2025 (e.g., Google Street View, NYC ZoLa).

Also, as discussed above, parking is not a use that is inherently location dependent and is common throughout the neighborhoods surrounding Newtown Creek (see **Table 5-2**, above, for a listing of vacant or available parking lots in the area).

NCQ-077 Diversion Facility Site

Lots 225 and 240 are proposed for acquisition and currently serve as vehicle storage areas for F.W. Webb. The loss of these vehicle storage areas is not expected to displace the business. As discussed above, parking areas are not unusually important or uniquely dependent on their location in this part of the city.

NCB-083 Diversion Facility Site

The proposed acquisition of Block 2948 Lot 85, owned by 1301 METRO-255, LLC and used by MetroExpress as a warehouse, would potentially displace five employees. Current storage operations on this site are not locationally dependent on its waterfront lot.

Construction associated with this site would require temporary acquisition of a small portion of Block 2948 Lot 13 at 1356 Grand St., Brooklyn. The lot is owned by Feldman Metropolitan Realty, LLC and is part of a lumber yard that spans several lots. The site is used for storage and the temporary acquisition would not affect overall operations of the existing lumber yard.

NCB-015 Diversion Facility Site

The proposed acquisition of the FedEx facility on Lot 2974 Lot 170 would potentially displace approximately 20 employees. The site is owned by Steel Equities and operates as a distribution center/home delivery facility. This warehouse is not locationally dependent on its waterfront lot and similar operations can be conducted at comparable sites throughout the local area.

Acquisition of the entirety of Block 2974 Lot 162 on Johnson Ave., Brooklyn for construction staging and below-grade infrastructure is proposed. The 32,280-square-foot lot is owned by MTA LIRR and includes an asphalt parking area for truck storage. The acquisition would displace the truck storage use. As discussed above, there are alternative parking areas available in the neighborhoods surrounding Newtown Creek.

The Proposed Project has the potential to directly displace an estimated 3 firms and 35 employees. These potentially displaced businesses do not represent a large portion of overall employment or sector specific employment in any subarea or the larger study area. Additionally, the Proposed Project would not displace any category of business or operations that is locationally unique or would no longer be available to businesses or consumers within the study area or a reasonable trade area. As such, the Proposed Project would not result in significant adverse impacts as a result of direct business displacement and no further assessment is warranted.

INDIRECT BUSINESS DISPLACEMENT

As discussed above, the employment estimated on sites proposed for acquisition does not represent a large portion of overall employment or sector-specific employment in the study area. The uses that would be potentially displaced by the Proposed Project are prevalent in the study area, and do not bring a customer base to the area for local businesses. In addition, the Proposed Project would not directly or indirectly displace workers who form the customer base of existing businesses in the area. Therefore, there would be no significant adverse impacts related to indirect business displacement.

NEW YORK STATE EMINENT DOMAIN PROCEDURES LAW

If negotiated acquisition is not a viable option, the Proposed Project would involve the use of eminent domain to acquire sites. The New York State Eminent Domain Procedure Law (EDPL) serves as the exclusive procedure for acquiring property through eminent domain in New York. Its key objectives include ensuring just compensation for property rights acquired, facilitating public participation in project planning, considering public use needs, protecting private property owners' interests, and expediting payments. As discussed above, several properties related to the development of the Proposed Project and related off-site utility improvements may be acquired, if necessary, pursuant to the EDPL. Businesses being displaced would be entitled to compensation and relocation benefits pursuant to the requirements of EDPL, and applicable relocation regulations as promulgated by New York City's Housing Preservation and Development (HPD).

CONCLUSION

Overall, the Proposed Project would not result in any significant adverse socioeconomic impacts. The displacement of businesses and employees does not exceed the 100-employee CEQR threshold that would require further assessment. Additionally, the three businesses that could be directly displaced do not provide products or services essential to the local economy that would no longer be available to residents or businesses in their "trade areas" due to the difficulty of either relocating the businesses or establishing new, comparable businesses. The three businesses are also not a category of businesses or institutions that may be the subject of other regulations or publicly adopted plans to preserve, enhance, or otherwise protect it. Their displacement would not significantly affect business conditions in any industry or any category of business within or outside the study area.

A. INTRODUCTION

Community facilities and services are defined in the *City Environmental Quality Review (CEQR) Technical Manual* as public or publicly funded schools, childcare facilities, libraries, health care facilities, and fire and police protection services. The CEQR analysis methodology focuses on direct effects to community facilities, such as when a facility is physically displaced or altered, and on indirect effects, which could result from increased demand for community facilities and services generated by new users, particularly a new residential population. This chapter considers the Proposed Project's potential effect on the area's community facilities and services.

B. SCREENING ASSESSMENT

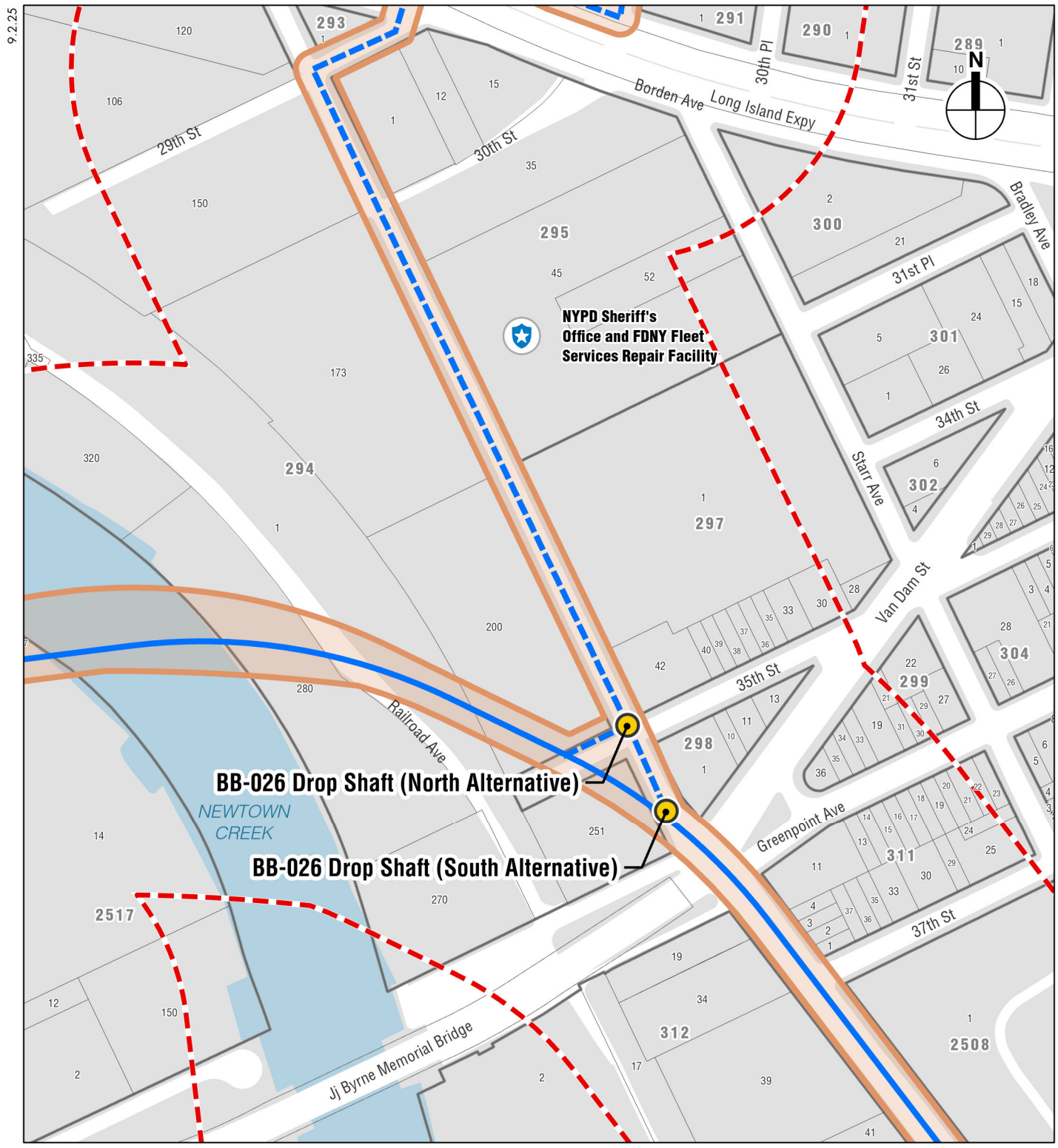
OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

The Proposed Project would not have a direct effect on community facilities because there are no community facilities at the Proposed Project sites.[1] Therefore, the combined sewer overflow (CSO) tunnel alignment, gravity diversion sewer, tunnel dewatering pump station (TDPS), and diversion facilities sites would not physically displace or alter any on-site community facilities.

There are four community facilities located within a 400-foot radius of the Proposed Project (see **Figure 6-1**). Two are located within a 400-foot radius of the diversion facility associated with outfall BB-026: LaGuardia Community College (Queens Block 273, Lot 1), located at 29-10 Thomson Avenue; and a secondary school building located at 30-20 Thomson Avenue (Queens Block 274, Lot 1) which houses the Bard High School Early College Queens, the Academy of Finance and Enterprise, and the High School of Applied Communication. The third is within 400 feet of the diversion facility at outfall NCB-015: the Doe Fund—Peter Jay Sharo Center for Opportunity (Brooklyn Block 2993, Lot 1), located at 89 Porter Avenue. These three community facilities are defined by the *CEQR Technical Manual* as "other community facilities," and warrant analysis only if the facility itself is the subject of the Proposed Project or would be physically displaced or altered by the project. As the Proposed Project would not directly displace these community facilities, no analysis is warranted.

The fourth community facility is located directly adjacent to the BB-026 gravity diversion sewer: a New York City Police Department (NYPD) Sheriff's Office and Fire Department of New York (FDNY)

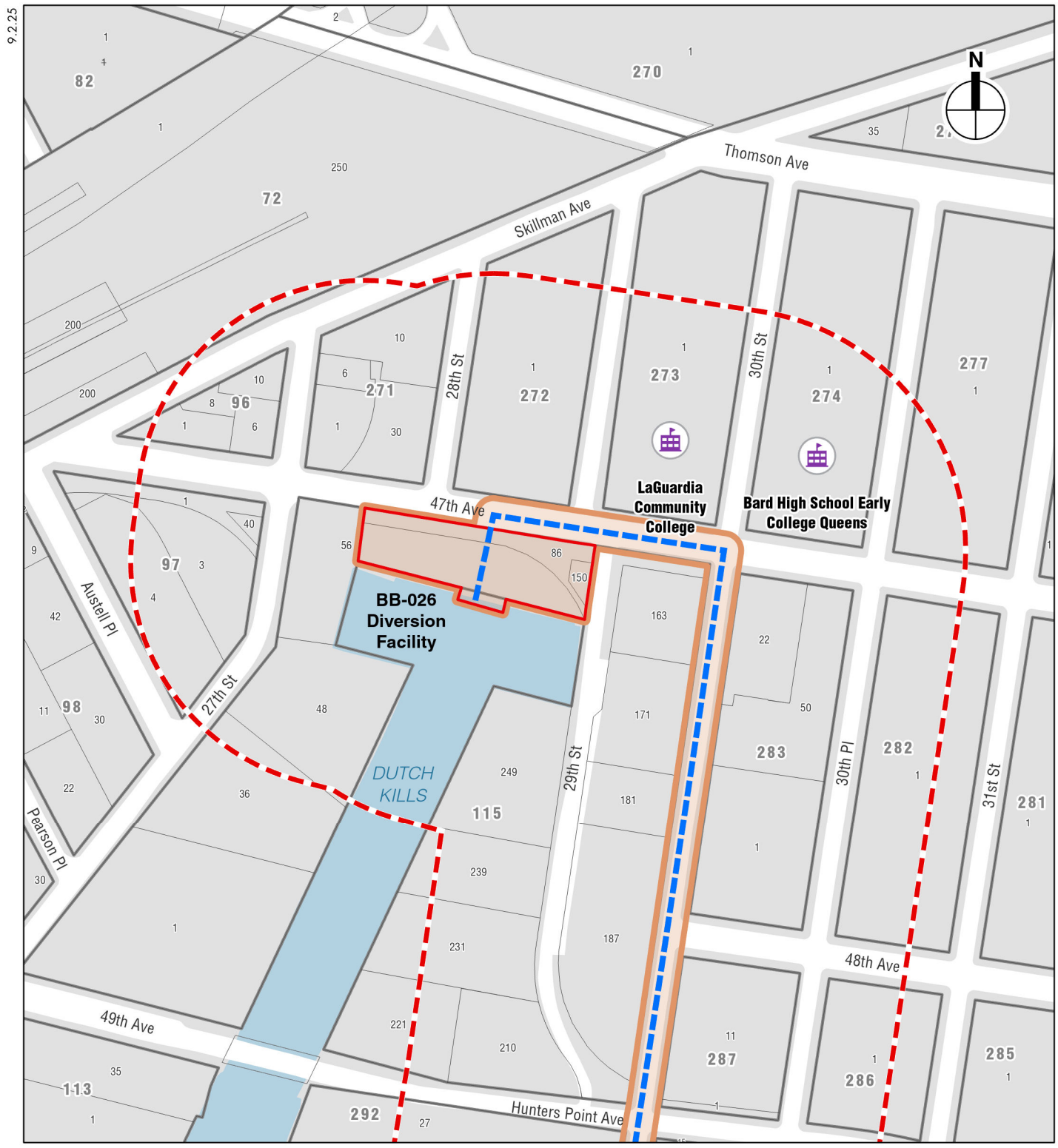
[1] The tunnel dewatering pump station (TDPS) site (Brooklyn Block 2508, Lot 1) and one of the properties that would contain the diversion facility at outfall NCQ-077 (Queens Block 2575, Lot 26) are City-owned, controlled by the NYC Department of Sanitation (DSNY) and the NYC Department of Environmental Protection (DEP), respectively. However, these sites do not contain any community facility uses as defined by the *CEQR Technical Manual*; therefore, analysis of these sites is not warranted.



Community Facilities
BB-026 Drop Shaft

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 6-1a

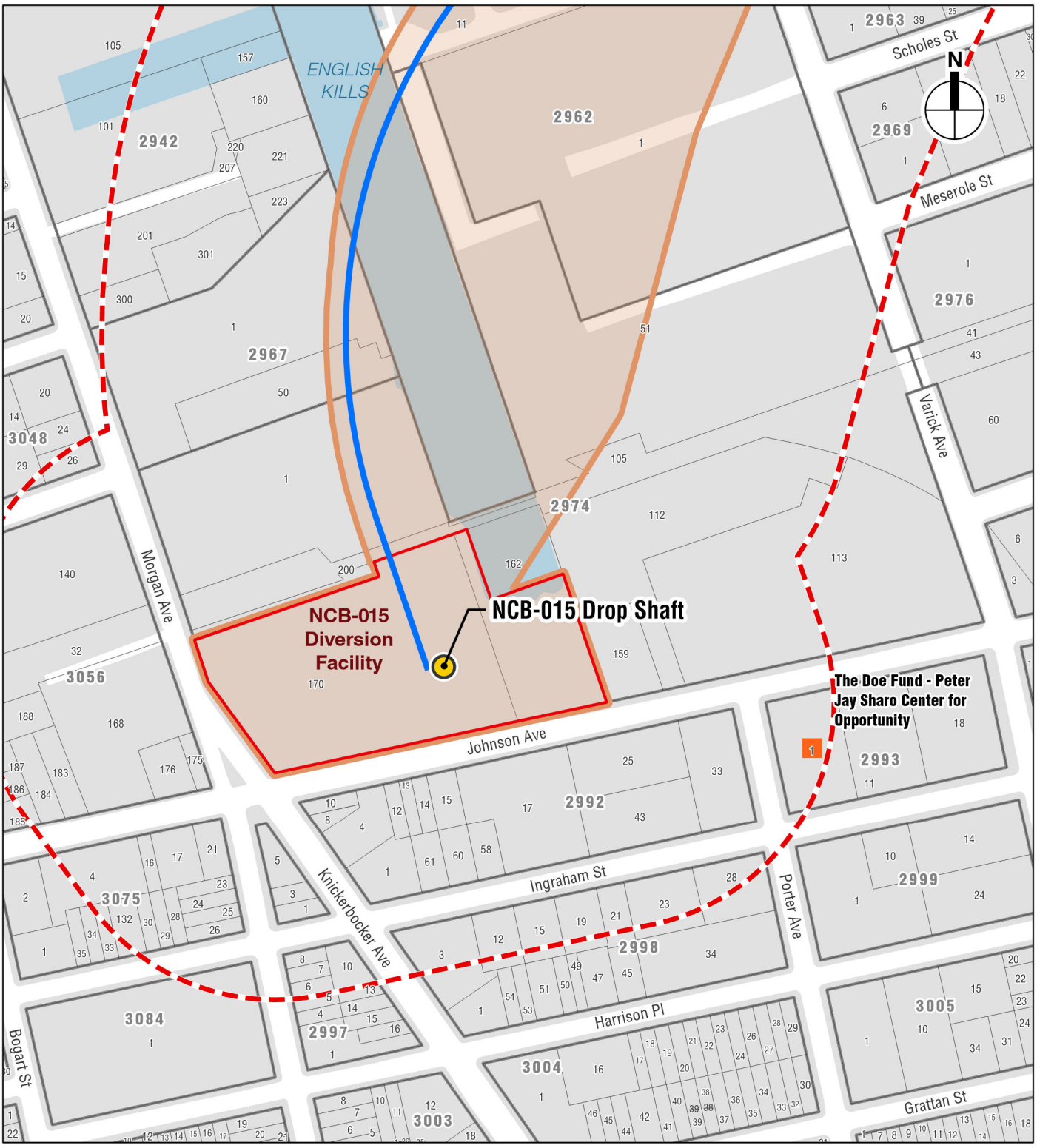


Community Facilities
BB-026 Diversion Facility

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 6-1b

9.2.25



Project Limits

Study Area (400-foot perimeter)

Potential CSO Tunnel Alignment

Approximate Drop Shaft Location

Approximate Drop Shaft Location

Diversion Facility Site

Community Facility

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Community Facilities
NCB-015 Diversion Facility

Figure 6-1c

fleet services repair facility (Queens Block 295, Lot 45), located at 30-27 Review Avenue (see **Figure 6-1**). Pursuant to the *CEQR Technical Manual,* a detailed analysis of fire protection or police protection is warranted if a proposed project would affect the physical operation of, or access to and from, a fire station house or a police precinct, or where a proposed project would create a sizeable new neighborhood. The Proposed Project would not affect the operation of or access to the facility and would not create a sizeable new neighborhood. Therefore, the Proposed Project would not have a significant adverse impact on community facilities, and no further analysis is warranted. Further, the Proposed Project would not result in new residential development and would not introduce a new residential population to the study area that could result in indirect effects by increasing demand for community facility services. Therefore, the Proposed Project would not have a significant adverse impact on community facilities, and no further analysis is necessary.

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

Concerning the Proposed Project's potential effects on community facilities due to construction, no community facilities (i.e., public or publicly funded schools, libraries, child care centers, health care facilities, and fire and police stations) would be directly affected by construction activities. Construction workers would not place any burden on public schools and would have minimal, if any, demands on libraries, child care facilities, and health care facilities. NYPD and FDNY emergency services and response times would not be materially affected by construction primarily due to the geographic distribution of the police and fire facilities and their respective coverage areas. In addition, emergency vehicle access to the Proposed Project's construction areas would be maintained throughout the construction period. Therefore, construction of the Proposed Project would not result in any significant adverse impacts on community facilities, and no further analysis is necessary.

CONCLUSION

As outlined in the assessment presented above, the Proposed Project would not result in any significant adverse impacts to community facilities.

Chapter 7: Open Space

A. INTRODUCTION

Open space is defined in the 2021 *City Environmental Quality Review (CEQR) Technical Manual* as publicly or privately owned land that is accessible and available for leisure, play, or sport, or serves to protect or enhance the natural environment. According to the *CEQR Technical Manual*, an open space assessment is recommended if a project would have a direct effect on open space, such as eliminating or altering a public open space, or an indirect effect on open space, such as when a new population overburdens available open space. The Newtown Creek Combined Sewer Overflow (CSO) Project (the Proposed Project) includes the construction and operation of a new CSO storage tunnel and related infrastructure—including a Tunnel Dewatering Pump Station (TDPS), TDPS discharge pipe, gravity diversion sewer, and four new CSO diversion facilities—at sites along Newtown Creek which may result in direct effects on adjacent open spaces. This chapter considers the Proposed Project's direct effects on open space resources resulting from the construction and operation of the CSO facilities, including potential increases in noise, air pollutants, odors, and shadows from the Proposed Project on adjacent public open spaces. The Proposed Project would not introduce a new residential or non-residential population to the study area that could potentially burden existing open space resources; therefore, an indirect effects analysis of open space is not warranted.

B. PRINCIPAL CONCLUSIONS

Overall, the Proposed Project would not result in the permanent loss of or alteration to any existing open space, and operation of the Proposed Project would not result in any permanent effects from noise, air pollutants, odors, or shadows which would adversely affect the usefulness of the adjacent open spaces or recreational resources. Although construction of the Proposed Project at the TDPS site would result in significant adverse noise impacts at the Newtown Creek Nature Walk and North Henry Street Restoration open spaces, the construction noise, while noticeable and potentially intrusive during the most intensive construction activities, would not significantly affect the usability of the open spaces. Furthermore, at the TDPS site and four diversion facility sites, the surface layouts of the sites are currently being designed, and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project. Therefore, construction and operation of the Proposed Project would not result in direct impacts on open space and recreational resources.

C. METHODOLOGY

A direct effect on an open space would occur if a project would (1) cause the physical loss of public open space; (2) change the use of an open space so that it no longer serves the same user population;

(3) limit public access to an open space; or (4) cause increased noise or air pollutant emissions, odors, or shadows that would affect the usefulness of open space, whether on a permanent or temporary basis.

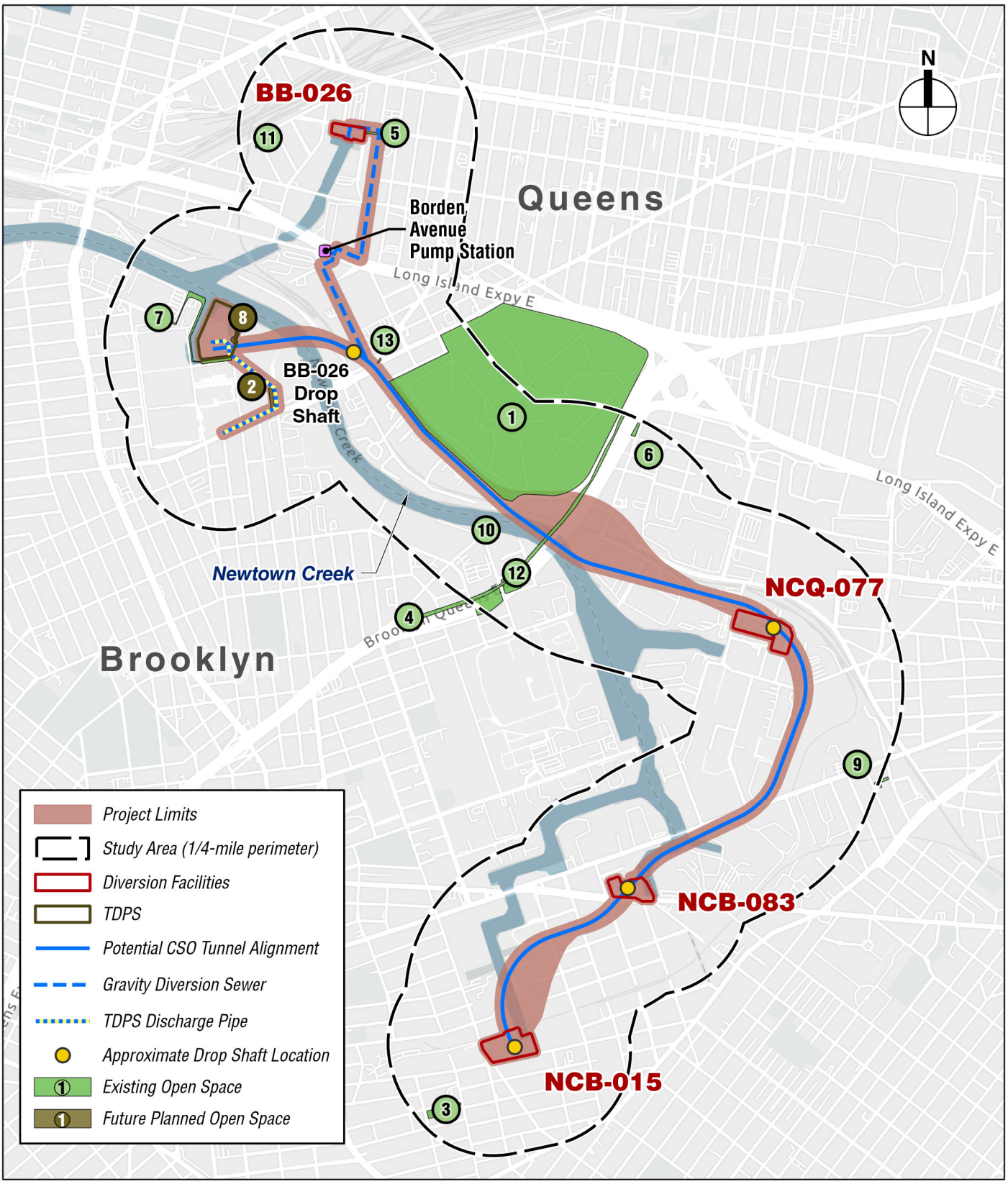
The Proposed Project construction sites and staging areas do not contain any public open spaces. Therefore, the Proposed Project would not result in the physical loss of publicly accessible open space and would not limit public access to open spaces in the study area. However, as shown on **Figure 7-1**, the TDPS site would be located adjacent to the Newtown Creek Nature Walk and a future planned open space to be located on North Henry Street (known as the North Henry Street Restoration project), and the TDPS discharge pipe would be adjacent to a future planned open space located on Kingsland Avenue (known as the Gateway to Greenpoint project). The diversion facility associated with outfall BB-026 would be located adjacent to the FF Michael Brennan Memorial LIC Roots Community Garden (LIC Roots Garden). All these resources are considered public open spaces. Therefore, operation of the Proposed Project has the potential for direct effects resulting from potential increases in noise, air pollutants, odors, and shadows on these open space resources. Temporary increases in noise and air pollutant emissions during construction of the Proposed Project could also potentially directly affect the Newtown Creek Nature Walk, North Henry Street Restoration, Gateway to Greenpoint, and the LIC Roots Garden. In addition, the Proposed Project's facilities would be constructed along Newtown Creek, which is used by recreational boaters. As discussed further below, Newtown Creek itself is considered a recreational open space resource.

This open space analysis identifies the existing open space areas that would be directly affected by the Proposed Project and describes their characteristics, features, and context. The analysis also considers additional existing open spaces within a ¼-mile radius of the Proposed Project sites to assess the overall availability of open space resources for area residents (see **Figure 7-1**). These additional open space resources are considered qualitatively to determine whether there are comparable open space resources in the area that would not be directly affected by the Proposed Project and could accommodate the needs of residents. A field survey was conducted in August 2024 to characterize the existing uses and conditions of the open space areas.

The analysis describes the future conditions in the 2040 analysis year without the Proposed Project (the Future without the Proposed Project) to establish the baseline against which the future with the Proposed Project is assessed. The Proposed Project's direct effects on existing adjacent open spaces and recreational resources, including Newtown Creek, are discussed.

As described in Chapter 4, "Chapter 4: Land Use, Zoning, and Public Policy," the surface layout of the TDPS site and the four diversion facilities is currently being designed, and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project. Any project-generated open space cannot be significantly impacted by the Proposed Project because without the Proposed Project, the open space would not exist. If implemented, potential project-generated open spaces would be a benefit to the open space resources in the study area. Therefore, they are not considered as part of the determination of significant adverse impacts to open space.

9.2.25



ID	Name	PropertyOwner
1	Calvary Cemetery	Trintity Chrurch
2	Gateway to Greenpoint	None - ROW
3	Justice Gilbert Ramirez Park	NYC DPR
4	Kosciuszko Bridge Walkway and Bike Path	DOT
5	LIC Roots Community Garden	MTA/LIRR
6	Maspeth Park	NYSDOT
7	Newtown Creek Nature Walk	DEP

ID	Name	PropertyOwner
8	No Name Inlet - N. Henry St Restoration	DSNY/ ROW
9	P.S. 9 Schoolyard	NYC DOE
10	Penny Bridge Park	ROW
11	Smiling Hogshead Ranch	MTA/LIRR
12	Under the "K" Bridge Park	NYSDOT
13	Plaza	ROW

0 2,000 FEET

Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 7-1

D. DIRECT OPEN SPACE IMPACTS ANALYSIS

EXISTING CONDITIONS

PUBLIC OPEN SPACES

There are 11 existing publicly accessible open space resources located within a ¼-mile radius of the Proposed Project. The Newtown Creek Nature Walk, a public open space operated by the New York City Department of Environmental Protection (DEP), is located south and west of the TDPS site and TDPS discharge pipe and is directly adjacent to Newtown Creek and bisected by Whale Creek (see **Figure 7-1, ID 7**). The approximately 1.64-acre park contains active and passive recreation uses including seating areas, picnic tables, and a walking/running path with natural features such as native trees, shrubs, and other fauna. The entrance to the Nature Walk is located on Kingsland Avenue immediately to the south of the TPDS site.[1] The Nature Walk is open from dawn to dusk, weather permitting, has a moderate utilization level, and is in good condition.

The FF Michael Brennan Memorial LIC Roots Garden (see **Figure 7-1, ID 5**) is a public community garden operated by Grow NYC, located on 47th Avenue between 29th Street and 30th Street, directly east of the diversion facility associated with outfall BB-026. The approximately 0.1-acre garden contains passive recreation uses including a lawn surrounded by flower beds, a memorial flagpole, a rain harvesting structure, and raised plant beds. The garden is open from Monday to Friday 9:00 AM to 5:00 PM (weather permitting), has a moderate utilization level, and is in good condition.

There are additional existing public open spaces available within the ¼-mile study area: in particular, two open spaces are within a ¼-mile radius of a diversion facility. Justice Gilbert Ramirez Park (**ID 3)**, located within a ¼-mile to the southwest of the diversion facility associated with outfall NCB-015 in Bushwick, Brooklyn, includes passive and active uses such as a playground, seating areas, and basketball courts. Smiling Hogshead Ranch (**ID 11**), located within a ¼-mile to the west of the diversion facility associated with outfall BB-026, in Blissville, Queens, includes passive uses such as plantings, seating areas, and raised plant beds.

The remaining existing open spaces included in the study area are all located within a ¼-mile radius of the tunnel alignment but not within a ¼-mile radius of a diversion facility. These open space resources include a plaza with seating at the intersection of Van Dam Street and Greenpoint Avenue (**ID 13**); Calvary Cemetery (**ID 1**); Penny Bridge Park (**ID 10**); Under the "K" Bridge Park (**ID 12**); Maspeth Park (**ID 6**); Kosciuszko Bridge Walkway and Bike Path (**ID 4**); and the P.S. 9 Schoolyard (**ID 9**). As shown on **Figure 7-1**, these seven open spaces are located in Brooklyn and Queens and range in size from 18.8 acres (Calvary Cemetery) to 0.02 acres (the Van Dam Street and Greenpoint Avenue seating area).

[1] The Nature Walk extends along Newtown Creek and through a portion of the Newtown Creek Wastewater Resource Recovery Facility (WRRF) site, with another entrance at Paidge Avenue.

NEWTOWN CREEK

In addition to the public open spaces described above, Newtown Creek itself is a recreational resource that is used by the surrounding community for active recreational activities. Recreational kayakers and canoers can access Newtown Creek at various places along the shorefront. Informal and formal access points can be found outside a ¼-mile radius of the Proposed Project sites, but kayakers and canoers traverse waters that are located within the study area.

FUTURE WITHOUT THE PROPOSED PROJECT

As discussed in Chapter 1, "Project Description," as part of an Order on Consent to reduce CSOs, DEP prepared the Newtown Creek CSO Long-Term Control Plan (LTCP), which the New York State Department of Environmental Conservation (NYSDEC) approved in June 2018. In September 2010, Newtown Creek was designated a federal Superfund site by the US Environmental Protection Agency (EPA) under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, commonly known as Superfund) and placed on the National Priorities List (NPL). As such, the NYSDEC and EPA mandated clean-up activities in the area of Newtown Creek independent of the Proposed Project, including shoreline stabilization and the dredging of the Creek. These remediation activities within Newtown Creek may temporarily limit access for kayakers/canoers.

No changes are expected to be made to the eleven existing open spaces within the study area in the future without the Proposed Project. However, it is anticipated that two new open spaces would be completed by the 2040 analysis year: the Gateway to Greenpoint and North Henry Street Restoration projects, which are expected to introduce two open spaces located within a ¼-mile radius of the TDPS site. Gateway to Greenpoint (see **Figure 7-1, ID 2**) is a proposed 0.42-acre public open space located on the corner of Greenpoint Avenue and Kingsland Avenue on the grounds of the Newtown Creek WRRF southeast of the TDPS site. The project is under the jurisdiction of DEP and has been approved; however, construction of the proposed open space has not begun. The design for the proposed open space includes canopy trees; large, planted areas with native species; pathways; a perimeter fence; seating and tables; stamped concrete surfacing; and stormwater retention tanks.

The North Henry Street Restoration project (see **Figure 7-1, ID 8**) is a proposed 0.45-acre public open space located on the northern end of North Henry Street adjacent to Newtown Creek; the open space is partially located on a narrow parcel along the waterfront controlled by the New York City Department of Sanitation (DSNY)[2] and partially located on a portion of a marginal street that is owned by the New York City Department of Small Business Services (SBS)/Economic Development Corporation (EDC). The project is being developed by the Newtown Creek Alliance (NCA) in partnership with City University of New York (CUNY) LaGuardia Community College. The design for the proposed open space includes a boardwalk, two observation decks over the water, and seating areas. The project also includes shoreline restoration, which would create restored tidal wetlands, marshes, and planting native species. The open space is anticipated to be completed by 2040. In total,

[2] The DSNY-controlled parcel is part of the TDPS site's tax lot (Block 2508, Lot 1).

both proposed open spaces would add approximately 0.87 acres of passive open space use within a ¼-mile radius of the TDPS site in the future without the Proposed Project.

FUTURE WITH THE PROPOSED PROJECT

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

Temporary increases in noise and air pollutant emissions during construction of the Proposed Project could potentially directly affect the nearby open spaces and the Newtown Creek recreational resource. There are no publicly accessible open spaces within the Proposed Project sites, and no open space resources would be used for staging or other construction activities. The nearest open space resources are the Nature Walk to the south and west of the TDPS site and TDPS discharge pipe, the LIC Roots Community Garden to the east of outfall BB-026, and Newtown Creek. In the future, the Gateway to Greenpoint and North Henry Street Restoration projects are anticipated to be completed near the TDPS site. Access to these open space resources or any nearby open space resources would be maintained throughout the duration of the construction period. In particular, access to the Nature Walk through its entrance on Kingsland Avenue would be open during all construction at the TDPS site, as well as during construction of the TDPS discharge pipe.

Construction of the diversion facilities would involve work at the four affected outfalls along Newtown Creek, including reconstruction of the bulkheads. However, these activities would not affect any site that provides access to Newtown Creek for recreational boaters. Therefore, construction of the Proposed Project would not result in a significant loss of access to Newtown Creek for kayakers or otherwise affect the usefulness of Newtown Creek as a recreational resource.

Construction of the Proposed Project would be required to follow the requirements of the *Local Law 77 of 2003 and DEP Construction Dust Rules* to minimize the air quality effects of the Proposed Project's construction activities on nearby open space resources. As discussed in Chapter 17, "Air Quality," construction activities would not result in exceedances of the applicable National Ambient Air Quality Standard (NAAQS) or *de minimis* thresholds and would not result in significant adverse air quality impacts. Therefore, the increases in air pollutant emissions during construction would not adversely affect any open spaces.

Construction of the Proposed Project would be required to follow the requirements of the *NYC Noise Control Code* to minimize the noise effects of the Project's construction activities on nearby open space resources. As discussed in Chapter 19, "Noise," at the open space areas adjacent to the TPDS site (the Newtown Creek Nature Walk and future North Henry Street Restoration open space), noise levels during construction of the TDPS facility would exceed *CEQR Technical Manual* noise impact criteria and *CEQR Technical Manual* noise exposure guidelines (construction of the Proposed Project would not result in any significant adverse noise impacts at any other open space area in the vicinity of the construction areas). Specifically, construction of the TDPS would result in noticeable and potentially intrusive increases in noise levels and total noise levels that would be considered "clearly unacceptable" at these receptors. Potentially intrusive noise level increases at the Nature Walk are predicted to occur for a duration of 12 consecutive months. Potentially intrusive noise level increases are predicted to occur for a duration of 110 months at the North Henry Street Restoration with "clearly

unacceptable" noise levels predicted to occur for up to 16 of those months. While total construction noise levels at these receptors would be noticeable and potentially intrusive during the most intensive construction activities, other open spaces in the study area would be unaffected by construction noise and available, allowing open space users to be transient and move to other areas if bothered by noise; in particular, the Gateway to Greenpoint project, which is expected to be constructed near the TDPS site, will provide a new public open space available to users in the area. Therefore, the construction noise would not significantly affect the usability of open spaces in the vicinity of the Proposed Project and would not rise to the level of a significant adverse impact on open space resources.

PERMANENT/OPERATIONAL DIRECT EFFECTS ON PUBLIC OPEN SPACES

As noted above, the Proposed Project sites and construction staging areas would not be located on any open spaces. Therefore, the Proposed Project would not displace or limit access to any existing open space. The surface layouts of the TDPS and diversion facility sites are currently being designed; and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project.

As described later in the EIS, operation of the Proposed Project would not result in any significant adverse noise, air quality, or shadows impacts affecting any open space resources (see Chapter 8, "Shadows"; Chapter 17, "Air Quality"; and Chapter 19, "Noise"). Specifically, operation of the Proposed Project would not generate sufficient traffic to cause a significant increase in noise levels at the nearby open spaces, and the facilities' mechanical systems (i.e., emergency generators, odor control systems, pumps, etc.) would meet all applicable noise regulations and would avoid producing noise levels that would result in any significant increases in ambient noise levels. Therefore, there are no potential significant adverse noise impacts on open spaces from operation of the Proposed Project (see Chapter 19, "Noise").

Similarly, the Proposed Project would not alter traffic conditions enough to cause significant mobile-source air quality impacts at nearby open spaces. The Proposed Project's heating, ventilating, and air conditioning (HVAC) systems would be electric and would not result in any significant adverse air quality impacts, and the odor control systems would be installed to minimize odors. Therefore, operation of the Proposed Project would not result in any significant adverse air quality impacts on open spaces (see Chapter 17, "Air Quality").

As discussed in Chapter 8, "Shadows," the above-grade TDPS facilities would result in incremental shadow affecting the Newtown Creek Nature Walk and the North Henry Street Restoration area. At the Newtown Creek Nature Walk, the incremental shadow would affect different portions of the Nature Walk at different times depending on the time of year; however, in all instances, the incremental shadow would have a limited extent and duration, and areas of the Nature Walk would remain in sun. Similarly, at the North Henry Street Restoration area, incremental shadow would fall on portions of the open space at the end of the analysis day in the fall, winter and early spring representative dates, however, at all times, the incremental shadow would have a limited extent and duration, and most of the open space would remain in sun. Therefore, the incremental shadow would

not cause a significant adverse impact to the recreational use of the Newtown Creek Nature Walk and or the North Henry Street Restoration area.

CONCLUSION

Overall, the Proposed Project would not result in the permanent loss of or alteration to any open space or recreational resource, and operation of the Proposed Project would not result in significant adverse impacts from air quality, noise, or shadows that would adversely affect the usability of any open space resource. In particular, public enjoyment of the Newtown Creek Nature Walk, North Henry Street Restoration, Gateway to Greenpoint, LIC Roots Garden, and Newtown Creek would not be adversely affected. Although construction of the Proposed Project at the TDPS site would result in significant adverse noise impacts at the Newtown Creek Nature Walk and North Henry Street Restoration open spaces, the construction noise, while noticeable and potentially intrusive during the most intensive construction activities, would not significantly affect the usability of the open spaces. Furthermore, at the TDPS site and four diversion facility sites, the surface layouts of the sites are currently being designed; and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project. Therefore, construction and operation of the Proposed Project would not result in direct impacts on open space and recreational resources.

Chapter 8: Shadows

A. INTRODUCTION

This chapter assesses the potential for the Proposed Project to cast new shadows that would adversely impact sunlight-sensitive resources. Following the guidelines of the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, sunlight-sensitive resources include publicly accessible parks and open space, sunlight-sensitive features of historic resources, and natural resources that depend on sunlight. Therefore, this assessment is closely linked to the data and assessments presented in Chapter 7, "Open Space," Chapter 9, "Historic and Cultural Resources," and Chapter 11, "Natural Resources."

In accordance with the *CEQR Technical Manual*, an assessment of shadows is required if a proposed action would result in new structures 50 feet or more in height, or of any height if the project site is located adjacent to, or across the street from, a sunlight-sensitive resource. As detailed in Chapter 1, "Project Description," while most of the infrastructure developed in connection with the Proposed Project would be underground or at grade, the Proposed Project would also include the construction of a tunnel dewatering pump station (TDPS) at a site at the end of Kingsland Avenue in Brooklyn (on the southern side of Newtown Creek) near Whale Creek and the Newtown Creek Wastewater Resource Recovery Facility (WRRF).[1] The TDPS would contain structures with maximum heights ranging from 54 to 99 feet, and the site is located adjacent to Whale Creek, Newtown Creek, and the Newtown Creek Nature Walk. Therefore, a shadows analysis was prepared to determine the potential for the Proposed Project to cause significant adverse shadow impacts to these and any other sunlight-sensitive resources in the vicinity.

PRINCIPAL CONCLUSIONS

The Proposed Project at the TDPS site would result in new shadows on several nearby sunlight-sensitive resources. However, the new shadows would be limited in extent and duration and, for reasons described in detail below, would not cause significant adverse shadow impacts to these resources.

B. DEFINITIONS AND METHODOLOGY

This analysis has been prepared in accordance with New York City CEQR procedures and follows the guidelines of the 2021 *CEQR Technical Manual*.

[1] The other components of the Proposed Project—the four diversion facility sites, BB-026 gravity diversion sewer, and the TDPS discharge pipe—would not include any above-grade structures (excepting small vent pipes and electrical equipment enclosures on the diversion facility sites), therefore they do not warrant a shadows assessment.

DEFINITIONS

Incremental shadow is the additional, or new, shadow that a structure resulting from a proposed project would cast on a sunlight-sensitive resource.

Sunlight-sensitive resources are those that depend on sunlight or for which direct sunlight is necessary to maintain the resource's usability or architectural integrity. Such resources generally include the following:

- *Public open space* such as parks, beaches, playgrounds, plazas, schoolyards (if open to the public during non-school hours), greenways, and landscaped medians with seating. Planted areas within unused portions of roadbeds that are part of the Greenstreets program are also considered sunlight-sensitive resources.
- *Features of architectural resources that depend on sunlight for their enjoyment by the public.* Only the sunlight-sensitive features need be considered, as opposed to the entire resource. Such sunlight-sensitive features might include design elements that depend on the contrast between light and dark (e.g., recessed balconies, arcades, deep window reveals); elaborate, highly carved ornamentation; stained glass windows; historic landscapes and scenic landmarks; and features for which the effect of direct sunlight is described as playing a significant role in the structure's importance as a historic landmark.
- *Natural resources* where the introduction of shadows could alter the resource's condition or microclimate. Such resources could include community gardens, surface water bodies, wetlands, and designated resources such as coastal fish and wildlife habitats.

Non-sunlight-sensitive resources include, for the purposes of CEQR:

- *City streets and sidewalks* (except Greenstreets);
- *Private open space* (e.g., front and back yards, stoops, vacant lots, and any private, non-publicly accessible open space); and
- *Project-generated open space,* which cannot experience a significant adverse shadow impact from the project, according to CEQR, because without the project the open space would not exist. However, a discussion of how shadows would affect the new space may be warranted.

A significant adverse shadow impact occurs when the incremental shadow added by a proposed project falls on a sunlight-sensitive resource and substantially reduces or completely eliminates direct sunlight, thereby significantly altering the public's use of the resource or threatening the viability of vegetation or other resources. Each case must be considered on its own merits based on the extent and duration of new shadow and an analysis of the resource's sensitivity to reduced sunlight.

METHODOLOGY

Following the guidelines of the *CEQR Technical Manual*, a preliminary screening assessment must first be conducted to ascertain whether a project's shadow could reach any sunlight-sensitive resources at any time of year. The preliminary screening assessment consists of three tiers of analysis. The first tier of analysis determines a simple radius around the proposed building representing the longest

shadow that could be cast. If there are sunlight-sensitive resources within this radius, the analysis proceeds to the second tier, which refines the area that could be affected by project shadow. This refinement accounts for the fact that shadows can never be cast between a certain range of angles south of the development site due to the path of the sun through the sky at the latitude of New York City.

If the second tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a third tier of screening analysis further refines the area that could be reached by project shadow by looking at specific representative days in each season and using three-dimensional (3D) computer modeling to determine the maximum extent of shadow over the course of each representative day.

If a third tier of analysis does not eliminate the possibility of new shadows on sunlight-sensitive resources, a detailed shadow analysis is required to determine the extent and duration of the incremental shadow resulting from the project. The detailed analysis provides the data needed to assess the shadow impacts. The effects of the new shadows on the sunlight-sensitive resources are described, and their degree of significance compared to shadows anticipated under the No Action condition is considered. The results of the analysis and assessment are documented with graphics, a table of incremental shadow durations, and narrative text.

C. PRELIMINARY SCREENING ASSESSMENT

A base map was developed using Geographic Information Systems (GIS)[2] showing the location of the TDPS site and the surrounding street layout, waterfront, and topography (see **Figure 8-1**). Mapped databases of parks and other public open spaces, city, state, and national historic resources, and natural resources were added to the map.[3] In coordination with the open space, historic and cultural resources, and natural resources assessments presented in other chapters of the environmental impact statement (EIS), potential sunlight-sensitive resources were identified and shown on the map. Open space resources include publicly accessible parks, community gardens, Greenstreets traffic medians, pedestrian plazas, and privately owned publicly accessible plazas, courtyards, and other spaces available to the public. Sunlight-sensitive features of historic buildings and sites include stained-glass windows, design elements that rely on the contrast of light and shadow, vegetation in historic landscapes, and features for which direct sunlight is described as playing an important role in the resource's significance. Natural resources include waterbodies and wetlands, and designated fish and wildlife habitats.

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[2] Software: Esri ArcGIS Pro 3.3

[3] Data: City, State, and Federal agencies including New York City Parks Department; New York City Office of Technology & Innovation (OTI), New York City Department of City Planning, New York City Landmarks Preservation Commission, New York City Department of Transportation, New York State Office of Parks, Recreation, and Historic Preservation, New York State Dept. of Environmental Conservation (NYSDEC), U.S. Fish and Wildlife Service, and others; supplemented by Nearmap hi-resolution imagery, and AKRF site visits.

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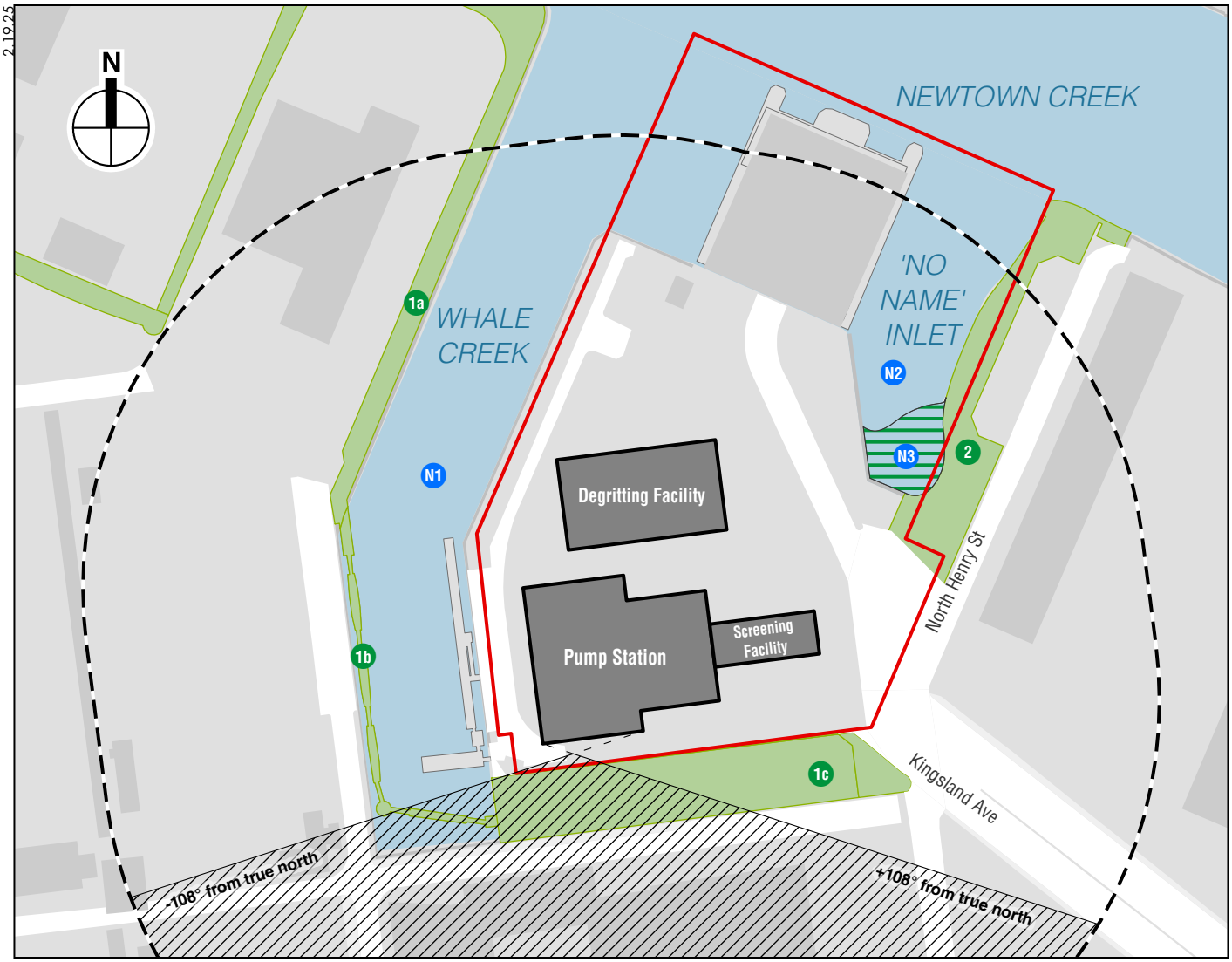

TDPS Site

Proposed Buildings

Tier 1: Maximum Longest-Shadow Study Area Perimeter

Tier 2: Area South of Proposed Buildings That Could Never Be Shaded by Proposed Project

Publicly Accessible Open Space

N# Natural Resource

0 400 FEET

Notes: The maximum longest-shadow study area was determined by first multiplying the maximum elevation (referencing North American Vertical Datum of 1988 [NAVD88]) of each building by 4.3 to determine its longest shadow (occurring 90 minutes after sunrise on December 21) and using that distance to generate a longest-shadow study area perimieter. Then, the three study areas were combined into one maximum study area perimeter. This elevation-based approach is conservative because it assumes the proposed project casting its longest shadows onto a surrounding flat surface at 0' NAVD88, which is approximately mean sea level in the vicinity of New York City. Shadows falling on upland areas would be shorter. See Chapter 8, "Shadows," Section C "Tier 1 Screening Assessment" for details.

Map Key	Open Space Resource
1a	Newtown Creek Nature Walk - Phase 1
1b	Newtown Creek Nature Walk - Phase 2
1c	Newtown Creek Nature Walk - Phase 3
2	North Henry Street Restoration Project public open space (planned)

Map Key	Natural Resource
N1	Whale Creek
N2	'No Name' Inlet
N3	Salt Marsh (planned)

Tier 1 and Tier 2 Assessments

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 8-1

TIER 1 SCREENING ASSESSMENT

For the Tier 1 assessment, the longest shadows that the proposed structures could cast between one and a half hours after sunrise and one and a half hours before sunset are calculated, and, using this length as the radius, a perimeter is drawn around the project site. Anything outside this perimeter representing the longest possible shadow would not be affected by project generated shadow, while anything inside the perimeter requires additional assessment.

According to the *CEQR Technical Manual*, the longest shadow that a structure can cast at the latitude of New York City occurs on December 21, the winter solstice, at the start of the analysis day (90 minutes after sunrise[4]) and is equal to 4.3 times the height of the structure.

The TDPS would include a pump station, a screening facility, and a degritting facility. The pump station and screening facility would be in a connected building located on the south side of the TDPS site, while the degritting facility would be in a separate building sited to the north toward the center of the TDPS site. The pump station and screening facility building would have a maximum height of approximately 99 feet, with a shorter section (57-feet-tall) for the screening facility. The degritting facility building would have a maximum height of 54 feet. These heights[5] are relative to the site's grade elevation of +8 feet North American Vertical Datum (NAVD) 88[6] (i.e., ground level at the site is approximately 8 feet above the average tidal elevation of the surface of the adjacent Newtown Creek and nearby East River). The maximum elevations of the proposed pump station, screening facility, and degritting facility would therefore be +107 feet, +65 feet, and +62 feet NAVD 88 respectively.

Using this maximum elevation rather than maximum height above ground plane to ensure a conservative preliminary assessment, each proposed building's elevation was multiplied by 4.3 to determine the longest shadow it could cast, as shown in **Table 8-1**. For each proposed building, using its longest-shadow distance as the radius, a perimeter was generated around the building footprint. The resulting perimeters were then merged to derive the maximum longest-shadow study area for the overall With Action condition, as shown in **Figure 8-1**.

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[4] As explained in more detail below in the "Tier 3 Screening Assessment" section, shadows occurring within 90 minutes of sunrise or sunset are not considered significant under CEQR.

[5] The maximum heights used in this analysis are conservatively high to account for minor refinements that may be made as the design progresses.

[6] North American Vertical Datum of 1988. 0 feet NAVD 88 is approximately mean sea level in the vicinity of New York City.

Table 8-1
Tier 1: Longest Shadow

Proposed Building	Maximum Height (ft)	Maximum Elevation (ft NAVD 88)	Longest Shadow (ft)
Pump Station	99	+107	460.1
Screening Facility	57	+65	279.5
Degritting Facility	54	+62	266.6

Notes:
Heights and distances are given in feet, rounded to nearest foot.
The top of the ground floor of the proposed buildings would be at elevation +8 feet NAVD 88.
Longest shadow distance is calculated using a shadow length factor of 4.3 x the height.

The Tier 1 assessment showed that portions of two publicly accessible open spaces (the Newtown Creek Nature Walk and the future planned North Henry Street Restoration Project public open space) are located in the maximum longest shadow study area. In addition, portions of three natural resources (Whale Creek, the 'No Name' Inlet, and the planned salt marsh associated with the North Henry Street Restoration Project) are also within the longest shadow study area. Therefore, the next tier of assessment was performed. No historic resources with sunlight-sensitive features are located in the longest shadow study area.

TIER 2 SCREENING ASSESSMENT

Because of the path the sun travels across the sky in the northern hemisphere, no shadow can be cast in a triangular area south of any given structure. In New York City this area lies between -108 and +108 degrees from true north. **Figure 8-1** illustrates this triangular area south of the proposed buildings. The complementary area to the north within the longest shadow study area represents the remaining area that could potentially experience new project generated shadow from one or more of the proposed buildings.

The Tier 2 assessment concluded that portions of the same two open spaces and three natural resources indicated above in the Tier 1 assessment are located in the Tier 2 remaining longest shadow study area and therefore require a Tier 3 assessment. These resources requiring a Tier 3 assessment are listed in **Table 8-2** below, along with the Tier 3 assessment results.

TIER 3 SCREENING ASSESSMENT

The direction and length of shadows vary throughout the course of the day and also differ depending on the season. In order to determine whether project-generated shadow could fall on a sunlight-sensitive resource, three-dimensional computer modeling software[7] is used in the Tier 3 assessment to calculate and display shadows from the proposed buildings on the TDPS site on individual representative days of the year. A computer model was developed containing three-dimensional representations of the

[7] Bentley MicroStation

elements in the base map used in the preceding assessments, the topographic information of the study area, and reasonable worst-case three-dimensional representations of the proposed buildings.

REPRESENTATIVE DAYS FOR ANALYSIS

Following the guidance of the *CEQR Technical Manual*, shadows on the summer solstice (June 21), winter solstice (December 21), and spring and fall equinoxes (March 21 and September 21, which are approximately the same in terms of shadow patterns) are modeled, to represent the range of shadows over the course of the year. An additional representative day during the growing season is also modeled, generally the day halfway between the summer solstice and the equinoxes, i.e., May 6 or August 6, which have approximately the same shadow patterns.

TIMEFRAME WINDOW OF ANALYSIS

The shadow assessment considers shadows occurring between one and a half hours after sunrise and one and a half hours before sunset. At times earlier or later than this timeframe window of analysis, the sun is down near the horizon and the sun's rays reach the Earth at very tangential angles, diminishing the amount of solar energy and producing shadows that are very long, move fast, and generally blend with other shadows. Consequently, shadows occurring outside the timeframe window of analysis are not considered significant under CEQR, and their assessment is not required.

TIER 3 SCREENING ASSESSMENT RESULTS

Figure 8-2 illustrates the range of shadows that would occur, in the absence of intervening buildings, from the proposed buildings on the four representative days for analysis. As they move clockwise and generally west to east over the landscape, the shadows are shown occurring approximately every 60 minutes from the start of the analysis day (90 minutes after sunrise) to the end of the analysis day (90 minutes before sunset). **Table 8-2** summarizes the analysis day or days each resource could potentially receive project-generated shadow.

The Tier 3 assessment concluded that all the resources of concern carried forward from the Tier 2 assessment could potentially be reached on at least one of the analysis days, and therefore these resources require a detailed analysis.

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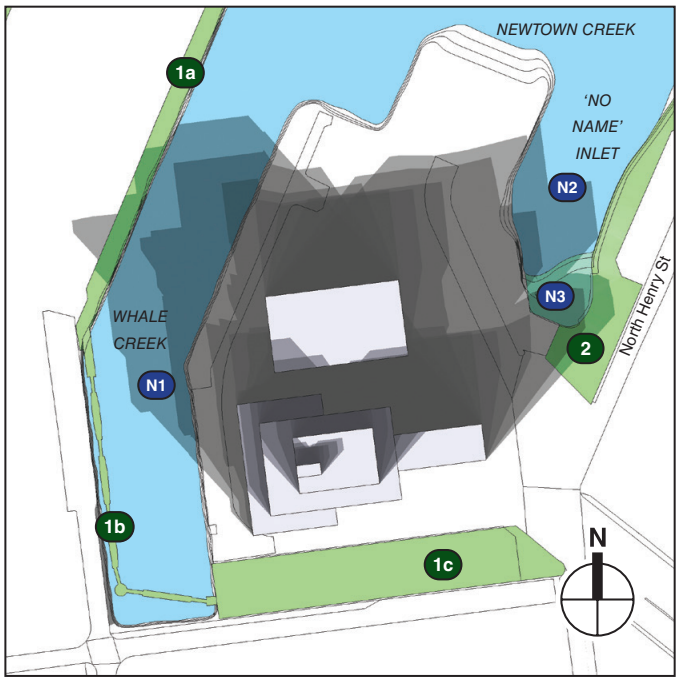
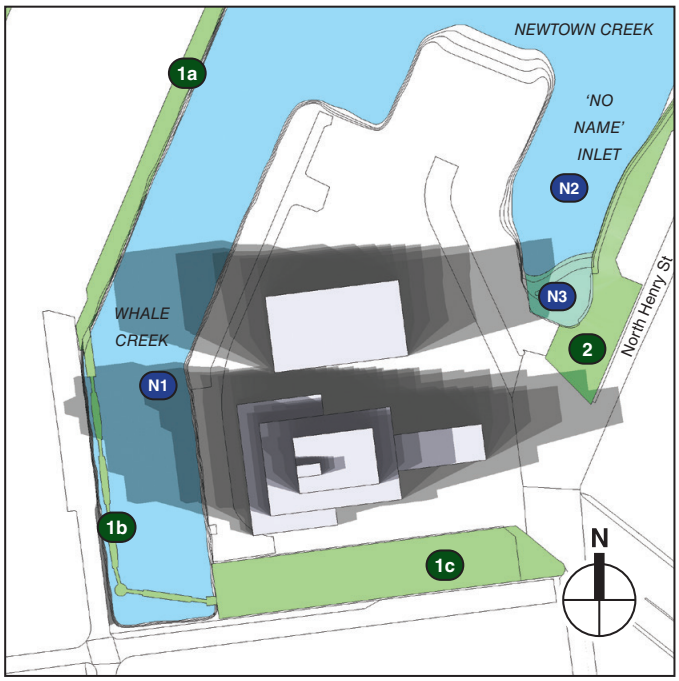
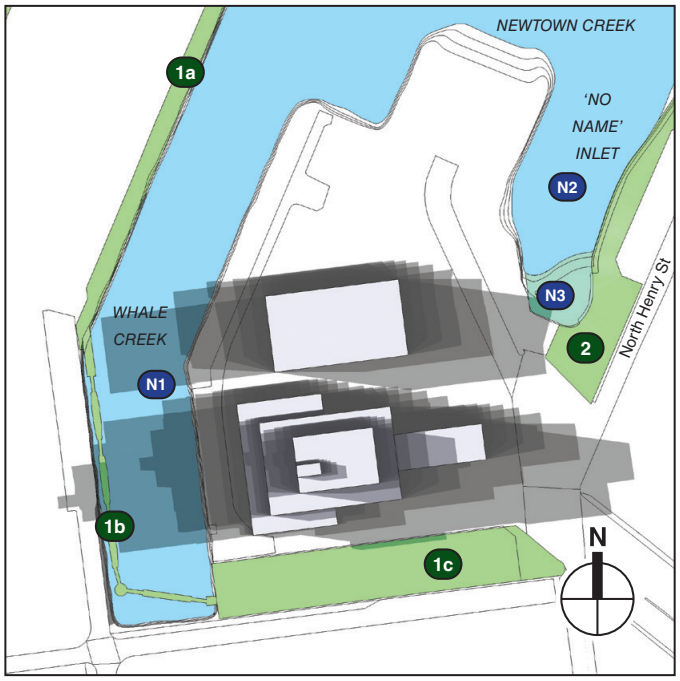


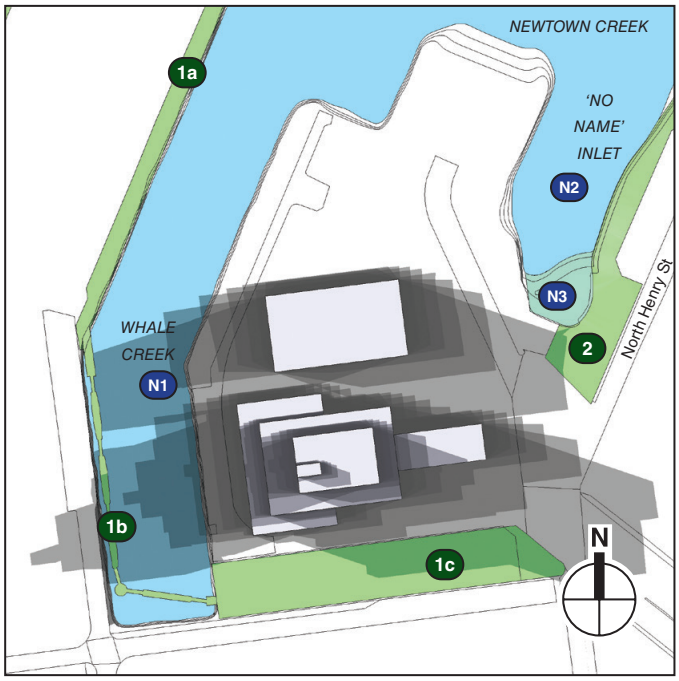
December 21



March 21 / September 21



May 6 / August 6



June 21

Proposed Project

Publicly Accessible Open Space

Natural Resource

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

This figure illustrates the range of shadows that would occur from the proposed building on each of the four representative analysis days. The shadows are shown occurring approximately every 60 minutes from the start of the analysis day (90 minutes after sunrise) to the end of the analysis day (90 minutes before sunset). The Tier 3 assessment does not account for future No Action shadows, and the shadows shown in this figure do not represent incremental shadows. The Tier 3 assessment serves to illustrate the daily path or "sweep" of the proposed building's shadows across the landscape, indicating which resources could potentially be affected on that analysis day, absent intervening or surrounding buildings, by project-generated shadow. Daylight Saving Time was not used, per *CEQR Technical Manual* guidelines.

Tier 3 Assessment

Table 8-2
Tier 3 Assessment

Map Reference	Name	Potential Incremental Shadow			
		December 21	March 21/ September 21	May 6/ August 6	June 21
Publicly Accessible Open Spaces					
1a	Newtown Creek Nature Walk - Phase 1	Potential	No	No	No
1b	Newtown Creek Nature Walk - Phase 2	No	Potential	Potential	Potential
1c	Newtown Creek Nature Walk - Phase 3	No	No	Potential	Potential
2	North Henry Street Restoration Project public open space (planned)	Potential	Potential	No	Potential
Natural Resources					
N1	Whale Creek	Potential	Potential	Potential	Potential
N2	'No Name' Inlet	Potential	Potential	No	No
N3	Salt Marsh (planned)	Potential	Potential	Potential	No

Notes:
See **Figure 8-2** for corresponding resource locations and shadow sweeps.
In the columns representing the analysis dates, "No" means project-generated shadow could not reach the resource, even without accounting for intervening buildings. "Potential" means project-generated shadow could potentially reach the resource on this date and requires further assessment.

D. DETAILED SHADOW ANALYSIS

A detailed analysis is warranted when the screening assessment does not rule out the possibility that project-generated shadows would reach sunlight-sensitive resources. The detailed analysis establishes a baseline condition, the future without the Proposed Project (the "No Action" condition), to illustrate the shadows cast by existing buildings (and other planned developments in the vicinity expected to be completed by the Proposed Project's build year). This baseline is then compared to the future condition with the Proposed Project (the "With Action" condition) to distinguish the additional (incremental) shadow cast by the Proposed Project. The purpose of the detailed analysis is to determine the extent and duration of new incremental shadow that would be cast on a sunlight-sensitive resource as a result of the Proposed Project. Because existing (or future No Action) buildings may already cast shadows on a sunlight-sensitive resource, the Proposed Project may not result in additional, or incremental, shadows on that resource.

Following the analysis framework described in Chapter 2, "Analysis Framework," a detailed analysis was performed for the analysis year of 2040, comparing the Proposed Project to the future No Action condition. In the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. To represent future baseline conditions, three-dimensional representations of existing buildings and future planned developments in the study area were added to the 3D model using best-available spatial and imagery data from the City, Nearmap, and other sources, and information from publicly available filings with the New York City Department of Buildings.

Shadows are in constant movement. The computer simulation software produces a minute-by-minute animation showing the movement of shadows over the course of each analysis period. The analysis determines the time when incremental shadow would enter each resource, and the time it would exit.

Shadow analyses were performed for each of the representative days and analysis periods indicated in the Tier 3 assessment.

DETERMINATION OF IMPACT SIGNIFICANCE

The determination of significance of shadow impacts on a sunlight-sensitive resource is based on (1) the information resulting from the detailed shadow analysis describing the extent and duration of incremental shadows; and (2) an analysis of the resource's sensitivity to reduced sunlight. The goal of the assessment is to determine whether the effects of incremental shadows on a sunlight-sensitive resource are significant under CEQR.

A shadow impact occurs when the incremental shadow from a proposed project falls on a sunlight-sensitive resource or feature and reduces its direct sunlight exposure. Determining whether this impact is significant or not depends on the extent and duration of the incremental shadow and the specific context in which the impact occurs.

Per CEQR, a significant shadow impact generally occurs when an incremental shadow of 10 minutes or longer falls on a sunlight-sensitive resource and results in one of the following:

- **Vegetation:**
  - A substantial reduction in sunlight available to a sunlight-sensitive feature of the resource to less than the minimum time necessary for its survival (when there was sufficient sunlight in the No Action condition). In the growing season, six to eight hours of direct sunlight is typically a minimum requirement for vegetation. Four to six hours a day of sunlight is a minimum requirement for vegetation that can tolerate partial sun, such as established tree canopies, shrubs, or perennials.
  - A reduction in direct sunlight exposure where the sensitive feature of the resource is already subject to substandard sunlight (i.e., less than the minimum time necessary for its survival).
- **Historic and Cultural Resources:**
  - A substantial reduction in sunlight available for the enjoyment or appreciation of the sunlight-sensitive features of a historic or cultural resource.
- **Open Space Utilization:**
  - A substantial reduction in the usability of open space as a result of increased shadows, accounting for anticipated new users and the open space's utilization rates throughout the affected time periods.
- **For Any Sunlight-Sensitive Feature of a Resource:**
  - Complete elimination of all direct sunlight on the sunlight-sensitive feature of the resource, when the complete elimination results in substantial effects on the survival, enjoyment, or, in the case of open space or natural resources, the use of the resource.

SUMMARY OF ANALYSIS RESULTS

The detailed analysis showed that new project-generated shadow would fall westward on limited portions of the Phase 1 and 2 sections of the Newtown Creek Nature Walk in the early mornings of some seasons, for brief durations (38 minutes or less depending on the season), and on sections of Whale Creek in the mornings of all seasons, as described in more detail below. The analysis further showed that new Project-generated shadow would fall eastward in the late afternoons and reach small portions of the Phase 3 section of the Newtown Creek Nature Walk, the 'No Name' Inlet, and the planned North Henry Street Restoration Project public open space and salt marsh in certain seasons, for limited durations, as described in more detail below.

Table 8-3 summarizes the entry and exit times and total duration of incremental shadows on each affected sun-sensitive resource. **Figures 8-3 to 8-13** document the results of the analysis by providing graphic representations from the computer animation of times when incremental shadow would fall on a sun-sensitive resource. The figures illustrate the extent of additional, incremental shadow at that moment in time (highlighted in red and pink), and also show existing shadow and remaining areas of sunlight.

Table 8-3
Incremental Shadow Durations

Map Reference	Name	Dec. 21	Mar. 21 / Sept. 21	May 6 / Aug. 6	Jun. 21
Publicly Accessible Open Spaces					
1a	Newtown Creek Nature Walk - Phase 1	8:51am to 9:16am Total 25 min	—	—	—
1b	Newtown Creek Nature Walk - Phase 2	—	7:36am to 7:50am Total 14 min	6:27am to 6:55am Total 28 min	5:57am to 6:35am Total 38 min
1c	Newtown Creek Nature Walk - Phase 3	—	—	—	5:25pm to 6:01pm Total 36 min
2	North Henry Street Restoration Project public open space (planned)	2:05pm to 2:53pm Total 48 min	3:55pm to 4:29pm Total 34 min	—	5:55pm to 6:01pm Total 6 min*
Natural Resources					
N1	Whale Creek	8:51am to 11:25am Total 2 hr 34 min	7:36am to 10:00am Total 2 hr 24 min	6:27am to 8:45am Total 2 hr 18 min	5:57am to 8:20am Total 2 hr 23 min
N2	'No Name' Inlet	2:35pm to 2:53pm Total 18 min	4:26pm to 4:29pm Total 3 min*	—	—
N3	Salt Marsh (planned)	2:00pm to 2:53pm Total 53 min	4:26pm to 4:29pm Total 3 min*	5:15pm to 5:18pm Total 3 min*	—

Notes: Table indicates entry and exit times and total duration of incremental shadow for each sunlight-sensitive resource. Daylight saving time is not used—times are Eastern Standard Time, per *CEQR Technical Manual* guidelines. However, as Eastern Daylight Time is in effect for the March/September, May/August, and June analysis periods, add one hour to the given times to determine actual clock time.
* Per *CEQR Technical Manual* guidelines, incremental shadow is not considered significant when its duration is no more than 10 minutes and the resource otherwise continues to receive substantial sunlight. Therefore, durations of less than 10 minutes are not shown in a corresponding figure.

8.27.25



8:51 AM



9:30 AM

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

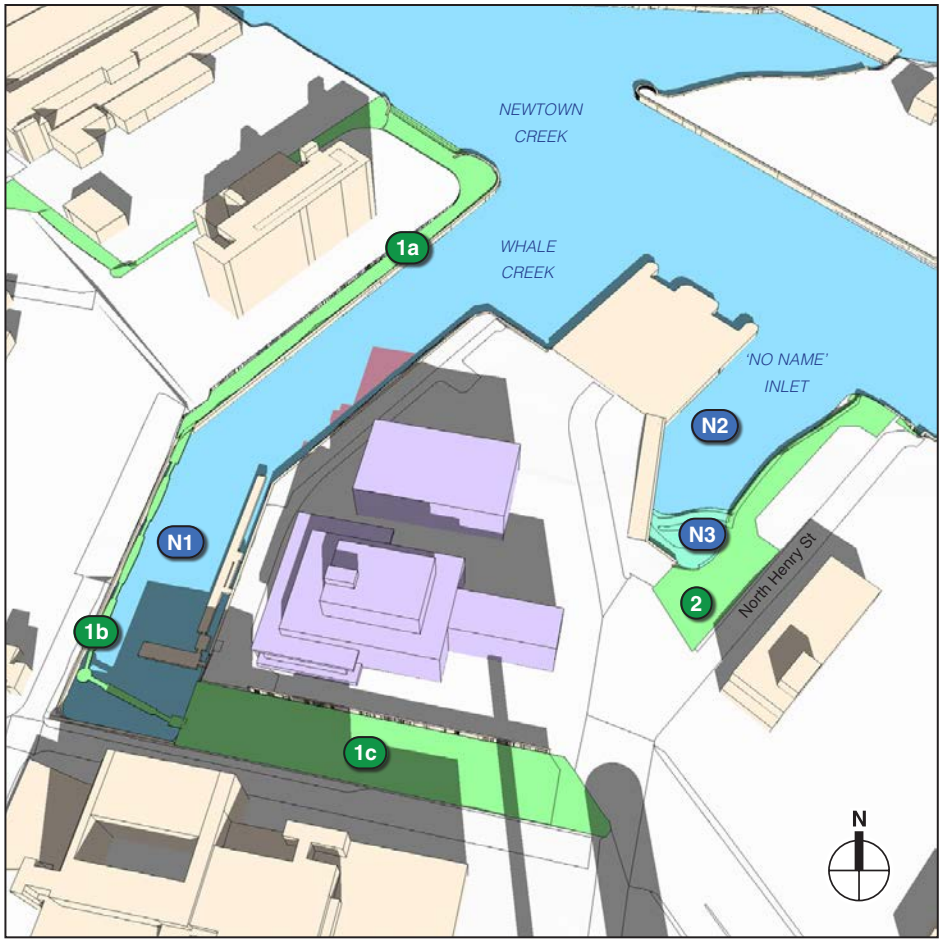
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
December 21

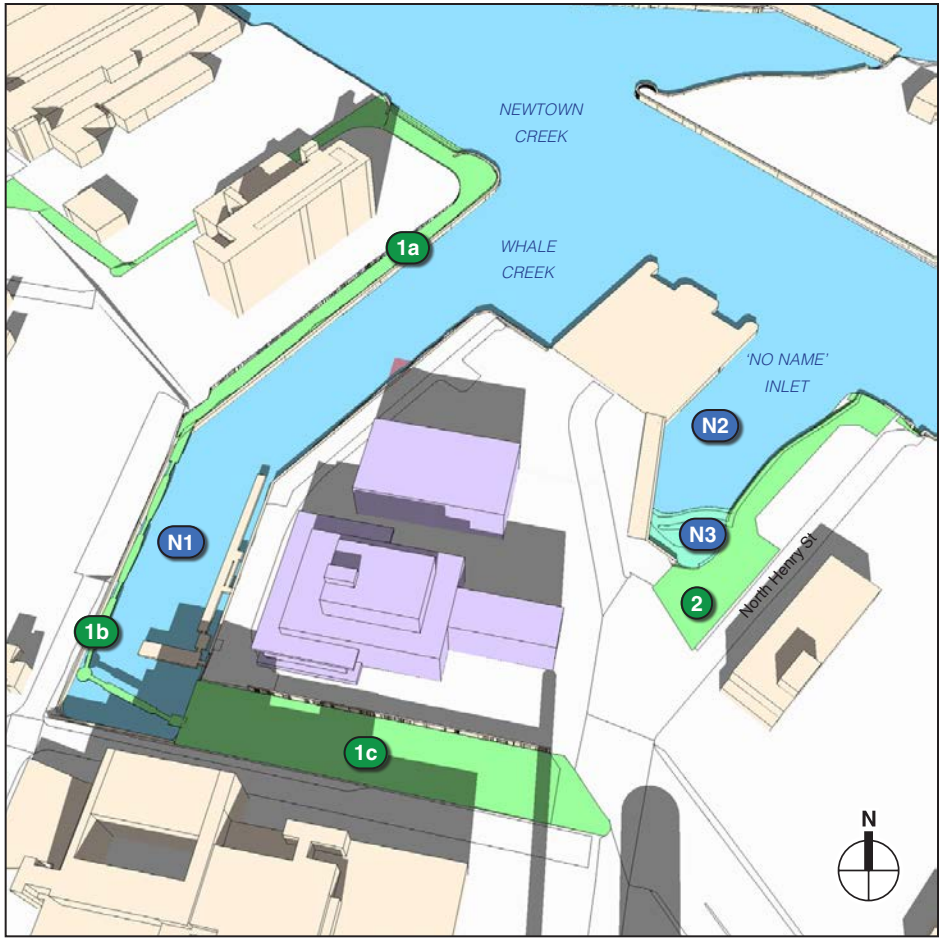
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-3

8.27.25



10:15 AM



11:00 AM

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

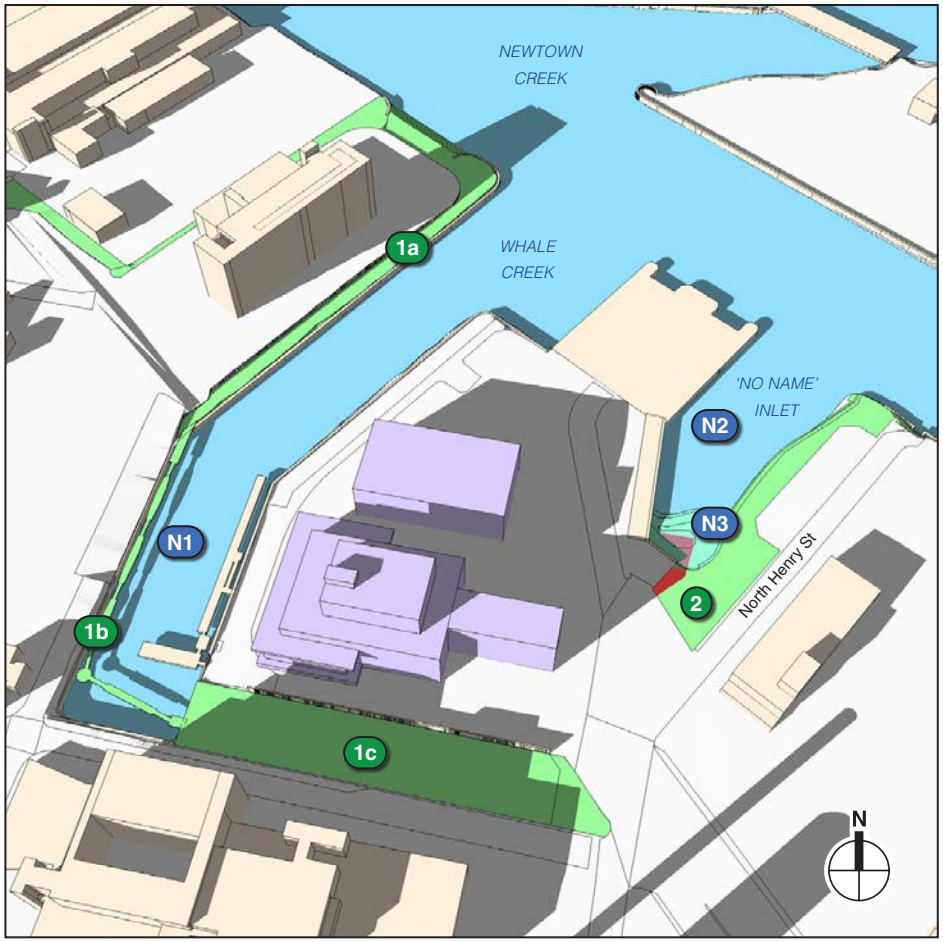
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
December 21

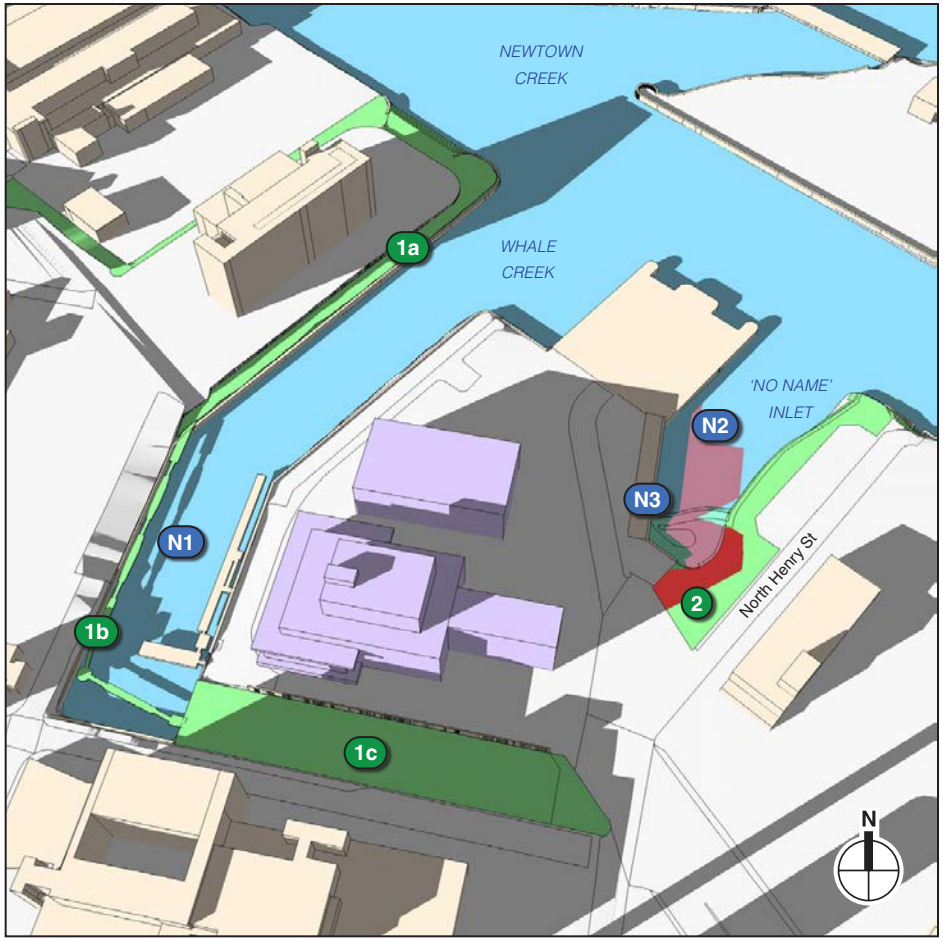
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-4

8.27.25



2:15 PM



2:53 PM

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

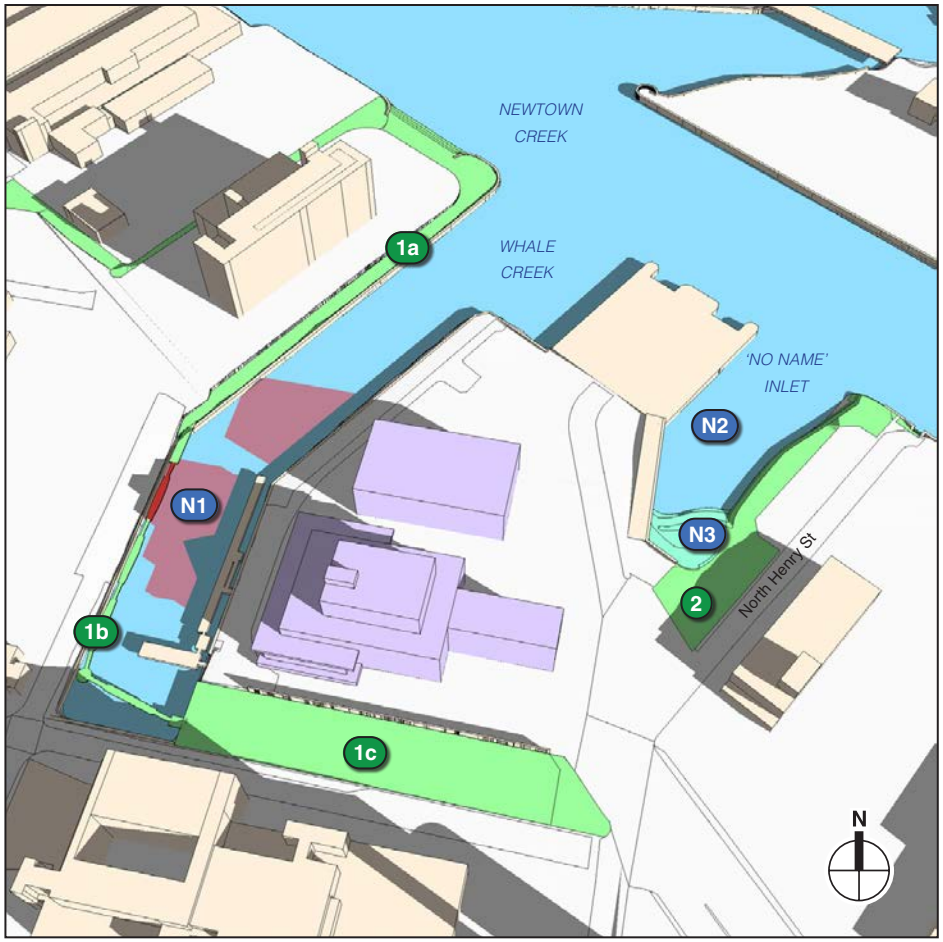
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
December 21

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-5

8.27.25



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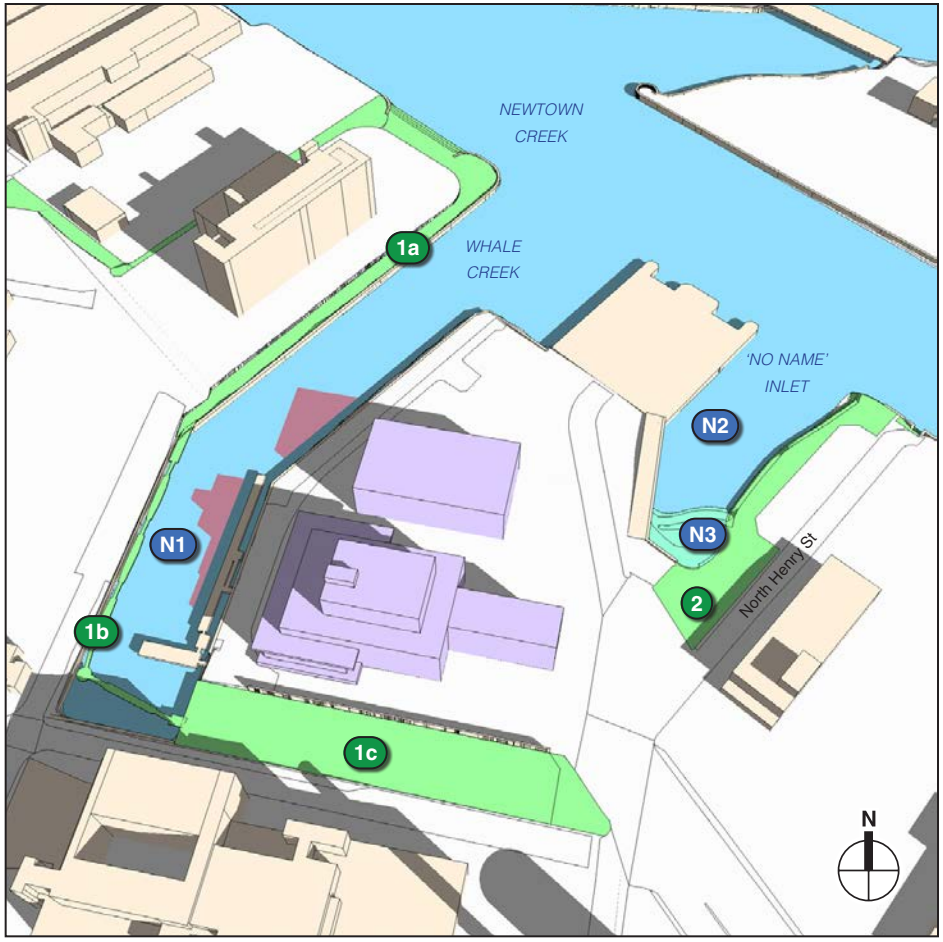


8:15 AM EST (9:15 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

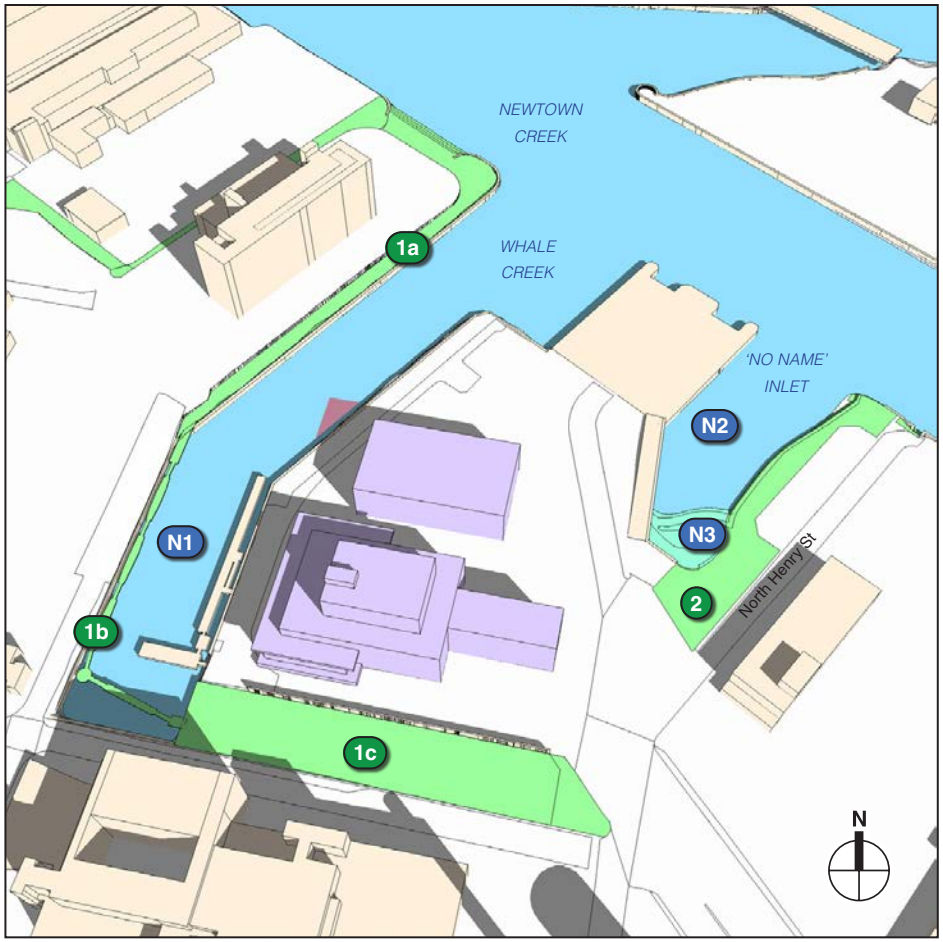
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
March 21 / September 21

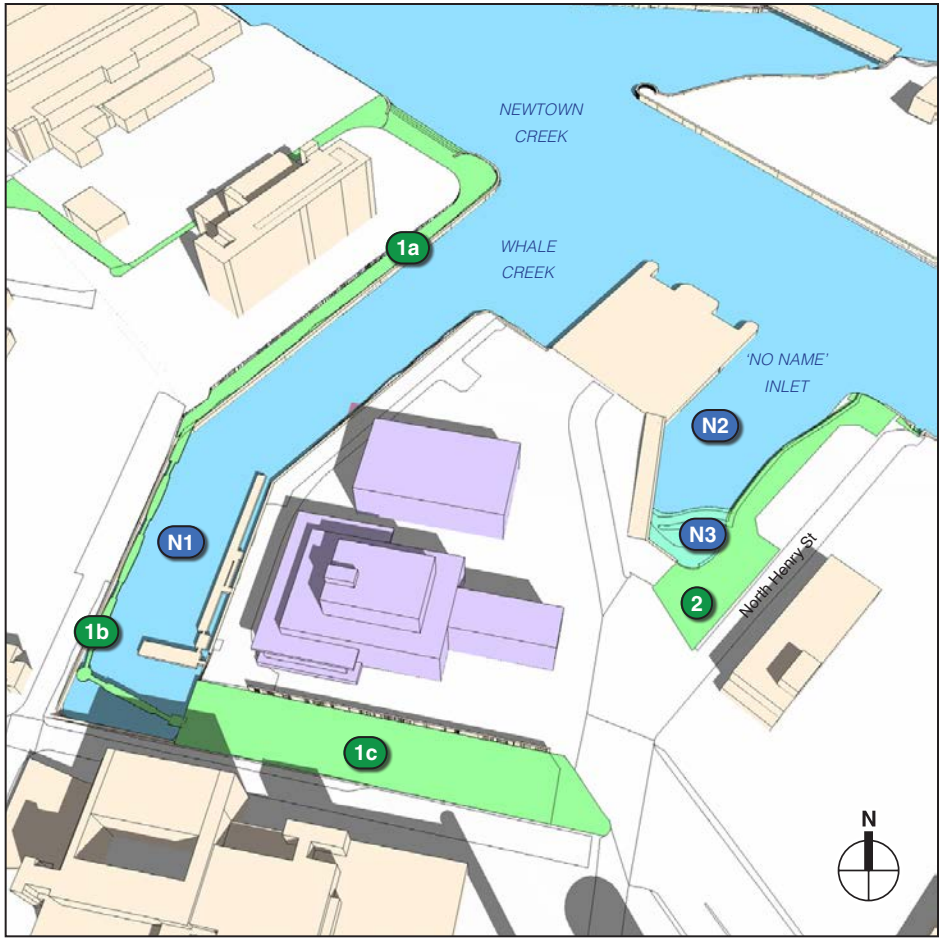
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-6

8.27.25



9:00 AM EST (10:00 AM EDT)



9:45 AM EST (10:45 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

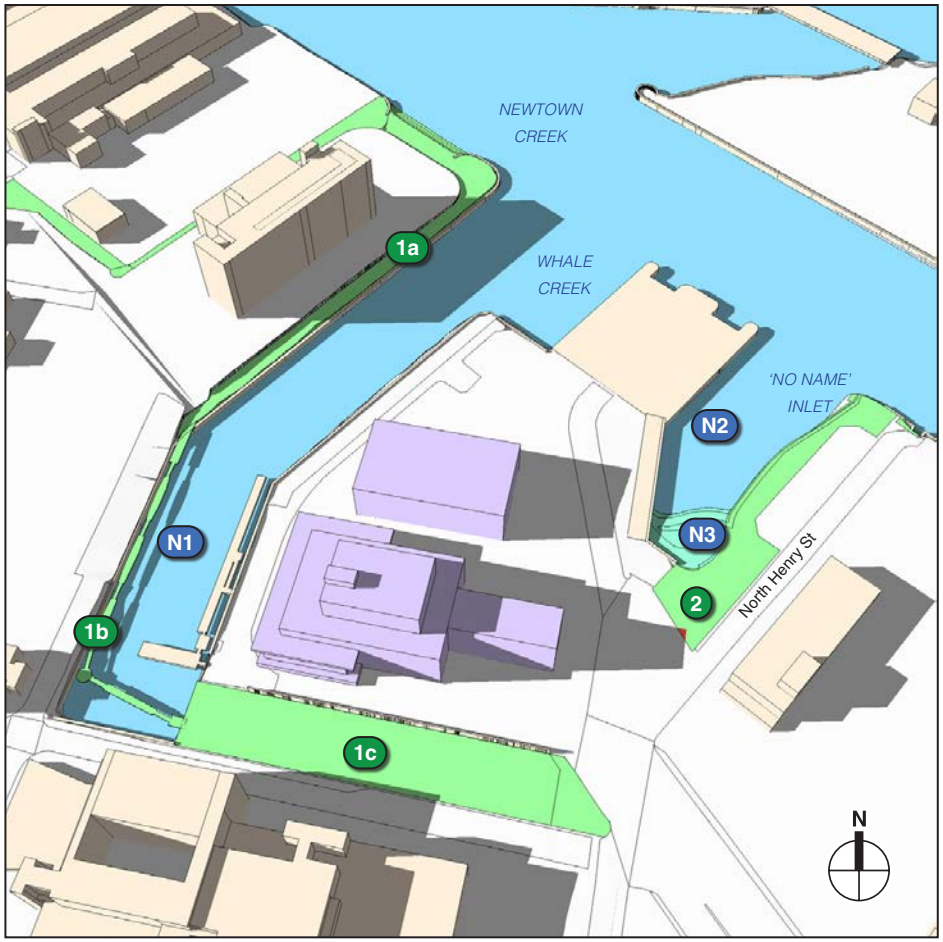
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
March 21 / September 21

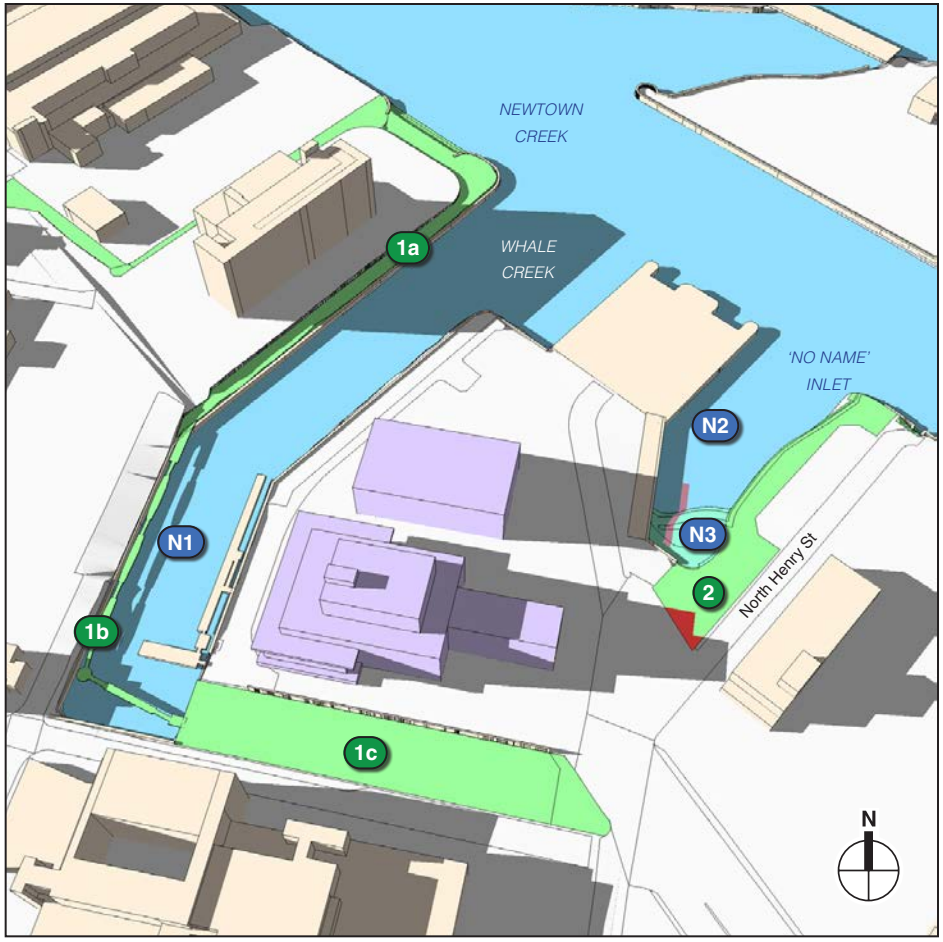
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-7

8.27.25



4:00 PM EST (5:00 PM EDT)



4:29 PM EST (5:29 PM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

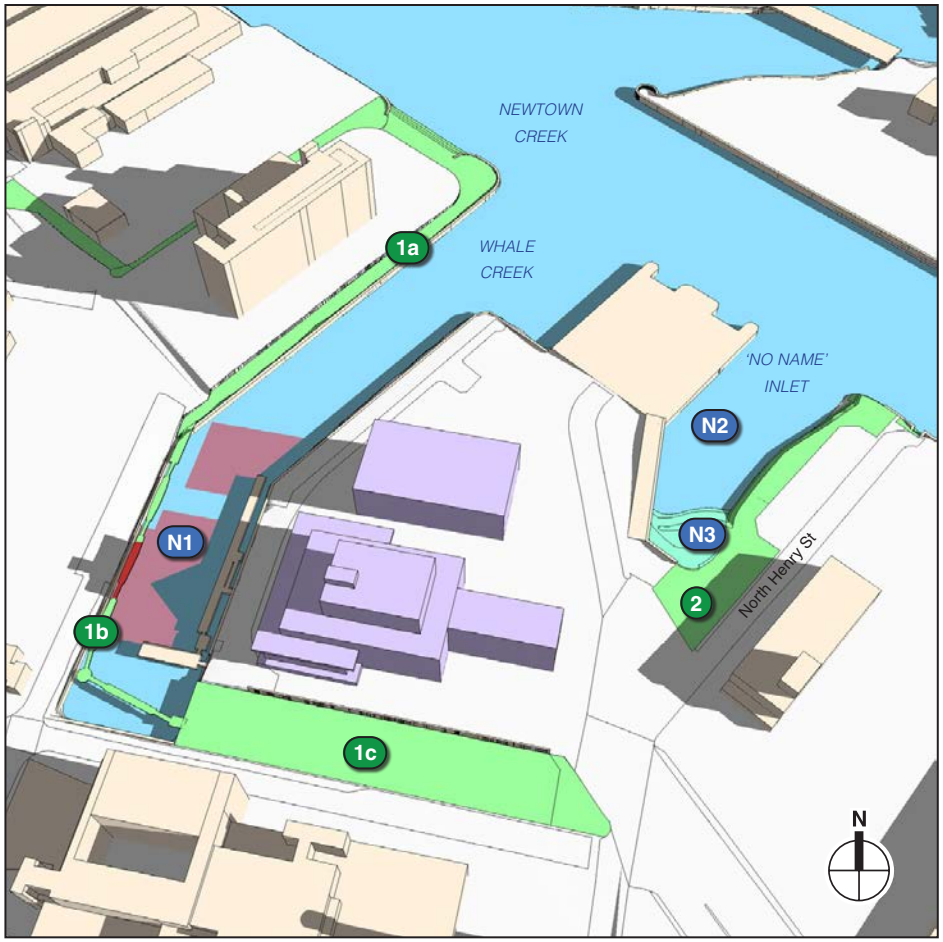
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
March 21 / September 21

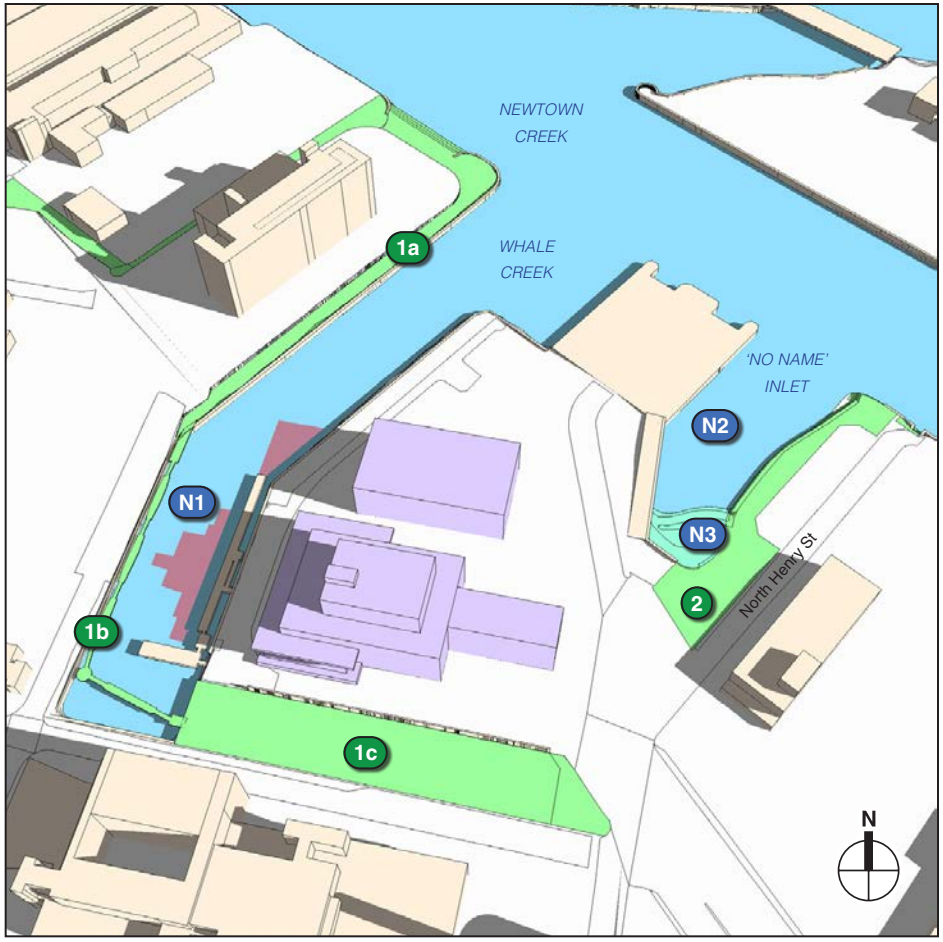
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-8

8.27.25



6:27 AM EST (7:27 AM EDT)



7:15 AM EST (8:15 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

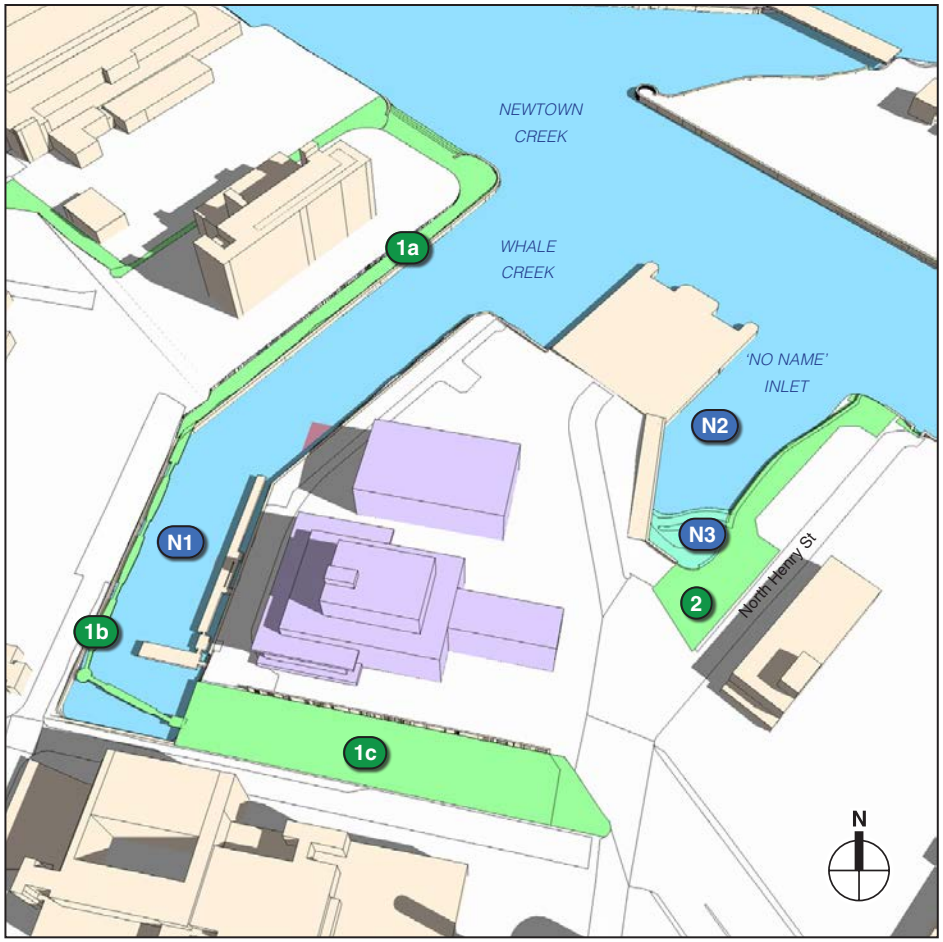
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
May 6 / August 6

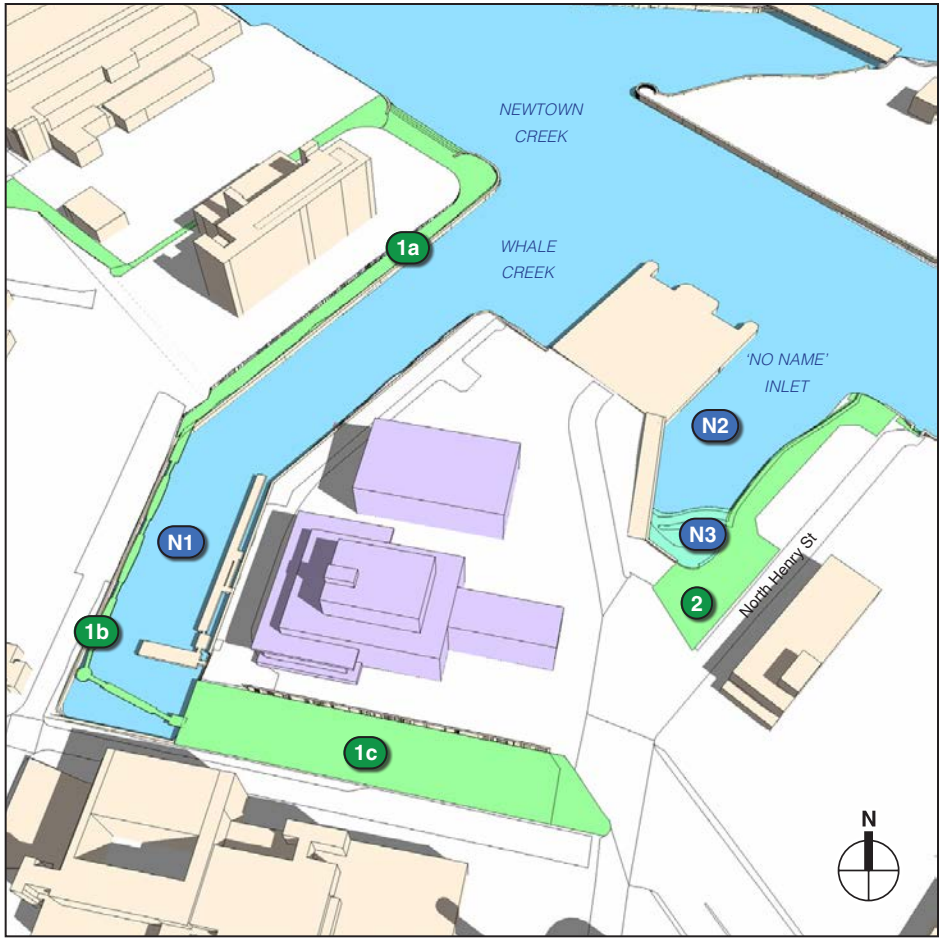
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-9

8.27.25



8:00 AM EST (9:00 AM EDT)



8:45 AM EST (9:45 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

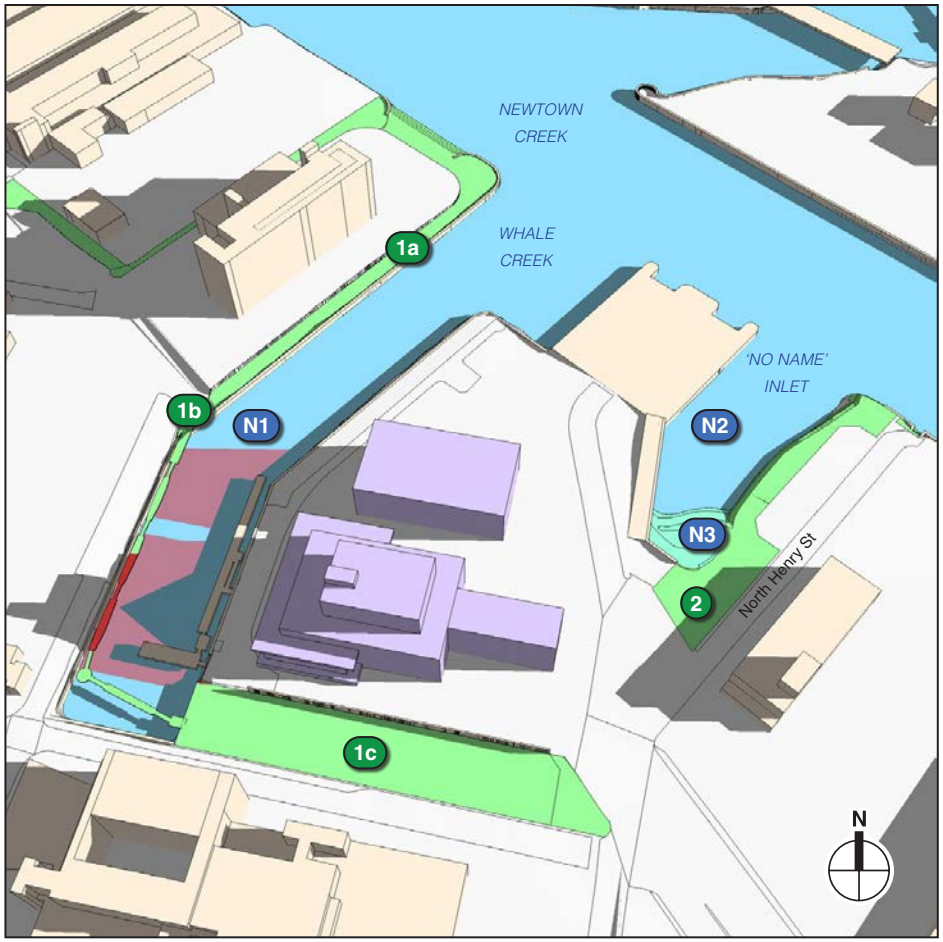
Map Key Natural Resource

N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

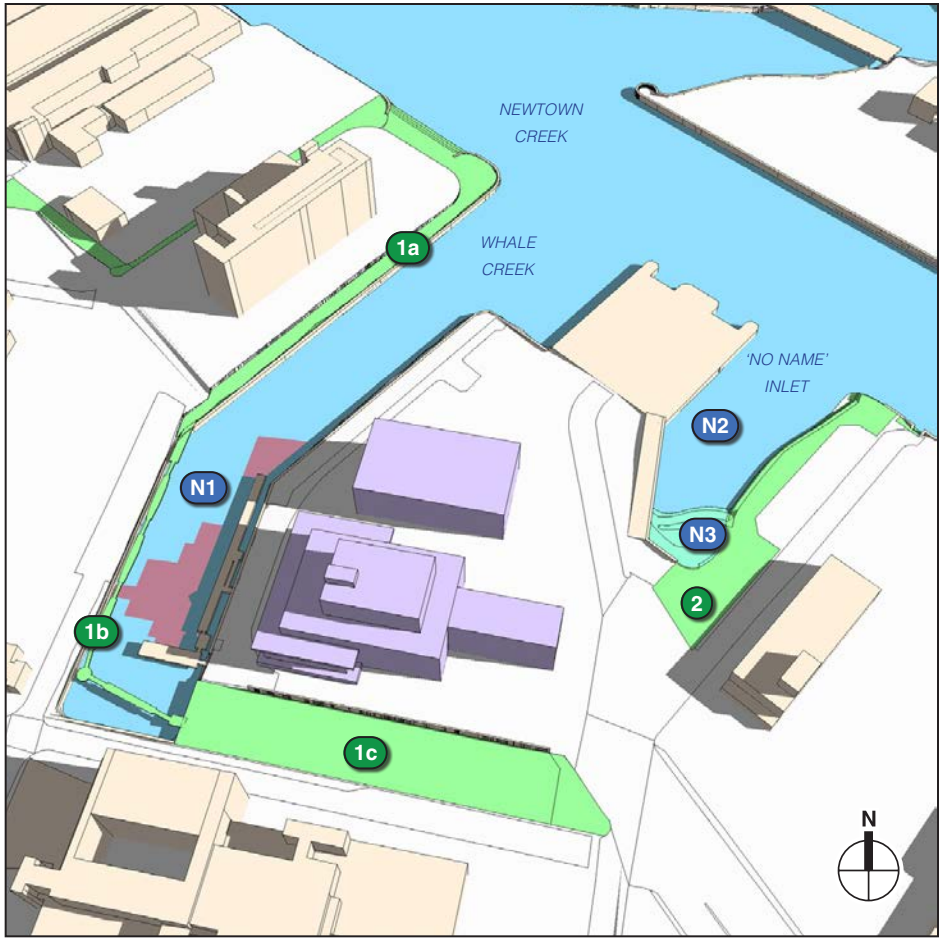
Detailed Analysis
May 6 / August 6
Figure 8-10

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

8.27.25



5:57 AM EST (6:57 AM EDT)



6:45 AM EST (7:45 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

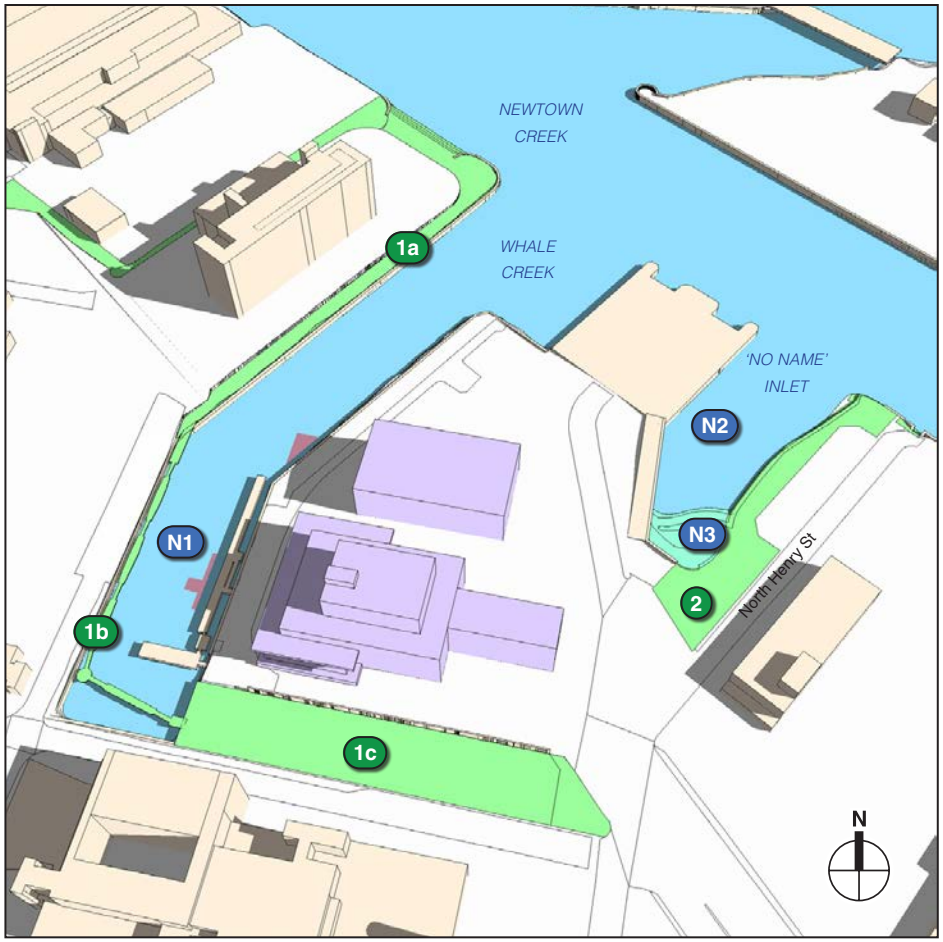
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
June 21

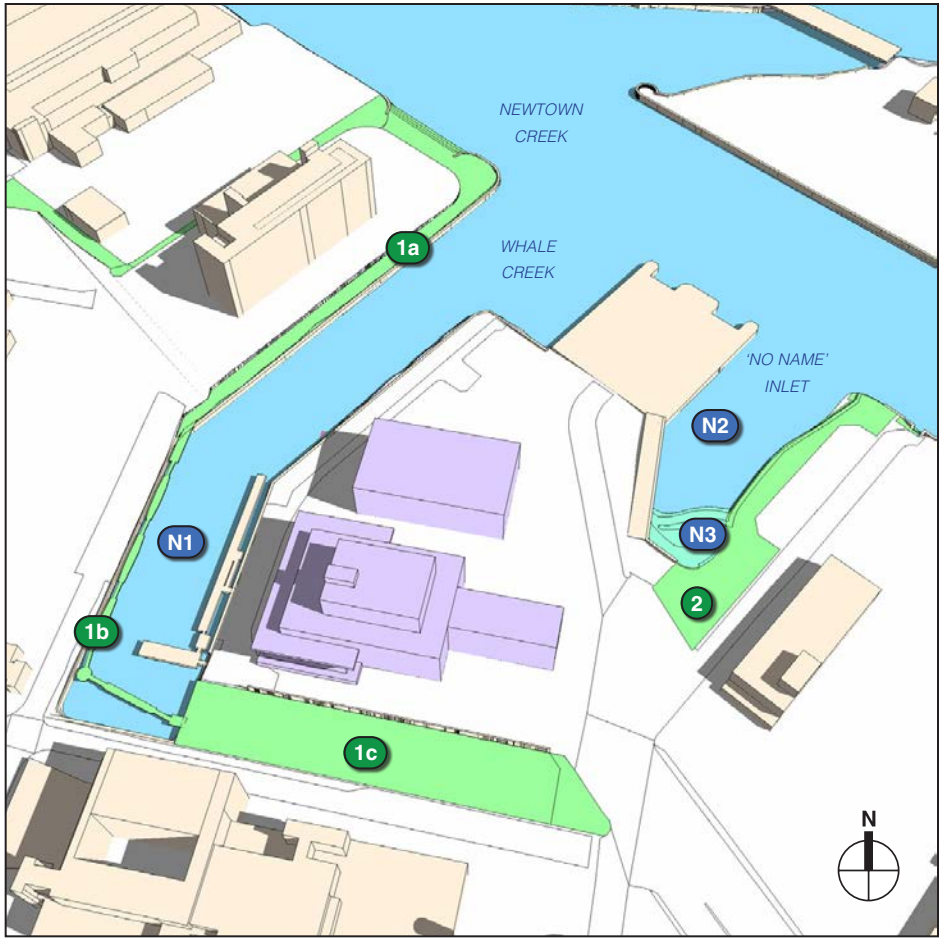
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-11

8.27.25



7:30 AM EST (8:30 AM EDT)



8:15 AM EST (9:15 AM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

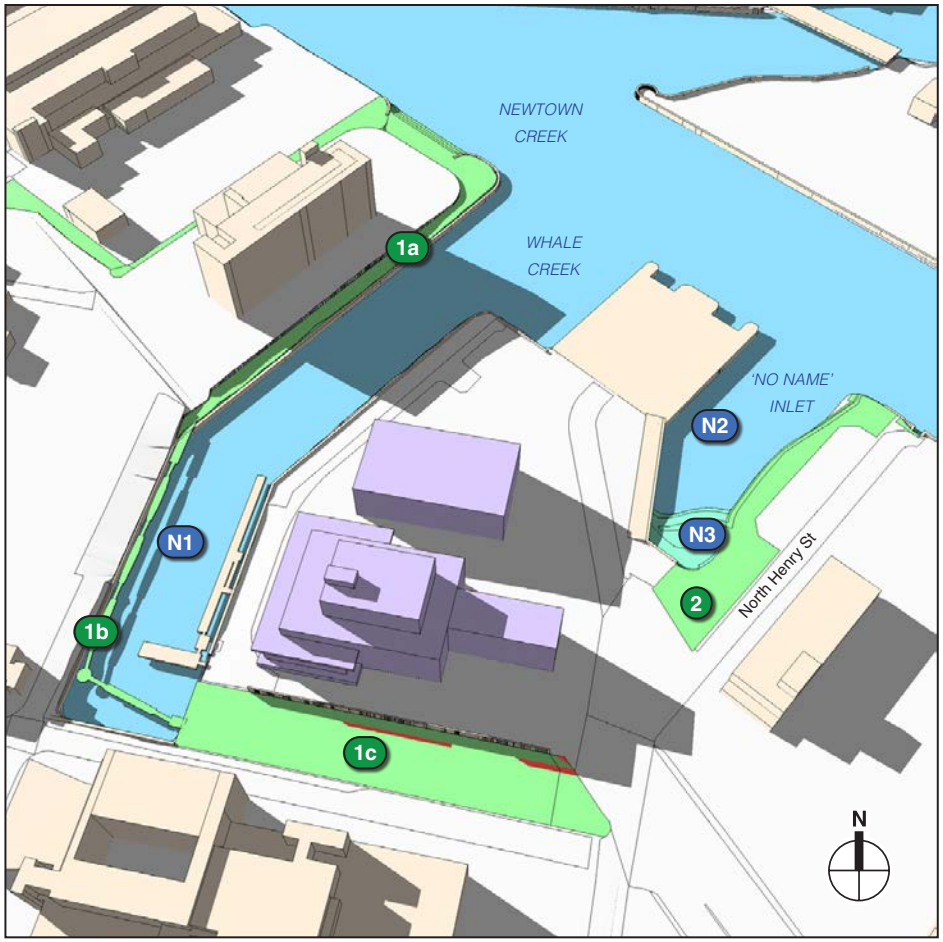
N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
June 21

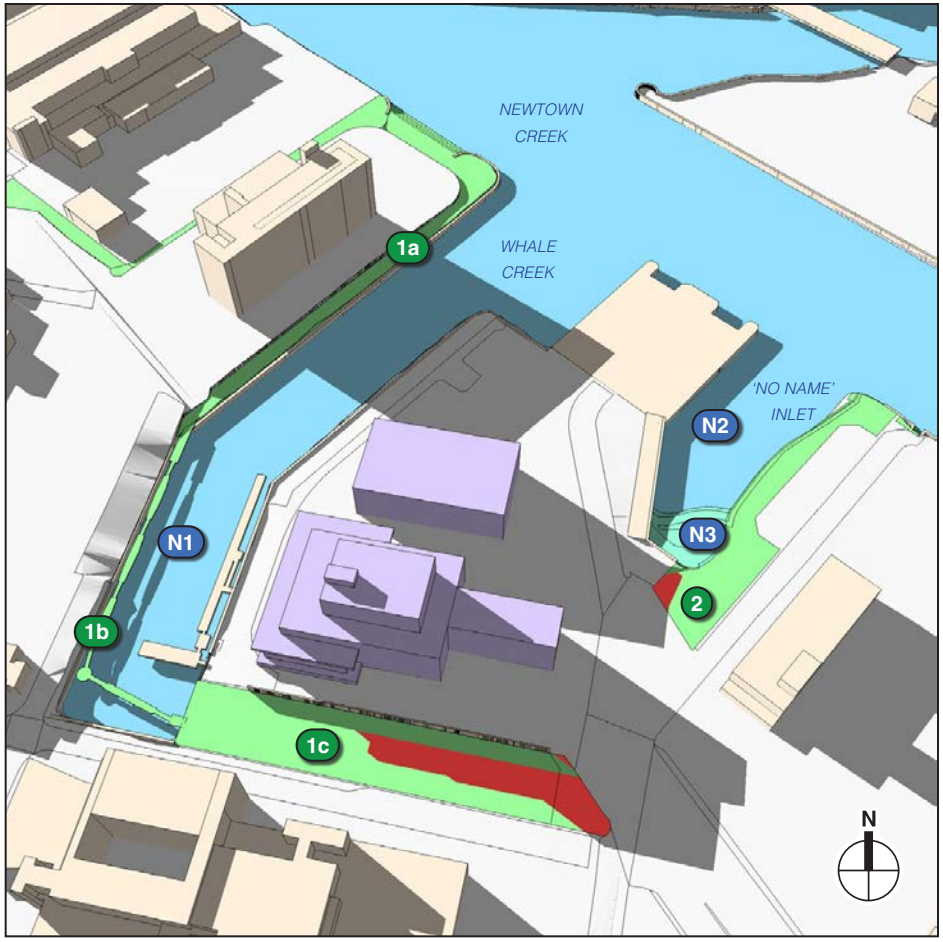
NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 8-12

8.27.25



5:30 PM EST (6:30 PM EDT)



6:01 PM EST (7:01 PM EDT)

Proposed Project

Incremental Shadow

Publicly Accessible Open Space

Natural Resources

NOTES: Only the areas of shadow highlighted in red represent incremental shadow resulting from the Proposed Project. All other shadow is future No Action shadow, i.e. baseline shadow from existing and future No Action buildings.
EST = Eastern Standard Time. EDT = Eastern Daylight Time.

Map Key Open Space Resource

1a. Newtown Creek Nature Walk - Phase 1
1b. Newtown Creek Nature Walk - Phase 2
1c. Newtown Creek Nature Walk - Phase 3
2. North Henry Street Restoration Project public open space (planned)

Map Key Natural Resource

N1. Whale Creek
N2. 'No Name' Inlet
N3. Salt Marsh (planned)

Detailed Analysis
June 21
Figure 8-13

ASSESSMENT OF SHADOW IMPACTS BY RESOURCE

The following section briefly describes each affected resource, its sunlight sensitivity, and the extent, duration, and potential effects of incremental shadow. Map reference numbers are included with the name, for convenience.

Times are given in Eastern Standard Time (EST) in all seasons, as mandated by the *CEQR Technical Manual*, but Eastern Daylight Time (EDT) is in effect for all representative analysis days except for December 21, and times are also provided parenthetically in EDT when relevant, for informational purposes.

OPEN SPACE RESOURCES

Newtown Creek Nature Walk

This linear public open space, operated by New York City Department of Environmental Protection (DEP), was developed in three phases, and the sections resulting from each of these phases are discussed individually below with regard to potential shadow impacts.

Newtown Creek Nature Walk – Phase 1 (#1a)

A portion of the Phase 1 section is located in the longest shadow study area, west of the TDPS site opposite Whale Creek. The linear space along the Whale Creek waterfront contains indigenous plantings with free-standing educational plaques and sitting areas.

This section of the Phase 1 portion of the Nature Walk would only receive new project-generated incremental shadow on the December 21 representative date, and the increment would be small relative to the overall space and would only last for about 25 minutes, 8:51 AM to 9:16 AM (see **Figure 8-3**). Virtually the rest of the Phase 1 portion of the Nature Walk would be in sun during this time, and the area affected by the incremental shadow would be in sun for the remainder of the day. Regarding the plantings, shadows occurring during winter generally do not affect the growing season of outdoor vegetation.[8] Therefore, the Proposed Project would not cause a significant adverse impact to this resource in winter and would not cast new shadow on it in the other seasons.

Newtown Creek Nature Walk – Phase 2 (#1b)

The Phase 2 section of the Nature Walk is located west-southwest of the TDPS site. It is composed of three 60-foot steel hulled "vessels," lined with locust wood planks, and offers a passageway over Whale Creek, connecting the Phase 1 and Phase 3 sections of the Nature Walk.

Incremental shadow from the Proposed Project would reach a small section of the Phase 2 "vessels" in the early mornings of the spring, summer, and fall seasons (see **Figures 8-6, 8-9, and 8-11**). The shadow increment would be brief, ranging in duration from 14 minutes in the early spring and fall to up to 38 minutes on the midsummer representative date (June 21). Most of the Phase 2 portion of the Nature Walk would remain in sun during this brief period, and the limited area affected by the incremental shadow would be in sun for the rest of the day. The incremental shadow would exit the

[8] *CEQR Technical Manual*, 2021 edition, page 8-23.

area no later than 7:50 AM (8:50 AM EDT) in any season. Therefore, given the limited extent and duration of new shadow and the plentiful sunlight in adjacent areas of the Nature Walk, the incremental shadow would not cause a significant adverse impact to the recreational use of the Phase 2 portion of the Nature Walk (this area does not contain plantings that would be affected by incremental shadow).

Newtown Creek Nature Walk – Phase 3 (#1c)

The Phase 3 section of the Nature Walk is located south-adjacent to the TDPS site, on the other side of an approximately 10-foot wall. The space contains a number of exhibits, plantings, and seating areas.

As it is south of the TDPS site, only a limited amount of shadow could ever potentially reach the space; this would occur around midsummer (June 21) when days are longer than at other times of year and shadows fall farthest south (near sunrise and sunset).

Project-generated shadow could not reach the Phase 3 portion of the Nature Walk in the fall, winter, or early spring, as it would not fall far enough to the south, and on May 6/August 6 the intervening wall would block project-generated shadow during the last few minutes of the analysis day when it could otherwise reach a small portion of the space. On June 21, incremental shadow would fall beyond the intervening wall during approximately the last half-hour of the analysis day, falling on a limited portion in the eastern side of the Phase 3 portion of the Nature Walk (see **Figure 8-13**). Over half the space would remain in sun during this half-hour period, and the area affected by the incremental shadow would be in sun for virtually the entire rest of the day. Consequently, the limited extent and duration of new shadow would not cause significant adverse impacts to either the recreational use of the space or its plantings.

North Henry Street Restoration Project (#2)

This project is anticipated to be completed by the 2040 build year. The proposed public open space connected with this project would be located northeast of the TDPS site on the northern end of North Henry Street, adjacent to Newtown Creek on a sliver of City-owned land.[9] The open space would also occupy a portion of a marginal street that is owned by the New York City Department of Small Business Services (SBS)/Economic Development Corporation (EDC). The project is being developed by the Newtown Creek Alliance (NCA) in partnership with City University of New York (CUNY) LaGuardia Community College. The design for the proposed open space includes a boardwalk, two observation decks over the water, and seating areas. The project also includes wetland mitigation, which would create restored tidal wetlands, marshes (see the Natural Resources section below), and planting native species.

Incremental shadow would fall on portions of the open space at the end of the analysis day in the fall, winter and early spring representative dates, ranging in total duration from 34 to 48 minutes depending on the date.

[9] The sliver of property is part of the tax lot (Block 2508, Lot 1) that is currently controlled by the New York City Department of Sanitation (DSNY), which would be transferred to DEP and would contain the TDPS site with the Proposed Project.

On the December 21 analysis date, the shadow increment would move onto the southern end of the space at 2:05 PM and spread gradually farther east until the end of the analysis period at 2:53 PM (90 minutes before sunset) but would remain limited to the southeastern part of the space (see **Figure 8-5**). Most of the space would remain in sun during this time, and the area affected by the shadow increment would be in sun for virtually the entire rest of the day except for 20 to 30 minutes in the morning when it would be in the shadow of the existing building to the west. Therefore, given the limited extent and duration of the incremental shadow and the availability of sunlit areas adjacent and nearby, the Proposed Project would not cause significant adverse impacts to the recreational use of the space on the winter representative date. And, as noted above, shadows occurring during winter generally do not affect the growing season of outdoor vegetation.

On the March 21/September 21 analysis date, incremental shadow from the Proposed Project would fall on a very small area at the southern end of the open space, as shown in **Figure 8-8**, for the final 34 minutes of the analysis period, 3:55 PM to 4:29 PM (4:55 PM to 5:29 PM EDT). The rest of the space would be in sun during this time, and the small area affected by the incremental shadow would be in sun for nearly the rest of the day after approximately 8:45 AM (9:45 AM EDT), meaning that any plantings there would receive over 7 hours of direct sunlight, which is generally ample even for species requiring full sun (which typically require 6 to 8 hours of sun) as well as those requiring partial sun (4 to 6 hours) during the growing season. Therefore, the Proposed Project would not cause significant adverse impacts to the health of the vegetation. Furthermore, given the small extent and short duration of the increment, and the plentiful remaining sunlight in the space, the Proposed Project would not cause significant adverse impacts to the recreational use of the space.

No incremental shadow would reach the space on the May 6/August 6 analysis date, and only 6 minutes of incremental shadow would fall on the space on the June 21 representative date. Therefore, the Proposed Project would not cause significant adverse impacts on the space in the late spring and summer period represented by these dates.[10]

NATURAL RESOURCES

Whale Creek (Map #N1) and 'No Name' Inlet (Map #N2)

Whale Creek and 'No Name' Inlet are channelized tributaries of Newtown Creek, a tidally influenced channel discharging into the East River. For the purposes of this analysis, Whale Creek and 'No Name' Inlet are considered sunlight-sensitive resources both for recreational use (supporting such activities as boating) and as natural features that can support fish, benthic invertebrates, and plankton, as described in Chapter 11, "Natural Resources." The New York State Department of Environmental Conservation (NYSDEC) classifies Newtown Creek and its tributaries as Class SD saline surface waters. The best use of Class SD waters is fishing, with water quality suitable for fish, shellfish, and wildlife survival. As described in greater detail in Chapter 11, NYSDEC lists Newtown Creek and its tributaries as

[10] Per *CEQR Technical Manual* guidelines, incremental shadow is not considered significant when its duration is no more than 10 minutes and the resource otherwise continues to receive substantial sunlight. *CEQR Technical Manual*, 2021 edition, page 8-28.

impaired for garbage and refuse, dissolved oxygen, and fecal coliforms, and most aquatic flora and fauna regularly observed within Newtown Creek and its tributaries are pollution tolerant.

Whale Creek (Map #N1)

Whale Creek is located west adjacent to the TDPS site. Incremental shadow from the Proposed Project would fall on portions of Whale Creek each morning, beginning from the start of the analysis day (90 minutes after sunrise) and lasting in duration between approximately two and a quarter to two and a half hours, depending on the date (see **Figures 8-3, 8-4, 8-6, 8-7, and 8-9 to 8-12**). The incremental shadow would be at its largest at the start of the analysis period and would decrease in size, more quickly at first, and then more gradually, as it moves eastward/clockwise and off Whale Creek. Large areas of Whale Creek as well as the adjacent Newtown Creek would remain in sun throughout these morning periods when the incremental shadow would occur, and the areas shaded by the project-generated incremental shadow would be in sun for the rest of the day (i.e. in sun from approximately three and a half hours in midwinter, six and a half hours on the spring and fall equinoxes, and over nine and a half hours on the midsummer day).

Regarding shadow impacts to recreational uses on Whale Creek, such as fishing and boating, as noted above there would be substantial areas in sun on Whale Creek and the adjacent Newtown Creek even during the periods of the incremental shadow's greatest extent, and for most of the duration the incremental shadow would be limited to a small proportion of Whale Creek, with the rest of Whale Creek in sun. Given these factors, the incremental shadow would not significantly impact the recreational use of Whale Creek.

Regarding shading impacts to aquatic biota, as noted above the incremental shadow would be limited in extent and duration in all seasons. In winter, all areas of Whale Creek would receive a minimum of three and a half hours of direct sun (many areas of Whale Creek would continue to receive five to six hours of direct sun) and in spring, summer, and early fall, all areas of Whale Creek would receive from six and a half to over nine and a half hours depending on the date. Light requirements for phytoplankton are low, and the reduction in light within the shadow footprint would have a negligible impact on phytoplankton populations. Mobile organisms, such as fish and epibenthic macroinvertebrates (e.g., crabs), would be expected to move through the areas of incremental shadows. Similar to the other waters of the East River estuary, naturally suspended sediment in Whale Creek's water, typical of estuarine environments, would limit light and shadow penetration, further limiting the area of aquatic habitat affected by incremental shadows. When considered with the abundance of foraging habitat available within nearby areas of Newtown Creek and the East River, any temporary reduction of suitable foraging habitat within Whale Creek due to shadows resulting from the Proposed Project would not result in significant adverse impacts to fish species.

'No Name' Inlet (Map #N2)

Incremental shadow would fall on a limited portion of this Inlet for the final 18 minutes of the midwinter analysis date, the final three minutes of the March 21/September 21 analysis date, and not at all on the dates representing late spring and summer. On the midwinter date, the area affected by incremental shadow would be in sun for virtually the entire day up to the final 18 minutes (i.e. over five and a half hours), and during that final 18 minutes, most of the Inlet would remain in sun (see **Figure 8-5**).

Therefore, for the same reasons described above for Whale Creek, the limited extent and duration of incremental shadow would not cause significant impacts to either the recreational use or the aquatic biota of the 'No Name' Inlet.

North Henry Street Restoration Project Salt Marsh (#N3)

In connection with this restoration project, it is envisioned that a salt marsh habitat will be re-introduced at the head of the 'No Name' Inlet, and further that a portion of the bulkhead could be removed, excavated and graded to allow the marsh to expand farther inland. This marsh of common cordgrass is intended to provide marine habitat and water quality improvements.

Incremental shadow would fall on a portion of the re-introduced salt marsh for the final 53 minutes of the midwinter analysis date (see **Figure 8-5**), the final three minutes of the March 21/September 21 analysis date (see **Figure 8-8**), the final three minutes of the May 6/August 6 analysis date, and not at all on the midsummer date. On the midwinter date, the area affected by incremental shadow would be in sun for most of the day (approximately 9:00 AM to 2:00 PM) before the incremental shadow would enter. Given that the marsh would receive approximately five hours of direct sun on the December 21 analysis day and seven or more hours on the March 21/September 21, May 6/August 6, and June 21 analysis dates (i.e., throughout the growing season), the Proposed Project would not be expected to cause significant adverse impacts to the planned salt marsh.

E. CONCLUSIONS

The Proposed Project at the TDPS site would result in new shadows on several nearby sunlight-sensitive resources, including sections of the Newtown Creek Nature Walk, the planned North Henry Street Restoration Project, and the adjacent tributaries of Newtown Creek. However, the new shadows would be limited in extent and duration and would not cause significant adverse shadow impacts to these resources.

A. INTRODUCTION

This chapter assesses the potential of the proposed Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project to affect historic and cultural resources, which include archaeological and architectural resources. The Proposed Project involves the design and construction of a CSO storage tunnel and related infrastructure to reduce the volume of combined sewer overflows entering Newtown Creek (see **Figures 9-1 through 9-9**).

The *City Environmental Quality Review (CEQR) Technical Manual* recommends that an analysis of archaeological resources be undertaken for actions that would result in any in-ground disturbance. It also recommends that an architectural resources assessment be performed if a proposed action may result in any of the following (even if no known architectural resources are located nearby): new construction; physical alteration of any building; change in scale, visual context, or visual setting of any building, structure, object, or landscape feature; or screening or elimination of publicly accessible views. Since the Proposed Project may result in some of these conditions, an analysis of archaeological and architectural resources is presented below.

B. PRINICPAL CONCLUSIONS

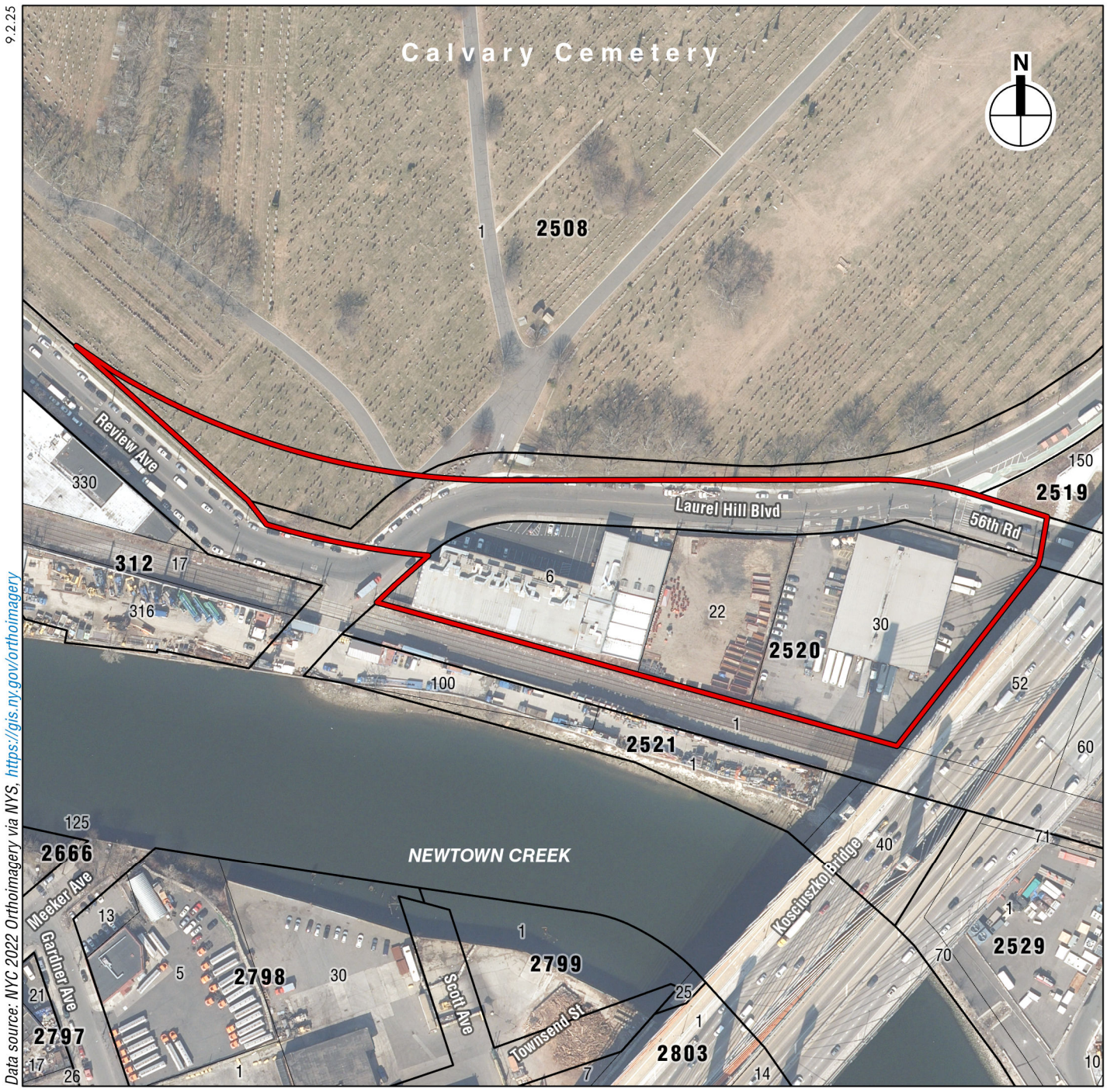
The principal conclusions for the cultural resources analysis are presented below.

ARCHAEOLOGICAL RESOURCES

Pursuant to CEQR and Section 106 of the National Historic Preservation Act (NHPA), consultation was initiated with the New York City Landmarks Preservation Commission (LPC) and the New York State Historic Preservation Office (SHPO). Based on LPC and SHPO feedback, a Phase 1A Archaeological Documentary Study (Phase 1A Study) of the area identified by LPC was prepared by AKRF in March 2025. The study area for the Phase 1A Study ("Phase 1A Study Area") includes that portion of the tunnel alignment that extends through Block 2520, Lots 6, 22, and 30, and Block 2508, Lot 1, as shown on **Figure 9-1a**. The Phase 1A Study concluded that the Proposed Project would not affect archaeological resources or remains within Calvary Cemetery. In comment letters issued on April 1, 2025 and May 5, 2025, respectively, LPC and SHPO concurred with the conclusions of the Phase 1A Study and determined that no further archaeological analysis is required. Further, in a comment letter issued on August 7, 2025, SHPO determined that the Proposed Project "will have No Adverse Effect on historic or archaeological resources" (see **Appendix D**). Therefore, the Proposed Project would not result in significant adverse impacts on archaeological resources.



