19.0 Construction Impacts

A. INTRODUCTION

This chapter provides a description of the anticipated construction schedule, construction techniques and construction-related impacts of the Proposed Action on land use and neighborhood character, socioeconomic conditions, community facilities, open space, historic resources, visual resources, traffic and transit, air quality, noise and vibration, natural resources, infrastructure, and hazardous materials. The results of this analysis indicate that, with the implementation of standard measures to avoid potential effects on traffic, air quality, noise and vibration, hazardous materials, natural resources, and historic resources, there would not be any significant adverse environmental impacts caused by construction of the Project.

B. CONSTRUCTION STAGES AND SCHEDULE

Project construction would begin in the latter part of 2006, and be completed in 2009, a total construction period of approximately three years. As summarized in Table 19-1 and depicted in Figure 19-1, construction would occur in five overlapping stages, entailing land clearing (including any necessary dewatering and removal of any remaining foundations from the temporary NYPA facility), the placement of necessary foundations, studio construction, office tower construction, and construction of the two residential towers.

TABLE 19-1: CONSTRUCTION ACTIVITIES AND PROJECTED DURATIONS

Construction Activity	Duration in Months
Excavation and Foundation	12 months
Studio Construction	24 months
Office Tower Construction	30 months
Construction of First Residential Tower	20 months
Construction of Second Residential Tower	20 months
Anticipated Total Duration	**36 months (3 years)**

Note: Durations shown are approximate and may vary based on final design.

Construction activities would be preceded by the removal by NYPA of its temporary on-site power generating facility currently located on the southern portion of the Project Site, and relocation, by DSNY of its salt storage pile currently located on the mapped but unopened portion of 43rd Avenue between Vernon Boulevard and the East River. Relocation of these two facilities is independent of the Proposed Action. Also, concurrent with the completion of the Proposed Action but independent of it, the New York Architectural Terra Cotta Company building would be restored under approvals by the New York City Landmarks Preservation Commission. These independent actions are not evaluated in this DEIS.

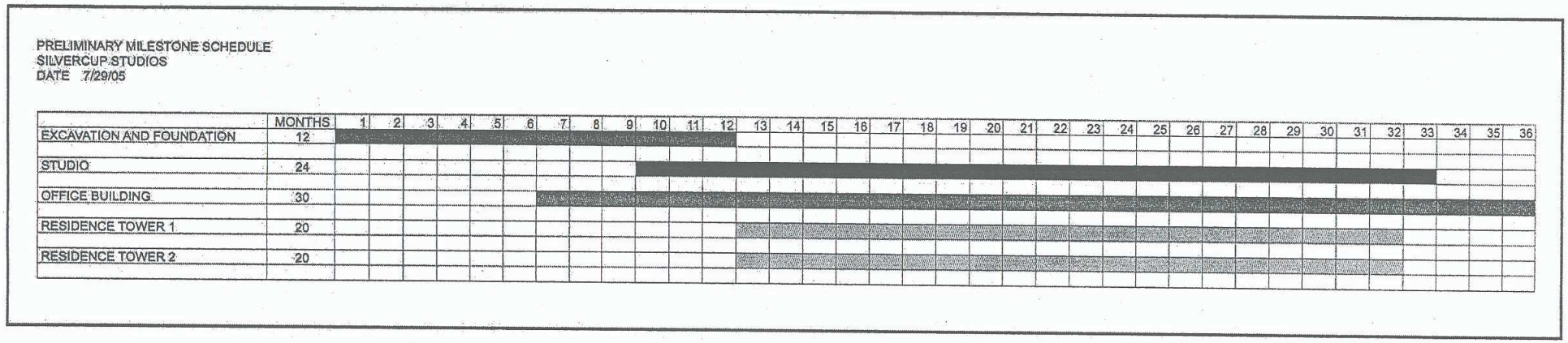

Figure 19-1:
Preliminary Milestone Schedule

In addition, the existing bulkhead along the East River would be reconstructed between approximately 43rd Avenue and the northern boundary of the Project Site. Reconstruction of the southern portion of the bulkhead would be completed by the NYPA under the conditions of a permit from NYSDEC as an activity independent of the Proposed Action. Reconstruction of the northern portion of the bulkhead would be completed by the Applicant under the conditions of a separate permit from NYSDEC. Reconstruction of the bulkhead is separate and independent of the Proposed Action.

Included as part of the site preparation and excavation activities would be characterization of soils and groundwater on-site for the presence of contaminated materials, pursuant to work plans to be approved by NYCDEP. Removal of any on-site contaminated or hazardous materials would be completed in conformance with a site-specific Health and Safety Plan (HASP) to ensure the safety of workers and the surrounding community. The HASP would comply with all applicable federal, state and local regulations, and include health and safety requirements related to site-specific environmental conditions at the Project Site.

