Chapter 11: Water and Sewer Infrastructure

A. INTRODUCTION

This chapter assesses whether any changed background conditions or the differences between the reasonable worst-case development scenario (RWCDS) and the program assessed in the 2008 Final Generic Environmental Impact Statement (FGEIS) and subsequent technical memoranda would result in any significant adverse impacts on water and sewer infrastructure that were not addressed in the 2008 FGEIS and subsequent technical memoranda.

PRINCIPAL CONCLUSIONS

This analysis finds that the proposed project would not result in significant adverse impacts to water and sewer infrastructure that were not addressed in the 2008 FGEIS and subsequent technical memoranda. Infrastructure improvements would be required for various phases of the project, as detailed in this section:

PHASE 1A

New 12-inch water mains in 35th Avenue, 126th Street, 127th Street, and Willets Point Boulevard would be constructed as necessary to support the proposed development. For Willets West, a new on-site water loop would be required to tie into existing water main in Roosevelt Avenue.

Sanitary sewer infrastructure, either existing or being built by the New York City Economic Development Corporation (EDC), would be adequate to accommodate the Phase 1A development. A 36-inch sanitary sewer, as well two stubbed connections in 126th Street: one 24-inch and one 16-inch, is currently being constructed by EDC. As a part of the proposed project, the 16-inch connection would be extended south along 126th Street by the Queens Development Group, LLC (QDG). Based on current estimates, the 36-inch sanitary sewer under construction, the 24-inch sewer downstream from it, and the 37th Avenue pump station would have sufficient capacity to accommodate the development proposed under Phase 1A. As part of the Phase 1A DEP approval process, QDG would work with DEP to assess the operations of the existing pump station. Based on this assessment, QDG would replace or upgrade components identified as requiring such work as a result of the additional flows associated with the Phase 1A development. Based on measured existing flow to the Bowery Bay Water Pollution Treatment Plant (WPTP) and the projected sanitary flow from the proposed development in Phase 1A, the WPTP would have sufficient capacity to accommodate the proposed project flow.

A 7.5-foot by 5-foot box storm sewer currently under construction by EDC would be extended south along 126th Street by QDG as part of the proposed project to accommodate Phase 1A development within the Special Willets Point District. For Willets West and the other sites, existing infrastructure would be sufficient to convey stormwater runoff.

PHASE 1B

Consultation with DEP would be required to determine if upgrades (including a new regulator and connection) to the 72-inch water main in Willets Point Boulevard would be required to support the Phase 1B development. As assumed in the 2008 FGEIS, the existing 72-inch water main within Willets Point Boulevard would remain in place and a permanent easement, mapped on the City map, would be provided to enable DEP access to this water main. A grade change and replacement of portions of the water main, contemplated in Technical Memorandum #4 would not be required.

Based on current estimates, the 36-inch sanitary sewer currently under construction would have sufficient capacity to accommodate the development proposed under Phase 1B. Upgrades to the 37th Avenue pump station and its force main would likely be required for Phase 1B development. If needed to support Phase 1B development, QDG would fund the 37th Avenue pump station upgrade, at the time when the need arises. It is anticipated that the upgrade would occur within the existing city land or rights-of-way. Verification of this requirement by DEP will be obtained prior to Phase 1B development. Based on measured existing flow to the Bowery Bay WPTP and the projected sanitary flow from the proposed development through Phase 1B, the WPTP would have sufficient capacity to accommodate the proposed project flow.

Stormwater and sanitary sewer infrastructure constructed would be sized in accordance with the DEP-approved amended drainage plan (ADP) prepared by QDG.

PHASE 2

For the District, consultation with DEP would be required to determine water supply requirements for Phase 2 of the proposed project. Additional internal water service would likely be required to support the proposed development in 2032. Additionally, consultation with DEP would be required to determine if upgrades (including a new regulator and connection) to the 72-inch water main in Willets Point Boulevard would be required to support the Phase 2 development, if not already constructed in a prior phase. For all other sites, water service would remain as constructed.

For the District, new sanitary sewer trunk mains would be required in Northern Boulevard 126th Street, and Roosevelt Avenue. These sewers would be sized in accordance with the ADP that would be developed. Based on current estimates, the 36-inch sanitary sewer currently under construction would have sufficient capacity to accommodate the development proposed with the full development through Phase 2. Per the draft ADP, upgrades to the 37th Avenue pump station and its force main would be required for Phase 2. Specifically, the operating capacity of the 37th Avenue pump station (currently 3,450 gpm) would need to be upgraded to 8,400 gpm. If not previously performed upgrades to the 24-inch sewer under the Grand Central Parkway, the 37th Avenue pump station and its associated downstream force main would be required, and would be funded by the developer of Phase 2. These upgrades would be in conformance with the DEP approved ADP. Based on measured existing flow to the Bowery Bay WPTP and the projected sanitary flow from the proposed development through Phase 2, the WPTP would have sufficient capacity to accommodate the proposed project flow.

For the District, new storm sewers would be required in Northern Boulevard, 126th Street, and Roosevelt Avenue. These sewers would be sized in accordance with the ADP developed for Phase 2. In addition, a 60-inch outfall would be required in 127th Street for Phase 2.

B. SUMMARY OF FINDINGS—2008 FGEIS AND SUBSEQUENT TECHNICAL MEMORANDA

The 2008 FGEIS found that although the Willets Point Development Plan would have generated new demands on infrastructure, the municipal systems serving the District and surrounding area, as enhanced as part of the Willets Point Development Plan, would have adequate capacity to meet the needs of the Willets Point Development Plan as well as the potential future development on Lots B and D. These conclusions did not change in subsequent technical memoranda, although the specific enhancements were modified based on further analysis and discussion with DEP.

WATER SUPPLY

The 2008 FGEIS and subsequent technical memoranda assumed that new local water supply distribution lines would be provided by the developer(s) to the blocks in the southwestern portion of the District, and uses in the eastern portion of the District would continue to be served by existing supply lines. This infrastructure would be built as private infrastructure, constructed to meet DEP standards.

The 2008 FGEIS assumed that the existing 72-inch pre-stressed reinforced concrete pipe (PRCP) water main within Willets Point Boulevard would remain in place and that the developer(s) would provide a permanent easement mapped on the City map in order to provide acceptable access to the existing main. The width and designation of this easement was to be determined in consultation with DEP and in accordance with DEP requirements. In Technical Memorandum #4, as a result of discussions with DEP, this assumption was revisited and the memorandum examined the potential replacement of portions or all of the 72-inch water main. In this scenario, Willets Point Boulevard would have been raised to flood plain elevation and the water main would have been repositioned higher in the street bed. The analysis provided in Technical Memorandum #4 found that there would be no interruptions in service and no significant adverse impacts would result from the potential water main replacement.

The 2008 FGEIS estimated that the Willets Point Development Plan and the potential future development on Lots B and D would increase water demand by approximately 4.36 million gallons of water per day (mgd) and concluded that this additional demand would not result in a significant adverse impact on the City's water supply system. Subsequent memoranda recalculated water demand, and found that the effects would be the same as described in the 2008 FGEIS.

SANITARY SEWAGE

The 2008 FGEIS and subsequent technical memoranda describe how the District has no connection to the City's sanitary sewer system. It was assumed that under the Willets Point Development Plan, the District would be connected to the City's sanitary sewer system, to eliminate the District's reliance on septic tanks. Improvements would include new sewers and new connections to the existing 96-inch-diameter combined sewer in 108th Street. The 2008 FGEIS and Technical Memoranda #1 through #3 assumed construction of a new pump station (most likely to be located within the District) and force main to make this connection; As a result of DEP guidance, a gravity flow system was used instead. Technical Memorandum #4 incorporates those changes.

The 2008 FGEIS and subsequent technical memoranda also considered potential effects on the 37th Avenue pump station, and determined that the pump station does not have adequate

capacity for the full build out of the District. In 2010, EDC commissioned a study to assess the adequacy of the pump station for development of Phase 1 (the program for Phase 1 at the time was different in extent and use from the currently proposed Phase 1A and Phase 1B). The study also considered existing sanitary flows from CitiField and the residential district tributary to the pump station. The study concluded that the pump station did have sufficient capacity to accommodate the Phase 1 development, and DEP concurred with the conclusion.[1]

The 2008 FGEIS estimated that the Willets Point Development Plan and the potential future development on Lots B and D would have resulted in an increase of sanitary flow to the Bowery Bay Wastewater Treatment Plant (WWTP) of approximately 2.8 mgd and concluded that the Bowery Bay WWTP would have adequate capacity to meet the increased demand associated with the Willets Point Development Plan. Subsequent memoranda (Technical Memoranda #3 and #4) also calculated increases in sanitary flow and resulted in the same conclusions related to the Bowery Bay WWTP.

STORMWATER

The 2008 FGEIS and subsequent technical memoranda identified the need for the following, related to stormwater:

- Prior to redevelopment of the site, an ADP would be prepared by the developer to comprehensively address all the surface stormwater runoff and separate handling of the dry weather flow that would be generated as a result of the Willets Point Development Plan, and drainage features to be included in the development of the District. The approved ADP would accommodate the City's current drainage plan for the area, and easements associated with highway drainage, and would be subject to prior review and approval by DEP.
- The 2008 FGEIS found that the overall stormwater runoff in the future with the Willets Point Development Plan would have remained largely unchanged from the then existing runoff volume of 366 cubic feet per second (cfs) as there would be no substantial change in surface coverage on the site. The 2008 FGEIS also identified the need for a new stormwater conveyance system to address inadequate stormwater management conveyance systems within the District, as follows: a lack of detention prior to discharge at two outfalls on 126th and 127th Streets; stormwater runoff greater than the allowable flow per the current drainage plan at the two outfalls; and inadequate sizing of the conveyance system, resulting in uncontrolled and untreated runoff and street flooding during storm events. To eliminate these stormwater management issues, the Willets Point Development Plan indicated a need for the construction of a new stormwater conveyance system, including piping, sustainable design features, and an adequately sized detention tank, or other equivalent means to accommodate the stormwater that would be beyond the discharge capacity of the two stormwater outfalls serving the District. The 2008 FGEIS also identified a potential need to construct a new outfall to augment the then-existing system. As part of the ongoing infrastructure work in support of development within the District, planning and construction has progressed to increase the capacity of the stormwater outfall at 126th Street (see "Existing Conditions," below).

