HUGH L. CAREY
BATTERY PARK CITY
AUTHORITY
2003

George E. Pataki
Governor
State of New York

Timothy S. Carey
President & Chief Executive Officer

James F. Gill
Chairman

Charles J. Urstadt
Vice Chairman

David B. Cornstein
Member

BATTERY PARK CITY

December 2003

North Residential Neighborhood: Site16/17

BATTERY PARK CITY

NORTH RESIDENTIAL NEIGHBORHOOD: SITE 16/17

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REQUEST FOR PROPOSAL

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REQUEST FOR PROPOSAL

I. INTRODUCTION

The Hugh L. Carey Battery Park City Authority (the "Authority") requests proposals for the development of Site 16/17 (the "Site"). The Site is located in the north neighborhood of Battery Park City (sometimes referred to below as the "Project") as shown on the drawing annexed hereto as Exhibit A. The Authority is a public benefit corporation created under the laws of the State of New York to develop Battery Park City, in cooperation with the private sector, as a mixed commercial and residential community with substantial civic facilities.

Proposers are invited to submit proposals for the development of the Site in accordance with the terms and conditions of this request for proposals, including the appendices and exhibits (the "RFP"). Development must comply with and proposers may not seek amendments to the New York City Zoning Resolution (the "Zoning Regulations") and other applicable codes and regulations. The Authority has issued Design Guidelines for the Site ("Design Guidelines") and Residential Environmental Guidelines ("Green Guidelines"), with which development must also comply. The Authority intends to enter into a long-term ground lease for the development of the Site (the "Ground Lease") with the selected proposer (the "Developer"). The Appendices are available on request and include the Battery Park City Special District text (which is part of the Zoning Regulations), the form of Designation Letter, the form of Ground Lease, the Master Lease and the Master Development Plan.

II. SUBMISSION OF PROPOSAL; INITIAL DEPOSIT

To be eligible for consideration, proposals must be received by the Authority in accordance with the **Submission Instructions/2003** enclosed herewith. Each proposal must be accompanied by a good faith deposit of $25,000 (the "Initial Deposit") in the form of a check made payable to the order of "Battery Park City Authority." Initial Deposits will be deposited and, upon request, returned to proposers who are not selected. No interest will be paid on the Initial Deposits that are returned to proposers. Proposals submitted without Initial Deposits will not be considered.

III. INQUIRIES

All inquiries concerning the RFP should be directed to Carl D. Jaffee of the Authority by e-mail at jaffeec@bpcauthor.org, by phone at **212 417-4146**,or by fax at 212 417-4123. **Prospective proposers must submit an email address to Mr. Jaffee in order to receive any updates or modifications of the RFP subsequent to the date of its release**. Mr. Jaffee is authorized only to direct the attention of proposers to various portions of this RFP (including all Appendices) and to consider requests for clarifications. Neither Mr. Jaffee nor any other employee of the Authority is

authorized to give interpretations of this RFP or to give information as to the requirements thereof in addition to that contained in the RFP. Interpretations or additional information, if provided, will be communicated to proposers only by public notice or written addenda over the name of the President of the Authority or Mr. Jaffee and shall be considered part of the RFP. Proposers should not contact other employees or consultants of the Authority or any other governmental entity regarding this RFP or send proposals to them. Failure to observe this requirement may result in the proposer's disqualification from consideration pursuant to this RFP.

IV. BATTERY PARK CITY

Battery Park City is located at the southwest tip of Manhattan, and consists of 92 acres created from landfill during the 1970's. Since then Battery Park City has emerged as a premier location for both commercial and residential development in New York City.

Battery Park City overlooks New York harbor and the Statue of Liberty to the southwest, the Hudson River and the New York and New Jersey shorelines to the west and north and the skyline of Lower Manhattan to the east. It is adjacent to New York City's downtown financial district and is within a reasonable distance from many of the City's well-known neighborhoods, including Tribeca, Greenwich Village, Chinatown, Little Italy, SoHo and the South Street Seaport area. City Hall and a large complex of state and federal offices are several blocks to the northeast of Battery Park City.

The World Trade Center, which was destroyed by the terrorist attack of September 11, 2001 (the " 9/11 Attack" or the "Attack"), was adjacent to Battery Park City and was a major office, shopping and restaurant complex and a significant transportation hub. The Attack had a major impact on Battery Park City as well as other parts of lower Manhattan. Some aspects of Battery Park City's recovery from the Attack are noted in the following brief description of the commercial center and residential neighborhoods. Additional information about Battery Park City's recovery from the 9/11 Attack, as well as development that has occurred in Battery Park City since the Attack, is set forth in Section VI-A below.

As part of the Wall Street financial district, Battery Park City has attracted major financial institutions, including Merrill Lynch & Company, Inc., American Express Company, Inc., Dow Jones & Company, Inc. and CIBC. The World Financial Center comprises four office towers containing a total of approximately 8,000,000 gross square feet, and includes as its centerpiece

the acclaimed Winter Garden. The World Financial Center also contains more than 200,000 square feet of retail and restaurant space, and is adjacent to the World Financial Center's outdoor Plaza and the North Cove.

In the immediate aftermath of the Attack, the World Financial Center was closed for repairs. By mid-2002, each of the World Financial Center buildings had been repaired, and all are now fully operational. Most office-space tenants have returned, the most significant exception being Lehman Brothers, which has relocated. Much of the formerly occupied retail and restaurant space is now in use by former or new retail and restaurant tenants.

Prior to the Attack, two pedestrian bridges across West Street (known as the North Bridge and the South Bridge) connected the World Financial Center to the World Trade Center area. The North Bridge, at Vesey Street, was destroyed in the Attack. The South Bridge, at Liberty Street, has been repaired and is in service. A temporary bridge near the site of the former North Bridge opened in November 2003. Another temporary bridge across West Street at Rector Street, provides an additional connection from Battery Park City's south neighborhood to lower Manhattan.

In 1997 the New York Mercantile Exchange ("NYMEX") completed a 500,000 square foot building adjacent to the World Financial Center to provide its headquarters and trading facilities. The NYMEX headquarters was reoccupied and fully operational within several days after the Attack. The one-half acre memorial to the Great Irish Hunger of 1845-1852 was under construction immediately north of the Mercantile Exchange when the Attack occurred. It was completed and dedicated in July 2002. Immediately to the north of the World Financial Center is an Embassy Suites Hotel with approximately 460 rooms and a multi-screen movie theatre. Both the Hotel and the movie theatre are operational.

The northern part of Battery Park City is a residential neighborhood that will ultimately contain approximately 4,000 apartments. Tribeca is across West Street from the Project's north neighborhood, providing a link to another of the city's most desirable residential neighborhoods, with access to a growing array of restaurants and retail amenities. Stuyvesant High School is in operation at the northeast corner of Battery Park City, as is the eight-acre Rockefeller Park and the Tribeca Bridge, a pedestrian bridge across West Street at Chambers Street. Across Chambers Street from Stuyvesant High School, the Authority has built an elementary and middle school

(PS/IS 89), which began operation in the fall of 1998. Six residential projects have been completed in the north neighborhood, and two are in design. With the completion of the two projects in design, the north neighborhood will contain approximately 2,500 rental apartments, with two residential sites (in addition to the Site) remaining to be developed. For further information about the north neighborhood and the Site, see Section V below.

The southern portion of Battery Park City is a residential community considered to be one of New York's most architecturally distinguished and valuable neighborhoods. Approximately 5,100 residential units have been completed there, including a Ritz-Carlton luxury hotel/condominium at the southernmost end of Battery Park City was completed in early 2002. The site immediately north of the Ritz-Carlton, with a maximum floor area of 416,200 square feet, has recently been awarded for development as a residential condominium.

To the east of Battery Park City's south neighborhood is the Wall Street office district (only a five-minute walk), which traditionally has been the workplace of many people living in Battery Park City. Prior to the Attack, this area was being transformed into a 24-hour community with many more residential housing units, stores and restaurants than had previously existed. The State and City remain committed to the goal of revitalizing lower Manhattan as a 24-hour neighborhood with important residential, commercial, retail and cultural components. Achievement of this goal will also provide additional amenities to people living in Battery Park City.

V. THE SITE

As shown on Exhibits A and B, the Site is located in the north neighborhood of Battery Park City, between North End Avenue and River Terrace, and between Murray Street and Vesey Place. To the west of the Site is the acclaimed Rockefeller Park, comprising eight acres which include lawns, a playground, a lily pond, sculpture and beautifully designed plantings, with the esplanade along the Park's western border overlooking the Hudson River. To the north of the Site is the Solaire, the first building developed under the Green Guidelines, occupancy of which commenced in July 2003. Also directly north of the Site is the two-acre Teardrop Park, currently under construction and scheduled for completion in June 2004. Directly south of the Site is a half-acre park space consisting of the acclaimed Irish Hunger Memorial, which was completed in mid-2002. Finally, to the east of the Site is the Embassy Suites Hotel and multi-screen movie theater.

The Site has a land area of approximately 44,790 square feet with a maximum floor area of 537,400 square feet of floor area (as defined in the Zoning Resolution) if developed as -of-right. Proposers must satisfy themselves as to the size of the Site and the development permitted on the Site under the applicable Zoning Regulations. Wherever the Design Guidelines are more restrictive than the Zoning Regulations, the Design Guidelines govern.

Proposers are encouraged to inspect the Site in order to determine its condition and suitability for proposed development. A report prepared by Mueser Rutledge Wentworth & Johnston Consulting Engineers, which contains a description of the subsurface conditions at the Site, is available for inspection at the Authority's offices.

VI. INFRASTRUCTURE

The Site is served by a network of mass transportation facilities located in lower Manhattan, including several City subway lines as well as City and private bus systems. Several City subway stations are located to the east of the Site, providing access to numerous subway lines. The Port Authority of New York and New Jersey has established a commuter ferry service between several locations in New Jersey and the World Financial Center. The Site is accessible to the entire regional highway system via major roads, bridges and tunnels.

The 9/11 Attack has had a significant impact on the transportation and other infrastructure of Battery Park City, as well as other parts of lower Manhattan, as described in Section VI-A below.

The Authority will have no liability or obligation with respect to any infrastructure, except as specifically set forth in the Ground Lease. The Authority, or a consultant designated by it, will assist the Developer in coordinating the proposed development with Battery Park City's infrastructure. The Developer will be required to coordinate construction with the Authority and with any other parties developing sites in Battery Park City. The Developer will be required, at its expense, to provide sidewalks (including street trees and street lighting) and landscaped areas associated with development on the Site, as set forth in the Design Guidelines. For additional information about the infrastructure of the Site, see the Design Guidelines.

VI-A. 9/11 – RECOVERY

The 9/11 Attack had wide-ranging effects on the infrastructure and development of Lower Manhattan and Battery Park City. To a large degree Battery Park City has recovered from the problems that occurred in the aftermath of the Attack, and construction and development activities have resumed.

A. TRANSPORTATION

1. Subways/PATH. All subway service has resumed with the sole exception of service to the Cortlandt Street station of the 1/9 train. The Port Authority Trans-Hudson (PATH) service resumed in November 2003.

2. Buses. Public and private bus systems have restored service to routes serving Battery Park City. In addition, the Alliance for Downtown New York has recently replaced this service with a free shuttle bus service covering a larger route, extending eastward into Lower Manhattan.

3. Ferries. Ferry service capacity to Lower Manhattan has almost doubled since the Attack. Ferry service between the World Financial Center and New Jersey has been restored. Ferry service has been augmented by a temporary ferry terminal at Pier A, adjacent to the southern end of Battery Park City, pending resumption of PATH service to lower Manhattan, at which time the Pier A ferry service is expected to be discontinued.

4. Pedestrian/vehicular access. The North Bridge crossing at Vesey Street was destroyed on 9/11. In November 2003 the New York State Department of Transportation opened a new temporary bridge in this location. There is also a temporary pedestrian bridge crossing West Street at Rector Street, which was built after the Attack to augment the South Bridge crossing at Liberty Street. Streets and sidewalks in lower Manhattan linking to Battery Park City are open, except for the portions of Liberty and Vesey Streets immediately north and south of the World Trade Center, which are open only to pedestrian traffic at those locations.

B. PROJECT INFRASTRUCTURE

1. Utilities. All utilities are fully operational throughout Battery Park City.

2. Parks and Recreation. The 35-acre park system in Battery Park City is fully operational, and repair of all visible damage caused by the 9/11 Attack is complete. Recreational actives have resumed, including concerts and cultural events in the parks and Winter Garden, boating in the North Cove Yacht Harbor, and the multiplex movie theatre in the Embassy Suites complex.

3. Retail. Stores, restaurants and service establishments in Battery Park City have reopened, with the exception of a number of retail tenants of the World Financial Center. Brookfield Financial Properties, manager of the World Financial Center, expects these retail tenants to return or be replaced in the course of the next year.

4. Schools. Stuyvesant High School, P.S. 89 and I.S. 89 are fully operational.

5. Residential buildings. There are approximately 6,700 housing units in Battery Park City. Normal occupancy rates (over 95%) have been reestablished. Building exteriors have been repaired and cleaned.

6. Commercial buildings. Damage to commercial buildings in Battery Park City has been repaired. The World Financial Center's acclaimed Winter Garden reopened in September 2002. See Section IV above for further information about the status of Battery Park City's commercial buildings.

C. DEVELOPMENT UPDATE

Since the 9/11 Attack, there have been significant advances in the development of Battery Park City.

1. Ritz-Carlton Hotel and Condominium. The Ritz-Carlton hotel/condominium project at the southern end of Battery Park City opened early in 2002.

2. The Solaire - 20 River Terrace. Construction of the Solaire, the first residential building to be developed under the Green Guidelines, was halted by the 9/11 Attack but resumed in Spring 2002. Occupancy of the 293-unit building commenced in July 2003.

3. **Irish Hunger Memorial**. The Attack halted construction of the half-acre Irish Hunger Memorial located at the western end of Vesey Street. However, work on this project resumed shortly thereafter, and the Memorial opened in July 2002.

4. **Morgenthau Wing - Museum of Jewish Heritage**. The Museum's second building is sited in Wagner Park, immediately east of the existing building. The Morgenthau Wing, which was officially opened in September 2003, will more than triple the Museum's size.

5. **Permanent Ballfields.** Permanent three-acre ballfields were constructed in the north neighborhood after the Attack and opened in Spring 2003.

6. **Teardrop Park.** A new two-acre park is under construction in the north neighborhood, with completion projected in June 2004**.**

7. **Ferry Terminal.** The Port Authority of New York and New Jersey has obtained funding for a permanent ferry terminal to replace the temporary terminal now located to the west of the Solaire, to the north of the World Financial Center's northern towers. The new terminal will have greatly expanded capacity and amenities and will be located closer to the World Financial Center buildings. Design of the new terminal is complete, and construction is expected to begin in the near future.

8. **New Residential Development.** Before the Attack developers had been designated for Sites 18B and19B, to the northeast of the Site in the north neighborhood. Design work on these sites has resumed, and construction is anticipated to commence by Spring 2004. In addition, the Authority recently designated a developer for Site 2A in the south neighborhood.

VII. DESIGN STANDARDS AND DEVELOPMENT CONTROLS

Development of the Site must be in accordance with the provisions applicable to the Battery Park City Special District text contained in the Zoning Regulations (a copy of which is included as part of the Appendices) and other applicable statutes, codes and regulations. To the extent that compliance with certain of the Authority's Green Guidelines is inconsistent with applicable code provisions, the developer will be required to complete all construction necessary to comply with the Green Guidelines, with activation of such features deferred to the time when applicable code provisions would permit their use.

The Lease will prohibit the Developer from seeking changes to the Zoning Regulations. Development of the Site must also be consistent with the Design Guidelines, the Master Lease (as defined in Section VIII below), and the Master Development Plan. Copies of the Master Lease and the Master Development Plan are also included as part of the Appendices.

A. GREEN BUILDING REQUIREMENTS

An important goal of the Authority is to develop an environmentally responsible building on the Site that can serve as a model for high-rise residential construction in this region and elsewhere. The Authority's policy is to implement financially feasible, technologically sound strategies in all its new buildings to make significant advances in five areas: energy efficiency; indoor environmental quality; water conservation and site management; conservation of materials and resources; and efficient operation and maintenance. To this end, the Authority has issued the Green Guidelines for all new residential buildings, including the Site. Proposers must identify and describe in the Form of Proposal, the specific steps they would take to comply with each of the requirements set forth in the Green Guidelines, and to provide an estimate of the incremental cost of each required element. In selecting the Developer for the Site, the Authority intends to give substantial weight to the proposers' commitment to creating a 'green' building in compliance with the requirements set forth in the Green Guidelines. An important element in weighing that commitment will be the quality and specificity of the program set forth in the proposal to comply with the Green Guidelines.

The Developer of the Site will be required to seek a certified LEED rating of 'silver' or better from the U.S. Green Building Council. The requirements for this rating may be found in the U.S. Green Building Council's LEED Green Building Rating System Version 2.1, which is available at the Council's website (www.usgbc.org).

B. USE AND PROGRAM

Development of the Site must be consistent with [the Master Lease (described in Section VIII below), the Master Development Plan, the Declaration of Restrictions, and] the Design Guidelines, which set forth certain requirements with regard to the Site, including massing, materials, entrances and façade.

Residential use. The Site must be developed as a residential building containing apartments with a building-wide average size of at least 1,000 square feet (*excluding* corridors, lobbies, mechanical spaces, and other types of common areas).

Non-profit uses. The building must provide space totaling 26,000 square feet, predominantly on the ground floor, for non-profit uses that may include a new branch of the New York Public Library, a World Hunger Education Center, and other similar uses determined by the Authority. The design, construction and maintenance of this space will not be the responsibility of the Developer, but the Developer must construct the core and shell**.** The space will be leased without rental or other charge to the Authority, which will sublease it to the non-profit users.

Courtyard. The courtyard is to be designed and built as an adjunct to the non-profit uses, to be accessible to the public, and to provide seating and tables. The Authority will design the courtyard, subject to the reasonable approval of the Developer. The Battery Park City Parks Conservancy will maintain the courtyard for such use.

Retail. The building must provide a minimum of **1,400** square feet of space with entrances from North End Avenue and the courtyard for a café or similar retail establishment (the "Café Space") that will enhance the use of the courtyard. It is anticipated that the Developer will lease the Café Space to a tenant approved by the Authority, on such terms as the Developer deems appropriate.

Battery Park City Parks Conservancy. The building must contain 100 square feet on the ground floor for use by the Authority or its affiliate, the Battery Park City Parks Conservancy, without rental or other charge. Anticipated uses include storage of supplies and equipment.

Parking. The Developer may provide below-grade parking. Parking may occur under the Courtyard only if (a) all exhaust is through the roof of the building and (b) 36 inches is available for soil over the roof of the garage.

C. ZONING

The City of New York has approved the Zoning Regulations applicable to the Site. An Environmental Impact Statement under the New York State Environmental Quality Review Act ("SEQRA") has been prepared, and findings under SEQRA have been made for development of the Site consistent with the Zoning Regulations and Master Development Plan. No proposal may be conditioned on the Authority's obtaining any other specific zoning approvals. No further SEQRA or zoning approvals will be required for the development of the Site.

D. APPROVALS

The Developer will be required, at its own expense, to comply with all applicable federal, state and local laws and regulations, and to obtain from all appropriate government authorities all construction and ancillary approvals for the development of the Site including, but not limited to, all building permits and approvals that would be required were the Developer the fee owner of the Site. (See the beginning of this Section VII with respect to code requirements that are inconsistent with Green Guidelines requirements.) The Developer is responsible for making all filings and obtaining all approvals required for the connection of utilities to, or the furnishing of services at the Site. The Developer will be required, at its own expense, to comply with the New York State Attorney General's requirements for cooperative or condominium development that may be applicable in the event the development involves that type of residential occupancy.