As depicted in Figure 19-1, land clearance, excavation and development of the foundation for the entire Project would require approximately 12 months beginning in the latter part of 2006. Construction of the office tower and production studios would begin approximately 9 months after the initiation of land clearing and excavation activities. Both would be completed in 2009. Construction of the residential towers would commence approximately 3 months after the start of the construction of the commercial tower and would also be completed in 2009.

The reconstruction of the bulkhead along the western boundary of the Project Site would also be initiated during the initial stage of construction, simultaneous with site clearing and excavation activities.

C. CONSTRUCTION ACTIVITIES

Construction activities would normally occur Monday through Friday. Work occurring beyond these hours would generally be subject to City approval. The permitted hours of construction activities in Queens are regulated by the New York City Department of Buildings (NYCDOB) and the New York City Department of Environmental Protection (NYCDEP). In accordance with these regulations, work would typically begin at 7:00 AM on weekdays, and workers would generally arrive and begin to prepare work areas between the hours of 6:30 AM and 8:00 AM. No parking would be provided on-site for construction workers. Construction contract provisions would specify that construction workers not be allowed to park in the adjacent neighborhood, thereby requiring that construction workers use public transportation to commute to and from the Project Site. As described in Chapter 10, "Transit and Pedestrians," there are eight MTA-NYCT subway lines (in five stations) in the vicinity of the site: the E, F, G, R, V, N/W, and Number 7 Lines. Bus routes serving the area include the B61, Q19A, Q32, Q39, Q60, Q66, Q67, Q101, Q101R, Q102, and Q103. A number of these routes provide convenient connections between the area's subway stations and the Project Site.

Normally, major construction activity would end at 4:30 PM, with such tasks as clean up generally ending at 5:30 PM. There is the potential that construction could entail work on Saturdays, generally between the hours of 6:30 AM and 3:30 PM and on occasional Sundays. Overtime work (hours other than 7:00 AM to 6:00 PM Monday through Friday) would require an after-hours work permit from NYCDOB and a variance under the New York City Noise Control Code from NYCDEP. These approvals would be granted only after the consideration of potential adverse effects of the construction activity on surrounding land use.

1. Site Preparation – Land Clearing, Excavation and Construction of Foundation and Below-Grade Elements

The initial 12 month period would involve land clearing and grubbing, including clearing of any remaining foundations from the temporary NYPA facility, excavation of on-site soils, and construction of the foundation for the entire project. To protect the public during construction activities, an appropriate protective barrier (fencing) would be installed along the perimeter of the Project Site.

All construction staging activities, the storage of materials and the placement of cranes and other construction equipment would occur within the Project Site. However, to safeguard the public and to provide necessary access to the Project Site, it is anticipated that the sidewalk and existing parking lane along this portion of Vernon Boulevard adjacent to the Project Site would be closed during the entire construction period. These closures would require approval by the New York City Department of Transportation.

In addition, fencing would be placed between the Project Site and the New York Architectural Terra Cotta Company building. No lifting by cranes of any structural member or other component of the proposed Project would be allowed to take place over this historic resource. This "no fly" zone will protect the historic structure during construction.

Land clearing and demolition would involve the use of demolition machines, jack hammers, excavators, backhoes, tractors, loaders, and dump trucks. All debris would be carted off site for disposal in a licensed landfill or recycling facility. It is estimated that approximately 600 cubic yards of excavate would be carted from the site each weekday 8-hour period during the peak land clearing and excavation period. Assuming the use of a 20-cubic-yard capacity dump truck, approximately 40 dump trucks/day and a maximum of approximately 8 dump trucks/hour would enter and leave the site during this stage of construction. This is the maximum number of on-road trucks that would drive to and from the Project Site during any construction phase.

All land clearing activities would be completed in conformance with a HASP detailing the measures to be applied to protect the health and safety of construction workers and the public, including measures to eliminate the potential health and safety related impacts due to the presence of on-site contaminated materials. A description of the HASP is provided in Chapter 17, "Hazardous Materials."

Construction of the foundation and below-grade elements would commence immediately following site clearance and preparation. A new foundation in rock below the Project Site would be established through the use of drilled caissons and spread footings to support the proposed structure. No excavation of rock would be required.

Development of the foundation would be accomplished through drilling of piles to rock, capping of piles at ground surface, and placement of slurry or secant walls to establish a "bath tub" similar to that used in the construction of the World Trade Center. Slurry walls consist of vertically excavated trenches filled with slurry, usually a mixture of bentonite and water, which hydraulically shores the trench to prevent or retard ground water flow. Secant walls are formed by constructing intersecting concrete piles reinforced with either steel rebar or with steel beams, and are constructed by either drilling or augering. Primary piles are installed first with secondary piles constructed in between primary piles once the latter gain sufficient strength. In both cases, they would dramatically retard or prevent the flow of potentially contaminated groundwater into nearby ground or surface waters, including the East River. The walls would then be "tied back" to the ground as necessary to provide a

permanent foundation for the entire structure. Additional drilling of piles within the boundaries of the slurry or secant walls may be necessary depending on ground conditions within the site. No blasting is anticipated as part of the construction activities.