Proposed Project – Tunnel Alignment and Diversion Facilities



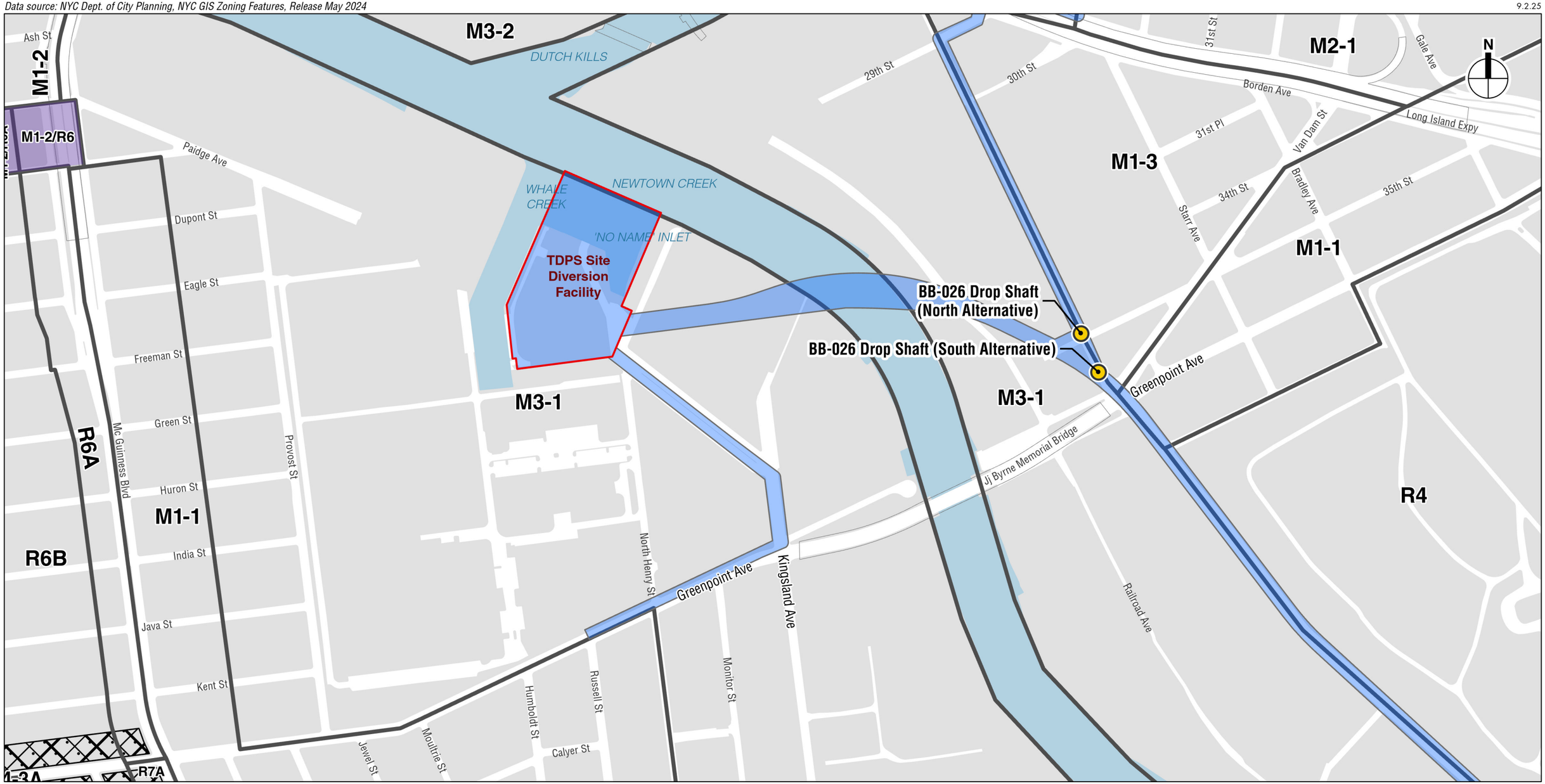
Phase 1A Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-1a

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

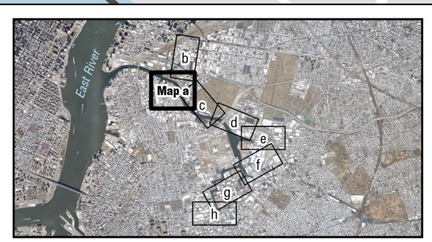
Diversion Facility Site

Approximate Drop Shaft Location

Zoning District Boundary

Special Mixed Use District (MX-8)

C2-4



0 200 FEET

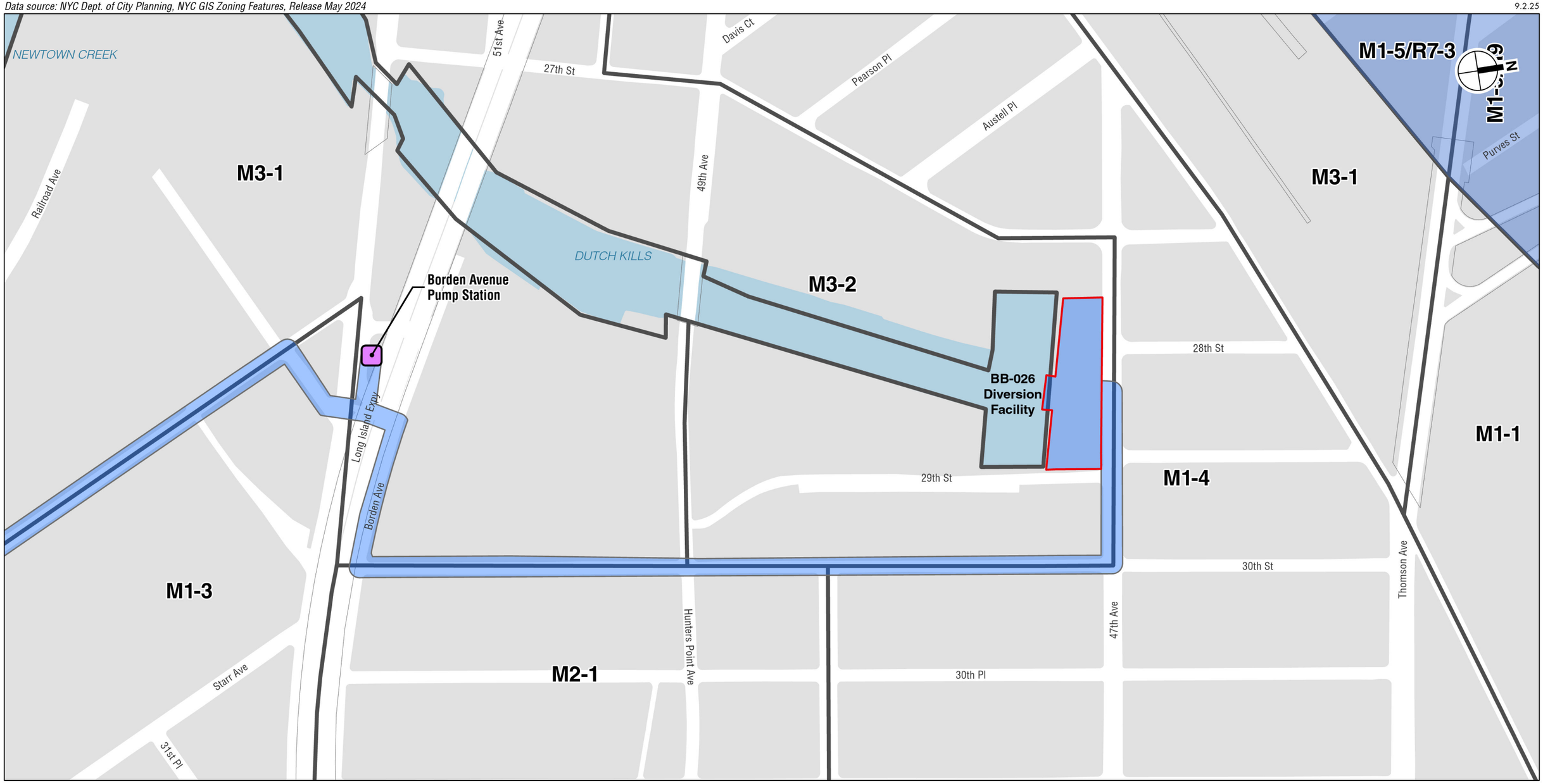
Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2a

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Diversion Facility Site

Zoning District Boundary

Special Long Island City Mixed Use District



0 200 FEET

Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2b

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Zoning District Boundary

Approximate Drop Shaft Location



0 200 FEET

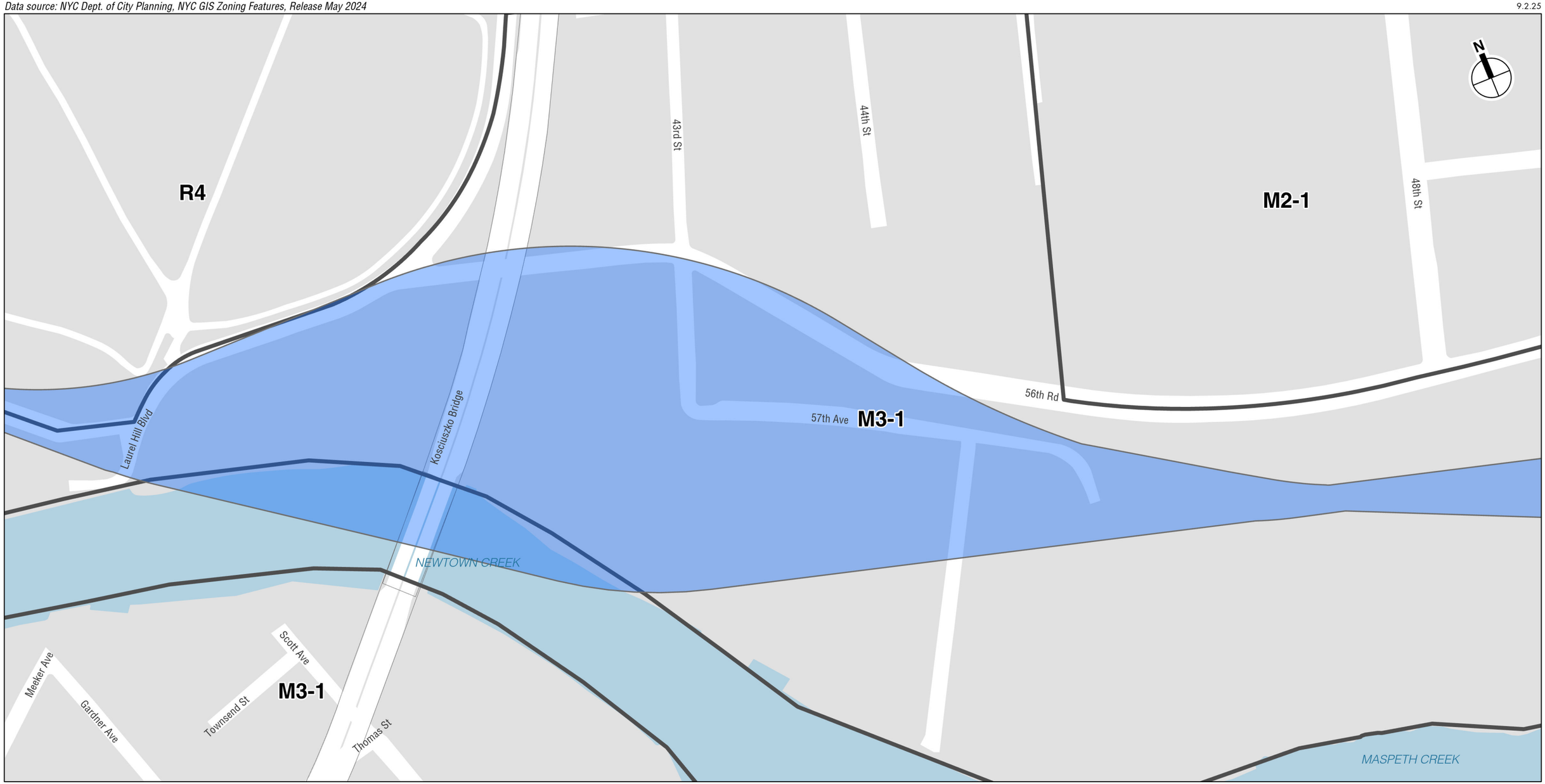
Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2c

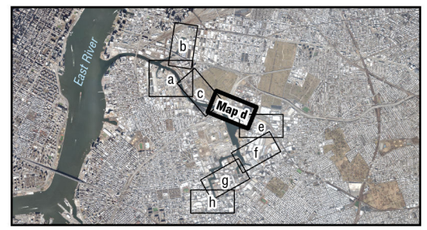
Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Zoning District Boundary



0 200 FEET

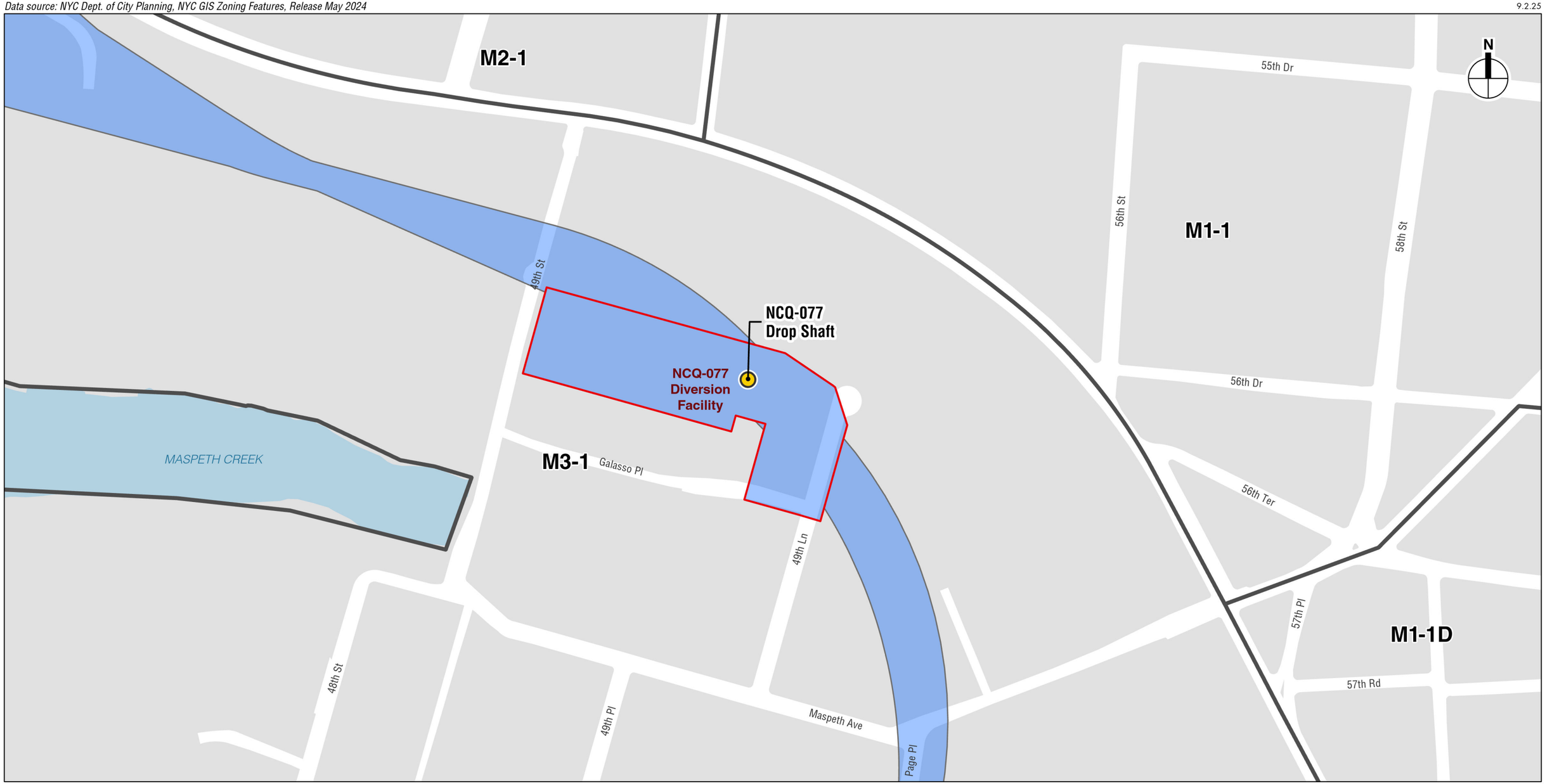
Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2d

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25

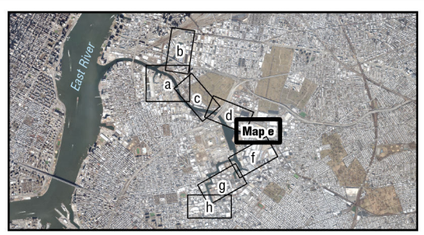


Project Limits

Diversion Facility Site

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

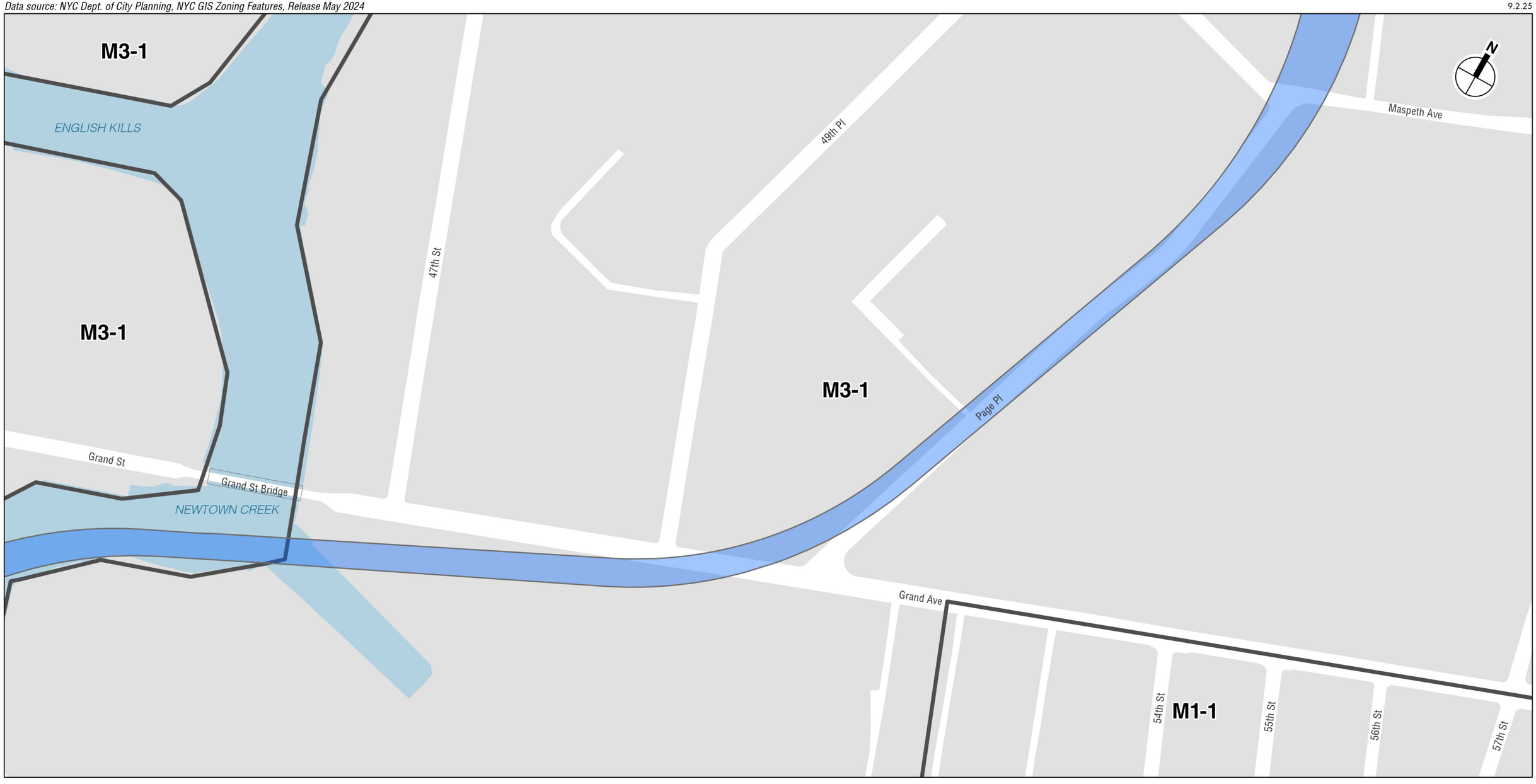
Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2e

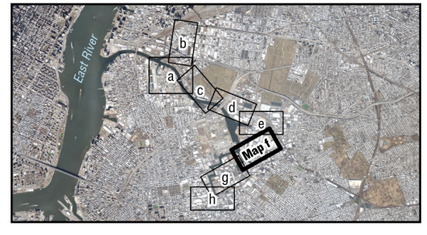
Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25



Project Limits

Zoning District Boundary



0 200 FEET

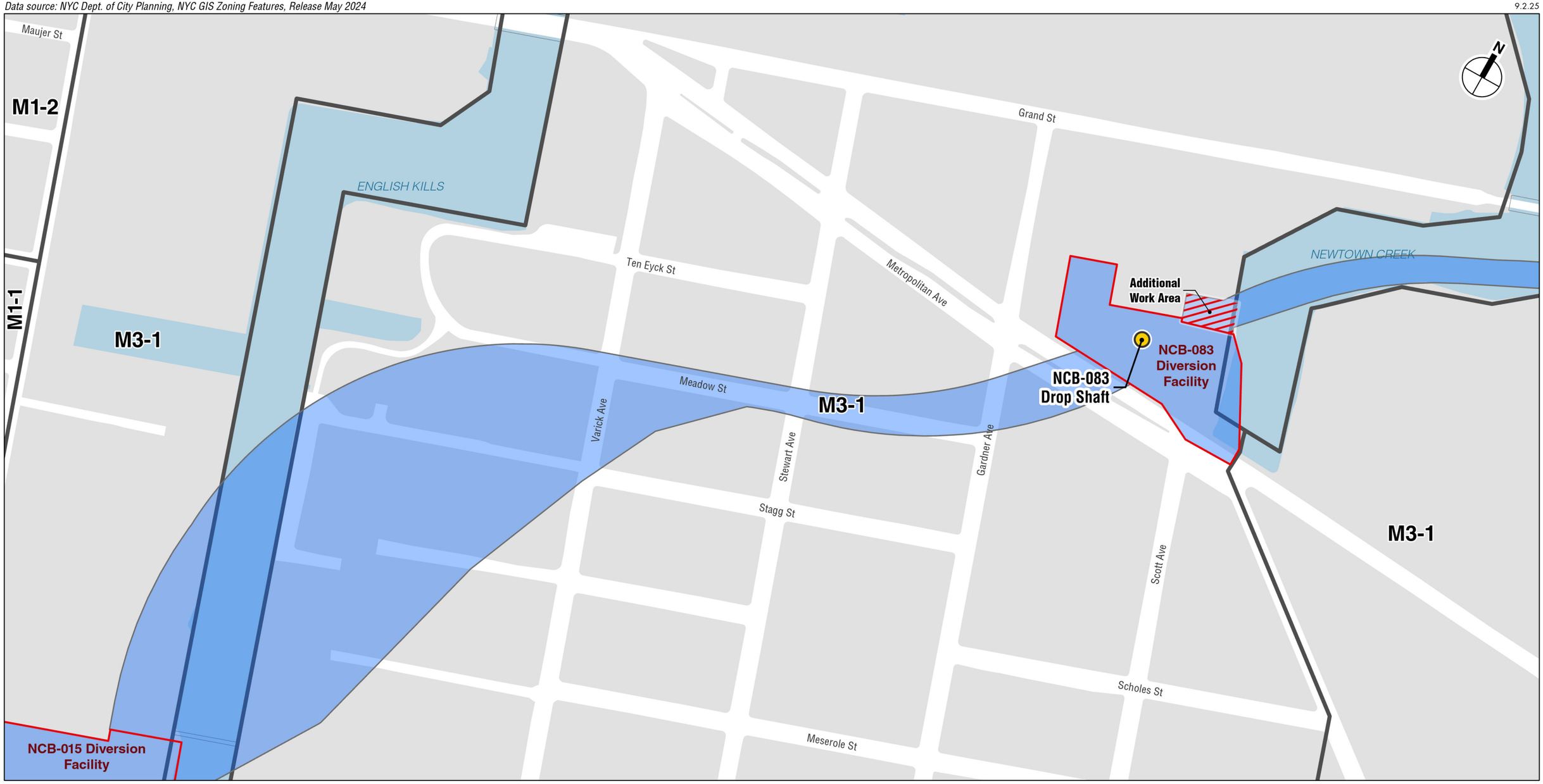
Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2f

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25

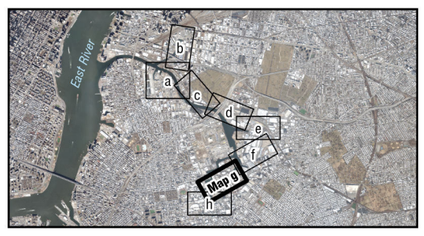


Project Limits

Diversion Facility Site

Approximate Drop Shaft Location

Zoning District Boundary



0 200 FEET

Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2g

Data source: NYC Dept. of City Planning, NYC GIS Zoning Features, Release May 2024

9.2.25

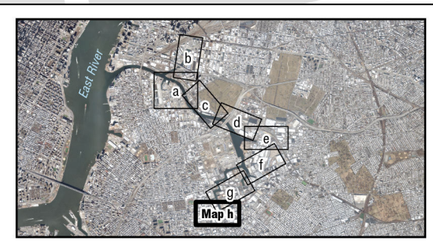


Project Limits

Diversion Facility Site

Approximate Drop Shaft Location

Zoning District Boundary



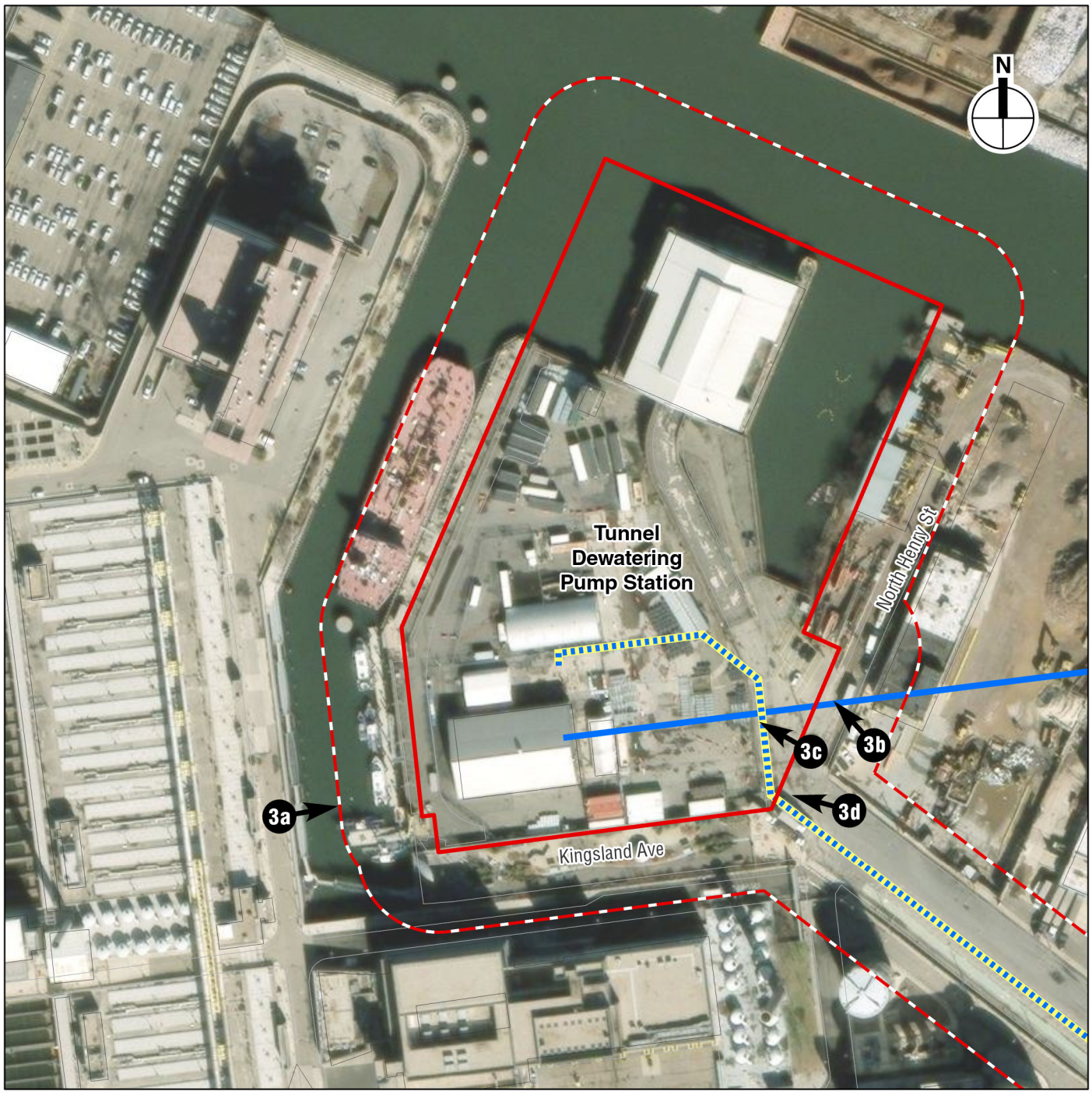
0 200 FEET

Proposed Project

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-2h

9.2.25



Tunnel Dewatering Pump Station (TDPS Site)

Potential CSO Tunnel Alignment

TDPS Discharge Pipe

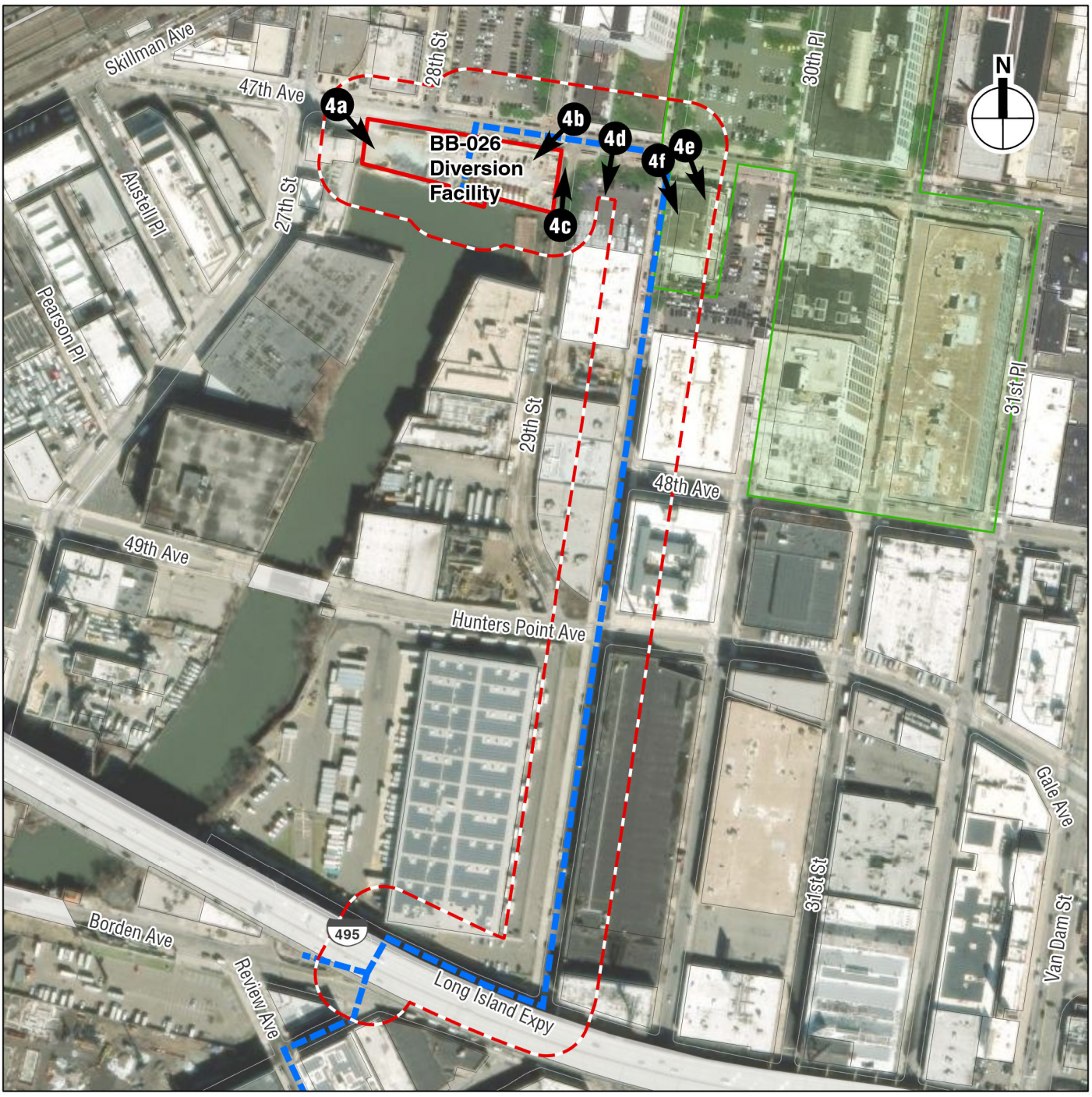
90-foot perimeter

Photograph View Direction and Reference Number

0 200 FEET

TDPS Site and Study Area

9.3.25



BB-026 Diversion Facility

Gravity Diversion Sewer

90-foot perimeter

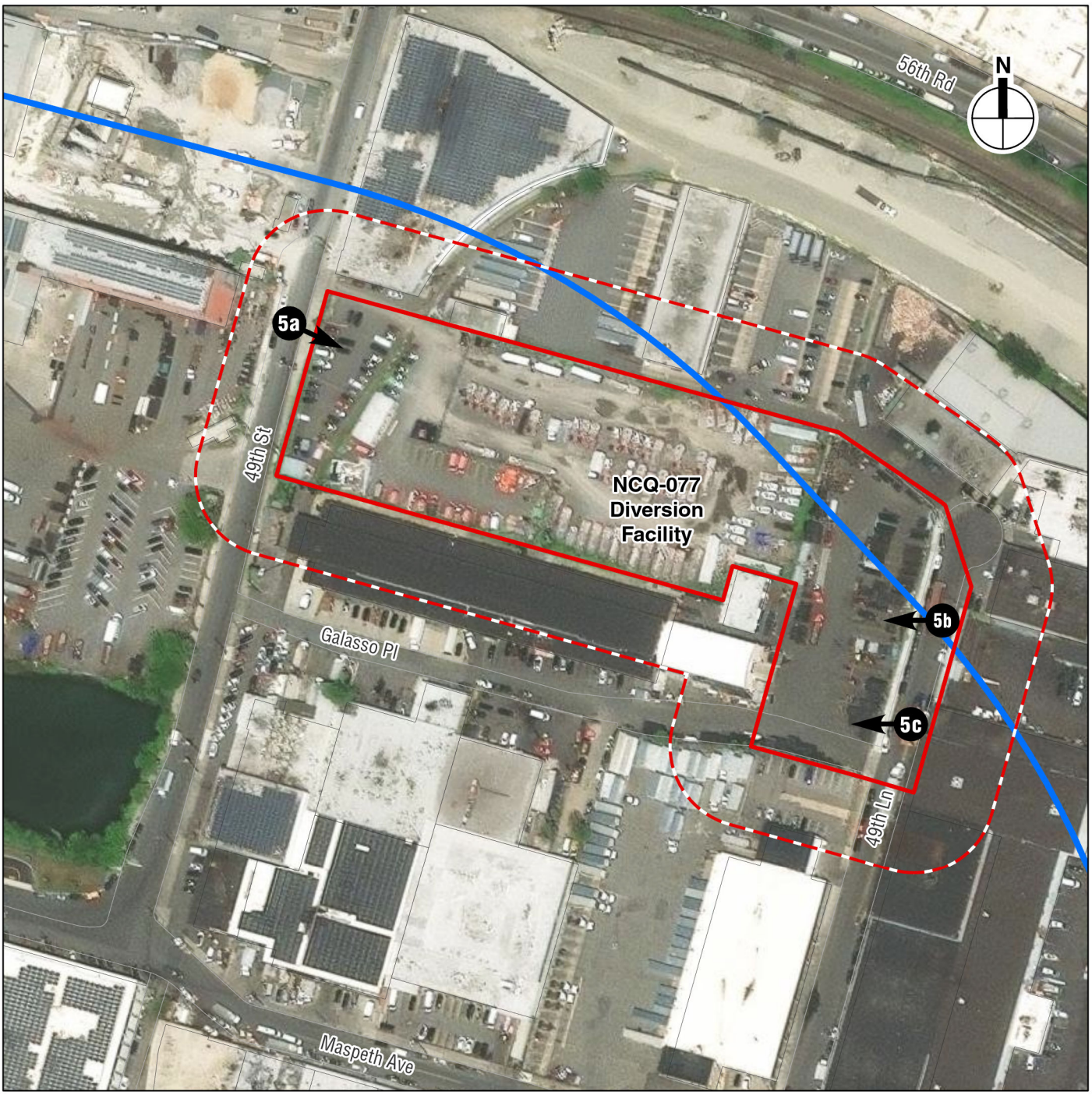
Degnon Terminal Historic District (S/NR - eligible)

Photograph View Direction and Reference Number

0 200 FEET

BB-026 Site and Gravity Diversion Sewer and Study Area

9.2.25



NCQ-077 Diversion Facility

Potential CSO Tunnel Alignment

90-foot perimeter

Photograph View Direction and Reference Number

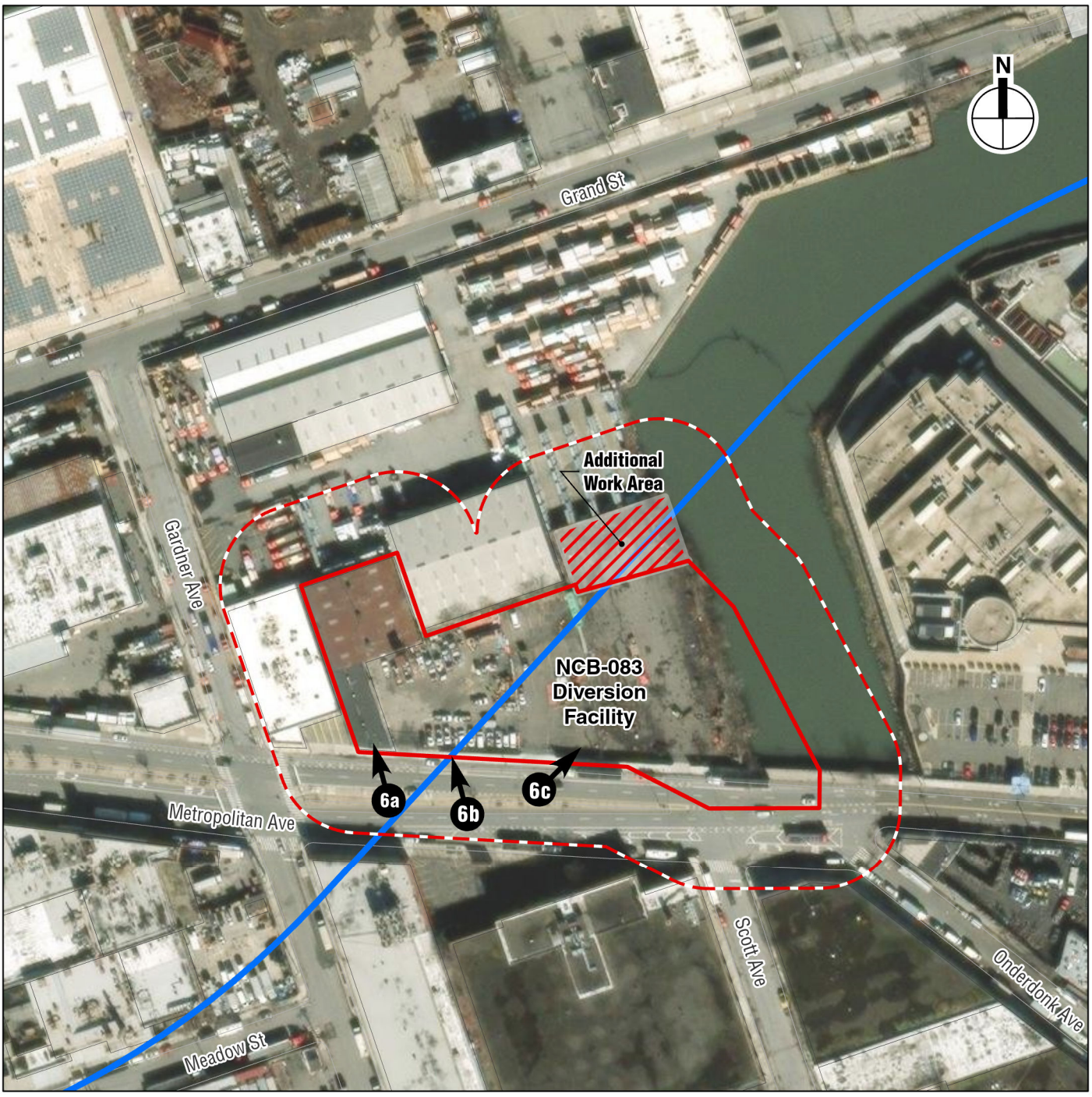
0 200 FEET

NCQ-077 Site and Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-5

9.2.25



NCB-083 Diversion Facility

Potential CSO Tunnel Alignment

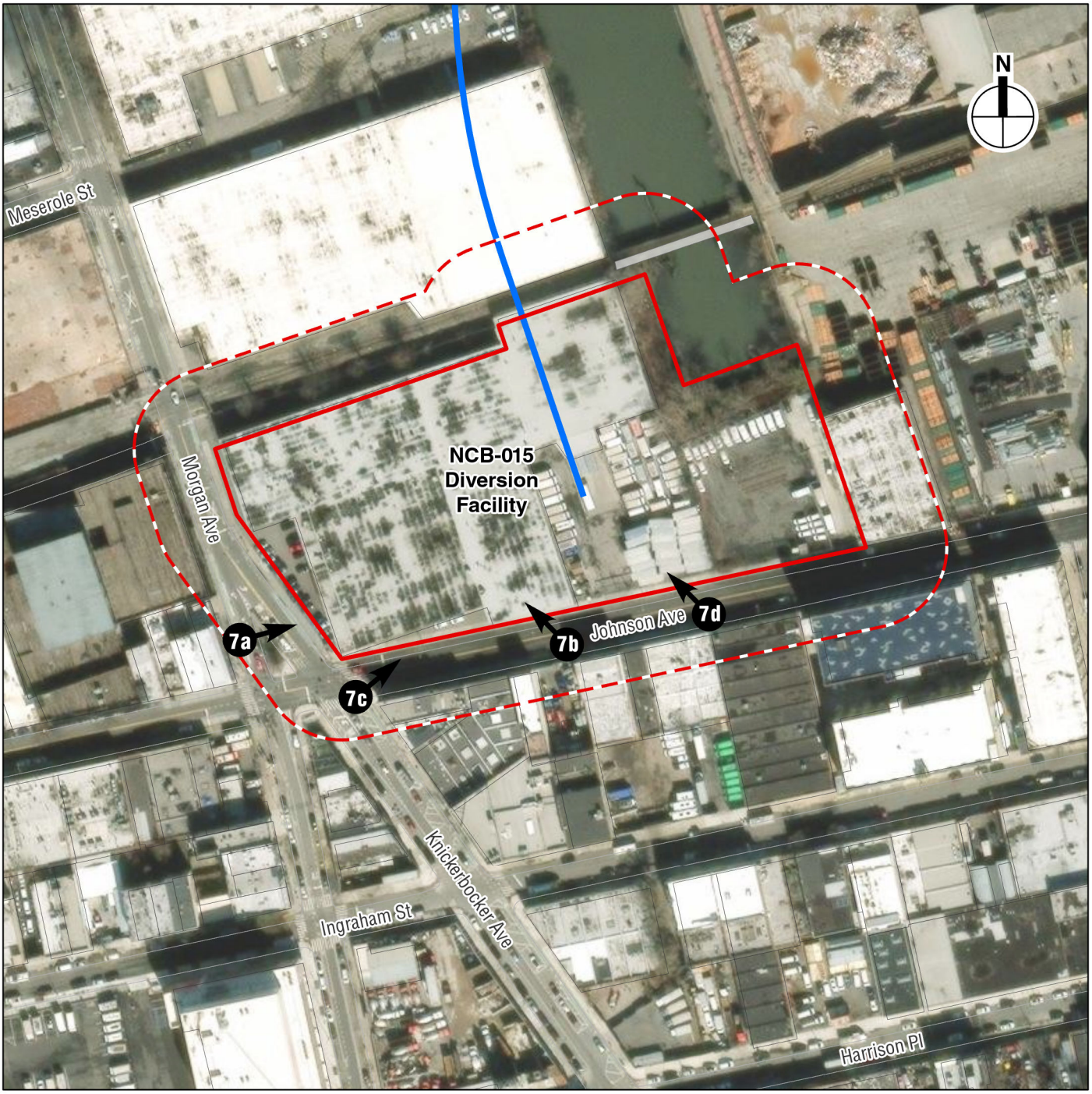
90-foot perimeter

Photograph View Direction and Reference Number

0 200 FEET

NCB-083 Site and Study Area

9.2.25



NCB-015 Diversion Facility

Potential CSO Tunnel Alignment

90-foot perimeter

Photograph View Direction and Reference Number

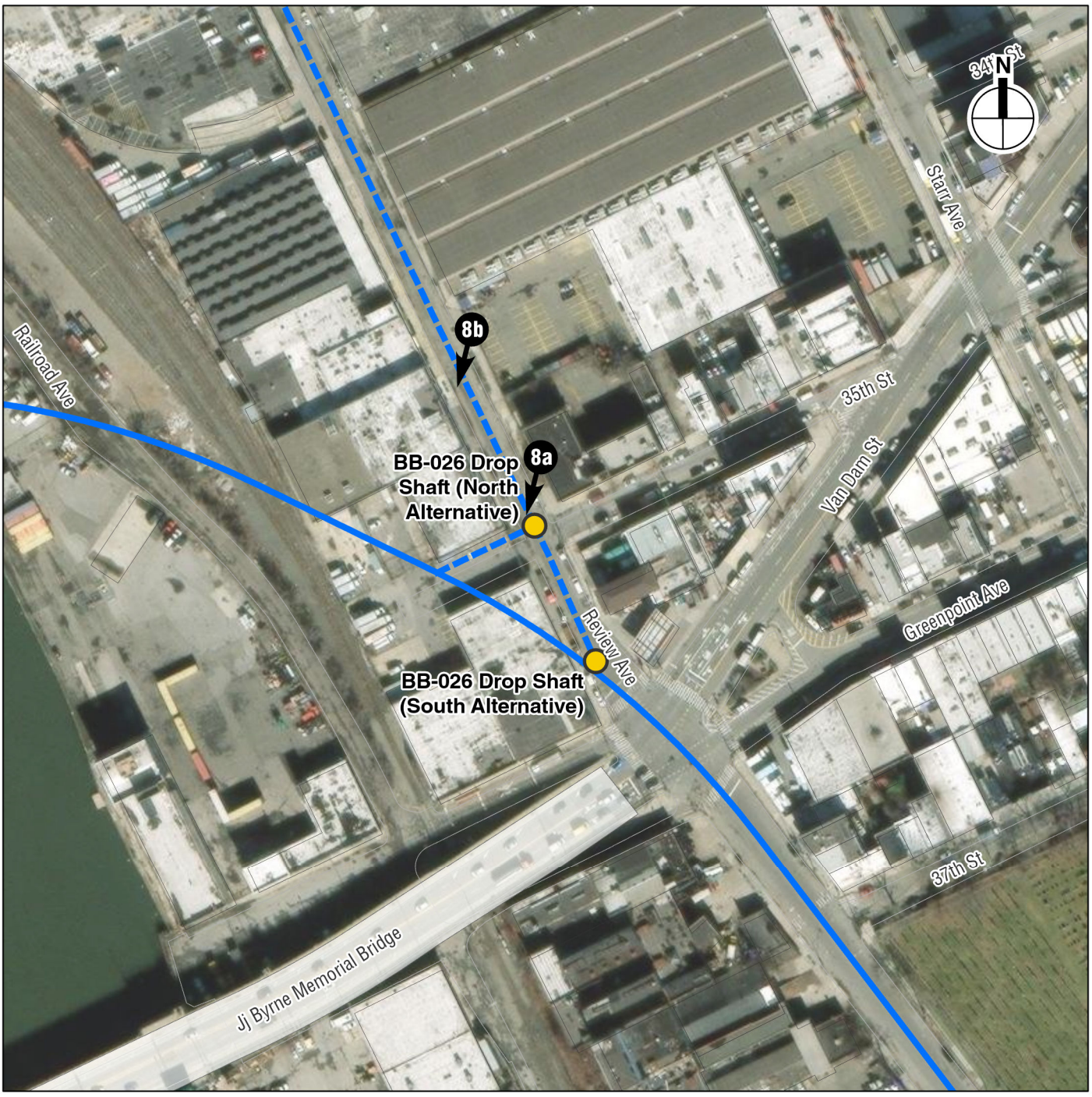
0 200 FEET

NCB-015 Site and Study Area

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-7

9.2.25



BB-026 Drop Shaft

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-8

9.2.25



TDPS Discharge Pipe

90-foot perimeter

Photograph View Direction and Reference Number

0 200 FEET

TDPS Drainage Pipe

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 9-9

ARCHITECTURAL RESOURCES

There are no known or potential historic architectural resources on the project sites; therefore, the Proposed Project would not result in any significant adverse impacts to historic architectural resources on the project sites. In its August 7, 2025 comment letter, SHPO determined that the Proposed Project "will have No Adverse Effect on historic or archaeological resources" with the following conditions:

1. Provide a Construction Protection Plan (CPP) for work taking place adjacent to the industrial building and garage at 47-09 30th Street, a contributing building within Degnon Terminal Historic District (State/National Register of Historic Places-eligible [S/NR-eligible]) and the Miller Building (S/NR-eligible) at 425 Greenpoint Avenue;
2. Provide design drawings for the above-ground structures being constructed within 90 feet of any historic resources for SHPO's continued review (see **Appendix D**).

There are two known architectural resources in the study areas. The industrial building and garage complex at 47-09 30th Street is located within the S/NR-eligible Degnon Terminal Historic District. This resource is located in the study area of the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station. A CPP would be prepared and implemented during project construction to protect this architectural resource from inadvertent construction-related damage. The S/NR-eligible Miller Building at 425 Greenpoint Avenue is located within 90 feet of the gravity discharge pipe. Should the portion of the gravity discharge pipe be constructed using a cut and cover method within 90 feet of the Miller Building, a CPP would also be prepared and implemented to protect the Miller Building from any unintended construction-related impacts (e.g., vibration effects) to this architectural resource. With the implementation of a CPP, there would be no significant adverse impacts on these historic architectural resources. There are no other known or potential architectural resources in any study areas; therefore, the Proposed Project would not result in any significant adverse impacts on historic architectural resources.

C. METHODOLOGY

ARCHAEOLOGICAL RESOURCES

The study area for archaeological resources includes those areas that would be disturbed by subsurface excavation and, for the purposes of this analysis, includes the project areas in their entirety, including the locations of all pipelines and associated infrastructure. Archaeological resources include material culture and other physical remnants of past human activities on a site. Precontact archaeological resources are those that date to the time before the region was colonized by Europeans and which are associated with the Indigenous populations that used or occupied a site. Archaeological resources can also include material culture associated with activities that occurred during the historic period, which began with the European colonization of what is now New York City in the 17th century. On sites where development (including the construction and demolition of buildings, landfilling, and other landscape modifications) occurred at some point during the past, archaeological resources may have been disturbed or destroyed by grading, excavation, infrastructure installation, and tidal action/erosion.

However, archaeological deposits can also be sealed beneath the ground surface, protected from further disturbance; archaeological investigations can be designed to further investigate those deposits.

Archaeological investigations in New York City typically proceed in a multi-phase process consisting of three phases: Phase 1—determining the presence or absence of archaeological resources through documentary research and field testing; Phase 2—gathering sufficient information to assess the eligibility of an archaeological site for listing on the S/NR, the criteria used by LPC to determine a site's archaeological significance; and Phase 3—mitigating unavoidable effects through data recovery or another form of mitigation. The need for advancing to an additional phase of work is dependent upon the results of the preceding phase. In urban contexts, the first phase of work is typically divided into two phases, the Phase 1A Study, which involves documentary research, and the Phase 1B, which involves field-testing to confirm the results of the Phase 1A Study.

AGENCY CONSULTATION PERTAINING TO ARCHAEOLOGICAL RESOURCES

As stipulated by the *CEQR Technical Manual,* for all projects subject to CEQR that will involve subsurface disturbance in undisturbed areas, consultation must be initiated with LPC to obtain a preliminary determination of the project site's potential archaeological significance and to determine if an archaeological investigation is required. As the Proposed Project would involve subsurface disturbance in areas that may not have been previously disturbed consultation was initiated with LPC. In comment letters dated September 26, 2024 and February 24, 2025, LPC determined that of the sites that may be affected by the construction of the Proposed Project, Block 2520, Lots 6, 22, and 30 and Block 2508, Lot 1 and the streetbeds of Laurel Hill Boulevard and Review Avenue adjacent to these parcels are potentially archaeologically significant given the potential for the presence of archaeological resources associated with Calvary Cemetery on those sites (see **Appendix D**). LPC therefore requested the preparation of a documentary study for those areas. LPC determined that they have no further archaeological concerns for the remainder of the parcels. To satisfy LPC's comments, a Phase 1A Study of the area identified by LPC was prepared by AKRF in March 2025.[1] The Phase 1A Study Area includes the portion of the tunnel alignment that extends through Block 2520, Lots 6, 22, and 30 and Block 2508, Lot 1 and portions of the adjacent streetbeds as shown on **Figure 9-1a.** As a result of a follow-up conversation with LPC, it was determined that given the depth of the proposed tunnel below Review Avenue and the significant difference in grade between the adjacent cemetery and the road surface, that portion of the streetbed did not need to be included in the Phase 1A Study Area. In a comment letter issued on July 21, 2025, LPC determined that minor revisions to the proposed tunnel alignment would not affect areas of archaeological sensitivity (see **Appendix D**).

The Proposed Project will also require state and federal permits, approvals, and financing, including a Stormwater Pollutant Discharge Elimination System (SPDES) permit. As such, additional consultation

[1] AKRF (2024): "Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel Project; Part of Block 2520, Lots 6, 22, And 30 and Block 2508, Lot 1, Borough of Queens, Queens County, New York: Phase 1A Archaeological Documentary Study." Prepared for: New York City Department of Environmental Protection; Flushing, NY.

will be initiated with SHPO pursuant to the New York State Environmental Quality Review Act (SEQRA); Section 14.09 of the New York State Historic Preservation Act (NYSHPA); and Section 106 of the NHPA (Section 106). In comments issued through the New York State Cultural Resource Information System (CRIS) on February 25, 2025, SHPO requested a Phase 1A Study of the Block 2520, Lots 6, 22, and 30 and Block 2508, Lot 1/the Phase 1A Study Area as described previously. SHPO similarly did not have concerns regarding archaeological resources for the remainder of the parcels that would be affected by the construction of the Proposed Project.

ARCHITECTURAL RESOURCES

Consistent with the guidance of the *CEQR Technical Manual*, in order to determine whether proposed actions could potentially affect architectural resources, this section assesses whether the Proposed Project would result in a physical change to any resource, a physical change to the setting of any architectural resource (such as context or visual prominence), and, if so, whether the change is likely to alter or eliminate the significant characteristics of the resource that make it important.

Impacts on architectural resources can include both direct physical impacts and indirect impacts. Direct impacts include damage from vibration (i.e., from construction blasting or pile driving) and additional damage from adjacent construction that could occur from falling objects, subsidence, collapse, or damage from construction machinery. As defined in the New York City Department of Buildings (DOB)'s *Technical Policy and Procedure Notice (TPPN) #10/88,* adjacent construction is defined as any construction activity that would occur within 90 feet of an architectural resource.[2]

Indirect impacts on architectural resources are contextual or visual impacts that could result from project construction or operation. As described in the *CEQR Technical Manual*, indirect impacts could result from blocking significant public views of a resource; isolating a resource from its setting or relationship to the streetscape; altering the setting of a resource; introducing incompatible visual, audible, or atmospheric elements to a resource's setting; or introducing shadows over a historic landscape or an architectural resource with sun-sensitive features that contribute to that resource's significance (e.g., a house of worship with stained-glass windows).

Study areas for architectural resources are determined based on the area of potential effect for construction period impacts, as well as the larger area in which there may be visual or contextual impacts. For the purposes of environmental review and impact assessment, historic architectural resources are defined as properties listed on the S/NR or determined S/NR-eligible or properties contained within a S/NR-listed or S/NR-eligible historic district, and properties recommended by the New York State Board for listing on the S/NR; New York City Landmarks (NYCLs), Interior Landmarks, Scenic Landmarks, and New York City Historic Districts (NYCHDs), and properties pending such designation; and National Historic Landmarks (NHLs). Additionally, a survey of the

[2] *TPPN #10/88* was issued by DOB on June 6, 1988, to supplement New York City Building Code regulations with regard to historic structures. *TPPN #10/88* outlines procedures for the avoidance of damage to historic structures resulting from adjacent construction, defined as construction within a lateral distance of 90 feet from the historic resource.

study area was conducted to identify any previously undesignated properties that appear to meet S/NR or NYCL eligibility criteria ("potential architectural resources"). The Proposed Project involves the construction of a 3.26-mile-long tunnel and supporting infrastructure comprising the CSO tunnel alignment, gravity diversion sewers, a Tunnel Dewatering Pump Station (TDPS), four diversion facility sites, and drop shafts. The visibility of the Proposed Project would be limited to the facilities containing above ground structures and the areas immediately adjacent to these facilities. Therefore, to account for any potential physical and contextual impacts on architectural resources, the study area has been defined as the area within 90 feet of the segments of the gravity diversion sewer and the TDPS discharge pipe are conservatively anticipated to be constructed using a cut and cover method; the TDPS and diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015; and the BB-026 drop shaft site as shown in **Figures 9-1 through 9-9**.

D. EXISTING CONDITIONS

The project sites include the proposed CSO tunnel alignment, gravity diversion sewer, a TDPS site, four diversion facilities along with drop shafts, and a separate drop shaft site for diversion facility BB-026 (see **Figures 9-1 through 9-9**). The tunnel would be constructed between 80 and 130 feet below grade using a tunnel boring machine (TBM) and would not be expected to affect historic architectural resources. Therefore, no further assessment of architectural resources along the CSO tunnel alignment is warranted. The segment of the gravity diversion sewer between the Borden Avenue Pump Station and the drop shaft for diversion facility BB-026 would also be micro-tunneled below grade and would not be expected to affect historic architectural resources.[3] The gravity diversion sewer segment within the roadbed of 30th Street between 47th Avenue and the Borden Avenue Pump Station is conservatively anticipated to be constructed using a cut and cover method. The TDPS gravity discharge pipe between the TDPS Site and the Newtown Creek WRRF would be located within the roadbeds of Kingsland and Greenpoint Avenues and are also conservatively anticipated to be constructed using a cut and cover method. Therefore, the segments of the gravity diversion sewer and TDPS gravity discharge pipe anticipated to be constructed using a cut and cover method have the potential to affect historic architectural resources, as presented in the analysis below. The TDPS and diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015, and the drop shaft for diversion facility BB-026 also have the potential to affect historic architectural resources, as described below. In comments dated September 26, 2024, LPC determined that the project sites have no architectural significance (see **Appendix D**).

ARCHAEOLOGICAL RESOURCES

The Phase 1A Study Area includes the portion of the tunnel alignment that extends through Block 2520, Lots 6, 22, and 30 and Block 2508, Lot 1 and portions of the adjacent streetbeds (see **Figure 9-1a**). The

[3] As described in Chapter 1, "Project Description," micro-tunneling would generally be at depths ranging between 40 and 50 feet below grade.

conclusions of the Phase 1A Study are summarized below. In comment letters issued on April 1, 2025 and May 5, 2025, respectively, LPC and SHPO concurred with the conclusions of the Phase 1A Study.

DEVELOPMENT HISTORY AND ASSESSMENT OF PREVIOUS DISTURBANCE

The Phase 1A Study concluded that the Phase 1A Study Area was historically situated in a waterfront area with a rolling, hilly landscape and areas of inundated wetland and marsh. Between the early 17th century and the early 19th century, the area was primarily used for agricultural purposes. The Alsop family was associated with a farmhouse on or near the Phase 1A Study Area for centuries. Intense industrial development along the northern shore of the Newtown Creek began in the early- to mid-19th century, resulting in the formation of the Blissville and Laurel Hill neighborhoods in the vicinity of the Phase 1A Study Area. In 1848, the Alsop family sold their farm to the Trustees of Saint Patrick's Cathedral, who founded Calvary Cemetery on the property. The original limits of the cemetery were smaller than its current limits but included the southern portion of what is now Block 2508, Lot 1, including that portion located in the Phase 1A Study Area. The cemetery gradually expanded and reached its modern limits by the early 20th century. The stone retaining wall that lines its southern side along Review Avenue was likely constructed in the late 19th or early 20th century. What is now Block 2520, Lots 6, 22, and 30 may have contained buildings associated with the Alsop farm and a 19th century railroad depot, but was mostly undeveloped in the late 19th century when they were acquired as part of the expansion of Calvary Cemetery. However, these lots do not appear to have been used for burials and were instead developed with commercial facilities associated with the funerary industry, including a tombstone manufacturing facility and a florist/greenhouse. By the 1930s, these lots were sold to a chemical manufacturing company and were subdivided and developed for industrial use later in the 20th century.

The Phase 1A Study therefore concluded that portions of the Phase 1A Study Area have experienced disturbance as a result of the construction and demolition of buildings, streets, railroad lines, and utilities, including the construction of the cemetery and related facilities and excavation that occurred to open graves, which would have disturbed older ground surfaces. The area was also subject to landscape modification associated with the transition of the area from rural farmland/wetland to a modern cemetery and industrialized urban neighborhood.

PRECONTACT PERIOD SENSITIVITY ASSESSMENT

As described in the Phase 1A Study, the precontact period sensitivity of project sites in New York City is generally evaluated by a site's proximity to level slopes, watercourses, well-drained soils, and previously identified precontact archaeological sites. The Phase 1A Study documented four previously identified archaeological sites have been identified within one mile of the Phase 1A Study Area, many of which were situated in the areas surrounding Newtown Creek and the associated waterways known as Dutch Kills and English Kills. The Phase 1A Study Area was historically located in an area where a hilly landscape transitioned into a marshy waterfront. The Phase 1A Study concluded that it is likely that the Phase 1A Study Area was in the vicinity of short- or long-term Indigenous occupation sites or resource exploitation or production areas. However, given the disturbance that has occurred across the majority of the Phase 1A Study Area as a result of the construction and demolition of buildings, streets,

paved ground surfaces and associated subsurface infrastructure in the 19th and 20th centuries, the Phase 1A Study Area was determined to have no sensitivity for precontact period archaeological resources.

HISTORIC SENSITIVITY ASSESSMENT

The Phase 1A Study Area was occupied by farmers and European colonizers by the early 17th century, and a portion of it extends beneath a portion of Calvary Cemetery where graves are located. However, the crown of the tunnel to be constructed within the Phase 1A Study Area would be situated at depths ranging between 110 and 120 feet below existing ground surface. Therefore, the Phase 1A Study concluded that the locations where the subsurface impacts would occur are significantly deeper than the depths of any graves or potentially sensitive soil strata. The Phase 1A Study therefore concluded that the soil levels that would be impacted by the construction of the proposed tunnel have no sensitivity for archaeological resources dating to the historic period and impacts to shallower soil levels in the location of the Phase 1A Study Area would not occur as a result of the Project.

ARCHITECTURAL RESOURCES

TDPS SITE

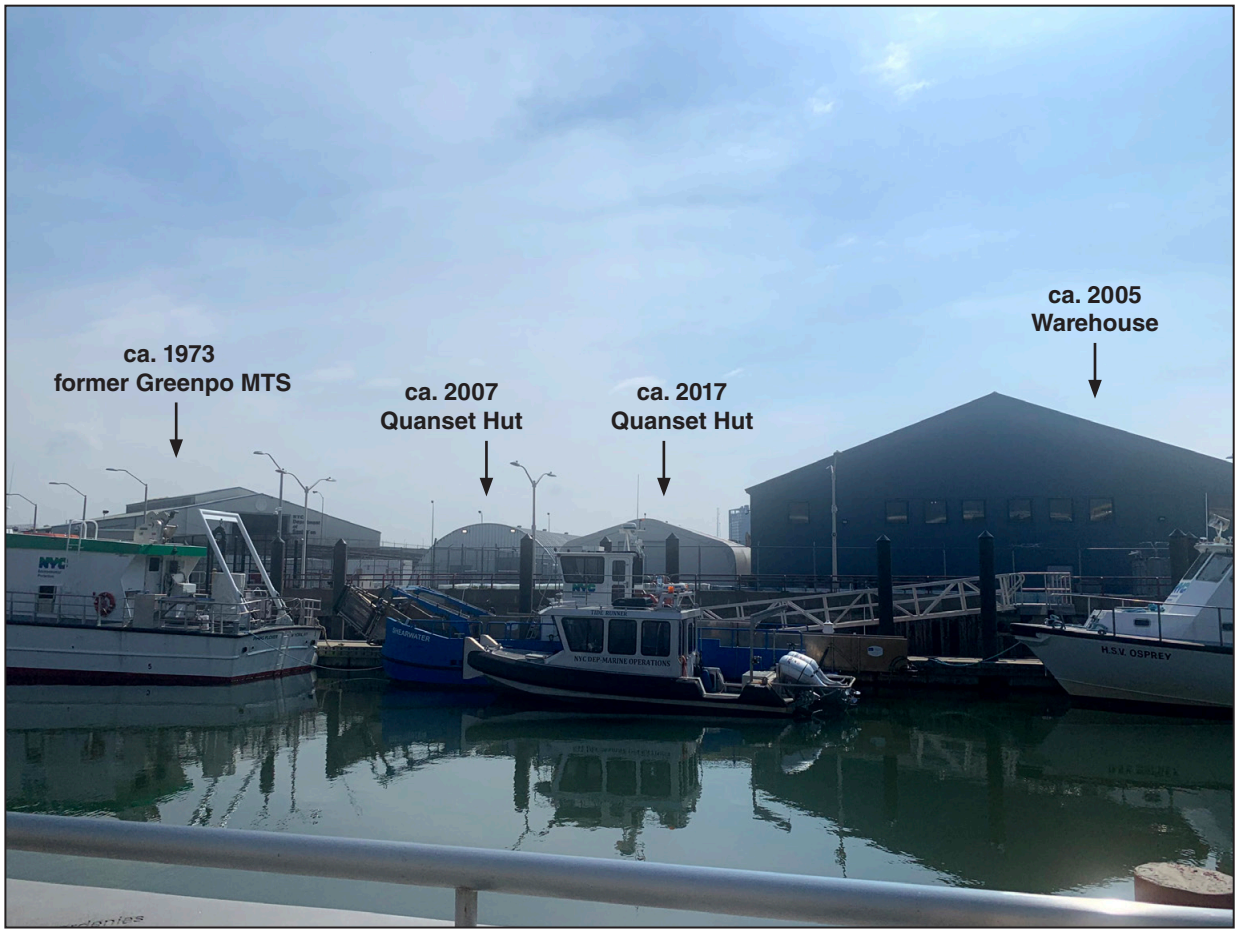
The TDPS site is located at 1 Kingsland Avenue (Brooklyn Block 2508, Lot 1) and occupied by the former Greenpoint Marine Transfer Station (MTS) and its access ramp, warehouses, docking facilities, and sludge handling facilities. The site contains four one- and two-story buildings (see **Figures 9-1, 9-2, 9-3, and 9-3a through 9-3d**). The former MTS is located on a peninsula at the north end of the site and is used for material storage and as a docking station for DEP boats. The former MTS industrial building is a large, one-story, double-height industrial warehouse that was built ca. 1973 and is faced in metal cladding with a pitched shed roof with clerestory windows (see **Figure 9-3a**). An approximately 270-foot-long ramp extends across the northeastern part of the site and connects to the former MTS. Located within the southwestern portion of the TDPS site is another large, one-story industrial warehouse; it was built ca. 2005, is faced in metal cladding, and has a low, wide pitched roof (see **Figure 9-3b and 9-3d**). Two additional structures are located on the site: a one-story Quonset hut, ca. 2017, with a rounded roof, and located north of the ca. 2005 industrial warehouse; and a Quonset hut ca. 2007 that is east of the ca. 2005 warehouse (see **Figures 9-3b through 9-3d**). Only the former MTS structure meets the S/NR age criteria as it is more than 50 years old; however, the structures on the TDPS site are not considered potential historic resources. Further, the structures on the TDPS site do not have architectural or historical significance. In a comment letter dated May 30, 2025, SHPO noted that "all existing structures located on this block and lot [Block 2508, Lot 1] are Not Eligible to be listed in the State and National Registers of Historic Places" (see **Appendix D**). In comments dated September 26, 2024, LPC determined that the project sites have no architectural significance (see **Appendix D**). Therefore, there are no known or potential architectural resources on the TDPS site.

Study Area (90 Feet)

The study area for the TDPS site includes portions of Whale Creek and Newtown Creek, and an industrial building at 540 Kingsland Avenue (Block 2517, Lot 35). The large, two-story rectangular building, which dates from ca. 1912, was formerly part of the Standard Oil Company. However, the



View northwest to the large, ca. 1973 one-story former Greenpoint Marine Transfer Station (MTS) industrial building and access ramp



View east across Whale Creek to the large, ca. 2005 one-story industrial warehouse



View northwest to the ca. 2017 one-story Quanset hut with a rounded roof located north of the ca. 2005 warehouse



View northwest to the ca. 2007 one-story Quanset hut located east of the ca. 2005 warehouse

building has been substantially altered with infilled window openings and non-original window openings on its street-facing façades. In 2012 and 2018, SHPO made an "undetermined" finding. Due to the building's substantial alterations, it does not appear to meet criteria for listing on the S/NR or for NYCL designation. Therefore, there are no known or potential architectural resources in the TDPS facility site study area.

DIVERSION FACILITIES

The Proposed Project includes four diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

BB-026 Diversion Facility Site

The site for the diversion facility associated with outfall BB-026 (Queens Block 115, portions of Lots 56 and 86, and Lot 150) is located on the north edge of Dutch Kills (see **Figures 9-1, 9-2b, 9-4, and 9-4a through 9-4d**). The portion of Lot 56 that is part of the diversion facility site is a paved area that is part of a concrete facility (see **Figure 9-4a**). The portions of Lot 86 and Lot 150 do not contain any built structures. Lot 86 is oriented toward 29th Street and contains a small community garden fronting on 47th Avenue, a paved access road along 29th Street, and parking. Lot 150 is a paved storage yard oriented along 47th Avenue and 29th Street (see **Figures 9-4b through 9-4d**). There are no buildings on the proposed BB-026 diversion facility site; therefore, there are no known or potential architectural resources on the proposed BB-026 diversion facility site.

Study Area (90 Feet)

There are no known architectural resources in the BB-026 diversion facility site study area. The portion of Lot 56 that is west of the BB-026 diversion facility site contains two buildings that are part of the concrete facility at 47-17 27th Street. The building at the corner of 47th Avenue and 27th Street is a two-story industrial building that was built ca. 1937 and is faced in metal cladding, with four silo structures attached to the northern façade. The other building on Lot 56 is a one-story garage with a square footprint and garage openings fronting on 27th Street. A silo structure is located southeast of this building and connects to a gravel conveyer structure that extends to the east of the building. The remainder of the study area is characterized by one- and two-story older industrial warehouses that are faced in brick, have no or minimal historic architectural features, have been altered with alterations to window and door openings, and have metal roll down gates at the garage and window openings. The buildings in the BB-026 diversion facility site study area are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

NCQ-077 Diversion Facility Site

The site for the diversion facility associated with outfall NCQ-077 is located on the eastern part of Maspeth Creek between 49th Street and 49th Lane (Queens Block 2575, Lots 26, 225, and 240) and is currently occupied by surface parking facilities (see **Figures 9-1, 9-2, 9-5, and 9-5a through 9-5c**). There are no buildings on the proposed NCQ-077 diversion facility site; therefore, there are no known or potential architectural resources on the proposed NCQ-077 facility site.



View southeast from 47th Avenue

BB-026 Site Photographs



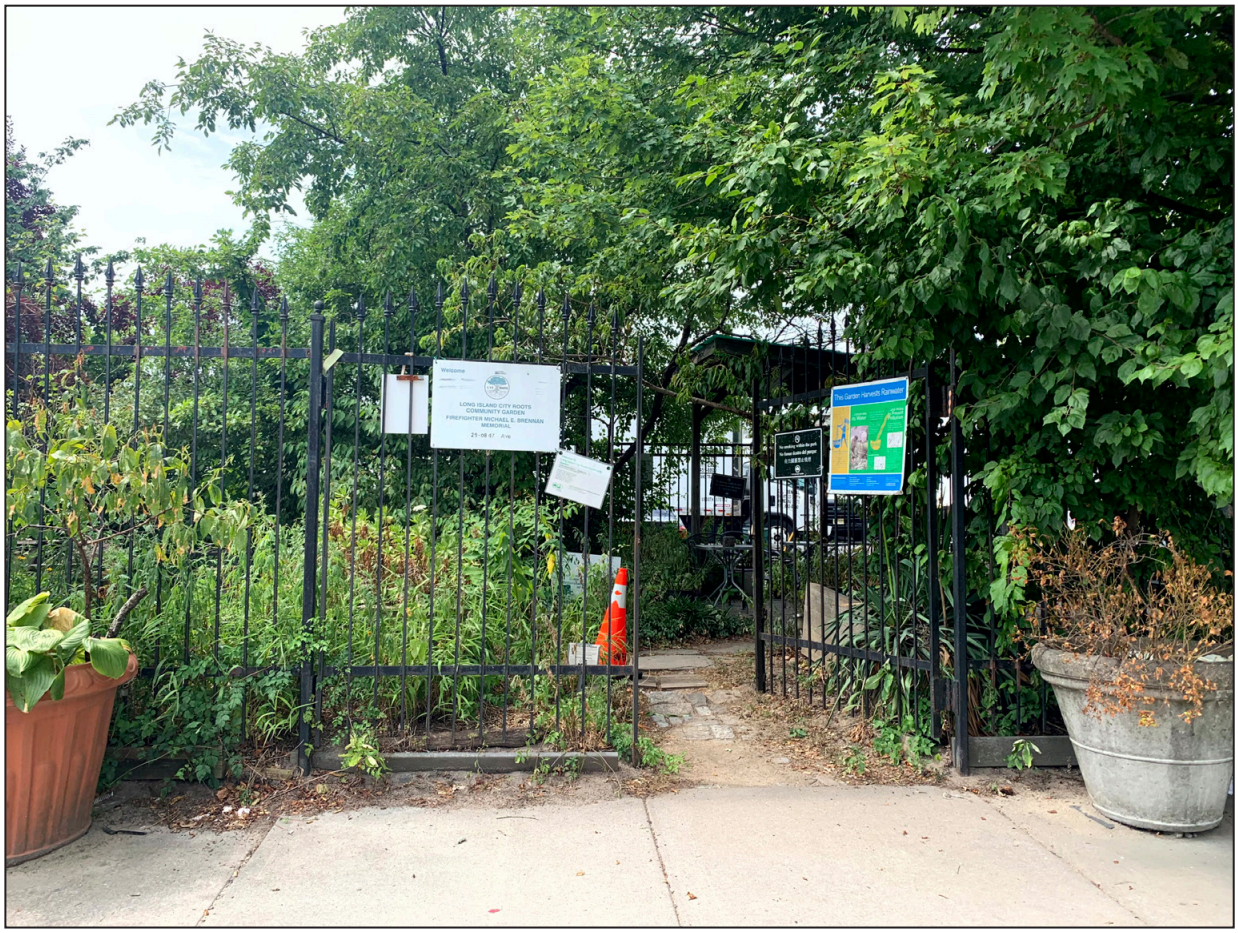
View southwest form 47th Avenue and 29th Street

BB-026 Site Photographs



View north on 29th Street

BB-026 Site Photographs



View south on 47th Avenue to the community garden between 29th and 30th Streets

BB-026 Site Photographs



View A – View southeast from 47th Avenue and 30th Street to the industrial building and garage at 47-09 30th Street in the Degnon Terminal Historic District (S/NR-eligible

BB-026 Site and Gravity Diversion Sewer Study Area
Photographs



View B – View southeast on 30th Street to the industrial building and garage at 47-09 30th Street in the Degnon Terminal Historic District (S/NR-eligible)

BB-026 Site and Gravity Diversion Sewer Study Area
Photographs



View east from 49th Street

NCQ-077 Site Photographs



View west from 49th Lane

NCQ-077 Site Photographs



View west from 49th Lane

NCQ-077 Site Photographs

Study Area (90 Feet)

There are no known architectural resources in the NCQ-077 diversion facility site study area. The study area is an industrial neighborhood characterized by large one- and two-story older and newer industrial warehouses that are faced in brick or have metal cladding. The buildings are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

NCB-083 Diversion Facility Site

The site for the diversion facility associated with outfall NCB-083 is located on the eastern branch of Newtown Creek at 1301 Metropolitan Avenue (Brooklyn Block 2948, Lot 85), and currently contains two vacant industrial buildings (see **Figures 9-1, 9-2, 9-6, and Figures 9-6a through 9-6c**). A one-story, early 20th century industrial building is located along Metropolitan Avenue and is faced in vinyl siding. Located immediately to the north is a one-story, early 20th century industrial building that is faced in metal and has an arched roof. The buildings on the NCB-083 diversion facility site have been altered with non-original siding and alterations to façade openings. The buildings are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation. In its May 30, 2025 comment letter, SHPO noted that "the two structures located at 1301 Metropolitan Avenue [Block 2948, Lot 85] are also Not Eligible" (see **Appendix D**). In comments dated September 26, 2024, LPC determined that the project sites have no architectural significance (see **Appendix D**). Therefore, there are no known or potential architectural resources on the proposed NCB-083 diversion facility site.

Study Area (90 Feet)

There are no known architectural resources in the NCB-083 diversion facility site study area. The study area is an industrial neighborhood that abuts Newtown Creek to the east, Metropolitan Avenue to the south, and a lumber yard to the north, and includes two large one-story industrial buildings that have no historic architectural features. The buildings are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

NCB-015 Diversion Facility Site

The site for the diversion facility associated with outfall NCB-015 is located on the southernmost part of Newtown Creek at 100 Knickerbocker Avenue and Johnson Avenue (Brooklyn Block 2974, Lots 162 and 170) (see **Figures 9-1, 9-2, 9-7 and Figures 9-7a through 9-7d**). Lot 162 is vacant. Lot 170 contains a large, one-story mid-20th century warehouse with an irregular footprint that is faced in brick and stone. The building on the NCB-015 diversion facility site is not architecturally or historically significant and does not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation. Further, the building is identified in CRIS as "not eligible" per a March 10, 2025 determination. In comments dated September 26, 2024, LPC determined that the project sites have no architectural significance (see **Appendix D**). Therefore, there are no known or potential architectural resources on the proposed NCB-015 diversion facility site.



View northwest from Metropolitan Avenue to the one-story, early 20th century industrial building

NCB-083 Site Photographs

Figure 9-6a



View north from Metropolitan Avenue to the one-story, early 20th century industrial building with an arched roof

NCB-083 Site Photographs



View northeast from Metropolitan Avenue to a paved parking area

NCB-083 Site Photographs

Figure 9-6c



View east from Morgan Avenue to the large, one-story mid-20th century warehouse

NCB-015 Site Photographs

Figure 9-7a



View northeast from Johnson Avenue to the large, one-story mid-20th century warehouse

NCB-015 Site Photographs

Figure 9-7b



View northwest from Johnson Avenue to the large, one-story mid-20th century warehouse

NCB-015 Site Photographs



View northwest from Johnson Avenue across a paved parking area to the large, one-story mid-20th century warehouse

NCB-015 Site Photographs

Study Area (90 Feet)

There are no known or potential architectural resources in the NCB-015 diversion facility site study area. The English Kills Railroad Bridge, which was built ca. 1905, is located within 90 feet of the NCB-015 diversion facility site. The bridge structure was evaluated by SHPO in 2012 and was identified in CRIS as "undetermined." As part of the review of the current Proposed Project, SHPO made a "not eligible" determination on April 11, 2025. In June 23, 2025 comments, LPC concurred with SHPO, finding that the bridge has "no significance." The study area is an industrial neighborhood characterized by a mix of large one- to four-story brick-faced industrial warehouses that have modified entrances and window openings and a few smaller commercial buildings with intact cornices that are faced in brick. The buildings are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

Gravity Diversion Sewer

The gravity diversion sewer is a below-grade pipeline that connects the BB-026 outfall in the north with the Borden Avenue Pump Station and the CSO tunnel to the south.

Segment between the BB-026 Diversion Facility Site and the Borden Avenue Pump Station and the Segment between the Borden Avenue Pump Station and the BB-026 Drop Shaft Site

These segments of the gravity diversion sewer are located within the roadbeds of 30th Street between 47th Avenue and Borden Avenue, extending west on Borden Avenue to the location of the Borden Avenue Pump Station at Review Avenue, Borden Avenue, and 29th Street and continuing between the Borden Avenue Pump Station and the BB-026 drop shaft site (see **Figures 9-1, 9-2a through 9-2c, 9-4, and 9-8**). The sewer alignment does not contain any built structures.

Study Area (90 Feet)

The study area of the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station is an industrial neighborhood that includes a small portion of the Degnon Terminal Historic District (S/NR-eligible) on the east side of 30th Street. The industrial building and garage at 47-09 30th Street is within the historic district and located within 90 feet of the gravity diversion sewer. The six-story portion of the building has frontages on both 30th Street and 47th Avenue. It is faced in brick with terra cotta detailing separating the window bays, each of which contains groupings of rectangular window openings. The garage portion is two stories, faced in brick, and has two large garage openings fronting on 30th Street (see **Figures 9-4, 9-4e, and 9-4f**). Also within the historic district is a small portion of a paved parking lot associated with the seven-story industrial warehouse at 30-20 Thomson Avenue. The building is located approximately 400 feet northeast of the gravity diversion sewer location. The segment between the Borden Avenue Pump Station and the BB-026 drop shaft site is in an industrial neighborhood. Apart from the industrial building and garage at 47-09 30th Street, the other buildings in the study area are a mix of older and newer industrial buildings that are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

Drop Shaft Site

The BB-026 diversion facility site's drop shaft would be located off site near Newtown Creek at Review Avenue and 35th Street, adjacent to Block 294, Lots 200 and 251. Two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration.

BB-026 Drop Shaft Site

Both potential locations for the drop shaft site are paved areas in the right-of-way on Review Avenue at 35th Street (see **Figures 9-1, 9-2c, 9-8, 9-8a, and 9-8b**). The two locations do not contain any built structures.

Study Area (90 Feet)

The drop shaft site study area is characterized by one- and two-story older industrial buildings that have been substantially altered, are not architecturally or historically significant, and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.

Gravity Discharge Pipe

The TDPS gravity discharge pipe is a below-grade pipeline that connects the TDPS Site to the north with the Newtown Creek WRRF to the south.

Gravity Discharge Pipe between the TDPS Site and the Newtown Creek WRRF

The gravity discharge pipe is conservatively anticipated to be constructed using a cut and cover method within the roadbeds of Kingsland and Greenpoint Avenues (see **Figures 9-1, 9-2a, 9-3, and 9-9**). The gravity discharge alignment does not contain any built structures.

Study Area (90 Feet)

The study area of the gravity discharge pipe is an industrial neighborhood that includes the Miller Building (S/NR-eligible) at 425 Greenpoint Avenue on the east side of Kingsland Avenue. The Miller Building is located within 90 feet of the gravity discharge pipe. The five-story building has frontages on both Greenpoint and Kingsland Avenues. Built ca. 1915, the building has a cast concrete structure, with its 10-bay-wide frontage on Greenpoint Avenue. A five-story penthouse structure extends above the center bays with "Miller Building" extending across the frontage of the top two floors. Much of the building's original architectural detailing has been covered in stucco and most windows have been infilled (see **Figures 9-3, 9-9, and 9-9a**). Other buildings in the study area are a mix of older and newer industrial buildings that are not architecturally or historically significant and do not appear to meet eligibility criteria for listing on the S/NR or for NYCL designation.



View northeast to the Miller Building at 425 Greenpoint Avenue

E. FUTURE WITHOUT THE PROPOSED PROJECT

ARCHAEOLOGICAL RESOURCES

In the No Action condition, it is assumed that the project areas would remain in their current condition, excepting the TPDS site, which would be vacated by DSNY. Therefore, the No Action condition would not result in significant adverse impacts on archaeological resources.

ARCHITECTURAL RESOURCES

In the No Action condition, the four diversion facility sites along with drop shafts, the gravity diversion sewer segment between the BB-026 diversion facility site and drop shaft and the Borden Avenue Pump Station, the separate drop shaft site for diversion facility BB-026, and the gravity discharge line between the TDPS Site and the Newtown Creek WRRF would remain unchanged. The TDPS site would be vacated by DSNY. No new development is expected in any of the study areas associated with these sites.

F. FUTURE WITH THE PROPOSED PROJECT

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

ARCHAEOLOGICAL RESOURCES

As described previously, the Phase 1A Study concluded that the Phase 1A Study Area is not sensitive for archaeological resources associated with the precontact period occupation of the area due to disturbance from historical and modern development and landscape modification. Within the Phase 1A Study Area, the tunnel would extend beneath a portion of Calvary Cemetery that contains burials and beneath an area that may have contained buildings associated with the historical agricultural usage of the area. However, the crown of the tunnel that is situated within the Phase 1A Study Area would be drilled horizontally at depths ranging between 110 and 120 feet below existing ground surface. Therefore, the Phase 1A Study concluded that the locations where the subsurface impacts would occur are significantly deeper than the depths of any graves or potentially sensitive soil strata and the soil levels that would be impacted by the construction of the proposed tunnel have no sensitivity for archaeological resources dating to the historic period. In comment letters issued on April 1, 2025 and May 5, 2025, respectively, LPC and SHPO concurred with the conclusions of the Phase 1A Study and determined that no further archaeological analysis is required. Further in a comment letter dated May 30, 2025, SHPO determined that the Proposed Project "will have No Adverse Effect on historic or archaeological resources" (see **Appendix D**). LPC and SHPO determined that the remainder of the parcels that would be impacted by the Proposed Project in addition to the Phase 1A Study Area are not archaeologically significant and would therefore require no further archaeological analysis. Therefore, construction of the Proposed Project would not result in significant adverse impacts on archaeological resources.

ARCHITECTURAL RESOURCES

TDPS Site

With the Proposed Project, the existing structures on the site would be demolished. The proposed TDPS facility would be constructed, including the tunnel; drop shafts, a pump station; screening, degritting, and odor control facilities; a tunnel overflow structure; and yard infrastructure. The pump station would be an approximately 99-foot-tall, approximately 80,500-gross-square-foot (gsf) structure, with the shorter, approximately 57-foot-tall screening facility extending to the east. The degritting facility would be approximately 54 feet tall. On August 7, 2025 SHPO issued a No Adverse Effect finding, with conditions, as described above. As there are no historic architectural resources within 90 feet of the TDPS site, the condition of the No Adverse Effect finding to "provide design drawings for the above-ground structures being constructed within 90 feet of any historic resources" for SHPO's continued review does not apply to the TDPS site (see **Appendix D**). The surface layout of the TDPS site is currently being designed; and use of the site would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as design advances in consideration of the functional and operational needs of the Proposed Project. As there are no known or potential architectural resources on the TDPS site, and further consultation with SHPO will be undertaken prior to final design of above-ground structures, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As there are no known or potential architectural resources in the TDPS site study area, construction of the proposed TDPS facility would have no significant adverse impacts on historic architectural resources.

Diversion Facilities

BB-026 Diversion Facility Site

With the Proposed Project, the BB-026 diversion facility site would be developed with largely below-grade infrastructure, including sewer lines, a diversion chamber, bending weirs, and an outfall structure. As there are no known or potential architectural resources on the BB-026 diversion facility site, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As there are no known or potential architectural resources in the BB-026 diversion facility site study area, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

NCQ-077 Diversion Facility Site

With the Proposed Project, the NCQ-077 diversion facility site would be developed with above-grade structures, including a control panel; a vent pipe; and low-scale access hatches associated with below-grade structures. While the site design is still being developed, it is anticipated that the new diversion facility would be screened by perimeter fencing. On August 7, 2025 SHPO issued a No Adverse Effect finding, with conditions, as described above. As there are no historic architectural resources within 90

feet of the NCQ-077 diversion facility site, the condition of the No Adverse Effect finding does not apply to the NCQ-077 site (see **Appendix D**). Therefore, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As there are no known or potential architectural resources in the NCQ-077 diversion facility study area, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

NCB-083 Diversion Facility Site

With the Proposed Project, the NCB-083 diversion facility site would be developed with above-grade structures, including a control panel; a vent pipe; and access hatches low to the ground associated with below-grade structures. While the site design is still being developed, it is anticipated that the new facility would be screened by perimeter fencing. On August 7, 2025 SHPO issued a No Adverse Effect finding, with conditions, as described above. As there are no historic architectural resources within 90 feet of the NCB-083 diversion facility site, the conditions of the No Adverse Effect findings does not apply to the NCB-083 diversion facility site (see **Appendix D**). Therefore, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As there are no known or potential architectural resources in the NCB-083 diversion facility site study area, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

NCB-015 Diversion Facility Site

With the Proposed Project, the NCB-015 diversion facility site would be developed with certain above-grade structures, including a control panel; a vent pipe; and access hatches low to the ground. While the site design is still being developed, it is anticipated that the new facility would be screened by perimeter fencing. On August 7, 2025 SHPO issued a No Adverse Effect finding, with conditions, as described above (see **Appendix D**). As there are no known or potential architectural resources on the NCB-015 diversion facility site, the condition of the No Adverse Effect finding does not apply to the NCB-015 diversion facility site. Therefore, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As part of its review of the Proposed Project, SHPO determined that the English Kills Railroad Bridge is not eligible for S/NR listing. In comments dated June 23, 2025, LPC concurred with SHPO, determining that the bridge has “no significance.” As there are no known or potential architectural resources in the NCB-015 diversion facility site study area, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Gravity Diversion Sewer

Segment between the BB-026 Diversion Facility Site and the Borden Avenue Pump Station and between the Borden Avenue Pump Station and the BB-026 Drop Shaft

With the Proposed Project, the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station are conservatively anticipated to be constructed approximately 15 to 25 feet below grade within the right-of-way using a cut and cover method. The segment between the Borden Avenue Pump Station and the BB-026 Drop Shaft would be micro-drilled below grade.[4] As there are no known or potential architectural resources within these gravity diversion sewer alignments, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

The industrial building and garage at 47-09 30th Street in the Degnon Terminal Historic District (S/NR-eligible) are located within 90 feet of the gravity diversion sewer segment that is conservatively anticipated to be constructed using a cut and cover method. Therefore, a CPP would be prepared in consultation with LPC and SHPO that would be implemented to avoid any unintended construction-related impacts (e.g., vibration effects) to the industrial building and garage. The CPP would be developed and implemented by a Professional Engineer prior to excavation and construction activities. The CPP would follow the guidelines set forth in Section 522 of Chapter 9, "Historic and Cultural Resources" of the *CEQR Technical Manual*. With the implementation of a CPP, construction of the proposed segment of the gravity diversion sewer between the BB-026 Diversion Facility Site and the Borden Avenue Pump Station and the segment between the Borden Avenue Pump Station and the BB-026 drop shaft would have no significant adverse impacts on historic architectural resources.

Drop Shaft Site

BB-026 Drop Shaft Site

In the future with the Proposed Project, a drop shaft structure would be constructed at the BB-026 drop shaft site. As there are no known or potential architectural resources at the BB-026 drop shaft site, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

As there are no known or potential architectural resources in the BB-026 drop shaft site study area, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

[4] As described in Chapter 1, "Project Description," micro-tunneling would generally be at depths ranging between 40 and 50 feet below grade.

Gravity Discharge Pipe

Gravity Discharge Pipe between the TDPS Site and the Newtown Creek WRRF

With the Proposed Project, the gravity discharge pipe alignment is conservatively anticipated to be constructed approximately 25 feet below grade within the right-of-way using a cut and cover method. As there are no known or potential architectural resources within the gravity discharge pipe alignment, construction of the Proposed Project would have no significant adverse impacts on historic architectural resources.

Study Area (90 Feet)

The Miller Building (S/NR-eligible) at 425 Greenpoint Avenue is located within 90 feet of the gravity discharge pipe. Should the portion of the gravity discharge pipe to be constructed using a cut and cover method be located within 90 feet of the Miller Building, a CPP would be prepared in consultation with LPC and SHPO that would be implemented to avoid any unintended construction-related impacts (e.g., vibration effects) to this architectural resource. The CPP would be developed and implemented by a Professional Engineer prior to excavation and construction activities. The CPP would follow the guidelines set forth in Section 522 of Chapter 9, "Historic and Cultural Resources" of the *CEQR Technical Manual*. With the implementation of a CPP, if warranted by cut and cover construction, constructing the proposed gravity discharge pipe would have no significant adverse impacts on historic architectural resources.

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

ARCHAEOLOGICAL RESOURCES

As described previously, the soil levels that would be disturbed as a result of the construction of the Proposed Project do not have potential archaeological significance. The long-term operation of the Proposed Project would not be expected to result in additional subsurface disturbance beyond that required for the construction of the Proposed Project. As a result, the long-term operation of the Proposed Project would not result in significant adverse impacts on archaeological properties.

ARCHITECTURAL RESOURCES

As detailed above, there are no known or potential architectural resources on any of the project sites. As such, there would be no operational impacts on any known or potential architectural resources on the project sites. In addition, on August 7, 2025 SHPO issued a No Adverse Effect finding (see **Appendix D**). Therefore, the Proposed Project would not result in any significant adverse impacts to architectural resources on any of the project sites.

There are two known architectural resources in the study areas. The industrial building and garage complex at 47-09 30th Street is located within the Degnon Terminal Historic District (S/NR-eligible) in the study area of the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station. The Miller Building (S/NR-eligible) at 425 Greenpoint Avenue is located within 90 feet of the gravity discharge pipe. As a condition of SHPO's August 7, 2025 No Adverse Effect finding and as described above in "Construction Impacts of the Proposed Project," a CPP would be prepared and implemented during project construction to protect the industrial building

and garage at 47-09 30th Street and, if warranted by the construction method, the Miller Building at 425 Greenpoint Avenue from inadvertent construction-related damage. As there are no other known or potential architectural resources in the study areas, the Proposed Project would not result in any operational impacts on historic architectural resources.

Chapter 10: Urban Design and Visual Resources

A. INTRODUCTION

This chapter assesses the potential for the Proposed Project to adversely affect urban design and visual resources. Under the 2021 *CEQR Technical Manual*, urban design is defined as the totality of components that may affect a pedestrian's experience of public space. These components include streets, buildings, visual resources, open spaces, natural resources, and wind. An urban design assessment under CEQR must consider whether and how a project may change the experience of a pedestrian in a project area. A preliminary assessment of urban design and visual resources is appropriate when there is the potential for a pedestrian to observe, from the street level, a physical alteration beyond that allowed by existing zoning. Examples include projects that permit the modification of yard, height, and setback requirements, and projects that result in an increase in built floor area beyond what would be allowed "as-of-right" in the future without the project.

The Proposed Project involves the construction of a 3.26-mile-long tunnel and supporting infrastructure comprising the combined sewer overflow (CSO) tunnel, gravity diversion sewer, a Tunnel Dewatering Pump Station (TDPS), four diversion facilities, and drop shafts. As detailed in Chapter 4, "Land Use, Zoning, and Public Policy," the TDPS site and diversion facility sites are all located within manufacturing zoning districts and the proposed facilities would meet all existing zoning requirements. Although the Proposed Project complies with existing zoning regulations and, per the *CEQR Technical Manual*, does not require an analysis of urban design and visual resources, the following assessment was conservatively prepared in consideration of components of the Proposed Project that could be observed by pedestrians—the TDPS and the diversion facilities—and have the potential to affect the pedestrian experience of urban design and visual resources.

As described in Chapter 3, "Construction Means and Methods," and Chapter 9, "Historic and Cultural Resources," it is conservatively anticipated that construction of the gravity diversion sewer segment between the BB-026 diversion facility site and the Borden Avenue Pump Station and the gravity discharge pipe between the TDPS site and the Newtown Creek WRRF would be undertaken within the right-of-way using a cut and cover method. Construction of these segments would therefore be observable by pedestrians from nearby vantage points, which would be typical of the pedestrian experience of construction activities in New York City and would not be expected to adversely affect the pedestrian experience of urban design and visual resources.

The CSO tunnel and the segment of the gravity diversion sewer between the Borden Avenue Pump Station and the drop shaft for diversion facility BB-026 would be below grade and would not be

observable to pedestrians.[1] As these project components would not affect the pedestrian experience of urban design and visual resources, further analysis is not warranted.

The analysis includes a description of existing conditions on the TDPS site and the diversion facility sites and the study area, which is defined as the area within 400 feet of the TDPS and four diversion facilities and is consistent with the study areas used for the land use, zoning, and public policy analysis (see **Figures 10-1a through 10-1e**). This assessment describes the Proposed Project's potential to affect urban design and visual resources in the future with and without the Proposed Project.

PRINCIPAL CONCLUSIONS

Overall, the Proposed Project would comply with applicable zoning regulations regarding bulk and built form, and would result in physical and visual changes consistent with zoning regulations along Newtown Creek. Therefore, the Proposed Project is not anticipated to result in any significant adverse impacts to urban design and visual resources or the pedestrian's experience of these characteristics of the built and natural environment and no detailed analysis beyond the preliminary analysis is warranted.

B. EXISTING CONDITIONS

PROJECT SITES

URBAN DESIGN

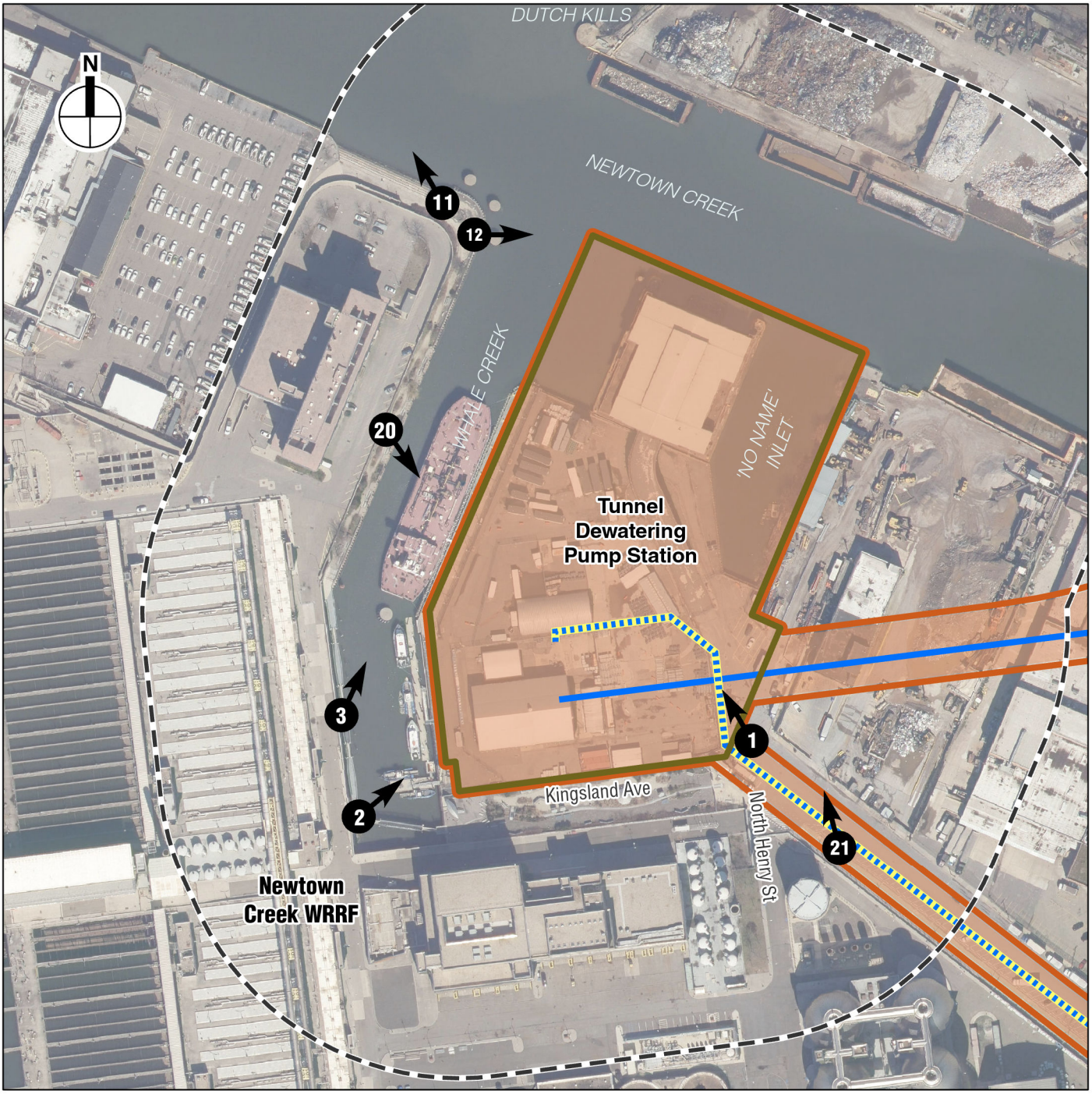
Tunnel Dewatering Pump Station (TDPS) Site

The TDPS site is located at 1 Kingsland Avenue (Brooklyn Block 2508, Lot 1). As described in Chapter 4, "Land Use, Zoning, and Public Policy," the TDPS site is occupied by the former Greenpoint Marine Transfer Station (MTS) and its access ramp, warehouses, docking facilities, and sludge handling facilities. The site contains four one- and two-story buildings (see **Figures 10-2a through 10-2k** for photographs of the sites discussed). As shown in View 1 of **Figure 10-2a**, the former MTS is a two-story building with a large footprint that is approximately 58 feet tall and 26,565 square feet (sf), located on a peninsula at the north end of the site that extends into Newtown Creek. The former MTS is accessed via an approximately 270-foot-long ramp that extends across the northeastern part of the site and connects to the former MTS's second floor. The former MTS is clad in aluminum siding and is windowless.

As shown in View 2 of **Figure 10-2a**, other buildings on the site include another large, one-story industrial warehouse that is located within the southwestern portion of the TDPS site. It was built ca. 2005, is approximately 36.5 feet tall and 11,805 sf, faced in metal cladding, and has a low, wide pitched roof. Two additional structures are located on the site. North of the industrial warehouse, there is an approximately 20 foot tall and 5,044 sf Quonset hut, built ca. 2017, with a rounded roof. East of the

[1] As described in Chapter 3, "Construction Means and Methods," the segment of the gravity diversion sewer between the Borden Avenue Pump Station and the BB-026 drop shaft would be constructed using micro-tunneling and would generally be at depths ranging between 40 and 50 feet below grade.

9.2.25



0 250 FEET

TDPS Site

400-Foot Perimeter

Photograph View Direction and Reference Number (see figure 10-2)

Potential CSO Tunnel Alignment

TDPS Discharge Pipe

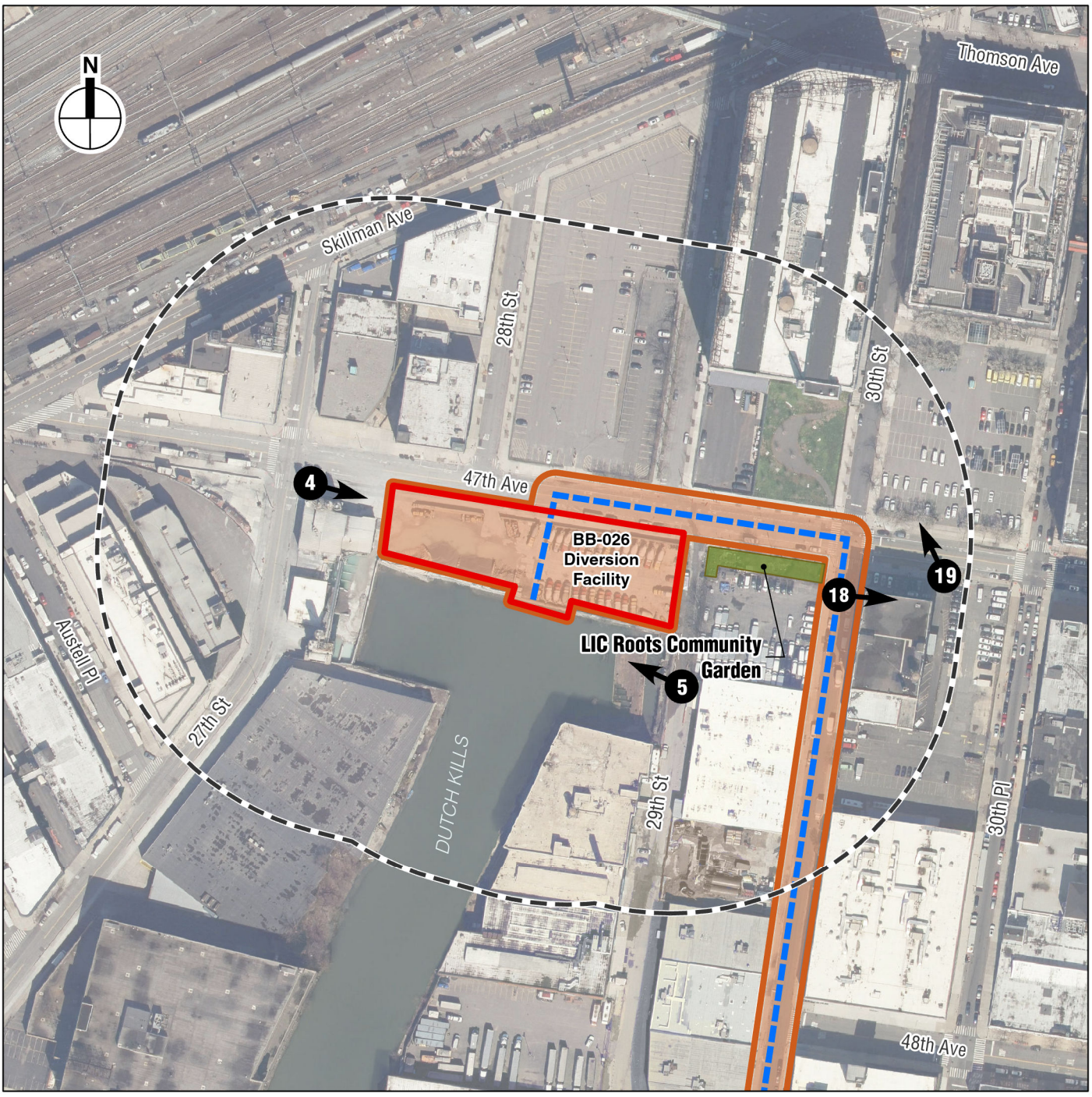
Project Limits

Photo Locations - TDPS

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-1a

9.2.25



Diversion Facility Site

400-Foot Perimeter

Photograph View Direction and Reference Number (see figure 10-2)

Gravity Diversion Sewer

Project Limits

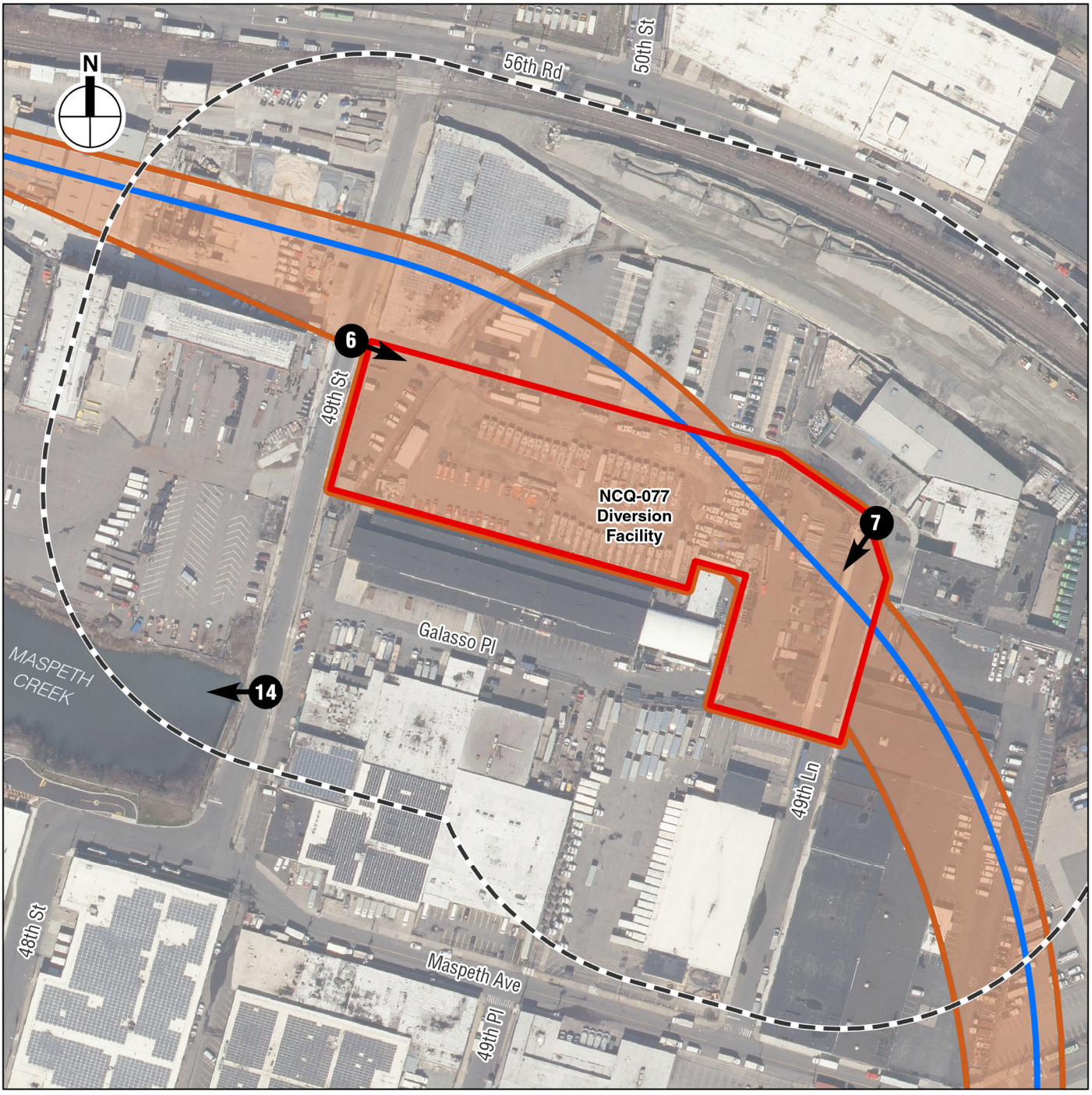
0 250 FEET

Photo Locations - BB-026

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-1b

9.2.25



Diversion Facility Site

400-Foot Perimeter

Photograph View Direction and Reference Number (see figure 10-2)

Potential CSO Tunnel Alignment

Project Limits

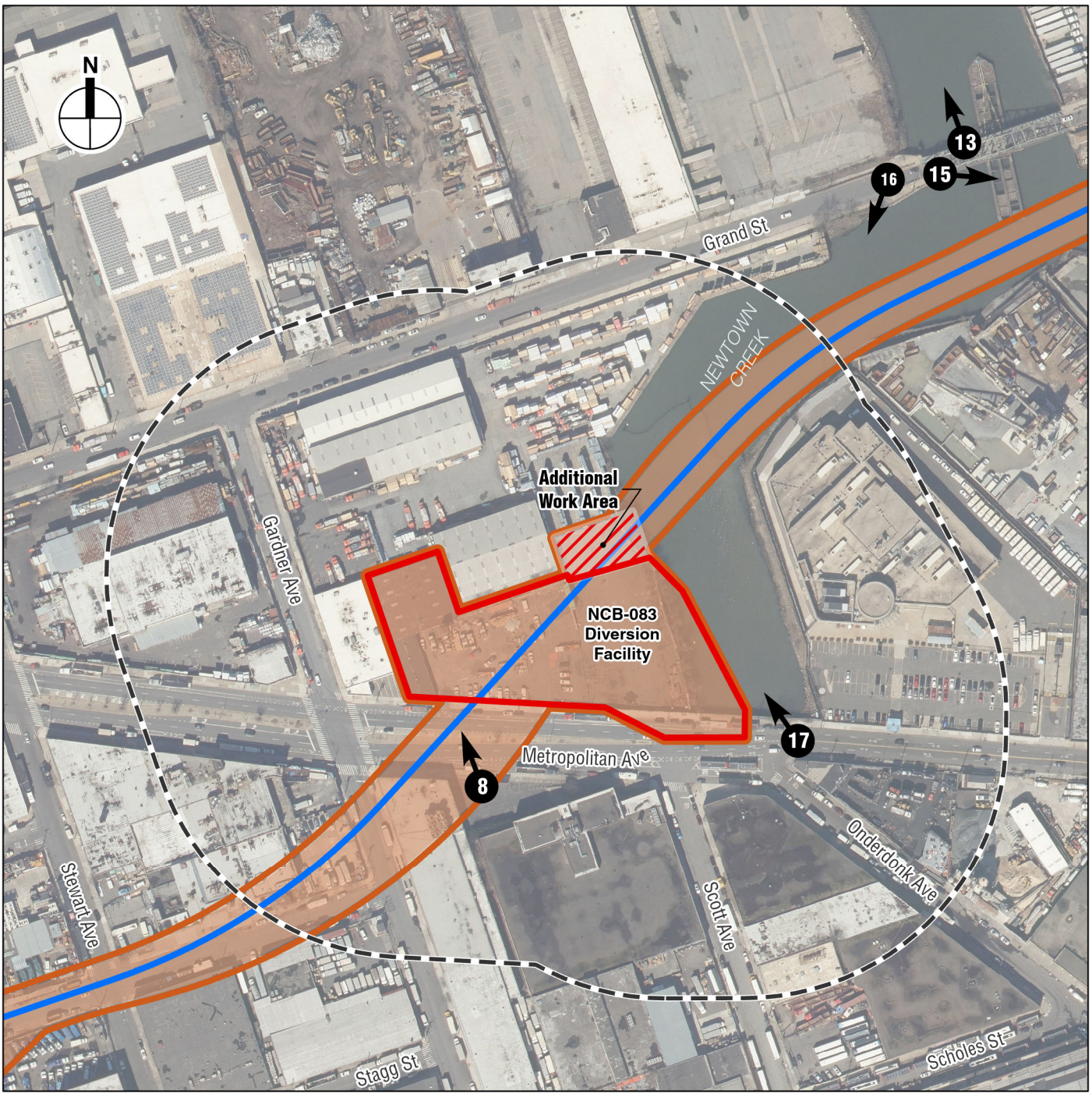
0 250 FEET

Photo Locations - NCQ-077

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-1c

9.2.25



0 250 FEET

Diversion Facility Site

400-Foot Perimeter

Photograph View Direction and Reference Number (see figure 10-2)

Potential CSO Tunnel Alignment

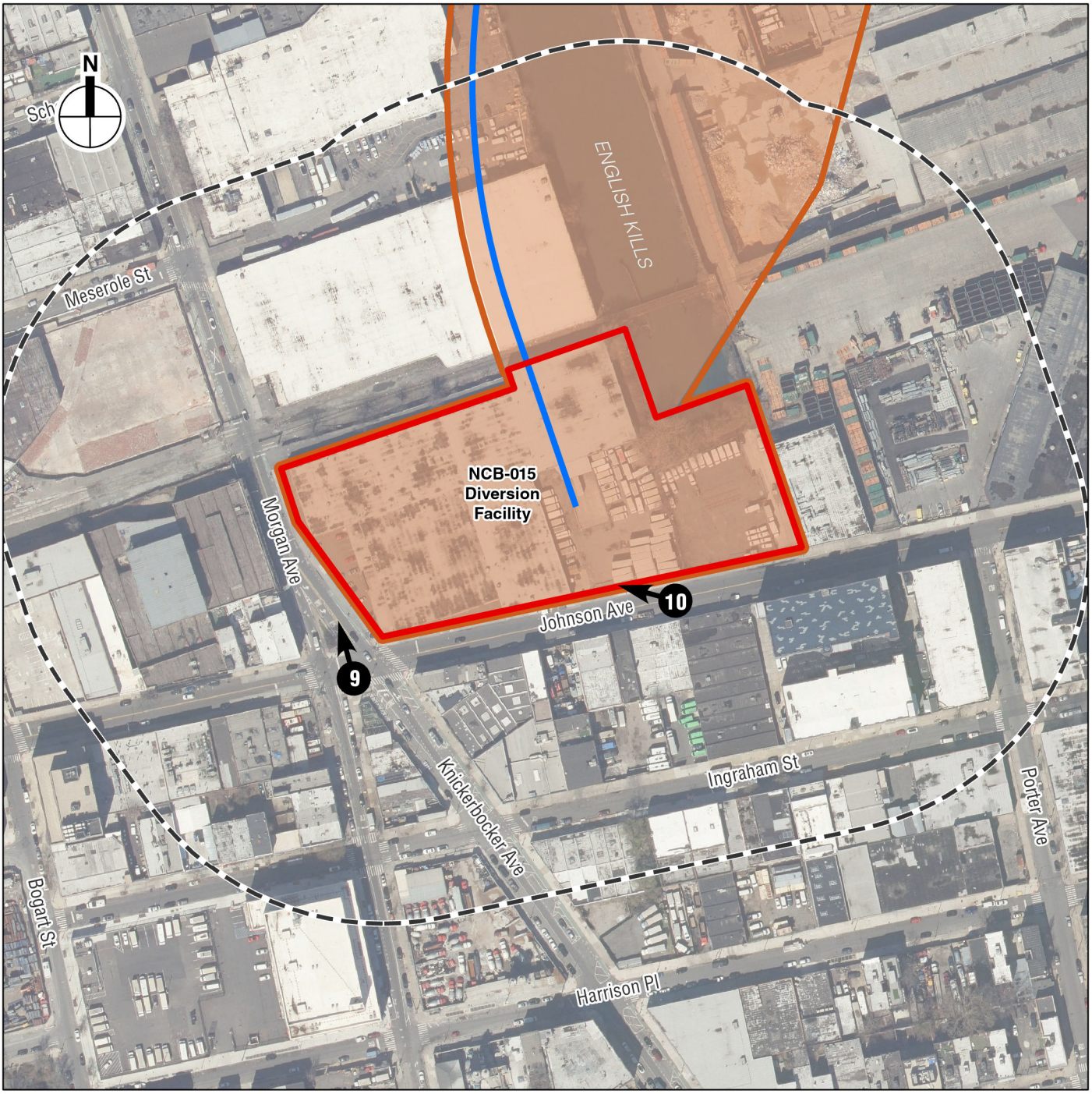
Project Limits

Photo Locations - NCB-083

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-1d

9.2.25



0 250 FEET

Diversion Facility Site

400-Foot Perimeter

Photograph View Direction and Reference Number (see figure 10-2)

Potential CSO Tunnel Alignment

Project Limits

Photo Locations - NCB-015

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-1e

8.27.25



View of MTS building looking northwest from Kingsland Avenue **1**



View of the TDPS Site and docking facilities looking northeast from the Newtown Creek Nature Walk **2**

Urban Design and Visual Resources
Photographs

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-2a

8.27.25



View of the sludge handing facility and a barge looking northeast from the Newtown Creek Nature Walk **3**



View of BB-026 Diversion Facility Site looking southeast from 47th Avenue **4**

Urban Design and Visual Resources
Photographs

8.27.25



View of BB-026 Diversion Facility Site looking northwest from 29th Street **5**



View of NCQ-077 Diversion Facility Site looking east from 49th Street **6**

Urban Design and Visual Resources
Photographs

8.27.25



View of NCQ-077 Diversion Facility Site looking southwest from Railroad Place **7**



View of NCB-083 Diversion Facility Site looking north from Metropolitan Avenue **8**

Urban Design and Visual Resources
Photographs

8.27.25



View of NCB-015 Diversion Facility Site looking north from the intersection of Morgan and Knickerbocker Avenue **9**



View of NCB-015 Diversion Facility Site parking lot looking northwest from Johnson Avenue **10**

Urban Design and Visual Resources
Photographs

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-2e

8.27.25



View of Newtown Creek looking northwest from Newtown Creek Nature Walk **11**



View of Newtown Creek looking east from Newtown Creek Nature Walk **12**

Urban Design and Visual Resources
Photographs

8.27.25



View of Newtown Creek and the mouth of East Branch looking north from Grand Street Bridge **13**



View of Maspeth Creek looking west from 49th Street **14**

Urban Design and Visual Resources
Photographs

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-2g

8.27.25



Views of East Branch looking southeast from Grand Street Bridge **15**



Views of East Branch looking southwest from Grand Street Bridge **16**

Urban Design and Visual Resources
Photographs

8.27.25



Views of East Branch looking northwest from Metropolitan Avenue **17**



47-09 30th Street looking east from 30th Street **18**

Urban Design and Visual Resources
Photographs

8.27.25



30-20 Thomson Avenue looking north from 47th Avenue **19**



View southeast from the Nature Walk toward the TDPS Site and the Newtown Creek WRRF, including its egg-shaped, metal-clad digesters in the middle distance **20**

Urban Design and Visual Resources
Photographs

8.27.25



View northeast on Kingsland Avenue toward the TDPS Site, including the 540 Kingsland Avenue industrial building to the east **21**

Urban Design and Visual Resources
Photographs

warehouse, there is an approximately 20 foot tall and 2,063 sf Quonset hut, built ca. 2007. Other structures on the site (e.g. a fire pump building) are up to approximately 25 feet tall. As shown in View 3 of **Figure 10-2b,** the sludge handling facility is an at-grade wharf structure that allows sludge to be pumped from the Newtown Creek WRRF and loaded onto a barge moored in Whale Creek. The docking facilities house DEP boats serving the sludge handling facility that are docked in Whale Creek on the west side of the TDPS site. These facilities and the large warehouses are visible from several vantage points along the Newtown Creek Nature Walk located west of the TDPS site.

Diversion Facility Sites

BB-026 Diversion Facility Site

The diversion facility associated with outfall BB-026 is located on the north edge of Dutch Kills (Queens Block 115, portions of Lots 56 and 86, and Lot 150). The portion of Lot 56 that is part of the diversion facility site is a paved area that is part of a concrete facility. The portion of Lot 86 and Lot 150 do not contain any built structures. Lot 86 is oriented toward 29th Street and contains a small community garden fronting on 47th Avenue, a paved access road along 29th Street, and parking. Lot 150 is a paved storage yard oriented along 47th Avenue and 29th Street. There are no buildings on the proposed BB-026 diversion facility site. As shown in View 4 of **Figure 10-2b**, the site to be occupied by the BB-026 diversion facility is currently occupied by a parking lot and accessory storage that is partially fenced off from the publicly accessible street with a concrete wall. The BB-026 outfall pipe, shown in View 5 of **Figure 10-2c,** discharges CSOs into Dutch Kills and can be seen from 29th Street.

NCQ-077 Diversion Facility Site

The site for the diversion facility associated with outfall NCQ-077 is located on the eastern part of Maspeth Creek between 49th Street and 49th Lane (Queens Block 2575, Lots 26, 225, and 240) and is currently occupied by surface parking facilities. As shown in View 6 of **Figure 10-2c,** the site includes parking for neighboring industrial businesses. It also houses raw materials, such as scrap metal and wood, appliances, materials, and other vehicles, as shown in View 7 of **Figure 10-2d**.

NCB-083 Diversion Facility Site

The site for the diversion facility associated with outfall NCB-083 is located on the eastern branch of Newtown Creek at 1301 Metropolitan Avenue (Brooklyn Block 2948, Lot 85). As shown in View 8 of **Figure 10-2d**, the site contains a warehouse and an office building, both of which are unoccupied. The one-story office building occupies a small footprint on the site and is faced in vinyl siding. The one-story warehouse building occupies a large footprint and is set back from the street. It is faced in aluminum and has a large loading bay. The site also contains surface accessory parking.

NCB-015 Diversion Facility Site

The site for the diversion facility associated with outfall NCB-015 is located on the southernmost part of Newtown Creek at 100 Knickerbocker Avenue (Brooklyn Block 2974, Lots 162 and 170). The site is currently occupied by a FedEx distribution center and accompanying parking lot, as shown in Views 9 and 10 of **Figure 10-2e**. The façade of the one-story building is clad in painted gray brick and black aluminum siding. It has many loading bays accessible on Johnson Avenue and accessory parking accessible on Knickerbocker Avenue.

VISUAL RESOURCES

As discussed above, the TDPS site contains buildings which are visually prominent from nearby vantage points because of their siting on a peninsula bound by Whale Creek and Newtown Creek. These buildings are not considered visual resources because they have been altered over time and are not architecturally significant. Additionally, the built structures on the diversion facility sites are not architecturally notable or visually prominent from nearby vantage points. Therefore, there are no visual resources on the TDPS site or the diversion facility sites.

Visual resources that can be seen from the TDPS site and four diversion facilities include Newtown Creek and its tributaries. As the TDPS site and the diversion facilities associated with outfalls BB-026, NCB-083, and NCB-015 are all directly adjacent to the Creek or its tributaries, the sites have views of these waterways. These views are notable since views of Newtown Creek are open, clear, and unimpeded. As such, these viewpoints provide views of parts of visual resources well outside the Proposed Project sites, such as the Manhattan and Queens skylines, Kosciuszko Bridge, and Grand Street Bridge. The diversion facility site associated with outfall NCQ-077 is not adjacent to Newtown Creek but does provide views of Newtown Creek from certain limited vantage points.

STUDY AREA

The study area for the urban design and visual resources analysis includes all areas within 400 feet of the TDPS site and the four diversion facility sites.

URBAN DESIGN

TDPS Site

The TDPS site study area is characterized by Newtown Creek and Whale Creek immediately to the north and west, and large industrial structures to the south and east, including the Newtown Creek WRRF, which extends to the west of Whale Creek (see **Figure 10-1a**). Newtown Creek and Whale Creek are waterbodies in the study area around the TDPS site that are defined by clear bulkheads, barges, docks, and vessels. Newtown Creek, which is approximately 237 feet wide, extends east-west immediately north of the TDPS site. Whale Creek, which is approximately 120 feet wide, is north-south immediately west of the TDPS site. The waterbodies provide long views that include a variety of large industrial buildings and associated yards. The Newtown Creek Nature Walk, a public open space, is located directly adjacent to the TDPS site to the south and west. The Nature Walk contains foliage, plantings, and seating areas, walking paths, and a metal boardwalk that traverses Whale Creek. The industrial buildings in the study area generally range from one to three stories and have large footprints on large lots with accessory paved parking lots. These include the Newtown Creek WRRF, 540 Kingsland Avenue, and 520 Kingsland Avenue.

A portion of the Newtown Creek WRRF is located approximately 120 feet south and west of the TDPS site. It is a large industrial site that totals 54 acres and contains 25 buildings. The tallest structures are eight approximately 140-foot-tall egg-shaped, metal-clad digesters. The remaining buildings on the Newtown Creek WRRF site are two and three stories (approximately 25 to 40 feet tall), faced in brick, and have large footprints (see View 20 of **Figure 10-2j**). The buildings and infrastructure on the site

were constructed between 1998 and 2013. Located approximately 100 feet east of the TDPS site at 540 Kingsland Avenue is a large industrial site containing a two-story (approximately 50-foot-tall) building with a large footprint (see View 21 of **Figure 10-2k**). The building was constructed in 1912, although it has been substantially altered, and has a brick façade with infilled window openings and non-original window openings. The building at 520 Kingsland Avenue is located approximately 330 feet to the east of the TDPS site. It is a large, brick-clad, five-story (approximately 58-foot-tall) commercial building that has a large footprint, with aluminum paneling surrounding the loading dock. These buildings are located on large lots set back from the street and range in height from 25 to 140 feet tall. These large industrial buildings and sites are characteristic of the urban design of the study area.

Diversion Facility Sites

BB-026 Diversion Facility Site

The study area of the BB-026 diversion facility site is industrial in character and includes the north end of Dutch Kills, which extends south from the BB-026 diversion facility site (see **Figure 10-1b**). This segment of Dutch Kills, which is approximately 150 feet wide, includes an east-west portion, with a north-south segment extending to the south outside the study area. The study area also includes large industrial warehouses with large footprints, surface parking lots, and open spaces. The two- to three-story industrial buildings are generally built to the lot line and have large footprints on large lots with paved parking lots. They are older buildings constructed in the early 20th Century but have been altered and renovated. These buildings are generally faced in red or painted brick or have concrete cladding, and have metal roll down gates at the garage and window openings. Several large warehouses are located on the blocks in the northeast part of the study area. These warehouse buildings have large footprints, are eight to ten stories, occupy large lots, and are built to the lot line. Their architecture complements the character of the neighborhood, and two of the warehouses are located within the Degnon Terminal Historic District (discussed further below). These buildings are generally faced in concrete and corrugated metal. Large surface parking lots are located throughout the study area, including one parking lot across 47th Avenue north of the BB-026 diversion facility site and two parking lots immediately to the east on 30th Street. The LIC Roots Community Garden is an open space located to the east of the BB-026 diversion facility site. The garden has a black metal fence at its perimeter and contains plantings and trees, as well as raised plant beds.

NCQ-077 Diversion Facility Site

The study area of the NCQ-077 diversion facility site contains industrial buildings, vacant lots, surface parking lots, LIRR tracks, and a small portion of Maspeth Creek (see **Figure 10-1c**). The industrial buildings include one- to two-story masonry-faced buildings that have large footprints and are sited on large lots with accessory paved parking lots and loading bays for trucks. The industrial buildings are set back from the sidewalk on 49th Street but are generally built to the sidewalk on all other study area streets. There are large vacant lots and paved surface parking lots throughout the study area, including large parking lots near industrial and manufacturing structures and facilities. A segment of the LIRR tracks is located in the northern portion of the study area. There are no buildings on or near the LIRR tracks. A small portion of Maspeth Creek, which is approximately 220 feet wide, is located in the southern part of the study area and terminates on the west side of 49th Street.

NCB-083 Diversion Facility Site

The study area of the NCB-083 diversion facility site is characterized by a segment of Newtown Creek and large, brick- and metal-clad one- and two-story industrial warehouse and manufacturing buildings that occupy large lots with accessory paved parking lots (see **Figure 10-1d**). Most buildings are built to the sidewalk line on at least one street frontage. The portion of Newtown Creek in the study area, which is approximately 185 feet wide, is located immediately adjacent to the NCB-083 diversion facility site. This segment of Newtown Creek terminates on the north side of Metropolitan Avenue but extends to the north and curves to the east and north.

NCB-015 Diversion Facility Site

The study area of the NCB-015 diversion facility site contains industrial and warehouse buildings, most of which have large footprints; a few smaller, older apartment and commercial buildings; a segment of English Kills; and railroad tracks and a railroad bridge (see **Figure 10-1e**). The industrial and warehouse buildings include a mix of older and newer buildings, most of which have one to four stories and are faced in brick; many older buildings have modified entrances and window openings. The large industrial and warehouse buildings have accessory paved parking lots and are located north of Johnson Avenue while smaller and older industrial buildings without accessory parking lots are located south of Johnson Avenue. Residential and commercial-related buildings are generally older buildings that range from one- to four- stories, have small footprints, and occupy small lots. These buildings are built to the sidewalk line, are faced in brick or vinyl siding, and some have intact cornices. A portion of English Kills in the study area, which is approximately 150 feet wide, is located immediately east of the NCB-015 diversion facility site. Railroad tracks extend east-west through the northern part of the study area and over English Kills on the English Kills Bridge.

VISUAL RESOURCES

Visual resources in the study areas of the TDPS site and four diversion facility sites are generally limited to waterfront views and view corridors of Newtown Creek and its tributaries—Whale Creek, Dutch Kills, Maspeth Creek, East Branch, and English Kills—and the visual resources from those view corridors, such as the Queens skyline, and visual resources of contributing buildings within the Degnon Terminal Historic District which is eligible for listing on the State/National Registers of Historic Places (S/NR-eligible).

TDPS Site

Views of Newtown Creek and one of its tributaries, Whale Creek, are available from nearby vantage points adjacent to the TDPS site. As shown in Views 11 and 12 of **Figure 10-2f**, views that include Newtown Creek are available from vantage points on the Newtown Creek Nature Walk to the west of the TDPS site. Views that include Whale Creek are also available from vantage points on the Newtown Creek Nature Walk to the west of the TDPS site (see Views 2 and 3 of **Figures 10-2a and 10-2b**). Views of the Manhattan and Queens waterfront skylines are also visible to the west of the TDPS site from the view corridors along streets near Newtown Creek.

Diversion Facility Sites

The waterways within the study area (Newtown Creek and its tributaries) are view corridors, as they provide longer and broader views through portions of the study area, some of which include views of the Manhattan skyline in the far distance, which is a visual resource. Views along these waterway view corridors that include visual resources are only available from vantage points closest to the waterways (see View 5 of **Figure 10-2c,** View 14 of **Figure 10-2g,** and View 17 of **Figure 10-2i)**. Views that include Newtown Creek are generally limited to vantage points closest to the waterway as longer views are not available due to the waterway's low-lying location, distance from the waterway, and intervening structures along the Newtown Creek waterfront that obstruct many views to the waterway. There are also unobstructed views that include the Queens skyline in westward views along several streets in the study area. Views of the Kosciuszko Bridge and Grand Street Bridge, both of which are visual resources outside the study area, are available from various vantage points within the study area. Views that include the East Branch are also available from vantage points on the Grand Street Bridge (see Views 15 and 16 of **Figure 10-2h**). Although the diversion facility associated with outfall NCB-015 is adjacent to Newtown Creek, Newtown Creek is not visible from vantage points on the streets and sidewalks adjacent to the NCB-015 diversion facility site within the study area.

A portion of the Degnon Terminal Historic District is located in the study area of the BB-026 diversion facility site. The historic district is bounded by Thomson Avenue to the north, 30th Street to the west, 48th Avenue to the south, and 31st Place to the east. It is bisected by 47th Avenue. However, only the two blocks bound by 30th Street, Thompson Avenue, 30th Place, and 48th Avenue are located within the study area of the BB-026 diversion facility site. The Degnon Terminal Historic District includes five large former daylight factory buildings that were part of the Michael Degnon Realty and Terminal Improvement Co. Development and were constructed in the 1920s. The district is eligible for historic designation due to its contributions to the industrial heritage of Long Island City and for its collection of early 20th century daylight factory-style buildings. Four of the five historic district buildings (the buildings at 47-09 30th Street, 30-20 Thomson Avenue, 30-30 Thompson Avenue, and 47-07 30th Place) are partially located within the study area. Views to these buildings are available from vantage points on 47th Avenue and 30th Street near the BB-026 diversion facility site (see Views 18 and 19 of **Figure 10-2i through Figure 10-2j)**. The Art Nouveau-style concrete warehouses are faced in stucco, stone, and painted brick and have large window openings. There are no notable architectural visual resources within the study areas for the NCB-083 and NCQ-077 diversion facility sites.

C. SCREENING ASSESSMENT

PROJECT SITES

URBAN DESIGN

TDPS Site

With the Proposed Project, the existing structures on the TDPS site would be demolished. The proposed TDPS facility would be constructed, including the tunnel; drop shafts; a pump station; screening, degritting, and odor control facilities; a tunnel overflow structure; and yard infrastructure. The pump

station and screening facility would be in a connected building located on the south side of the TDPS site, while the degritting facility would be in a separate building sited to the north toward the center of the TDPS site (see Chapter 3, "Construction Means and Methods," Figure 3-17 and **Figure 10-3a**). The pump station would be an approximately 99-foot-tall, approximately 80,500-gross-square-foot (gsf) structure, with the shorter, approximately 57-foot-tall screening facility extending to the east. The degritting facility would be approximately 54 feet tall. As described in Chapter 18, "Greenhouse Gas Emissions and Climate Change," the pump station would be designed in accordance with flood resiliency requirements applicable to critical infrastructure in the floodplain. No changes would be made to the elevations of existing shoreline infrastructure. The surface layout of the TDPS site is currently being designed and the end use of the site would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as design advances in consideration of the functional and operational needs of the Proposed Project.

Views from the southern corner of North Henry Street and Kingsland Avenue toward the TDPS site would include the pump station and screening facility building in the foreground with the upper portion of the building in the background (see **Figure 10-3a**). The degritting building would be set back from Kingsland Avenue and would be located adjacent to the pump station and screening facility building to the north. Views from the Newtown Creek Nature Walk (see **Figure 10-3b**) would include the new structures on the TDPS site, particularly the taller section of the pump station/screening facility building and the degritting building, including rooftop bulkheads and setbacks (the shorter section of the pump station/screening facility building, which would be on the eastern side of the site, would not be visible from the Nature Walk). Views across Whale Creek from the northern portion of the Nature Walk would also include the new buildings on the TDPS site (see **Figure 10-3c**). The remainder of the surface area of the TDPS site is expected to be paved and accessible for maintenance and operations with landscaping where appropriate.

Like the No Action condition, the proposed buildings on the TDPS site would be compatible with the variety of massings and forms of nearby industrial structures and would be set back from the street, which would be consistent with the study area's overall industrial character. The pedestrian experience would change with the proposed buildings replacing the old structures on the TPDS site and the inclusion of potential publicly accessible spaces, which would enhance the pedestrian experience of urban design near the TDPS site. Additionally, the design of the new buildings and site design would be subject to review and approval by the New York City Public Design Commission (PDC). Therefore, the proposed structures on the TDPS site would be compatible with the urban design character of the study area.

Diversion Facilities

With the Proposed Project, the existing paved areas, the access road along 29th Street, and the storage yard on the BB-026 diversion facility site and the existing surface parking facility on the NCQ-077 diversion facility site would be removed for project construction. Portions of the existing buildings on the NCB-015 and NCB-083 diversion facility sites may remain. The removal of the parking facilities on the NCQ-077 site and the partial or full removal of the built structures on the BB-026, NCB-015

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No-Action



With-Action

Proposed Above-Ground Structure at TDPS

8.27.25





No-Action



With-Action

Proposed Above-Ground Structure at TDPS

8.27.25





No-Action



With-Action

Proposed Above-Ground Structure at TDPS

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 10-3c

and NCB-083 sites for project operations would not adversely affect the pedestrian experience of urban design as these facilities and structures are not visually or architecturally prominent.

The four diversion facility sites would be developed with limited above-grade structures—including a control panel cabinet, a vent pipe, and access hatches—that would be low to the ground[2] and associated with below-grade structures (see Figure 3-17 of Chapter 3, "Construction Means and Methods"). While the site design for the diversion facilities is still being developed, it is anticipated that the new diversion facilities would be screened by approximately eight-foot-tall perimeter fencing. Therefore, the new above-ground structures would be largely obscured due in part to their low scale and by the anticipated screening provided by perimeter fencing.

In addition, DEP intends to utilize the diversion facility sites for accessory operations (such as equipment storage) or another DEP use: in particular, DEP has identified a need for facilities to support operations that can potentially be accommodated on the sites, such as crew quarters; parking for DEP maintenance and field vehicles; green infrastructure support; and warehouse and office spaces for equipment, material storage, and staff training. As noted above, the existing structures on the sites (including a concrete manufacturing facility at the BB-026 diversion facility site, vacant former industrial buildings at the NCB-083 diversion facility site, and industrial and manufacturing buildings at the NCB-015 diversion facility site) would be demolished to accommodate the construction staging and diversion facilities; alternatively, portions of the buildings may be retained and repurposed into the additional DEP uses. The surface layouts of the sites are currently being designed; public access areas and/or amenities provided on the sites would be determined through additional facility design. The future DEP operational uses on the diversion facility sites would be determined later, and would be subject to separate approvals and environmental review if necessary. Further, the new structures and the site design would be subject to review and approval by PDC. Should portions of the existing structures on the diversion facility sites be retained, the context of these structures would remain similar to existing conditions but would be sited within the context of the new, low to the ground structures that would be built on these sites with the Proposed Project. Therefore, the Proposed Project would not adversely affect the pedestrian experience of urban design at any of the diversion facility sites.

VISUAL RESOURCES

TDPS Site

As described above, views of Newtown Creek and Manhattan and Queens skylines are available from certain vantage points near the TDPS site. With the Proposed Project, the new structures on the TDPS site would replace existing structures with structures of similar massings and forms. The new structures, similar to the No Action condition, would not obscure or obstruct notable public views of Newtown Creek, including views from the Nature Walk, or views of the skylines, as these notable views are already obscured or obstructed by intervening structures and distance. Therefore, the new structures

[2] The control panel cabinet is anticipated to be up to approximately five feet in height; the vent pipe is anticipated to be up to approximately two to three feet in height.

that would be located on the TDPS site as part of the Proposed Project would not adversely affect views to visual resources or notable view corridors.

Diversion Facility Sites

The Proposed Project would not adversely affect views to the skylines or bridges, or views to buildings in the Degnon Terminal Historic District, from the areas near the diversion facility sites as most diversion facility sites would be developed with low to the ground and below-grade infrastructure, including sewer lines, diversion chambers, bending weirs, and outfall structures. Due to their low-lying design, the new structures would not obscure or obstruct views to the skylines or bridges, or views to buildings in the Degnon Terminal Historic District. In particular, the BB-026 diversion facility, which is located closest to buildings within the Degnon Terminal Historic District, would not introduce new above-ground structures. Therefore, views from the BB-026 diversion facility site that include buildings in the Degnon Terminal Historic District would be maintained from existing vantage points. Further, it is anticipated that the sites would be screened by approximately eight-foot-tall perimeter fencing. While the site designs for the diversion facility sites are still being developed, the new structures and site design would be subject to review and approval by PDC.

STUDY AREA

URBAN DESIGN

The Proposed Project is limited to the TDPS and diversion facility sites, and would not alter building uses, bulks, or arrangements in the surrounding study area, or result in any changes to urban design within the study area.

TDPS Site

While the Proposed Project would result in physical and visual changes to the TDPS site, the new structures would comply with applicable zoning regulations regarding bulk and built form. The pedestrian experience of urban design along Newtown Creek and Whale Creek in close proximity to the TDPS site would not be adversely affected by the new structures on the TDPS site, as these new structures would be compatible with the urban design character of the study area's large industrial buildings, including buildings along Newtown Creek and Whale Creek.

Diversion Facility Sites

While the Proposed Project would result in physical and visual changes to the diversion facility sites, the new structures would comply with applicable zoning regulations regarding bulk and built form. The pedestrian experience of urban design in close proximity to each diversion facility site would not be adversely affected by the new low-scale and mostly below grade structures on these sites.

VISUAL RESOURCES

TDPS Site

The new structures on the TDPS site would not obscure or obstruct notable views to the Newtown Creek, Whale Creek, or the Manhattan and Queens skylines. With the new structures on the TDPS site,

views to and along these visual resources would remain available from vantage points near the waterfront and from the Newtown Creek Nature Walk (see **Figure 10-3c**). Therefore, the new structures on the TDPS site with the Proposed Project would not adversely affect views to any notable visual resources.

Diversion Facility Sites

With the Proposed Project, views of Newtown Creek, its tributaries, the Queens skyline, Kosciuszko Bridge, and Grand Street Bridge would not be adversely affected, as the new above-grade structures at the diversion facilities would be low-scale structures that would not obstruct or obscure existing views to these visual resources. Existing views of the waterway would remain available from limited vantage points near the four diversion facilities. In particular, the new BB-026 diversion facility would not adversely affect views to buildings in the Degnon Terminal Historic District, as the new facility would not introduce new above ground structures.

CONCLUSION

Based on the information presented in this chapter, the Proposed Project would not result in any significant adverse impacts to urban design or visual resources in the study area and no further analysis is warranted.

Chapter 11: Natural Resources

A. INTRODUCTION

This chapter examines the potential impacts from the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel Project (the Proposed Project) on natural resources of Brooklyn and Queens, New York. Natural resources are defined as plants, wildlife, and other organisms; aquatic or terrestrial areas capable of providing suitable habitat; and areas capable of functioning in support of ecological systems that maintain the City's environmental stability. The chapter describes:

- The regulatory programs that protect natural resources within the study area;
- The current condition of natural resources within the study area, including groundwater, floodplains, wetlands, aquatic resources, terrestrial resources, and threatened or endangered species and species of special concern;
- The natural resources conditions in the future without the Proposed Project;
- The potential impacts of the Proposed Project on natural resources; and
- The measures that would be developed, as necessary, to reduce and/or mitigate any of the Proposed Project's potential significant adverse effects on natural resources.

PRINCIPAL CONCLUSIONS

Construction of the Proposed Project would not result in any significant adverse impacts to natural resources. Potential impacts due to suspended sediment resulting from dredging, placement of temporary stone fill, and installation and removal of the temporary cofferdams would be minimized by turbidity curtains and best management practices. These impacts are expected to be minimal, localized to the vicinity of sheet pile installation. Any resuspended sediment would settle over similar substrate within a short period of time and, therefore, would not result in significant adverse impacts to water quality, sediment quality, or aquatic biota. Underwater noise increases would intermittently and temporarily result in avoidance behavior by fish and excluding them from potential foraging habitat near the Proposed Project sites. However, this temporary loss of some foraging habitat would not result in significant adverse impacts to fish populations within Newtown Creek, and fish would be expected to return to the area during breaks in pile installation and after the temporary cofferdams are in place. Because most of the upland habitats are developed areas with limited vegetation, upland disturbance would have limited potential to adversely affect terrestrial resources, which comprise generalist and urban-tolerant plants and wildlife species.

Operation of the Proposed Project would not result in significant adverse impacts to natural resources, and would ultimately contribute to improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek through the reduction of CSO volume. The minimal alteration of unvegetated

littoral zone tidal wetlands and aquatic habitat where the removal of bottom material in front of the outfalls would result in deeper water, would not result in significant adverse impacts to habitat or aquatic biota. The deepened portions in front of the outfalls would improve flow at the head of the tributaries within Newtown Creek at the outfall sites, leading to water quality and sediment quality improvements from improved tidal flushing. The permanent loss of trees and vegetation along certain sections of shoreline would be minimal and limited to generalist and invasive plant species and would not result in significant adverse impacts to terrestrial habitat.

B. METHODOLOGY

STUDY AREA

The study area for natural resources includes the Proposed Project sites at the tunnel dewatering pump station (TDPS) and four existing outfalls: BB-026, NCQ-077, NCB-083, and NCB-015. Within this chapter, the sections of shoreline where work would take place at the existing outfalls BB-026, NCQ-077, NCB-083, and NCB-015 are referred to as the "outfall sites." The Proposed Project sites comprise built lots, existing waterfront infrastructure (i.e., outfalls, bulkheads), and the waters of Newtown Creek and its tributaries at the TDPS and outfall sites. They are in highly developed urban and industrial areas with limited natural resources between southwestern Queens and northwestern Brooklyn. Thus, the study area for terrestrial resources, groundwater, wetlands, and floodplains includes the Proposed Project sites and immediately adjacent areas. The study area for aquatic resources includes the entire Newtown Creek and its five tributaries: Dutch Kills, Whale Creek, Maspeth Creek, English Kills and East Branch. Threatened, endangered, or special concern species and significant natural communities were evaluated for a distance of 0.5 miles from the Proposed Project sites. This distance is used to provide an adequate buffer around sensitive species.

EXISTING CONDITIONS

Existing conditions for natural resources within the Proposed Project sites were characterized using the following:

- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps, and Information for Planning and Consultation (IPaC) system for federally threatened, endangered, and candidate species (reviewed on May 16, 2025);
- Information regarding rare, threatened, and endangered species and significant natural communities obtained from the New York Natural Heritage Program (NYNHP) (reviewed by the New York City Department of Environmental Protection [DEP] Bureau of Environmental Planning and Analysis [BEPA] on March 5, 2025), and the New York State Department of Environmental Conservation (NYSDEC) Environmental Assessment Form (EAF) Mapper (reviewed on December 16, 2024);
- NYSDEC Environmental Resource Mapper, tidal and freshwater wetlands and streams maps, and 2000-2005 and 2020-2024 New York State Breeding Bird Atlas data;

- National Marine Fisheries Service (National Oceanic and Atmospheric Administration [NOAA] Fisheries) Essential Fish Habitat (EFH) mapper and Endangered Species Act (ESA) Section 7 mapper;
- Federal Emergency Management Agency (FEMA) 2015 Preliminary Flood Insurance Rate Maps (FIRMs);
- New York City Department of Environmental Protection's (DEP) 2011 Newtown Creek Waterbody/Watershed Facility Plan Report and 2017 CSO Long Term Control Plan (LTCP) for Newtown Creek; and
- Existing information identified in peer-reviewed scientific literature.

FUTURE WITHOUT THE PROPOSED PROJECT

The expected state of natural resources within the study area in the No Action condition is evaluated under the assumption that by the analysis year 2040, land cover type and human activity would not differ significantly from the present. Water quality and other aquatic resources in Newtown Creek are likely to continue gradually improving because of several ongoing local and regional initiatives, including remediation of Newtown Creek and other waterbodies and related upland sites under Superfund and other regulatory programs. Floodplains and terrestrial resources in the study area are expected to remain essentially unchanged in the No Action condition.

FUTURE WITH THE PROPOSED PROJECT

Conditions in the future with the Proposed Project were assessed by considering potential impacts during construction of the Proposed Project, such as temporary increases in suspended sediment and underwater noise during in-water construction activities, and loss of bottom habitat from the placement of in-water structures, discharge of groundwater recovered during dewatering activities, and discharge of stormwater and sediments during construction. Potential impacts resulting from the operation of the Proposed Project include those related to modifications of existing outfalls and shoreline stabilization structures, dredging or excavation and placement of material on the creek bottom, and potential habitat improvements related to improved water quality from the operation of the Newtown Creek CSO Storage Tunnel.

C. REGULATORY CONTEXT

FEDERAL

COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT (42 USC §§ 9601 – 9675)

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund, provides a Federal "Superfund" to clean up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment. Through CERCLA, the United States Environmental Protection Agency (EPA) was given power to seek out those parties responsible for any release and ensure their

cooperation in the clean-up. In September 2010, Newtown Creek was designated a federal Superfund site by EPA under CERCLA and placed on the National Priorities List (NPL). In July 2011, EPA issued an Administrative Order to six Potentially Responsible Parties (PRP) for a remedial investigation and feasibility study at Newtown Creek; the City of New York was identified as one of the PRPs, related to CSO discharges into Newtown Creek. With the Proposed Project, DEP would meet some of the goals of the Superfund remediation of Newtown Creek, as outlined in EPA's Record of Decision (ROD) related to CSO discharges.

CLEAN WATER ACT (33 USC §§ 1251 - 1387)

The objective of the Clean Water Act, also known as the Federal Water Pollution Control Act, is to restore and maintain the chemical, physical, and biological integrity of the waters of the United States. It regulates point sources of water pollution, such as discharges of municipal sewage, industrial wastewater, and stormwater runoff; the discharge of dredged or fill material into navigable waters and other waters; and non-point source pollution (e.g., runoff from streets, construction sites, etc.) that enters waterbodies from sources other than the end of a pipe. Section 404 of the Act requires authorization from the Secretary of the Army, acting through the U.S. Army Corps of Engineers (USACE) for the discharge of dredged or fill material into waters of the United States.

Activities authorized under Section 404 must comply with Section 401 of the Act, under which any applicant for a federal permit or license for an activity that may result in a discharge to navigable waters must demonstrate to the federal agency issuing a certificate that the discharge would comply with applicable requirements in the Act that deal with effluent standards and limitations. Applicants for discharges to navigable waters in New York must obtain a Section 401 Water Quality Certificate from NYSDEC. Any fill or dredging required for the construction and in-water components of the Proposed Project would require approval under these regulations.

RIVERS AND HARBORS ACT OF 1899

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through USACE, for the construction of any structure in or over any navigable waterway of the United States, the excavation from or deposition of material in these waters, or any obstruction or alteration in navigable waters of the United States. The purpose of this Act is to protect navigation and navigable channels. Any structures placed in or over navigable waters, such as pilings, piers, bridge abutments, or outfalls up to the mean high-water line, are regulated pursuant to this Act. The construction and in-water components of the Proposed Project require authorization under this regulation.

MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT (16 USC §§ 1801 TO 1883)

Section 305(b)(2)-(4) of the Magnuson-Stevens Fishery Conservation and Management Act outlines the process for the National Marine Fisheries Service (NMFS) and the Regional Fishery Management Councils (in this case, the Mid-Atlantic Fishery Management Council) to comment on activities proposed by federal agencies (issuing permits or funding projects) that may adversely impact areas

designated as EFH. EFH is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (16 USC § 1802(10)). Adverse impacts on EFH, as defined in 50 CFR 600.910(A), include any impact that reduces the quality and/or quantity of EFH. Adverse impacts may include direct impacts, such as physical disruption or the release of contaminants; indirect impacts, such as the loss of prey or reduction in the fecundity of a managed species; and site-specific or habitat-wide impacts that may include the individual, cumulative, or synergetic consequences of a federal action. The Mid-Atlantic Fisheries Management Council has designated EFH in Newtown Creek; therefore, potential effects of the Proposed Project on EFH have been evaluated.

MIGRATORY BIRD TREATY ACT (50 CFR 10, 20, 21, EO 13186)

The Migratory Bird Treaty Act (MBTA) of 1918 was implemented following the 1916 convention between the U.S. and Great Britain (on behalf of Canada) for the protection of birds migrating between the U.S. and Canada. Subsequent amendments implemented treaties between the U.S. and Mexico, Japan, and the former Soviet Union. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed therein. Over 800 species are currently protected under the Act. The statute applies equally to both live and dead birds, and grants full protection to any bird parts, including feathers, eggs, and nests. Species protected under the Act have the potential to occur near Newtown Creek.