E. OTHER

A proposer may not condition its proposal or its execution or delivery of the Ground Lease on (i) the Authority’s restricting the development of any other portion of Battery Park City, (ii) the Authority's granting such proposer the right to develop any other portion of Battery Park City, or (iii) the status or progress of development in any other portion of Battery Park City.

VIII. GROUND LEASE

The Authority will enter into a Ground Lease for the Site with the Developer. A copy of the form of Ground Lease for the Site is included as part of the Appendices, which are available upon request. The Developer will be required to execute the Ground Lease in the form provided except as modified to reflect the financial structure proposed by the Developer. Proposers may not condition the submission of proposals or the execution of the Ground Lease on any substantive revision of the terms of the Ground Lease other than the specific financial terms and structures set forth in their proposals. The Ground Lease contains terms and conditions in addition to those set

forth in this RFP, and all such terms and conditions are deemed to be set forth herein. In the event of any variance between the Ground Lease and this RFP or the Design Guidelines, the Ground Lease will govern.

The Authority is both the fee owner and ground lessee of Battery Park City under an underlying master lease (the "Master Lease"). The Authority's leasehold estate has not merged with its fee estate. The Ground Lease and all development on the Site is subject to the provisions of the Master Lease.

Section XVII below sets forth further information as to the execution of the Ground Lease.

IX. BASE RENT, PILOT AND OTHER PAYMENTS

As described below, the Ground Lease will require the Developer to make payments to the Authority beginning no later than six months after the Developer is designated and continuing through June 17, 2069, the fixed termination date of the Ground Lease. Payments are to be made in a number of forms as follows:

A. Base Rent
B. Transaction Payments (for condominium or cooperative unit sales)
C. Payments in lieu of real estate taxes ("PILOT")
D. Payments in lieu of sales taxes ("PILOST")
E. Civic Facilities Payments
F. Percentage Rent (for gross non-residential revenue)

These payments are described below and reference should be made to the Ground Lease for more complete descriptions. Proposers should also be aware that contingent or subordinated payments will be significantly discounted.

A. BASE RENT

The Authority must receive a base rent payment for each year of the Lease Term. During the first 25 years (the First Period of the Lease), the base rent payable in any one year may not be less than 103% of or more than 105% of the base rent payable in the previous year.

B. TRANSACTION PAYMENTS

The Developer will be required to make Transaction Payments to the Authority for each residential unit sold as or converted to a condominium or cooperative form of ownership. The amount of the Transaction Payments will be the greater of (i) one percent (1%) of the purchase price of the unit (i.e., the amount on which transfer tax is payable) or (ii) any other amount specified in the proposal. Such payments shall not be conditioned on one form of ownership or the other, and shall be paid as specified in the Ground Lease.

C. PILOT

Because the Authority holds title to Battery Park City, the Site is exempt from real estate taxes. However, the Developer will be required to make annual PILOT payments no less than the taxes that would otherwise be payable if the owner of the fee interest in the Site were not a tax-exempt entity (taking into account any tax abatement program utilized by the Developer under the provisions of this RFP).

Proposals may assume the availability of the following real estate tax abatement programs:

- The "80/20 program" established pursuant to Section 11-245(b) of the New York City Administration Code and the regulations promulgated thereunder, which permits reductions in PILOT equal to the reductions in real property tax available under the 20-year exemption schedule set forth in Section 421-a of the Real Property Tax Law. This program is available to developers who agree, among other things, to rent 20 percent of the units in the building to persons of moderate income.
- The "certificate program", which permits reductions in PILOT equal to the reductions available under the 10-year exemption schedule set forth in Section 421-a. This program is available to developers who create or rehabilitate, or purchase certificates from those that create or rehabilitate, low- or moderate-income housing units in other areas of New York City.
- The City's Liberty Bond real estate tax abatement, which applies to new housing financed with Liberty Bonds, providing a 20-year exemption schedule established pursuant to Section 421-a of the Real Property Tax Law and Section 11-245(b) of the New York City Administrative Code and the regulations promulgated thereunder. Questions about this tax incentive should be directed to Lisa Yee of the City's Department of Housing Preservation and Development (212 863-5183). See also Section XI below with regard to Liberty Bond financing.

If a proposer elects not to proceed under the 80/20 program, the certificate program or the Liberty Bond program, the bid submitted must assume no exemption or abatement of real property taxes. Proposers may submit alternative bids assuming up to three different PILOT scenarios (full taxes; the 10-year Section 421-a; and the 20-year Section 421-a).

The Authority wishes to ensure that it receives total payments in accordance with amounts proposed by the Developer, as set forth in the cash flows submitted in response to Question B-5 of the Form of Proposal. Accordingly, proposers must estimate PILOT, and the Developer must pay annually as PILOT the greater of the amount it has estimated or the actual amount of taxes that would be payable if the Authority were not tax-exempt, based on the assessment, the applicable City tax rate and any tax abatement program utilized under the provisions of this RFP.

A tax lot for the Site will not be created prior to designation of the Developer. Proposers should make appropriate assumptions as to assessed value in estimating PILOT. Proposers should become familiar with New York City tax assessment policies in order to make appropriate assumptions as to assessed value in estimating PILOT for the required 25-year cash flow projections.

D. PILOST

Because the Authority will hold title to the improvements to be constructed on the Site, the Developer will not be required under State law to pay sales and compensating use taxes on the materials incorporated therein during construction. The Developer will, however, be required to pay PILOST to the Authority in accordance with the Ground Lease. The Authority has fixed the PILOST for the Site at $4.50 per square foot of gross floor area. PILOST will be payable in eight equal quarterly installments commencing at the beginning of the construction period.

E. CIVIC FACILITIES PAYMENTS

The Developer will be required to pay, as its allocable share of the cost of maintaining portions of Battery Park City’s infrastructure, including open spaces, parks, art works and other public areas, an annual payment as determined by the Authority ("Civic Facilities Payments"). For the first two lease years after the first temporary certificate of occupancy is issued for any portion of the development, the Civic Facilities Payment will be $500 per residential unit and $ .50 per square foot of gross non-residential floor area per year; for the next three years, $550 per residential unit and $ .55 per square foot of gross non-residential floor area per year. “Gross non-residential floor

area" as referred to herein shall include all parking, retail, professional and other income-producing space, but not, for example, lobby areas generally used by the residents. After the initial five-year period, the Civic Facilities Payment for the Site will be based upon its share of the cost of providing park and recreation facilities in Battery Park City, plus a 10 percent surcharge for maintenance of the courtyard.

F. PERCENTAGE RENT

The Developer must pay percentage rent with respect to any non-residential uses located on the Site, equal to the greater of (i) ten percent (10%) of revenue received by Developer from such uses or (ii) any other amount specified in the proposal.

X. SECURITY

At the time the Developer delivers to the Authority an executed Designation Letter, as set forth in Section XVII hereof, the Developer must post a letter of credit in the amount of $2,687,000 (computed on the basis of $5 per square foot of the floor area specified in Section V above) to secure the Developer's obligations to the Authority during the period prior to the Ground Lease commencement date (the "Pre-Lease Period L/C") under the Designation Letter and, upon its subsequent execution, the Lease, as set forth below.

Six months after execution of the Designation Letter, the Developer must post a letter of credit in the amount of $5,374,000 (computed on the basis of $10.00 per square foot of such floor area) to secure the Developer's obligations under the Ground Lease during the design and construction period (the "Design/Construction Period L/C"), including without limitation the timely performance of the Design/Construction Period obligations as defined below (the "Design/Construction Period L/C"). The foregoing letters of credit must be irrevocable, and must be in form and substance and from an issuer satisfactory to the Authority.

The Pre-Lease Period L/C will secure, among other things, the Developer's obligation to execute the Ground Lease as specified in this RFP, make the Pre-Lease Period Payments described in Section XVII below, to make timely submissions of design documents such as the Schematic Plans, the Design Development Plans and the Construction Documents (to the extent required during the Pre-Lease Period), and to take all other actions required of it pursuant to the

Designation Letter described in Section XVII below. The Pre-Lease Period L/C will be returned to the Developer when the Design/Construction L/C is provided.

The Design/Construction Period L/C will secure, among other things, the Developer's obligations with regard to timely submission of documents such as the Pre-Schematics, the Schematics, the Design Development Plans and Construction Documents (to the extent such documents have not been submitted and approved during the Pre-Lease Period), as well as the Developer's obligation to proceed with construction in a timely manner as set forth in the Ground Lease. The rights of the Authority under the Design/Construction Period L/C shall be in addition to, and shall not diminish, any other rights of the Authority under the Ground Lease with respect to any failure of the Developer to comply with any of its obligations thereunder, including failure to meet the Design/Construction Period obligations. One year after commencement of construction of the development on the Site, the Design/Construction Period L/C may be reduced by one-third. One year later, the Design/Construction Period L/C may be reduced by another third. Upon completion of construction and satisfaction of the requirements for Completion of the Building (as defined in the Ground Lease), the Design/Construction Period L/C will be returned to the Developer. All such reductions assume no default by the Developer with respect to its obligations under the Ground Lease.

In the event the Developer wishes to commence construction prior to obtaining commitments for all required financing, the Authority may permit the Developer to proceed, but in no event will such permission be granted unless all required design approvals have been obtained as required under the Ground Lease, and the Authority has received (1) a guarantee of completion of the phase of construction of the building being undertaken, executed by a party that in the reasonable judgment of the Authority has access to resources available to it sufficient to cover the cost of completion of such construction, and (2) further security in the form of an additional or increased letter of credit (such additional or increased letter of credit being the "Pre-Financing L/C"). The amount of the Pre-Financing L/C may be required to increase during the course of construction in a manner to be specified by the Authority. The Pre-Financing L/C will be returned when financing commitments are obtained and the Design/Construction L/C is provided.

XI. FINANCING

Proposers are required to submit a preliminary financing plan satisfactory to the Authority as part of their response to this RFP. This preliminary financing plan should include the following:

1. An estimate of total development cost and a cost breakdown
2. The amount of proposer's equity contribution and other sources of equity, if any
3. The amount proposer proposes to finance
4. The proposed source and terms of financing
5. The proposed development schedule.

Proposers should inquire into the availability of tax-exempt Liberty Bond financing or "80/20" financing for the Site. Tax-exempt bonds for this project may be issued by the New York State Housing Finance Agency (HFA) or the New York City Housing Development Corporation (HDC). HFA has advised the Authority that up to $96 million of Liberty Bond financing may be available for development of the Site. For information about HFA financing, proposers should contact Michael Wadman, Senior Vice President – Housing Programs and Policy, at 212 688-4000 ext. 475, or mwadman@nyhousing.org. In addition, HDC has advised the Authority that a similar amount of such financing may be available from HDC. For information about HDC financing, proposers should contact Lisa Gomez, HDC's Senior Vice President - Development, at 212 227-9044 or lgomez@nychdc.com.

XII. AFFIRMATIVE ACTION

The Developer will be required to comply with the affirmative action program of the Authority during the design and construction of the development. The Developer must also comply with the Authority's fair marketing program. Copies of these programs are attached as Exhibits to the Ground Lease included as part of the Appendices.

XIII. MINORITY DEVELOPER ASSISTANCE

Development teams will be required to participate in the Minority Developer Assistance Corporation's internship program by providing employment or educational opportunities to minority persons. The goal of this program is to provide minority persons with an opportunity otherwise unavailable to them to achieve an understanding of real estate development, including financing, construction, marketing and operation of development projects.

The terms and conditions of Developer participation in Minority Developer Assistance programs will be set forth in a letter agreement between the Developer and the Authority.

XIV. SELECTION CRITERIA

The Authority will primarily consider the following three criteria in selecting the development proposal and Developer for the Site:

1. The commitment of the proposer to creating a 'green' building that can serve as a model for high-rise residential construction in the region and elsewhere, using financially feasible and technologically sound design strategies to conserve energy and otherwise minimize the environmental impacts of developing the Site.
2. The amounts the Authority determines likely to be paid to the Authority pursuant to the proposal, the timing thereof, and any guarantees or other firm legal obligations with respect thereto.
3. The quality of the design proposal (as evidenced by the design submissions required by the Form of Proposal and the quality of the design architect selected to be on the development team), and the proposer's commitment to implementing the programmatic requirements set forth in this RFP and the Design Guidelines.

Experience in the development, construction, management, marketing and design of projects of a scale, complexity and quality similar to that required by this RFP is a prerequisite.

The following other factors will also be taken into consideration:

1. The priority that the proposer places on the project relative to the proposer's other projects.
2. The proposer's financial plan, proposed development schedule and the demonstrated commitment and capacity of the proposer to meet its Pre-Lease Period and Design/Construction Period Obligations.
3. The proposer's financial qualifications (including its proven ability to obtain financing for projects of similar size, experience with institutional lenders and evidence of the willingness of such lenders to finance the proposed development), and the amount of equity or personal risk the proposer intends to contribute or assume for the project.
4. The proposer's record of performance in business dealings with any municipal, state or federal agencies, including the Authority.

5. The extent to which the proposer includes meaningful minority or woman participation. Such factors as the extent of the minority's or woman's ownership interest and decision-making role in the development and active participation in the day-to-day management of the development will be among the factors considered.
6. The proposer's previous record in achieving affirmative action goals in the construction, operation and management of other projects.
7. The proposer's and its principals' good moral character and freedom from any criminal conduct involving moral turpitude or other violations of law. The Developer selected by the Authority is expected to adhere to standards of business conduct justifying the confidence of the Authority obligations under the Ground Lease.

The Authority reserves the right to consider criteria other than the foregoing and to assign to each of the above and to such other criteria as are considered such weight as the Authority may in its absolute discretion determine (all criteria used by the Authority being collectively called the "Selection Criteria").

XV. PROPOSALS

Proposals are to be submitted using the forms included in the Form of Proposal. The information to be provided on each form is briefly summarized below.

A. THE PROPOSER

Proposers must complete the Proposer's Financial Reporting and Development Experience Form (part A of the Form of Proposal), which includes information regarding: (i) the proposer, (ii) the development team (including design professionals, and (iii) comparable developments completed in recent years.

B. PROJECT INFORMATION

Proposers must complete the Project Information Form (part B of the Form of Proposal), which calls for the following, among other things:

1. Program Description. A narrative description of the proposed development program, including the anticipated target market for the apartments, amenities and non-residential uses, the size and configuration of the building, the number, type and characteristics of the apartments, number of rooms per unit, number of units per floor, corridor widths, and floor-to-ceiling heights.

A ground-floor plan must be included, showing entrances, curb cuts, lobby locations, and non-residential uses; additional drawings must be submitted as detailed in the Form of Proposal. The proposer must also submit a development schedule showing the anticipated first occupancy date.

2. Green Guidelines Program. A detailed description of the methods or technologies the proposer is considering to comply with the requirements set forth in the Green Guidelines.

3. Payments to Authority. A schedule of Base Rent, PILOT and other payments to the Authority (including percentage rent and transaction payments), and any contingent payments based on sale, refinancing or otherwise. Estimates of any amounts payable for Percentage Rent should be included, but the Authority will determine its own valuation of any contingent payments. The proposal must state whether any tax abatement is anticipated and provide assumptions made for assessments and tax rates in deriving estimates of PILOT.

4. Preliminary Financing Plan. A plan of financing containing the elements set forth in Section XI above.

5. Cash Flow Projections. A projected 25-year cash flow analysis for the project. The pro forma analysis must include information and assumptions on development and construction costs, the cost of capital, proposed sales prices or rental rates, sale and rental revenues for all residential and other uses, projected occupancy, other revenues, operating expenses, and the basis therefor. Proposers must demonstrate a viable financial structure for the development over the life of the Ground Lease.

XVI. SELECTION PROCESS

The Authority will review all proposals for completeness and compliance with the terms and conditions of this RFP, and may request from any or all of the proposers additional material, clarification, confirmation or modification of any proposal. The Authority may also make requests for additional material or for clarification or modification of any proposal that is incomplete or non-conforming as submitted. Except at the request or by the consent of the Authority, proposers will not be entitled to change their proposals once submitted. The Authority will select the proposal/Developer for the Site that, in the sole discretion of the Authority, most successfully fulfills the Selection Criteria.

The Authority may at any time exclude those proposals that, in the sole discretion of the Authority, fail to demonstrate the necessary qualifications or which fail to comply with the terms and conditions of this RFP. The Authority reserves the right, in its sole discretion, to reject at any time any or all proposals, to withdraw the RFP without notice, to use the proposals as a basis for negotiation and to negotiate with one or more proposers and/or to negotiate with respect to, and dispose of, the Site (including to parties other than those responding to this RFP) on terms other than those set forth herein. The Authority reserves the right to waive compliance with and/or change any of the terms of this RFP. Under no circumstances will the Authority pay any costs incurred by a proposer in responding to this RFP or in connection with the leasing or development of the Site.

XVII. EXECUTION OF DESIGNATION LETTER AND GROUND LEASE

It is estimated that within 60 days after submission of final proposals and any additional information requested by the Authority, the Authority will select the Developer with which it will execute a Ground Lease. The Initial Deposit of the Developer will become the exclusive property of the Authority immediately upon such designation.

Upon being notified by the Authority of its pending designation, but before official action by the Members of the Authority, the selected proposer must execute and deliver to the Authority a Designation Letter substantially in the form contained in the Appendices. The Designation Letter, which will be executed by the Authority upon designation of the Developer by the Members, is intended to set forth the respective rights and obligations of the Developer and the Authority between the time of Developer selection and the commencement date of the Ground Lease, which will be executed by both the Developer and the Authority and held in escrow until the Developer has secured its construction financing. The Designation Letter specifies, in sum, that the Developer will execute a Ground Lease within 60 days of delivery to it of a lease in the form of the Ground Lease included in the Appendices, modified to include the appropriate terms of the Developer's proposal as determined by the Authority; that the parties will take certain steps to secure both financing for the building and other governmental approvals of the Ground Lease; that the Ground Lease commencement date will be no later than the date nine months after execution of the Ground Lease; that Pre-Lease Period Payments equal to the sum of Base Rent and PILOT for the first year of the Ground Lease and payable upon the Ground Lease commencement date, will begin to accrue on the earlier of the commencement date or the date six months following the date of Developer designation; and that the Developer's obligations prior to

the Ground Lease commencement date will be secured by the Pre-Lease Period L/C (and/or the Pre-Financing L/C referred to in Section X above, if applicable). The Designation Letter also specifies that if the Developer does not voluntarily accept a form of rent regulation in consideration of tax or other governmental benefits, it will be expected to enter into an agreement with the New York State Division of Housing and Community Renewal pursuant to Section 14.1(w) of the Public Housing Law, providing that new housing units to be constructed on the Site will not be subjected to rent regulation.

Prior to designation by the Authority, the Developer must also deliver with the executed Designation Letter (i) the Pre-Lease Period L/C and (ii) a further deposit of $75,000 by certified or cashier's check payable to the Authority (the "Second Deposit"). The Second Deposit and Pre-Lease Period L/C will be held in escrow until the Developer is designated. The Initial Deposit and Second Deposit of the Developer will be used by the Authority, among other things, to offset the costs of the Authority in connection with the preparation and issuance of this RFP, the selection of the Developer and the preparation and execution of the Designation Letter and the Ground Lease. The Initial Deposit and Second Deposit will not be refunded to the Developer except as otherwise provided below, and they will in no event be applied to rent or other payments due under the Ground Lease. In the event the Authority incurs legal costs in excess of $25,000 in connection with preparation of the Ground Lease *after* designation of the Developer and *before* execution of the Ground Lease, the Developer must pay the amount of such excess legal costs upon execution of the Ground Lease.

As provided in the Designation Letter, in the event that the Developer fails to execute a Ground Lease within the 60-day period following its delivery to the Developer, the Developer’s rights thereunder will automatically terminate, the Authority will retain the Initial Deposit and Second Deposit, and may dispose of the Site to any other proposer or party.