Dewatering would be required during this early phase of construction. As described above, dewatering would take place within a confined space developed through the establishment of a "bath tub" using slurry wall or secant wall construction methods. Water withdrawn from the site during dewatering activities would be analyzed to determine the presence of contaminants and treated as necessary to meet all relevant NYSDEC, NYSDOH and NYCDEP requirements prior to discharge into the municipal combined waste water management system. This would eliminate the potential for release of contaminants into either the groundwater or East River.

Construction is proposed in the vicinity of two historic structures, the New York Architectural Terra Cotta Company building and the Queensboro Bridge. A construction plan would be devised to minimize potential damage from falling objects, and to monitor ground vibration, changes in the water table, and other construction activities–the consequences of which could adversely affect these two historic resources. Protection of these resources would be afforded by conformance with New York City Department of Buildings *Technical Policy & Procedure Notice (TPPN) #10/88 Procedures for the Avoidance of Damage to Historic Structures Resulting from Adjacent Construction When Subject to Controlled Inspection by Section 27-724 and for Any Existing Structure Designated by the Commissioner* (Department of Buildings, City of New York, June 6, 1988), which mandates implementation of a vibration monitoring program to safeguard structures which are designated New York City Landmarks or located within a historic district, or are listed on the National Register of Historic Places, and are contiguous to or within a lateral distance of ninety feet from a lot under development or alternation. This would include on-site vibration monitoring both prior to and during construction activities.

A plan would be developed to meet these requirements, describing in detail the site preparation procedures that would occur on the Project Site (including that any associated clearance of minor improvements on the landmark site of the New York Architectural Terra Cotta Company building, i.e., miscellaneous fencing and the asphalt surface, would occur in conformance with permits from the NYCLPC). The plan would provide documentation on the existing foundations and structural conditions of the two historic resources, and identify maximum vibration tolerances. Slurry or secant wall construction would minimize pile driving, greatly reducing the potential for adverse vibration-related impacts on either historic resource. Prohibiting the lifting of construction materials by cranes over the New York Architectural Terra Cotta Company building would eliminate the possibility of dropping heavy construction materials onto the structure.

2. Building Core and Shell

The core and shell stage would include construction of the structure of the proposed Silvercup West building, which would be of steel (for the commercial tower and new production studio structures) and concrete (for the two residential towers), the building façades, and roofs. This would include pouring concrete floors and installation of the building's core, including elevator shafts, vertical riser systems for mechanical, electrical, and plumbing equipment rooms, stairs, escalators, and other facilities. Temporary construction elevators (hoists) would be constructed for the delivery of materials and vertical movement of workers. These activities would require the use of heavy equipment such as cranes, derricks, hoists, and fork lifts.

3. Interior Construction and Finishing

Installation of the building's core structure would continue during this stage including installation of remaining heating, ventilation, and air conditioning (HVAC) equipment and ductwork, electrical lines, water supply and wastewater piping, and elevators. This stage would also include the construction of interior walls, installation of lighting fixtures, and interior finishes. Specific equipment needed for the multiple uses included in the Proposed Action, including for the television and film production studios, would be installed at this time. These activities would require the use of equipment such as forklifts, hoists, compressors, electric generators, and impact wrenches.

4. Bulkhead Reconstruction

Reconstruction of the bulkhead along the western boundary of the Project Site would take place concurrently with initial land clearing, excavation and foundation construction activities, and require approximately 10 to 12 months to complete. Reconstruction of the bulkhead would be initiated by anchoring a spud barge mounted crane and scow barge adjacent to the existing bulkhead location, and installing a floating silt curtain boom to contain floating debris and silt in the East River. This would be followed by pre-excavation of debris along the mudline of the alignment of the new sheet piling bulkhead. Temporary "H" beam piles would then be driven and a sheet pile alignment template installed, after which the final steel piling would be driven and installed.

Installation of the steel sheet piling would then allow the removal of both the temporary H beam piles and alignment template associated with the temporary bulkhead along the northern portion of the Project Site. Any remaining remnants of the existing timber crib bulkhead would then be removed, placed on the scow barge and transported off-site for disposal.

A sheet pile "wale" system would subsequently be installed at the back face of the sheet pile. Concrete "deadmen" and tie back rods would then be installed and connected to the wale system, and material "back filled" behind the new sheet pile. Finally, a concrete cap would be placed on top of the sheet piles, allowing for the removal of the floating silt curtain boom.