[1] Memorandum regarding Willets Point Development 37th Ave Pumping Station from New York City Department of Environmental Protection, dated December 20, 2010, and signed by Stella Rozelman, P.E., Chief of Division of Collection Facilities, Engineering Analysis and Planning.

- In Technical Memoranda #3 and #4, which examined development of in phases, it was concluded that flooding would continue in the undeveloped portions of the District until the District-wide stormwater management features were implemented.
- The stormwater management plan would be reviewed and approved by DEP and would specify Best Management Practices (BMPs) and sustainable design features that the project would include. Technical Memoranda #3 and #4 identified that the stormwater management plan would be implemented in stages.
- The 2008 FGEIS identified the need for stormwater to be pre-treated prior to discharge to Flushing Bay, which is a regulated water body, to ensure that applicable discharge criteria would be met after construction is completed. Stormwater discharge to Flushing Bay will be treated in accordance with New York State Department of Environmental Conservation (DEC) and DEP regulations.
- The 2008 FGEIS concluded that implementation of the Willets Point Development Plan would require approval pursuant to the State Pollutant Discharge Elimination System (SPDES) general permit program for stormwater discharges from construction activities, as well as post construction (Build) conditions. Prior to initiation of construction activities, a Stormwater Pollution Prevention Plan (SWPPP) would be developed pursuant to the requirements of the general permit and would be enforced throughout the sequence of construction activities and after construction is complete.

COMBINED SEWER OVERFLOWS

The 2008 FGEIS anticipated that development within the District would provide separate storm sewers. Therefore, stormwater runoff would not contribute to flow being directed to the Bowery Bay WWTP. However, since an increase in sanitary flow could impact Combined Sewer Overflow (CSO) discharges, the effect of an increase in sanitary flow to the combined sewer/regulator system within the Bowery Bay WWTP service area was investigated using Wallingford Software's InfoWorks model. Based on the simulations, the 2008 FGEIS and subsequent technical memoranda concluded that there would be no significant increase in the volume or frequency of CSO events as a result of the Willets Point Development Plan, and no significant effect on the water quality.

C. METHODOLOGY

This chapter has been prepared in accordance with the guidelines of the 2012 *CEQR Technical Manual*. It describes existing conditions and future conditions without the proposed project, and analyzes the probable impacts that the proposed project may have on water and sewer infrastructure. This analysis assesses future conditions in 2018, 2028, and 2032, when completion of Phase 1A, Phase 1B, and Phase 2 (full buildout) of the proposed project are anticipated, respectively.

D. EXISTING CONDITIONS

Information in this section is based on the 2008 FGEIS, subsequent technical memoranda, and information provided by Langan Engineering, Environmental, Surveying, and Landscape Architecture, D.P.C. (Langan), the engineer for Phase 1A of the proposed project. It also describes infrastructure improvements currently under construction within the District and surrounding area. In general, these improvements consist of new sanitary and stormwater mains that will provide new public sanitary sewer service to the existing uses as well as to support the redevelopment of the District and adjacent areas, and replace an inadequately-sized stormwater

sewer and outfall to help alleviate chronic flooding that occurs in the District and adjacent areas. Sizing for the sewer improvements is based on a draft ADP developed by EDC. EDC broke ground on these improvements in December 2011.

WATER SUPPLY

SPECIAL WILLETS POINT DISTRICT[1]

The District and adjoining streets currently have a complete, interconnected grid of water distribution mains along Northern Boulevard, 34th Avenue, 126th Street, 126th Place, 127th Street, and Willets Point Boulevard. This gravity distribution system is fed by City Water Tunnel No. 2.

Existing demands within the District are generally limited to the current on-site uses and met by two 12-inch water mains that pass under the Grand Central Parkway. There is an existing 72-inch water main that passes through the site along Willets Point Boulevard that supplies water to a substantial portion of northeast Queens. There are no connections to the 72-inch water main within the Willets Point District.

As planning for the District has evolved since the 2008 FGEIS, modifications with respect to some of the proposed infrastructure elements have been considered (see discussion above). It is currently assumed that the existing 72-inch water main beneath Willets Point Boulevard would remain in place.

EDC is also upgrading a portion of the water main in 126th Street between Northern Boulevard to a point just south of 35th Avenue. This work is a part of the EDC contract to construct a new storm sewer in 126th Street.

WILLETS WEST

The Willets West portion of the project site comprises an approximately 30.7-acre section of the surface parking field adjacent to CitiField.

A 12-inch water main runs east-west within Roosevelt Avenue to the south of the Willets West portion of the project site; another 12-inch water main runs east-west just north of Shea Road, to the north of the Willets West portion of the project site. CitiField currently maintains a series of 8-inch water mains on site that run to the east of the Willets West portion of the project site and to the north of Lot B and connect to the existing water mains in Shea Road and Roosevelt Avenue.

SOUTH LOT AND LOT D

The South Lot and Lot D parking lots are collectively approximately 12.1 acres in area. Lot D and the South Lot are used for commuter parking and parking for United States Tennis Association (USTA) National Tennis Center (NTC) events when baseball games are not in progress.

[1] The Special Willets Point District is within the boundary of the federally designated Brooklyn-Queens sole source aquifer. This designation was made pursuant to Section 1424 (e) of the Safe Drinking Water Act (SDWA), in recognition of the importance of the aquifer's vulnerability to contamination. As discussed in the 2008 FGEIS, the area's reliance on septic disposal inherently conflicts with SDWA goals. The aquifer is currently not used as a potable water source.

According to DEP maps, South Lot and Lot D are served by the 12-inch water main in Roosevelt Avenue and an 8-inch water main that runs through the site. The 72-inch water main runs along the southern property line of the two lots.

LOT B

Lot B, which is approximately 4.7 acres in area, is used for VIP/ADA parking by CitiField. There is water service around Lot B, including the 12-inch water main in Roosevelt Avenue and additional water service along the north of Lot B.

WATER DEMAND

Currently, the only water usage on the project site is within the District, with a demand of 159,964 gallons per day (gpd) of water (see **Table 11-1**).

Table 11-1
Existing Water Demand

Use	Size	Demand Type	Rate	Consumption (gallons per day)
Residential	1 (person)	Domestic	100 gpd/person	100
		Air Conditioning	N/A	0
Commercial/Office	194,567 sf	Domestic	0.10 gpd/sf	19,458
		Air Conditioning	0.17 gpd/sf	33,076
Retail	39,230 sf	Domestic	0.24 gpd/sf	9,415
		Air Conditioning	0.17 gpd/sf	6,669
Industrial[1]	337,949 sf	Domestic	0.10 gpd/sf	33,795
		Air Conditioning	0.17 gpd/sf	57,451
			Total	**159,964**

Note:
1. No rate provided in CEQR Technical Manual for Industrial uses therefore Commercial/Office rate was used.
Source: Rates from 2012 *CEQR Technical Manual.*

SANITARY SEWAGE

New York City's sewer system includes an extensive grid of sewers beneath the streets that convey wastewater to 14 WWTPs. Together, these plants, which are operated by DEP, treat approximately 1.7 billion gallons of sewage per day. Most of the sewer systems within New York City are combined sewer systems, which carry both sanitary sewage from buildings and stormwater collected in catch basins and storm drains. However, some areas of the City, primarily in Queens and Staten Island, have separate systems for sanitary sewage and stormwater. In addition, small areas of Staten Island, Brooklyn, and Queens, including the District, use septic systems to dispose of sanitary sewage.

The project site is within the service area of the Bowery Bay WWTP, which is located on the East River in Astoria, Queens. The Bowery Bay WWTP treats sanitary wastewater to secondary treatment standards prior to discharge to the East River. The existing sewer system within the Bowery Bay WWTP service area is a combined sewer system that collects both sanitary sewage and stormwater runoff. Discharges from this plant are regulated by the DEC through a SPDES permit. At the plant, water is treated through a variety of physical and biological processes that remove solid contaminants so that the water discharged into the City's waterways does not adversely affect water quality. During dry weather, combined sewers function as sanitary sewers, conveying all flows to the WWTP for treatment. During wet weather, however, stormwater entering the combined sewer/regulator system can exceed the capacity of the regulator and the treatment plant and trigger a CSO event into the City's waterways. The

purpose of a regulator is to divert sanitary flow from the existing combined sewers to the intercepting sewer during normal flow periods (dry weather), and limit the flow to the intercepting sewer to twice the dry weather flow during storm periods (wet weather). During a significant storm event, CSOs within the Bowery Bay WWTP service area discharge to the East River and Flushing Bay. See "Combined Sewer Overflows," below.

The combined sewer/regulator system within the Bowery Bay WWTP service area is designed to deliver twice the mean dry weather, or sanitary, flow to the Bowery Bay WWTP for treatment. While the total hydraulic capacity of the Bowery Bay WWTP is 300 mgd, it can only provide treatment to secondary levels for 150 mgd. Flow records for the plant are maintained by DEP and are reported to DEC. The Bowery Bay WWTP, which has a permitted design capacity of 150 mgd, experienced flows of 112 mgd in October 2012 with a 12-month running average flow of 111 mgd.

SPECIAL WILLETS POINT DISTRICT

As described above, the District is located within the service area of the Bowery Bay WWTP; however, as detailed in the 2008 FGEIS, the Willets Point area is not connected to the New York City sanitary sewer system and relies entirely on septic systems as the means of sewage disposal.