The selection of a Developer will create no legal or equitable rights in favor of the Developer, including, without limitation, rights of enforcement or reimbursement. The Developer will, however, have the exclusive right, as well as the obligation, to execute a Ground Lease during the 60-day period after its delivery to the Developer, provided that the Developer is in compliance with the terms and conditions of this RFP and the Designation Letter. The right to execute the Ground Lease will not be assignable. Only the Developer will have the right to execute a Ground Lease, and no party other than the parties identified in the Developer's submission will be

permitted to execute a Ground Lease or have an interest in the entity executing a Ground Lease or in the development.

Before the Ground Lease may become effective, approval by the Members of the Authority will be required. In the event a Ground Lease is executed by the Developer in accordance with the terms and conditions of this RFP and the Designation Letter, but the Ground Lease is not approved by the Members of the Authority for a reason unrelated to the Developer's failure to comply with the terms and conditions of this RFP or the Designation Letter or any other acts or omissions of the Developer, the Initial Deposit, the Second Deposit and the Pre-Lease Period L/C will be returned to the Developer, but in no event shall interest be payable on such deposits by the Authority, and the Developer will have no other legal or equitable rights against the Authority.

Except as otherwise provided in the preceding paragraph, failure by the Authority for any reason to execute a Ground Lease with the Developer will not create any liability on the part of the Authority or any of its members, officers, employees, agents, consultants or contractors. Submission of a proposal in response to this RFP will constitute a waiver by the proposer of any claim against any of the foregoing for any costs incurred or for any matters arising thereunder or in connection with the negotiation or execution of (or failure to execute) a Ground Lease.

XVIII. DESIGN PROFESSIONALS AND PLANS

The Authority is committed to high-quality architecture and urban design and will require that design professionals, including architects, proposed for the Site be able to demonstrate an overall body of work recognized by their peers as showing excellence of design. The architect, engineers and other design professionals to be retained in connection with each proposed development are subject to the approval of the Authority, which approval may be granted or denied in the Authority's sole discretion. In light of the Authority’s goal of creating a green building on the Site, the design team should have significant architectural and engineering experience in creating environmentally responsible buildings in dense urban settings, as well as a demonstrated interest in this goal.

The proposal must contain information related to all design professionals to be employed in connection with development of the Site. The Authority’s approval of the design professionals will be set forth in the Designation Letter. Each phase of the Developer's plans (Pre-Schematic Plans, Schematic Plans, Design Development Plans and Construction Documents) must be

approved by the Authority in accordance with the schedule set forth in the Designation Letter to insure that the proposed development complies with the Design Guidelines, Master Lease, Master Development Plan and Ground Lease. The Authority must approve any changes to the final Construction Documents that may affect such compliance, whether prior to or during construction.

XIX. BROKERS

No brokerage fees, finders' fees, commissions or other compensation will be payable by the Authority in connection with the selection of the Developer or the leasing of the Site. Submission of a proposal by a proposer in response to this RFP will constitute an undertaking by such proposer to hold harmless and indemnify the Authority from and against any and all expenses, damage or liability (including, without limitation, attorney's fees and disbursements) arising out of any claim for such fees, commissions or other compensation made in connection with such proposer's response to this RFP, selection or non-selection thereunder or negotiation and execution (or non-execution) of the Ground Lease.

XX. INFORMATION SUPPLIED BY PROPOSERS; CONTACTS WITH AUTHORITY

Public access to material submitted by proposers in response to this RFP shall be governed by the relevant provisions of the Freedom of Information Law, which constitutes Article 6 of the New York State Public Officers Law ("FOIL"), and regulations adopted pursuant thereto. If any proposer submits information that it believes to be a trade secret or otherwise exempt from disclosure under FOIL, it must specifically identify such information and state in writing the reasons why the information should be exempt from disclosure.

Executive Order #127 of the Governor of the State of New York imposes disclosure and record-keeping requirements on the Authority and prospective contractors with regard to their contacts, and all proposers must comply with these requirements. In particular, proposers must provide certain information with respect to any persons and organizations retained, employed or designated by or on behalf of the proposer to influence the Authority’s selection of the Developer, and the Developer will be required to update such information throughout the selection process.

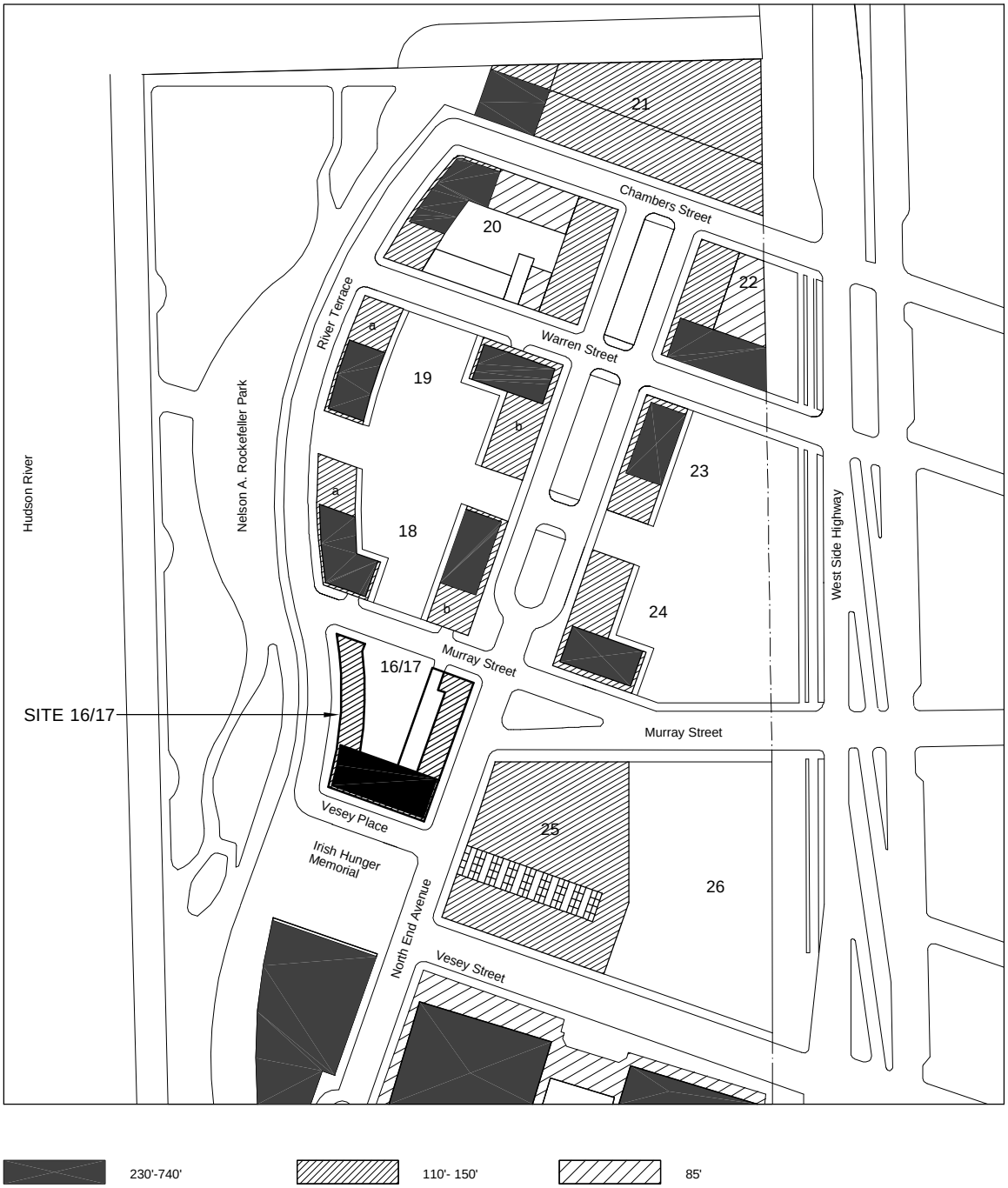
In the event that the Authority becomes aware of any material misrepresentation in the information supplied by a proposer, the Authority shall have the right to reject at any time the proposal of the proposer, to refuse to negotiate or continue negotiations with the proposer and to

take any other action, including retaining any deposit made by the proposer, as shall be deemed appropriate by the Authority in its sole discretion.

The Authority reserves the right to request, at any time in the selection process, such additional information or materials as it may deem useful or appropriate to evaluate each proposer's qualifications and past experience. Submission of a proposal shall constitute the proposer's permission to the Authority to make such inquiries concerning the proposer and members of the development team, as the Authority, in its sole discretion, deems useful or appropriate.

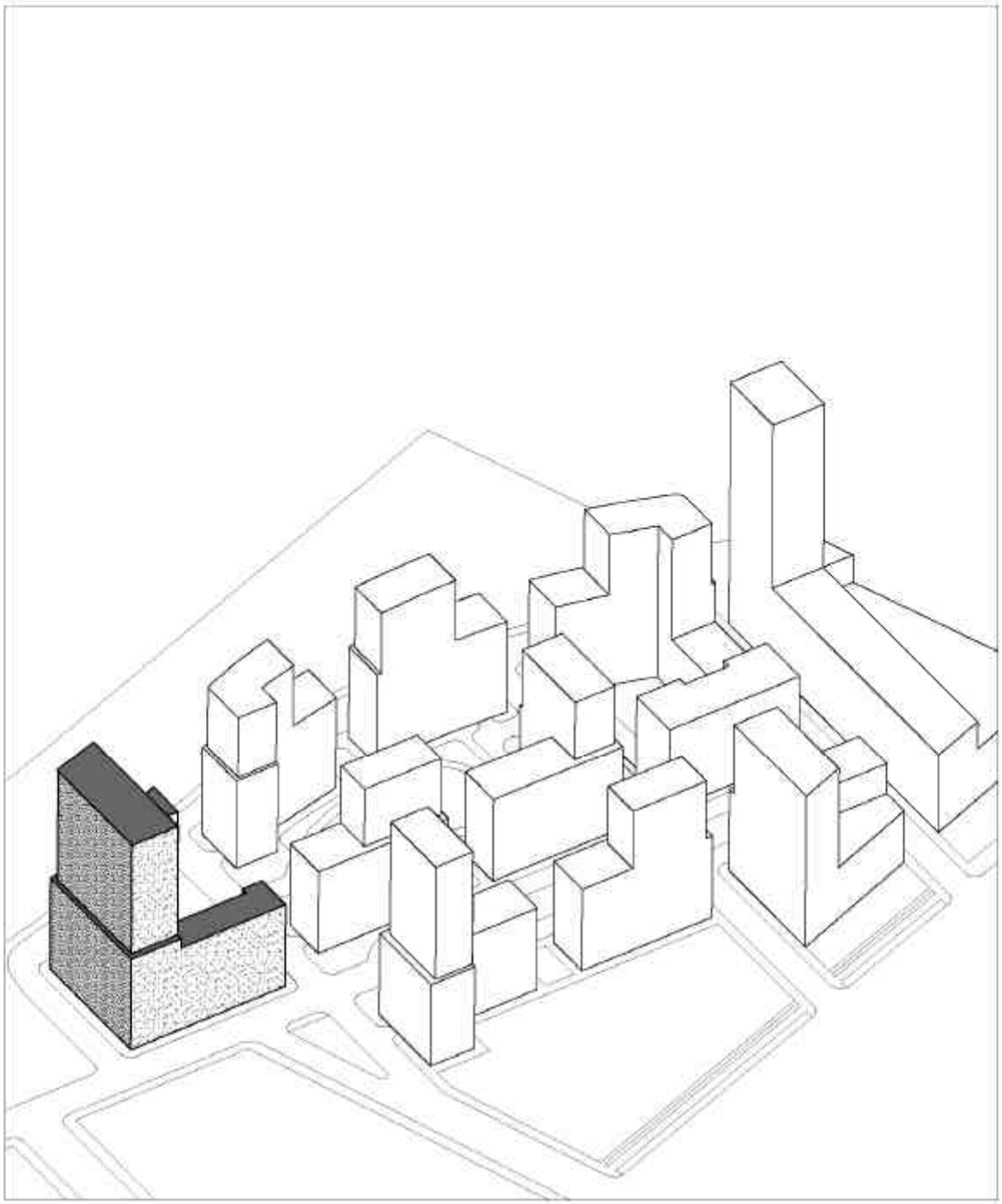
XXI. REPRESENTATIONS AND WARRANTIES

The Authority makes no representations or warranties, including without limitation representations or warranties as to the accuracy of any information or assumptions contained in this RFP or otherwise furnished to proposers by the Authority; the use or progress of development of any Site or any other portion of Battery Park City; Site conditions or the suitability of the Site for any specific use or development; and tax assessments that may be made by the City, tax rates that may be established by the City, or the amount of PILOT payable with respect to the Site.



LOCATION PLAN

EXHIBIT A



SITE ISOMETRIC FROM SOUTHEAST

EXHIBIT B

BATTERY PARK CITY

NORTH RESIDENTIAL NEIGHBORHOOD: SITE 16/17

HUGH L. CAREY
BATTERY PARK CITY AUTHORITY

George E. Pataki
Governor, State of New York

Timothy S. Carey
President & Chief Executive Officer

James F. Gill
Chairman

Charles J. Urstadt
Vice Chairman

David B. Cornstein
Member

December 2003

FORM OF PROPOSAL

FORM OF PROPOSAL

Financial terms of the proposal (Questions B-4, B-5 and B-6) must be submitted separately.

A. Proposer's Financial Reporting and Development Experience Form

A-1. State the name, address and telephone number of the proposer and the name of a representative authorized to act on its behalf.

A-2. If the proposer is not an individual doing business in his or her own name, describe the status of the proposer's organization (whether a corporation, partnership, business association or joint venture) and indicate the jurisdiction under the laws of which it is organized and operated.

A-3. Attach an organizational chart for the proposer indicating the names and responsibilities of key personnel.

A-4. Identify all principals, shareholders (limited in the case of a publicly held corporation to shareholders owning in excess of five percent (5%) of the stock), partners or co-venturers of the proposer, and state the nature and the extent of each participant's interest in the proposed development and whether any of the same are minority persons. Attach a current financial statement for each participant and any other information that will enable the Authority to assess the proposer's financial capability.

A-5. State the name, addresses and telephone numbers of at least three (3) commercial or institutional credit references. Two of the three should be institutions from which the proposer has previously obtained substantial project financing. Attach a letter authorizing each credit reference to respond to inquiries from the Authority.

1.

2.

3.

A-6. Attach the latest Dun & Bradstreet credit report or a similar recent credit report on the proposer, each participant in the project and any related business entities.

A-7. Identify any affiliation or relationship, other than as set forth in 4 above, between the proposer and any other development company, parent company, lending institution or other entity that the proposer believes will enable the Authority to better assess its financial capability.

A-8. State whether the proposer, any principal of the proposer or any affiliate of the proposer or of such principal, has or has ever had any interest in any entity which has received a mortgage loan from, or entered into a lease or other on-going relationship with the State or City of New York or United States, or any agency of any of them, for any development project. For each loan received or relationship entered into, state the name and address of the parties and project involved and briefly describe the project and its current status.

A-9. State whether the proposer or any principal or officer of the proposer or any affiliate thereof has any business or financial relationship or any relationship by marriage or blood with any Member, officer or employee of the Authority. If so, identify the persons involved and describe the relationship.

A-10. List and provide a brief description (including names and addresses) of high-rise residential developments of comparable scale, complexity and quality which have been undertaken by the proposer in New York City or another major urban center, with particular emphasis on projects similar to the residential development called for in the Design Guidelines. Include, for each project identified, the name and address of a person or persons familiar with the project who will respond to inquiries from the Authority. The Authority will not consider the proposal of any proposer that has not successfully completed such a project or projects during the past five years.

A-11. The Authority as a New York State public benefit corporation has an affirmative action program which encourages the hiring of minority firms. Indicate whether the development team includes a meaningful minority or woman proposer participation. If so, describe in detail the extent of such participation including the ownership interest, equity contribution, participation in profits, losses and fees, development role and management role of the participating minority person(s) or women. Attach all agreements or other arrangements reflecting the terms and conditions of the minority or woman proposer participation.

A-12. Describe the proposer's recent participation in programs for affirmative action in the construction, operation and management of development projects. Also state, if available, the percentage of work on, or materials supplied for, such projects, which were performed or provided by minority business enterprises or women-owned business enterprises and the percentage of the work force on such projects, which were composed of minorities and women.

A-13. Affirm proposer's agreement to comply with the Affirmative Action and Affirmative Fair Marketing Programs attached as Exhibits to the Ground Lease.

A-14. Provide the name, address, telephone number, place of principal employment and occupation of every person or organization retained, employed or designated by or on behalf of the proposer to attempt to influence the Authority to select the proposer as Developer of the Site. Indicate in each case whether such person or organization has a financial interest in the proposer's being selected as Developer. Affirm that (i) the proposer certifies such information to be accurate and complete; (ii) that the proposer will update such information and certification if additional such persons or organizations are so retained or employed after the date of this proposal; and (iii) the proposer agrees that its designation as Developer of the Site may be terminated if such certifications are found to be intentionally false or incomplete.

A-15. Provide any additional information that will enable the Authority to judge the current capability and past performance of the applicant.

B. Project Information

B-1. Development Description

Please provide the following:

A. A list of the firms and individuals (architects and engineers) who will constitute the design team for the project, noting the firms and individuals who have particular experience and interest in designing an environmentally responsible building.
B. A narrative description of the development, indicating the anticipated target market for the apartments, amenities, size and configuration of the building, the number, type and characteristics of the apartments, number of rooms per unit, number of units per floor, corridor widths, and floor-to-ceiling heights.
C. A ground-floor/site plan of the proposed building, indicating: residential, café space, retail, and non-profit uses; other non-residential uses; curb cuts, entrances, parking ramp, handicapped accessible parking, mechanical space, bike room, etc. Discuss where mechanical uses not on the ground floor would be located. State the number of below-grade parking spaces that can be provided within the building footprint and under adjacent sidewalk and landscape areas, after allowing for other required elements.
D. A section showing floor-to-floor heights and interface among various uses.
E. Two elevations establishing the architectural character of the building (the mechanical bulkhead must be shown).
F. List and describe any proposed deviations from the Design Guidelines.

B-2. Green Guidelines Requirements

A. Identify, describe, and discuss the specific steps the proposer will take to comply with *each* of the requirements set forth in the Green Guidelines.

B. Describe and discuss any additional construction procedures, design elements, choices of materials and operating procedures the proposer intends to incorporate into the building *in addition to those required to comply with the Green Guidelines* that would that would contribute to creating a more sustainable building.

C. Provide an estimate of the incremental cost of *each* required element, as well as any additional proposed elements, using the table immediately following Question B-6 of this Form of Proposal. For each required element, the proposer must indicate in the table whether the proposed development complies with such requirement.

D. State whether the proposer intends to apply for the Green Building Tax Credit.

E. State whether the proposer intends to apply for certification of the building by the U.S.Green Building Council as a LEED 'silver' building or whether a higher rating ('gold' or 'platinum') will be sought. The requirements for various LEED ratings may be found in the U.S. Green Building Council's LEED Green Building Rating System Version 2.1, which is available at the Council's website (www.usgbc.org).

B-3. Development Schedule

Indicate elapsed time, in days, required to complete each phase below.*

Design

Pre-Schematic:	_____ days from execution of the Designation Letter
Schematic:	_____ days from approval of Pre-Schematics by the Authority
Design Development:	_____days from approval of Schematics by the Authority
Construction Documents:	_____days from approval of Design Development Plans by the Authority

Construction

Commencement of Construction:	_____days from approval of Construction Documents by the Authority
Substantial Completion of	_____days from Construction: Commencement Of Construction

* The Design Schedule will be incorporated into the Designation Letter. The entire Development Schedule will be incorporated into the Ground Lease.

Financial proposals—Questions B-4, B-5 and B-6 must be submitted separately.

B-4. Financial Terms

A. Base Rent; PILOT

Please state the amount of fixed annual Base Rent proposed to be paid during the period from execution of Ground Lease until the twenty-fifth anniversary of the commencement of the Lease Term. The Base Rent payable in any year may not be less than the Base Rent payable in any previous year and may not be greater than one hundred five percent (105%) of the Base Rent payable in the previous year.