D. POTENTIAL CONSTRUCTION-RELATED IMPACTS

1. Land Use and Neighborhood Character

There would be no significant adverse impacts on land use or neighborhood character during construction of the Proposed Action. Construction activities would be confined to the Project Site and the immediately adjacent sidewalk and parking lane along Vernon Boulevard. As discussed under "Traffic and Transit" below, existing vehicular and pedestrian volumes along Vernon Boulevard are low and there would be no significant adverse impacts on vehicular and pedestrian flows due to the closure of the parking lane or sidewalk. In addition, the loss of 16 parking spaces along Vernon Boulevard would not result in any significant parking impacts given the availability of other on-street parking within the immediate vicinity of the Project Site. Construction activities would not alter surrounding land uses or result in any changes to the operation of the Con Edison training facility located immediately south of the Project Site. There would be a temporary increase in noise levels in the immediate vicinity of the Project Site due to the operation of the on-site construction equipment, but this would not result in a significant change in neighborhood character given the current nature of manufacturing and commercial uses in the area, and the elevated existing noise levels in the vicinity of the Queensboro Bridge.

2. Socioeconomic Conditions and Benefits

Construction of the Project would not result in any temporary or long-term significant adverse impacts on socioeconomic conditions in the Study Area. Construction activities would be limited to the Project Site, and temporary closure of the adjacent sidewalk and parking lane along Vernon Boulevard would not disrupt the businesses located on Blocks 462, 456, 461, and 485 in the immediate vicinity of the Project Site; there would be no change in pedestrian and vehicular access to these businesses during any part of the construction period. None of the nearby commercial uses are considered to be sensitive to temporary increases in noise levels in the immediate vicinity of the Project Site.

Construction of the Proposed Action would create direct benefits resulting from expenditures on labor, materials, and services, as well as indirect benefits created by expenditures by material suppliers, construction workers, and other employees involved in the construction. Such economic activity would represent a short-term stimulus to local area businesses. It is estimated that the proposed construction would result in over 3.2 million hours (over 1,500 person-years) of direct employment during the construction period. Construction activity would also result in increased tax revenues for the City and state, including those from personal income taxes.

3. Community Facilities

No community facilities would be displaced or be otherwise directly affected by the proposed construction activity. The closure of the parking lane adjacent to the Project Site would not impede the flow of emergency vehicles along Vernon Boulevard. The streets and sidewalks adjacent to the Project Site currently receive minimal volumes and the affected sidewalk would continue to be available as necessary to provide emergency access to the Project Site. Coordination with both the NYPD and FDNY would be maintained throughout the construction period. As a consequence there would be no significant adverse impact on community facilities during the construction period.

4. Open Space

There are two open space resources within close proximity to the Project Site: Queensbridge Park, which is located north of both the Project Site and the Queensboro Bridge, and Queensbridge Baby Park, which is located under the Queensboro Bridge northeast of the Project Site. Both parks would remain open during the construction period and no restrictions to access to these facilities would be required due to construction activities.

Dust control measures – including watering of exposed areas and dust covers for trucks – would be implemented during the excavation and construction periods in conformance with the requirements of Section 1402.2-9.11 of the New York City Air Pollution Control Code regulating construction-related dust emissions. Temporary increases in community noise levels would be restricted to the immediate vicinity of the Project Site and would not result in significant increases in noise levels on any open space resource in the study area. Therefore, there would be no significant adverse impacts on open space during construction of the Proposed Action.

5. Historic Resources

As described in Chapter 8, "Historic Resources," there are two significant historic resources adjacent to the Project Site: the New York Architectural Terra Cotta Company building and the Queensboro Bridge. As described in Section C ("Construction Activities") of this chapter, construction of the Project would be required to meet the requirements of NYCDOB requirements included in TPPN #10/88, concerning on-site construction period vibration monitoring. A plan would be developed to

meet these requirements, which would describe in detail the site preparation procedures that would occur on the Project Site, provide documentation on the existing foundations and structural conditions of the two historic resources, identify maximum vibration tolerances, and establish protection procedures, a monitoring program to measure the vertical and lateral movement, and methods and materials to be used for any repairs. The slurry or secant wall construction would minimize the need for pile driving, greatly reducing the potential for adverse vibration-related impacts on either historic resource. Prohibiting the lifting of construction materials by cranes over the New York Architectural Terra Cotta Company building would eliminate the possibility of dropping heavy construction materials onto the structure.

In conformance with New York City Building Code ([C26-1901.6] 27-1022), both vertical and horizontal netting would be also be placed on all vertical structures under construction, reducing or eliminating the potential for debris to fall on either the Queensboro Bridge or the New York Architectural Terra Cotta Company building.