Currently, the 24-inch gravity sewer that runs underneath the Grand Central Parkway is the nearest DEP sewer network connection to the District. The farthest eastern extent of this network is a manhole located approximately 100 feet to the west of CitiField's western property line. The 24-inch sewer drains to the 37th Avenue pump station. As detailed in the 2008 FGEIS, this pump station has the capacity to pump up to 5 mgd into a 20-inch force main, which discharges into a 36-inch gravity sewer at the intersection of 37th Avenue and 111th Street. The 36-inch sewer drains to the 96-inch combined sewer in 108th Street (see **Figure 11-1)**.

Since the issuance of the 2008 FGEIS, EDC has funded the construction of a 36-inch PRCP gravity sewer that is currently being built across the breadth of CitiField's northern and western parking lots. The 36-inch sewer was designed to accept flow from the District. Once this work is completed, the District could be connected to the DEP sewer network. This connection would be made to the existing 24-inch gravity sewer which crosses beneath the Grand Central Parkway and would convey flow to the existing 37th Avenue pump station.

In connection with this new sanitary sewer, a new 24-inch Class III PRCP sanitary sewer stub is also under construction on 126th Street extending from the 36-inch gravity sewer north towards 34th Avenue, as is a short 16-inch sanitary sewer stub south along 126th Street.

WILLETS WEST

The Willets West portion of the project site is located within the service area of the Bowery Bay WWTP and is served by sanitary sewers. The nearest connection to the City sanitary sewer network is the 24-inch sewer that is located west of Citi Field, beyond the perimeter of the park road system.

CitiField currently maintains a 12-inch sanitary force main that connects to this 24-inch sewer, which drains to the 37th Avenue pump station. This pump station has a rated capacity of 3,460 gallons per minute (gpm) and drains to a 20-inch force main. Sanitary flow from the 37th Avenue pump station drains to the Bowery Bay WWTP through the CSO network in 108th Street.

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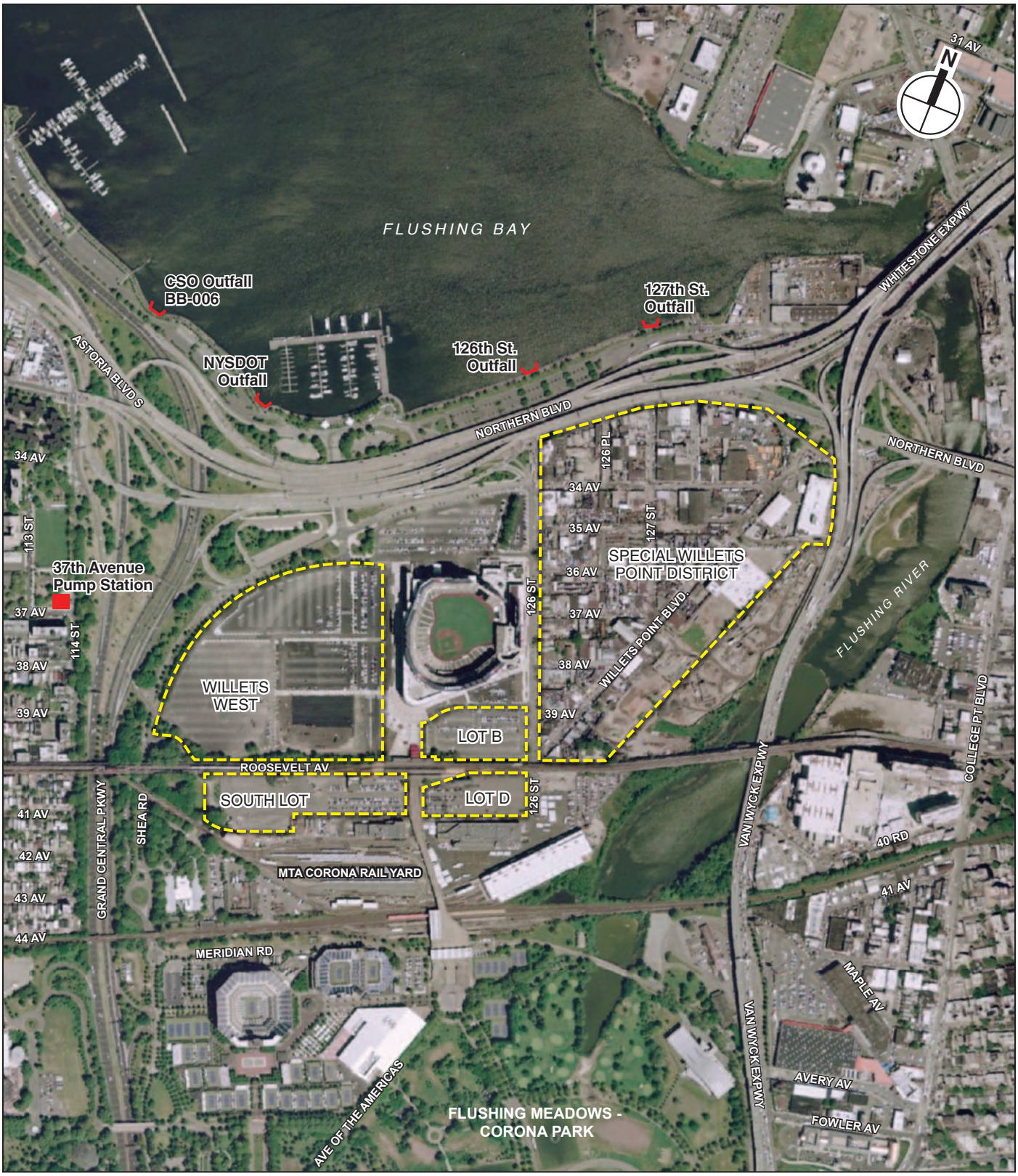

Selected Sewer Infrastructure

Figure 11-1

SOUTH LOT AND LOT D

The South Lot and Lot D portions of the project site are located within the service area of the Bowery Bay WWTP; however, there does not appear to be any existing sanitary sewer service within the public roadways surrounding the site. The MTA station drains to an on-site individual subsurface sewage treatment system (septic) that is located in Lot D.

LOT B

The Lot B portion of the project site is located within the service area of the Bowery Bay WWTP. The existing CitiField sanitary force main is located near Lot B. The MTA station drains to an on-site individual subsurface sewage treatment system (septic) that is located in Lot B.

SANITARY SEWAGE CALCULATION

For the purposes of this analysis, the amount of sanitary sewage is conservatively estimated as all water demand from the project site except that used by air conditioning, which is typically not discharged to the sewer system. Current uses within the District generate an estimated 62,767 gpd of sanitary sewage, which is discharged to septic systems (all other portions of the project site do not generate any sanitary sewage).

STORMWATER

Stormwater runoff volumes and rates of discharge vary depending upon the type of land, cover, and slope.

SPECIAL WILLETS POINT DISTRICT

As described in the 2008 FGEIS, stormwater runoff generated in the District is discharged into Flushing Bay via two 60-inch outfalls on 126th Street and 127th Street without detention, resulting in surcharge and flooding conditions. The maximum capacity for each outfall is 74 cfs. The 2008 FGEIS identified that the runoff generated in existing conditions is greater than the allowable flow tributary to the two outfalls (148 cfs), indicating that the stormwater discharge infrastructure is inadequate. In addition, there is only minimal stormwater conveyance infrastructure, and a portion of the District is below a sufficient grade to allow for gravity conveyance of stormwater toward the outfalls. Since the area lacks an adequate drainage system, much of the runoff flows as overland flow and ponds, causing area streets to flood during storm events. Furthermore, runoff from the many facilities in the area is neither controlled nor treated prior to entering the storm drains that convey this stormwater to the outfalls.

As part of the ongoing infrastructure work in support of the redevelopment of the District, planning has progressed to increase the capacity of the stormwater outfall at 126th Street, construct a new 7.5-foot by 5.0-foot storm sewer in a portion of 126th Street, and to better manage stormwater within the District. A Joint Application for Permits was submitted to DEC and the United States Army Corps of Engineers (USACE) on November 4, 2010 for the replacement of the 126th Street storm sewer outfall. The USACE issued authorization to EDC for the replacement of the 126th Street outfall in December 2010. A DEC permit for construction of the outfall improvements was issued on February 3, 2011. The improvements consist of the replacement of the storm sewer water-ward of the concrete cut-off wall under the existing New York City Department of Parks and Recreation's (DPR) esplanade along Flushing Bay. The new 126th Street outfall, combined with the re-use of the existing 127th Street outfall, will provide sufficient capacity to manage stormwater runoff from the District, when

redeveloped, as indicated in the permit application for the Willets Point Off-site Sewer Improvement Project.

The new 7.5-foot by 5.0-foot storm sewer in 126th Street is currently under construction and will discharge to Flushing Bay via the new storm outfall that is also under construction. This storm sewer will extend along 126th Street from the outfall, south to between 34th and 35th Avenues.

WILLETS WEST

A 72-inch New York State Department of Transportation (NYSDOT)/DPR storm sewer, which drains to Flushing Bay (see **Figure 11-1)**, is present in the Willets West portion of the project site. The outfall to Flushing Bay is not associated with the DEP stormwater outfalls in 126th and 127th Streets. The parking lots west of CitiField (including the Willets West area), the perimeter roadway (Shea Road), and a majority of the stadium drain to this 72-inch sewer. The majority of the runoff tributary to this storm sewer is treated via subsurface BMPs. Some areas discharge untreated stormwater and are in violation of current DEC regulations; however, no detention is provided or needed for discharge to a NYSDOT sewer.

SOUTH LOT AND LOT D

Stormwater from the eastern portions of Lot D currently drains to a 54-inch storm sewer in 126th Street before being discharged into Flushing Bay via a 60-inch outfall on 126th Street.