Lease Year:	Base Rent
Year 1:	$
Year 2:	
Year 3:	
Year 4:	
Year 5:	
Year 6:	
Year 7:	
Year 8:	
Year 9:	
Year 10:	
Year 11:	

Lease Year:	Base Rent
Year 12:	$
Year 13:	
Year 14:	
Year 15:	
Year 16:	
Year 17:	
Year 18:	
Year 19:	
Year 20:	
Year 21:	
Year 22:	
Year 23:	
Year 24:	
Year 25:	

C. Percentage Rent

State the percentage rent proposed to be paid to the Authority for non-residential uses as specified in the Ground Lease if greater than ten percent (10%).

_____ percent (%) of Gross Non-Residential Revenue, as defined in the Ground Lease.

D. Transaction Payments

State the amount of Transaction Payments proposed to be made to the Authority at the times set forth in the Ground Lease upon the sale of individual units pursuant to a cooperative or condominium conversion plan, if greater than one percent (1%) of the purchase price of each unit.

_____ percent (%) of the purchase price for each unit (i.e., amount on which transfer tax is payable).

B-5. 25-Year Cash Flow Analysis.

A 25-year cash flow projection must be included using the schedule of Base Rent payments submitted under B-4 above.

	Years*			
	1	2	3	4	5
Projected Gross Income					
Vacancy (Credit Loss)					
Effective Gross Income					
Operating Income					
Operating Expenses					
Civic Facilities Payments					
Marketing Expenses					
Leasing Commissions					
Net Income					
Debt Service					
Cash Flow					
Base Rent					
PILOT					
Percentage Rent					

* Beginning with execution of the Lease. Please attach extra sheets and continue the Cash Flow through the twenty-fifth year of the Lease Term.

Notes:

1. PILOT. Unless otherwise stated, PILOT levels used in the 25-year cash flow will be minimum payments; that is, PILOT payable will be the greater of (a) what real property tax would be under the applicable tax program, using actual assessed values and tax rates fixed by New York City, or (b) the PILOT payment set forth in the 25-year cash flow. If the proposer wishes to submit a different minimum PILOT, it must be set forth as an appendix to the 25-year cash flow.

2. Rentals; sales. Attach a schedule showing rental or sale levels by unit size for all commercial and residential units for each year of the 25-year period.

3. Transaction Payments. Net sale proceeds of, and transaction payments with respect to sales of condominium or cooperative units should be reflected in the year in which any such sales are anticipated.

B-6. Preliminary Financing Plan.

Provide a preliminary financing plan, including the following information:

A) An estimate of total development cost and a cost breakdown
B) The amount of proposer's equity contribution and other sources of equity.
C) The amount proposer proposes to finance
D) The proposed source and terms of financing
E) The proposed development schedule

BATTERY PARK CITY

NORTH RESIDENTIAL NEIGHBORHOOD: SITE 16/17

December 2003

DESIGN GUIDELINES

TABLE OF CONTENTS
DESIGN GUIDELINES

List of Diagrams

I. INTRODUCTION

These Design Guidelines have been established by Battery Park City Authority (BPCA) to ensure a high level of coherence and quality to Battery Park City. All development is subject to these guidelines, and to review by BPCA.

The original Master Plan established the North Residential Area at the northern end of Battery Park City. The eleven blocks included in the North Residential District, are to be developed primarily for residential, and community uses. With the addition of two schools, and fourteen acres of park and open space, the North Residential District is developing as a unique family-oriented neighborhood. The two schools include PS/IS 89 a 950-seat elementary and middle school, and Stuyvesant High School, a 3000-seat magnet high school. The Neighborhood includes the 8-acre Rockefeller Park, with active and passive recreational uses, the recently re-opened ballfields which accommodate softball, soccer and free play, the Irish Hunger Memorial, a landscape art piece, the North End Avenue Islands, which are being redesigned to incorporate more residential amenities, and the soon-to-be-completed Teardrop Park, a constructed Catskills woodland with exploratory play features.

The Design Guidelines for the North Neighborhood and the Residential Environmental Guidelines pertaining to this area seek to ensure that the design quality of the neighborhood will be consistent with the best residential addresses in New York City. The primary means of creating this high quality environment is to give prominence to landscaped streets and parks. The buildings, while they give shape and character to open spaces, remain intentionally in the background. However, given the prominent location of the site on the New York City waterfront, and its pivotal location between the commercial and residential neighborhoods, Site 16/17 should be given special design consideration.

Site 16/17 is intended primarily for residential use. It will include 26,100 square feet of community use: 12,000 square feet will be used for a New York City branch library; 4,000 square feet will be used as a World Hunger Information Center; 10,000 square feet will be used for a cultural not-for-profit and 100 square feet is intended to be used by Battery Park City Parks Conservancy for their own back of house uses.

It is the intent of the Guidelines to ensure that the Site 16/17 building is compatible with the neighborhood's residential character. Accordingly, the primary entrance should be at grade on North End Avenue. A secondary residential entrance will be on Vesey Place. Community

facilities will be entered on Murray Street, River Terrace, North End Avenue and the courtyard. (See Fig. 1). Service access will be on Murray Street and North End Avenue.

The building's facade, including its fenestration, glazing, and lighting must be in keeping with the residential character of the neighborhood and signage is to be well integrated and restrained.

II. INFRASTRUCTURE OF THE NORTH RESIDENTIAL NEIGHBORHOOD

A. General Soil Conditions

The North Residential Neighborhood landfill has favorable soil conditions as a result of the thorough preparation of the subsurface river bottom and a careful placement of controlled fill consisting of clean sand. Consequently, the soil conditions in the North Residential Neighborhood can match those of many other sites in Lower Manhattan. (See Fig. 12, General Soil Conditions.)

The North Residential Neighborhood is located in an area of the Hudson River waterfront that was formerly occupied by a number of piers and ferry terminals. To provide a uniform subsurface for the landfill, these areas were dredged to about Elev. –20. Bedrock is encountered at elevations ranging from Elev. –90 in the northeast corner to Elev. –40 in the southwest corner. (See Fig. 13, Section of General Soil Conditions.)

The placement of fill began in July 1974 using sand dredged by pumping from the west side of Ambrose Channel in the New York Harbor. Composed of light gray medium to fine grains, the sand reveals traces of silt, shells, coarse sand, and fine gravel. The sand was pumped in a controlled manner which minimized disturbance of the river bed.

The results of the fill and stabilization program showed that all utilities, pavements, lightly loaded structures, and most ground floor slabs could be supported on the fill without pile support. In addition, it may be possible in certain cases to support low-rise buildings on spread footings or mats.

All designs shall be based on additional field information regarding the current state of the subsurface conditions, including a boring program and laboratory tests. Background studies, reports, and evaluations of the soil conditions in the North Residential Neighborhood have been prepared by Mueser, Rutledge, Johnston & DeSimone from 1972 to 1980.

B. Water Conditions

Mean high water (MHW) at the Hudson River is at Elev. 0.0. The 100-year storm elevation is at approximately Elev. +8.6 feet. Basement slabs in the North Residential Neighborhood can be constructed at any elevation if designed to resist hydrostatic pressure. All building structures are to be in accordance with Section C26-409.4 of the New York City Administrative Code. All local laws governing construction in flood zone areas shall apply.

C. Circulation

Public streets serve all of the Blocks in the North Residential Neighborhood, and connect Battery Park City with Lower Manhattan. (See Fig. 11, Proposed Pedestrian and Vehicular Circulation.) Vehicular access to the development from West Street is through Vesey Street, Murray Street, Warren Street, and Chambers Street. At-grade crossings for pedestrians are established at Vesey Street, Murray Street, Warren Street and Chambers Street. An elevated pedestrian bridge (Tribeca Bridge) crosses West Street, at Chambers Street. A second pedestrian bridge at Vesey Street will be completed by the end of the year.

Avenues and streets constitute the vehicular circulation system within the North Residential Neighborhood. (See Fig. 15, Street Dimensions.) North End Avenue, the major north/south avenue, links Chambers Street on the north to Vesey Street and the North Cove on the south. Its tree-lined 140-foot right-of-way contains a central park 50 feet in width, bordered by two 30-foot roadbeds and by 15-foot sidewalks to the east and west. North End Avenue narrows to 100-feet at Murray Street. This 100-foot right-of-way contains a 60-foot two-way roadbed including two 8-foot-wide parking lanes, and 20-foot sidewalks to the east and west. The avenue terminates at its south end in a cul-de-sac.

River Terrace, along Rockefeller Park, has a 53-foot right-of-way with a 38-foot two-way roadbed. One 8-foot parking lane may be provided in the east side of the roadbed. A 15-foot sidewalk will be provided on the east side of the roadbed, and a western sidewalk of 15 feet is provided along Hudson River Park. A 3-foot landscape easement is located at River Terrace's eastern border: half of the easement is part of the sidewalk; half is within the parcel. (See Figure 1, Ground Floor Summary) South of Murray Street, River Terrace is one-way.

Chambers Street is a tree-lined east/west street which extends from Tribeca across West Street to Hudson River Park. Its 68-foot right-of-way is made up of a 42-foot roadbed including two

possible 8-foot parking lanes, and 13-foot sidewalks. A 2-foot sidewalk easement has also been provided on the north side of Chambers Street. Chambers Street operates as a two-way street east of North End Avenue; it becomes a one-way street running west between North End Avenue and River Terrace.

Warren Street has a 64-foot right-of-way containing a 38-foot roadbed with two 8-foot parking lanes, and 13-foot sidewalks.

Murray Street extends from Tribeca to the east as a two-way 90-foot right-of-way with a 60-foot roadbed containing two 8-foot parking lanes, and 15-foot sidewalks. The two-way roadbed is bisected by Murray Street Park and separates into two one-way portions. Westbound traffic continues to the north of the park in a 43-foot right-of-way consisting of a 30-foot roadbed with one 8-foot parking lane, and one 13-foot sidewalk on the north. Eastbound traffic runs to the south of Murray Street Park in a 48-foot right-of-way consisting of a 33-foot roadbed with one 8-foot parking lane, and one 15-foot sidewalk on the south. At the intersection with North End Avenue, Murray Street becomes a two-way street with a 64-foot right-of-way containing a 38-foot roadbed with two 8-foot parking lanes, and 13-foot sidewalks.

Vesey Street is the southernmost east/west street in the North Residential Neighborhood; it connects at grade across West Street and consists of a 100-foot right-of-way containing a 70-foot roadbed with one 8-foot parking lane, and a 20-foot sidewalk to the south and a 10-foot sidewalk to the north. An additional 10-foot sidewalk easement on Sites 25 and 26 increase the north sidewalk to 20 feet. (See Fig. 11, Pedestrian and Vehicular Circulation for proposed plan.)

D. Grading

The grading in the North Residential Neighborhood has been designed so that its highest point occurs at the north end of River Terrace where it meets Chambers Street. As River Terrace curves southward it slopes gently down to the Irish Hunger Memorial (or Vesey Place) where the elevation is close to that of Rockefeller Park, offering a view and pedestrian access to the Hudson River. The grading of North End Avenue creates a crest in the central median island, and slopes downward to the south, dramatizing views across North Cove and out to the harbor. (See Fig. 14, Street Grading.)

Elevations along the Esplanade are set at Elev. +7.5. Detailed grading information is shown on the Official City Street Map.

E. Utilities

The BPCA has installed utility systems in the public streets. The developer is responsible for tying-in and supporting its house connections to the main lines of utilities provided in the streets and sidewalks. Tree and street light locations have been established, and developers are required to locate utility connections so as not to disrupt their continuous pattern. The private utilities will be maintained by their own companies; the public utilities will be maintained by the City of New York. Information on utilities provided in the Design Guidelines is not intended to be complete. As-Built surveys prepared by Lockwood Kessler, are available for information only from the BPCA, but Developers are responsible for all survey information. All utility pipe sizes are subject to verification.

Water System

New York City water is available to all blocks within the North Residential Neighborhood for both potable and fire-fighting uses. (See Fig. 6, Utilities: Water, Storm Sewer and Sanitary Sewers.) Hydrants are placed along all streets and landscaped areas as required. Connections to the water mains are subject to the review and approval of the BPCA and the New York City Department of Environmental Protection.

Existing mains in Vesey Street and North End Avenue connect to a 20-inch water main along the east side of North End Avenue’s median parks and to 12-inch lines which complete the loops in River Terrace, Chambers Street, Warren Street, Park Place West, and Murray Street. A 12-inch line has also been located parallel to and just west of the bulkhead line completing the eastern loop. The environmental guidelines require the recycling of storm water and gray water in all buildings for certain utilitarian purposes.

Storm Water Drainage

Storm water from all sites, streets, and areas within the North Residential Neighborhood is collected via a system of catch basins and pipes connecting to Lower Manhattan's storm sewer system. (See Fig. 6, Utilities: Water, Storm Sewer and Sanitary Sewers.) To the north of Warren Street, storm water is collected into a 30-inch line which connects to an existing 96-inch outfall into the Hudson River. To the south of Warren Street, storm water is collected into either an existing 36-inch line in North End Avenue or an existing 96-inch line in Vesey Street both of which connect to an existing 96-inch outfall into the Hudson River.

Catch basins and manholes are located along the sewer lines as required for connections and drainage of the streets and park areas. The mains are located so that all development Parcels can connect at convenient manholes with 90-degree lines. Details of the connections are subject to the review and approval of the New York City Department of Environmental Protection.

Sanitary Sewers

Sanitary sewage from all developments in Battery Park City will be connected to the sewer lines of New York City. (See Fig. 6, Utilities: Water, Storm Sewer and Sanitary Sewers.) Sanitary sewers in the bed of North End Avenue and Vesey Street connect to the City's sewer system in West Street. Sewer lines were installed in River Terrace, Murray Street, and on the east and west sides of North End Avenue's median parks. The sewer lines are located so that all development Parcels can connect to them at convenient manholes with 90-degree lines. Details of these connections are subject to the review and approval of the BPCA and the New York City Department of Environmental Protection.

It may not be possible to service deep basements by gravity flow. Wherever deep basements are proposed below the elevation of the streets, it may be necessary to pump the sewage into the sewer line.

Private Utilities: Electric, Telephone, Gas

All development blocks are serviced by utility lines running in the right-of-way of streets. It will be the responsibility of each developer to arrange with the private utilities companies to bring service to each building.

Electric service consists of multiple high- and low-voltage feeders installed by Consolidated Edison (ConEdison). The developer will be required to apply to ConEdison and meet its normal requirements. Developers will be required to coordinate the location of points of entry and possible transformer vaults with ConEdison so that they do not disrupt the established locations of the lights and trees on the streets and avenues. (See Fig. 5, Utilities: Electrical, Telephone, and Gas.)

Each developer will coordinate with the telephone company for points of entry to the building. (See Fig. 5, Utilities: Electrical, Telephone, and Gas.)

An emergency reporting system has been provided for the North Residential Neighborhood

consisting of pedestal-type stations and fire alarm luminaries.

Gas mains have been provided in the public right-of-way. The developer will provide the extensions and service entrances to the development in accordance with the requirements of ConEdison. (See Fig. 5, Utilities: Electrical, Telephone, and Gas.)

III. PROGRAM AND GUIDELINES

A Site Area

Site 16/17 contains a total approximate area of 44,790 square feet.

B Floor Area

The maximum permitted floor area for Site 16/17 is 537,400 zoning square feet (as defined in the New York City Zoning Resolution and not allowing Quality Housing exclusions).

C Location and Easements (see Figures 2 and 9)

Location: Site 16/17 is bounded by River Terrace, Murray Street, North End Avenue and Vesey Place.

Easements: There is a 36-inch sidewalk/property easement on River Terrace. This will allow a more generous sidewalk and planting strip. Along River Terrace a 36-inch planting bed and an 8-foot concrete sidewalk must be provided. (See Figure 16: Plan and Section of River Terrace.) The Developer is responsible for sidewalks and streetlights and will be responsible for getting approval from the City for the Builders Pavers Plan.

D Uses and Access: (see Figure 3 and 4)

Residential

Site 16/17 is to be devoted primarily to residential use. The primary residential entrance should be located on North End Avenue. A secondary residential entrance may be provided on Vesey Place.

Community Facility

A space of at least 12,000 square feet must be provided for a branch of the New York City Public Library. The library must be entered from Murray Street with approximately 70% of the space must be provided at grade. The remainder of the space can be provided on the second floor. The roof area to the west of the library will be developed as a secure terrace accessible from the library only.

A space of 4,000 square feet must be provided entirely at grade for a World Hunger Education Center. The main entrance must be on Vesey Place.

A space of at least 10,000 square feet must be provided for a not-for-profit group with cultural and/or educational functions. The entrance and approximately 60% of the space must be at grade; the rest may be on the second floor.

A space of 100 square feet must be provided for the Battery Park City Authority or its affiliate, the Battery Park City Parks Conservancy. The space must be entered at grade from Murray Street or the courtyard.

While the community facilities will be designed, fitted out and maintained by others, the developer is expected to do the core and shell construction.

Commercial

Retail use (café) with a minimum of 1400 square feet is required on the ground floor with entrances on North End Avenue and the public open space. The cafe must be equipped with power and hvac, and exhausted to the roof.

Public Open Space

The residual space between the North End Avenue building wing and the River Terrace building wing will be developed as a public open space. At approximately 14,682 square feet, it will be designed and built by BPCA. It will be maintained by BPCPC for use by the public. Despite the responsibilities for building and maintaining it, it is envisioned that the space will be ancillary to the community facilities.

Parking

Parking is permitted under the courtyard, but it may not negatively impact the use of the courtyard as a public open space. The garage must be vented to the roof. 48 inches of clearance must be provided to allow for planting.

Residential parking access is limited to Murray Street. Curb cuts must be located 50 feet from the east property line. Service entrances are permitted on Murray Street. No curb cuts are allowed on Vesey Place or North End Avenue.

E Bulk (see Figures 8, 9 and 10)

The development of Site 16/17 will have a u-shaped configuration, with the open end facing Murray Street, and a tower located on Vesey Place. The tower will have a maximum height of 320 feet.

The North End Avenue wing is governed by a mandatory street wall requirement between 110 feet and 135 feet. It will have a maximum width 40 feet above the first floor. On the ground floor the North End Avenue wing may expand to a total of 70 feet to accommodate the Library and Parking functions.

The River Terrace wing is governed by a mandatory street wall requirement of 150 feet and a maximum width of 40 feet.

F Architectural Features (see Figure 8)

Materials used on the exterior of the building are a critical design element and are subject to the approval of BPCA.

Stone Base

A stone base two stories high is required along all street facades. Special articulation is required at major entrances, including the lobby, the library, the Hunger Information Center and the Not-for-profit cultural center. Polished stone is discouraged.

Because the interior walls of the courtyard enclose a public space, an articulated two story stone base is required or approved alternative. Interior ground floor uses must be considered.

Streetwall

Traditional New York stone and brick building materials are required in order to provide continuity among the buildings. Building exteriors must be predominantly masonry. Curtainwall (metal and glass) is permitted only on limited areas of the tower's facade. Exposed concrete slab edges are not permitted.

The building's masonry color or colors must be within a range of red brick. An unusual amount of contrasting color is discouraged. However, sensitive arrangements of colors and materials are desirable for decorative purposes in special locations, such as building entrances, as well as on the rooftops where they can be enjoyed from a distance.

The predominant material of the streetwall above the stone base must be standard 2 1/4" x 8" brick. The intent of the size limitation is to achieve a character similar to other residential buildings in Battery Park City. The streetwalls are to be relatively plain with intermediate expression lines of stone to reduce the scale of the streetwall. If approved by BPCA, larger bricks, though not jumbo bricks may be used.

Fenestration and Glazing

A variety of window types are encouraged to add visual interest to the streetwalls and towers.

The basic window unit employed must be vertically oriented and a minimum ratio of 1:1.5 (width to height.) Basic windows of this proportion, or taller, may be grouped together to create openings of varied proportions. Window openings must have sills and/or heads of metal or stone.