As a consequence, no significant adverse impacts to historic resources would occur as a result of construction activities.

6. Visual Resources

The construction activities related to the Proposed Action would temporarily change visual conditions at the Project Site, but would not result in any significant adverse visual impacts. The changes in visual conditions would vary with the stage of construction and type of equipment in use, including the effects of the presence of construction machinery, on-site haul roads and accessways, scaffolding, and temporary construction fences and screens.

7. Traffic and Transit

Construction of the Project is not expected to result in significant adverse impacts on traffic, parking, pedestrian flows, or public transportation. Construction would generate trips resulting from arriving and departing construction workers, movement of materials and equipment, and removal of construction waste. Construction would predominantly occur between 7 AM and 4 PM during weekdays. Workers would typically arrive before the AM peak period and depart before the PM peak period. Since the Project is located in the vicinity of 8 MTA NYCT subway lines and a number of bus routes, use of automobiles by construction workers can be anticipated as low. As discussed previously, construction workers will be required to use public transportation to commute to and from the site, eliminating potential impacts on localized traffic conditions.

Construction would not require the closure of any travel lane on any street in the vicinity of the Project Site. As a public safety measure and for delivery of supplies, the sidewalk and parking lane on the west side of Vernon Boulevard immediately adjacent to the Project Site would be closed for the entire construction period. Closing the parking lane would result in the loss of 16 on-street parking spaces along the west side of Vernon Boulevard between Queens Plaza South and 43rd Avenue. This would not result in any significant adverse parking impacts since there are approximately 50 to 60 on-street parking spaces which are currently not utilized during the day within a short walk (¼ mile) of the Project Site, which would be sufficient to offset the temporary loss of on-street parking spaces along Vernon Boulevard. Closing the sidewalk along the Project Site would not result in any significant adverse pedestrian impacts given the low pedestrian volumes that currently use the sidewalk and the availability of a sidewalk for use on the east side of Vernon Boulevard.

As noted previously, construction of the Proposed Action would generate trips resulting from the movement of materials and equipment, and removal of excavated soil and construction debris. Truck movements would typically be spread throughout the day on weekdays, and would generally occur between the hours of 6:30 AM and 4:30 PM. It is estimated that a maximum of eight dump trucks would travel to and from the site per hour during the construction period. This is projected to occur during the 12-month site excavation and foundation construction stage, but would not result in significant adverse traffic impacts. The number of trucks delivering or removing material to and from the Project Site would be lower than this maximum number during all other construction phases. Wherever possible, the scheduling of deliveries and other construction activities would take place during off-peak travel hours. As a result of the anticipated future levels of traffic and scheduling measures to avoid peak periods, significant interruptions of traffic would not be expected during the construction period.

Truck traffic generated by construction activities would use appropriate NYCDOT-designated routes to and from the Project Site. Commercial carriers would be advised regarding NYCDOT-designated detoured or prohibited truck routes during the construction period. The volume of trucks expected to be generated on an hourly basis, a maximum of 8, would not be substantial.

A Maintenance and Protection of Traffic Plan will be developed prior to construction to establish the detailed procedures for maintaining traffic patterns and minimizing traffic impacts during the construction period. NYCDOT's Office of Construction Mitigation and Coordination (OCMC) will review all measures contained in the plan before issuing a construction permit.

Approvals from NYCDOT for all temporary sidewalk and curb lane closures during construction would be conditioned in coordination with OCMC to minimize potential impacts to pedestrian and vehicular circulation surrounding the Project Site. Given the size of the Project Site, all construction staging would take place on-site and not require travel lane closures on Vernon Boulevard.

As a consequence, no significant adverse traffic, parking, pedestrian, or transit system impacts would occur during construction of the Project.

8. Air Quality

Possible impacts on local air quality during construction of the proposed Silvercup West development may include:

- Fugitive emissions (airborne particulate matter) from site preparation and excavation operations;
- $PM_{2.5}$ emissions from on-site diesel-powered construction equipment; and
- Emissions from motor vehicles (mobile source emissions) traveling to and from the Project Site, including hydrocarbons, nitrogen oxide, and carbon monoxide.

Of these, the most significant pollutant associated with construction activities is particulate matter, particularly $PM_{2.5}$ (particulate matter less than 2.5 microns in size). Particulate matter emissions are primarily related to grading, excavation, construction and demolition, land clearing, drilling, material loading operations, and the movement of heavy duty vehicles and equipment. $PM_{2.5}$ emissions are mostly related to the exhaust of diesel powered construction equipment and trucks.