Stormwater from the South Lot and possibly from the western portion of Lot D drains to a NYSDOT and DPR storm sewer network that drains to two 22-foot by 10-foot DEP CSOs that discharge directly to Flushing Bay via outfall BB006. Based on discussions with DPR, surface ponding of stormwater runoff is prevalent on South Lot and Lot D after rain events.

LOT B

Stormwater runoff from the Lot B portion of the project site currently is detained, treated, and directed to the 54-inch DEP storm sewer in 126th Street before being discharged into Flushing Bay via a new 60-inch outfall on 126th Street.

STORMWATER CALCULATIONS

Table 11-2 provides information on the surface-type distribution of the project site. The weighted runoff coefficient is also calculated for each of the subcatchment areas and is listed in **Table 11-2**. These numbers correspond to the percentage of precipitation that becomes surface runoff.

COMBINED SEWER OVERFLOWS

As discussed above, during significant storm events CSOs within the Bowery Bay WWTP service area discharge to the East River and Flushing Bay.

The 2008 FGEIS estimated that the CSO outfalls, which may potentially be affected by development within the District and on Lots B and D, discharged 5,711.68 million gallons per year to area waterways. The 2008 FGEIS concluded that generally, the impact of CSO events on local water quality is short-term at most locations, due principally to the mixing caused by tidal currents of the receiving waters and the fact that sanitary flows are diluted by runoff.

Table 11-2
Existing Surface Coverage

Portion of Project Site	Surface Type	Surface Areas (sf)	Percent Coverage	Discharge Method	Weighted Runoff Coefficient
Special Willets Point District	Building Roofs	822,456	31%	Separate Sewer	
	Paved Surfaces	1,773,138	67%	Separate Sewer	
	Grass/Softscape	41,071	2%	Separate Sewer/Infiltration	
	Total	**2,636,665**	**100%**		**0.89**
Willets West	Paved Surfaces	1,318,507	90%	Separate Sewer	
	Grass/Softscape	152,697	10%	Separate Sewer/Infiltration	
	Total	**1,471,204**	**100%**		**0.78**
South Lot and Lot D	Paved Surfaces	486,784	100%	Separate Sewer	
	Total	**486,784**	**100%**		**0.85**
Lot B	Building Roofs	1,207	1%	Separate Sewer	
	Paved Surfaces	179,539	93%	Separate Sewer	
	Grass/Softscape	12,543	6%	Separate Sewer/Infiltration	
	Total	**193,289**	**100%**		**0.81**

Sources: Langan

In September 2010, New York City released its NYC Green Infrastructure Plan which outlines strategies to achieve better water quality and sustainability benefits than a traditional "all-grey" strategy. Goals of the plan relate to reductions in CSO volume, the capture of rainfall from impervious surfaces, and the provision of quantifiable sustainability benefits. The plan has five key components: 1) build cost-effective grey infrastructure, 2) optimize the existing wastewater system, 3) control runoff from 10 percent of impervious surfaces through green infrastructure, 4) institutionalize adaptive management, model impacts, measure CSOs, and monitor water quality, and 5) engage and enlist stakeholders. An update to the plan was released in 2011.

Flushing Bay and Flushing Creek are identified in the plan as individual watersheds where CSO reductions will have the greatest impact. The plan identifies opportunities within each watershed.

Since the project site does not have a combined sewer system, it is not included in the boundaries of either the Flushing Bay or Flushing Creek identified as an "opportunity" in either drainage area.

E. THE FUTURE WITHOUT THE PROPOSED PROJECT

In the future without the proposed project in 2018, 2028, and 2032, it is assumed that no changes will occur on any portion of the project site with regard to development of new buildings or uses. Therefore, it is expected that that the District will continue to contain its existing industrial and auto-related uses, and that the Willets West, South Lot, Lot D, and Lot B portions of the project site will continue to serve the parking needs of CitiField. These uses will be able to connect to and make use of the municipal infrastructure improvements currently under construction.

WATER SUPPLY

With no changes on the project site, it is expected that existing water demand will remain unchanged in the future without the proposed project; therefore, future water demand is estimated at 159,964 gpd for 2018, 2028, and 2032.

It is expected that the improvements undertaken by EDC (i.e., the replacement of a 12-inch water main along 126th Street between Northern Boulevard to a point between 35th and 36th Avenues) will be complete by 2018.

SANITARY SEWAGE

With no changes on the project site, it is expected that existing sanitary sewage generated will remain unchanged in the future without the proposed project; therefore, future sanitary sewage generation is estimated at 62,767 gpd for 2018, 2028, and 2032. This flow will likely continue to be directed to the existing septic system. A limited volume may be directed to the new infrastructure currently under construction, once completed.

It is expected that the improvements undertaken by EDC (i.e., the new 36-inch gravity sanitary sewer running west from 126th Street and the 16-inch and 24-inch segments on 126th Street) will be complete by 2018.

STORMWATER

It is expected that the improvements undertaken by EDC (i.e., the 7.5-foot by 5.0-foot outfall in 126th Street, the 7.5-foot by 5.0-foot storm sewer in 126th Street, and the 60-inch stub sewer connection in 34th Avenue) will be complete by 2018. As it is assumed that land use would remain the same, no changes to the runoff coefficient would occur in 2018, 2028, or 2032.

COMBINED SEWER OVERFLOWS

DEP is working to reduce CSOs in specific areas through construction projects that include upgrades at WWTP, storm sewer expansions, and CSO retention tanks. DEP also has a citywide effort to better manage stormwater using green infrastructure, consistent with its *NYC Green Infrastructure Plan*, updated in 2011. These green infrastructure measures include source controls, or the detention or retention of stormwater runoff through capture and controlled release, infiltration into the ground, vegetative uptake, and evapotranspiration. DEP will continue to implement a range of measures to control CSOs.

F. PROBABLE IMPACTS OF THE PROPOSED PROJECT

PHASE 1A (2018)

The first phase of the project (Phase 1A) would consist of the remediation and development of an approximately 23-acre portion of the Special Willets Point District and the development of "Willets West" on the existing parking lot west of CitiField. Development within the District would consist of a hotel with approximately 200 rooms and approximately 30,000 square feet of retail space along the east side of 126th Street, a 20-foot-wide public esplanade, and an approximately 2,800-space surface parking area that would also be used for active recreation for a portion of the year.

Willets West—an entertainment and retail center of approximately 1.4 million gross square feet (approximately one million sf of gross leasable area) —would be developed on a portion of the surface parking lot west of CitiField. The complex would include retail stores, movie theaters, restaurant and food hall spaces, and entertainment venues. Surface parking and a parking structure also would be developed in this location, including 2,500 new spaces for the entertainment/retail center and 400 spaces of replacement parking for use by the Mets.

In addition, the westernmost CitiField surface parking lot south of Roosevelt Avenue (a portion of the South Lot) would be redeveloped as a structured parking facility, to replace a portion of the CitiField parking spaces formerly located on the Willets West portion of the project site.

The project site is within the Federal Emergency Management Agency (FEMA) 100-year floodplain.[1] FEMA and New York City Building Code flood resistant design requirements must therefore be taken into account within the design, while complying with the Special Willets Point District zoning elevation requirements. During Phase 1A, the majority of the project site is anticipated to remain at the existing grade, with the hotel and commercial space finished floor elevations being elevated to comply with the design flood elevation. It is anticipated that the remainder of the extent of Phase 1A would be raised above the floodplain elevation or otherwise designed to comply with FEMA and New York City Building Code requirements prior to completion of the development of Phase 1B in 2028.

WATER SUPPLY

Proposed Improvements

Special Willets Point District

Water service within the District would be supplied from a new water main network, to be constructed by the developer. Existing DEP water mains in the developed area (35th Avenue south to Willets Point Boulevard, 126th Street east to 127th Street) would be demolished or abandoned as required. New 12-inch ductile iron pipe (DIP) water mains would be constructed in 35th Avenue, 126th Street, 127th Street, and Willets Point Boulevard. The buildings to be constructed in Phase 1A would tie directly into these new water mains.

An easement would be established over the new 12-inch DIP water main and the existing 72-inch PRCP water main in Willets Point Boulevard in the portion of the street that would be demapped prior to Phase 1A construction.

Willets West

A new on-site water service loop is proposed to connect to the existing 12-inch water main within Roosevelt Avenue at the southwest corner of the Willets West portion of the project site and to the existing 8-inch water main that serves CitiField. Some existing segments of CitiField's water supply system would be demolished as they would no longer be needed once the new water service loop is constructed. This new water service would serve the proposed Willets West development while maintaining CitiField's water network.

South Lot and Lot D

Service to the parking structure proposed for the South Lot would be provided by a lateral connection to the 12-inch water main within Roosevelt Avenue.

Lot B

No development is projected for Lot B by 2018, and thus no new water service would be required.

[1] On February 25, 2013, FEMA released Advisory Base Flood Elevation maps for areas in New York City, including the project site. Although the ABFE is subject to further review, if it is adopted as part of a future updated Flood Insurance Rate Map, the proposed project would comply with these flood elevations as required by the New York City Building Code.

Water Demand

In the 2018 analysis year, the project site is projected to result in a demand for 661,500 gpd of water (see **Table 11-3**), which is an increase of 501,536 gpd over the No Action condition.

Table 11-3
2018 Projected Water Demand

Proposed Use	Size	Demand Type	Rate	Phase 1A Consumption (gallons per day)
Retail	1,430,000 sf	Domestic	0.24 gpd/sf	343,200
		Air Conditioning	0.17 gpd/sf	243,100
Hotel[1]	200 (rooms)	Domestic	120 gpd/occupant	48,000
	160,000 sf	Air Conditioning	0.17 gpd/sf	27,200
Total	1,590,000		NA	**661,500**
Increase from the Future Without the Proposed Project				**501,536**

Note: 1. Assumes 2 occupants per room.
Source: Rates from 2012 *CEQR Technical Manual.*

The 2008 FGEIS projected a demand for water of 4.36 million gallons per day (mgd) for the full development of the District and concluded that the infrastructure was sufficient to meet that demand. The Phase 1A water demand would be substantially lower than 4.36 mgd. Therefore, based on the FGEIS conclusion, the infrastructure is sufficient to supply the Phase 1A projected water demand.