Variation from the overall building fenestration is encouraged within the stone base. Openings on the ground floor may be one to two stories in height. Two story high expressions are encouraged, when they relate to the main building entrance, and two-story interior spaces. Openings in the base must be framed by masonry and may not be continuous.

Windows must be set back from the exterior wall surface at least 4 inches, as measured from the surface of the masonry to the outside face of glass

Dark tinted or highly reflective glazing is prohibited.

Masonry Facade Percentages

Street walls are also to be designed according to the required percentage of masonry to glass. A 40-60% masonry facade is required on all facades.

Expression Zone

Top expression zones are required to define the edges of building-walls and to establish the scale of the street. Top expression zones are horizontal areas of the facades at the top of a building, two stories high, that are distinguished by a change of materials, color, texture, or amount of fenestration.

Balconies

Balconies are not permitted on Site 16/17.

Rooftops and Bulkheads

An articulated roofline or cornice is to be designed as a major decorative feature, making use of stone, rusticated masonry or metal, at or near the tops of the two building wings. There should be no major mechanical equipment on those wings. The height of the roof parapet wall or railing should be maximized in order to minimize the appearance of any ancillary equipment.

A cornice is not required on the Vesey Place tower. However, any mechanical bulkhead must be located on the tower portion of the building. The bulkhead, located above the last habitable floor, should have an articulated and distinctive profile and must be integrated into the overall building design as a natural extension of the building mass. Bulkheads cannot exceed a height of 34 feet above the last habitable floor. The materials of the bulkheads should be identical to the rest of the building.

Roof Treatments

The roofs in the Battery Place Residential Area must be planted and landscaped as specified in the Residential Environmental Guidelines. To prevent the spread of horticultural diseases, types of plants must be approved by BPCPC.

The roof of the first floor of the library may be incorporated into the design of the public open space. To the degree that it is practical, it will be designed and maintained by the BPCA.

Otherwise, roofs need not be developed as usable area, but care must be taken to minimize undue

visual impact from the windows of the apartments above. Obtrusive features are to be minimized or screened. No highly reflective materials or contrasting colors may be used, and metal on roofs shall be painted.

There should be no mechanical equipment located on the lower roof levels. A roof plan must be included in the design review submission to BPCA. .

Exhausts

No mechanical exhaust or intakes are allowed on the first two levels of building walls facing park frontage, including the Irish Hunger Memorial or the Public Open Space/ courtyard or at any level facing a roof garden.

Incremental Heating and Cooling Units

BPCA requires the use of a centralized system for heating and cooling. Supplemental incremental heating and cooling units, if used, shall be designed to become an integral part of the design of the exterior wall, so as to minimize their appearance

G Streetscape Elements (see Figure 16)

Sidewalk Easement

The developer will build the streetscape, which includes the sidewalk, streetlights, trees and planting strip, according to the design and specifications approved by BPCA

Signage

BPCA reserves the right to approve all signage, including marketing signage. Signage is to be part of a coordinated design program typeface, graphics and color and is allowed for informational purposes only. No advertising signage will be permitted. Wherever possible, signage should be positioned on canopies or awnings. If placed on buildings, signage should be placed within masonry openings. No signage is permitted above the building's stone base. Signage lighting shall not flash, pulsate, or otherwise change rapidly. Large sign boxes with luminous backgrounds are not permitted. Exposed fluorescent or high-intensity discharge light sources are not permitted. At parking entrances, only directional signs will be considered (e.g. "Parking Entrance"). Such signs must be of minimum size, be unobtrusive, and contain no rate advertising.

Rental signs must be removed after one year following the opening of the building. No stanchions or free-standing signs are allowed, except at building entrances and subject to approval

by BPCA.

Canopies and Marquees

The use of marquees, similar in form to those found on buildings in Tribeca, are required in the North Residential Neighborhood; they are the only form of overhead protection to be employed over building entrances. The only exceptions to this requirement are building entrances on River Terrace, where traditional canvas canopies may be used.

Storefronts and Retail Facades

Materials for the storefronts are intended to relate to the materials of the bases within the restrictions of these guidelines. The maximum width of a continuous storefront bay is 12 feet. Metal or wood sills of a minimum of 16 inches above the sidewalk are required.

Lighting

Building lighting must be compatible with the street and park lighting and is subject to the approval of BPCA. A lighting plan must be included as part of the design submission.

H Garbage Disposal

Garbage disposal must be adequately addressed so that garbage is not left on the street overnight. A garbage disposal plan must be included as part of the pre-schematic design submission.

IV. ADMINISTRATIVE FRAMEWORK

In order to ensure that development complies with the intent and quality of the 1979 Master Plan Report and these Design Guidelines and the Residential Environmental Guidelines, and is consistent with the Environmental Impact Statement and the Memorandum of Understanding between the City and State of June 6, 1980, approvals by BPCA will include:

A. Approval of the developer's selection of architect(s) and engineers. Given the prominence of this site and its public uses, particular attention must be given to the choosing of an exceptional design architect.

B. Review and approval of the developer’s plans and specifications for each design phase (pre-schematics, schematics, design development, and construction documents) through a

design review process. Each submission must be in conformance with the prior approved submission. In each submission, the Architect must note any change from the previous submission, and include a summary of such changes in a letter with the submission. In general, the Authority will honor any approvals given in a previous stage.

The developer must submit information in drawings 24 x 36 inches, bound and numbered in each submission. Where alternate scales are shown,

BPCA will direct which scale to use in each case. Zoning and gross square feet calculations must be provided with each submission.

The developer must submit the following information for review and approval:

1. Pre-Schematics

- Conceptual site plan.
- Conceptual ground floor plan indicating uses, access, and entries.
- Conceptual second floor plan indicating uses and circulation.
- Conceptual sections.
- Conceptual elevations of street facades.
- Massing model.
- Zoning compliance drawing.
- Conceptual strategies to achieve an environmentally responsible building including energy conservation, recycling systems, air quality, and resource conservation. Strategies will include specific proposals and goals.

2. Schematics

To assess conformance to previous plans and to determine success of green strategies, a review and approval of the developer's Schematic Design submission is required. The approval process will include the computer modeling of the building using DOE2 or similar software that will lead to recommendations for improved energy efficiency and better environmental practices. The developer must submit the following information:

- Outline specifications including all exterior materials and systems, windows and appliances with their energy ratings. Materials specifications must include color samples.

- Site plan showing all surrounding streets and indicating building footprint, entries, access and landscaped areas. Scale 1" = 16' or larger.
- Zoning drawings and calculations.
- Basement or Cellar Plan(s) showing all parking. Scale 1"= 8'.
- Ground floor plan. Scale 1" = 8'.
- Second floor plan. Scale 1" = 8'.
- Typical floor plans. Scale: 1" = 8'.
- Roof plans showing all planting and mechanical equipment. Scale 1" = 8'.
- Single line drawings showing structural, mechanical, electrical and plumbing systems and connections.
- Building sections in both directions. Scale 1" = 8' or 1'= 16"
- Building elevations indicating all materials. Scale: l" = 8' or l" = 16'.
- Front-wall elevations showing floors one through four indicating material treatment and planar changes in inches. Scale 1" = 4'.
- Building top and bulkhead elevation showing top expression zones, cornice and bulkhead indicating materials and planar elevation changes in inches. Scale l" = 4'.
- Rendered elevations representing material and color choices.
- Model indicating building massing, in off-white Strathmore board, for insertion into the Battery Park City site model. Scale: 1" = 20'.
- Lighting Plan
- Plan for material mock-up to be built as part of Design Development submission.
- Written list of all deviations from Design Guidelines.
- Drawings and models should adequately show the architectural treatment for areas of special concern including roof profiles, building corners, required streetwall heights, expression lines and any rooftops visible from the apartments above.

3. Design Development

To verify conformance with the previously approved submission, a review and approval of the developer's Design Development Plans and specifications is required. Developer must list in writing all changes from approved Schematic Design. The developer must submit the following information:

- Description of changes made to incorporate recommendations from schematic review including design and green strategies.
- Zoning drawings and calculations.
- Floor plans, building sections and elevations. Scale: 1" = 8' or 1" = 16'. (Site Plan Scale: 1" = 16' or larger.)
- Additional plans, sections and elevations for typical exterior details, at appropriate scale.
- Detail plans of open spaces.
- Detail plans for special facilities and/or special areas. Scale as appropriate.
- Structural, mechanical, electrical and plumbing drawings with energy-efficient components highlighted.
- Reflected ceiling plan for any arcades.
- Technical specifications including all exterior materials and systems, windows and appliances with energy ratings.
- Samples of all exterior and surface materials.
- Model to be updated.
- Roof plan and plant list
- Before approval of design development, a mock-up on the site is required. It must be a corner condition and illustrate the use and colors of bricks, stone, mortar, and a window unit. The mock-up must be of sufficient scale to adequately evaluate the proposed materials.
- Lighting plan

4. Construction Documents

Review and approval by BPCA of the developer's final contract plans and specifications for each building or facility are required to verify conformance with previously approved submissions. The developer must list in writing all changes from previously approved submissions. The developer must submit the following information:

- Description of development of green strategies and incorporated recommendations.
- Calculation of improved energy efficiency from DOE2 analysis.
- Final Plans and Construction Documents, including all plans, elevations and details as per Design Development Plans and Specifications.
- Model to be updated.
- Final specifications. Samples of all exterior and surface materials.
- The developer, on receipt of BPCA's written approval of the final contract plans, is responsible for obtaining all required approvals from the Buildings Department and any other city agencies.

5. Changes to Plans or During Construction

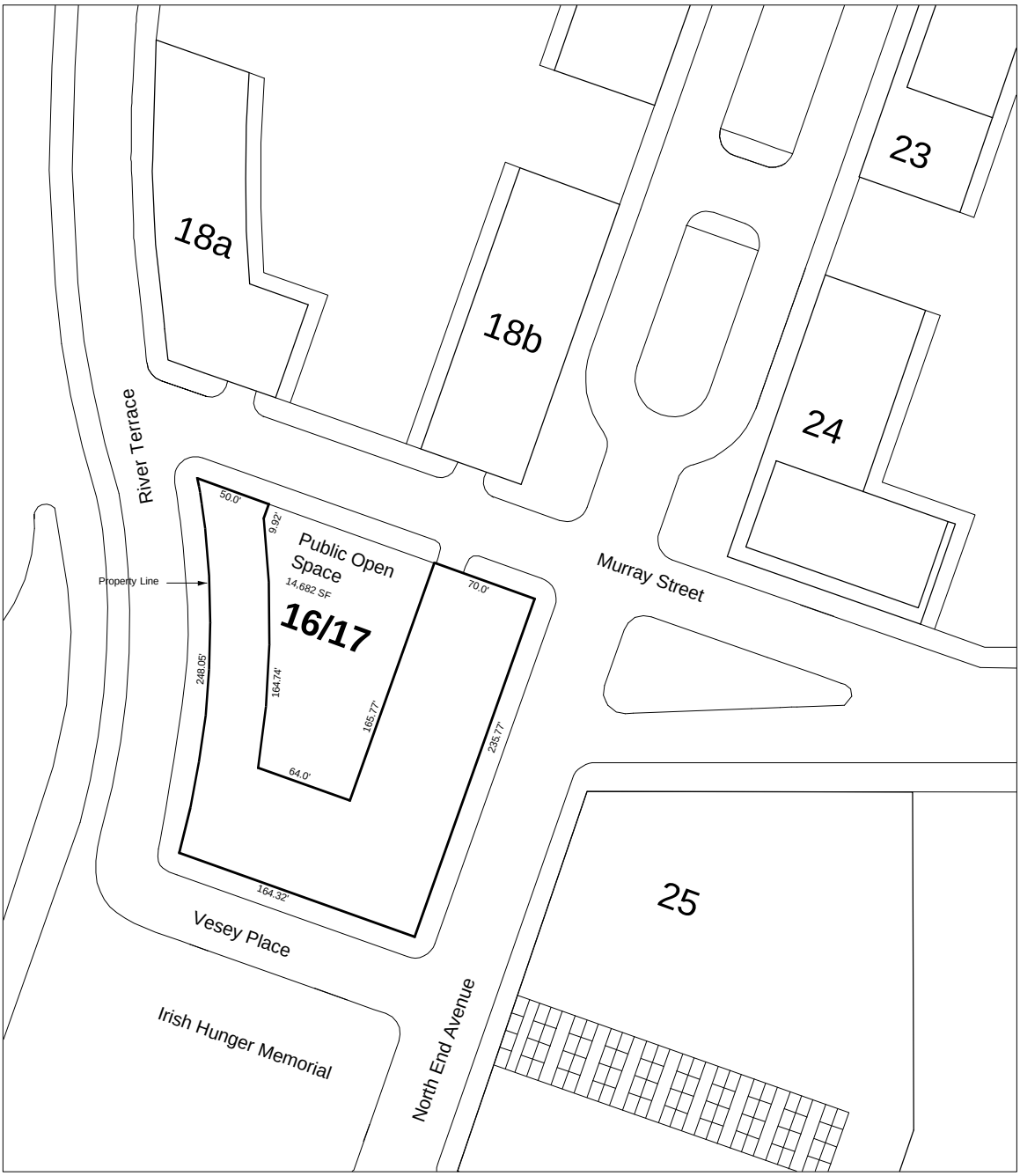
Changes to the final Contract Documents, including exterior materials and specifications, must be submitted to BPCA for approval prior to construction.

6. Reviews

BPCA will review all submissions in a prompt and timely manner. BPCA will maintain field personnel to observe construction methods and technologies and to verify that construction is proceeding in accordance with the official documents.

7. As-Built Drawings

Developers are required to submit a full-sized, reproducible copy and an electronic CAD copy of the record set of building drawings. The CAD format will be designated by BPCA.

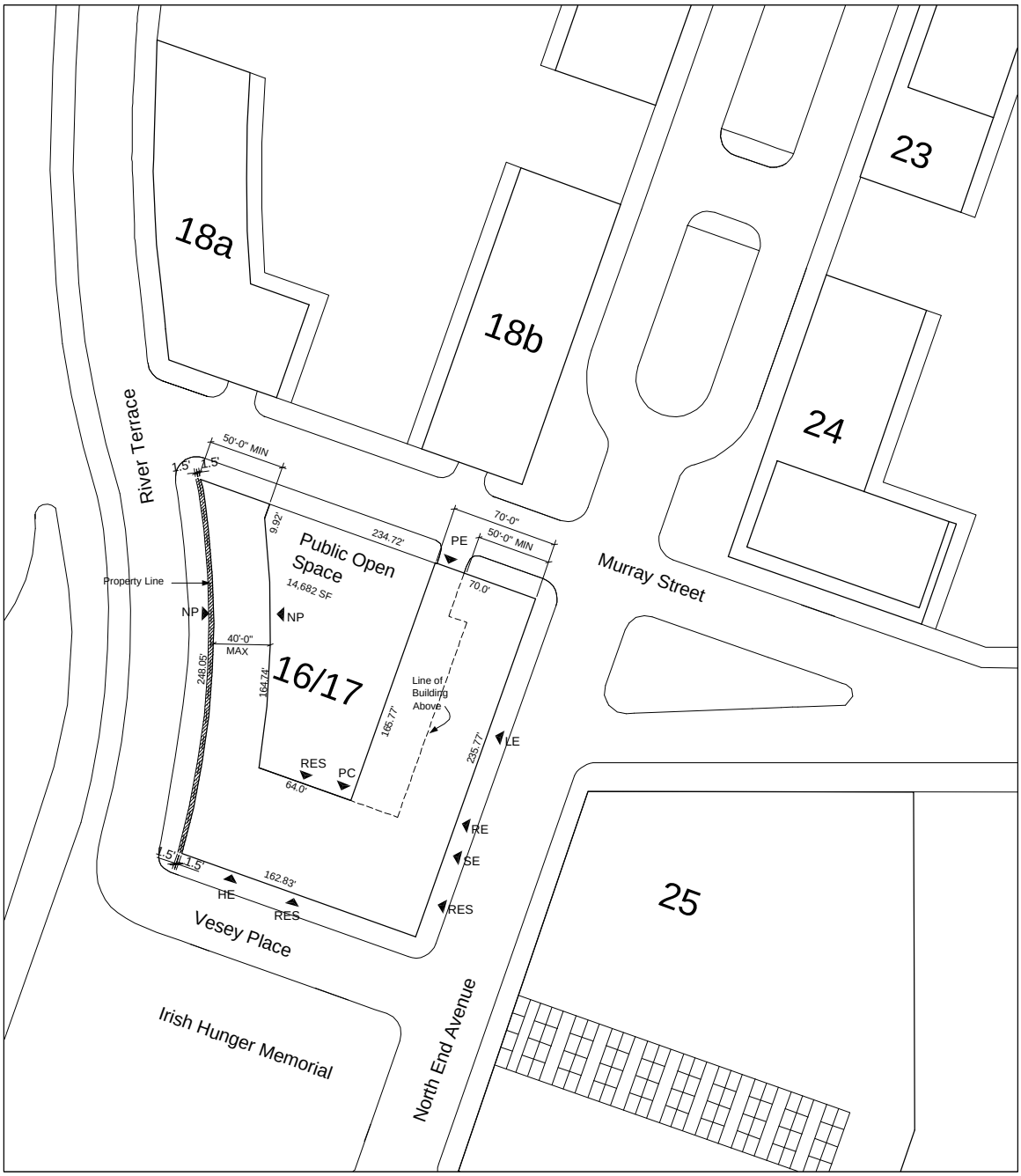


Property Line

PROPERTY LINE

0' 50' 100'

FIGURE 1



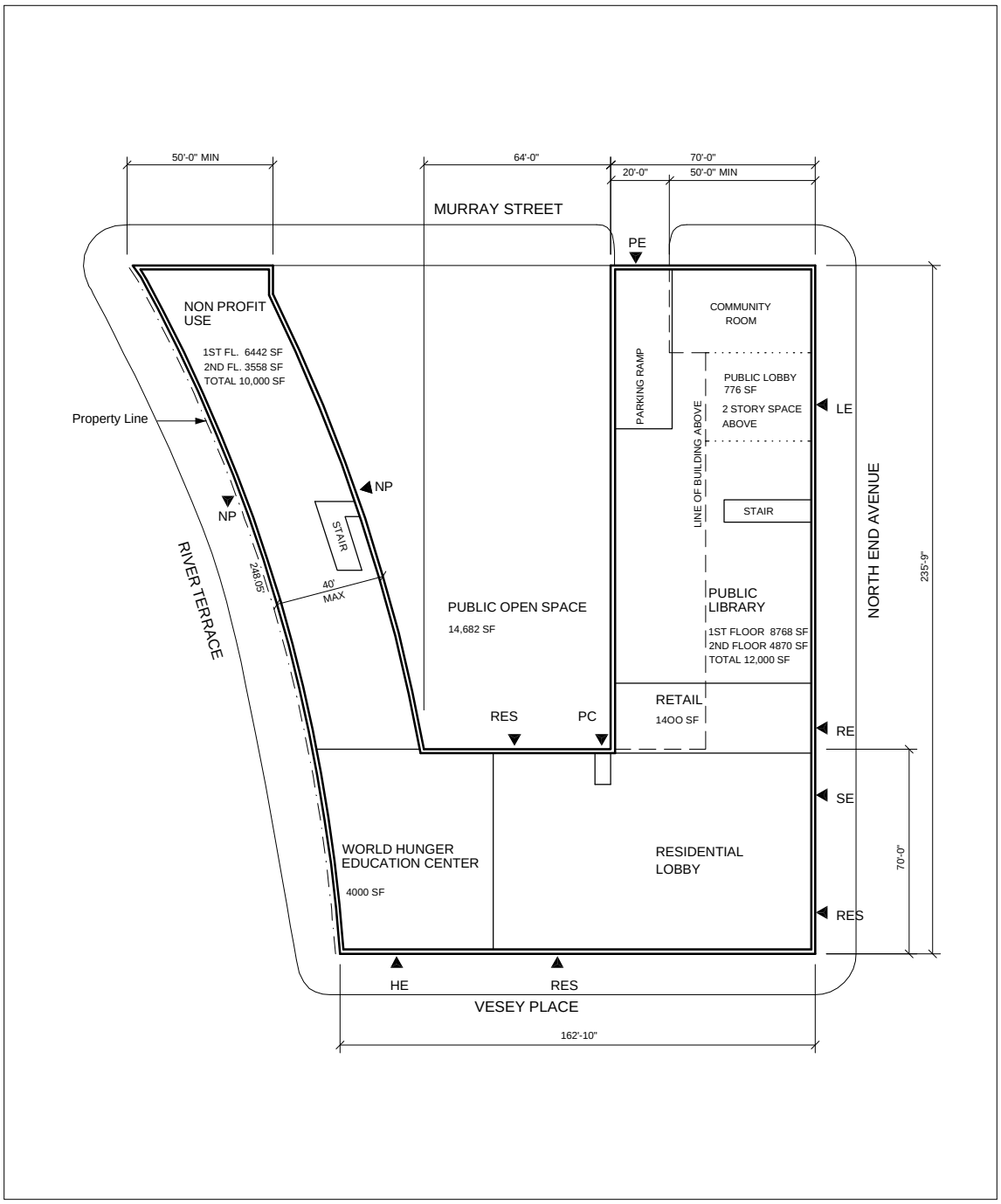
Private Landscape/Easement

NP Non Profit Use Entrance
LE Public Library Entrance
SE Service Entrance
RES Residential Entrance
PC Parks Conservancy Entrance
RE Retail Entrance
HE World Hunger Education Center Entrance
PE Parking Entrance