The other air pollutant of concern associated with construction activities is NO_2 from diesel-fueled engines of construction equipment and trucking activities within and near construction sites. Diesel engines emit primarily nitrogen oxides as nitrous oxide (NO), which is then slowly converted to NO_2 in the presence of sunlight.

a) Fugitive Emissions

Construction-related fugitive dust emissions (airborne particulate matter) can occur from site clearing, excavation, hauling, dumping, spreading, grading, compaction, and wind erosion. Quantities of emissions depend on the extent and nature of the clearing and excavation operations, the type of equipment employed, the physical characteristics of the underlying soil, the speed at which construction vehicles are operated, and the type of fugitive dust control methods employed. Small dust particles (30 to 100 micron range) can travel several hundred feet before settling to the ground, depending on the wind speed. However, much of the fugitive dust generated by construction activities consists of relatively large-size particles (greater than 100 microns in diameter), which settle within a short distance (within 20 to 30 feet) from the construction site and do not significantly impact nearby buildings or people.

As specified by the New York City Air Pollution Control Code, fugitive dust control measures would be implemented during construction to minimize potential for the release of fugitive dust. These measures include:

- **During Site Preparation:**
  - Minimize land disturbance;
  - Use watering trucks to minimize dust;
  - Cover trucks when hauling dirt;
  - Stabilize the surface of dirt piles if not removed immediately; and
  - Use windbreaks to minimize to prevent any accidental dust pollution.
- **During Construction of the Foundation and Structures:**
  - Cover trucks when transferring materials;
  - Minimize unnecessary vehicular and machinery activities; and
  - Minimize dirt track-out by washing or cleaning trucks before leaving the construction site.
- **Post Construction:**
  - Remove unused material in staging areas; and
  - Remove dirt piles

As a result, there would be no significant adverse air quality impacts during construction due to the generation of fugitive emissions.

b) $PM_{2.5}$ Emissions from On-Site Diesel-Powered Construction Equipment

$PM_{2.5}$ emissions will be generated by on-site diesel-powered construction equipment, including cranes, bulldozers, excavators, front end loaders, and other heavy equipment, particularly during the initial site clearing phase of construction. These emissions would not result in an exceedance of any ambient air quality standards given the limited extent and duration of construction activities.

In addition, new EPA requirements limiting emissions from off-road construction vehicles (EPA "Clean Air Non-Road Diesel Rule" 2004) will begin to take effect during the construction period (the latter part of 2006 through 2009), which includes a nationally mandated reduction of sulfur content in non-road diesel fuel from approximately 2,800 parts per million (ppm) average today to 500 ppm by 2007, implementation of emission control technology on non-road diesel engines (Tier 3 and Tier 4 standards) to reduce nitrogen oxides and particulate emissions between 2008 to 2014, and the use of ultra-low sulfur diesel after 2006 for heavy-duty diesel trucks. During this period, older, more polluting, vehicles will begin to be replaced with newer vehicles with cleaner emissions, thereby reducing the amount of $PM_{2.5}$ emissions and reducing the potential for significant impacts on air quality.

c) Mobile Source Emissions

Mobile source emissions may result from the movement of construction vehicles to and from the Project Site, including emissions from trucks delivering materials and removing debris, workers' private vehicles, and potential disruptions in traffic near the construction site. Localized increases in mobile source emissions would be limited with the application of the following measures to maintain and protect traffic, which would be included in a NYCDOT-approved maintenance and protection of traffic plan:

- The existing number of travel lanes would be maintained throughout the construction period on all roadways in the vicinity of the Project Site; no temporary street closings would be required beyond the closure of the parking lane on Vernon Boulevard immediately adjacent to the Project Site between Queens Plaza South and 43rd Avenue,
- Construction contracts would mandate that construction workers not be allowed to park on the construction site or within the adjacent neighborhood, thereby requiring that construction workers use public transportation to commute to and from the Project Site; and
- Idling of delivery trucks or other equipment would be limited to 5 minutes during inactive operations.

These measures will assure that no significant mobile source-related impacts would occur during the construction period.

As a result, there would be no significant adverse impacts on air quality during construction of the Proposed Action.

9. Noise and Vibration

a) Potential Impacts

Construction activities could result in short-term noise and vibration effects on sensitive land uses in the immediate vicinity of the Project Site. Noise from construction equipment and delivery trucks traveling to and from the Project Site would contribute to these potential construction-related impacts. The principal construction activity that could potentially result in vibration effects would be development of the foundation for the Project. However, as described in Section C ("Construction Activities") of this chapter, the placement of slurry or secant walls to form the exterior foundation for the Project would minimize the need for pile driving, significantly reducing the potential for vibration-related impacts. No blasting would be required to construct the Project, eliminating the potential for related noise and vibration impacts.