SANITARY SEWAGE

Proposed Improvements

As part of the development of Phase 1A, QDG would develop and submit a DEP-approved ADP reflecting Phase 1A street demapping.

Special Willets Point District

Sanitary sewage from the District would be directed to the 36-inch PRCP sanitary sewer currently being constructed by EDC across CitiField's northern and western parking lots. This sewer will provide two stubbed connections in 126th Street: one 24-inch and one 16-inch. The 16-inch connection would be partially extended south along 126th Street by QDG, in accordance with the ADP to be developed for the proposed project. Buildings developed within the District as part of Phase 1A would discharge to this new sewer extension.

Willets West

Sanitary sewage from the development of Willets West would be directed to the 36-inch gravity sewer currently being constructed across CitiField's northern and western parking lots. Based on current estimates, the 36-inch sewer currently under construction has adequate capacity to support the sanitary flow from the Willets West development.

South Lot and Lot D

No sanitary sewage connection would be provided for South Lot and Lot D, as these areas would be developed as parking facilities.

Lot B

No development is projected for Lot B by 2018. Therefore, no sanitary sewage connection would be provided for Lot B.

Sanitary Sewage Calculation

In the 2018 analysis year, the project site would result in 391,200 gpd of sanitary sewage, an increase of 328,433 gpd over the No Action condition.

Based on current estimates and the previous EDC studies, the 37th Avenue pump station, the 36-inch sewer currently under construction, and the 24-inch sewer downstream from it, would have sufficient capacity to accommodate the development proposed under Phase 1A. QDG would work with DEP to assess the operations of the existing pump station. Based on this assessment, QDG would replace or upgrade components identified as requiring such work as a result of the additional flows associated with the Phase 1A development.

The 2008 FGEIS projected an increase of sanitary flow to the Bowery Bay WWTP of approximately 2.8 mgd for the full development of the District; the Phase 1A sanitary sewage generation would be substantially lower than this number. The 2008 FGEIS concluded that the WWTP would have sufficient capacity to accommodate a flow increase of 2.8 mgd. Therefore, it is expected that the Bowery Bay WWTP would have adequate capacity to accommodate the Phase 1A development.

STORMWATER

Proposed Improvements

As part of the development of Phase 1A, QDG would develop and submit a DEP-approved ADP that would reflect the Phase 1A street demapping.

Special Willets Point District

As described above, the development within the District in Phase 1A would be predominately surface parking and hardscape, with retail uses and a 200-bed hotel along 126th Street.

As discussed above, the stormwater outfall at 126th Street is being improved by EDC, and a 7.5-foot by 5.0-foot box storm sewer is currently under construction in 126th Street by EDC. This new sewer will discharge to Flushing Bay and will extend south to a point between 34th and 35th Avenues. During construction of Phase 1A, the box storm sewer would be partially extended south along 126th Street by QDG. The extension would comply with the ADP to be developed and filed by QDG. Per the draft ADP, stormwater runoff tributary to the new box storm sewer would be restricted to a surface runoff coefficient of 0.85. Stormwater runoff discharging to the box storm sewer in 126th Street would be treated to comply with DEC regulations. A DEC SPDES GP-010-001 permit would be obtained, which requires the implementation of a SWPPP.

Willets West

As described above, the Willets West development would include a retail/entertainment space with parking garages, surface parking, hardscaping, and landscaping.

Stormwater runoff from the Willets West development would continue to drain to the on-site 72-inch NYSDOT storm sewer that discharges to Flushing Bay. To meet NYSDOT requirements, existing stormwater runoff amounts tributary to the 72-inch sewer would be maintained. The design will be coordinated with the NYSDOT during the design phase.

South Lot and Lot D

Stormwater management for the area would maintain existing conditions by discharging runoff to the existing NYSDOT/DPR sewer network in the western portion of the site. Drainage to this

network will need to be treated to comply with DEC regulations. Detention requirements will be verified with DEP during the design phase.

Lot B

No development is projected for Lot B by 2018. Therefore, stormwater runoff from Lot B would continue to be detained, treated, and directed to the 54-inch DEP storm sewer in 126th Street before being discharged into Flushing Bay via the 60-inch outfall on 126th currently under construction.

Stormwater Calculation

Table 11-4 presents the stormwater calculations for the Phase 1A development.

Table 11-4
2018 Proposed Surface Coverage

Portion of Project Site	Surface Type	Surface Areas (sf)	Percent Coverage	Discharge Method	Weighted Runoff Coefficient	Existing Weighted Runoff Coefficient	Incremental Change in Runoff Coefficient
Special Willets Point District	Building Roofs	600,294	23%	Separate Sewer			
	Paved Surfaces	2,011,957	76%	Separate Sewer			
	Grass/Softscape	24,414	1%	Separate Sewer/Infiltration			
	Total	**2,636,665**	**100%**		**0.88**	**0.89**	**-0.01**
Willets West	Building Roofs	709,200	48%	Separate Sewer			
	Paved Surfaces	553,935	38%	Separate Sewer			
	Grass/Softscape	208,069	14%	Separate Sewer/Infiltration			
	Total	**1,471,204**	**100%**		**0.83**	**0.78**	**+0.05**
South Lot and Lot D	Building Roofs	136,580	28%	Separate Sewer			
	Paved Surfaces	350,204	72%	Separate Sewer			
	Total	**486,784**	**100%**		**0.89**	**0.85**	**+0.04**
Lot B[1]	Building Roofs	1,207	1%	Separate Sewer			
	Paved Surfaces	179,539	93%	Separate Sewer			
	Grass/Softscape	12,543	6%	Separate Sewer/Infiltration			
	Total	**193,289**	**100%**		**0.81**	**0.81**	**No Change**

Notes: [1]No change in use or surface coverage between existing and 2018 No Action conditions.
Sources: Langan

COMBINED SEWER OVERFLOWS

Using the existing site plan and the proposed site plan for each site, the DEP Flow Volume Calculation Matrix was completed for the existing and With Action conditions. The calculations from the Flow Volume Calculation Matrix help to determine the change in wastewater volumes to the combined sewer system from existing conditions to the future with the proposed project. Runoff volumes were calculated for four rainfall volume scenarios with varying durations. The summary tables, taken from the DEP Flow Volume Calculation Matrix, are included in **Table 11-5**.

Table 11-5
DEP Flow Volume Calculation Matrix:
2018 Existing and With Action Volume Comparison

Rainfall Volume (in.)	Rainfall Duration (hr.)	Runoff Volume Direct Drainage (MG)	Runoff Volume To CSS (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Runoff Volume To River (MG)	Runoff Volume To CSS (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)
Special Willets Point District[1]		Existing				With Action (2018)			
		2,636,665 sf / 60.53 Acres				2,636,665 sf / 60.53 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
0.40	3.80	0.58	0.00	0.00	0.00	0.58	0.00	0.01	0.01
1.20	11.30	1.75	0.00	0.00	0.00	1.73	0.00	0.03	0.03
2.50	19.50	3.64	0.00	0.00	0.00	3.61	0.00	0.04	0.04
Willets West		Existing				With Action (2018)			
		1,471,205 sf / 33.77 Acres				1,471,205 sf / 33.77 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
0.40	3.80	0.29	0.00	0.00	0.00	0.30	0.00	0.05	0.05
1.20	11.30	0.86	0.00	0.00	0.00	0.91	0.00	0.16	0.16
2.50	19.50	1.79	0.00	0.00	0.00	1.90	0.00	0.27	0.27
South Lot and Lot D		Existing				With Action (2018)			
		486,784 sf / 11.18 Acres				486,784 sf / 11.18 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
1.20	11.30	0.31	0.00	0.00	0.00	0.32	0.00	0.00	0.00
2.50	19.50	0.65	0.00	0.00	0.00	0.68	0.00	0.00	0.00
Lot B[2]		Existing				With Action (2018)			
		193,289 sf / 4.44 Acres				193,289 sf / 4.44 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00
1.20	11.30	0.12	0.00	0.00	0.00	0.12	0.00	0.00	0.00
2.50	19.50	0.24	0.00	0.00	0.00	0.24	0.00	0.00	0.00

Notes:
[1] In the existing condition, sanitary flow from the District is conveyed to septic systems and is not conveyed to the combined sewer system.
[2] No change in use or surface coverage between existing and 2018 No Action conditions.
CSS=Combined Sewer System MG=Million gallons

The calculations from the flow volume calculation matrix determine the wastewater volumes to the downstream sewer system from the existing and With Action conditions. Runoff volumes are calculated for four rainfall volume scenarios with varying durations; all stormwater runoff would continue to be directly discharged to Flushing Bay. The increases in sanitary sewer discharge from the project site for the above rainfall volume-duration scenarios from the Phase 1A flows, in comparison to the existing condition range from:

- Special Willets Point District: 0.01 to 0.04 MGD
- Willets West: 0.05 to 0.27 MGD
- South Lot and Lot D: No change
- Lot B: No change

Phase 1A would be consistent with the City's goal to reduce CSO events by requiring construction and maintenance of a separate storm and sanitary sewer system. The 2008 FGEIS found that there would be no significant increase in frequency or volume of CSO events as a result of the Willets Point Development Plan, since CSOs primarily relate to stormwater inputs, which greatly exceed sanitary flow rates during storm events. As a result of this conclusion, it is

anticipated that the sanitary flow from the proposed project in 2018, which is less than the sanitary flow projected in the 2008 FGEIS, would not significantly affect the number of annual CSO events. In addition, water conservation measures and low-flow fixtures as required by New York City Plumbing Code (Local Law 33 of 2007) would be employed to minimize sanitary sewage flow to the existing combined sewer system. Stormwater runoff from the project site in 2018 would be treated in accordance with the project SWPPP, and conveyed to Flushing Bay through a separate storm sewer system in accordance with an ADP to be developed by QDG and approved by DEP.