GROUND LEVEL SUMMARY

0' 50' 100'

FIGURE 2

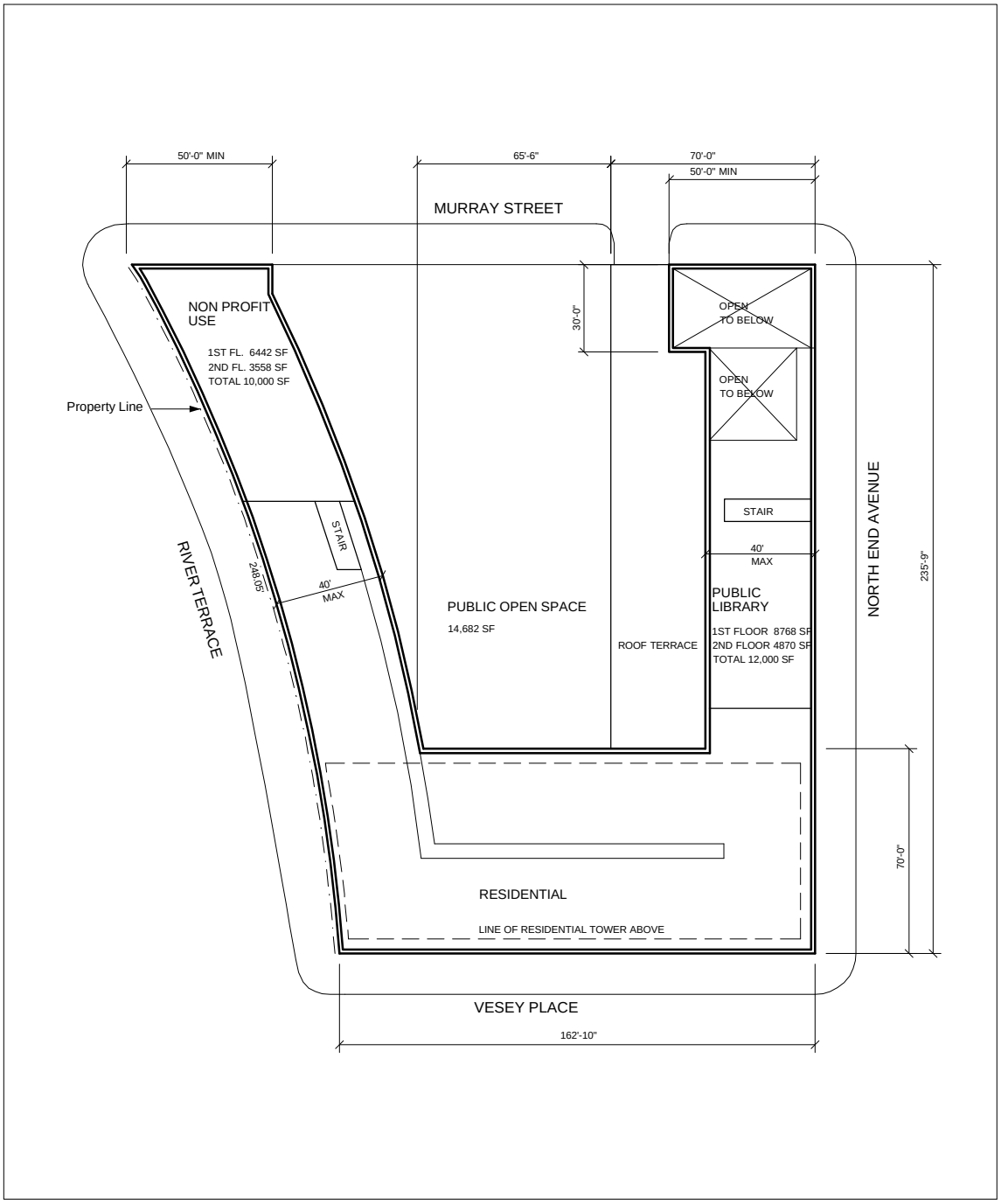


NP ▶ Non Profit Use Entrance
RES ▶ Residential Entrance
PC ▶ Parks Conservancy Entrance
LE ▶ Public Library Entrance
HE ▶ World Hunger Education Center Entrance
PE ▶ Parking Entrance
SE ▶ Service Entrance
RE ▶ Retail Entrance

GROUND LEVEL PLAN

0' 25' 50'

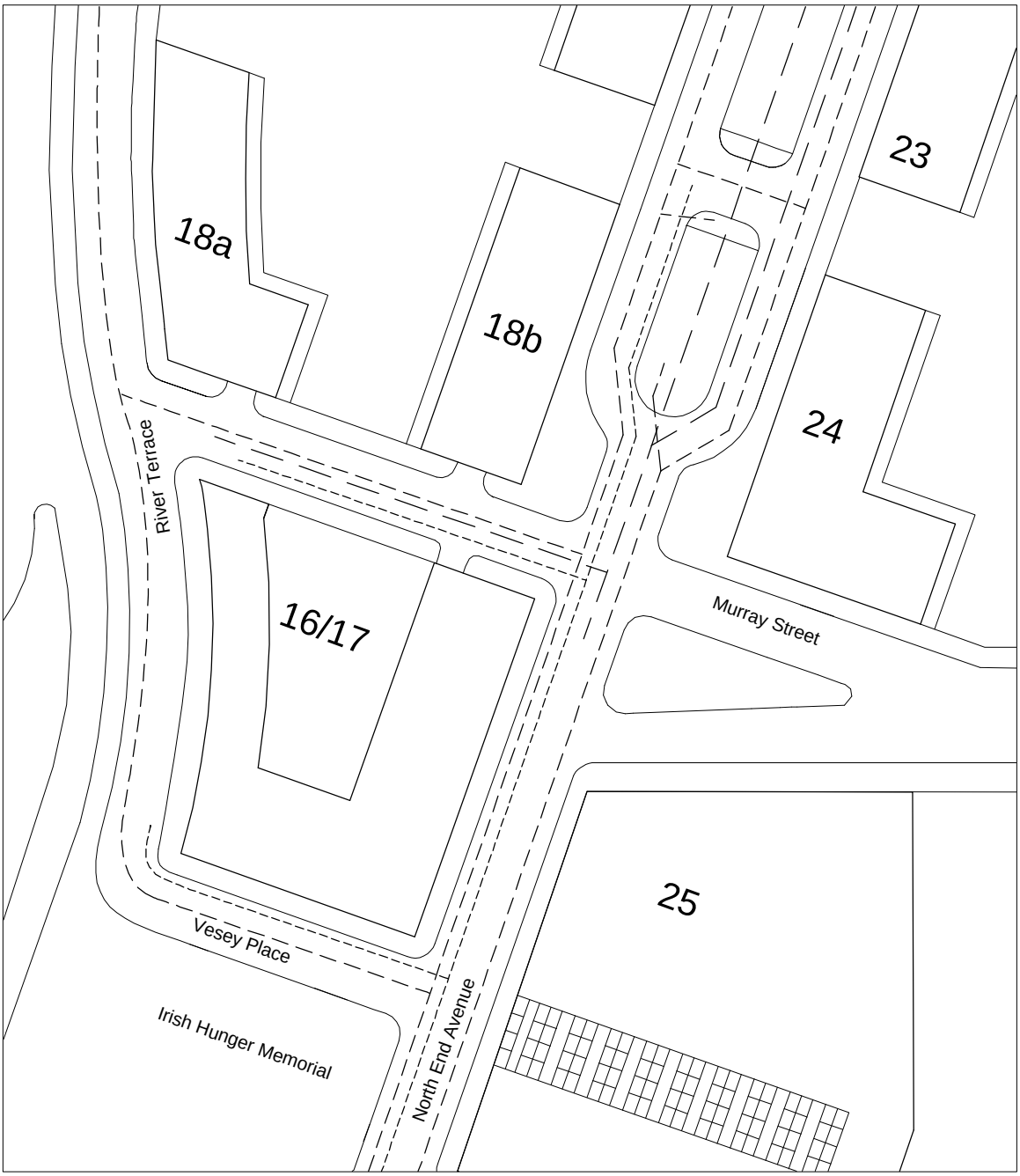
FIGURE 3



SECOND FLOOR PLAN

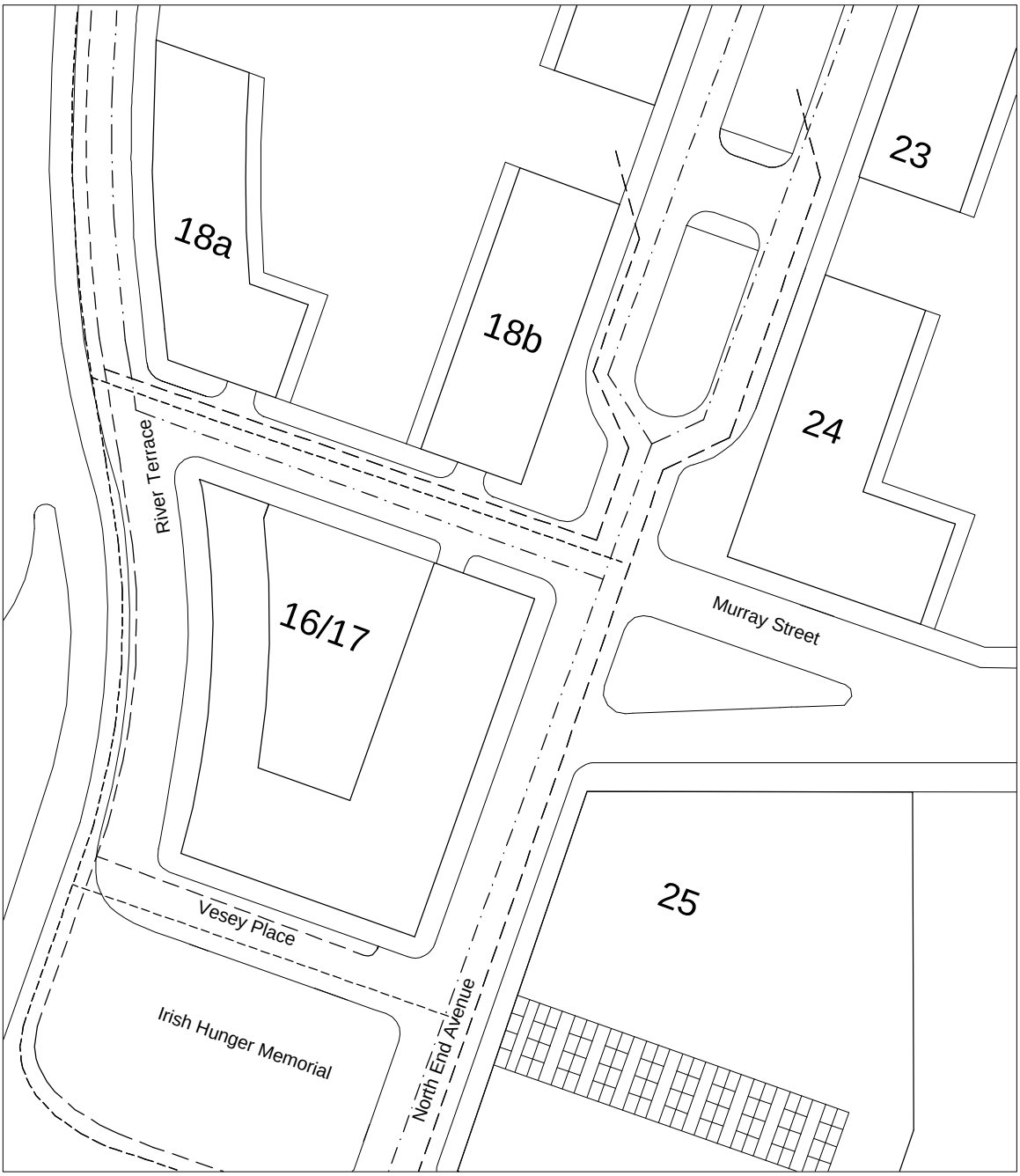
0' 25' 50'

FIGURE 4



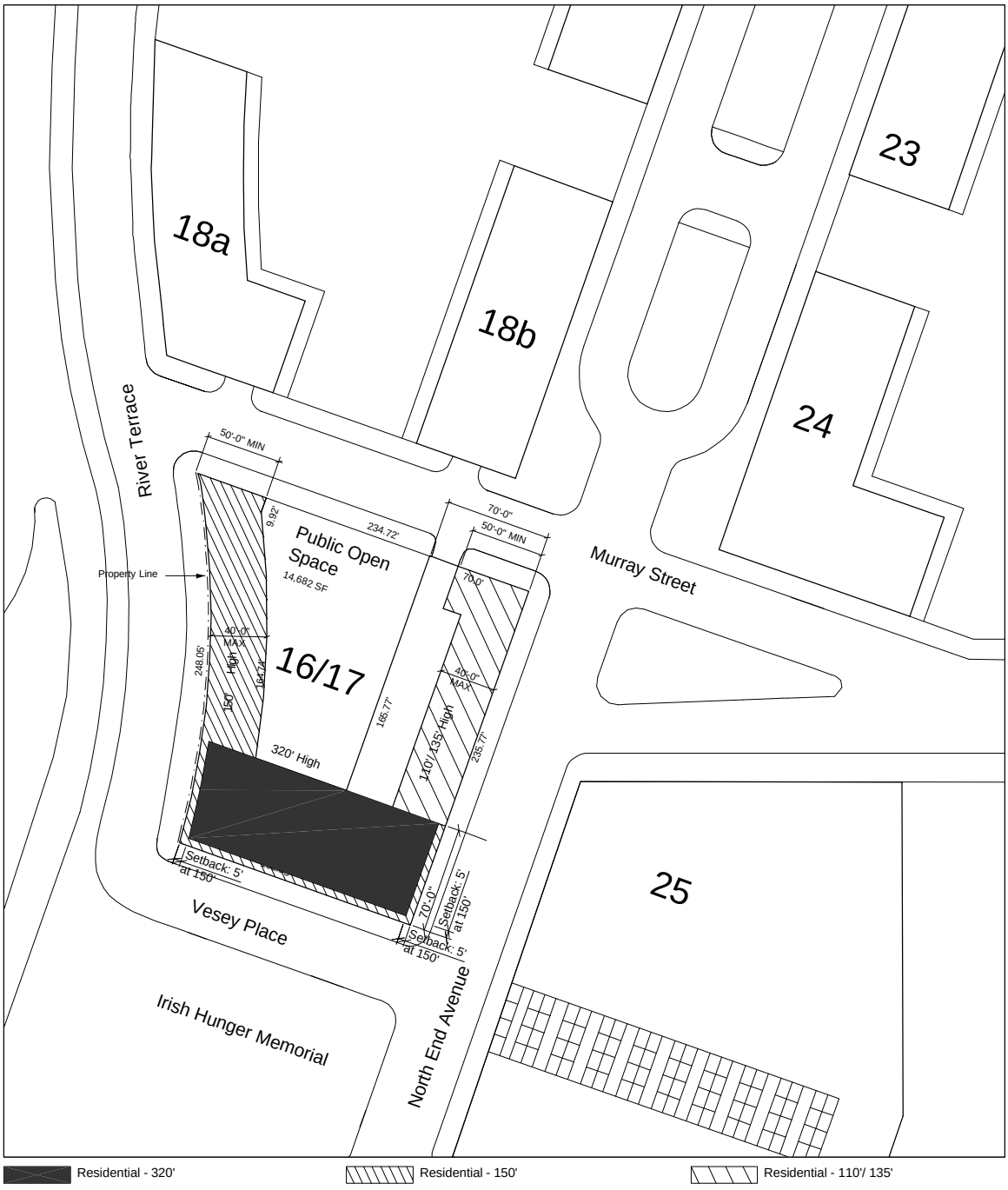
UTILITIES: ELECTRICAL, TELEPHONE AND GAS