ENDANGERED SPECIES ACT OF 1973 (16 USC §§ 1531 TO 1544)

The Endangered Species Act of 1973 recognizes that endangered species of wildlife and plants are of aesthetic, ecological, educational, historical, recreational, and scientific value to the nation and its people. The Act provides for the protection of critical habitats on which endangered or threatened species depend for survival. The Act also prohibits the importation, exportation, taking, possession, and other activities involving illegally taken species covered under the Act, and interstate or foreign commercial activities. Species protected under the Act have the potential to occur in or near Newtown Creek.

STATE

PROTECTION OF WATERS, ARTICLE 15, TITLE 5, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PART 608

NYSDEC is responsible for administering the Protection of Waters Act and regulations to govern activities on surface waters (rivers, streams, lakes, and ponds). The Protection of Waters regulatory program regulates five categories of activities: disturbance of stream beds or banks of a protected stream or other watercourse; construction, reconstruction, or repair of dams and other impoundment structures; construction, reconstruction, or expansion of docking and mooring facilities; excavation or placement of fill in navigable waters and their adjacent and contiguous wetlands; and Water Quality Certification for placing fill or other activities that result in a discharge to waters of the United States in accordance with Section 401 of the Clean Water Act. Authorization under this program is required for construction of the in-water components of the Proposed Project and construction activities that could result in discharge to Newtown Creek.

TIDAL WETLANDS ACT, ARTICLE 25, ECL, IMPLEMENTING REGULATIONS 6 NYCRR PART 661

Tidal wetlands regulations apply anywhere tidal inundation occurs on a daily, monthly, or intermittent basis. In New York, tidal wetlands occur along the tidal waters of the Hudson River up to the salt line and along the saltwater shore, bays, inlets, canals, and estuaries of Long Island, New York City, and Westchester County. NYSDEC administers the tidal wetlands regulatory program and the mapping of the state's tidal wetlands. A permit is required for activities that would alter NYSDEC-mapped wetlands or tidal wetland adjacent area. NYSDEC-regulated littoral zone tidal wetlands are mapped within Newtown Creek where waters are 6 feet deep or less at mean low water (MLW).

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES) (ECL ARTICLE 3, TITLE 3; ARTICLE 15; ARTICLE 17, TITLES 3, 5, 7, 8; ARTICLE 21; ARTICLE 70, TITLE 1; ARTICLE 71, TITLE 19; IMPLEMENTING REGULATIONS 6 NYCRR ARTICLES 2, 3)

Title 8 of Article 17, ECL, Water Pollution Control, authorized the creation of SPDES to regulate discharges to New York State's waters pursuant to a delegation by EPA to New York State of permitting authority pursuant to the Clean Water Act. Activities requiring a SPDES permit include point source discharges of wastewater into surface or groundwater of the state, constructing or operating a disposal system (sewage treatment plant), discharge of stormwater, and construction activities that disturb one or more acres. Construction activities and operation of the Proposed Project as it relates to new or modified outfalls would require SPDES permits. CSO outfalls are covered under their respective drainage area's Wastewater Resource Recovery Facility (WRRF) SPDES permit. Significant modifications to existing outfalls (e.g., structural or operational modification that results in changes to the volume or composition of the discharge) would require modification to the existing WRRF SPDES permits that regulate their discharge.

ENDANGERED AND THREATENED SPECIES OF FISH AND WILDLIFE; SPECIES OF SPECIAL CONCERN (ECL, SECTIONS 11-0535 [1]-[2], 11-0536[2], [4], IMPLEMENTING REGULATIONS 6 NYCRR PART 182)

The Endangered and Threatened Species of Fish and Wildlife, and Species of Special Concern Regulations prohibit the taking, import, transport, possession, or selling of any endangered or threatened species of fish or wildlife, or any hide, or other part of these species as listed in 6 NYCRR §182.6. Under these regulations, adverse modification of occupied habitat or endangered or threatened species is prohibited without authorization from NYSDEC. Species protected under these regulations have the potential to occur in the vicinity of Newtown Creek.

CITY

NEW YORK CITY LOCAL LAW 3 (NYCRR CHAPTER 5)

Local Law 3 of 2010 amended Section 18-107 of the Administrative Code of the City of New York and codifies the New York City Department of Parks and Recreation's (NYC Parks) ability to regulate the replacement of trees on or within jurisdiction of the NYC Parks, which includes all trees growing in the public right-of-way and on land mapped as City parkland. The law requires permits from the NYC

Parks for the removal of trees within NYC Parks' jurisdiction and requires replacement of trees that are removed. The law protects against the unauthorized removal, destruction, irreparable damage, and/or injury to trees under the jurisdiction of NYC Parks. The Proposed Project would be subject to Local Law 3 should it require removal of any street trees during construction, which would be determined at a future design phase.

NEW YORK CITY LOCAL LAW 15 (INT. NO. 1482-B)

Local Law 15 of 2020 amended Section 28-101.4.3 of the Administrative Code of the City of New York to require all new construction and renovation projects where glazing is to be replaced to use bird-friendly materials. Local Law 15 also amends Section 1402.1 of the New York City Building Code by adding bird-friendly building design and construction requirements. The law applies to all projects filed on or after January 10, 2021. For the Proposed Project, any above ground structures with glass glazing would be subject to Local Law 15.

D. EXISTING CONDITIONS

GROUNDWATER

The study area is within the Brooklyn-Queens Aquifer System, which is composed of the Upper Glacial, Jameco, Lloyd, and Magothy aquifers, and is designated as a Sole Source Aquifer by EPA. This aquifer system consists of deposits of unconsolidated gravel, sand, silt, and clay from the Holocene, Pleistocene, and Late Cretaceous age, which have a total thickness of about 1,050 feet in New York City. Groundwater within the study area is anticipated to be up to 20 feet below grade and is influenced by the tidal cycle (DEP 2024a). Groundwater flows toward Newtown Creek in the study area are based on the local topography. Groundwater in New York City is not used as a source of potable water; rather, the City's drinking water is provided by a surface supply system composed of 19 upstate reservoirs and three controlled lakes, which along with their major tributaries, are protected under the NYC Watershed Program.

As discussed in Chapter 12, "Hazardous Materials," groundwater samples from the study area were found to have concentrations of the chlorinated volatile organic compound (CVOC) cis-1,2 dichloroethene (cis-DCE), the VOCs chloroform and toluene, and the metals chromium, copper, iron, lead, manganese, nickel, silver and sodium in exceedance of 6 NYCRR Part 703 standards for groundwater. Documented petroleum contamination in groundwater is widespread around Newtown Creek and its tributaries due to current and former oil and gas operations. Groundwater samples collected in the study area between 2012 and 2015 by EPA contained elevated concentrations of polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and copper (EPA 2023, Trustee Council 2024). Newtown Creek was designated as a Superfund site by EPA in 2010 under CERCLA due to discharges and subsurface contamination (i.e., soil and groundwater) from neighboring industrial uses like oil refineries, smelting operations, manufactured gas plants, and other operations.

FLOODPLAINS

New York City is affected by local or street flooding (e.g., inland flooding due to short-term, high-intensity rain events coupled with inadequate drainage), fluvial flooding (e.g., rivers and streams overflowing their banks), and coastal flooding (e.g., high tides and/or storm surges) that affect the City's Atlantic coast, bays, and tidally influenced rivers and inlets (FEMA 2013). As a tidally influenced inlet, Newtown Creek is influenced by tides and meteorological forces like hurricanes and not by fluvial flooding. According to the 2015 FEMA preliminary FIRM, portions of the study area are in the 1 percent annual chance floodplain in Zone AE (area of high flood risk subject to inundation by the 1 percent annual chance flood event) with base flood elevations (BFE) of +10 feet and +11 feet North American Vertical Datum of 1988 (NAVD88) (see **Figure 11-1**). Portions of the study area along the shore and in upland locations are also in the 0.2 percent annual chance floodplain or outside of both floodplains. The TDPS site and outfalls NCB-015, NCB-083, NCQ-077, and BB-026 would be within the 1 percent annual chance floodplain, and the drop shafts and portions of the diversion facilities would either be in the 0.2 percent annual chance floodplain or outside both floodplains (see **Figure 11-1**). The shoreline in the study area is bulkheaded or otherwise engineered (NOAA 2001).

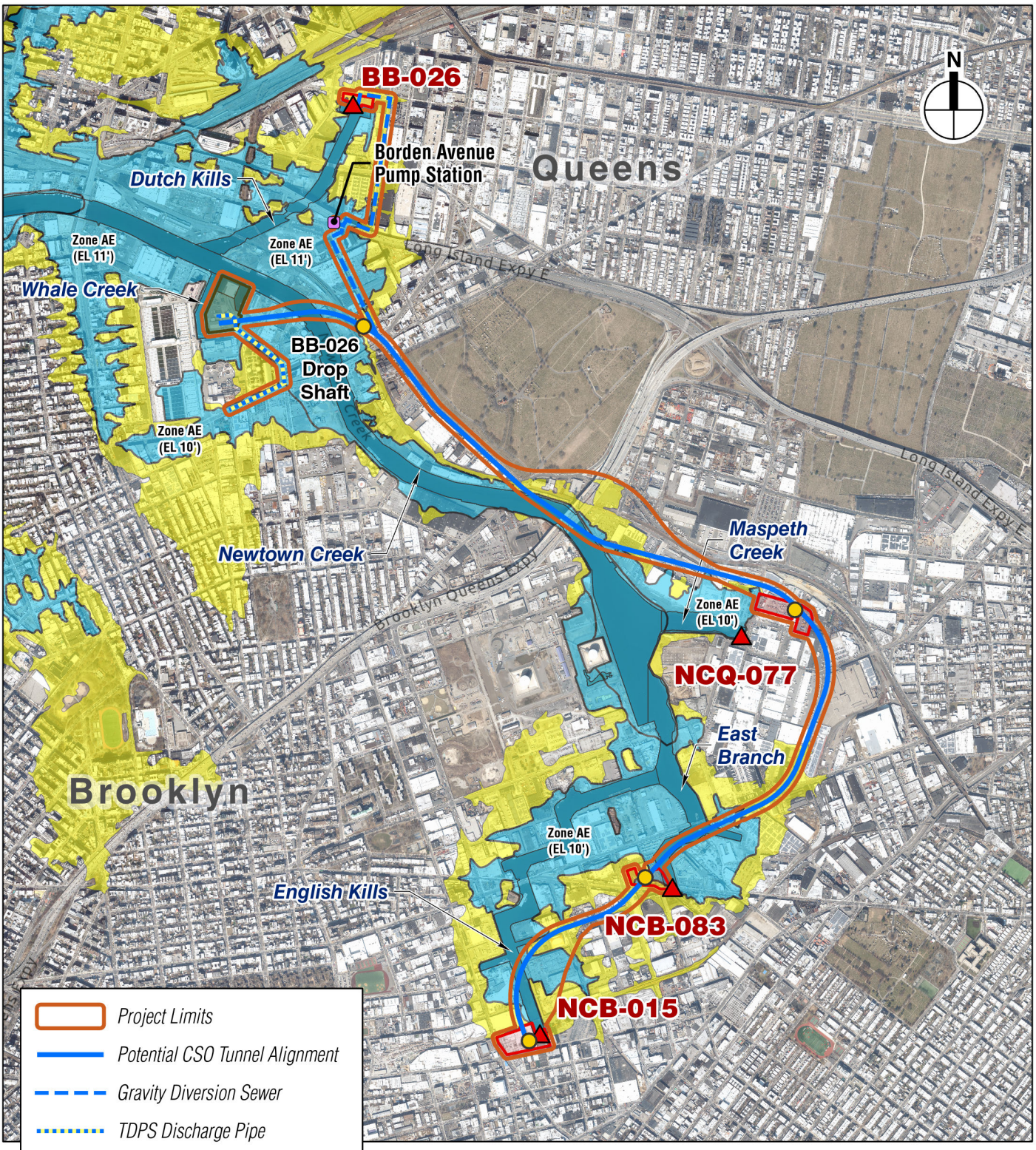
WETLANDS

Newtown Creek is mapped by the USFWS National Wetland Inventory as an estuarine subtidal wetland with an unconsolidated bottom (E1UBL). Maspeth Creek is also mapped as E1UBL, while the remaining four tributaries to Newtown Creek are mapped by NWI as estuarine subtidal wetlands with unconsolidated bottoms that have been excavated (E1UBLx) (see **Figure 11-2**). Small areas (0.01 to 0.06 acres) at the head of Dutch Kills, English Kills, and East Branch are mapped by NWI as permanently flooded, unknown perennial riverine systems with unconsolidated bottoms (R5UBH). Newtown Creek is also mapped by NYSDEC as littoral zone tidal wetland (see **Figure 11-3**). Littoral zone wetlands are any tidal wetlands under no more than 6 feet of water at MLW that are not included under any other tidal wetland category.

These NWI- and NYSDEC-mapped wetlands do not meet the definition of wetlands as defined by USACE wetland methodology due to the lack of hydrophytic vegetation (USACE 1987 and 2011). However, these areas are regulated as waters of the United States by USACE. There are no NYSDEC-mapped freshwater wetlands within the study area. Additionally, because the shoreline at the Proposed Project sites was bulkheaded prior to the establishment of the NYSDEC tidal wetlands regulations in 1977 and the bulkhead is currently functional, there is no regulated tidal wetlands adjacent area (TWAA) within the study area.

AQUATIC RESOURCES

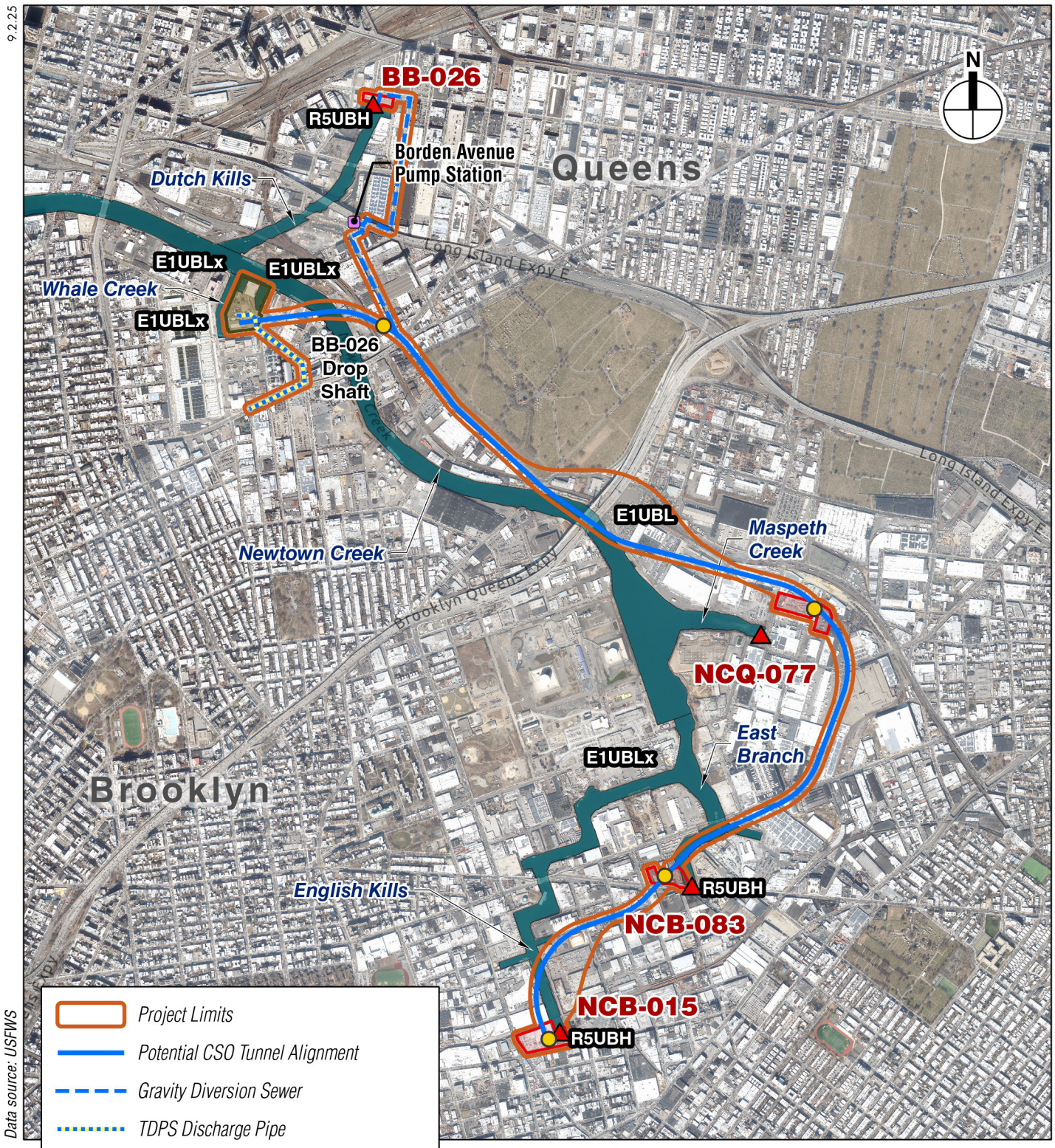
Newtown Creek is an approximately 3.8-mile tidally influenced, tributary of the East River located on the border of Queens and Kings Counties. The shoreline is bulkheaded or stabilized with riprap to accommodate heavy industrial development in the area beginning in the mid-1800s (DEP 2011). It includes five channelized tributaries: Dutch Kills, Whale Creek, Maspeth Creek, English Kills, and East Branch. Newtown Creek discharges to the East River, which is within the Upper New York Bay portion of the New York-New Jersey Harbor Estuary. Throughout most of its length, Newtown Creek



FEMA PRELIMINARY FIRM

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

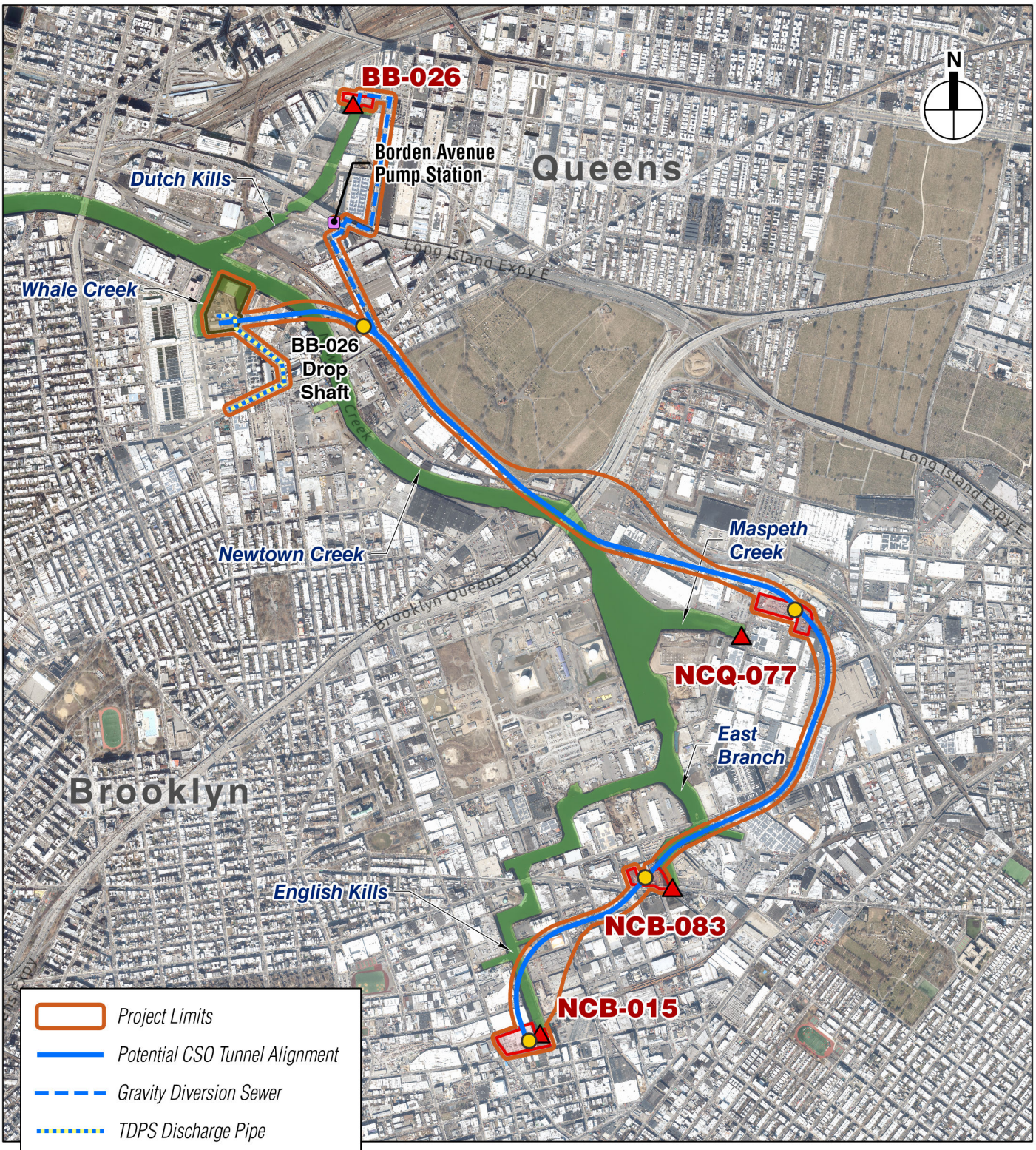
Figure 11-1



NWI Mapped Wetlands

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 11-2



NYSDEC Tidal Wetlands

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 11-3

and its tributaries are approximately 200 to 300 feet wide, though the Creek widens to approximately 820 feet near its confluence with the East River (DEP 2011). USACE maintains a federal navigation channel from the mouth of Newtown Creek to Grand Street at water depths ranging from 20 feet to 23 feet deep and a portion of English Kills to a depth of 12 feet. USACE (2023) recently indicated that areas of shallow water and sediment deposition are present within every maintained reach of Newtown Creek and sometimes extends across the full width of the channel. Water depths are generally shallow at the head of the tributaries, particularly English Kills and East Branch, where sediment has accumulated over time. The only freshwater inflow to Newtown Creek is from wet-weather CSO and stormwater discharges (DEP 2017). Due to its narrow width, limited freshwater input, and enclosed upper end, current velocities within Newtown Creek are low and tidal exchange with the East River is limited (DEP 2011, DEP 2017).

WATER QUALITY

Water quality in Newtown Creek has historically been influenced by discharges to the waterway from oil refining, sugar refining, textile manufacturing, and canning (DEP 2011). While discharges from waterfront industrial activities have significantly declined over the years, water quality within Newtown Creek is influenced by CSO discharges, stormwater discharges, and waste produced by industrial, manufacturing, transportation, and utility activities in the study area (DEP 2017, DEP 2011). NYSDEC classifies Newtown Creek and its tributaries as Class SD saline surface waters. Under 6 NYCRR Part 701, the best use of Class SD waters is fishing, with water quality suitable for fish, shellfish, and wildlife survival. NYSDEC lists Newtown Creek and its tributaries as impaired for garbage and refuse, dissolved oxygen, and fecal coliforms (NYSDEC 2022).

DEP monitors water quality in the New York Harbor, including Newtown Creek, through its Harbor Survey Program. The results of recent surveys show that the water quality in the Harbor, including Newtown Creek, has improved since the 1970s because of measures undertaken by New York City and others like improvements to wastewater treatment plants and increased capture of stormwater runoff (DEP 2022, 2024b). Water quality within Newtown Creek is generally more degraded than water quality for the Harbor on a whole, with higher levels of fecal coliform, enterococcus, and nutrients compared to waterbodies with stronger tidal exchange. Sampling within Newtown Creek has indicated that fecal coliform levels frequently exceed the standard of 200 cfu/100mL for Class SD waters, particularly during wet-weather events (DEP 2017).

Recent water quality data (2013 to 2023) from DEP Harbor Survey Stations NC1 and NC3 are summarized below in **Table 11-1**. Station NC1 is in the mainstem of Newtown Creek south of the Kosciuszko Bridge and near Maspeth Creek, towards the head of the creek. Station NC3 is in the mainstem of Newtown Creek between Dutch Kills and Whale Creek, towards the mouth of the creek.

Table 11-1
DEP Harbor Survey Water Quality Data for Sampling Stations NC1 and NC3 (2013 to 2023)

Parameter [*Use Class SD Standard*]	Station NC1						Station NC3					
	Surface Waters			Bottom Waters			Surface Waters			Bottom Waters		
	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg	Min	Max	Avg
Temperature (F) [*No standard*]	33.1	80.6	66.1	33.4	80.0	65.4	33.5	81.1	65.8	33.6	81.0	65.1
Salinity (practical salinity units, or psu) [*No standard*]	4.6	25.3	21.2	17.4	25.7	22.6	11.5	25.6	22.1	17.9	26.1	23.1
Fecal coliform (Colony forming units [cfu] per 100 mL) [*Monthly geometric mean less than or equal to 2,000 colonies/100mL*] (1)	4.0	200,000	8,811	4.0	102,000	5,286	3.0	200,000	4,844	3.0	122,000	3,564
Enterococcus, cfu/100mL [*No standard*] (2)	4.0	17,500	882.4	4.0	6,000	496.5	4.0	19,000	418.3	4.0	7,800	296.6
DO (mg/L) [*Never less than 3 mg/L*]	0.8	16.4	5.7	0.6	15.6	5.4	2.8	14.3	6.2	2.6	12.5	6.1
Secchi transparency (ft) [*No standard*]	1.0	11.0	3.1	–	–	–	1.0	7.5	3.4	–	–	–
Chlorophyll-*a* (µg/L) [*No standard*]	0.8	356.0	33.9	–	–	–	0.7	97.9	16.6	–	–	–

Notes:

(1) Fecal coliform standards are not based on the maximum fecal coliform values. Compliance with the fecal coliform standard is based on a monthly geometric mean comprising at least 5 measurements in the span of a month. Sufficient data are not available to calculate the fecal coliform standard for this monitoring period.

(2) NYSDEC does not identify a standard for enterococcus; however, EPA provides a standard for bathing of 35 cfu/100mL.

Sources: DEP 2025; 6 NYCRR Part 703 Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations; EPA Recreational Water Quality Criteria (Office of Water 820-F-12-058)

As summarized in **Table 11-1**, surface water temperatures at both stations ranged from 33°F to 81°F with an average of about 66°F, with comparable temperatures in bottom waters. Salinity averaged 21 to 22 psu at the surface and about 23 psu at the bottom, with lower minimum salinity observed at Station NC1 near the head of Newtown Creek. Dissolved oxygen levels ranged from less than one milligram per liter (mg/L) to 16.4 (mg/L), with an average between 5 and 6 mg/L. Dissolved oxygen fell below the standard in 17 percent of surface samples and 44 percent of bottom samples at Station NC1 near the head of Newtown Creek between 2013 and 2023. Dissolved oxygen met the standard for SD waters more frequently at Station NC3 near the mouth of Newtown Creek, falling below the standard in only 6 percent of samples in both surface and bottom waters between 2013 and 2023. Fecal coliform levels at Station NC1 ranged from 3 or 4 cfu/100mL to 200,000 cfu/100mL at both stations, with averages between 4,800 and 9,000 at the surface and 3,500 and 5,500 at the bottom. Enterococci levels showed similar ranges for both stations, with high measurements likely occurring following wet-weather events. Secchi transparency averaged about 3 feet for both stations, which is a typical water clarity level for estuarine waterbodies. The average concentration of chlorophyll-a at Station NC1 of 33.9 µg/L is

representative of degraded water quality. Values greater than 20 µg/L are an indicator of potential eutrophication, or excess dissolved nutrients within the water column. Chlorophyll-a levels had an average of 16.6 µg/L at Station NC3 near the mouth of Newtown Creek, which is lower than the concentrations observed at NC1 near the head of the creek and not indicative of excess nutrients.

SEDIMENT QUALITY

Sediments in Newtown Creek are generally soft with high moisture and organic content and comprise mud with varying amounts of clay, silt, and sand (Anchor QEA 2023). The bottom is dominated by small-grained material because tidal exchange in Newtown Creek is limited by its narrow width and channelization, and sand and gravel are not easily transported from the East River. Sand and larger-grained sediments are primarily introduced from CSO inputs, stormwater, and direct drainage. Input from industries that store and transport sand and gravel are also likely sources of these materials within Newtown Creek (DEP 2017).

Typical of any urban watershed, sediments in the New York Harbor, including Newtown Creek, are contaminated due to the history of industrial uses in the area. Contaminants found throughout the region include pesticides, such as chlordane and dichlorodiphenyltrichloroethane (DDT), metals such as mercury, cadmium, lead, and copper, polychlorinated biphenyls (PCBs), and PAHs (Rohmann and Lilienthal 1987). Consistent with historic findings, sediments in Newtown Creek are known to be contaminated with PAHs, PCBs, pesticides, lead, mercury, and copper (Trustee Council 2024). In general, older sediments tend to have higher contamination levels than material deposited more recently because they were deposited during a period when discharges to the waterways were untreated or poorly treated, and historic contamination is generally more significant than that associated with current external sources (Lodge et al. 2015). In Newtown Creek, mixing of newly deposited sediment at the surface with existing deeper sediments varies based on the influence of tidal flow, point source discharges, stormwater flow, and other sources (EPA 2023). Contaminants are found in surface and subsurface materials and primarily include PCBs, PAHs, aliphatic hydrocarbons, lead, copper, and dioxins/furans (EPA 2023). Contaminant levels are generally higher in the tributaries and lower in the main channel of Newtown Creek, especially near the mouth where tidal flushing is stronger.

AQUATIC BIOTA

Historically, aquatic biota in Newtown Creek have been restricted by poor water and sediment quality caused by CSO discharges and limited tidal exchange leading to contamination, low levels of dissolved oxygen, and degraded physical habitat conditions (DEP 2017). As described in the sections below, most species regularly observed within Newtown Creek are pollution tolerant.

Primary Producers

Phytoplankton, submerged aquatic vegetation (SAV), and benthic macroalgae are the primary producers of energy in the marine environment. Phytoplankton are microscopic plants whose movements within a waterbody are largely governed by prevailing tides and currents. Light penetration, turbidity, and nutrient concentrations are important factors in determining phytoplankton productivity and biomass. Sampling conducted by DEP (2011) at the mouth of Newtown Creek between 1991 and

1999 identified a total of 64 species of phytoplankton, the most frequently collected species of which were green algae (*Nannochloris atomus*), diatoms *Skeletonema costatum* and *Rhizosolenia delicatula*, and dinoflagellates *Peridinium spp.* and *Prorocentrum redfieldii*. These species are comparable to those found throughout New York Harbor and their presence at the mouth of Newtown Creek is likely due to tidal exchange with the East River.

SAV consists of rooted aquatic plants that are often found in shallow areas of estuaries and provide nursery and refuge habitat for fish. Due to limited light penetration, extensive shoreline development, and swift currents, SAV does not occur within the New York Harbor (USACE 2022). Limited light penetration, widespread sediment deposition, and bulkheaded shorelines do not allow for SAV growth within Newtown Creek, and SAV has not been observed near the Proposed Project sites.

Benthic macroalgae are large multicellular algae that are important primary producers in the aquatic environment. They are often seen on rocks jetties, pilings, and sandy or muddy bottoms (Hurley 1990). Because these organisms require sunlight as their primary source of energy, the limited light penetration throughout the New York Harbor limits their distribution to shallow areas. Common macroalgae known to occur within the Harbor that could also occur in Newtown Creek include the brown algae *Fucus vesiculosus* and the sea lettuce *Ulva lactuca* (Perlmuter 1971).

Zooplankton

Zooplankton are primary grazers of phytoplankton and detritus and represent a primary food source for organisms at higher trophic levels. Consumers of zooplankton typically include forage fish, such as bay anchovy, and early life stages of commercially and recreationally significant species like striped bass and white perch. DEP (2011) identified 15 species of zooplankton in sampling conducted between 1991 and 1999, primarily comprising protozoans and copepods. The most frequently collected species were the protozoa *Tintinnopsis spp.* and copepod nauplii (DEP 2011), which are widely distributed in the region.

Benthic Invertebrates

Benthic invertebrates inhabit the sediments and surfaces of submerged objects, such as rock pilings or debris, and are a food source for fish and waterfowl throughout the New York Harbor. Sediment grain size, chemistry, and physical properties are determining factors of which benthic organisms inhabit given areas. As benthic organisms are associated with sediments and have limited mobility, the benthic community structure reflects local water and sediment quality (DEP 2011). Benthic inventories conducted by DEP in 2001 and 2003 observed generally low species diversity and abundance throughout Newtown Creek and its tributaries, with the greatest number of individuals observed between the middle and mouth of Newtown Creek (DEP 2011). Annelida and oligochaete worms were collected in the highest abundance, followed by the polychaete worm *Streblospio benedictii*, which is an opportunistic species commonly found in soft sediments. Species collected at the head of Newtown Creek were limited to annelids, oligochaetes, insects, and copepods. The dwarf surf clam (*Mulinia lateralis*) was observed at the head of English Kills (DEP 2011). This species is tolerant of degraded conditions like extreme temperatures and low dissolved oxygen levels. The benthic community in

Newtown Creek is considered to be stressed based on its pollution tolerance, low species diversity, and low abundance (Anchor QEA 2023).

Finfish

The finfish community in the New York Harbor and connected waterbodies is typical of large coastal estuaries and inshore waterways along the Mid-Atlantic Bight and includes a variety of estuarine, marine, catadromous (migrating from fresh water to spawn in salt water), and anadromous (migrating from salt water to spawn in fresh water) fish species that use its waters for spawning, nursery, migratory, and foraging purposes. Ichthyoplankton sampling conducted in the spring and summer of 2001 as part of the Harbor-wide Ichthyoplankton Field Sampling and Analysis Program (FSAP) identified 18 taxa in Newtown Creek, mainly near its confluence with the East River. Most eggs were collected in May and the vast majority were cunner (*Tautogolabrus adspersus*) followed by tautog (*Tautoga onitis*); wrasse eggs (Labridae) were collected in high abundance in July (DEP 2011). Very few larvae were collected in comparison.

The fish community within Newtown Creek is known to be sparse, especially during the summer when dissolved oxygen levels can be very low (Anchor QEA 2018). The dominant fish species collected in the summer months of 2012 and 2014 during the Baseline Ecological Risk Assessment (BERA) for Newtown Creek were mummichog (*Fundulus heteroclitus*), Atlantic menhaden (*Brevoortia tyrannus*), and striped bass (*Morone saxatilis*) (Anchor QEA 2018). Surveys conducted between 2013 and 2018 by the Newtown Creek Alliance observed Atlantic menhaden, American eel (*Anguilla rostrata*), banded killifish (*Fundulus diaphanus*), mummichog, striped bass, summer flounder (*Paralichthys dentatus*), and winter flounder (Trustee Council 2024). While some finfish species can occur in Newtown Creek year-round, like cunner and tautog, most of the finfish community in the Canal is likely dominated by migratory species common to the Harbor or the East River such as those listed above. Many species may be present near the mouth of Newtown Creek as part of their movement patterns, but few are likely to remain in substantial numbers throughout the waterbody given its degraded conditions, especially towards the head of Newtown Creek.

ESSENTIAL FISH HABITAT

As described above under "Regulatory Context," EFH is defined by NOAA Fisheries as waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. NOAA Fisheries designates EFH within marine and tidally influenced waters. **Table 11-2** lists the species and life stages of fish NOAA Fisheries has identified as having EFH in Newtown Creek.

Table 11-2
Species with Designated Essential Fish Habitat in Newtown Creek

Species	Eggs	Larvae	Juveniles	Adults
Atlantic butterfish (*Peprilus triacanthus*)		X		
Atlantic herring (*Clupea harengus*)		X	X	X
Bluefish (*Pomatomus saltatrix*)			X	X
Clearnose skate (*Raja eglanteria*)			X	X
Little skate (*Leucoraja erinacea*)			X	X
Long-finned squid (*Doryteuthis pealeii*)	X			
Red hake (*Urophycis chuss*)	X	X	X	X
Summer flounder (*Paralicthys dentatus*)		X	X	X
Windowpane flounder (*Scopthalmus aquosus*)	X	X	X	X
Winter flounder (*Pseudopleuronectes americanus*)	X	X	X	X
Winter skate (*Leucoraja ocellata*)			X	X
Sources: NOAA Fisheries EFH Mapper at https://www.habitat.noaa.gov/apps/efhmapper/				

TERRESTRIAL RESOURCES

ECOLOGICAL COMMUNITIES

Ecological communities within the study area include those best described by Edinger et al. (2014) as terrestrial cultural[1] and open uplands[2] communities which includes paved road/path,[3] urban vacant lot,[4]

[1] Edinger et al. 2014 defines the terrestrial cultural subsystem of ecological communities as "communities that are either created and maintained by human activities, or are modified by human influence to such a degree that the physical conformation of the substrate, or the biological composition of the resident community is substantially different from the character of the substrate or community as it existed prior to human influence."

[2] Edinger et al. 2014 defines this subsystem of ecological communities as "communities with less than 25 percent canopy cover of trees; the dominant species in these communities are shrubs, herbs, or cryptogammic plants (mosses, lichens, etc.)."

[3] Edinger et al. 2014 defines the paved road/path ecological community as "a road or pathway that is paved with asphalt, concrete, brick, stone, etc. There may be sparse vegetation rooted in cracks in the paved surface."

[4] Edinger et al. 2014 defines the urban vacant lot ecological community as "an open site in a developed, urban area that has been cleared either for construction or following the demolition of a building. Vegetation may be sparse, with large areas of exposed soil, and often with rubble or other debris."

urban structure exterior,[5] riprap/artificial shore,[6] flower/herb garden,[7] and successional southern hardwoods.[8] Vegetation throughout the study area is sparse and primarily limited to street trees including honeylocust (*Gleditsia triacanthos*) and ruderal species (i.e., vegetation tolerant of disturbed habitat) including tree of heaven (*Ailanthus altissima*), white mulberry (*Morus alba*), and common mugwort (*Artemisia vulgaris*). Ecological communities within the study area are commonly found throughout New York City, and plant communities are generally dominated by disturbance-tolerant invasive vegetation.

Portions of the Newtown Creek shoreline are narrowly lined with 5- to 30-foot-wide strips of vegetation in areas along the bulkhead and riprap where pioneer plant species have been able to grow. These areas are typically adjacent to urban vacant lots or impervious surfaces and are dominated by invasive species such as tree of heaven, princess tree (*Paulownia tomentosa*), common mugwort, and Japanese knotweed (*Reynoutria japonica*). Larger vegetated areas classified as successional southern hardwoods ecological communities are present north and south of the Plank Road Public Shoreline and near the mouth of Dutch Kills along an abandoned railway. These areas are approximately 30 to 180 feet wide and do not coincide with any of the outfall sites or the TDPS site. Dominant vegetation in these areas includes tree of heaven, princess tree, black locust (*Robinia pseudoacacia*), eastern cottonwood (*Populus deltoides*), common mugwort, Japanese knotweed, eastern poison ivy (*Toxicodendron radicans*), and Virginia creeper (*Parthenocissus quinquefolia*).

The flower/herb garden community is primarily found at the Kingsland Wildflowers Green Roof, a 25,000-square-foot rooftop native pollinator garden east of Whale Creek, near the TDPS site, the LIC Roots Community Garden just east of the head of Dutch Kills and BB-026, and at the Plank Road Public Shoreline on the east shore of the Newtown Creek between Maspeth Creek and East Branch about halfway between NCQ-077 and NCB-083. The Kingsland Wildflowers rooftop garden is a wildflower meadow comprising native flowering species, including butterfly weed (*Asclepias tuberosa*) (Kingsland Wildflowers 2025). The LIC Roots Community Garden is a small greenspace with flower beds on the corner of 47th Avenue and 29th Street. The Plank Road Public Shoreline is

[5] Edinger et al. 2014 defines the urban structure exterior ecological community as "the exterior surfaces of metal, wood, or concrete structures (such as commercial buildings, apartment buildings, houses, bridges) or any structural surface composed of inorganic materials (glass, plastics, etc.) in an urban or densely populated suburban area."

[6] Edinger et al. 2014 defines the riprap/artificial shore ecological community as "a lake/pond shore, or stream/river shore that is covered with coarse stones, cobbles, concrete slabs, gabions, etc. placed for erosion control. The vegetation is usually sparse."

[7] Edinger et al. 2014 defines the flower/herb garden ecological community as "residential, commercial, or horticultural land cultivated for the production of ornamental herbs and shrubs."

[8] Edinger et al. 2014 defines the successional southern hardwoods ecological community as "a hardwood or mixed forest that occurs on sites that have been cleared or otherwise disturbed."

part of a restoration project led by the Newtown Creek Alliance which developed a native pollinator garden and public open space where Plank Road meets the shoreline (Newtown Creek Alliance 2024).

The TDPS and outfall sites are sparsely vegetated and typically dominated by invasive species found throughout Newtown Creek including tree of heaven, Japanese knotweed, and poison ivy. The invasive vines Japanese honeysuckle (*Lonicera japonica*) and Asiatic bittersweet (*Celastrus orbiculatus*) also occur at the Proposed Project sites. Trees common to urban environments like honey locust, black locust, Norway maple (*Acer platanoides*), eastern cottonwood, and white mulberry can be found at the NCB-083 outfall site. Vegetation is fairly dense along a narrow strip of shoreline (i.e., 5 to 15 feet wide) at the head of East Branch where project activities would take place at NCB-083. Tree of heaven, white mulberry, and princess tree also occur at the NCB-015 outfall site at the head of English Kills.

WILDLIFE

The study area provides limited natural terrestrial wildlife habitat; it is a highly industrialized area with asphalt, concrete, granite pavers, unvegetated compacted soil, and sparse vegetation along the perimeter of Newtown Creek. As such, only the most urban-adapted, generalist species that can tolerate highly degraded environments and high levels of human activity currently have the potential to occur within the study area.

Habitat for mammals is limited within the study area and is likely used by only the most urban-adapted species including Norway rat (*Rattus norvegicus*), feral cat (*Felis catus*), raccoon (*Procyon lotor*), and gray squirrel (*Sciurus carolinensis*). Due to the limited habitat and fully developed surroundings, no reptiles or amphibians are expected to occur at the Proposed Project sites, and none were observed during the 2013 or 2016 wildlife surveys of Newtown Creek conducted by the Newtown Creek Alliance (Trustee Council 2024).

The New York State Breeding Bird Atlas is a periodic census of the distribution of New York State's breeding birds. The census was last completed from 2000 to 2005 while the most recent was conducted from 2020 to 2024 and is currently being finalized. The 2000 to 2005 census documented 43 species as confirmed or probable/possible breeders within Blocks 5850A, 5850B, and 5851C, which contain the study area. The 2020 to 2024 Breeding Bird Atlas identified 92 confirmed or probable/possible breeding birds within the Brooklyn NE and Brooklyn NW survey blocks in which the study area is located. The summary of breeding bird data presented in **Table 11-3** identifies the species documented in both censuses as of January 21, 2025. The survey blocks of the breeding bird censuses are significantly larger than the study area and comprise diverse habitat types with sufficient habitat to support these species, including the East River, Central Park and Corlears Hook Park in Manhattan, Marsha P. Johnson State Park and McCarren Park in Brooklyn, and Juniper Valley Park and a number of large, vegetated cemeteries in Queens. Bird species considered most likely to use the limited and highly disturbed habitat available within the study area for breeding purposes include the generalist species European starling (*Sturnus vulgaris*), house sparrow (*Passer domesticus*) and rock pigeon (*Columba livia*).

Table 11-3

Birds Documented during the NYS 2000-2005 Second Breeding Bird Atlas (Blocks 5850A, 5850B, & 5851C) and 2020-2024 Third Breeding Bird Atlas (Brooklyn NE & Brooklyn NW)

Common Name	Scientific Name	2000-2005	2020-2024	Common Name	Scientific Name	2000-2005	2020-2024
Sharp-shinned hawk	*Accipiter striatus*		X	Great crested flycatcher	*Myiarchus crinitus*	X	X
Red-winged blackbird	*Agelaius phoeniceus*	X	X	Double-crested cormorant	*Nannopterum auritum*	X	X
Mallard	*Anas platyrhynchos*	X	X	Osprey ^	*Pandion haliaetus* ^		X
Cooper's hawk ^	*Astur cooperii* ^		X	House sparrow	*Passer domesticus*	X	X
Tufted titmouse	*Baeolophus bicolor*	X	X	Savannah sparrow	*Passerculus sandwichensis*		X
Cedar waxwing	*Bombycilla cedrorum*	X	X	Fox sparrow	*Passerella iliaca*		X
Canada goose	*Branta canadensis*	X	X	Indigo bunting	*Passerina cyanea*		X
Red-tailed hawk	*Buteo jamaicensis*	X	X	Rose-breasted grosbeak	*Pheucticus ludovicianus*		X
Green heron	*Butorides virescens*	X		Eastern towhee	*Pipilo erythrophthalmus*		X
Northern cardinal	*Cardinalis cardinalis*	X	X	Scarlet tanager	*Piranga olivacea*		X
Veery	*Catharus fuscescens*		X	Black-capped chickadee	*Poecile atricapillus*		X
Hermit thrush	*Catharus guttatus*		X	Common grackle	*Quiscalus quiscula*	X	X
Brown creeper	*Certhia americana*		X	Eastern phoebe	*Sayornis phoebe*		X
Chimney swift	*Chaetura pelagica*	X	X	Ovenbird	*Seiurus aurocapilla*		X
Northern flicker	*Colaptes auratus*	X	X	Northern parula	*Setophaga americana*		X
Rock pigeon	*Columba livia*	X	X	Black-throated blue warbler	*Setophaga caerulescens*		X
Eastern wood-pewee	*Contopus virens*	X	X	Bay-breasted warbler	*Setophaga castanea*		X
Ruby-crowned kinglet	*Corthylio calendula*		X	Yellow-rumped warbler	*Setophaga coronata*		X
American crow	*Corvus brachyrhynchos*	X	X	Prairie warbler	*Setophaga discolor*		X
Common raven	*Corvus corax*		X	Blackburnian warbler	*Setophaga fusca*		X
Blue jay	*Cyanocitta cristata*	X	X	Magnolia warbler	*Setophaga magnolia*		X
Mute swan	*Cygnus olor*	X		Chestnut-sided warbler	*Setophaga pensylvanica*		X
Downy woodpecker	*Dryobates pubescens*	X	X	Yellow warbler	*Setophaga petechia*		X
Gray catbird	*Dumetella carolinensis*	X	X	Pine warbler	*Setophaga pinus*		X
Merlin	*Falco columbarius*		X	American redstart	*Setophaga ruticilla*		X
Peregrine falcon †	*Falco peregrinus* †	X	X	Blackpoll warbler	*Setophaga striata*		X
American kestrel	*Falco sparverius*	X	X	Black-throated green warbler	*Setophaga virens*		X

Table 11-3

Birds Documented during the NYS 2000-2005 Second Breeding Bird Atlas (Blocks 5850A, 5850B, & 5851C) and 2020-2024 Third Breeding Bird Atlas (Brooklyn NE & Brooklyn NW)

Common Name	Scientific Name	2000-2005	2020-2024	Common Name	Scientific Name	2000-2005	2020-2024
Common yellowthroat	*Geothlypis trichas*		X	Red-breasted nuthatch	*Sitta canadensis*		X
House finch	*Haemorhous mexicanus*	X	X	White-breasted nuthatch	*Sitta carolinensis*	X	X
Purple finch	*Haemorhous purpureus*		X	Yellow-bellied sapsucker	*Sphyrapicus varius*		X
Worm-eating warbler	*Helmitheros vermivorum*		X	American goldfinch	*Spinus tristis*		X
Barn swallow	*Hirundo rustica*	X	X	Chipping sparrow	*Spizella passerina*		X
Wood thrush	*Hylocichla mustelina*	X	X	Field sparrow	*Spizella pusilla*		X
Baltimore oriole	*Icterus galbula*	X	X	Common tern *	*Sterna hirundo* *		X
Orchard oriole	*Icterus spurius*	X	X	European starling	*Sturnus vulgaris*	X	X
Dark-eyed junco	*Junco hyemalis*		X	Tree swallow	*Tachycineta bicolor*	X	X
Herring gull	*Larus argentatus*	X		Carolina wren	*Thryothorus ludovicianus*	X	X
Great black-backed gull	*Larus marinus*		X	Brown thrasher	*Toxostoma rufum*		X
American herring gull	*Larus smithsonianus*		X	Northern house wren	*Troglodytes aedon*	X	X
Nashville warbler	*Leiothlypis ruficapilla*		X	American robin	*Turdus migratorius*	X	X
Eastern screech-owl	*Megascops asio*	X		Eastern kingbird	*Tyrannus tyrannus*	X	X
Red-bellied woodpecker ^	*Melanerpes carolinus* ^	X	X	Blue-winged warbler	*Vermivora cyanoptera*		X
Swamp sparrow	*Melospiza georgiana*		X	Warbling vireo	*Vireo gilvus*	X	X
Song sparrow	*Melospiza melodia*	X	X	Red-eyed vireo	*Vireo olivaceus*	X	X
Red-breasted merganser	*Mergus serrator*		X	Blue-headed vireo	*Vireo solitarius*		X
Northern mockingbird	*Mimus polyglottos*	X	X	Mourning dove	*Zenaida macroura*	X	X
Black-and-white warbler	*Mniotilta varia*		X	White-throated sparrow	*Zonotrichia albicollis*		X
Brown-headed cowbird	*Molothrus ater*		X	White-crowned sparrow	*Zonotrichia leucophrys*		X

Table 11-3

Birds Documented during the NYS 2000-2005 Second Breeding Bird Atlas (Blocks 5850A, 5850B, & 5851C) and 2020-2024 Third Breeding Bird Atlas (Brooklyn NE & Brooklyn NW)

Common Name	Scientific Name	2000-2005	2020-2024	Common Name	Scientific Name	2000-2005	2020-2024

Notes: The NYS 2020-2024 Third Breeding Bird Atlas (BBA) is ongoing. Available data are uploaded by volunteer citizen scientists and occasionally reviewed by eBird regional reviewers. Survey blocks are roughly 9 square miles and are a subset of the 7.5' USGS Topo Quad in which the survey block is located. The survey blocks from the Third BBA do not correlate directly with the Second Breeding BBA survey blocks. As of January 21, 2025 the Brooklyn NE block for the 2020-2024 BBA is considered "incomplete," while the Brooklyn NW block is "complete."

† Indicates a state-listed endangered species; * Indicates a state-listed threatened species; ^ Indicates a state-listed species of special concern

Sources: NYS 2000-2005 Second Breeding Bird Atlas results for Blocks 5850A, 5850B, and 5851C. Available: dec.ny.gov/cfmx/extapps/bba/ (Accessed January 21, 2025); NYS 2020-2024 Third Breeding Bird Atlas results for Brooklyn NE & NW blocks. Available: ebird.org/atlasny (Accessed January 21, 2025).

An additional 48 species of waterbird have the potential to occur in the study area during the spring and fall migration and while foraging; seventeen of these species have been observed by birders in the study area (see **Table 11-4**). USFWS (2025) also identifies the potential for certain bird species protected under the MBTA to occur in the study area. Of those species, four have been observed by birders in the study area: chimney swift (*Chaetura pelagica*), double-crested cormorant (*Nannopterum auritum*), red-breasted merganser (*Mergus serrator*), and ring-billed gull (*Larus delawarensis*).

Table 11-4
Waterbird Species with the Potential to Occur Near the Proposed Project Sites

Common Name	Scientific Name	Common Name	Scientific Name
American black duck	***Anas rubripes***	Hooded merganser	*Lophodytes cucullatus*
American coot	*Fulica americana*	Killdeer	*Charadrius vociferus*
American wigeon	*Anas americana*	**Laughing gull**	***Leucophaeus atricilla***
Belted kingfisher	***Megaceryle alcyon***	Least sandpiper	*Calidris minutilla*
Black skimmer	*Rynchops niger*	Lesser scaup	*Aythya affinis*
Black-crowned night-heron	***Nycticorax nycticorax***	Lesser yellowlegs	*Tringa flavipes*
Brant	*Branta bernicla*	Louisiana waterthrush	*Parkesia motacilla*
Bufflehead	***Bucephala albeola***	**Mallard**	***Anas platyrhynchos***
Canada goose	***Branta canadensis***	Marsh wren	*Cistothorus palustris*
Common loon	*Gavia immer*	Mute swan	*Cygnus olor*
Common merganser	*Mergus merganser*	Northern shoveler	*Anas clypeata*
Common tern	*Sterna hirundo*	**Osprey**	***Pandion haliaetus***
Double-crested cormorant	***Phalacrocorax auritus***	Pied-billed grebe	*Podilymbus podiceps*
Fish crow	***Corvus ossifragus***	**Red-breasted merganser**	***Mergus serrator***
Forster's tern	*Sterna forsteri*	**Ring-billed gull**	***Larus delawarensis***
Gadwall	*Anas strepera*	Ring-necked duck	*Aythya collaris*
Great black-backed gull	***Larus marinus***	Ruddy duck	*Oxyura jamaicensis*
Great blue heron	***Ardea herodias***	Semipalmated plover	*Charadrius semipalmatus*
Great egret	*Ardea alba*	Semipalmated sandpiper	*Calidris pusilla*
Greater scaup	*Aythya marila*	Snowy egret	*Egretta thula*
Greater yellowlegs	*Tringa melanoleuca*	**Spotted sandpiper**	***Actitis macularius***
Green heron	***Butorides virescens***	Western sandpiper	*Calidris mauri*
Green-winged teal	*Anas crecca*	Wood duck	*Aix sponsa*
Herring gull	***Larus argentatus***	Yellow-crowned night-heron	*Nyctanassa violacea*

Notes: Species listed in this table have the potential to occur in the study area for migratory or foraging behaviors, not for nesting or breeding. Species in **bold** have been observed by birders at the Kosciuszko Bridge between 2023 and 2025 (https://ebird.org/hotspot/L5282081/bird-list)
Sources: Avian Knowledge Network. Available from: avianknowledge.net/index.php/phenology-tool/ (Accessed February 4, 2025). Sightings recorded at Cornell Lab of Ornithology eBird database. Available from: https://ebird.org/hotspot/L5282081 (Accessed February 4, 2025)

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

According to the USFWS IPaC database, the following five species are documented as having the potential to occur in the study area: tricolored bat (*Perimyotis subflavus*; proposed endangered), piping

plover (*Charadrius melodus*; threatened), red knot (*Calidris canutus rufa*; threatened), roseate tern (*Sterna dougallii dougallii*; endangered), and monarch butterfly (*Danaus plexippus*; proposed threatened). There is no suitable habitat for tricolored bat, piping plover, red knot, or roseate tern within the study area, and DEP determined through the USFWS IPaC system Determination Keys[9] that the Proposed Project would have No Effect on these species. NYNHP identifies peregrine falcon (*Falco peregrinus*; state endangered), green sea turtle (*Chelonia mydas*; threatened), Kemp's ridley sea turtle (*Lepidochelys kempii*; endangered), loggerhead sea turtle (*Caretta caretta*; threatened), and leatherback sea turtle (*Dermochelys coriacea*; endangered) as having the potential to occur in the study area. NOAA Fisheries (2024) identifies adult shortnose sturgeon (*Acipenser brevirostrum*; endangered) and adult and subadult Atlantic sturgeon (*Acipenser oxyrinchus*; endangered) as having the potential to occur within Newtown Creek in the study area. According to the NOAA Fisheries ESA Section 7 Mapper, sea turtle habitat is only available at the mouth of Newtown Creek where it meets the East River (NOAA Fisheries 2024).

The sections below describe habitat preferences of tricolored bat, monarch butterfly, peregrine falcon, shortnose sturgeon, and Atlantic sturgeon. Sea turtle habitat preferences are also described because, while not included in the NOAA Fisheries database results, they were identified by NYNHP as having the potential to occur within Newtown Creek.

TRICOLORED BAT

Tricolored bats are a small species of bat found throughout eastern North America. Although the northern limit of their range extends into Canada, the species were likely never common in New York, which is peripheral to the core of their range (NYNHP 2025a). They hibernate in humid areas within caves and abandoned mines in the winter and are found in wooded or highly vegetated riparian areas in the active season (Menzel et al. 2005). Tricolored bats roost in trees, primarily in the foliage of live or recently dead trees, but have also been documented roosting in rock crevices, caves and structures like barns. They typically forage at the canopy level and prefer open wooded areas near water (NYSDEC 2017, NYNHP 2025a). Highly developed urbanized areas generally devoid of native vegetation, including isolated trees surrounded by expansive development (e.g., parking lots, industrial buildings, shopping centers), are considered unsuitable habitat for tricolored bats (USFWS 2024a). While the Project Site contains street trees and limited shoreline vegetation, it does not provide forested habitat or dense riparian vegetation that tricolored bats prefer, and therefore, does not contain suitable habitat for this species. DEP also determined through the USFWS IPaC system's Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key that the Proposed Project would have No Effect on tricolored bats.

[9] Review through the USFWS IPaC Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key for tricolored bats, and Northeast Determination Key for piping plover, red knot, and roseate tern.

MONARCH BUTTERFLY

Adult monarch butterflies occur throughout the United States and Canada during late spring and summer and migrate in the fall to Mexico or southern California. Adults feed on the nectar of many flower species during breeding and migration and are primarily attracted to meadows, grasslands, and roadside habitats across most of North America (NPS 2023). During the breeding season from spring through summer, monarch butterflies lay eggs on milkweed (*Asclepias* sp.) as that is the only food caterpillars can eat; larvae develop over a period of a few weeks, feeding on the milkweed, and then emerge as adult butterflies (USFWS 2024b). Though vegetation is sparse and suitable foraging and breeding habitat is limited throughout the study area, milkweed is present in the flower/herb garden communities at the Kingsland Wildflower Green Roof and Plank Road Public Shoreline, as well as in roadside edges and sections of shoreline along Newtown Creek. Therefore, monarch butterflies have the potential to occur in the study area.

PEREGRINE FALCON

Peregrine falcons commonly nest on buildings and bridges in urban areas, including New York City, demonstrating a tolerance of human disturbance and an ability to exploit resources in human-modified environments (Cade et al. 1996, White et al. 2020). In New York City, peregrine falcons nest almost exclusively atop bridge towers and buildings (NYNHP 2025b, NYSDEC 2025). They are aerial hunters and in urban settings primarily feed on birds, particularly waterfowl or rock doves (White et al. 2020, Rejt 2001). The Proposed Project sites do not provide suitable nesting habitat, but peregrine falcons that nest elsewhere may hunt for prey in the study area.

SHORTNOSE STURGEON

Shortnose sturgeon is an anadromous fish that spawns, develops, and usually overwinters in the upper Hudson River. The New York Harbor, including the East River and connected waterbodies, is at the extreme southern limit of this population's overwintering range due to the intolerance of shortnose sturgeon to the high salinity levels this close to the Atlantic Ocean (Dadswell et al. 1984, Jenkins et al. 1993). While they rarely occur as far south as the study area, transient shortnose sturgeon adults may travel through the East River between spawning and overwintering grounds in the Connecticut River and Hudson River (Waldman et al. 1996, Kynard 1997) and have the potential to opportunistically forage in Newtown Creek. They are most likely to be found in the East River and connected waterbodies between April and November (SSSRT 2010) and transient individuals may occur within Newtown Creek for foraging during this time. Water depths at the Proposed Project sites in Newtown Creek are very shallow and shortnose sturgeon would only be expected to occur rarely, if at all. Should shortnose sturgeon be present in Newtown Creek, they would most likely be found near its confluence with the East River.

ATLANTIC STURGEON

Atlantic sturgeon spawn in freshwater sections of the Hudson River and overwinter throughout the New York Bight, off the south shore of Long Island, and throughout Long Island Sound (Waldman et al. 1996, Bain 1997, Savoy and Pacileo 2003). Adult and subadult Atlantic sturgeon are expected to

migrate and opportunistically forage in the waters of the East River and connected waterbodies year-round, as they connect the Hudson River to marine waters in the Atlantic Ocean and Long Island Sound (Savoy and Pacileo 2003, Tomichek et al. 2014). They are most abundant in these waters from late September to late March (Dunton et al. 2010). Non-spawning adults prefer deeper, open marine waters, and as such, do not overwinter or otherwise spend prolonged periods of time in the East River (Hatin et al. 2002, Hatin et al. 2007), though they may opportunistically forage in the connected Newtown Creek. Water depths at the Proposed Project sites in Newtown Creek are very shallow and Atlantic sturgeon would only be expected to occur rarely, if at all. Should Atlantic sturgeon be present in Newtown Creek, they would most likely be found near its confluence with the East River. Critical habitat for Atlantic sturgeon has been designated for the length of the tidal Hudson River from lower Manhattan to the Federal Dam at Troy. The study area is not within this critical habitat.

SEA TURTLES

Waters of the New York Harbor, including the mouth of Newtown Creek where it meets the East River, may be warm enough to support adult and juvenile green, loggerhead, Kemp's ridley, and leatherback sea turtles during May through November (NOAA Fisheries 2024). Leatherback sea turtles tend to remain off the coast in deeper pelagic waters of the Atlantic Ocean and would be unlikely to occur in the Harbor at any time of year (USACE 2001, NYSDOS 2013). Loggerhead, Kemp's ridley, and green sea turtles can be found in the New York Harbor and waters off Long Island during the warmer months of summer and fall and have the potential to occur in the East River, and possibly at the mouth of Newtown Creek, during these times of year. However, these turtles show a strong preference for bays and other sheltered areas off eastern Long Island, which provide rich food sources (Standora et al. 1989, Morreale and Standora 1998). When leaving Long Island Sound for the Atlantic Ocean for winter, they usually do so by heading east rather than traveling west down the East River and through the New York Harbor (Standora et al. 1990). The New York Harbor is considered marginal or lower quality sea turtle habitat, and evidence of sea turtles frequenting the area is scarce despite extensive monitoring and sampling efforts (Ruben and Morreale 1999, USACE 2001). Any occurrence of sea turtles near the Proposed Project sites in Newtown Creek would be limited to extremely rare and brief explorations by transient juveniles straying from the East River. Sea turtles do not breed near the TDPS or outfall sites in Newtown Creek and do not reside in Newtown Creek or the greater New York Harbor year-round.

E. FUTURE WITHOUT THE PROPOSED PROJECT

This section describes other projects planned or expected to be constructed within the study area by the Proposed Project's analysis year, 2040, in addition to the clean-up activities in the area that are independent of the Proposed Project that would have the potential to affect natural resources. As described in Chapter 1, "Project Description," the Proposed Project would fulfill some of the goals of the federally required Superfund remediation of Newtown Creek mandated by EPA. EPA has also mandated that other parties undertake clean-up activities in the area independent of the Proposed Project. This includes actions by other responsible parties, including dredging within Newtown Creek and placement of a clean cap over the dredged areas to address sediment contamination.

Without the Proposed Project, outfalls BB-026, NCQ-077, NCB-083, and NCB-015, which are the four largest outfalls discharging to Newtown Creek, would not be modified and would continue to convey CSO directly to Newtown Creek. CSOs would not be diverted to the proposed storage tunnel, from which they would be directed to the Newtown Creek WRRF for treatment prior to discharge. As described in Chapter 1, "Project Description," the CSO storage tunnel is a major component of DEP's LTCP to reduce CSO discharges. The proposed CSO storage tunnel and related infrastructure would provide appropriate CSO controls to reduce the volume and frequency of overflow events and fulfill the requirements of the Orders of Consent to address CSO's entered into by New York City and NYSDEC.

Absent the Proposed Project, the City of New York and NYSDEC would continue to implement other projects to improve water quality in Newtown Creek in accordance with DEP's LTCP for Newtown Creek. In addition to the Proposed Project, the LTCP includes other measures that would reduce the amount and frequency of wet-weather discharges. This may include a combination of green infrastructure and grey infrastructure elements that allow for increased infiltration of stormwater and improvements to collection systems. Without the Proposed Project, DEP and other parties would continue to develop stormwater management strategies using a sustainable approach through the creation of vegetated areas, bluebelts, green infrastructure for streets and buildings, and other technologies designed to capture stormwater before it reaches Newtown Creek. However, while these measures would improve stormwater management, without the Proposed Project the volume and frequency of CSO discharges would not be reduced significantly enough to reach the goals of the LTCP or the Superfund remediation of Newtown Creek.

No changes to floodplains or threatened, endangered, and special concern species are expected to occur by 2040 in the absence of the Proposed Project. Temporary disturbances to terrestrial resources would likely occur during the implementation of green infrastructure and stormwater management measures, or with the redevelopment of any properties along Newtown Creek. The remediation efforts that would occur with or without the Proposed Project, including dredging and capping within Newtown Creek, are expected to improve groundwater, surface water quality, and sediment quality due to the removal of contaminated soil and sediment and reduced stormwater inputs. However, without the Proposed Project, CSO discharges would continue to enter the water column at existing frequencies and volume, which would limit the potential for long-term improvements to water quality and aquatic habitat within Newtown Creek.

F. FUTURE WITH THE PROPOSED PROJECT

This section considers the effects of the Proposed Project on natural resources, which would primarily be associated with in-water activities for construction of the outfall at the TDPS; installation of the diversion facilities at BB-026, NCQ-077, NCB-083, and NCB-015; and dredging in front of the outfalls to improve flow from the proposed diversion facilities. Construction activities taking place at each outfall site are described in detail in Chapter 3, "Construction Means and Methods." The Proposed Project may also include minor rehabilitation of the existing pier at the TDPS site, which may be required to repair any structural deficiencies following demolition of the Greenpoint Marine Transfer Station (MTS). The pier is currently occupied by the former MTS, which would be demolished using

land-based and barge-based equipment as part of the Proposed Project. Rehabilitation of the pier following demolition of the MTS could include pile or platform repairs or installation of temporary piles in-line with the existing piles to provide additional structural support. Potential impacts of the Proposed Project include construction-related impacts associated with sediment resuspension, dredging, and increases in underwater noise, operational impacts related to deepening areas in front of the outfalls, and improvements to water quality resulting from operation of the Proposed Project. Any rehabilitation of the MTS pier involving temporary pile installation or substructure repairs would result in similar impacts associated with sediment resuspension or underwater noise. The need for rehabilitation, or lack thereof, would be determined following demolition of the MTS when the pier structure beneath the MTS can be evaluated. If rehabilitation is required, this work would be described and evaluated in a future permit application for the Proposed Project and if necessary, specific mitigation measures addressing the in-water impacts would be determined at that time. Upland activities related to construction access, shaft construction, and the gravity diversion sewer also have the potential to result in temporary impacts to terrestrial resources during construction of the Proposed Project. The potential impacts of the Proposed Project on natural resources are evaluated in the sections below.

The components of the Proposed Project with the potential to result in impacts to natural resources at each of the four outfalls (BB-026, NCQ-077, NCB-083, and NCB-015) and the TDPS site include effects from construction and operation of the Proposed Project listed below.

- Impacts from construction of the Proposed Project such as:
  - Dredging in front of each outfall to remove deposited fine-grained sediments;
  - Placement of temporary stone or gravel fill on the bottom to stabilize the substrate;
  - Installation and removal of temporary sheet pile cofferdams outboard of each outfall to facilitate construction of the diversion facilities.
  - Potential use of construction barges and tugs at the TDPS site;
  - Use of small vessels to assist during construction at the TDPS site and outfall sites (e.g., personnel support, turbidity curtain installation);
  - Removal of shoreline trees and vegetation during outfall construction; and
  - Upland construction activities resulting in increased noise and human activity.
- Impacts from operation of the Proposed Project such as:
  - Deepening of the water depth in front of the outfalls;
  - Improvement of flow in front of the existing outfalls; and
  - Overall improvements to water quality and sediment quality related to the reduction of CSO volume.

GROUNDWATER

As the tunnel is constructed, the seepage of groundwater into the tunnel would be controlled using gaskets installed around the perimeter of each pre-cast section, which would be compressed against

each other to form a relatively impermeable system. This would avoid the need for dewatering within the tunnel itself. Upland construction activities for the diversion facilities, drop shafts, and general construction activities at the outfall sites, the TDPS site, and the gravity diversion sewer between outfall BB-026 and the Borden Avenue Pump Station, would likely encounter groundwater during subsurface disturbance or excavation. The rate of dewatering at each site would depend on the soil permeability and the support of excavation system design, which would be determined as design progresses. Based on the preliminary groundwater sampling results described above under "Existing Conditions," groundwater recovered during upland excavation would likely have elevated levels of certain contaminants. To minimize the potential effects of contamination, recovered groundwater would likely be pumped to frac tanks for holding and then processed through an onsite water treatment system that would be set up at each Proposed Project site where excavation would occur. The treated groundwater would likely be discharged to Newtown Creek through existing stormwater or sewer outfalls. Specific requirements for discharging the treated groundwater would be determined at a later date but would be done in accordance with either a NYSDEC SPDES permit or a DEP Bureau of Wastewater Treatment (BWT) permit.

As discussed in Chapter 12, "Hazardous Materials," to avoid exposing workers and the general public to existing groundwater contaminants, all construction activities would be performed in accordance with all applicable federal, state, and local regulations and guidelines. This includes the development of a Remedial Action Plan (RAP) for soil and bedrock management, and a Construction Health and Safety Plan (CHASP) for construction personnel, and a Community Air Monitoring Plan (CAMP) for real-time air monitoring for certain areas of the subsurface disturbance. The Proposed Project would not result in the introduction of any new groundwater contaminants, and with the implementation of these safety measures, the Proposed Project would not result in significant adverse impacts associated with groundwater.

FLOODPLAINS

As discussed under "Existing Conditions," the TDPS and outfalls BB-026, NCQ-077, NCB-083, and NCB-015 would be within the 1 percent annual chance floodplain. The drop shafts associated with the outfalls would either be in the 0.2 percent annual chance floodplain or outside both floodplains (see **Figure 11-1**). Construction and operation of the Proposed Project would not result in significant adverse impacts to flood levels, flood risk, or the flow of flood waters in the study area. Most project components would be below-grade and the design would include measures to prevent flood waters from entering the tunnel such that its operation would not be affected by flooding. Because the study area is subject to coastal flooding, any new above-ground structures associated with the Proposed Project would not result in increased flooding of adjacent areas. Within New York City, coastal flooding is the primary cause of flood damage (FEMA 2013). Coastal floodplains are influenced by astronomic tide and meteorological forces (e.g., nor'easters and hurricanes) rather than local flooding caused by precipitation and streams or rivers overflowing their banks. The floodplain within and adjacent to the Proposed Project sites is affected by coastal flooding and local stormwater flooding and would not be affected by construction or placement of fill as would occur within a riverine floodplain. Therefore, the occupancy of the floodplain by project components would not affect the flood elevation or result in

increased risks of flooding in adjacent properties, and the Proposed Project would not result in significant adverse impacts to floodplains.

WETLANDS

NWI-mapped wetlands and NYSDEC littoral zone tidal wetlands occur at the Proposed Project sites (see **Figures 11-2 and 11-3**). Waters 6 feet deep or less at MLW are present at the BB-026, NCQ-077, NCB-083, and NCB-015 outfall sites. The TDPS site is in waters more than 6 feet deep and therefore does not contain littoral zone tidal wetlands. Construction at the outfall sites would result in temporary impacts to NYSDEC littoral tidal wetlands due to sediment resuspension during installation and removal of the temporary cofferdams. Sediments would be expected to settle over similar substrate near the disturbed area and would not result in significant adverse impacts to surrounding waters. Given the amount of sediment deposition observed along the shoreline within Newtown Creek, it is assumed that the temporary stone fill and cofferdams at outfalls BB-026, NCQ-077, NCB-083, and NCB-015 would be in waters 6 feet deep or less (i.e., NYSDEC littoral zone tidal wetlands). These project components would result in the temporary loss of 2.1 acres of littoral zone tidal wetlands, as shown below in **Table 11-8** under "Aquatic Biota." The cofferdams and stone fill would be removed following construction and would not result in permanent impacts.

Dredging at the head of each tributary is required to remove deposited sediment from in front of the outfalls and improve flow. This would result in permanent impacts to a total of approximately 1.0 acre of littoral zone tidal wetlands (see **Table 11-8**), converting littoral zone to deeper open water habitat through the removal of approximately 18,148 cubic yards of sediment that has accumulated in front of the outfall structures. This would represent an unavoidable and minimal loss of littoral zone tidal wetlands within Newtown Creek. Any compensatory mitigation required to offset these permanent impacts would be developed in coordination with NYSDEC during the permitting process for the Proposed Project.

AQUATIC RESOURCES

Components of the Proposed Project that have the potential to impact aquatic resources include dredging, placement of temporary stone fill, installation and removal of temporary cofferdams, potential rehabilitation of the MTS pier, and the elimination and diversion of untreated CSO volume that may be discharged to Newtown Creek from existing outfalls. The potential impacts of these activities on water and sediment quality and aquatic biota are evaluated in the sections below.

WATER AND SEDIMENT QUALITY

Construction

Construction of the Proposed Project would have the potential to result in temporary effects to water and sediment quality resulting from sediment resuspension during the placement and removal of temporary fill, the installation and removal of the temporary cofferdams at each outfall, and potential pile rehabilitation at the MTS pier. In general, pile rehabilitation and installation of sheet pile cofferdams do not result in significant levels of sediment disturbance. The greatest potential for

increased turbidity would typically occur when piles or sheet pile cofferdams are removed (MPCA 2017). Any sediments and associated contaminants resuspended during installation and removal of these project components would be localized and would not result in significant adverse impacts on water quality or sediment quality in Newtown Creek. A turbidity curtain deployed around the work area would minimize the potential effects of sediment resuspension on the surrounding waters during placement of the temporary stone fill and installation and removal of the cofferdams. The cofferdams would be dewatered by pumping surface water from within the sheet pile to the creek outside the sheet pile. No treatment measures would be required for the cofferdam dewatering. Work at the shoreline to install the diversion facilities and the tunnel overflow structures at NCB-015 and the TDPS site, along with any required bulkhead repairs, would be completed within the dewatered cofferdams and would not have the potential to result in impacts to water or sediment quality.

As discussed above, groundwater recovered during upland excavation is likely to be contaminated and would be pumped to tanks for holding and processing through an onsite water treatment system. The specific requirements for discharging the treated groundwater to Newtown Creek would be determined at a later date but would be done in accordance with either a NYSDEC SPDES permit or a DEP BWT permit, including any conditions to minimize potential impacts to water quality. Upland construction would also be subject to the SPDES General Permit for Stormwater Discharges from Construction Activity (SPDES General Permit, GP-0-20-001), which would require the preparation of a Stormwater Pollution Protection Plan (SWPPP). Erosion and sediment control measures implemented in accordance with the SWPPP (e.g., silt fencing, inlet protection) would minimize the discharge of materials to Newtown Creek during upland construction activities. This may include the installation of hydrodynamic separators upstream of stormwater discharge points to provide water quality controls. All potentially contaminated soils or debris, including sediments removed during dredging, would be transported offsite for upland disposal at a licensed facility in accordance with applicable regulations, as described in Chapter 12, "Hazardous Materials." With these measures in place, the Proposed Project would not result in significant adverse impacts on water quality during construction.

Operation

The Proposed Project is designed to meet or exceed the goals of the NYSDEC Consent Order discussed in Chapter 1, "Project Description," by reducing CSO volume discharged to Newtown Creek by 62.5 percent annually. The tunnel would capture CSOs prior to discharge to Newtown Creek, divert them to the storage tunnel, and the TDPS would convey them to the Newtown Creek WRRF where they would be treated prior to discharge. CSOs would only be released to Newtown Creek through outfalls BB-026, NCQ-077, NCB-083, and NCB-015 when the tunnel is at full capacity or when the peak diversion flow rate is exceeded. In addition, CSOs may be discharged through the tunnel overflow structures at NCB-015 and TDPS site when necessary to relieve hydraulic pressure within the tunnel as it is filling. Under existing conditions, 90 percent of CSO discharges to Newtown Creek come from these four outfalls, which provide wet-weather relief to the Newtown Creek WRRF (NCQ-077, NCB-083, and NCB-015), and the Bowery Bay WRRF (BB-026). As discussed in Chapter 13, "Water and Sewer Infrastructure," once operational, the Proposed Project would reduce CSO discharges in a typical year by up to 74 percent from outfalls NCQ-077, NCB-083, and NCB-015, and by 75 percent at outfall BB-026. Reducing the CSO volume would also reduce the amount of nutrients, total suspended solids, and

associated contaminants being discharged directly to the receiving waters, which would ultimately result in improvements to water and sediment quality within Newtown Creek.

Based on the water quality data that was available when the LTCP was developed, none of the monitoring stations in Newtown Creek were in attainment with the water quality criteria for primary contact in Class SD waters (DEP 2017). Improvements to water quality in Newtown Creek that would be expected with the CSO reductions implemented by the Proposed Project were estimated as part of the LTCP process, specifically by modeling the fecal coliform and enterococci bacteria levels with and without the Proposed Project and comparing the results to relevant water quality standards and measured data. The LTCP estimated that without the Proposed Project, fecal coliform levels in Newtown Creek would meet applicable water quality standards approximately 42 and 83 percent of the time and enterococci levels would meet the standard approximately 52 to 84 percent of the time on an annual basis (based on the 30-day geometric mean criterion).[10] The lower attainment rates generally occurred in upstream areas of Newtown Creek and near outfalls BB-026, NCQ-077, NCB-083, and NCB-015. With the Proposed Project, the LTCP estimated that fecal coliform levels would be reduced such that all portions of Newtown Creek would be in attainment approximately 83 percent of the time and enterococci levels would meet the standard 70 to 97 percent of the time on an annual basis (based on the 30-day geometric mean criterion)[11] (DEP 2017). Based on the analysis in the LTCP, the Proposed Project would be expected to substantially improve water quality throughout Newtown Creek, especially in the upstream areas of Newtown Creek and its tributaries.

AQUATIC BIOTA

Construction

The in-water construction activities described above would have the potential to result in temporary adverse effects on fishes and benthic macroinvertebrates due to temporary increases in suspended sediment and underwater noise and temporary loss of habitat.

Suspended Sediment

Life stages of estuarine and anadromous fish and macroinvertebrate species are generally tolerant of elevated suspended sediment concentrations and would be able to handle variable and potentially high concentrations of suspended sediment (Birtwell et al. 1987, Dunford 1975, LaSalle et al. 1991, Nightingale and Simenstad 2001). As discussed above, aquatic biota found in Newtown Creek also tend to be tolerant of pollution. Any sediment resuspension that would occur during in-water work would be temporary, minimal, and localized, and would be well within suspended sediment tolerance thresholds of fish and benthic macroinvertebrates found in estuarine environments. Additionally,

[10] At baseline levels, the LTCP estimated that enterococci levels would meet the EPA standard (35 cfu/100mL) approximately 3 to 12 percent of the time annually based on the 30-day 90th Percentile Statistical Value Threshold (STV) criterion. The 90th percentile represents the value that 90 percent of values in a dataset fall below.

[11] With the Proposed Project, the LTCP estimated that enterococci levels would meet the EPA standard approximately 11 to 56 percent of the time annually based on the 30-day 90th Percentile STV criterion.

because fish are mobile and generally avoid unsuitable conditions such as high suspended sediment concentrations (Clarke and Wilber 2000), the effects of habitat avoidance would not have a significant effect. Most shellfish are adapted to naturally turbid conditions and can tolerate short-term exposure by closing valves or reducing filtering activity.

The use of sheet pile cofferdams and turbidity curtains for in-water work at the outfalls and TDPS site would minimize the potential effects of sediment resuspension on surrounding waters. There would be minimal sediment disturbance associated with potential MTS pier rehabilitation, the installation and removal of each cofferdam, and the placement of the temporary stone fill. Any temporary increase in turbidity would be localized and would dissipate when the sediment disturbing activity ends. Additionally, all in-water work would take place within the dewatered cofferdams once they are installed, thereby avoiding sediment disturbance during most of the construction period. With these measures in place, the Proposed Project would not result in significant adverse impacts from sediment resuspension.

Underwater Noise

The temporary increase in vessel activity at the TDPS site would result in an incremental increase in underwater noise levels in the area. However, the use of construction barges and tugs at this site would be within the typical range of vessel activity near the mouth of Newtown Creek. As such, aquatic organisms are likely acclimated to noise levels associated with this type of activity and would not be adversely affected by the temporary increase in vessel noise. Aside from the TDPS site, most construction activities for the Proposed Project would take place on land, and the delivery and removal of materials from the outfall sites would be completed by truck and not by water. At most Proposed Project sites, water in Newtown Creek is not deep enough to accommodate construction vessels. A small, boat-like a skiff may be used to help with the installation and maintenance of turbidity curtains, containment booms, or other in-water protective measures, but otherwise there would be no increase in vessel activity or associated underwater noise during construction.

Installation and removal of the steel sheet pile cofferdam walls at each outfall and the TDPS site would result in temporary increases in underwater noise. The cofferdams at NCB-015 and NCB-083 would take up to four weeks to install, and the cofferdams at NCQ-077, BB-026, and the TDPS site would take between one and two weeks to install. As recommended by NOAA Fisheries, a vibratory hammer would be used to the extent feasible, with minimal impact hammering possible if dense soils are encountered. A soft start would be used prior to full energy impact hammering, if required, but a cushion block cannot be used with the sheet piles. The projected noise at the source and distance to relevant thresholds for species in the action area was determined based on the NOAA Fisheries Multi-Species Pile Driving Calculator (Version 2.0, October 2024). **Table 11-5** presents the proxy sound level information used for the Multi-Species Acoustic tool for impact and vibratory hammering of sheet piles. **Table 11-6** presents the estimated distances to behavioral and physiological thresholds for sheet piles during vibratory and impact hammering for fish.[12] **Table 11-7** presents the estimated distances to

[12] The sturgeon thresholds used for the underwater noise analysis are the standards recommended by NOAA Fisheries to evaluate potential underwater noise impacts to all fishes with a swim bladder.

behavioral and physiological thresholds for sheet piles during vibratory and impact hammering for sea turtles.

Table 11-5
Proxy Sound Level Information for Impact and Vibratory Hammering

Hammer Type	Pile Type	Water Depth (meters)	Peak (dB)	SELss (dB)	RMS (dB)	Attenuation (dB)	Reference	Proxy Project Location
Vibratory	Sheet Pile	15	n/a	n/a	163	0	Caltrans 2020 (Row 38)	Berth 23, Port of Oakland (Vortex)/Oakland, CA – San Francisco Bay
Impact	Sheet Pile	NA	205	180	190	0	Caltrans 2020 (Row 44)	Generic example

SELss refers to the single strike sound exposure level, which is a measurement of noise from a single pulse or signal (e.g., strike of a pile). Sound exposure levels are reported in decibels (dB) and account for the level and duration of exposure.

RMS refers to the root mean square of a sound pressure level, which is a means of characterizing the amplitude of a sound. Sound pressure levels are reported in dB.

Sources: NOAA Fisheries Multi-Species Pile Driving Calculator, Version 2.0, October 2024

Table 11-6
Distance to Underwater Noise Effects on Fish for Sheet Pile Installation

Hammer Type	Estimated Number of Piles per Day	Duration to Drive Single Pile (minutes)	Number of Strikes per Pile	Onset of Physical Injury (feet)			Behavioral Effects (feet)
				206 dB peak	187 dB SELcum, ≥ 2 grams	183 dB SELcum, < 2 grams	150 dB RMS
Vibratory	6	90	n/a	n/a	n/a	n/a	241.4
Impact	6	n/a	600	28.1	2,631.4	3,280.8	15,228.3

Notes: No attenuation was assumed for impact hammering because a cushion block cannot be used for sheet pile installation. A soft start would be used before full energy impact hammering. Up to 600 hammer strikes would be needed if the sheet is installed only using an impact hammer; the actual number of strikes would likely be much less.

SELcum is a measurement of cumulative sound exposure level, which considers the combined energy of multiple impulses like pile driving strikes within a 24-hour period.

Sources: NOAA Fisheries Multi-Species Pile Driving Calculator, Version 2.0, October 2024

Table 11-7
Distance to Underwater Noise Effects on Sea Turtles for Sheet Pile Installation

Hammer Type	Estimated Number of Piles per Day	Duration to Drive Single Pile (minutes)	Number of Strikes per Pile	Onset of Permanent Threshold Shift (PTS) (feet)		Behavioral Effects (feet)
				232 dB peak	204 dB SELcum	175 dB RMS
Vibratory	6	90	n/a	n/a	5.3	5.2
Impact	6	n/a	600	0.5	193.7	328.1

Notes: No attenuation was assumed for impact hammering because a cushion block cannot be used for sheet pile installation. A soft start would be used before full energy impact hammering. Up to 600 hammer strikes would be needed if the sheet is installed only using an impact hammer; the actual number of strikes would likely be much less.

Permanent Threshold Shift (PTS) for sea turtles represents a permanent hearing impairment incurred by exposure to elevated sound levels.

Sources: NOAA Fisheries Multi-Species Pile Driving Calculator, Version 2.0, October 2024

Behavioral effects like avoidance or disruption of foraging activities may occur in fish exposed to noise levels above 150 dB RMS and in sea turtles exposed to noise levels above 175 dB RMS. The onset of physical injury can occur in fish exposed to noise levels of 206 dB peak (single strike) or 187 dB SELcum (cumulative) and in sea turtles exposed to noise levels of 232 dB peak (single strike) or 204 dB SELcum (cumulative). Only behavioral effects are expected to occur during vibratory hammering, but behavioral and physiological effects can both occur during impact hammering. Based on the anticipated construction methods for sheet pile installation it is expected that underwater noise levels reaching the behavioral threshold would occur at a maximum distance of 15,228 feet for fish (**Table 11-6**) and 328 feet for sea turtles (**Table 11-7**) when an impact hammer is used. Underwater noise levels reaching the threshold for the onset of physical injury in fish would only be possible during use of an impact hammer. This could occur at a maximum distance of 2,631 feet for larger fish or 3,281 feet for smaller fish (**Table 11-6**). Loss of hearing for sea turtles could occur at 5.3 feet from the pile during vibratory hammering or 194 feet from the pile during impact hammering (**Table 11-7**). Injury is unlikely to occur because it is expected that fish and sea turtles would modify their behavior and move away from the area before injury levels are reached. The sheet piles would be installed mostly using a vibratory hammer. Impact hammering would only be required when the sheet pile reaches deeper, dense soil and the vibratory hammer cannot drive it any further. All impact hammering would be conducted using a soft start to encourage fish and sea turtles to move away from the area prior to full impact hammering such that they are not exposed to noise levels reaching the threshold for physical injury. This methodology for impact hammering would be included in contract specifications for the pile driving activities.

While the full width of Dutch Kills, Maspeth Creek, East Branch, and English Kills would have noise levels elevated to the behavioral threshold during impact hammering, it is anticipated that the sheet piles would first be installed primarily using a vibratory hammer. Fish and sea turtles would move away from the area while vibratory hammering takes place such that they have less potential of encountering higher noise levels associated with impact hammering. Turbidity curtains would discourage fish from

getting close to the cofferdams, and pile tapping would allow them to move away so they are not exposed to noise reaching the threshold for physical injury. Given the short duration for cofferdam installation (up to 4 weeks) and the availability of waters without elevated noise levels closer to the mouth of Newtown Creek where fish and sea turtles are most likely to occur, there would be no significant adverse effects to fish or sea turtles from the temporary increases in underwater noise.

Habitat Loss

As summarized in **Table 11-8**, the Proposed Project would result in a total temporary footprint of up to approximately 2.1 acres comprising 0.9 acres within the temporary cofferdams and 1.2 acres where approximately 12,296 cubic yards of stone fill would be placed below spring high water (SHW) and mean high water (MHW) at the outfalls during construction. Dredging to remove accumulated sediment and improve flow from the outfalls would result in the removal of approximately 18,148 cubic yards of material over approximately 1.0 acre within Newtown Creek. Any bulkhead repairs or rehabilitation around the outfalls would take place inboard or within the existing footprint of the structures, and the Proposed Project would not result in changes to permanent structural footprints within Newtown Creek.

Table 11-8
Summary of Temporary In-Water Impacts

Proposed Project Site	Location	Dredging		Stone Fill		Cofferdams
		Volume below SHW and MHW (CY)	Area (sf)	Volume below SHW and MHW (CY)	Area (sf)	Area (sf)
NCB-015	English Kills	6,741	16,300	3,630	16,300	12,100
NCB-083	East Branch	7,407	18,900	4,741	18,900	15,800
NCQ-077	Maspeth Creek	1,037	2,800	296	2,800	1,600
BB-026	Dutch Kills	2,963	7,000	1,407	7,000	4,700
TDPS	Whale Creek	0	0	2,222	6,000	6,000
Total		**18,148 CY**	**45,000 sf (1.0 ac)**	**12,296 CY**	**51,000 sf (1.2 ac)**	**40,200 sf (0.9 ac)**

Notes: Based on available bathymetry and evidence of sediment deposition, it is assumed that all in-water impacts at the four outfall sites will occur in waters 6 feet deep or less at MLW (i.e., NYSDEC littoral zone tidal wetlands)

CY = cubic yards; sf = square feet; ac = acres

The exclusion of organisms from the area within the cofferdams would constitute a temporary loss of potential habitat for fish species that are able to forage in very shallow waters. The approximately 1.2 acres of temporary stone fill would result in the loss of soft bottom habitat used by benthic invertebrates while the fill is in place. Aquatic organisms would be able to move to similar habitat that would still be available within Newtown Creek outside the immediate construction areas. Fish and benthic organisms would be expected to return to these areas when the in-water work is complete and the cofferdams and temporary fill are removed, and the temporary loss of habitat would not result in significant adverse effects on aquatic biota. The removal of approximately 18,148 cubic yards of surface sediments from in front of the outfalls would result in the loss of benthic invertebrates within this approximately 1.0-acre area. As noted above, benthic species that occur in Newtown Creek are pollution-tolerant and

common throughout the New York Harbor. The loss of surface sediments in these areas would not result in significant adverse impacts to benthic invertebrate populations because similar species would continue to occur in other parts of Newtown Creek and connected waterbodies.

Operation

Deepening the water in front of the outfalls would allow flushing to occur, resulting in localized improvements to water quality over time. The changes to localized water depths associated with dredging would be the only physical alteration of aquatic habitat within Newtown Creek from the Proposed Project. The diversion facilities and the tunnel overflow structures at outfall NCB-015 and the TDPS site would be installed inboard or within the footprint of the existing bulkheads and would not result in the placement of new structures in Newtown Creek. As discussed above, the proposed dredging would remove material that has accumulated in front of the outfalls and would improve flow of surface waters. The reduction of CSO volume resulting from the Proposed Project combined with the improved flow at the head of the tributaries would ultimately help to improve water quality and aquatic habitat within Newtown Creek. Therefore, operation of the Proposed Project would not result in significant adverse impacts to aquatic resources.

ESSENTIAL FISH HABITAT

For the reasons identified above, construction and operation of the Proposed Project would not result in any significant adverse impacts to water quality, sediment quality, or aquatic biota within Newtown Creek. Therefore, the Proposed Project would not result in significant adverse impacts to the suitability of the Proposed Project sites for fish species identified by NOAA Fisheries as having EFH in the study area.

TERRESTRIAL RESOURCES

ECOLOGICAL COMMUNITIES

Ecological communities within the study area are primarily limited to terrestrial cultural and open upland communities that are regionally common and sparsely vegetated, with scattered trees planted along the streets. Up to 25 street trees may be removed to facilitate construction along the Proposed Project alignment at outfall BB-026, at 47th Avenue and 30th Street, and along the TDPS discharge pipeline. Any street trees removed for the Proposed Project would be replaced in accordance with Local Law 3, as described under "Regulatory Context." Also, as described under "Existing Conditions," portions of the shoreline at outfall NCB-015 in English Kills and outfall NCB-083 in East Branch are vegetated with generalist or invasive species like tree of heaven, Norway maple, white mulberry, and honey locust. The Proposed Project would result in the removal of trees and vegetation along 420 linear feet of shoreline at outfall NCB-015 and 250 linear feet of shoreline at outfall NCB-083. The total limit of disturbance from the Proposed Project is approximately 90 acres, which involves the removal of approximately 0.22 acres (9,800 square feet) of trees that would be removed intermittently during the 11-year construction duration. Sections of shoreline throughout Newtown Creek that would be unaffected by the Proposed Project contain similar vegetation, and the loss of shoreline vegetation at these two outfalls, including generalist or invasive tree species, would not alter the composition of

ecological communities in the study area. Therefore, the Proposed Project would not result in significant adverse impacts to ecological communities.

WILDLIFE

Construction

Because wildlife in the study area is limited to species that are tolerant of the levels of human disturbance inherently involved in an urban habitat, they would not be significantly adversely impacted by the Proposed Project. During construction, which would result in noise from trucks and construction equipment, birds and other wildlife in the area may be temporarily displaced to similar habitat, including unaffected areas scattered along the shoreline throughout Newtown Creek. Wildlife would be expected to return to the Proposed Project sites when active construction is not occurring (e.g., nights, weekends, holidays) and after the Proposed Project has been completed. Therefore, construction of the Proposed Project would not result in significant adverse impacts to wildlife.

Operation

As noted above, the Proposed Project would result in the removal of trees and vegetation along 420 linear feet of shoreline at outfall NCB-015 and 250 linear feet of shoreline at outfall NCB-083. These areas comprise narrow strips of vegetated shoreline which provides limited habitat only for generalist, urban-tolerant species. Wildlife would be able to relocate to similar habitat nearby, and this loss of habitat would not affect wildlife populations in the area. There is scattered vegetation along the shoreline throughout Newtown Creek that would continue to offer habitat similar to that affected by the Proposed Project. In particular, the Plank Road Public Shoreline offers larger areas of similar vegetation and would be unaffected by the Proposed Project. Therefore, the minimal loss of shoreline vegetation resulting from the Proposed Project would not result in significant adverse effects to wildlife.

THREATENED, ENDANGERED, AND SPECIAL CONCERN SPECIES

MONARCH BUTTERFLY

While monarchs could be present in the study area in the spring through fall in vegetated areas that support the growth of milkweed, vegetation at the Proposed Project sites is extremely sparse and limited to narrow strips of generalist or invasive plants. The Proposed Project sites where shoreline vegetation would be removed do not likely support monarch butterflies even if scattered milkweed is present, because there is no surrounding vegetation at these sites. Butterflies would be more likely to occur at the Plank Road Public Shoreline or the Kingsland Wildflowers Green Roof, which would be unaffected by the Proposed Project. Staging and storage of construction equipment and materials would take place within industrial or commercial properties dominated by impervious surfaces that do not provide suitable habitat for monarch butterflies. Given the lack of suitable habitat at the Proposed Project sites and the fact that most construction would take place at existing shoreline infrastructure or upland impervious sites, the Proposed Project would not result in adverse effects on monarch butterflies.

SEA TURTLES

Sea turtles have occasionally been observed in the East River during spring and fall migration between Long Island Sound and the Atlantic Ocean, and therefore, have the potential to occur near the mouth of Newtown Creek where it meets the East River. Given the lack of suitable habitat for sea turtles throughout Newtown Creek, they only have the potential to occur on rare occasions as transient individuals, rather than for long-term occupation for breeding, wintering, or growth and development. Because the aquatic resource impacts associated with the Proposed Project's in-water construction activities would be localized, including sediment resuspension and underwater noise during sheet pile installation, waters near the mouth of Newtown Creek where they are most likely to occur, if at all, would not be adversely impacted during construction. At its maximum extent, underwater noise levels reaching the behavioral threshold for sea turtles could occur only 33 feet from the sheet pile being installed, which would not be close to any potential sea turtle habitat near the mouth of Newtown Creek. Temporary avoidance of potential foraging habitat in these areas would not result in significant adverse impacts to sea turtles, as more suitable habitat would continue to be available nearby, including unaffected habitat in the East River and at the mouth of Newtown Creek.

SHORTNOSE AND ATLANTIC STURGEON

The Proposed Project sites in Newtown Creek do not currently provide suitable habitat for shortnose or Atlantic sturgeon due to the shallow waters and known sediment contamination. Given the limited habitat, sturgeon would most likely occur in the navigation channel in the mainstem of Newtown Creek or near its confluence with the East River where waters are deeper and influenced by tidal flow. Sturgeon would not be expected to occur at the outfall sites where in-water work would be conducted because these areas have experienced significant sediment deposition over time and the water is extremely shallow. Because the aquatic resource impacts associated with the Proposed Project's in-water construction activities would be localized, including sediment resuspension and underwater noise during sheet pile installation, the deeper waters at the mouth of Newtown Creek and in the navigation channel would not be adversely impacted during construction. At its maximum extent, underwater noise levels reaching the behavioral threshold for sturgeon could occur 1,523 feet from the sheet pile. This could exclude sturgeon from habitat within Newtown Creek intermittently for up to 4 weeks while sheet pile is being installed. The temporary loss of potential foraging habitat resulting from avoidance of this area would not result in significant adverse impacts to either species of sturgeon, given that they would rarely occur in the sub-optimal habitat available in Newtown Creek. Cofferdam installation at the TDPS site would have the greatest chance of temporarily affecting sturgeon, as this site is closest to the confluence with the East River where sturgeon would be more likely to occur. Even at this location, the extent of underwater noise reaching the behavioral threshold would be east of the Pulaski Bridge and about 4,000 feet from the mouth of Newtown Creek. Foraging habitat would continue to be available to sturgeon in the East River and at the mouth of Newtown Creek, and if they are present, sturgeon would be expected to return to the affected areas when active sheet pile installation is not occurring (e.g., during breaks, nights, weekends).

Deepening the water depths in front of the outfalls would not result in impacts to sturgeon habitat based on the extremely shallow water depths in these areas. Removal of deposited material would improve

flow from the outfalls, which, combined with the overall benefits of the CSO volume reduction resulting from the Proposed Project, would ultimately help to improve water quality and aquatic habitat within Newtown Creek. Therefore, the Proposed Project may affect but would not adversely affect shortnose or Atlantic sturgeon should they be found in the study area. Water quality improvements associated with the Proposed Project may provide limited habitat for transient sturgeon foraging opportunistically within Newtown Creek.

CONCLUSIONS

CONSTRUCTION

In summary, construction of the Proposed Project would not result in any significant adverse impacts to natural resources, and potential impacts due to suspended sediment resulting from dredging, placement of temporary stone fill, and installation and removal of the temporary cofferdams would be minimized by turbidity curtains and best management practices. These impacts are expected to be minimal, localized to the vicinity of sheet pile installation and removal. Any resuspended sediment would settle over similar substrate within a short period of time and, therefore, would not result in significant adverse impacts to water quality, sediment quality, or aquatic biota.

Dredging at the head of each tributary, required to remove deposited sediment and improve flow, would result in permanent impacts to a total of approximately 1.0 acre of littoral zone tidal wetlands, converting littoral zone to deeper open water habitat through the removal of approximately 18,148 cubic yards of sediment that has accumulated in front of the outfall structures. This would represent an unavoidable and minimal loss of littoral zone tidal wetlands within Newtown Creek. Any compensatory mitigation required to offset these permanent impacts would be developed in coordination with NYSDEC during the permitting process for the Proposed Project.

Underwater noise increases would intermittently and temporarily result in avoidance behavior by fish and excluding them from potential foraging habitat near the Proposed Project sites. However, this temporary loss of some foraging habitat would not result in significant adverse impacts to fish populations within Newtown Creek, and fish would be expected to return to the area during breaks in pile installation and after the temporary cofferdams are in place. Because most of the upland habitats are developed areas with limited vegetation, upland disturbance would have limited potential to adversely affect terrestrial resources, which comprise generalist and urban-tolerant plants and wildlife species.

OPERATION

Operation of the Proposed Project would not result in significant adverse impacts to natural resources, and would ultimately contribute to improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek through the reduction of CSO volume. The minimal alteration of unvegetated littoral zone tidal wetlands and aquatic habitat where the removal of bottom material in front of the outfalls would result in deeper water, would not result in significant adverse impacts to habitat or aquatic biota. The deepened areas in front of the outfalls would improve flow at the head of the tributaries within Newtown Creek at the outfall sites, leading to water quality and sediment quality

improvements from improved tidal flushing. The permanent loss of trees and vegetation along certain sections of shoreline would be minimal and limited to generalist and invasive plant species and would not result in significant adverse impacts to terrestrial habitat.

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Chapter 12: Hazardous Materials

A. INTRODUCTION

This chapter assesses the potential for the presence of hazardous materials for the Proposed Project, the potential for exposure to hazardous materials following construction, and the specific measures that would be employed to protect public health and worker safety. This chapter focuses on potential human health effects. A "hazardous material," as used herein, means any substance that poses a threat to human health or the environment. It is often used interchangeably with "contaminated material," but should not be confused with the term "hazardous waste," which is a regulatory term.[1]

Newtown Creek and numerous adjoining and nearby industrial properties served as a major waterway and industrial hub through which materials were brought to and from area industries, including major oil refineries and terminals, smelting operations, manufactured gas plants (MGP) and other heavy industries. Because of these heavy industrial uses, Newtown Creek itself was designated as a Superfund site by EPA in 2010 under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) due to discharges and contamination from neighboring and nearby industrial uses. In addition, many industrial parcels surrounding Newtown Creek have resulted in site-specific subsurface contamination from operations, including parcels that may require acquisition for the Proposed Project, which are currently in regulated programs including, but not limited to, the New York State Department of Environmental Conservation (NYSDEC) State Superfund, Brownfield Cleanup Program (BCP), as well as registered chemical or petroleum bulk storage facilities (CBS/PBS) or major oil storage facilities (MOSF).

As described in Chapter 1, "Project Description," the New York City Department of Environmental Protection (DEP) is proposing a 3.26-mile-long tunnel with a storage volume of 50 million gallons (MG) to divert overflows from the four largest combined sewer overflow (CSO) outfalls to Newtown Creek in the Boroughs of Brooklyn and Queens (see Figure 1-5). The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

[1] "Hazardous waste" is defined in both the U.S. Environmental Protection Agency (EPA) regulations (40 CFR Part 261) and New York State regulations (6 NYCRR Part 371), and refers to a subset of solid wastes that are either specific wastes listed in the regulations (listed wastes) or solid wastes possessing the characteristic of ignitability, reactivity, corrosivity, or toxicity (characteristic wastes).

As discussed in Chapter 1, "Project Description," and as depicted on Figure- 1-5, the CSO tunnel would be constructed under Newtown Creek into the Blissville neighborhood of Queens originating from the TDPS on the south side of Newtown Creek. The CSO storage tunnel would be installed at a depth ranging from 80- to 130-feet below existing ground surface. Construction would involve disturbance and generation of soil, fill material and bedrock. Dewatering would also be required for construction of the Proposed Project facilities due to shallow groundwater elevation.

The hazardous materials analysis provided herein evaluates potential impacts associated with the study area, as defined in Chapter 1, "Project Description." For the purposes of the hazardous materials analysis, the study area is referenced as the "Project Area" in this chapter, which collectively includes the CSO tunnel, gravity diversion sewer, TDPS site, discharge pipe, and diversion facilities.

PRINCIPAL CONCLUSIONS

A review of historic resources including Sanborn maps, aerial photographs, topographic maps and previously prepared environmental assessments revealed widespread contamination throughout the vicinity of the Project Area. Many of the contaminants documented are associated with numerous remedial efforts across several regulatory programs. These programs include the Federal Superfund, State Superfund (Registry of Inactive Hazardous Waste Disposal Sites [SHWS]), the Voluntary Cleanup Program (VCP), and the NYSDEC BCP, among others. Several high priority remediation sites characterized as part of this analysis are located directly within, adjacent to, or proximate to the CSO tunnel corridor and gravity diversion sewer. Remediation sites in regulatory programs are similarly located adjacent and/or proximate to the TDPS site, discharge pipe, and diversion facility parcels. Further, certain parcels associated with two of the four diversion facilities (Block 2984 Lot 85 at the NCB-083 diversion facility site and Block 2575 Lot 26 at the NCQ-077 diversion facility site) are participating in remedial regulatory programs which have specific regulatory requirements that must be followed. Based on this review, contamination may be, or is likely present in the soil and groundwater, which could be encountered during construction at all locations (i.e., along the CSO tunnel corridor, along the gravity diversion sewer, and at the TDPS site, discharge pipe, and all diversion facility parcels).

The CSO tunnel corridor has historically and primarily consisted of public-rights-of-way along with industrial parcels. Portions of the CSO tunnel alignment corridor pass beneath Newtown Creek, as well as beneath historically low-laying wetlands associated with its tributaries and canal extensions (Maspeth Creek, East Branch and English Kills) prior to filling, bulkheading and regrading. The CSO tunnel will be built beneath neighborhoods that were developed with heavy industry as early as the 1880s. Numerous oil terminals, refineries, manufacturing facilities, freight warehouses and other heavy industrial uses have been documented on numerous parcels within or adjacent to the CSO tunnel. Documented petroleum contamination in soil and groundwater is widespread in and around Newtown Creek and its tributaries due to numerous and extensive current and former oil and gas operations. Further, subsurface contaminants within the CSO tunnel corridor were confirmed during a limited, preliminary subsurface investigation performed in 2024 (known as Part 1 of the subsurface investigation). Deeper contamination has also been documented in the general vicinity due to releases of dense non-aqueous phase liquid (DNAPL) such as chlorinated volatile organic compounds (VOC)

and solvents, as well as coal tar from former MGP facilities. As such, there is a potential for contaminants including DNAPL to be present in soil, groundwater, and bedrock which could be encountered during construction.

To address any hazardous materials located within the Project Areas during construction, supplemental investigations would be conducted to properly characterize subsurface conditions within the limits of disturbance.

Subsurface investigations for city-owned parcels (with the exception of Block 2575 Lot 26 at the NCQ-077 diversion facility), as well as portions of the CSO tunnel corridor, TDPS discharge pipe and gravity diversion sewer that are accessible from public rights-of-way, would be performed when design nears or reaches 60 percent completion (estimated 2026/2027). The subsurface investigations would be conducted as supplements to the Part 1 investigation and will be labeled in sequence as Part 2 and Part 3, to be completed in accordance with respective Subsurface Investigation Work Plans and associated Health and Safety Plans (HASPs) to be prepared and submitted to DEP for review and approval. Part 2 would be considered a comprehensive investigation of soil, groundwater, soil vapor, and potentially bedrock, to further characterize the Project Areas. The Part 3 Supplemental Subsurface Investigation would be conducted to delineate contamination that may be identified from previous investigations, including Parts 1 and 2, and would be similarly subject to a Work Plan and HASP to be prepared and submitted to DEP for review and approval. For parcels under consideration for acquisition by DEP, supplemental subsurface investigations may be conducted post-acquisition (acquisition scheduled between February 2026 and February 2029). If the acquisition schedule does not align with the Part 2 and Part 3 investigations described above, then City-acquired parcels may require their own parcel- or site-specific Subsurface Investigation Work Plans and HASPs which would similarly require review and approval by DEP.

Two parcels in the Project Area associated with certain diversion facilities are currently in NYSDEC programs (Block 2984 Lot 85 at the NCB-083 diversion facility site in the BCP, and the City-owned Block 2575 Lot 26 at the NCQ-077 diversion facility site in the Environmental Restoration Program [ERP]). NYSDEC would maintain regulatory oversight for subsurface investigations conducted on these parcels, which would be subject to Remedial Investigation Work Plans (RIWPs) that would be prepared and submitted to NYSDEC for review and approval in accordance with the requirements of the respective program(s). Investigation of the City-owned NCQ-077 diversion facility site would likely be conducted in parallel with Parts 2 and 3 of the subsurface investigations when design reaches 60 percent completion (estimated 2026/2027). As it is not yet known whether subsurface investigations on Block 2984 Lot 85 of NCB-083 in the BCP would be conducted prior to or after acquisition, coordination with NYSDEC and/or the parcel owners would be conducted should the investigation be scheduled prior to acquisition.

Overall, all required permits, as well as entry and testing agreements, would be obtained for any supplemental sampling conducted within public rights-of-way or on privately-owned parcels. During construction, soil and materials management procedures would be implemented to minimize impacts of earth disturbing excavation activities. In addition, the following would also be conducted:

- For corridors (CSO Tunnel, TPDS discharge pipe, and gravity diversion sewer), the TDPS site, and the diversion facility parcels not in NYSDEC programs (the BB-026 diversion facility site; Block 2974 Lots 165 and 170 at the NCB-015 diversion facility site; and Block 2585 Lots 225 and 240 at the NCQ-077 diversion facility site) – Preparation of Remedial Action Plans (RAPs) and Construction Health & Safety Plans (CHASPs) would set out the procedures to be followed to avoid the potential for adverse impacts related to hazardous materials identified by the Parts 2 and 3 subsurface investigations, as well as other hazardous materials that could (unexpectedly) be encountered. The RAPs would incorporate the soil and materials management procedures (including stockpiling, handling, transportation, and disposal), as well as Community Air Monitoring Plan (CAMP) requirements, odor suppression means and methods, and contingency measures to be implemented should USTs or soil contamination be encountered. Furthermore, procedures for treatment of contaminated groundwater would be provided in the RAPs to be followed during dewatering operations. Dewatering operations would either follow DEP permitting requirements for treatment and discharge to the sewer system, or NYSDEC State Pollution Discharge Elimination System (SPDES) requirements for treatment and discharge to a surface water body or DEP outfall. The CHASP would present a hazard assessment for the construction workers during portions of the subsurface disturbance to protect construction workers and occupants during construction. Upon completion of construction, an RCR would be prepared and submitted to DEP for review and approval. The RCR would document environmental procedures that were followed during construction, provide photographic documentation, as-built drawings, sample results, disposal manifests, air monitoring data and field logs, and would be certified by a New York-licensed PE.
- Diversion facility parcels in NYSDEC programs (NCB-083 Block 2984 Lot 85 and NCQ-077 Block 2575 Lot 26) - Remedial Action Work Plans (RAWPs) or Interim Remedial Measure (IRM) Work Plans (IRMWP) would be prepared for each parcel in consultation with NYSDEC (Block 2984 Lot 85 at NCB-083 in the BCP; and Block 2575 Lot 26 at NCQ-077 in the ERP). The RAWPs/IRMWPs would be certified by a New York-licensed PE and would similarly set out procedures to be followed to avoid the potential for adverse impacts related to hazardous materials identified by the supplemental subsurface investigations, as well as other hazardous materials that could (unexpectedly) be encountered. The RAWPs or IRMWPs would address requirements for items such as soil, groundwater and bedrock management (including stockpiling, handling, transportation, and disposal), odor control mitigation, dust control and air monitoring, daily reporting to NYSDEC, and contingency measures should USTs or contamination be encountered. Soil and materials management measures included in the RAWPs or IRMWPs are expected to be similar to the procedures followed for portions of the Project Area not in NYSDEC programs and would similarly include CAMP monitoring and odor suppression means and methods. However, these measures would be subject to NYSDEC's review and approval. Dewatering operations would follow DEP requirements for treatment and discharge to the sewer system, or NYSDEC SPDES requirements for treatment and discharge to a surface water body or outfall. The RAWPs or IRMWPs would also include CHASPs which would present a hazard assessment for the construction workers during

portions of the subsurface disturbance to protect construction workers and occupants during construction. Upon completion of construction, RCRs, Final Engineering Reports (FERs), IRM or Construction Completion Reports (IRMRs/CCRs) would be prepared and submitted to NYSDEC for review and approval. The FERs, RCRs or IRMRs or CCRs would each be certified by a New York-licensed PE and would provide photographic documentation, as-built drawings, sample results, disposal manifests, air monitoring data and field logs and document environmental procedures that were followed during construction.

Demolition of several existing structures is anticipated at the TDPS site as well as certain diversion facility parcels. Any suspect asbestos-containing material (ACM), lead-based paint (LBP) or polychlorinated biphenyl (PCB)-containing building materials, if potentially present or encountered during construction of the Proposed Project, would be evaluated and abated in accordance with applicable local, state and federal regulatory requirements as part of standard demolition procedures.

Although immediate exposure to contamination would be addressed during construction, NYSDEC and DEP may require institutional controls (ICs) and/or operational site management of engineering controls (ECs) on certain portions of the Project Areas. Examples of ICs include deed restrictions which could prohibit certain sensitive uses that would increase the potential for exposure to hazardous materials, and regulatory (programmatic) requirements for future investigation and remediation should modifications to the Project Areas be contemplated that may increase exposure to hazardous materials. Examples of ECs include a regulatory agency-approved site cap to prevent dermal or future exposure to contamination, if present, and long-term monitoring or remediation through the use of a mitigation system (i.e., groundwater treatment system, soil vapor extraction (SVE) system, etc.). Potential ECs would be implemented as part of remedial action and ICs would be determined upon completion of any remedial action conducted during construction. Any future ICs that are placed on any portions of the Project Area would be followed in accordance with the specified control's requirements. Operations, maintenance and management (O&M) of post-construction ECs to prevent operational exposure to hazardous materials would be implemented through Site Management Plans (SMP), which would be submitted to, and approved by the agency that oversees the respective portion of the Project Area (i.e., DEP, NYSDEC or EPA). Any potential hazardous materials, including petroleum products, that would be required for use as part of future CSO tunnel operations would be stored, handled and/or disposed of in accordance with applicable local, state and federal requirements.

Based upon the requirement to investigate and remediate potential hazardous materials within the Project Area in accordance with agency oversight (DEP or NYSDEC), the potential for exposure to hazardous materials would be minimized during construction. Beyond construction, all post-remedial requirements during operation, including any potential future ICs or ECs placed within the Project Area, would be followed in accordance with regulatory agency-approved SMPs. Therefore, with the measures described above, no significant adverse impacts relating to hazardous materials would result from construction or operation of the Proposed Project.

B. REGULATORY CONTEXT

A hazardous material is any substance that poses a threat to human health or the environment. Substances that may be of concern in the subsurface include heavy metals, VOCs, semi-volatile organic compounds (SVOC), methane, PCBs, pesticides, and hazardous wastes. ACM and LBP or lead-containing paint (LCP) are the most common aboveground (e.g., on or within building materials) hazardous materials. Mercury and PCBs may also found in certain building materials. Management of hazardous materials can be subject to numerous regulatory requirements, including those of the EPA, NYSDEC, and DEP. For example, a subset of hazardous materials, when disposed of are considered Hazardous Wastes and are subject to a variety of stringent cradle-to-grave requirements (set out in 40 CFR Parts 261-264 and 268).

This assessment follows the methodology in the 2021 *New York City Environmental Quality Review (CEQR) Technical Manual*. For hazardous materials, the goal for CEQR is to determine whether a Proposed Project may increase the exposure of people or the environment to hazardous materials, and, if so, whether this increased exposure would result in potentially significant public health or environmental effects. The regulatory context for the Proposed Project includes requirements and policies to determine whether the proposed action would result in significant adverse impacts relating to hazardous materials. For the Proposed Project, DEP would maintain compliance in accordance with the *CEQR Technical Manual* for parcels and corridors not participating in a NYSDEC regulatory program (CSO Tunnel, TPDS discharge pipe, gravity diversion sewer, the lots at the BB-026 diversion facility site, the lot at the NCB-015 diversion facility site, and two lots at the NCQ-077 site). NYSDEC would provide regulatory oversight for one lot at the NCB-083 diversion facility site and at the NCQ-077 diversion facility site.

METHODOLOGY

Newtown Creek and numerous adjoining industrial properties served as a major waterway and industrial hub through which materials were brought to and from area industries, including major oil refineries and terminals, smelting operations, manufactured gas plants and other heavy industries. Because of these heavy industrial uses, Newtown Creek itself was designated as a Superfund site by the EPA in 2010 under CERCLA due to discharges and contamination from neighboring industry. In addition, many industrial parcels surrounding Newtown Creek have resulted in site-specific subsurface contamination from on-site operations, including Block 2984 Lot 85 at the NCB-083 diversion facility site and Block 2575 Lot 26 at the NCQ-077 diversion facility site (required for the Proposed Project), which are currently in NYSDEC regulatory programs.

Given the extended industrial history and contaminants in the areas surrounding Newtown Creek, an assessment of hazardous materials relating to the corridors (CSO Tunnel, TPDS discharge pipe, and gravity diversion sewer), the TDPS site, and proposed easement/acquisition parcels is warranted to determine what regulatory procedures would be followed to remain in conformance with requirements of any parcel-specific remedial programs as well as an evaluation of potential contaminants within the public rights-of-way and easement and/or acquisition parcels that are not currently involved in regulatory programs.

Given the geographic extent and restricted access to privately-owned parcels throughout the Project Area, preparation of an American Society for Testing and Materials (ASTM) Phase I Environmental Site Assessment (ESA) was not practical. Alternatively, in accordance with the draft scope of work, a desktop review of available resources was conducted to evaluate existing conditions and the extent of potential hazardous materials within the Project Area. The following resources (provided in Appendix E) were reviewed:

- A review of the NYSDEC infoLocator was conducted to understand if any parcels or facilities within the Project Area are participating in remedial programs, whether the potential for adverse subsurface impacts exists, and whether certain regulatory requirements are present on the parcels that must be followed prior to and during construction. The NYSDEC infoLocator often provides a document repository and summarizes environmental conditions of sites enrolled in the regulatory programs it administers.
- Historic resources including Sanborn Fire Insurance maps, aerial photographs and topographic maps were reviewed to develop a profile of the historical uses of the TDPS site, existing rights-of-way, as well as the easement and acquisition parcels for the CSO tunnel, TDPS discharge pipe, and gravity diversion sewer. The aforementioned resources were also utilized to determine if any historic uses in the general vicinity of the Project Area have the potential to adversely impact subsurface conditions within the Project Area.
- A review of existing environmental assessments performed within the Project Area was conducted. The assessments included a review of available online resources and public regulatory records maintained by EPA and NYSDEC, as well as review of local, state, and federal regulatory database listings to understand documented conditions and any nearby environmental features that may have adversely impacted subsurface environmental conditions within the Project Area.[2] A preliminary subsurface investigation (hereinafter referred to as Part 1) was also conducted between March and May 2024 to evaluate site-specific conditions that may warrant supplemental investigation.

POTENTIAL CONTAMINANTS OF CONCERN

Soil and groundwater can become contaminated as a result of past or current activities on a project site or in adjacent areas. Many industrial activities use, store, or generate contaminated materials that can be spilled, dumped, emitted, or buried nearby. Other facilities common in mixed-use neighborhoods, such as gas stations and auto repair shops, can also result in contamination due to improper handling/management of raw product and/or waste materials, or inadvertent spills/release. As previously indicated, Newtown Creek and numerous adjoining industrial properties served as a major waterway and industrial hub through which materials were brought to and from area industries, including major oil refineries and terminals, smelting operations, manufactured gas plants and other heavy industries. Many industrial parcels surrounding Newtown Creek are currently in regulated

[2] The results of the previous assessments were summarized in *Technical Memorandum 11 – Assessment of Available Environmental Information*, dated March 2024 prepared by McMillen JA Engineering PLLC/Bown and Caldwell Associates, a Joint Venture (JV). Review of this document is provided in this chapter.

programs including, but not limited to, NYSDEC State Superfund, BCP, as well as registered chemical or petroleum bulk or major oil storage facilities. Given the variety of current historic industrial uses within and/or proximate to the Project Area, a variety of contaminants of concern (COC) may be present with the potential to be encountered during construction. Further, human exposure to COCs can potentially occur through direct contact when there is an exposure pathway, e.g., when excavation or tunneling is occurring. Exposure to contaminated groundwater through ingestion is not expected as Queens and Brooklyn are served by municipal water systems that rely on upstate reservoirs, but exposure could occur during dewatering. Therefore, if such contaminants are not properly managed, the proposed excavation, earthmoving, dewatering, and other construction activities can introduce potential risk to construction workers and others nearby by providing a pathway of exposure from contaminants. Demolition of any existing structures that have ACM, LBP/LCP, electrical equipment or other building materials containing PCBs, or fluorescent lights or older thermostats containing mercury have the potential to release contaminants if these materials are not properly abated or managed.

Based on the types of contaminants that are typically found in New York City, some of the potential COCs are described below. The list provides a summary of potential categories of contaminants and is not a comprehensive list of all contaminants that may be encountered:

- **VOCs**: These include aromatic compounds—such as benzene, toluene, ethylbenzene, xylene (BTEX), which may be found in MGP wastes and petroleum products (especially gasoline, which can also contain methyl tertiary butyl ether [MTBE])—and chlorinated compounds, such as tetrachloroethene (also known as perchloroethylene or "perc" or "PCE") and trichloroethene (TCE), which are common ingredients in solvents, degreasers, and dry-cleaning agents. VOCs represent the greatest potential for exposure since, in addition to soil and groundwater contamination, they can generate organic vapors.
- **SVOCs**: The most common SVOCs in urban areas are polycyclic aromatic hydrocarbons (PAH), which are constituents of partially combusted coal- or petroleum-derived products, and some MGP wastes. PAHs are commonly found in New York City fill material, which, given the development history, likely underlies the Project Area. Petroleum-related SVOCs could be present and are typically associated with buried tanks currently or formerly located in the Project Area. SVOCs can also be present in creosote-treated timber (e.g., piles from former bulkheads or piers).
- **PCBs**: PCBs and/or PCB-containing materials were once widely used in manufacturing and industrial applications (e.g., hydraulic equipment, plastics manufacturing, as dielectric fluid in transformers, and in some underground high-voltage electric lines). PCBs tend to travel only short distances in soil, except in unusual circumstances (e.g., large spills of PCB-containing oils over many years).
- **Pesticides, herbicides, and rodenticides**: These are commonly used to control rodents and/or insects and vegetation in vacant structures or in vegetated areas, including parks. Pesticides/herbicides are relatively immobile and tend to be persistent in surface soils.

- **Metals and cyanide**: Metals, including lead, arsenic, cadmium, chromium and mercury, are often used in smelters, foundries, and metal works and are found as components in MGP wastes, paint, ink, petroleum products, fluorescent lights, older thermostats, and coal ash, and were used in the past (copper, chrome, and arsenic) as wood preservatives (e.g., on piles). These metals tend not to migrate far in soil; therefore, they would be of greater concern at the site where they were generated than at off-site areas. Metals at levels above natural background levels are frequently present in fill material throughout the New York metropolitan area.
- **Fuel oil and gasoline from storage tanks**: Businesses or residences within or upland of the Project Area could have had aboveground storage tanks (AST) and/or USTs for fuels, including heating oil and gasoline. Some of the MGP facilities stored large volumes of oil. Although the MGP-related tanks have been removed, USTs at other locations, although no longer in use, may remain buried in place. Tanks have the potential to have leaked despite no record of a reported spill.
- **Fill materials of unknown origin**: In the past, waste materials, including coal and incinerator ash, demolition debris (including from demolished cinder blocks), and industrial wastes, were commonly used as fill in urban areas. Even fill material consisting primarily of soil may exhibit elevated levels of PAHs, metals, PCBs, SVOCs, and other contaminants. Such materials are potentially present throughout the Project Area.
- **Asbestos**: Asbestos is a common component of building materials, especially insulation, fireproofing, tile flooring, plaster, sheetrock, ceiling tiles, mastic, and roofing materials. In addition to materials within existing structures, subsurface utility lines may be coated with asbestos or encased in "transite," an ACM. ACM can also be present in soil or fill from construction and demolition debris. Asbestos was widely used before 1980.
- **LBP and Lead-containing Paint (LCP)**: The use of LBP in New York City residential buildings was banned in 1960. Its use in other buildings and outdoors was severely restricted by the Consumer Products Safety Commission in 1977. Lead-containing paint is regulated under the Occupational Safety and Health Administration (OSHA) Lead Exposure in Construction standard (29 CFR 1926.62). Lead that is released as dust (or as a fume if heated) is potentially hazardous, especially to children. Older buildings, bridges, and other painted structures or elements are likely to include LBP or LCP.

C. EXISTING CONDITIONS

UPDATED ONLINE RECORDS REVIEW

Review of the NYSDEC infoLocator was conducted to understand if any parcels or facilities within the Project Area are participating in remedial programs, whether the potential for adverse subsurface impacts exists, and whether certain regulatory requirements are present on the parcels that must be followed prior to and during construction. The findings of the online records review are provided, below.

TDPS SITE AND DISCHARGE PIPE, BB-026 DIVERSION FACILITY SITE (QUEENS BLOCK 115, LOTS 56, 86 AND 150), GRAVITY DIVERSION SEWER, AND NCB-015 DIVERSION FACILITY SITE (BROOKLYN BLOCK 2974, LOTS 162 AND 170)

The additional review of online public records and resources revealed that none of these parcels or corridors are participating in remedial regulatory programs.

NCB-083 DIVERSION FACILITY SITE (BROOKLYN BLOCK 2948, LOT 85)

This parcel on Block 2984, Lot 85 is enrolled in the NYSDEC BCP as Site No. C224344 (1301 Metropolitan Avenue; see **Figure 12-1**). Records indicate a subsurface investigation was conducted in April 2015. Minor Low-level concentrations of VOCs, SVOCs, and metals were detected in soil, stormwater sediment, and groundwater samples. A more recent Phase II ESA was completed in March and April 2021, which indicated petroleum contamination (black staining and the presence of oil/sheen in soil and groundwater) was present in the area of a former AST and minor petroleum impacts to soil and groundwater throughout the parcel. Based on the results of the Phase II ESA, NYSDEC Spill #2102352 was assigned to the site on June 11, 2021. The spill incident is currently active, and no additional records were available via the NYSDEC infoLocator for this parcel.

NCQ-077 DIVERSION FACILITY SITE (QUEENS BLOCK 2575, LOTS 26, 225 AND 240)

Lot 26 for the NCQ-077 diversion facility is listed as Site B00152 in the NYSDEC ERP database due to several commercial and industrial uses, with the most recent being a bus maintenance facility (see **Figure 12-1**). Concerns were also identified relating to a former chemical blending operation that was located immediately adjacent to Lot 26 that could have contaminated the parcel from an off-site source. A Remedial Investigation (RI) was conducted under the ERP, but no remedial action plan was finalized. In 2008, an IRM was implemented that included removal of a 20,000-gallon storage tank found during the RI and removal of over 100 yards of contaminated soil. The project was closed in the ERP in 2010, and all future site work is to be conducted under the NYSDEC spills program.

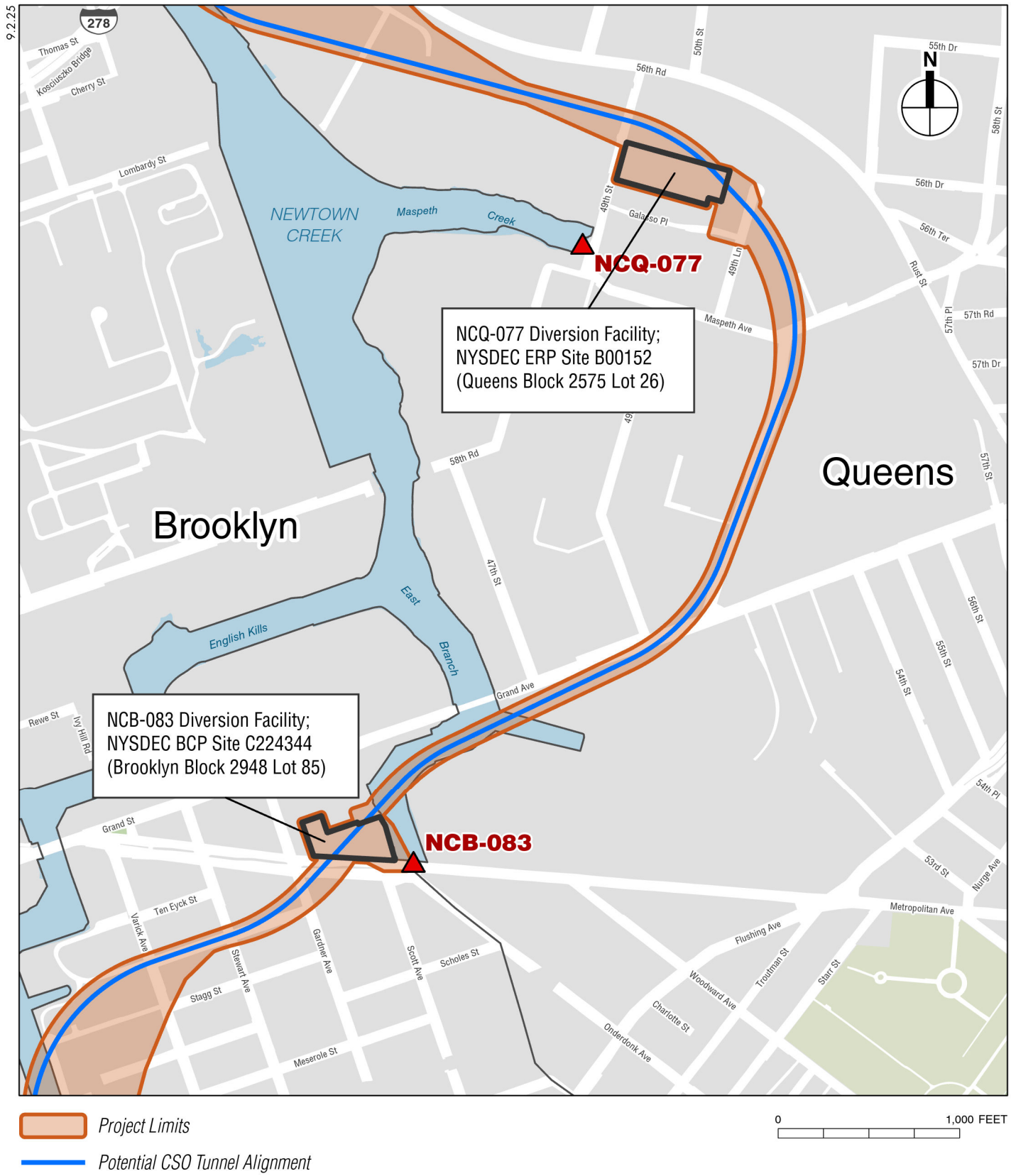
The two additional lots for the NCQ-077 diversion facility (Lots 225 and 240) are not in regulatory or remedial programs.

Online records reviewed for the BCP and ERP parcels are provided in Appendix E.

REVIEW OF HISTORIC MAPS

A review of existing information including historic Sanborn Fire Insurance maps, aerial photographs and topographic maps was conducted to develop a profile of the historical use of the CSO tunnel and gravity diversion sewer, the TDPS site, discharge pipe, and proposed easement/acquisition parcels for the diversion facilities. Given the size of the Project Area, a review of City Directory data was not practical; however, analysis of historic maps described below, and other resources provided sufficient history of the Project Area to develop the findings for this hazardous materials analysis.

A review of the historic maps is provided in the subsections below.



Diversion Facility Parcels in Regulatory Programs

HISTORIC SANBORN FIRE INSURANCE MAPS

Sanborn Fire Insurance maps of the CSO tunnel and gravity diversion sewer, TDPS site, discharge pipe, and diversion facility parcels were provided by Environmental Data Resources, Inc. (EDR) for the years 1887, 1888, 1898, 1902, 1905, 1907, 1914, 1915, 1916, 1921, 1922, 1928, 1933, 1936, 1942, 1947, 1950, 1951, 1965, 1968, 1970, 1971, 1976-1983, 1985-1996, 1999, and 2001-2007. Sanborn maps are highly detailed, large-scale maps created by the Sanborn Map Company that depict the layout of cities, including information about individual buildings including construction materials, size, use, and proximity to streets, as well as utilities. Sanborn maps are useful for historic research by essentially providing a snapshot of a city's urban landscape at a specific point in time. **Table 12-1** provides a summary of the Sanborn maps for the Project Area.

Table 12-1
Summary of Sanborn Fire Insurance Maps

Year(s)	Summary/Description
1887-1902	The area now occupied by the Newtown Creek WRRF is vacant and part of a larger paper roadway network. Low-laying wetlands are present where Provost Street currently traverses. An oil refinery (Sone & Fleming Manufacturing Co. and Kings County Oil Works) and freight houses are present along the southern banks of Newtown Creek in Brooklyn (depicted as bulkheaded). Further, the A.K. Bolan Empire Refining Co. is present along the eastern side of Whale Creek (on the TDPS site). East Branch is depicted as primarily vacant, low-lying wetlands with the Brooklyn Bushwick and Queens Co. Railroad facility to the west along Metropolitan Avenue. English Kills is depicted to the west of Varick Avenue, of which the properties to the east are vacant/undeveloped. A rail right-of-way traverses to the west of Varick Avenue. Lumber Yards and coal piles are depicted in the East Branch area and along English Kills. Dwellings are depicted along the south banks of Newtown Creek, near Meeker Avenue. A former Draw Bridge over Newtown Creek is present. Orton Street (now 30th Street) is depicted primarily with vacant properties surrounding. Dutch Kills is depicted as “proposed” in 1887 but was present in 1898, with a draw bridge proposed for Hunters Point Avenue. Additional properties adjacent to Newtown Creek and within or proximate to the CSO tunnel corridor include the Long Island Railroad, the Charles Pratt Oil Refinery, the Preson Oil and Fertilizer Works, Eastern Distilling Co., Nichols Chemical Company (copper refinery), The American Agricultural Chemical Co., and General Chemical Co. The eastern end of Newtown Creek is depicted as low-lying marshlands associated with Maspeth Creek.
1905-1915	A tin can factory with rail spurs is present on the southern banks of Newtown Creek in the areas proximate to the present Newtown Creek WRRF. Standard Oil Works is located on the southern banks of Newtown Creek where Greenpoint Avenue crosses. The northern portions of the now present Newtown Creek WRRF are occupied by several industrial properties including a steam laundry facility, a bronze company, a coal and brick yard, a machine shop and a lumber company, with the southern portions vacant. Along the western banks of East Branch, within the CSO tunnel corridor is improved with coal and lumber yards along Metropolitan Avenue. Areas south of Metropolitan Avenue are depicted as vacant. The southern terminus of English Kills along Johnson Avenue is improved with lumber and coal yards, along with a depot and mason supply facility. Properties along English Kills include an ice company, masonry and asphalt plants. Lumber yards abut East Branch in each direction to the south of Grand Avenue, and north of Metropolitan Avenue. In Queens, the northern banks of Maspeth Creek are improved with the National Enameling Stamping Co.. to the south of the Long Island Railroad (LIRR) tracks. The Nichols Copper Co. Laurel Hill Works is also present along the northern banks of Newtown Creek. The Redlan piano repair company is present on Review Avenue, to the south of Borden Avenue. Further south, The General Vehicle Co. Inc.. is present along the east side of Review Avenue.
1916-1928	The Standard Oil Co. Kings No. 2 grease works is present along the southern banks of Newtown Creek, where the CSO tunnel corridor would pass beneath Newtown Creek. Oil terminal tanks associated with the Standard Oil Company are present within the Newtown Creek WRRF along the north side of Greenpoint Avenue proximate to the proposed TDPS discharge pipe corridor. The TDPS site is depicted as excavated and a commercial slip to the east of Whale Creek. Further west, a bronze works, lumber yard, granite works and oil company are depicted within the Newtown Creek WRRF along the east side of Provost Street. In Queens, industrial uses are present including a steel works and lead manufacturer along the south side of Review Avenue along Newtown Creek, within the CSO tunnel corridor. An oil company is present along the south side of Review Avenue where it terminates at Borden Avenue and Dutch Kills.
1936	The northern terminus of Dutch Kills is depicted as primarily vacant along the northern banks, with rail spurs traveling to several industrial facilities (the BB-026 diversion facility parcels). Along 30th Street, industrial properties are present

Table 12-1
Summary of Sanborn Fire Insurance Maps

Year(s)	Summary/Description
	on the eastern and western side including a pipe shop, a heating company and a steel yard. 30th Street is depicted as vacant from Hunts Point Avenue down to Borden Avenue. Along the northern banks of Newtown Creek, the Standard Oil Company is present along the south side of Review Avenue with numerous bulk storage tanks and buildings, with the Calvary Cemetery to the north. Maspeth Creek bisects the CSO tunnel corridor to the south of Railroad Place (the NCQ-077 diversion facility parcels). Properties to the north of 56th Road (between 46th Street and 50th Street) are vacant, with the LIRR tracks adjacent to the south and the National Enamel Stamping Co. and Nichols Copper Co. Laurel Hill Works further south along the northern banks of Newtown Creek. General Chemical Co. is located to the north of 56th Road at 43rd Street. The Diamond Chemical Company is located along the south side of Laurel Hill Boulevard, where Review Avenue begins. In Brooklyn, the southern terminus of English Kills is depicted with lumber, coal and building material yards (the NCB-015 diversion facility parcels). Several chemical companies are present along the eastern and western sides of English Kills just north of Meserole Street. Brooklyn Union Gas MGP is present at the corner of Bogard Street and Meserole Street. Between East Branch and English Kills, lumber yards and lighter industrial uses are present along Stewart Avenue at Stagg Street, within the CSO tunnel corridor, along with lumber and asphalt yards. The majority of the parcels where the CSO tunnel corridor bisects Grand Avenue and continues north beneath Page Place are vacant. Residential uses and a gasoline filling station are present along the east side of Review Ave where Van Dam Street begins. A rail yard, pickle factory, granite works and lead manufacturing facility are located along the south side of Review Avenue to the west of Greenpoint Avenue.
1942-1950	The southern portions of the Newtown Creek WRRF between Huron Street and Greenpoint Avenue are primarily occupied by lumber yards with some limited industrial woodworking along Greenpoint Avenue to the south. The northern portions are occupied by the Colonial Beacon Oil Co., a bronze foundry and a cleaning compound manufacturing facility. The Standard Oil Company Sone & Fleming Works is located within the eastern portions of the present Newtown Creek WRRF, just south of Kingsland Avenue, as well as north of Kingsland Avenue, along the south side of Newtown Creek within and proximate to the TDPS discharge pipe corridor. The Calvary Cemetery remains along the north side of Review Avenue between 56th Road and 37th Street. The Standard Oil Company with numerous major oil storage tanks is located along the south side of Review Avenue, west of Laurel Hill Boulevard, with the LIRR tracks further south. Further north, a pumice stone and sponge manufacturer is present along the west side of 30th Street, north of Hunter's Point Avenue. The northern terminus of Dutch Kills remains similar with rail spurs traveling to their respective manufacturing facilities. R.H. Macy & Co. mattress manufacturing is present along the east side of 30th Street, south of 47th Avenue. Along the north side of Review Avenue west of Van Dam Street, numerous warehouses and manufacturers are present including a Sears Roebuck & Co. warehouse, a corrugated pipeline manufacturer and a structural steel warehouse. The Texas Company oil terminal and a rail yard are present to the south of Review Avenue, where the CSO tunnel corridor would traverse south and proceed beneath Newtown Creek into Brooklyn toward the Newtown Creek WRRF. To the south, along Grand Avenue and Page Place is a commercial bakery, metal works and an electric wire and cable corporation within the CSO tunnel corridor. 56th Road near 43rd Street is abutted to the south by the LIRR tracks followed by the Phelps-Dodge Refining Corp. Laurel Hill Works. To the north is a tallow plant and garage. The National Enameling & Stamping Company remains present to the south of the LIRR tracks near 49th Street, within the CSO tunnel corridor. The Diamond Chemical Co. and General Chemical Co remain present along 56th Road at Laurel Hill Boulevard, where Review Avenue begins.
1951-1968	The southern terminus of English Kills is similar to the 1950 Sanborn map depiction, remaining vacant between the Creek and Johnson Avenue but occupied by an auto wrecking yard with repair, warehouses and a surface parking lot. The Standard Oil Company continued to maintain a presence. To the east of Whale Creek, a grease and compounding works is present at the terminus of Kingsland Avenue along the southern banks of Newtown Creek. Farther south, oil terminals and refineries (Sinclair Refining Co. and Great Eastern Oil Co). are present along the eastern banks of English Kills, near Metropolitan Avenue where the CSO tunnel corridor would traverse beneath. The Cross, Austin and Ireland Lumber Co. is present through much of the areas northwest of Metropolitan Avenue near East Branch where the CSO would traverse, with additional manufacturing constructed along the south side of Metropolitan Avenue. The parcels currently occupied by the Newtown Creek WRRF are similar to the 1950 depictions along the southern side, but the northern portions are occupied by the Humble Oil & Refining Co. and the Esso Standard Oil Terminal, along with Williamsburg Steel Products Co. The TDPS site was filled and aligned with the southern banks of Newtown Creek, and the Greenpoint Department of Sanitation Incinerator and Marine Transfer Station is present to the east of Whale Creek Canal, along the southern banks of Newtown Creek. In Queens, properties previously associated with the Standard Oil Co. along the south side of Review Avenue, to the west of Laurel Hill Boulevard have been converted to warehouse and light manufacturing uses. Further north, properties along the east and west sides of 30th Street, north of the Long Island Expressway (shown as the Mid-Town Highway), consist of a radio lab, additional warehouse uses, a container corporation, an iron and steel company, a drug warehouse, and additional light industrial and commercial uses. The northern terminus of Dutch Kills remains vacant to the south of 47th Avenue and rail rights-of-way, with light industrial uses along the west side.

Table 12-1
Summary of Sanborn Fire Insurance Maps

Year(s)	Summary/Description
1970-1980	In Queens, properties to the north of Review Avenue between the Long Island Expressway and Van Dam Street are improved with numerous manufacturing and warehouse uses including a corrugated paper container manufacturer and a metal purchasing and processing facility, with rail spurs present throughout. Properties to the south of Review Avenue along the same corridor are improved with light manufacturing, warehouses, an oil refinery, and animal feed manufacturers to the south along the northern banks of Newtown Creek. A rail yard remains present south of Review Avenue. The properties along the northern terminus of Dutch Kills and 30th Avenue to the east of Dutch Kills remain similar to their earlier Sanborn map configurations. North of Maspeth Creek to the west of 49th Street consists of a large cardboard container manufacturer along with the Phelps Dodge Refining Corporation with rail tracks to the north. The existing United Parcel Service (UPS) Maspeth warehouse has been constructed north of 56th Road, adjacent to the north of the CSO tunnel corridor. Further south within the CSO tunnel corridor, the Esso Standard Oil Terminal has been rebranded as the AFA Terminal with numerous major oil storage tanks along East Branch to the south of Grand Street. Along Metropolitan Avenue near East Branch, manufacturing, auto repair and commercial uses are present where the CSO tunnel traverses. Along the south banks of Newtown Creek, to the west of Whale Creek, the Newtown Creek WRRF has been constructed between Greenpoint Avenue and Green Street with an oil terminal, refining company and steel products facility located north of Green Street. Many former manufacturing facilities along the Page Place portion of the CSO tunnel corridor have been converted to freight and warehouse uses. The remaining properties adjacent and proximate to the CSO tunnel corridor are generally similar to their earlier Sanborn map depictions.
1981-1991	In Queens, properties to the north of Review Avenue between the Long Island Expressway and Van Dam Street continue to be utilized for manufacturing, warehouse and auto repair. Properties to the south of Review Avenue have been converted primarily to freight and warehouse uses. Oil refineries remain present south of Review Avenue, to the south of the rail tracks along the northern banks of Newtown Creek. The Triplex Oil Refining Co., remains present along Review Avenue near Calvery Cemetery. The northern terminus of Dutch Kills consists of undeveloped parcels with railroad spurs further north. The properties along the east and west sides of 30th Avenue remain similar consisting of freight, warehouse and furniture assembly/storage. The Phelps-Dodge Refining Corp – Laurel Hill Works remains present south of 56th Road further east, followed by a plumbing supply facility and a chemical and dye manufacturer at 43rd Street within the CSO tunnel corridor. Properties along Page Place remain similar consisting of warehouse, freight and presumably light manufacturing uses within the CSO tunnel corridor. The southern terminus of English Kills remains similar (NCB-015 diversion facility parcels), with a warehouse along the western portions, and undeveloped areas occupied by parking and auto storage along the southeastern portions. Properties along the east side of English Kills within the CSO tunnel corridor are similar to their earlier uses consisting of storage, freight and some manufacturing. The remaining properties along the CSO tunnel corridor are generally similar mostly consisting of light manufacturing, freight and storage warehouses.
1992-2002	In Queens, the northern terminus of Dutch Kills remains of similar configuration, with a concrete manufacturing plant on the western portions and vacant undeveloped land abutting the Dutch Kills terminus to the north, followed by rail spurs. Properties along the east and west sides of 30th Street remain of similar configuration consisting of warehouses and furniture storage. Adjacent properties along Review Avenue between Laurel Hill Road and 30th Street remain similar to their earlier depictions, consisting of freight, commercial warehouses and oil refineries with Calvary Cemetery to the north of Review Avenue, east of Van Dam Street. Properties along the north and south side of 56th Road are similar to their earlier depictions, consisting of a plumbing supply warehouse and freight uses. Several heavy industrial properties, including the former chemical manufacturer along the south side of 56th Road, have been converted to light manufacturing or industrial uses or are vacant. Further east, the CSO tunnel corridor remains similar moving south along Page Place, consisting of freight stations, warehouses and unspecified manufacturing uses. In Brooklyn, freight and garages are present along the north side of Metropolitan Avenue to the west of East Branch within the CSO tunnel corridor. Further south, the adjacent properties along the eastern banks of English Kills are similar to their earlier depictions, consisting of freight, scrap yards and storage. The southern terminus of English Kills remains similar, with undeveloped parcels occupied by parking and auto storage to the north of Johnson Avenue. Further north, properties adjacent to Whale Creek Canal to the east are consistent with their 1991 depictions, consisting of Department of Sanitation facilities (the TDPS site). To the west of Whale Creek, the Newtown Creek WRRF remains in similar configuration to the south of Green Street and north of Greenpoint Avenue, with oil refining and freight auto repair north of Green Street to the west of Whale Creek.
2003-2007	The majority of the parcels along the CSO tunnel corridor and additional improvement areas are similar to their 2002 Sanborn configurations. Many of the adjacent properties to the CSO tunnel rights-of-way consist of warehouse, freight, light manufacturing and commercial uses. Rail rights-of-way and rail spurs remain present throughout many of the areas that the CSO tunnel traverses, consistent with previous Sanborn configurations.

HISTORIC AERIAL PHOTOGRAPHS

Historic aerial photographs of the CSO tunnel, gravity diversion sewer, and diversion facility parcels were provided by EDR for the years 1924, 1941, 1951, 1954, 1966, 1974, 1976, 1980, 1984, 1991, 1994, 2006, 2011, 2015 and 2019. **Table 12-2** provides a summary of the aerial photographs of the Project Area.

Table 12-2
Summary Of Aerial Photographs

Year(s)	Summary/Description
1924	In Queens, Dutch Kills is shown as a spur of Newtown Creek to the north, with disturbed land at the northern terminus. 30th Street to the east consists of a right-of-way with primarily vacant land along the east and west side. Heavy Industrial uses are present further south of Borden Avenue along the CSO tunnel corridor, along Review Avenue to the north and south. From Van Dam Street east, Review Avenue is depicted as wider, with Calvary Cemetery to the north, and oil refineries to the south followed by a railroad corridor and additional heavy industrial uses along the north banks of Newtown Creek. East of Laurel Hill Boulevard, the CSO tunnel corridor continues beneath 56th Road before turning south around 49th Street. The majority of the parcels south of 56th Road consists of industrial uses consistent with earlier Sanborn map depictions, with some vacant parcels to the north. Wetlands associated with Maspeth Creek are present in the areas that are now Page Place and Maspeth Avenue, within the CSO tunnel corridor. In Brooklyn, the TDPS site is shown as a commercial docking slip, consistent with Sanborn map depictions. Whale Creek is shown as a canal extending further south within the areas of the current Newtown Creek WRRF. Grand Street is present as well as East Branch, with numerous industrial uses along the CSO tunnel corridor. English Kills is also present where Metropolitan Avenue and Grand Avenue join. Properties within this portion of the CSO tunnel corridor are improved with heavy industry along with major oil storage tanks, consistent with earlier Sanborn map depictions.
1941	The CSO tunnel corridor is generally similar to the 1924 aerial photograph; however, there is additional development along 30th Street to the east of Dutch Kills in Queens, along with construction of the Long Island Expressway within the Borden Avenue right-of-way. Additional industrial development is shown along the south side of Review Avenue, consistent with Sanborn maps. Further east, the Brooklyn-Queens Expressway and Kosciusko Bridge have been constructed connecting Brooklyn and Queens via interstate highway. Moving east, low laying areas associated with Maspeth Creek have been filled but are not yet developed. In Brooklyn, the southern portions of Whale Creek canal have been partially filled, but not yet developed. The remaining properties within the CSO tunnel corridor that traverses further south near East Branch and along the eastern side of English Kills are generally similar, occupied by heavy industrial facilities (i.e., warehouses, freight terminals, oil terminals, etc.).
1951-1954	The CSO tunnel corridor continues to be improved with additional industrial development. Along 30th Street in Queens additional warehouse and manufacturing uses have been added north of Hunter's Point Avenue. The CSO tunnel corridor under Review Avenue remains similar to the 1941 aerial. Further east, Maspeth Creek has been fully reconfigured to its current bulkheaded state. Within the CSO tunnel corridor, heavy industrial properties are located south of 56th Road and along Page Place to the east. To the west of Page Place is a Federal Government-owned facility (US Naval Reservation) at the eastern terminus of Maspeth Creek down to Grand Street. The remaining properties along East Branch and along English Kills are depicted similar to the 1941 aerial, consisting of dense industrial development.
1966	In Queens, warehouses and manufacturing buildings have been constructed along 30th Street within the CSO tunnel corridor. Along Review Avenue, properties are depicted at similar configuration to the 1954 aerial photograph. Further east along 56th Road, industrial properties are present to the south and within the CSO tunnel corridor. Along Page Place, the US Naval Reservation has been demolished and replaced with a series of individual warehouses to the west. Along the southern banks of Newtown Creek, the Newtown Creek WRRF has been constructed south of Green Street and north of Greenpoint Avenue. The commercial docking slip to the east of Whale Creek (the TPDS site) has been filled and is improved with the existing NYC Department of Sanitation facility. The remaining properties along East Branch near Grand Avenue, south to Metropolitan Avenue and along the east side of English Kills to the southern terminus are similar to their 1954 aerial photograph. Notable changes to tenants and building sizes is not discernable.
1974-1976	Although the building configurations and tenant changes are not discernable, the CSO tunnel corridor and adjacent properties remain generally similar to the 1966 aerial photograph, except oil refinery operations along the south side of Review Avenue between Van Dam Street and Laurel Hill Boulevard have been presumably decommissioned and replaced with industrial warehouse uses.
1980-1991	Several industrial-use properties along Review Avenue have been converted into warehouses. The remaining configuration of the majority of the parcels adjacent to, or within the CSO tunnel corridor are generally similar to their earlier aerial photograph depictions.

Table 12-2
Summary Of Aerial Photographs

Year(s)	Summary/Description
1994	Demolition of the oil refinery is visible along the south side of 56th Road to the east of the Kosciusko Bridge with site clearing activities. The remaining configuration of the majority of the parcels adjacent to, or within the CSO tunnel corridor are generally similar to their earlier aerial photograph depictions.
2006-2019	The majority of the parcels along the CSO tunnel corridor and additional improvement areas are similar to their 1994 aerial photograph configurations. Additional freight warehouses can be seen constructed along the CSO tunnel corridor (specifically along 56th Road within the areas of the former oil refinery), consistent with the area's transformation away from heavy industry to freight and logistics.

HISTORIC TOPOGRAPHIC MAPS

Historic topographic maps of the Project Area were provided by EDR for the years 1897, 1898, 1900, 1947, 1956, 1967, 1979, 1995, 2013, 2016 and 2019. **Table 12-3** provides a summary of the topographic maps for the Project Area.