PHASE 1B (2028)

In Phase 1B, the interim surface parking lot/recreational space created during Phase 1A within the Special Willets Point District would be developed with: approximately 2.49 million sf of residential use (2,490 units), 875,000 sf of retail, 500,000 sf of office use, approximately 235,000 sf of hotel use (290 rooms), 25,000 sf of community facility use, and a 105,000 sf public school, along with parking and more than five acres of new public open space. In addition, new structured parking facilities would be constructed on South Lot and Lot D to replace the CitiField parking spaces formerly located within the District. The 75 accessory parking spaces created in Phase 1A for the hotel would remain in the District.

Construction of the new Van Wyck Expressway access ramps—which was anticipated in the 2008 FGEIS and for which the City has received approval from the Federal Highway Administration—is slated to be completed in 2024.

As discussed previously, the project site is within the FEMA 100-year floodplain. FEMA and New York City Building Code flood resistant design requirements along with the Special Willets Point District zoning elevation requirements would need to be taken into consideration for the Phase 1B development. It is anticipated that prior to the completion of the Phase 1B development, site grades within the Phase 1A/Phase1B portion of the District would be raised to levels at or above the floodplain elevation. This change in grade may be achieved through the placement of fill and/or construction of structured platforms. Grade transitions between the new streets constructed in Phase 1B and the existing street grades that would remain in the Phase 2 area would be required until Phase 2 development is completed in 2032.

WATER SUPPLY

Proposed Improvements

For Phase 1B, water service for Willets West and the District would remain as constructed in Phase 1A. For South Lot and Lot D, the proposed parking structures would be directly connected to the 12-inch DEP water main in Roosevelt Avenue. No new development is projected for Lot B by 2028, and thus no new water service would be required. Consultation with DEP prior to Phase 1B development would be required to determine if upgrades (including a new regulator and connection) to the 72-inch water main in Willets Point Boulevard would be required.

Water Demand

In the 2028 analysis year, the proposed development is projected to result in a demand for 1,763,360 gpd of water (see **Table 11-6**), which, when combined with demand from Phase 1A of the project, would be an increase of 2,264,896 gpd over the No Action condition.

Table 11-6
2028 Projected Water Demand

Proposed Use	Size	Demand Type	Rate	Phase 1B Consumption (gpd)	Overall (Phase 1A and 1B) (gpd)
Residential	7,022 people[1]	Domestic	100 gpd/person	702,200	702,200
	2,490,000 sf	Air Conditioning	0.17 gpd/sf	423,300	423,300
Commercial/Office	525,000 sf	Domestic	0.10 gpd/sf	52,500	52,500
		Air Conditioning	0.17 gpd/sf	89,250	89,250
Retail	875,000 sf	Domestic	0.24 gpd/sf	210,000	553,200
		Air Conditioning	0.17 gpd/sf	148,750	391,850
Hotel[2]	290 rooms	Domestic	120 gpd/occupant	69,600	117,600
	235,000 sf	Air Conditioning	0.17 gpd/sf	39,950	67,150
School	996 (seats)	Domestic	10 gpd/seat	9,960	9,960
	105,000 sf	Air Conditioning	0.17 gpd/sf	17,850	17,850
Total	4,230,000 sf		NA	**1,763,360**	**2,424,860**
Increase from the Future Without the Proposed Project				**1,603,396**	**2,264,896**

Notes:
1. The number of residents was calculated based on 2,490 units constructed in Phase 1B, which is based on the average household size of 2.82 residents per unit in Queens.
2. Assumes 2 occupants per room.

Source: Rates from 2012 *CEQR Technical Manual*.

It is anticipated that the water supply system would have adequate capacity to accommodate the Phase 1B.

SANITARY SEWAGE

Proposed Improvements

As part of the development of Phase 1B, QDG would develop and submit a DEP-approved ADP reflecting the Phase 1B street demapping.

For the District, an on-site sanitary sewer network would be constructed, as needed, by QDG to serve the Phase 1B development. This network would be located along the alignment of proposed private streets and would discharge to the off-site 16-inch DEP sanitary sewer in 126th Street.

For the Willets West portion of the project site, the sanitary sewage system would remain as constructed in Phase 1A.

No sanitary sewage connection would be provided for South Lot and Lot D, as these areas would be developed as parking facilities.

No development is projected for Lot B by 2028. Therefore, no sanitary sewage connection would be provided for Lot B.

Sanitary Sewage Generation

In the 2028 analysis year, the project site is projected to result in a sanitary sewage generation of 1,044,260 gpd which, when combined with demand from Phase 1A of the project, would result in 1,435,460 gpd and an increase of 1,372,693 gpd over the 2028 No Action condition.

It is expected that the 36-inch sewer currently under construction would have adequate capacity to accommodate the Phase 1B development. However, upgrades to the 24-inch sewer under the Grand Central Parkway, the 37th Avenue pump station and its associated downstream force main would likely be required. If needed to support Phase 1B development, QDG would fund

the 37th Avenue pump station upgrade, at the time when the need arises. It is anticipated that the upgrade would occur within the existing city land or rights-of-way. These upgrades would be in conformance with the DEP-approved ADP.

The 2008 FGEIS projected an increase of sanitary flow to the Bowery Bay WWTP of approximately 2.8 mgd for the full development of the District; the Phase 1B sanitary sewage generation would be substantially lower than this number. The 2008 FGEIS concluded that the WWTP would have sufficient capacity to accommodate a flow increase of 2.8 mgd. Therefore, it is expected that the Bowery Bay WWTP would have adequate capacity to accommodate the Phase 1B development.

STORMWATER

Proposed Improvements

As noted above, as part of development of Phase 1B, QDG would develop and submit a DEP-approved ADP reflecting the Phase 1B street demapping. Any existing DEP stormwater sewers in newly demapped roads would be abandoned by the City and turned over to the property owner, or would require the establishment of easements to allow for DEP access and maintenance. Stormwater detention and BMPs installed in Phase 1A will be supplemented or replaced as required to accommodate Phase 1B development.

Stormwater runoff discharging to Flushing Bay will be treated to comply with DEC regulations. A SPDES permit would be obtained and a SWPPP would be implemented.

Phase 1B development within the District would primarily consist of retail/residential buildings with hardscape, landscape, and open spaces scattered throughout. Stormwater runoff would discharge to the 7.5-foot by 5.0-foot box storm sewer constructed by the EDC. Alternatively, the developer may seek to construct new storm sewers, per the ADP to be developed. Stormwater detention and BMPs would be installed to meet DEP and DEC regulations. The design team would explore options for reuse of stormwater, including the possibility of collection and treatment of stormwater for on-site irrigation.

No new development would occur in the Willets West area in Phase 1B. Therefore, for the Willets West area, the stormwater management system would remain as constructed in Phase 1A.

For South Lot and Lot D, the Phase 1B development would include the construction of two new parking garages along with additional surface parking. Stormwater management implemented in Phase 1A would be maintained. Stormwater runoff from new development would be discharged to the existing NYSDOT and DPR storm sewer network. Runoff would be detained to maintain existing flow rates to the existing sewer system. Alternatively, QDG may seek to construct new storm sewers in Roosevelt Avenue and 126th Street in accordance with the ADP to be developed.

No development is projected for Lot B by 2028. Therefore, stormwater runoff from Lot B would continue to be detained, treated, and directed to the 54-inch DEP storm sewer in 126th Street before being discharged into Flushing Bay via the new storm outfall, currently under construction by the EDC.

Stormwater Calculation

Based on the proposed Phase 1B site plan, the proposed surface coverages and weighted runoff coefficients for each site is included in **Table 11-7**. For the roof courtyard area it is assumed that the area will be comprised of 50 percent pervious surfaces (due to plants/grass in the courtyard) and 50 percent impervious surfaces resulting in a weighted runoff coefficient of 0.76 for the roof courtyard. .

Table 11-7
2028 Proposed Surface Coverage

Site	Surface Type	Surface Areas (sf)	Percent Coverage	Discharge Method	Weighted Runoff Coefficient	Existing Weighted Runoff Coefficient	Incremental Change in Runoff Coefficient
Special Willets Point District	Building Roofs	949,654	36%	Separate Sewer			
	Paved Surfaces	1,370,366	52%	Separate Sewer			
	Roof Courtyard Area	63,899	2%	Separate Sewer/Infiltration			
	Grass/Softscape	252,746	10%	Separate Sewer/Infiltration			
	Total	**2,636,665**	**100%**		**0.84**	**0.89**	**-0.05**
Willets West	Building Roofs	709,200	48%	Separate Sewer			
	Paved Surfaces	553,935	38%	Separate Sewer			
	Grass/Softscape	208,069	14%	Separate Sewer/Infiltration			
	Total	**1,471,204**	**100%**		**0.83**	**0.78**	**+0.05**
South Lot and Lot D	Building Roofs	268,771	55%	Separate Sewer			
	Paved Surfaces	218,013	45%	Separate Sewer			
	Total	**486,784**	**100%**		**0.93**	**0.85**	**+0.08**
Lot B[1]	Building Roofs	1,207	1%	Separate Sewer			
	Paved Surfaces	179,539	93%	Separate Sewer			
	Grass/Softscape	12,543	6%	Separate Sewer/Infiltration			
	Total	**193,289**	**100%**		**0.81**	**0.81**	**No Change**

Note: [1] No change in use or surface coverage between existing and 2028 No Action conditions.
Sources: Langan Engineering and Environmental Services, Inc