FIGURE 5



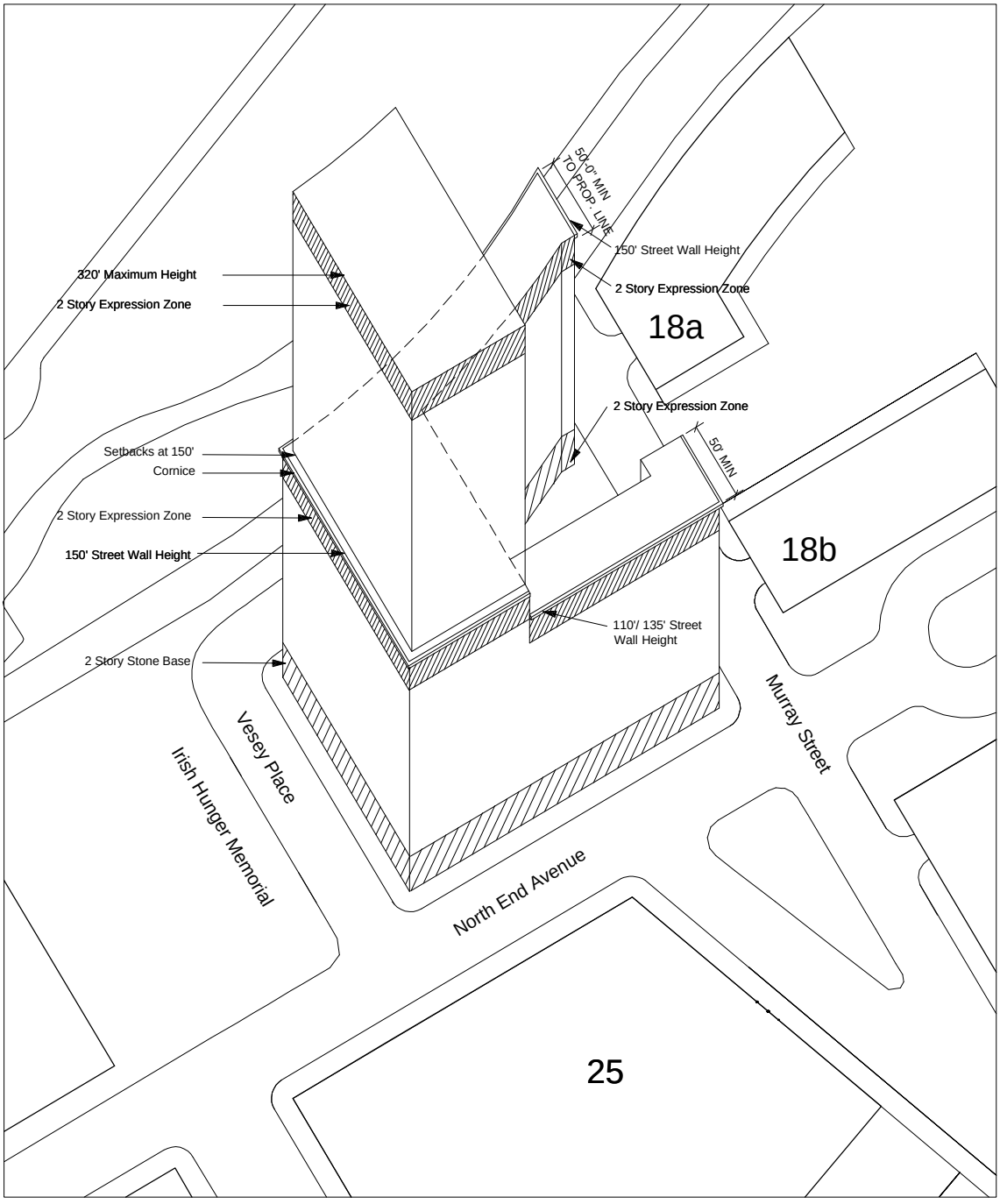
UTILITIES: WATER, STORM SEWER, AND SANITARY SEWERS

FIGURE 6



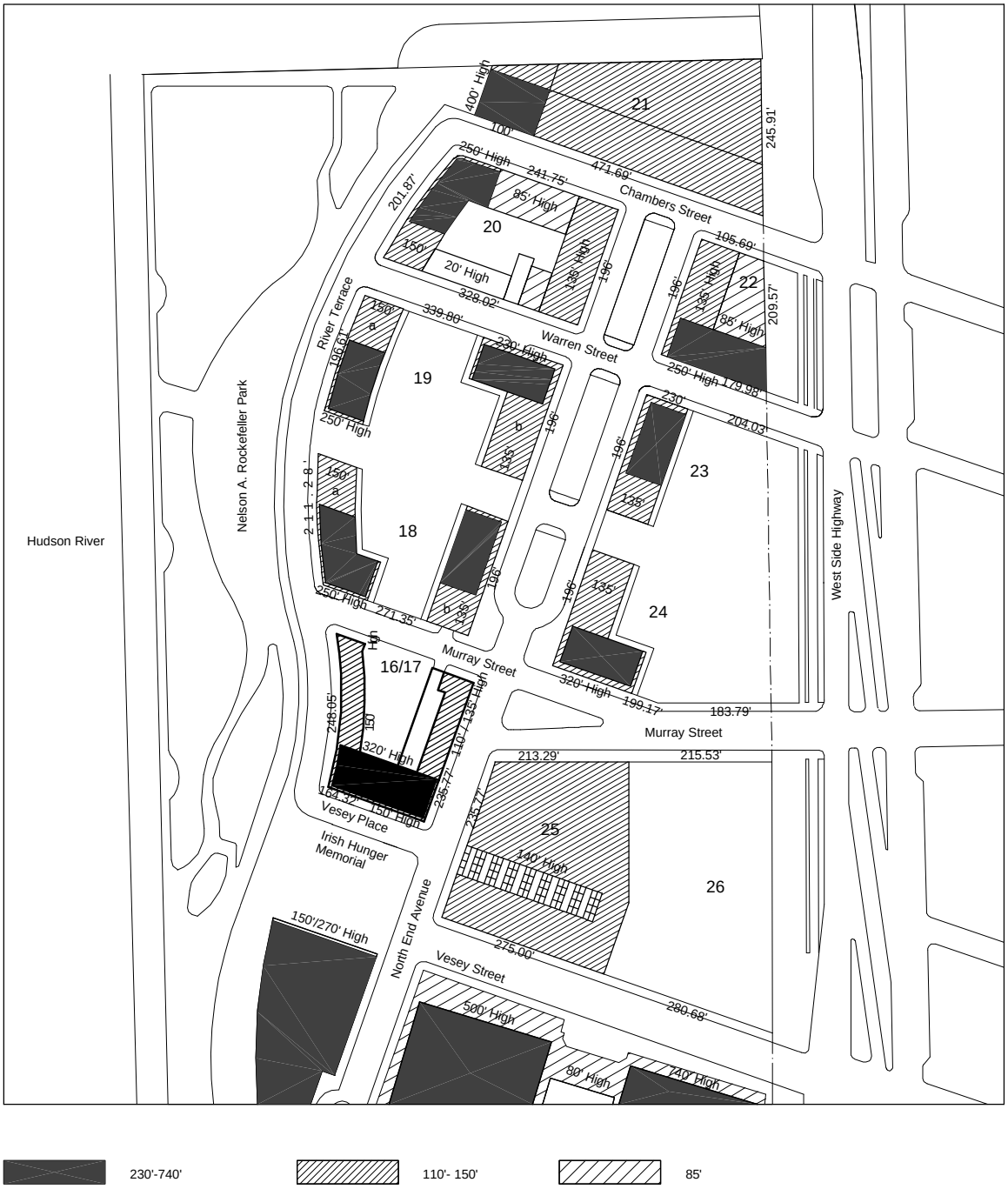
TOWER LEVEL SUMMARY

FIGURE 7



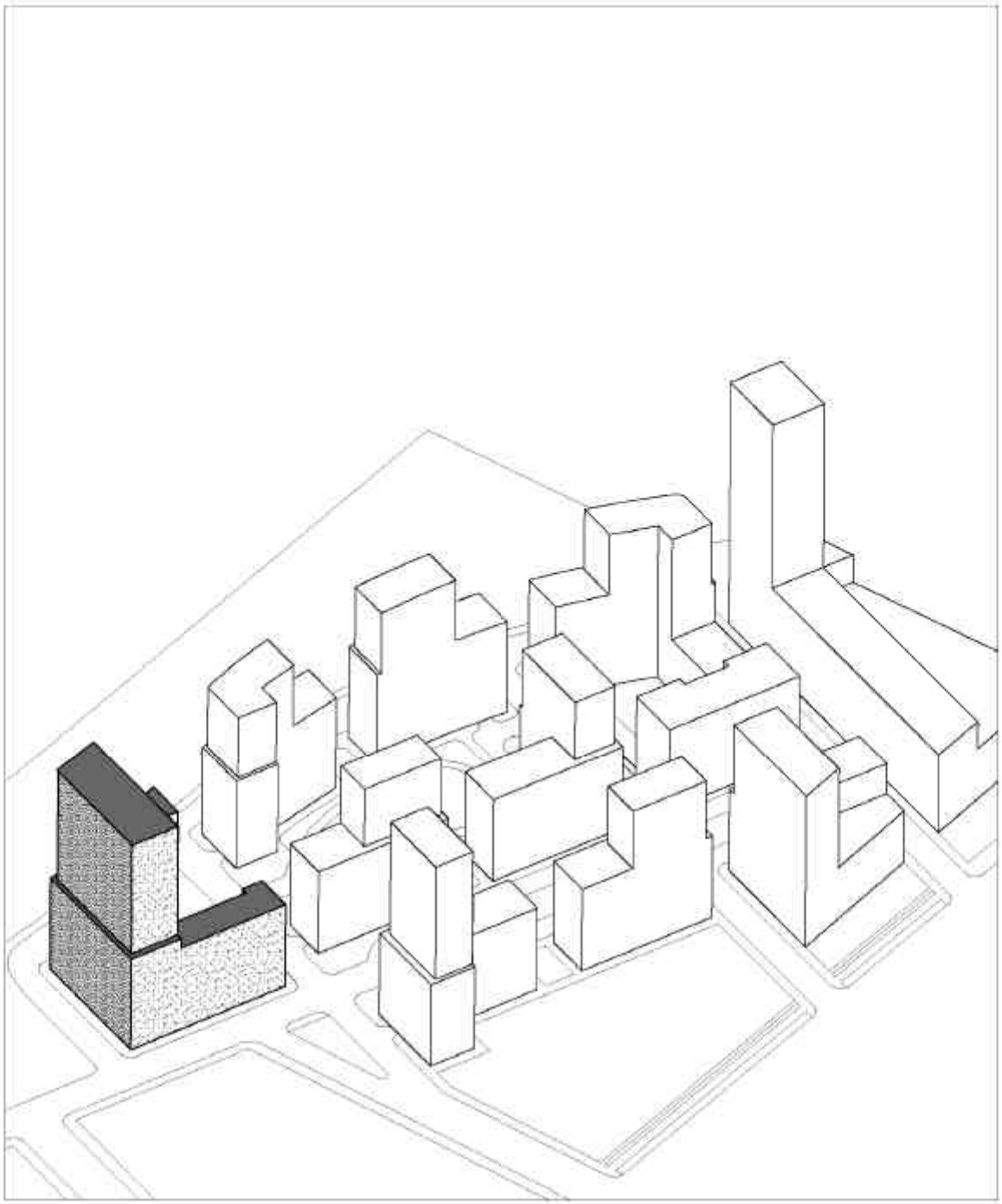
BULK SUMMARY

FIGURE 8



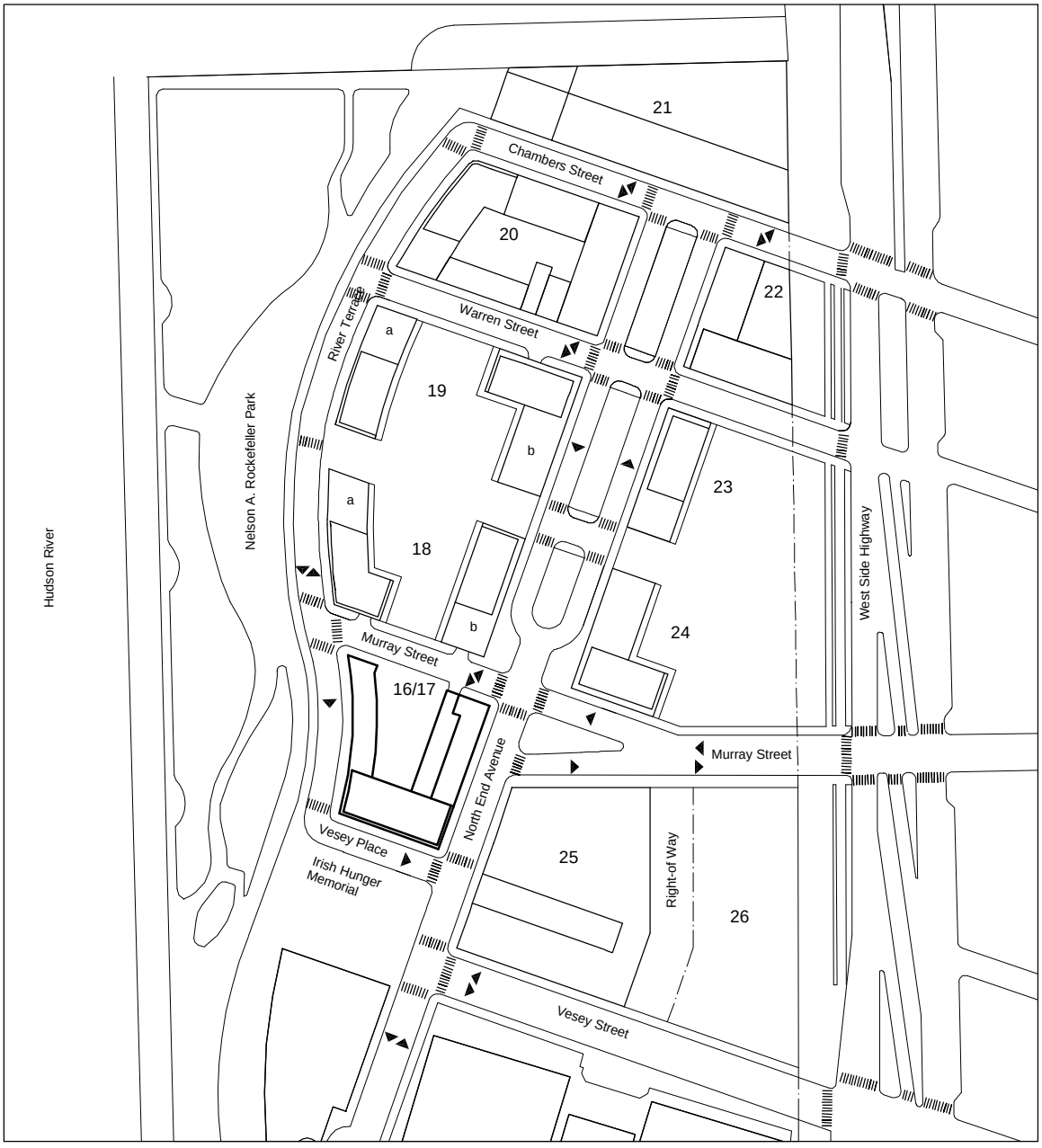
SITE PLAN

FIGURE 9



SITE ISOMETRIC FROM SOUTHEAST

FIGURE 10



Crosswalk

Traffic Circulation

0' 125' 250'

PEDESTRIAN AND VEHICULAR CIRCULATION

FIGURE 11

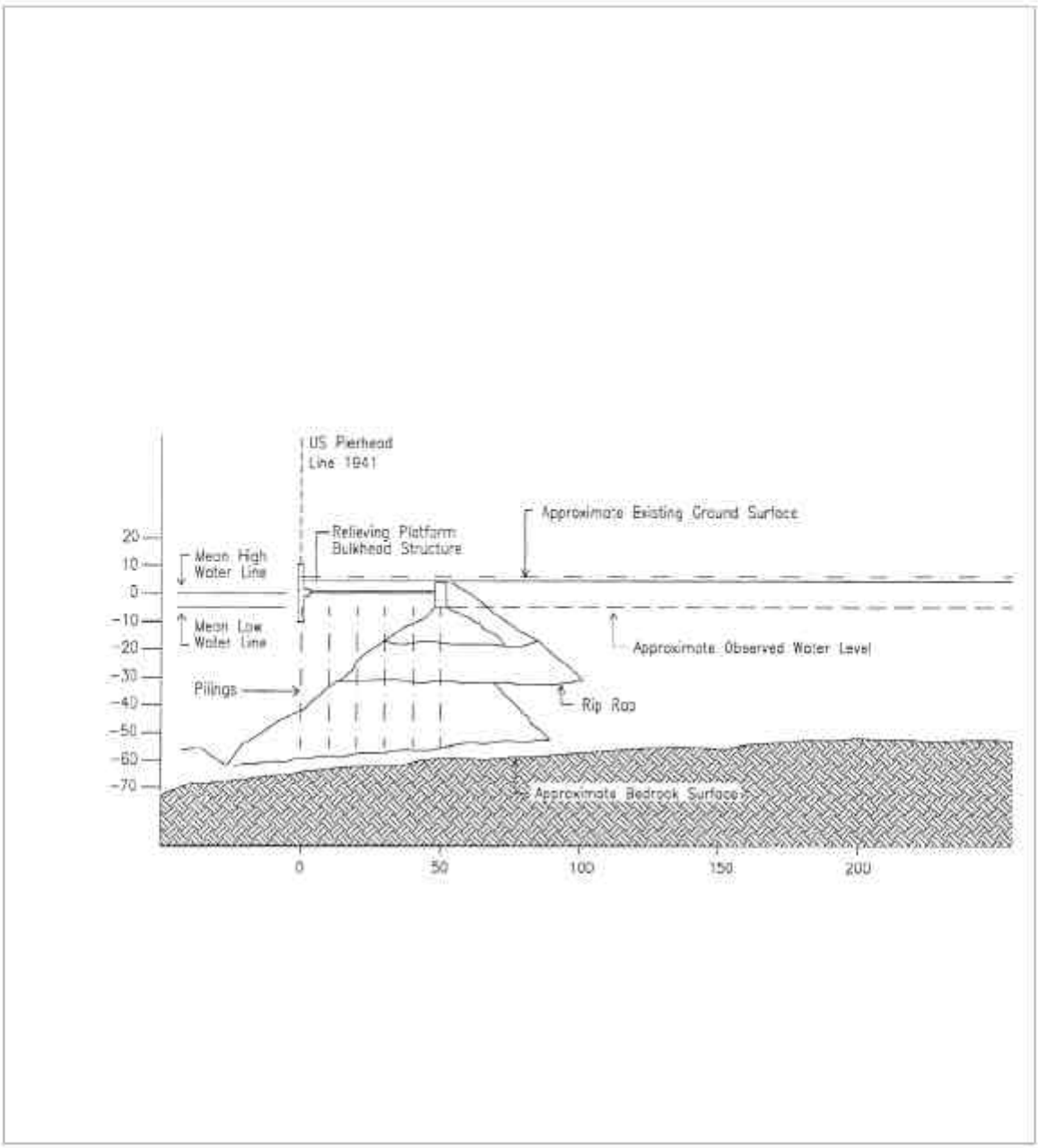
Relieving Platform (Existing)

Controlled Fill

0' 125' 250'