Table 12-3
Summary Of Topographic Maps

Year(S)	Summary/Description
1897-1900	The overall areas of the Proposed Project are sparsely developed but industrial in nature along the western portions of Newtown Creek. Dutch Kills is at its original configuration as a tributary to Newtown Creek and has not yet been bulkheaded. Rail tracks are depicted along the northern banks of Newtown Creek, with industrial-use properties and major storage tanks to the north and south. Maspeth Creek and East Branch are at their original configurations as tributaries to Newtown Creek with low-lying wetlands. Grand Street and Metropolitan Avenue are present traveling west into Williamsburg which is depicted with urban development. English Kills has been bulkheaded and is at its current configuration.
1947	The majority of Newtown Creek and its tributaries, including Dutch Kills, Maspeth Creek, East Branch and English Kills are at their current configurations. The CSO tunnel corridor is depicted with buildings, rail corridors, rail spurs and urban development. Oil refineries are visible along the south side of Review Avenue, with Calvary Cemetery to the north. Although uses are not indicated, additional industrial buildings are visible along the CSO tunnel corridor near Grand Avenue and Metropolitan Avenue and further south toward English Kills.
1956	The majority of the Project Area is depicted as either urban areas or with buildings consistent with Sanborn and aerial photograph configurations from the northern terminus of Dutch Kills, south along 30th Street, then east along Review Avenue, 56th Road, and south along Page Place (with a US Naval Reservation along the west side), then west across East Branch and south toward English Kills.
1967-1995	The Project Areas are similar to the 1956 topographic map, with minor changes in building configuration and sizes along Review Avenue, 56th Road and English Kills. The US Naval Reservation has been demolished and shown as urban development. The remaining portions of the Project Area are depicted as urban with no additional information.
2013-2019	Development information for the Project Areas is not available on topographic maps provided from 2013 to 2019.

REVIEW OF REGULATORY DATABASES AND ONLINE RECORDS

The potential for adverse subsurface environmental conditions within the Project Area was evaluated in a technical memorandum (*Technical Memorandum 11 – Assessment of Available Environmental Information*, dated March 2024 prepared by McMillen JA Engineering PLLC/Brown and Caldwell

Associates, a Joint Venture [the "JV"; see Appendix E]) (the TM). In addition, a supplemental review of online records was conducted to obtain additional information on the Project Area.

According to the TM, the Project and surrounding areas consisted of a creek and its tributaries with adjacent low-lying marshlands and was home to villages and camps prior to the mid-1600s. The Project Area was a long shallow tidal waterway with islands. Since the mid-1800s, the Project Area has had a history of extensive industrial development. The development resulted in changes in configuration to Newtown Creek and its tributaries from a natural drainage/creek to one controlled by engineering and institutional systems. The development resulted in alterations to the banks and channels with significant filling and dredging events and bulkhead construction.

Significant filling of low-lying marshlands and its tributaries likely included trash, construction and demolition debris, cinders and ash, industrial waste and dredge spoils. Increases in commercial and industrial development along the Creek yielded an increase in seaway traffic that resulted in the widening and deepening of the waterways associated with Newtown Creek. The present-day configuration of Newtown Creek was established in the 1930s.

To understand potential subsurface environmental conditions within the Proposed Project Areas, the following resources were reviewed:

1. A search of environmental databases maintained by local, State and Federal government agencies was conducted by EDR. The geographic extent extended one-quarter mile beyond the Project Areas from the NCB-015 outfall at the southern terminus of English Kills, to the WRRF on the southern banks of Newtown Creek;
2. The *Draft Data Applicability Report* (DAR) for the Remedial Investigation/Feasibility Study of Newtown Creek, prepared in 2012 by Anchor QEA in support of the Superfund investigation of Newtown Creek to summarize historical documentation and data collected pertaining to the Creek; and
3. Site investigation and remediation reports available in public document repositories that were established for sites in regulatory programs overseen by EPA and NYSDEC.

Based upon a review of the above-listed resources, specific uses along the Creek as well as neighboring sites included heavy industry such as ship building, oil refining, MGPs, fertilizer manufacturing and fat rendering, metal production and metal works, varnish, paint and dye manufacturing and incinerators. Additional industry in the general area included building materials (lumber, brick, concrete and asphalt), sugar refineries and textile manufacturing. The likelihood of widespread subsurface contamination within and proximate to the Project Area due to the known prolonged industrial and commercial uses surrounding Newtown Creek within Brooklyn and Queens was identified.

Based upon available geologic information, it is anticipated that the stratigraphy for the Project Area from surface down consists of fill, Holocene alluvium and organic tidal marsh deposits (meadow mat), Pleistocene glacial deposits (undifferentiated), Gardiners/Raritan clays, decomposed (weathered) rock and bedrock. Groundwater within the Project Area is anticipated to be within 20 feet below grade. Due to the proximity to the East River, groundwater may be brackish and locally influenced by tidal

variances. Groundwater is anticipated to flow toward Newtown Creek and its tributaries throughout the Project Area.

To evaluate potential sources of contamination within the Project Area, two broad categories of potential contaminants were defined:

- Deep contamination that has migrated to depths being considered for the CSO tunnel areas; and
- Shallow contamination that could impact construction of vertical access shafts, diversion facilities and near-surface conveyance conduits which is less likely to have migrated downward to the depths of the tunnel.

Potential deeper contamination included DNAPL, such as chlorinated solvents, MGP tars, or elemental mercury. DNAPL can migrate downward through water-saturated overburden and fractured bedrock. DNAPL can also mobilize and transport contaminants such as PCBs or pesticides that would otherwise be retained in shallower soils. Potential shallower contamination included light nonaqueous-phase liquid (LNAPL) including gasoline, fuel oil and petroleum hydrocarbon solvents (i.e., paint thinners, etc.). LNAPLs are less dense than water and (with some exceptions) are absent below the zone of water table fluctuation. Shallow contaminants could also include aqueous-phase (or dissolved) chemicals and metals migrating around a vertical shaft under a horizontal groundwater gradient, which requires contaminated water management when dewatering the shaft. Contaminated soils from vertical shaft excavation may also include LNAPL residue and typical contaminants associated with fill, including PAHs, mercury, lead, arsenic, pesticides, and PCBs.

Review of EDR database listings and the DAR identified numerous contaminated or potentially contaminated sites proximate to the Project Area based upon the prolonged heavy industrial development in the surrounding areas. Sites reviewed from the EDR database reports were categorized into two "tiers" based upon the potential for adverse environmental conditions that could impact the Project Area. The first tier was characterized as sites with a greater potential to have impacted the Project Area and warranted further review. These sites included the following:

- Hazardous Substance/Inactive Hazardous Waste Disposal Sites in New York State (State Superfund, etc.)
- Voluntary Cleanup Agreement sites, which includes State and City sites that have entered into cleanup agreements with the overseeing regulatory agency (NYSDEC or New York City Mayor's Office of Environmental Remediation [OER]).
- State or Federal Brownfield sites, which include privately and publicly funded brownfield remediation sites.
- The National Priority List (NPL), or Superfund under CERCLA. The NPL identified sites for priority cleanup under the federal Superfund program.
- MGP facilities, which includes records of coal gas plants.
- EC/IC sites, which includes remediation sites that have EC or ICs as part of their remedial strategy.

Second-tier sites were deemed less likely to have released contamination in quantities that could adversely impact the Project Area. Sites typically found in the second tier included Resource Conservation and Recovery Act (RCRA) hazardous waste generators, registered PBS/CBS facilities, solid waste/landfill sites, reported NYSDEC spill incidents and/or registered or historic dry-cleaning facilities.

The DAR summarizes 91 sites within the vicinity of the Project Area and within the Newtown Creek drainage area (see **Figure 12-2**). The summaries identified current and historical sources of contaminants of potential concern (COPC) in the study area, and contaminant transport mechanisms from the sources to Newtown Creek.

Based on information provided in the DAR, sites in the vicinity of the CSO tunnel and other Project Areas were classified into the following categories:

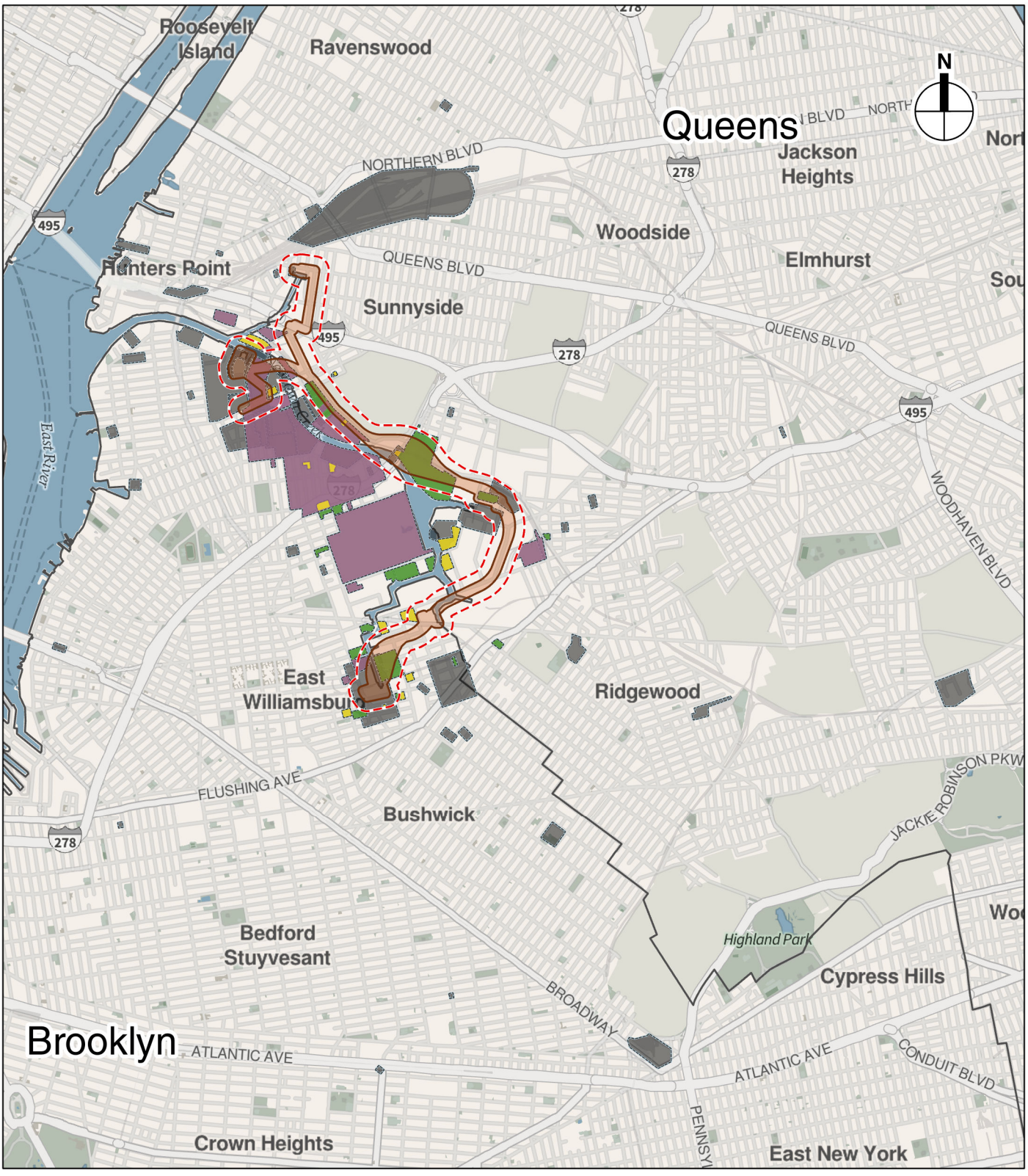
- Sites with potential or documented COPCs in groundwater and an unknown potential for nonaqueous-phase liquid (NAPL) in groundwater.
- Sites with analytical documentation of COPCs in groundwater and no identified NAPL in groundwater.
- Sites with analytical documentation of COPCs in groundwater and documented NAPL in groundwater.

Fifty-six first tier EDR and DAR sites identified in the TM were advanced for additional consideration due to their greater potential for adverse subsurface environmental impacts within the vicinity of the Project Areas (see **Table 12-4**). Of the 56 first tier sites, each site was assigned a low, medium or high priority based upon the known conditions associated with each site, whether the site information was provided in the DAR (DAR site numbers also included), the EDR database report, or both resources. Details relating to the contaminants of concern (either potential or confirmed) are provided for each site based upon the available information.

The first-tier sites are summarized in **Table 12-4**, with reference to their respective remedial programs, description, COCs, and additional contaminant information. Each of the sites identified that are proximate to the diversion facility sites has a potential to impact shallow soil and/or fill material that would be excavated during the construction of vertical shafts or utilities. In addition, certain high-priority sites listed on **Table 12-4** have the potential to impact the deeper CSO tunnel corridor due to confirmed or suspected presence of DNAPL. Most of the sites with confirmed DNAPL are located to the east of Newtown Creek and are due to the use of chlorinated solvents. Undetected DNAPL residue, if any, could be encountered in soil, rock and groundwater within deeper areas of excavations east of Newtown Creek. To the west and south of Newtown Creek, chlorinated and MGP DNAPLs have been documented at elevations lower than the creek bottom. The PCE and TCE plume associated with the Meeker Avenue Plume Trackdown site[3] exists in the fill and underlying glacial sand. Chlorinated

[3] The Meeker Avenue Plume Trackdown is an area south of Newtown Creek spanning several City blocks in Greenpoint/East Williamsburg Brooklyn where soil, groundwater and soil vapor are contaminated with

9.2.25



Project Limits

400-Foot Study Area

Initial Sites Identified in Draft Data Applicability Study (DAR) For Review

0 0.5 MILES

Sites for Evaluation by Priority

High

Medium

Low

Sites Summarized in Draft Data Applicability Study (DAR)

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 12-2

DNAPL associated with the Meeker Avenue Plume Trackdown site may have migrated downward to surfaces of less-permeable layers. As such, DNAPL may have migrated in directions independent of the groundwater gradient based on confining layers. COPCs and NAPL in groundwater within and proximate to the TDPS site were also documented.

It was recommended that environmental samples be collected in three separate investigations (Parts 1, 2 and 3) concurrently with the geotechnical investigation for the purposes of evaluating for potential COCs. Part 1, which was conducted during the first phase of the geotechnical investigation, was limited in nature to potentially resolve environmental uncertainties or identify unexpected impacts that require further investigation. Part 1 of the subsurface investigation was conducted between February and May of 2024 and is summarized below. At 60 percent design, a data gap study would be conducted to identify key environmental concerns relating to waste management, groundwater management and worker health and safety, identify data needs to address such concerns, and develop the scope for a more comprehensive subsurface investigation (or Part 2). The Part 2 subsurface investigation is proposed to occur within or proximate to the CSO tunnel corridor, gravity diversion sewer, diversion facility parcels, and the TDPS site. After implementation of the Part 2 subsurface investigation, a Part 3 subsurface investigation would be conducted to target specific areas of concern (AOCs) and further delineate contaminants identified in the Part 2 investigation. The Parts 2 and 3 investigations would be conducted in accordance with Subsurface Investigation Work Plans to be submitted to and approved by DEP.

SOIL AND GROUNDWATER INVESTIGATION

A preliminary subsurface investigation (known as Part 1 of the Subsurface Investigation) was performed by the JV concurrently with the first part of a Geotechnical Investigation.. The results of this investigation were summarized in the *CSO-NC-DEC: Phase I Environmental Data Report* (the Report), prepared by the JV and issued to DEP on November 14, 2024 (see Appendix E).

Borings were advanced at seven locations (Borings B-101 through B-107) along the CSO tunnel corridor using mud rotary or sonic drilling equipment. At each boring location, hand clearing was conducted to approximately 5 to 6 feet below grade. Continuous sampling of borings was conducted to depths ranging from approximately 12 to 14 feet below grade. Sampling below 14 feet below grade was conducted in 5-foot increments, with continuous sampling conducted for limited intervals at deeper depths for geotechnical evaluation. Five-foot soil cores were also collected at three locations using sonic drilling techniques. Deeper rock coring was also conducted at six of the seven boring locations. Figure A.1 of the Report (included in Appendix E) depicts boring locations where environmental samples were collected.

chlorinated VOCs. The site was added to the EPA Superfund program's NPL in March 2022. It is not located directly within the Project Area.

Table 12-4
TM Sites Advanced For Review

Site No.	Site Name	EDR Database	History	DAR Site No.	Priority	COCs	Details
1	2 Ingram St	SHWS, VCP, Brownfields	Metal Plating, cloth mfg and warehouse.	24	Medium	VOCs, chlorinated volatile organic compounds (CVOCs),), Metals, *DNAPL	Confirmed PCE, TCE, lead, nickel, chromium.
2	23-30 Borden Avenue Development	Brownfields	Railroad switch yard, coal gas purifier and gas holders.	N/A	High	VOCs, CVOCs, SVOCs, Metals and DNAPL	MGP DNAPL in several borings and well clustered in south-central portion of the site. PCE in soil vapor.
3	255 Randolph St	Brownfields	Sheet metal fabrication, ammonia mfg	N/A	Medium	VOCs, CVOCs, SVOCs, Metals, PCBs, DNAPL	Confirmed PCE, TCE in groundwater.
4	28-90 Review Avenue	Brownfields	Auto repair, PBS	N/A	High	VOCs, CVOCs, SVOCs, metals, PCBs LNAPL, DNAPL	PCE in soil vapor. Soil not tested for VOCs, LNAPL and DNAPL present in monitoring wells.
5	353 McKibbon Street	ECs/ICs	Lacquer spraying, chemical works	111	Low	SVOCs, metals.	Remediation Complete. SMP lists PAHs and metals including mercury and lead as remaining COCs.
6	36-04-36-08 Review Avenue	SHWS, Brownfields	Sheet metal mfg., smelting, bottler of dry-cleaning solvent, wood products	N/A	Medium	VOCs, CVOCs, metals, LNAPL, *DNAPL	Carbon tetrachloride and PCE in soil and groundwater.
7	37-88 Review Avenue	Brownfields	Petroleum refining, chemical mfg., waste transfer	N/A	Medium	VOCs, CVOCs, SVOCs, metals, LNAPL, *DNAPL	Petroleum LNAPL, groundwater impacts considered from off-site sources, portion of former Pratt Oil Works.
8	460 Kingsland Ave	SHWS, Spills	Distilling, boiler works, petroleum refinery	N/A	High	VOCs, SVOCs, LNAPL	Greenpoint remediation; one of the largest sources of contamination in area of tunnel corridor.
9	83 Apollo Street	VCP	Unknown	N/A	N/A	Low	Listed NYSDEC VCP, but no details provided.
10	ACME Steel/Brass Foundry	SHWS	Brass foundry, truck maintenance, marble/granite distribution	25	Medium	VOCs, SVOCs LNAPL	Greenpoint remediation one of the largest sources of contamination in area of tunnel corridor.
11	ACME Steel Metal Works	SHWS	Metal fabrication, printing facility	100	Medium	VOCs, CVOCs, *DNAPL	High CVOCs and proximate to the CSO tunnel corridor.
12	Bayside Fuel Oil Depot	MOSF	PBS, coal storage, ice block generator	51	Medium	VOCs, SVOCs, LNAPL	History of petroleum bulk storage, DAR identifies NAPL.

Table 12-4
TM Sites Advanced For Review

Site No.	Site Name	EDR Database	History	DAR Site No.	Priority	COCs	Details
13	BCF Oil Refining Inc.	SHWS, VCP	Oil terminal, waste oil recycling	27	Medium	VOCs, SVOCs, *LNAPL	History of petroleum contamination.
14	Brooklyn Terminal	SHWS, leaking underground storage tanks (LTANKS), Spills, MOSF	Petroleum terminal	53	High	VOCs, SVOCs, LNAPL	Greenpoint remediation; one of the largest sources of contamination in area of tunnel corridor.
15	Buckeye Pipeline Facility	RCRA Generator	Transfer of petroleum products, railroad tracks, petroleum pipeline	106	High	VOCs, SVOCs, LNAPL	DAR identifies presence of LNAPL from petroleum operations.
16	Cornish Knit Goods/Cornish MiniMills	VCP, EC/ICs	Textile mfg., dry cleaning, scrap yard	28	Medium	VOCs, CVOCs, SVOCs, metals, *DNAPL	DAR identifies former illegal dry cleaning, illegal dumping of solvents.
17	DSNY Queens District 5/5a Garage	LTANKS, spills	Sanitation truck maintenance	45	Low	*VOCs, *SVOCs, *LNAPL	DAR does not indicate confirmed contamination. Truck maintenance may be associated with petroleum impacts.
18	Empire Varnish Company, Inc.	SHWS	Paint and varnish mfg.	113	Low	VOCs, SVOCs, metals, LNAPL	Site No Further Action (NFA) after remediation, Property currently used to recover LNAPL as part of larger Exxon Greenpoint Remediation.
19	Enequist Chemical Co.	LTANKS	Unknown	8	Low	*VOCs, *SVOCs, *metals	DAR does not indicate confirmed contamination. Former industrial chemical distribution may be associated with petroleum impacts and metals.
20	Equity Works	MGP	MGP	33	High	VOCs, SVOCs, metals, LNAPL, DNAPL	MGP at risk for significant contamination source, close proximity to creek/tunnel.
21	Former ACME Steel Partition Co.	SHWS	Steel partition Co., staging yard for bridge construction, park.	100	Low	VOCs, CVOCs	Comparatively lower CVOCs in groundwater, distance from creek tunnel corridor.
22	Former Gulf Oil Terminal	LTANKS, Spills, CBS, MOSF	Bulk petroleum, glue mfg., impound lot	123	Medium	VOCs, SVOCs, metals, LNAPL	NAPL identified in DAR, close proximity to Creek, scarce remedial information available.
23	Former Klink Cosmo Cleaners	SHWS	Sheet metal mfg., dry cleaner.	101	Medium	VOCs, CVOCs, metals, LNAPL, *DNAPL	High CVOCs in groundwater, upgradient of known contaminated site, distance from creek and tunnel.
24	Former Lombardy	SHWS	Lacquer storage, soap mfg.,	104	High	VOCs, CVOCs, LNAPL, *DNAPL	High CVOCs, close distance to creek tunnel corridor.

Table 12-4
TM Sites Advanced For Review

Site No.	Site Name	EDR Database	History	DAR Site No.	Priority	COCs	Details
	Street Lacquer and Soap Mfg.						
25	Former Manhattan Adhesives Plant	SHWS	Unknown	N/A	Low	N/A	Records indicates no contamination related to this site.
26	Former Paragon Oil Terminal	N/A	PBS	200	Low	VOCs, SVOCs, LNAPL	N/A
27	Former Pratt Oil Works	N/A	Oil works, mfg., warehousing.	56	High	VOCs, SVOCs, metals, LNAPL	Elevated concentrations of total petroleum hydrocarbons (TPH) and MTBE also present.
28	Former Spic and Span Cleaners	SHWS	Cleaning/Dying	115	High	VOCs, CVOCs, DNAPL	High CVOCs, DNAPL, close proximity to tunnel corridors.
29	Former WLK Corp.	SHWS	Oil companies, gas station, radiator sales, steel pipe sales, recycling	30	High	VOCs, CVOCs, DNAPL	High concentration of CVOCs in groundwater (TCE). DNAPL at approximately 10 feet below water table.
30	Frito Lay	Brownfields, ECs/ICs	Scrap metal yard	31	Medium	VOCs, CVOCs, metals, *DNAPL	Elevated PCE and TCE concentrations in soil but not groundwater.
31	Getty Terminals Corp. #58220	LTANKS, Spills, CBS, MOSF	Lumber, gasoline storage and distribution	47	N/A	VOCs, SVOCs, LNAPL	Elevated concentrations of TPH, BTEX, PAHs and NAPL present.
32	Greenpoint Petroleum Remediation Project	N/A	Multiple petroleum terminals	N/A	High	N/A	Vertically and laterally extensive NAPL contamination.
33	Hugo Neu Schnitzer	N/A	Scrap metal recycling loading from barges, USTs for fuel oil and diesel	125	Medium	*VOCs, *SVOCs, *LNAPL	Contamination not confirmed. Potential petroleum contamination present.
34	Joyva Vacant Lot	VCP	Unknown	N/A	Low	N/A	Site is listed in leaking tanks and VCP databases but does not qualify for registry of inactive hazardous waste sites. No information regarding COCs.

Table 12-4
TM Sites Advanced For Review

Site No.	Site Name	EDR Database	History	DAR Site No.	Priority	COCs	Details
35	Kalex Chemical Products Inc.	LTANKS, CBS	Lumber, plastics mfg.	127	Low	*VOCs, *CVOCs and *SVOCs	History of plastic manufacturing but COCs not confirmed.
36	Manhattan Poly Bag	N/A	Asphalt, Oil Company, Plastics	130	Low	VOCs, SVOCs, metals.	Contaminants attributed to use of asphalt and plastics.
37	Maspeth Project	UST	Parking for school buses	35	Medium	VOCs, SVOCs, metals, PCBs, LNAPL	Diesel fuel storage. Contaminated soil relating to a removed 20,000-gallon fuel storage tank.
38	Maspeth Substation	VCP, Spills	Electrical Transformers	4	Medium	VOCs, CVOCs, PCBs, LNAPL	VCP site with remediation of petroleum/PCB transfer fluid.
39	Meeker Avenue Plume Trackdown	SHWS	Multiple sites	N/A	High	N/A	Large CVOC plume. LNAPL close proximity to Creek.
40	Morgan Oil Terminal	SHWS, MOSF, Spills, Liens	Oil mfg., asphalt mfg., coal and salt distribution, sawmill	60	High	VOCs, CVOCs, SVOCs, metals, LNAPL	Confirmed contamination with ongoing remedial action.
41	National Grid Greenpoint MGP	SHWS, spills, LTANKS, VCP, MGP	MGP, liquified natural gas (LNG) storage	32	High	N/A	Significant documented contamination, DNAPL, impacts to Creek.
42	Newtown Creek Wastewater Treatment Plant	Spills, RCRA generator, UST/ASTs	Wastewater treatment, oil storage	11	N/A	N/A	Numerous spill incidents and storage tanks.
43	NYS Department of Transportation (NYSDOT) Bin 1075910	RCRA Generator	Unknown	21	Low	*VOCs, *SVOCs, *metals.	RCRA hazardous waste generator. Contamination not confirmed.
44	Pebble Lane Associates	LTANKS	Fill recycling, solid waste transfer	134	Low	*VOCs, *SVOCs, *metals.	Contamination not confirmed. Site is a solid waste facility for asphalt recycling.
45	Phelps Dodge Refining Corp.	SHWS, Spills, ECs/ICs	Pesticide mfg., copper refining	16	Medium	CVOCs, SVOCs, metals, PCBs	No potential DNAPL from SVOCs. Potential DNAPL from dense metal brines.
46	Popular Hand Laundry	VCP, ECs/ICs	Dry cleaning	38	Low	VOCs, CVOCs, SVOCs, metals, *DNAPL	NAPL not confirmed due to use of dry cleaning chemicals.

Table 12-4
TM Sites Advanced For Review

Site No.	Site Name	EDR Database	History	DAR Site No.	Priority	COCs	Details
47	Queens Animal Shelter and Care Center	Brownfields, Spills	Auto wrecking yard, Auto repair	N/A	Medium	VOCs, SVOCs, metals, PCBs	BCP site, low MTBE in groundwater. Petroleum and PCBs in soil remediated.
48	Review Avenue Development I	Brownfields, Spills, ECs/ICs	Distilling, poultry feed, truck repair, warehousing, vehicle parking	41	Medium	VOCs, CVOCs, SVOCs, metals, PCBs, LNAPL, *DNAPL	Petroleum LNAPL confirmed, remediation conducted with ECs and ICs in place.
49	Review Avenue Development II/Qanta Resources	SHWS, Brownfields	Oil refinery	39	High	VOCs, CVOCs, SVOCs, metals, PCBs, *DNAPL	Elevated TCE in soil vapor suggests potential for DNAPL in soil and groundwater.
50	Roehr Chemicals	SHWS, ECs/ICs	Pharmaceutical mfg.	42	Low	VOCs	Confirmed BTEX which was remediated using air sparging.
51	Scholes St. Station	MGP	MGP gas holder site, not manufacturing	N/A	High	*VOCs, *SVOCs, *DNAPL	Former MGP site with no available investigation information.
52	STAR Corrugated Box	RCRA generator, Spills, UST, LTANKS	Mfg. of corrugated boxes and displays	143	High	VOCs, CVOCs, SVOCs, LNAPL, *DNAPL	NAPL present. Petroleum from leaking tanks and CVOCs confirmed suggesting potential DNAPL.
53	Town, County and State Recycling, Inc.	Spills	Unknown, no information in DAR	145	Low	N/A	No available testing information.
54	Transon Lines Terminal	LTANKS	Lumber and coal distribution, concrete mixing	59	Medium	VOCs, SVOCs	Leaking tank, remediation completed with NFA issued.
55	Varick Avenue	SHWS	Asphalt company, lumber	N/A	Medium	VOCs, SVOCs, metals.	Soil and groundwater contaminated with metals and TPH.
56	Waste Management of NY	Spills/AST	Waste transfer	46	Medium	*VOCs, *SVOCs, *LNAPL	Contamination not confirmed. Potential for petroleum contamination was identified.

Notes:
* Potential contaminants of concern based on available information.
N/A = Not Available/Not Applicable

Subsurface materials evaluated at each boring location were screened for VOCs using a photoionization detector (PID); a handheld field instrument capable of detecting a wide range of VOCs. Subsurface materials were also evaluated for staining, odors, sheens, discoloration or any additional visual or olfactory evidence of contamination. Soils were evaluated at various intervals based upon the subsurface geology. Soil samples were analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) laboratory for VOCs, SVOCs, pesticides, PCBs, metals and free cyanide. Soil analytical data was compared to the 6 NYCRR Part 375 Soil Clean-Up Objectives (SCOs) for Protection of Groundwater, Protection of Human Health – Residential Use and Protection of Human Health – Industrial Use.

Elevated PID detections ranged from 0.2 parts per million (ppm) in the 10-to-11-foot interval of Boring B-104 to 49.9 ppm in the 25-to-27-foot interval of Boring B-106. A light sheen was observed in the 35- to 37-foot interval of Boring B-106. There were no odors in the majority of the intervals screened during the limited investigation; however, mild organic odors were observed in the 12- to 14-foot and the 136.8- to 137-foot intervals of Boring B-103, as well as the 20- to 22- and 25- to 27-foot intervals of Boring B-106. A slight petroleum odor was observed in the surficial (one-to-three foot) interval of Boring B-106.

Groundwater samples were collected from the three northern-most borings (Borings B-101, B-102 and B-103). Groundwater was analyzed by a NYSDOH ELAP laboratory for VOCs, SVOCs, pesticides, PCBs, metals and free cyanide. Groundwater analytical data was compared to the 6 NYCRR Part 703 standards for groundwater. For parameters with no promulgated groundwater standard, the concentrations were also compared to the Ambient Water Quality Standards and Guidance Values (AWQSGVs) found in NYSDEC's Technical and Operational Guidance Series (TOGS) 1.1.1 (NYSDEC, 1998).

SOIL ANALYTICAL RESULTS

There were no pesticide detections in any soil samples analyzed as part of the limited subsurface investigation. Further, no PCBs were detected in any soil samples analyzed at concentrations that exceeded the relevant SCOs.

No VOCs were detected in any samples at concentrations above the NYSDEC Part 375 Residential or Industrial Use SCOs. One VOC, acetone, was detected at concentrations above the NYSDEC Part 375 Protection of Groundwater SCO in fill samples from two locations (Borings B-103 and B-106). Further, although CVOCs were detected in deeper intervals of the glacial outwash and clay layers at B-101, B-104, B-105 and B-107, the total CVOCs concentration was generally less than 1 part per billion (ppb), and did not suggest a potential DNAPL condition proximate to the boring locations.

Several SVOCs were detected above relevant SCOs. These SVOCs (specifically PAHs), have relatively low SCOs for the NYSDEC Part 375 Protection of Groundwater and Residential Use SCOs. PAHs are common in fill as a result of soot, residues of certain types of petroleum products and asphalt paving.

The metals arsenic, lead, mercury and silver were detected above the NYSDEC Part 375 Protection of Groundwater and Residential Use SCOs in the fill layers analyzed from Borings B-101, B-103, B-106 and B-107. Lead and arsenic were similarly detected above Protection of Groundwater and Residential

Use SCOs in the deeper glacial outwash sample from B-101. The source of the deeper detection is unknown.

Free cyanide was detected at concentrations ranging from 0.97 to 1.8 parts per million (ppm) in each boring, except for Boring B-106. Although there are no SCOs for free cyanide, detections can often be associated with MGP purifier waste.

GROUNDWATER ANALYTICAL RESULTS

The VOC chloroform was detected in two groundwater samples above the NYSDEC Part 703 standard of 7 ppb. Toluene was detected in one sample slightly above the NYSDEC Part 703 of 5 ppb. The source of chloroform and toluene was not identified in the Report. The CVOC cis-1,2 dichloroethene (cis-DCE) was detected in both groundwater samples from Boring B-101. Cis-DCE is a breakdown product of the chlorinated solvents PCE and TCE, which are commonly associated with dry cleaning activities or industrial solvents.

No SVOCs were detected above their respective AWQSGVs Further, no free cyanide was detected in any of the groundwater samples analyzed.

The metals chromium, copper, iron, lead, manganese, nickel, silver and/or sodium were detected above groundwater standards in each of the samples. Magnesium was detected above the guidance value in both samples analyzed from Boring B-101. Elevated metal concentrations in unfiltered turbid groundwater samples obtained from open boreholes may reflect the presence of suspended solids as well as the dissolved phase.

CONCLUSIONS

Soil and groundwater contamination was identified that may impact construction. Exceedances of relevant SCOs for arsenic, lead, silver and/or mercury would prevent unrestricted reuse of soil in four of the seven boring locations. CVOCs were noted in deeper intervals of glacial outwash and marine clay, as well as in groundwater sampled from boring B-101. Although the CVOC detections were low, the Report suggests the presence of higher concentrations or even DNAPL at some distance from the boring locations. Potential chlorinated DNAPL was previously identified at several sites reviewed near the Project Area. Further, VOCs (chloroform and toluene) and metals (chromium, copper, iron, lead, manganese, nickel, silver and sodium) in groundwater sampled from the three northern-most borings indicating construction dewatering would likely require treatment to meet the NYSDEC SPDES surface water body discharge parameters or DEP sewer discharge parameters.

Although the subsurface investigation indicated contaminants of concern in the soil and groundwater that may impact CSO tunnel construction activities, it is noted that the investigation summarized in the Report was limited to seven borings over a large Project Area, with distance between borings greater than 2,300 feet. As such, it is likely significant data gaps exist, and further characterization of subsurface conditions requires supplemental sampling.

ASBESTOS-CONTAINING MATERIALS, LEAD-CONTAINING PAINT AND OTHER HAZARDOUS BUILDING MATERIALS

Demolition of several existing structures is anticipated at the TDPS site as well as certain diversion facility parcels. Given the age of the majority of the aboveground buildings on the TDPS site and diversion facility parcels, as well as subgrade utilities in the remaining Project Area, there is a potential for ACM, LCP, and other building materials containing PCBs and/or mercury to be encountered or disturbed during demolition.

Management and/or removal of these materials during construction is subject to federal, state, and local regulatory requirements that must be followed during construction.

D. FUTURE WITHOUT THE PROPOSED PROJECT

In the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities and the TDPS (discussed in Chapter 1, "Project Description") would also remain in their existing condition. The TDPS site would be vacated by the New York City Department of Sanitation (DSNY). There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

With regard to hazardous materials, supplemental subsurface investigations of soil, groundwater and bedrock would not be conducted within the CSO tunnel corridor and gravity diversion sewer, as well as the TDPS site and diversion facility sites that are not participating in remedial programs. Contaminants in soil and groundwater would remain in-place and regulatory compliance for parcels participating in NYSDEC programs would remain the responsibility of the parcel owner(s), volunteer or participant. Furthermore, remedial action and/or proper handling and disposal of contaminated soil, groundwater and/or bedrock within the remaining Project Areas would not be conducted under a DEP-approved RAP and CHASP. Surface waters of Newtown Creek would continue to receive CSO discharges potentially adding to existing contamination.

In addition to the above, any potential ACM, LCP, or PCB-containing building materials present within the Project Area with the potential to be disturbed would go unabated or unmitigated and would remain in-place.

E. FUTURE WITH THE PROPOSED PROJECT

In the With Action condition, the Proposed Project, which includes the construction of a 50-MG CSO storage tunnel, TDPS, diversion chambers, drop shafts, conveyance sewers, new outfalls, and odor control systems, would control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015, as described in Chapter 1, "Project Description." The greatest potential for exposure to hazardous materials would result from construction. Analysis of potential construction and operational impacts that may result from the Proposed Project are provided below.

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

To address any hazardous materials located within the Project Areas during construction, supplemental investigations would be conducted to properly characterize subsurface conditions within the limits of disturbance.

Subsurface investigations for city-owned parcels (with the exception of Block 2575 Lot 26 at the NCQ-077 diversion facility), as well as portions of the CSO tunnel, TDPS discharge pipe and gravity diversion sewer that are accessible from public rights-of-way, would be performed when design nears or reaches 60 percent completion (estimated 2026/2027). As previously indicated, the subsurface investigations would be conducted as supplements to the Part 1 investigation and will be labeled in sequence as Part 2 and Part 3, to be completed in accordance with respective Subsurface Investigation Work Plans and associated HASPs to be prepared and submitted to DEP for review and approval. Part 2 would be considered a comprehensive investigation of soil, groundwater, soil vapor, and potentially bedrock, to further characterize the Project Areas. The Part 3 Supplemental Subsurface Investigation would be conducted to delineate contamination that may be identified from previous investigations, including Parts 1 and 2, and would be similarly subject to a Work Plan and HASP to be prepared and submitted to DEP for review and approval. For parcels under consideration for acquisition by DEP, supplemental subsurface investigations may be conducted post-acquisition (acquisition scheduled between February 2026 and February 2029). If the acquisition schedule does not align with the Part 2 and Part 3 investigations described above, then City-acquired parcels may require their own parcel- or site-specific Subsurface Investigation Work Plans and HASPs which would similarly require review and approval by DEP.

Two parcels in the Project Area associated with certain diversion facilities are currently in NYSDEC programs (Block 2984 Lot 85 at the NCB-083 diversion facility site in the BCP, and the City-owned Block 2575 Lot 26 at the NCQ-077 diversion facility site in the ERP). NYSDEC would maintain regulatory oversight for subsurface investigations conducted on these parcels, which would be subject to RIWPs that would be prepared and submitted to NYSDEC for review and approval in accordance with the requirements of the respective program(s). Investigation of the City-owned NCQ-077 diversion facility site would likely be conducted in parallel with Parts 2 and 3 of the subsurface investigations when design reaches 60 percent completion (estimated 2026/2027). As it is not yet known whether subsurface investigations on Block 2984 Lot 85 of NCB-083 in the BCP would be conducted prior to or after acquisition, coordination with NYSDEC and/or the parcel owners would be conducted should the investigation be scheduled prior to acquisition.

Overall, all required permits, as well as entry and testing agreements, would be obtained for any supplemental sampling conducted within public rights-of-way or on privately-owned parcels.

During construction, soil and materials management procedures would be implemented to minimize impacts of earth disturbing excavation activities. The following subsections describe procedures that would be followed.

EXCAVATED MATERIALS MANAGEMENT PROCEDURES

Excavated Materials Generating Activities

As discussed in Chapter 3, "Construction Means and Methods," for construction of the Proposed Project, excavated materials would primarily be removed during tunnel construction and construction of the screening and pump station shafts at the TDPS site. There would also be some excavated materials removed from the starter and connector tunnels at the TDPS site as well as from the construction of the outfall structures and drop shafts at the four diversion facility sites.

Tunnel Construction

As discussed in Chapter 1, "Project Description," the proposed CSO storage tunnel would be approximately 26 feet in outer diameter and at a depth ranging from 80 to 130 feet below existing ground surface; the tunnel mining operation would start in bedrock at the TDPS site then transition to a mixed face condition before ending in soil. A TBM would be used for tunnel construction and mining of tunnel spoils, consisting of soil and bedrock. It is anticipated that it would mine approximately 14,500 linear feet of soil and 2,500 feet of bedrock throughout the tunnel alignment. Soil is anticipated to be a mixture of clay and glacial deposits, and accounting for a 1.5 bulking factor (the bulking factor is a ratio that accounts for the increase in volume of a material after it is being disturbed from its original state.), the tunneling operating is estimated to generate approximately 11.5 million cubic feet of excavated soil during tunnel construction. Tunneling rates in soil range from an average of 30 feet per day to a maximum of approximately 120 feet per day, therefore the estimated excavated soil volume would range from approximately 900 cubic yards per day to up to approximately 3,500 cubic yards per day. As for bedrock, assuming a bulking factor of 1.7, the tunneling operation is estimated to generate approximately 2.3 million cubic feet of excavated rock during tunnel construction. Tunneling rates in rock range from an average of 30 feet per day to a maximum of 100 feet per day, therefore, the excavated rock volume would range from approximately 1,000 cubic yards per day up to 3,300 cubic yards per day. Combined, approximately 13.8 million cubic feet of tunnel spoils are anticipated to be generated during tunnel construction. Tunnel construction is anticipated to take approximately two years to complete, from August 2031 to July 2033.

For tunnel construction, the excavated materials from the face of the TBM would first pass through the trailing gear[4] before discharging to a continuous conveyor system or a locomotive system that connects to the base of the TDPS screening shaft. At that point, the excavated material would be transferred from the base of the shaft to the ground surface. There are several excavated material handling options that the contractor may use. One option is to use a crawler crane or a gantry crane at the surface to lift the excavated material (in boxes) and then discharge the contents to a temporary surface stockpile. Another option is to use a vertical conveyor system to transport the excavated material up to the surface before being discharged to either a temporary stockpile or directly to trucks or barges for off-site disposal. Based on the daily tunnel excavation rates identified above and any overlapping activities that may

[4] The trailing gear includes computerized control rooms as well as support equipment such as pumps, transformers, grouting equipment, and conveyors (see Figure 3-8)

occur during tunnel excavation (i.e., pump station shaft work), it is anticipated that up to 4 daily barge trips or 141 daily truck trips would be generated during peak construction activities. If the TBM incorporates a slurry system, the slurry mix with the excavated materials would be pumped from the TBM through slurry pipes and up the shaft to a slurry treatment plant. The slurry system would be a closed circuit until the slurry reaches the enclosed slurry treatment plant.

Pump Station and Screening Shaft Construction

As presented in Figures 3-4 and 3-5 in Chapter 3, "Construction Means and Methods", the screening shaft would have an inner diameter of approximately 62 feet at an elevation of 132 feet below grade during the construction period without final lining while the pump station shaft would have an inner diameter of approximately 110 feet at an elevation of 134 feet below grade. Based on an assumed streamlined excavation rate of two to three feet per day, approximately 850 cubic yards of excavated materials per day would be generated during shaft construction activities. The screening shaft is anticipated to take approximately 15 months to complete, from October 2029 to January 2031, while the pump station shaft is anticipated to take approximately two years to complete, from June 2030 to July 2032

For shaft construction, a crawler crane or a gantry crane at the surface would be used to lift the excavated material (in boxes) and then discharge the contents to a temporary surface stockpile. Based on the excavation rates identified above, it is anticipated that to up to 1 daily barge trip or 30 daily truck trips would be generated during shaft construction activities.

Stockpile Methods

Stockpiles of excavated material would be used only when necessary and would be removed as soon as practicable. While stockpiles are on site, they would be inspected daily, and before and after every storm event to ensure they are not subject to excessive erosion. Stockpiles of soil would be covered with anchored plastic tarps as needed when not being loaded/unloaded. Stockpiles would be surrounded with rigid barriers and/or silt fencing. All stockpile areas would be kept free of standing water. Stockpiles would be managed to control run-off in accordance with applicable regulatory requirements. Stockpiles would be located away from Newtown Creek and property boundaries, where possible.

Odor Control

As described in Chapter 17, "Air Quality," the Proposed Project would implement a CAMP during soil disturbance activities to monitor applicable threshold levels and to implement any corrective actions if necessary. If applicable threshold levels in the CAMP are exceeded, to minimize and control on- and off-site odor nuisances, the Proposed Project would implement odor control measures (see Table 17-15) during construction that could include wet suppression, daily cover foams/shells, covered conveyors, and activated carbon scrubbers. Table 17-15 also details where these odor control measures could be applied during the excavated material handling process.

Off-Site Transportation and Disposal

Outbound trucks would be inspected and cleaned, if necessary, before leaving the project sites; access/egress points for trucks and equipment would be kept clean of site-derived materials. Exit locations would be inspected daily for evidence that soil is being transported off premises. Truck wash facilities would be used as necessary to limit soil transport onto adjacent streets, and adjacent streets

would be cleaned, as needed. Loaded vehicles leaving the site would comply with all applicable materials transportation requirements (including appropriate covering, manifests, and placards) in accordance with applicable laws, regulations, and guidelines and be transported to appropriately licensed reuse/disposal facilities. Inbound trucks to the project sites would be regimented and scheduled to minimize truck queuing. A manifest-based tracking system would be used to document the proper management of material to its destination. Truck transport routes would consider the following: (1) limiting transport through residential areas and near sensitive sites; (2) using mapped truck routes; (3) using schedules to minimize or avoid queuing of trucks entering the work area; (4) limiting total distance to major highways; (5) promoting safety in access to highways; and (6) increasing overall safety in transport. All material would be managed as regulated material and would be reused or disposed in accordance with applicable laws, regulations and guidelines. A documentation/manifest process would be used to document conformance with applicable laws, regulations and guidelines.

Barging may be used in lieu of trucks to transport excavated materials generated during construction from the TDPS site since it is the location where excavated materials would be removed from tunnel construction, screening shaft, and pump station shaft construction. Being adjacent to Newtown Creek and its inlet, Whale Creek, the TDPS site contains the former Greenpoint Marine Transfer Station (MTS) where indoor and outdoor mooring slips exist to accommodate barge loading. Loaded barges leaving the site would comply with applicable materials transportation requirements (including required covering, manifests, and placards), which are generally similar to truck transportation, in addition to U.S. Coast Guard requirements and, depending on the type of waste, New York City Fire Department requirements. Loaded barges would be transported to appropriately licensed disposal facilities.

Dust Control and Monitoring

Dust management during soil-disturbing work would include the following: (1) use of water spray for roads, trucks, excavation areas and stockpiles; (2) use of truck covers during soil transport within site limits and during off-site transport; (3) employment of extra care during dry and/or high-wind periods; and (4) use of a truck wheel wash at site access/egress points to prevent fugitive dust and off-site migration of dust and other particulates. During construction, real-time dust monitoring would be performed through a CAMP. If any issues arise, the source(s) of any dust emissions would be identified and addressed immediately and appropriately.

Materials Handling

A Materials Handling Plan that covers the management, handling, transportation, and disposal of non-hazardous contaminated soils, regulated hazardous wastes, and all other soil/fill would be prepared and submitted to DEP for review and approval. The Materials Handling Plan would also be incorporated into remedial plans that would similarly be subject to agency approval (see below).

In addition to the materials management procedures identified, above, the following would also be conducted:

- <u>For corridors (CSO Tunnel, TPDS discharge pipe, and gravity diversion sewer), the TDPS site, and the diversion facility parcels not in NYSDEC programs (the BB-026 diversion facility site; Block 2974 Lots 165 and 170 at the NCB-015 diversion facility site; and Block 2585 Lots 225 and 240 at the NCQ-077 diversion facility site)</u> – Preparation of RAPs and CHASPs would set

out the procedures to be followed to avoid the potential for adverse impacts related to hazardous materials identified by the Parts 2 and 3 subsurface investigations, as well as other hazardous materials that could (unexpectedly) be encountered. The RAPs would incorporate the soil and materials management procedures previously discussed, as well as CAMP requirements, odor suppression means and methods, and contingency measures to be implemented should USTs or soil contamination be encountered. Furthermore, procedures for treatment of contaminated groundwater would be provided in the RAPs to be followed during dewatering operations. Dewatering operations would either follow DEP permitting requirements for treatment and discharge to the sewer system, or NYSDEC SPDES requirements for treatment and discharge to a surface water body or DEP outfall. The CHASP would present a hazard assessment for the construction workers during portions of the subsurface disturbance to protect construction workers and occupants during construction. Upon completion of construction, a RCR would be prepared and submitted to DEP for review and approval, and would be certified by a New York-licensed PE.

- For diversion facility parcels in NYSDEC programs (NCB-083 Block 2984 Lot 85 and NCQ-077 Block 2575 Lot 26) - RAWPs or IRMWPs would be prepared for each parcel in consultation with NYSDEC (Block 2984 Lot 85 at NCB-083 in the BCP; and Block 2575 Lot 26 at NCQ-077 in the ERP). The RAWPs/IRMWPs would be certified by a New York-licensed PE and would similarly set out procedures to be followed to avoid the potential for adverse impacts related to hazardous materials identified by the supplemental subsurface investigations, as well as other hazardous materials that could (unexpectedly) be encountered. The RAWPs or IRMWPs would address requirements for items such as soil, groundwater and bedrock management (including stockpiling, handling, transportation, and disposal), odor control mitigation, dust control and air monitoring, daily reporting to NYSDEC, and contingency measures should USTs or contamination be encountered. Soil and materials management measures included in the RAWPs or IRMWPs are expected to be similar to those previously discussed and would include CAMP monitoring and odor suppression means and methods. However, these measures would be subject to NYSDEC's review and approval. Dewatering operations would follow DEP requirements for treatment and discharge to the sewer system, or NYSDEC SPDES requirements for treatment and discharge to a surface water body or outfall. The RAWPs or IRMWPs would also include CHASPs which would present a hazard assessment for the construction workers during portions of the subsurface disturbance to protect construction workers and occupants during construction. Upon completion of construction, RCRs, FERs, IRM or Construction Completion Reports (IRMRs/CCRs) would be prepared and submitted to NYSDEC for review and approval. The FERs, RCRs or IRMRs or CCRs would each be certified by a New York-licensed PE and would provide photographic documentation, as-built drawings, sample results, disposal manifests, air monitoring data and field logs and document environmental procedures that were followed during construction.

Demolition of several existing structures is anticipated at the TDPS site as well as certain diversion facility parcels. Any suspect ACM, LBP or PCB-containing building materials, if potentially present or encountered during construction of the Proposed Project, would be evaluated and abated in

accordance with applicable local, state and federal regulatory requirements as part of standard demolition procedures.

Based upon the requirement to investigate and remediate potential hazardous materials within the Project Area in accordance with agency oversight (DEP or NYSDEC), the potential for exposure to hazardous materials would be minimized during construction. Therefore, with the measures described above, no significant adverse impacts relating to hazardous materials would result from construction of the Proposed Project.

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

Although immediate exposure to contamination would be addressed during construction, NYSDEC and DEP may require ICs and/or operational site management of ECs on certain portions of the Project Areas. Examples of ICs include deed restrictions which could prohibit certain sensitive uses that would increase the potential for exposure to hazardous materials, and regulatory (programmatic) requirements for future investigation and remediation should modifications to the Project Areas be contemplated that may increase exposure to hazardous materials. Examples of ECs include a regulatory agency-approved site cap to prevent dermal or future exposure to contamination, if present, and long-term monitoring or remediation through the use of a mitigation system (i.e., groundwater treatment system, SVE system, etc.). Potential ECs would be implemented as part of remedial action and ICs would be determined upon completion of any remedial action conducted during construction. Any future ICs that are placed on any portions of the Project Area would be followed in accordance with the specified control's requirements. O&M of post-construction ECs to prevent operational exposure to hazardous materials would be implemented through SMP, which would be submitted to, and approved by the regulatory agency that maintains jurisdiction of the respective portion of the Project Area (i.e., DEP, NYSDEC or EPA). Any potential hazardous materials, including petroleum products, that would be required for use as part of future CSO tunnel operations would be stored, handled and/or disposed of in accordance with applicable local, state and federal requirements. With the measures described above, no significant adverse impacts relating to hazardous materials would result from operation of the Proposed Project.

CONCLUSIONS

The potential for exposure to hazardous materials would be minimized during construction based upon the requirement to investigate and remediate potential hazardous materials within the Project Area in accordance with regulatory oversight (by DEP or NYSDEC). In addition, any suspect ACM, LBP and mercury and/or PCB-containing building materials, if encountered during construction on the diversion facility parcels subject to regulatory program requirements, would be evaluated and abated in accordance with applicable local, state and federal regulatory requirements as part of standard demolition procedures.

Beyond construction, all post-remedial requirements during operation, including potential future ICs or ECs placed within the Project Area would be followed in accordance with regulatory agency-approved SMPs.

With the measures described above, no significant adverse construction or operational impacts relating to hazardous materials would result from the Proposed Project.

A. INTRODUCTION

This chapter assesses the potential effects of the Proposed Project on existing and planned water and sewer infrastructure. According to the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, projects that increase density (i.e., projects that exceed certain development thresholds) or change drainage conditions on a large site (generally five acres or larger) require a water and sewer infrastructure analysis. For portions of Brooklyn and Queens that are served by a combined sewer system, the development thresholds are 400 residential units or 150,000 square feet (sf) of commercial, public facility, institution, and/or community facility space. The Proposed Project would not result in development exceeding the thresholds requiring a detailed analysis and would not generate new sewer demand. The Proposed Project would also not result in a development that would require an exceptionally large demand for potable water or result in a development in an area that experiences low water pressure; therefore, an analysis of water supply is not necessary.

The Proposed Project would, however, introduce combined sewer overflow (CSO) infrastructure to reduce the volume of CSOs entering Newtown Creek. Therefore, this chapter provides an assessment of the Proposed Project and its associated new or modified infrastructure components, including the proposed tunnel dewatering pump station (TDPS), diversion facilities, and CSO storage tunnel. In particular, this chapter includes an analysis of the potential effects of the Proposed Project on stormwater management related to the reduction of CSOs and assesses the Proposed Project's effects on wastewater treatment and conveyance infrastructure.

B. REGULATORY CONTEXT

Because the Proposed Project would modify existing infrastructure and include the installation of additional sewer infrastructure, the Proposed Project would require compliance with federal, state, and local legislation and regulatory programs. The Proposed Project would achieve compliance with all applicable policies, as described below.

FEDERAL

CLEAN WATER ACT AND COMBINED SEWER OVERFLOW CONTROL POLICY

The objective of the Federal Water Pollution Control Act (33 USC §§ 1251 to 1387), also known as the Clean Water Act (CWA), is to restore and maintain the chemical, physical, and biological integrity of United States' waters. It regulates point sources of water pollution, such as discharges of municipal sewage and industrial wastewater, and the discharge of dredge or fill material into navigable waters and other waters of the United States. The CWA also regulates non-point source pollution from sources

other than the end of a pipe, such as runoff from streets, agricultural fields, construction sites, and mining that enters waterbodies.

Under Section 401 of the CWA, any applicant for a federal permit or any license for an activity that may result in a discharge to navigable waters must provide to the federal agency issuing a permit a certificate, either from the state where the discharge would occur or from an interstate water pollution control agency, that the discharge would comply with Sections 301, 302, 303, 306, 307, and 316 (b) of the CWA. Applicants for discharges to navigable waters in the State of New York must obtain a Water Quality Certificate from the New York State Department of Environmental Conservation (NYSDEC).

Section 402 of the Act provides guidance on the National Pollutant Discharge Elimination System (NPDES), which governs the issuance of permits to control and prevent water pollution at point sources that discharge pollutants. In the State of New York, the NPDES permit program is administered by NYSDEC through the State Pollutant Discharge Elimination System (SPDES) permit program, described below.

In 1994, the U.S. Environmental Protection Agency (EPA) implemented the Combined Sewer Overflow Control Policy (the "CSO Control Policy") to provide guidance to help areas served by combined sewer systems meet the objectives of the CWA; the CSO Control Policy was codified as part of the CWA in 2000 (EPA FRL-4732-7, 59 Federal Register 18688). The CSO Control Policy provides site-specific guidance and flexibility to help communities implement CSO controls necessary to meet appropriate health and environmental objectives. This includes the guidance to permittees and permitting authorities on the development and implementation of Long Term Control Plans (LTCPs). The CSO Control Policy also establishes reporting measures to assess the progress made on federal, state, and local levels in enforcing and implementing the policy.

As discussed in Chapter 1, "Project Description," in accordance with the CWA and the CSO Control Policy, the New York City Department of Environmental Protection (DEP) prepared a LTCP for Newtown Creek that was approved by NYSDEC in 2018. As outlined in the LTCP, the proposed CSO storage tunnel and related infrastructure would provide appropriate CSO controls necessary to reduce the volume and frequency of overflow events and fulfill the requirements of the Consent Order entered into by New York City and NYSDEC to address CSOs. The approved LTCP included one set of CSO control measures for three of the four largest outfalls (NCQ-077, NCB-083, and NCB-015) and a separate measure to control CSOs for the fourth outfall (BB-026). Following the completion of the LTCP, a preliminary design was developed to combine the projects by diverting CSOs from outfall BB-026 by gravity into the CSO storage tunnel serving the other three outfalls and increasing the tunnel's storage volume from 39 MG to 50 MG. Following coordination with EPA and a public review period, NYSDEC issued a letter approving the modification on December 23, 2024.

NEW YORK STATE

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM (SPDES)

Title 8 of Article 17 of the New York Environmental Conservation Law, Water Pollution Control, authorized the creation of the SPDES permit program to regulate discharges to the State's waters.

Activities requiring a SPDES permit include point source discharges of wastewater into surface or ground waters of the State, including the intake and discharge of water for cooling purposes; constructing or operating a disposal system (sewage treatment plant); discharge of stormwater; and construction activities that disturb one acre or more.

As noted in Chapter 1, "Project Description," the Proposed Project may require approvals under the SPDES program, including a General Permit for Stormwater Discharges from Construction Activity, and an Individual Permit for Industrial Facilities (dewatering activities requiring discharge to surface water).

NEW YORK CITY

RULES OF THE CITY OF NEW YORK

Chapter 31 of Title 15 of the Rules of the City of New York establishes guidelines for the issuance of permits for the construction, repair, alteration, and inspection of all sewer connections. All permit applications are to be submitted to and reviewed by DEP.

COMBINED SEWER OVERFLOW ABATEMENT PROGRAM & COMBINED SEWER OVERFLOW LONG TERM CONTROL PLAN (DEP)

Implemented by DEP, the objective of this program and plan is to reduce pollution in and around the City's waters. The plan provides for field investigations, sewer system and water quality monitoring, and modeling in areas that are heavily impacted by CSOs to determine appropriate mitigation measures. The program aims to establish source controls and stormwater best management practices best suited for New York City. As noted above, in 2018 DEP prepared an LTCP for Newtown Creek. The LTCP determined that the Proposed Project would provide the appropriate CSO controls to reduce the volume and frequency of overflow events and improve water quality.

C. EXISTING SEWER INFRASTRUCTURE

CITYWIDE COMBINED SEWER INFRASTRUCTURE

New York City is served by separate sanitary and storm sewer systems as well as combined sewer systems. As the name suggests, the separate sewer systems transport stormwater runoff and sanitary flows in separate pipe networks. Stormwater is channeled directly to local waterbodies, and sanitary waste is transported to Wastewater Resource Recovery Facilities (WRRFs). In contrast, areas serviced by combined sewer infrastructure convey combined stormwater and sanitary flows (combined sewer flow) in the same pipe to treatment facilities, which are regulated under the City's SPDES permits for each WRRF. Approximately 60 percent of New York City's sewers are combined systems. The City's overall combined sewer system is divided into drainage areas—individual networks of interconnected pipes that consolidate combined sewer flow and transport it to single discharge points at interceptors (the large sewers that bring the wastewater to the WRRF for treatment).

During dry weather, the combined sewer pipes convey sanitary flow to the WRRF. However, during and immediately following certain significant wet weather events, the combined sewer collection

system conveys both sanitary and stormwater flows. Stormwater enters the combined sewer system through catch basins, located primarily at the intersections of roadways and along curbs. In those situations, the maximum amount of flow is conveyed to the WRRFs for treatment in accordance with the WRRF's SPDES permit and system conveyance capacity, and the excess combined sewage overflows into surrounding waterbodies without treatment at designated outfall locations. The flow to the outfalls is controlled by structures known as regulators.

Regulators serve two principal purposes: (1) to divert flow in the combined sewers to the large interceptor sewers which conveys flow to the WRRF; and (2) to prevent overloading of the interceptor and downstream WRRF during high combined sewer flow events by diverting flow in excess of the system's conveyance capacity to CSO outfalls. DEP generally employs passively operated regulators, which respond to variations in the water level of the combined sewer. Under typical operating conditions, during dry weather flow, all combined sewer flow passes to the interceptor through the regulator. However, during wet weather events with higher flow, excess flow is diverted by the regulator to an associated outfall. Regulators may include tide gates that only allow for flow to be discharged to the outfall when there is a sufficient difference in the hydraulic grade lines (HGL)[1] between the receiving water body's tide level and the combined sewer system's water level, thereby preventing backflow into the collection system.

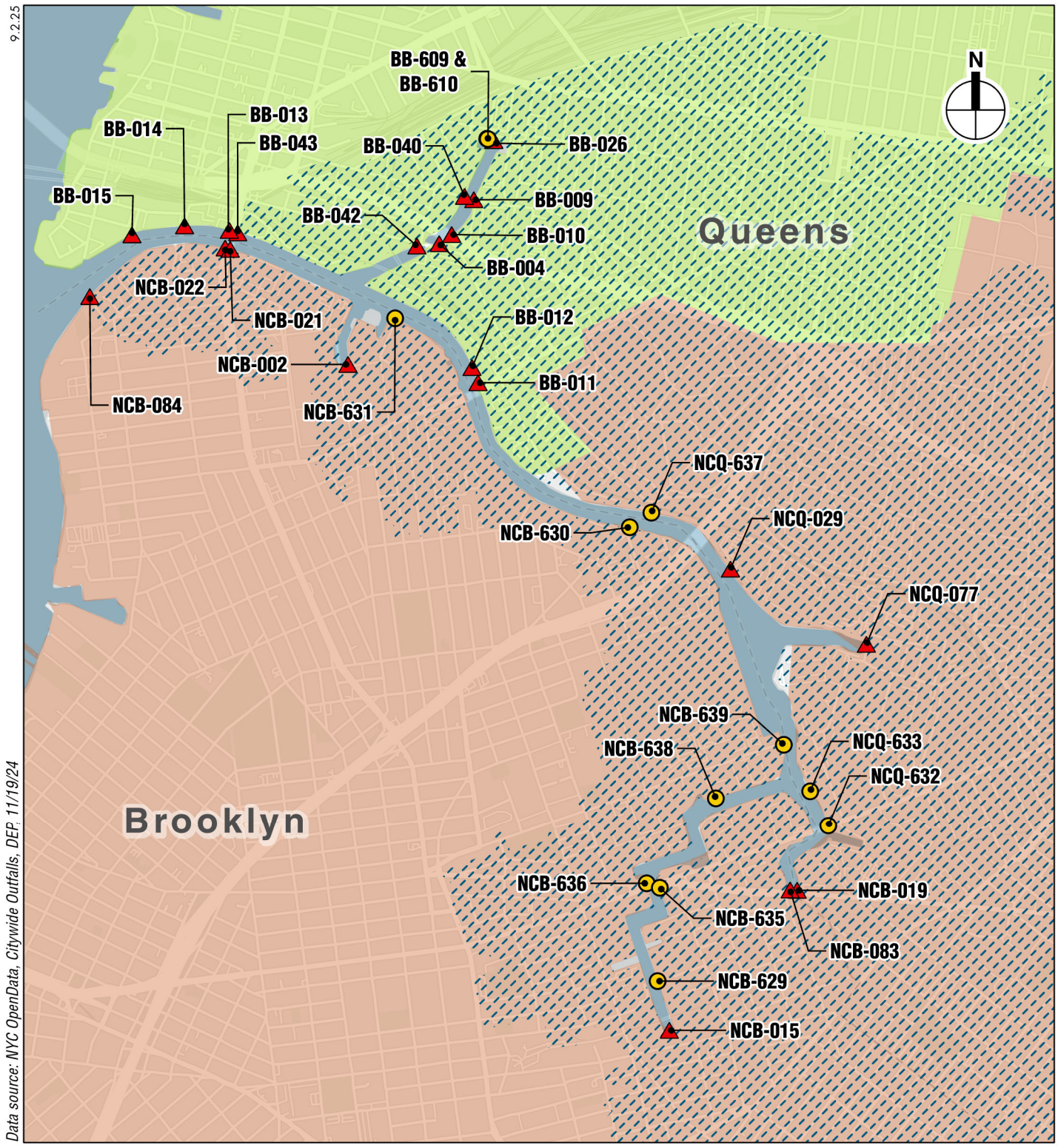
NEWTOWN CREEK, COLLECTION SYSTEMS, AND WRRFS

The Newtown Creek watershed comprises approximately 6,815 acres: the majority of the watershed (5,920 acres) is served by the Newtown Creek WRRF, and a smaller portion (895 acres) on the northern shore is served by the Bowery Bay WRRF (see Figure 1-3 in Chapter 1, "Project Description"). The Newtown Creek WRRF serves a total area of 15,033 acres in the boroughs of Manhattan, Brooklyn, and Queens. The Bowery Bay WRRF, which is located in the Astoria neighborhood in northern Queens, serves a total area of approximately 15,203 acres in the northern portion of Queens.

During dry weather, combined and sanitary sewer systems convey sewage to the Newtown Creek and Bowery Bay WRRFs for treatment. During wet-weather events, combined sewage flow that exceeds the treatment capacity of the WRRFs and conveyance capacity of the combined sewer system may discharge to Newtown Creek and its tributaries through one or more of the 21 SPDES-permitted CSO outfalls. Approximately 90 percent of the average annual CSO volume discharged to Newtown Creek is attributable to four CSO outfalls: three CSO outfalls providing wet-weather relief to the Newtown Creek WRRF combined sewer system (outfalls NCQ-077, NCB-083 and NCB-015); and one CSO outfall providing wet-weather relief to the Bowery Bay WRRF combined sewer system (outfall BB-026). In addition, 12 stormwater outfalls that are permitted under New York City's MS4 SPDES permit discharge to Newtown Creek (see **Figure 13-1**).

At the WRRFs, wastewater is treated by physical and biological processes before it is discharged as effluent. The quality of the effluent at each WRRF is regulated by each WRRF's respective SPDES permit, which is issued by NYSDEC and establishes limits for effluent parameters (i.e., suspended

[1] HGL refers to the water elevation within a sewer system.



*Newtown Creek Drainage Area**

Bowery Bay WRRF Drainage Area

Newtown Creek WRRF Drainage Area

CSO Outfall

MS4 Outfall

*Approximate area contributing to Newtown Creek CSOs

Newtown Creek Outfalls

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 13-1

solids, fecal coliform bacteria, and other pollutants). Since the volume of flow to a WRRF affects the level of treatment the facility can provide, the SPDES permit also establishes a maximum permitted capacity. For the Newtown Creek WRRF, the maximum permitted dry weather capacity is 310 million gallons per day (mgd); the average monthly flow to the Newtown Creek WRRF over the latest 12-month period for which data are available was 211 mgd,[2] which is approximately 68 percent of the permitted capacity. For the Bowery Bay WRRF, the maximum permitted dry weather capacity is 150 mgd; the average monthly flow to the Bowery Bay WRRF over the latest 12-month period for which data are available was 113 mgd, which is approximately 75 percent of the permitted capacity.

STUDY AREA

The water and sewer infrastructure study area for the Proposed Project consists of Newtown Creek's sewershed in the Newtown Creek WRRF and Bowery Bay WRRF service areas. Under typical wet weather conditions, there are 21 CSO outfalls that discharge into Newtown Creek. The flow to these outfalls is regulated under the Newtown Creek WRRF and Bowery Bay WRRF SPDES permits and controlled by regulators in the vicinity of Newtown Creek. As mentioned above, outfalls BB-026, NCQ-077, NCB-083, and NCB-015 discharge the greatest amount of CSO into Newtown Creek. Additional sewer infrastructure in the study area includes the Borden Avenue Pump Station, in the Queens portion of the sewershed. The Borden Avenue Pump Station conveys flows from the combined sewer system in the Bowery Bay WRRF service area and collects flows from a relatively small tributary area, discharging them to the Long Island City Interceptor (LICI), which conveys flows to the Bowery Bay WRRF.

D. FUTURE WITHOUT THE PROPOSED PROJECT

As discussed in Chapter 2, "Analysis Framework," in the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities would also remain in their existing condition. The TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

E. FUTURE WITH THE PROPOSED PROJECT

The tunnel, TDPS, diversion facilities, and related modifications to the sewer infrastructure required as part of the Proposed Project were analyzed to determine their potential effects on wastewater treatment and conveyance infrastructure; in particular, this analysis included potential effects on treatment demand at the Newtown Creek and Bowery Bay WRRFs, as well as potential increases in HGL within the existing collection system and flooding upstream of the Proposed Project's components.

[2] Twelve-month period through August 2024.

CSO TUNNEL OPERATION

As described in Chapter 1, "Project Description," during wet-weather events, the CSO storage tunnel would divert and store CSOs from the combined sewer system at the four outfall locations, which currently discharge to Newtown Creek. The CSOs stored in the tunnel would be pumped to the Newtown Creek WRRF for treatment after the wet-weather event, when the facility has capacity to accept these flows.

The proposed CSO storage tunnel would be approximately 26 feet in outer diameter (inner diameter of approximately 22 feet) and at a depth ranging from 80 to 130 feet below existing ground surface. The downstream terminus of the tunnel would be located at a site at the end of Kingsland Avenue in Brooklyn (on the southern side of the Newtown Creek) near Whale Creek and the Newtown Creek WRRF; this site is controlled by the New York City Department of Sanitation (DSNY). This site would contain a TDPS that would operate on an intermittent basis following wet-weather events to remove the stored combined sewage from the tunnel, as well as removing inflow and infiltration in the tunnel as needed during dry weather. The TDPS may also operate at the beginning of a storm to remove flow from the tunnel, thereby maximizing the CSOs diverted and stored during a wet-weather event. The TDPS dewatering pumps would only operate when the Newtown Creek WRRF is anticipated to have adequate capacity to accept flows from the tunnel. If the influent levels to the WRRF exceed capacity, no flows would be pumped from the tunnel to the WRRF. The TDPS dewatering pumps are anticipated to dewater the 50 MG tunnel within approximately 30 hours. Wet-weather events requiring TDPS operation are anticipated to occur between three and seven times per month and approximately 505 hours per year.

ADDITIONAL SEWER SYSTEM IMPROVEMENTS

As part of the Proposed Project, in order to convey flow to and from the tunnel, additional improvements to the combined sewer system infrastructure are required. In addition to the CSO storage tunnel and TDPS, the Proposed Project would construct diversion facilities at outfalls BB-026, NCQ-077, NCB-083, and NCB-015 to divert flow from the outfalls to the tunnel. During a wet-weather event, combined sewer flows that exceed the capacity of the existing dry-weather regulator would flow into the diversion chamber at each facility and would then be conveyed from the diversion chamber to the conveyance conduits. The conveyance conduits would deliver wet-weather flow to the approach channel. From the approach channel, flow would be conveyed to a drop shaft which would connect to the tunnel: flow would enter the drop shaft by a drop pipe, which would convey flow down to a de-aeration channel (which is designed to allow de-aeration of the flow before it enters the tunnel), then into a plunge pool and underneath a baffle before entering the tunnel via an opening (referred to as the orifice).

The existing outfalls at BB-026 and NCB-015 would be modified by removing the existing bending weirs and flap gates; at all four diversion facilities, new outfall structures, including bending weirs and flap gates, would be constructed downstream of the diversion chamber to allow overflow to discharge to Newtown Creek when the tunnel is full or when peak wet weather flow rates exceed the facilities' design flow rates. In addition, at the TDPS, a discharge pipe would be constructed along Kingsland

Avenue and Greenpoint Avenue to connect the TDPS to the Newtown Creek WRRF. Finally, at the TDPS and the NCB-015 site, tunnel overflow structures would be constructed to mitigate the risk of flooding associated with a surge or a transient wave within the tunnel when it is filling.

For outfall BB-026, which is located at the northern end of Dutch Kills, roughly 0.5 miles to the northwest of the tunnel alignment, the Proposed Project would also construct a new gravity diversion sewer to connect the outfall to the tunnel. Beginning at the BB-026 diversion facility, the new gravity diversion sewer would run along 47th Avenue and 30th Street, to Borden Avenue, where it would run west and south to connect to the Borden Avenue Pump Station. This initial section of the gravity diversion sewer would be constructed prior to the completion of the tunnel and would allow for diversion of CSO flows from BB-026 in the interim for the period before the tunnel is operational: CSO would be stored in the gravity diversion sewer during a wet-weather event, and then removed from the gravity diversion sewer by the pump station and conveyed to the Bowery Bay WRRF. Modifications would be made to the Borden Avenue Pump Station to construct the connection to the gravity diversion sewer. From the Borden Avenue Pump Station, the gravity diversion sewer would run south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration). Once the tunnel, TDPS, and drop shaft are complete, CSO flows would be diverted from the Borden Avenue Pump Station and conveyed to the tunnel.

The proposed tunnel alignment and location of the proposed diversion facilities are shown on Figure 1-5 in Chapter 1, "Project Description."

DESIGN METHODOLOGY AND INFOWORKS HYDRAULIC MODELING

Sewer infrastructure must be designed so that the HGL in the collection system is not increased, since doing so may induce or exacerbate flooding issues. The potential for the Proposed Project to increase HGL within Newtown Creek's water/sewershed was analyzed using an InfoWorks collection system model. The model determines the predicted surcharge and flooding for the existing sewer system for specified rainfall conditions. The model also evaluates the performance of the proposed CSO control infrastructure to determine the HGL in the collection system within the water/sewershed and, thus, can identify the locations of surcharge within the collection system under a variety of storm conditions.

The InfoWorks model software uses the full Saint-Venant differential equations for momentum and continuity to solve for time-varying flows, levels, and velocities in a collection system. Both the hydrology (conversion of rainfall to runoff from the land surface) and hydraulics (movement of water through the collection system) modules are included in the InfoWorks software framework. Calibrated InfoWorks models have been accepted by NYSDEC and EPA as the basis for analyzing a variety of collection system projects throughout New York State and the U.S., respectively.

The InfoWorks model was used to predict flows, volumes, and HGL in the watershed/sewershed system under annual average (2008 typical year) and design storm (5-year, 2-hour and 5-year, 24-hour) conditions, consistent with the long-term rainfall conditions utilized in the LTCP. The rainfall year of

2008 was previously established for LTCP purposes as the single calendar year capable of representing average conditions over time.

Wet weather events from the 2008 typical year were used to evaluate hydraulic performance of the Proposed Project and confirm CSO volume control. Peak flow rates from the largest wet weather events from the typical year were used to size the Proposed Project's diversion facilities to maximize the amount of flow that could be diverted to the tunnel for storage.

The Proposed Project is designed to minimize impacts to the upstream collection system. The 5-year design storm utilized by the DEP Bureau of Water and Sewer Operations (BWSO) for drainage planning purposes was used to evaluate impacts to the collection system. Evaluations considered both when the tunnel has capacity and is accepting flow, and also when the tunnel is full and water is discharging to Newtown Creek via the outfall structures. Because Newtown Creek is a tidally influenced waterbody, tide data from the National Oceanic and Atmospheric Association (NOAA) at various locations in the greater New York City harbor area were incorporated into the model framework to account for receiving waterbody conditions.

Effects of sewer infrastructure changes on the upstream collection system were evaluated through the hydraulic modeling analysis, which established the HGL necessary to achieve hydraulic neutrality. Specifically, the hydraulic analysis considering the upstream collection was utilized in the design of the Proposed Project's diversion facilities and outfall structures based on the modeled 5-year, 2-hour storm, and accounting for tide levels in Newtown Creek. Separate hydraulic analyses were completed for design of other components of the Proposed Project that do not impact the upstream collection system. The Proposed Project has been designed such that all CSOs are conveyed to the tunnel by gravity and flows that exceed the capacity of the diversion facilities or cannot be stored because the tunnel is full are discharged to Newtown Creek and do not cause upstream flooding or basement backups. Based on the preliminary modeling to inform the design of the Proposed Project, the Proposed Project would not exacerbate any current conditions related to upstream inland flooding and would not adversely affect sanitary and stormwater drainage and management. As the Proposed Project progresses, the facilities would be designed to achieve hydraulic neutrality and would not adversely affect upstream sewer infrastructure.

CSO REDUCTION AND STORMWATER MANAGEMENT IN THE NEWTOWN CREEK SEWERSHED

The Proposed Project is being designed to meet the goals of the NYSDEC Consent Order (discussed in Chapter 1, "Project Description"), specifically, a reduction of CSO volume discharged to Newtown Creek by 62.5 percent annually.

By capturing the CSO volume prior to discharge to Newtown Creek, CSO discharges to Newtown Creek would be reduced. As part of the preparation of the LTCP, it was determined that a 39-MG CSO storage tunnel would reduce CSO discharges in a typical year by 62.5 percent from outfalls NCB-015, NCQ-077, and NCB-083. It was also determined that the 26 mgd wet weather expansion of the Borden Avenue Pump Station (including a new forcemain that would convey wet weather flow to the Newtown Creek WRRF) would achieve the required 75 percent reduction of CSO discharges at outfall BB-026.

Following the completion of the LTCP, the two projects entered preliminary design and planning, during which a conceptual design was developed to combine the projects by diverting CSOs from outfall BB-026 by gravity into the CSO storage tunnel and increasing the tunnel's storage volume from 39 MG to 50 MG. This change was determined to have several benefits, including providing a greater reduction of CSO discharge volumes: specifically, the 50-MG tunnel would reduce CSO discharges by 74 percent, compared to 62.5 percent for the 39-MG tunnel. DEP began discussing this proposed modification request with NYSDEC in 2023, and met with both NYSDEC and EPA regarding this modification request. EPA indicated that the proposed modification was consistent with the Record of Decision (ROD) that required a CSO reduction target and that this modification would exceed that target. Afterward, DEP met with stakeholders and elected officials regarding this proposed modification and submitted the official modification request to NYSDEC on July 1, 2024. On October 10, 2024, NYSDEC issued a letter notifying DEP of its concurrence with the proposed modification; following a public noticing period, NYSDEC issued a letter approving the modification on December 23, 2024.

The Proposed Project is being designed to meet or exceed the goals for CSO volume discharge reduction outlined in the NYSDEC Consent Order and the EPA ROD.

DRY-WEATHER TREATMENT DEMAND AT THE NEWTOWN CREEK WRRF

As noted above, per their respective SPDES permits, the maximum permitted dry weather capacity of the Newtown Creek WRRF is 310 mgd; the WRRF is operating well below these levels.[3] The SPDES permit for the Newtown Creek WRRF also requires an 85 percent removal of influent Total Suspended Solids (TSS). Over the last–12-month period for which data are available, the WRRF has been in compliance with the SPDES permit with regard to maximum permitted flow capacity and effluent TSS. Moreover, in addition to operating below its maximum permitted capacity, the Newtown Creek WRRF currently has an adequate safety factor in terms of percent of TSS removal. On average, the influent TSS removal at the Newtown Creek WRRF is at 93 percent, which exceeds the 85 percent removal required by the SPDES permit.

Tunnel dewatering events from the TDPS to the Newtown Creek WRRF following wet-weather events are expected to occur approximately three to seven times per month and would take place during dry-weather flow conditions. The maximum volume dewatered from the TDPS to the Newtown Creek WRRF would be 40 MG over a 24-hour period (a maximum pump-back rate of 1.6 MG per hour).

Based on the information presented above, and the design of the Proposed Project, CSO pump-back from the tunnel and TDPS would not adversely affect wastewater treatment performance at the Newtown Creek WRRF.

[3] As noted above, the Newtown Creek sewershed includes a portion of the Bowery Bay WRRF service area; however, as the TDPS would pump the flows stored in the tunnel to the Newtown Creek WRRF for treatment after the wet-weather event, the Proposed Project would not have any effect on treatment capacity at the Bowery Bay WRRF.

F. CONCLUSION

The Proposed Project would meet the goals of the NYSDEC Consent Order and the EPA ROD, and would not adversely affect wastewater treatment performance at the Newtown Creek and Bowery Bay WRRFs or sanitary and stormwater drainage and management.

Chapter 14: Solid Waste and Sanitation Services

A. INTRODUCTION

A solid waste and sanitation services assessment is intended to determine whether a project has the potential to cause a substantial increase in solid waste production that could overburden available waste management capacity or otherwise be inconsistent with New York City's Solid Waste Management Plan (SWMP) or with New York State policy. The 2021 *City Environmental Quality Review (CEQR) Technical Manual* recommends a detailed analysis of solid waste impacts for projects that would result in substantial amounts of solid waste (generally 50 tons per week or more).

As discussed below, operation of the Proposed Project's combined sewer overflow (CSO) storage tunnel and related infrastructure (including the Tunnel Dewatering Pump Station [TDPS], diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems) would not result in solid waste generation exceeding 50 tons per week; therefore, a detailed assessment of solid waste impacts is not necessary. Nevertheless, the *CEQR Technical Manual* recommends that the solid waste and service demand generated by a project be disclosed; therefore, this chapter estimates the amount of solid waste that would be generated by the Proposed Project and describes the solid waste removal services that would be utilized for the Proposed Project's facilities.[1]

The solid waste assessment presented in this chapter considers the potential impacts of operation of the Proposed Project. Handling of excavated material during construction of the Proposed Project (e.g., removal of soils and spoils from tunnelling) is discussed in Chapter 12, "Hazardous Materials."

B. SCREENING ASSESSMENT

Operation of the Proposed Project's facilities would not require permanent staffing: specifically, the tunnel and diversion facilities are designed to operate passively with gravity flow during wet weather events and would not require permanent staff. Similarly, the TDPS facility is designed to not require permanent staff, and its operation would be largely automated. However, during operation of the TDPS, which is expected to occur approximately 58 times during a typical year,

[1] Construction of the Proposed Project would not generate solid waste that is handled by the City's solid waste system; see Chapter 12, "Hazardous Materials," for an assessment of materials removed during construction of the Proposed Project.

there could be up to 15 personnel on site to monitor and manage equipment operations and complete maintenance activities. Assuming a rate of 13 pounds per week per employee[2] and assuming a maximum of 15 employees, the TDPS would generate an estimated 195 pounds of solid waste per week.

The TDPS would also include a screening system to remove floatables and debris entering the facility and a grit removal system to remove materials such as silt, sand, and gravels (commonly referred to as "grit") from the stored flow prior to discharging to the Newtown Creek Wastewater Resource Recovery Facility (WRRF). Residual debris and solids from both the screening system and the grit removal system would be collected and stored in 26-cubic-yard dumpsters: two dumpsters would be located at both the screening facility and the degritting facility, for a total of four dumpsters on-site. Based on a typical year storm, the generated material removed from the TDPS is expected to total approximately 30 tons. After each wet weather event during which the TDPS would be operational, each dumpster would be removed and replaced by a waste-hauling company under contract with the City of New York.

Based on the information presented above, operation of the Proposed Project would result in a level of solid waste generation that would be easily accommodated by existing waste transfer operators serving the Proposed Project sites and the surrounding neighborhood. Therefore, the Proposed Project would not result in any adverse impacts on solid waste and sanitation services, and no further analysis is necessary.

[2] Estimate utilizes the solid waste generation rate for office workers; see the *CEQR Technical Manual,* Table 14-1.

Chapter 15: Energy

A. INTRODUCTION

This chapter considers the potential for the Proposed Project to result in significant adverse energy impacts. The 2021 *City Environmental Quality Review (CEQR) Technical Manual* recommends a detailed analysis of energy impacts for projects that could significantly affect the transmission or generation of energy or cause substantial new consumption of energy. Construction and operation of the Proposed Project would not result in any of these conditions; therefore, a detailed assessment of energy impacts is not necessary. Nevertheless, the *CEQR Technical Manual* recommends that a project's energy consumption be calculated and disclosed, and so this chapter estimates the amount of energy that would be consumed by the Proposed Project.

PRINCIPAL CONCLUSIONS

Operation of the Proposed Project is expected to result in an energy demand of approximately 13,137 million British thermal units (MMBtu) of energy per year (approximately 0.006 percent of New York City's forecast future total annual energy demand). During construction of the Proposed Project, the use of an electric-power tunnel boring machine (TBM) is estimated to result in a temporary demand for up to 596,057 kilowatt-hours (kWh) (2,034 MMBtu) of electricity within a single year—less than the total projected energy consumption during operation of the Proposed Project. Consequently, construction and operation of Proposed Project would generate incremental increases in energy demand that would be considered negligible when compared with the overall demand within Consolidated Edison (Con Edison)'s New York City and Westchester County service area. Therefore, the Proposed Project would not result in any significant adverse impacts related to energy.

B. METHODOLOGY

To assess the Proposed Project's potential to adversely affect energy, this chapter uses the annual operational energy consumption that was projected for the TDPS and the diversion facilities as part of the Initial Energy Profile Report prepared for the Proposed Project.[1] More particularly, this chapter:

- Presents data on the existing energy distribution system.
- Presents the future annual electricity consumption associated with all process equipment (e.g. pumps and odor control fans) and non-process equipment (e.g. HVAC and lighting) for the TDPS and diversion facilities.

[1] McMillen JA Engineering PLLC/ Brown and Caldwell Associates, a Joint Venture. *Newtown Creek Combined Sewer Overflow Storage Tunnel. Basis of Design Report. Appendix N: Sustainability*. October 2024

- Assesses the effects of this energy demand on the local distribution system and regional energy supplies.

Annual energy consumption for electricity was projected for the Proposed Project during design evaluation, consistent with DEP Standard Operating Procedure (SOP).[2] Power demand for each piece of equipment at the TDPS and diversion facilities were based on the rated equipment capacities. Equipment energy consumption was then conservatively assumed to operate throughout the year.[3] The overall annual electricity consumption estimates for the TDPS and diversion facilities were used to assess the potential for energy impacts.

C. EXISTING CONDITIONS

ENERGY GENERATION

Within New York City, electricity is generated and delivered to most users by Con Edison, although some of the electricity delivered by Con Edison is generated by independent power producers. Electrical energy in New York City is drawn from a variety of sources that originate both within and outside the City. These include non-renewable sources (such as oil and natural gas) and renewable sources (such as hydroelectricity and—to a much lesser extent—biomass fuels, solar power, and wind power). Electricity consumed in New York City is generated in various locations, including sites within New York City, locations across the Northeast, and places as far away as Canada.

Con Edison distributes power throughout New York City and Westchester County, for a total service area of approximately 600 square miles, serving a population of over nine million people. Transmission substations receive electricity from the regional high voltage transmission system and reduce the voltage to a level that can be delivered to area substations. Area substations further reduce the voltage to a level that can be delivered to the distribution system, or the street "grid." Within the grid, voltage is further reduced for delivery to customers. Each substation serves one or more distinct geographic areas, called networks, which are isolated from the rest of the local distribution system. If service is lost at a specific substation or substations, the network functions to isolate any problems from other parts of the city. Substations are also designed to have sufficient capacity for the network to grow.

Con Edison currently has 63 area distribution substations and various distribution facilities located throughout New York City and Westchester County. Con Edison's distribution system has a transformer capacity of 32,636 mega volt ampere (MVA), with 37,633 miles of overhead distribution lines and 96,307 miles of underground distribution lines. The underground distribution lines represent the longest underground electric delivery system in the country. As of 2024, the total Con Edison New York City generation capacity was 9,423 megawatts (MW), and annual electricity usage in Zone J of Con Edison's

[2] DEP SOP-053: Energy Conservation and GHG Reduction Plan Requirements (revision 13 issued December 15, 2022)

[3] Sump pumps and bridge cranes at the project sites are not expected to operate regularly and were assumed to result in insignificant electricity consumption within a single year. Therefore, electricity consumption does not include operation of these pieces of equipment.

service area (which includes New York City) totaled approximately 48,280 GigaWatt hours (GWh), or 165 trillion BTU. Con Edison is required by North American Electric Reliability Corporation (NERC), Northeast Power Coordinating Council (NPCC), and New York State Reliability Council (NYSRC) rules to maintain its transmission system so as to achieve the following: survive the two worst (non-simultaneous) contingencies that will not result in equipment loading exceeding the designated emergency rating of that equipment, will not result in the loss of any customer service, and—following corrective actions—will not result in equipment loading that exceeds the designated normal rating of that equipment.

ENERGY CONSERVATION

In 2020, the City brought the New York City Energy Conservation Code (NYCECC) up to date by adopting the 2020 Energy Conservation Construction Code of New York State (ECCCNYS), which substantially increased the stringency of the building energy efficiency requirements and adopted the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) 90.1-2016 standard as a benchmark, and aligns with NYStretch Energy Code 2020 developed by New York State Energy Research and Development Authority (NYSERDA). The NYCECC governs performance requirements for HVAC systems, as well as the exterior building envelope of new buildings.

D. FUTURE WITHOUT THE PROPOSED PROJECT

As discussed in Chapter 2, "Analysis Framework," in the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The diversion facility sites would also remain in their existing condition and the TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015. Consequently, no additional energy consumption would occur in the No Action condition.

E. FUTURE WITH THE PROPOSED PROJECT

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

Construction of the Proposed Project would include the use of gasoline and diesel-powered equipment at the TDPS and diversion facilities that are typical of construction activities within New York City (e.g. backhoe, loader, crane, and compressors) and is not anticipated to impact fuel distribution networks. Similarly, electric-powered construction equipment (e.g. manlift/elevator, fans, conveyors, etc.) would be used and are not anticipated to result in significant electricity demand while in use. However, the use of an electric-powered tunnel boring machine (TBM) for construction of the CSO tunnel would require a temporary new utility electrical power interconnection to provide power to the TBM. The estimated construction power demand for TBM mining operations is estimated to be approximately 1,900 kilowatt (kW) and would consume up to 596,057 kilowatt hours (kWh) of electricity within a single year, which is less than the Proposed Project's total projected annual operational energy consumption discussed below. Therefore, construction of the Proposed Project would not impact the existing energy network beyond the operational energy demands.

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

In the With Action condition, the CSO storage tunnel along with the TDPS, diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems would be constructed. The facilities would include new electric-powered equipment to handle waste processing, operate HVAC systems, and provide lighting. Electrical service to the new equipment would be delivered by Con Edison. **Table 15-1** presents the equipment types in the With Action condition and their associated annual energy demands. Annual electricity was estimated for process and non-process equipment during design of the Proposed Project, consistent with DEP SOP-053. As shown, it is estimated that energy demand from operation of the Proposed Project would be 13,137 MMBtus per year in the With Action condition.

Table 15-1
Annual Operational Energy Consumption—Proposed Project

Facility	Equipment	Electricity Consumption (kWh/yr)	Electricity Consumption (MMBtu/yr)
TDPS	Process Equipment (pumps, conveyors, gates, valves, hoists, screens, degritting units)	1,364,243	4,654
	Odor Control Fans	131,152	447
	HVAC	1,976,541	6,744
	Lighting	67,457	230
Diversion Facilities	Odor Control Fans	311,063	1,061
	TOTAL:	**3,850,241**	**13,137**

Notes: Totals may not sum due to rounding.
kWh = kilowatt-hour
MMBTU = Million BTU
Sources: *Newtown Creek Combined Sewer Overflow Storage Tunnel. Basis of Design Report,* Table 8-1, "Annual Energy Consumption Analysis."

F. CONCLUSIONS

According to the New York Independent Systems Operator's (NYISO) 2024 *Load and Capacity Data* report, additional electricity generation will be needed to meet the annual energy requirements for the 2040 build year, which is forecasted to be approximately 204,080 GWh (or 696 trillion Btu). Of this forecasted annual energy demand, 60,680 GWh (or 207 trillion Btu) is expected to come from the five boroughs of New York City (Zone J). NYISO has characterized Zone J as being limited in the amount of energy that can be imported from other zones and dependent on in-zone generation. The anticipated 13,137 MMBtu use in annual electrical energy consumption under typical operation of the Proposed Project is approximately 0.006 percent of NYISO's forecasted future total annual energy demand. Temporary demand associated with the TBM activities during construction would be less than during operation of the Proposed Project. Consequently, Con Edison is not anticipated to require infrastructure improvements to meet the Proposed Project's additional energy demand at the local level as the forecasted energy demand will be managed by the utility at individual generating facilities within the five boroughs. Coordination with Con Edison has been initiated and would continue through design. Therefore, the Proposed Project would not result in a significant adverse impact related to energy.

Chapter 16: Transportation

A. INTRODUCTION

As described in Chapter 3, "Construction Means and Methods," the Proposed Project would entail the construction of a 50-million-gallon combined sewer overflow (CSO) tunnel, diversion facilities at four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored combined sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn. Overall, there would be four diversion facilities constructed at four outfalls: (1) BB-026, located on the northern edge of Dutch Kills in Long Island City, Queens; (2) NCQ-077, located on the eastern side of Maspeth Creek in Maspeth, Queens; (3) NCB-083, located on the eastern branch of Newtown Creek along Metropolitan Avenue in East Williamsburg, Brooklyn; and (4) NCB-015, located on the southern-most part of Newtown Creek on Johnson Avenue in East Williamsburg, Brooklyn. **Figure 16-1** provides an illustration of the proposed tunnel route, the proposed gravity diversion sewer connecting the BB-026 outfall to the tunnel, and the TDPS site and discharge pipe connecting the TDPS discharge to the Newtown Creek WRRF.

This chapter examines the potential effects of the Proposed Project on the transportation systems surrounding the above TDPS and diversion facilities (collectively "project sites"), including vehicular traffic, transit, pedestrians, street user safety, and parking. Because the operation of the completed Proposed Project would generate minimal visitation to each of these sites, their operation would not yield activity levels (i.e., fewer than 50 vehicle trips, 200 transit trips, and 200 pedestrian trips during a peak hour) that could potentially result in significant adverse transportation-related impacts. Hence, the assessments detailed in this chapter, which were prepared pursuant to *City Environmental Quality Review* (*CEQR) Technical Manual* guidelines, are focused on examining the Proposed Project's anticipated construction-related effects.

PRINCIPAL CONCLUSIONS

While the operation of the completed Proposed Project would generate minimal travel activities and no disruptions to the surrounding transportation network, there would be construction worker and truck activities at each outfall and diversion facility, as well as temporary disruptions to the surrounding roadways and pedestrian facilities, during construction of the Proposed Project. To assess the anticipated affects from these activities, detailed construction period analyses were prepared for vehicular traffic, pedestrians, street user safety, and parking. These analyses concluded that potential significant adverse impacts would be expected for four traffic intersections. Conclusions from the construction-period pedestrian analyses are that there would not be any significant adverse impacts to pedestrian elements (sidewalks, corner reservoirs, and crosswalks). Since a detailed transit analysis was



Proposed Project – Tunnel Alignment and Diversion Facilities

determined to not be warranted, the Proposed Project would also not result in any significant adverse transit impacts. In addition to the traffic and pedestrian impact analyses, street user safety and parking assessments were prepared to identify high crash locations and disclose the potential for project-induced parking shortfalls. Neither of these assessments concluded the potential for additional transportation-related impacts.

B. PROJECT SITES AND CONSTRUCTION ACTIVITIES

Planning and design efforts for the Proposed Project are on-going and will continue beyond this environmental review process. The anticipated construction logistics, site activities, and surrounding effects are summarized below.

The TDPS site, located at the end of Kingsland Avenue, in Greenpoint, Brooklyn, would be the tunnel launch site and the site from which the tunnel for the Proposed Project would be excavated. It would be used for assembling and launching the tunnel boring machine (TBM), removing excavated material from tunnel excavation activities, storage of construction equipment and material, siting of construction office trailers, and potentially parking and facilities for construction workers. In addition to the TDPS, there would be a gravity discharge pipe to convey flow from the TDPS facility to the Newtown Creek WRRF. Construction workers would access the tunnel from this site and deliveries for the tunnel construction (i.e., tunnel liner segments) would be brought here. The removal and export of excavated material from the tunnel would also be made from here. Given its location, there would be only one access/egress path for site construction workers and trucks, via Greenpoint Avenue at its intersection with Kingsland Avenue. A typical day of construction at the TDPS site is expected to encompass a single 10-hour shift from 7 AM to 5 PM on weekdays for pumping, screening, and degritting facility construction activities and a majority of the shaft construction activities. For tunnel construction activities and final lining installation for the shafts, construction efforts may need to be undertaken over three continuous shifts (i.e., 7 AM to 3 PM, 3 PM to 11 PM, and 11 PM to 7 AM).

The BB-026 diversion chamber and outfall structure would be located off-street in a Dutch Kills property on the south side of 47th Avenue between 27th and 29th Streets, in Long Island City, Queens. As with the TDPS site, a typical day of construction at the BB-026 site is expected to encompass a single 10-hour shift from 7 AM to 5 PM on weekdays for a majority of the construction activities. In addition to the diversion chamber and outfall structure, there would be a gravity sewer constructed toward a drop shaft location near the CSO storage tunnel. Construction activities at other locations along this path would also take place mostly between 7 AM and 5 PM on weekdays but some may require continuous construction, split into two daily shifts of 7 AM to 7 PM and 7 PM to 7 AM. These activities may also require cut-and-cover roadway work and would result in surface disruptions along the construction route. The alignment for the gravity diversion sewer has been preliminarily identified to travel eastward from the diversion chamber along the south side of 47th Avenue to 30th Street, southward along the west side of 30th Street to Borden Avenue westbound, westward to 29th Street, across to Borden Avenue eastbound, and continuing southward along Review Avenue to a drop shaft location at Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration). It should be noted that an alternative design, using a microtunnel, is being considered in lieu of cut-and-cover; however,

the cut-and-cover alternative is being analyzed as a conservative worst-case assumption for the purposes of the construction transportation assessments.

The NCQ-077 diversion facility would be located within industrial lots in Maspeth, Queens, south of an Amazon distribution facility between 49th Street and Railroad Place, as well as under the Railroad Place roadbed. As with both the TDPS and BB-026 sites, a typical day of construction at the NCQ-077 site is expected to encompass a single 10-hour shift from 7 AM to 5 PM on weekdays for a majority of the construction activities. For final lining installation at the drop shaft, construction efforts may need to be undertaken over three continuous shifts (i.e., 7 AM to 3 PM, 3 PM to 11 PM, and 11PM to 7 AM). The construction of this diversion facility is expected to require the full closure of Railroad Place at the southeastern portion of the site. During this period, a two-way detour access roadway would be provided along the northern edge of the site, connecting to 49th Street, to accommodate access to the construction site, as well as adjacent businesses, including the Amazon™ distribution facility. It should be noted that since the Railroad Place closure is expected to last longer than 180 days, a Community Reassessment, Impact and Amelioration (CRIA) statement, which is a form of an EAS, is typically required. However, since public review would be undertaken as part of the approval process for this Environmental Impact Statement (EIS), the completion of that process would also satisfy the corresponding CRIA requirements. Additionally, construction at the NCQ-077 facility may also include limited work on the south side of 56th Road/Rust Street at its intersection with 56th Street and 56th Drive where the bending weirs within the existing regulator underneath the roadway in this location may need to be removed. This removal is expected to involve short-term and limited construction activities that would not interfere with normal traffic operations along the surrounding roadways.

The NCB-083 diversion facility would be located within industrial lots in East Williamsburg, Brooklyn, bounded by Newtown Creek, Metropolitan Avenue, Gardner Avenue, and Grand Street. Typical construction days are expected to be similar to the other sites described above, with most activities taking place over a single 10-hour shift (7 AM to 5 PM) on weekdays. For utilities and connections activities under Metropolitan Avenue and final lining installation at the drop shaft, construction efforts may need to be undertaken over three continuous shifts (i.e., 7 AM to 3 PM, 3 PM to 11 PM, and 11PM to 7 AM). The construction of this diversion facility is expected to result in prolonged disruptions to the north side of Metropolitan Avenue at approximately Scott Avenue, including the likely closure of the existing sidewalk, along with the adjacent parking, bike, and travel lanes. Based on preliminary Work Zone Traffic Control (WZTC) plans, two-way traffic, with two travel lanes in each direction, is expected to be maintained. The accommodation of these lanes, however, would likely necessitate a reduction in posted speeds and the shared use with bike traffic, and pedestrian traffic would need to be redirected to the south side of Metropolitan Avenue.

The NCB-015 diversion facility would be located within industrial lots in East Williamsburg, Brooklyn, bounded by Newtown Creek, the Bushwick line freight tracks operated by the Long Island Rail Road (LIRR), Morgan Avenue, and Johnson Avenue. Typical construction days are expected to be similar to the other sites described above, with most activities taking place over a single 10-hour shift (7 AM to 5 PM) on weekdays. For final lining installation at the drop shaft, construction efforts may need to be undertaken over three continuous shifts (i.e., 7 AM to 3 PM, 3 PM to 11 PM, and 11PM to 7 AM). The construction of this diversion facility is expected to be contained within the industrial lots, with

access/egress facilitated via existing driveways along Morgan Avenue and Johnson Avenue. Accordingly, there would not be any disruptions to the site's adjacent sidewalks and roadways.

For each of the above sites, weekend construction may take place to make up for weather delays and/or meet the project schedule. These occasions, however, would likely be intermittent and require fewer workers and truck deliveries than those on weekdays. Additionally, background traffic conditions in the industrial areas where the project sites are situated are typically more favorable on weekends than on weekdays, such that representative worst-case conditions have been depicted via the study of potential impacts for critical weekday peak periods.

C. SCREENING ASSESSMENTS AND STUDY SCOPE

The construction of the Proposed Project would generate travel to/from each of the project sites by construction workers and delivery vehicles (i.e., trucks) during different times of the day and days of the week. In addition, most of these sites would require construction within City rights-of-way (ROWs) and result in temporary disruptions to adjacent roadways and pedestrian elements, including sidewalks, corners, and crosswalks. The assessment of potential transportation-related impacts from the Proposed Project's construction activities takes into account both the anticipated construction trip generation and ROW disruptions to determine study needs.

CEQR SCREENING ASSESSMENTS

The *CEQR Technical Manual* identifies procedures for evaluating a proposed project's potential impacts on traffic, transit, ferry, pedestrian, and parking conditions, beginning with a preliminary screening assessment. This assessment compares the project-generated person and vehicle trips to the *CEQR Technical Manual*-specified thresholds (Level 1 screening analysis) to determine whether a Level 2 trip assignment screening analysis is warranted. If the proposed project would result in 50 or more peak hour vehicle trips, 200 or more peak hour transit trips (subway/rail or bus riders), 50 or more peak hour Citywide Ferry Service (CWFS) ferry trips, and/or 200 or more peak hour pedestrian trips, a Level 2 screening analysis is undertaken. For the Level 2 screening analysis, project-generated trips would be assigned to specific intersections, transit routes, ferry routes, and pedestrian elements. If the results of this analysis show that the proposed project would generate 50 or more peak hour vehicle trips through an intersection, 50 or more peak hour bus riders on a bus route in a single direction, 200 or more peak hour subway passengers at any given station or on a subway line by direction, 25 or more peak hour passenger ferry trips in a single direction on a single route, 50 or more peak hour passengers at a ferry landing, or 200 or more peak hour pedestrian trips per pedestrian element, further quantified analyses may be warranted to evaluate the potential for significant adverse traffic, transit, ferry, and pedestrian impacts. Correspondingly, assessments of street user safety and parking supply and demand would also be undertaken.

LEVEL 1 SCREENING ANALYSIS – CONSTRUCTION TRAVEL DEMAND PROJECTIONS

Construction of the Proposed Project is anticipated to last for approximately 12 years. The corresponding numbers of average daily construction workers and truck deliveries have been estimated by quarter (Q) for the 12-year (2028 to 2039) construction period. Worker hours are expected to vary

among sites and are dependent on construction activity requirements, with three general weekday shift schedules—one 10-hour shift from 7 AM to 5 PM; two 12-hour shifts from 7 AM to 7 PM and 7 PM to 7 AM; and three 8-hour shifts from 7 AM to 3 PM, 3 PM to 11 PM, and 11 PM to 7 AM. The temporal patterns on worker travel correspond with 80 percent arriving during the hour prior to start of work, 20 percent arriving during the first hour of work, 20 percent departing during the last hour of work, and 80 percent departing during the hour after end of work. The worker/truck projections and expected travel temporal distributions are summarized in **Appendix F** (see **Appendix Tables F-1 through F-3**). Assumptions on mode of travel are based on Reverse Journey to Work (RJTW) data from the latest available U.S. Census data (2000 Census data) on the construction and excavation occupations for tracts including and surrounding the above sites, as shown in **Table 16-1**.

Table 16-1
Construction Worker Mode Splits & Auto Occupancies

Site	Travel Mode (%)							Auto Occupancy
	Auto	Taxi	Subway	Rail/Ferry	Bus	Walk	Total	
TDPS	62.5	0.0	24.9	0.0	2.4	10.2	100	1.23
BB-026	56.4	1.2	30.3	4.6	6.0	1.5	100	1.19
NCQ-077	75.5	0.7	15.5	1.6	4.1	2.6	100	1.15
NCB-083/015	58.1	1.2	24.4	1.9	7.2	7.2	100	1.18

Sources: 2000 Census RJTW Data on Construction and Excavation Occupations

For truck activities, weekday travel for all three potential worker shift schedules is expected to occur between 6 AM and 5 PM. The highest level of arrivals (25 percent) is assumed for the 6 AM to 7 AM hour. This same amount would be expected to depart the following hour between 7 AM and 8 AM. Lower arrival/departure levels (i.e., five or 10 percent) are assumed for hours that follow, with trucks arriving in a specific hour expected to be processed and departing in the hour after. For traffic screening purposes, each truck is also assumed to be equivalent to two cars or having a passenger-car equivalent (PCE) of two.

Applying the above to the detailed construction staffing/truck estimates, person trips, worker auto trips, truck trips, and total (auto and truck) PCEs by hour, arrival/departure, and quarter were calculated for the duration of the Proposed Project's construction. The results from the peak quarter for each site are presented in **Tables 16-2 through 16-5**. Since construction worker and truck trips for the same site may peak during different times (or quarters), the peak quarters for which estimates are summarized could differ among **Tables 16-2 and 16-3** (construction worker person- and vehicle-trips), **Table 16-4** (construction truck trips), and **Table 16-5** (combined construction PCEs). In addition to worker auto and truck trips, the census data for the tracts encompassing the BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites show a small percentage of travel via taxis (representative of all for-hire vehicles). These vehicles would make drop-offs for worker arrival and would leave during the same hour and similarly would conduct pick-ups for worker departure and would leave during the same hour. They would amount to no more than one vehicle-trip in and one vehicle-trip out during any hour for any site. As shown in **Table 16-2**, none of the sites would generate 200 or more peak hour person trips.

Table 16-2
Peak Hourly Construction Worker Person Trips by Site

Hour	TDPS (2034 Q1)			BB-026 (2030 Q3)			NCQ-077 (2034 Q2)			NCB-083 (2033 Q3)			NCB-015 (2034 Q4)		
Beginning	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6:00 AM	145	19	164	79	0	79	64	0	64	57	0	57	69	0	69
7:00 AM	36	78	114	19	0	19	16	0	16	14	0	14	17	0	17
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	78	19	97	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	19	78	97	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	17	17	0	19	19	0	16	16	0	14	14	0	17	17
5:00 PM	0	67	67	0	79	79	0	64	64	0	57	57	0	69	69
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	78	19	97	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	19	78	97	0	0	0	0	0	0	0	0	0	0	0	0
Total	**375**	**375**	**750**	**98**	**98**	**196**	**80**	**80**	**160**	**71**	**71**	**142**	**86**	**86**	**172**

Table 16-3
Peak Hourly Construction Worker Auto Trips by Site

Hour	TDPS (2034 Q1)			BB-026 (2030 Q3)			NCQ-077 (2034 Q2)			NCB-083 (2033 Q3)			NCB-015 (2034 Q4)		
Beginning	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6:00 AM	74	10	84	36	0	36	42	0	42	28	0	28	34	0	34
7:00 AM	18	40	58	9	0	9	11	0	11	7	0	7	8	0	8
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	40	10	50	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	10	40	50	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	1	9	10	0	9	9	0	11	11	0	7	7	0	8	8
5:00 PM	0	34	34	0	36	36	0	42	42	0	28	28	0	34	34
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	40	10	50	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	10	40	50	0	0	0	0	0	0	0	0	0	0	0	0
Total	**193**	**193**	**386**	**45**	**45**	**90**	**53**	**53**	**106**	**35**	**35**	**70**	**42**	**42**	**84**

Table 16-4
Peak Hourly Construction Truck Trips by Site

Hour	TDPS (2032 Q2/Q3)			BB-026 (2030 Q3)			NCQ-077 (2034 Q4)			NCB-083 (2033 Q2)			NCB-015 (2033 Q1)		
Beginning	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6:00 AM	36	0	36	13	0	13	20	0	20	14	0	14	11	0	11
7:00 AM	14	36	50	6	13	19	8	20	28	5	14	19	4	11	15
8:00 AM	14	14	28	6	6	12	8	8	16	5	5	10	4	4	8
9:00 AM	14	14	28	6	6	12	8	8	16	5	5	10	4	4	8
10:00 AM	14	14	28	6	6	12	8	8	16	5	5	10	4	4	8
11:00 AM	14	14	28	6	6	12	8	8	16	5	5	10	4	4	8
12:00 PM	14	14	28	6	6	12	8	8	16	5	5	10	4	4	8
1:00 PM	7	14	21	2	6	8	4	8	12	3	5	8	2	4	6
2:00 PM	7	7	14	2	2	4	4	4	8	3	3	6	2	2	4
3:00 PM	7	7	14	2	2	4	4	4	8	3	3	6	2	2	4
4:00 PM	0	7	7	0	2	2	0	4	4	0	3	3	0	2	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**141**	**141**	**282**	**55**	**55**	**110**	**80**	**80**	**160**	**53**	**53**	**106**	**41**	**41**	**82**

Table 16-5
Peak Hourly Construction Worker & Truck PCEs by Site

Hour	TDPS						BB-026			NCQ-077			NCB-083			NCB-015		
	2032 Q3			2034 Q1			2030 Q3			2034 Q4			2033 Q2			2032 Q4		
Beginning	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
6:00 AM	105	5	110	114	10	124	62	0	62	52	0	52	49	0	49	35	0	35
7:00 AM	36	93	129	34	80	114	21	26	47	19	40	59	15	28	43	12	20	32
8:00 AM	28	28	56	16	16	32	12	12	24	16	16	32	10	10	20	8	8	16
9:00 AM	28	28	56	16	16	32	12	12	24	16	16	32	10	10	20	8	8	16
10:00 AM	28	28	56	16	16	32	12	12	24	16	16	32	10	10	20	8	8	16
11:00 AM	28	28	56	16	16	32	12	12	24	16	16	32	10	10	20	8	8	16
12:00 PM	28	28	56	16	16	32	12	12	24	16	16	32	10	10	20	8	8	16
1:00 PM	14	28	42	8	16	24	4	12	16	8	16	24	6	10	16	4	8	12
2:00 PM	35	19	54	48	18	66	4	4	8	8	8	16	6	6	12	4	4	8
3:00 PM	19	35	54	18	48	66	4	4	8	8	8	16	6	6	12	4	4	8
4:00 PM	0	17	17	1	17	18	0	13	13	0	11	11	0	11	11	0	8	8
5:00 PM	0	11	11	0	34	34	0	36	36	0	12	12	0	21	21	0	15	15
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	21	6	27	40	10	50	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	5	21	26	10	40	50	0	0	0	0	0	0	0	0	0	0	0	0
Total	375	375	750	353	353	706	**155**	**155**	**310**	**175**	**175**	**350**	**132**	**132**	**264**	**99**	**99**	**198**

Taking into account the mode splits presented in **Table 16-1**, none of the sites would generate 200 or more peak hour subway trips, 50 or more peak hour bus trips, or 25 or more peak hour passenger ferry trips. Since trips associated with these modes of transportation are made more locally and in proximity of the respective sites, there would be little to no overlap of trips generated by different sites at the same subway station, bus route, ferry landing, and pedestrian elements. Accordingly, no further analyses of transit and pedestrian operations is warranted to address potential effects from construction workers traveling to/from each of the proposed project sites.

With regard to auto and truck trips, **Table 16-5** shows exceedances of the 50 peak-hour-PCE threshold at three of the five sites (TDPS site, BB-026 diversion facility site, and NCQ-77 diversion facility site). For the two sites that would not incur 50 peak hour PCEs individually during any hour (NCB-083 and NCB-015 diversion facility sites), because of their proximity to each other and shared access routes, their combined peak hour PCEs were considered together. Given these Level 1 results, Level 2 trip assignments would be prepared for several conditions to identify detailed analysis needs. These conditions are outlined below.

- Overall peaking occurs in 2034 Q1, with 233 PCEs during 6-7 AM, 168 PCEs during 7-8 AM, 74 PCEs during both 2-3 and 3-4 PM, and 121 PCEs during 5-6 PM.
- TDPS Site – Peaking occurs in 2032 Q3, with 110 PCEs during 6-7 AM, 129 PCEs during 7-8 AM, and 54 PCEs during both 2-3 and 3-4 PM. Peaking also occurs in 2034 Q1, with 124 PCEs during 6-7 AM, 114 PCEs during 7-8 AM, and 66 PCEs during both 2-3 and 3-4 PM.
    - A Level 2 screening analysis is required for all four peak hours, also incorporating construction activities associated with the BB-026, NCB-083, and NCB-015 diversion facility sites at overlapping roadways and intersections. Accounting for overlapping activities associated with these sites, the TDPS's 2034 Q1 activities were used for worst-case travel demand estimates.
    - Note that activities at the NCQ-77 diversion facility site are isolated and would not overlap with activities at the TDPS.
- BB-026 Diversion Facility Site – Peaking occurs in 2030 Q3, with 62 PCEs during 6-7 AM.
    - Because work is dispersed over a large area (five of the six BB-026 locations under construction at this time), it can be concluded that without the preparation of a Level 2 screening analysis, that no single location would incur PCEs exceeding analysis thresholds.
    - Relevant BB-026 construction activities in 2034 Q1 would be overlaid onto the TDPS Level 2 screening traffic networks.
- NCQ-077 Diversion Facility Site – Peaking occurs in 2034 Q4, with 52 PCEs during 6-7 AM and 59 PCEs during 7-8 AM. Locations affected by NCQ-077 construction activities are isolated from those associated with the other sites.
    - A Level 2 screening analysis is required for the 52 PCEs during 6-7 AM and 59 PCEs during 7-8 AM.
- NCB-083 and NCB-015 Diversion Facility Sites – Peaking for the NCB-083 diversion facility sites occurs in 2033 Q2, with no hourly PCEs exceeding 50. Peaking for the NCB-015 diversion facility site occurs in 2032 Q4, with no hourly PCEs exceeding 50. Because these two sites are located within proximity of each other, with similar access to area roadways, their activities are also considered together to determine analysis needs. Combined peaking for the NCB-083 and NCB-015 diversion facility sites occurs in 2033 Q1, with 70 PCEs during 6-7 AM.
    - A Level 2 screening analysis is required for the combined peak from the NCB-083 and NCB-015 diversion facility sites in 2033 Q1, with 70 PCEs during the 6-7 AM peak hour.

- Because construction activities at TDPS would take place in 2034 Q1, relevant NCB-083 and NCB-015 construction activities in 2034 Q1 would be overlaid onto the TDPS Level 2 traffic networks.

As noted above, nominal taxi travel is also expected at four of the five sites (only exception is the TDPS site). While not specifically summarized above, one vehicle-trip in and one vehicle-trip out would be added to the corresponding peak hour trip assignments described below.

LEVEL 2 SCREENING ANALYSIS – CONSTRUCTION TRIP ASSIGNMENTS

As summarized above, the following Level 2 trip assignments were prepared. The corresponding construction worker vehicle and truck trips assigned are summarized in **Table 16-6**.

Table 16-6
Construction Worker Vehicle and Truck Trips Assigned

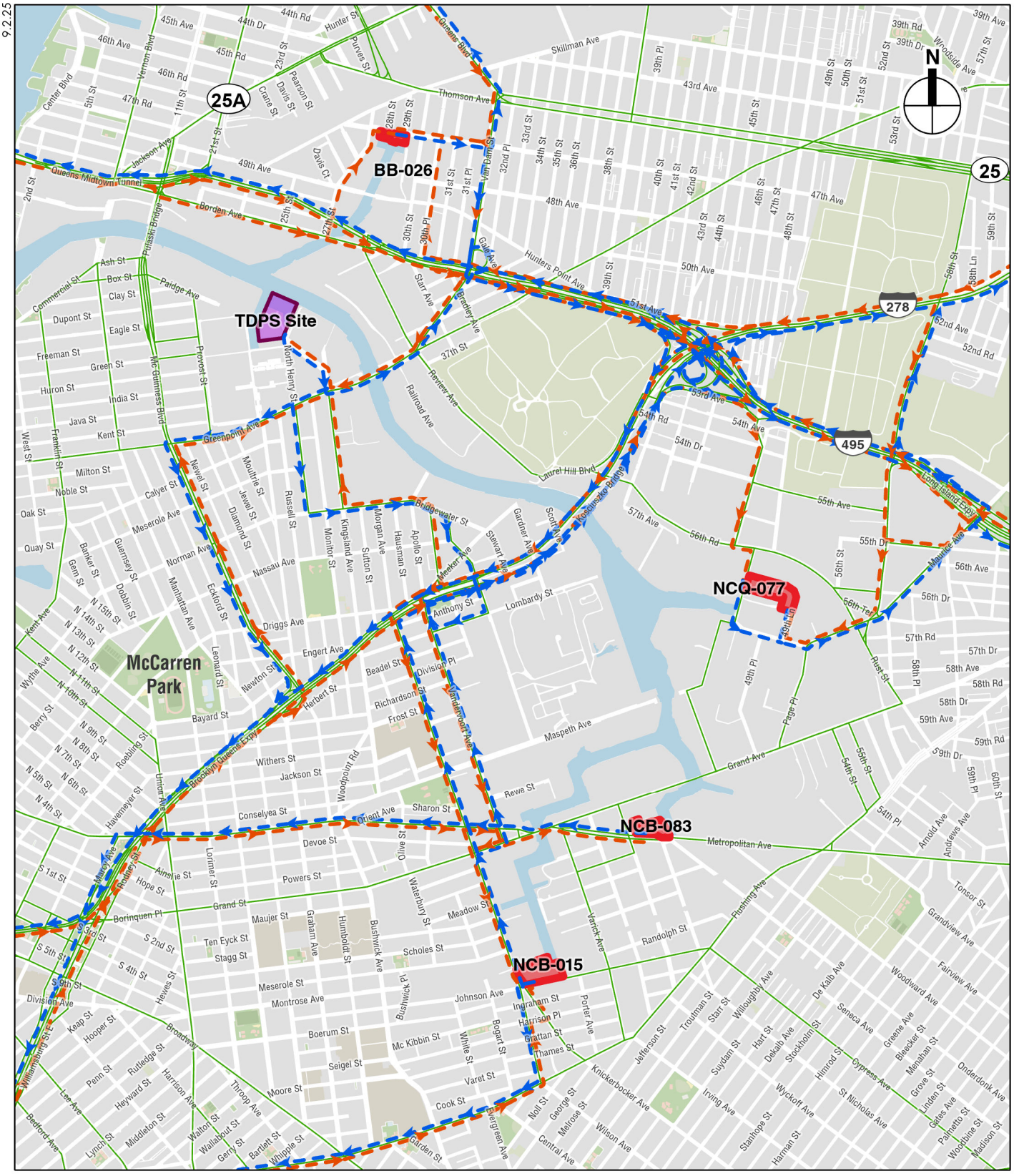
Site	Quarter	Hour	Autos		Taxis		Trucks	
			In	Out	In	Out	In	Out
TDPS	2034 Q1	6-7 AM	74	10	0	0	20	0
		7-8 AM	18	40	0	0	8	20
		2-3 PM	40	10	0	0	4	4
		3-4 PM	10	40	0	0	4	4
NCQ-77	2034 Q4	6-7 AM	12	0	1	1	20	0
		7-8 AM	3	0	1	1	8	20
NCB-083	2033 Q1	6-7 AM	15	0	1	1	12	0
NCB-15	2033 Q1	6-7 AM	9	0	1	1	11	0

Notes: For the TDPS site, corresponding trips for 2034 Q1 from BB-026, NCB-083, and NCB-015 were also assigned and overlaid onto the TDPS Level 2 trip assignment network. Per above, Level 2 trip assignments were determined to be unwarranted for the projected BB-026 construction activities.

- TDPS Site – 2034 Q1 construction worker vehicle and truck trips for the 6-7 AM, 7-8 AM, 2-3 PM, and 3-4 PM peak hours; corresponding trips associated with BB-026, NCB-083, and NCB-015 overlaid.
- NCQ-077 Diversion Facility Site – 2034 Q4 construction worker vehicle and truck trips for the 6-7 AM and 7-8 AM peak hours.
- NCB-083 and NCB-015 Diversion Facility Sites – 2033 Q1 construction worker vehicle and truck trips for the 6-7 AM peak hour.

Construction worker vehicle-trip travel patterns (i.e., routings on the roadway network) were developed based on census data origin location distributions for work-related trips made to the tracts surrounding each of the sites. These distributions are summarized in **Table 16-7**. Construction truck trips were assumed to be made primarily via area highways and along New York City Department of Transportation (DOT)-designated truck routes, as depicted in **Figure 16-2**.

9.2.25


N
25A
25
278
495
BB-026
TDPS Site
NCQ-077
NCB-083
NCB-015
McCarren Park
Queens Midtown Tunnel
Brooklyn Queens Expy
Long Island Expy
Pulaski Bridge
Kosciuszko Bridge
Queens Blvd
Borden Ave
Greenpoint Ave
Review Ave
Railroad Ave
Laurel Hill Blvd
Hunters Point Ave
Thomson Ave
Skillman Ave
Jackson Ave
Metropolitan Ave
Grand Ave
Maspeth Ave
Lombardy St
Bridgewater St
Meeker Ave
Anthony St
Driggs Ave
Engert Ave
Beadel St
Division Pl
Richardson St
Frost St
Jackson St
Withers St
Conselyea St
Orient Ave
Sharon St
Devoe St
Powers St
Grand St
Meadow St
Scholes St
Johnson Ave
Montrose Ave
Meserole St
Boerum St
Seigel St
Varet St
Cook St
Evergreen Ave
Moore St
Broadway
Division Ave
Hope St
Ainslie St
Rodney St
Marcy Ave
Lorimer St
Graham Ave
Humboldt St
Bushwick Ave
Waterbury St
Woodpoint Rd
Union Ave
Leonard St
Newton St
Herbert St
Bayard St
Nassau Ave
Norman Ave
Meserole Ave
Greenpoint Ave
Paidge Ave
Box St
Ash St
Clay St
Eagle St
Green St
India St
Java St
Kent St
Milton St
Noble St
Calyer St
Newel St
Moultrie St
Jewel St
Diamond St
Russell St
Kingsland Ave
Monitor St
Morgan Ave
Sutton St
Hausman St
Apollo St
Stewart Ave
Gardner Ave
Scott Ave
Van Dam St
Gale Ave
Starr Ave
Bradley Ave
North Henry St
Provost St
McGuinness Blvd
Commercial St
Franklin St
West St
Oak St
Quay St
Banker St
Gem St
Guernsey St
Dobbin St
Manhattan Ave
Eckford St
Kent Ave
Wythe Ave
Berry St
Roebling St
Havemeyer St
Union Ave
Broadway
Hooper St
Keap St
Penn St
Rutledge St
Heyward St
Harrison Ave
Middleton St
Lynch St
Bedford Ave
Lee Ave
Throop Ave
Walton St
Wallabout St
Gerry St
Bartlett St
Whipple St
Garden St
Central Ave
Wilson Ave
Melrose St
George St
Noll St
Knickerbocker Ave
Irving Ave
Wyckoff Ave
Stanhope St
Harman St
St Nicholas Ave
Himrod St
Cypress Ave
Onderdonk Ave
Madison St
Woodbine St
Palmetto St
Gates Ave
Linden St
Grove St
Menahan St
Bleecker St
Greene Ave
Seneca Ave
Stockholm St
Dekalb Ave
Hart St
Willoughby Ave
Starr St
Troutman St
Jefferson St
Porter Ave
Varick Ave
Flushing Ave
Randolph St
Ingraham St
Harrison Pl
Grattan St
Thames St
Bogart St
White St
Mc Kibbin St
Bushwick Pl
Humboldt St
Graham Ave
Maujer St
Ten Eyck St
Stagg St
Borinquen Pl
S 1st St
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S 3rd St
S 4th St
S 5th St
S 6th St
Division Ave
Hewes St
Lorimer St
Rodney St
Marcy Ave
Havemeyer St
Union Ave
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N 15th St
Woodpoint Rd
Orient Ave
Sharon St
Devoe St
Olivo St
Waterbury St
Meadow St
Varick Ave
Porter Ave
Flushing Ave
Randolph St
Metropolitan Ave
Rewe St
Conselyea St
Withers St
Jackson St
Bayard St
Herbert St
Newton St
Leonard St
Engert Ave
Beadel St
Division Pl
Richardson St
Frost St
Anthony St
Lombardy St
Meeker Ave
Bridgewater St
Nassau Ave
Norman Ave
Meserole Ave
Driggs Ave
Maspeth Ave
Grand Ave
Metropolitan Ave
Arnold Ave
Andrews Ave
Tonsor St
Grandview Ave
Fairview Ave
Woodward

Table 16-7
Construction Worker Vehicle Origins

Origin Locations	Percent			
	TDPS	BB-026	NCQ-077	NCB-083/015
Manhattan	4.8	3.5	0.7	1.7
The Bronx	3.0	5.9	5.0	2.8
Queens	26.1	46.9	50.3	30.8
Brooklyn	21.8	16.1	14.8	33.7
Staten Island	5.1	2.1	2.0	3.7
Long Island	26.5	14.7	19.3	17.3
Upstate New York	6.5	3.6	3.7	2.8
Connecticut	0.4	0.9	0.3	0.2
New Jersey	2.4	5.6	3.9	5.4
Pennsylvania	3.4	0.7	0.0	1.6
Total	100	100	100	100

Sources: U.S. Census Bureau, American Community Survey 2012-2016, 5-Year Estimates

Applying the above travel patterns and assigning the projected construction worker vehicle and truck trips onto the roadway network, the 2034 Q1 PCEs associated with TDPS construction activities (including overlays from trips made to/from BB-026, NCB-083, and NCB-015, but not NCQ-077) for the 6-7 AM, 7-8 AM, 2-3 PM, and 3-4 PM peak hours are illustrated in **Figures 16-3a through 16-6b**. Correspondingly, the 2034 Q4 PCEs associated with NCQ-077 construction activities for the 6-7 AM and 7-8 AM peak hours are illustrated in **Figures 16-7 and 16-8**, while the 2033 Q1 PCEs associated with the NCB-083 and NCB-015 combined construction activities for the 6-7 AM peak hour is illustrated in **Figures 16-9a and 16-9b**. A summary of the above assigned volumes by intersection and whether such would exceed the CEQR traffic analysis threshold (i.e., 50 or more PCEs) is provided in **Table 16-8**.

Table 16-8
Level 2 Trip Assignment Results in PCEs

Intersection		TDPS (2034 Q1)				NCQ-077 (2034 Q4)		NCB-083 & NCB-015 (2033 Q1)
East-West Roadway	North-South Roadway	6-7 AM	7-8 AM	2-3 PM	3-4 PM	6-7 AM	7-8 AM	6-7 AM
Greenpoint Ave	McGuiness Blvd	23	24	11	12			
Greenpoint Ave	N Henry St	23	30	13	14			
Greenpoint Ave	Monitor St	27	44	17	28			
Greenpoint Ave	Kingsland Ave	**124**	**114**	**66**	**66**			
Greenpoint Ave	Review Ave	**65**	**62**	32	32			
Greenpoint Ave	Borden Ave EB	3	35	5	15			
Van Dam St	Borden Ave EB	**62**	35	27	17			
Van Dam St	Borden Ave WB	**68**	38	23	16			
Norman Ave	McGuiness Blvd	21	23	11	11			
Norman Ave	N Henry St	0	6	2	2			
Norman Ave	Monitor St	4	20	6	16			
Norman Ave	Kingsland Ave	32	14	19	8			
Norman Ave	Morgan Ave	6	8	4	4			
Norman Ave	Apollo St	6	8	4	4			
Norman Ave	Van Dam St	6	8	4	4			
Norman Ave	Varick Ave	0	6	2	2			
Nassau Ave	McGuiness Blvd	21	23	11	11			
Nassau Ave	N Henry St	0	0	0	0			

Table 16-8
Level 2 Trip Assignment Results in PCEs

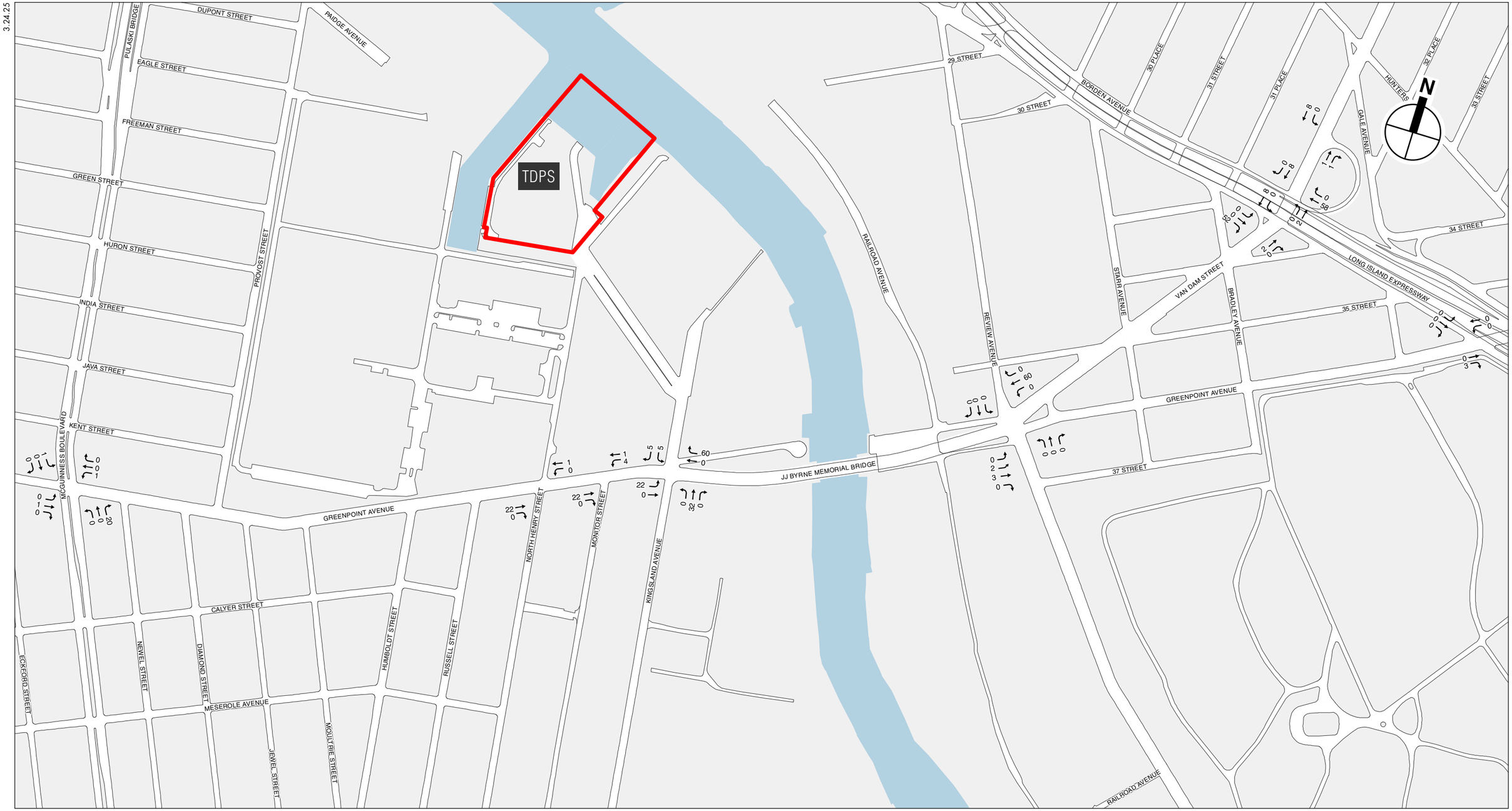
Intersection		TDPS (2034 Q1)				NCQ-077 (2034 Q4)		NCB-083 & NCB-015 (2033 Q1)
East-West Roadway	North-South Roadway	6-7 AM	7-8 AM	2-3 PM	3-4 PM	6-7 AM	7-8 AM	6-7 AM
Nassau Ave	Monitor St	4	14	4	14			
Nassau Ave	Kingsland Ave	26	6	15	4			
Nassau Ave	Morgan Ave	0	0	0	0			
Nassau Ave	Apollo St	0	0	0	0			
Nassau Ave	Van Dam St	6	2	2	2			
Nassau Ave	Varick Ave	0	6	2	2			
Meeker Ave WB	McGuiness Blvd	21	12	9	8			
Meeker Ave WB	N Henry St	4	14	4	14			
Meeker Ave WB	Monitor St	4	14	4	14			
Meeker Ave WB	Kingsland Ave	26	6	15	4			
Meeker Ave WB	Morgan Ave	22	5	9	2			13
Meeker Ave WB	Apollo St	38	9	11	4			43
Meeker Ave WB	Van Dam St	44	11	13	6			
Meeker Ave EB	McGuiness Blvd	1	1	1	0			
Meeker Ave EB	N Henry St	11	12	7	11			
Meeker Ave EB	Monitor St	10	11	6	10			
Meeker Ave EB	Kingsland Ave	11	11	8	11			
Meeker Ave EB	Morgan Ave	7	12	2	9			13
Meeker Ave EB	Vandervoort Ave	18	27	8	15			30
Meeker Ave EB	Varick Ave	0	6	2	2			
Lombardy St	Morgan Ave	5	3	0	0			13
Lombardy St	Vandervoort Ave	16	16	6	6			30
Lombardy St	Varick Ave	0	6	2	2			
Metropolitan Ave	Morgan Ave							35
Metropolitan Ave	Vandervoort Ave							42
Metropolitan Ave	Gardner Ave							38
Grand St	Morgan Ave							28
Grand St	Vandervoort Ave							42
Grand St	Gardner Ave							1
Johnson Ave	Morgan Ave							1
Johnson Ave	Knickerbocker Ave							11
Flushing Ave	Morgan/Wilson Ave							3
Flushing Ave	Knickerbocker Ave							3
Queens-Midtown Exp	58th St					22	12	
Queens-Midtown Exp	Maurice Ave					23	32	
Borden Ave EB	58th St					22	8	
Borden Ave EB	Maurice Ave					19	47	
55th Dr	58th St					41	15	
55th Dr	Maurice Ave					19	47	
56th Rd	48th St					11	4	
56th Rd	49th St					12	5	
Rust St	Maspeth Ave					43	**57**	
57th Ave	49th St					23	19	
Maspeth Ave	49th St					11	15	
Maspeth Ave	Railroad Pl					42	**56**	
Maspeth Ave	Page Pl					42	**56**	

Notes: Bolded **#s** reflect PCEs >= 50 (CEQR analysis threshold).

SCREENING ASSESSMENT FINDINGS

For the TDPS site, the Level 2 trip assignment results associated with 2034 Q1 construction activities show that the CEQR traffic analysis threshold of 50 PCEs at an intersection would be exceeded at four

3.24.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 6-7 AM Peak Hour

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 16-3a

3.24.25

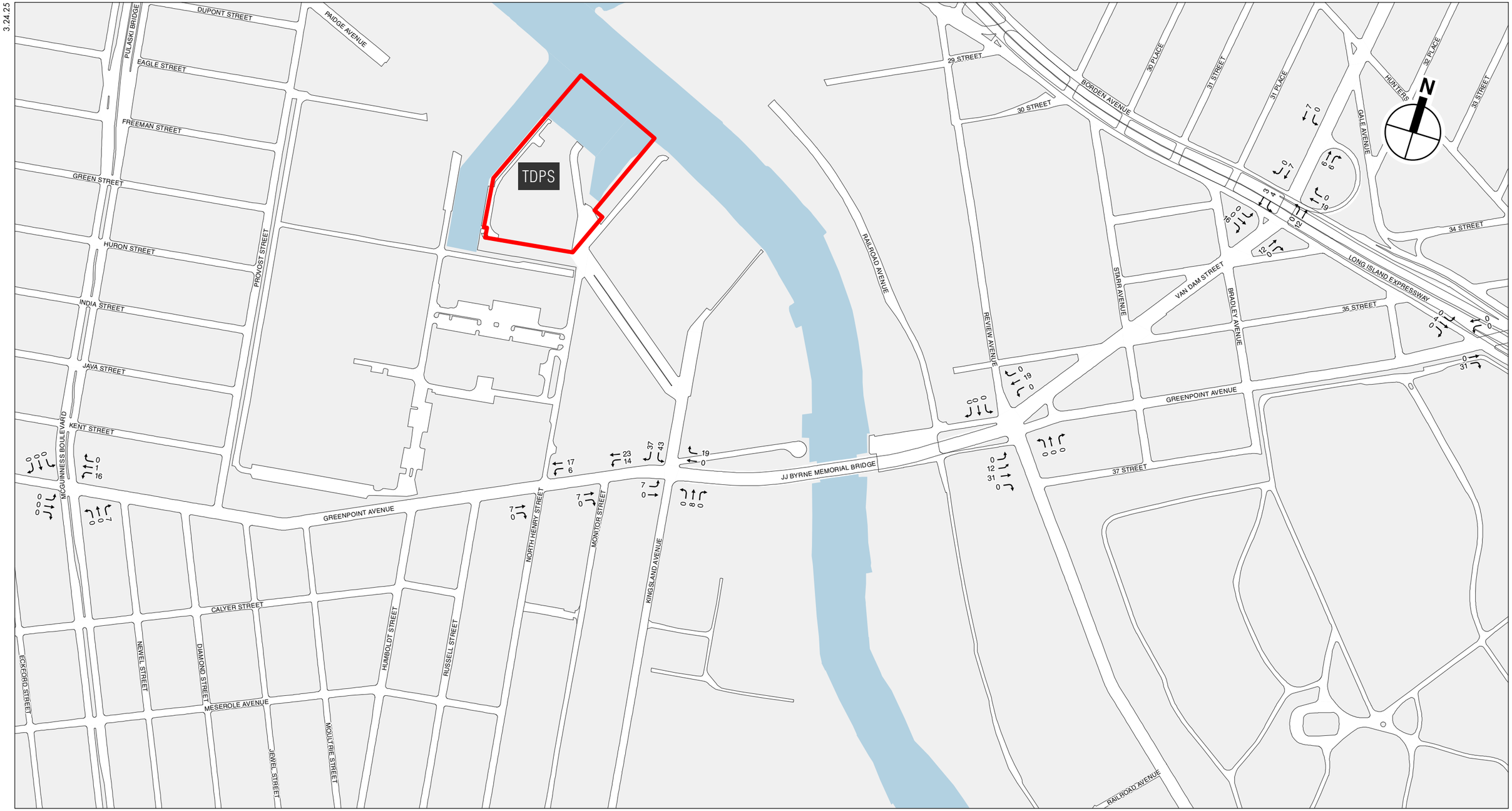


TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 6-7 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-3b

3.24.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-4a

3.24.25

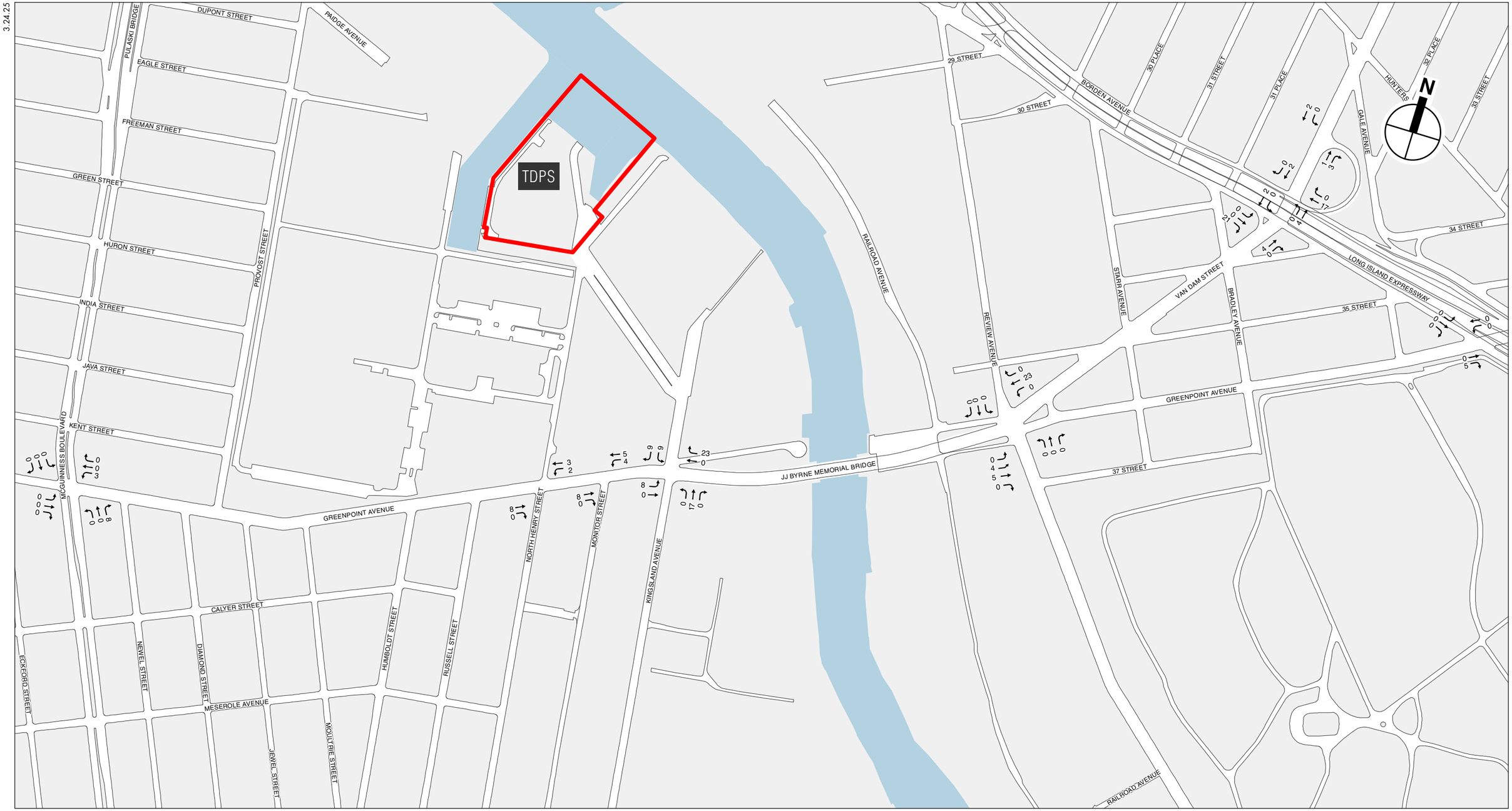


TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-4b

3.24.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 2-3 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-5a

3.24.25

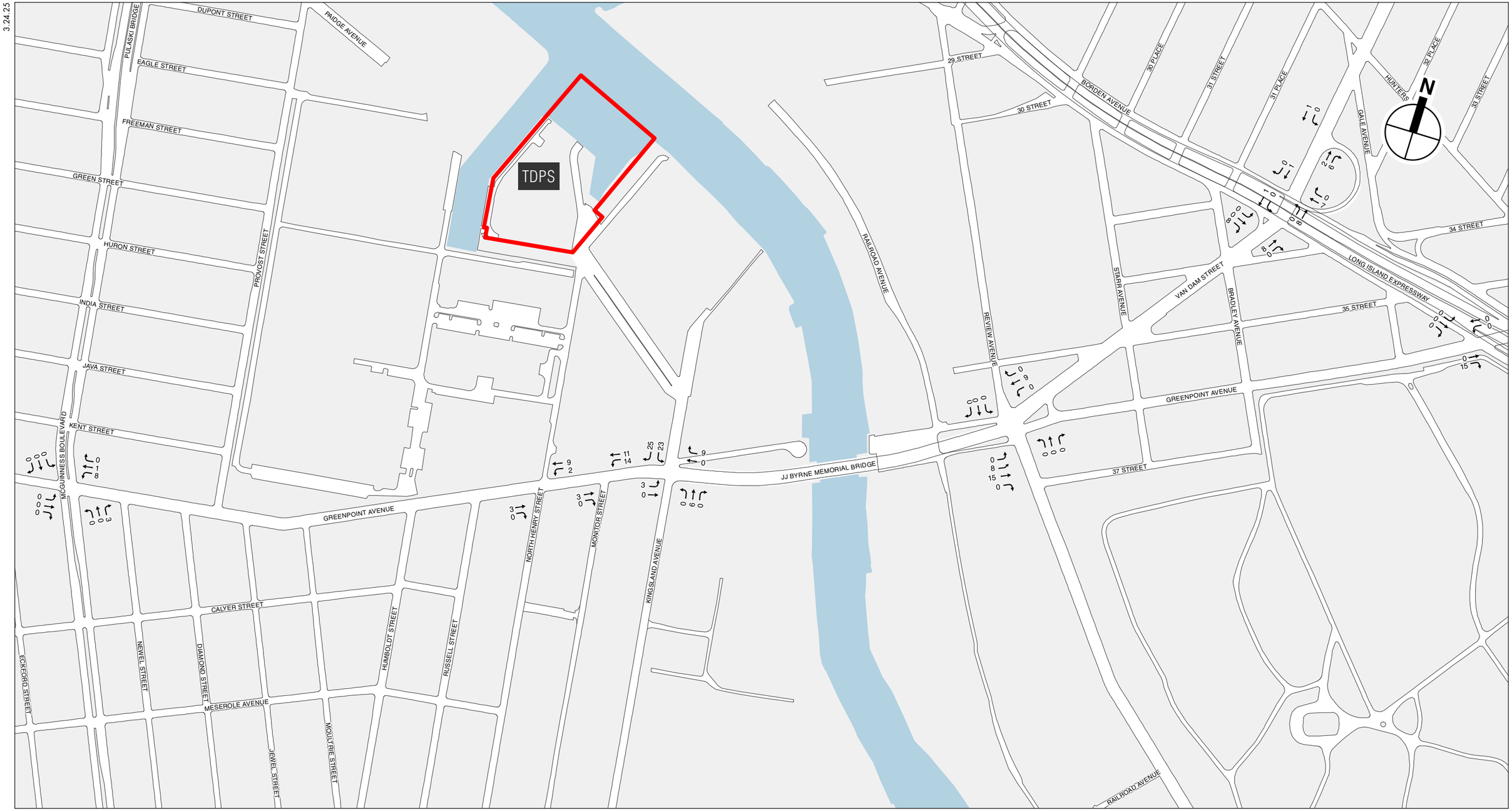


TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 2-3 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-5b

3.24.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 3-4 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-6a

3.24.25

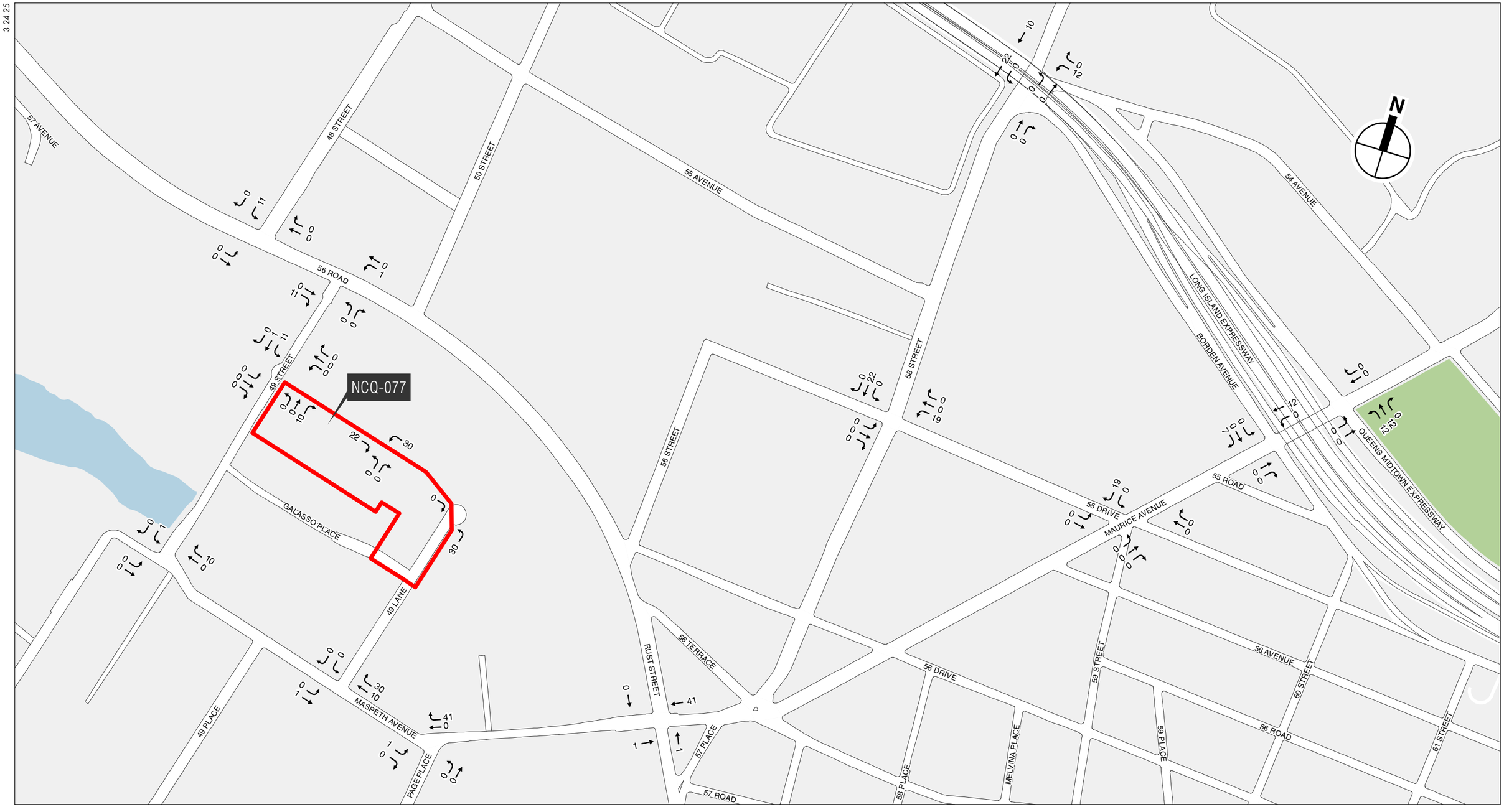


TDPS Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 1: 3-4 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-6b

3.24.25



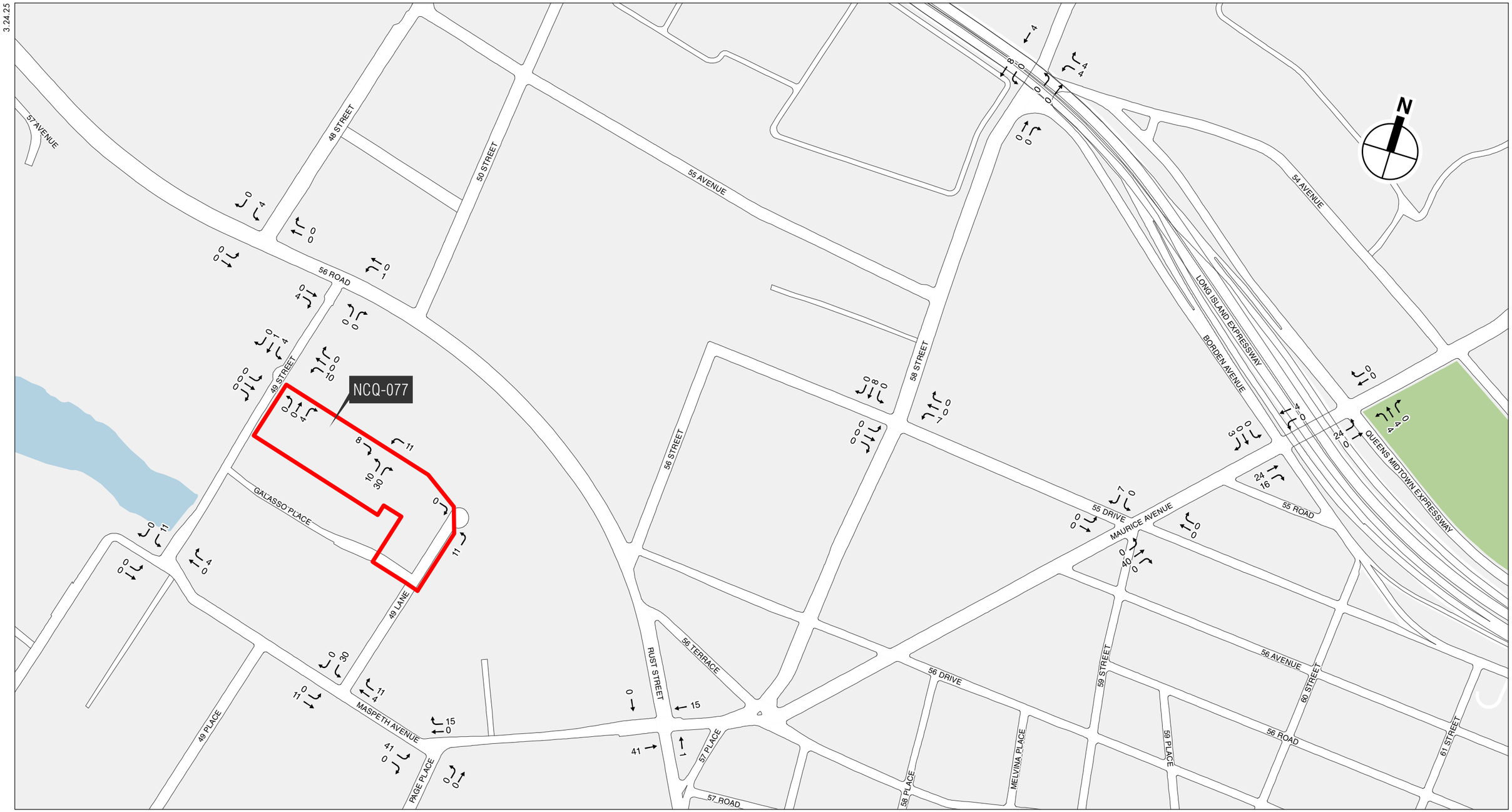
Diversion Facility NCQ-077

0 1,000 FEET

NCQ-077 Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 4: 6-7 AM Peak Hour

Figure 16-7

3.24.25



Diversion Facility NCQ-077

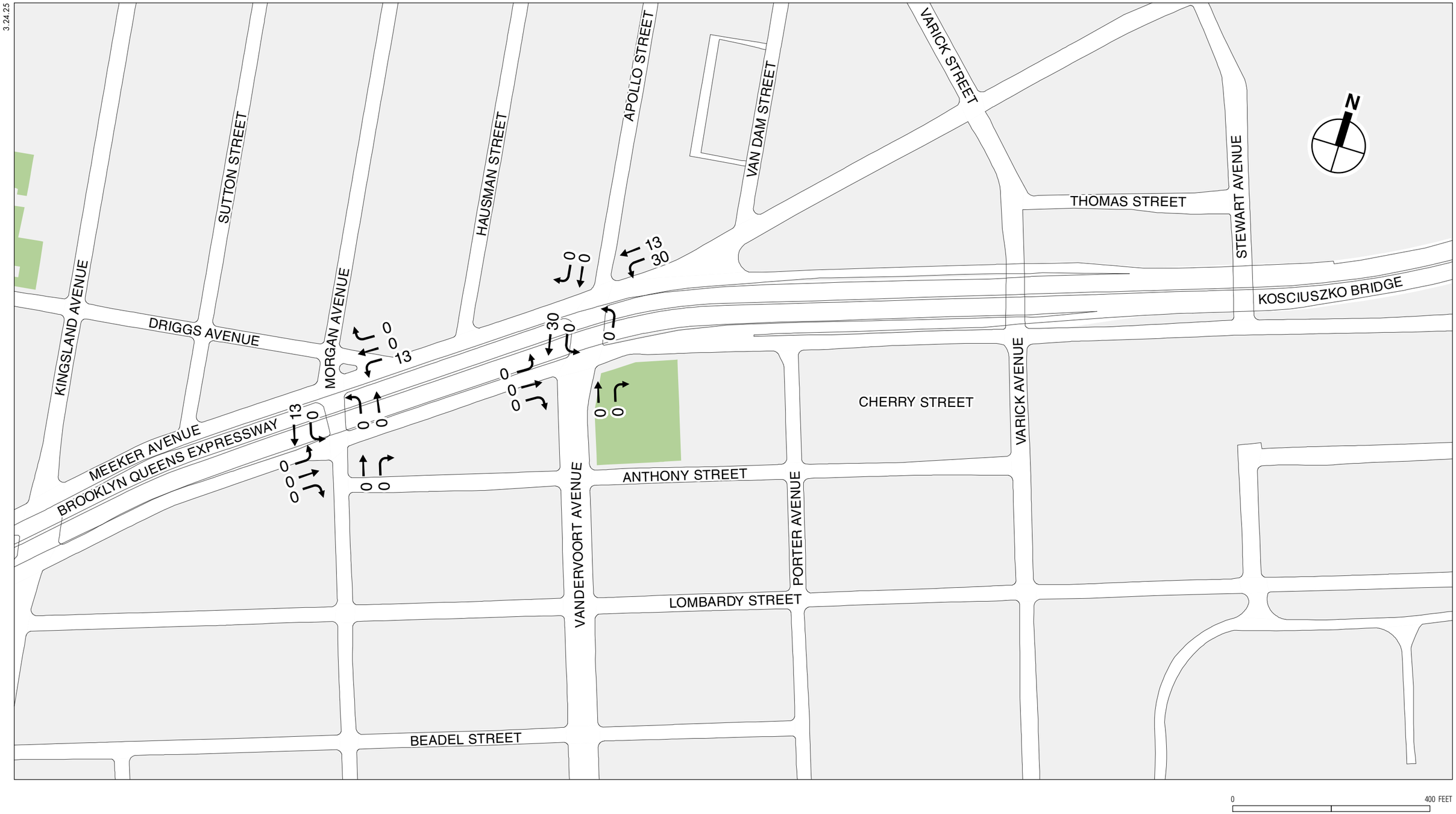
0 1,000 FEET

NCQ-077 Incremental Construction Vehicle Trips (in PCEs)
2034 Quarter 4: 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

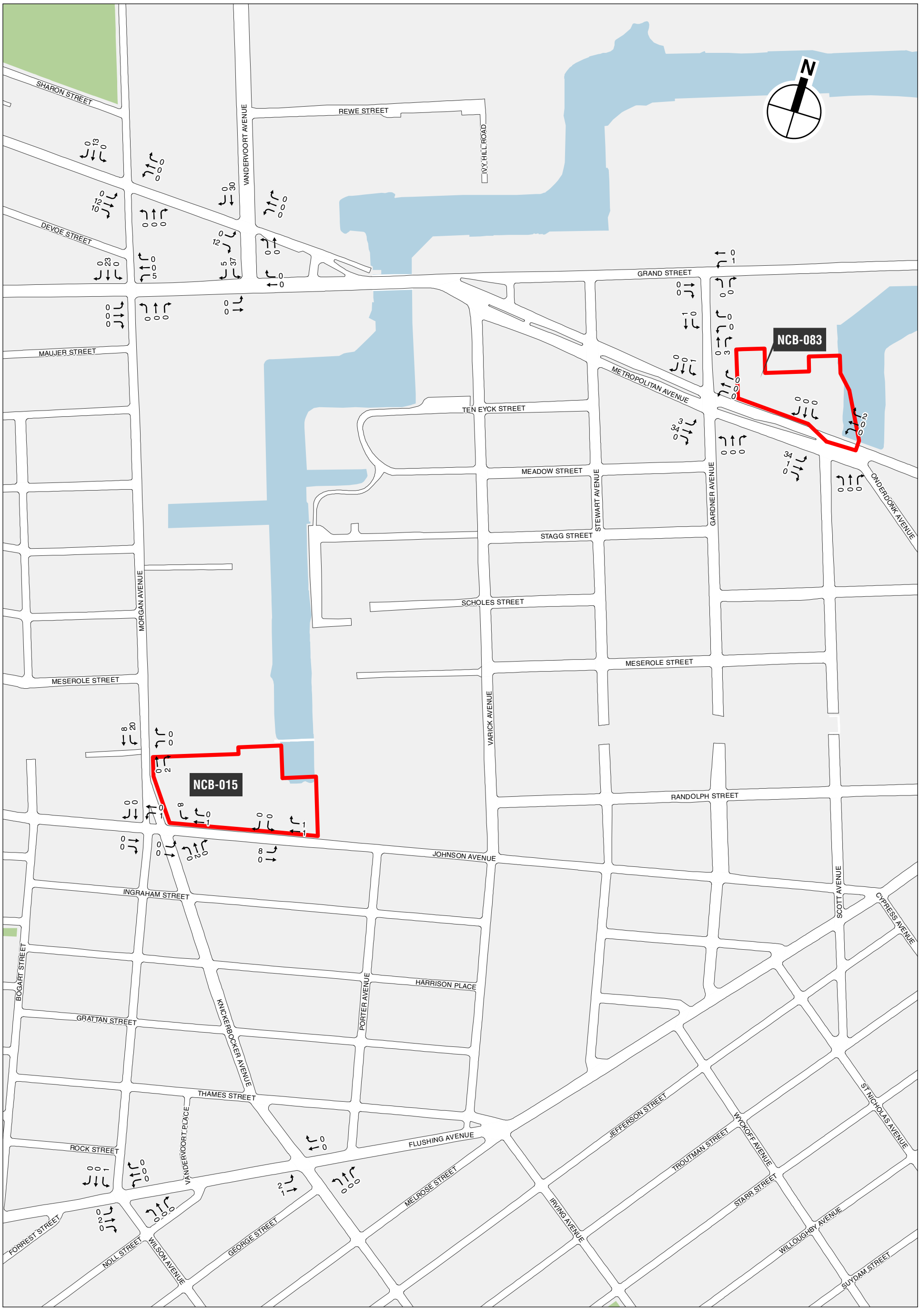
Figure 16-8

3.24.25



NCB-083 and NCB-015 Incremental Construction Vehicle Trips (in PCEs)
2033 Quarter 1: 6-7 AM Peak Hour

3.24.25



Diversion Facilities NCB-083 and NCB-015

0 400 FEET

NCB-083 and NCB-015 Incremental Construction Vehicle Trips (in PCEs)
2033 Quarter 1: 6-7 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-9b

intersections during the 6-7 AM peak hour, two intersections during the 7-8 AM peak hour, and one intersection during each of the 2-3 PM and 3-4 PM peak hours. For the NCQ-077 diversion facility site, the 2034 Q4 construction activities would yield trips exceeding the CEQR traffic analysis threshold at three intersections during the 7-8 AM peak hour. For NCB-083 and NCB-015 diversion facility sites, the combined 2033 Q1 construction activities would not yield trips that exceed the CEQR traffic analysis threshold at any intersection during the 6-7 AM peak hour. These Level 2 screening analysis results, listed below by intersection and condition under which exceedance of the CEQR traffic analysis threshold is expected, would be taken into consideration together with anticipated ROW disruptions (described in the next section) to determine analysis needs for the EIS.