COMBINED SEWER OVERFLOWS

The DEP Flow Volume Calculation Matrix was completed for the existing and With Action conditions and is summarized in **Table 11-8.**

The calculations from the flow volume matrix determine the wastewater volumes to the downstream sewer system from the existing and With Action (Phase 1A and 1B) conditions. Runoff volumes are calculated for four rainfall volume scenarios with varying durations; all stormwater runoff would continue to be directly discharged to Flushing Bay. The increase in sanitary sewer discharge from the project site for the above rainfall volume-duration scenarios from the Phase 1A and 1B flows, in comparison to the existing condition range from:

- Special Willets Point District: 0.17 to 0.89 MGD
- Willets West: 0.05 to 0.27 MGD
- South Lot and Lot D: No change
- Lot B: No change

Table 11-8
DEP Flow Volume Calculation Matrix:
2028 Existing and With Action Volume Comparison

Rainfall Volume (in.)	Rainfall Duration (hr.)	Runoff Volume Direct Drainage (MG)	Runoff Volume To CSS (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Runoff Volume To River (MG)	Runoff Volume To CSS** (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)
Special Willets Point District[1]		Existing				With Action (2028)			
		2,636,665 sf / 60.53 Acres				2,636,665 sf / 60.53 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.17
0.40	3.80	0.58	0.00	0.00	0.00	0.55	0.00	0.17	0.17
1.20	11.30	1.75	0.00	0.00	0.00	1.66	0.00	0.52	0.52
2.50	19.50	3.64	0.00	0.00	0.00	3.45	0.00	0.89	0.89
Willets West		Existing				With Action (2028)			
		1,471,205 sf / 33.77 Acres				1,471,205 sf / 33.77 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
0.40	3.80	0.29	0.00	0.00	0.00	0.30	0.00	0.05	0.05
1.20	11.30	0.86	0.00	0.00	0.00	0.91	0.00	0.16	0.16
2.50	19.50	1.79	0.00	0.00	0.00	1.90	0.00	0.27	0.27
South Lot and Lot D		Existing				With Action (2028)			
		486,784 sf / 11.18 Acres				486,784 sf / 11.18 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
1.20	11.30	0.31	0.00	0.00	0.00	0.34	0.00	0.00	0.00
2.50	19.50	0.65	0.00	0.00	0.00	0.71	0.00	0.00	0.00
Lot B[2]		Existing				With Action (2028)			
		193,289 sf / 4.44 Acres				193,289 sf / 4.44 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00
1.20	11.30	0.12	0.00	0.00	0.00	0.12	0.00	0.00	0.00
2.50	19.50	0.24	0.00	0.00	0.00	0.24	0.00	0.00	0.00

Notes: CSS=Combined Sewer System MG=Million gallons
[1] In the existing condition, sanitary flow from the District is conveyed to septic systems and is not conveyed to the combined sewer system.
[2]No change in use or surface coverage between existing and 2028 No Action conditions.

Like Phase 1A, Phase 1B would be consistent with the City's goal to reduce CSO events by requiring construction and maintenance of a separate storm and sanitary sewer system. The 2008 FGEIS found that there would be no increase in frequency of CSO events as a result of the Willets Point Development Plan, since CSOs primarily relate to stormwater inputs, which greatly exceed sanitary flow rates during storm events. As a result of this conclusion, it is anticipated that the sanitary flow from the proposed project in 2028, which would be less than projected in the 2008 FGEIS, would not affect the number of annual CSO events. In addition, water conservation measures and low-flow fixtures as required by New York City Plumbing Code (Local Law 33 of 2007) would be employed to minimize sanitary sewage flow to the existing combined sewer system. Stormwater runoff from the project site in 2028 would be treated in accordance with the project SWPPP, and conveyed to Flushing Bay through a separate storm sewer system in accordance with an ADP to be developed by QDG and approved by DEP.

PHASE 2 (2032)

By 2032, the Phase 2 of the proposed project would result in a total development of 2.65 million sf of retail use, 5.85 million sf of residential development (5,850 units; 16,497 total residents), 230,000 sf of school space; approximately 500,000 gsf of office; up to 400,000 gsf of convention center use; up to 560,000 gsf of hotel use (approximately 700 rooms); up to 150,000 gsf of community facility use; approximately 230,000 gsf of public school use; and a minimum

of 8 acres of publicly-accessible open space. In addition, by 2032 Lot B is projected to be developed with 184,500 sf of retail use and 280,000 sf of office use.

As discussed previously, the project site is within the FEMA 100-year floodplain. FEMA and New York City Building Code flood resistant design requirements along with the special district zoning elevation requirements would need to be taken into consideration for the Phase 2 development. It is anticipated that prior to completion of the Phase 2 development, the site grades within the Phase 2 portion of the District would be raised to levels at or above the floodplain elevation. This change in grade may be achieved through the placement of fill and/or construction of structured platforms.

WATER SUPPLY

Proposed Improvements

For the District, consultation with DEP would be required to determine water supply requirements for Phase 2 of the proposed project. Additional internal water services would likely be required to support the proposed development in 2032.

Consultation with DEP would be required to determine if upgrades (including a new regulator and connection) to the 72-inch water main in Willets Point Boulevard would be required to support Phase 2 development, if not already constructed in a prior phase. Replacement of the water main may also be triggered by any substantive grade change over the main.

All existing streets in the District would be demapped before the construction of Phase 2. Any existing DEP water mains located within newly demapped streets would either be abandoned by the City and turned over to the property owner or would require the establishment of easements to allow for DEP access and maintenance.

No new development would occur in the Willets West area in Phase 2. For Willets West, water service would remain as constructed in Phase 1A.

No new development would occur on the South Lot or Lot D in Phase 2. Therefore, for this portion of the project site, water service would remain as constructed in Phase 1B.

For Lot B, no new water infrastructure would be required.

Water Demand

In the 2032 analysis year, the project would result in a demand for 2,066,285 gpd of water (see **Table 11-9**), which, when combined with demand from Phases 1A and 1B of the project, would be an increase of 4,331,181 gpd over the No Action condition.

As stated above, the 2008 FGEIS projected a demand for water of 4.36 mgd. The water demand for the proposed project in 2032, at 4.49 mgd, would be a 3.0 percent increase over the projected FGEIS water demand; therefore, it is anticipated that the water supply system would have adequate capacity to accommodate the full build-out of the project site.

Table 11-9
2032 Projected Water Demand

Proposed Use	Size		Rate	Phase 2 Consumption (gpd)	Overall (Phase 1A, 1B and 2) (gpd)
Residential	9,475 (people)[1]	Domestic	100 gpd/person	947,500	1,649,700
	3,360,000 sf	Air Conditioning	0.17 gpd/sf	571,200	994,500
Commercial/Office	405,000 sf	Domestic	0.10 gpd/sf	40,500	93,000
		Air Conditioning	0.17 gpd/sf	68,850	158,100
Retail	529,500 sf	Domestic	0.24 gpd/sf	127,080	680,280
		Air Conditioning	0.17 gpd/sf	90,015	481,865
Hotel[2]	210 (rooms)	Domestic	120 gpd/occupant	50,400	168,000
	165,000 sf	Air Conditioning	0.17 gpd/sf	28,050	95,200
School	1,344 (seats)	Domestic	10 gpd/seat	13,440	23,400
	125,000 sf	Air Conditioning	0.17 gpd/sf	21,250	39,100
Convention Center[3]	400,000 sf	Domestic	0.10 gpd/sf	40,000	40,000
		Air Conditioning	0.17 gpd/sf	68,000	68,000
Total	4,984,500 sf		NA	**2,066,285**	**4,491,145**
			Total Compared to No Action	**1,906,321**	**4,331,181**

Notes:
1. The number of residents was calculated based on 3,360 units constructed in Phase 2, which is based on the average household size of 2.82 residents per unit in Queens.
2. Assumes 2 occupants per room.
3. No rate provided in *CEQR Technical Manual* for Convention Center therefore Commercial/Office rate was used.

Source: Rates from 2012 *CEQR Technical Manual*.

SANITARY SEWAGE

Proposed Improvements

For the District, new sanitary-sewer trunk mains are anticipated in Northern Boulevard, , 126th Street, Willets Point Boulevard, and Roosevelt Avenue consistent with the DEP-approved ADP. The current draft ADP shows the largest sewer to be 24-inch diameter DIP. An ADP specific to the proposed project would have to be developed and filed by the designated developer of Phase 2 and would need to reflect the latest street demapping. The entirety of the streets in the District would be demapped before Phase 2 construction; this demapping will be reflected in a revised ADP to be developed by QDG.

Sanitary flow would be collected locally and directed to the sewer-main network before eventually discharging to the 36-inch gravity-sewer connection at the intersection of 126th Street and the former 34th Avenue. This 36-inch sewer was sized to accept sanitary sewage from the full development of the District, as analyzed in the 2008 FGEIS.

No new development is proposed for the Willets West area in 2032. Therefore, for Willets West, sanitary sewerage would remain as constructed in Phase 1A.

No new development is proposed for the South Lot and Lot D in 2032. As per Phase 1B development, no sanitary sewerage would be provided for the South Lot and Lot D in Phase 2 because these sites would be developed as parking facilities.

For Lot B, a sanitary sewage connection would be made to the surrounding CitiField or Willets West on-site sanitary infrastructure.

Sanitary Sewage Generation

In 2032, the proposed development would generate 1,218,920 gpd of sanitary sewage, which, when combined with demand from Phases 1A and 1B, would result in 2,654,380 gpd and an increase of 2,591,613 gpd over the 2032 No Action condition.