The level of impact of the noise sources depends on the characteristics of the construction equipment and activities involved, the construction schedule, and the distance of equipment from sensitive receptors. Typical noise levels of construction equipment expected to be employed during the construction phase are presented in Table 19-2. The majority of the equipment would be in use during the initial six-to-nine month land clearing and excavation phase of the Project. As a consequence, noise levels would be highest during the early phases of construction, when excavation, land clearing activities, and daily truck traffic would be at their greatest. Average noise levels for typical construction equipment, measured at a distance of 50 feet from the construction site, would range from 76 dBA for pumps to 89 dBA for scrapers.

TABLE 19-2: TYPICAL ROADWAY CONSTRUCTION EQUIPMENT NOISE LEVELS (dBA)

Equipment	Average Noise Level at 50 feet	Usage Factor	L_{eq} During Work Period
Pile Driver	101	0.1	91
Crane	83	0.16	75
Compressor	81	1.0	81
Wheel Loader	79	0.3	74
Dump Truck	88	0.4	84
Compactor	80	0.5	77
Bulldozer	87	0.4	83
Grader	85	0.2	78
Caisson Drill (Rotary)	86	0.1	76
Water Truck	88	0.4	84
Flat Truck	88	0.4	84
Finisher	89	0.5	86
Paver	89	0.5	86
Pump	82	0.4	78
Boring Machine	98	0.1	88
Generator	78	1.0	78
Concrete Truck	88	0.4	84
Pavement Breaker	88	0.5	85

Source: U.S. Environmental Protection Agency, 1974

Construction noise is regulated by the New York City Noise Code and by United States Environmental Protection Agency (USEPA) noise emission standards for construction equipment. These local and federal requirements mandate that certain classifications of construction equipment and motor vehicles meet specified noise emissions standards; that, except under exceptional circumstances, construction activities be limited to weekdays between the hours of 7 AM and 6 PM; and that construction material be handled and transported in such a manner as not to create unnecessary noise. These regulations would be carefully followed. Compliance with these requirements would be ensured by including them in the contract documents as material specifications and by directives to the construction contractor. As a consequence, construction noise at the Project Site would be similar to the noise associated with the construction of other commercial and residential development projects in the city, and would not result in significant adverse impacts. Temporary increases in noise levels would be partially masked by traffic noise along the busy Queensboro Bridge and its access ramps.

Temporary, small increases in noise levels would also occur near a few defined truck routes and in the immediate vicinity of the Project Site. Increases in noise levels due to the operation of delivery trucks and other construction vehicles would not create annoyance, or result in significant adverse noise impacts.

b) Noise Control Measures

As described above, construction noise is regulated by a combination of local and federal requirements. Noise control measures as specified in City guidance (*DNA Report #CON 79-001*, dated July 1979), would be included in the construction contract documents

c) Vibration Control Measures

As described above, the potential for vibration-related impacts would be minimized due to use of slurry or secant wall foundation methods, conformance with New York City Department of Buildings TPPN #10/88, and the absence of blasting. Rotary drilling, which is the least disruptive method of construction, would be the prevailing method used at the Project Site (Table 19-3). If required, pile driving would be accompanied by vibration monitoring to prevent impacts to the New York Architectural Terra Cotta Company Building. As a consequence, no adverse vibration-related impacts would occur during construction of the Project.

TABLE 19-3: VIBRATION SOURCE LEVELS FOR CONSTRUCTION

Equipment	PPV at 25ft (in/sec)	Approximate Lv at 25ft (VdB re 10-6 in/sec)
Pile driver (impact, upper range)	1.518	112
Pile driver (impact, typical)	0.644	104
Pile driver (sonic, upper range)	0.734	105
Pile driver (sonic, typical)	0.170	93
Clam shovel drop (slurry wall)	0.202	94
Large bulldozer	0.089	87
Caisson drill (rotary)	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Transit Noise and Vibration Impact Assessment, FTA, April 1995.

PPV = Peak particle velocity

10. Natural Resources

As described in Chapter 16, "Natural Resources," there are no known significant natural features on the Project Site. Erosion and sedimentation could occur during construction due to the disturbance of soil as a consequence of clearing and grubbing, earth moving and grading operations. Erosion is the dislodging and transporting of soil particles that are not secured by a cover (such as vegetation) as a result of rainfall and runoff. Sedimentation is the process of depositing eroded soil particles from the soil surface into water bodies. As such, sedimentation can potentially affect water quality by increased turbidity in surface water. It is unlikely that a substantial amount of erosion and sedimentation would occur given the shallow slopes found on the Project Site. However, a stormwater pollution prevention control plan would be required as part of the construction contract documents detailing stormwater management and erosion and sedimentation control plans, details, notes, and specifications. It is anticipated that these plans would include a number of measures typically applied to control runoff and to reduce erosion and sedimentation at construction sites in New York City. Anticipated measures include:

- Sediment traps and basins;
- Temporary mulching and seeding of exposed soil, and
- Placement of hay bales or other material at the perimeter of the construction site.