- Greenpoint Avenue and Kingsland Avenue: 6-7 AM, 7-8 AM, 2-3 PM, and 3-4 PM
- Greenpoint Avenue and Review Avenue: 6-7 AM and 7-8 AM
- Van Dam Street and Borden Avenue Eastbound: 6-7 AM
- Van Dam Street and Borden Avenue Westbound: 6-7 AM
- Rust Street and Maspeth Avenue: 7-8 AM
- Maspeth Avenue and Railroad Place: 7-8 AM
- Maspeth Avenue and Page Place: 7-8 AM

ROW DISRUPTION CONSIDERATIONS

ROW disruptions are expected to occur for construction activities associated with the TDPS, BB-026, NCQ-077, and NCB-083 project sites. At the NCB-015 diversion facility site, all construction activities could be contained on-site with no disruptions to the adjacent roadways and sidewalks. Below is a description of the anticipated ROW disruptions at these project sites. Preliminary WZTC plans corresponding to these ROW disruptions are presented in **Appendix F** (see **Appendix Figures F-1 through F-16)**.

- TDPS Site – The TDPS–gravity discharge pipe mentioned above is expected to be constructed under City ROW, along the west side of Kingsland Avenue between the TDPS and the north side of Greenpoint Avenue.
    - It would then continue west for two blocks along the north side of Greenpoint Avenue to the west side of Russell Street.
    - The open cut construction could displace parking and other curbside uses along affected roadways, including bike lanes on the west side of Kingsland Avenue and the north side of Greenpoint Avenue.
    - Although travel/passage of all roadway users are expected to be maintained throughout construction, there could be some capacity reductions along Greenpoint Avenue between Kingsland Avenue and just east of Humboldt Street.
    - Potential effects from these ROW disruptions would be the most prominent during the typical weekday AM, midday, and PM, and Saturday midday/afternoon peak hours, which conventionally fall within the 7-10 AM, 12-2 PM, 4-7 PM, and 12-4 PM time periods, respectively, warranting a traffic analysis of the following intersections and their connecting pedestrian elements (i.e., sidewalks, corners, and crosswalks).

        - Greenpoint Avenue and Kingsland Avenue;
        - Greenpoint Avenue and Monitor Street; and
        - Greenpoint Avenue and North Henry Street.
- BB-026 Diversion Facility Site – In consideration of vehicular circulation patterns in the area and the need for maintaining property access, the full closure of affected roadways, especially along Borden Avenue, has been assumed to be infeasible.
    - It is assumed that open cut construction would displace parking on one or both sides of the affected roadways but travel would be maintained throughout construction, with possible reductions in roadway capacity possibly necessary along the eastbound and westbound roadways of Borden Avenue at 30th Street.
    - More extensive roadway closures across intersections are expected to be undertaken during late night and weekend hours, with operations and traffic safety expected to be managed by construction flag staff. Potential full roadway closure during nighttime and weekend hours may also be necessary for the 29th Street segment between Borden Avenue eastbound and Review Avenue. Signs directing traffic to Starr Avenue, Van Dam Street, 35th Street, and Review Avenue would be installed to facilitate the necessary detour of an anticipated low amount of affected vehicles during low-traffic off-peak time periods.
    - At the drop shaft location, the worst-case scenario of constructing it along the west side of Review Avenue between 35th Street and Greenpoint Avenue/Van Dam Street would require the narrowing of that currently two-way roadway segment to only accommodate one direction of travel. Based on the area's roadway and traffic patterns, northbound operations would be the one direction of travel assumed to be maintained. Corresponding, two-way 35th Street would be converted to one-way eastbound.
    - Potential effects from these ROW disruptions would be the most prominent during the typical weekday AM, midday, and PM, and Saturday midday/afternoon peak hours.
    - Traffic analyses would be warranted at the following intersections.
        - Borden Avenue westbound and 30th Street;
        - Borden Avenue eastbound and 30th Street;
        - Review Avenue and 35th Street;
        - Van Dam Street and 35th Street; and
        - Greenpoint Avenue/Van Dam Street and Review Avenue.
    - Pedestrian analyses would be warranted for the elements connecting to the following intersections.
        - 47th Avenue and 27th Street;
        - 47th Avenue and 30th Street;
        - Hunters Point Avenue and 30th Street;
        - Borden Avenue westbound and 30th Street;
        - Review Avenue and 29th Street; and
        - Review Avenue and 35th Street.
- NCQ-077 Diversion Facility Site – Railroad Place would be closed at the southeastern portion of the site. Alternative access to this site and the Amazon distribution facility to the north would

be provided by a temporary roadway opposite 57th Avenue, connecting to 49th Street. Egress from this temporary roadway would be controlled by a Stop sign.

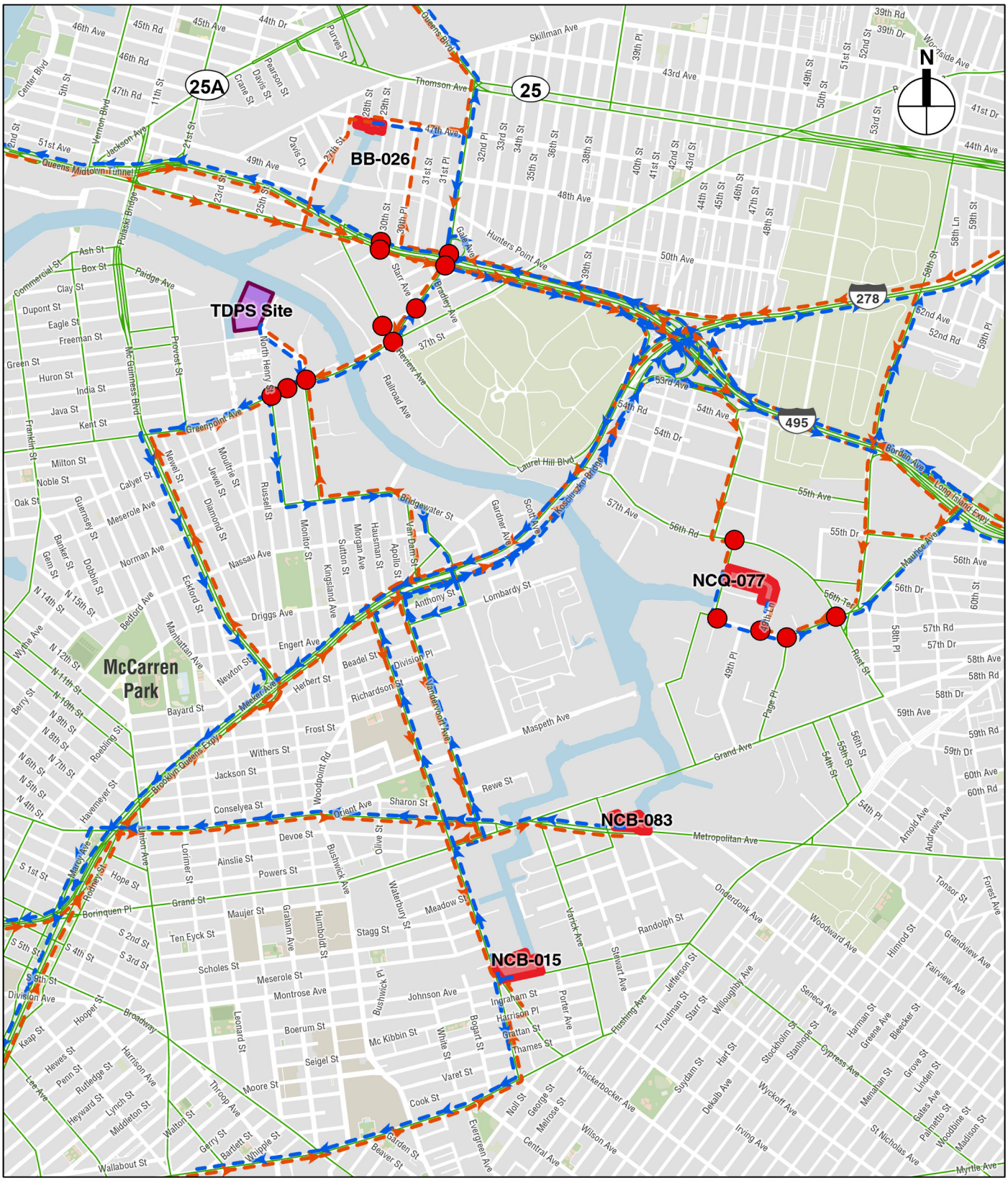
- Potential effects from the above ROW disruptions would be the most prominent during the typical weekday AM, midday, and PM, and Saturday midday/afternoon peak hours.
- Traffic analyses would be warranted at the following intersections.
  - Rust Street and Maspeth Avenue;
  - Maspeth Avenue and Page Place;
  - Maspeth Avenue and Railroad Place;
  - Maspeth Avenue and 49th Street; and
  - 56th Road and 49th Street.
- Due to the industrial nature of the area and the maintenance of site access through with limited changes in circulation patterns for a low volume of pedestrians, detailed pedestrian analyses are not warranted.

- NCB-083 Diversion Facility Site – Traffic flows, including the operation of the Q54 bus route along Metropolitan Avenue, are expected to be maintained via the same number of travel lanes through the construction zone.
  - Advanced signage would be provided in accordance with DOT requirements to facilitate safe traffic flow and slower speeds where warranted.
  - Bike traffic would be maintained via shared use of traffic lanes.
  - With traffic capacities expected to be maintained throughout construction, no traffic analyses would be prepared.
  - For pedestrians, however, an analysis of the potential effects from detouring pedestrians from the north side to the south side of Metropolitan Avenue would be warranted for the elements connecting to the following intersections.
    - Metropolitan Avenue and Gardner Avenue;
    - Metropolitan Avenue and Scott Avenue; and
    - Metropolitan Avenue and Onderdonk Avenue.
- NCB-015 Diversion Facility Site – As noted above, the construction of this diversion facility is expected to be contained within the industrial lots, with access/egress facilitated via existing driveways along Morgan Avenue and Johnson Avenue. Accordingly, there would not be any disruptions to the site's adjacent sidewalks and roadways, such that detailed traffic and pedestrian analyses to address potential effects of ROW disruptions are not warranted.

CONSTRUCTION TRANSPORTATION SCOPE AND STUDY AREAS

As detailed above, construction activities resulting from worker and truck deliveries and potential disruptions to public ROWs (i.e., roadway and pedestrian facilities) would necessitate the analysis of vehicular traffic and pedestrian locations to determine if these activities are expected to result in significant adverse impacts during the construction of the Proposed Project. As summarized in **Table 16-9** and depicted in **Figure 16-10**, detailed traffic analyses would be warranted for 13 intersections and detailed pedestrian analyses would be warranted for sidewalks, corners, and crosswalks connecting to 12 intersections.

9.2.25



Diversion Facility Site
TDPS Site
Traffic Analysis Location
In
Out
NYCDOT Designated Truck Routes

Traffic Analysis Locations

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 16-10

Table 16-9
Construction Transportation Study Areas

	Intersection	Traffic Analyses								Pedestrian Analyses				Notes
		Construction Peak Hours				Typical Peak Hours				Typical Peak Hours				
		Weekday				Weekday			SAT	Weekday			SAT	
		6-7 AM	7-8 AM	2-3 PM	3-4 PM	AM	MD	PM	MD/AN	AM	MD	PM	MD/AN	
1	47th Avenue & 27th Street									x	x	x	x	All traffic movements/# of travel lanes maintained.
2	47th Avenue & 30th Street									x	x	x	x	All traffic movements/# of travel lanes maintained.
3	Hunters Point Avenue & 30th Street									x	x	x	x	All traffic movements/# of travel lanes maintained.
4	Borden Avenue WB & 30th Street					x	x	x	x	x	x	x	x	Loss of travel lane on Borden Avenue WB.
5	Borden Avenue EB & 30th Street					x	x	x	x					Loss of travel lane on Borden Avenue EB.
6	Borden Avenue WB & 29th Street													All traffic movements/# of travel lanes maintained.
7	Borden Avenue EB & 29th Street													All traffic movements/# of travel lanes maintained.
8	Review Avenue & 29th Street									x	x	x	x	All traffic movements/# of travel lanes maintained.
9	Review Avenue & 35th Street	x	x	x	x	x	x	x	x	x	x	x	x	Loss of travel lane on Review Avenue SB.
10	Van Dam Street & 35th Street	x	x	x	x	x	x	x	x					Loss of travel lane on 35th Street WB.
11	Van Dam Street & Borden Avenue EB	x												All traffic movements/# of travel lanes maintained.
12	Van Dam Street & Borden Avenue WB	x												All traffic movements/# of travel lanes maintained.
13	Greenpoint Avenue & Review Avenue	x	x	x	x	x	x	x	x					All traffic movements/# of travel lanes maintained.
14	Greenpoint Avenue & Kingsland Avenue	x	x	x	x	x	x	x	x	x	x	x	x	Loss of travel lane on Greenpoint Avenue.
15	Greenpoint Avenue & Monitor Street					x	x	x	x	x	x	x	x	Loss of travel lane on Greenpoint Avenue.
16	Greenpoint Avenue & North Henry Street					x	x	x	x	x	x	x	x	Loss of travel lane on Greenpoint Avenue.
17	Rust Street & Maspeth Avenue		x			x	x	x	x					Traffic diversion due to Railroad Place closure.
18	Maspeth Avenue & Page Place		x			x	x	x	x					Traffic diversion due to Railroad Place closure.
19	Maspeth Avenue & Railroad Place		x			x	x	x	x					Traffic diversion due to Railroad Place closure.
20	Maspeth Avenue & 49th Street					x	x	x	x					Traffic diversion due to Railroad Place closure.
21	56th Road & 49th Street					x	x	x	x					Traffic diversion due to Railroad Place closure.
22	Metropolitan Avenue & Gardner Avenue									x	x	x	x	All traffic movements/# of travel lanes maintained.
23	Metropolitan Avenue & Scott Avenue									x	x	x	x	All traffic movements/# of travel lanes maintained.
24	Metropolitan Avenue & Onderdonk Avenue									x	x	x	x	All traffic movements/# of travel lanes maintained.

Notes: SAT = Saturday; MD = Midday; AN = Afternoon

The typical peak hours are determined based on peak traffic/pedestrian volumes during the respective peak periods (i.e., weekday 7-10 AM, 12-2 PM, 4-7 PM, and Saturday 12-4 PM).

Depending on location, the traffic analyses would be prepared for some or all of the eight analysis time periods (four construction and four typical) and the pedestrian analyses would be prepared for the four typical analysis time periods.

D. TRANSPORTATION ANALYSIS METHODOLOGIES

As described above, detailed analyses have been determined to be warranted to evaluate the operation of traffic intersections and pedestrian elements. Assessments of street user safety and parking supply and demand would also be undertaken. The analysis methodologies and significant adverse impact criteria for these transportation analysis topics are outlined below.

TRAFFIC OPERATIONS

The operations of the signalized and unsignalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Synchro Software Version 11*. The HCM procedure evaluates the level of service (LOS) for signalized and unsignalized intersections using average stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The LOS criteria are defined in **Table 16-10**.

Table 16-10
Level of Service Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000

Although the *HCM* methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the *HCM*. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS

E and F reflect poor service levels, and cycle breakdowns are frequent. The *HCM* methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, LOS D or better (average control delay less than or equal to 55.0 seconds) is generally considered acceptable.

Significant Impact Criteria

The determination of significant adverse traffic impacts is based on the criteria presented in the *CEQR Technical Manual*. If a lane group under the With Action condition is within acceptable LOS A, B, C, or D, the impact is not considered significant. For a lane group with LOS E under the With Action condition, an increase in projected delay of 5.0 or more seconds compared to the No Action condition should be considered significant. For a lane group with LOS F under the With Action condition, an increase in projected delay of 4.0 or more seconds compared to the No Action condition should be considered significant.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average control delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS criteria for unsignalized intersections are summarized in **Table 16-11**.

Table 16-11
Level of Service Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds
Source: Transportation Research Board. *Highway Capacity Manual*, 2000	

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection; hence, the corresponding control delays are higher at a signalized intersection than at an unsignalized intersection for the same LOS. In addition, certain driver behavioral considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on minor approaches to unsignalized intersections must remain

attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections. For these reasons, the corresponding delay thresholds for unsignalized intersections are lower than those of signalized intersections. As with signalized intersections, within New York City, LOS D or better (average control delay less than or equal to 35.0 seconds) is generally perceived as acceptable.

Significant Impact Criteria

The same sliding scale of significant delays described for signalized intersections applies for unsignalized intersections. For the minor street to trigger significant impacts, at least 90 passenger car equivalents (PCE) must be identified in the With Action Condition in any peak hour.

PEDESTRIAN OPERATIONS

The adequacy of a study area's sidewalk, corner reservoir, and crosswalk capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the *2010 Highway Capacity Manual (HCM 2010)*, pursuant to procedures detailed in the *CEQR Technical Manual*. The primary performance measure for sidewalks and walkways is pedestrian space, expressed as square feet (sf) per pedestrian (SFP), which is an indicator of the quality of pedestrian movement and comfort. The calculation of the sidewalk SFP is based on the pedestrian volumes by direction, the effective sidewalk or walkway width, and average walking speed. The SFP forms the basis for a sidewalk level-of-service (LOS) analysis. Street corners and crosswalks are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The *HCM 2010* methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians. The total "time-space" available for these activities, expressed in square feet-seconds, is calculated by multiplying the net area of the corner (in square feet) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of SFP. Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in square feet-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available square feet per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk. The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized in **Table 16-12**. The *CEQR Technical Manual*-specified acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better (minimum of 31.5 SFP for sidewalks; minimum of 19.5 SFP for corners and crosswalks) in CBD settings, while acceptable LOS in non-CBD areas is within LOS C. The pedestrian analysis study area includes both CBD and non-CBD areas.

Table 16-12
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks	Corner Reservoirs and Crosswalks
A	≥ 530.1 SFP	≥ 60.1 SFP
B	90.1 – 530.0 SFP	40.1 – 60.0 SFP
C	40.1 – 90.0 SFP	24.1 – 40.0 SFP
D	23.1 – 40.0 SFP	15.1 – 24.0 SFP
E	11.1 – 23.0 SFP	8.1 – 15.0 SFP
F	≤ 11.0 SFP	≤ 8.0 SFP

Note: SFP = square feet per pedestrian
Source: New York City Mayor's Office of Environmental Coordination, 2021 *CEQR Technical Manual*

SIGNIFICANT IMPACT CRITERIA

The determination of significant pedestrian impacts considers the level of predicted decrease in pedestrian space between the No Action and With Action conditions. For different pedestrian elements, flow conditions, and area types, the *CEQR Technical Manual* procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Sidewalks

The sliding-scale formula for determining sidewalk impacts is $Y \geq X/9.5 - 0.321$. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, these formulas would apply only if the With Action pedestrian space falls short of mid-LOS D in CBD areas or LOS C in non-CBD areas. **Table 16-13** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 16-13
Significant Impact Guidance for Sidewalks

Sliding Scale Formula: $Y \geq X/9.5 - 0.321$			
Non-CBD Areas		CBD Areas	
No Action Pedestrian Space (X, SFP)	With Action Pedestrian Space Reduction (Y, SFP)	No Action Pedestrian Space (X, SFP)	With Action Pedestrian Space Reduction (Y, SFP)
≥ 44.3	With Action Condition ≤ 40.0		
43.5 to 44.2	≥ 4.3	–	–
42.5 to 43.4	≥ 4.2	–	–
41.6 to 42.4	≥ 4.1	–	–
40.6 to 41.5	≥ 4.0	–	–
39.7 to 40.5	≥ 3.9	–	–
38.7 to 39.6	≥ 3.8	–	–
37.8 to 38.6	≥ 3.7	–	–
36.8 to 37.7	≥ 3.6	–	–
35.9 to 36.7	≥ 3.5	–	–
34.9 to 35.8	≥ 3.4	≥ 34.7	With Action Condition ≤ 31.4
34.0 to 34.8	≥ 3.3	34.0 to 34.6	≥ 3.3
33.0 to 33.9	≥ 3.2	33.0 to 33.9	≥ 3.2
32.1 to 32.9	≥ 3.1	32.1 to 32.9	≥ 3.1
31.1 to 32.0	≥ 3.0	31.1 to 32.0	≥ 3.0
30.2 to 31.0	≥ 2.9	30.2 to 31.0	≥ 2.9
29.2 to 30.1	≥ 2.8	29.2 to 30.1	≥ 2.8
28.3 to 29.1	≥ 2.7	28.3 to 29.1	≥ 2.7
27.3 to 28.2	≥ 2.6	27.3 to 28.2	≥ 2.6
26.4 to 27.2	≥ 2.5	26.4 to 27.2	≥ 2.5

Table 16-13
Significant Impact Guidance for Sidewalks

Sliding Scale Formula: $Y \geq X/9.5 - 0.321$			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**With Action Pedestrian Space Reduction (Y, SFP)**
25.4 to 26.3	≥ 2.4	25.4 to 26.3	≥ 2.4
24.5 to 25.3	≥ 2.3	24.5 to 25.3	≥ 2.3
23.5 to 24.4	≥ 2.2	23.5 to 24.4	≥ 2.2
22.6 to 23.4	≥ 2.1	22.6 to 23.4	≥ 2.1
21.6 to 22.5	≥ 2.0	21.6 to 22.5	≥ 2.0
20.7 to 21.5	≥ 1.9	20.7 to 21.5	≥ 1.9
19.7 to 20.6	≥ 1.8	19.7 to 20.6	≥ 1.8
18.8 to 19.6	≥ 1.7	18.8 to 19.6	≥ 1.7
17.8 to 18.7	≥ 1.6	17.8 to 18.7	≥ 1.6
16.9 to 17.7	≥ 1.5	16.9 to 17.7	≥ 1.5
15.9 to 16.8	≥ 1.4	15.9 to 16.8	≥ 1.4
15.0 to 15.8	≥ 1.3	15.0 to 15.8	≥ 1.3
14.0 to 14.9	≥ 1.2	14.0 to 14.9	≥ 1.2
13.1 to 13.9	≥ 1.1	13.1 to 13.9	≥ 1.1
12.1 to 13.0	≥ 1.0	12.1 to 13.0	≥ 1.0
11.2 to 12.0	≥ 0.9	11.2 to 12.0	≥ 0.9
10.2 to 11.1	≥ 0.8	10.2 to 11.1	≥ 0.8
9.3 to 10.1	≥ 0.7	9.3 to 10.1	≥ 0.7
8.3 to 9.2	≥ 0.6	8.3 to 9.2	≥ 0.6
7.4 to 8.2	≥ 0.5	7.4 to 8.2	≥ 0.5
6.4 to 7.3	≥ 0.4	6.4 to 7.3	≥ 0.4
≤ 6.3	≥ 0.3	≤ 6.3	≥ 0.3

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP.
Sources: New York City Mayor's Office of Environmental Coordination, 2021 *CEQR Technical Manual*.

Corner Reservoirs and Crosswalks

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.31$, where Y is the decrease in pedestrian space in SFP and X is the No Action pedestrian space in SFP. Since a decrease in pedestrian space within acceptable levels would not constitute a significant impact, this formula would apply only if the With Action pedestrian space falls short of mid-LOS D in CBD areas or LOS C in non-CBD areas. **Table 16-14** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 16-14
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: $Y \geq X/9.0 - 0.31$			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**With Action Pedestrian Space Reduction (Y, SFP)**
≥ 26.6	With Action Condition ≤ 24.0		
25.8 to 26.5	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	≥ 21.5	With Action Condition ≤ 19.4
21.3 to 22.1	≥ 2.1	21.3 to 21.4	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9

Table 16-14
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: $Y \geq X/9.0 - 0.31$			
Non-CBD Areas		**CBD Areas**	
No Action Pedestrian Space (X, SFP)	**With Action Pedestrian Space Reduction (Y, SFP)**	**No Action Pedestrian Space (X, SFP)**	**With Action Pedestrian Space Reduction (Y, SFP)**
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
≤ 5.0	≥ 0.2	≤ 5.0	≥ 0.2

Notes: SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Action pedestrian space in SFP
Sources: New York City Mayor's Office of Environmental Coordination, 2021 *CEQR Technical Manual*

STREET USER SAFETY ASSESSMENT

An evaluation of street user (vehicular, bicyclist, and pedestrian) safety is necessary for locations within traffic and pedestrian study areas that have been identified as high crash locations—defined as Vision Zero high priority intersections or intersections where five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period for which data are available. Additionally, any location along a Vision Zero priority corridor where three or more pedestrian/ bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period should also be identified as a high crash location. For these locations, crash trends are identified to determine whether projected vehicular and pedestrian traffic would further exacerbate safety issues at these locations. The determination of whether street users, with particular focus on bicyclists and pedestrians, will be at increased risk for involvement in crashes due to the proposed action depends on the type of area in which the project area is located (i.e., whether it is near hospitals, schools, parks, nursing homes, or senior housing, or if it overlaps with Vision Zero priority intersections/corridors, Senior Pedestrian Focus Areas, or Truck Priority Safety Corridors), traffic volumes, crash types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety are identified and coordinated with DOT for agency approval.

PARKING ASSESSMENT

The parking analysis identifies the extent to which on-street and off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall within the study area is likely to result from parking displacement attributable to or additional

demand generated by a proposed project. Typically, this analysis encompasses a study area within a ¼-mile of the project site. In cases where sufficient accessory parking and/or public parking is provided on-site, there is no need to define a parking study area unless the proposed project would eliminate a significant amount of available public parking.

Pursuant to the *CEQR Technical Manual* guidelines, for proposed projects located in Manhattan or other areas near CBDs, the inability of the proposed project or the surrounding area to accommodate the project's future parking demand is considered a parking shortfall but is generally not considered significant due to the magnitude of available alternative modes of transportation. For other areas in New York City, a parking shortfall that exceeds the available on-street and off-street parking spaces within a ¼-mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by area residents, could be considered to determine the significance of the identified parking shortfall. In some cases, if there is adequate parking supply within ½-mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

E. DETAILED TRAFFIC ANALYSIS

As described above in Section C, "Screening Assessment and Study Scope," 13 intersections, as depicted in **Table 16-9**, were selected for detailed construction period analysis across eight analysis peak hours, including four construction analysis peak hours during which construction-related traffic would be the highest and four typical analysis peak hours during which effects on roadway disruptions would be the most prominent. These study locations, which include signalized and unsignalized intersections, were analyzed using the Synchro 11 analysis software.

EXISTING CONDITIONS

ROADWAY NETWORK AND TRAFFIC STUDY AREA

As shown in **Figure 16-10**, the traffic study area can be characterized as encompassing three separate sub-areas: Long Island City, Greenpoint, and Maspeth. The primary streets providing access to the designated construction areas include Borden Avenue, 30th Street, Van Dam Street, Review Avenue, Greenpoint Avenue, Maspeth Avenue, and 49th Street.

- Borden Avenue operates as a two-way 40-foot-wide east-west arterial with one travel lane and a parking lane in each direction between Dutch Kills and Review Avenue. To the east of Review Avenue, Borden Avenue splits into separate one-way eastbound and westbound arterial pairs with two travel lanes that flank the Long Island Expressway.
- Operating in the southbound direction, 30th Street is a one-way 30-foot-wide local street between Thompson Avenue and Borden Avenue with one travel lane and two parking lanes.
- Van Dam Street is a two-way 60-foot-wide north-south primary arterial between Queens Boulevard and Starr Avenue. This section of Van Dam Street is comprised of two travel lanes and a parking lane in the northbound and southbound directions. Between Starr Avenue and

Review Avenue, Van Dam Street has two travel lanes, a parking lane, and a bike lane in the southbound direction, and one travel lane and a parking lane in the northbound direction.

- Review Avenue to the east of Greenpoint Avenue is a two-way 55-foot-wide north-south arterial with one travel lane and a parking lane in each direction. Between Greenpoint Avenue and 35th Street, Review Avenue is a two-way north-south variable width local street with one travel lane in each direction and intermittent parking. Review Avenue between 35th Street and Borden Avenue is a one-way northbound 36-foot-wide local street with one travel lane and two parking lanes.
- Greenpoint Avenue is a two-way 50-foot-wide east-west arterial between McGuinness Boulevard and Provost Street. This section is comprised of two travel lanes with a shared bike lane and a parking lane in the westbound direction and one travel lane with a shared bike lane and a parking lane in the eastbound direction. Between Provost and Humbolt Streets, Greenpoint Avenue is 53 feet wide with two travel lanes and a bike lane in the westbound direction and one travel lane, a bike lane, and a parking lane in the eastbound direction. For the section between Humbolt and Monitor Streets, Greenpoint Avenue is 50 feet wide with two travel lanes and a bike lane in the westbound direction and one travel lane and a bike lane in the eastbound direction. Between Monitor Street and Kingsland Avenue, Greenpoint Avenue is 50 feet wide with two travel lanes and a bike lane in the westbound direction and two travel lanes and a shared bike lane in the eastbound direction. The section of Greenpoint Avenue between Kingsland Avenue and Review Avenue that crosses Newtown Creek (John Jay Byrne Bridge) is comprised of two travel lanes at the east and west ends of the bridge, one travel lane midspan, and a bike lane in the westbound direction and two travel lanes and a bike lane in the eastbound direction.
- Maspeth Avenue is a two-way 40-foot-wide east-west local street in the industrial section of Maspeth, Queens. Between 48th Street and Rust Street, Maspeth Avenue is comprised of one travel lane and a parking lane in each direction and crosses active railroad tracks just to the west of Rust Street.
- Operating north-south, 49th Street is a two-way 30-foot-wide local street. Between Maspeth Avenue and 56th Road, 49th Street is comprised of one travel lane in each direction. On-street parking is generally prohibited along 49th Street. At the northern end of the corridor, 49th Street crosses active railroad tracks just to the south of 56th Road.

TRAFFIC OPERATIONS

Traffic data were collected in October 2024 via video counts on a representative weekday from 6 AM to 10 AM, noon to 7 PM, and 11 PM to midnight, and on a representative Saturday from noon to 4 PM. These hours cover the anticipated construction and typical analysis hours described above, which include the 6-7 AM, 7-8 AM, 2-3 PM, and 3-4 PM weekday construction peak hours and those shown in **Table 16-15**, depicting the analysis peak hours determined for the typical weekday AM, midday, and PM, and Saturday midday/PM peak periods.

Table 16-15
Traffic Analysis Peak Hours for Typical Weekday and Saturday Peak Periods

Neighborhood / Peak Hour	Weekday			Saturday
	AM	Midday	PM	Midday/Afternoon
Greenpoint	8:45-9:45 AM	1:00-2:00 PM	4:00-5:00 PM	1:30-2:30 PM
Long Island City	7:45-8:45 AM	12:15-1:15 PM	4:00-5:00 PM	2:15-3:15 PM
Maspeth	8:30-9:30 AM	1:00-2:00 PM	4:30-5:30 PM	1:45-2:45 PM

The data collected for the weekday 11 PM to midnight hour would be used specifically for a late-night noise analysis. In addition to the video counts, automatic traffic recorder (ATR) counts were collected for nine continuous days, overlapping with two consecutive weekends. Inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were recorded to provide appropriate inputs for the traffic analyses. Official signal timings were also obtained from DOT for use in the analysis of the study area signalized intersections. The existing traffic volumes for the eight analysis peak hours are shown in **Figures 16-11 through 16-18b**. The levels-of-service analyses were prepared using the Synchro version 11 software for the specific intersection locations and peak hours identified above in **Table 16-9**. The results of these analyses, which are presented separately for the construction and typical peak hours, are summarized in **Tables 16-16 and 16-17**, respectively.

Table 16-16
Existing Conditions Traffic Level of Service Analysis
Construction Peak Hours

Intersection/ Direction	Weekday 6-7 AM				Weekday 7-8 AM				Weekday 2-3 PM				Weekday 3-4 PM			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
10 – Van Dam Street & Borden Avenue EB																
EB	LT	0.24	27.6	C												
NB	TR	0.28	36.5	D												
SB	DefL	0.56	5.2	A												
	T	0.21	2.0	A												
	Intersection		13.9	B												
11 – Van Dam Street & Borden Avenue WB																
WB	TR	0.75	29.5	C												
NB	LT	0.22	2.8	A												
SB	TR	0.53	24.6	C												
	Intersection		26.1	C												
12 – Greenpoint Avenue/Van Dam Street & Review Avenue																
EB	LTR	0.18	29.3	C	LTR	0.15	28.8	C	LTR	0.10	28.1	C	LTR	0.09	27.9	C
WB	L	0.30	32.2	C	L	0.41	34.3	C	L	0.49	36.4	D	L	0.41	34.2	C
	TR	0.74	47.1	D	TR	0.76	47.7	D	TR	0.71	43.3	D	TR	0.73	44.1	D
NB	LTR	0.35	15.8	B	LTR	0.76	25.2	C	LTR	0.89	42.3	D	LTR	1.05	75.7	E
SB	LTR	0.31	24.0	C	LTR	0.72	32.7	C	DefL	0.77	40.6	D	DefL	1.03	96.3	F
									TR	0.68	30.3	C	TR	0.71	30.8	C
	Intersection		27.6	C	Intersection		32.6	C	Intersection		38.0	D	Intersection		56.9	D
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.21	16.2	B	LT	0.36	18.1	B	LT	0.45	19.4	B	LT	0.47	19.7	B
WB	TR	0.26	42.2	D	TR	0.61	48.8	D	TR	0.51	44.5	D	TR	0.54	46.0	D
NB	LTR	1.05	108.1	F	LTR	1.05	103.2	F	LTR	1.03	97.5	F	LTR	1.04	99.1	F
SB	LR	0.23	34.3	C	LR	0.47	42.2	D	LR	0.61	48.1	D	LR	0.62	49.8	D
SW	LR	0.17	58.3	E	LR	0.23	62.7	E	LR	0.06	53.8	D	LR	0.06	53.8	D
	Intersection		56.6	E	Intersection		51.8	D	Intersection		47.5	D	Intersection		47.2	D
17 – Maspeth Avenue & Page Place																
EB					TR	0.41	23.3	C								
WB					LT	0.54	16.5	B								
NB					LR	0.29	23.4	C								
					Intersection		19.5	B								

Table 16-16
Existing Conditions Traffic Level of Service Analysis
Construction Peak Hours

Intersection/ Direction	Weekday 6-7 AM				Weekday 7-8 AM				Weekday 2-3 PM				Weekday 3-4 PM			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Unsignalized Intersections																
16 – Maspeth Avenue & Rust Street																
EB					T	0.10	0.0	A								
WB					T	0.19	0.0	A								
NB					T	1.00	71.7	F								
SB					T	0.45	19.3	C								
					Intersection		32.1	D								
18 – Maspeth Avenue & Railroad Place																
EB					LT	0.02	1.0	A								
WB					TR	0.08	0.0	A								
SB					LR	0.04	10.3	B								
					Intersection		1.5	A								
21 – Review Avenue & 35th Street																
EB	LTR	0.02	10.9	B	LTR	0.02	11.0	B	LTR	0.01	8.3	A	LTR	0.01	8.3	A
WB	LTR	0.18	11.5	B	LTR	0.20	12.4	B	LTR	0.13	11.7	B	LTR	0.12	11.3	B
NB	LTR	0.00	0.0	A	LTR	0.00	0.2	A	LTR	0.00	0.1	A	LTR	0.00	0.1	A
	Intersection		3.8	A	Intersection		3.7	A	Intersection		2.2	A	Intersection		2.2	A
22 – Van Dam Street & 35th Street																
EB	LR	0.01	13.8	B	LR	0.08	31.9	D	LR	0.04	27	D	LR	0.05	34.7	D
NE	LT	0.08	0.0	A	LT	0.10	0.0	A	LT	0.01	1.1	A	LT	0.08	0.0	A
SW	TR	0.17	0.0	A	TR	0.36	0.0	A	TR	0.32	0.0	A	TR	0.4	0.0	A
	Intersection		0.1	A	Intersection		0.3	A	Intersection		0.2	A	Intersection		0.2	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-17
Existing Conditions Traffic Level of Service Analysis
Typical Peak Hours

Intersection/ Direction	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday/Afternoon			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
4 – Borden Avenue WB & 30th Street																
WB	LT	0.39	12.5	B	LT	0.28	11.5	B	LT	0.33	11.9	B	LT	0.32	11.6	B
SB	TR	0.58	29.0	C	TR	0.55	27.8	C	TR	0.75	35.1	D	TR	0.68	31.1	C
	Intersection		17.7	B	Intersection		18.3	B	Intersection		22.4	C	Intersection		20.0	C
5 – Borden Avenue EB & 30th Street																
EB	TR	0.23	11.0	B	TR	0.19	10.7	B	TR	0.25	11.1	B	TR	0.12	9.9	B
NB	R	0.40	9.6	B	R	0.3	9.6	B	R	0.4	9.6	B	R	0.01	9.2	B
SB	L	0.29	9.0	A	L	0.30	7.8	A	L	0.38	6.2	A	L	0.37	6.2	A
	T	0.29	9.0	A	T	0.3	7.8	A	T	0.37	6.2	A	T	0.36	6.2	A
	Intersection		10.0	A	Intersection		9.2	A	Intersection		8.8	A	Intersection		7.4	A
12 – Greenpoint Avenue & Review Avenue																
EB	LTR	0.04	27.2	C	LTR	0.13	28.5	C	LTR	0.11	28.1	C	LTR	0.06	27.5	C
WB	L	0.44	35.2	D	L	0.52	38.2	D	L	0.40	34.1	C	L	0.51	37.1	D
WB	TR	0.72	44.5	D	TR	0.62	40.2	D	TR	0.65	40.7	D	TR	0.66	41.0	D
NB	LTR	0.86	29.9	C	LTR	1.05	67.1	E	LTR	1.05	58.5	E	LTR	0.79	18.2	B
SB	LTR	0.80	36.4	D	DefL	0.94	77.4	E	DefL	1.05	101.4	F	LTR	0.78	34.7	C
SB					TR	0.44	23.2	C	TR	0.55	25.3	C				
	Intersection		48.4	D	Intersection		44.5	D	Intersection		49.0	D	Intersection		33.5	C
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.36	5.2	A	LT	0.44	5.2	A	LT	0.47	5.8	A	LT	0.4	5.1	A
WB	TR	0.59	49.2	D	TR	0.43	43.0	D	TR	0.52	45.0	D	TR	0.60	48.7	C
NB	LTR	1.04	100.8	F	LTR	1.05	105.0	F	LTR	1.04	100.2	F	LTR	0.63	44.9	D
SB	LR	0.50	43.2	D	LR	0.64	51.0	D	LR	0.49	41.4	D	LR	0.21	33.7	C
SW	LR	0.10	55.7	E	LR	0.27	60.2	E	LR	0.08	54.4	D	LR	0.08	54.7	D
	Intersection		48.4	D	Intersection		44.5	D	Intersection		40.7	D	Intersection		33.5	C
14 – Greenpoint Avenue & Monitor Street																
EB	TR	0.54	20.2	C	TR	0.68	24.2	C	TR	0.79	28.4	C	TR	0.66	23.0	C
WB	LT	0.66	8.6	A	LT	0.57	8.0	A	LT	0.66	10.4	B	LT	0.65	10.1	B
	Intersection		12.2	B	Intersection		14.6	B	Intersection		18.3	B	Intersection		15.0	B

Table 16-17
Existing Conditions Traffic Level of Service Analysis
Typical Peak Hours

Intersection/ Direction	Weekday AM				Weekday Midday				Weekday PM				Saturday Midday/Afternoon			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
17 – Maspeth Avenue & Page Place																
EB	TR	0.43	23.6	E	TR	0.55	25.6	C	TR	0.62	27.5	C	TR	0.43	22.8	C
WB	LT	0.62	18.8	B	LT	0.57	18.8	B	LT	0.6	19.9	B	LT	0.38	13.8	B
NB	LR	0.45	26.6	C	LR	0.35	24.1	C	LR	0.58	29.0	C	LR	0.15	21.1	C
	Intersection		21.8	C	Intersection		22.8	C	Intersection		25.7	C	Intersection		18.7	B
Unsignalized Intersections																
15 – Greenpoint Avenue & North Henry Street																
EB	TR	0.33	0.0	A	TR	0.38	0.0	A	TR	0.48	0.0	A	TR	0.41	0.0	A
WB	LT	0.07	2.6	A	LT	0.06	2.3	A	LT	0.08	2.9	A	LT	0.04	1.4	A
	Intersection		0.6	A	Intersection		0.4	A	Intersection		0.5	A	Intersection		0.3	A
16 – Maspeth Avenue & Rust Street																
EB	T	0.13	0.0	A	T	0.20	0.0	A	T	0.26	0.0	A	T	0.09	0.0	A
WB	T	0.19	0.0	A	T	0.15	0.0	A	T	0.15	0.0	A	T	0.12	0.0	A
NB	T	0.97	67.5	F	T	0.76	38.3	E	T	0.91	61.7	F	T	0.57	19.7	C
SB	T	0.52	22.3	C	T	0.83	45.2	E	T	1.03	82.7	F	T	0.66	22.7	C
	Intersection		28.2	D	Intersection		21.2	C	Intersection		38.3	E	Intersection		14.0	B
18 – Maspeth Avenue & Railroad Place																
EB	LT	0.02	1.5	A	LT	0.01	0.2	A	LT	0.00	0.2	A	LT	0.00	0.0	A
WB	TR	0.09	0.0	A	TR	0.06	0.0	A	TR	0.03	0.0	A	TR	0.03	0.0	A
SB	LR	0.07	11.0	B	LR	0.03	10.6	B	LR	0.04	10.6	B	LR	0.04	9.9	A
	Intersection		2.0	A	Intersection		0.6	A	Intersection		0.8	A	Intersection		1.2	A
19 – Maspeth Avenue & 49th Street																
EB	LT	0.14	7.2	A	LT	0.11	5.3	A	LT	0.07	5.9	A	LT	0.04	3.1	A
WB	TR	0.10	0.0	A	TR	0.10	0.0	A	TR	0.09	0.0	A	TR	0.06	0.0	A
SB	LR	0.43	14.5	B	LR	0.44	14.7	B	LR	0.53	14.6	B	LR	0.18	10.2	B
	Intersection		8.4	A	Intersection		7.9	A	Intersection		9.8	A	Intersection		5.0	A
20 – 56th Road & 49th Street																
EB	TR	0.83	37.0	E	TR	0.97	58.6	F	TR	1.02	60.3	F	TR	0.79	27.0	D
WB	LT	1.01	72.9	F	LT	1.03	92.3	F	LT	0.98	78.8	F	LT	0.37	11.2	B
NB	LR	0.16	6.4	A	LR	0.12	5.7	A	LR	0.11	5.8	A	LR	0.06	5.8	A
	Intersection		43.6	E	Intersection		56.9	F	Intersection		55.7	F	Intersection		19.1	C
21 – Review Avenue & 35th Street																
EB	LTR	0.01	8.6	A	LTR	0.02	10.6	B	LTR	0.02	9.7	A	LTR	0.02	9.3	A
WB	LTR	0.13	12.5	B	LTR	0.16	12	B	LTR	0.15	12	B	LTR	0.07	10.1	B
NB	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.1	A	LTR	0.00	0.2	A
	Intersection		2.1	A	Intersection		3.0	A	Intersection		2.6	A	Intersection		1.7	A
22 – Van Dam Street & 35th Avenue																
EB	LR	0.01	13.2	B	LR	0.02	17.5	C	LR	0.03	24.6	C	LR	0.04	18.5	C
NE	LT	0.08	1.0	A	LT	0.08	0.0	A	LT	0.09	0.0	A	LT	0.01	1.3	A
SW	TR	0.39	0.0	A	TR	0.27	0.0	A	TR	0.39	0.0	A	TR	0.39	0.0	A
	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.2	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

As shown, most lane groups at the intersections analyzed for both construction and typical peak hours were found to operate at LOS D or better, which is generally considered acceptable operations in New York City. Specifically, for the analyzed signalized intersections, four lane groups at two intersections were found to operate at unacceptable LOS E or F during one or more analysis peak hours. For the analyzed unsignalized intersections, four lane groups at two intersections were found to operate at unacceptable LOS E or F during one or more analysis peak hours. These are as follows:

Signalized Intersections

- Greenpoint Avenue/Van Dam Street and Review Avenue – The northbound Greenpoint Avenue approach operates at LOS E during the construction 3-4 PM peak hour and the typical weekday midday and PM peak hours. Additionally, the southbound Van Dam Street defacto

8.4.25

TDPS

NORTH HENRY STREET

29 STREET

30 STREET

BORDEN AVENUE

30 PLACE

31 STREET

31 PLACE

HUNTERS POINT AVENUE

ALE AVENUE

32 PLACE

RAILROAD AVENUE

REVIEW AVENUE

STARR AVENUE

34 STREET

VAN DAM STREET

BRADLEY AVENUE

35 STREET

LONG ISLAND EXPRESSWAY

GREENPOINT AVENUE

KINGSLAND AVENUE

JJ BYRNE MEMORIAL BRIDGE

37 STREET

RUSSELL STREET

MONITOR STREET

Tunnel Dewatering Pump Station

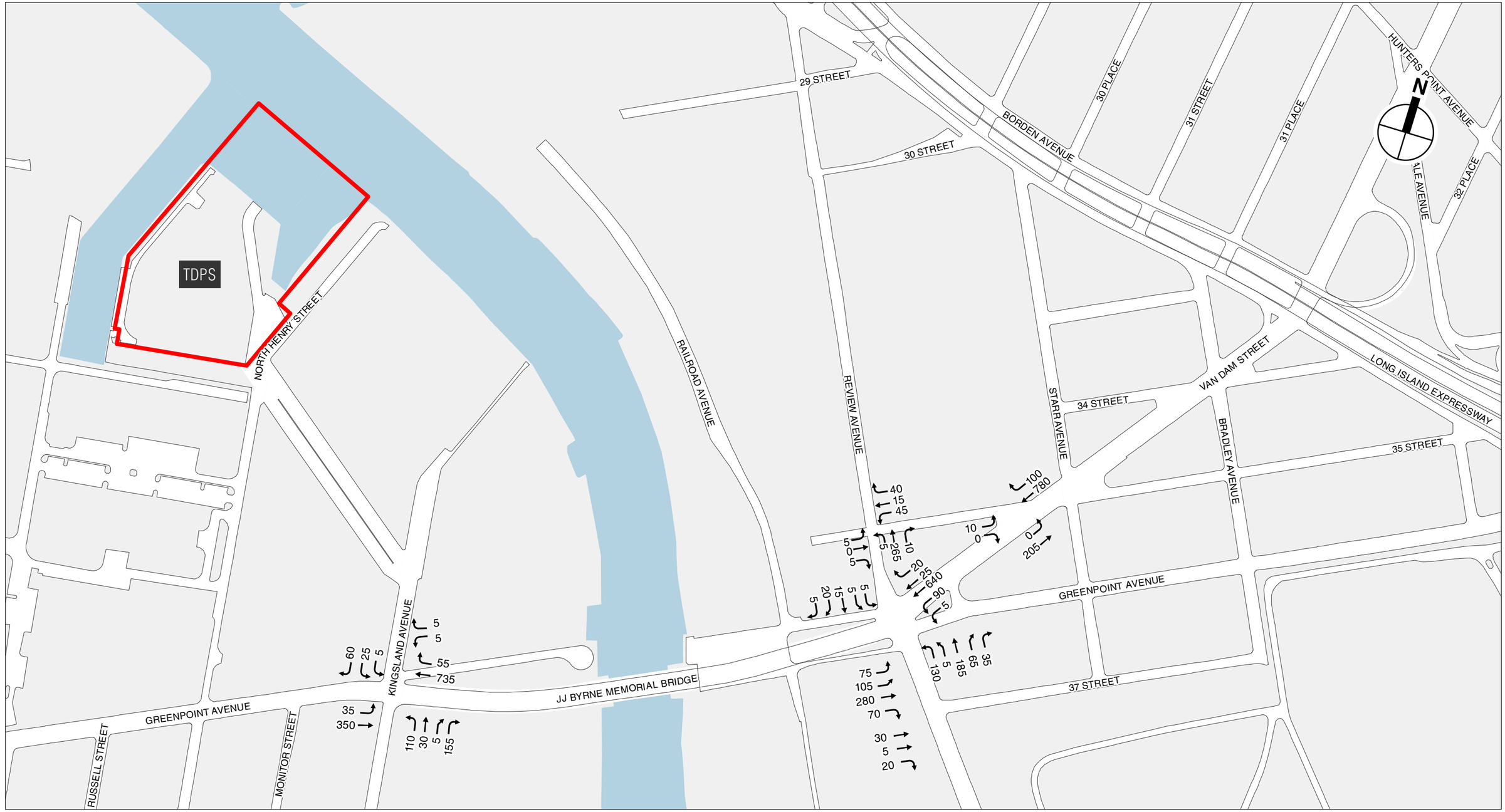
0 1,000 FEET

TDPS Existing Traffic Volumes
Weekday 6-7 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-11

8.4.25



TDPS Existing Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-12a

4.4.25



Diversion Facility NCQ-077

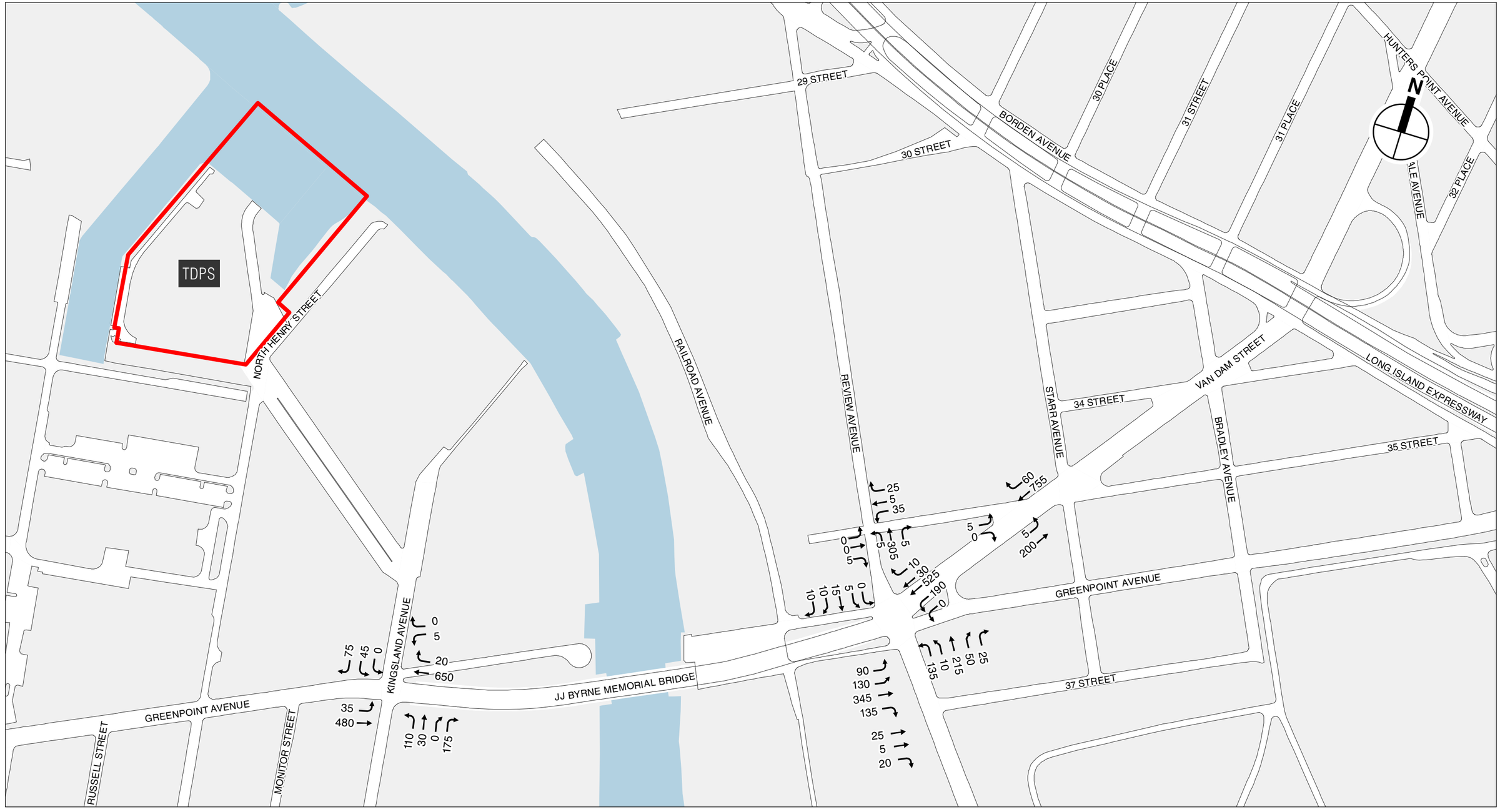
0 1,000 FEET

NCQ-077 Existing Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-12b

8.4.25



Tunnel Dewatering Pump Station

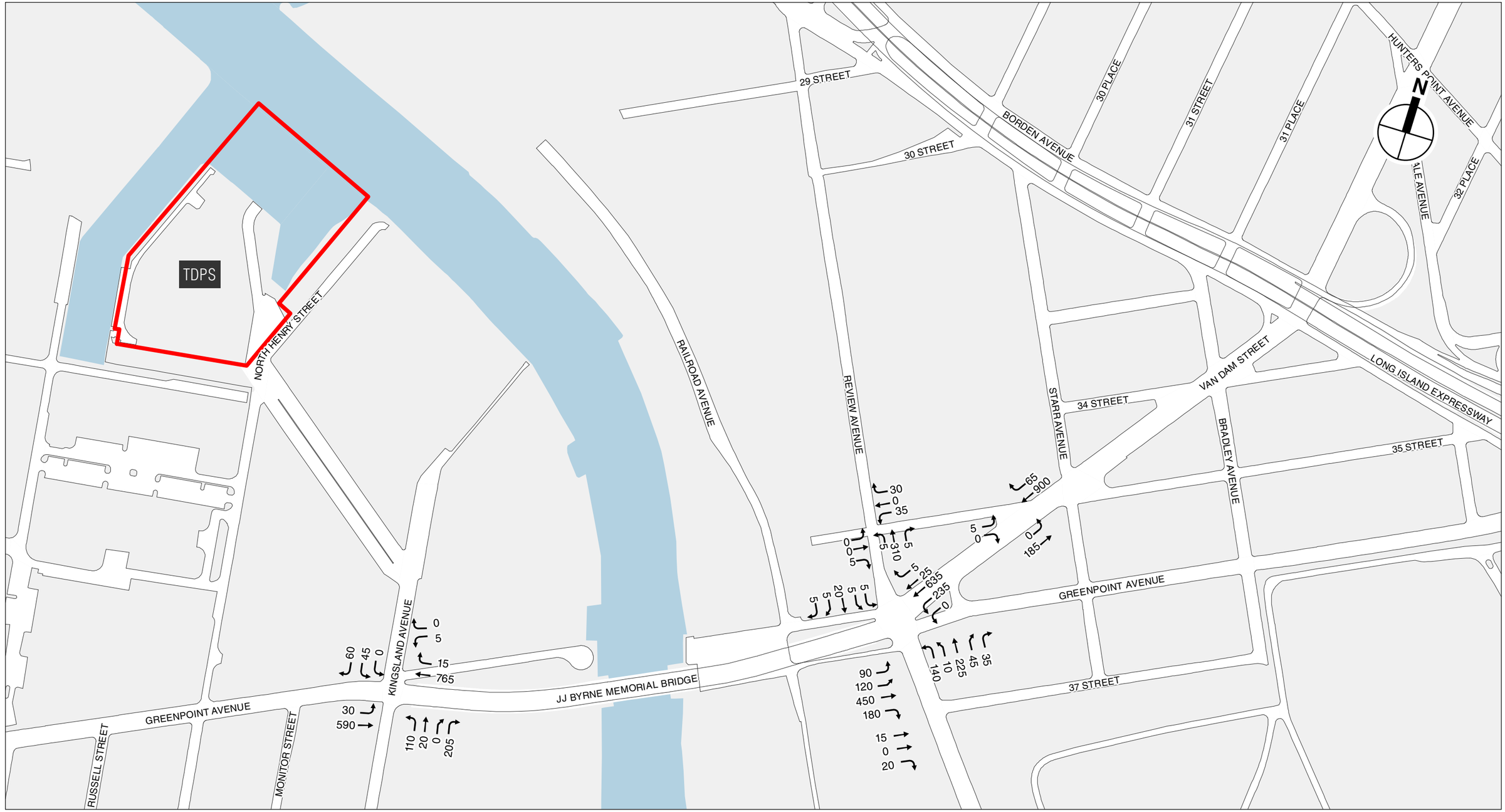
0 1,000 FEET

TDPS Existing Traffic Volumes
Weekday 2-3 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-13

8.4.25



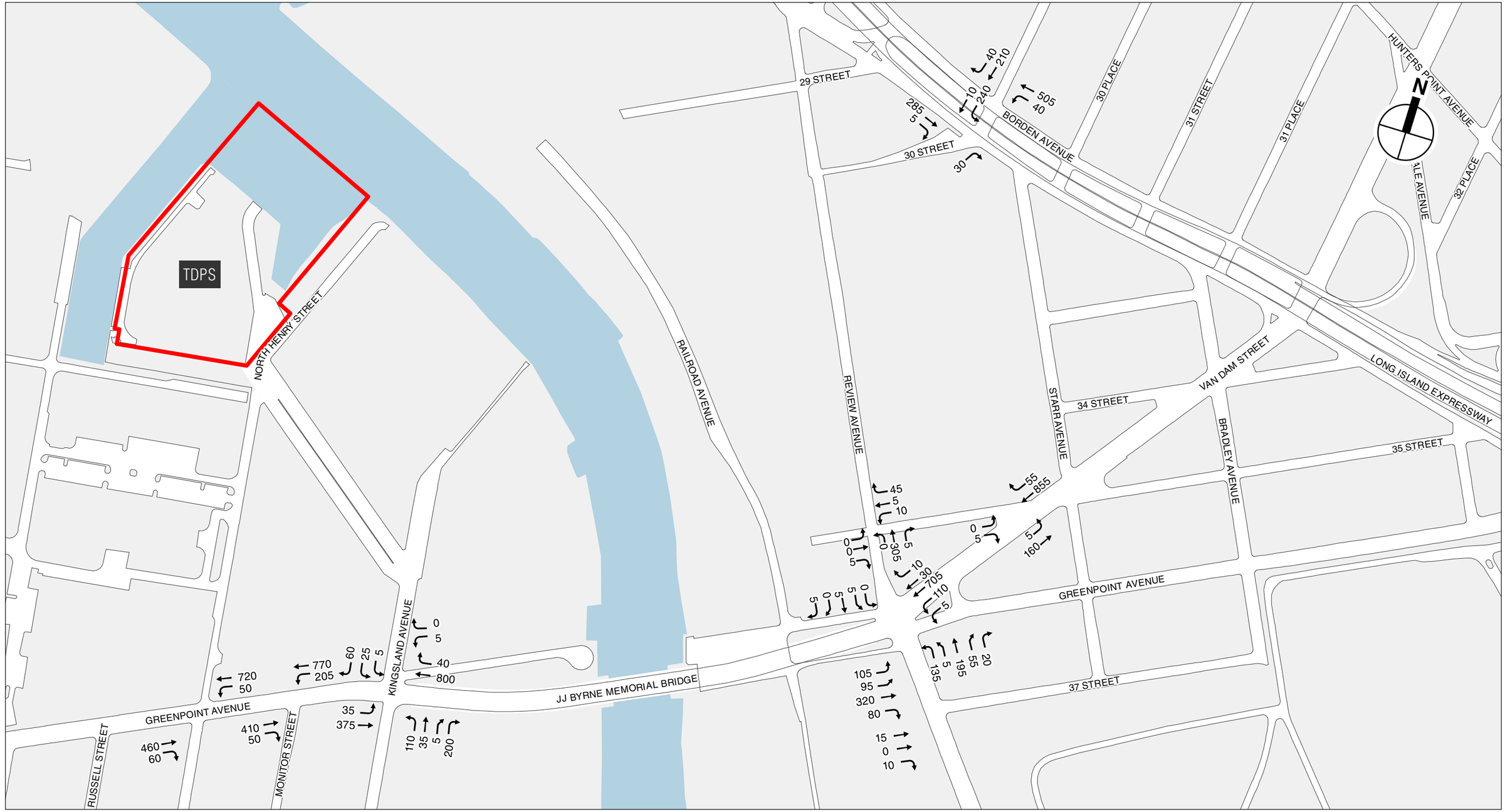
Tunnel Dewatering Pump Station

TDPS Existing Traffic Volumes
Weekday 3-4 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-14

8.4.25



Tunnel Dewatering Pump Station

TDPS Existing Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-15a

4.4.25

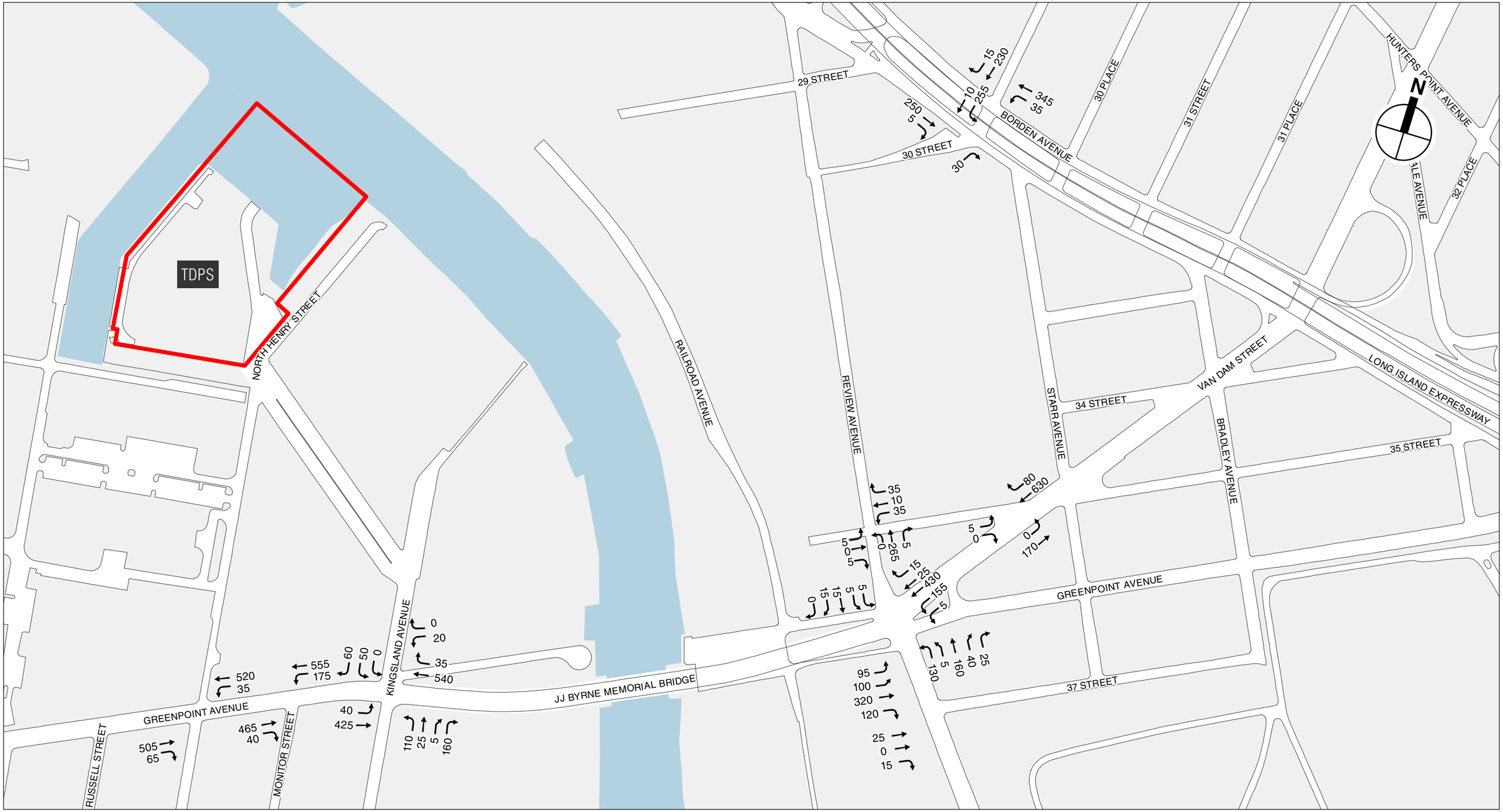


NCQ-077 Existing Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-15b

8.4.25



TDPS Existing Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-16a

4.4.25



Diversion Facility NCQ-077

NCQ-077 Existing Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-16b

8.4.25

TDPS

NORTH HENRY STREET

RAILROAD AVENUE

REVIEW AVENUE

STARR AVENUE

29 STREET

30 STREET

BORDEN AVENUE

30 PLACE

31 STREET

31 PLACE

HUNTERS POINT AVENUE

ALE AVENUE

32 PLACE

VAN DAM STREET

34 STREET

LONG ISLAND EXPRESSWAY

BRADLEY AVENUE

35 STREET

GREENPOINT AVENUE

37 STREET

JJ BYRNE MEMORIAL BRIDGE

KINGSLAND AVENUE

RUSSELL STREET

MONITOR STREET

N

Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS Existing Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-17a

4.4.25



Diversion Facility NCQ-077

NCQ-077 Existing Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-17b

8.4.25

TDPS

NORTH HENRY STREET

RAILROAD AVENUE

REVIEW AVENUE

STARR AVENUE

29 STREET

30 STREET

BORDEN AVENUE

30 PLACE

31 STREET

31 PLACE

HUNTERS POINT AVENUE

ALE AVENUE

32 PLACE

VAN DAM STREET

34 STREET

LONG ISLAND EXPRESSWAY

BRADLEY AVENUE

35 STREET

GREENPOINT AVENUE

37 STREET

JJ BYRNE MEMORIAL BRIDGE

KINGSLAND AVENUE

RUSSELL STREET

MONITOR STREET

N

Tunnel Dewatering Pump Station

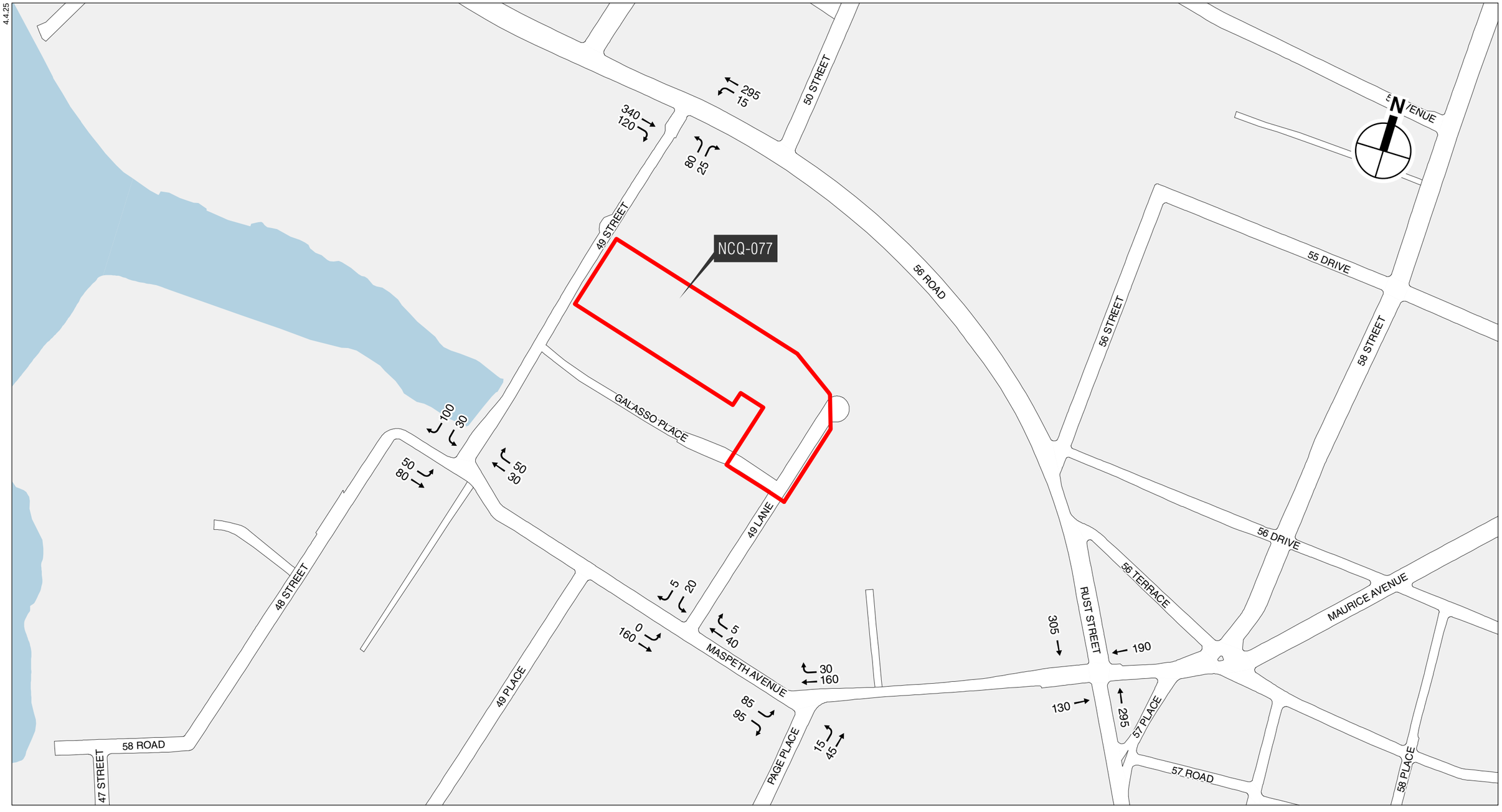
0 1,000 FEET

TDPS Existing Traffic Volumes
Saturday Midday/Afternoon Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-18a

4.4.25



Diversion Facility NCQ-077

NCQ-077 Existing Traffic Volumes
Saturday Midday/Afternoon Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-18b

left-turn lane group operates at LOS F during the construction 3-4 PM and typical PM peak hours, and LOS E during the typical midday peak hour.

- Greenpoint Avenue and Kingsland Avenue – The northbound Kingsland Avenue approach operates at LOS F during seven of the eight (exception is the typical Saturday midday/afternoon) analysis peak hours. Additionally, the southwest-bound frontage road approach operates at LOS E during the construction 6-7 AM and 7-8 AM peak hours, as well as the typical AM and midday peak hours.

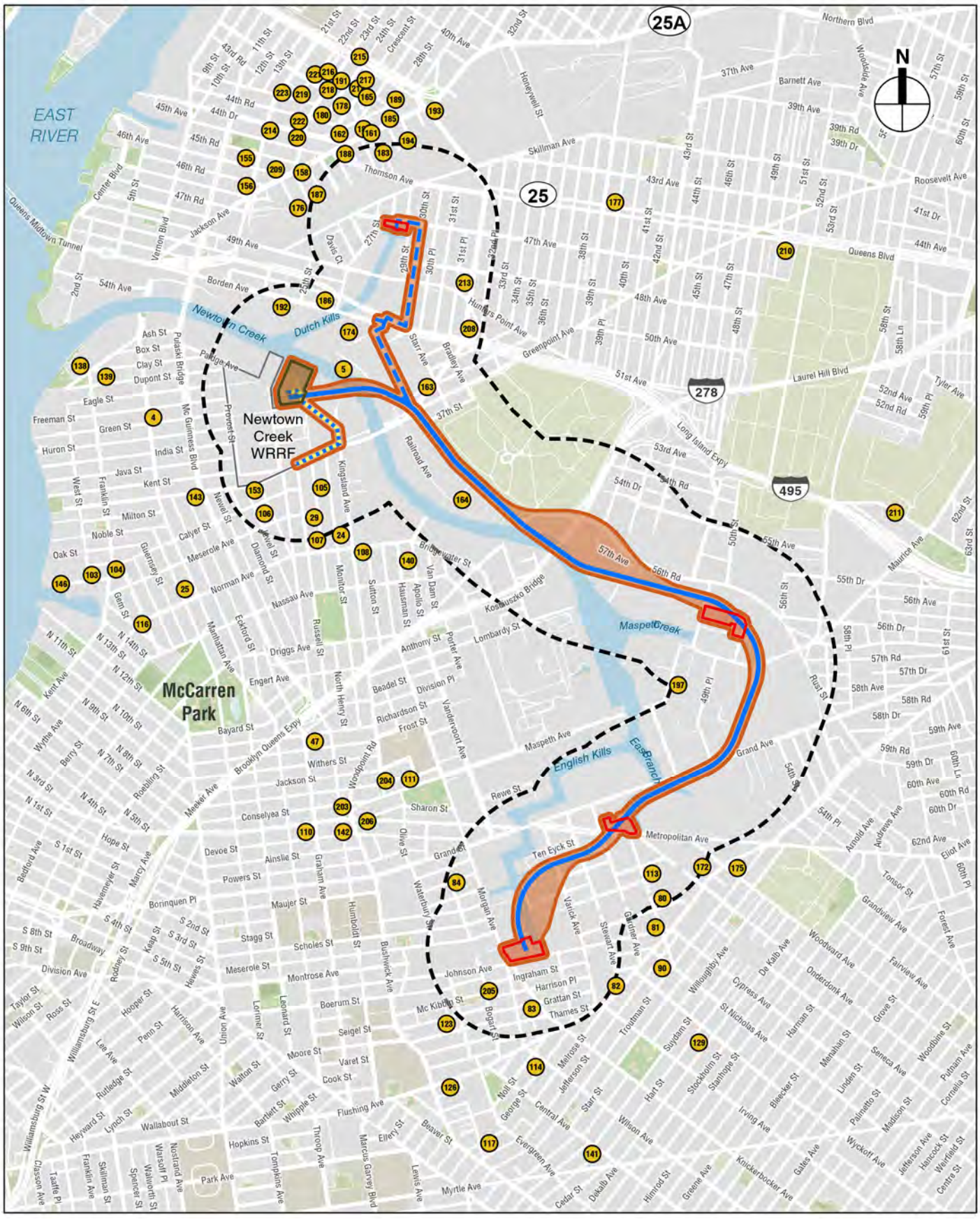
Unsignalized Intersections

- Maspeth Avenue and Rust Street – The northbound Rust Street approach operates at LOS E during the typical midday peak hour, and at LOS F during the construction 7-8 AM peak hour and the typical AM and PM peak hours. Additionally, the southbound Rust Street approach operates at LOS E during the typical midday peak hour and at LOS F during the typical PM peak hour.
- 56th Road and 49th Street – The eastbound 56th Road approach operates at LOS E during the typical AM peak hour and at LOS F during the typical midday and PM peak hours. Additionally, the westbound 56th Road approach operates at LOS F during the typical AM, midday, and PM peak hours.

FUTURE WITHOUT THE PROPOSED PROJECT

As detailed in Section C, "Screening Assessments and Study Scope," the timings of peak construction activities at the five project sites are expected to vary, ranging between 2030 and 2034. For a conservative analysis, peak incremental construction activities identified for each site, regardless of when they would take place, were assumed for the analysis of 2034 future conditions. To establish the baseline (Future without the Proposed Project or No Action condition) onto which these activities would be overlaid to assess potential project impacts, traffic increases contributed by background growth and generated by discrete projects that would occur independent of the Proposed Project (i.e., No Action projects) were estimated and added to the existing traffic volumes.

As per *CEQR Technical Manual* guidelines, annual background growth rates of 0.50 percent and 0.25 percent were assumed for the years of 2024 to 2029 and 2029 to 2034, respectively. In-depth research conducted of potential development and capital projects identified 223 distinct development projects and 116 capital projects. The details associated with these projects, which have been confirmed with the New York City Department of City Planning (DCP), are presented in **Appendix F** (see **Appendix Tables F-4 and F-5**). In consideration of the transportation analysis scope described above, it was determined that none of the 116 capital projects would have any effects on the study locations and trips generated by 140 of the 223 development projects would be small and can be considered as part of background growth. For the remaining 83 development projects (see **Table 16-18** and **Figure 16-19**), trips were estimated, either via original trip generation estimates or information extracted from other approved and on-going studies.



1 *No Action Projects*

No Action Projects

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 16-19

Table 16-18
No Action Development Projects Considered for Transportation Analyses

Map No.	Address	Block	Lot	Building Occupancy Classification	Dwelling Units	Retail (SF)	Office (SF)	Other (SF)	Notes
4	1024 Manhattan Avenue Brooklyn	2513	2	Commercial	31	3,579	0	0	
5	520 Kingsland Ave. Brooklyn	2517	27	-	0	0	0	166,270	Movie Studio
24	341 Kingsland Ave Brooklyn	2608	84	Commercial	0	0	101,190	0	
25	1000 Lorimer Street Brooklyn	2619	20	-	49	2,730	0	2,371	Community facility
29	287 North Henry Street Brooklyn	2629	6	-	0	0	0	20,000	Movie Studio
47	444 Graham Avenue Brooklyn	2735	4	Residential	57	4,551	0	0	
80	255 Randolph Street Brooklyn	2979	45	-	0	17,744	0	0	
81	53 Scott Avenue Brooklyn	2989	32	Assembly	0	23,978	0	30,419	Manufacturing
82	25 Stewart Ave Brooklyn	2994	75	Residential	140	0	79,270	35,029	Community facility
83	58 Grattan Street Brooklyn	3008	15	-	0	3,988	3,988		
84	360 Ten Eyck Street Brooklyn	3029	33	-	0	4,788	0	0	
90	427 Troutman Street Brooklyn	3177	25	Business	0	19,250	0	0	
103	79 Quay Street Brooklyn	2589	1	Residential	132	2,050	0	0	
104	50 Franklin Street Brooklyn	2592	16	Commercial	0	0	0	19,503	Manufacturing / Community facility
105	306 North Henry Street Brooklyn	2607	6	Storage	0	0	60,000	60,000	Movie Studio
106	120 Jewel Street Brooklyn	2603	1	Storage	0	0	0	69,998	Movie Studio
107	255 North Henry Street Brooklyn	2629	25	Residential	31	0	0	15,537	Hotel (assumed approx. 35 rooms at 450 sf/room)
108	272 Norman Ave Brooklyn	2658	1	Commercial	0	0	0	77,242	Movie Studio
110	710 Metropolitan Avenue Brooklyn	2764	14	Residential	69	0	0	0	
111	19 Debevoise Avenue Brooklyn	2885	35	-	200	1,707	0	0	Community facility - Homeless shelter (161,282 sf)
113	154 Scott Avenue Brooklyn	2979	107	Commercial	0	36,087	72,239	0	
114	150 Noll Street Brooklyn	3154	26	Residential	81	0	0	18,854	Community facility
116	1 Wythe Avenue Brooklyn	2641	4	-	0	0	78,260	0	
117	106 Melrose Street Brooklyn	3162	12	Industrial	0	5,000	0	0	
123	232 Seigel Street Brooklyn	3100	34	Residential	199	0	0	60,000	Hotel - 144 rooms
126	15 Montieth Street Brooklyn	3139	30	-	94	0	0	0	
129	1601 Dekalb Avenue Brooklyn	3237	23	Residential	127	0	0	0	
138	65 Dupont Street Brooklyn	2487	17	-	279	2,823	0	0	
139	75 Dupont Street Brooklyn	2487	18	-	194	0	0	0	
140	83 Apollo Street Brooklyn	2661	18	-	97	0	0	32,896	Hotel - 97 rooms
141	649 Hart Street Brooklyn	3217	134	-	38	3,657	0	335	Community facility
142	9 Bushwick Avenue Brooklyn	2916	14	-	136	7,538	0	0	
143	237 McGuinness Boulevard Brooklyn	2576	7	-	70	6,157	0	0	
146	3 West Street Brooklyn	2570	5	-	106	21,539	0	21,539	Community facility
153	305 Calyer Street Brooklyn	2580	1	Educational	0	0	46,613	0	
155	11-36 45 Road Queens	54	6	-	115				
156	46-30 21 Street Queens	56	51	-	71	650	0	0	
158	23-20 Jackson Avenue Queens	85	5	Commercial	72	9,952	0	64,398	Hotel - 72 "hotel apartments"
161	43-14 Queens Street Queens	266	27	Residential	301	4,016	0	0	
162	26-04 Jackson Avenue Queens	268	11	-	82	2,201	0	0	
163	53-26 Van Dam Street Queens	298	1	-	0	3,961	0	0	
164	38-60 Review Avenue Queens	312	350	Commercial	0	0	19,462	0	
165	42-38 27 Street Queens	430	16	Commercial	56	12,335	0	0	
172	18-51 Flushing Avenue Queens	3393	62	-	0	0	0	29,207	Manufacturing
174	28-90 Review Avenue Queens	294	106	-	0	0	0	350,222	Warehouse
175	1906 Flushing Avenue Queens	3376	1	S	0	0	0	31,082	Animal pound
176	22-44 Jackson Avenue Queens	86	1	R	1122	39,765	0	0	
177	43-46 39Th Place Queens	191	44	R	48	6,939	0	0	
178	42-59 Crescent Street Queens	430	37	-	62	0	0	22,080	Hotel - 62 hotel rooms
180	23-15 44 Road Queens	436	1	S	938	21,074	0	0	
183	26-38 Jackson Avenue Queens	267	21	-	363	19,923	0	0	
184	27-01 Jackson Avenue Queens	432	21	-	164	9,146	0	0	
185	27-49 Jackson Avenue Queens	432	3	-	76	11,500	0	0	
186	25-39 Borden Ave. Queens	109	15	S	0	0	26,314	0	
187	45-19 Davis Street Queens	85	13	-	128	353	0	0	
188	27-05 Thomson Avenue Queens	81	5	R	157	9,761	0	0	
189	27-20 42Nd Road Queens	431	17	-	51	3,327	0	0	
191	23-10 42 Road Queens	428	19	R	240	261	0	0	
192	23-30 Borden Avenue Queens	68	38	-	0	0	0	679,404	Movie studio
193	29-10 Northern Boulevard Queens	239	6	-	561	0	471,673	0	
194	42-06 Orchard Street Queens	265	13	-	824	12,635	0	0	
197	58-29 48 St Queens	2602	102	-	0	0	0	58,316	Manufacturing
203	19 Maspeth Avenue, Brooklyn	2892 2893	Var		15	5,806	0	0	https://zap.planning.nyc.gov/projects/2023K0181

Table 16-18
No Action Development Projects Considered for Transportation Analyses

Map No.	Address	Block	Lot	Building Occupancy Classification	Dwelling Units	Retail (SF)	Office (SF)	Other (SF)	Notes
204	300 Skillman Avenue, Brooklyn	2885	Var		556	2,064	0	110,045	https://zap.planning.nyc.gov/projects/2019K0177
205	74 Bogart St, Brooklyn	3084	1		0			240,000	https://zap.planning.nyc.gov/projects/2024K0268
206	824 Metropolitan Avenue, Brooklyn	2916	Var		40	7,000			https://zap.planning.nyc.gov/projects/P2018K0031
208	49-39 Van Dam Street, Queens	261	Var		0	4,987			https://zap.planning.nyc.gov/projects/2019Q047
209	21-31 46th Avenue, Queens	76	11		70	8,000	0	0	https://zap.planning.nyc.gov/projects/2023Q0125
210	50-02 Queens Boulevard, Queens	2283	Var		342	26,659		4,308	https://zap.planning.nyc.gov/projects/2023Q0177
211	58-75 Queens-Midtown Expressway, Queens	2656	Var						
212	23-10 Queens Plaza South, Queens	425	Var						
213	48-18 Van Dam Street, Queens	284	Var						
214	21-02 44 Drive	78	54		51	6,951	0	0	LIC Rezoning - Projected Development Site 16
215	24-02 Queens Plaza South	424	1					161,780	https://zap.planning.nyc.gov/projects/2022Q0287
216	42-50 24 Street	428	1		530	25,000	77,402	0	LIC Rezoning - Projected Development Site 21
217	42-37 24 Street	429	16		302	9,111	18,222	0	LIC Rezoning - Projected Development Site 22
218	42-61 24th Street	429	3		177	19,594	39,188	0	LIC Rezoning - Projected Development Site 54
219	21-21 44 Road	439	8		0	9,664	331,447	2,410	
220	21-21 44 Drive	438	7502		163	0	0	22,026	LIC Rezoning - Potential Devel. Site D (47 hotel rooms)
221	21-23 43 Avenue	427	11		0	54,968	294,142		ttps://zap.planning.nyc.gov/projects/P2017Q0422
222	21-44 44 Road	438	45		0	0	0	0	LIC Rezoning - Potential Development Site L
223	21-30 44 Road	439	2		0	0	0	0	LIC Rezoning - Potential Development Site M

The 2034 No Action condition traffic volumes for the eight analysis peak hours are shown in **Figures 16-20 through 16-27b**. Correspondingly, the No Action traffic analysis results for the construction and typical peak hours are presented in **Tables 16-19a through 16-20b**.

Table 16-19a
Existing vs 2034 No Action Conditions Traffic Level of Service Analysis
Construction Weekday 6-7 AM and 7-8 AM Peak Hours

	Weekday 6-7 AM								Weekday 7-8 AM							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
10 – Van Dam Street & Borden Avenue EB																
EB	LT	0.24	27.6	C	LT	0.24	27.6	C								
NB	TR	0.28	36.5	D	TR	0.28	36.5	D								
SB	DefL	0.56	5.2	A	DefL	0.56	5.2	A								
	T	0.21	2.0	A	T	0.21	2.0	A								
	Intersection		13.9	B	Intersection		13.9	B								
11 – Van Dam Street & Borden Avenue WB																
WB	TR	0.75	29.5	C	TR	0.75	29.5	C								
NB	LT	0.22	2.8	A	LT	0.22	2.8	A								
SB	TR	0.53	24.6	C	TR	0.53	24.6	C								
	Intersection		26.1	C	Intersection		26.1	C								

Table 16-19a
Existing vs 2034 No Action Conditions Traffic Level of Service Analysis
Construction Weekday 6-7 AM and 7-8 AM Peak Hours

	Weekday 6-7 AM								Weekday 7-8 AM							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
12 – Greenpoint Avenue/Van Dam Street & Review Avenue																
EB	LTR	0.18	29.3	C	LTR	0.18	29.3	C	LTR	0.15	28.8	C	LTR	0.15	28.8	C
WB	L	0.3	32.2	C	L	0.31	32.4	C	L	0.41	34.3	C	L	0.43	34.9	C
	TR	0.74	47.1	D	TR	0.77	49.8	D	TR	0.76	47.7	D	TR	0.79	49.4	D
NB	LTR	0.35	15.8	B	LTR	0.42	18.1	B	LTR	0.76	25.2	C	LTR	0.92	39.2	D
SB	LTR	0.31	24.0	C	LTR	0.42	25.6	C	LTR	0.72	32.7	C	LTR	0.84	38.1	D
	Intersection		27.6	C	Intersection		28.8	C	Intersection		38.0	D	Intersection		39.6	D
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.21	16.2	B	LT	0.29	17.2	B	LT	0.36	18.1	B	LT	0.50	20.8	C
WB	TR	0.26	42.2	D	TR	0.36	46.5	D	TR	0.61	48.8	D	TR	0.70	50.6	D
NB	LTR	1.05	108.1	F	LTR	1.32	209.0	F	LTR	1.05	103.2	F	LTR	1.35	217.3	F
SB	LR	0.23	34.3	C	LR	0.40	39.1	D	LR	0.47	42.2	D	LR	1.14	151.0	F
SW	LR	0.17	58.3	E	LR	0.19	59.8	E	LR	0.23	62.7	E	LR	0.23	62.7	E
	Intersection		56.6	E	Intersection		88.0	F	Intersection		51.8	D	Intersection		86.1	F
17 – Maspeth Avenue & Page Place																
EB									TR	0.41	23.3	C	TR	0.49	25.1	C
WB									LT	0.54	16.5	B	LT	0.61	18.4	B
NB									LR	0.29	23.4	C	LR	0.30	23.6	C
									Intersection		19.5	B	Intersection		21.1	C
Unsignalized Intersections																
16 – Maspeth Avenue & Rust Street																
EB									T	0.10	0.0	A	T	0.12	0.0	A
WB									T	0.19	0.0	A	T	0.21	0.0	A
NB									T	1.00	71.7	F	T	1.13	113.1	F
SB									T	0.45	19.3	C	T	0.51	22.3	C
									Intersection		32.1	D	Intersection		47.5	E
18 – Maspeth Avenue & Railroad Place																
EB									LT	0.02	1.0	A	LT	0.02	1.0	A
WB									TR	0.08	0.0	A	TR	0.10	0.0	A
SB									LR	0.04	10.2	B	LR	0.05	10.5	B
									Intersection		1.4	A	Intersection		1.3	A
21 – Review Avenue & 35th Street																
EB	LTR	0.02	10.9	B	LTR	0.02	11.0	B	LTR	0.02	11.0	B	LTR	0.02	11.1	B
WB	LTR	0.18	11.5	B	LTR	0.19	11.7	B	LTR	0.20	12.4	B	LTR	0.21	12.5	B
NB	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.2	A	LTR	0.00	0.2	A
	Intersection		3.8	A	Intersection		3.8	A	Intersection		3.7	A	Intersection		3.8	A
22 – Van Dam Street & 35th Street																
EB	LR	0.01	13.8	B	LR	0.02	16.4	B	LR	0.08	31.9	D	LR	0.11	40.8	E
NE	LT	0.08	0.0	A	LT	0.07	0.0	A	LT	0.10	0.0	A	LT	0.09	0.0	A
SW	TR	0.17	0.0	A	TR	0.24	0.0	A	TR	0.36	0.0	A	TR	0.4	0.0	A
	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.3	A	Intersection		0.3	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

8.4.25

TDPS

NORTH HENRY STREET

29 STREET

30 STREET

BORDEN AVENUE

30 PLACE

31 STREET

31 PLACE

HUNTERS POINT AVENUE

ALE AVENUE

32 PLACE

10
840

221
660

449
1202

29
205
58

42
134

171
5

LONG ISLAND EXPRESSWAY

RAILROAD AVENUE

REVIEW AVENUE

STARR AVENUE

34 STREET

VAN DAM STREET

BRADLEY AVENUE

35 STREET

104
498

47
5
52

5
0
5

5
0
228
5

5
0

0
186

36
36
374
49
5

26
5
10
10
5

GREENPOINT AVENUE

67
10
156
48
36

37 STREET

42
66
113
31

67
5
31

0
10
75
372

60
18
0

87
141

175
55
5
92

KINGSLAND AVENUE

JJ BYRNE MEMORIAL BRIDGE

GREENPOINT AVENUE

RUSSELL STREET

MONITOR STREET

N

Tunnel Dewatering Pump Station

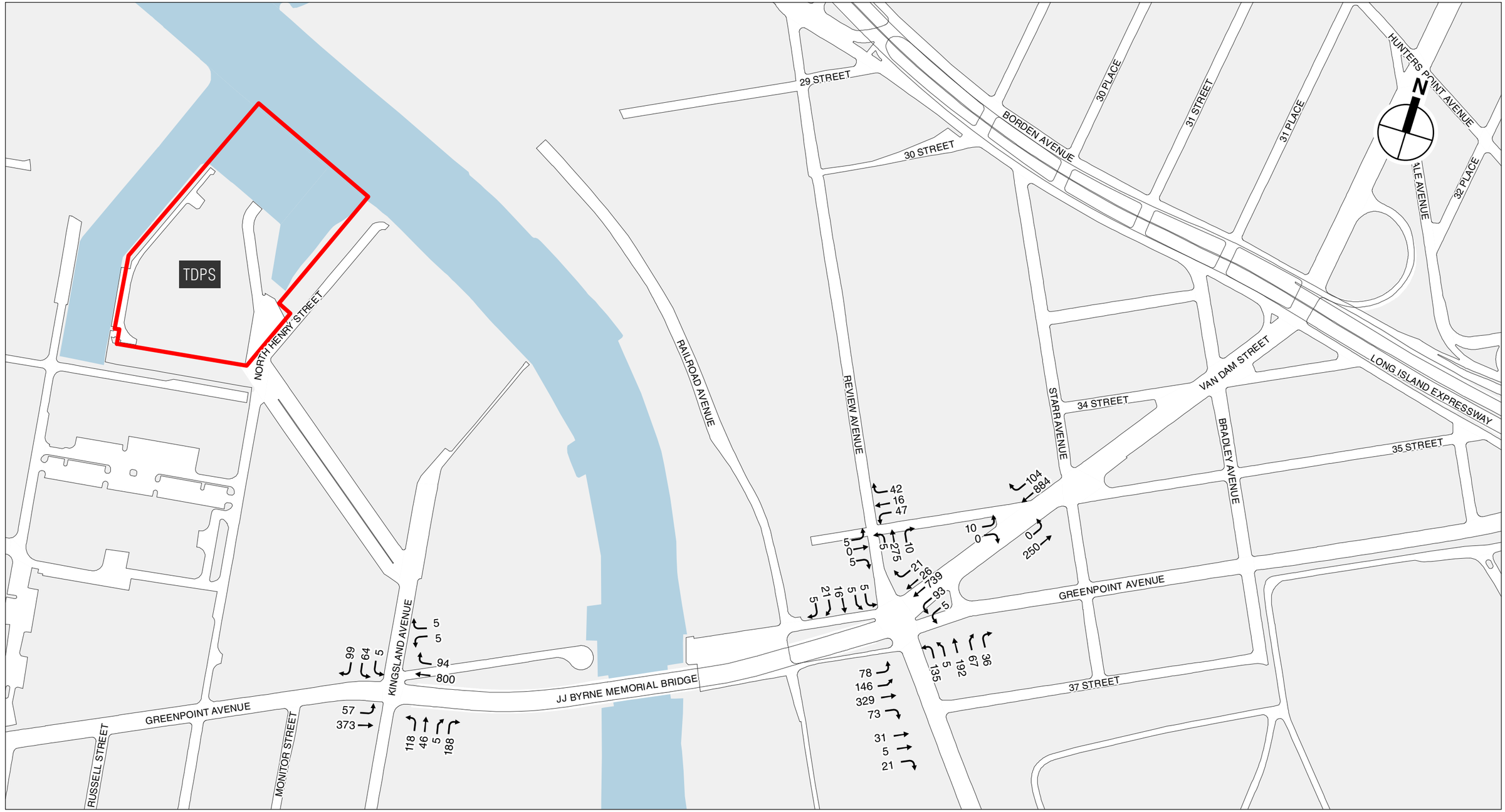
0 1,000 FEET

TDPS No Action Traffic Volumes
Weekday 6-7 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-20

8.4.25



Tunnel Dewatering Pump Station

TDPS No Action Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-21a

4.4.25



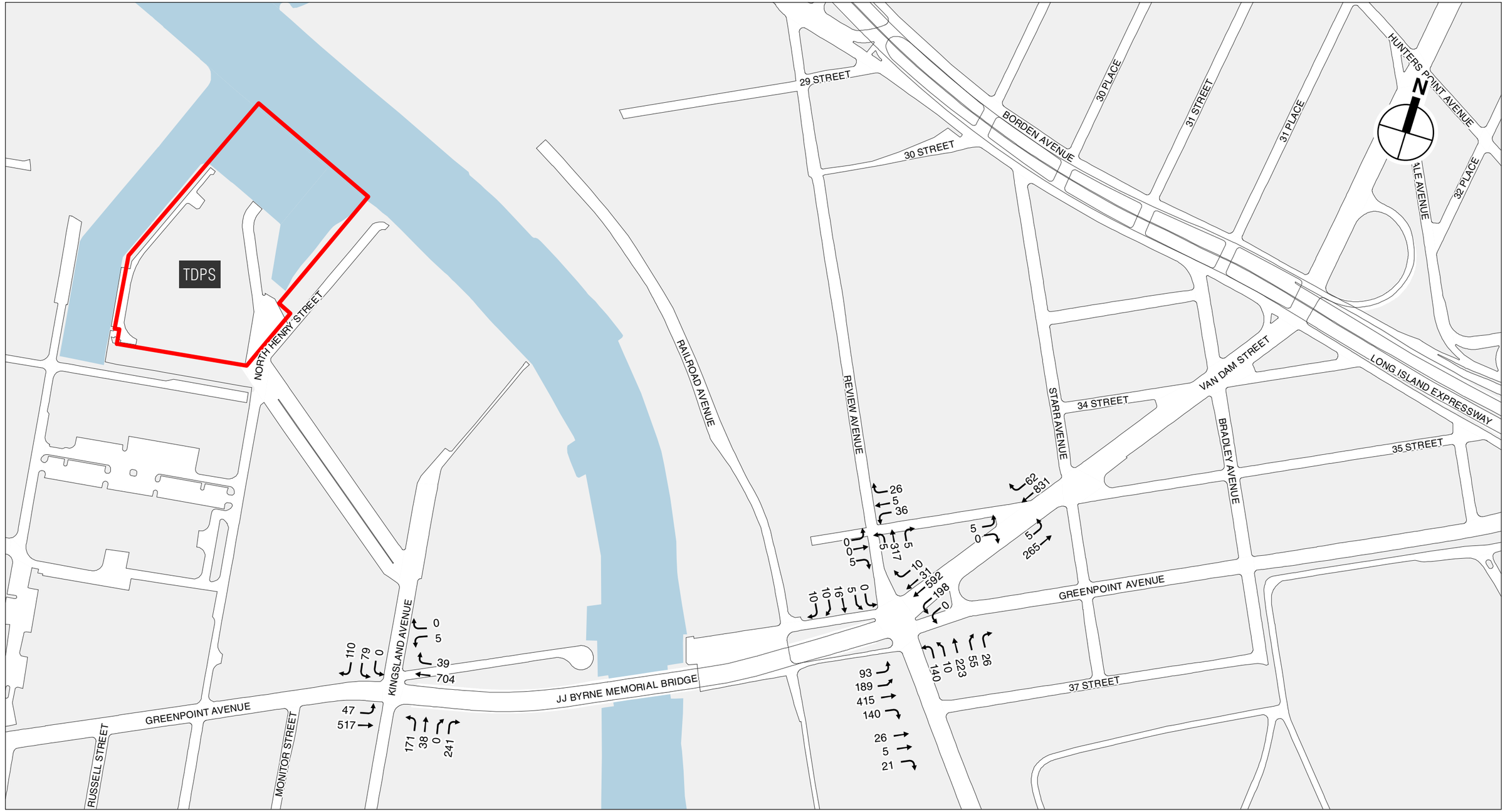
Diversion Facility NCQ-077

NCQ-077 No Action Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-21b

8.4.25

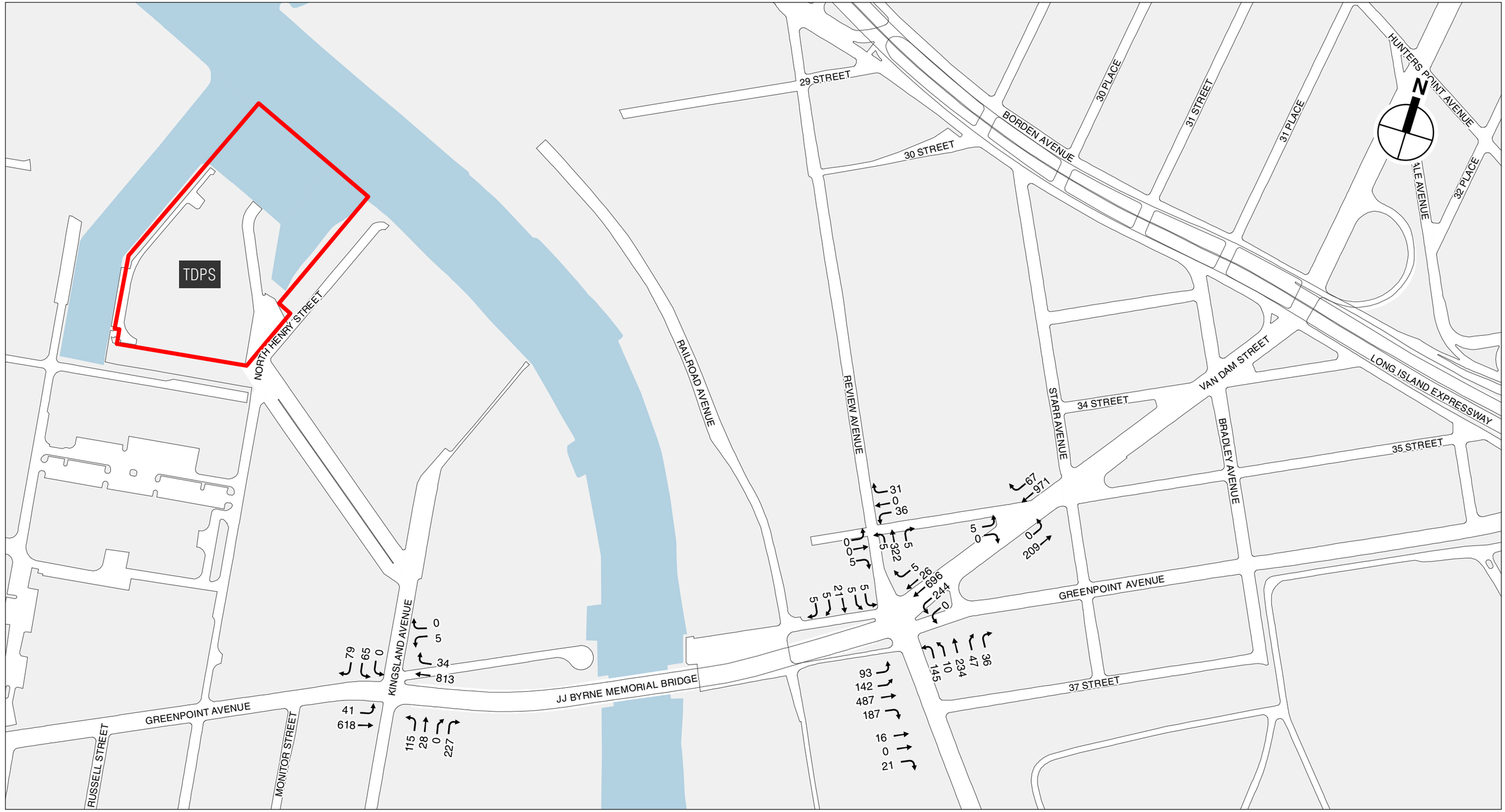


TDPS No Action Traffic Volumes
Weekday 2-3 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-22

8.4.25



Tunnel Dewatering Pump Station

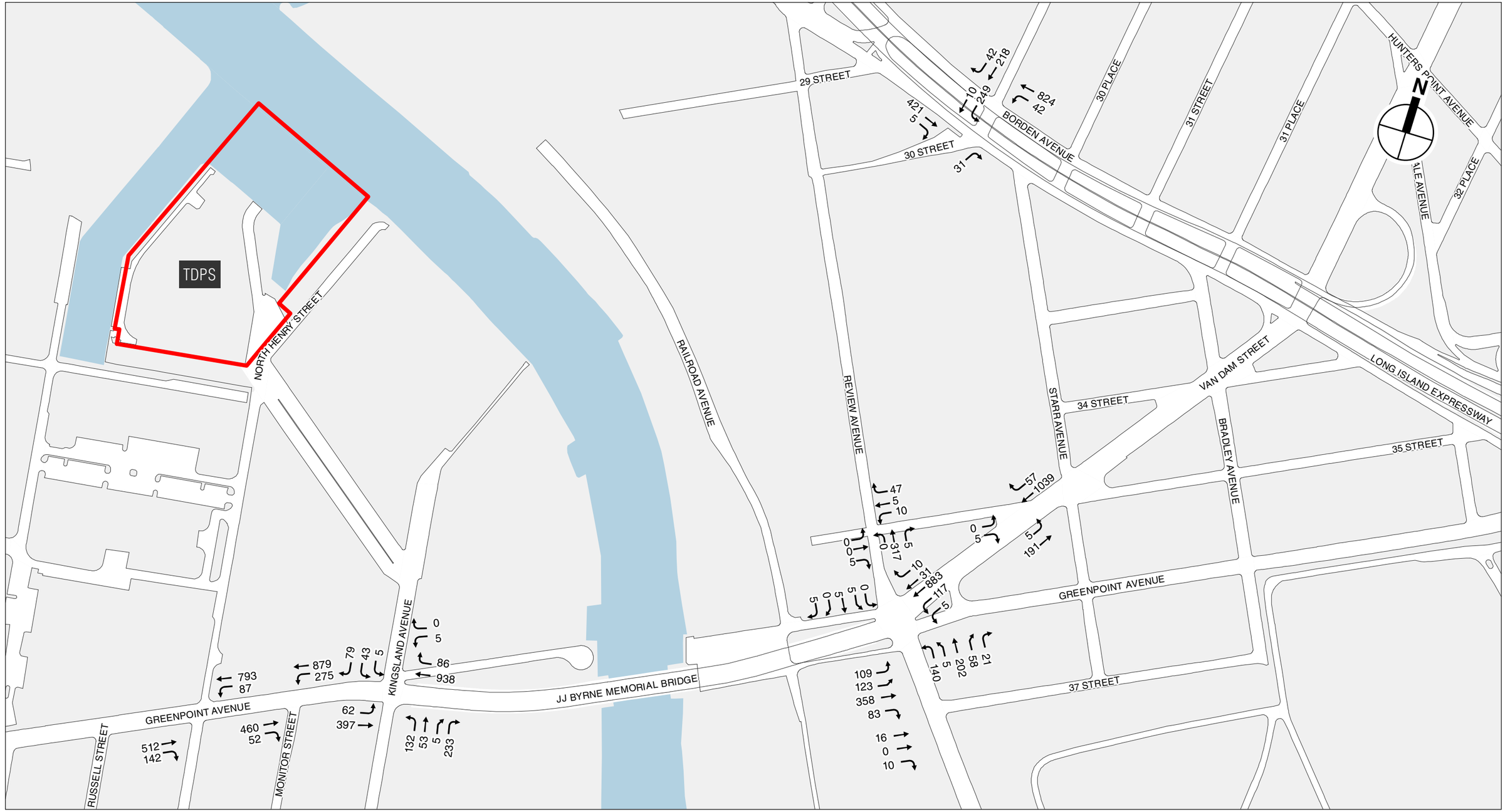
0 1,000 FEET

TDPS No Action Traffic Volumes
Weekday 3-4 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-23

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS No Action Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-24a

4.4.25



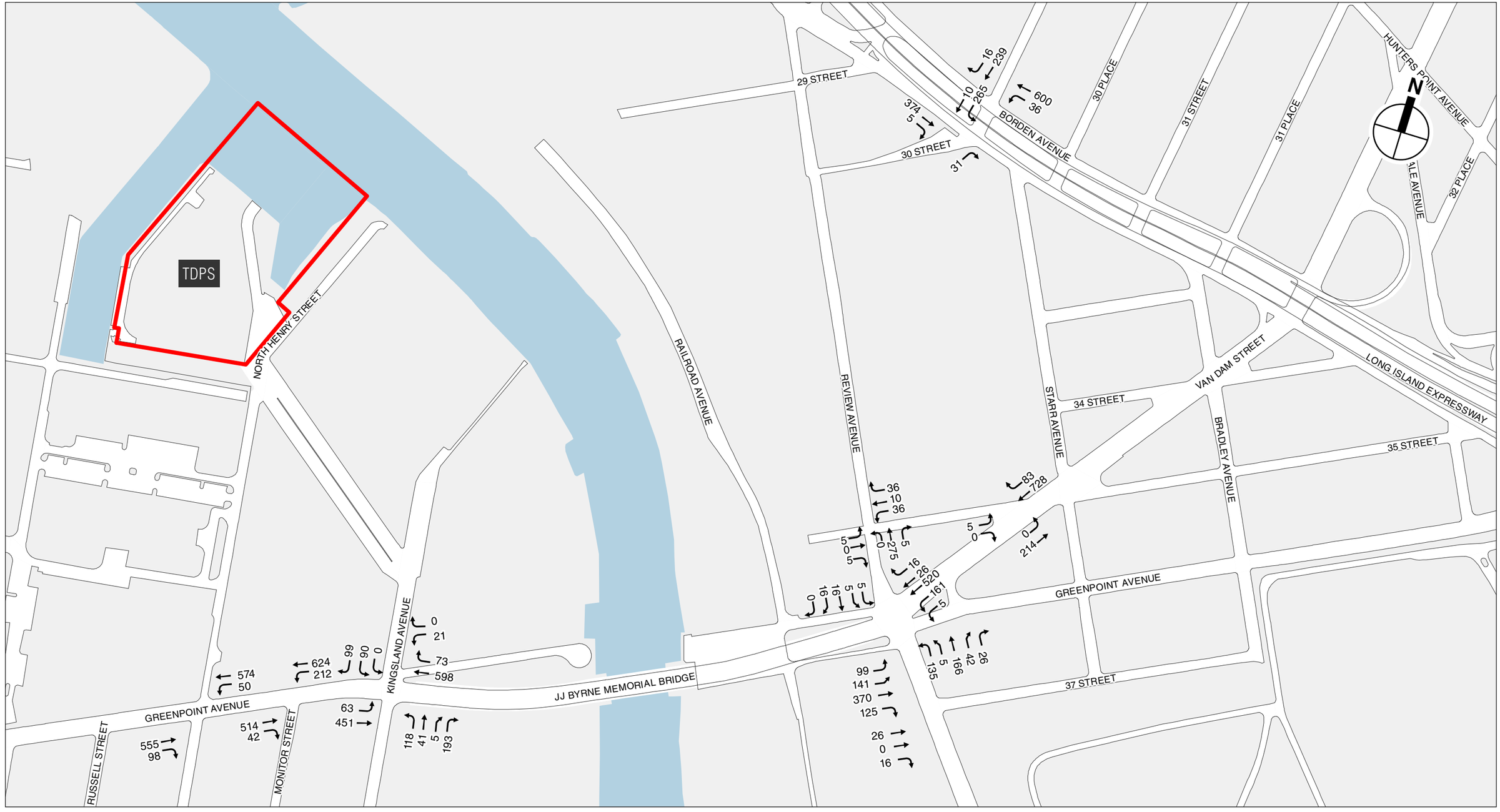
Diversion Facility NCQ-077

NCQ-077 No Action Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-24b

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS No Action Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-25a

4.4.25



Diversion Facility NCQ-077

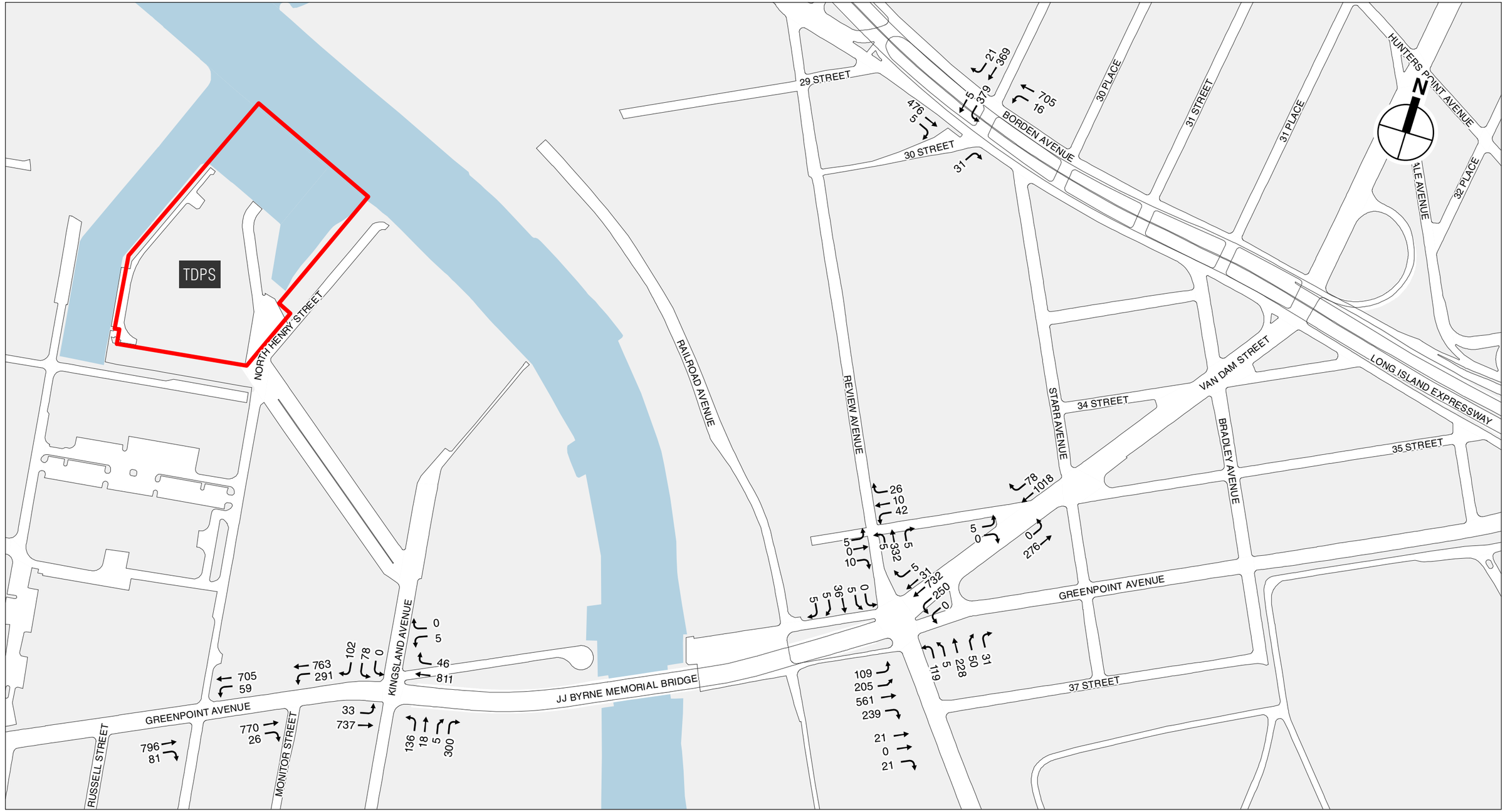
0 1,000 FEET

NCQ-077 No Action Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-25b

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS No Action Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-26a

4.4.25

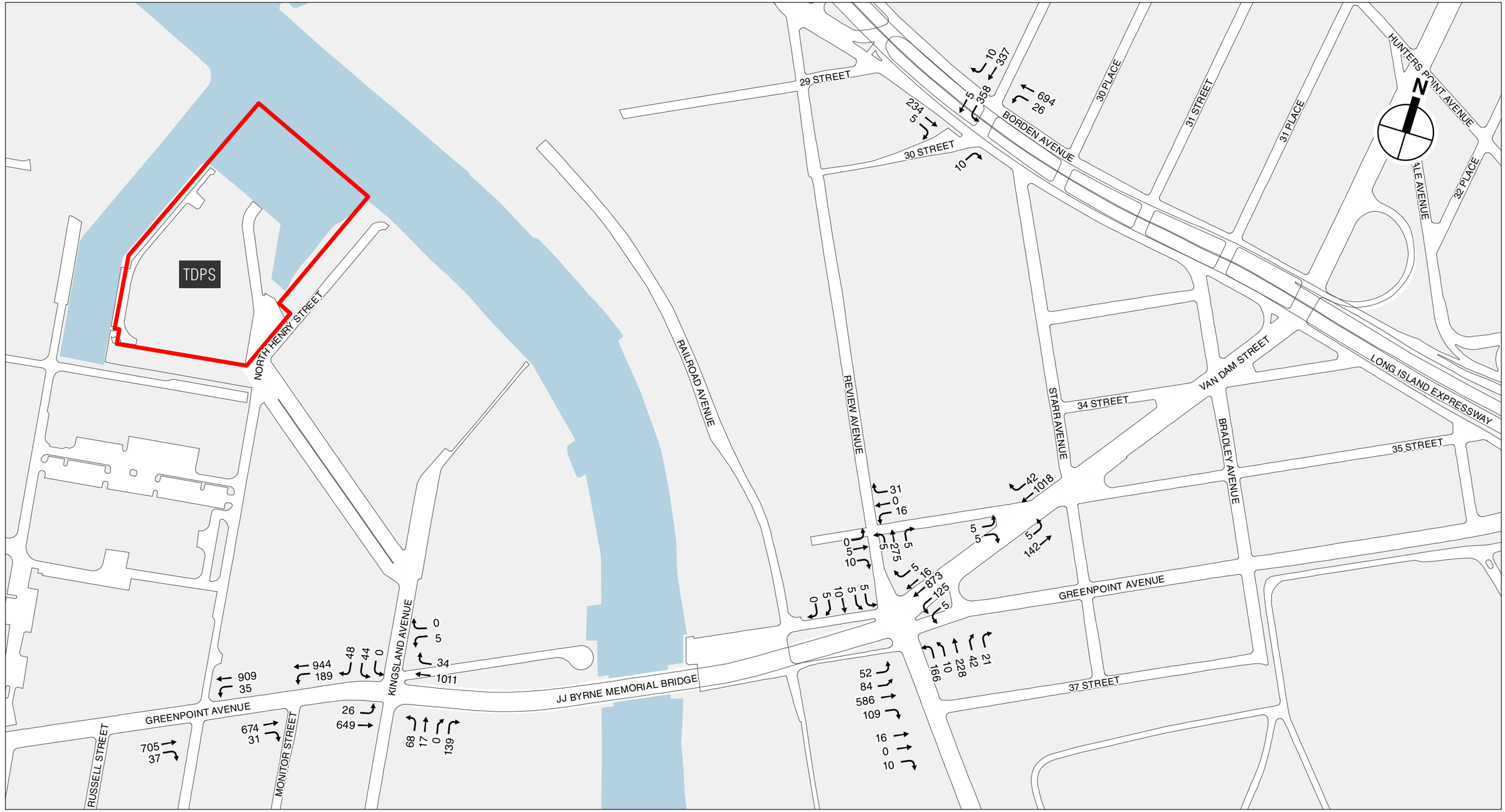


NCQ-077 No Action Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-26b

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS No Action Traffic Volumes
Saturday Midday/Afternoon Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-27a

4.4.25



Diversion Facility NCQ-077

NCQ-077 No Action Traffic Volumes
Saturday Midday/Afternoon Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-27b

Table 16-19b
Existing vs 2034 No Action Conditions Traffic Level of Service Analysis
Construction Weekday 2-3 PM and 3-4 PM Peak Hours

	Weekday 2-3 PM								Weekday 3-4 PM							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
12 – Greenpoint Avenue/Van Dam Street & Review Avenue																
EB	LTR	0.10	28.1	C	LTR	0.11	28.1	C	LTR	0.09	27.9	C	LTR	0.10	28.0	C
WB	L	0.49	36.4	D	L	0.50	37.0	D	L	0.41	34.2	C	L	0.43	34.6	C
	TR	0.71	43.3	D	TR	0.74	45.2	D	TR	0.73	44.1	D	TR	0.78	47.2	D
NB	LTR	0.89	42.3	D	LTR	1.08	86.5	F	LTR	1.05	75.7	E	LTR	1.18	125.5	F
SB	DefL	0.77	40.6	D	DefL	0.93	68.7	E	DefL	1.03	96.3	F	DefL	1.14	136.5	F
	TR	0.68	30.3	C	TR	0.76	33.5	C	TR	0.71	30.8	C	TR	0.77	33.4	C
	Intersection		38.0	D	Intersection		59.0	E	Intersection		56.9	E	Intersection		81.3	F
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.45	19.4	B	LT	0.45	19.4	B	LT	0.47	19.7	B	LT	0.47	19.7	B
WB	TR	0.51	44.5	D	TR	0.51	46.3	D	TR	0.54	46.0	D	TR	0.54	48.6	D
NB	LTR	1.03	97.5	F	LTR	1.03	97.5	F	LTR	1.04	99.1	F	LTR	1.04	99.1	F
SB	LR	0.61	48.1	D	LR	0.55	44.3	D	LR	0.62	49.8	D	LR	0.56	45.4	D
SW	LR	0.06	53.8	D	LR	0.06	53.8	D	LR	0.06	53.8	D	LR	0.06	53.8	D
	Intersection		47.5	D	Intersection		48.0	D	Intersection		47.2	D	Intersection		48.8	D
Unsignalized Intersections																
21 – Review Avenue & 35th Street																
EB	LTR	0.01	8.3	A	LTR	0.01	8.3	A	LTR	0.01	8.3	A	LTR	0.01	8.3	A
WB	LTR	0.13	11.7	B	LTR	0.14	12.0	B	LTR	0.12	11.3	B	LTR	0.13	11.3	B
NB	LTR	0.00	0.1	A	LTR	0.00	0.1	A	LTR	0.00	0.1	A	LTR	0.00	0.1	A
	Intersection		2.2	A	Intersection		2.3	A	Intersection		2.2	A	Intersection		2.1	A
22 – Van Dam Street & 35th Street																
EB	LR	0.04	27	D	LR	0.04	32.3	D	LR	0.05	34.7	D	LR	0.06	40.3	E
NE	LT	0.01	1.1	A	LT	0.13	0.0	A	LT	0.08	0.0	A	LT	0.07	0.0	A
SW	TR	0.32	0.0	A	TR	0.35	0.0	A	TR	0.40	0.0	A	TR	0.43	0.0	A
	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.2	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-20a
Existing vs. 2034 No Action Conditions Traffic Level of Service Analysis
Typical Weekday AM and Midday Peak Hours

	Weekday AM								Weekday Midday							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
4 – Borden Avenue WB & 30th Street																
WB	LT	0.39	12.5	B	LT	0.61	15.7	B	LT	0.28	11.5	B	LT	0.46	13.5	B
SB	TR	0.58	29.0	C	TR	0.60	29.7	C	TR	0.55	27.8	C	TR	0.57	28.3	C
	Intersection		17.7	B	Intersection		19.0	B	Intersection		18.3	B	Intersection		18.1	B
5 – Borden Avenue EB & 30th Street																
EB	TR	0.23	11.0	B	TR	0.33	12.0	B	TR	0.19	10.7	B	TR	0.28	11.5	B
NB	R	0.04	9.6	B	R	0.04	9.6	A	R	0.03	9.6	B	R	0.03	9.6	A
SB	L	0.29	9.0	A	L	0.30	8.7	A	L	0.30	7.8	A	L	0.31	7.5	A
	T	0.29	9.0	A	T	0.30	8.6	A	T	0.30	7.8	A	T	0.31	7.5	A
	Intersection		10.0	A	Intersection		10.7	B	Intersection		9.2	A	Intersection		9.7	A
12 – Greenpoint Avenue & Review Avenue																
EB	LTR	0.04	27.2	C	LTR	0.04	27.2	C	LTR	0.13	28.5	C	LTR	0.13	28.6	C
WB	L	0.44	35.2	D	L	0.46	35.7	D	L	0.52	38.2	D	L	0.54	38.9	D
WB	TR	0.72	44.5	D	TR	0.74	45.7	D	TR	0.62	40.2	D	TR	0.65	41.3	D
NB	LTR	0.86	29.9	C	LTR	1.00	53.9	D	LTR	1.05	67.1	E	LTR	1.04	61.3	E
SB	LTR	0.80	36.4	D	LTR	0.99	57.8	E	DefL	0.94	77.4	E	DefL	0.95	80.4	F
SB									TR	0.44	23.2	C	TR	0.53	24.9	C
	Intersection		35.3	D	Intersection		53.3	D	Intersection		49.3	D	Intersection		47.2	D

Table 16-20a
Existing vs. 2034 No Action Conditions Traffic Level of Service Analysis
Typical Weekday AM and Midday Peak Hours

	Weekday AM								Weekday Midday							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.36	5.2	A	LT	0.55	6.4	A	LT	0.44	5.2	A	LT	0.56	6.1	A
WB	TR	0.59	49.2	D	TR	0.74	51.9	D	TR	0.43	43.0	D	TR	0.52	45.4	D
NB	LTR	1.04	100.8	F	LTR	1.32	204.1	F	LTR	1.05	105.0	F	LTR	1.32	207.4	F
SB	LR	0.50	43.2	D	LR	0.73	58.3	E	LR	0.64	51.0	D	LR	1.18	164.6	F
SW	LR	0.10	55.7	E	LR	0.10	55.7	E	LR	0.27	60.2	E	LR	0.28	60.6	E
	Intersection		48.4	D	Intersection		72.1	E	Intersection		44.5	D	Intersection		81.1	E
14 – Greenpoint Avenue & Monitor Street																
EB	TR	0.54	20.2	C	TR	0.61	21.8	C	TR	0.68	24.2	C	TR	0.75	27.0	C
WB	LT	0.66	8.6	A	LT	0.82	11.5	B	LT	0.57	8.0	A	LT	0.67	10.4	B
	Intersection		12.2	B	Intersection		14.6	B	Intersection		14.6	B	Intersection		17.1	B
17 – Maspeth Avenue & Page Place																
EB	TR	0.43	23.6	C	TR	0.46	24.4	C	TR	0.55	25.6	C	TR	0.62	27.5	C
WB	LT	0.62	18.8	B	LT	0.71	21.7	C	LT	0.57	18.8	B	LT	0.46	15.5	B
NB	LR	0.45	26.6	C	LR	0.47	27.0	C	LR	0.35	24.1	C	LR	0.36	24.4	C
	Intersection		21.8	C	Intersection		23.5	C	Intersection		22.8	C	Intersection		23.0	C
Unsignalized Intersections																
15 – Greenpoint Avenue & North Henry Street																
EB	TR	0.33	0.0	A	TR	0.43	0.0	A	TR	0.38	0.0	A	TR	0.44	0.0	A
WB	LT	0.07	2.6	A	LT	0.15	4.4	A	LT	0.06	2.3	A	LT	0.09	3.2	A
	Intersection		0.6	A	Intersection		1.0	A	Intersection		0.4	A	Intersection		0.6	A
16 – Maspeth Avenue & Rust Street																
EB	T	0.13	0.0	A	T	0.14	0.0	A	T	0.20	0.0	A	T	0.23	0.0	A
WB	T	0.19	0.0	A	T	0.22	0.0	A	T	0.15	0.0	A	T	0.17	0.0	A
NB	T	0.97	67.5	F	T	1.10	107.5	F	T	0.76	38.3	E	T	0.87	54.6	F
SB	T	0.52	22.3	C	T	0.59	26.8	D	T	0.83	45.2	E	T	0.94	67.7	F
	Intersection		28.2	C	Intersection		41.8	E	Intersection		21.2	C	Intersection		30.0	D
18 – Maspeth Avenue & Railroad Place																
EB	LT	0.02	1.5	A	LT	0.02	1.5	A	LT	0.01	0.2	A	LT	0.01	0.2	A
WB	TR	0.09	0.0	A	TR	0.13	0.0	A	TR	0.06	0.0	A	TR	0.08	0.0	A
SB	LR	0.07	11.0	B	LR	0.08	11.5	B	LR	0.03	10.6	B	LR	0.03	11.0	B
	Intersection		2.0	A	Intersection		1.8	A	Intersection		0.6	A	Intersection		0.6	A
19 – Maspeth Avenue & 49th Street																
EB	LT	0.14	7.2	A	LT	0.15	7.1	A	LT	0.11	5.3	A	LT	0.12	5.1	A
WB	TR	0.10	0.0	A	TR	0.13	0.0	A	TR	0.10	0.0	A	TR	0.11	0.0	A
SB	LR	0.43	14.5	B	LR	0.51	16.6	C	LR	0.44	14.7	B	LR	0.50	16.8	C
	Intersection		8.4	A	Intersection		9.0	A	Intersection		7.9	A	Intersection		8.4	A
20 – 56th Road & 49th Street																
EB	TR	0.83	37.0	E	TR	0.90	47.5	E	TR	0.97	58.6	F	TR	1.06	84.2	F
WB	LT	1.01	72.9	F	LT	1.16	125.1	F	LT	1.03	92.3	F	LT	1.33	204.9	F
NB	LR	0.16	6.4	A	LR	0.16	6.5	A	LR	0.12	5.7	A	LR	0.13	5.8	A
	Intersection		43.6	D	Intersection		67.5	F	Intersection		56.9	F	Intersection		102.8	F
21 – Review Avenue & 35th Street																
EB	LTR	0.01	8.6	A	LTR	0.01	8.6	A	LTR	0.02	10.6	B	LTR	0.02	10.8	B
WB	LTR	0.13	12.5	B	LTR	0.13	12.0	B	LTR	0.16	12.0	B	LTR	0.17	12.2	B
NB	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A	LTR	0.00	0.0	A
	Intersection		2.1	A	Intersection		2.0	A	Intersection		3.0	A	Intersection		3.0	A
22 – Van Dam Street & 35th Street																
EB	LR	0.01	13.2	B	LR	0.02	15.4	B	LR	0.02	17.5	C	LR	0.03	20.6	C
NE	LT	0.08	1.0	A	LT	0.01	1.0	A	LT	0.08	0.0	A	LT	0.08	0.0	A
SW	TR	0.39	0.0	A	TR	0.47	0.0	A	TR	0.27	0.0	A	TR	0.31	0.0	A
	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-20b
Existing vs. 2034 No Action Conditions Traffic Level of Service Analysis
Typical Weekday PM and Saturday Midday/Afternoon Peak Hours

	Weekday PM								Saturday Midday/Afternoon							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
4 – Borden Avenue WB & 30th Street																
WB	LT	0.33	11.9	B	LT	0.56	14.9	B	LT	0.32	11.6	B	LT	0.52	14.1	B
SB	TR	0.75	35.1	D	TR	0.78	36.8	D	TR	0.68	31.1	C	TR	0.72	33.0	C
	Intersection		22.4	C	Intersection		22.2	C	Intersection		20.0	C	Intersection		20.4	C
5 – Borden Avenue EB & 30th Street																
EB	TR	0.25	11.1	B	TR	0.33	11.9	B	TR	0.12	9.9	B	TR	0.16	10.4	B
NB	R	0.04	9.6	B	R	0.04	9.6	A	R	0.01	9.2	B	R	0.01	9.4	A
SB	L	0.38	6.2	A	L	0.39	6.1	A	L	0.37	6.2	A	L	0.39	7.0	A
	T	0.37	6.2	A	T	0.38	6.0	A	T	0.36	6.2	A	T	0.38	6.9	A
	Intersection		8.8	A	Intersection		9.4	A	Intersection		7.4	A	Intersection		5.2	A
12 – Greenpoint Avenue & Review Avenue																
EB	LTR	0.11	28.1	C	LTR	0.11	28.1	C	LTR	0.06	27.5	C	LTR	0.06	27.5	C
WB	L	0.40	34.1	C	L	0.42	34.5	C	L	0.51	37.1	D	L	0.53	37.7	D
WB	TR	0.65	40.7	D	TR	0.69	42.2	D	TR	0.66	41.0	D	TR	0.69	42.2	D
NB	LTR	1.05	58.5	E	LTR	1.22	125.3	F	LTR	0.79	18.2	B	LTR	0.89	26.4	C
SB	DefL	1.05	101.4	F	DefL	1.15	139.2	F	LTR	0.78	34.7	C	LTR	0.85	38.5	D
SB	TR	0.55	25.3	C	TR	0.61	26.7	C								
	Intersection		49.0	D	Intersection		81.6	F	Intersection		29.8	C	Intersection		34.4	C
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.47	5.8	A	LT	0.59	6.4	A	LT	0.4	5.1	A	LT	0.48	5.3	A
WB	TR	0.52	45.0	D	TR	0.58	46.1	D	TR	0.60	48.7	D	TR	0.66	49.5	D
NB	LTR	1.04	100.2	F	LTR	1.69	367.5	F	LTR	0.63	44.9	D	LTR	0.73	50.4	D
SB	LR	0.49	41.4	D	LR	0.98	97.7	F	LR	0.21	33.7	C	LR	0.36	37.2	D
SW	LR	0.08	54.4	D	LR	0.06	53.6	D	LR	0.08	54.7	D	LR	0.09	55.0	D
	Intersection		40.7	D	Intersection		108.0	F	Intersection		33.5	C	Intersection		35.1	C
14 – Greenpoint Avenue & Monitor Street																
EB	TR	0.79	28.4	C	TR	0.85	32.8	C	TR	0.66	23.0	C	TR	0.70	24.4	C
WB	LT	0.66	10.4	B	LT	0.92	13.1	B	LT	0.65	10.1	B	LT	0.71	10.8	B
	Intersection		18.3	B	Intersection		20.0	B	Intersection		15.0	B	Intersection		15.8	B
17 – Maspeth Avenue & Page Place																
EB	TR	0.62	27.5	C	TR	0.72	31.5	C	TR	0.43	22.8	C	TR	0.45	23.3	C
WB	LT	0.60	19.9	B	LT	0.71	25.2	C	LT	0.38	13.8	B	LT	0.41	14.3	B
NB	LR	0.58	29.0	C	LR	0.61	29.8	C	LR	0.15	21.1	C	LR	0.16	21.2	C
	Intersection		25.7	C	Intersection		29.1	C	Intersection		18.7	B	Intersection		19.2	B
Unsignalized Intersections																
15 – Greenpoint Avenue & North Henry Street																
EB	TR	0.48	0.0	A	TR	0.54	0.0	A	TR	0.41	0.0	A	TR	0.45	0.0	A
WB	LT	0.08	2.9	A	LT	0.11	3.7	A	LT	0.04	1.4	A	LT	0.06	1.9	A
	Intersection		0.5	A	Intersection		0.7	A	Intersection		0.3	A	Intersection		0.4	A
16 – Maspeth Avenue & Rust Street																
EB	T	0.26	0.0	A	T	0.30	0.0	A	T	0.09	0.0	A	T	0.09	0.0	A
WB	T	0.15	0.0	A	T	0.16	0.0	A	T	0.12	0.0	A	T	0.13	0.0	A
NB	T	0.91	61.7	F	T	1.05	101.7	F	T	0.57	19.7	C	T	0.61	21.4	C
SB	T	1.03	82.7	F	T	1.17	131.2	F	T	0.66	22.7	C	T	0.70	25.4	D
	Intersection		38.3	E	Intersection		59.5	A	Intersection		14.0	B	Intersection		15.4	C
18 – Maspeth Avenue & Railroad Place																
EB	LT	0.00	0.2	A	LT	0.00	0.2	A	LT	0.00	0.0	A	LT	0.00	0.0	A
WB	TR	0.03	0.0	A	TR	0.04	0.0	A	TR	0.03	0.0	A	TR	0.03	0.0	A
SB	LR	0.04	10.6	B	LR	0.04	11.1	B	LR	0.04	9.9	A	LR	0.04	9.9	A
	Intersection		0.8	A	Intersection		0.7	A	Intersection		1.2	A	Intersection		1.1	A
19 – Maspeth Avenue & 49th Street																
EB	LT	0.07	5.9	A	LT	0.07	5.9	A	LT	0.04	3.1	A	LT	0.04	3.1	A
WB	TR	0.09	0.0	A	TR	0.09	0.0	A	TR	0.06	0.0	A	TR	0.06	0.0	A
SB	LR	0.53	14.6	B	LR	0.53	14.6	B	LR	0.18	10.2	B	LR	0.18	10.1	B
	Intersection		9.8	A	Intersection		9.8	A	Intersection		5.0	A	Intersection		5.0	A
20 – 56th Road & 49th Street																
EB	TR	1.02	60.3	F	TR	1.12	92.2	F	TR	0.79	27	D	TR	0.62	15.1	C
WB	LT	0.98	78.8	F	LT	1.36	221.4	F	LT	0.37	11.2	B	LT	0.53	16.4	C
NB	LR	0.11	5.8	A	LR	0.13	6.0	A	LR	0.06	5.8	A	LR	0.07	5.8	A
	Intersection		55.7	F	Intersection		107.9	F	Intersection		19.1	C	Intersection		14.3	A
21 – Review Avenue & 35th Street																
EB	LTR	0.02	9.7	A	LTR	0.02	9.8	A	LTR	0.02	9.3	A	LTR	0.02	9.3	A
WB	LTR	0.15	12.0	B	LTR	0.15	12.1	B	LTR	0.07	10.1	B	LTR	0.08	10.4	B
NB	LTR	0.00	0.1	A	LTR	0.00	0.1	A	LTR	0.00	0.2	A	LTR	0.00	0.2	A
	Intersection		2.6	A	Intersection		2.7	A	Intersection		1.7	A	Intersection		1.9	A

Table 16-20b
Existing vs. 2034 No Action Conditions Traffic Level of Service Analysis
Typical Weekday PM and Saturday Midday/Afternoon Peak Hours

	Weekday PM								Saturday Midday/Afternoon							
	Existing				No Action				Existing				No Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
22 – Van Dam Street & 35th Street																
EB	LR	0.03	24.6	C	LR	0.04	28.8	C	LR	0.04	18.5	C	LR	0.05	19.8	C
NE	LT	0.09	0.0	A	LT	0.09	0.0	A	LT	0.01	1.3	A	LT	0.01	1.2	A
SW	TR	0.39	0.0	A	TR	0.42	0.0	A	TR	0.39	0.0	A	TR	0.42	0.0	A
	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.2	A	Intersection		0.2	A

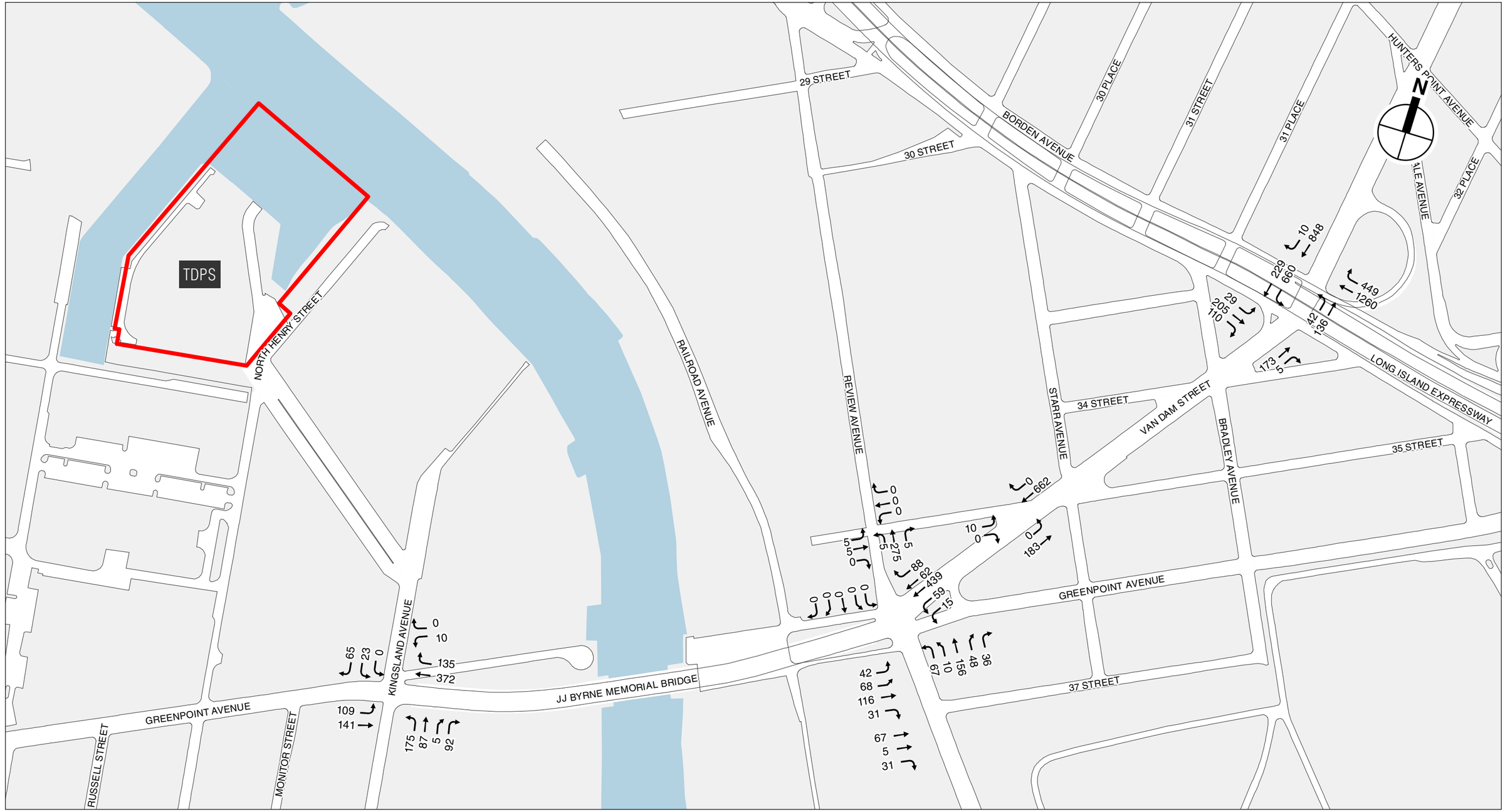
Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

As shown, most lane groups at the intersections analyzed for both construction and typical peak hours will continue to operate at LOS D or better. However, vehicle delays are expected to increase from added traffic attributed to background growth and discrete projects that would be in operation by the 2034 analysis year. For the analyzed signalized intersections, five lane groups at two intersections (increased from four lane groups at the same two intersections under existing conditions) will operate at unacceptable LOS E or F during one or more analysis peak hours. For the analyzed unsignalized intersections, the five lane groups at three intersections (increased from four lane groups at two intersections) will operate at unacceptable LOS E or F during one or more analysis peak hours.