Per the draft ADP, upgrades to the 37th Avenue pump station and its force main would be required for Phase 2. Specifically, the operating capacity of the 37th Avenue pump station (currently 3,450 gpm) would need to be upgraded to 8,400 gpm. If not upgraded to support Phase 1B, upgrades to the 24-inch sewer under the Grand Central Parkway, the 37th Avenue pump station and its associated downstream force main would be required and would be funded by the developer of Phase 2. These upgrades would be in conformance with the DEP approved ADP.

The 2008 FGEIS projected an increase of sanitary flow to the Bowery Bay WWTP of approximately 2.8 mgd; the sanitary sewage generation of the proposed project in 2032 would be lower than this number. The approximate sanitary sewage generated is slightly lower due to changes in CEQR methodology. The 2001 *CEQR Technical Manual* specified a rate of 112 gpd/person for residential uses; however, this rate was reduced to 100 gpd/person in the 2010 *CEQR Technical Manual*, which was the basis for Technical Memorandum #4 flow estimates, as well as the 2012 *CEQR Technical Manual*, which is the basis for flow calculations presented here.

STORMWATER

Proposed Improvements

For the District, the Phase 2 development would consist of a retail/residential community with hotels, offices, open spaces, and a convention center. Per the draft ADP, DEP storm sewers would be required in 126th and 127th Streets, with ancillary sewers required in Northern Boulevard, 34th Avenue, Willets Point Boulevard, and Roosevelt Avenue. Storm sewers would be reinforced concrete to meet DEP standards. An ADP specific to the proposed project would have to be developed and filed by the designated developer of Phase 2 and would need to reflect the latest street demapping.

Stormwater runoff would be collected locally, treated using DEC-approved methods, and directed to the stormwater outfalls in Flushing Bay. The draft ADP addresses the need for two outfalls: one in 126th Street currently being constructed by the EDC and one in 127th Street. A 60-inch outfall would be required in 127th Street for Phase 2.

Similar to the 2008 FGEIS, stormwater detention and BMPs would be required and installed to meet DEP and DEC regulations within the District. Stormwater management within the District would be implemented through the use of selected BMPs which could include:

- On-site detention facilities (roof detention, underground storage tanks or tanks within the buildings);
- Increased quantity, density, and diversity of trees;
- Sustainable irrigation and landscaping practices;
- Graywater recycling for individual building sites;
- Integration of vegetated swales;
- Green roofs;

- Inline pipe storage;
- Decorative wet ponds;
- Detention dry ponds;
- Proprietary pre-treatment structures (e.g., Stormceptor, Vortechnics);
- Bioengineered and structural practices to reduce and control runoff;
- Stormwater recycling facilities (reuse for toilet flushing, custodial work, landscape irrigation, and other uses to reduce demand for potable water);
- Optimized right-of-way drainage;
- Vegetated filters and buffer strips;
- Water quality inlets including oil and grit separators, media filters, and high-volume treatment proprietary devices;
- Surface, perimeter, and/or underground sand filters;
- Infiltration trenches, with under-drain and overflow to a control structure connection to a storm sewer;
- Bioretention-shallow swales, with under-drain and overflow to a control structure connection to a storm sewer; and
- Other low-impact, effective measures.

The entirety of the streets in the District would be demapped before the construction of Phase 2; this demapping would be reflected in a revised ADP to be developed. Any existing DEP storm sewers present in newly demapped streets would be abandoned by the City and turned over to the property owner or would require the establishment of easements to allow for DEP access and maintenance. A SPDES permit would be obtained for any discharge to the Flushing Bay outfalls and a project SWPPP would be implemented.

No new development is proposed for the Willets West area in 2032. Therefore, for Willets West, the stormwater management system would remain as implemented in Phase 1A.

No new development is proposed for the South Lot or Lot D in 2032. Therefore, for South Lot and Lot D, the stormwater management system would remain as implemented in Phase 1B.

It is anticipated that stormwater runoff from Lot B would continue to be detained, treated, and directed to the 54-inch DEP storm sewer in 126th Street before being discharged into Flushing Bay via the 60-inch outfall on 126th, currently under construction.

Stormwater Calculation

Based on the proposed Phase 2 site plan, the proposed surface coverages and weighted runoff coefficients for each site is included in **Table 11-10**. For the roof courtyard area it is assumed that the area will be comprised of 50 percent pervious surfaces (due to plants/grass in the courtyard) and 50 percent impervious surfaces resulting in a weighted runoff coefficient of 0.76 for the roof courtyard.

Table 11-10
2032 Proposed Surface Coverage

Site	Surface Type	Surface Areas (sf)	Percent Coverage	Discharge Method	Weighted Runoff Coefficient	Existing Weighted Runoff Coefficient	Incremental Change in Runoff Coefficient
Special Willets Point District	Building Roofs	1,233,909	47%	Separate Sewer			
	Paved Surfaces	963,096	37%	Separate Sewer			
	Roof Courtyard Area	169,991	6%	Separate Sewer/Infiltration			
	Grass/Softscape	269,669	10%	Separate Sewer/Infiltration			
	Total	**2,636,665**	**100%**		**0.85**	**0.89**	**-0.04**
Willets West	Building Roofs	709,200	48%	Separate Sewer			
	Paved Surfaces	553,935	38%	Separate Sewer			
	Grass/Softscape	208,069	14%	Separate Sewer/Infiltration			
	Total	**1,471,204**	**100%**		**0.83**	**0.78**	**+0.05**
South Lot and Lot D	Building Roofs	268,771	55%	Separate Sewer			
	Paved Surfaces	218,013	45%	Separate Sewer			
	Total	**486,784**	**100%**		**0.93**	**0.85**	**+0.08**
Lot B	Building Roofs	118,207	61%	Separate Sewer			
	Paved Surfaces	44,587	23%	Separate Sewer			
	Grass/Softscape	30,495	16%	Separate Sewer/Infiltration			
	Total	**193,289**	**100%**		**0.84**	**0.81**	**+0.03**

Sources: Langan

COMBINED SEWER OVERFLOWS

The DEP Flow Volume Calculation Matrix was completed for the existing and overall (Phase 1A, 1B and 2) conditions and is summarized in **Table 11-11.**

The calculations from the flow volume matrix determine the wastewater volumes to the downstream sewer system from the existing and With Action (Phase 1A, 1B and 2) conditions. Runoff volumes are calculated for four rainfall volume scenarios with varying durations; all stormwater runoff would continue to be directly discharged to Flushing Bay. The increase in sanitary sewer discharge from the project site for the above rainfall volume-duration scenarios from the overall cumulative flows, in comparison to the existing condition range from:

- Special Willets Point District: 0.36 to 1.82 MGD
- Willets West: 0.05 to 0.27 MGD
- South Lot and Lot D: No change
- Lot B: 0.01 to 0.06 MGD

Phase 2 of the proposed project would be consistent with the City's goal to reduce CSO events by requiring construction and maintenance of a separate storm and sanitary sewer system. The 2008 FGEIS found that there would be no significant increase in frequency or volume of CSO events as a result of the Willets Point Development Plan, since CSOs primarily relate to stormwater inputs, which greatly exceed sanitary flow rates during storm events. As a result of this conclusion, it is anticipated that the sanitary flow from the RWCDS, which would be less than projected in the 2008 FGEIS, would not significantly affect the number of annual CSO events. In addition, water conservation measures and low-flow fixtures as required by New York City Plumbing Code (Local Law 33 of 2007) would be employed to minimize sanitary sewage flow to the existing combined sewer system. Stormwater runoff from the project site during all phases of the RWCDS would be treated in accordance with the project SWPPP, and conveyed to Flushing Bay through a separate storm sewer system in accordance with an ADP that would be developed by QDG and approved by DEP.

Table 11-11
DEP Flow Volume Matrix:
2032 Existing and With-Action Volume Comparison

Rainfall Volume (in.)	Rainfall Duration (hr.)	Runoff Volume Direct Drainage (MG)	Runoff Volume To CSS (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)	Runoff Volume To River (MG)	Runoff Volume To CSS (MG)	Sanitary Volume To CSS (MG)	Total Volume To CSS (MG)
Special Willets Point District[1]		Existing				With Action (2032)			
		2,636,665 sf / 60.53 Acres				2,636,665 sf / 60.53 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.36
0.40	3.80	0.58	0.00	0.00	0.00	0.56	0.00	0.36	0.36
1.20	11.30	1.75	0.00	0.00	0.00	1.67	0.00	1.06	1.06
2.50	19.50	3.64	0.00	0.00	0.00	3.48	0.00	1.82	1.82
Willets West		Existing				With Action (2032)			
		1,471,205 sf / 33.77 Acres				1,471,205 sf / 33.77 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05
0.40	3.80	0.29	0.00	0.00	0.00	0.30	0.00	0.05	0.05
1.20	11.30	0.86	0.00	0.00	0.00	0.91	0.00	0.16	0.16
2.50	19.50	1.79	0.00	0.00	0.00	1.90	0.00	0.27	0.27
South Lot and Lot D		Existing				With Action (2032)			
		486,784 sf / 11.18 Acres				486,784 sf / 11.18 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.40	3.80	0.10	0.00	0.00	0.00	0.11	0.00	0.00	0.00
1.20	11.30	0.31	0.00	0.00	0.00	0.34	0.00	0.00	0.00
2.50	19.50	0.65	0.00	0.00	0.00	0.71	0.00	0.00	0.00
Lot B		Existing				With Action (2032)			
		193,289 sf / 4.44 Acres				193,289 sf / 4.44 Acres			
0.00	3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01
0.40	3.80	0.04	0.00	0.00	0.00	0.04	0.00	0.01	0.01
1.20	11.30	0.12	0.00	0.00	0.00	0.12	0.00	0.03	0.03
2.50	19.50	0.24	0.00	0.00	0.00	0.24	0.00	0.06	0.06

Notes:
[1] In the existing condition, sanitary flow from the District is conveyed to septic systems and is not conveyed to the combined sewer system.
CSS=Combined Sewer System MG=Million gallons

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