Potential effects on the water quality and natural resources of the East River would be avoided through the application of these standard construction phase stormwater management and erosion control measures to minimize discharge of sediment to the river. The use of slurry or secant wall construction methods would substantially reduce or eliminate the potential for the release of any contaminant into surface waters. As a consequence, no significant adverse impacts on natural resources would occur during construction of the Project.

Terra Cotta, LLC has obtained the necessary permits to replace a deteriorating bulkhead along the northern portion of the Project Site. NYPA has applied for permits to reconstruct the bulkhead along the southern portion of the Project Site. Reconstruction of the southern and northern portions of the bulkhead would be completed as separate and independent actions from the Proposed Action, and, consequently, are considered to be part of the Future without the Proposed Action.

Construction would occur east of the bulkhead and, as a consequence, would not have a direct impact on any on-site wetlands. However, a portion of the impervious Esplanade component of the Proposed Action would encroach on the "Adjacent Area" buffer zone east of the East River on the southern portion of the Project Site. NYSDEC requirements limit the introduction of impervious surface in this Adjacent Area to no more than 20 percent of its surface areas. A portion of the Esplanade would be within this protected area and would result in the introduction of impervious surface greater than this 20 percent limitation. However, this would not have a significant effect on tidal wetlands since the areas west of the bulkhead are open waters of the East River having no wetland properties.

In the event that NYPA fails to receive the necessary permits for the reconstruction of the bulkhead along the southern portion of the Project Site, that work will be undertaken as part of the Project. Therefore, an assessment of the potential impact of its reconstruction on natural resources is provided in this chapter.

Reconstruction of the bulkhead along the western boundary of the southern portion of the Project Site would require the placement of approximately 2,700 cubic yards (cy) of fill between the bulkhead line and the existing 285-foot-long shoreline. This fill would displace open waters that have encroached onto the Project Site and the narrow beachface at the edge of the Project Site. Total surface area displacement would be approximately 2,900 square feet. The action would reestablish conditions that existed prior to the partial collapse of the existing bulk head and would not have a direct impact on the East River.

Reconstruction of this bulkhead would displace surface waters and intertidal zone along a portion of the Project Site, and would require filling of a portion of the East River to a depth of six feet. This area is considered a regulated wetland area under NYSDEC tidal wetlands classifications. The approximately 2,900 square feet of wetland area that would be displaced consists of approximately equal amounts of Littoral Zone (between 1-foot and six-foot depth) and Coastal Shoal (shallower than one foot). Based on the assessment of existing conditions in this zone as described in Chapter 16, "Natural Resources," no valuable habitat would be displaced, and there would be no significant impacts.

11. Infrastructure

Construction activities on the Project Site would not have significant adverse impacts on any water supply, waste water management or energy system. All utilities on the Project Site would be identified prior to the initiation of construction, and measures identified to protect them based on coordination with the responsible providers, including NYCDEP and Con Edison.

12. Hazardous Materials

As described in Chapter 17, "Hazardous Materials," a preliminary investigation of prior site use indicates a potential for the presence of contaminated soils. The Restrictive Declaration would be filed to ensure that further investigation, if necessary, and remediation where necessary, would be performed. The Restrictive Declaration would require that the fee owner of a so-regulated lot conduct a testing and sampling protocol, and remediate where appropriate, to the satisfaction of

NYCDEP before issuance of a building permit by the Department of Buildings. The Restrictive Declaration would include mandatory construction-related health and safety plans, which must be approved by NYCDEP. This mechanism precludes the potential that significant adverse impacts would result from the Proposed Action. Prior to construction, a site-specific HASP would be developed for the protection of workers and the surrounding community during construction. The HASP would be reviewed and approved by NYCDEP prior to the initiation of construction. The HASP would include sampling and analytical requirements for materials encountered during site clearance, preparation, and excavation activities and would specify the requirements for handling, management, treatment, and disposal of contaminated materials encountered during construction activities, if any. The HASP would also outline criteria to be used to identify non-routine and potentially dangerous conditions, such as petroleum odors, oil sheens, and discolored soil and groundwater. The use of slurry or secant wall construction methods would eliminate or significantly reduce the potential for the release of any on-site contaminants into ground or surface waters. As a consequence, no significant adverse impacts due to on-site hazardous materials would occur during construction of the Project.

E. VARIATIONS

The construction-related impacts of the three variations would be the same as with the Preferred Development Program since they would occur over the same time period and require the use of the same construction techniques and the same types and number of construction equipment as the Preferred Development Program. The variations would also result in structures that would be within the same building envelope and have the same foot print as the Preferred Development Program. As with the Preferred Development Program, none of the variations would result in significant adverse impacts on any environmental factor during construction.