FUTURE WITH THE PROPOSED PROJECT

For the Future with the Proposed Project (With Action condition), construction activities associated with worker/truck travel and potential disruptions of public ROWs would affect the operation of study intersections during various time periods. As detailed in Section C, "Screening Assessments and Study Scope," construction worker and truck trip assignments were developed for certain peak hours to define analysis needs due to project trip generation. These estimates were prorated, where needed to estimate construction trips at the 15 study area intersections for all eight analysis peak hours. In addition, traffic volume changes from anticipated detours resulting from the temporary closure of Railroad Place connecting to the NCQ-077 site were estimated. The overlay of these added/detoured trips onto the 2034 No Action condition traffic network yields the 2034 With Action condition traffic volumes for analysis, as shown in **Figures 16-28 through 16-35b**. For the With Action condition analyses, ROW effects depicted in the WZTC plans presented in **Appendix F** were also incorporated into the Synchro models. The With Action analysis results for the construction and typical peak hours are presented in **Tables 16-21a through 16-22b**, respectively.

8.4.25



Tunnel Dewatering Pump Station

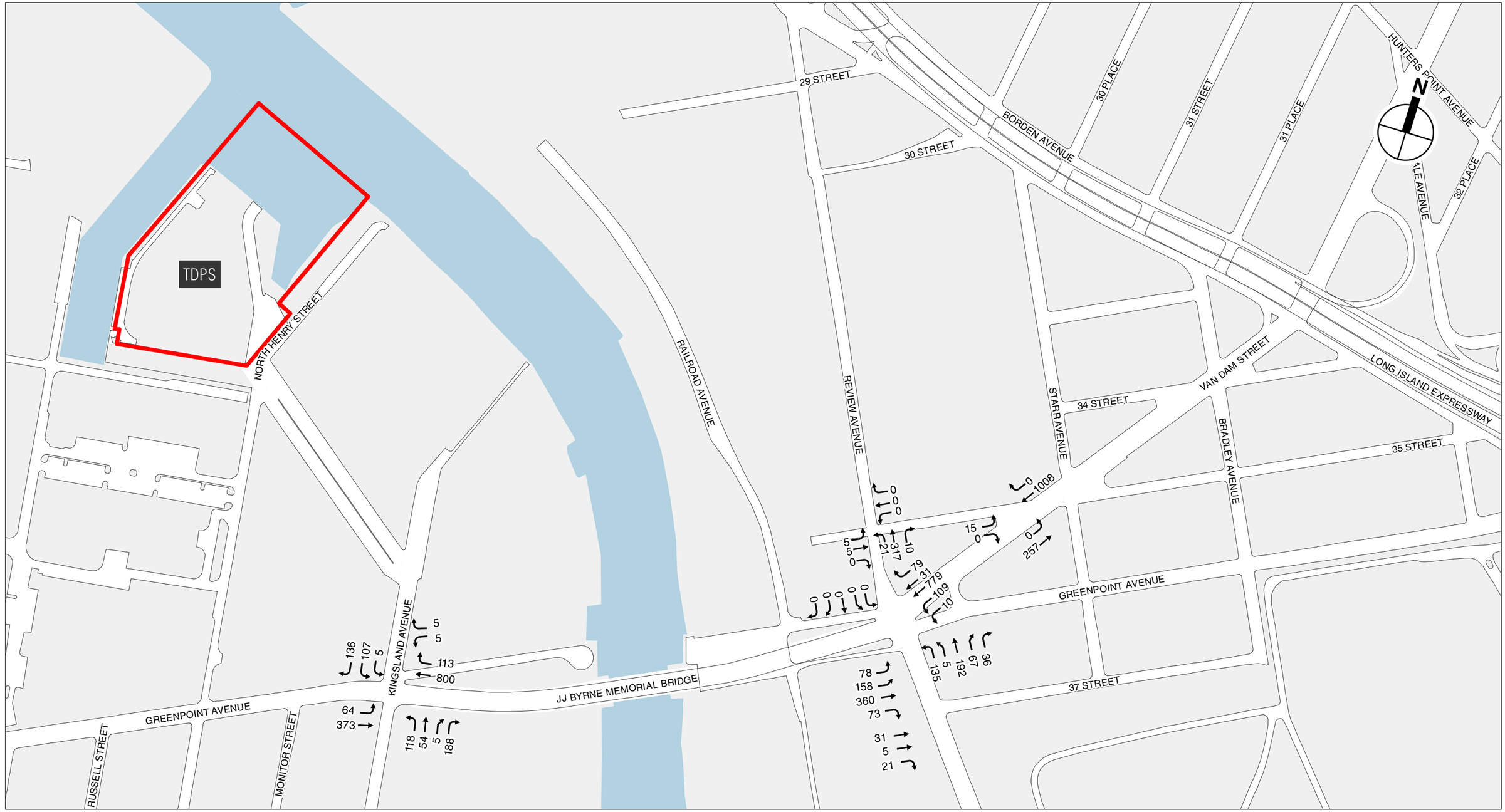
0 1,000 FEET

TDPS With Action Traffic Volumes
Weekday 6-7 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-28

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS With Action Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-29a

4.4.25



Diversion Facility NCQ-077

NCQ-077 With Action Traffic Volumes
Weekday 7-8 AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-29b

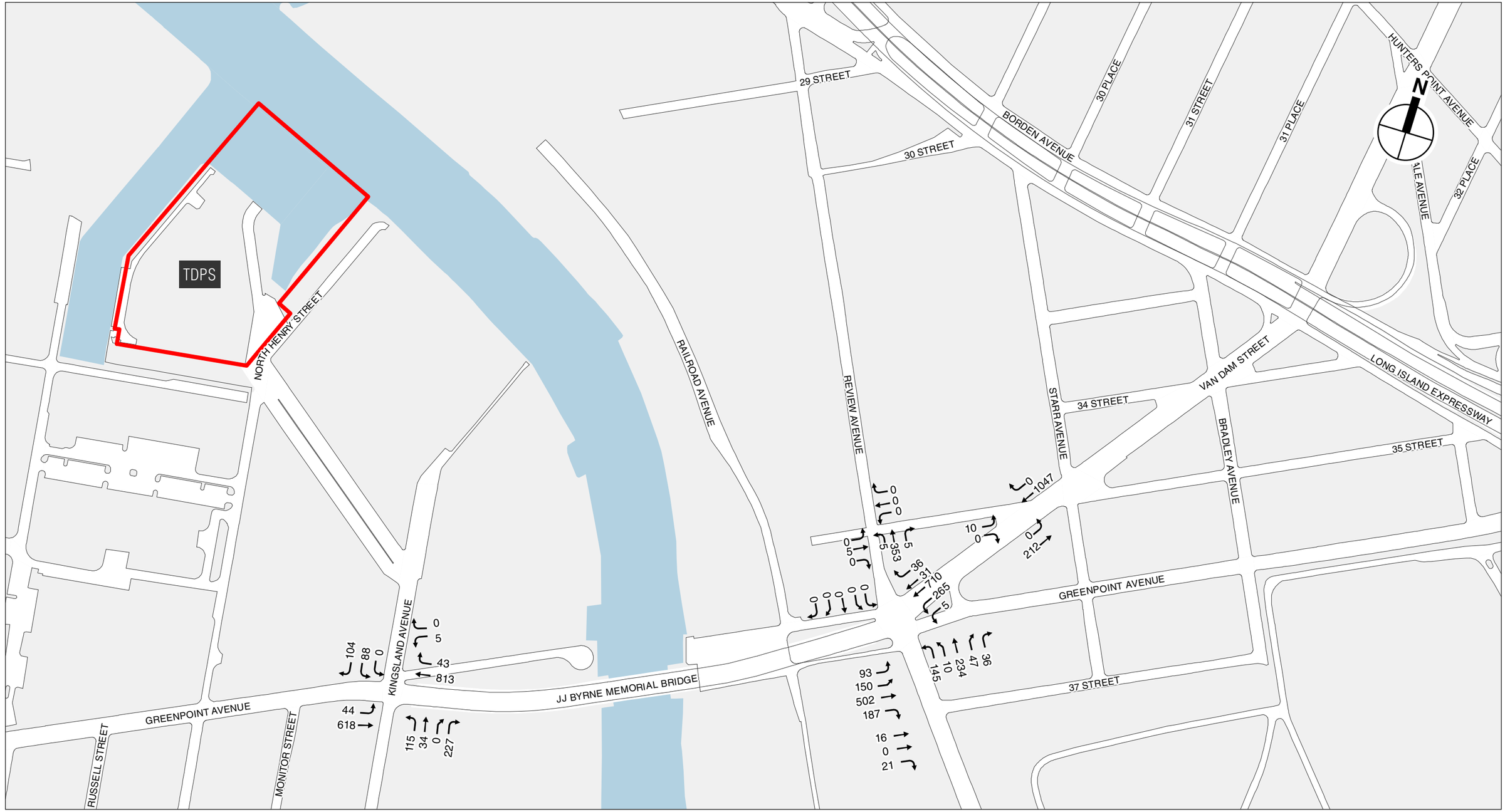


TDPS With Action Traffic Volumes
Weekday 2-3 PM Peak Hour

Figure 16-30

8.4.25

8.4.25



Tunnel Dewatering Pump Station

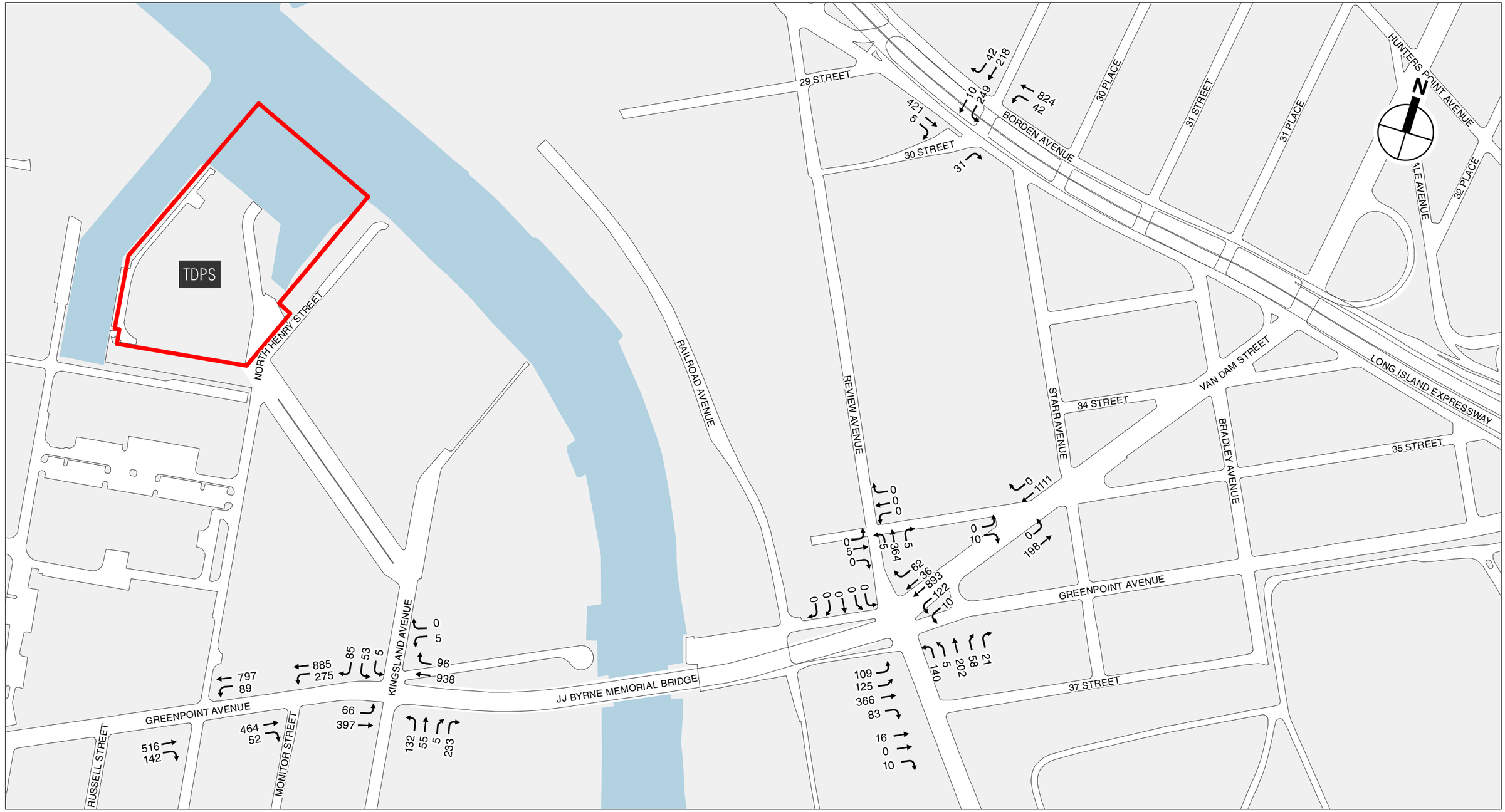
0 1,000 FEET

TDPS With Action Traffic Volumes
Weekday 3-4 PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-31

8.4.25



Tunnel Dewatering Pump Station

0 1,000 FEET

TDPS With Action Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-32a

4.4.25



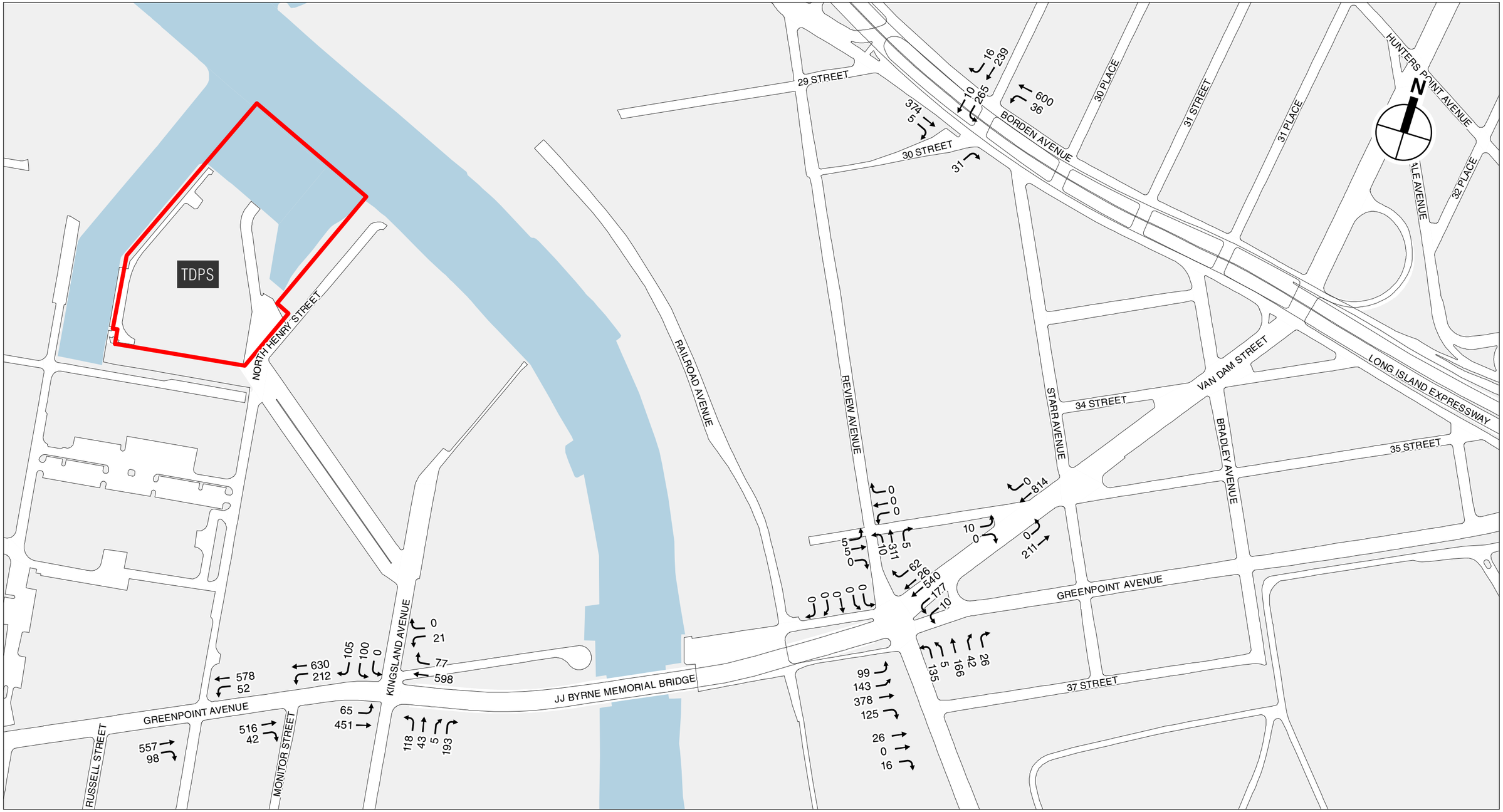
Diversion Facility NCQ-077

NCQ-077 With Action Traffic Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-32b

8.4.25



Tunnel Dewatering Pump Station

TDPS With Action Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-33a

4.4.25



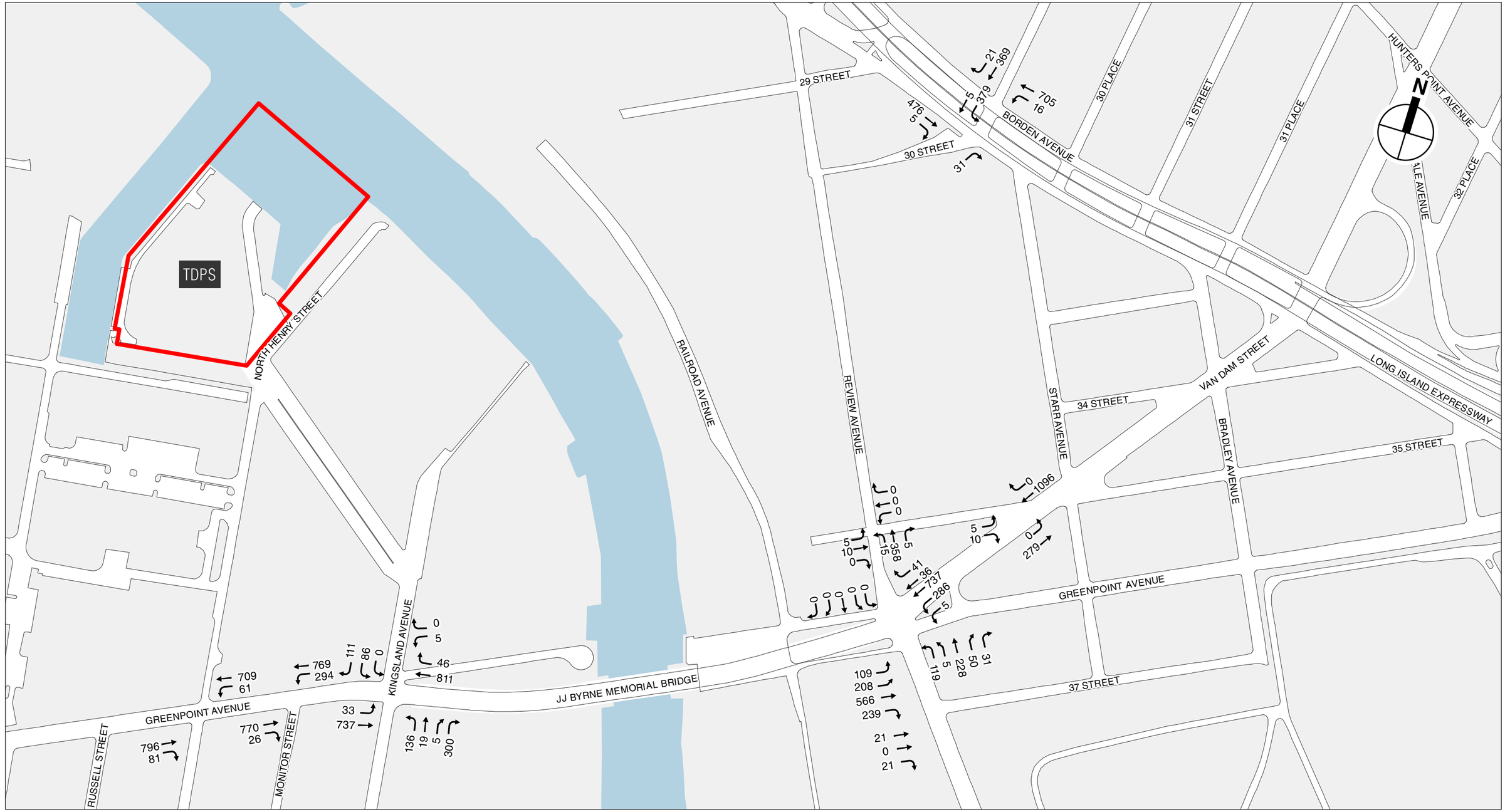
Diversion Facility NCQ-077

NCQ-077 With Action Traffic Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-33b

8.4.25



Tunnel Dewatering Pump Station

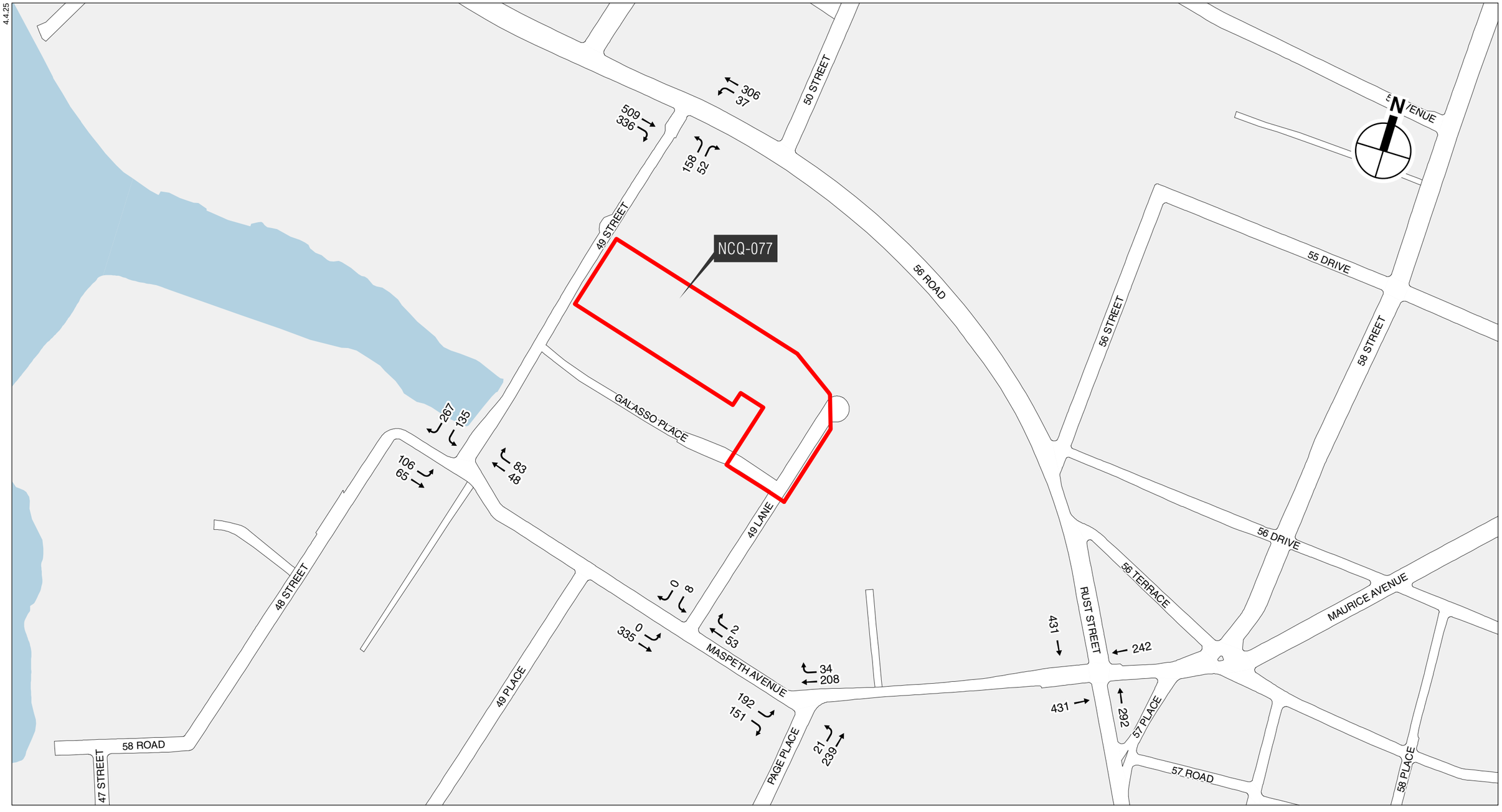
0 1,000 FEET

TDPS With Action Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-34a

4.4.25



NCQ-077 With Action Traffic Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-34b

8.4.25

TDPS

NORTH HENRY STREET

RAILROAD AVENUE

REVIEW AVENUE

STARR AVENUE

29 STREET

30 STREET

BORDEN AVENUE

30 PLACE

31 STREET

31 PLACE

HUNTERS POINT AVENUE

ALE AVENUE

32 PLACE

VAN DAM STREET

34 STREET

LONG ISLAND EXPRESSWAY

BRADLEY AVENUE

35 STREET

GREENPOINT AVENUE

37 STREET

JJ BYRNE MEMORIAL BRIDGE

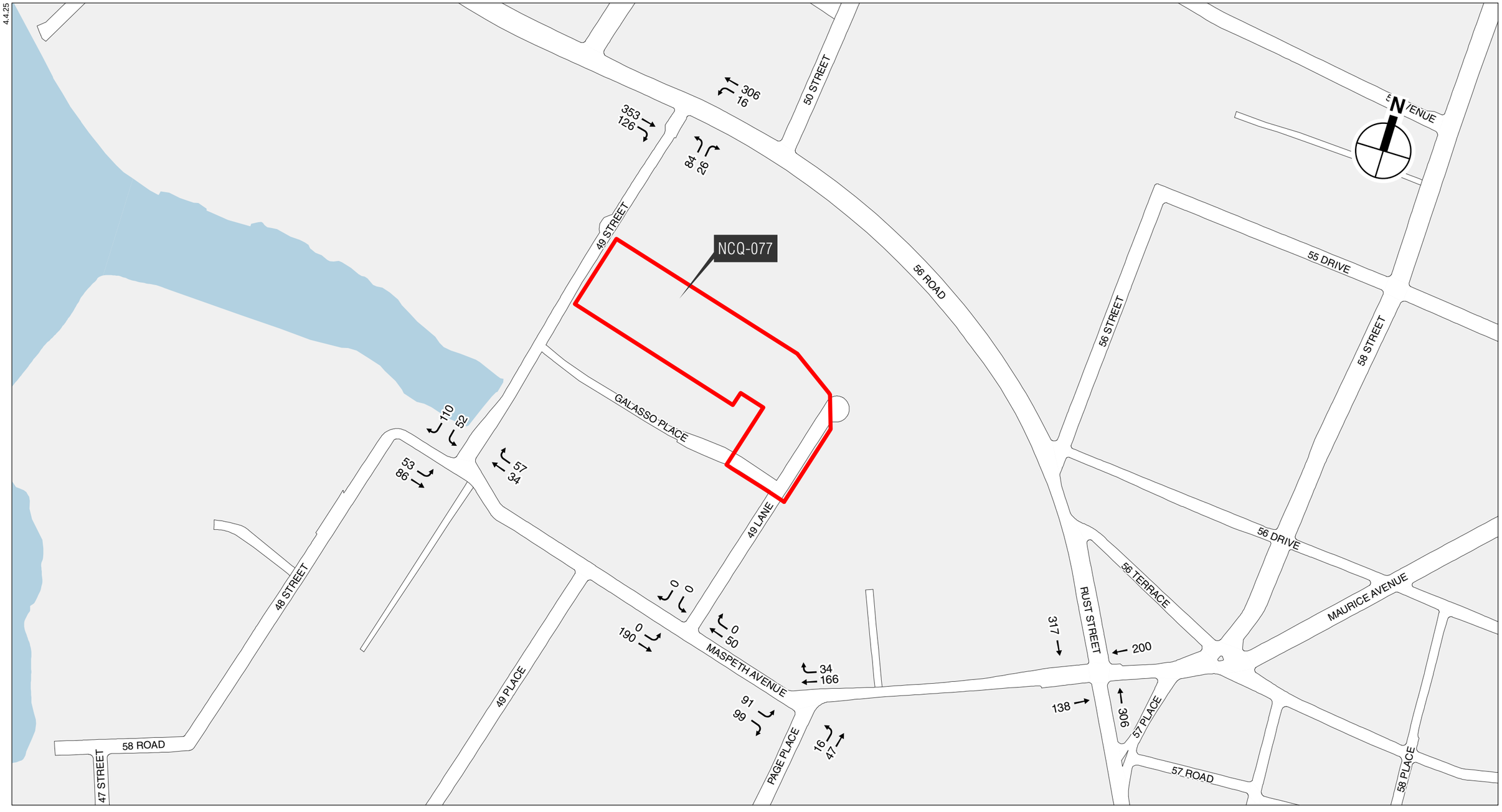
KINGSLAND AVENUE

RUSSELL STREET

MONITOR STREET

10 337 358 5 234 5 694 26 10 0 0 0 1065 0 15 0 5 306 5 10 10 0 142 36 16 878 135 10 0 0 0

4.4.25



Diversion Facility NCQ-077

NCQ-077 With Action Traffic Volumes
Saturday Midday/Afternoon Peak Hour

Table 16-21a
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Construction Weekday 6-7 AM and 7-8 AM Peak Hours

Intersection/ Direction	Weekday 6-7 AM								Weekday 7-8 AM							
	No Action				With Action				No Action				With Action			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
10 – Van Dam Street & Borden Avenue EB																
EB	LT	0.24	27.6	C	LT	0.24	27.6	C								
NB	TR	0.28	36.5	D	TR	0.28	36.5	D								
SB	DefL	0.56	5.2	A	DefL	0.56	5.2	A								
	T	0.21	2.0	A	T	0.21	2.0	A								
	Intersection		13.9	B	Intersection		13.9	B								
11 – Van Dam Street & Borden Avenue WB																
WB	TR	0.75	29.5	C	TR	0.75	29.5	C								
NB	LT	0.22	2.8	A	LT	0.22	2.8	A								
SB	TR	0.53	24.6	C	TR	0.53	24.6	C								
	Intersection		26.1	C	Intersection		26.1	C								
12 – Greenpoint Avenue/Van Dam Street & Review Avenue																
EB	LTR	0.18	29.3	C					LTR	0.15	28.8	C				
WB	L	0.31	32.4	C	L	0.24	30.5	C	L	0.43	34.9	C	L	0.37	32.9	C
	TR	0.77	49.8	D	TR	0.84	56.3	E+	TR	0.79	49.4	D	TR	0.72	43.8	D
NB	LTR	0.42	18.1	B	LTR	0.43	18.2	B	LTR	0.92	39.2	D	LTR	0.96	43.7	D
SB	LTR	0.42	25.6	C	LTR	0.46	26.3	C	LTR	0.84	38.1	D	LTR	1.00	62.2	E+
	Intersection		28.8	C	Intersection		30.6	C	Intersection		39.6	D	Intersection		51.1	D
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.29	17.2	B	LT	0.38	18.8	B	LT	0.50	20.8	C	DefL	1.84	482.1	F+
													T	0.60	24.1	C
WB	TR	0.36	46.5	D	TR	0.81	68.0	E+	TR	0.70	50.6	D	TR	1.36	197.5	F+
NB	LTR	1.32	209.0	F	LTR	1.45	262.0	F+	LTR	1.35	217.3	F	LTR	1.43	251.6	F+
SB	LR	0.40	39.1	D	LR	0.48	42.2	D	LR	1.14	151.0	F	LR	1.85	449.4	F+
SW	LR	0.19	59.8	E	LR	0.19	59.8	E	LR	0.23	62.7	E	LR	0.18	58.9	E
	Intersection		88.0	F	Intersection		112.4	F	Intersection		86.1	F	Intersection		217.7	F
17 – Maspeth Avenue & Page Place																
EB									TR	0.49	25.1	C	TR	0.62	29.3	C
WB									LT	0.61	18.4	B	LT	0.68	21.0	C
NB									LR	0.30	23.6	C	LR	0.30	23.6	C
									Intersection		21.1	C	Intersection		24.0	C
Unsignalized Intersections																
16 – Maspeth Avenue & Rust Street																
EB									T	0.12	0.0	A	T	0.15	0.0	A
WB									T	0.21	0.0	A	T	0.22	0.0	A
NB									T	1.13	113.1	F	T	1.23	154.8	F+
SB									T	0.51	22.3	C	T	0.56	25.7	D
									Intersection		47.5	E	Intersection		61.1	F
18 – Maspeth Avenue & Railroad Place																
EB									LT	0.02	1.0	A	LT	0.00	0.0	A
WB									TR	0.10	0.0	A	TR	0.11	0.0	A
SB									LR	0.05	10.5	B	LR	0.07	11.8	B
									Intersection		1.3	A	Intersection		1.0	A
21 – Review Avenue & 35th Street																
EB	LTR	0.02	11.0	B	LTR	0.02	12.3	B	LTR	0.02	11.1	B	LTR	0.03	14.0	B
WB	LTR	0.19	11.7	B					LTR	0.21	12.5	B				
NB	LTR	0.00	0.0	A	LTR	0.00	0.2	A	LTR	0.00	0.2	A	LTR	0.02	0.6	A
	Intersection		3.8	A	Intersection		0.6	A	Intersection		3.8	A	Intersection		1.0	A
22 – Van Dam Street & 35th Street																
EB	LR	0.02	16.4	B	LR	0.04	18.6	C	LR	0.11	40.8	E	LR	0.19	48.0	E
NE	LT	0.07	0.0	A	LT	0.07	0.0	A	LT	0.09	0.0	A	LT	0.09	0.0	A
SW	TR	0.24	0.0	A	TR	0.23	0.0	A	TR	0.4	0.0	A	TR	0.34	0.0	A
	Intersection		0.1	A	Intersection		0.2	A	Intersection		0.3	A	Intersection		0.6	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; + = significant adverse impact
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-21b
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Construction Weekday 2-3 PM and 3-4 PM Peak Hours

	Weekday 2-3 PM								Weekday 3-4 PM							
	No Action				With Action				No Action				With Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
12 – Greenpoint Avenue/Van Dam Street & Review Avenue																
EB	LTR	0.11	28.1	C					LTR	0.10	28.0	C				
WB	L	0.50	37.0	D	L	0.38	32.9	C	L	0.43	34.6	C	L	0.33	31.7	C
	TR	0.74	45.2	D	TR	0.75	45.7	D	TR	0.78	47.2	D	TR	0.76	46.5	D
NB	LTR	1.08	86.5	F	LTR	1.10	94.3	F+	LTR	1.18	125.5	F	LTR	1.21	136.4	F+
SB	DefL	0.93	68.7	E	DefL	0.94	71.2	E	DefL	1.14	136.5	F	DefL	1.12	127.0	F
	TR	0.76	33.5	C	TR	0.79	34.9	C	TR	0.77	33.4	C	TR	0.78	33.9	C
	Intersection		59.0	E	Intersection		62.8	E	Intersection		81.3	F	Intersection		85.7	F
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.45	19.4	B	DefL	1.89	516.2	F+	LT	0.47	19.7	B	DefL	1.42	321.9	F+
					T	0.82	34.5	C					T	0.88	39.3	D
WB	TR	0.51	46.3	D	TR	1.14	106.8	F+	TR	0.54	48.6	D	TR	1.16	114.6	F+
NB	LTR	1.03	97.5	F	LTR	1.66	352.5	F+	LTR	1.04	99.1	F	LTR	1.29	191.2	F+
SB	LR	0.55	44.3	D	LR	1.17	156.4	F+	LR	0.56	45.4	D	LR	1.28	202.5	F+
SW	LR	0.06	53.8	D	LR	0.05	53.3	D	LR	0.06	53.8	D	LR	0.05	53.3	D
	Intersection		48.0	D	Intersection		163.5	F	Intersection		48.8	D	Intersection		120.6	F
Unsignalized Intersections																
21 – Review Avenue & 35th Street																
EB	LTR	0.01	8.3	A	LTR	0.01	11.7	B	LTR	0.01	8.3	A	LTR	0.01	11.6	B
WB	LTR	0.14	12.0	B					LTR	0.13	11.3	B				
NB	LTR	0.00	0.1	A	LTR	0.01	0.3	A	LTR	0.00	0.1	A	LTR	0.00	0.1	A
	Intersection		2.3	A	Intersection		0.4	A	Intersection		2.1	A	Intersection		0.3	A
22 – Van Dam Street & 35th Street																
EB	LR	0.04	32.3	D	LR	0.06	23.3	D	LR	0.06	40.3	E	LR	0.12	44.6	E
NE	LT	0.13	0.0	A	LT	0.10	0.0	A	LT	0.07	0.0	A	LT	0.07	0.0	A
SW	TR	0.35	0.0	A	TR	0.29	0.0	A	TR	0.43	0.0	A	TR	0.35	0.0	A
	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.4	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; + = significant adverse impact
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-22a
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Typical Weekday AM and Midday Peak Hours

	Weekday AM								Weekday Midday							
	No Action				With Action				No Action				With Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
4 – Borden Avenue WB & 30th Street																
WB	LT	0.61	15.7	B	LT	1.02	53.4	D	LT	0.46	13.5	B	LT	0.77	22.2	C
SB	TR	0.60	29.7	C	TR	0.52	29.0	C	TR	0.57	28.3	C	TR	0.54	27.2	C
	Intersection		19.0	B	Intersection		47.7	D	Intersection		18.1	B	Intersection		23.8	C
5 – Borden Avenue EB & 30th Street																
EB	TR	0.33	12.0	B	TR	0.38	12.6	B	TR	0.28	11.5	B	TR	0.32	11.9	B
NB	R	0.04	9.6	A	R	0.04	9.6	A	R	0.03	9.6	A	R	0.30	9.6	A
SB	L	0.30	8.7	A	L	0.31	7.8	A	L	0.31	7.5	A	L	0.32	7.0	A
	T	0.30	8.6	A	T	0.31	7.8	A	T	0.31	7.5	A	T	0.32	7.0	A
	Intersection		10.7	B	Intersection		10.7	A	Intersection		9.7	A	Intersection		9.7	A

Table 16-22a
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Typical Weekday AM and Midday Peak Hours

	Weekday AM								Weekday Midday							
	No Action				With Action				No Action				With Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
12 – Greenpoint Avenue & Review Avenue																
EB	LTR	0.04	27.2	C					LTR	0.13	28.6	C				
WB	L	0.46	35.7	D	L	0.36	32.5	C	L	0.54	38.9	D	L	0.41	33.8	C
WB	TR	0.74	45.7	D	TR	0.74	46.2	D	TR	0.65	41.3	D	TR	0.65	41.1	D
NB	LTR	1.00	53.9	D	LTR	1.04	63.8	E+	LTR	1.04	61.3	E	LTR	1.22	133.9	F+
SB	LTR	0.99	57.8	E	LTR	1.10	91.3	F+	DefL	0.95	80.4	F	DefL	1.27	186.4	F+
SB									TR	0.53	24.9	C	TR	0.60	26.5	C
	Intersection		53.3	D	Intersection		73.1	E	Intersection		47.2	D	Intersection		86.7	F
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.55	6.4	A	DefL	2.02	566.5	F+	LT	0.56	6.1	A	DefL	0.80	72.9	E+
					T	0.60	24.0	C					T	0.78	32.0	C
WB	TR	0.74	51.9	D	TR	1.41	221.7	F+	TR	0.52	45.4	D	TR	1.00	62.0	E+
NB	LTR	1.32	204.1	F	LTR	1.37	224.3	F+	LTR	1.32	207.4	F	LTR	1.35	219.6	F+
SB	LR	0.73	58.3	E	LR	0.87	78.3	E+	LR	1.18	164.6	F	LR	1.31	214.4	F+
SW	LR	0.10	55.7	E	LR	0.08	54.5	D	LR	0.28	60.6	E	LR	0.22	57.5	E
	Intersection		72.1	E	Intersection		186.4	F	Intersection		81.1	E	Intersection		105.9	F
14 – Greenpoint Avenue & Monitor Street																
EB	TR	0.61	21.8	C	TR	0.61	21.9	C	TR	0.75	27.0	C	TR	0.75	27.1	C
WB	LT	0.82	11.5	B	L	0.60	11.1	B	LT	0.67	10.4	B	L	0.50	14.9	B
					T	0.82	4.6	A					T	0.65	3.7	A
	Intersection		14.6	B	Intersection		10.9	B	Intersection		17.1	B	Intersection		14.7	B
17 – Maspeth Avenue & Page Place																
EB	TR	0.46	24.4	C	TR	0.51	25.6	C	TR	0.62	27.5	C	TR	0.65	28.6	C
WB	LT	0.71	21.7	C	LT	0.74	23.4	C	LT	0.46	15.5	B	LT	0.69	24.0	C
NB	LR	0.47	27.0	C	LR	0.47	27.0	C	LR	0.36	24.4	C	LR	0.36	24.3	C
	Intersection		23.5	C	Intersection		24.7	C	Intersection		23.0	C	Intersection		26.1	C
Unsignalized Intersections																
15 – Greenpoint Avenue & North Henry Street																
EB	TR	0.43	0.0	A	TR	0.43	0.0	A	TR	0.44	0.0	A	TR	0.44	0.0	A
WB	LT	0.15	4.4	A	LT	0.15	1.8	A	LT	0.09	3.2	A	LT	0.09	3.3	A
	Intersection		1.0	A	Intersection		1.0	A	Intersection		0.6	A	Intersection		0.6	A
16 – Maspeth Avenue & Rust Street																
EB	T	0.14	0.0	A	T	0.15	0.0	A	T	0.23	0.0	A	T	0.24	0.0	A
WB	T	0.22	0.0	A	T	0.23	0.0	A	T	0.17	0.0	A	T	0.18	0.0	A
NB	T	1.10	107.5	F	T	1.15	124.8	F+	T	0.87	54.6	F	T	0.90	61.6	F+
SB	T	0.59	26.8	D	T	0.62	29.0	D	T	0.94	67.7	F	T	0.97	77.1	F+
	Intersection		41.8	E	Intersection		47.0	E	Intersection		30.0	D	Intersection		33.4	D
18 – Maspeth Avenue & Railroad Place																
EB	LT	0.02	1.5	A	LT	0.00	0.0	A	LT	0.01	0.2	A	LT	0.00	0.0	A
WB	TR	0.13	0.0	A	TR	0.13	0.0	A	TR	0.08	0.0	A	TR	0.08	0.0	A
SB	LR	0.08	11.5	B	LR	0.03	12.0	B	LR	0.03	11.0	B	LR	0.03	11.9	B
	Intersection		1.8	A	Intersection		0.5	A	Intersection		0.6	A	Intersection		0.4	A
19 – Maspeth Avenue & 49th Street																
EB	LT	0.15	7.1	A	LT	0.17	8.2	A	LT	0.12	5.1	A	LT	0.13	5.3	A
WB	TR	0.13	0.0	A	TR	0.14	0.0	A	TR	0.11	0.0	A	TR	0.12	0.0	A
SB	LR	0.51	16.6	C	LR	0.64	21.9	C	LR	0.50	16.8	C	LR	0.56	19.0	C
	Intersection		9.0	A	Intersection		11.8	B	Intersection		8.4	A	Intersection		9.5	A
20 – 56th Road & 49th Street																
EB	TR	0.90	47.5	E	TR	0.63	17.7	C	TR	1.06	84.2	F	TR	1.06	85.0	F
WB	LT	1.16	125.1	F	LT	1.44	242.7	F+	LT	1.33	204.9	F	LT	1.33	207.6	F
NB	LR	0.16	6.5	A	LR	0.16	6.5	A	LR	0.13	5.8	A	LR	0.13	5.8	A
	Intersection		67.5	F	Intersection		101.5	F	Intersection		102.8	F	Intersection		104.0	F
21 – Review Avenue & 35th Street																
EB	LTR	0.01	8.6	A	LTR	0.01	12.4	B	LTR	0.02	10.8	B	LTR	0.02	12.4	B
WB	LTR	0.13	12.0	B					LTR	0.17	12.2	B				
NB	LTR	0.00	0.0	A	LTR	0.01	0.2	A	LTR	0.00	0.0	A	LTR	0.01	0.3	A
	Intersection		2.0	A	Intersection		0.3	A	Intersection		3.0	A	Intersection		0.6	A
22 – Van Dam Street & 35th Street																
EB	LR	0.02	15.4	B	LR	0.03	15.1	B	LR	0.03	20.6	C	LR	0.05	20.9	C
NE	LT	0.01	1.0	A	LT	0.07	0.0	A	LT	0.08	0.0	A	LT	0.08	0.0	A
SW	TR	0.47	0.0	A	TR	0.38	0.0	A	TR	0.31	0.0	A	TR	0.26	0.0	A
	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.2	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; + = significant adverse impact
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

Table 16-22b
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Typical Weekday PM and Saturday Midday/Afternoon Peak Hours

	Weekday PM								Saturday Midday/Afternoon							
	No Action				With Action				No Action				With Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
4 – Borden Avenue WB & 30th Street																
WB	LT	0.56	14.9	B	LT	0.93	35.5	C	LT	0.52	14.1	B	LT	0.86	27.0	C
SB	TR	0.78	36.8	D	TR	0.76	35.2	C	TR	0.72	33.0	C	TR	0.69	31.9	C
	Intersection		22.2	C	Intersection		35.4	C	Intersection		20.4	C	Intersection		28.6	C
5 – Borden Avenue EB & 30th Street																
EB	TR	0.33	11.9	B	TR	0.37	12.4	B	TR	0.16	10.4	B	TR	0.18	10.6	B
NB	R	0.04	9.6	A	R	0.04	9.6	A	R	0.01	9.4	A	R	0.01	9.4	A
SB	L	0.39	6.1	A	L	0.40	6.0	A	L	0.39	7.0	A	L	0.14	6.2	A
	T	0.38	6.0	A	T	0.40	5.9	A	T	0.38	6.9	A	T	0.14	6.2	A
	Intersection		9.4	A	Intersection		9.7	A	Intersection		5.2	A	Intersection		8.0	A
12 – Greenpoint Avenue & Review Avenue																
EB	LTR	0.11	28.1	C					LTR	0.06	27.5	C				
WB	L	0.42	34.5	C	L	0.33	31.9	C	L	0.53	37.7	D	L	0.41	33.5	C
WB	TR	0.69	42.2	D	TR	0.68	41.9	D	TR	0.69	42.2	D	TR	0.69	42.2	D
NB	LTR	1.22	125.3	F	LTR	1.22	127.6	F	LTR	0.89	26.4	C	LTR	0.90	27.7	C
SB	DefL	1.15	139.2	F	DefL	1.34	211.8	F+	LTR	0.85	38.5	D	LTR	0.91	43.5	D
SB	TR	0.61	26.7	C	TR	0.66	28.0	C								
	Intersection		81.6	F	Intersection		91.7	F	Intersection		34.4	C	Intersection		37.0	D
13 – Greenpoint Avenue & Kingsland Avenue																
EB	LT	0.59	6.4	A	DefL	0.87	122.7	F+	LT	0.48	5.3	A	LT	0.64	6.5	A
					T	0.97	54.9	D								
WB	TR	0.58	46.1	D	TR	1.10	92.3	F+	TR	0.66	49.5	D	TR	1.26	180.9	F+
NB	LTR	1.69	367.5	F	LTR	1.71	376.1	F+	LTR	0.73	50.4	D	LTR	0.73	50.6	D
SB	LR	0.98	97.7	F	LR	1.11	137.6	F+	LR	0.36	37.2	D	LR	0.37	37.3	D
SW	LR	0.06	53.6	D	LR	0.06	53.6	D	LR	0.09	55.0	D	LR	0.09	55.0	D
	Intersection		108.0	F	Intersection		147.2	F	Intersection		35.1	C	Intersection		100.0	F
14 – Greenpoint Avenue & Monitor Street																
EB	TR	0.85	32.8	C	TR	0.85	32.8	C	TR	0.70	24.4	C	TR	0.70	24.4	C
WB	LT	0.92	13.1	B	L	0.93	34.2	C	LT	0.71	10.8	B	L	0.44	12.0	B
					T	0.65	6.5	A					T	0.73	2.2	A
	Intersection		20.0	B	Intersection		20.9	C	Intersection		15.8	B	Intersection		11.6	B
17 – Maspeth Avenue & Page Place																
EB	TR	0.72	31.5	C	TR	0.75	32.7	C	TR	0.45	23.3	C	TR	0.45	23.1	C
WB	LT	0.71	25.2	C	LT	0.73	26.9	C	LT	0.41	14.3	B	LT	0.41	14.3	B
NB	LR	0.61	29.8	C	LR	0.60	29.6	C	LR	0.16	21.2	C	LR	0.16	21.1	C
	Intersection		29.1	C	Intersection		30.1	C	Intersection		19.2	B	Intersection		19.1	B
Unsignalized Intersections																
15 – Greenpoint Avenue & North Henry Street																
EB	TR	0.54	0.0	A	TR	0.54	0.0	A	TR	0.45	0.0	A	TR	0.45	0.0	A
WB	LT	0.11	3.7	A	LT	0.11	3.7	A	LT	0.06	1.9	A	LT	0.06	1.9	A
	Intersection		0.7	A	Intersection		0.7	A	Intersection		0.4	A	Intersection		0.4	A
16 – Maspeth Avenue & Rust Street																
EB	T	0.30	0.0	A	T	0.31	0.0	A	T	0.09	0.0	A	T	0.09	0.0	A
WB	T	0.16	0.0	A	T	0.16	0.0	A	T	0.13	0.0	A	T	0.13	0.0	A
NB	T	1.05	101.7	F	T	1.08	112.1	F+	T	0.61	21.4	C	T	0.61	21.4	C
SB	T	1.17	131.2	F	T	1.19	140.1	F+	T	0.70	25.4	D	T	0.70	25.4	D
	Intersection		59.5	A	Intersection		63.7	F	Intersection		15.4	C	Intersection		15.4	C
18 – Maspeth Avenue & Railroad Place																
EB	LT	0.00	0.2	A	LT	0.00	0.0	A	LT	0.00	0.0	A	LT	0.00	0.0	A
WB	TR	0.04	0.0	A	TR	0.04	0.0	A	TR	0.03	0.0	A	TR	0.03	0.0	A
SB	LR	0.04	11.1	B	LR	0.02	11.6	B	LR	0.04	9.9	A	LR	0.02	0.0	A
	Intersection		0.7	A	Intersection		0.2	A	Intersection		1.1	A	Intersection		0.0	A
19 – Maspeth Avenue & 49th Street																
EB	LT	0.07	5.9	A	LT	0.06	3.2	A	LT	0.04	3.1	A	LT	0.04	3.1	A
WB	TR	0.09	0.0	A	TR	0.09	0.0	A	TR	0.06	0.0	A	TR	0.07	0.0	A
SB	LR	0.53	14.6	B	LR	0.63	17.4	C	LR	0.18	10.1	B	LR	0.24	10.9	B
	Intersection		9.8	A	Intersection		10.5	B	Intersection		5.0	A	Intersection		5.5	A
20 – 56th Road & 49th Street																
EB	TR	1.12	92.2	F	TR	1.12	92.8	F	TR	0.62	15.1	C	TR	0.62	15.1	C
WB	LT	1.36	221.4	F	LT	1.38	231.6	F+	LT	0.53	16.4	C	LT	0.53	16.4	C
NB	LR	0.13	6.0	A	LR	0.13	6.0	A	LR	0.07	5.8	A	LR	0.07	5.8	A
	Intersection		107.9	F	Intersection		110.7	F	Intersection		14.3	A	Intersection		14.3	B

Table 16-22b
2034 No Action vs. With Action Conditions Traffic Level of Service Analysis
Typical Weekday PM and Saturday Midday/Afternoon Peak Hours

	Weekday PM								Saturday Midday/Afternoon							
	No Action				With Action				No Action				With Action			
Intersection/ Direction	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
21 – Review Avenue & 35th Street																
EB	LTR	0.02	9.8	A	LTR	0.04	12.5	A	LTR	0.02	9.3	A	LTR	0.03	11.2	A
WB	LTR	0.15	12.1	B					LTR	0.08	10.4	B				
NB	LTR	0.00	0.1	A	LTR	0.01	0.4	A	LTR	0.00	0.2	A	LTR	0.00	0.1	A
	Intersection		2.7	A	Intersection		0.8	A	Intersection		1.9	A	Intersection		0.7	A
22 – Van Dam Street & 35th Street																
EB	LR	0.04	28.8	C	LR	0.07	19.2	C	LR	0.05	19.8	C	LR	0.09	20.6	C
NE	LT	0.09	0.0	A	LT	0.09	0.0	A	LT	0.01	1.2	A	LT	0.05	0.0	A
SW	TR	0.42	0.0	A	TR	0.34	0.0	A	TR	0.42	0.0	A	TR	0.33	0.0	A
	Intersection		0.1	A	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.4	A

Notes: v/c = volume-to-capacity; L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; + = significant adverse impact
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SW = southwest-bound

As shown, most lane groups at the intersections analyzed for both construction and typical peak hours would continue to operate at LOS D or better. However, vehicle delays are expected to increase from added traffic attributed to the Proposed Project's construction workers and trucks traveling to/from the Project Sites and anticipated disruptions along nearby roadways. For the analyzed signalized intersections, eight lane groups at two intersections (increased from five and two, respectively, under the No Action condition) would operate at unacceptable LOS E or F during one or more analysis peak hours. For the analyzed unsignalized intersections, the same five lane groups at three intersections as the No Action condition would operate at unacceptable LOS E or F during one or more analysis peak hours.

Based on *CEQR Technical Manual* criteria (see Section D, "Transportation Analysis Methodologies"), lane group deteriorations that would constitute significant adverse impacts are noted by "+" signs. Altogether, as summarized in **Table 16-23**, 11 lane groups at four intersections are expected to incur significant adverse impacts during one or more analysis peak hours.

Table 16-23
Traffic Impact Analysis Results

Intersection	Roadway	Dir/App	Lane Group	Construction Peak Hours				Typical Peak Hours			
				Weekday				Weekday			SAT
				6-7 AM	7-8 AM	2-3 PM	3-4 PM	AM	MD	PM	MD/AN
Greenpoint Ave/Van Dam Street/Review Ave	Review Ave	WB	TR	X							
	Greenpoint Ave	NB	LTR			X	X	X	X		
		SB	LTR		X			X			
			DefL						X	X	
Greenpoint Ave/Kingsland Ave	Greenpoint Ave	EB	DefL		X	X	X	X	X	X	
		WB	TR	X	X	X	X	X	X	X	X
	Kingsland Ave	NB	LTR	X	X	X	X	X	X	X	
		SB	LR		X	X	X	X	X	X	
Maspeth Ave/Rust Street	Rust Street	NB	T		X			X	X	X	
		SB	T						X	X	
56th Road/49th Street	56th Road	WB	LT					X		X	
Total #s of Impacted Intersections/Lane Groups				2/3	3/6	2/5	2/5	4/8	3/8	4/8	1/1

Notes: Dir/App = direction/approach; SAT = Saturday; MD = Midday; AN = Afternoon; Ave = Avenue
EB = eastbound; WB = westbound; NB = northbound; SB = southbound
L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; X = Significant Adverse Impact

Potential improvement measures were explored to mitigate these impacts to the extent practicable. The anticipated effectiveness of these measures in mitigated the projected impacts are analyzed and presented in Chapter 23, "Mitigation."

F. DETAILED PEDESTRIAN ANALYSIS

As described above in Section C, "Screening Assessment and Study Scope," pedestrian trips made by projected construction workers would not be at a level that would warrant a detailed analysis of pedestrian conditions. However, because construction activities at various locations would also result in temporary ROW disruptions, their anticipated effects on pedestrian circulation and service levels have been included for the assessment of potential pedestrian impacts during construction. As shown in **Table 16-9**, pedestrian elements connecting to 12 study area intersections were selected for detailed analysis across the four typical analysis peak hours. These analyses were prepared using DOT-approved spreadsheet templates.

EXISTING CONDITIONS

PEDESTRIAN NETWORK AND STUDY AREA

The pedestrian study area encompasses sidewalks, corners, and crosswalks connecting to 12 intersections, six of which are located in the Long Island City section of Queens, three in the Greenpoint section of Brooklyn, and three in the East Williamsburg section of Brooklyn. Overall, 16 sidewalk locations have been included for analysis. For corner reservoirs and crosswalks, since operations are also dependent on permitted crossing time, they are analyzed only for those connected to signalized intersections. Correspondingly, nine corners and 12 crosswalks are included for analysis.

PEDESTRIAN OPERATIONS

As with traffic, pedestrian data were collected in October 2024 via video counts on a representative weekday (6 AM to 10 AM, noon to 2 PM, and 3 PM to 7 PM) and on a representative Saturday (noon to 4 PM). Confirmation counts at study area crosswalk locations were also conducted on a separate weekday and a separate Saturday for calibrating pedestrian volumes, where needed. Based on the collected data, peak hours of analysis were determined for each of the above four peak periods and for the three study neighborhoods, as presented in **Table 16-24**.

Table 16-24
Pedestrian Analysis Peak Hours for Typical Weekday and Saturday Peak Periods

Neighborhood / Peak Hour	Weekday			Saturday Midday/Afternoon
	AM	Midday	PM	
Greenpoint	7:00-8:00 AM	12:15-1:15 PM	4:45-5:45 PM	2:15-3:15 PM
Long Island City	8:45-9:45 AM	12:00-1:00 PM	4:00-5:00 PM	2:15-3:15 PM
East Williamsburg	8:15-9:15 AM	12:45-1:45 PM	4:30-5:30 PM	1:00-2:00 PM

The existing volumes for the four analysis peak hours are shown in **Figures 16-36 to 16-39**. As shown in **Tables 16-25 through 16-27**, all study area sidewalks, corners, and crosswalks currently operate at favorable LOS A or LOS B during the four analysis peak hours.

Table 16-25
Existing Conditions Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	22	0.61	988.2	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	54	0.75	1072.5	A
47th Avenue between 29th Street and 30th Street	North	10.0	53	0.74	1658.7	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	22	0.46	1117.8	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	7	0.44	373.3	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	12	0.38	2821.5	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	6	0.50	5940.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	13	0.41	187.2	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	9	0.56	5174.4	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	12	0.60	891.0	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	32	0.67	1507.5	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	32	0.67	1507.5	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	34	0.57	1448.4	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	27	0.52	800.8	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	21	0.53	599.6	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	19	0.43	806.6	A
Weekday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	26	0.65	891.0	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	48	0.71	1142.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	60	0.68	1346.4	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	22	0.79	1919.7	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	17	0.61	213.0	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	12	0.43	3192.7	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	16	0.50	2227.5	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	18	0.50	164.8	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	18	0.56	2587.2	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	8	0.50	1113.7	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	12	0.43	2580.0	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	15	0.54	2592.0	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	13	0.46	3057.2	A

Table 16-25
Existing Conditions Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	15	0.54	1496.9	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	12	0.38	752.4	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	15	0.47	1116.7	A
Weekday PM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	31	0.65	747.2	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	60	0.63	810.8	A
47th Avenue between 29th Street and 30th Street	North	10.0	61	0.80	1558.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	23	0.64	1487.6	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	11	0.46	248.3	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	8	0.50	5568.7	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	7	0.58	5906.1	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	8	0.50	371.2	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	13	0.65	4158.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	11	0.34	550.7	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	45	0.59	944.0	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	34	0.61	1291.7	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	32	0.57	1539.0	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	20	0.71	1476.1	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	19	0.53	662.7	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	25	0.57	812.6	A
Saturday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	4	0.25	2227.5	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	10	0.42	3243.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	14	0.35	2970.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	2	0.25	6682.5	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	2	0.25	742.5	A
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	15	0.42	2494.8	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	2	0.25	8910.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	7	0.35	296.9	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	6	0.50	6930.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	6	0.50	1485.0	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	20	0.71	2556.0	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	16	0.50	2250.0	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	29	0.60	1787.6	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	39	0.33	351.7	B
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	10	0.63	1496.9	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	16	0.44	980.1	A

Note: SFP = square feet per pedestrian.

Table 16-26
Existing Conditions Corners Level of Service Analysis

		Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
Location	Corner	SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
47th Avenue and 30th Street	Northwest	1454.9	A	1371.6	A	1555.7	A	2673.6	A
	Northeast	393.7	A	1534.2	A	1495.3	A	3999.7	A
Hunters Point Avenue and 30th Street	Southeast	2957.4	A	2215.9	A	3412.4	A	8880.7	A
Borden Avenue Westbound and 30th Street	Northwest	5457.0	A	2908.3	A	4372.2	A	6246.1	A
	Northeast	10497.7	A	3495.7	A	7869.3	A	7873.3	A
Greenpoint Avenue and Kingsland Avenue	Southwest	2731.6	A	3873.5	A	2444.0	A	3092.8	A
Greenpoint Avenue and Monitor Street	Southwest	2595.1	A	4488.0	A	2900.4	A	2728.9	A
	Southeast	2773.3	A	3781.8	A	2592.3	A	2179.7	A
Metropolitan Avenue and Gardner Avenue	Southwest	2307.2	A	2977.2	A	1290.8	A	1220.2	A
	Southeast	1750.1	A	4170.6	A	2371.2	A	2081.8	A

Note: SFP = square feet per pedestrian.

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
RUSSELL STREET
GREENPOINT AVENUE
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

Existing Pedestrian Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-36

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
RUSSELL STREET
GREENPOINT AVENUE
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

Existing Pedestrian Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-37

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
29 STREET
30 STREET
30 PLACE
27 STREET

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
GREENPOINT AVENUE
RUSSELL STREET
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

Existing Pedestrian Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-38

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
GREENPOINT AVENUE
RUSSELL STREET
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

Existing Pedestrian Volumes
Saturday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-39

Table 16-27
Existing Conditions Crosswalks Level of Service Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	68	613.9	A
	East	45.0	13.5	31	521.5	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	18	1695.2	A
	East	29.5	13.5	13	1705.1	A
	South	30.5	13.5	21	1414.1	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	3	6676.6	A
	South	46.0	11.5	1	11738.2	A
	West	36.0	15.0	10	1760.0	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	11	1289.0	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	17	1150.7	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	30	239.4	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	22	472.1	A
Weekday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	66	525.9	A
	East	45.0	13.5	22	1250.1	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	13	2035.2	A
	East	29.5	13.5	13	2510.6	A
	South	30.5	13.5	36	848.7	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	14	2222.1	A
	South	46.0	11.5	2	5881.5	A
	West	36.0	15.0	14	1455.1	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	11	1624.2	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	10	1443.6	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	21	299.8	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	5	2129.9	A
Weekday PM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	65	557.2	A
	East	45.0	13.5	42	396.2	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	17	1694.1	A
	East	29.5	13.5	16	2034.6	A
	South	30.5	13.5	18	1702.1	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	4	4448.8	A
	South	46.0	11.5	0	N/A	A
	West	36.0	15.0	11	1452.1	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	12	1623.0	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	9	1995.0	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	32	199.0	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	14	705.2	A
Saturday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	17	1216.2	A
	East	45.0	13.5	5	2953.4	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	8	3394.1	A
	East	29.5	13.5	6	3358.5	A
	South	30.5	13.5	5	5229.7	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	3	6676.6	A
	South	46.0	11.5	1	11837.4	A
	West	36.0	15.0	12	1463.9	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	13	1300.6	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	15	883.2	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	37	199.1	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	4	1934.6	A

Note: SFP = square feet per pedestrian.

FUTURE WITHOUT THE PROPOSED PROJECT

As with traffic, the same annual background growth rates of 0.50 percent and 0.25 percent were assumed for the years of 2024 to 2029 and 2029 to 2034, respectively. However, because pedestrian movements are substantially more localized than vehicular travel, the No Action projects identified in

Section E, "Detailed Traffic Analysis," are expected to have little or no effects on the study area pedestrian analysis locations. Accordingly, the estimate of future No Action pedestrian volumes only accounted for the above background growth. The 2034 No Action condition pedestrian volumes for the four analysis peak hours are shown in **Figures 16-40 through 16-43**. As summarized in **Tables 16-28 through 16-30**, the study area pedestrian analysis locations will continue to operate at favorable LOS A and LOS B levels during all analysis peak hours.

Table 16-28
2034 No Action Condition Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	23	0.61	945.2	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	56	0.75	1034.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	55	0.74	1598.4	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	23	0.46	1069.2	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	7	0.44	373.3	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	12	0.38	2821.5	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	6	0.50	5940.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	13	0.41	187.2	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	9	0.56	5174.4	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	12	0.60	891.0	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	33	0.67	1461.8	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	34	0.67	1418.8	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	36	0.57	1368.0	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	28	0.52	772.2	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	21	0.53	599.6	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	19	0.43	806.6	A
Weekday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	26	0.65	891.0	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	50	0.71	1096.5	A
47th Avenue between 29th Street and 30th Street	North	10.0	62	0.68	1302.9	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	23	0.79	1836.2	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	17	0.61	213.0	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	12	0.43	3192.7	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	16	0.50	2227.5	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	18	0.50	164.8	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	18	0.56	2587.2	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	8	0.50	1113.7	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	12	0.43	2580.0	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	15	0.54	2592.0	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	13	0.46	3057.2	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	15	0.54	1496.9	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	12	0.38	752.4	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	15	0.47	1116.7	A
Weekday PM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	32	0.65	723.9	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	63	0.63	772.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	63	0.80	1508.6	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	24	0.64	1425.6	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	11	0.46	248.3	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	8	0.50	5568.7	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	7	0.58	5906.1	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	8	0.50	371.2	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	13	0.65	4158.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	11	0.34	550.7	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	47	0.59	903.8	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	36	0.61	1220.0	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	34	0.57	1448.4	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	20	0.71	1476.1	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	20	0.53	629.6	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	26	0.57	781.3	A

Table 16-28
2034 No Action Condition Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Saturday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	4	0.25	2227.5	A
30th Street between 47th Avenue and 48th Avenue	East	6.5	10	0.42	3243.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	14	0.35	2970.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	2	0.25	6682.5	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	2	0.25	742.5	A
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	7.5	15	0.42	2494.8	A
Borden Avenue Westbound between 29th Street and 30th Street	North	6.0	2	0.25	8910.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	7	0.35	296.9	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	6	0.50	6930.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	6	0.50	1485.0	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	20	0.71	2556.0	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	16	0.50	2250.0	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	30	0.60	1728.0	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	41	0.33	334.6	B
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	10	0.63	1496.9	A
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	16	0.44	980.1	A

Note: SFP = square feet per pedestrian.

Table 16-29
2034 No Action Condition Corners Level of Service Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
47th Avenue and 30th Street	Northwest	1402.4	A	1331.1	A	1505.9	A	2673.6	A
	Northeast	378.9	A	1492.4	A	1436.4	A	3999.7	A
Hunters Point Avenue and 30th Street	Southeast	2957.4	A	2144.6	A	3412.4	A	8880.7	A
Borden Avenue Westbound and 30th Street	Northwest	5459.0	A	2909.3	A	4372.7	A	6246.8	A
	Northeast	10497.4	A	3495.4	A	7868.9	A	7873.1	A
Greenpoint Avenue and Kingsland Avenue	Southwest	2731.6	A	3873.5	A	2355.8	A	3092.8	A
Greenpoint Avenue and Monitor Street	Southwest	2554.6	A	4488.0	A	2777.4	A	2632.4	A
	Southeast	2720.0	A	3781.8	A	2475.4	A	2106.2	A
Metropolitan Avenue and Gardner Avenue	Southwest	2307.2	A	2977.2	A	1290.8	A	1220.2	A
	Southeast	1716.3	A	4170.6	A	2371.2	A	2081.8	A

Note: SFP = square feet per pedestrian.

Table 16-30
2034 No Action Condition Crosswalks Level of Service Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	71	587.5	A
	East	45.0	13.5	32	505.3	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	18	1695.2	A
	East	29.5	13.5	13	1703.3	A
	South	30.5	13.5	21	1409.8	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	3	6517.5	A
	South	46.0	11.5	1	11434.2	A
	West	36.0	15.0	10	2289.7	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	11	1657.6	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	17	1105.5	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	31	232.5	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	23	452.7	A

Table 16-30
2034 No Action Condition Crosswalks Level of Service Analysis

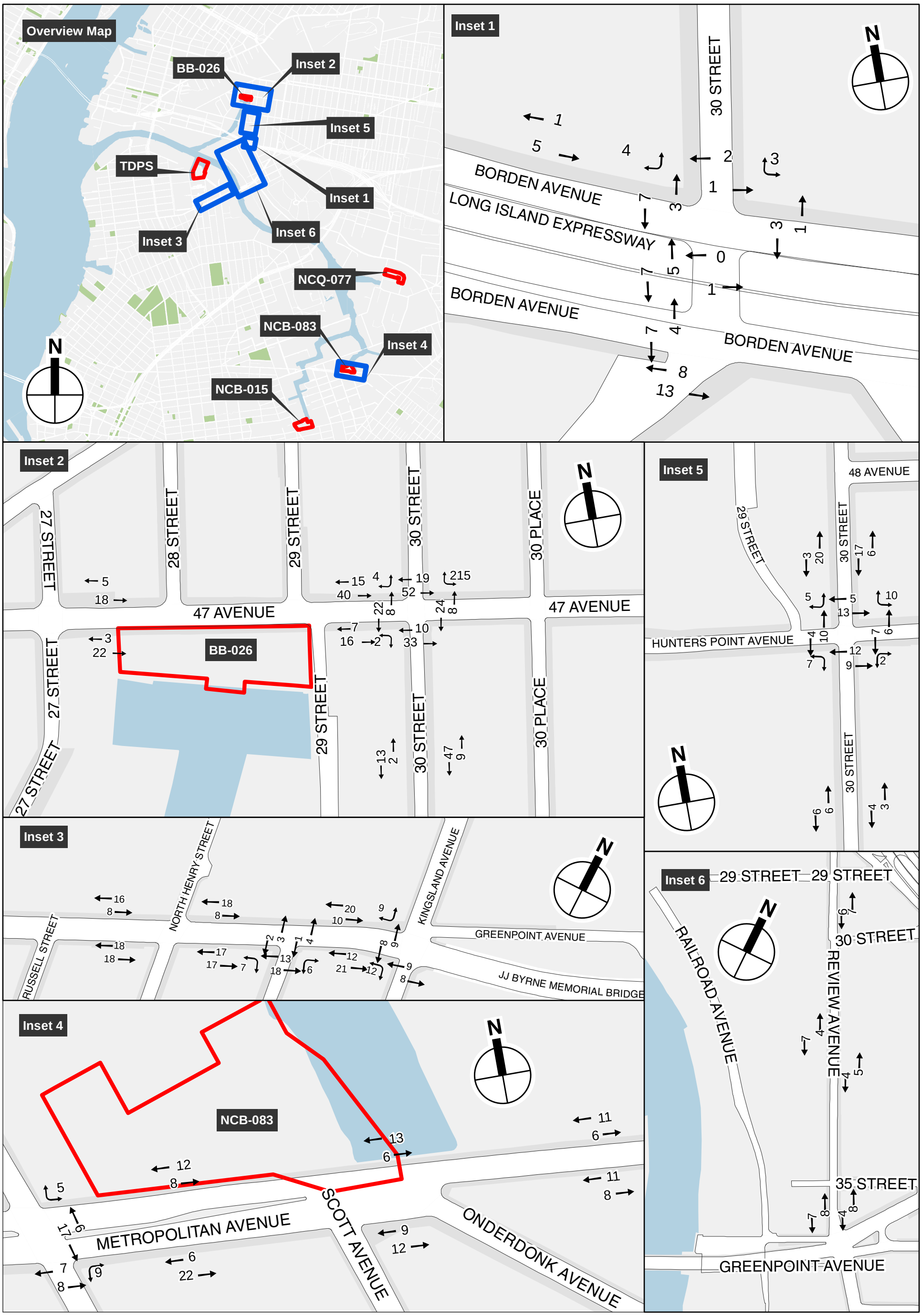
Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	68	510.3	A
	East	45.0	13.5	22	1249.1	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	13	2035.2	A
	East	29.5	13.5	13	2505.4	A
	South	30.5	13.5	38	802.6	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	14	2169.1	A
	South	46.0	11.5	2	5735.7	A
	West	36.0	15.0	14	1882.8	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	11	2088.7	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	10	1374.0	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	21	299.8	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	5	2126.2	A
Weekday PM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	68	532.3	A
	East	45.0	13.5	44	377.4	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	18	1598.6	A
	East	29.5	13.5	16	2032.5	A
	South	30.5	13.5	18	1700.4	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	4	4342.7	A
	South	46.0	11.5	0	N/A	A
	West	36.0	15.0	11	1871.7	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	12	2087.2	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	9	1791.9	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	34	187.3	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	14	704.0	A
Saturday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	17	1216.2	A
	East	45.0	13.5	5	2950.9	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	8	3394.1	A
	East	29.5	13.5	6	3351.6	A
	South	30.5	13.5	5	5229.7	A
Borden Avenue Westbound and 30th Street	North	30.0	14.0	3	6517.5	A
	South	46.0	11.5	1	11533.4	A
	West	36.0	15.0	12	1893.3	A
Borden Avenue Eastbound and 30th Street	West	36.5	13.0	13	1672.8	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	15	867.5	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	39	188.7	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	4	1930.8	A

Note: SFP = square feet per pedestrian.

FUTURE WITH THE PROPOSED PROJECT

For the With Action condition, there would likely be disruptions of public ROWs (see preliminary WZTC plans in **Appendix F**) resulting from the construction of the Proposed Project. These would entail the temporary narrowing or closure of existing pedestrian facilities that would either reduce pedestrian flow capacities and/or detour pedestrians to alternative paths. The anticipated effects of the pedestrian detours on study area locations were applied to the No Action pedestrian volumes to arrive at the With Action pedestrian volumes for analysis. These peak hour volumes are depicted in **Figures 16-44 through 16-47**. Accounting also for the anticipated changes to pedestrian geometries, the With Action condition analyses were prepared for the four analysis peak hours. As shown in **Tables 16-31 through 16-33**, all study area pedestrian elements would continue to operate at acceptable LOS C or better. Accordingly, the construction of the Proposed Project is not expected to result in any significant adverse pedestrian impacts.

7.27.25



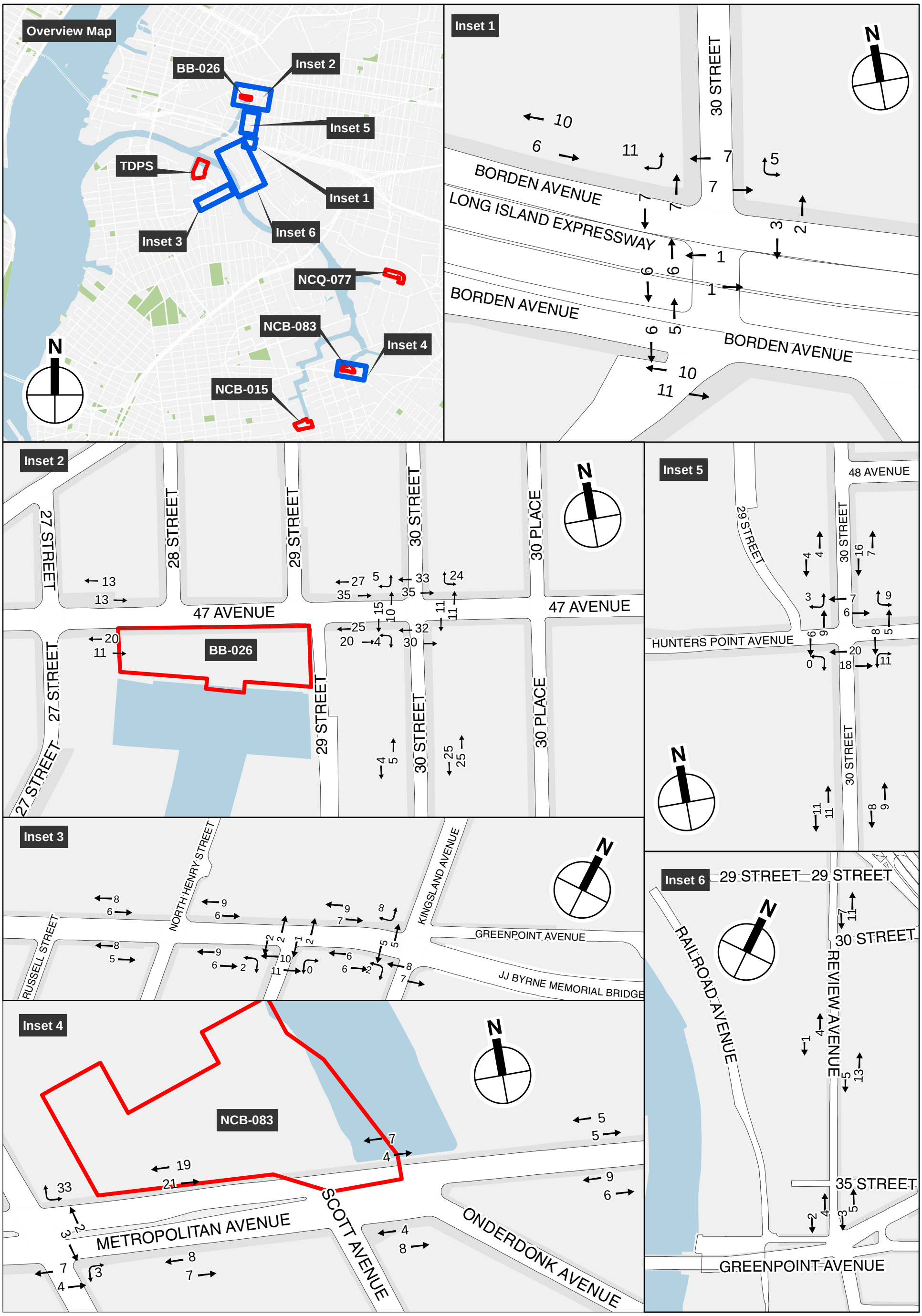
TDPS/Diversion Facility Site

2034 No Action Pedestrian Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-40

7.27.25



TDPS/Diversion Facility Site

2034 No Action Pedestrian Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-41

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
GREENPOINT AVENUE
RUSSELL STREET
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

2034 No Action Pedestrian Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-42

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
GREENPOINT AVENUE
RUSSELL STREET
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

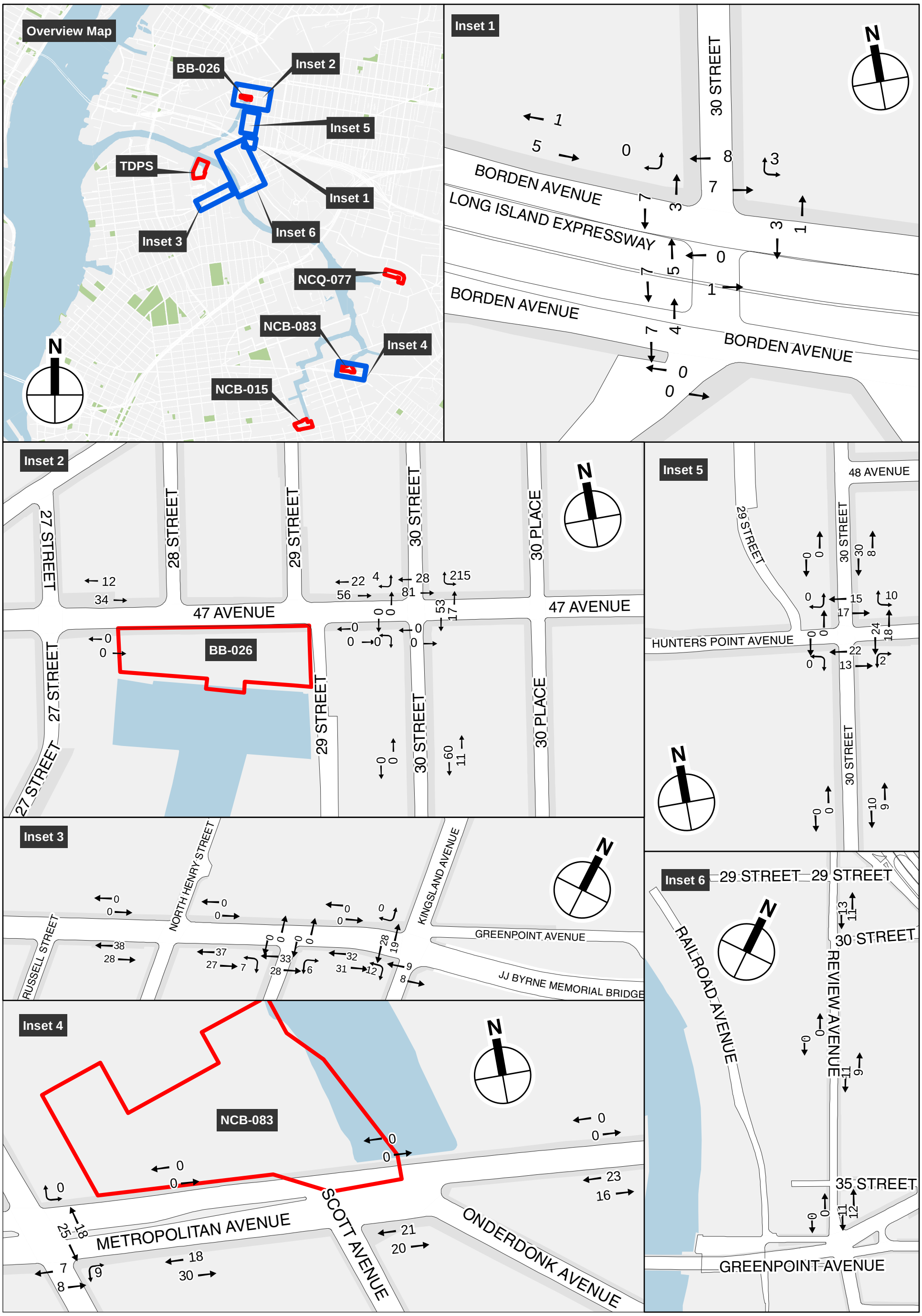
TDPS/Diversion Facility Site

2034 No Action Pedestrian Volumes
Saturday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-43

7.27.25



TDPS/Diversion Facility Site

2034 With Action Pedestrian Volumes
Weekday AM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-44

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
RUSSELL STREET
GREENPOINT AVENUE
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

TDPS/Diversion Facility Site

2034 With Action Pedestrian Volumes
Weekday Midday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-45

7.27.25

Overview Map
BB-026
Inset 2
Inset 5
TDPS
Inset 1
Inset 3
Inset 6
NCQ-077
NCB-083
Inset 4
NCB-015
N

Inset 1
30 STREET
BORDEN AVENUE
LONG ISLAND EXPRESSWAY
BORDEN AVENUE
BORDEN AVENUE

Inset 2
27 STREET
28 STREET
29 STREET
30 STREET
30 PLACE
47 AVENUE
47 AVENUE
BB-026
27 STREET
27 STREET
29 STREET
30 STREET
30 PLACE

Inset 5
48 AVENUE
29 STREET
30 STREET
HUNTERS POINT AVENUE
30 STREET

Inset 3
NORTH HENRY STREET
KINGSLAND AVENUE
GREENPOINT AVENUE
RUSSELL STREET
JJ BYRNE MEMORIAL BRIDGE

Inset 6
29 STREET
29 STREET
30 STREET
RAILROAD AVENUE
REVIEW AVENUE
35 STREET
GREENPOINT AVENUE

Inset 4
NCB-083
METROPOLITAN AVENUE
SCOTT AVENUE
ONDERDONK AVENUE

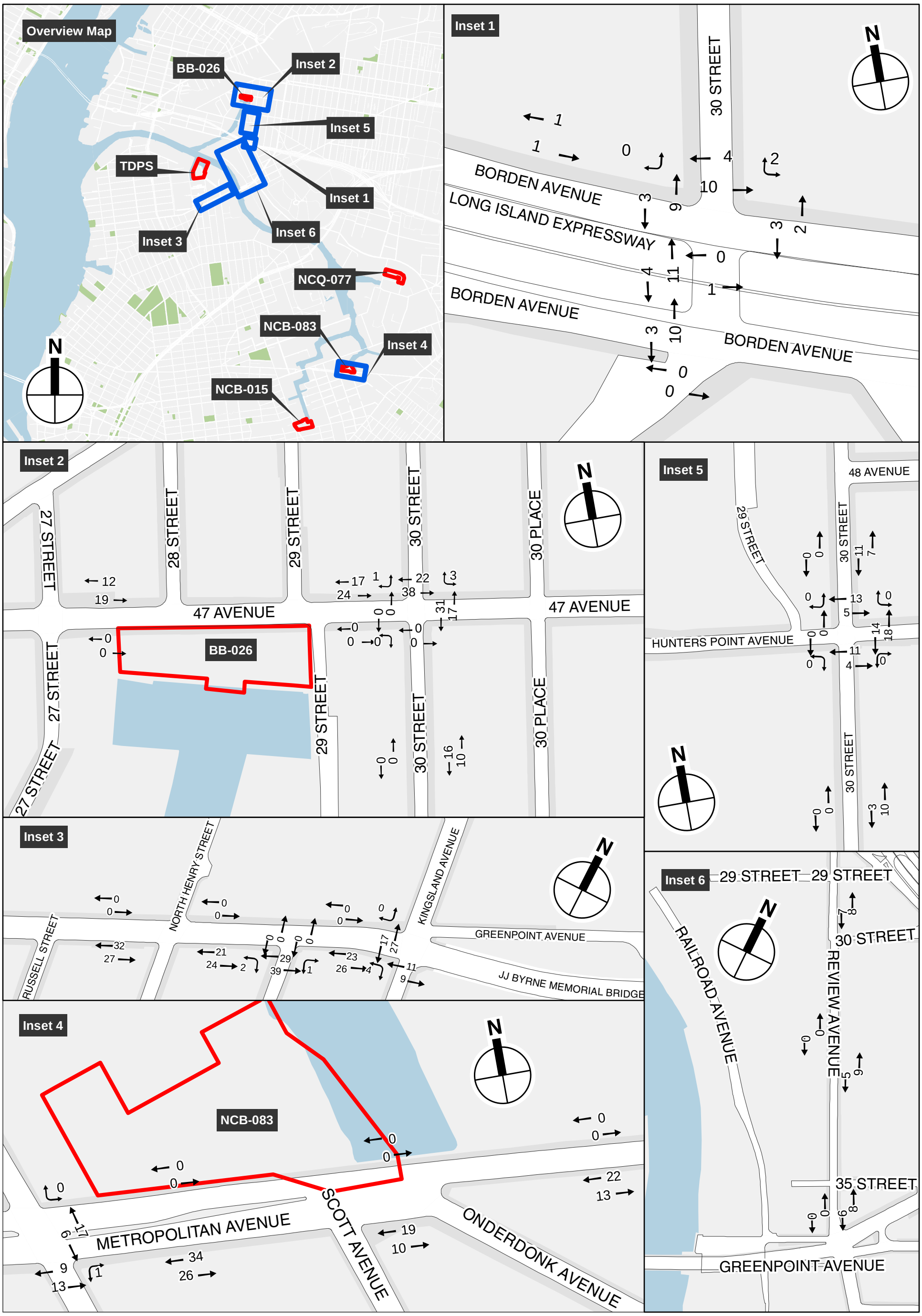
TDPS/Diversion Facility Site

2034 With Action Pedestrian Volumes
Weekday PM Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-46

7.27.25



TDPS/Diversion Facility Site

2034 With Action Pedestrian Volumes
Saturday Peak Hour

DEP NEWTOWN CREEK CSO STORAGE TUNNEL

Figure 16-47

Table 16-31
2034 With Action Condition Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Weekday AM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	46	0.61	472.6	B
30th Street between 47th Avenue and 48th Avenue	East	6.5	71	0.75	815.7	A
47th Avenue between 29th Street and 30th Street	North	10.0	78	0.74	1127.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	38	0.46	647.1	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	19	0.44	137.3	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	1.5	12	0.38	564.2	A
Borden Avenue Westbound between 29th Street and 30th Street	North	1.0	6	0.50	990.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	24	0.41	101.2	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	20	0.56	2328.5	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	23	0.60	464.8	B
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	63	0.67	765.7	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	64	0.67	753.7	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	66	0.57	746.1	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	48	0.52	450.4	B
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	41	0.53	307.0	B
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	39	0.43	392.9	B
Weekday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	71	0.65	326.2	B
30th Street between 47th Avenue and 48th Avenue	East	6.5	59	0.71	929.2	A
47th Avenue between 29th Street and 30th Street	North	10.0	107	0.68	755.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	32	0.79	1319.8	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	39	0.61	92.6	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	1.5	12	0.43	638.5	A
Borden Avenue Westbound between 29th Street and 30th Street	North	1.0	16	0.50	371.2	B
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	23	0.50	128.9	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	23	0.56	2024.8	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	13	0.50	685.3	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	28	0.43	1105.7	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	31	0.54	1254.2	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	29	0.46	1370.4	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	55	0.54	408.2	B
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	52	0.38	173.5	B
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	55	0.47	304.5	B
Weekday PM Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	61	0.65	379.7	B
30th Street between 47th Avenue and 48th Avenue	East	6.5	86	0.63	565.6	A
47th Avenue between 29th Street and 30th Street	North	10.0	92	0.80	1033.0	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	45	0.64	760.3	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	24	0.46	113.6	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	1.5	8	0.50	1113.7	A
Borden Avenue Westbound between 29th Street and 30th Street	North	1.0	7	0.58	984.3	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	34	0.50	87.0	C
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	39	0.65	1386.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	37	0.34	163.6	B
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	76	0.59	558.9	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	65	0.61	675.6	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	63	0.57	781.7	A
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	35	0.71	843.4	A
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	35	0.53	359.7	B
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	41	0.57	495.4	B
Saturday Midday Peak Hour						
47th Avenue between 27th Street and 28th Street	North	3.0	31	0.25	287.3	B
30th Street between 47th Avenue and 48th Avenue	East	6.5	26	0.42	1247.4	A
47th Avenue between 29th Street and 30th Street	North	10.0	41	0.35	1014.1	A
30th Street between 48th Avenue and Hunters Point Avenue	East	4.5	18	0.25	742.5	A
30th Street between Hunters Point Avenue and Borden Avenue Westbound	East	0.5	13	0.25	114.0	B
30th Street between Borden Avenue Westbound and Borden Avenue Eastbound	West	1.5	15	0.42	498.9	B
Borden Avenue Westbound between 29th Street and 30th Street	North	1.0	2	0.25	1485.0	A
Review Avenue between 29th Street and Silvercup Driveway	East	0.5	15	0.35	138.4	B
Review Avenue between Silvercup Driveway and 35th Street	East	7.0	14	0.50	2970.0	A
Review Avenue between 35th Street and Van Dam Street	East	1.5	14	0.50	636.4	A
Greenpoint Avenue between Monitor Street and Kingsland Avenue	South	5.0	49	0.71	1043.2	A
Greenpoint Avenue between Henry Street and Monitor Street	South	5.0	45	0.50	799.9	A
Greenpoint Avenue between Russell Street and Henry Street	South	6.0	59	0.60	878.6	A

Table 16-31
2034 With Action Condition Sidewalks Level of Service Analysis

Location	Sidewalk	Effective Width (ft)	Two-way Peak Hour Volume	PHF	SFP	Platoon LOS
Metropolitan Avenue between Gardner Avenue and Scott Avenue	South	3.5	60	0.33	228.6	B
Metropolitan Avenue between Scott Avenue and Onderdonk Avenue	South	2.0	29	0.63	516.1	B
Metropolitan Avenue between Onderdonk Avenue and Woodward Avenue	South	3.0	35	0.44	448.0	B

Note: SFP = square feet per pedestrian.

Table 16-32
2034 With Action Condition Corners Level of Service Analysis

Location	Corner	Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
47th Avenue and 30th Street	Northwest	1373.8	A	1055.6	A	1117.4	A	1319.1	A
	Northeast	328.8	A	779.4	A	803.3	A	921.2	A
Hunters Point Avenue and 30th Street	Southeast	1325.8	A	1305.6	A	1652.7	A	1648.6	A
Borden Avenue Westbound and 30th Street	Northwest	647.3	A	474.7	A	513.1	A	699.9	A
	Northeast	2620.2	A	1702.8	A	2093.9	A	2858.4	A
Greenpoint Avenue and Kingsland Avenue	Southwest	1827.1	A	2519.3	A	1580.1	A	1615.1	A
Greenpoint Avenue and Monitor Street	Southwest	1825.9	A	2011.7	A	1663.9	A	2134.4	A
	Southeast	1721.3	A	1760.1	A	1424.0	A	1802.4	A
Metropolitan Avenue and Gardner Avenue	Southwest	3479.6	A	4179.3	A	3479.6	A	1599.0	A
	Southeast	1160.0	A	1340.0	A	1616.2	A	988.3	A

Note: SFP = square feet per pedestrian.

Table 16-33
2034 With Action Condition Crosswalks Level of Service Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday AM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	109	382.0	A
	East	45.0	13.5	70	230.4	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	32	904.3	A
	East	29.5	13.5	42	515.8	A
	South	30.5	13.5	35	844.5	A
Borden Avenue Westbound and 30th Street	North	15.0	14.0	15	947.4	A
	South	22.0	11.5	1	9377.9	A
	West	18.0	15.0	10	1803.6	A
Borden Avenue Eastbound and 30th Street	West	21.0	13.0	11	1435.0	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	47	410.3	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	61	113.1	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	43	230.4	A
Weekday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	122	282.4	A
	East	45.0	13.5	76	355.0	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	28	935.3	A
	East	29.5	13.5	37	825.9	A
	South	30.5	13.5	53	571.8	A
Borden Avenue Westbound and 30th Street	North	15.0	14.0	36	673.9	A
	South	22.0	11.5	2	4721.6	A
	West	18.0	15.0	14	1527.2	A
Borden Avenue Eastbound and 30th Street	West	21.0	13.0	11	1808.7	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	26	523.5	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	61	101.0	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	45	228.6	A

Table 16-33
2034 With Action Condition Crosswalks Level of Service Analysis

Location	Crosswalk	Crosswalk Length (ft)	Crosswalk Width (ft)	Two-way Peak Hour Volume	SFP	LOS
Weekday PM Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	118	303.9	A
	East	45.0	13.5	94	176.2	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	29	998.6	A
	East	29.5	13.5	48	669.6	A
	South	30.5	13.5	29	1054.3	A
Borden Avenue Westbound and 30th Street	North	15.0	14.0	17	743.2	A
	South	22.0	11.5	0	N/A	A
	West	18.0	15.0	11	1509.3	A
Borden Avenue Eastbound and 30th Street	West	21.0	13.0	12	1807.0	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	38	417.4	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	63	95.3	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	29	339.9	A
Saturday Midday Peak Hour						
47th Avenue and 30th Street	North	30.0	12.5	60	339.8	A
	East	45.0	13.5	48	320.7	A
Hunters Point Avenue and 30th Street	North	30.0	13.0	18	1480.3	A
	East	29.5	13.5	32	471.3	A
	South	30.5	13.5	15	1843.4	A
Borden Avenue Westbound and 30th Street	North	15.0	14.0	14	1159.9	A
	South	22.0	11.5	1	9552.3	A
	West	18.0	15.0	12	1545.0	A
Borden Avenue Eastbound and 30th Street	West	21.0	13.0	13	1447.6	A
Greenpoint Avenue and Kingsland Avenue	West	57.5	13.0	44	294.3	A
Greenpoint Avenue and Monitor Street	South	29.0	13.0	68	107.9	A
Metropolitan Avenue and Gardner Avenue	East	99.0	13.5	23	201.8	A

Note: SFP = square feet per pedestrian.

G. STREET USER SAFETY

Crash data for the study area intersections were obtained from DOT for the period between January 1, 2017 and December 31, 2019. The data obtained quantify the total number of crashes, fatalities, and injuries during the study period, as well as a yearly breakdown of vehicular crashes with pedestrians and bicycles at each location. During the three-year period, 389 crashes, one fatality, 215 injuries, and 22 pedestrian/bicyclist-related crashes were recorded to have occurred at the study area intersections, as summarized in **Table 16-34**. Based on *CEQR Technical Manual* criteria, a high crash location is defined as one that had five or more pedestrian/bike-related crashes recorded in a 12-month period. Hence, no study area intersection would be classified as a high crash location. Accordingly, no additional safety enhancements are recommended for DOT consideration.

Table 16-34
Crash Data Summary

Intersection		Study Period						Crashes by Year						
		All Crashes by Year						Pedestrian			Bicycle			
North-South Roadway	East-West Roadway	2017	2018	2019	All Crashes Highest 12- Month Rolling	Total Fatalities	Total Injuries	2017	2018	2019	2017	2018	2019	Ped + Bike 12 consecutive month maximum
27 Street	47 Avenue	9	4	2	10	0	11	0	0	0	0	0	0	0
30 Street	47 Avenue	2	2	4	4	0	4	0	0	0	0	0	0	0
30 Street	Borden Avenue	1	3	6	6	0	7	0	0	0	0	0	0	0
29 Street	Borden Avenue	0	5	5	5	0	3	0	0	1	0	0	0	1
Review Avenue	29 Street	2	1	2	3	0	0	0	0	0	0	0	0	0
Review Avenue	35 Street	2	0	0	2	0	0	0	0	0	0	0	0	0
Van Dam Street	35 Street	0	5	2	5	0	2	0	0	0	0	0	0	0
Van Dam Street	Borden Avenue	21	52	60	65	0	58	0	0	1	0	0	0	1
Review Avenue	Greenpoint Avenue	15	29	19	32	0	38	0	0	0	3	1	2	4
Kingsland Avenue	Greenpoint Avenue	7	5	6	8	0	10	0	0	0	2	1	0	2
Monitor Street	Greenpoint Avenue	2	8	7	8	0	13	1	1	0	0	1	1	3
North Henry Street	Greenpoint Avenue	4	1	2	4	0	5	0	0	0	0	0	0	0
Rust Street	Maspeth Avenue	0	19	12	20	0	19	0	0	0	0	1	1	2
Page Place	Maspeth Avenue	3	1	1	3	0	8	0	0	0	0	0	0	0
49 Street	Maspeth Avenue	2	6	4	7	0	1	0	0	0	0	0	0	0
49th Street	56th Road	0	7	6	8	0	6	0	1	0	0	0	1	2
Metropolitan Avenue	Gardner Avenue	9	5	5	10	0	22	0	0	0	0	0	0	0
Metropolitan Avenue	Scott Avenue	2	1	3	3	1	4	0	0	0	0	0	0	0
Metropolitan Avenue	Onderdonk Avenue	1	5	2	6	0	4	1	1	1	0	0	0	1
Total		**82**	**159**	**148**	**N/A**	**1**	**215**	**2**	**3**	**3**	**5**	**4**	**5**	**N/A**

Source: DOT January 1, 2017 to December 31, 2019 crash data.

H. PARKING

Using the projected worker auto trips, the peak parking demand estimates for each site were calculated. As illustrated in **Table 16-35**, the anticipated construction activities correspond with a peak parking demand of up to 75 parking spaces at the TDPS site, 45 parking spaces at the BB-026 diversion facility site, 53 parking spaces at the NCQ-077 diversion facility site, 35 parking spaces at the NCB-083 diversion facility site, and 42 parking spaces at the NCB-015 diversion facility site. As each of these sites is expected to include some levels of on-site parking, portions or all of the identified parking needs are expected to be accommodated on-site.

While certain construction sites may incorporate off-street parking to accommodate anticipated worker parking demand, there is potentially the need for some or all of this parking demand to be accommodated in the surrounding area, primarily via on-street parking resources. Additionally, certain on-street parking resources may be temporarily displaced during project construction from the potential WZTC requirements described above. Correspondingly, a parking inventory of off-site parking resources (on- and off-street) within ¼-mile or ½-mile of the five locations has been conducted. The collected data were used to determine if there would be a potential for a parking shortfall resulting from the Proposed Project's construction worker parking needs and the temporary displacement of certain on-street parking spaces for project construction.

Table 16-35
Peak Construction Worker Parking Demand by Site

Hour	TDPS (2035 Q4)			BB-026 (2030 Q3)			NCQ-077 (2034 Q2)			NCB-083 (2033 Q3)			NCB-015 (2034 Q4)		
Beginning	In	Out	Accu	In	Out	Accu	In	Out	Accu	In	Out	Accu	In	Out	Accu
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 AM	60	0	60	36	0	36	42	0	42	28	0	28	34	0	34
7:00 AM	15	0	75	9	0	45	11	0	53	7	0	35	8	0	42
8:00 AM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
9:00 AM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
10:00 AM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
11:00 AM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
12:00 PM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
1:00 PM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
2:00 PM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
3:00 PM	0	0	75	0	0	45	0	0	53	0	0	35	0	0	42
4:00 PM	0	15	60	0	9	36	0	11	42	0	7	28	0	8	34
5:00 PM	0	60	0	0	36	0	0	42	0	0	28	0	0	34	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0			0
Maximum			**75**			**45**			**53**			**35**			**42**

EXISTING CONDITIONS

The inventory of on- and off-street public parking facilities were conducted in June 2024 during the weekday midday and PM periods and Saturday AM and midday periods within areas surrounding the five project sites. Four of these parking study areas reflect an approximately ¼-mile radius from the corresponding project sites. For the TDPS site, since it borders Newtown Creek and is located adjacent to the large property occupied by the Newtown Creek WRRF, parking data within an approximately ½-mile radius were collected.

OFF-STREET PARKING

Based on field visits, only three public off-street parking lots were identified, all of which are located near the BB-026 project site, as shown in **Figure 16-48**. Through observations and interviews with parking attendants, the facility names, addresses, license numbers, capacities, and estimated weekday AM, midday, and PM, and Saturday midday utilizations were recorded, as summarized in **Table 16-36**.

7.31.25



0 500 FEET

Off-Street Parking Facilities

1/4 Mile Radius

DEP NEWTOWN CREEK CSO TUNNEL

Off-Street Parking Locations
Long Island City - BB-026
Figure 16-48

Table 16-36
Existing Off-Street Parking Supply and Utilization

Loc	Name	Address	License #	Licensed Capacity	Utilization Rate			
					Weekday			SAT
					AM	MD	PM	MD/AN
A	Van Dam Parking	47-11 Van Dam Street	0955802	47	45%	50%	Closed	Closed
B	LIC Operating 49 LLC	47-20 30th Place	1454365	144	50%	60%	Closed	Closed
C	3100 MP Parking Corp	31-00 47th Avenue	2103906	135	65%	80%	Closed	Closed
			Total	**326**	**55%**	**67%**	**0%**	**0%**

Notes: Loc = Map Location; SAT = Saturday; MD = Midday; AN = Afternoon
Sources: Surveys conducted by SIMCO Engineering, P.C. (June 2024)

In total, the three off-street parking lots have a combined capacity of 326 spaces. All three are closed by 7:00 PM on weekdays and closed all day on both Saturdays and Sundays. During the weekday AM period, approximately 55 percent of spaces are utilized, leaving a reserved supply of 145 parking spaces. During the weekday midday period, parking utilization reaches a high of approximately 67 percent, leaving a reserved supply of 108 parking spaces.

ON-STREET PARKING

The number of legal on-street parking spaces was inventoried for the weekday midday and PM time periods, as well as the Saturday AM and midday time periods. This effort took into account the existing curbside regulations (including alternate-side-of-the-street cleaning rules) and roadway curb cuts and fire hydrants. Curbside regulations for all block faces surveyed are shown in **Appendix F** (see **Appendix Figures F-17a through F-18**). In total, approximately 7,000 legal on-street parking spaces were identified. As summarized in **Table 16-37**, on-street parking (excluding illegally parked vehicles) was observed to be at approximately 67 percent utilized during the weekday midday period, 40 percent during the weekday PM period, 49 percent during the Saturday AM period, and 48 percent during the Saturday midday period. Correspondingly, there were approximately 2,280 legal unoccupied spaces available during the weekday midday peak period, 4,266 spaces during the weekday PM peak period, 3,600 spaces during the Saturday AM peak period, and 3,680 spaces during the Saturday midday peak period. For all the areas surveyed, a minimum of 254 available on-street parking spaces would be available at all times.

Table 16-37
Existing On-Street Parking Supply and Utilization

Loc	Project Site	Study Area Radius	Number of Legal Parking Spaces				Number of Occupied Spaces				Utilization Rate			
			Weekday		Saturday		Weekday		Saturday		Weekday		Saturday	
			MD	PM	AM	MD/AN	MD	PM	AM	MD/AN	MD	PM	AM	MD/AN
1	TDPS	1/2 Mile	2,173	2,198	2,198	2,198	1,378	1,087	1,314	1,273	63%	49%	60%	58%
2	BB-026	1/4 Mile	1,462	1,590	1,590	1,590	1,040	555	634	663	71%	35%	40%	42%
3	NCQ-077	1/4 Mile	1,062	1,062	1,062	1,062	688	314	508	534	65%	30%	48%	50%
4	NCB-083	1/4 Mile	977	988	988	988	542	308	397	385	55%	31%	40%	39%
5	NCB-015	1/4 Mile	1,148	1,266	1,266	1,266	894	574	651	569	78%	45%	51%	45%
		Total	6,822	7,104	7,104	7,104	4,542	2,838	3,504	3,424	67%	40%	49%	48%

Notes: Loc = Map Location; MD = Midday; AN = Afternoon

Sources: Surveys conducted by SIMCO Engineering, P.C. (June 2024)

FUTURE WITH THE PROPOSED PROJECT

Future parking utilization for the 2034 No Action condition was developed by increasing the existing parking demand by standard background growth and another five percent to conservatively account for additional parking demand contributed by No Action development projects. As shown in **Table 16-38**, there will continue to be an abundance of parking availability surrounding each of the Project Sites under the future No Action condition.

Table 16-38
Existing and 2034 No Action Conditions Parking Supply and Utilization

Project Site	Supply/Utilization	Weekday Midday	Weekday PM	Saturday Midday/Afternoon
TDPS	2024 Existing/2034 No Action On-Street Parking Supply (# of spaces)	2,173	2,198	2,198
	2024 Existing On-Street Parking Utilization (%)	63%	49%	58%
	2034 No Action On-Street Parking Utilization (%)	69%	54%	63%
	2034 No Action On-Street Availability (# of spaces)	673	1,015	813
BB-026	2024 Existing/2034 No Action On/Off-Street Parking Supply (# of spaces)	1,788	1,590	1,590
	2024 Existing On/Off-Street Parking Utilization (%)	70%	35%	42%
	2034 No Action On/Off-Street Parking Utilization (%)	77%	38%	45%
	2034 No Action On/Off-Street Availability (# of spaces)	419	987	869
NCQ-077	2024 Existing/2034 No Action On-Street Parking Supply (# of spaces)	1,062	1,062	1,062
	2024 Existing On-Street Parking Utilization (%)	65%	30%	50%
	2034 No Action On-Street Parking Utilization (%)	71%	32%	55%
	2034 No Action On-Street Availability (# of spaces)	313	720	481
NCB-083	2024 Existing/2034 No Action On-Street Parking Supply (# of spaces)	977	988	988
	2024 Existing On-Street Parking Utilization (%)	55%	31%	39%
	2034 No Action On-Street Parking Utilization (%)	60%	34%	42%
	2034 No Action On-Street Availability (# of spaces)	388	653	569
NCB-015	2024 Existing/2034 No Action On-Street Parking Supply (# of spaces)	1,148	1,266	1,266
	2024 Existing On-Street Parking Utilization (%)	78%	45%	45%
	2034 No Action On-Street Parking Utilization (%)	85%	49%	49%
	2034 No Action On-Street Availability (# of spaces)	175	641	647

FUTURE WITH THE PROPOSED PROJECT

As discussed, each of the Project Sites could incorporate some levels of on-site parking to accommodate their respective construction worker parking demand. Since these levels could not be ascertained and

may vary over different construction stages, the With Action parking analysis conservatively assumed that these additional parking resources would not be available. Additionally, temporary parking supply displacements from anticipated roadway disruptions have been incorporated into the determination of future With Action parking supply and utilization. For each Project Site, although the associated construction is likely to take place in stages, the amount of parking supply displacement was conservatively determined based on the total numbers of legal parking spaces that may potentially be affected during any point of the construction process, as summarized in **Table 16-39**.

Table 16-39
2034 With Action Condition Potential On-Street Parking Supply Displacement

Project Site	Weekday Midday	Weekday PM	Saturday Midday/Afternoon
TDPS	73	73	73
BB-026	193	193	193
NCQ-077	20	20	20
NCB-083	14	14	14
NCB-015	0	0	0
Total	300	300	300

Pursuant to *CEQR Technical Manual* guidelines, the "at-capacity" parking level is when 98 percent of available parking supply is utilized. As shown in **Table 16-40**, the combined effects of reduced parking supply and increased utilization would still result in an abundance of parking availability surrounding each of the Project Sites under the future With Action condition. Accordingly, the construction of the Proposed Project would not result in the potential for a parking shortfall.

Table 16-40
2034 With Action Condition Parking Supply and Utilization

Project Site	Supply/Utilization	Weekday Midday	Weekday PM	Saturday Midday/Afternoon
TDPS	2034 No Action On-Street Parking Supply (# of spaces)	2,173	2,198	2,198
	Temporary Parking Supply Displacement (# of spaces)	73	73	73
	2034 With Action On-Street Parking Supply (# of spaces)	2,100	2,125	2,125
	Peak Construction Worker Parking Demand (# of spaces)	75	60	0
	2034 With Action On-Street Availability (# of spaces)	525	882	740
	2034 With Action On-Street Parking Utilization (%)	25%	41%	35%
BB-026	2034 No Action On/Off-Street Parking Supply (# of spaces)	1,788	1,590	1,590
	Temporary Parking Supply Displacement (# of spaces)	193	193	193
	2034 With Action On/Off-Street Parking Supply (# of spaces)	1,595	1,397	1,397
	Peak Construction Worker Parking Demand (# of spaces)	45	36	0
	2034 With Action On/Off-Street Availability (# of spaces)	181	758	676
	2034 With Action On/Off-Street Parking Utilization (%)	11%	54%	48%
NCQ-077	2034 No Action On-Street Parking Supply (# of spaces)	1,062	1,062	1,062
	Temporary Parking Supply Displacement (# of spaces)	20	20	20
	2034 With Action On-Street Parking Supply (# of spaces)	1,042	1,042	1,042
	Peak Construction Worker Parking Demand (# of spaces)	53	42	0
	2034 With Action On-Street Availability (# of spaces)	240	658	461
	2034 With Action On-Street Parking Utilization (%)	23%	63%	44%
NCB-083	2034 No Action On-Street Parking Supply (# of spaces)	977	988	988
	Temporary Parking Supply Displacement (# of spaces)	14	14	14
	2034 With Action On-Street Parking Supply (# of spaces)	963	974	974
	Peak Construction Worker Parking Demand (# of spaces)	35	28	0
	2034 With Action On-Street Availability (# of spaces)	339	611	555
	2034 With Action On-Street Parking Utilization (%)	35%	63%	57%

Table 16-40
2034 With Action Condition Parking Supply and Utilization

Project Site	Supply/Utilization	Weekday Midday	Weekday PM	Saturday Midday/Afternoon
NCB-015	2034 No Action On-Street Parking Supply (# of spaces)	1,148	1,266	1,266
	Temporary Parking Supply Displacement (# of spaces)	0	0	0
	2034 With Action On-Street Parking Supply (# of spaces)	1,148	1,266	1,266
	Peak Construction Worker Parking Demand (# of spaces)	42	34	0
	2034 With Action On-Street Availability (# of spaces)	133	607	647
	2034 With Action On-Street Parking Utilization (%)	12%	48%	51%

I. CONCLUSIONS

As noted in the description of the transportation studies prepared, because the operation of the completed Proposed Project would generate minimal visitation to each of the five project sites, it would not have the potential for significant adverse impacts on the transportation system. Accordingly, the assessments prepared are focused on examining the Proposed Project's anticipated construction-related effects. The above sections concluded that during construction of the Proposed Project, potential significant adverse impacts are expected for six study area traffic intersections. Potential improvement measures that would mitigate these impacts to the extent practicable are discussed in Chapter 23, "Mitigation."

TRAFFIC

Traffic conditions were evaluated at 13 intersections across eight analysis peak hours, including four construction analysis peak hours during which construction-related traffic would be the highest and four typical analysis peak hours during which effects on roadway disruptions would be the most prominent. As summarized in **Table 16-41**, significant adverse traffic impacts were identified: (1) for the construction analysis peak hours at one intersection across two lane groups in the weekday 6-7 AM peak hour, and two intersections across five lane groups in the weekday 7-8 AM, 2-3 PM, and 3-4 PM peak hours; and (2) for the typical analysis peak hours at four intersections across seven lane groups in the weekday AM peak hour, three intersections across seven lane groups in the weekday midday peak hour, four intersections across nine lane groups in the weekday PM peak hour, and two intersections across two lane groups in the Saturday midday/afternoon peak hour.

TRANSIT

As noted above, construction of the Proposed Project would not result in an amount of transit users that would warrant a detailed transit analysis. It would also not result in any interruptions to existing transit services beyond temporary relocations of existing bus stops. Accordingly, there would not be any potential for significant adverse transit impacts.

Table 16-41
Summary of Significant Adverse Traffic Impacts

Analysis Peak Hour	No. of Impacted Intersections/Lane Groups
Construction Analysis Peak Hour	
Weekday 6-7 AM	2/3
Weekday 7-8 AM	3/6
Weekday 2-3 PM	2/5
Weekday 3-4 PM	2/5
Total During Any Construction Analysis Peak Hour	3/8
Typical Analysis Peak Hour	
Weekday AM	4/8
Weekday Midday	3/8
Weekday PM	4/8
Saturday Afternoon	1/1
Total During Any Typical Analysis Peak Hour	4/10
Total During Any Analysis Peak Hour	**4/11**

PEDESTRIANS

Pedestrian conditions were evaluated at sidewalk, corner reservoir, and crosswalk locations anticipated to be affected by the construction of the Proposed Project. Because construction-related pedestrian trips would be below the *CEQR Technical Manual* analysis threshold, pedestrian analyses were prepared only for the four typical analysis peak hours. The analyses concluded that construction of the Proposed Project would not result in any significant adverse pedestrian impacts.

STREET USER SAFETY

The review of crash data from the period between January 1, 2017 and December 31, 2019 concluded that no study area intersection had incurred crashes that are at or above the *CEQR Technical Manual* high-crash threshold. Accordingly, no additional safety enhancements are recommended for DOT consideration.

PARKING

Construction of the Proposed Project is anticipated to result in varying parking demand at the TDPS site and each of the diversion facility sites over the approximately 12-year duration of project construction. Peak parking demands for the TDPS, BB-026, NCQ-077, NCB-083, and NCB-015 project sites are estimated at 75, 45, 53, 35, and 42 parking spaces, respectively. In addition, construction logistics required at each site are expected to necessitate temporary disturbance of surrounding roadways that could involve temporary displacement of existing on-street parking spaces. While the on-going design efforts for each site include consideration for on-site parking, the amount of parking spaces that could be accommodated would not be ascertained during this environmental review process. Accordingly, an off-site parking inventory of available resources within ¼-mile or ½-mile of each site was conducted to determine if the Proposed Project parking demand, taking into consideration also the displaced parking supply anticipated from temporary roadway disruptions, could be fully

accommodated within the surrounding parking resources. This assessment concluded that construction of the Proposed Project at each of the above sites would not result in the potential for a parking shortfall.

Chapter 17: Air Quality

A. INTRODUCTION

This chapter assesses the potential for the proposed Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project to affect air quality. The Proposed Project involves the construction and operation of a CSO storage tunnel and related infrastructure to reduce the volume of CSOs entering Newtown Creek.

Construction of the Proposed Project requires the use of both non-road construction equipment and on-road vehicles. Non-road construction equipment includes equipment operating on-site such as cranes, loaders, and excavators. On-road vehicles include construction delivery trucks, dump trucks, concrete trucks, and worker vehicles arriving to and departing from the construction areas as well as operating on-site. Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. Barges may also be used to support construction operations at the Tunnel Dewatering Pump Station (TDPS) site. Tugboats used to maneuver the barges are also sources of air emissions. In addition, emissions from dust-generating construction activities (e.g. truck loading and unloading operations, blasting operations) and groundwater treatment systems that may be required to treat potentially contaminated groundwater encountered during construction also have the potential to affect air quality. A quantitative air quality analysis was performed in accordance with the 2021 *City Environmental Quality Review (CEQR) Technical Manual* to determine the potential for significant adverse impacts from these sources of air emissions generated during construction of the Proposed Project. In addition, a discussion of appropriate odor control strategies that would be implemented during construction of the Proposed Project is also provided.

The heating, ventilation, and air conditioning (HVAC) system for the TDPS is expected to be electric. Therefore, a stationary source analysis of criteria pollutant emissions from the operation of the Proposed Project was not warranted. Since the Proposed Project is not expected to significantly alter traffic conditions and would result in fewer new peak hour vehicle trips than the *CEQR Technical Manual* screening threshold of 170 trips at nearby intersections in the study area after its completion, a quantified assessment of mobile source emissions from the operation of the Proposed Project was not warranted. However, operation of the Proposed Project would include odor control systems at the TDPS site, at the NCQ-077, NCB-083, and NCB-015 diversion facility sites. Therefore, an odor analysis was performed at these locations in accordance with the 2021 *CEQR Technical Manual* to determine the potential for significant adverse odor impacts during operation of the Proposed Project.

PRINCIPAL CONCLUSIONS

OPERATIONAL AIR QUALITY

The Proposed Project's odor control units would not result in an exceedance of the 1 parts per billion (ppb) significant odor threshold for sensitive receptors or the 10 ppb New York State Ambient Air Quality Standard (NYSAAQS) in ambient air. There would be no on-site combustion sources and no regular traffic generated by the operation of the Proposed Project. Therefore, the Proposed Project would not result in significant adverse air quality impacts.

CONSTRUCTION AIR QUALITY

An emissions reduction program would be implemented to minimize the effects of construction activities on the surrounding community. Measures would include dust suppression measures, use of ULSD fuel, idling restrictions, diesel equipment reduction, and best available technologies as required by New York City Local Law 77 of 2003. With the implementation of these emission reduction measures, the dispersion modeling analysis of construction-related air emissions for both nonroad and on-road sources determined that particulate matter (PM is regulated in two size categories: particles with an aerodynamic diameter of less than or equal to 2.5 micrometers [$PM_{2.5}$] and particles with an aerodynamic diameter of less than or equal to 10 micrometers [PM_{10}, which includes $PM_{2.5}$]), nitrogen dioxide (NO_2), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds and/or National Ambient Air Quality Standard (NAAQS), respectively, from activities at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. PM_{10}, NO_2, and CO concentrations from construction sources at the NCQ-077 diversity facility site were also determined to be below the applicable NAAQS. However, the $PM_{2.5}$, concentrations from construction sources at the NCQ-077 diversion facility site were determined to exceed the short-term and annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site, but all concentrations were below the NAAQS. Based on the magnitude of the predicted concentrations, the duration of the impact on the sidewalk locations adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, these impacts are considered temporary and transient in nature and would not result in significant adverse construction air quality impacts.

The predicted non-criteria pollutant concentrations from the groundwater treatment systems would not exceed the applicable Short-term Guideline Concentrations (SGCs) and the Annual Guideline Concentrations (AGCs). Finally, to mitigate odors to the greatest extent practicable, DEP would implement an odor control program during construction and all necessary means would be employed to prevent on- and off-site odor nuisances. The Proposed Project would implement a Community Air Monitoring Program (CAMP) during soil disturbance activities to monitor applicable threshold levels and to implement any corrective actions if necessary. If applicable threshold levels in the CAMP are exceeded, to minimize and control on- and off-site odor nuisances, the Proposed Project would implement odor control measures during construction that could include wet suppression, daily cover foams/shells, covered conveyors, and activated carbon scrubbers. Therefore, no significant adverse air quality impacts are predicted from the construction of the Proposed Project.

B. POLLUTANTS FOR ANALYSIS

Air quality is affected by air pollutants produced by both motor vehicles and stationary sources. Emissions from motor vehicles are referred to as mobile source emissions, while emissions from fixed facilities and construction equipment are referred to as stationary source emissions. Ambient concentrations of CO are predominantly influenced by mobile source emissions. PM, volatile organic compounds (VOCs), and nitrogen oxides (nitric oxide [NO] and nitrogen dioxide [NO_2], collectively referred to as NO_x) are emitted from both mobile and stationary sources. Fine PM is also formed when emissions of NO_x, sulfur oxides (SO_x), ammonia, organic compounds, and other gases react or condense in the atmosphere. Emissions of sulfur dioxide (SO_2) are associated mainly with stationary sources, and some sources utilizing non-road diesel fuel such as large international marine engines. On-road diesel vehicles currently contribute very little to SO_2 emissions since the sulfur content of on-road diesel fuel, which is federally regulated, is extremely low. Ozone is formed in the atmosphere by complex photochemical processes that include NO_x and VOCs. Ambient concentrations of CO, PM, NO_2, SO_2, ozone, and lead are regulated by the U.S. Environmental Protection Agency (EPA) under the Clean Air Act (CAA) and are referred to as criteria pollutants; emissions of VOCs, NO_x, and other precursors to criteria pollutants are also regulated by EPA. Hydrogen sulfide (H_2S), a 'non-criteria pollutant', is associated with sulfur-based odor-causing compounds and is commonly used as a trace odor indicator in determining potential off-site odors from wastewater treatment operations.

CARBON MONOXIDE

CO, a colorless and odorless gas, is produced in the urban environment primarily by the incomplete combustion of gasoline and other fossil fuels. In urban areas, approximately 80 to 90 percent of CO emissions are from motor vehicles. CO concentrations can diminish rapidly over relatively short distances; elevated concentrations are usually limited to locations near crowded intersections, heavily traveled and congested roadways, parking lots, and garages. Consequently, CO concentrations must be analyzed on a local (microscale) basis.

Potential CO concentrations from the stationary sources (i.e., construction equipment) and mobile sources (i.e., construction worker and truck trips) generated during construction were analyzed. As discussed above, a quantified assessment of mobile source CO concentrations from the operation of the Proposed Project was not warranted.

NITROGEN OXIDES, VOCS, AND OZONE

NO_x are of principal concern because of their role, together with VOCs, as precursors in the formation of ozone. Ozone is formed through a series of reactions that take place in the atmosphere in the presence of sunlight. Because the reactions are slow and occur as the pollutants are advected downwind, elevated ozone levels are often found many miles from sources of the precursor pollutants. The effects of NO_x and VOC emissions from all sources are therefore generally examined on a regional basis. The contribution of any action or project to regional emissions of these pollutants would include any added stationary or mobile source emissions.

In addition to being a precursor to the formation of ozone, NO_2 (one component of NO_x) is also a regulated pollutant. Since NO_2 is mostly formed from the transformation of NO in the atmosphere, it has mostly been of concern farther downwind from large stationary sources. (NO_x emissions from fuel combustion consist of approximately 90 percent NO and 10 percent NO_2 at the source.) With the promulgation of the 2010 1-hour average standard for NO_2, local sources such as vehicular emissions may be of greater concern.

The Proposed Project would not have a significant effect on the overall volume of vehicular travel in the metropolitan area; therefore, no measurable impact on regional NO_x emissions or on ozone levels is predicted.

Potential impacts on local NO_2 concentrations from the Proposed Project's stationary sources (i.e., construction equipment) and mobile sources (i.e., worker and truck trips) generated during construction were evaluated.

LEAD

Airborne lead emissions are currently associated principally with industrial sources. Lead in gasoline has been banned under the CAA and would not be emitted from any other component of the Proposed Project. Therefore, an analysis of this pollutant was not warranted.

RESPIRABLE PARTICULATE MATTER – PM_{10} AND $PM_{2.5}$

PM is a broad class of air pollutants that includes discrete particles of a wide range of sizes and chemical compositions, as either liquid droplets (aerosols) or solids suspended in the atmosphere. The constituents of PM are both numerous and varied, and they are emitted from a wide variety of sources (both natural and anthropogenic). Natural sources include the condensed and reacted forms of naturally occurring VOCs; salt particles resulting from the evaporation of sea spray; wind-borne pollen, fungi, molds, algae, yeasts, rusts, bacteria, and material from live and decaying plant and animal life; particles eroded from beaches, soil, and rock; and particles emitted from volcanic and geothermal eruptions and from forest fires. Naturally occurring PM is generally greater than 2.5 micrometers in diameter. Major anthropogenic sources include the combustion of fossil fuels (e.g., vehicular exhaust, power generation, boilers, engines, and home heating), chemical and manufacturing processes, all types of construction, agricultural activities, as well as wood-burning stoves and fireplaces. PM also acts as a substrate for the adsorption (accumulation of gases, liquids, or solutes on the surface of a solid or liquid) of other pollutants, often toxic, and some likely carcinogenic compounds.

As described below, PM is regulated in two size categories: $PM_{2.5}$ and PM_{10}. $PM_{2.5}$ has the ability to reach the lower regions of the respiratory tract, delivering with it other compounds that adsorb to the surfaces of the particles, and is also extremely persistent in the atmosphere. $PM_{2.5}$ is mainly derived from combustion material that has volatilized and then condensed to form primary PM (often soon after the release from a source) or from precursor gases reacting in the atmosphere to form secondary PM.

Gasoline and diesel-powered vehicles, especially heavy-duty trucks and buses operating on diesel fuel, are significant sources of respirable PM, most of which is $PM_{2.5}$; PM concentrations may consequently

be locally elevated near roadways. Potential PM concentrations from the Proposed Project's mobile sources (i.e., construction worker and truck trips) as well as stationary sources (i.e., construction equipment) generated during construction were analyzed.

SULFUR DIOXIDE

SO_2 emissions are primarily associated with the combustion of sulfur-containing fuels (oil and coal). SO_2 is also of concern as a precursor to $PM_{2.5}$ and is regulated as a $PM_{2.5}$ precursor under the New Source Review permitting program for large sources. Due to the federal restrictions on the sulfur content in diesel fuel for on-road and non-road vehicles, no significant quantities are emitted from vehicular sources. Vehicular sources of SO_2 are not significant and therefore analysis of SO_2 from mobile and/or non-road sources was not warranted.

Since EPA mandates the use of ultra-low sulfur diesel (ULSD)[1] fuel for all highway and nonroad diesel engines (including marine equipment such as tugboats) and New York City Local Law 77 of 2003 mandates the use of ULSD fuel for nonroad equipment used on City construction projects, sulfur oxides (SO_x) emitted from the Proposed Project's construction activities would be negligible.

NONCRITERIA POLLUTANTS

In addition to the criteria pollutants discussed above, noncriteria pollutants may be of concern. Noncriteria pollutants are emitted by a wide range of man-made and naturally occurring sources. These pollutants are sometimes referred to as hazardous air pollutants (HAP) and, when emitted from mobile sources, as Mobile Source Air Toxics (MSATs). Emissions of noncriteria pollutants from industries are regulated by EPA.

Federal ambient air quality standards do not exist for noncriteria pollutants; however, the New York State Department of Environmental Conservation (NYSDEC) has issued standards for certain noncriteria compounds, including beryllium, gaseous fluorides, and hydrogen sulfide. NYSDEC has also developed guideline concentrations for numerous noncriteria pollutants. The NYSDEC guidance document Division of Air Resources Policy 1 (DAR-1)[2] contains a compilation of annual and short-term (1-hour) guideline concentrations for these compounds.

The NYSDEC guidance thresholds represent ambient levels that are considered safe for public exposure. Predicted concentrations from the groundwater treatment system were analyzed and compared to the SGCs and AGCs. Consistent with NYSDEC's DAR-1 guidance document, background levels are assumed to be zero since there is no available background data for these pollutants.

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[1] EPA required a major reduction in the sulfur content of diesel fuel intended for use in locomotive, marine, and nonroad engines and equipment, including construction equipment. As of 2015, the diesel fuel produced by all large refiners, small refiners, and importers must be ULSD fuel, with sulfur levels in nonroad diesel fuel limited to a maximum of 15 parts per million.

[2] NYSDEC. DAR-1 (Air Guide-1) AGC/SGC Tables, February 2021.

HYDROGEN SULFIDE

Many of the odor-causing compounds are sulfur-based compounds, such as H_2S, and mercaptans. H_2S is the most prevalent malodorous gas associated with domestic wastewater collection. The conditions leading to H_2S formation usually favor the production of other odorous gases, such as ammonia, mercaptans, and reduced sulfur compounds, which may have considerably higher detectable odor thresholds, and consequently H_2S may be an indicator of their presence. H_2S is commonly used as a trace odor indicator for the following reasons:

- It is always present in wastewater collection operations;
- It has a unique, unpleasant, and discernable odor character (rotten eggs);
- It has a very low odor recognition threshold (approximately 4 to 5 ppb by volume in air detected by the average person);
- It is heavier than air, and would therefore accumulate in low-lying areas; and
- It can be monitored by hand-held and/or stationary instruments.

Therefore, H_2S is used as an indicator of potential odors generated during operation of the Proposed Project.

VOLATILE ORGANIC COMPOUNDS AND SEMIVOLATILE ORGANIC COMPOUNDS

VOCs include aromatic compounds—such as benzene, toluene, ethylbenzene, xylene (BTEX), which may be found in manufactured gas plants (MGP) wastes and petroleum products (especially gasoline, which can also contain methyl tertiary butyl ether [MTBE])—and chlorinated compounds, such as tetrachloroethene (also known as perchloroethylene or "perc" or "PCE") and trichloroethene (TCE), which are common ingredients in solvents, degreasers, and dry-cleaning agents. VOCs represent the greatest potential for exposure since, in addition to soil and groundwater contamination, they can generate organic vapors. Therefore, VOCs are used as an indicator of potential odors generated during construction of the Proposed Project.

The most common semi-volatile organic compounds (SVOCs) in urban areas are polycyclic aromatic hydrocarbons (PAHs), which are constituents of partially combusted coal- or petroleum-derived products, and some MGP wastes. PAHs are commonly found in New York City fill material, which, given the development history, likely underlies the Project Area[3]. Petroleum-related SVOCs could be present and are typically associated with buried tanks currently or formerly located in the Project Area. SVOCs can also be present in creosote-treated timber (e.g., piles from former bulkheads or piers). However, SVOCs typically do not have a noticeable odor.

[3] The Project Area includes the CSO tunnel, gravity diversion sewer, TDPS site, discharge pipe, and diversion facilities.

C. AIR QUALITY REGULATIONS, STANDARDS, AND BENCHMARKS

NATIONAL AND STATE AIR QUALITY STANDARDS

As required by the CAA, primary and secondary NAAQS have been established for six major air pollutants: CO, NO_2, ozone, respirable PM (both $PM_{2.5}$ and PM_{10}), SO_2, and lead. The primary standards represent levels that are requisite to protect the public health, allowing an adequate margin of safety. The secondary standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the environment. The primary standards are generally either the same as the secondary standards or more restrictive. The NAAQS are presented in **Table 17-1**. In addition, New York State has adopted 3-hour and 24-hour ambient air quality standards, but are defined on a running 12-month basis. New York State also has standards for total suspended particles, settleable particles, and 24-hour and annual SO_2, which correspond to federal standards that have since been revoked or replaced, and for the noncriteria pollutants fluoride and hydrogen sulfide.

EPA has revised the NAAQS for $PM_{2.5}$, effective March 6, 2024. The revision included lowering the level of the annual $PM_{2.5}$ primary standard from the previous level of 12 micrograms per cubic meter ($\mu g/m^3$) to 9 $\mu g/m^3$ and retaining the level of the 24-hr primary and secondary standard at 35 $\mu g/m^3$. In addition, the PM_{10} 24-hour average primary and secondary standard was retained.

As discussed above, federal ambient air quality standards do not exist for noncriteria pollutants; however, NYSDEC has issued standards for beryllium, gaseous fluorides, and H_2S, as well as guideline concentrations for additional noncriteria pollutants. The NYSDEC guideline concentrations represent ambient levels that are considered safe for public exposure.

Table 17-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m3	ppm	µg/m3
Carbon Monoxide (CO)				
8-Hour Average	9 (1)	10,000	None	
1-Hour Average	35 (1)	40,000		
Lead				
Rolling 3-Month Average	NA	0.15	NA	0.15
Nitrogen Dioxide (NO_2)				
1-Hour Average (2)	0.100	188	None	
Annual Average	0.053	100	0.053	100
Ozone (O_3)				
8-Hour Average (3)	0.070	140	0.070	140
Respirable Particulate Matter (PM_{10})				
24-Hour Average (7)	NA	150	NA	150

Table 17-1
National Ambient Air Quality Standards (NAAQS)

Pollutant	Primary		Secondary	
	ppm	µg/m3	ppm	µg/m3
Fine Respirable Particulate Matter ($PM_{2.5}$)				
Annual Mean (4)	NA	9	NA	15
24-Hour Average (5)	NA	35	NA	35
Sulfur Dioxide (SO_2)				
1-Hour Average (6)	0.075	196	NA	NA
Annual Average (4)	NA	NA	0.010	26

Notes:
ppm—parts per million (unit of measure for gases only)
µg/m3—micrograms per cubic meter (unit of measure for gases and particles, including lead)
NA—not applicable
All annual periods refer to calendar year.
Standards are defined in ppm. Approximately equivalent concentrations in µg/m3 are presented.
1. Not to be exceeded more than once a year.
2. 3-year average of the annual 98th percentile daily maximum 1-hr average concentration.
3. 3-year average of the annual fourth-highest daily maximum 8-hr average concentration.
4. 3-year average of annual mean.
5. Not to be exceeded by the annual 98th percentile when averaged over 3 years.
6. 3-year average of the annual 99th percentile daily maximum 1-hr average concentration.
7. Not to be exceeded more than once a year on average over 3 years.

Source: 40 CFR Part 50: National Primary and Secondary Ambient Air Quality Standards

NAAQS ATTAINMENT STATUS AND STATE IMPLEMENTATION PLANS

The CAA, as amended in 1990, defines non-attainment areas (NAA) as geographic regions that have been designated as not meeting one or more of the NAAQS. When an area is designated as non-attainment by EPA, the state is required to develop and implement a State Implementation Plan (SIP), which delineates how a state plans to achieve air quality that meets the NAAQS under the deadlines established by the CAA, followed by a plan for maintaining attainment status once the area is in attainment.

In 2002, EPA re-designated New York City, including Brooklyn and Queens, as in attainment for the 1-hour and 8-hour CO NAAQS.

Brooklyn and Queens are also currently in attainment of the PM_{10} standard.

The five New York City counties and Nassau, Suffolk, Rockland, Westchester, and Orange Counties had been designated as a $PM_{2.5}$ NAA (New York Portion of the New York–Northern New Jersey–Long Island, NY–NJ–CT NAA) since 2004 under the CAA due to exceedance of the 1997 annual average standard, and were also designated nonattainment with the 2006 24-hour $PM_{2.5}$ NAAQS since November 2009. The area was redesignated as in attainment for that standard effective April 18, 2014,

and is now under a maintenance plan. NYSDEC recently submitted a limited maintenance plan to EPA for the period 2024 to 2034, which is currently under review.

As described above, EPA has revised the annual $PM_{2.5}$ primary standard. NYSDEC submitted a recommendation that New York State in its entirety be designated attainment for the 9 $\mu g/m^3$ NAAQS. $PM_{2.5}$ attainment designations under the new standard are expected to be effective by May 2026.

Effective June 15, 2004, EPA designated Nassau, Rockland, Suffolk, Westchester, and the five New York City counties (NY portion of the New York–Northern New Jersey–Long Island, NY-NJ-CT, NAA) as a moderate non-attainment area for the 1997 8-hour average ozone standard. In March 2008 EPA strengthened the 8–hour ozone standards, but certain requirements remain in areas that were either nonattainment or maintenance areas for the 1997 ozone standard ('anti-backsliding'). EPA designated the same NAA as a marginal NAA for the 2008 ozone NAAQS, effective July 20, 2012, with subsequent reclassifications to "moderate" and "serious" nonattainment since compliance with the NAAQS was not achieved by the required attainment dates. On November 29, 2021, NYSDEC presented a demonstration that the New York Metro Area (NYMA) was not projected to meet the July 20, 2021 attainment deadline and therefore requested that EPA reclassify the NYMA to "severe" nonattainment. EPA reclassified the NYMA from "serious" to "severe" NAA, effective November 7, 2022, which imposed a new attainment deadline of July 20, 2027 (based on 2018–2020 monitored data). On June 4, 2018, EPA designated the same area as a moderate NAA for the revised 2015 ozone standard. On June 4, 2024, NYSDEC requested the reclassification of the NYMA from "moderate" to "serious" nonattainment" for the 2015 ozone NAAQS. EPA is currently reviewing revisions to New York's SIP plan.

New York City is currently in attainment of the annual-average NO_2 standard. EPA has designated the entire state of New York as "unclassifiable/attainment" of the 1-hour NO_2 standard effective February 29, 2012.

EPA has established a 1-hour SO_2 standard, replacing the former 24-hour and annual standards, effective August 23, 2010. EPA has designated the entire State of New York as in attainment for this standard, with the exception of a portion of St. Lawrence County which was designated as "nonattainment."

DETERMINING THE SIGNIFICANCE OF AIR QUALITY IMPACTS

The State Environmental Quality Review Act (SEQRA) regulations and the *CEQR Technical Manual* state that the significance of a predicted consequence of a project (i.e., whether it is material, substantial, large or important) should be assessed in connection with its setting (e.g., urban or rural), its probability of occurrence, its duration, its irreversibility, its geographic scope, its magnitude, and the number of people affected.[4] In terms of the magnitude of air quality impacts, any action predicted to increase the concentration of a criteria air pollutant to a level that would exceed the concentrations defined by the NAAQS (see **Table 17-1**) would be deemed to have a potential significant adverse

[4] New York City. *CEQR Technical Manual*. Chapter 1, Section 222. December 2021; and SEQR Regulations. 6 NYCRR § 617.7

impact. Similarly, for non-criteria pollutants, predicted exceedances of the DAR-1 guideline concentrations would be considered a potential significant adverse impact.

In addition, to maintain concentrations lower than the NAAQS in attainment areas, or to prevent a significant increase in concentrations within non-attainment areas, threshold levels have been defined for certain pollutants; any action predicted to increase the concentrations of these pollutants above the thresholds would be deemed to have a potential significant adverse impact, even in cases where violations of the NAAQS are not predicted.

CO DE MINIMIS CRITERIA

New York City has developed *de minimis* criteria to assess the significance of the increase in CO concentrations that would result from the impact of proposed projects or actions on mobile sources, as set forth in the *CEQR Technical Manual*. These criteria set the minimum change in CO concentration that defines a significant environmental impact. Significant increases of CO concentrations in New York City are defined as: (1) an increase of 0.5 ppm or more in the maximum 8-hour average CO concentration at a location where the predicted No Action 8-hour concentration is equal to or between 8 and 9 ppm; or (2) an increase of more than half the difference between baseline (i.e., No Action) concentrations and the 8-hour standard, when No Action concentrations are below 8 ppm.

$PM_{2.5}$ DE MINIMIS CRITERIA

The *de minimis* criteria New York City uses to determine the potential for significant adverse $PM_{2.5}$ impacts under CEQR are as follows:

- Predicted increase of more than half the difference between the background concentration and the 24-hour standard;
- Annual average $PM_{2.5}$ concentration increments which are predicted to be greater than 0.1 $\mu g/m^3$ at ground level on a neighborhood scale (i.e., the annual increase in concentration representing the average over an area of approximately 1 square kilometer, centered on the location where the maximum ground-level impact is predicted for stationary sources; or at a distance from a roadway corridor similar to the minimum distance defined for locating neighborhood scale monitoring stations); or
- Annual average $PM_{2.5}$ concentration increments that are predicted to be greater than 0.3 $\mu g/m^3$ at a discrete receptor location (elevated or ground level).

Actions under CEQR predicted to increase $PM_{2.5}$ concentrations by more than the above *de minimis* criteria are considered to have a potential significant adverse impact.

The above *de minimis* criteria have been used to evaluate the significance of predicted impacts of the Proposed Project on $PM_{2.5}$ concentrations.

NON-CRITERIA POLLUTANT THRESHOLDS

Non-criteria air pollutants include a multitude of pollutants of ranging toxicity. No federal ambient air quality standards have been promulgated for toxic air pollutants. However, EPA and NYSDEC have

issued guidelines that establish acceptable ambient levels for these pollutants based on human exposure. The NYSDEC DAR-1 guidance document presents guideline concentrations in micrograms per cubic meter for the one-hour and annual average time periods for various non-criteria pollutants and these values[5] were used for the pollutants analyzed in the groundwater treatment system analysis.

ODOR CRITERIA (DURING OPERATION)

The criteria used to assess odor impacts during operation of the Proposed Project are the City's *CEQR Technical Manual* odor threshold of 1 parts per billion (ppb) for H_2S at sensitive receptors, and NYSAAQS of 10 ppb H_2S in ambient air (both 1-hour average concentrations). Implicit in the use of 1 ppb H_2S as the significant odor threshold is that any control measures that may be needed to achieve this threshold would at the same time address other residual odors that are common to CSO storage operations. Since the level is extremely low, and is at the lowest end of the detection range of currently available monitoring technology, compliance with this criterion is demonstrated with air dispersion models. The 1-hour average NYSAAQS of 10 ppb H_2S, applicable for all locations beyond the fence line of the project sites, is used to protect the quality of life for the surrounding community.

Potential H_2S concentrations from the Proposed Project's odor control systems at the TDPS and diversion facility sites, during operation of the Proposed Project, were compared with the City's *CEQR Technical Manual* screening level odor threshold of 1 ppb for H_2S at sensitive receptors. Modeled H_2S concentrations were also compared with the NYSAAQS of 10 ppb H_2S in ambient air (i.e., at all off-site locations).

ODOR CRITERIA (DURING CONSTRUCTION)

To assess odor impacts during construction, a Community Air Monitoring Plan would be implemented. The purpose of the CAMP is to monitor air quality at the work areas during soil disturbance activities (drilling, excavation, etc.). The CAMP would consist of real-time air monitoring for respirable particulate matter/dust (specifically PM_{10}), VOC, observations for visible emissions and odors, inspection and monitoring of the contractor's work practices to prevent any off-site emissions, and reporting to the NYSDEC.

Elements of the CAMP may include:

- Monitoring airborne VOC levels for compliance with action levels.
- Monitoring airborne PM_{10} levels for compliance with action levels.
- Monitoring visible emissions (e.g., dust or smoke) to determine if any escape the perimeter of the project areas.
- Monitoring nuisance odors at the perimeter of the project areas.

In the event of exceedance of action levels or the presence of visible emissions/odors at the perimeter, construction personnel would be immediately notified so that appropriate corrective actions can be

[5] NYSDEC. DAR-1 (Air Guide-1) AGC/SGC Tables, February 2021.

implemented. The locations and frequency of monitoring may be modified on a task-by-task basis depending on the extent and location of the work relative to publicly accessible areas.

Table 17-2 summarizes the PM_{10}, VOC, odor, and visible particulate action levels and appropriate actions. The values listed below are also set forth in Appendix 1A, NYSDOH Generic CAMP in the NYSDEC Division of Environmental Remediation-10 (DER-10) / Technical Guidance for Site Investigation and Remediation.

Table 17-2
Initial CAMP[(1)] Action Levels and Responses

Monitoring Instrument	Action Level	Response Action
VOC (Photoionization Detector)	< 5 ppm above background at the downwind perimeter of the work zone (15-min TWA)	Continue normal operations
	> 5 ppm but < 25 ppm above background at the downwind perimeter of the work zone (15-min TWA)	Suspend operations until readings indicate < 5 ppm for 15-minute TWA. Take steps to abate emissions
	> 25 ppm above background at the downwind perimeter of the work zone (15-min TWA)	Shut down operations and reevaluate work and controls
PM_{10} (Particulate Monitor)	< 100 µg/m^3 at the downwind perimeter of the work zone (15-min TWA)	Continue normal operations
	> 100 µg/m^3 but < 150 µg/m^3 at the downwind perimeter of the work zone (15-min TWA)	Implement dust control measures
	> 150 µg/m^3 at the downwind perimeter of the work zone (15-min TWA)	Shut down operations and reevaluate work and controls
Odor (Olfactory)	Perceptible odors outside work zone, adjacent to receptor, or complaint	Suspend operations until odor condition abated. Take steps to abate odor
Dust (Visibility)	Visible dust clouds or particulate emissions leaving the work zone, observed adjacent to a receptor, or complaint	Suspend operations until particulate emissions are mitigated. Implement dust control measures.

Notes:

[1] The action levels presented in this table will be further refined as results from further soil investigations become available.

TWA - Time weighted average

µg/m^3 – Microgram per cubic meter of air

ppm – Parts per million

D. METHODOLOGY

CONSTRUCTION ACTIVITY ASSESSMENT

Emissions from non-road construction equipment and on-road vehicles have the potential to affect air quality. In addition, emissions from dust-generating construction activities (i.e., truck loading and unloading operations) also have the potential to affect air quality. A quantitative analysis was performed to determine the potential for significant adverse impacts from these sources of air emissions generated during construction of the Proposed Project.

To determine which construction periods would constitute the worst-case periods for PM and CO, construction-related emissions were calculated for each calendar year throughout the duration of construction on a rolling annual and peak day basis for $PM_{2.5}$. $PM_{2.5}$ was selected for determining the worst-case periods for PM and CO and their respective averaging periods because the ratio of predicted $PM_{2.5}$ incremental concentrations to impact criteria is anticipated to be higher than the ratio for PM_{10} and CO. The air quality construction analysis conservatively assumed that peak construction activities at each of the five project sites (the TDPS site and each of the four diversion facility sites) would occur simultaneously regardless of when peak construction activities at each of the project sites would be expected to occur. The analysis for the BB-026 diversion facility site also includes the construction of the gravity diversion sewer that connects this diversion facility to the tunnel as well as the drop shaft located near Newtown Creek at Review Avenue and 35th Street south of the BB-026 diversion facility site.

Activities at the TDPS site would consist of demolition, construction of the screening and pumping station shafts, staging and supporting activities for tunnel construction work, and construction of the TDPS facility, occurring for up to 11 years. Excavated materials from tunnel construction would be hauled out through a shaft at this location and would be either trucked or barged off this site. Construction at the diversion facility sites would be less intensive, which would mainly consist of site clearing work and the construction of the diversion facilities, and occurring for shorter durations. Therefore, a 1-hour NO_2 analysis was conducted to assess the potential for the construction activities at the TDPS site to result in an exceedance of the NO_2 1-hour NAAQS since there is the potential for sustained intense construction activities at the same location over an extended period of time, which would not occur at the diversion facility sites. A separate 1-hour NO_2 construction emissions profile was also developed for the TDPS site to identify the worst-case period for this analysis.

Based on the emission profiles generated at each site, one set of worst-case annual and short-term (i.e., 24-hour, 8-hour, and 1-hour) averaging periods were selected for analysis. Dispersion of the relevant air pollutants from the construction areas during these periods were then analyzed. Broader conclusions regarding potential concentrations during other periods, which were not modeled, are presented as well, based on the multi-year emissions profiles and results from the reasonable worst-case period when peak emissions are projected at each of the five project sites.

Construction activities at the project sites were assumed to occur in one 10-hour shift from 7 AM to 5 PM, five days a week on weekdays with the exception of certain activities would occur for longer durations, including tunnel excavation and final lining activities for the shafts. These activities are

anticipated to occur in three 8-hour shifts (7 AM to 3 PM, 3 PM to 11 PM, and 11 PM to 7 AM), five days a week on weekdays. There is also the potential for construction activities during weekends to make up for weather delays and/or to accelerate the project construction schedule as determined by the construction contractor. An assessment was provided to examine whether this alternative weekend schedule could result in significant adverse air quality impacts not identified under the weekday analysis.

CONSTRUCTION EMISSION SOURCES

Non-Road Construction Equipment

Non-road construction equipment includes equipment operating on-site, such as cranes, loaders, and excavators. Emission rates for NO_x, CO, PM_{10}, and $PM_{2.5}$ from non-road construction equipment engines were developed using the NONROAD emission module included in the EPA Motor Vehicle Emission Simulator (MOVES4) emission model. Construction equipment estimates based on project design (see **Appendix F**) were used for the construction air quality analysis.

On-Road Vehicles

On-road vehicles include construction worker vehicles and construction trucks arriving to and from the construction sites, as well as operating on-site. Construction worker and truck estimates based on project design (see **Appendix F**) were used for the construction air quality analysis. Vehicular engine emission factors were estimated using the EPA MOVES4 emission model.

Fugitive Dust Generating Activities

In addition to engine emissions, fugitive dust emissions are generated from construction operations (e.g., transferring excavated materials into dump trucks), vehicle travel on-site, excavated soil stockpiles, and blasting operations. Fugitive dust emissions were estimated using EPA procedures provided in AP-42 Table 13.2.3-1.[6] Road dust emissions from vehicle travel off-site were estimated using EPA's AP-42, Section 13.2.1 for paved roads assuming a baseline silt loading of 0.6 g/m^2, while road dust emissions from vehicle travel on-site were estimated using EPA's AP-42, Section 13.2.2 for unpaved roads and assuming a surface material silt content of 8.5 percent for construction sites. Dust emissions from transfer operations were estimated using EPA's AP-42, Section 13.2.4 and assuming a moisture content of 11 percent for miscellaneous fill material, and dust emissions from excavated material stockpiles were estimated using AP-24, Section 11.9, based on exposed areas for overburden.

As discussed in Chapter 3, "Construction Means and Methods," drill-and-blast methods would be employed for excavation activities below the bedrock surface for the pumping station and screening shafts, the starter and connector tunnels, and the subsurface adit at BB-026. Based on preliminary design, it is anticipated that approximately 16 blasts would be required for the pump station shaft, 8

[6] EPA Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume I: *Stationary Point and Area Sources*, Chapter 13: Miscellaneous Sources.

for the screening shaft, 10 for the starter and connector tunnels, and 10 to 15 for the BB-026 adit. Blasting emissions were estimated using EPA's AP-42, Section 13.3.1.

As discussed below under "Emissions Reduction Measures," the construction of the Proposed Project is required to follow the DEP Construction Dust Rules regarding construction-related dust emissions.[7] Therefore, a 50 percent reduction in particulate emissions from fugitive dust was conservatively assumed in the emissions calculations to account for required dust control measures that would be employed at the proposed project sites, such as wet suppression.

Barging Operation

In addition to or as an alternative to trucking excavated materials offsite, excavated materials from shaft and tunnel construction may be removed from the TDPS site by barges. Barges may also be used for delivery of large equipment (e.g., TBM) and tunnel segments and for temporary storage of these tunnel segments. Therefore, tugboat emissions were included in the quantified construction air quality analysis. Since most tugboats are currently equipped with Tier 1[8] propulsion engines, Tier 1 emission factors were conservatively assumed for the analysis. Tugboat emissions were estimated according to the latest emission factors and methodologies delineated by EPA[9]. A detailed discussion on barging operations is provided in Chapter 3, "Construction Means and Methods."

EMISSIONS REDUCTION MEASURES

Measures would be taken to reduce pollutant emissions during construction of the Proposed Project in accordance with all applicable laws, regulations, and building codes. These include the following dust suppression measures and idling restrictions:

- *Clean Fuel*. ULSD fuel would be used exclusively for all diesel engines for the Proposed Project.
- *Dust Control.* To minimize fugitive dust emissions from construction activities, a fugitive dust control plan including a robust watering program would be required as part of contract specifications. For example, all trucks hauling loose material would be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the project site; and water sprays would be used for all demolition, excavation, and transfer of soils to ensure that materials would be dampened as necessary to avoid the suspension of dust into the air. Loose materials would be watered, stabilized with a chemical suppressing agent, or covered.
- *Idling Restriction.* In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time would be restricted to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or are otherwise required for the proper operation of the engine.

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[7] http://www.nyc.gov/html/dep/html/air/construction_dust_debris.shtml

[8] EPA, 40 CFR Parts 9 and 94 exhaust emission standards for marine diesel engines.

[9] EPA, Port Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions, April 2022.

Furthermore, all construction activities associated with the Proposed Project would comply with New York City Local Law 77 of 2003, which requires the use of Best Available Technology (BAT) for equipment at the time of construction to reduce air pollutant emissions.

- *Best Available Technology*. The Proposed Project would utilize BAT for reducing air pollutant emissions. All diesel-powered non-road construction equipment with a power rating of 50 horsepower (hp) or greater (with the exception of the tugboat emissions as discussed above) would meet EPA's Tier 4[10] emissions standard (EPA's Tier 1 through 4 standards for non-road diesel engines regulate the emission of criteria pollutants from new engines, including PM, CO, NO_x, and hydrocarbons). Construction trucks would be required to be equipped with diesel particulate filters (DPFs) to reduce pollutant emissions.

The analysis accounted for the above emissions reduction measures that would be implemented during construction of the Proposed Project.

DISPERSION MODEL

Potential impacts from the Proposed Project's non-road construction equipment, on-road vehicles, and fugitive dust generating activities were evaluated using the EPA/AMS AERMOD model, a refined dispersion model. AERMOD is a state-of-the-art dispersion model, applicable to rural and urban areas, flat and complex terrain, surface and elevated releases, and multiple sources (including point, area, and volume sources). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain and includes updated treatments of the boundary layer theory, understanding of turbulence and dispersion, and handling of terrain interactions. Since emissions from non-road construction equipment and on-road vehicles may contribute to concentration increments concurrently, both nonroad construction equipment and on-road vehicles were modeled together using the AERMOD model to address all local Proposed Project-related construction emissions.

SOURCE SIMULATION

For short-term analysis periods (predicting concentration averages for periods of 24 hours or less), non-road construction sources, such as a crane, which would likely remain at a single location on a given day, were simulated as point sources in the model. Other non-road construction sources, such as excavators or loaders, which would move around the site on any given day, as well as on-road vehicles, were simulated as area sources in the model. For the 1-hour short-term averaging period, it was

[10] The first federal regulations for new non-road diesel engines were adopted in 1994, and adopted by EPA into regulation in a 1998 Final Rulemaking. The 1998 regulation introduces Tier 1 emissions standards for all equipment 50 hp and greater and phases in the increasingly stringent Tier 2 and Tier 3 standards for equipment manufactured in 2000 through 2008. In 2004, the EPA introduced Tier 4 emissions standards with a phased-in period of 2008 to 2015. The Tier 1 through 4 standards regulate the EPA criteria pollutants, including PM, hydrocarbons (HC), NO_x and carbon monoxide (CO). Prior to 1998, emissions from non-road diesel engines were unregulated. These engines are typically referred to as Tier 0.

assumed that all engines would be operating simultaneously. For the annual analysis period, because all sources are anticipated to generally move around the construction areas throughout the year, these sources were simulated as area sources in the model.

BACKGROUND CONCENTRATIONS

To estimate the maximum pollutant concentration at a given receptor, the predicted impacts were added to a background value that accounts for existing pollutant concentrations from other sources that are not directly accounted for in the model (see **Table 17-3**). The background levels are based on concentrations monitored at the nearest NYSDEC ambient air monitoring stations over a recent concurrent three-year period for which data are available. 2020 and 2021 data were not used because of uncertainties in the representativeness of background concentrations for these years due to effects of COVID-19, consistent with DEP guidance. 2023 data was also not used due to historically the worst Canadian wildfires that year. The annual average background values are the highest measured average concentrations. It was conservatively assumed that the maximum background concentrations occur on all days. The $PM_{2.5}$ 24-hour average background concentration of 17.6 µg/m^3 (based on the 2017 to 2019 average of 98th percentile concentrations measured at the Queens College monitoring station) was used to establish the *de minimis* value for the 24-hour increment, consistent with the guidance provided in the *CEQR Technical Manual*.

Table 17-3
Maximum Background Pollutant Concentrations

Pollutant	Average Period	Location	Concentration	NAAQS
$PM_{2.5}$	24-hour	Queens College 2	17.6 µg/m^3	35 µg/m^3
	Annual	Queens College 2	7.0 µg/m^3	9 µg/m^3
PM_{10}	24-hour	Queens College 2	33.7 µg/m^3	150 µg/m^3
NO_2	1-hour(1)	Queens College 2	103.8 µg/m^3	188 µg/m^3
	Annual	Queens College 2	28.7 µg/m^3	100 µg/m^3
CO	1-hour	Queens College 2	1.7 ppm	35 ppm
	8-hour	Queens College 2	1.2 ppm	9 ppm

Note:
(1) The one-hour NO_2 background concentration is based on the maximum 98th percentile one-hour NO_2 concentration averaged over three years of data. For the 1-hour NO_2 analysis, seasonal-hourly background concentrations were used.
Source: New York State Air Quality Report Ambient Air Monitoring System, NYSDEC, 2017–2019.

Consistent with NYSDEC's DAR-1 guidelines, because there is no available H_2S background data in the area, background levels of H_2S were assumed to be zero.

Total 1-hour NO_2 concentrations were determined following methodologies that are accepted by the EPA, and which are considered appropriate and conservative for this analysis. The methodology used to determine the compliance of total 1-hour NO_2 concentrations from the proposed sources with the 1-

hour NO_2 NAAQS[11] was based on adding the monitored background to modeled concentrations, as follows: hourly modeled concentrations from proposed sources were first added to the seasonal hourly background monitored concentrations from the nearest representative monitoring station (Queens College); then the highest combined daily 1-hour NO_2 concentration was determined at each receptor location and the 98th percentile daily 1-hour maximum concentration for each modeled year was calculated within the AERMOD model; finally the 98th percentile concentrations was averaged over the latest five years. Seasonal NO_2 and ozone background concentrations were also utilized for missing hours.

METEOROLOGICAL DATA

The meteorological data set consists of the most recent five consecutive years of meteorological data: surface data collected at LaGuardia Airport (2017 to 2021)[12], the most representative meteorological station, and concurrent upper air data collected at Brookhaven, New York. The meteorological data provide hour-by-hour wind speeds and directions, stability states, and vertical temperature profiles over the five-year period. These data sets were processed using the EPA AERMET program and input into the AERMOD model. The land uses around the site where meteorological surface data is available were classified using categories defined in digital United States Geological Survey (USGS) maps to determine surface parameters used by the AERMET program.

RECEPTOR LOCATIONS

Receptors (locations in the model where concentrations are predicted) were placed along accessible sidewalk locations surrounding the construction site, at residential and other sensitive uses at both ground-level and elevated locations (e.g., residential windows), at publicly accessible open spaces including the Newtown Creek Nature Walk near the TDPS site and Newtown Creek. Receptors were also placed at the proposed open spaces such as the North Henry Street Restoration Project located to the east of the TDPS site and the Gateway to Greenpoint project located to the southeast of the TDPS site near the intersection of Kingsland Avenue and Greenpoint Avenue. In addition, a ground-level receptor grid extending 1 kilometer (0.62 mile) from each site with 25-meter (82-foot)_receptor spacing was placed to enable extrapolation of concentrations both near the project sites and at locations more distant from construction activities.

For the neighborhood scale $PM_{2.5}$ analysis, a 1kilometer (0.62-mile) ground-level receptor grid with 25-meter (82-foot) receptor spacing centered on the location of the local-scale maximum ground-level annual average $PM_{2.5}$ concentration, were placed.

All receptors were referenced to Universal Transverse Mercator (UTM) coordinates and 1-degree (~90 meters) digital elevation model (DEM) files were utilized. Since portions of the project sites may be graded as part of the construction analysis, topographical terrain maps of the project site were utilized

[11] https://www.epa.gov/sites/default/files/2020-10/documents/no2_clarification_memo-20140930.pdf

[12] NYSDEC has stated that upper air measurements for 2022 are missing a significant number of days, consequently 2022 meteorological data is not being considered.

for on-site sources, structures, and roadways. A terrain pre-processor program (AERMAP) was used to determine the representative elevations and hill-height scales for each receptor.

GROUNDWATER TREATMENT SYSTEM ANALYSIS

Construction of the Proposed Project would involve subsurface disturbance in an area that has a long history of commercial/industrial uses, with which subsurface contamination (in the fill, soil, and/or groundwater) is frequently associated. As such, a groundwater treatment system would be used at the TDPS site during shaft and tunnel excavation activities, as well as at the BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites during shaft excavation activities to treat potentially contaminated groundwater. Therefore, an analysis of the potential concentrations from the on-site groundwater treatment systems was conducted.

A preliminary subsurface investigation (Part 1) was conducted between March and May 2024 to evaluate site-specific conditions that may warrant supplemental investigation[13]. The results of the preliminary subsurface investigation as well as a March 2023 Newtown Creek Remedial Investigation Report,[14] specifically the non-criteria pollutant concentrations identified in the groundwater samples, were used in the analysis as representative of pollutant concentrations that could potentially be present during excavation activities. Pollutant emission rates were estimated based on the treated volume of groundwater and the exhaust flowrates from the treatment systems. Typical control systems capture pollutants from contaminated water with a 99 percent control efficiency and vapor emissions are controlled with control efficiencies ranging from no control (for non-volatile pollutants) up to a minimum of 99 percent control efficiency (for semi-volatile and volatile pollutants) from the groundwater treatment system, depending on the pollutant, before being exhausted to the atmosphere. It was conservatively assumed that pollutants would be removed from the treated groundwater and their concentrations exhausted to ambient air, with 0 percent control efficiency, as a conservative assumption from the groundwater treatment system's exhaust. Therefore, the non-criteria pollutant emissions from the groundwater treatment systems would be potentially much less than those used in the conservative modeling analysis.

MODELING APPROACH

As with the construction activity assessment methodology described above, the groundwater treatment system analysis was performed using the EPA/AMS AERMOD model and the same meteorological data set and receptors.

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[13] The results of previous assessments, including the preliminary subsurface investigation (Part 1) were summarized in *Technical Memorandum 11 – Assessment of Available Environmental Information*, dated March 2024 prepared by McMillen JA Engineering PLLC/Bown and Caldwell Associates, a Joint Venture (JV) (see Appendix E).

[14] Anchor QEA, LLC, Remedial Investigation Report – Remedial Investigation/Feasibility Study, Newtown Creek, March 2023.

EMISSION RATES AND STACK PARAMETERS

Non-criteria pollutant emissions were modeled using a unitary emission rate (1 gram per second [g/s]). Since the design for the groundwater treatment systems are currently being developed, physical dimensions and exhaust airflow rates are not known. A stack height of 30 feet was used, consistent with similar sized air stripper units in the industry. Default stack exhaust parameters for stack diameter and exhaust flowrate, consistent with CEQR guidance, were utilized to obtain maximum unitary concentrations (micrograms per cubic meter per gram per second [µg/m3 per g/s]). The short-term (1-hour) and annual average concentrations projected from the unitary analysis were then multiplied by the appropriate maximum pollutant emission rates from the groundwater treatment system's exhausts to obtain individual non-criteria pollutant concentrations.

Total pollutant concentrations were modeled for the TDPS site during construction activities. The distance between the potential exhaust stack and adjacent sidewalk and open space receptors at the TDPS would be similar to the distances between sources and receptors at the BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites. Since default stack parameters (an average pumping rate of 250 gallons per minute [gpm]) and pollutant emission rates based on the maximum contaminant concentration within groundwater regardless of the observed location were used, the unitary modeling analysis resulted in conservative pollutant concentrations that is representative of operation of the groundwater treatment systems regardless of location; therefore, concentrations at the BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites are anticipated to be similar to the predicted concentrations for the TDPS site.

Table 17-4 presents the stack exhaust parameters from the groundwater treatment system.

Table 17-4
Exhaust Parameters—Groundwater Treatment Systems

Stack Parameters	Air Treatment System
Stack Height (ft)	30 [1]
Stack Diameter (ft)	0 [2]
Exhaust Flowrate (ft/s)	0.00 [2]
Exhaust Temperature (K)	Ambient [3]
Stack Configuration	Vertical
Dewatering Pumping Rate (gpm) [4]	250

Notes:
[1] Stack height was based on similar sized air stripper units used in industry.
[2] *CEQR* default exhaust parameters used to eliminate plume rise effects were used as a conservative worst-case assumption.
[3] Ambient temperature within the AERMOD model was used as a conservative assumption to minimize buoyancy effects.
[4] Average dewatering pumping rate based on current design.

ODOR CONTROL STRATEGIES DURING CONSTRUCTION

The Proposed Project would involve deep excavations for shafts and a deep linear excavation for the tunnel in mostly commercial and industrial areas. Within these areas, historic releases of various environmental contaminants have occurred, impacting the soil and groundwater. As described in detail

in Chapter 12, "Hazardous Materials," a preliminary subsurface investigation (known as Part 1 of the Subsurface Investigation) was performed concurrently with the first part of a Geotechnical Investigation (see **Appendix E**). Borings were advanced at seven locations (Borings B-101 through B-107) along the CSO tunnel corridor using mud rotary or sonic drilling equipment. There were no odors in the majority of the intervals screened during the limited investigation; however, mild organic odors were observed in the 12- to 14-foot and the 136.8- to 137-foot intervals of Boring B-103, as well as the 20- to 22- and 25- to 27-foot intervals of Boring B-106. A slight petroleum odor was observed in the surficial (1- to 3-foot) interval of Boring B-106. Therefore, based on these findings, a discussion of the odor control strategies that would be implemented during construction to minimize the potential odor effects on the nearby communities would be provided.

ODOR CONTROL SYSTEMS ANALYSIS (DURING OPERATION)

The NCQ-077, NCB-083, and NCB-015 diversion facilities would include one carbon adsorber vessel for odor control, located underground with an exhaust vent at grade. The TDPS facility would include five outdoor carbon adsorber vessels used to control odors from the degritting facility and an additional three outdoor carbon adsorber vessels controlling odors from the screening building. The five carbon adsorber vessels at the degritting facility would be vented to a common flue and exhausted at least three feet above the degritting facility while the three carbon adsorber vessels at the screening building would be vented to a common flue and exhausted three feet above the screening building.

The BB-026 diversion facility is not expected to include an odor control system, either at the diversion facility site or at the drop shaft location. Diverted flow rates at BB-026 (60 million gallons per day) are substantially lower than at the other diversion facilities (570 to 830 million gallons per day) and there is less concern with odorous emissions at BB-026 with the lower flows. At the BB-026 diversion facility site, there is no ventilation or chance for odorous emissions to escape. Manholes and access hatches would have sealed lids to prevent air from escaping at this diversion facility site. The BB-026 drop shaft located at the north of the intersection of Review Avenue and 35th Street near the tunnel alignment has a shaft diameter of 3.8 feet, while the alternative drop shaft location further south of this intersection has a diameter of 12 feet, both of which are smaller shafts than the drop shafts at the other diversion facility sites (45 to 60 feet in diameter, depending on the site). While the tunnel is filling (less than 10 percent of the time),[15] air could escape from either a 3.8-foot diameter vent shaft along the adit that connects the drop shaft to the tunnel (see Figure 3-14a) (for the drop shaft location north of the intersection of Review Avenue and 35th Street) or from the shaft itself (for the alternate drop shaft location). Majority of the time, while the CSO system is not in use, air is not expected to escape from either drop shaft location. Therefore, any potential odor impacts associated with the BB-026 diversion facility and drop shaft would be negligible, and further analysis is not warranted.

The following section describes the modeling methodology that was used to assess the potential odor impacts from the odor control systems at the diversion facilities and the TDPS.

[15] The CSO system is not expected to be in use approximately 91 percent of the time (8,009 hours per year).

MODELING APPROACH

As with the construction activity assessment and the groundwater treatment system analysis, potential impacts from the Proposed Project's odor emissions were evaluated using the refined EPA/AMS AERMOD dispersion model

The AERMOD Model also incorporates the algorithms from the PRIME model, which is designed to predict impacts in the "cavity region" (i.e., the area around a structure which, under certain conditions, may affect an exhaust plume, causing a portion of the plume to become entrained in a recirculation region). The Building Profile Input Program (BPIP) program for the PRIME model (BPIPRM) was used to determine the projected building dimensions modeling with the building downwash algorithm enabled. The modeling of downwash from sources accounted for all obstructions within a radius equal to five obstruction heights of the stack.

The analysis was performed both with and without downwash in order to assess potential impacts at both ground level and elevated receptors.

The meteorological data set also consists of five consecutive years of meteorological data: surface data collected at LaGuardia Airport (2017 to 2021), and concurrent upper air data collected at Brookhaven, New York and receptors were placed at sensitive locations near the project sites.

EMISSION RATES AND STACK PARAMETERS

The odor control systems at the NCQ-077, NCB-083, and NCB-015 diversion facility sites would consist of one carbon adsorber vessel odor control unit while the odor control system at the TDPS would consist of eight carbon adsorber vessel odor control units (five dedicated to the degritting facility and three dedicated to the screening building). The BB-026 diversion facility would not use an odor control system. The carbon adsorber vessels have a control efficiency ranging from 95 percent for inlet concentrations less than 1 ppm and up to 99 percent for inlet concentrations greater than 10 ppm. Based on industry standards and experience from designing similar CSO facilities, a 40 ppb H_2S stack exhaust concentration limit would be specified for the Proposed Project. The exhaust flowrates for the odor control units at the diversion facility sites are 2,500 cubic feet per minute (cfm), 3,000 cfm, and 2,000 cfm for the NCQ-077, NCB-083, and NCB-015 facility sites, respectively. The exhaust flowrate for each odor control unit at the TDPS is 14,300 cfm per vessel; therefore, the flow for the degritting and screening stacks would be 71,500 scfm and 42,900, respectively.

Using these exhaust flowrates, the maximum H_2S emission rate for the odor control units at the NCQ-077, NCB-083, and NCB-015 diversion facility sites were estimated as 6.69E-05 grams per second (g/s), 8.03E-05 g/s, and 5.35E-05 g/s, respectively. The maximum H_2S emission rate for the degritting stack was estimated as 1.91E-03 g/s and 1.15E-03 for the screening stack. The odor control vaults for the NCQ-077, NCB-083, and NCB-015 diversion facility sites are underground and vent to grates at ground level and were therefore modeled as ground-level point sources with exhaust diameters calculated using the area of each source's respective grate.

Table 17-5 presents the emission rates and stack parameters that were used in the odor modeling analyses.

Table 17-5
Emission Rates and Stack Parameters – Odor Control Systems

Stack Parameters	TDPS (1) Degritting	TDPS (2) Screening	NCQ-077	NCB-083	NCB-015
Stack Height above grade (ft)	56	52	0	0	0
Stack Diameter (ft)	5.59	5.2	13.8	14.8	19.8
Exhaust Flowrate (acfm)	76,101	45,660	2,661	3,193	2,129
Exhaust Velocity (ft/s)	51.68	35.89	0.297	0.309	0.115
Exhaust Temperature (F)	Ambient	Ambient	Ambient	Ambient	Ambient
Stack Configuration	Vertical	Vertical	Vertical	Vertical	Vertical
Emission Rates					
1-hour H_2S (g/s)	1.91E-03	1.15E-03	6.69E-05	8.03E-05	5.35E-05

Notes:
N/A—Not Applicable
(1) Stack exhaust information, such as exhaust diameter and flowrate are based on five (5) odor control vessels venting to a single stack. Exhaust velocity is calculated using these values.
(2) Stack exhaust information, such as exhaust diameter and flowrate are based on three (3) odor control vessels venting to a single stack. Exhaust velocity is calculated using these values.

E. EXISTING CONDITIONS

The representative criteria pollutant concentrations measured in recent years at NYSDEC air quality monitoring stations nearest to the project sites are presented in **Table 17-6**. The values presented are consistent with the form of the NAAQS. As shown in the table, the recently monitored levels did not exceed the NAAQS, with the exception of the 8-hour ozone NAAQS. It should be noted that these values are somewhat different from the background concentrations used in the modeling analyses, since these are recently reported monitored values, rather than more conservative values used for dispersion modeling. The concentrations presented in **Table 17-6** provide a comparison of the air quality near the project sites with the NAAQS, while background concentrations are obtained from several years of monitoring data and represent a conservative estimate of the highest concentrations for future ambient conditions.

Table 17-6
Representative Monitored Ambient Air Quality Data

Pollutant	Location	Units	Averaging Period	Concentration	NAAQS
CO	Queens College	ppm	1-hour	1.7	35
	Queens College		8-hour	1.3	9
SO_2	Queens College	$\mu g/m^3$	1-hour	13.1	196
PM_{10}	Queens College	$\mu g/m^3$	24-hour	36	150
$PM_{2.5}$	Queens College	$\mu g/m^3$	Annual	7.2	9
			24-hour	18.9	35
NO_2	Queens College	$\mu g/m^3$	Annual	25.3	100
	Queens College		1-hour	99.0	188
Lead	IS 52	$\mu g/m^3$	3-month	0.0049	0.15
Ozone	Queens College	ppm	8-hour	0.073	0.070

Notes:
(1) The CO and PM_{10} concentrations represent the second-highest value from 2023.
(2) $PM_{2.5}$ annual concentrations are the average of 2021–2023 annual concentrations, and the 24-hour concentration is the average of the annual 98th percentile concentrations in the same period.
(3) The SO_2 1-hour and NO_2 1-hour concentrations are the average of the 99th percentile and 98th percentile, respectively.
(4) The ozone concentration is based on the 3-year average (2021–2023) of the 4th highest daily maximum 8-hour average concentrations.
(5) Consistent with NYSDEC's DAR-1 guidelines, because there is no available H2S background data in the area, existing levels of H2S were assumed to be zero.
Source: New York State Air Quality Report Ambient Air Monitoring System, DEC, 2021–2023

F. FUTURE WITHOUT THE PROPOSED PROJECT

As discussed in Chapter 2, "Analysis Framework," in the No Action condition, it is assumed that the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities would also remain in their existing condition. The TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015. Therefore, air quality conditions are expected to remain similar to those presented in above "Existing Conditions" (see **Table 17-6**).

G. FUTURE WITH THE PROPOSED PROJECT

CONSTRUCTION ACTIVITY ASSESSMENT

Maximum predicted concentrations during the representative worst-case construction period at the TDPS site, BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites, are presented in **Tables 17-7 through 17-11**, respectively. To estimate the maximum total pollutant NO_2, CO, and

PM_{10} concentrations, the modeled concentrations from the Proposed Project were added to a background value that accounts for existing pollutant concentrations from other nearby sources.

As shown in **Tables 17-7 through 17-11**, the maximum predicted total concentrations of NO_2, CO and PM_{10} are below the applicable NAAQS at all locations. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable CEQR *de minimis* thresholds in the 24-hour and annual averaging periods[16] at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. The $PM_{2.5}$, concentrations from construction sources at the NCQ-077 diversity facility site were determined to exceed the short-term and annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site, but all the concentrations were below the NAAQS. Based on the magnitude of the predicted concentrations, the duration of the impact on the sidewalk locations adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, these impacts are considered temporary and transient in nature and would not result in significant adverse construction air quality impacts.

Emissions from the other less intensive construction stages would be less than the emissions during representative peak construction period; therefore, the resulting concentrations from those less intensive construction periods are expected to be less than the concentrations presented in the tables below.

Table 17-7
Maximum Pollutant Concentrations from Construction Activities at the TDPS Site

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2	1-hour	µg/m^3	185.0(2)	N/A	185.0	-	188
	Annual	µg/m^3	4.1	28.7	32.8	-	100
CO	1-hour	ppm	0.1	1.7	1.8	-	35
	8-hour	ppm	0.02	1.2	1.2	-	9
PM_{10}	24-hour	µg/m^3	6.4	33.7	40.1	-	150
$PM_{2.5}$	24-hour	µg/m^3	1.8	17.6	19.4	8.7 (3)	35
	Annual—Local	µg/m^3	0.17	7.0	7.17	0.30 (4)	9
	Annual—Neighborhood	µg/m^3	0.02	7.0	7.02	0.10 (4)	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6)
[2] The 1-hour NO_2 concentration presented represents the maximum of the total 98th percentile 1-hour NO_2 concentration predicted at any receptor using seasonal-hourly background concentrations.
[3] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 µg/m^3.
[4] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

[16] The CEQR 24-hour $PM_{2.5}$ *de minimis* criterion is equal to half the difference between the 24-hour background concentration (17.6 µg/m^3) and the 24-hour standard (35 µg/m^3).

Table 17-8
Maximum Pollutant Concentrations from Construction Activities at the BB-026 Diversion Facility Site, Gravity Diversion Sewer Alignment, and Drop Shaft

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2(4)	Annual	$\mu g/m^3$	5.7	28.7	34.4	-	100
CO	1-hour	ppm	5.4	1.7	7.1	-	35
	8-hour	ppm	1.2	1.2	2.4	-	9
PM_{10}	24-hour	$\mu g/m^3$	31.8	33.7	65.5	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	4.5	17.6	22.1	8.7 (2)	35
	Annual—Local	$\mu g/m^3$	0.21	7.0	7.21	0.30 (3)	9
	Annual—Neighborhood	$\mu g/m^3$	0.003	7.0	7.003	0.10 (3)	9

Notes:

N/A—Not Applicable

[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6)

[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.

[3] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

[4] A 1-hour NO_2 analysis was not performed at this location since unlike the TPDS site, there would not be sustained intense construction activities over an extended period of time. Although the predicted annual NO_2 concentration is higher near the BB-026 drop shaft (maximum concentration for BB-026 work was predicted as this location) compared to that near the TDPS Site, the duration of construction for the BB-026 drop shaft is substantially shorter with an estimated duration of 2.5 years followed by a pause of 1.5 years, before ending with an additional 9 months of final lining and connections work.

Table 17-9
Maximum Pollutant Concentrations from Construction Activities at the NCQ-077 Diversion Facility Site

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2 (4)	Annual	$\mu g/m^3$	1.3	28.7	30.0	-	100
CO	1-hour	ppm	1.6	1.7	3.3	-	35
	8-hour	ppm	0.5	1.2	1.7	-	9
PM_{10}	24-hour	$\mu g/m^3$	99.7	33.7	133.4	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	10.6	17.6	28.2	8.7 (2)	35
	Annual—Local	$\mu g/m^3$	0.6	7.0	7.6	0.30 (3)	9
	Annual—Neighborhood	$\mu g/m^3$	0.01	7.0	7.01	0.10 (3)	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6)
[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.
[3] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).
[4] A 1-hour NO_2 analysis was not performed at this location since unlike the TPDS site, there would not be sustained intense construction activities over an extended period of time.

Table 17-10
Maximum Pollutant Concentrations from Construction Activities at the NCB-083 Diversion Facility Site

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2 (4)	Annual	$\mu g/m^3$	0.6	28.7	29.3	-	100
CO	1-hour	ppm	3.8	1.7	5.5	-	35
	8-hour	ppm	1.2	1.2	2.4	-	9
PM_{10}	24-hour	$\mu g/m^3$	80.0	33.7	113.7	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	8.4	17.6	26.0	8.7 (2)	35
	Annual—Local	$\mu g/m^3$	0.21	7.0	7.21	0.30 (3)	9
	Annual—Neighborhood	$\mu g/m^3$	0.01	7.0	7.01	0.10 (3)	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6).
[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.
[3] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).
[4] A 1-hour NO_2 analysis was not performed at this location since unlike the TPDS site, there would not be sustained intense construction activities over an extended period of time.

Table 17-11
Maximum Pollutant Concentrations from Construction Activities at the NCB-015 Site

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2 (4)	Annual	$\mu g/m^3$	0.6	28.7	29.3	-	100
CO	1-hour	ppm	0.05	1.7	1.7	-	35
	8-hour	ppm	0.01	1.2	1.2	-	9
PM_{10}	24-hour	$\mu g/m^3$	84.6	33.7	118.3	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	8.6	17.6	26.2	8.7 (2)	35
	Annual—Local	$\mu g/m^3$	0.21	7.0	7.21	0.30 (3)	9
	Annual—Neighborhood	$\mu g/m^3$	0.01	7.0	7.01	0.10 (3)	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6)
[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.
[3] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).
[4] A 1-hour NO_2 analysis was not performed at this location since unlike the TPDS site, there would not be sustained intense construction activities over an extended period of time.

COMBINED IMPACT ASSESSMENT

The construction air quality analysis conservatively assumed that peak construction activities at each of the five sites (TDPS site and each of the four diversion facility sites) would occur simultaneously. Maximum predicted concentrations from simultaneous construction activities at the project sites are presented in **Table 17-12**. As shown in **Table 17-12**, the maximum predicted total combined concentrations of NO_2, CO, and PM_{10} are below the applicable NAAQS at all locations. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable CEQR *de minimis* thresholds at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. As mentioned above, the predicted $PM_{2.5}$ concentrations exceeding the short-term and annual $PM_{2.5}$ *de minimis* thresholds at the NCQ-77 diversion facility are below the NAAQS and therefore would not result in significant adverse construction air quality impacts.

Table 17-12
Maximum Pollutant Concentrations from Construction Activities at TDPS Site and Each of the Four Diversion Facility Sites

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration (1)	Total Concentration	*De Minimis*	NAAQS
NO_2	Annual	$\mu g/m^3$	5.7	28.7	34.4	-	100
CO	1-hour	ppm	5.4	1.7	7.1	-	35
	8-hour	ppm	1.2	1.2	2.4	-	9
PM_{10}	24-hour	$\mu g/m^3$	99.7	33.7	133.4	-	150
$PM_{2.5}$	24-hour	$\mu g/m^3$	10.6	17.6	28.2	8.7 (2)	35
	Annual—Local	$\mu g/m^3$	0.61	7.0	7.61	0.30 (3)	9
	Annual—Neighborhood	$\mu g/m^3$	0.02	7.0	7.02	0.10 (3)	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 17-6)
[2] $PM_{2.5}$ *de minimis* criterion—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.
[3] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

ALTERNATIVE CONSTRUCTION SCHEDULE SCENARIO

As described above, the Proposed Project's construction schedule assumes that most construction activities would typically occur in one 10-hour shift from 7 AM to 5 PM, five days a week on weekdays with tunnel excavation and final lining activities for the shafts occurring in three 8-hour shifts (7 AM to 3 PM, 3 PM to 11 PM, and 11 PM to 7 AM), five days a week on weekdays. However, to make up for weather delays and/or to accelerate the project construction schedule as determined by the construction contractor, there is the potential for some work on weekends.

The construction air quality analysis presented for the Proposed Project construction schedule (i.e., weekday only) above was reviewed to determine if the Alternative Construction Schedule Scenario with weekend work would have the potential to cause potential significant adverse air quality impacts. The air quality modeling analysis performed for the weekday construction schedule reflects the maximum reasonable worst-case air quality concentrations predicted during the period of the most intensive construction activities at each of the project sites. If weekend work is needed to accelerate the construction schedule, the short-term analysis period (i.e., 1-hour, 8-hour, and 24-hour) results presented for the Project construction schedule would remain the same since the level of construction activities during a weekend workday would be comparable to those for a weekday workday. However, the annual air quality concentrations would be higher for the Alternative Construction Schedule Scenario since there would potentially be more construction activities over an annual period (up to seven days per week rather than five days per week). Accordingly, a detailed modeling analysis was conducted to assess the construction air quality effects of the Alternative Construction Schedule Scenario on an annual basis. Maximum predicted annual concentrations during the representative

worst-case construction period due to activities at the TDPS site and each of the four diversion facility sites are presented in **Tables 17-13**.

Table 17-13
Maximum Annual Pollutant Concentrations from CP-2 Construction Alternative Construction Schedule Scenario

Pollutant	Averaging Period	Units	Maximum Modeled Impact	Background Concentration[1]	Total Concentration	*De Minimis*	NAAQS
Construction Activities at the TDPS Site							
NO_2	Annual	µg/m^3	5.8	28.7	34.5	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.288	7.0	7.29	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.03	7.0	7.03	0.10 [2]	9
Construction Activities at BB-026 Diversion Facility Site, Gravity Diversion Sewer Alignment, and Drop Shaft							
NO_2	Annual	µg/m^3	8.0	28.7	36.7	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.289	7.0	7.29	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.004	7.0	7.00	0.10 [2]	9
Construction Activities at NCQ-077 Diversion Facility Site							
NO_2	Annual	µg/m^3	1.9	28.7	30.6	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.85	7.0	7.85	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.01	7.0	7.01	0.10 [2]	9
Construction Activities at NCB-083 Diversion Facility Site							
NO_2	Annual	µg/m^3	0.9	28.7	29.6	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.299	7.0	7.30	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.01	7.0	7.01	0.10 [2]	9
Construction Activities at NCB-015 Diversion Facility Site							
NO_2	Annual	µg/m^3	0.8	28.7	29.5	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.292	7.0	7.29	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.01	7.0	7.01	0.10 [2]	9
Combined Impacts							
NO_2	Annual	µg/m^3	8.0	28.7	36.7	-	100 [2]
$PM_{2.5}$	Annual—Local	µg/m^3	0.85	7.0	7.85	0.30 [2]	9
	Annual—Neighborhood	µg/m^3	0.03	7.0	7.03	0.10 [2]	9

Notes:
N/A—Not Applicable
[1] The background levels are based on the most representative concentrations monitored at NYSDEC ambient air monitoring stations (see Table 15-3 in Chapter 15, "Air Quality").
[2] $PM_{2.5}$ *de minimis* criterion—annual (local and neighborhood scale).

As shown in **Table 17-13**, the maximum predicted total concentrations of NO_2 and $PM_{2.5}$ are below the applicable NAAQS. In addition, the maximum predicted $PM_{2.5}$ concentrations would not exceed the applicable CEQR *de minimis* thresholds from activities at the TPDS site and at the BB-026, NCB-

083, and NCB-015 diversion facility sites. The $PM_{2.5}$, concentrations from construction sources at the NCQ-077 diversity facility site were determined to exceed the annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site, but all the concentrations were below the NAAQS. However, based on the magnitude of the predicted concentrations, the duration of the impact on the sidewalk locations adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, these impacts are considered temporary and transient in nature and would not result in significant adverse construction air quality impacts under the Alternative operating scenario.

GROUNDWATER TREATMENT SYSTEM ANALYSIS

Table 17-14 presents the maximum modeled 1-hour and annual non-criteria pollutant concentrations from the groundwater treatment systems at the TDPS site. Since default stack parameters were used with maximum pollutant emission rates, the unitary modeling would result in conservative pollutant concentrations and concentrations at the BB-026, NCQ-077, NCB-083, and NCB-015diversion facility sites are anticipated to be similar to the predicted concentrations. Predicted concentrations are compared to the applicable SGCs and AGCs for each non-criteria pollutant.

Table 17-14
Maximum Non-Criteria Pollutant Concentrations
Groundwater Treatment System (µg/m3)

Pollutant[(1)]	CAS No.	1-hour Concentration (µg/m^3)	SGC (µg/m^3)[(2)]	Percentage of SGC	Annual Concentration (µg/m^3)	AGC (µg/m^3)[(2)]	Percentage of AGC
Benzene, Toluene, Ethylbenzene and Xylene (BTEX)							
Benzene	71-43-2	0.006	1,300	< 1%	0.0002	0.13	< 1%
Toluene	108-88-3	0.087	37,000	< 1%	0.0031	5,000	< 1%
Volatile Organic Compounds (VOCs)							
Chloroform	67-66-3	0.477	150	< 1%	0.0171	14.7	< 1%
cis-1,2-Dichloroethene	156-59-2	0.053	---	NA	0.0019	63	< 1%
Methylene chloride	75-09-2	0.054	14,000	< 1%	0.0019	60	< 1%
Naphthalene	91-20-3	0.031	7,900	< 1%	0.0011	3	< 1%
Phenol	108-95-2	0.005	5,800	< 1%	0.0002	20	< 1%

Notes:
[1] *McMillen JA Engineering, PLLC/Brown and Caldwell Associates. CSO-NC-DES: Phase I Environmental Data Report. November 2024*
[2] *DAR-1 AGC/SGC Tables,* NYSDEC Division of Air Resources, Bureau of Stationary Sources, February 2021.
A control efficiency of 0% was conservatively assumed for pollutant emissions.

Non-criteria pollutant concentrations would not exceed the applicable SGCs and AGCs at the TDPS Site, therefore, there would be no predicted significant adverse air quality impacts from the groundwater treatment system during construction at the TDPS.

As discussed above, the levels of soil contamination at the BB-026, NCQ-077, NCB-083, and NCB-015 diversion facility sites are anticipated to be similar to the soil contamination at the TDPS site and the modeling analysis used default exhaust parameters, consistent with CEQR guidelines; therefore the maximum 1-hour and annual concentrations from the groundwater treatment system at these locations would be similar or less than the maximum concentrations predicted at the TDPS Site. Since concentrations would not exceed the applicable SGCs and AGCs for each non-criteria pollutant at the

TDPS Site, it is expected that non-criteria pollutant concentrations would also not exceed the applicable SGCs and AGCs during construction at the Diversion Facilities.

ODOR CONTROL STRATEGIES DURING CONSTRUCTION

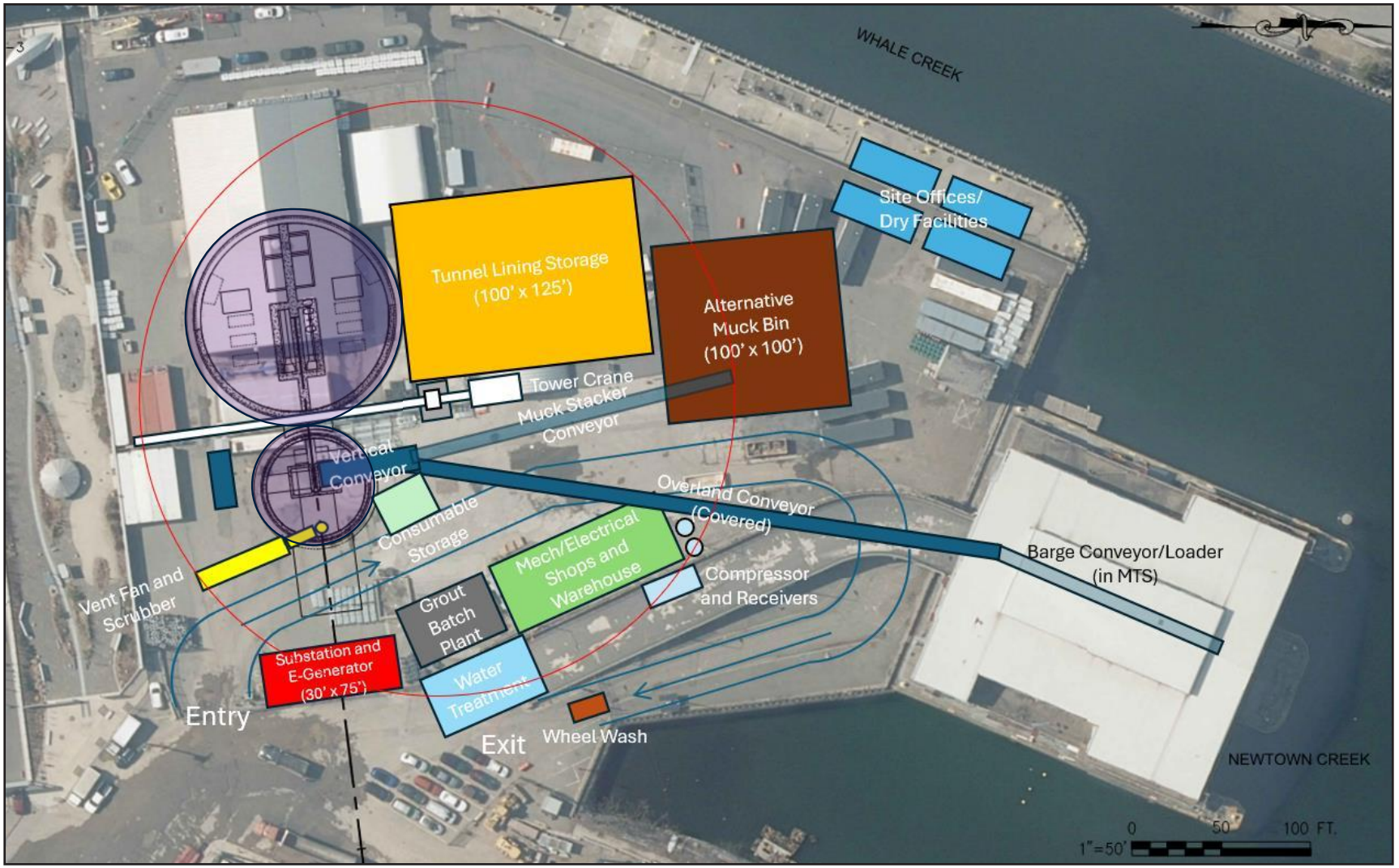
Deep excavation associated with shaft construction and tunnel excavation activities may encounter contamination in the soil and groundwater. For shaft excavation activities, contaminated soil would be segregated from clean materials in the stockpiles or be directed to trucks/barges for off-site disposal. During shaft excavation activities, approximately 800 to 900 tons per day of excavated material are expected to be generated

For tunnel excavation, the excavated materials from the face of the Tunnel Boring Machine (TBM) would first pass through the trailing gear[17] before discharging to a continuous conveyor system or a locomotive system that connects to the base of the TDPS screening shaft. Peak production rates while tunneling through soil and through bedrock are estimated at 5,500 tons per day and 1,800 tons per day, respectively.

At that point, the excavated material gets transferred from the base of the shaft to the ground surface. There are several excavated material handling options that the contractor may use. One option is to use a crawler crane or a gantry crane at the surface to lift the excavated material (in boxes) and then discharge the contents to a temporary surface stockpile. Another option is to use a vertical conveyor system to transport the excavated material up to the surface before being discharged to either a temporary stockpile or directly to trucks/barges for off-site disposal. If the TBM incorporates a slurry system, the slurry mix with the excavated materials would be pumped from the TBM through slurry pipes and up the shaft to a slurry treatment plant. The slurry system would be a closed circuit until the slurry reaches the enclosed slurry treatment plant. **Figure 17-1** presents the preliminary construction layout of the TDPS site identifying the areas where the excavated materials would be handled.

The excavated materials could potentially emit odors that could be experienced at nearby sensitive locations such as the Newtown Creek Nature Walk adjacent to the TDPS site. The Proposed Project would implement a CAMP during soil disturbance activities to ensure that that the applicable thresholds are not exceeded and to implement any corrective actions if necessary. If applicable thresholds in the CAMP are exceeded, to minimize and control on- and off-site odor nuisances, the Proposed Project would implement odor control measures during construction. These measures, as summarized in **Table 17-15** and discussed in further detail below, would include wet suppression, daily cover foams/shells, covered conveyors, and activated carbon scrubbers. **Table 17-15** also details where these odor control measures could be applied during the excavated material handling process. Odor control measures are ranked in order of primary, secondary, or tertiary measures depending on the levels of CAMP threshold exceedances. Monitoring would be performed during each of the construction activities described in Chapter 3, "Construction Means and Methods." If an exceedance is noted, secondary measures would be readily available or already online and implemented. Active

[17] The trailing gear includes computerized control rooms as well as support equipment such as pumps, transformers, grouting equipment, and conveyors (see Figure 3-8)



NOTE: CONCEPTUAL DESIGN

Preliminary Construction Layout of the TDPS Site

monitoring would then continue to occur at primary and secondary points of potential emissions. Implementation of tertiary measures would be refined based on data to be collected during the upcoming environmental investigation. If the results dictate a strong probability that odors would occur, the tertiary measures would be readily available for use; if data suggests minimal impacts, tertiary measures would be obtained after a stop work would occur. These methods could be refined after the environmental investigation is completed.

Table 17-15
Potential Odor Control Measures

	Potential Control Measures			
Odor Source	**Wet / Vapor Suppression**	**Daily Cover Foams / Shells**	**Physical Enclosure / Cover**	**Ventilation / Activated Carbon Scrubbers**
Shaft Excavation	Primary	Primary	-	-
Tunnel Boring Machine	-	-	-	Primary (Ventilation)
Tunnel Conveyor to TDPS Site	Secondary	-	Tertiary	Primary
Stockpiles	Primary	Primary	-	-
Loading of Barges	-	Secondary	Primary	Tertiary
Barges in Transit	-	Primary	Secondary	-

WET / VAPOR SUPPRESSION

Spraying water on the excavated soil regularly would suppress odors as well as dust. Vapor suppression products such as BioSolve Pinkwater[18] or BioSolve Activator[19] could be even more effective at suppressing odors and dust. In addition, these products would suppress VOCs by encapsulating hydrocarbons and locking in the VOCs in the soil. Wet / vapor suppression would be applied during shaft excavation activities. The wet suppression system with water misting and/or vapor suppression products could also be applied at the conveyor where the soil is transferred from the TBM face to the ground surface and at the transfer point from the vertical conveyance system to the horizontal overland conveyor if a vertical conveyance system is used to transfer the excavated material from the base of the shaft to the surface. Locomotive cars, if used to transfer excavated materials below grade, could also be pretreated with a vapor suppression product and additionally covered with a tarping system within the tunnel. The wet suppression system could be manual or fully automated to maximize efficiency.

DAILY COVER FOAMS/SHELLS

Foam products such as Atmos Shield Foam Concentrate[20] are viscous foam barriers that could help prevent off gassing of vapors from excavated materials. These products would be sprayed on stockpile

[18] BioSolve Pinkwater | The Leading Hydrocarbon Mitigation Agent

[19] BioSolve Activator | Surfactant Enhanced Soil Remediation

[20] Odor & VOC Emissions Control | Atmos Technologies

surfaces of the excavated materials to manage odors. A variety of short duration and longer duration foams are available and could be used for different situations. Alternatively, there are shell products such as Posi-Shell Environmental Coatings[21] that use a mixture of polymers, reinforcing fibers, and clay binders to be mixed with water to form a thin protective layer over the excavated materials to manage the odors. Encapsulating the excavated material stockpiles with tarps or other covers could further assist in containing the odors.

PHYSICAL CONVEYOR ENCLOSURE / COVER

Once the excavated materials have reached the ground surface from the TBM mining operations, it would be transferred to an above ground conveyor system for placement into stockpiles or trucks and/or barges for off-site disposal. To prevent potential odor releases, the overland conveyor system could be fitted with a rain hood, permanent hood, or be fully enclosed.

VENTILATION / ACTIVATED CARBON SCRUBBERS

Hard piped duct work could be installed from the ground surface to the front of the TBM and extended in sections as the TBM advances. These systems have the ability to push fresh air in through the duct toward the TBM or pull dirty air from the TBM. When odors from the excavated soils are present, the air being exhausted via the hard duct would be sent through a scrubber system on surface to clean the air. The scrubber systems would typically contain high flow, activated carbon beds or filters to help absorb odors and VOCs from the air. The activated carbon filters would need regular testing to establish a replacement schedule. This type of system would help keep odors from escaping through the tunnel and up the shaft.

ODOR CONTROL SYSTEMS ANALYSIS (DURING OPERATION)

The maximum predicted 1-hour average H_2S concentration at a sensitive receptor as well as within ambient air due to activities at the TDPS site and the diversion facility are presented in **Table 17-16**. The results show that the 1 ppb significant odor local scale threshold for sensitive receptors are below the threshold at all locations and the predicted H_2S concentrations in a community scale are below the 10 ppb NYSAAQS in ambient air. Therefore, the Proposed Project would not result in significant adverse air quality impacts.

Table 17-16
Maximum 1-Hour H_2S Concentrations from Odor Control Systems During Operation (ppb)

	All Sources	TDPS	NCQ-077	NCB-083	NCB-015	Criteria
Local Scale (ppb)	0.89	0.89	0.65	0.85	0.30	1
Community Scale (ppb)	1.93	1.93	0.33	0.52	0.16	10

[21] lscenv.com/posi-shell-pg.html

CONCLUSION

OPERATIONAL AIR QUALITY

The Proposed Project's odor control units would not result in an exceedance of the 1 ppb significant odor threshold for sensitive receptors or the 10 ppb NYSAAQS in ambient air. Therefore, the Proposed Project would not result in significant adverse air quality impacts.

CONSTRUCTION AIR QUALITY

The dispersion modeling analysis of construction-related air emissions for both nonroad and on-road sources determined that $PM_{2.5}$, $PM_{10,}$ NO_2, and CO concentrations would be below their corresponding *de minimis* thresholds and/or NAAQS, respectively, from activities at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. Although the $PM_{2.5}$, concentrations from construction sources at the NCQ-077 diversity facility site were determined to exceed the short-term and annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site, all concentrations were below the NAAQS. Based on the magnitude of the predicted concentrations, the duration of the impact on the sidewalk locations adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, these impacts are considered temporary and transient in nature and would not result in significant adverse construction air quality impacts.

The predicted non-criteria pollutant concentrations from the groundwater treatment systems would not exceed the applicable SGCs and AGCs. Finally, to mitigate odors to the greatest extent practicable, DEP would implement an odor control program during construction and all necessary means would be employed to prevent on- and off-site odor nuisances. The Proposed Project would implement a CAMP during soil disturbance activities to monitor applicable threshold levels and to implement any corrective actions if necessary. If applicable threshold levels in the CAMP are exceeded, to minimize and control on- and off-site odor nuisances, the Proposed Project would implement odor control measures during construction that could include wet suppression, daily cover foams/shells, covered conveyors, and activated carbon scrubbers. Therefore, no significant adverse air quality impacts are predicted from the construction of the Proposed Project.

Chapter 18: Greenhouse Gas Emissions and Climate Change

A. INTRODUCTION

As discussed in New York State Department of Environmental Conservation (NYSDEC) policy and the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, climate change is projected to have wide-ranging effects on the environment, including rising sea levels, increases in temperature, and changes in precipitation levels. Although this is occurring on a global scale, the environmental effects of climate change, such as sea level rise and the increase in the frequency and severity of extreme weather events, are also felt at the local level. The United States, New York State, and New York City have all established sustainability initiatives and goals for greatly reducing greenhouse gas (GHG) emissions and for adapting to climate change. New York City's sustainable development policy, starting with PlaNYC, and continued and enhanced in OneNYC 2050, includes GHG emission reduction goals, many specific initiatives that can result in emission reductions, and initiatives aimed at making New York City more resilient to climate change.

New York City (City) Department of Environmental Protection (DEP) is proposing a 3.26-mile-long tunnel with a storage volume of 50 million gallons (MG) to divert overflows at four Newtown Creek Combined Sewer Overflow (CSO) outfalls. The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn. The Proposed Project would contribute to the City's resilience with increased precipitation, consistent with other green infrastructure and high-level storm sewer projects that control CSOs.

This chapter evaluates the GHG emissions that would be generated by the construction and operation of the Proposed Project and its consistency with the citywide GHG reduction and climate change resiliency goals. Operational and construction emissions are quantified and measures to reduce those emissions to the maximum extent practicable are discussed.

Additionally, this chapter discusses projected future climate conditions and their potential effect on the Proposed Project and includes a discussion of the Proposed Project's benefits to neighborhood resilience.

PRINCIPAL CONCLUSIONS

While the Proposed Project would include permanent buildings to house TDPS pumping, screening, and degritting facilities for CSO stored in the tunnel, the buildings will be designed to utilize fully electric systems and would not represent a substantial increase in energy demand. Additionally, the Proposed Project would result in the construction of facilities that require electricity use at the diversion facilities but would not include permanent buildings. Therefore, the Proposed Project would be consistent with the

efficient buildings goal, and clean power goal defined in *CEQR Technical Manual* as part of the City's GHG reduction goal. The total fossil fuel use in all forms associated with construction under the Proposed Action condition would result in up to approximately 39,489 metric tons of carbon dioxide equivalent (CO_2e) emissions. The Proposed Project would be resilient to anticipated future flood elevations for the TDPS building's lifetime considering anticipated future flood levels. Under high-end (90th percentile) estimated flood levels, the Proposed Project would be resilient to projected flood increases through about the end-of-the-century. Consequently, the Proposed Project would be resilient to future climate conditions.

B. GREENHOUSE GAS EMISSIONS

POLLUTANTS OF CONCERN

GHGs are those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds. The general warming of the Earth's atmosphere caused by this phenomenon is known as the "greenhouse effect." Water vapor, carbon dioxide (CO_2), nitrous oxide (N_2O), methane, and ozone are the primary GHGs in the Earth's atmosphere.

There are also a number of entirely anthropogenic GHGs in the atmosphere, such as halocarbons and other chlorine- and bromine-containing substances, which also damage the stratospheric ozone layer (and contribute to the "ozone hole"). Since these compounds are being replaced and phased out due to the 1987 Montreal Protocol, significant emissions of these substances are not anticipated and there is no need to address them in GHG assessments for most projects. Although ozone itself is also a major GHG, it does not need to be assessed as such at the project level since it is a rapidly reacting chemical and efforts are ongoing to reduce ozone concentrations as a criteria pollutant (see Chapter 17, "Air Quality"). Similarly, water vapor is of great importance to global climate change but is not directly of concern as an emitted pollutant since the negligible quantities emitted from anthropogenic sources are inconsequential.

CO_2 is the primary pollutant of concern from anthropogenic sources. Although not the GHG with the strongest effect per molecule, CO_2 is by far the most abundant and, therefore, the most influential GHG. CO_2 is emitted from combustion processes (both natural and anthropogenic); from some industrial processes such as the manufacture of cement, mineral production, metal production, and the use of petroleum-based products; from volcanic eruptions; and from the decay of organic matter. CO_2 is removed ("sequestered") from the lower atmosphere by natural processes such as photosynthesis and uptake by the oceans. CO_2 is included in analyses of GHG emissions, consistent with *CEQR Technical Manual* guidelines.

Methane and N_2O also contribute significantly to the greenhouse effect since the removal processes for these compounds are limited and because they have a relatively high impact on global climate change as compared with an equal quantity of CO_2. Emissions of these compounds are therefore included in GHG emissions analyses when the potential for substantial emission of these gases exists.

The *CEQR Technical Manual* lists six GHGs that could potentially be included in the scope of a GHG analysis: CO_2, N_2O, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur

hexafluoride (SF_6). This analysis focuses primarily on CO_2, N_2O, and methane. There are no significant direct or indirect sources of HFCs, PFCs, or SF_6 associated with the Proposed Project.

To present a complete inventory of all GHGs, component emissions are added together and presented as carbon dioxide equivalent (CO_2e) emissions—a unit representing the quantity of each GHG weighted by its effectiveness using CO_2 as a reference. This is achieved by multiplying the quantity of each GHG emitted by a factor called global warming potential (GWP). GWPs account for the lifetime and the radiative forcing[1] of each chemical over a period of 100 years (e.g., CO_2 has a much shorter atmospheric lifetime than SF_6, and therefore, has a much lower GWP). The GWPs for the main GHGs discussed here are presented in **Table 18-1**.

Table 18-1
Global Warming Potential (GWP) for Major GHGs

Greenhouse Gas	100-year Horizon GWP
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310

Note: The GWPs presented above are based on the Intergovernmental Panel on Climate Change's (IPCC) Second Assessment Report (SAR), which is the industry standard used to maintain consistency in GHG reporting. The IPCC has since published updated GWP values that reflect new information on atmospheric lifetimes of GHGs and an improved calculation of the radiative forcing of CO_2. In some instances (e.g. embodied carbon of concrete), combined emission factors were used for this study which use slightly different GWPs. However, since the emissions of GHGs other than CO_2 represent a very minor component of the emissions, these differences are negligible.

Source: 2021 *CEQR Technical Manual*

EXISTING POLICY, REGULATIONS, STANDARDS, AND BENCHMARKS FOR REDUCING GHG EMISSIONS

NATIONAL POLICIES

Because of the growing consensus that human activity resulting in GHG emissions has the potential to profoundly impact the Earth's climate, countries around the world have undertaken efforts to reduce emissions by implementing both global and local measures addressing energy consumption and production, land use, and other sectors. Although the U.S. has not ratified the international agreements that set emissions targets for GHGs, in December 2015 the U.S. signed the international Paris Agreement[2] that pledged deep cuts in emissions, with a stated goal of reducing annual emissions to levels that would be between 26 and 28 percent lower than 2005 levels by 2025.[3] On January 20, 2025, the President of the United States signed an executive order to withdraw the United States from the Paris Agreement.

[1] *Radiative forcing* is a measure of the influence a gas has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an indicator of the importance of the gas as a GHG.

[2] Conference of the Parties, 21st Session. *Adoption of The Paris Agreement, decision -/CP.21*. Paris, December 12, 2015.

[3] United States of America. *Intended Nationally Determined Contributions (INDCs)* as submitted. March 31, 2015.

Regardless of the Paris Agreement, the United States Environmental Protection Agency (EPA) is required to regulate GHGs under the Clean Air Act and has begun preparing the associated implementing regulations. In coordination with the National Highway Traffic Safety Administration (NHTSA), EPA currently regulates GHG emissions from newly manufactured on-road vehicles. In addition, EPA regulates transportation fuels via the Renewable Fuel Standard (RFS) program, which phased in requirements for the inclusion of renewable fuels that increased annually up to a total of 36.0 billion gallons by 2022. On December 1, 2022, EPA announced a proposed rule to establish the required fuel volumes and percentage standards for 2023, 2024, and 2025, as well as modifications to strengthen and expand the RFS program. EPA issued the Affordable Clean Energy rule on June 19, 2019, which establishes emissions reduction measures accepted as best technology for power plants and focuses on energy efficiency improvements in place of direct emissions reduction measures.

REGIONAL AND NEW YORK STATE POLICIES

There are also regional and local efforts underway to reduce GHG emissions. In 2009, Governor David Paterson issued Executive Order No. 24, establishing a goal of reducing GHG emissions in New York State by 80 percent, compared with 1990 levels, by 2050, and creating a Climate Action Council tasked with preparing a climate action plan outlining the policies required to attain the GHG reduction goal; an interim draft plan has been published.[4]

The New York State Energy Plan outlines the State's energy goals and provides strategies and recommendations for meeting those goals. The latest version of the plan was published in June 2015 and last amended in April 2020. The plan outlines a vision for transforming the state's energy sector which would result in increased energy efficiency (both demand and supply), increased carbon-free power production, and cleaner transportation, in addition to achieving other goals not related to GHG emissions. The plan also establishes the following targets: (1) reducing GHG emissions in New York State by 40 percent, compared with 1990 levels, by 2030; (2) providing 50 percent of electricity generation in the state from renewable sources by 2030; and (3) increasing building energy efficiency gains by 600 trillion British thermal units (Btu) by 2030.

In 2019, New York State enacted the Climate Leadership and Community Protection Act (CLCPA) to achieve the GHG reductions goals established in the New York State Energy Plan. CLCPA also expanded on these goals by establishing statewide GHG emission limits aimed at reducing statewide GHG by 100 percent compared with 1990 levels by 2050, and by requiring that 100 percent of electricity generation in the state be provided by renewable sources by 2040. The legislation charges the New York State Climate Action Council with establishing statewide GHG emission limits and agency regulations to reduce emissions, increase investments in renewable energy sources, and ensure that significant portions of investments are made in disadvantaged communities. Pursuant to these requirements, the New York State Climate Action Council prepared and approved a scoping plan outlining recommendations for attaining the GHG emission limits and reduction goals on December 19, 2022.

[4] New York State Climate Action Council. *New York State Climate Action Plan Interim Report.* November 2010.

The State is seeking to achieve some of its overall emission reduction goals by funding related local and regional efforts through its Cleaner Greener Communities and Climate Smart Communities programs. New York State has also adopted California's GHG vehicle standards (which are at least as strict as the federal standards).

Finally, the State has also developed regulations to cap and reduce CO_2 emissions from power plants to meet its commitment to the Regional Greenhouse Gas Initiative (RGGI). Under the RGGI agreement, the governors of nine northeastern and Mid-Atlantic states have committed to regulate the amount of CO_2 that power plants are allowed to emit, gradually reducing annual emissions to half the 2009 levels by 2020 and reducing an additional 30 percent from 2020 to 2030. The RGGI states and the state of Pennsylvania have also announced plans to reduce GHG emissions from transportation sources, through the use of biofuel, alternative fuel, and energy efficient vehicles.

NEW YORK CITY POLICIES

Many local governments worldwide, including New York City, are participating in the Cities for Climate Protection™ campaign and have committed to adopting policies and implementing quantifiable measures to reduce local GHG emissions, improve air quality, and enhance urban livability and sustainability. New York City's long-term comprehensive plan for a sustainable and resilient New York City, which began as PlaNYC 2030 in 2007 and continued to evolve as *OneNYC 2050*, with the inclusion of more ambitious GHG emissions reduction goals, many specific initiatives that can result in emission reductions, and initiatives aimed at adapting to future climate change impacts. In April 2023, New York City published *PlaNYC: Getting Sustainability Done*—the latest outline of the City's strategies to achieve its sustainability goals. The goal to reduce city-wide GHG emissions to 30 percent below 2005 levels by 2030 ("30 by 30") was codified by Local Law 22 of 2008, known as the New York City Climate Protection Act (the "GHG reduction goal").[5] The City has also announced a longer-term goal of reducing emissions to 80 percent below 2005 levels by 2050 ("80 by 50"), which was codified by Local Law 66 of 2014, and has published a study evaluating the potential for achieving that goal. More recently, under the *OneNYC 2050* report and continued in *PlaNYC*, the City announced a more aggressive goal for reducing emissions from buildings down to 30 percent below 2005 levels by 2025 and achieving net-zero city-wide GHG emissions by 2050.

In December 2009, the New York City Council enacted four laws addressing energy efficiency in large new and existing buildings, in accordance with *PlaNYC*. The laws require owners of existing buildings larger than 50,000 square feet to conduct energy efficiency audits and retro-commissioning every 10 years, to optimize building energy efficiency, and to "benchmark" the building energy and water consumption annually, using an EPA online tool. By 2025, commercial buildings over 50,000 square feet will also require lighting upgrades, including the installation of sensors and controls, more efficient light fixtures, and the installation of submeters, so that tenants can be provided with information on their electricity consumption. The legislation also created the local New York City Energy Conservation Code (NYCECC), which along with the Energy Conservation Construction Code of New York State (as updated in 2020), requires equipment installed during a renovation to meet current efficiency standards.

[5] Administrative Code of the City of New York, §24-803.

To achieve its GHG reduction goals, the City continues to convene Technical Working Groups to analyze the GHG reduction pathways from the building, power, transportation, and solid waste sectors, and to develop related action plans. The Technical Working Groups develop and recommend data analysis methods, interim metrics and indicators, voluntary actions, and potential mandates in order to achieve these goals. In 2016, the City published the building sector Technical Working Group report, which included commitments by the City to change to building energy code and take other measures aimed at substantially reducing GHG emissions.

In May 2019, the New York City Council enacted the Climate Mobilization Act (CMA)—including Local Law 97 of 2019 (LL97), targeting GHG emissions associated with building energy consumption. For most buildings that exceed 25,000 gsf (excluding electricity/steam generation facilities, rent-regulated accommodations, places of public worship, and City-owned properties), the City has established annual building emission limits that began in 2024, along with annual reporting requirements to demonstrate compliance with those limits for all covered buildings. For buildings not covered under the GHG emissions limits, owners may either demonstrate compliance with the current limits or implement specified energy conservation measures where applicable. In 2023, the New York City Department of Buildings adopted maximum carbon intensity factors for buildings through 2050 by Energy Star Portfolio Manager (ESPM) property type.[6] Under the 2023 rule, a building's emissions limit would be estimated using the appropriate carbon intensity factor for each property type and the floor area of that property type. Maximum carbon intensity factors would decrease over time until 2050, at which time all covered buildings will be required to demonstrate they generate no direct GHG emissions.

As part of the CMA, Local Laws 92 and 94 of 2019 (LL92 and LL94) would include requirements for all new construction and any building that would undergo major modification of the rooftop requiring a permit to utilize available roofing space for the installation of either a green roof or a solar photovoltaic system generating at least 4kW, or a combination of the two.

In addition, Local Law 154 of 2021 (LL154) prohibits DOB approval of construction documents for new buildings or major alterations of existing buildings that include fossil fuel systems that emit 25 kilograms or more of CO_2 per mmBtu of energy.

OTHER ENERGY EFFICIENCY STANDARDS

A number of benchmarks for energy efficiency and green building design have also been developed over the years. For example, the ENVISION system is a benchmark for the design, construction, and operation of high-performance infrastructure project that includes energy efficiency components, embodied carbon reduction targets, and an assessment of a project's risk to climate change.

METHODOLOGY FOR GHG EMISSIONS ASSESSMENT

Climate change is driven by the collective contributions of diverse individual sources of emissions to global atmospheric GHG concentrations. Identifying potential GHG emissions from a proposed action can help

[6] Rule of the City of New York, 1 RCNY §103-14. Requirements for Reporting Annual Greenhouse Gas Emissions for Covered Buildings.

decision makers identify practicable opportunities to reduce GHG emissions and ensure consistency with policies aimed at reducing overall emissions. While the emissions of criteria pollutants are assessed in the context of health-based standards and local impacts, there are no established thresholds for assessing the significance of an individual project's contribution to climate change. Nonetheless, prudent planning dictates that all sectors address GHG emissions by identifying GHG sources and practicable means to reduce them. Therefore, this evaluation discusses GHG emissions associated with the Proposed Project and identifies measures that would be implemented and measures that are still under consideration to limit emissions. Estimates of GHG emissions associated with the Proposed Project are based on the applicable methodology presented in the *CEQR Technical Manual*.

Sources of GHG emissions from the operation of the Proposed Project include off-site emissions associated with the use of electricity for process equipment (e.g. screens, pumps, odor control, conveyors, etc.), electric HVAC systems, and site lighting. Indirect emissions from trucking activity associated with operation of the Proposed Project are also included.

The Proposed Project would not fundamentally change the City's solid waste management system, as the amount of grit and debris would be relatively small when compared to citywide activities. Therefore, as per the *CEQR Technical Manual*, the GHG emissions from solid waste generation, transportation, treatment, and disposal are not analyzed.

Construction activities for the Proposed Project would also generate GHG emissions. This includes the production and transport of construction materials, most notably concrete; on-site fuel usage by construction equipment and vehicles; and indirect fuel usage by construction workers commuting to and from the Proposed Project sites, trucks delivering materials and removing construction waste, and tugboats transporting construction barges.

OPERATIONAL EMISSIONS

Off-Site Emissions from Electricity Use

The TDPS and diversion facilities are expected to be in operation throughout the year and are estimated to require a total of approximately 3,850 megawatt-hours (MWh) in annual electricity consumption. The analysis of emissions from energy use (electricity and on-site fuel use) was based on energy consumption projections developed by the Project design team as well as the electric grid emission factor referenced in the GHG emissions inventory for New York City (approximately 0.3699 kg CO_2e/MWh).[7] The emission factor used does not account for the likely future increase in the share of electricity generated from renewable resources. The projected emissions from electricity use are therefore conservatively high.

Mobile Source Emissions

As discussed in Chapter 16, "Transportation," minimal truck traffic and employee vehicle trips would be generated by operation of the Proposed Project. The facilities would only be staffed after heavy rain events

[7] New York City Mayor's Office of Climate & Environmental Justice. *NYC Greenhouse Gas Inventories*. https://climate.cityofnewyork.us/initiatives/nyc-greenhouse-gas-inventories/ Accessed March 2025.

to haul away debris and grit removed by the screening and degritting systems. Therefore, mobile source emissions were not further analyzed.

CONSTRUCTION EMISSIONS

On-Site Equipment Use and Truck Idling

A detailed schedule for the use of non-road construction engines and, optionally, tugboats to support a partial barging of materials, was developed. The detailed data, including the number, type, power rating, and hours of operation for all construction engines was coupled with fuel consumption rate data from the NONROAD module within EPA's MOVES model to estimate total fuel consumption throughout the duration of the construction activities.

Under the With Action condition, non-road construction engines (including on-site maneuvering of tugboats) and on-site truck idling (of ready-mix concrete trucks and other necessary idling) are estimated to require approximately 1.1 million gallons of diesel and 61 thousand gallons of gasoline throughout the 12-year duration of construction.

Transportation

The total number of construction worker trips was estimated using the Proposed Project's construction schedule and was multiplied by the vehicle mode share of 29 percent, divided by an average vehicle occupancy of 1.18 (see Chapter 16, "Transportation,"), and multiplied by an average round-trip distance of 25.3 miles (based on the average trip to work distance for the New York Metropolitan Council [NYMTC] area)[8] to obtain a total personal vehicle miles traveled (VMT) of 5.2 million miles. Vehicle emission factors between 2028 and 2039 for Queens and Brooklyn from EPA's MOVES model (with average emission factors within the range of 270 to 321 grams CO_2e per mile) were then used to calculate total emissions.

General deliveries (fuel, potable water, and other miscellaneous materials) were assumed to travel 100 miles round-trip. Concrete was assumed to be delivered from nearby concrete batch plants at an average distance of approximately 6.4 miles in each direction (ready-mix concrete needs to be delivered within a short time, and other materials required in concrete processing are available locally). It is expected that large volumes of soil (over 100,000 cubic yards) may be required for construction. Imported materials to be used either below or as (a part of) the clean cover layer were conservatively assumed to be delivered from outside the City. Exported construction waste would travel anywhere from 30 to 200 miles, depending on whether it is clean, contaminated or intended for a particular type of reuse. An average round-trip distance of 100 miles was assumed for both exported and imported soil. The trips, distances, and resulting total VMT associated with construction of the Proposed Project are summarized in **Table 18-2**. Similar to what was described above for construction worker personal vehicles, truck emission factors between 2028 and 2039 for Queens and Brooklyn were derived from EPA's MOVES model (with average emission factors within the range of 1,763 to 1,864 grams CO_2e per mile) and then used to calculate total emissions.

[8] NYSDOT. *2009 NHTS, New York State Add-On*. Key Tables. "Table 3: Average Travel Day Person-Trip Length by Mode and Purpose," trip-to work distance for SOV in NYMTC 10-county area. 2011.

Table 18-2
Total Construction Truck Trips and Distances

Delivery Truck Type	Trips	Distance (round-trip miles)	Vehicle Miles Traveled
Concrete and Pump Trucks	279	12.8	3,567
Dump Truck Delivery, Removal, and Material Delivery	3,533	100	353,255
		Total	**356,821**

EPA estimates that upstream GHG emissions of gasoline and diesel (i.e., associated with fuel production, processing, and transportation, or "well to pump" emissions) are equal to more than 20 percent of the tailpipe emissions.[9] While upstream emissions of all fuels are included in NYSDEC's estimates of statewide GHG emissions and are important to consider when comparing the emissions associated with the consumption of different fuels, fuel alternatives are not being considered for the Proposed Project. Therefore, the well-to-pump emissions are not considered in the analysis, in accordance with the *CEQR Technical Manual* GHG guidance. Furthermore, the exclusion of well-to-pump emissions is consistent with the methodology used in developing the New York City GHG inventory, which is the basis of the City's GHG reduction goal for individual projects.

Tugboats were assumed to travel to and from the TDPS site transporting four (4) 1,600-ton barges per day of excavated tunnel material during times of maximum tunneling rates with a round-trip distance of 30 miles. Consequently, an additional 784 thousand gallons of diesel would be required for tugboats.

Material Manufacturing

Upstream emissions related to the production of construction materials were estimated based on the expected quantity of iron, steel and cement. Although other materials would be used, cement and metals have the largest embodied energy and direct GHG emissions associated with their production, and substantial quantities would be used for the Proposed Project.

Construction is estimated to require 27,821 metric tons of cement. An emission factor of 0.928 metric tons of CO_2e per metric ton of cement produced was applied to estimate emissions associated with energy consumption and process emissions for cement production.[10] The precise origin of cement for the Proposed Project is unknown at this time.

FUTURE GHG EMISSIONS WITH THE PROPOSED PROJECT

OPERATIONAL EMISSIONS

The electricity use, emission factors, and GHG emissions resulting from operation of the Proposed Project are presented in **Table 18-3**. As shown, the Proposed Project would generate approximately 1,424 metric

[9] 1 EPA. *MOVES2004 Energy and Emission Inputs*. Draft Report, EPA420-P-05-003. March 2005.

[10] The Portland Cement Association, Life Cycle Inventory of Portland Cement Manufacture, 2006

tons of CO_2e per year, which also includes emissions associated with the production and delivery of the electricity to be used on-site.

Table 18-3
Estimated Annual Operational Emissions

Facility	Component	Annual Electricity Consumption (MMBtu)	GHG Emissions (metric tons CO_2e)
TDPS	HVAC	6,744	731
	Lighting	230	25
	Process (excluding Odor Control Fans)	4,654	505
	Odor Control Fans	447	49
Diversion Facilities	Odor Control Fans	1,061	115
		Project Total	**1,424**

Notes:
Totals may not sum due to rounding.
Per *CEQR Technical Manual* guidance, electricity emissions represent the latest data and not a future year with the Project. Future emissions are expected to be lower.
Sources: New York City 2023 NYS GHG Inventory

CONSTRUCTION EMISSIONS

On-Site Equipment Use and Truck Idling Emissions

The GHG emissions from construction engines associated with the Proposed Project are presented in **Table 18-4**.

Table 18-4
Total On-Site Emissions (metric ton CO_2e)

Source	Emissions
Non-road (On-Shore)	353
Non-road (Tug)	3,089
On-Site Truck Idling	4
Total	**3,446**

Transportation Emissions

The on-road GHG emissions from the construction of the Proposed Project are presented in **Table 18-5**.

Table 18-5
Total Transportation Emissions (metric ton CO_2e)

Source	Emissions
Passenger Vehicle	1,488
Truck	665
Tugboat	8,073
Total	**10,226**

Embodied Carbon Emissions

The resulting GHG emissions from construction materials extraction, processing, and transport would be 25,817 metric tons CO_2e from the anticipated cement usage.

Summary

A summary of GHG emissions by source type for the Proposed Project is presented in **Table 18-6**.

Table 18-6
Summary of Total Construction Emissions (metric ton CO_2e)

Source	Emissions
On-Site Equipment and Truck Idling	3,446
Transportation	10,226
Embodied Carbon	25,817
Total	**39,489**

Total GHG emissions associated with the construction of the Proposed Project, including direct emissions and upstream emissions associated with construction materials (excluding fuel), would be approximately 39 thousand metric tons.

PROJECT ELEMENTS THAT WOULD REDUCE GHG EMISSIONS

The Proposed Project would include a number of sustainable design features which would, among other benefits, result in lower GHG emissions. These features and other measures currently under consideration are discussed in this section, in the context of the PlaNYC/OneNYC 2050 goals. The *CEQR Technical Manual* defines five goals by which a project's consistency with the City's emission reduction goal is evaluated: (1) energy efficient design; (2) use clean power; (3) sustainable transportation; (4) reduce construction operation emissions; and (5) building materials carbon intensity.

The implementation of the various design measures and features described would be consistent with the City's emissions reduction goal, as defined in the *CEQR Technical Manual*. The Proposed Project would use the Envision rating system to evaluate the sustainability of the proposed infrastructure.

Energy Efficiency Design

The main source of GHG emissions during operation of the Proposed Project would be energy use. The following energy efficiency measures are currently being evaluated as part of the Project design.

- The Proposed Project would strive for a 30 percent reduction in overall energy use and 50 percent reduction for non-process equipment, consistent with Local Law 51 of 2023.
- Use high-efficiency motors, lighting, and air conditioning equipment
- Use efficient lighting to the extent allowable by the Public Design Commission (PDC).
- The design of the Proposed Project minimizes the need for pumping at the diversion facilities by maximizing the use of gravity flow, thereby minimizing pumping-related GHG emissions.
- Explore the possibility of reducing HVAC requirements by increasing building insulation.

Use Clean Power

The Proposed Project would be designed to use electricity for the normal operation of the heating, ventilation, and air conditioning (HVAC) systems. The feasibility of providing a roof-mounted photovoltaic system (solar power) will be assessed according to the guidelines established in New York City Local Law Laws and DEP's Sustainability policies. A ground-mounted photovoltaic system could be considered as an alternative to roof-mounted panels, assuming this does not interfere with other sustainability objectives for the project.

Sustainable Transportation

The Proposed Project would not generate substantial vehicle traffic; therefore, there is limited opportunity to encourage transit-oriented development or make transportation more sustainable.

Reduce Construction Operation Emissions

Construction specifications would include an extensive diesel emissions reduction program, as described in Chapter 3, "Construction Mean and Methods," including diesel particle filters for large construction engines and other measures. These measures would reduce particulate matter emissions. While particulate matter is not included in the list of standard GHGs, studies have shown that black carbon—a constituent of particulate matter—may play an important role in climate change.[11]

- Construction waste would be diverted from landfills to the extent practicable by separating out materials for reuse and recycling. DEP would aim to reduce the disposal at landfills of non-hazardous waste by 100 percent.
- DEP will explore opportunities to reuse existing materials.
- Options to improve the sustainability of any required soil remediation will be considered, including in-situ treatment.
- A Waste Management Plan will be developed, pending the results of the remedial investigation.

Building Materials Carbon Intensity

To the extent practicable, the Proposed Project would use materials with recycled content, including concrete and steel, which have high embodied emissions. A materials study would be prepared to identify opportunities to incorporate recycled material. This will include considerations for using recycled concrete for the tunnel, diversion facility drop shafts, and TDPS buildings where practicable. Some cement replacements, such as fly ash and/or slag, may also be used, and concrete content would be optimized to the extent feasible.

[11] Bond, T. C., et al. (2013), Bounding the role of black carbon in the climate system: A scientific assessment, J. Geophys. Res. Atmos., 118, 5380–5552, doi:10.1002/jgrd.50171.

C. CLIMATE CHANGE RESILIENCE

Standards for analysis of the effects of climate change on a proposed project are still being developed and have not yet been defined in CEQR. However, the Waterfront Revitalization Program (WRP)[12] addresses climate change and sea-level rise. The WRP requires consideration of climate change and sea-level rise in the planning and design of development within the defined Coastal Zone Boundary (the Proposed Project is within that zone). As set forth in more detail in the *CEQR Technical Manual*, the provisions of the WRP are applied by the New York City Department of City Planning (DCP) and other city agencies when conducting environmental review. The Proposed Project's consistency with WRP policies is described in Chapter 4, "Land Use, Zoning, and Public Policy." Moreover, the Proposed Project is a major infrastructure undertaking located within the existing and future projected floodplain. Therefore, the potential effects of global climate change on the Proposed Project were considered and measures that would be implemented to improve the Project's resilience to climate change were identified. The beneficial effect of the Proposed Project on the Newtown Creek watershed, in terms of resilience to increased precipitation due to climate change is also discussed.

EXISTING POLICIES TO IMPROVE CLIMATE CHANGE RESILIENCE

The New York State Sea Level Rise Task Force was created to assess potential impacts on the state's coastlines from rising seas and increased storm surge. The Task Force prepared a report of its findings and recommendations, including protective and adaptive measures.[13] The recommendations are to: provide more protective standards for coastal development, wetlands protection, shoreline armoring, and post-storm recovery; implement adaptive measures for habitats; integrate climate change adaptation strategies into state environmental plans; and amend local and state regulations or statutes to respond to climate change. The Task Force also recommended the formal adoption of projections of sea-level rise.

The New York State Climate Action Plan Interim Report identified a number of policy options and actions that could increase the climate change resilience of natural systems, the built environment, and key economic sectors—focusing on agriculture, vulnerable coastal zones, ecosystems, water resources, energy infrastructure, public health, telecommunications and information infrastructure, and transportation.[14] New York State's Community Risk and Resiliency Act (CRRA)[15] requires that applicants for certain State programs demonstrate that they have taken into account future physical climate risks from storm surges, sea-level rise and flooding; and that the New York State Department of Environmental Conservation (DEC) establish official State sea-level rise projections. In February 2017, DEC adopted a rule (6 NYCRR Part 490) defining the existing projections for use. These projections provide the basis for State adaptation decisions and are available for use by all decision makers. CRRA applies to specific State permitting, funding and regulatory decisions, including smart growth assessments; funding for wastewater treatment

[12] City of New York Department of City Planning. *The New York City Waterfront Revitalization Program*. October 30, 2013. Approved by New York State Department of State, February 3, 2016.

[13] New York State Sea Level Rise Task Force. *Report to the Legislature*. December 2010.

[14] NYSERDA. New York State Climate Action Plan Interim Report. November, 2010.

[15] *Community Risk and Resiliency Act.* Chapter 355, NY Laws of 2014. April 9, 2013. Signed September 22, 2014.

plants; siting of hazardous waste facilities; design and construction of petroleum and chemical bulk storage facilities; oil and gas drilling; and State acquisition of open space. As required under the CRRA, DEC published implementation guidance and climate change projections specific to New York State in August 2021.

In New York City, the Climate Change Adaptation Task Force is tasked with fostering collaboration and cooperation between public and private organizations working to improve the resilience of the city's critical infrastructure against rising seas, higher temperatures, and changing precipitation patterns. The Task Force is composed of New York City and State agencies, public authorities, and companies that operate, regulate, or maintain critical infrastructure in New York City. Led by the Mayor's Office of Climate and Environmental Justice, the Task Force assesses risks, prioritizes strategies, and examines how standards and regulations may need to be adjusted in response to a changing climate.

To assist the Task Force, the New York City Panel on Climate Change (NPCC) has prepared a set of climate change projections for the New York City region[16] which was subsequently updated,[17,18] and has suggested approaches to create an effective adaptation program for critical infrastructure. The NPCC includes leading climatologists, sea-level rise specialists, adaptation experts, and engineers, as well as representatives from the insurance and legal sectors. The climate change projections include a summary of baseline and projected climate conditions throughout the 21st century, including heat waves and cold events, intense precipitation and droughts, sea-level rise, and coastal storm levels and frequency.

TEMPERATURE & URBAN HEAT ISLAND

The probability that New York City would experience an increase in air temperatures and relative humidity is considered by NPCC to be "very likely." The vulnerability of a given location accounts for the existing and future temperatures, areas of vegetation, and the demographics of the community—characterized by a heat index value. NPCC projected that temperatures are likely to increase by up to 7.1 degrees Fahrenheit by the 2050s and that New York City would experience up to 9 heat waves per year with an average duration up to 6 days. By the end of the century, temperatures are likely to increase by up to 13.5 degrees Fahrenheit with up to 10 heat waves per year with an average duration of 10 days.

PRECIPITATION

NPCC projected that New York City's precipitation levels are likely to increase 4 to 11 percent compared to the 1981-2010 base period by the 2050s and up to 30 percent by the end of the century, with up to 6 rainfall events projected to occur in a single year with 2 inches or more of precipitation for each event.

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[16] New York City Panel on Climate Change. *Climate Change Adaptation in New York City: Building a Risk Management Response*. Annals of the New York Academy of Sciences, May 2010.

[17] New York City Panel on Climate Change. Climate Risk Information 2013: Observations, Climate Change Projections, and Maps. June 2013.

[18] New York City Panel on Climate Change. *New York City Panel on Climate Change 2015 Report*. Ann. N.Y. Acad. Sci. 1336. 2015.

As part of the New York City Green Infrastructure Program's goal to reduce the volume of stormwater entering the sewer system during rainfall events, the City has established design standards and specifications to address the impact that stormwater would have on the City's combined sewer systems. The Program includes retrofits to streets, sidewalks, and other public properties with standard green infrastructure practices such as bioswales, rain gardens, greenstrips, stormwater seepage basins, and infiltration basins. The Program also incentivizes green infrastructure on private property and facilitates permitting for projects triggered by stormwater regulations. While the primary goal of the Program is to alleviate surcharge and flooding conditions, green infrastructure projects can result in several co-benefits, including reduced localized stormwater flooding and urban heat island effect.

SEA LEVEL RISE

NPCC has projected that sea levels are likely to increase by up to 30 inches by the 2050s and up to 75 inches by the end of the century (more detailed ranges and timescales are available). In general, the probability of increased sea levels is characterized by NPCC as "extremely likely," but there is uncertainty regarding the probability of the various levels projected and the related timescales. Intense hurricanes are characterized by NPCC as "more likely than not" to increase in intensity and/or frequency, and the likelihood of changes in other large storms (e.g. "Nor'easters") are characterized by NPCC as unknown. Therefore, the projections for future 1-in-100 coastal storm surge levels for New York City include only sea-level rise at this time, and do not account for changes in storm frequency.

The New York City Green Code Task Force also has recommended strategies for addressing climate change resilience in buildings and for improving storm water management.[19] Some of the recommendations call for further study, while others could serve as the basis for revisions to building code requirements. Notably, one recommendation was to require new developments project to be within the "100-year" floodplain by the end of the century to meet the same standards as buildings in the current floodplain. The 100-year floodplain represents the area that would potentially be flooded in a severe coastal storm with a 1-in-100 probability of occurring in any given year and is expected to affect a larger region in future years.

While strategies and guidelines for addressing the effects of climate change are being developed at all levels of government, there are currently no specific requirements or accepted recommendations for projects in New York City. However, the revisions to the WRP and accompanying guidance[20] require consideration of climate change and sea-level rise in the planning and design of waterfront development. The provisions of the WRP are applied by city agencies when conducting environmental reviews (see Chapter 4, "Land Use, Zoning, and Public Policy," and **Appendix C** for additional details).

EXISTING CONDITIONS

Under typical wet weather conditions, there are 21 CSO outfalls that discharge to Newtown Creek. More than 90 percent of the total CSO discharge to Newtown Creek, however, is from the four largest CSO

[19] New York City Green Codes Task Force. *Recommendations to New York City Building Code*. February 2010.

[20] NYC Planning. The New York City Waterfront Revitalization Program: Climate Change Adaptation Guidance. March 2017.

outfalls: Bowery Bay (BB)-026, Newtown Creek Queens (NCQ)-077, Newtown Creek Brooklyn (NCB)-083, and NCB-015.

As discussed in Appendix C, "NYC Waterfront Revitalization Program", the Proposed Project would construct a CSO storage tunnel and diversion facilities and drop shafts, as well as a gravity diversion sewer for outfall BB-026, all of which would be below-grade. Based on the Federal Emergency Management Agency (FEMA) 2015 preliminary Flood Insurance Rate Map (FIRM), the TDPS and outfall BB-026 would be in the 1 percent annual chance floodplain in Zone AE with a base flood elevation (BFE) of +11 feet NAVD 88. Outfalls NCQ-077, NCB-083, and NCB-015 would be in the 1 percent annual chance floodplain in Zone AE with a BFE of +10 feet NAVD88. The drop shafts associated with the outfalls would either be in the 0.2 percent annual chance floodplain or outside both floodplains.

FUTURE RESILIENCE WITH THE PROPOSED PROJECT

The TDPS, CSO storage tunnel, and all of the Proposed Project's related components have an assumed design life of at least 100 years, with an evaluation year of 2100. As discussed, NPCC has projected that sea levels are likely to increase by up to 30 inches by the 2050s and up to 75 inches by the end of the century.

Based on the NPCC High Scenario projections, by 2100, the flood elevations at the Proposed Project sites could increase to +16.25 feet NAVD88 in the current +10-foot BFE and up to +17.25 feet NAVD88 in the current +11-foot BFE. All of the Proposed Project sites would be within the 1 percent annual chance floodplain by 2100. Critical infrastructure within the TDPS would be constructed at a design elevation of +16 feet NAVD88, which would remain above the projected floodplain elevation through the 2050s and until approximately 2100. The TDPS vehicle loading docks and bays would be at or near ground level at +9.5 feet NAVD88 which is within the current floodplain.

There would be no changes to the shoreline outfall structures (in-water portions of the outfalls where flow is discharged to the Creek); there would be modifications to the land-side outfall chambers at outfalls NCB-015 and BB-026 (removal of existing bending weirs and flap gates). Diversion facilities and other infrastructure would be installed upstream from the outfalls to divert CSO volumes.

Below-grade improvements would also be completed at outfalls NCB-015 and BB-026 to remove the existing bending weirs and flap gates, which would not alter either of these outfall structures at the shoreline. Similarly, the Proposed Project would not change the elevations of existing shoreline infrastructure such as bulkheads or riprap. If necessary, repairs would be performed to ensure the integrity of existing shoreline protection structures.

The Proposed Project would include measures to prevent flood waters from entering the tunnel and other below-grade components such that its operation would not be affected by flooding. The new pump station building for the TDPS facility, which would be above-ground, would be designed in accordance with flood resiliency requirements applicable to critical infrastructure in the floodplain. Because the study area is subject to coastal flooding rather than riverine flooding, any new above-ground structures associated with the Proposed Project would not result in increased flooding of adjacent areas.

The Proposed Project would capture CSOs prior to discharge to Newtown Creek, divert them to the storage tunnel, and the TDPS would convey stored flows to the Newtown Creek WRRF for treatment prior to discharge. This would reduce total CSO discharges to the Creek in a typical year by up to 74 percent, because CSOs would only be released to Newtown Creek through outfalls BB-026, NCQ-077, NCB-083, and NCB-015 when the tunnel is at full capacity or when the peak diversion flow rate is exceeded. In addition, CSOs may be discharged through the tunnel overflow structures at NCB-015 and the TDPS site when necessary to relieve hydraulic pressure within the tunnel as it is filling. The storage of CSOs within the tunnel and controlled conveyance through the Newtown Creek WRRF would also reduce the volume of water entering Newtown Creek during wet weather events. The design of the diversion facilities accounts for future expected increases in rainfall, particularly as it relates to selection of the peak diversion flow rates. This would maximize the CSO volume that can be diverted from the collection system to the tunnel, thereby reducing the potential for backup within the system.

D. CONCLUSIONS

The operation of the Proposed Project would result in the emission of 39,489 metric tons of CO_2e annually. Construction activities and use of construction materials are also associated with GHG emissions. Based on the Proposed Project's commitment to energy efficiency measures and other sustainability measures under consideration, the Project would be consistent with the City's emissions reduction goals, as defined in the *CEQR Technical Manual*. The Proposed Project would also make the Newtown Creek area more resilient to climate change and would incorporate measures to protect critical infrastructure from flooding. The Proposed Project would therefore be consistent with New York State and New York City's climate change goals.

Chapter 19: Noise and Vibration

A. INTRODUCTION

The New York City Department of Environmental Protection (DEP) is undertaking the construction and operation of a combined sewer overflow (CSO) storage tunnel and related infrastructure to reduce the volume of combined sewer overflows entering Newtown Creek, under the Newtown Creek CSO Storage Tunnel project (the "Proposed Project"). The Proposed Project includes the construction of diversion facilities at four outfalls to convey wet-weather flows to the tunnel, a 50-million-gallon CSO storage tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored combined sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

This chapter assesses the potential for significant adverse noise impacts from the construction and operation of the Proposed Project. According to the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, a noise analysis may be required when a project would generate mobile or stationary sources of noise or would introduce new noise receptors in an area with existing high ambient noise levels. The potential for mobile source and stationary source noise impacts from operation of the Proposed Project was assessed. As the Proposed Project would not introduce any noise-sensitive uses, no analysis of noise exposure at such would be necessary.

This chapter also assesses the potential for significant adverse noise impacts during construction of the Proposed Project in accordance with the *CEQR Technical Manual*. Construction equipment operation and construction vehicles traveling to and from the Project Sites can have a potential effect on community noise levels. Noise levels at a given location are dependent on the kind and number of pieces of construction equipment and vehicles being operated, the acoustical utilization factor of the equipment (i.e., the percentage of time a piece of equipment is operating at full power), the distance from the construction site, and any shielding effects from structures such as buildings, walls, or barriers. Noise levels caused by construction activities vary widely, depending on the phase of construction and the location of construction activities relative to receptor locations.

Construction activities have the potential to result in vibration levels that may in turn result in structural or architectural damage, and/or annoyance or interference with vibration-sensitive activities. In general, vibratory levels at a receiver (a structure that could experience vibration) are a function of the source strength (which in turn is dependent upon the construction equipment and methods utilized), the distance between the equipment and the receiver, the characteristics of the transmitting medium (i.e., the ground, roads, and soil), and the construction of the receiver building. Construction equipment operation causes ground vibrations that spread through the ground and decrease in strength with distance. Vehicular traffic, even in locations close to major roadways, typically does not result in

perceptible vibration levels unless there are discontinuities in the roadway surface. With the exception of the case of fragile and possibly historically significant structures or buildings, generally construction activities do not reach the levels that can cause architectural or structural damage but can achieve levels that may be perceptible in buildings close to a construction site. An assessment has been prepared to quantify potential vibration effects of construction activities on structures and residences near the project work areas.

PRINCIPAL CONCLUSIONS

OPERATIONAL NOISE

Noise resulting from operation of the Proposed Project would not result in any exceedances of the *CEQR Technical Manual* noise impact criteria or the NYC Noise Control Code noise level limits for circulation devices. Additionally, the Proposed Project would introduce minimal traffic within the surrounding areas once complete. Consequently, operation of the Proposed Project would not result in any significant adverse noise impacts.

CONSTRUCTION NOISE

Construction of the Proposed Project is predicted to result in elevated noise levels at several of the analyzed receptors, which represent residences, hotels, and publicly accessible open spaces.

Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. Construction of the TDPS would result in noticeable and potentially intrusive increases in noise levels at the Newtown Creek Nature Walk and the future North Henry Street Restoration open spaces and total noise levels that would be considered "clearly unacceptable" at the future North Henry Street Restoration open spaces. Potentially intrusive noise level increases at the Nature Walk are predicted to occur for a duration of 12 consecutive months. Potentially intrusive noise level increases are predicted to occur for a duration of 110 months at the North Henry Street Restoration project, with "clearly unacceptable" noise levels predicted to occur for up to 16 of those months.

CONSTRUCTION VIBRATION

Historic buildings and other structures located within 90 feet of the Proposed Project sites, as appropriate, would incorporate vibration monitoring, and peak particle velocity (PPV) during construction would not be permitted to exceed the 0.50 inches/second threshold. Vibration-producing equipment would not operate in proximity to non-historic structures such that it could potentially result in damage to these structures, which are less-vibration sensitive than historic structures. Furthermore, construction of the Proposed Project would not result in extended periods of perceptible or annoying vibration at surrounding receptors. Blasting would be carefully controlled to conform to Federal and NYC standards and monitored by the Fire Department of New York (FDNY) with explosives being detonated sequentially, breaking the rock while spreading the release of energy from the explosives over a period of approximately 5 seconds so as not to compromise the integrity of the surrounding structures (e.g., the shafts) due to vibrations. Notification would be provided in advance of planned

work and a warning horn would be sounded prior to each blast to alert the surrounding community. Therefore, construction of the Proposed Project would not have the potential to result in significant adverse vibration impacts.

B. ACOUSTICS FUNDAMENTALS

Sound is a fluctuation in air pressure. Sound pressure levels are measured in units called "decibels" ("dB"). The particular character of the sound that we hear is determined by the speed, or "frequency," at which the air pressure fluctuates, or "oscillates." Frequency defines the oscillation of sound pressure in terms of cycles per second. One cycle per second is known as 1 Hertz ("Hz"). People can hear over a relatively limited range of sound frequencies, generally between 20 Hz and 20,000 Hz, and the human ear does not perceive all frequencies equally well. High frequencies (e.g., a whistle) are more easily discernible and therefore more intrusive than many of the lower frequencies (e.g., diesel truck engine).

"A"-WEIGHTED SOUND LEVEL

In order to establish a uniform noise measurement that simulates people's perception of loudness and annoyance, the decibel measurement is weighted to account for those frequencies most audible to the human ear. This is known as the A-weighted sound level, or "dBA," and it is the descriptor of noise levels most often used for community noise. As shown in **Table 19-1**, the threshold of human hearing is defined as 0 dBA; very quiet conditions (as in a library, for example) are approximately 40 dBA; levels between 50 dBA and 70 dBA define the range of noise levels generated by normal daily activity; levels above 70 dBA would be considered noisy, and then loud, intrusive, and deafening as the scale approaches 130 dBA.

Table 19-1
Noise Levels of Common Sources

Sound Source	SPL (dBA)
Air Raid Siren at 50 feet	120
Maximum Levels at Rock Concerts (Rear Seats)	110
On Platform by Passing Subway Train	100
On Sidewalk by Passing Heavy Truck or Bus	90
On Sidewalk by Typical Highway	80
On Sidewalk by Passing Automobiles with Mufflers	70
Typical Urban Area	60–70
Typical Suburban Area	50–60
Quiet Suburban Area at Night	40–50
Typical Rural Area at Night	30–40
Isolated Broadcast Studio	20
Audiometric (Hearing Testing) Booth	10
Threshold of Hearing	0
Source: 2021 *CEQR Technical Manual*	

In considering these values, it is important to note that the dBA scale is logarithmic, meaning that each increase of 10 dBA describes a doubling of perceived loudness. Thus, the background noise in an office,

at 50 dBA, is perceived as twice as loud as a library at 40 dBA. For most people to perceive an increase in noise, it must be at least 3 dBA. At 5 dBA, the change will be readily noticeable.

NOISE DESCRIPTORS USED IN IMPACT ASSESSMENT

Because the sound pressure level unit of dBA describes a noise level at just one moment and very few noises are constant, other ways of describing noise over extended periods have been developed. One way of describing fluctuating sound is to describe the fluctuating noise heard over a specific time period as if it had been a steady, unchanging sound. For this condition, a descriptor called the "equivalent sound level," L_{eq}, can be computed. L_{eq} is the constant sound level that, in a given situation and time period (e.g., 1 hour, denoted by $L_{eq(1)}$, or 24 hours, denoted as $L_{eq(24)}$), conveys the same sound energy as the actual time-varying sound. Statistical sound level descriptors such as L_1, L_{10}, L_{50}, L_{90}, and L_x, are used to indicate noise levels that are exceeded 1, 10, 50, 90, and x percent of the time, respectively.

The relationship between L_{eq} and levels of exceedance is worth noting. Because L_{eq} is defined in energy rather than straight numerical terms, it is not simply related to the levels of exceedance. If the noise fluctuates very little, L_{eq} will approximate L_{50} or the median level. If the noise fluctuates broadly, the L_{eq} will be approximately equal to the L_{10} value. If extreme fluctuations are present, the L_{eq} will exceed L_{90} or the background level by 10 or more decibels. Thus, the relationship between L_{eq} and the levels of exceedance will depend on the character of the noise. In community noise measurements, it has been observed that the L_{eq} is generally between L_{10} and L_{50}.

Consistent with *CEQR Technical Manual* guidance, the noise analysis uses the L_{eq} and L_{10} descriptors for noise impact evaluation.

C. METHODOLOGY

OPERATIONAL NOISE

NOISE STANDARDS AND CRITERIA

The *CEQR Technical Manual* sets external noise exposure standards; these standards are shown in **Table 19-2**. Noise exposure is classified into four categories: acceptable, marginally acceptable, marginally unacceptable, and clearly unacceptable.

Table 19-2
CEQR Noise Exposure Guidelines[1]

Receptor Type	Time Period	Acceptable General External Exposure	Airport[3] Exposure	Marginally Acceptable General External Exposure	Airport[3] Exposure	Marginally Unacceptable General External Exposure	Airport[3] Exposure	Clearly Unacceptable General External Exposure	Airport[3] Exposure
Outdoor area requiring serenity and quiet[2]		$L_{10} \leq 55$ dBA	---------- Ldn ≤ 60 dBA ----------	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Hospital, nursing home		$L_{10} \leq 55$ dBA		55 < $L_{10} \leq 65$ dBA	---------- 60 < Ldn ≤ 65 dBA ----------	65 < $L_{10} \leq 80$ dBA	(i) 65 < Ldn ≤ 70 dBA, (II) 70 ≤ Ldn	$L_{10} > 80$ dBA	---------- Ldn ≤ 75 dBA ----------
Residence, residential hotel, or motel	7 AM to 10 PM	$L_{10} \leq 65$ dBA		65 < $L_{10} \leq 70$ dBA		70 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
	10 PM to 7 AM	$L_{10} \leq 55$ dBA		55 < $L_{10} \leq 70$ dBA		70 < $L_{10} \leq 80$ dBA		$L_{10} > 80$ dBA	
School, museum, library, court, house of worship, transient hotel or motel, public meeting room, auditorium, outpatient public health facility		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)	
Commercial or office		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)		Same as Residential Day (7 AM–10 PM)	
Industrial, public areas only[4]	Note 4	Note 4		Note 4		Note 4		Note 4	

Notes:
(i) In addition, any new activity shall not increase the ambient noise level by 3 dBA or more.

Table Notes:
1 Measurements and projections of noise exposures are to be made at appropriate heights above site boundaries as given by American National Standards Institute (ANSI) Standards; all values are for the worst hour in the time period.
2 Tracts of land where serenity and quiet are extraordinarily important and serve an important public need, and where the preservation of these qualities is essential for the area to serve its intended purpose. Such areas could include amphitheaters, particular parks, or portions of parks, or open spaces dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
3 One may use FAA-approved L_{dn} contours supplied by the Port Authority, or the noise contours may be computed from the federally approved INM Computer Model using flight data supplied by the Port Authority of New York and New Jersey.
4 External Noise Exposure standards for industrial areas of sounds produced by industrial operations other than operating motor vehicles or other transportation facilities are defined in the New York City Zoning Resolution, Sections 42-20 and 42-21. The referenced standards apply to M1, M2, and M3 manufacturing districts and to adjoining residence districts (performance standards are octave band standards).

Source: New York City Department of Environmental Protection (adopted policy 1983).

OPERATIONAL NOISE IMPACT CRITERIA

The determination of significant adverse noise impacts in this analysis is informed using both absolute noise level limits and relative impact criteria. The Proposed Project will be subject to review as outlined in the *City Environmental Quality Review (CEQR) Technical Manual*, which states that "it is reasonable to consider 65 dBA $L_{eq(1)}$ as an absolute noise level that should not be significantly exceeded." Therefore, the determination of impacts first considers whether a projected noise increase would result in noise levels exceeding 65 dBA $L_{eq(1)}$. This study uses the following relative impact criteria to define a significant adverse noise impact as recommended in the *CEQR Technical Manual*:

- An increase of 5 dBA, or more, in With Action $L_{eq(1)}$ noise levels at sensitive receptors (including residences, play areas, parks, schools, libraries, and houses of worship) over those calculated for the No Action condition, if the No Action levels are less than 60 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.
- An increase of 4 dBA, or more, in With Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No Action condition, if the No Action levels are 61 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.

- An increase of 3 dBA, or more, in With Action $L_{eq(1)}$ noise levels at sensitive receptors over those calculated for the No Action condition, if the No Action levels are greater than 62 dBA $L_{eq(1)}$ and the analysis period is not a nighttime period.

Since the receptors included in the operational noise analysis are non-residential, the night-time noise impact criteria are not applicable.

OPERATIONAL NOISE ANALYSIS METHODOLOGY

Upon completion of construction, the Proposed Project would not result in sufficient volumes of vehicular traffic to result in a significant increase in noise levels; consequently, no analysis of operational mobile source noise is warranted. The only stationary noise source with line of sight to receptors upon completion of the Proposed Project would be the building HVAC system at the TDPS site. The diversion facilities would not include any outdoor, above-grade noise-generating equipment upon completion. All pumps and other noise-generating equipment would be located underground or fully enclosed without line of sight to receptors. As such, the operational noise analysis methodology for TDPS mechanical equipment will involve the following:

1. *Select receptor locations for cumulative on-site equipment noise analysis.* Selected receptors represent noise-sensitive uses with line of sight to unenclosed equipment included in the TDPS site. These include the Kingsland Wildflowers Green Roof and Community Engagement Center, the Newtown Creek Nature Walk, and the future North Henry Street Restoration project. Other noise-sensitive uses located further from the TDPS site, such as the Gateway to Greenpoint project, would experience lower levels of noise due to project operations and consequently would not have the potential to experience significant adverse noise impacts.
2. *Establish existing noise levels at selected receptors.* Existing noise levels were measured at each of the receptor sites (see measurement sites 14 and 15 discussed below in section C, "Existing Conditions"). The measured noise levels represent the baseline noise levels for comparison.
3. *Establish reasonable worst-case noise emission levels for project operations.* Based on design details from a comparable facility, noise emissions from TDPS HVAC equipment were estimated.
4. *Establish noise level impact thresholds at each receptor location.* Based on the minimum measured existing noise level at each receptor location, and the noise emission levels described above, noise levels at each nearby receptor were estimated.
5. *Compare to applicable impact criteria.* Based on the noise levels at adjacent receptor locations and impact threshold levels described above, potential operational noise impacts were identified.

OPERATIONAL NOISE EMISSION ESTIMATES

Assumed noise emission data for the proposed TDPS mechanical equipment, which were used as the basis for the operational noise analysis, are summarized in **Table 19-3**.

Table 19-3
TDPS Mechanical Equipment Noise Emissions

Equipment	L_{max} at 50 feet (in dBA)
HVAC Packaged Rooftop Unit	56.5
Source: Manufacturer noise data.	

CONSTRUCTION NOISE AND VIBRATION

CONSTRUCTION NOISE IMPACT CRITERIA

Chapter 22 of the *CEQR Technical Manual* categorizes construction duration into "short-term" and "long-term" and states that construction noise is not likely to require analysis unless it "affects a sensitive receptor over a long period of time." Consequently, the construction noise analysis considers the potential for construction of a project to create high noise levels (the "intensity"), whether construction noise would occur for an extended period of time (the "duration"), and the locations where construction has the potential to increase noise ("receptors") in evaluating potential construction noise effects.

The noise impact criteria described in Chapter 19, Section 410 of the *CEQR Technical Manual* serve as a screening-level threshold for potential construction noise impacts. If construction resulting from the Proposed Project would not result in any exceedances of these criteria at a given receptor, then that receptor would not have the potential to experience a construction noise impact.

If noise levels during construction would exceed the screening thresholds, the specific affected area, magnitude and duration of construction noise level increases would be considered further to determine the potential for temporary significant adverse impacts.

For receptors representing interior spaces (i.e., not open space) where noise resulting from construction associated with the Proposed Project is predicted to exceed the screening thresholds, and where the façade attenuation can be determined based on readily available information, interior noise levels may also be considered in the determination of impact significance. Estimated interior noise levels would be compared to the acceptable range (i.e., 45 dBA for residential and community facility uses or 50 dBA for commercial office uses), and the magnitude and duration of any exceedances would be described and considered in the determination of significance.

CONSTRUCTION NOISE ANALYSIS METHODOLOGY

A detailed modeling analysis was conducted to quantify potential construction noise effects at existing noise receptors (e.g., residences, schools, etc.) that may experience impacts as a result of noise from construction of the proposed project. The construction noise methodology will involve the following process for each construction work site:

6. *Select analysis hours for cumulative on-site equipment and construction vehicle noise analysis*. While much of the construction activity for the proposed project will occur during typical weekday daytime hours, some construction activity may occur on weekend days and during evening or

overnight hours. As such, the construction noise analysis considered multiple time periods to determine the potential for construction noise impacts during weekend and/or night-time periods in addition to potential weekday daytime construction noise impacts. The selected analysis hours are described below in the "Analysis Hours" section.

7. *Select receptor locations for cumulative on-site equipment and construction vehicle noise analysis.* Selected receptors represent open space, residential, commercial office, or other noise-sensitive uses potentially affected by the construction associated with the proposed project during operation of on-site construction equipment and/or along routes taken to and from the development site by construction trucks.

8. *Establish existing noise levels at selected receptors.* At 16 of the selected receptor locations, existing condition noise levels were measured (see "Noise Measurement Results" section below), and the measured noise levels represent the baseline noise levels for comparison. For receptors included in the construction noise analysis where baseline noise levels were not measured, measured baseline noise levels at comparable nearby locations were used to represent baseline noise levels or existing condition noise levels were calculated using a CadnaA model with existing-condition traffic volumes. Specifically, existing noise levels were calculated using the CadnaA model for receptors proximate to the TDPS Site and the NCB-015 work area. First, a model representing the existing conditions during one weekday peak hour at each of these two areas were validated based on the measured existing noise levels during that peak hour. For each of the construction noise analysis hours, existing traffic volumes (established using peak hour volumes, vehicle classifications, and ATR counts) were used in the existing condition CadnaA models to determine baseline noise levels at each of the analysis receptors during each of the analysis hours.

9. *Establish worst-case noise analysis periods under the anticipated construction schedules.* The worst-case noise analysis periods are the periods during the construction schedules for the TDPS and each of the diversion facility sites that are expected to have the greatest potential to result in construction noise effects. The selected time periods are described below in the "Analysis Periods" section.

10. *Calculate construction noise levels for each analysis period at each receptor location*. Given the on-site equipment and construction vehicle trips expected during each of the analysis periods, and the location of the equipment, which is based on construction logistics diagrams and construction truck and worker vehicle trip assignments, a CadnaA model including each analysis period was created. All models included each of the construction noise sources during the analysis period and hour, calculation points representing multiple locations on various façades and floors of the associated receptors previously identified, as well as the noise control measures that would be used on the construction site.

11. *Determine total noise levels and noise level increments during construction.* For each analysis period and each noise receptor, the calculated level of construction noise was logarithmically added to the existing noise level to determine the cumulative total noise level. The existing noise level at each receptor was then arithmetically subtracted from the cumulative noise level in each analysis period to determine the noise level increments.

12. *Compare construction noise increments to impact criteria*. For each analysis period and each noise receptor, the predicted noise increments due to construction were compared to CEQR construction noise screening thresholds and additional construction noise impact criteria as described above.
13. *Estimate interior noise levels*. At receptors representing interior locations where noise increments due to construction are predicted to exceed incremental construction noise impact thresholds, window/wall attenuation were estimated based on field observations. Maximum predicted construction noise levels and estimated window/wall attenuation were used to estimate interior noise levels.
14. *Establish construction noise duration*. For each receptor, the noise level increments and estimated interior noise levels in each analysis period were evaluated to determine the duration during construction that the receptor would experience exceedances of impact criteria.
15. *Qualitatively consider noise from blasting operations*. Blasting operations typically do not have the potential to result in significant adverse noise impacts, because blasting requires substantial amount of time to set up each charge and therefore occurs very infrequently (typically no more than three times per day), is of very short duration (approximately 5 seconds), and is shielded from receptors by a blast mat. As such, potential noise effects of blasting are not included in the detailed quantitative construction noise analysis.
16. *Identify potential construction noise impacts.* At each receptor where exceedances of construction noise impact criteria are predicted, a determination was made as to whether the proposed project would have the potential to result in significant adverse construction noise impacts.

CONSTRUCTION NOISE MODELING

Noise effects from construction activities were evaluated using the CadnaA model, a computerized model developed by DataKustik for noise prediction and assessment. The model can be used for the analysis of a wide variety of noise sources, including stationary sources (e.g., construction equipment, industrial equipment, power generation equipment), transportation sources (e.g., roads, highways, railroad lines, busways, airports), and other specialized sources (e.g., sporting facilities). The model takes into account the reference sound pressure levels of the noise sources at 50 feet, attenuation with distance, ground contours, reflections from barriers and structures, attenuation due to shielding, etc. The CadnaA model is based on the acoustic propagation standards promulgated in International Standard ISO 9613-2. This standard is currently under review for adoption by the American National Standards Institute (ANSI) as an American Standard. The CadnaA model is a state-of-the-art tool for noise analysis and is approved for construction noise level prediction by the *CEQR Technical Manual*.

Geographic input data used with the CadnaA model included CAD drawings that define site work areas, adjacent building footprints and heights, locations of streets, and locations of sensitive receptors. For each analysis period, the geographic location and operational characteristics—including equipment usage rates (percentage of time operating at full power) for each piece of construction equipment operating at the proposed development site, as well as noise control measures—were input to the model.

Construction equipment source strength was determined by the L_{max} levels presented in Table 22-1 of the 2021 *CEQR Technical Manual.* For construction equipment not included in this table, manufacturer specifications or field measured noise levels were used.

In addition, reflections and shielding by barriers erected on the construction site and shielding from adjacent buildings were accounted for in the model. Construction-related vehicles were assigned to the adjacent roadways. The model produced A-weighted $L_{eq(1)}$ noise levels at each receptor location for each analysis period, as well as the contribution from each noise source. The $L_{10(1)}$ noise levels were conservatively estimated by adding 3 dBA to the $L_{eq(1)}$ noise levels, as is standard practice.[1]

ANALYSIS HOURS

As described above, some construction activity associated with the proposed project may occur on weekend days and during evening or overnight hours. The construction noise analysis addresses the potential for impacts during weekday daytime hours (i.e., 7AM to 6PM), weekend daytime hours (i.e., 7AM to 6PM), weekday or weekend evening hours (i.e., 6PM to 11PM), and weekday or weekend overnight hours (i.e., 11PM to 7AM). Baseline noise levels at each receptor were determined individually for each analysis hour.

ANALYSIS TIME PERIOD SELECTION

The construction noise analysis estimated construction noise levels based on projected activity and equipment usage as well as the level of construction traffic for various stages of construction for the Proposed Project.

Based on the anticipated construction schedule and preliminary construction estimates developed for the Proposed Project, specific time periods during construction were selected for detailed analysis for each construction work site (i.e., the TDPS site and each of the four diversion facility sites). The periods selected for each site capture major construction activities (e.g., site preparation, shaft work, and tunnel construction), including major overlaps of construction stages. These are the time periods with the potential to result in the maximum incremental construction noise at nearby receptors (i.e., time periods when multiple buildings would be under construction using noisy equipment). Each analysis time period conservatively represents 3 to 21 months of time based on the duration of activities that would be underway during the time period. Each analysis time period was represented by the month within that time period with the greatest amount of construction equipment operating on site. The worst-case time periods selected for the detailed construction noise analysis across each work site are shown in **Appendix H**.

EVALUATION OF CONSTRUCTION NOISE LEVELS

The predicted exterior noise level increments during construction under the proposed project at the analyzed receptor sites were compared to the construction noise impact thresholds described above. At

[1] Federal Highway Administration Roadway Construction Noise Model User's Guide, Page 15. http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf

the noise-sensitive receptors that experience exceedances of these thresholds during the analysis periods as determined above, the duration of exceedance of each impact threshold was determined. The significance of the exceedances at each receptor was determined based on the predicted magnitude and duration of the construction noise at these locations according to the criteria described above.

NOISE REDUCTION MEASURES

Construction under the Proposed Project would be required to follow the requirements of the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113) for construction noise control measures. Additionally, as the design of the Proposed Project progresses, construction under the Proposed Project may consider some noise control measures that go beyond those required by Code. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *New York City Noise Control Code*. These measures could include a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the *New York City Noise Control Code*:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *New York City Noise Control Code* would be utilized from the start of construction. **Table 19-4** shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction of the Proposed Project.
- As early in the construction period as logistics would allow diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders and water pumps (i.e., early electrification) to the extent feasible and practicable. Where electrical equipment cannot be used, diesel or gas-powered generators and pumps would be located within buildings to the extent feasible and practicable.
- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than 3 minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations;
- Noise barriers would be erected around the construction work areas, which would be 8 feet tall and constructed from plywood or other materials consistent with the noise barrier requirements set forth in DEP's "Rules for Citywide Construction Noise Mitigation";

- Concrete trucks would be required to be located inside site-perimeter noise barriers while pouring or being washed out; and
- Path noise control measures would be implemented (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant pieces of equipment to the extent feasible and practical if required to meet the limits shown in **Table 19-4**. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's *Rules for Citywide Construction Noise Mitigation*.[2]

Table 19-4
Typical Construction Equipment Noise Emission Levels (dBA)

Equipment List	DEP L_{max} Noise Level at 50 feet[1]
All Other Equipment > 5 HP	85
Auger Drill Rig	85
Backhoe	80
Bar Bender	80
Compactor (ground)	80
Compressor (air, less than or equal to 350 cfm)	75
Compressor (air, greater than 350 cfm)	80
Concrete Mixer Truck	85
Concrete Pump Truck	82
Concrete Vibrator	76[2]
Concrete Saw	90
Crane	85
Dozer	85
Drill Rig Truck	84
Dump Truck	84
Excavator	85
Front End Loader	80
Generator	82
Generator (< 25 KVA, VMS signs)	70
Grader	85
Impact Pile Driver	95
Jackhammer	89
Pump	77
Slurry Plant	78
Tractor	84
Vibratory Pile Driver	95
Welder / Torch	73

Sources:
[1] "Rules for Citywide Construction Noise Mitigation," Chapter 28, DEP, 2007.
[2] "Federal Transit Administration, Report No. 0123 September 2018, Table 7-1 Construction Equipment Noise Emission Levels.

CONSTRUCTION VIBRATION IMPACT CRITERIA

Potential structural or architectural damage are determined based on the vibration impact criterion used by the Landmarks Preservation Committee (LPC) of a peak particle velocity (PPV) of 0.50 inches/second. For non-historic buildings, vibration levels below 0.60 inches/second would not be expected to result in any structural or architectural damage.

[2] As found at http://www.nyc.gov/html/dep/pdf/noise_constr_rule.pdf

Vibration levels greater than 65 vibration decibels (VdB) would be considered perceptible, while vibration levels 72 to 80 VdB or greater would have the potential to be annoying depending on the frequency of occurrence[3], and would result in significant adverse effects if they were to occur for a prolonged period of time.

CONSTRUCTION VIBRATION PREDICTION METHODOLOGY

Potential structural or architectural damage is determined using the following formula:

$$PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$$

where: PPV_{equip} is the peak particle velocity in inches/second of the equipment at the receiver location;

PPV_{ref} is the reference vibration level in in/sec at 25 feet; and

D is the distance from the equipment to the received location in feet.

Potential annoyance or interference with vibration-sensitive activities is assessed using the following formula:

$$L_v(D) = L_v(ref) - 30\log(D/25)$$

where: $L_v(D)$ is the vibration level in VdB of the equipment at the receiver location;

$L_v(ref)$ is the reference vibration level in VdB at 25 feet; and

D is the distance from the equipment to the receiver location in feet.

Table 19-5 shows vibration source levels for typical construction equipment.

Table 19-5
Vibration Source Levels for Construction Equipment

Equipment	PPV_{ref} (in/sec)	Approximate L_v (ref) (VdB)
Pile Driver (Impact)	0.644-1.518	104-112
Pile Driver (Sonic)	0.170-0.734	93-105
Clam Shovel drop (slurry wall)	0.202	94
Hydromill (slurry wall in rock)	0.017	75
Vibratory Roller	0.210	94
Tunnel Boring Machine[1]	0.163	93
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: [1]Table 5.07-1 in Chapter 5.07 of the Access to the Region's Core (ARC) FEIS, October, 2008.
Source: Federal Transit Administration "Transit Noise and Vibration Impact Assessment Manual" September, 2018 except where noted.

[3] Federal Transit Administration "Transit Noise and Vibration Impact Assessment Manual" September, 2018.

D. EXISTING CONDITIONS

NOISE MEASUREMENT LOCATIONS

Noise measurements were conducted at 16 locations in the vicinity of the five potential construction work areas for the Proposed Project as well as along roadways that would be traveled by construction vehicles to and from the work areas. The measurement sites were chosen to represent noise receptors (i.e., noise-sensitive land uses such as residential, open space, etc.) with the highest potential for noise impacts during construction. Each measurement location represents multiple noise receptors that were included in the analysis of noise from on-site construction equipment (i.e., stationary-source noise), construction-generated traffic (i.e., mobile-source noise), or both. The measurement sites, shown in **Figures 19-1** through **19-3** and listed in **Table 19-6** were selected to provide geographic coverage of noise-sensitive land uses in the areas where construction and/or staging would occur as well as along roadways that would be used by construction vehicles to access the construction and staging areas.

Table 19-6
Noise Measurement Sites

Noise Measurement Sites	Associated Work Area or Activity	Location	Type of Measurements[1,2]
1	TDPS Site	Java Street between McGuiness Boulevard and Provost Street	Weekday and Weekend 24h Continuous
2	Outfall BB-026 Diversion Chamber and Outfall Structure	27th Street between Skillman Avenue and 47th Avenue	Weekday and Weekend 24h Continuous
3	Outfall BB-026 Diversion Chamber	47th Avenue between 29th and 30th Streets	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
4	Outfall BB-026 Drop Shaft	Greenpoint Avenue between Van Dam Street and Starr Avenue	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
5	Outfall BB-026 Drop Shaft	Review Avenue between Greenpoint Avenue and 37th Street	Weekday and Weekend 24h Continuous
6	Outfall BB-026 Drop Shaft	Review Avenue approximately 350 feet south of 37th Street	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
7	NCQ-077 Diversion Facility	57th Place approximately 20 feet north of 57th Road	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
8	NCB-083 Diversion Facility	Flushing Avenue between Charlotte Street and Onderdonk Avenue	Weekday and Weekend 24h Continuous
9	NCB-015 Diversion Facility	Morgan Avenue approximately 30 feet north of Johnson Avenue	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
10	NCB-015 Diversion Facility	Morgan Avenue approximately 75 feet north of Ingraham Street	Weekday and Weekend 24h Continuous

Table 19-6
Noise Measurement Sites

Noise Measurement Sites	Associated Work Area or Activity	Location	Type of Measurements[1,2]
11	NCB-015 Diversion Facility	Johnson Avenue approximately 70 feet east of Porter Avenue	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
12	General Traffic and NCB-015	Thames Street between Morgan Avenue and Vandervoort Place	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
13	General Traffic and NCB-015	Flushing Avenue between Wilson Avenue and Forrest Street	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
14	TDPS Site	Kingsland Wildflowers Green Roof and Community Engagement Center	Continuous Measurement for Weekday Appointment Hours
15	TDPS Site	Newtown Creek Nature Walk	20-Minute Spot Measurements for Weekday and Saturday AM, MD, PM Periods
16	General Traffic	Van Dam Street between Nassau and Meeker Avenues	Weekday and Weekend 24h Continuous

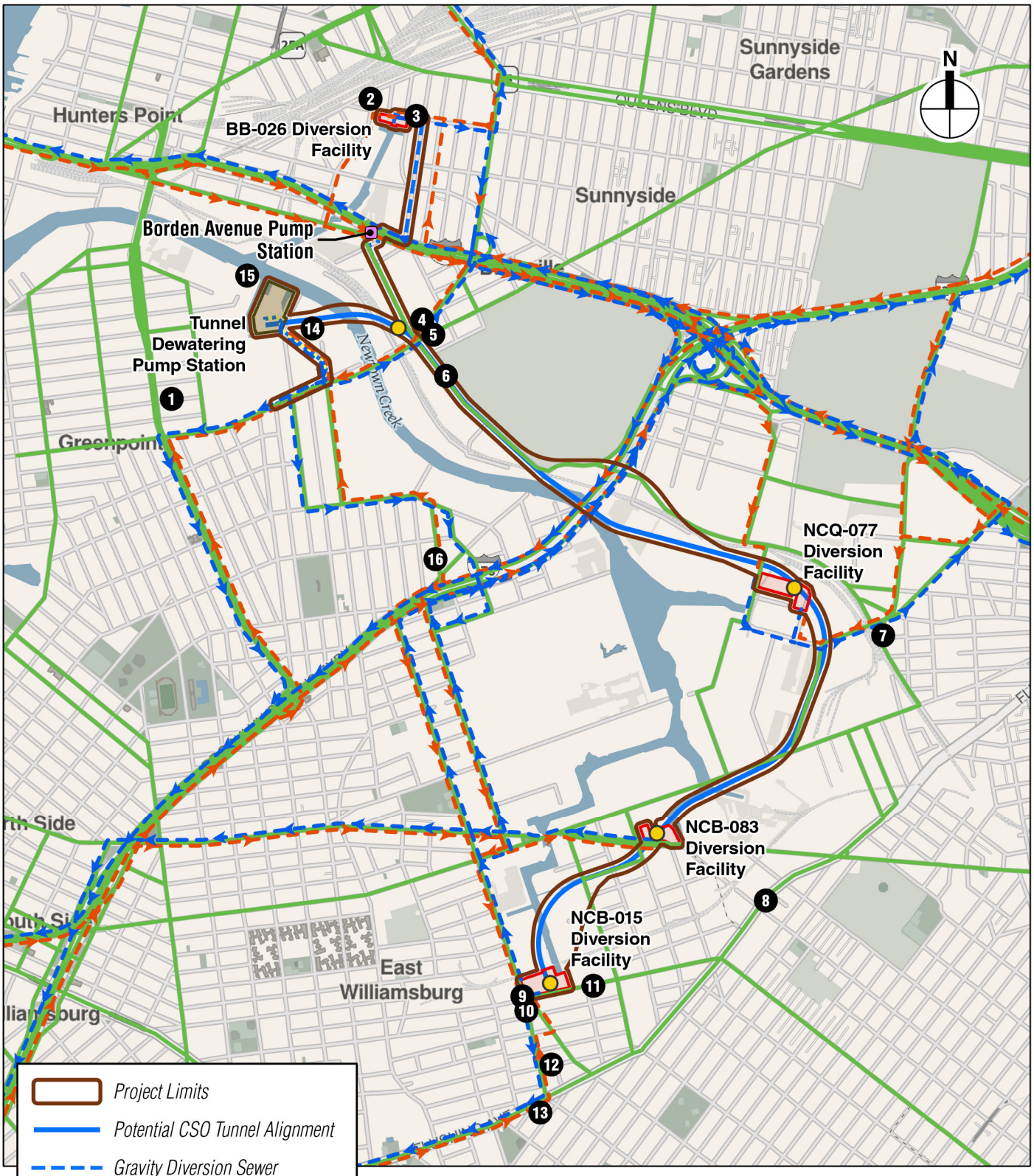
Note:

[1] While it is expected that most construction activities associated with the proposed project will occur during weekday daytime hours, the noise analysis also accounted for the potential for weekend construction as well as the potential for construction activity to occur overnight at specific work areas (i.e., the TDPS site, the NCQ-077, NCB-083, and NCB-015 Diversion Facilities, and the gravity diversion sewer alignment).

[2] Continuous measurements were performed where equipment could be secured for a 24-hour continuous period. At other locations where site access and security did not allow for continuous 24-hour measurements, 20-minute spot measurements during multiple time periods were used to characterize noise levels.

NOISE MONITORING EQUIPMENT

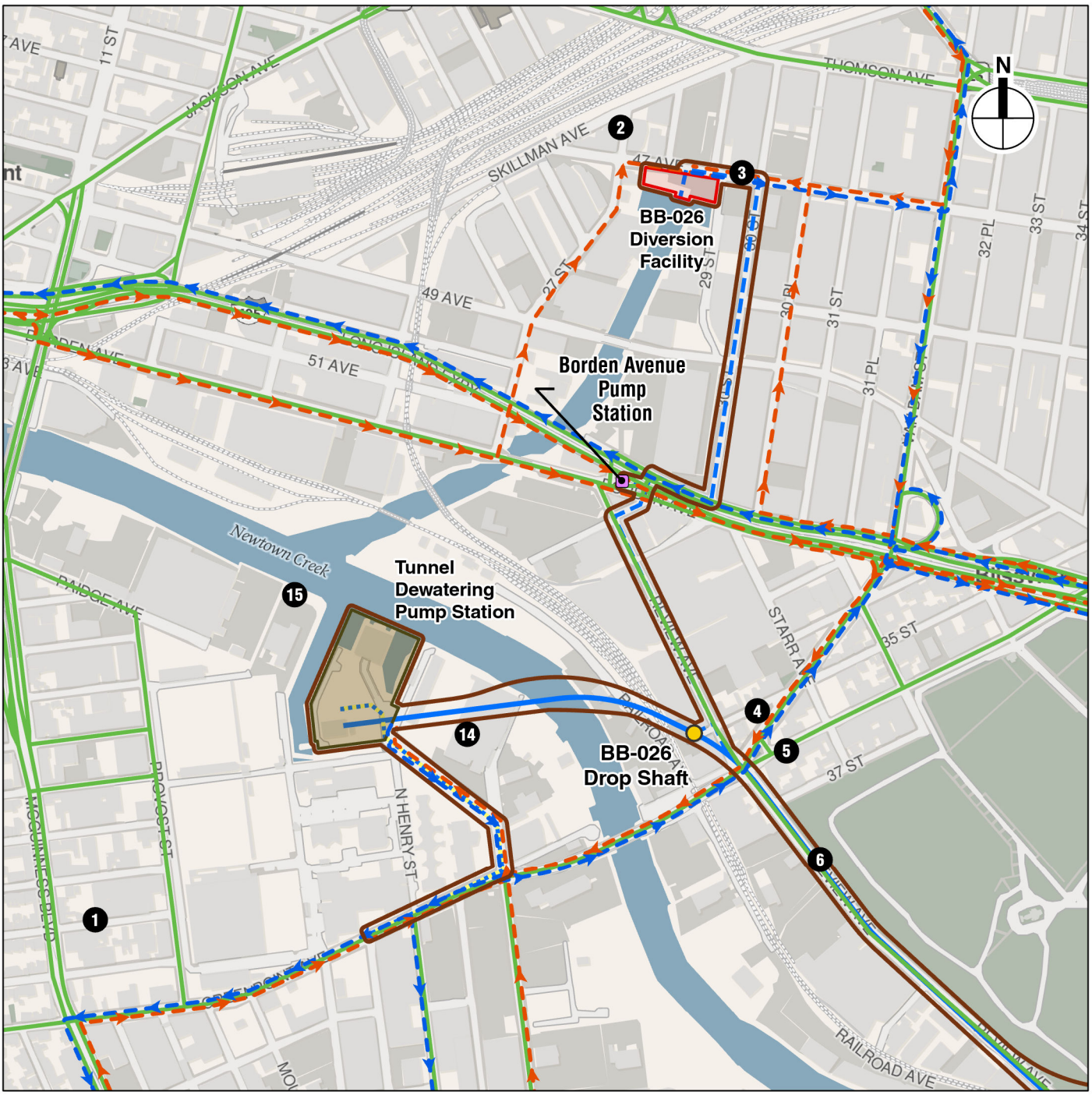
Measurements were performed using Brüel & Kjær Type 2250 and 2270 Sound Level Meters (SLMs), NTi Type XL2 and XL3 SLMs, Brüel & Kjær Type 4189 ½-inch microphones, NTi Type M2230 and M2340 microphones, Brüel & Kjær Type 4231 Sound Level Calibrators, and Larson Davis Type CAL200 Sound Level Calibrators. The Brüel & Kjær and NTi SLMs are Class 1 instruments according to ANSI Standard S1.4-1983 (R2006). The SLMs had a laboratory calibration date within the past one year at the time of use. All noise measurement locations were approximately five feet above grade. The SLMs were calibrated before and after readings with a Brüel & Kjær Type 4231 or Larson Davis Type CAL200 Sound Level Calibrator using the appropriate adaptors. The data were digitally recorded by the SLMs and displayed at the end of the measurement period in units of dBA. Measured quantities included the L_{eq}, L_1, L_{10}, L_{50}, and L_{90}. Windscreens were used during all sound measurements except for calibration, as directed by the *CEQR Technical Manual*. All measurement procedures were based on the guidelines outlined in ANSI Standard S1.13-2005.



Noise Receptor Locations

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 19-1

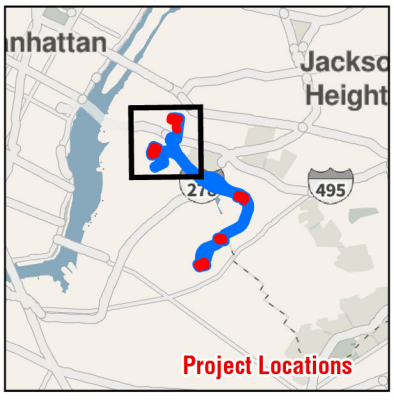


0 1,000 FEET

- Project Limits
- Potential CSO Tunnel Alignment
- Gravity Diversion Sewer
- TDPS Discharge Pipe
- Approximate Drop Shaft Location
- TDPS
- Diversion Facilities
- Noise Receptors
- NYCDOT Designated Truck Routes

Potential Truck Routes

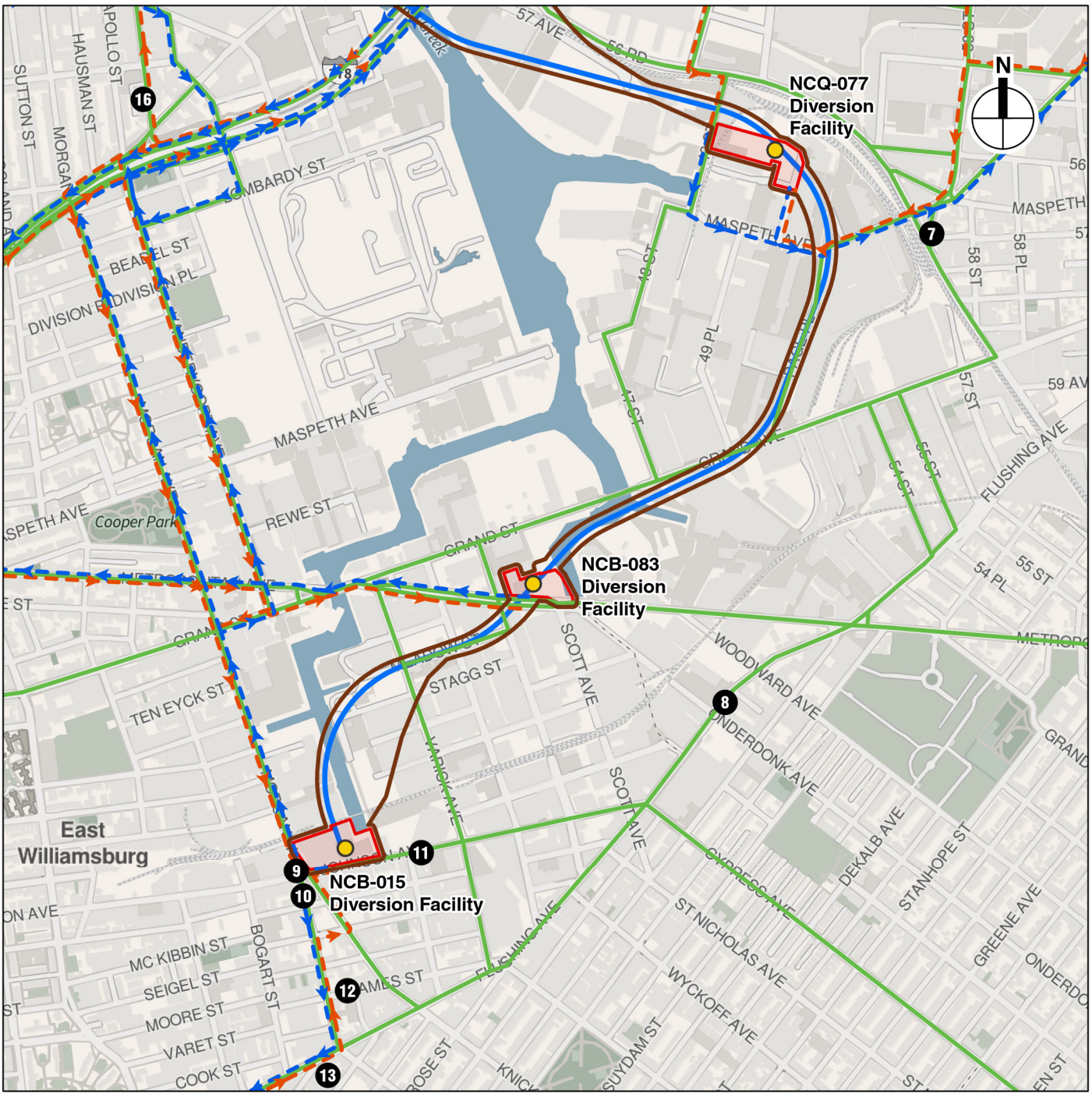
- In
- Out



Noise Receptor Locations

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 19-2



Noise Receptor Locations

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 19-3

EXISTING NOISE LEVELS

Noise measurements were performed at all sites between September and November, 2024. Weekday measurements were conducted between Tuesday and Thursday on weeks when New York City Public Schools were in session as recommended by the *CEQR Technical Manual*. Existing noise levels at each measurement location during each analysis hour are summarized in **Table 19-7**.

Table 19-7
Existing Noise Levels (in dBA)

Site	Location	Use(s)	Hour	Minimum L_{eq}	Minimum L_{10}
1	Java Street between McGuiness Boulevard and Provost Street	Residential	Weekday Daytime (7AM to 6PM)	59.7	61.7
			Weekend Daytime (7AM to 6PM)	57.1	59.4
			Evening (6PM to 11PM)	57.1	57.0
			Overnight (11PM to 7AM)	51.4	50.5
2	27th Street between Skillman Avenue and 47th Avenue	Hotel	Weekday Daytime (7AM to 6PM)	67.0	70.1
			Weekend Daytime (7AM to 6PM)	65.4	69.1
			Evening (6PM to 11PM)	67.2	70.5
			Overnight (11PM to 7AM)	62.4	65.4
3	47th Avenue between 29th and 30th Streets	Community College	Weekday Daytime (7AM to 6PM)	63.3	66.0
			Evening[7] (6PM to 11PM)	58.6	60.6
			Weekend Daytime (7AM to 6PM)	58.6	60.6
4[2]	Greenpoint Avenue between Van Dam Street and Starr Avenue	Residential	Weekday Daytime (7AM to 6PM)	68.7	71.7
			Weekend Daytime (7AM to 6PM)	65.7	68.4
			Evening (6PM to 11PM)	64.1	65.9
			Overnight (11PM to 7AM)	63.5	65.9
5	Review Avenue between Greenpoint Avenue and 37th Street	Residential	Weekday Daytime (7AM to 6PM)	69.4	71.7
			Weekend Daytime (7AM to 6PM)	68.1	70.8
			Evening (6PM to 11PM)	66.5	68.3
			Overnight (11PM to 7AM)	65.9	68.3
6[1]	Review Avenue approximately 350 feet south of 37th Street	Cemetery	Weekday Daytime (7AM to 6PM)	67.5	70.6
			Weekend Daytime (7AM to 6PM)	67.8	71.6

Table 19-7
Existing Noise Levels (in dBA)

Site	Location	Use(s)	Hour	Minimum L_{eq}	Minimum L_{10}
7	57th Place approximately 20 feet north of 57th Road	Residential	Weekday Daytime (7AM to 6PM)	67.8	71.0
			Weekend Daytime (7AM to 6PM)	65.8	69.0
			Evening[3] (6PM to 11PM)	60.7	63.9
			Overnight[3] (11PM to 7AM)	57.4	60.6
8	Flushing Avenue between Charlotte Street and Onderdonk Avenue	Residential	Weekday Daytime (7AM to 6PM)	68.9	71.1
			Weekend Daytime (7AM to 6PM)	66.8	69.5
			Evening (6PM to 11PM)	67.1	69.6
			Overnight (11PM to 7AM)	64.9	67.5
9[4]	Morgan Avenue approximately 30 feet north of Johnson Avenue	Residential	Weekday Daytime (7AM to 6PM)	69.5	73.5
			Weekend Daytime (7AM to 6PM)	65.9	69.0
			Evening (6PM to 11PM)	63.1	65.7
			Overnight (11PM to 7AM)	61.2	63.8
10	Morgan Avenue approximately 75 feet north of Ingraham Street	Residential	Weekday Daytime (7AM to 6PM)	66.0	67.6
			Weekend Daytime (7AM to 6PM)	61.5	64.1
			Evening (6PM to 11PM)	63.8	67.0
			Overnight (11PM to 7AM)	60.4	62.9
11[4]	Johnson Avenue approximately 70 feet east of Porter Avenue	Residential	Weekday Daytime (7AM to 6PM)	67.5	70.2
			Weekend Daytime (7AM to 6PM)	66.8	70.7
			Evening (6PM to 11PM)	63.8	67.3
			Overnight (11PM to 7AM)	61.2	63.7
12	Thames Street between Morgan Avenue and Vandervoort Place	Residential	Weekday Daytime (7AM to 6PM)	59.6	62.4
			Weekend Daytime (7AM to 6PM)	60.3	64.9
			Evening[5] (6PM to 11PM)	60.3	63.3
			Overnight[5] (11PM to 7AM)	56.4	59.4

Table 19-7
Existing Noise Levels (in dBA)

Site	Location	Use(s)	Hour	Minimum L_{eq}	Minimum L_{10}
13	Flushing Avenue between Wilson Avenue and Forrest Street	Residential	Weekday Daytime (7AM to 6PM)	70.6	72.4
			Weekend Daytime (7AM to 6PM)	68.2	71.2
			Evening[5] (6PM to 11PM)	70.9	73.9
			Overnight[5] (11PM to 7AM)	66.7	69.7
14[6]	Kingsland Wildflowers Green Roof and Community Engagement Center	Outdoor Recreation	Weekday Daytime (7AM to 6PM)	64.3	67.5
15[1]	Newtown Creek Nature Walk	Outdoor Recreation	Weekday Daytime (7AM to 6PM)	57.9	59.7
			Weekend Daytime (7AM to 6PM)	59.2	60.1
16	Van Dam Street between Nassau and Meeker Avenues	Residential	Weekday Daytime (7AM to 6PM)	64.2	65.3
			Weekend Daytime (7AM to 6PM)	58.1	60.3
			Evening (6PM to 11PM)	57.7	59.4
			Overnight (11PM to 7AM)	59.0	59.0

Notes: [1]Daytime use only
[2]Prorated based on 24-hour continuous measurements at Site 5
[3]Scaled based on 24-hour traffic counts at Maspeth Avenue and Railroad Place
[4]Prorated based on 24-hour continuous measurements at Site 10
[5]Calculated using CadnaA with existing condition traffic volumes
[6]Weekday daytime hours only
[7]Evening time period represented by lowest overall level

Sources: Noise levels measured by AKRF, Inc. between September and November, 2024.

At each of the measurement locations, vehicle traffic on adjacent or nearby roadways was the dominant noise source.

E. FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the Proposed Project, i.e., the No Action scenario, there would be no tunnel/infrastructure or construction and the Project Area would remain in its existing condition. As such, existing condition noise levels are conservatively used to represent noise levels in the future without the Proposed Project.

F. FUTURE WITH THE PROPOSED PROJECT

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

An analysis was performed to determine whether noise levels at sensitive receptor locations would exceed the 2021 *CEQR Technical Manual* noise impact criteria described above. **Table 19-8** shows the results of the operational noise screening analysis at the locations nearest the TDPS site, which is the only area where the Proposed Project would introduce unenclosed noise-producing equipment. For purposes of this analysis, the lowest measured existing $L_{eq(1)}$ was taken as the existing/baseline noise level, and future noise levels without the Proposed Project were assumed to be the same as the existing measured levels.

Table 19-8
Noise Level Increases in the Future with the Proposed Project (in dBA)

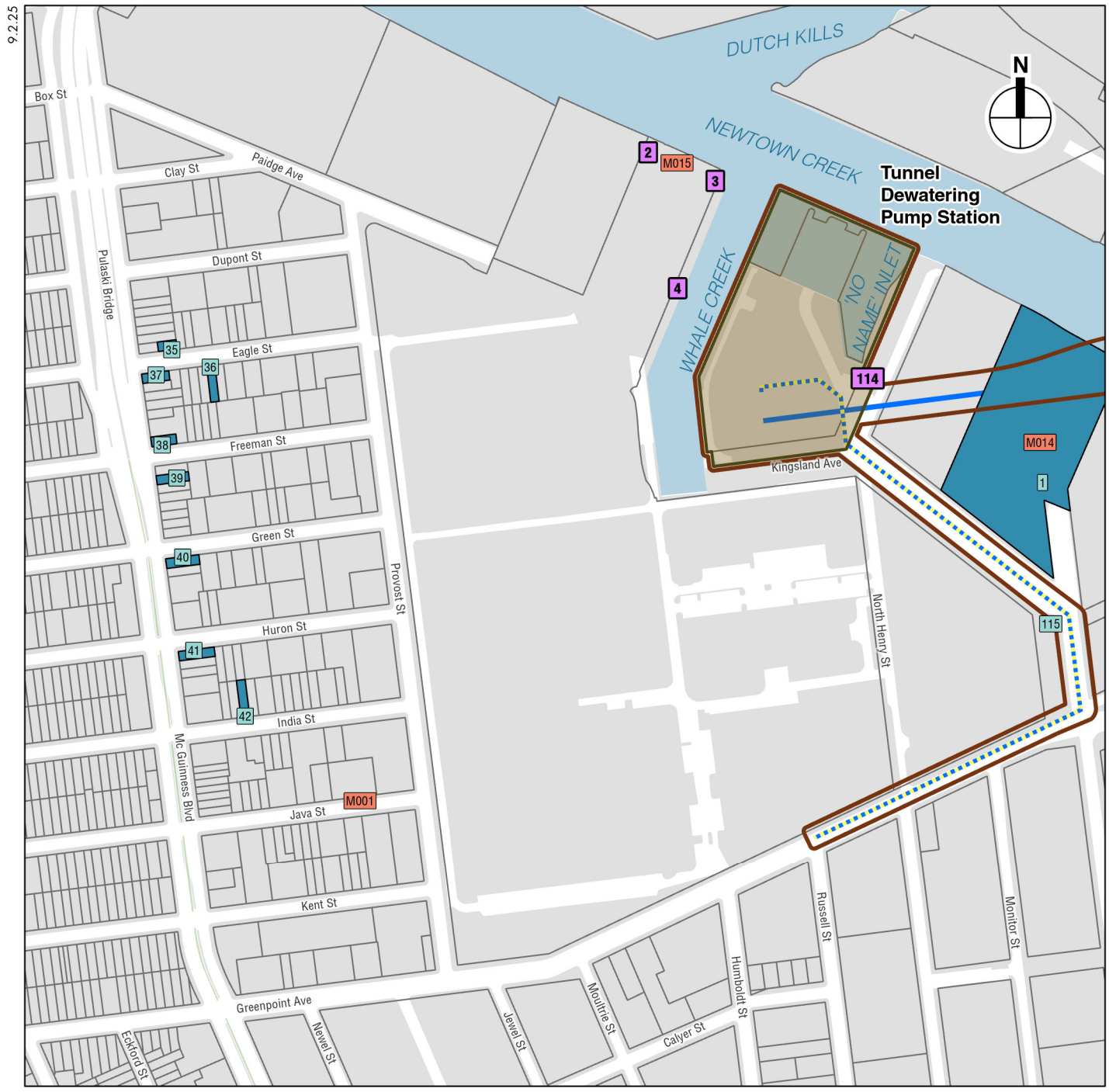
Receptor	Representative Noise Measurement Location	Existing Minimum L_{eq}	Project Generated Noise Level	Future with Project L_{eq}	Increase Over Existing L_{eq}
North Henry Street Restoration Area	14	63.9	54.6	64.4	0.5
Newtown Creek Nature Walk	15	57.9	44.5	58.1	0.2

As shown in **Table 19-8**, noise levels due to the Proposed Project would result in increases of less than 1 dBA, which would be considered imperceptible and would not rise to the level of significant adverse impacts according to *CEQR Technical Manual* noise impact criteria described above. Other receptors farther from the equipment would experience lower noise levels from operation of the Proposed Project and would therefore have less potential to experience noise impacts.

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

CONSTRUCTION NOISE ANALYSIS RECEPTOR SITES

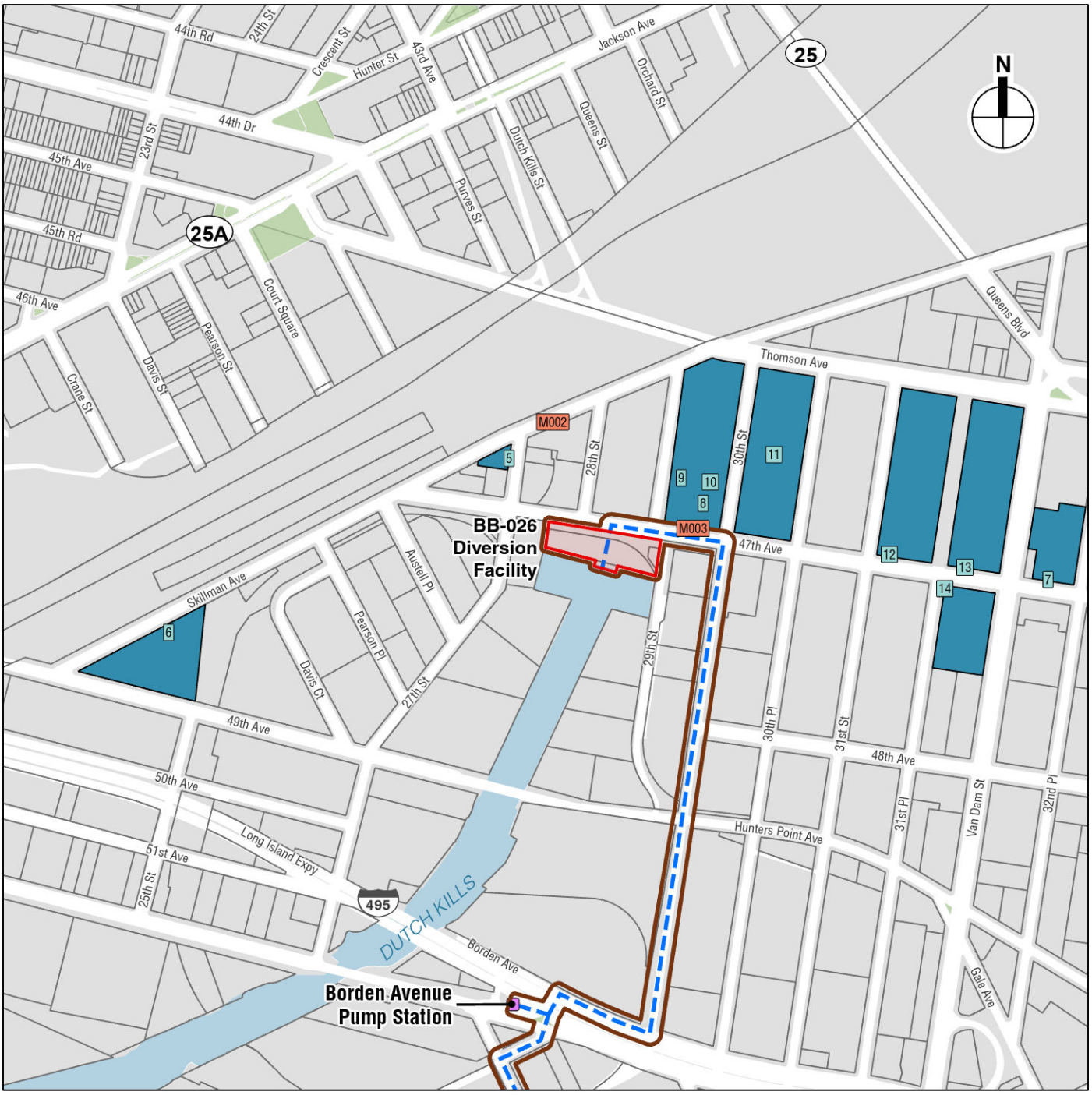
Existing residential buildings, hotels, schools, and public open spaces where maximum Project effects due to construction noise would be expected to occur are represented by 115 noise receptor locations. These receptors were located in proximity to the Proposed Project work areas and along routes that construction trucks would use traveling to and from the Proposed Project work areas. Multiple building façades and elevations were selected. **Table 19-9** lists the noise receptor sites and the associated land use at each site. Noise receptor sites are shown in **Figures 19-4 through 19-10**.



Construction Noise Receptor Locations
Tunnel Dewatering Pump Station



Construction Noise Receptor Locations
BB-026 Drop Shaft



Construction Noise Receptor Locations
BB-026 Diversion Facility

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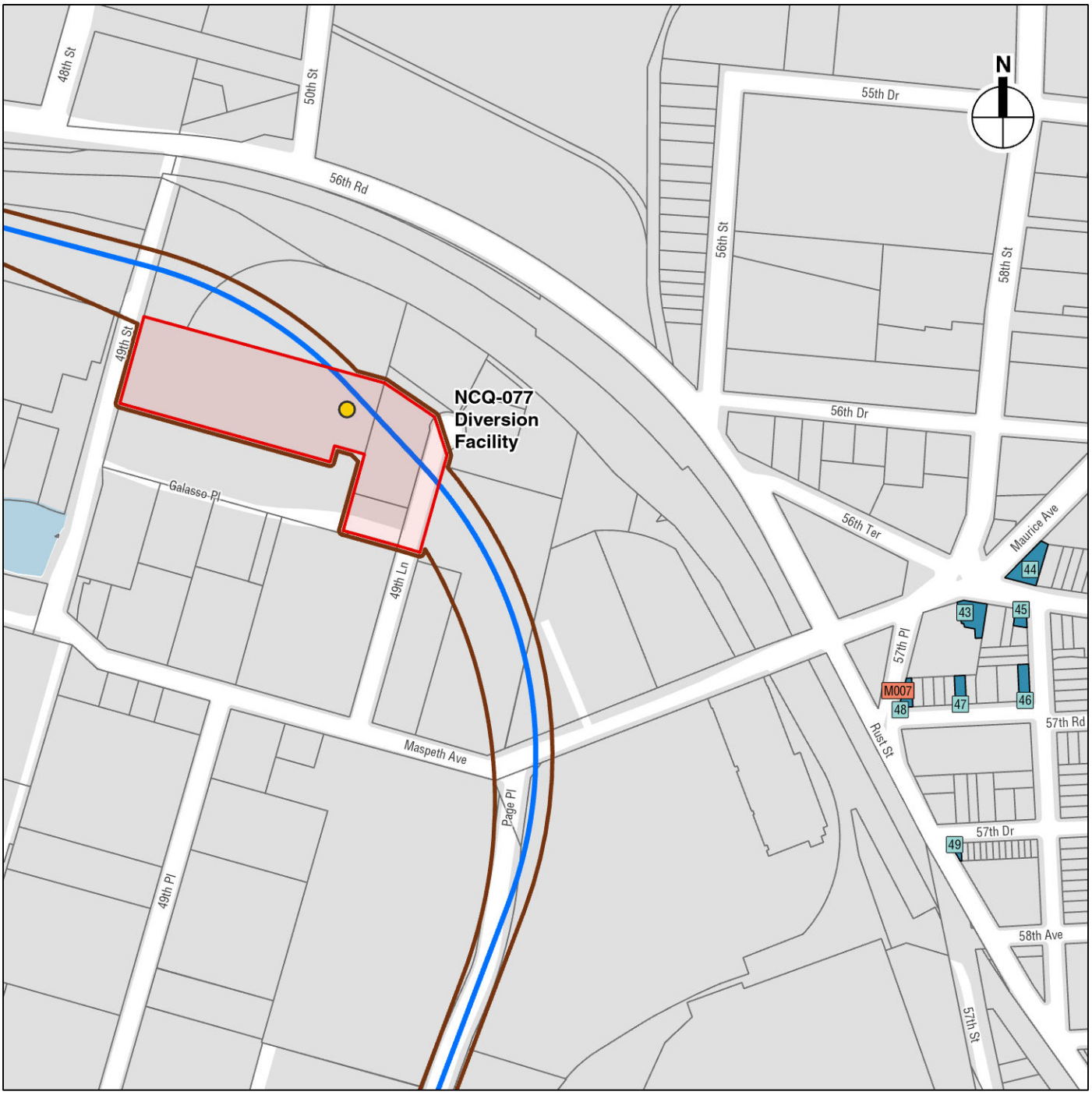

Construction Noise Receptor Locations
NCQ-077 Diversion Facility



Construction Noise Receptor Locations
NCB-083 Diversion Facility

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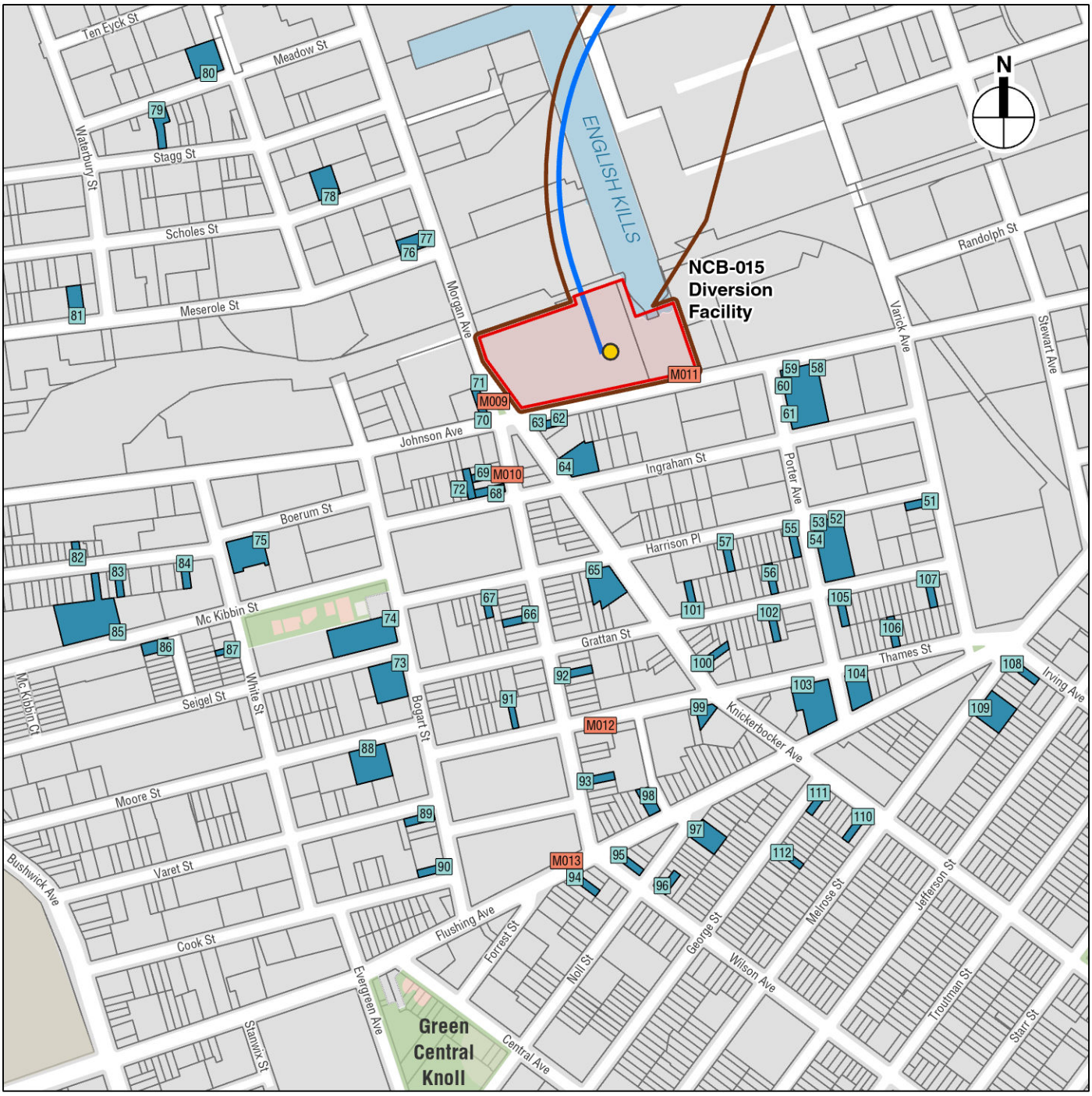
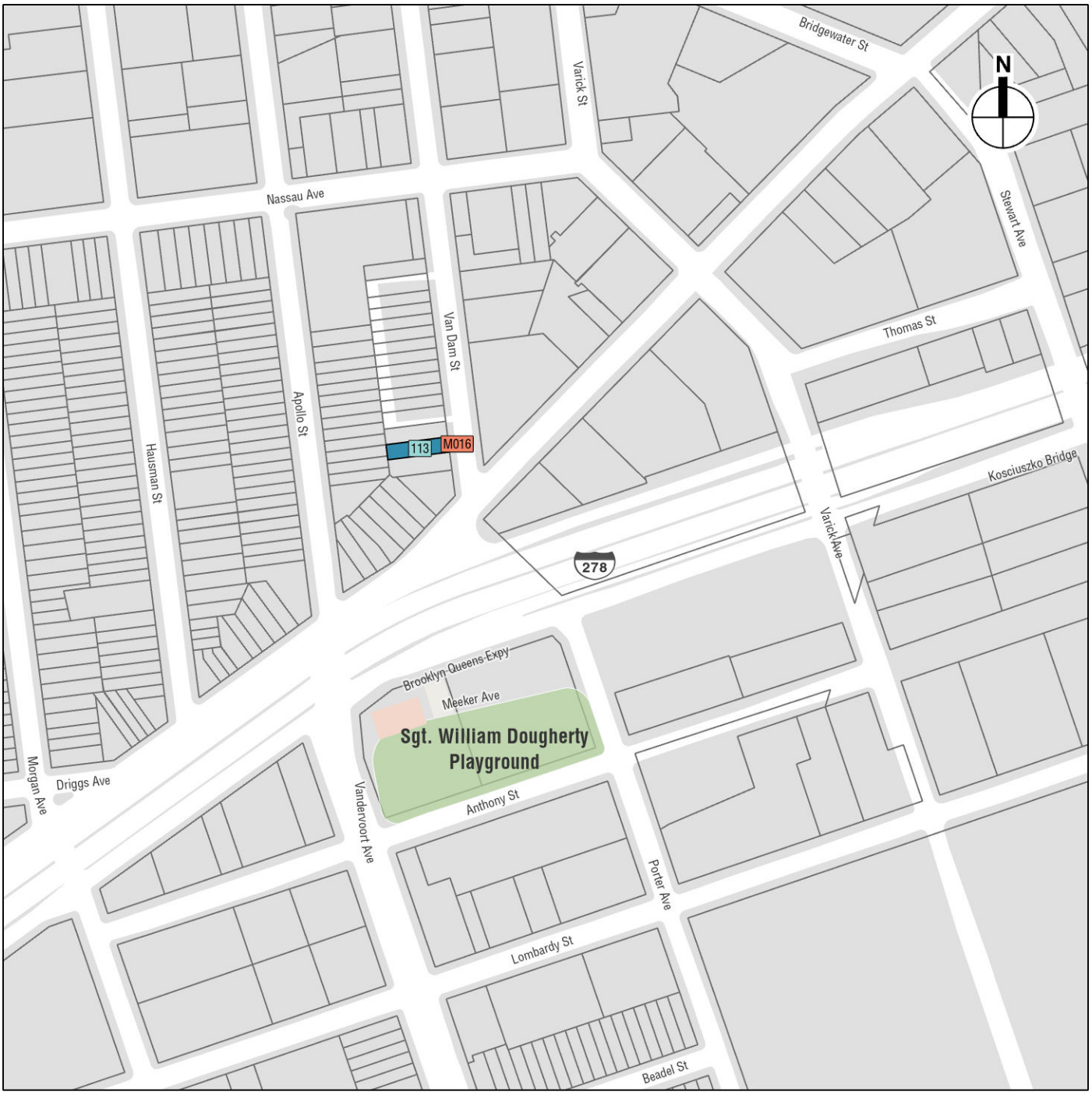


Construction Noise Receptor Locations
NCB-015 Diversion Facility

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 19-9



Construction Noise Receptor Locations
Van Dam Street

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 19-10

Table 19-9a
TDPS Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
1	72	250	Kingsland Roof	Transportation and Utility
2	72	250	Nature Walk	Transportation and Utility
3	72	250	Nature Walk	Transportation and Utility
4	72	250	Nature Walk	Transportation and Utility
35	2497	52	209 Eagle Street	Residential
36	2506	13	218 Eagle Street	Residential
37	2506	8	370 McGuinness Boulevard	Residential
38	2506	1	356 McGuinness Boulevard	Residential with Commercial Below
39	2514	7	352 McGuinness Boulevard	Residential
40	2524	8	336 McGuinness Boulevard	Residential with Commercial Below
41	2534	8	316 McGuinness Boulevard	Residential with Commercial Below
42	2534	50	215 India Street	Residential
114	2508	1	North Henry Street Restoration	Future Open Space
115	2527	2	Gateway To Greenpoint	Future Open Space

Table 19-9b
BB-026 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
5	96	10	26-32 Skillman Avenue	Hotels
6	100	1	24-30 Skillman Avenue	Public Facilities and Institutions
7	249	1	45-35 Van Dam Street	Public Facilities and Institutions
8	273	1	Finca La Florecita Park	Park
9	273	1	29-10 Thomson Avenue	Public Facilities and Institutions
10	273	1	29-10 Thomson Avenue	Public Facilities and Institutions
11	274	1	30-20 Thomson Avenue	Public Facilities and Institutions
12	278	1	31-10 Thomson Avenue	Public Facilities and Institutions
13	279	1	31-28 Thomson Avenue	Public Facilities and Institutions
14	280	17	31-28 31 Place	Public Facilities and Institutions
15	297	38	53-30 35 Street	Residential
16	297	38	53-30 35 Street	Residential

Table 19-9b
BB-026 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
17	298	13	53-36 Van Dam Street	Residential with Commercial Below
18	298	13	53-36 Van Dam Street	Residential with Commercial Below
19	299	34	31-15 Greenpoint Avenue	Residential
20	299	34	31-15 Greenpoint Avenue	Residential
21	301	24	52-16 34 Street	Hotels
22	306	12	51-19 34 Street	Residential
23	306	4	34-11 Bradley Avenue	Residential
24	302	6	52-34 Van Dam Street	Hotels
25	303	29	52-28 35 Street	Residential
26	304	3	52-27 35 Street	Residential
27	304	20	32-19 Greenpoint Avenue	Residential with Commercial Below
28	311	14	31-24 Greenpoint Avenue	Residential with Commercial Below
29	311	19	31-34 Greenpoint Avenue	Residential
30	311	3	36-19 Review Avenue	Residential with Commercial Below
31	311	23	31-46 Greenpoint Avenue	Residential with Commercial Below
32	311	3	36-19 Review Avenue	Residential with Commercial Below
33	311	14	31-24 Greenpoint Avenue	Residential with Commercial Below
34	311	20	31-36 Greenpoint Avenue	Residential

Table 19-9c
NCQ077 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
43	2670	30	57-54 Maspeth Avenue	Residential with Commercial Below
44	2668	1	57-59 Maurice Avenue	Residential
45	2670	38	57-64 Maspeth Avenue	Residential with Commercial Below
46	2670	47	57-55 57 Road	Residential
47	2670	55	57-41 57 Road	Residential
48	2670	61	57-21 57 Place	Residential
49	2676	11	57-26 57 Drive	Residential

Table 19-9d
NCB083 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
50	3394	20	18-60 Flushing Avenue	Residential

Table 19-9e
NCB015 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
51	3005	20	37 Varick Avenue	Residential
52	3005	1	117 Grattan Street	Residential
53	3005	1	117 Grattan Street	Residential
54	3005	1	117 Grattan Street	Residential
55	3004	29	112 Harrison Place	Residential with Commercial Below
56	3004	35	105 Grattan Street	Residential
57	3004	19	94 Harrison Place	Residential
58	2993	1	89 Porter Avenue	Residential
59	2993	1	89 Porter Avenue	Residential
60	2993	1	89 Porter Avenue	Residential
61	2993	1	89 Porter Avenue	Residential
62	2992	10	1 Knickerbocker Avenue	Residential with Commercial Below
63	2992	10	1 Knickerbocker Avenue	Residential with Commercial Below
64	2992	1	25 Knickerbocker Avenue	Residential with Commercial Below
65	3003	12	54 Knickerbocker Avenue	Residential
66	3093	23	61 Morgan Avenue	Residential
67	3093	16	22 Harrison Place	Residential
68	3075	26	95 Morgan Avenue	Residential with Commercial Below
69	3075	24	99 Morgan Avenue	Residential with Commercial Below
70	3056	175	371 Johnson Avenue	Residential with Commercial Below
71	3056	175	371 Johnson Avenue	Residential with Commercial Below
72	3075	28	29 Ingraham Street	Residential
73	3101	14	49 Bogart Street	Residential with Commercial Below
74	3092	27	315 Seigel Street	Residential
75	3083	6	100 White Street	Residential with Commercial Below
76	3048	26	153 Morgan Avenue	Residential with Commercial Below
77	3048	26	153 Morgan Avenue	Residential with Commercial Below
78	3039	29	341 Scholes Street	Residential with Commercial Below
79	3030	10	20 Meadow Street	Residential with Commercial Below

Table 19-9e
NCB015 Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
80	3029	105	35 Meadow Street	Residential with Commercial Below
81	3046	7501	269 Meserole Street	Residential with Commercial Below
82	3073	82	255 Boerum Street	Residential
83	3082	37	266 Boerum Street	Residential
84	3082	46	284 Boerum Street	Residential
85	3082	65	255 McKibbin Street	Residential with Commercial Below
86	3091	39	18 Seigel Court	Residential
87	3091	44	61 White Street	Residential
88	3110	10	260 Moore Street	Residential
89	3118	16	25 Bogart Street	Residential
90	3118	23	11 Bogart Street	Residential with Commercial Below
91	3102	30	21 Thames Street	Residential
92	3008	6	44 Morgan Avenue	Residential
93	3012	5	20 Morgan Avenue	Residential
94	3148	30	998 Flushing Avenue	Residential with Commercial Below
95	3149	1	1004 Flushing Avenue	Residential with Commercial Below
96	3155	7	13 Wilson Avenue	Residential with Commercial Below
97	3155	7501	184 Noll Street	Residential with Commercial Below
98	3012	24	1047 Flushing Avenue	Residential with Commercial Below
99	3013	13	106 Thames Street	Residential with Commercial Below
100	3009	4	93 Knickerbocker Avenue	Residential
101	3004	46	77 Grattan Street	Residential
102	3009	18	102 Grattan Street	Residential
103	3014	14	1087 Flushing Avenue	Residential with Commercial Below
104	3015	1	1099 Flushing Avenue	Residential with Commercial Below
105	2010	7	120 Grattan Street	Residential with Commercial Below
106	3010	32	131 Thames Street	Residential
107	3010	19	152 Grattan Street	Residential
108	3166	31	444 Melrose Street	Residential with Commercial Below
109	3166	33	422 Melrose Street	Residential
110	3158	33	158 Knickerbocker Avenue	Residential with Commercial Below
111	3158	27	146 Knickerbocker Avenue	Residential with Commercial Below
112	3158	120	142 George Street	Residential

Table 19-9f
Van Dam Street Noise Receptor Sites

Receptor	Location (Block)	Lot	Address	Associated Land Use
113	2693	25	9 Van Dam Street	Residential

CONSTRUCTION NOISE ANALYSIS RESULTS

Using the methodology described and considering the noise abatement measures specified above, cumulative noise analyses were performed to determine maximum 1-hour equivalent ($L_{eq(1)}$) and 1-hour L_{10} noise levels that would be expected at each of the 115 noise receptor locations during each of the selected construction noise analysis periods and for each of the four selected analysis hours. This resulted in a predicted range of peak hourly construction noise levels throughout the construction period.

Noise levels resulting from construction of the Proposed Project were predicted to exceed the *CTM* construction noise screening thresholds for some portion of the construction period at several of the analyzed receptors. The potential for significant adverse impacts at these receptors was determined by evaluating the duration and magnitude of these increments. The full construction noise analysis results are provided in **Appendix H**.

TDPS Site

Receptors 1 through 4, 35 through 42, 114, and 115 represent noise-sensitive uses proximate to the TDPS site. The complete results of the noise analysis at each of these receptors, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are included in **Appendix H**.

At receptor 1, which represents the Kingsland Wildflowers Green Roof, and receptor 115, which represents the future Gateway to Greenpoint open space, there are no night-time uses. At these receptors, maximum predicted construction noise level increments would be less than 7 dBA. While such increases in noise may be noticeable at times, predicted noise level increments would be moderate and would occur over a limited duration (up to approximately 18 consecutive months). Noise levels generated by construction at these receptors would generally be in the "acceptable" to "marginally unacceptable" categories according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact at these receptors.

At receptors 2 through 4, which represent the portion of the Newtown Creek Nature Walk immediately across Whale Creek from the TDPS site and receptor 114, which represents the future North Henry Street Restoration open space, there are no night-time uses. The construction noise level predictions for the weekday and weekend daytime analysis hours at these receptors are summarized in **Table 19-10** and discussed further below.

At these receptors, construction is predicted to produce noise levels up to the low 80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of

construction for the TDPS. Noise level increases greater than 10 dBA would occur for up to approximately 12 consecutive months at the Nature Walk and 110 months at the North Henry Street Restoration, resulting in noise levels in the low 70s to low 80s dBA, i.e., in the "marginally unacceptable" to "clearly unacceptable" category according to the *2021 CEQR Technical Manual* noise exposure criteria. Based on the prediction of potentially disruptive noise level increments over an extended duration as well as "clearly unacceptable" noise levels, construction of the Proposed Project would have the potential to result in a significant adverse noise impact at the Newtown Creek Nature Walk and North Henry Street Restoration.

Table 19-10
Daytime Construction Noise Analysis Results (in dBA)
Newtown Creek Nature Walk Adjacent to the TDPS Site

Receptor	Location	Total L_{10}		Change in L_{10}	
		Min	Max	Min	Max
Weekday Daytime					
2-4	Newtown Creek Nature Walk	61.7	77.4	0.8	16.5
114	North Henry Street Restoration	67.6	82.0	6.7	21.1
Weekend Daytime					
2-4	Newtown Creek Nature Walk	62.8	77.4	0.6	15.2
114	North Henry Street Restoration	67.9	82.0	5.7	19.8

At receptors 35 through 42, which represent residential receptors in the area bounded by Java Street, McGuiness Boulevard, DuPont Street, and Provost Street west of the TDPS site, maximum predicted construction noise level increments during daytime and evening hours (i.e., 7AM to 11PM) would be less than 4 dBA. Noise levels resulting from construction of the Proposed Project would not exceed the construction noise impact screening thresholds at any of these receptors during the weekday daytime, weekend daytime, or evening analysis hours. However, construction of the Proposed Project occurring during overnight hours would result in noise level increments up to approximately 8 dBA at these receptors (due to the lower baseline noise levels during overnight hours). The construction noise level predictions for the overnight analysis hours at these receptors are summarized in **Table 19-11** and discussed further below.

Table 19-11
Overnight Construction Noise Analysis Results (in dBA)
Residential Receptors Adjacent to TDPS Site

Receptor	Location	Total L_{10}		Change in L_{10}	
		Min	Max	Min	Max
35	209 Eagle Street	54.9	60.1	0.5	5.7
36	218 Eagle Street	54.4	58.3	0.1	3.9
37	370 McGuinness Boulevard	54.6	61.3	0.2	6.9
38	356 McGuinness Boulevard	54.7	59.3	0.3	4.9
39	352 McGuinness Boulevard	54.5	61.8	0.1	7.4
40	336 McGuinness Boulevard	54.4	60.6	0.0	6.2
41	316 McGuinness Boulevard	54.5	61.9	0.1	7.5
42	215 India Street	54.4	58.7	0.0	4.3

At these receptors, construction during overnight hours is predicted to produce noise levels up to the low 60s dBA, resulting in noise level increases up to approximately 8 dBA during the most noise-intensive stages of construction for the TDPS (i.e., impact pile driving for the Pump Station building, Odor Control Facility, and Tunnel Overflow Structure), which would occur for up to approximately five months. However, the building façades of these receptors would be expected to provide at least 20 dBA window/wall attenuation, and all except 218 Eagle Street have alternate means of ventilation allowing for the maintenance of a closed window condition. At 218 Eagle Street, an open window condition facing north (i.e., not in the direction of the construction site) would provide at least 15 dBA attenuation.[4] Therefore, maximum interior noise levels during construction would be in the high 30s to low 40s dBA, i.e., less than 45 dBA, which is the threshold recommended for a residence according to the *2021 CEQR Technical Manual* noise exposure guidance. Since interior noise levels throughout construction would remain in the acceptable range, noise resulting from construction of the Proposed Project would not rise to the level of a significant adverse impact at these residential receptors.

Construction Truck Route to and from TDPS Site

Receptor 113 represents residential uses along the route used by construction trucks to and from the TDPS site. The complete results of the noise analysis at this receptor, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are included in **Appendix H**. At this receptor, maximum predicted construction noise level increments would be less than 2 dBA during all hours. Such increases in noise would be considered imperceptible and would not exceed the *CEQR Technical Manual* construction noise screening thresholds. Noise levels generated

[4] EPA Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare With an Adequate Margin of Safety, March 1974.

by construction at these receptors would generally be in the "acceptable" category according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact this receptor.

BB-026 Diversion Facility and Gravity Diversion Sewer Alignment Work Areas

Receptors 5 through 34 represent noise-sensitive uses proximate to the BB-026 diversion facility and gravity diversion sewer alignment work areas. The complete results of the noise analysis at each of these receptors, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are included in **Appendix H**. At most of these receptors (i.e., all except receptors 8 through 10), maximum predicted construction noise level increments would be less than 9 dBA during daytime hours and up to approximately 4 dBA during nighttime hours. While such increases in noise may be noticeable at times, predicted noise level increments would be moderate and would occur over a limited duration (up to approximately 17 consecutive months). Noise levels generated by construction at these receptors would generally be in the "acceptable" to "marginally unacceptable" categories according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact at these receptors.

At receptors 8, 9, and 10, which represent LaGuardia Community College facilities at 29-10 Thompson Avenue, there are no overnight uses. At these receptors, maximum predicted construction noise level increments would be less than 8 dBA during weekday daytime hours. Similarly to the other receptors discussed above, while such increases in noise may be noticeable at times, they would occur over a limited duration (up to approximately 17 consecutive months) and not rise to the level of a significant adverse impact. However, should construction of the Proposed Project occur on weekends, which may be the case to make up for weather delays and/or meet the project schedule, noise level increments up to approximately 12 dBA may occur at these receptors (due to the lower baseline noise levels during evenings and on weekends as compared to weekday daytime). The construction noise level predictions for the evening and weekend daytime analysis hours at these receptors are summarized in **Table 19-12** and discussed further below.

Table 19-12
Evening and Weekend Daytime Construction
Noise Analysis Results (in dBA)
Selected Receptors Proximate to BB-026 Diversion Facility

Receptor	Location	Total L_{10}		Change in L_{10}	
		Min	Max	Min	Max
8	Finca La Florecita Park	61.6	73.7	0.0	12.1
9	29-10 Thomson Avenue	61.6	73.7	0.0	12.1
10	29-10 Thomson Avenue	61.6	72.9	0.0	11.3

At these receptors, construction is predicted to produce noise levels up to the low 70s dBA, resulting in noise level increases up to approximately 12 dBA during the most noise-intensive stages of

construction for the BB-026 diversion facility (i.e., construction of the break-in/break-out structure for the BB-026 drop shaft and backfilling of the diversion chamber structure), which would occur for up to approximately three months. Noise level increases greater than 10 dBA would occur for approximately three months, resulting in noise levels in the high 60s to low 70s dBA, i.e., in the "marginally acceptable" to "marginally unacceptable" category according to the *2021 CEQR Technical Manual* noise exposure criteria. Further, while these community college receptors may be in use during evenings and on weekends, weekday daytime is the primary period of use and therefore the most sensitive portion of the week. However, as a requirement from the C*UNY LGCC Center III Façade Project Final Environmental Impact Statement (FEIS)* (accepted as complete October 16, 2013), the construction-facing façades of 29-10 Thompson Avenue would be required to provide 28 dBA window/wall attenuation as well as an alternate means of ventilation allowing for the maintenance of a closed-window condition.[5] With this level of attenuation, interior noise levels would be in the mid 40s dBA, less than 1 dBA greater than the 45 dBA threshold considered acceptable for classroom use according to *CEQR Technical Manual* noise exposure guidance. Since these construction activities resulting in the greatest noise level increments would occur for a very limited duration and would typically occur on weekdays, thereby not producing increments greater than 10 dBA, and the interior levels would be within 1 dBA of the acceptable threshold, the potential for evening and weekend construction noise increments up to approximately 12 dBA and total noise levels up to the "marginally unacceptable" range would not rise to the level of a significant adverse noise impact at these receptors.

NCQ-077 Diversion Facility Work Area

Receptors 43 through 49 represent noise-sensitive residential uses and residential uses with ground floor retail, proximate to the NCQ-077 diversion facility work area. The complete results of the noise analysis at each of these receptors, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are included in **Appendix H**. At these receptors, maximum predicted construction noise level increments would be less than 1 dBA during daytime hours and up to approximately 4 dBA during nighttime hours. Noise levels resulting from construction of the Proposed Project would not exceed the construction noise impact screening thresholds at any of these receptors during any of the analysis hours. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact at these receptors.

Penny Bridge Park and Plank Road Park are located further from construction work areas than the receptors included in the detailed analysis that were determined to not experience significant adverse noise impacts from construction of the Proposed Project, and would therefore also not have the potential to experience significant adverse noise impacts.

NCB-083 Diversion Facility Work Area

Receptor 50 represents noise-sensitive residential uses proximate to the NCB-083 diversion facility work area. The complete results of the noise analysis at each of these receptors, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are

[5] See **Appendix H** for the CUNY LGCC Center III Façade Project FEIS.

included in **Appendix H**. At this receptor, maximum predicted construction noise level increments would be less than 1 dBA during all hours. Such increases in noise would be considered imperceptible and would not exceed the *CEQR Technical Manual* construction noise screening thresholds. Noise levels generated by construction at this receptor would generally be in the "acceptable" category according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact at this receptor.

NCB-015 Diversion Facility Work Area

Receptors 51 through 112 represent noise-sensitive residential uses, residential uses with ground floor retail, and public institution uses proximate to the NCB-015 diversion facility work area. The complete results of the noise analysis at each of these receptors, including predicted noise levels and noise level increments for each analysis time period and the duration of each, are included in **Appendix H**.

At receptors other than receptor 72, maximum predicted construction noise level increments would be less than 6 dBA during daytime hours and up to approximately 3 dBA during nighttime hours. While such increases in noise may be noticeable at times, predicted noise level increments would be moderate and would occur over a limited duration (up to approximately 15 consecutive months). Noise levels generated by construction at these receptors would generally be in the "acceptable" to "marginally unacceptable" categories according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact at these receptors.

At receptor 72, which represents residential receptors at 29 Ingraham Street southwest of the NCB-015 diversion facility work area, maximum predicted construction noise level increments during daytime and evening hours (i.e., 7AM to 11PM) would be less than 9 dBA. While such increases in noise may be noticeable at times, predicted noise level increments would be moderate and would occur over a limited duration (i.e., up to 15 consecutive months). However, construction of the Proposed Project occurring during overnight hours would result in noise level increments up to approximately 8 dBA at these receptors (due to the lower baseline noise levels during overnight hours). The construction noise level predictions for the overnight analysis hours at these receptors are summarized in **Table 19-13** and discussed further below.

Table 19-13
Overnight Construction Noise Analysis Results (in dBA)
Select Residential Receptor Adjacent to NCB-015 Diversion Facility

		Total L_{10}		Change in L_{10}	
Receptor	Location	Min	Max	Min	Max
72	29 Ingraham Street	42.3	59.3	0.0	8.0

At these receptors, construction during overnight hours is predicted to produce noise levels up to the low 60s dBA, resulting in noise level increases up to approximately 8 dBA during the most noise-intensive stages of construction for the NCB-015 diversion facility (i.e., Installation of Final Lining), which would occur for up to approximately six months. However, the building façades of these

receptors would be expected to provide at least 20 dBA window/wall attenuation and alternate means of ventilation allowing for the maintenance of a closed window condition. Therefore, maximum interior noise levels during construction would be in the high 30s dBA, i.e., less than 45 dBA, which is the threshold recommended for a residence according to the *2021 CEQR Technical Manual* noise exposure guidance. Since interior noise levels throughout construction would remain in the acceptable range, noise resulting from construction of the Proposed Project would not rise to the level of a significant adverse impact at these residential receptors.

CONSTRUCTION VIBRATION ANALYSIS RESULTS

The buildings of most concern with regard to the potential for structural or architectural damage due to vibration are historic buildings and structures proximate to the gravity diversion sewer and TDPS discharge pipe sites (i.e., the industrial building at 47-09 30th Street, and the Miller Building at 425 Greenpoint Avenue). Pending consultation with DEP, SHPO and LPC, historic buildings and structures located within 90 feet of the Proposed Project sites would require vibration monitoring per DOB's *Technical Policy and Procedure Notices (TPPN) #10/88* regulations, and PPV during construction would be prohibited from exceeding the 0.50 inches/second threshold (see Chapter 9 "Historic and Cultural Resources").

Non-historic buildings and other structures bordering the Proposed Project work areas are greater than 25 feet away from the work areas. Additionally, Tunnel Boring Machine (TBM) operation would be approximately 140 feet below grade. As shown in **Table 19-5**, only impact pile drivers or vibratory pile drivers would have the potential to result in PPV of greater than 0.6 in/sec from a distance greater than 25 feet. Impact pile drivers would result in PPV of less than 0.6 in/sec at a distance of 47 feet and vibratory pile drivers would result in PPV of less than 0.6 at a distance of 29 feet. There are no residential or other vibration-sensitive structures within these distances; however, DEP may require the contractor to provide vibration monitoring of structures related to critical infrastructure within 50 feet during pile or sheeting installation.

The piece of equipment that would have the most potential for producing levels that exceed the 72 VdB threshold for annoyance would be the impact pile driver. Vibration resulting from impact pile driving would be perceptible at receptors within approximately 295 to 540 feet of the impact pile driver location. However, there are very few vibration-sensitive receptors within these distances of pile driving locations. Specifically, there are no vibration-sensitive uses within these distances from the TDPS site, the NCQ-077 diversion facility site, the NCB-083 diversion facility site, or the NCB-015 diversion facility site. Consequently, impact pile driving would not result in extended periods of perceptible or annoying vibration that would constitute a significant adverse impact.

Additionally, conventional drill-and-blast mining techniques would be employed for the excavation of the starter and connector tunnels and the subsurface adit at BB-026. However, such blasting would be carefully controlled to conform to Federal and NYC standards and monitored by FDNY, with explosives being detonated sequentially, breaking the rock while spreading the release of energy from the explosives over a period of approximately 5 seconds so as not to compromise the integrity of the surrounding structures (e.g., the shafts) due to vibrations. Such blasts would occur very infrequently

(typically less than three times per day, with each blast occurring over a very short period). Prior to commencement of work, DEP would undertake outreach to the community to identify area stakeholders who should be notified during blasting (e.g., first responders, local community boards, nearby schools, utility operators, and homes and businesses within a range of the blasting area) and would establish a notification process for stakeholders to communicate with DEP and/or the construction manager during execution of this work. Notification would be provided in advance of planned work and a warning horn would be sounded prior to each blast to alert the surrounding community. Additionally, there would generally be periods of time between sets of blasts to allow for blast preparation including drilling holes and loading explosives, and for ventilation, blast debris removal, and rock support installation. For the TDPS site, blasting would occur over approximately 34 days with 16 blasts needed for the pump station shaft, 8 blasts needed for the screening shaft, and 10 blasts needed for tunnels. For the BB-026 subsurface adit, blasting would occur over approximately 10 to 15 days and 10 to 15 total blasts would be needed across this period. Consequently, blasting would not have the potential to result in significant adverse vibration impacts.

CONCLUSION

OPERATIONAL NOISE

Noise resulting from operation of the Proposed Project would not result in any exceedances of the *CEQR Technical Manual* noise impact criteria or the NYC Noise Control Code noise level limits for circulation devices. Consequently, operation of the Proposed Project would not result in any significant adverse noise impacts.

CONSTRUCTION NOISE

Construction of the Proposed Project is predicted to result in elevated noise levels at several of the analyzed receptors, which represent the residences, hotels, and publicly accessible open spaces. Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. Construction of the TDPS would result in noticeable and potentially intrusive increases in noise levels and total noise levels that would be considered "clearly unacceptable" at these receptors. Potentially intrusive noise level increases at the Nature Walk are predicted to occur for a duration of 12 consecutive months. Potentially intrusive noise level increases are predicted to occur for a duration of 110 months at the North Henry Street Restoration project, with "clearly unacceptable" noise levels predicted to occur for up to 16 of those months.

At other receptors where construction of the Proposed Project would result in smaller noise level increases, while such increases in noise may be noticeable at times, predicted noise level increments would be moderate and would occur over a limited duration. Noise levels generated by construction at these receptors would generally be in the "acceptable" to "marginally unacceptable" categories according to the *CEQR Technical Manual* noise exposure criteria throughout construction. Consequently, construction noise associated with the Proposed Project would not rise to the level of a significant adverse impact these receptors.

CONSTRUCTION VIBRATION

Historic buildings and other structures located within 90 feet of the Project sites, as appropriate, would incorporate vibration monitoring, and PPV during construction would not be permitted to exceed the 0.50 inches/second threshold. Vibration-producing equipment would not operate in proximity to non-historic structures that could potentially result in damage to these structures. Furthermore, construction of the Proposed Project would not result in extended periods of perceptible or annoying vibration at surrounding receptors. Blasting would be carefully controlled to conform to Federal and NYC standards and monitored by FDNY with explosives being detonated sequentially, breaking the rock while spreading the release of energy from the explosives over a period of approximately 5 seconds so as not to compromise the integrity of the surrounding structures (e.g., the shafts) due to vibrations. A warning horn would be sounded prior to each blast to alert the surrounding community. Therefore, construction of the Proposed Project would not have the potential to result in significant adverse vibration impacts.

Chapter 20: Public Health

A. INTRODUCTION

Public health is the effort of society to protect and improve the health and well-being of its population. The goal of a public health analysis per the 2021 *City Environmental Quality Review (CEQR) Technical Manual* is to determine whether adverse impacts on public health may occur as a result of a project, and if so, to identify measures to mitigate such effects. The potential effects of the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project (the "Proposed Project") were considered with regard to effects on the surrounding community.

A public health assessment is warranted for a specific technical area if there is a significant unmitigated adverse impact found in other CEQR analysis areas, such as air quality, water quality, hazardous materials, or noise. No significant unmitigable changes to air quality, water quality, or hazardous materials are anticipated. As identified in Chapter 19, "Noise," construction of the Proposed Project may result in unmitigated construction noise impacts. Therefore, this chapter provides a public health assessment of construction noise.

PRINCIPAL CONCLUSIONS

Although the Proposed Project would result in significant adverse impacts to noise during construction, these impacts would not have a significant effect on public health. As the significant adverse impacts to noise would only occur during construction, they would be temporary and would not affect a significant population. In addition, the significant adverse noise impacts would not exceed standards related to health outcomes. Therefore, the Proposed Project would not result in a significant adverse impact to public health.

B. METHODOLOGY

CONSTRUCTION NOISE

The construction noise analysis presented in Chapter 19, "Noise," was used to identify the extent of the potential temporary noise exposure to the public as a result of the Proposed Project. The *CEQR Technical Manual* thresholds for construction noise are based on quality-of-life considerations and not on public health considerations. In this chapter, the potential for the construction-period noise exposure identified in Chapter 19, "Noise," to affect the health of the affected population is evaluated.

C. PUBLIC HEALTH ASSESSMENT

As recommended in the *CEQR Technical Manual*, if a public health assessment is determined to be necessary, the assessment process involves evaluating whether and how exposure to environmental

contaminants may occur and the extent of that exposure; characterizing the relationship between exposures and health risks; and applying that relationship to the population exposed.

CONSTRUCTION NOISE

Construction of the Proposed Project would include noise control measures as required by the *New York City Noise Control Code* (also known as Chapter 24 of the *Administrative Code of the City of New York*, or Local Law 113). Additionally, construction of the Proposed Project would incorporate some noise control measures that go beyond those required by Code. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the *New York City Noise Control Code*. These measures could include a variety of source (i.e., reducing noise levels at the source or during the most sensitive time periods) and path (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors) controls.

Even with these noise control measures, the analysis presented in Chapter 19, "Noise," found that predicted noise levels due to construction-related activities would result in noise levels at receptors in the vicinity of the tunnel dewatering pump station (TDPS) work area that would constitute potential temporary significant adverse impacts. Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. At these receptors, construction is predicted to produce noise levels up to the low 80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of construction for the TDPS (i.e., vibratory pile driving for the gravity discharge pipe), which would occur for up to approximately 11 months. Noise level increases greater than 10 dBA would occur for up to approximately 12 consecutive months at the Nature Walk and for up to 110 months at the North Henry Street Restoration, resulting in noise levels in the low 70s to low 80s dBA, i.e., in the "marginally unacceptable" to "clearly unacceptable" category according to the *2021 CEQR Technical Manual* noise exposure criteria.

Although the *CEQR Technical Manual* thresholds for significant adverse impacts are predicted to be exceeded at these locations during construction, these exceedances would not constitute a significant adverse public health impact. As discussed above, the *CEQR Technical Manual* thresholds for construction noise are based on quality-of-life considerations and not on public health considerations. An impact found pursuant to a quality-of-life framework (i.e., significant adverse construction noise impact) does not definitively imply that an impact will exist when the analysis area is evaluated in terms of public health (i.e., significant adverse public health impact). Furthermore, construction of the Proposed Project would not result in adverse noise impacts at residential receptors, therefore the population that would be affected by the increase in noise would be limited to open space users at the Nature Walk and the North Henry Street Restoration area; the affected population would be transient and, if bothered by construction noise, would be able to move to other areas. In particular, the Gateway to Greenpoint project, which is expected to be constructed near the TDPS site, will provide a new public open space available to users in the area.

The predicted temporary noise impacts identified would not constitute chronic exposure to high levels of noise because of the temporary and intermittent nature of construction noise as described in Chapter 19, "Noise." The maximum predicted construction noise levels (up to the low 80s dBA) occur over a limited

duration during the construction period based on the amount and type of construction work occurring in the construction work areas. Since the construction noise would fluctuate in level and would not occur constantly throughout the construction period, which itself is limited in duration, it would not be described as "chronic." Consequently, construction of the Proposed Project would not have the potential to result in chronic exposure to high levels of noise.

As discussed above, construction of the Proposed Project would not result in chronic exposure to high levels of noise or prolonged exposure to noise levels above 85 dBA. Since the area of potential noise impacts is limited and the population exposed to elevated noise levels due to construction is very limited and, as described above, the noise would not be chronic, and would not exceed the threshold of short-term, high-decibel levels, the predicted noise resulting from construction of the Proposed Project would not constitute a potential significant adverse public health impact. Therefore, the Proposed Project would not result in potential significant adverse public health impacts.

D. CONCLUSIONS

Construction of the Proposed Project would result in significant adverse impacts to noise which would be temporary and would not affect a significant population. In addition, the significant adverse noise impacts would not exceed standards related to health outcomes. Therefore, the Proposed Project would not result in a significant adverse impact to public health.

Chapter 21: Neighborhood Character

A. INTRODUCTION

This chapter considers the potential for the Proposed Project to result in significant adverse impacts on neighborhood character. As described in the 2021 *City Environmental Quality Review (CEQR) Technical Manual,* neighborhood character is an amalgam of various elements that give a neighborhood its distinct "personality." An assessment of neighborhood character is appropriate when a project would have the potential to result in any significant adverse impacts in the technical areas that relate to neighborhood character, such as land use, urban design and visual resources, historic and cultural resources, socioeconomic conditions, transportation, shadows, open space, and noise. Detailed analyses of the Proposed Project were performed in several of these technical areas, and as discussed in Chapter 19, "Noise" and Chapter 16 "Transportation," the Proposed Project has the potential to result in significant adverse impacts in construction noise and transportation. Therefore, an assessment of neighborhood character is warranted.

PRINCIPAL CONCLUSIONS

The defining features of the neighborhood around the Proposed Project include the neighborhood's low-scale industrial land uses, industrial history, and waterfront location along Newtown Creek. This preliminary assessment did not identify any potentially significant adverse impacts to neighborhood character either singularly, or in combination with potential impacts in other relevant technical areas. Many of the Proposed Project's components are below ground, which limits their ability to impact neighborhood character. The Proposed Project's above-ground components are consistent with the neighborhood's low-scale industrial land uses and existing water and sewer infrastructure. Although the Proposed Project would result in potential temporary significant adverse noise impacts during construction, these impacts would be limited to the construction period and would only occur at open space receptors immediately adjacent to the tunnel dewatering pump station (TDPS) site; therefore, they would not result in widespread noise impacts affecting the area's neighborhood character. Additionally, while the Proposed Project would result in significant adverse traffic impacts at four intersections during construction, the temporary impacts would be limited to portions of the construction period, for approximately as little as 2 years to no longer than 6 years in duration, and would occur in areas that already experience high levels of truck and other industrial traffic, and a detailed neighborhood character analysis is not necessary.

Overall, the Proposed Project would be consistent with the existing low-scale industrial land uses and water and sewer infrastructure in the neighborhood and would not detract from any of the neighborhood's defining features.

B. METHODOLOGY

A preliminary assessment of neighborhood character determines whether changes expected in other technical areas may affect an element that contributes to neighborhood character. The assessment identifies the defining features of the neighborhood and assesses whether the Proposed Project has the potential to affect these defining features either through the potential for significant adverse impacts or a combination of moderate effects. A moderate effect is generally defined as an effect considered reasonably close to a significant adverse impact threshold for a particular technical area. Therefore, even if a project does not have the potential to result in a significant adverse impact on neighborhood character in a certain technical area, the project may result in a combination of moderate effects to several elements that, when considered together, may cumulatively alter an area's neighborhood character, warranting further analysis. The *CEQR Technical Manual* states that neighborhood character effects are rare, and only under unusual circumstances would a combination of moderate effects to the neighborhood result in a significant adverse impact to neighborhood character, in the absence of an impact in any of the relevant technical areas.

STUDY AREA

According to the *CEQR Technical Manual*, the study area for a preliminary analysis of neighborhood character is typically consistent with the study areas in the relevant technical areas that contribute to the defining elements of the neighborhood. For the Proposed Project, the study area includes all areas within a 400-foot radius of the Proposed Project components, including the proposed combined sewer overflow (CSO) tunnel alignment, gravity diversion sewer, TDPS, TDPS discharge pipe, and diversion facilities. The study area generally extends from Skillman Avenue, in Queens, to the north; Whale Creek, in Brooklyn, to the west; Calvary Cemetery and 56th Road, in Queens, to the east; Page Place and Grand Avenue, in Queens, to the southeast; and Ingraham Street, in Brooklyn, to the south (see Figure 4-1 in Chapter 4, "Land Use, Zoning, and Public Policy").

CSO TUNNEL

The proposed CSO tunnel would be 3.26-miles long and stretches from the TDPS site in the north to the NCB-015 diversion facility site in the south. The CSO tunnel would be below grade, and cross underneath Newtown Creek and its tributaries, public streets and sidewalks, and public and private lots in Brooklyn and Queens.

GRAVITY DIVERSION SEWER

The proposed gravity diversion sewer would be a below-grade pipe that connects the BB-026 outfall to the Borden Avenue Pump Station (BAPS) and the CSO tunnel. Beginning at the BB-026 outfall, the new gravity diversion sewer would run along 47th Avenue and 30th Street, to Borden Avenue, where it would run west and south to connect to the Borden Avenue Pump Station. Modifications would be made to the Borden Avenue Pump Station to construct the connection to the gravity diversion sewer. From the Borden Avenue Pump Station, the gravity diversion sewer would run south along Review Avenue and would connect to the tunnel at a drop shaft to be constructed near Newtown Creek at

Review Avenue and 35th Street (two potential locations for the drop shaft near the intersection of Review Avenue and 35th Street are currently under consideration).

TDPS SITE

The TDPS site would include one property located at 1 Kingsland Avenue (Brooklyn Block 2508, Lot 1) located in the Greenpoint neighborhood of Brooklyn.

TDPS Discharge Pipe

The TDPS discharge pipe would be a below-grade pipe located in Greenpoint, Brooklyn, that would connect the TDPS facility to the Newtown Creek Water Resource Recovery Facility (WRRF). The discharge pipe would begin underneath the TDPS site and run along Kingsland Avenue in a southeastern direction where it would then run southwest along Greenpoint Avenue to join below-grade infrastructure at the intersection of Russell Street and Greenpoint Avenue.

DIVERSION FACILITY SITES

The Proposed Project would include four diversion facilities that would be constructed at outfalls BB-026, NCQ-077, NCB-083, and NCB-015. The proposed BB-026 diversion facility site would be located on the northern edge of Dutch Kills (Queens Block 115, Lots 56, 86, and 150). The proposed NCQ-077 diversion facility site would be located to the east of Maspeth Creek between 49th Street and 49th Lane (Queens Block 2575, Lots 26, 225, and 240). The proposed NCB-083 diversion facility site would be located on the eastern branch of Newtown Creek along Metropolitan Avenue (Brooklyn Block 2948, Lot 85). The proposed NCB-015 diversion facility site would be located on the southern-most part of Newtown Creek on Johnson Avenue (Brooklyn Block 2974, Lots 162 and 170).

C. PRELIMINARY ASSESSMENT

DEFINING FEATURES

The neighborhood character of the Proposed Project's study area is defined by a few key components: the neighborhood's low-scale industrial land uses, industrial history, and waterfront location along Newtown Creek.

Newtown Creek has been a defining feature of the study area for decades. It was originally a stream, but as New York City developed, it was dredged and bulkheaded as the surrounding area industrialized. Since 1930, Newtown Creek has served as a major industrial waterway through which materials were transported to and from industries including major oil refineries and terminals, smelting operations, manufactured gas plants, and other heavy industries. Today, the properties on and surrounding Newtown Creek remain largely low-scale industrial uses reflective of the area's history. The area of Newtown Creek has also become a location for sewer infrastructure, including the New York City Department of Environmental Protection (DEP) Newtown Creek WRRF near Whale Creek and the TDPS site.

Land uses in the study area surrounding the CSO tunnel alignment are largely light and heavy industrial uses, such as wholesale warehouses, distribution centers, freight lines, building materials, and large

depots. The study area surrounding the gravity diversion sewer is also primarily industrial with few commercial uses, including warehouses, distribution centers, and storage facilities. One notable feature in the study area near the gravity diversion sewer is an industrial building and garage at 47-09 30th Street that is located within the Degnon Terminal Historic District (State/National Register of Historic Places-eligible [S/NR-eligible]), as discussed in Chapter 9, "Historic and Cultural Resources." The six-story portion of the building is faced in brick with terra cotta detailing separating the window bays, and the garage portion is two stories faced in brick.

The study area surrounding the TDPS site and TDPS discharge pipe is defined by the Newtown Creek WRRF, an approximately two million-square-foot lot containing 25 buildings used to manage the City's wastewater. The Newtown Creek WRRF is the largest of the City's 14 wastewater recovery facilities; it serves approximately one million residents in a drainage area of more than 25 square miles across portions of three boroughs. In addition, the Miller Building (S/NR-eligible) at 425 Greenpoint Avenue is also in the study area near the TDPS site and the TDPS discharge pipe. The five-story building was built ca. 1915, has a cast concrete structure, and a five-story penthouse structure that extends above the center bays with "Miller Building" extending across the frontage of the top two floors.

The study area surrounding the diversion facility sites primarily consists of industrial and manufacturing uses. Notable features include two public facilities near the BB-026 diversion facility site (LaGuardia Community College and a secondary school building which houses the Bard High School Early College Queens, the Academy of Finance and Enterprise, and the High School of Applied Communication); Long Island City Roots Community Garden near the BB-026 diversion facility site (discussed below); railroad tracks near the NCQ-077 diversion facility site; and residential uses near the NCB-015 diversion facility site.

While the study area is largely industrial, it does contain a few open space uses. Near the TDPS site is the Newtown Creek Nature Walk, a ½-mile-long waterfront esplanade that wraps around the waterfront edge of Newtown Creek and crosses Whale Creek. The Nature Walk contains native plants and vegetation as well as public art and is open to the public year-round. Two additional open spaces are anticipated to be complete by the 2040 analysis year: the Gateway to Greenpoint and North Henry Street Restoration projects. Gateway to Greenpoint is a proposed 0.42-acre open space located on the corner of Greenpoint Avenue and Kingsland Avenue on the grounds of the Newtown Creek WRRF southeast of the TDPS site. The North Henry Street Restoration project is a proposed 0.45-acre public open space located on the northern end of North Henry Street near the TDPS site and would include a boardwalk, two observation decks over the water, seating areas, and shoreline restoration. Another open space in the study area is the FF Michael Brennan Memorial LIC Roots Garden, an approximately 0.1-acre public community garden operated by Grow NYC, located on 47th Avenue between 29th Street and 30th Street, directly east of the BB-026 diversion facility. Newtown Creek is also considered a recreational resource that is used by the surrounding community for active recreational activities, such as kayaking and canoeing.

As in any neighborhood, the study area's character is partly defined by its urban design (the totality of components that contribute to a pedestrian's experience of public space). In this case, as described in Chapter 10, "Urban Design and Visual Resources," the study area's urban design reflects its primarily

low-scale industrial development and waterfront location along Newtown Creek, with limited visual resources beyond the waterfront views of Newtown Creek.

As described in Chapter 5, "Socioeconomic Conditions," parts of the study area are located within the Long Island, Maspeth, and North Brooklyn Industrial Business Zones (IBZ), reflecting the study area's general industrial character. The IBZ Program, which is administered by the New York City Economic Development Corporation (NYCEDC), provides expanded services for industrial and manufacturing businesses, with the goal of protecting existing manufacturing districts, encouraging industrial growth citywide, and protecting industrial uses from being displaced by residential uses.

The character of the study area, like that of many neighborhoods in New York City, is in part defined by the levels of pedestrian and vehicular activity that exist in the study area. The study area is predominantly low-scale industrial land uses and does not have high levels of residential development. It is heavily trafficked by trucks and other industrial traffic due to its predominantly low-scale industrial land uses, and does not see a high level of pedestrian traffic. Vehicular traffic volumes are high along the major roads in the study area, such as Greenpoint Avenue, Van Dam Street, Borden Avenue, and Maspeth Avenue.

ASSESSMENT OF THE POTENTIAL TO AFFECT THE DEFINING FEATURES OF THE NEIGHBORHOOD

Using the findings from the respective chapters of this Draft Environmental Impact Statement (DEIS), the assessment identifies whether the Proposed Project would result in any significant adverse impacts or moderate adverse effects (effects considered reasonably close to a significant adverse impact threshold, as described above) and whether any such changes would have the potential to affect the defining features of neighborhood character. The assessment focuses on the major characteristics of the neighborhood and their relative contribution to the area's overall character (described above), and how these characteristics would potentially be affected by the Proposed Project. Specifically, as discussed above, the study area is primarily defined by its historic and continued use of low-scale industrial development, waterfront location along Newtown Creek, socioeconomic character, open spaces, and limited visual resources. The potential for significant adverse impacts to these neighborhood features is discussed below.

LAND USE

As described in Chapter 4, "Land Use, Zoning, and Public Policy," the Proposed Project would include new infrastructure that would be primarily underground and therefore would not result in changes to land use along the tunnel, gravity diversion sewer, or TDPS discharge pipe alignments. The two new buildings at the TDPS site, a pump station/screening building and a degritting building, would be part of the extensive sewer infrastructure system present in the study area, including the Newtown Creek WRRF, and would be compatible with the existing sewer infrastructure and other uses in the study area. Above-ground infrastructure at the diversion facility sites is limited, consisting of a control panel cabinet, vent pipe, and access hatches. This minimal above-ground infrastructure would be consistent with the industrial and manufacturing uses in the area near the diversion facility sites. Therefore, the

Proposed Project would be compatible with existing land uses in the area and the defining features of the area's neighborhood character would not be adversely affected due to potential effects on land use.

HISTORIC AND CULTURAL RESOURCES

As discussed in Chapter 9, "Historic and Cultural Resources," there is one known architectural resource in the study area near the gravity diversion sewer, the industrial building and garage complex at 47-09 30th Street, located within the Degnon Terminal Historic District. A Construction Protection Plan (CPP) would be prepared and implemented during project construction to protect this architectural resource from inadvertent construction-related damage. The Miller Building (S/NR-eligible) at 425 Greenpoint Avenue is located within 90 feet of the TDPS gravity discharge pipe. Should the portion of the gravity discharge pipe be constructed using a cut and cover method within 90 feet of the Miller Building, the Miller Building would also be subject to the CPP to avoid any unintended construction-related impacts (e.g., vibration effects) to this architectural resource. With the implementation of a CPP, there would be no significant adverse impacts on these historic architectural resources. Additionally, there is no potential for indirect effects on these historic architectural resources as there is limited above-ground infrastructure near these resources. Therefore, the defining features of the area's neighborhood character would not be adversely affected due to potential effects on historic and cultural resources.

URBAN DESIGN AND VISUAL RESOURCES

As discussed in Chapter 10, "Urban Design and Visual Resources," the Proposed Project would result in physical and visual changes consistent with applicable zoning regulations for bulk and built form. The TDPS site and the four diversion facility sites are industrial in character and contain largely industrial buildings and warehouses, and the proposed buildings on the TPDS site and limited above-ground structures at the diversion facility sites would be consistent with the study area's overall industrial character. Visual resources in the study areas of the TDPS site and four diversion facility sites are generally limited to waterfront views and view corridors of Newtown Creek and its tributaries—Whale Creek, Dutch Kills, Maspeth Creek, East Branch, and English Kills—and the visual resources from those view corridors, such as the Queens skyline, and visual resources of contributing buildings within the Degnon Terminal Historic District. Views of the Manhattan and Queens waterfront skylines are also available to the west of the TDPS site from the view corridors along streets near Newtown Creek. The two proposed buildings on the TDPS site and the limited above-ground structures at the diversion facility sites would not affect views to any of these notable visual resources. Therefore, the defining features of the area's neighborhood character would not be adversely affected due to potential effects on urban design and visual resources.

SOCIOECONOMIC CONDITIONS

As discussed in Chapter 5, "Socioeconomic Conditions," the Proposed Project has the potential to result in the direct displacement of 3 businesses and 35 employees on sites proposed for acquisition. The Proposed Project would not displace any residents and would not result in adverse effects on specific industries. Individually and collectively, the 3 businesses and 35 employees that could be directly

displaced do not provide products or services essential to the local economy that would no longer be available to local residents or businesses in their "trade areas" due to the difficulty of either relocating the businesses or establishing new, comparable businesses. The businesses include the industrial/manufacturing, wholesale trade, transportation and warehousing sectors, which are common throughout the study area and the whole City. Some of these businesses are located within the Northern Brooklyn IBZ and Long Island City IBZ, which do not protect specific industry sectors or uses; rather, they ensure that zoning regulations for lots within these areas remain unchanged. Since the Proposed Project would not seek a change in zoning, it does not conflict with the statutes of the IBZs. Therefore, the defining features of the area's neighborhood character would not be adversely affected due to potential effects on socioeconomic conditions.

OPEN SPACE

As discussed in Chapter 7, "Open Space," the Proposed Project would not displace or limit access to any existing open space and would not have any permanent impact on the open spaces in the study area. Furthermore, at the TDPS site and four diversion facility sites, the surface layouts of the sites are currently being designed, and use of the sites would be determined as the design is refined. The inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project.

Construction of the Proposed Project, particularly construction at the TDPS site, is predicted to result in potential temporary significant adverse construction noise impacts at the Nature Walk and future North Henry Street Restoration project, which is expected to be complete in summer 2027. Construction of the TDPS would result in noticeable and potentially intrusive increases in noise levels and total noise levels that would be considered "clearly unacceptable" at these receptors. The potentially intrusive noise level increases are predicted to occur for a duration of 12 consecutive months at the Nature Walk and for a duration of 110 months at the North Henry Street Restoration, with "clearly unacceptable" levels occurring for up to 16 months during that time.

While total construction noise levels at these receptors would be noticeable and potentially intrusive during the most intensive construction activities, other open spaces in the study area would be unaffected by construction noise and available, allowing open space users to be transient and move to other areas if bothered by noise; in particular, the Gateway to Greenpoint project, which is expected to be constructed near the TDPS site, will provide a new public open space available to users in the area. The construction noise would not significantly affect the usability of open spaces in the vicinity of the Proposed Project and would not rise to the level of a significant adverse effect at any open space receptors. Access to these open space resources or any nearby open space resources would be maintained throughout the duration of the construction period. In particular, access to the Nature Walk through its entrance on Kingsland Avenue would be open during all construction at the TDPS site, as well as during construction of the TDPS discharge pipe. Therefore, the defining features of the area's neighborhood character would not be adversely affected due to potential effects on open space.

TRAFFIC

While the Proposed Project may result in significant adverse traffic impacts at four intersections during construction, some of which are expected to be unmitigable, the increased presence of trucks in the area resulting from the Proposed Project would not be such that there would be a significant change to the overall character of the neighborhood and any increase would not be out of character for the industrial neighborhood. Further, the impacts would be temporary, limited to the construction period of the Proposed Project, and represent worst-case peak construction conditions. The maximum durations of significant adverse traffic impacts at the four impacted intersections were estimated and summarized in **Table 21-1**.

Table 21-1
Estimated Maximum Durations of Significant Adverse Traffic Impacts

Intersection	From	Through	Duration
Greenpoint Ave/Van Dam St/Review Ave	Q3 2031	Q1 2034	2½ years
Greenpoint Ave/Kingsland Ave	Q2 2031	Q4 2036	5½ years
Maspeth Ave/Rust St	Q4 2030	Q4 2033	3 years
56th Rd/49th St	Q4 2030	Q4 2033	3 years
Study Area Total	**Q4 2030**	**Q4 2036**	**6 years**

The study area already includes heavily trafficked vehicular and truck thoroughfares, such as the intersections located at Greenpoint Avenue, Van Dam Street, Borden Avenue, and Maspeth Avenue. Therefore, the increased traffic volumes resulting from construction the Proposed Project would not result in an overall impact to neighborhood character or contribute to a combination of moderate effects with the potential to affect defining features of the neighborhood.

CONSIDERATION OF MODERATE EFFECTS

As noted above, even if a project does not have the potential to result in a significant adverse impact on neighborhood character in a certain technical area, the project may result in a combination of moderate effects (effects considered reasonably close to a significant adverse impact threshold) to several elements that may cumulatively affect an area's neighborhood character. The Proposed Project would not result in adverse effects that are reasonably close to significant adverse impacts in the areas of land use, zoning, and public policy; socioeconomic conditions; historic and cultural resources; open space; shadows; urban design and visual resources; or operational noise. While the Proposed Project would result in elevated noise levels affecting nearby open spaces during periods of construction (discussed in Chapter 19, "Noise"), the potential temporary significant adverse noise impacts would be limited to the construction period and would only occur at two open spaces. These potential temporary significant adverse construction noise impacts would be limited to the areas near the TDPS site therefore the Proposed Project would not result in widespread noise impacts affecting the area's neighborhood character. Additionally, while the Proposed Project would result in significant adverse impacts at four intersections during construction, the impacts would be limited to the construction period and would occur in areas that already experience high levels of truck and other industrial traffic. Therefore, in consideration of the limited geographic area of the potential temporary significant adverse

construction noise and transportation impacts, in combination these effects would not cumulatively affect the character of the study area.

D. CONCLUSION

As discussed above, the defining features of the neighborhood around the Proposed Project are the neighborhood's low-scale industrial land uses, industrial history, and waterfront location along Newtown Creek. This preliminary assessment did not identify any potentially significant adverse impacts to neighborhood character either singularly, or in combination with potential impacts in other relevant technical areas. Although the Proposed Project would result in potential temporary significant adverse noise impacts during construction, these impacts would be limited to the construction period and would only occur at receptors immediately adjacent to the TDPS site; therefore, they would not result in widespread noise impacts affecting the area's neighborhood character. Additionally, while the Proposed Project would result in significant adverse traffic impacts at four intersections during construction, the impacts would be limited to the construction period and would occur in areas that already experience high levels of truck and other industrial traffic, and a detailed neighborhood character analysis is not necessary.

With the Proposed Project, the defining features of the neighborhood would remain unaffected, including its largely low-scale industrial land uses. Overall, the Proposed Project would be consistent with the existing water and sewer infrastructure in the neighborhood and would not detract from any of the neighborhood's defining features.

A. INTRODUCTION

Effective December 30, 2024, Section 8-0109(2)(k) of the New York State Environmental Conservation Law requires that Environmental Impact Statements (EIS) include a statement of the effects of a proposed action on disadvantaged communities (DACs), including whether the action may cause or increase a disproportionate pollution burden on a disadvantaged community. On January 29, 2025, the New York State Department of Environmental Conservation (NYSDEC) proposed draft State Environmental Quality Review Act (SEQRA) Amendments to implement this new statutory provision. The 2021 *City Environmental Quality Review (CEQR) Technical Manual* does not yet provide guidance regarding the scope of this analysis. Therefore, this assessment of the effects on disadvantaged communities considers the impacts identified pursuant to *CEQR Technical Manual* guidance, as well as applicable guidance from NYSDEC in determining whether there would be a disproportionate pollution burden on DACs. This analysis is also consistent with NYSDEC's Commissioner Policy (CP) 29, Environmental Justice and Permitting, 2003.

As described in Chapter 1, "Project Description," the New York City Department of Environmental Protection (DEP) is undertaking the design and construction of a combined sewer overflow (CSO) storage tunnel and related infrastructure to reduce the volume of combined sewer overflows entering Newtown Creek, under the Newtown Creek CSO Storage Tunnel project (the "Proposed Project"). The Proposed Project includes the construction of a 50-million-gallon (MG) CSO storage tunnel, diversion facilities at four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a tunnel dewatering pump station (TDPS) and discharge pipe to convey stored combined sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

The Proposed Project would reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Specifically, the Proposed Project would result in a significant reduction in CSOs from four outfalls—BB-026, NCQ-077, NCB-083, and NCB-015 — which contribute the majority of the CSO discharges to Newtown Creek. By improving water quality, the Proposed Project would also meet some of the goals of the Superfund remediation of Newtown Creek, as outlined in the EPA ROD related to CSO discharges.

PRINICPAL CONCLUSIONS

This analysis of effects on DACs and minority and low-income communities (collectively, "environmental justice communities") concludes that the Proposed Project would not result in disproportionate impacts on environmental justice communities, nor would it cause or increase a disproportionate pollution burden.

B. METHODOLOGY

In 2023, the Climate Justice Working Group (CJWG) used 45 indicators to identify DACs in New York State. The criteria include multiple indicators that represent the environmental burdens or climate change risks within a community, or population characteristics and health vulnerabilities that can contribute to more severe adverse effects of climate change. Each census tract was scored based on relative burden, risk, vulnerability, or sensitivity. Specifically, the percentile ranks of the indicators for each census tract were combined to produce a value measuring a census tract's relative level of "Environmental Burdens and Climate Change Risks" as well as "Population Characteristics and Health Vulnerabilities" relative to other census tracts. Census tracts with higher scores relative to other census tracts statewide or to their region (i.e., New York City) were identified as DACs. With this analysis, approximately 35 percent of New York State census tracts were identified as DACs.

NYSDEC's Disadvantaged Community Assessment Tool (DACAT) compares three scores (Combined Score, Burden Component Score, and Vulnerability Component Score) for each census tract to non-DAC comparison scenarios (statewide urban, statewide rural, and urban/rural for each of the 10 regions). The DACAT then selects the lowest score in each of the comparison scenarios, called the "aggregate denominator." It also displays the percent difference between the three scores and the statewide mean or median for each. The DACAT compares the three scores with the identified aggregate denominators. If the Combined Score is 25 percent higher than its aggregate denominator, and one or both the Burden and Vulnerability Component Scores are 35 percent higher than their aggregate denominators, then DACAT highlights the census tract as having comparatively higher existing burdens or vulnerabilities. This indicates an increased likelihood that a proposed action may have a moderate or large impact on the DAC. If the conditions above are not met, then the DACAT highlights the census tract as having comparatively lower existing burdens or vulnerabilities, and therefore a decreased likelihood that a proposed action may have a moderate or large impact on the DAC.[1]

This analysis identifies the DACs within ½ mile of the Proposed Project sites. In addition, this analysis identifies potential environmental justice areas (PEJAs), i.e., minority and low-income communities. PEJAS were initially identified using NYSDEC's ArcGIS Webmap of PEJAs,[2] which is based on the U.S. Census Bureau's American Community Survey (ACS) 2014-2018 and Census 2010 block group boundaries. In addition, based on guidance from NYSDEC, minority and low-income communities are also identified using recent data from the U.S. Census Bureau's American Community Survey (ACS)

[1] NYSDEC, *Disadvantaged Community Assessment Tool Methodology*, https://dec.ny.gov/sites/default/files/2025-01/part617risdactoolappa.pdf, last accessed March 20, 2025

[2] NYSDEC ArcGIS Webmap of Potential EJ Areas, https://www.arcgis.com/home/webmap/viewer.html?url=https://services6.arcgis.com/DZHaqZm9cxOD4CWM/ArcGIS/rest/services/Potential_Environmental_Justice_Area__PEJA__Communities/FeatureServer&source=sd, last accessed March 20, 2025.

2019-2023 Five-Year Estimates based on NYSDEC's thresholds for identifying PEJAs in urban areas, using Census 2020 block group boundaries.[3]

According to NYSDEC, PEJAs are census block groups of 250 to 500 households each that, in the census, had populations that met or exceeded at least one of the following statistical thresholds:

1. At least 52.42 percent of the population in an urban area reported themselves to be members of minority groups; or
2. At least 26.28 percent of the population in a rural area reported themselves to be members of minority groups; or
3. At least 22.82 percent of the population in an urban or rural area had household incomes below the federal poverty level.

C. EXISTING CONDITIONS

STUDY AREA

As discussed above, this analysis identifies the DACs within ½ mile of the Proposed Project sites.

DISADVANTAGED COMMUNITIES

As shown in **Figure 22-1** and listed in **Table 22-1** below, 10 census tracts (or portions of) in the study area are identified as DACs with higher burdens and vulnerabilities, and 21 census tracts (or portions of) in the study area are identified as DACs with lower burdens and vulnerabilities. The remaining census tracts in the study area were not identified as DACs by NYSDEC.

Table 22-1
NYS Disadvantaged Communities in the ½-Mile Study Area

Census Tract	Burdens & Vulnerabilities
33	Higher
189	Higher
199	Higher
447	Higher
449	Higher
453	Higher
489	Higher
493	Higher
563	Higher
579	Higher
7	Lower
19	Lower

[3] NYSDEC, Maps & Geospatial Information System (GIS) Tools For Environmental Justice, https://dec.ny.gov/get-involved/environmental-justice/gis-tools, last accessed March 20, 2025.

Table 22-1
NYS Disadvantaged Communities in the ½-Mile Study Area

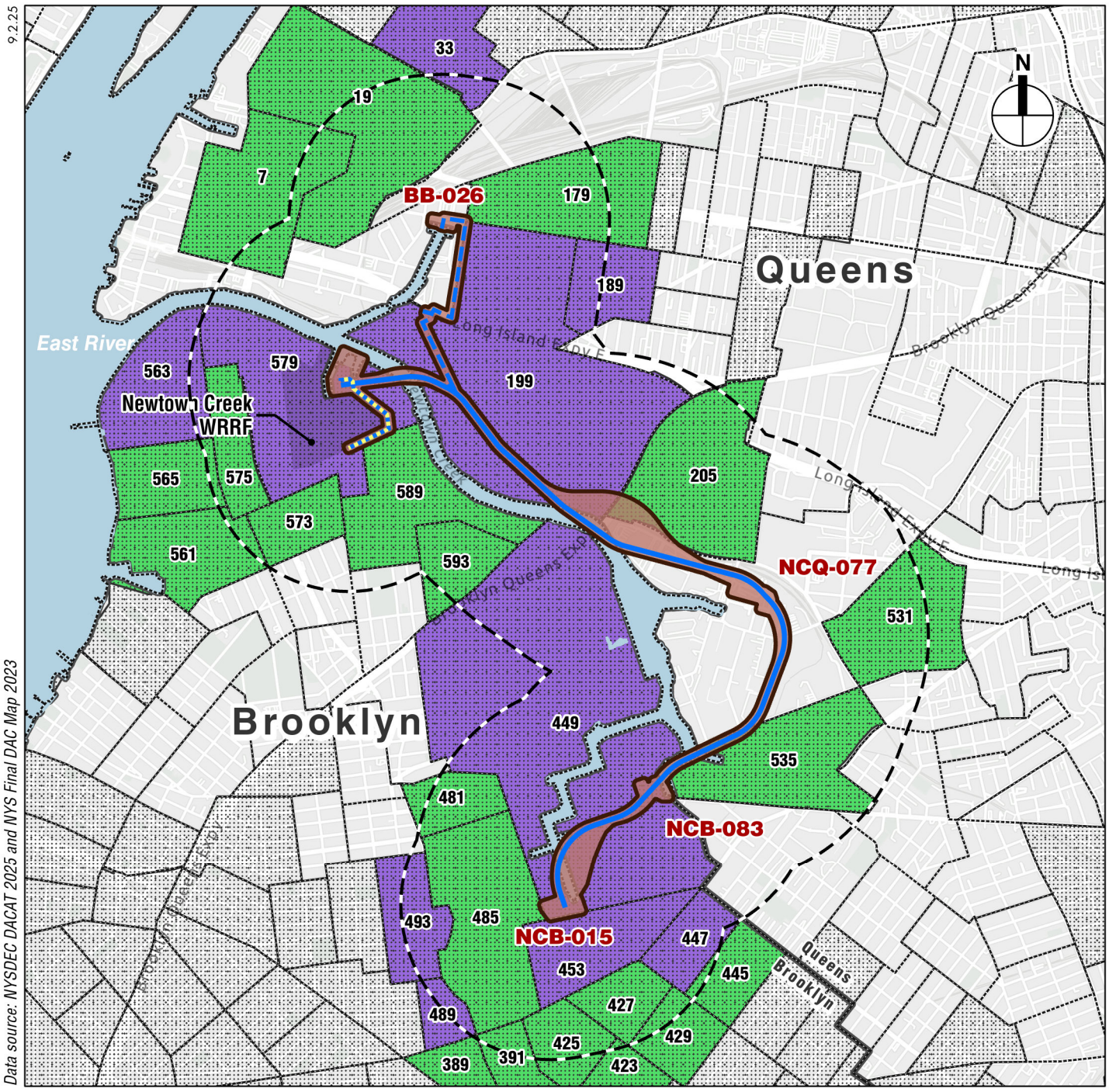
Census Tract	Burdens & Vulnerabilities
179	Lower
205	Lower
389	Lower
391	Lower
423	Lower
425	Lower
427	Lower
429	Lower
445	Lower
481	Lower
485	Lower
531	Lower
535	Lower
561	Lower
565	Lower
573	Lower
575	Lower
589	Lower
593	Lower

Note: Refer to **Figure 22-1**.
Source: NYSDEC DACAT.

POTENTIAL ENVIRONMENTAL JUSTICE AREAS (PEJAS)

PEJAs, or minority or low-income communities, were initially identified in the study area based on NYSDEC's ArcGIS Webmap of Potential EJ Areas, which are based on the 2014-2018 ACS and Census 2010 block group boundaries (see **Figure 22-2a**). Consistent with NYSDEC guidance,[4] minority or low-income communities were also identified using the latest census data (2019-2023 ACS 5-Year Estimates and Census 2020 block group boundaries), as discussed in Section B, "Methodology," and shown on **Figure 22-2b**. In particular, minority and low-income communities are concentrated at the northern and southern ends of the study area, near the BB-026 and NCB-015 outfalls, respectively. **Table 22-2** identifies the minority and low-income communities in the study area based on the latest census data.

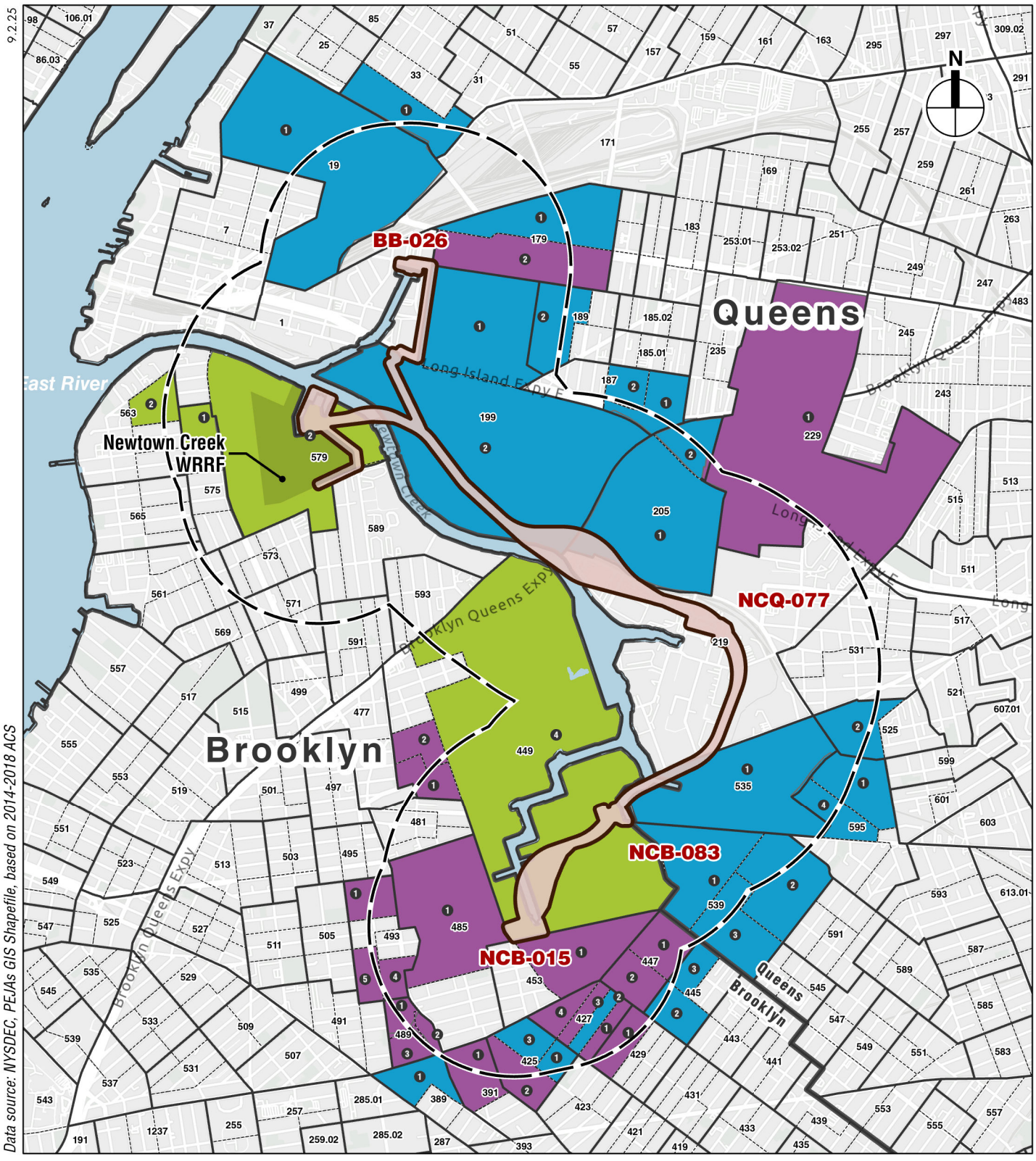
[4] NYSDEC, *Maps & Geospatial Information System (GIS) Tools For Environmental Justice*, https://dec.ny.gov/get-involved/environmental-justice/gis-tools, last accessed March 20, 2025.



Disadvantaged Communities

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

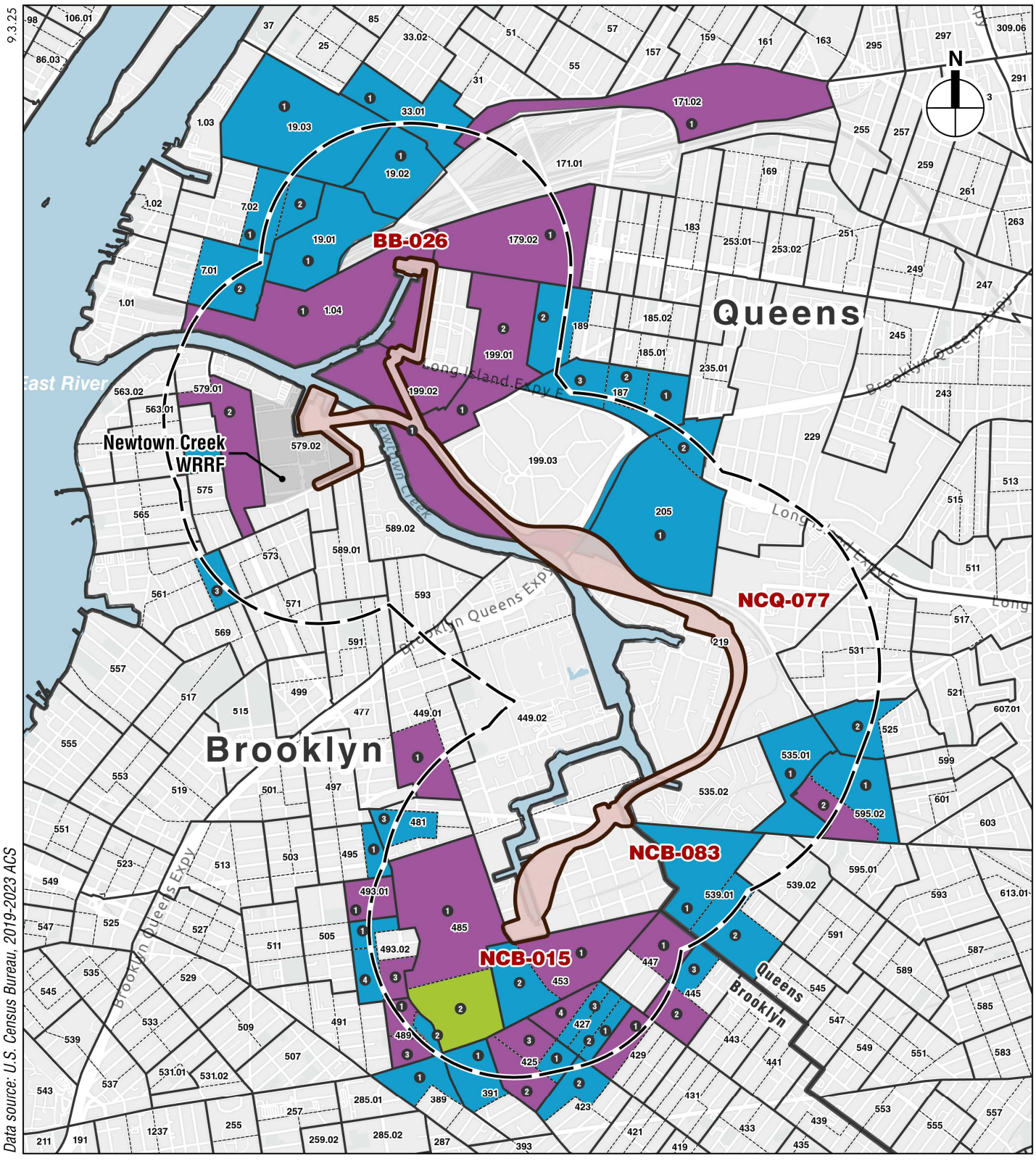
Figure 22-1



Potential Environmental Justice Areas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 22-2a



Note: Based on NYSDEC guidance using the latest census data, 2019-2023 ACS 5-Year Estimates

Potential Environmental Justice Areas

NEWTOWN CREEK CSO STORAGE TUNNEL PROJECT

Figure 22-2b

Table 22-2
Minority and Low-Income Communities in the ½-Mile Study Area

County	Census Tract	Block Group	Total Pop.	Minority Rate	Poverty Rate	PEJA	Low-Income Community	Minority Community
Brooklyn	389	1	1,296	70.06%	19.26%	Yes	No	Yes
Brooklyn	391	1	3,837	72.19%	17.75%	Yes	No	Yes
Brooklyn	423	2	1,750	61.26%	9.26%	Yes	No	Yes
Brooklyn	425	1	1,543	83.02%	19.18%	Yes	No	Yes
Brooklyn	425	2	669	58.30%	31.54%	Yes	Yes	Yes
Brooklyn	425	3	701	62.05%	24.00%	Yes	Yes	Yes
Brooklyn	427	1	1,327	52.60%	3.92%	Yes	No	Yes
Brooklyn	427	2	1,170	60.09%	6.84%	Yes	No	Yes
Brooklyn	427	3	782	62.28%	4.60%	Yes	No	Yes
Brooklyn	427	4	936	61.22%	30.13%	Yes	Yes	Yes
Brooklyn	429	1	1,491	79.21%	49.83%	Yes	Yes	Yes
Brooklyn	445	2	1,815	79.12%	24.96%	Yes	Yes	Yes
Brooklyn	445	3	1,351	71.43%	15.62%	Yes	No	Yes
Brooklyn	447	1	1,907	58.73%	38.16%	Yes	Yes	Yes
Brooklyn	447	2	563	49.20%	20.78%	No	No	No
Brooklyn	449.01	1	2,129	98.54%	32.27%	Yes	Yes	Yes
Brooklyn	449.01	2	398	22.11%	0.00%	No	No	No
Brooklyn	449.01	3	0	0.00%	0.00%	No	No	No
Brooklyn	449.01	4	40	0.00%	0.00%	No	No	No
Brooklyn	449.02	1	0	0.00%	0.00%	No	No	No
Brooklyn	449.02	2	0	0.00%	0.00%	No	No	No
Brooklyn	449.02	3	0	0.00%	0.00%	No	No	No
Brooklyn	453	1	1,257	73.03%	58.79%	Yes	Yes	Yes
Brooklyn	453	2	681	68.14%	22.03%	Yes	No	Yes
Brooklyn	477	2	2,458	22.78%	8.82%	No	No	No
Brooklyn	481	1	628	52.55%	13.69%	No	No	No
Brooklyn	481	2	614	38.93%	20.03%	No	No	No
Brooklyn	481	3	1,660	57.95%	8.98%	Yes	No	Yes
Brooklyn	485	1	956	62.13%	23.74%	Yes	Yes	Yes
Brooklyn	485	2	1,415	47.70%	26.36%	Yes	Yes	No
Brooklyn	489	1	544	100.00%	41.54%	Yes	Yes	Yes
Brooklyn	489	2	972	100.00%	15.33%	Yes	No	Yes
Brooklyn	489	3	1,712	97.84%	29.91%	Yes	Yes	Yes
Brooklyn	493.01	1	2,169	100.00%	43.89%	Yes	Yes	Yes
Brooklyn	493.02	1	1,435	59.79%	7.67%	Yes	No	Yes
Brooklyn	493.02	2	829	47.77%	6.27%	No	No	No
Brooklyn	493.02	3	1,706	100.00%	61.43%	Yes	Yes	Yes
Brooklyn	493.02	4	721	64.77%	18.45%	Yes	No	Yes
Brooklyn	495	1	922	55.64%	5.31%	Yes	No	Yes
Brooklyn	561	2	699	19.17%	5.01%	No	No	No
Brooklyn	561	3	951	57.83%	13.71%	Yes	No	Yes

Table 22-2
Minority and Low-Income Communities in the ½-Mile Study Area

County	Census Tract	Block Group	Total Pop.	Minority Rate	Poverty Rate	PEJA	Low-Income Community	Minority Community
Brooklyn	563.01	2	911	32.82%	21.73%	No	No	No
Brooklyn	563.01	3	1,039	24.54%	12.86%	No	No	No
Brooklyn	563.01	4	1,406	41.04%	7.89%	No	No	No
Brooklyn	563.02	2	1,863	47.34%	2.58%	No	No	No
Brooklyn	565	1	1,411	31.68%	5.10%	No	No	No
Brooklyn	565	2	916	28.60%	4.26%	No	No	No
Brooklyn	565	3	1,013	16.68%	5.63%	No	No	No
Brooklyn	571	1	1,197	25.65%	7.10%	No	No	No
Brooklyn	571	2	1,238	18.82%	7.35%	No	No	No
Brooklyn	571	3	965	28.60%	4.87%	No	No	No
Brooklyn	571	4	784	28.57%	16.71%	No	No	No
Brooklyn	573	1	738	37.40%	12.06%	No	No	No
Brooklyn	573	2	786	25.57%	12.08%	No	No	No
Brooklyn	573	3	958	27.56%	3.55%	No	No	No
Brooklyn	575	1	1,174	23.17%	4.09%	No	No	No
Brooklyn	575	2	1,033	62.15%	15.78%	Yes	No	Yes
Brooklyn	575	3	1,228	44.14%	10.07%	No	No	No
Brooklyn	575	4	1,468	38.01%	13.31%	No	No	No
Brooklyn	579.01	1	286	37.76%	2.45%	No	No	No
Brooklyn	579.01	2	1,141	57.58%	27.18%	Yes	Yes	Yes
Brooklyn	579.02	1	0	0.00%	0.00%	No	No	No
Brooklyn	589.01	1	1,110	15.23%	11.44%	No	No	No
Brooklyn	589.01	2	766	13.19%	4.05%	No	No	No
Brooklyn	589.02	1	0	0.00%	0.00%	No	No	No
Brooklyn	591	1	716	24.58%	9.36%	No	No	No
Brooklyn	591	2	996	28.41%	3.51%	No	No	No
Brooklyn	591	4	772	18.13%	5.44%	No	No	No
Brooklyn	593	1	1,811	26.84%	11.87%	No	No	No
Brooklyn	593	2	792	26.26%	22.47%	No	No	No
Queens	1.04	1	303	80.53%	59.74%	Yes	Yes	Yes
Queens	7.01	2	2,116	61.91%	4.73%	Yes	No	Yes
Queens	7.02	1	1,455	69.07%	20.27%	Yes	No	Yes
Queens	7.02	2	905	65.97%	10.64%	Yes	No	Yes
Queens	19.01	1	1,974	63.98%	3.75%	Yes	No	Yes
Queens	19.02	1	6,099	64.80%	10.33%	Yes	No	Yes
Queens	19.03	1	1,409	59.26%	11.14%	Yes	No	Yes
Queens	33.01	1	3,303	60.10%	7.75%	Yes	No	Yes
Queens	171.01	1	0	0.00%	0.00%	No	No	No
Queens	171.02	1	44	100.00%	90.24%	Yes	Yes	Yes
Queens	179.02	1	43	100.00%	100.00%	Yes	Yes	Yes
Queens	187	1	1,074	75.70%	19.69%	Yes	No	Yes

Table 22-2
Minority and Low-Income Communities in the ½-Mile Study Area

County	Census Tract	Block Group	Total Pop.	Minority Rate	Poverty Rate	PEJA	Low-Income Community	Minority Community
Queens	187	2	1,048	88.93%	0.00%	Yes	No	Yes
Queens	187	3	846	85.82%	18.92%	Yes	No	Yes
Queens	189	2	704	83.66%	16.36%	Yes	No	Yes
Queens	199.01	1	254	74.41%	39.76%	Yes	Yes	Yes
Queens	199.01	2	159	100.00%	100.00%	Yes	Yes	Yes
Queens	199.02	1	109	87.16%	72.48%	Yes	Yes	Yes
Queens	199.02	2	7	0.00%	0.00%	No	No	No
Queens	199.03	1	0	0.00%	0.00%	No	No	No
Queens	205	1	233	91.42%	2.15%	Yes	No	Yes
Queens	205	2	1,186	86.76%	6.24%	Yes	No	Yes
Queens	219	1	0	0.00%	0.00%	No	No	No
Queens	229	1	0	0.00%	0.00%	No	No	No
Queens	525	2	685	61.02%	10.51%	Yes	No	Yes
Queens	531	1	2,102	43.48%	12.32%	No	No	No
Queens	531	3	451	31.26%	19.29%	No	No	No
Queens	535.01	1	1,249	71.58%	18.28%	Yes	No	Yes
Queens	535.02	1	0	0.00%	0.00%	No	No	No
Queens	539.01	1	762	67.59%	20.08%	Yes	No	Yes
Queens	539.01	2	2,407	73.95%	11.53%	Yes	No	Yes
Queens	539.02	1	106	3.77%	0.00%	No	No	No
Queens	595.01	2	1,009	46.09%	12.78%	No	No	No
Queens	595.02	1	1,541	70.21%	12.59%	Yes	No	Yes
Queens	595.02	2	1,340	66.42%	41.24%	Yes	Yes	Yes

Note: Refer to **Figures 22-2a and 22-2b**.
Source: ACS 2023

Minority Communities

As shown in **Table 22-2**, there are 55 block groups in the study area that meet or exceed NYSDEC's threshold for identifying minority communities in urban areas. Consistent with NYSDEC guidance, minority communities were identified where the minority population is at least 52.42 percent. As per CP-29, minority populations include individuals that are identified or recognized by the U.S. Census Bureau as Hispanic, African-American or Black, Asian and Pacific Islander or American Indian (Indigenous Populations).

Low-Income Communities

As shown in **Table 22-2**, there are 22 block groups in the study area that meet or exceed NYSDEC's threshold for identifying low-income communities (22.82 percent of the population had household incomes below the federal poverty level). As per CP-29, a low-income population means a population

having an annual income that is less than the poverty threshold. For purposes of this policy, poverty thresholds are established by the U.S. Census Bureau.

D. FUTURE WITHOUT THE PROPOSED PROJECT

PROPOSED PROJECT SITES

Under the No Action scenario there is no tunnel/infrastructure construction and the Proposed Project sites would remain in their existing condition, except that the TPDS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015. Surface waters of Newtown Creek would continue to receive CSO discharges, potentially adding to existing contamination.

In addition, any potential hazardous materials present within the Proposed Project sites with the potential to be disturbed would go unabated or unmitigated and would remain in place.

STUDY AREA

Other projects are planned or expected to be constructed within the study area by the Proposed Project's analysis year, 2040, in addition to the other activities in the area that are independent of the Proposed Project (see Chapter 2, "Land Use, Zoning, and Public Policy").

E. FUTURE WITH THE PROPOSED PROJECT

As the *CEQR Technical Manual* has not been updated to include guidance for an assessment of effects on DACs, the draft proposed revised SEQRA Environmental Assessment Form (EAF) has been consulted for guidance for this analysis.[5] The proposed EAF Full Form identifies direct or indirect impacts that may affect a DAC, including: new noise sources or expansions/modifications of existing noise sources (i.e., noise from operational sources or construction activities); emissions of air pollutants including mobile emissions; wastewater discharges; generation of odors; light pollution; new or modified radiation sources; or new or modified sources of solid waste generation, management, or disposal. The Proposed Project would not result in any permanent significant adverse impacts, nor would it cause a combination of moderate effects which together may result in a cumulative pollution impact on the Proposed Project sites or surrounding study area.

According to NYSDEC's Environmental Justice Siting Law Guidance,[6] "a disproportionate pollution burden is a pollution burden within an affected disadvantaged community that is, or would be, significantly greater than that same burden in comparable non-disadvantaged communities, as a result

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[5] NYSDEC, *SEQRA Regulatory Revisions*, https://dec.ny.gov/regulatory/regulations/proposed-emergency-recently-adopted-regulations/state-environmental-quality-review-act-regulatory-revisions, last accessed March 20, 2025

[6] NYSDEC, *Environmental Justice Siting Law Guidance*, last accessed February 24, 2025, available at: https://dec.ny.gov/sites/default/files/2025-01/ejsitinglawseqrfaqs.pdf

of the proposed action." According to NYSDEC's guidance, many of the same potential impacts may be identified when evaluating impacts to disadvantaged communities and non-disadvantaged communities, such as traffic, noise, air emissions, discharge of pollutants to water bodies, etc. The methods by which those impacts are identified may also be similar. However, disadvantaged communities are more likely to experience higher pollution burdens and population vulnerabilities than non-disadvantaged communities, which increases the potential that actions undertaken within or near disadvantaged communities may cause significant adverse impacts.

The Proposed Project would not result in significant adverse impacts in the following technical areas analyzed in this EIS: land use, zoning, and public policy; socioeconomic conditions; community facilities; open space; shadows; historic and cultural resources; urban design and visual resources; natural resources; hazardous materials; water and sewer infrastructure; solid waste and sanitation services; energy; air quality; greenhouse gas emissions and climate change; operational noise; public health; neighborhood character; or transportation during operations—including impacts on environmental justice communities. With the requirement to investigate and remediate potential hazardous materials within the area of the Proposed Project sites in accordance with agency oversight (by DEP or NYSDEC) during construction, and to implement post-remedial requirements in accordance with regulatory agency-approved Site Management Plans (SMPs) during operation, no significant adverse impacts relating to hazardous materials would result from construction or operation of the Proposed Project. As such, the Proposed Project would not cause a disproportionate pollution burden on DACs with respect to any of these technical areas, including cumulative effects from multiple technical areas.

Significant adverse impacts have the potential to occur in the following CEQR technical areas during construction: traffic and noise. The Proposed Project's potential significant adverse impacts on environmental justice communities are briefly described below, along with an assessment of whether the Proposed Project would cause or increase a disproportionate pollution burden.

CONSTRUCTION IMPACTS OF THE PROPOSED PROJECT

This EIS discloses that the Proposed Project would have the potential to result in significant adverse traffic and noise impacts during construction. As discussed in Chapter 3, "Construction Means and Methods," barges that support tunnel and shaft excavation activities and equipment delivery and supply barges may be utilized during construction of the Proposed Project. Barging allows for a greater volume of material to be moved at a time and would significantly reduce congestion on local roadways. The use of barges and associated tugboats would have a positive benefit on construction traffic by reducing construction trucks on local roadways transporting materials to/from the TDPS site. Although the reduction in truck traffic would result in lower air and noise emissions along these local roadways, there could be increases in air and noise emissions along Newtown Creek from the tugboats that are required to maneuver the barges. The potential air quality and noise effects of tugboat operations are analyzed and presented in Chapter 17, "Air Quality," and Chapter 19, "Noise," respectively.

The Proposed Project has the potential to result in significant adverse impacts related to noise during construction. The potential temporary noise impacts would occur at two open spaces in the study area—

the Newtown Creek Nature Walk and the future North Henry Street Restoration open spaces. The affected open spaces serve both environmental justice communities as well as non-environmental justice communities in the study area. These impacts would be temporary and would cease once construction is complete. Temporary impacts on open spaces due to noise are not expected to cause or increase a pollution burden in the study area. Although construction of the Proposed Project at the TDPS site would result in significant adverse noise impacts at these two open spaces, the construction noise, while noticeable and potentially intrusive during the most intensive construction activities, would not significantly affect the usability of the open spaces. Therefore, construction of the Proposed Project would not result in direct impacts on open space and recreational resources.

Additionally, there may be potential significant adverse impacts on traffic during construction**.** Potential significant adverse traffic impacts are expected for four traffic intersections. These impacts would be temporary and would cease once construction is complete. Traffic itself does not constitute pollution and construction traffic would not result in any significant air quality or noise impacts. Furthermore, the traffic impacts would occur in DACs with comparatively higher burdens and vulnerabilities, as well as in or near non-DACs and DACs with comparatively lower burdens and vulnerabilities. Potential improvement measures were explored to mitigate these impacts to the extent practicable (see Chapter 23, "Mitigation).

Based upon the requirement to investigate and remediate potential hazardous materials within the area of the Proposed Project sites in accordance with regulatory oversight (by DEP or NYSDEC), the potential for exposure to hazardous materials would be minimized during construction. Therefore, with the proposed mitigation measures, no significant adverse construction impacts relating to hazardous materials would result from construction of the Proposed Project and there would not be disproportionate impacts on DACs. As discussed in Chapter 17, "Air Quality," an emissions reduction program would be implemented to minimize the effects of construction activities on the surrounding community. Measures would include dust suppression measures, use of ultra-low sulfur diesel (ULSD) fuel, idling restrictions, diesel equipment reduction, and best available technologies as required by New York City Local Law 77 of 2003. With the implementation of these emission reduction measures, construction-related air emissions for both nonroad and on-road sources would be below their corresponding *de minimis* thresholds and/or National Ambient Air Quality Standard (NAAQS), respectively, from activities at the TPDS site and at the BB-026, NCB-083, and NCB-015 diversion facility sites. Although $PM_{2.5}$, PM_{10}, NO_2, and CO concentrations from construction sources at the NCQ-077 diversity facility site were determined to be below the annual NAAQS, there could be the potential for the exceedance of the short-term and annual $PM_{2.5}$ *de minimis* thresholds at limited sidewalk receptor locations immediately adjacent to the site. However, based on the extent of the predicted exceedances, the transient nature of the sidewalk locations immediately adjacent to the NCQ-077 diversion facility site, and that the predicted $PM_{2.5}$ concentrations are below the NAAQS, this would not result in significant adverse air quality impacts during the construction period. To mitigate odors to the greatest extent practicable, DEP would implement an odor control program during construction and all necessary means would be employed to prevent on- and off-site odor nuisances. Therefore, because no significant adverse air quality impacts are predicted from the construction of the Proposed Project, there would not be disproportionate impacts on DACs.

OPERATIONAL IMPACTS OF THE PROPOSED PROJECT

The Proposed Project would not result in a disproportionate pollution burden on DACs during operation. The Proposed Project would not have the potential to result in significant adverse traffic impacts and would not result in a significant adverse air quality impact from mobile sources (vehicular traffic) since the projected trips were below CEQR thresholds. Since the Proposed Project is not expected to significantly alter traffic conditions and would result in fewer new peak hour vehicle trips than the *CEQR Technical Manual* screening threshold of 170 trips at nearby intersections in the study area after its completion, a quantified assessment of mobile source emissions from the operation of the Proposed Project was not warranted. Similarly, as described in Chapter 19, "Noise," the Proposed Project would not generate a significant adverse noise impact from mobile sources on or in a DAC.

The heating, ventilation, and air conditioning (HVAC) system for the TDPS is expected to be electric. Therefore, a stationary source analysis of criteria pollutant emissions from the operation of the Proposed Project was not warranted. The Proposed Project's odor control units would not result in an exceedance of the 1 part per billion (ppb) significant odor threshold for sensitive receptors or the 10 ppb New York State Ambient Air Quality Standard (NYSAAQS) in ambient air. Therefore, the Proposed Project would not result in significant adverse operational air quality impacts.

Beyond construction, all post-remedial requirements during operation, including potential future post-construction institutional controls (IC) or the management of engineering controls (EC) placed within the area of the Proposed Project sites would be followed in accordance with regulatory agency-approved SMPs. With the implementation of post-remedial requirements in accordance with regulatory agency-approved SMPs during operation, no significant adverse impacts relating to hazardous materials would result from operation of the Proposed Project.

The Proposed Project would reduce CSO discharges to Newtown Creek. Overall, the Proposed Project would reduce pollution in terms of surface water contamination in the area of the Proposed Project sites and study area, including in environmental justice communities.

At the TDPS site and the four diversion facility sites, the surface layouts are currently being designed; the inclusion of potential publicly accessible spaces would be determined as the Proposed Project design advances in consideration of the functional and operational needs of the Proposed Project.

Therefore, there would not be disproportionate impacts on DACs during operations.

CONCLUSION

Based on the foregoing assessment, the Proposed Project would not result in disproportionate impacts on environmental justice communities, including disadvantaged communities and minority and low-income communities, nor would they cause or increase a disproportionate pollution burden. The Proposed Project would meet the goals of the NYSDEC Consent Order and would have an overall benefit in terms of reducing pollution in environmental justice communities.

Chapter 23: Mitigation

A. INTRODUCTION

Based on the analyses presented in the preceding chapters, the Proposed Project is anticipated to result in significant adverse impacts related to construction period traffic and noise. In accordance with the 2021 *City Environmental Quality Review (CEQR) Technical Manual*, where significant adverse impacts have been identified, potential improvement measures are explored to mitigate those impacts to the extent practicable. Where no feasible and practicable mitigation can be identified, the impacts would remain unmitigated. This chapter provides a summary of the potential improvement measures, the mitigation analyses prepared, and the findings of those analyses.

PRINCIPAL CONCLUSIONS

Significant adverse impacts resulting from the Proposed Project have been identified for transportation and noise during construction. Mitigation measures being proposed to address those impacts, where feasible and/or practical, are discussed below. If no feasible mitigation can be identified, an unavoidable significant adverse impact would result.

B. TRANSPORTATION

As detailed in Chapter 16, "Transportation," significant adverse construction-period traffic impacts were identified for 11 lane groups at four intersections over one or more analysis time periods (see Table 16-22). Traffic improvement measures, developed to address these temporary construction impacts to the extent practicable, were found to be feasible at mitigating impacts at one of the four impacted intersections. These measures, which are subject to the approval of the New York City Department of Transportation (DOT) prior to implementation, and the corresponding mitigation analysis results are detailed in **Table 23-1**.

Table 23-1
2034 Mitigated Conditions Traffic Level of Service Analysis

Intersection / Direction	No Action				With Action				Mitigation				Recommended Measures
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	
Signalized Intersections													
12 – Greenpoint Avenue/Van Dam Street & Review Avenue - Construction 6-7 AM Peak Hour													
EB	LTR	0.18	29.3	C									Shift 2 seconds of green time from the NB phase to the WB phase: WB Green = 40 to 42 s NB Green = 55 to 53 s
WB	L	0.31	32.4	C	L	0.24	30.5	C	L	0.23	28.9	C	
	TR	0.77	49.8	D	TR	0.84	56.3	E+	TR	0.80	50.3	D	
NB	LTR	0.42	18.1	B	LTR	0.43	18.2	B	LTR	0.45	19.8	B	
SB	LTR	0.42	25.6	C	LTR	0.46	26.3	C	LTR	0.46	26.3	C	
	-	-	-	-	-	-	-	-	-	-	-	-	
	Intersection		28.8	C	Intersection		30.6	C	Intersection		29.7	C	
12 – Greenpoint Avenue/Van Dam Street & Review Avenue - Construction 7-8 AM Peak Hour													
EB	LTR	0.15	28.8	C									Shift 2 seconds of green time from the WB phase to the SB phase: WB Green = 40 to 38 s SB Green = 55 to 57 s SB lagging Green = 10 to 12 s
WB	L	0.43	34.9	C	L	0.37	32.9	C	L	0.39	34.9	C	
	TR	0.79	49.4	D	TR	0.72	43.8	D	TR	0.75	47.8	D	
NB	LTR	0.92	39.2	D	LTR	0.96	43.7	D	LTR	0.96	43.1	D	
SB	LTR	0.84	38.1	D	LTR	1.00	62.2	E+	LTR	0.94	49.1	D	
	-	-	-	-	-	-	-	-	-	-	-	-	
	Intersection		39.6	D	Intersection		51.1	D	Intersection		45.9	D	
12 – Greenpoint Avenue/Van Dam Street & Review Avenue - Construction 2-3 PM Peak Hour													
EB	LTR	0.11	28.1	C									Shift 1 second of green time from the WB phase to the NB phase: WB Green = 40 to 39 s NB Green = 55 to 56 s NB lagging Green = 10 to 11 s
WB	L	0.50	37.0	D	L	0.38	32.9	C	L	0.40	33.9	C	
	TR	0.74	45.2	D	TR	0.75	45.7	D	TR	0.77	47.8	D	
NB	LTR	1.08	86.5	F	LTR	1.10	94.3	F+	LTR	1.07	82.8	F	
SB	DefL	0.93	68.7	E	DefL	0.94	71.2	E	DefL	0.93	68.9	E	
	TR	0.76	33.5	C	TR	0.79	34.9	C	TR	0.79	34.9	C	
	Intersection		59.0	E	Intersection		62.8	E	Intersection		58.5	E	
12 – Greenpoint Avenue/Van Dam Street & Review Avenue - Construction 3-4 PM Peak Hour													
EB	LTR	0.10	28.0	C									Shift 1 seconds of green time from the WB phase to the NB phase: WB Green = 40 to 39 s NB Green = 55 to 56 s NB lagging Green = 10 to 11 s
WB	L	0.43	34.6	C	L	0.33	31.7	C	L	0.34	32.6	C	
	TR	0.78	47.2	D	TR	0.76	46.5	D	TR	0.78	48.8	D	
NB	LTR	1.18	125.5	F	LTR	1.21	136.4	F+	LTR	1.18	121.6	F	
SB	DefL	1.14	136.5	F	DefL	1.12	127.0	F	DefL	1.12	126.9	F	
	TR	0.77	33.4	C	TR	0.78	33.9	C	TR	0.78	33.9	C	
	Intersection		81.3	F	Intersection		85.7	F	Intersection		80.1	F	
12 – Greenpoint Avenue/Van Dam Street & Review Avenue - Typical PM Peak Hour													
EB	LTR	0.11	28.1	C									Shift 3 seconds of green time from the WB phase to the SB phase: WB Green = 40 to 37 s SB Green = 55 to 58 s SB lagging Green = 10 to 13 s
WB	L	0.42	34.5	C	L	0.33	31.9	C	L	0.36	34.7	C	
	TR	0.69	42.2	D	TR	0.68	41.9	D	TR	0.74	47.2	D	
NB	LTR	1.22	125.3	F	LTR	1.22	127.6	F	LTR	1.22	127.6	F	
SB	DefL	1.15	139.2	F	DefL	1.34	211.8	F+	DefL	1.13	129.9	F	
	TR	0.61	26.7	C	TR	0.66	28.0	C	TR	0.63	25.2	C	
	Intersection		81.6	F	Intersection		91.7	F	Intersection		82.9	F	

Notes: v/c = volume-to-capacity; L = left-turn; Def = defacto left-turn; T = through; R = right-turn; + = significant adverse impact
EB = eastbound; WB = westbound; NB = northbound; SB = southbound

Additional mitigation strategies, such as the deployment of Traffic Enforcement Agents (TEAs) and the placement of Variable Message Signs (VMSs) could be considered at intersections where identified impacts could not be readily mitigated with typical mitigation measures (e.g., signal timing adjustments) to potentially improve traffic operations during construction. **Table 23-2** provides a summary of the mitigation analysis findings for the impacted intersections.

Table 23-2
Traffic Mitigation Findings

Intersection	Roadway	Dir/App	Lane Group	Construction Peak Hours				Typical Peak Hours			
				Weekday				Weekday			SAT
				6-7 AM	7-8 AM	2-3 PM	3-4 PM	AM	MD	PM	MD/AN
Greenpoint Ave/Van Dam Street/Review Ave	Review Ave	WB	TR	Mit							
	Greenpoint Ave	NB	LTR			Mit	Mit	U	U		
		SB	LTR		Mit			U			
			DefL						U	Mit	
Greenpoint Ave/Kingsland Ave	Greenpoint Ave	EB	DefL		U	U	U	U	U	U	
		WB	TR	U	U	U	U	U	U	U	U
	Kingsland Ave	NB	LTR	U	U	U	U	U	U	U	
		SB	LR		U	U	U	U	U	U	
Maspeth Ave/Rust Street	Rust Street	NB	T		U			U	U	U	
		SB	T						U	U	
56th Road/49th Street	56th Road	WB	LT					U		U	
Total #s of Lane Groups with Mitigated/Unmitigated Impacts				1/2	1/5	1/4	1/4	0/8	0/8	1/7	0/1
Total #s of Intersections with Mitigated/Unmitigated Impacts				1/1	1/2	1/1	1/1	0/4	0/3	1/3	0/1

Notes: Dir/App = direction/approach; SAT = Saturday; MD = Midday; AN = Afternoon; Ave = Avenue
EB = eastbound; WB = westbound; NB = northbound; SB = southbound
L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; Mit = Impact Mitigated; U = Unmitigated Impact

C. NOISE

The Proposed Project would result in significant adverse impacts related to construction noise. Mitigation measures have been considered to address the significant adverse impacts where feasible and practicable. Significant adverse impacts that cannot be fully mitigated through reasonably practicable measures are also identified and discussed in Chapter 25, "Unavoidable Adverse Impacts."

As presented in Chapter 19, "Noise," predicted noise levels due to construction-related activities would result in noise levels at receptors in the vicinity of the tunnel dewatering pump station (TDPS) work area that would constitute potential temporary significant adverse impacts. Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. At these receptors, construction is predicted to produce noise levels up to the low 80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of construction for the TDPS (i.e., vibratory pile driving for the gravity discharge pipe installation work), which would occur for up to approximately 11 months. Noise level increases greater than 10 dBA would occur for up to approximately 12 consecutive months at the Nature Walk and for up to 110 months at the North Henry Street Restoration, resulting in noise levels in the low 70s to low 80s dBA, i.e., in the "marginally unacceptable" to "clearly unacceptable" category according to the *2021 CEQR Technical Manual* noise exposure criteria.

Construction of the Proposed Project would be required to follow the New York City Noise Control Code for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the New York City Noise Code, including a variety of source and path controls.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures would be implemented in accordance with the *New York City Noise Control Code*:

- Equipment that meets the sound level standards specified in Subchapter 5 of the *New York City Noise Control Code* would be utilized from the start of construction. Table 19-4 shows the noise levels for typical construction equipment and the mandated noise levels for the equipment that would be used for construction of the Proposed Project.
- As early in the construction period as logistics would allow, diesel- or gas-powered equipment would be replaced with electrical-powered equipment such as welders and water pumps (i.e., early electrification) to the extent feasible and practicable. Where electrical equipment cannot be used, diesel or gas-powered generators and pumps would be located within buildings to the extent feasible and practicable.
- Where feasible and practicable, construction sites would be configured to minimize back-up alarm noise. In addition, all trucks would not be allowed to idle more than 3 minutes at the construction site based upon Title 24, Chapter 1, Subchapter 7, Section 24-163 of the New York City Administrative Code.
- Contractors and subcontractors would be required to properly maintain their equipment and mufflers.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures for construction would be implemented:

- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, would be located away from and shielded from sensitive receptor locations;
- Noise barriers would be erected around the construction work areas, which would be 8 feet tall and constructed from plywood or other materials consistent with the noise barrier requirements set forth in DEP's "Rules for Citywide Construction Noise Mitigation";
- Concrete trucks would be required to be located inside site-perimeter noise barriers while pouring or being washed out; and
- Path noise control measures would be implemented (i.e., portable noise barriers, panels, enclosures, and acoustical tents, where feasible) for certain dominant pieces of equipment to the extent feasible and practical if required to meet the limits shown in Table 19-4. The details to construct portable noise barriers, enclosures, tents, etc. are shown in DEP's *Rules for Citywide Construction Noise Mitigation*.[1]

For the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, noise levels near where construction activities are taking place would increase above the construction noise impact criteria and would result in significant adverse noise impacts on these locations. Noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces are currently above the recommended *CEQR Technical Manual* noise level for outdoor areas and proposed construction activities would exacerbate these exceedances of the recommended level. No practical and feasible

[1] As found at http://www.nyc.gov/html/dep/pdf/noise_constr_rule.pdf

mitigation measures have been identified that could be implemented to reduce noise levels below the threshold. Consequently, construction activities would result in noise levels at Newtown Creek Nature Walk and future North Henry Street Restoration open spaces identified above that would constitute a significant adverse noise impact. Therefore, at these receptors, the significant adverse construction noise impacts would be unavoidable.

D. CONCLUSIONS

Significant adverse impacts resulting from the Proposed Project have been identified for transportation and noise during construction.

As detailed above, potential improvement measures have been recommended for DOT considerations to mitigate significant adverse traffic impacts identified at one of the four impacted intersections. However, at all four impacted intersections, there would be impacts that remain unmitigated and become unavoidable significant adverse impacts of the Proposed Project.

Construction activities would result in noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces that would constitute a significant adverse noise impact. No practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the applicable threshold. Therefore, at these receptors, the significant adverse construction noise impacts would be unavoidable.

A. INTRODUCTION

This chapter considers alternatives to the Newtown Creek Combined Sewer Overflow (CSO) Storage Tunnel project (the "Proposed Project"). Following the guidelines of the 2021 *City Environmental Quality Review* (*CEQR) Technical Manual,* the purpose of an alternatives analysis is to examine reasonable and feasible options that may avoid or reduce project-related significant adverse impacts while still achieving the stated goals and objectives of the Project. This chapter considers the following alternatives to the Proposed Project:

- A **No Action Alternative,** as required by the *CEQR Technical Manual*, which considers the impacts of not undertaking the Proposed Project (i.e., the No Action condition analyzed in this EIS).
- A **No Unmitigated Impact Alternative**, which considers an alternative to the Proposed Project that would eliminate the Proposed Project's unmitigated significant adverse impacts.

PRINCIPAL CONCLUSIONS

NO ACTION ALTERNATIVE

Under the No Action Alternative, the Proposed Project would not be constructed: the sites that would be affected by the Proposed Project for construction of the diversion facilities would remain in their existing condition, the tunnel dewatering pump station (TDPS) site would be vacated, and there would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

The No Action Alternative would not result in any significant adverse impacts; in particular, it would avoid the significant adverse impacts to traffic and noise that would occur during construction of the Proposed Project. However, as the No Action Alternative would not provide a reduction in CSO volumes, it would not have the beneficial effect that would occur with the Proposed Project (particularly improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek), and unlike the Proposed Project, it would not further the goals of the Newtown Creek Long Term Control Plan (LTCP) and the New York State Department of Environmental Conservation (NYSDEC) CSO Consent Order.

NO UNMITIGATED IMPACT ALTERNATIVE

The No Unmitigated Impact Alternative considers an alternative that would eliminate the Proposed Project's unmitigated significant adverse impacts. The EIS analyses identified significant adverse impacts for which no practicable mitigation has been identified to fully mitigate the impacts in the areas of traffic and noise during the construction period.

There is no practicable alternative that could be developed to avoid all of the unmitigated significant adverse impacts of the Proposed Project. In order to eliminate the Proposed Project's unmitigated significant adverse impacts in the areas of traffic and noise during construction, the Proposed Project would have to be modified to a point where it would not realize the goals and objectives of the Proposed Project, which include reducing CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Therefore, there is no practicable alternative that could be developed to avoid the unmitigated significant adverse impacts of the Proposed Project.

B. NO ACTION ALTERNATIVE

The No Action Alternative is the No Action condition, as discussed in Chapter 2, "Analysis Framework," and analyzed in this EIS. Under the No Action Alternative, the Proposed Project would not be constructed, and the sewer infrastructure in the area of Newtown Creek would remain in its existing condition. The sites that would be affected by the Proposed Project for construction of the diversion facilities and the TDPS would also remain in their existing condition. The TDPS site would be vacated by DSNY. There would be no reduction in CSO volumes discharged to Newtown Creek from outfalls BB-026, NCQ-077, NCB-083, and NCB-015.

LAND USE, ZONING, AND PUBLIC POLICY

Under the No Action Alternative, there would be no new infrastructure constructed and no changes to use on the sites that would be affected by the Proposed Project. In particular, the sites of the diversion facilities and the TDPS, which primarily contain surface parking, vacant land/buildings, and manufacturing uses, would remain in their existing condition (as with the Proposed Project, the TDPS site would be vacated by DSNY under the No Action Alternative). There would also be no changes to zoning or public policies applicable to the area of the Proposed Project under the No Action Alternative. As with the Proposed Project, the No Action Alternative would not result in any significant adverse impacts to land use, zoning, or public policy.

SOCIOECONOMIC CONDITIONS

As with the Proposed Project, the No Action Alternative would not result in significant adverse impacts due to direct residential displacement, direct business displacement, indirect residential displacement, indirect business displacement, or adverse effects on specific industries. Regarding direct business displacement, unlike the Proposed Project, the No Action Alternative would not result in the direct displacement of any businesses or employees, as it would not require acquisition and/or surface easements of properties. However, as discussed in Chapter 5, "Socioeconomic Conditions," the displacement of businesses with the Proposed Project would not significantly affect business conditions in any industry or any category of business within or outside the study area. Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse impacts due to direct business displacement.

COMMUNITY FACILITIES AND SERVICES

As with the Proposed Project, the No Action Alternative would not introduce any new residents that would result in increased demand for community facilities and services, and would not result in any direct effects

on community facilities (i.e., would not physically displace or alter a community facility). Therefore, neither the No Action Alternative nor the Proposed Project would result in any significant adverse impacts to community facilities.

OPEN SPACE

As with the Proposed Project, the No Action Alternative would not result in a new worker or residential population that would place additional demand on open space resources in the area, and would not result in the permanent loss of or alteration to any existing open space. Under the No Action Alternative, there would be no construction activities that would have the potential to affect adjacent open spaces; therefore, the potential significant adverse noise impacts at the Newtown Creek Nature Walk and North Henry Street Restoration open spaces that would occur with the Proposed Project due to construction at the TDPS site (discussed in Chapter 19, "Noise") would not occur under the No Action Alternative. However, as discussed in Chapter 7, "Open Space," the significant adverse noise impacts from construction of the Proposed Project, while noticeable and potentially intrusive during the most intensive construction activities, would not significantly affect the usability of the open spaces. Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse direct impacts on open space and recreational resources.

SHADOWS

The No Action Alternative would not result in any above-grade structures that would have the potential to cast new shadows on any sunlight sensitive resource. In particular, the No Action Alternative would not include any new structures on the TDPS site that would cast shadow on the adjacent public open spaces (the Newtown Creek Nature Walk and the future planned North Henry Street Restoration Project public open space) or natural resources (Whale Creek, the 'No Name' Inlet, and the planned salt marsh associated with the North Henry Street Restoration Project). However, as discussed in Chapter 8, "Shadows," the shadows cast by the Proposed Project at the TDPS site would be limited in extent and duration and would not cause significant adverse shadow impacts to these resources. Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse shadows impacts.

HISTORIC AND CULTURAL RESOURCES

As discussed in Chapter 9, "Historic Resources," there are no known or potential historic architectural resources on the project sites. As there would be no construction under the No Action Alternative, there would be no potential to affect archaeological resources or inadvertent construction-related damage to architectural resources (as discussed in Chapter 9, "Historic and Cultural Resources," a Construction Protection Plan [CPP] would be prepared for the Proposed Project to protect any resources from inadvertent construction-related damage). As with the Proposed Actions, the No Action Alternative would not result in any significant adverse impacts to historic and cultural resources.

URBAN DESIGN AND VISUAL RESOURCES

Under the No Action Alternative, there would be no new infrastructure or structures constructed that would have the potential to affect urban design and visual resources. Therefore, as with the Proposed Project, the

No Action Alternative would not result in any significant adverse impacts to urban design and visual resources.

NATURAL RESOURCES

Unlike the Proposed Project, the No Action Alternative would not include any construction of new infrastructure or structures that would have the potential to affect natural resources. However, as discussed in Chapter 11, "Natural Resources," measures would be implemented for construction with the Proposed Project to minimize disturbances to natural resources, including turbidity curtains and best management practices to minimize suspended sediment during in-water construction activities, and overall, construction and operation of the Proposed Project would have limited effects that would not result in significant adverse impacts on natural resources. While the No Action Alternative would similarly not result in significant adverse impacts to natural resources, it would not provide the reduction in CSO volumes that would occur with the Proposed Project; therefore, the No Action Alternative would not have the beneficial effect on natural resources (particularly improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek) that would occur with the Proposed Project.

HAZARDOUS MATERIALS

As there would be no construction of new infrastructure or structures under the No Action Alternative, there would be no potential for exposure to hazardous materials. As discussed in Chapter 12, "Hazardous Materials," contamination may be, or is likely present in the soil and groundwater which could be encountered during construction of the Proposed Project at all locations (i.e., along the CSO tunnel corridor, along the gravity diversion sewer corridor, and at the TDPS site, discharge pipe, and all diversion facility parcels). However, the Proposed Project would investigate and remediate potential hazardous materials within the Project Area in accordance with regulatory oversight (by DEP or NYSDEC), which would minimize the potential for exposure to hazardous materials during construction, and post-remedial requirements would be followed during operation in accordance with regulatory agency-approved Site Management Plans (SMP). Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse impacts relating to hazardous materials.

WATER AND SEWER INFRASTRUCTURE

Under the No Action Alternative, there would be no construction of new CSO infrastructure to reduce the volume of CSOs entering Newtown Creek. As with the Proposed Project, the No Action Alternative would not adversely affect wastewater treatment performance at the Newtown Creek and Bowery Bay Wastewater Resource Recovery Facilities (WRRFs) or sanitary and stormwater drainage and management (discussed in Chapter 13, "Water and Sewer Infrastructure"), and would not result in significant adverse impacts to water and sewer infrastructure. However, unlike the Proposed Project, the No Action Alternative would not result in a reduction in CSO volumes discharged from outfalls BB-026, NCQ-077, NCB-083, and NCB-015, therefore, the No Action Alternative would not have the beneficial effects on water quality in Newtown Creek that would occur with the Proposed Project.

SOLID WASTE AND SANITATION SERVICES

Unlike the Proposed Project, the No Action Alternative would not result in construction of new infrastructure or facilities that would generate solid waste. As discussed in Chapter 14, "Solid Waste and Sanitation Services," operation of the Proposed Project would result in a level of solid waste generation that would be easily accommodated by existing waste transfer operators serving the Proposed Project sites and the surrounding neighborhood. Therefore, neither the Proposed Project nor the No Action Alternative would result in a significant adverse impact to solid waste and sanitation services or place a significant burden on the City's solid waste management system.

ENERGY

The No Action Alternative would not result in construction of new infrastructure or facilities that would create energy demand. In comparison, the Proposed Project's energy demand would be negligible when compared with the overall demand within New York Independent System Operator (NYISO)'s Control Area,[1] Zone J—representing Consolidated Edison (Con Edison)'s New York City service area (discussed in Chapter 15, "Energy"). Furthermore, the Proposed Project would not include any changes to local power transmission infrastructure. Therefore, neither the Proposed Project nor the No Action Alternative would result in any significant adverse impacts with respect to the generation, transmission, or consumption of energy.

TRANSPORTATION

Unlike the Proposed Project, the No Action Alternative would not result in any significant adverse impacts with respect to transportation. Specifically, the significant adverse traffic impacts at four intersections that are projected from construction of the Proposed Project would not occur under the No Action Alternative. As with the Proposed Project, the No Action Alternative would not result in any significant adverse impacts to pedestrian elements, transit, street user safety, and parking.

In the No Action Alternative, traffic, transit, pedestrian, and parking demand in the study area would increase as a result of background growth, development that could occur pursuant to existing zoning (i.e., as-of-right development), and other development projects likely to occur within and in the vicinity of the Project Area. As discussed in Chapter 16, "Transportation," construction of the Proposed Project would not result in an amount of transit users that would warrant a detailed transit analysis; therefore, only detailed analyses of traffic, pedestrian conditions, and parking was warranted, and the potential effects of the No Action Alternative in these areas is considered below.

TRAFFIC

Independent of the Proposed Project, traffic levels of service (LOS) at many locations in the study area would experience congested conditions in the future: vehicle delays are expected to increase from added

[1] A Control Area within the NYISO systems refers to a single electric system or combination of electric power systems to which a common Automatic Generation Control scheme is applied in order to balance power generation and load within the electric power system(s) at all times.

traffic attributed to background growth and discrete projects that would be in operation by the 2040 analysis year (see Table 16-18 and Figure 16-19 in Chapter 16, "Transportation"). For the analyzed signalized intersections, five lane groups at two intersections (increased from four lane groups at the same two intersections under existing conditions) will operate at unacceptable LOS E or F during one or more analysis peak hours under the No Action Alternative. For the analyzed unsignalized intersections, the same four lane groups at two intersections as existing conditions will operate at unacceptable LOS E or F during one or more analysis peak hours under the No Action Alternative. However, since conditions under the No Action Alternative would not be exacerbated by traffic changes associated with the Proposed Project, there would be no intersections with significant adverse traffic impacts under the No Action Alternative, compared to four impacted intersections during one or more analysis peak hours under the Proposed Project.

PEDESTRIANS

Under the No Action Alternative, pedestrian volumes along analyzed sidewalks, crosswalks and corner areas are expected to increase compared with existing levels. However, the study area pedestrian analysis locations will continue to operate at favorable LOS A and LOS B levels during all analysis peak hours under the No Action Alternative. Although construction of the Proposed Project would result in disruptions of public ROWs (i.e., temporary narrowing or closure of existing pedestrian facilities that would either reduce pedestrian flow capacities and/or detour pedestrians to alternative paths), the study area pedestrian elements would continue to operate at acceptable LOS C or better with the Proposed Project. Therefore, neither the No Action Alternative nor the Proposed Project would result in any significant adverse pedestrian impacts.

PARKING

Under the No Action Alternative, it is anticipated that demand for both off-street and on-street parking would increase, however, there will continue to be an abundance of parking availability surrounding each of the Project Sites. Although construction of the Proposed Project is expected to necessitate temporary disturbance of surrounding roadways that could involve temporary displacement of existing on-street parking spaces, as well as additional parking demand, it would not result in the potential for a parking shortfall. Therefore, neither the No Action Alternative nor the Proposed Project would result in any significant adverse parking impacts.

AIR QUALITY

Under the No Action Alternative, there would be no construction of new infrastructure or facilities that would have the potential for emissions affecting air quality. In comparison, while the Proposed Project would result in new emissions both during construction (from non-road construction equipment, on-road vehicles, tugboats to maneuver barges that may be used to support construction, dust-generating activities such as truck loading and unloading operations, and groundwater treatment systems) and operation (from odor control systems), as presented in Chapter 17, "Air Quality," an emissions reduction program would be implemented to minimize the effects of construction activities on the surrounding community, and overall, construction and operation of the Proposed Project would have limited effects that would not result

in significant adverse air quality impacts. Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse air quality impacts.

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Neither the Proposed Project nor the No Action Alternative would result in any significant adverse impacts with respect to greenhouse gas (GHG) emissions and climate change. The No Action Alternative would not result in GHG emissions, as there would be no construction of new infrastructure or facilities. While there would be increased GHG emissions from the Proposed Project, including GHG emissions from construction activities and use of construction materials, the Proposed Project would implement energy efficiency measures and other sustainability measures consistent with the City's emissions reduction goals (discussed in Chapter 18, "Greenhouse Gas Emissions and Climate Change"). The Proposed Project would also be resilient to future climate conditions and would incorporate measures to protect critical infrastructure from flooding. Therefore, neither the No Action Alternative nor the Proposed Project would result in significant adverse impacts related to GHG emissions and climate change.

NOISE

Under the No Action Alternative, there would be no tunnel/infrastructure or construction, and noise levels in the study area would remain as in the existing condition. Unlike the Proposed Project, the No Action Alternative would not result in any significant adverse impacts with respect to construction noise. Specifically, as there would be no construction activities at the TDPS site under the No Action Alternative, there would be no significant adverse noise impacts at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, whereas the Proposed Project would result in potential temporary significant adverse construction noise impacts at these locations (discussed in Chapter 19, "Noise"). Therefore, the No Action Alternative would avoid the significant adverse impacts to noise that would occur during construction of the Proposed Project.

PUBLIC HEALTH

As discussed above and below, the No Action Alternative would not result in unmitigated significant adverse impacts in areas related to public health (air quality, water quality, hazardous materials, or noise), and therefore would not have the potential to result in significant adverse impacts to public health. In particular, the No Action Alternative is expected to avoid the significant adverse impacts to noise that would occur during construction of the Proposed Project. However, as discussed in Chapter 20, "Public Health," construction resulting from the Proposed Project would not result in chronic exposure to high levels of noise or prolonged exposure to noise levels above 85 dBA. Therefore, neither the No Action Alternative nor the Proposed Project would result in a significant adverse public health impact.

NEIGHBORHOOD CHARACTER

As with the Proposed Project, the No Action Alternative would not result in any significant adverse impacts on neighborhood character. According to the *CEQR Technical Manual*, a proposed action could have a significant adverse neighborhood character impact if it would have the potential to affect the defining features of the neighborhood, either through the potential for a significant adverse impact in any relevant

technical area, or through a combination of moderate effects in those technical areas. As discussed above, the No Action Alternative would not result in significant adverse impacts in any technical areas that define neighborhood character (land use, urban design and visual resources, historic and cultural resources, socioeconomic conditions, transportation, shadows, open space, and noise). In comparison, as discussed in Chapter 21, "Neighborhood Character," the Proposed Project would have effects on neighborhood character, however, these effects would not constitute a significant adverse impact on neighborhood character and the Proposed Project would be consistent with the existing low-scale industrial land uses and water and sewer infrastructure in the neighborhood and would not detract from any of the neighborhood's defining features.

CONCLUSION

As outlined above, the No Action Alternative would not result in any significant adverse impacts; in particular, it would avoid the significant adverse impacts to traffic and noise that would occur during construction of the Proposed Project. However, as the No Action Alternative would not provide reduction in CSO volumes, it would not have the beneficial effect that would occur with the Proposed Project (particularly improvements in water quality, sediment quality, and aquatic habitat within Newtown Creek). In particular, unlike the Proposed Project, the No Action Alternative would not reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the NYSDEC CSO Consent Order.

C. NO UNMITIGATED IMPACT ALTERNATIVE

This alternative considers a scenario that would not result in any identified significant adverse impacts that could not be fully mitigated. The EIS analyses identified significant adverse impacts for which there is no practicable mitigation to fully mitigate the impacts. Specifically, unmitigated impacts were identified in the areas of traffic and noise during the construction period for the Proposed Project. Alternatives to the Proposed Project that would eliminate these unmitigated significant impacts are examined below.

The assessment focuses only on the technical analyses mentioned above. There are no summary comparative assessments for technical analyses where there were no significant adverse impacts or where such impacts were fully mitigated for the Proposed Project.

CONSTRUCTION TRANSPORTATION

Construction of the Proposed Project would result in temporary significant adverse traffic impacts for 11 lane groups at four intersections over one or more analysis time periods (see Table 16-23 in Chapter 16, "Transportation"), due to construction worker and delivery vehicles, as well as lane and roadway closures for construction of the TDPS discharge pipe and the NCQ-077 diversion facility. Traffic improvement measures, developed to address these temporary construction impacts to the extent practicable, were found to be feasible at mitigating impacts at one of the four impacted intersections. However, as discussed in Chapter 23, "Mitigation," the Proposed Project would result in unmitigated significant adverse construction-related transportation impacts at all four impacted intersections. Additional mitigation strategies, such as the deployment of Traffic Enforcement Agents (TEAs) and the placement of Variable Message Signs (VMSs) could be considered at intersections where identified impacts could not be readily mitigated with typical

mitigation measures (e.g., signal timing adjustments) to potentially improve traffic operations during construction.

However, the Proposed Project is located near some congested roadways and any small increases in incremental volumes could result in significant adverse transportation impacts that could not be fully mitigated during one or more analysis peak hours. Correspondingly, construction of any major projects in this area could result in unmitigated transportation impacts. Therefore, no reasonable alternative could be developed to avoid such impacts without substantially compromising the Proposed Project's stated goals.

CONSTRUCTION NOISE

As presented in Chapter 19, "Noise," construction-related activities would result in noise levels at receptors in the vicinity of the TDPS work area that would constitute potential temporary significant adverse impacts. Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. As detailed in Chapter 23, "Mitigation," construction of the Proposed Project would be required to follow the requirements of the New York City Noise Control Code for construction noise control measures. Specific noise control measures would be incorporated in noise mitigation plan(s) required under the New York City Noise Code, including a variety of source and path controls.

Noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces are currently above the recommended *CEQR Technical Manual* noise level for outdoor areas and proposed construction activities would exacerbate these exceedances of the recommended level. No practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the impact threshold. Source or path controls beyond those already identified for the construction of the Proposed Project would not be effective in reducing the level of construction noise at the receptors that have the potential to experience significant adverse construction noise impacts. Even accounting for the types of measures incorporated into the Proposed Project to reduce construction noise, any construction project comparable in scale to that for the Proposed Project (i.e., multi-year construction at any one location) would have the potential to result in unmitigated significant adverse noise impacts at these locations during construction activities. Therefore, no practicable alternative could be developed to avoid temporary construction noise impacts without substantially compromising the Proposed Project's stated goals.

CONCLUSION

There is no practicable alternative that could be developed to avoid all of the unmitigated significant adverse impacts of the Proposed Project. In order to eliminate the Proposed Project's unmitigated significant adverse impacts in the areas of traffic and noise during construction, the Proposed Project would have to be modified to a point where it would not realize the goals and objectives of the Proposed Project, which include reducing CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order. Therefore, there is no practicable alternative that could be developed to avoid the unmitigated significant adverse impacts of the Proposed Project.

Chapter 25: Unavoidable Adverse Impacts of the Proposed Project

A. INTRODUCTION

Following the 2021 *City Environmental Quality Review (CEQR) Technical Manual,* this chapter summarizes potential significant adverse impacts that would be unavoidable if the Proposed Project is implemented regardless of the mitigation employed, or if mitigation is impossible.

PRINCIPAL CONCLUSIONS

As described in Chapter 23, "Mitigation," the Proposed Project would result in significant adverse transportation and noise impacts during construction. To the extent practicable, mitigation has been proposed for the identified significant adverse impacts. However, no practicable mitigation was identified to fully mitigate the significant adverse construction transportation and noise impacts, and therefore, they would constitute unavoidable significant adverse impacts.

B. UNAVOIDABLE ADVERSE IMPACTS

TRANSPORTATION

As detailed in Chapter 16, "Transportation," significant adverse construction-period traffic impacts were identified for 11 lane groups at four intersections over one or more analysis time periods (see Table 16-23). Traffic improvement measures, developed to address these temporary construction impacts to the extent practicable, were found to be feasible at mitigating impacts at one of the four impacted intersections. As discussed in Chapter 23, "Mitigation," additional mitigation strategies, such as the deployment of Traffic Enforcement Agents (TEAs) and the placement of Variable Message Signs (VMSs) could be considered at intersections where identified impacts could not be readily mitigated with typical mitigation measures (e.g., signal timing adjustments) to potentially improve traffic operations during construction. Even with these measures in place, some of the identified temporary impacts could remain unmitigated, thereby constituting unavoidable significant adverse impacts of the Proposed Project. All four of the impacted intersections were identified to have the potential for unavoidable significant adverse construction traffic impacts during one or more analysis peak hours. **Table 25-1** provides a summary of the analysis findings for the impacted intersections that have the potential for unavoidable impacts.

Table 25-1
Traffic Findings – Locations with Potential Unavoidable Impacts

Intersection	Roadway	Dir/App	Lane Group	Construction Peak Hours				Typical Peak Hours			
				Weekday				Weekday			SAT
				6-7 AM	7-8 AM	2-3 PM	3-4 PM	AM	MD	PM	MD/AN
Greenpoint Ave/Van Dam Street/Review Ave	Greenpoint Ave	NB	LTR					U	U		
		SB	LTR					U			
			DefL						U		
Greenpoint Ave/Kingsland Ave	Greenpoint Ave	EB	DefL		U	U	U	U	U	U	
		WB	TR	U	U	U	U	U	U	U	U
	Kingsland Ave	NB	LTR	U	U	U	U	U	U	U	
		SB	LR		U	U	U	U	U	U	
Maspeth Ave/Rust Street	Rust Street	NB	T		U			U	U	U	
		SB	T						U	U	
56th Road/49th Street	56th Road	WB	LT					U		U	
Total #s of Lane Groups with Potential Unavoidable Impacts				2	5	4	4	8	8	7	1
Total #s of Intersections with Potential Unavoidable Impacts				1	2	1	1	4	3	3	1

Notes: Dir/App = direction/approach; SAT = Saturday; MD = Midday; AN = Afternoon; Ave = Avenue
EB = eastbound; WB = westbound; NB = northbound; SB = southbound
L = left-turn; DefL = defacto left-turn; T = through; R = right-turn; U = Unavoidable Impact

NOISE

As presented in Chapter 19, "Noise," predicted noise levels due to construction-related activities would result in noise levels at receptors in the vicinity of the tunnel dewatering pump station (TDPS) work area that would constitute potential temporary significant adverse impacts. Specifically, at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, construction of the TDPS is predicted to result in potential temporary significant adverse construction noise impacts. At these receptors, construction is predicted to produce noise levels up to the low 80s dBA, resulting in noise level increases up to approximately 21 dBA during the most noise-intensive stages of construction for the TDPS (i.e., vibratory pile driving for the gravity discharge pipe installation work), which would occur for up to approximately 11 months. Noise level increases greater than 10 dBA would occur for up to approximately 12 consecutive months at the Nature Walk and 110 months at the North Henry Street Restoration, resulting in noise levels in the low 70s to low 80s dBA, i.e., in the "marginally unacceptable" to "clearly unacceptable" category according to the *2021 CEQR Technical Manual* noise exposure criteria.

For the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces, noise levels near where construction activities are taking place would increase above the construction noise impact criteria and would result in significant adverse noise impacts on these locations. Noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces are currently above the recommended *CEQR Technical Manual* noise level for outdoor areas, and proposed construction activities would exacerbate these exceedances of the recommended level. No practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the applicable threshold. Consequently, construction activities would result in noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces identified above that would constitute a significant adverse noise impact. Therefore, at these receptors, the significant adverse construction noise impacts would be unavoidable.

CONCLUSION

Potential traffic improvement measures have been recommended for DOT considerations to mitigate significant adverse traffic impacts identified at one of the four impacted intersections. However, for all four impacted intersections during one or more analysis peak hours, the identified impacts would remain unmitigated and would be unavoidable significant adverse impacts of the Proposed Project.

Construction activities would result in noise levels at the Newtown Creek Nature Walk and future North Henry Street Restoration open spaces that would constitute a significant adverse noise impact. No practical and feasible mitigation measures have been identified that could be implemented to reduce noise levels below the applicable threshold. Therefore, at these receptors, the significant adverse construction noise impacts would be unavoidable.

Chapter 26: Growth-Inducing Aspects of the Proposed Project

A. INTRODUCTION

The term "growth-inducing aspects" generally refers to the potential for a project to trigger additional development in areas outside of a project site (i.e., outside the directly affected area) that would not experience such development without the project. The 2021 *City Environmental Quality Review (CEQR) Technical Manual* indicates that an analysis of the growth-inducing aspects of a project is appropriate when the project: (1) adds substantial new land use, new residents, or new employment that could induce additional development of a similar kind of land use or additional development of support uses (such as development of retail establishments to serve new residential units); and/or (2) introduces or greatly expands infrastructure capacity. As the Newtown Creek CSO Storage Tunnel Project (the Proposed Project) would introduce new infrastructure (the combined sewer overflow [CSO] storage tunnel, tunnel dewatering pumping station [TDPS], diversion chambers, drop shafts, conveyance sewers, outfall structures, and odor control systems), an assessment of the Proposed Project's potential to induce additional development is warranted.

B. PROBABLE IMPACTS OF THE PROJECT

As described in Chapter 1, "Project Description," in 2005, the City of New York and the New York State Department of Environmental Conservation (NYSDEC) entered into an Order on Consent[1] to address CSOs in New York City, and over the past 20 years, the New York City Department of Environmental Protection (DEP) has implemented several specific projects to improve water quality in Newtown Creek.

As part of the CSO Order, DEP prepared the Newtown Creek CSO Long-Term Control Plan (LTCP), which NYSDEC approved in June 2018. Pursuant to the CSO Order on Consent and the LTCP (and recently approved modifications to the LTCP-recommended project), DEP is proposing a 3.26-mile-long tunnel with a storage volume of 50 million gallons (MG) to divert overflows at the four largest CSO outfalls. The Proposed Project includes construction of diversion facilities for the four outfalls to convey wet-weather flows to the tunnel, a gravity diversion sewer to connect the diversion facility at outfall BB-026 to the tunnel, and a TDPS and discharge pipe to convey stored sewer overflows to the Newtown Creek Wastewater Resource Recovery Facility (WRRF), located in the Greenpoint neighborhood of Brooklyn.

As noted in Chapter 4, "Land Use, Zoning, and Public Policy," the Proposed Project would include new sewer infrastructure which would primarily be underground and would be part of the extensive sewer infrastructure system present in the study area—which includes existing CSO outfalls, sewers, pump stations, and wastewater treatment facilities—and would be compatible with the existing sewer infrastructure in the study area. The proposed CSO storage tunnel and related infrastructure would provide

[1] NYSDEC Case No. C02-20000107-8

appropriate CSO controls to reduce the volume and frequency of overflow events and fulfill the requirements of the Order of Consent to address CSOs entered into by New York City and NYSDEC. The proposed CSO storage tunnel would not increase the sewer capacity available to potential new development and would not introduce new development.

While the Proposed Project would include the construction of new infrastructure to divert overflows from four CSO outfalls, it would not result in an expansion of the sewer infrastructure capacity. The area that would be served by the Proposed Project includes parts of Brooklyn and Queens that contain primarily light-industrial, commercial, and transportation uses (see Chapter 4, "Land Use, Zoning, and Public Policy") that is served by the existing combined sewer system; therefore, the Proposed Project would not result in an expansion of sewer infrastructure in an area that lacks sewer service, and would not result in induced development through new sewer service.

C. CONCLUSION

As outlined above, although the Proposed Project would include the construction of new infrastructure, it would not result in an expansion of the sewer infrastructure capacity. As such, the Proposed Project is not anticipated to induce additional development.

Chapter 27: Irreversible and Irretrievable Commitment of Resources

A. INTRODUCTION

This chapter considers the potential for the Proposed Project to result in impacts on the loss of environmental resources, both in the immediate future and in the long term. In accordance with the *2021 CEQR Technical Manual*, a summary of the impacts from the Proposed Project on the loss of environmental resources and the extent to which it precludes future options or involves trade-offs between short- and long-term environmental losses or gains is provided.

Resources, both natural and man-made, would be expended in the construction and operation of the Newtown Creek CSO Storage Tunnel Project (the Proposed Project). Certain resources would be irreversibly and irretrievably committed to the Proposed Project, such as land occupied by the Proposed Project; building materials used to construct the Proposed Project; energy in the form of fuel and electricity used in construction and operation of the Proposed Project, as well as the human effort (time and labor) required to develop, construct, and operate the Proposed Project. The commitment of resources and materials for the Proposed Project (e.g. land, building materials, energy in the form of fuel and electricity, and time and labor efforts) were weighed against the Proposed Project's purpose and need to reduce CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order.

B. COMMITMENT OF RESOURCES

The CSO storage tunnel and additional infrastructure (diversion chambers, connection to the drop shafts, drop shafts, outfall structures, and odor control systems) to control CSO discharges from outfalls BB-026, NCQ-077, NCB-083, and NCB-015 would be primarily constructed below grade, with the exception of electrical control panels and access hatches for future access to the tunnel and diversion facilities. The Tunnel Dewatering Pump Station (TDPS) facility would consist of above- and below-grade structures, with above-grade structures including a connected building containing a pump station and a screening facility, and a separate building containing a degritting facility. The locations of the above-grade infrastructure at the diversion facilities and TDPS were selected though a comprehensive siting study that determined which locations provided the greatest relative benefit to the Proposed Project. In particular, the selected locations for the diversion facilities and TDPS were determined to provide the greatest relative benefit, due in large part to their proximity to each of the affected outfalls and to the Newtown Creek WWRF, respectively. The tunnel was located and sized to meet its purpose and need to reduce the CSO discharges to Newtown Creek, as required by the Newtown Creek LTCP and the CSO Consent Order. Therefore, as the Proposed Project's siting and scale is appropriate to meet its goals of reducing CSO discharges, the Proposed Project would not constitute a significant commitment of land resources.

Operation of the Proposed Project's facilities would not require permanent staffing, and its operation would be largely automated; however, during operation of the TDPS, which is expected to occur approximately 58 times during the typical year, there could be up to 15 personnel on site to monitor and manage equipment operations and complete maintenance activities. The tunnel and diversion facilities are designed to operate passively with gravity flow during wet weather events. As discussed in Chapter 15, "Energy," the Proposed Project's facilities would include new electric-powered equipment to handle waste processing, operate HVAC systems, and provide lighting; the facilities are estimated to require a total of 13,137 MMBtus/year for operation. This incremental increase in energy demand would be considered negligible when compared with the overall demand within New York Independent System Operator (NYISO)'s Control Area,[1] Zone J—representing Consolidated Edison (Con Edison)'s New York City service area. Therefore, the Proposed Project would not result in a significant commitment of labor or energy resources.

As discussed in Chapter 15, "Energy," and Chapter 18, "Greenhouse Gas Emissions and Climate Change," while the Proposed Project would include permanent buildings at the TDPS site for the pump station, screening facility, and degritting facility, the buildings will be designed to utilize fully electric systems. Additionally, the Proposed Project would include construction of facilities at the diversion facility sites that require electricity use but would not include buildings, as all electrically powered equipment would be located in a below grade vault. Overall, the Proposed Project would not represent a substantial increase in energy demand. The total fossil fuel use in all forms associated with construction under the Proposed Project would result in up to approximately 39,489 metric tons of carbon dioxide equivalent (CO_2e) emissions. However, in addition to utilizing full electric systems, the Proposed Project would include a number of sustainable design features, including utilizing high-efficiency equipment. Therefore, the Proposed Project would be consistent with the efficient buildings goal and clean power goal defined in *CEQR Technical Manual* as part of the City's GHG reduction goal.

C. CONCLUSION

In conclusion, the Proposed Project would utilize a minimum amount of land and would result in a negligible commitment of other resources such as labor, energy, and building materials. Furthermore, the commitment of resources is appropriate to achieve the Proposed Project's goal of reducing CSO discharges to Newtown Creek in furtherance of the goals of the Newtown Creek LTCP and the CSO Consent Order.

[1] A Control Area within the NYISO systems refers to a single electric system or combination of electric power systems to which a common Automatic Generation Control scheme is applied in order to balance power generation and load within the electric power system(s) at all times.