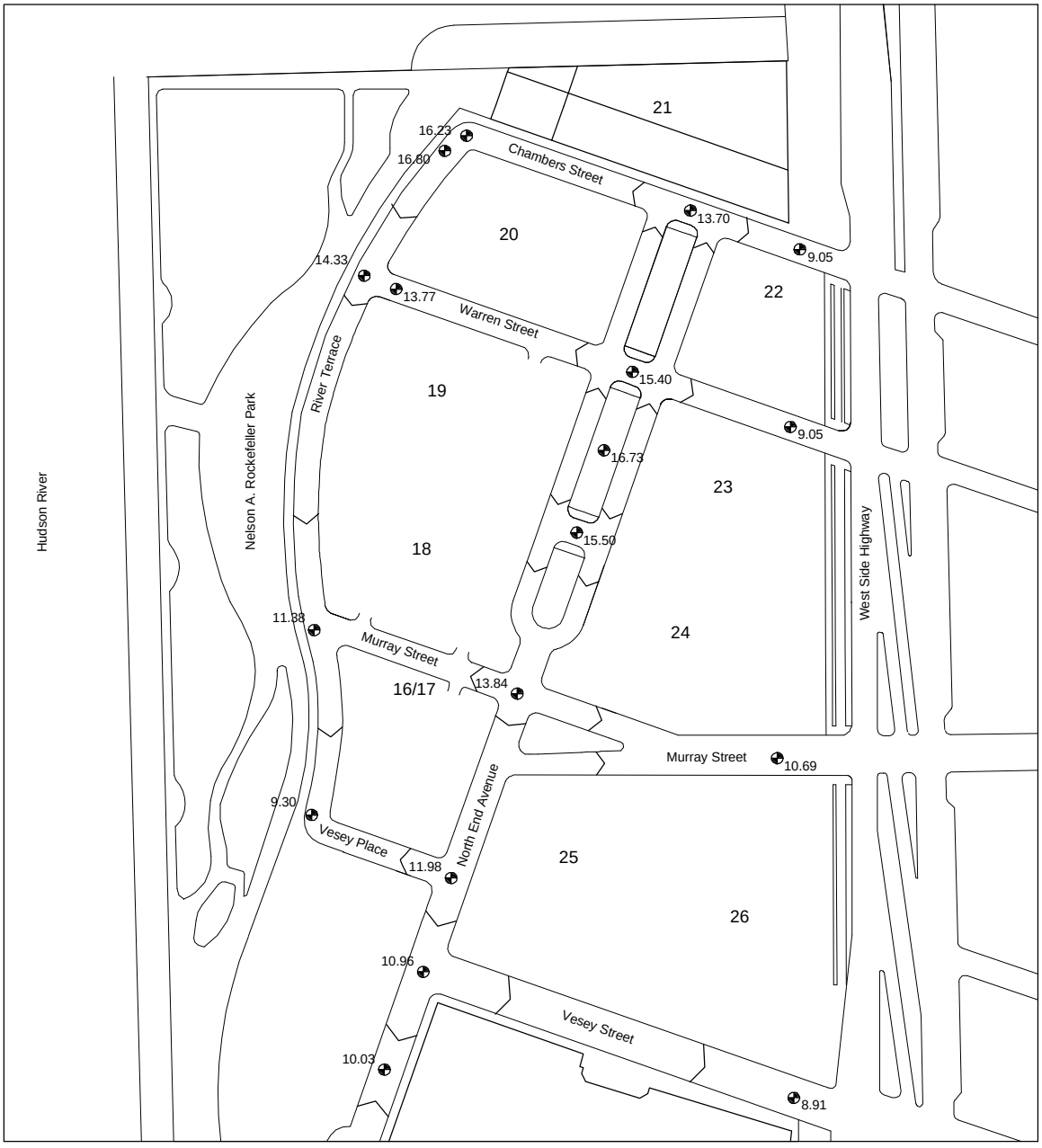
GENERAL SOIL CONDITIONS

FIGURE 12



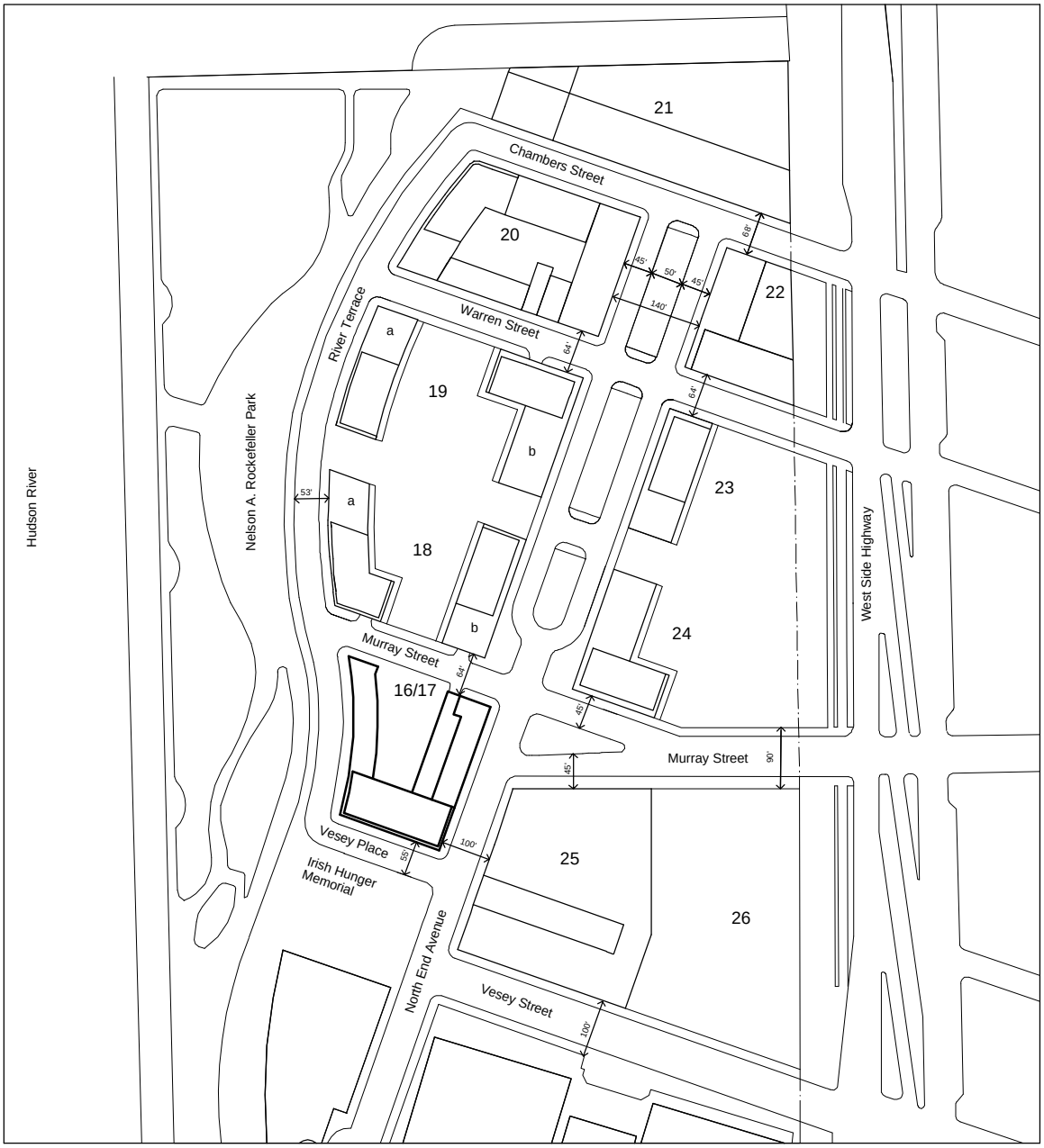
SECTION OF GENERAL SOIL CONDITIONS

FIGURE 13



STREET GRADING

FIGURE 14



STREET DIMENSIONS

0' 125' 250'

FIGURE 15

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The original Hugh L. Carey Battery Park City Authority Residential Environmental Guidelines were written in 1999 and published in January 2000. They were sponsored by the Hugh L. Carey Battery Park City Authority, the New York State Energy Research and Development Authority, and the Carrier Corporation. They were written by Fox & Fowle Architects, Flack + Kurtz, Green October, the Rocky Mountain Institute, the Carrier Corporation, Barney Skanska USA, the Hugh L. Carey Battery Park City Authority, and the New York State Energy Research and Development Authority.

The current version incorporates what we have learned from *The Solaire*, the first building developed under these guidelines, and is a response to the evolving technology, philosophy, and feasibility of green development.

The revised guidelines were a result of the efforts of the following professionals:

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Mission Statement

The purpose of these guidelines is to establish a process for the creation of environmentally responsible residential buildings that are appreciably ahead of current standards and practices for development. The residential buildings created by this effort will become the model for healthy, ecologically responsible environments where occupants collectively enjoy the benefits of living in a “green” community.

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Table of Contents

Introduction

Sustainable Design
Sustainable design is "meeting the needs of the present without compromising the ability of future generations to meet their own needs." In most instances, this is a "common sense" approach to development that prevents further depletion of natural resources, air pollution, and global warming. This approach decreases dependency on non-renewable resources while improving opportunities for more efficient and economical alternatives that are self-sustaining. Selecting proper materials in conjunction with providing increased mechanical ventilation and a filtered fresh air system creates healthier living environments.

Market Strategy
The following guidelines adhere to the most current thinking with respect to sustainable design strategies and are a vehicle for the development of residential buildings that are both environmentally and financially rewarding. The guidelines have been tailored specifically for the Hugh L. Carey Battery Park City Authority (HLCBPCA), an established leader in urban development. The guidelines respond to increased public awareness of environmental conservation and increased demand for healthier, high quality living environments. Incorporating sustainable principles in the development of the residential buildings serves to enhance the current marketing strategies that continue to make Battery Park City a successful endeavor.

Total System Approach
A "total system approach" is the backbone of the guidelines and the best approach to achieving the desired result in a cost effective manner over a building's lifetime. Therefore, the guidelines are grouped into five major categories – each comprised of requirements that share a common environmental goal. One of the financial goals of a total system approach is to minimize the impact on initial costs (construction costs) by offsetting increases from some requirements with decreases from others. For example, the cost of improving the performance of the exterior envelope of the building may be offset by a reduction in the size and subsequent cost of mechanical equipment.

LEED
In creating the Residential Environmental Guidelines, the Hugh L. Carey Battery Park City Authority is indebted to the USGBC for its development of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, which has provided a national standard for "green building" practices.

Introduction

Execution
Successful execution of the guidelines depends on developers, design professionals, and contractors beginning their dialogue at the earliest stages of design to ensure the proper and cost effective realization of sustainable solutions. These guidelines do not represent a complete resource, but rather a framework of concepts that may be interpreted and refined by the individual design teams to achieve the desired result. While some of the requirements are prescriptive, most are deliberately goal-oriented to provide for creative solutions that do not conflict with rapidly changing technologies nor evolving policies, regulations, and building codes.

Funding Sources
Various organizations offer financial incentives to foster green buildings and sustainable energy sources, most notably the New York State Green Building Tax Credit and the New York State Energy and Research Development Authority. For more information, please refer to the List of Resources.

1.0 Energy Efficiency

General Provisions

Intent:

Improve whole building energy performance, reduce operating costs, and reduce the environmental impact associated with energy consumption. Maximize energy efficiency and use available technologies to evaluate energy performance throughout the design process. Maximize opportunities for on-site power generation from high efficiency cogeneration plants and renewable sources. Purchase "green power" from energy providers whenever possible.

Assumptions:

Buildings will be designed to exceed the requirements of the 2002 Energy Conservation Construction Code of New York State (ECCCNYS).

An integrated architectural/engineering design approach to the whole building is required to meet the goals set for energy efficiency.

1.0 Energy Efficiency (cont.)

1.1 Maximize Energy Efficiency

Intent:

Increase energy performance, reduce operating costs, and reduce the environmental impact associated with energy consumption.

Requirements:

.1 Increase energy efficiency by 25% over the 2002 ECCCNYS, measured in terms of energy costs.

.2 "Right-size" mechanical equipment for each apartment according to apartment size, layout, location within building, occupancy needs, and DOE-2.1E model data (see § 1.2.1).

.3 Provide motion sensors in stairwells, corridors, mechanical rooms (where operationally feasible), garages, and storage rooms to reduce lighting loads.

.4 In all apartments, provide a "master switch," located adjacent to the front door, that controls all ambient lighting and switched outlets. Clearly identify outlets connected to the master switch.

.5 The minimum standard for all windows and exterior glazing will be double-glazed units with Low-E glass (U-factor of 0.33 or less and solar heat-gain coefficient of 0.37 or less) in windows with thermal breaks and insulated spacers.

.6 Consider providing a double layer of insulation, backer rods, and caulking at top of masonry walls and wall/slab junctions.

.7 Optimize insulation of cavity wall construction. Consider installing rigid insulation against CMU surface and limiting infiltration through walls by providing an exterior air/water barrier applied to the winter/cold surface of the CMU.

.8 Conduct continuity tests for air, thermal, and water barriers.

.9 Use only "Energy Star" or equivalent equipment, appliances, lighting, and fixtures (refer to www.energystar.gov and www.aceee.org for latest list of energy-efficient appliances).

.10 In all apartments, provide only natural gas cook tops, ovens, and ranges in lieu of electric.

.11 Provide thermal energy recovery systems to use residual building heat (i.e., from cooling tower, exhaust air vents, absorption chiller, etc.).

1.0 Energy Efficiency (cont.)

1.1 Maximize Energy Efficiency

Technologies/Strategies:

- Use high performance glazing to minimize solar heat gain coefficients, retain high visible light transmittance, and maximize insulating qualities.
- Use window treatments (solar shades, curtains, brise-soleils, light-shelves, etc.) to maximize natural light and minimize heat gain.
- Use energy efficient heating and cooling mechanical systems, such as condensing boilers, absorption chillers, individual water-cooled heat pumps with EEMs (Energy Efficient Measures) that are 10-15% more efficient than those required by code, and cooling to ground or cooling towers with wetbulb reset control and variable speed drives on fans.
- Strongly consider variable-speed drives (VSDs) for all fans, pumps, and motors to increase energy efficiency.

Cost Implications:

- By "right-sizing" the mechanical equipment serving the apartments and the base building, there should be some initial cost savings in equipment, piping, and wiring. This savings can be used for higher quality exterior envelope components, more efficient lighting, and advanced controls.
- Substantial energy savings.
- Decrease in life-cycle and operating costs.

1.2 Modeling for Energy Performance

Intent:

Use the DOE-2.1E computer model as an important interactive design tool to forecast energy performance, reduce operating costs, subsequently reduce the environmental impact associated with energy consumption, and to help "right-size" mechanical systems.

Requirements:

.1 The developer shall prepare the initial DOE-2.1E energy model based on HLCBPCA's list of base case assumptions to establish a standard for the project. The developer's engineering consultant will utilize this model as the design progresses to assess the energy efficiency of the building and evaluate systems and design alternatives at appropriate milestones (DD, CD).

.2 In the first Annual Building Report (see § 4.4.3, Submittals), the developer shall provide a section comparing the energy performance data projected by the DOE-2.1E model during the design phase with actual building performance data collected after reaching 90% occupancy.

.3 The developer shall install dedicated meters to provide data sufficient to evaluate individual EEMs and specialized building systems (i.e., HVAC, lighting, central plant, and green cogeneration equipment), as well as overall building performance. (Exact number of metering points and specific EEMs metered to be agreed upon with HLCPBCA; for additional guidelines regarding performance reports, see § 4.4.3).

Technologies/Strategies:

- Utilize computer modeling to facilitate an interactive process by which the developer, architect, engineer, and contractor team can adequately explore opportunities for energy conservation.

Cost Implications:

- Substantial energy savings.
- Potential increase in professional fees.

1.3 Renewable Energy & Green Power Sources

Intent:

Employ the use of on-site, non-polluting, green, and source-renewable technologies to reduce pollutants in the atmosphere, reduce operating costs, and reduce the environmental impact associated with energy consumption. Purchase power from energy providers that utilize water, wind, solar, and fuel cell sources to generate power.

The future goal would be to ultimately generate 100% of the electrical energy on-site.

Requirements:

.1 Use best efforts to incorporate microturbines, fuel cell and/or bio fuel cogeneration equipment. If proven unfeasible, allocate approximately 600 SF clear, with a minimum height of ±12'-0", for future incorporation. Plan for a readily accessible pathway to heating and electrical systems and for possible use of water byproducts (steam or hot water).

.2 Provide on-site renewable energy generation systems such as building integrated photovoltaics (BIPVs), and/or wind power that contribute a minimum of 5% rated output of the base building electrical demand load.

.3 Specify adaptable equipment that can accept multiple fuel sources when available (i.e. bio fuels versus natural gas).

.4 Use best efforts to purchase a portion of the building's power from energy providers that utilize water, wind, solar, and/or fuel cell sources to generate power.

Technologies/Strategies:

- Green energy technology is advancing rapidly. By providing space and infrastructure (natural gas supply, electrical connection to switchgear room) it will be possible to utilize this technology at a later date without increased cost.
- Where appropriate, strongly consider using BIPVs in locations that are highly visible to the public. Use best efforts to incorporate other renewable energy technologies (e.g., wind-turbines).
- Negotiate power agreements with local providers.

1.3 Renewable Energy & Green Power Sources

Cost Implications:

- Increase to initial costs with long-term payback.
- It is expected that in the near future, fuel cells will be able to produce electricity at approximately 25-30% of today's cost.
- Possible increase in central-source rates due to reduced usage.

2.0 Enhanced Indoor Environment Quality (IEQ)

General Provisions

Intent:

Employ architectural and HVAC design strategies that will provide a superior overall indoor environment that supports the health and well-being of occupants.

Assumptions:

The ideal building solution will integrate architecture and engineering to create healthy environments that engender increased comfort and productivity. Tenants will be encouraged, by means of developer-prepared documentation and instruction, to participate and strengthen the goal of achieving enhanced indoor environment quality.

2.0 Enhanced Indoor Environment Quality (IEQ) (cont.)

2.1 Indoor Air Quality (IAQ)

Intent:

Provide an interior environment whose air quality is superior to that of the exterior environment.

Requirements:

.1 Use ASHRAE 62-2001 as the reference standard for indoor air quality performance.

.2 Per apartment, provide 150 CFM (cubic feet per minute) per kitchen and 50 CFM per bathroom of ducted outside fresh air by means of mechanical ventilation. For example, a one-bedroom apartment with 1 ½baths shall be provided with (150 Kitchen + 50 Bath + 50 Bath) 250 CFM of filtered fresh air.

- .a Provide a dedicated (24 hours-a-day/7 days-a-week) central outside air system, individually ducted to each apartment, that delivers tempered air (min. 68° F, humidified) air during heating conditions and cooled (max. 76° F, dehumidified) air during cooling conditions.
- .b Provide ventilation supply air within each apartment that maintains negative pressurization balance relative to the corridor.
- .c Provide ventilation supply air to corridors as per applicable codes, with no exhaust, to maintain positive pressurization relative to apartments and thus prevent odor and smoke migration from apartments to corridors.

.3 Provide a filtering system with a Minimum Efficiency Reporting Value (MERV) of at least 13 for exterior air and a MERV of at least 10 for interior recirculation units.

.4 Establish parameters to address air infiltration (i.e., substantial reduction or managed intake and circulation).

.5 Provide dedicated ventilation systems for maintenance areas associated with chemical use, paint storage, or other potentially harmful pollutants.

.6 Provide mechanical exhaust for all kitchens.

.7 Provide mechanical exhaust to the outside for all dryers, unless ductless condensing dryers are used.

.8 Duct all exhaust (toilet, kitchen, laundry) with full sheet metal linings.

.9 Provide walk-off grilles or mats at the interior of all building entrances to capture potential contaminants and dirt, and to decrease maintenance requirements.

.10 Prohibit the use of thru-wall heating/cooling systems.

2.1 Indoor Air Quality (IAQ)

.11 Provide humidity stabilization throughout the year to all occupied building spaces. Provide a benchmark 68° F 30% RH in winter and 76° F 50% RH in summer. Humidification during heating periods may be suspended when ambient conditions fall below ASHRAE 99% design conditions (i.e., below 15° F in NYC).

Technologies/Strategies:

- Provide a thermally comfortable environment with humidity levels that are responsive to the local climate conditions and reduce health related issues for occupants.
- Advise tenants of the exterior air quality to reduce the potential introduction of pollutants from unfiltered air.
- Locate the building's outside air intakes away from loading areas, building exhaust fans, cooling towers, and other sources of contamination.
- Locate building maintenance areas away from residential floors and provide ducted exhaust to the roof.
- Use best practices for interior pest management (see § 2.5).
- Ensure proper and periodic monitoring of hazardous chemicals (VOCs, solvents, etc.) and particulate levels during regular building operation (see § 4.3.2).

Cost Implications:

- Increase in initial costs to HVAC systems.

2.2 Low-Emitting Materials

Intent:

Specify materials and finishes (including flooring and furniture) that contain no known carcinogens, have low levels of volatile organic compounds (VOCs), and are non-toxic and chemically inert to reduce the amount of indoor air contaminants that are odorous, irritating, and unhealthy to occupants.

Requirements:

.1 "Products applied in the field" (see Glossary definition) shall meet the VOC and chemical component limits of Green Seal (www.greenseal.org) requirements or (if no certification criteria is available through Green Seal) the levels set forth in the *South Coast Air Quality Management District Rule #1168* (www.aqmd.gov/rules/html/r1168.html) and the *Bay Area Air Quality Management District Regulation 8, Rule 51* (www.baaqmd.gov/dst/regs/rg0851.pdf).

.2 Prohibit the use of added urea-formaldehyde in composite and wood-based products.

Technologies/Strategies:

- Select only products and adhesive compounds with VOC levels that comply with the requirements of this section, thus providing a health benefit to construction workers and tenants.
- Strongly discourage the use of products with environmentally disruptive life-cycles and encourage their substitution with safer, less disruptive products.

Cost Implications:

- No, or nominal, increase in cost. Most major manufacturers of paints, adhesives, carpets, and rugs have product lines which meet the requirements of this section.
- Some items, especially wood products, may add to initial cost.

2.3 Controllability of Systems

Intent:

Increase occupant and operator control of HVAC and natural ventilation systems to support optimum health and comfort within the building.

Requirements:

.1 Provide all apartments with programmable controls for HVAC systems based on a 7-day/4-period cycle.

.2 Provide computerized Building Management Systems (BMS) or equivalent controls for base building operation and monitoring.

Technologies/Strategies:

- Programmable controls will allow occupants to save energy by regulating air-conditioning/heating times of operation and temperature settings.
- Consider installing wall-mounted thermostats/controls, instead of HVAC-mounted units, to better represent room temperature and minimize exposure to factors that may have and undesirable effect, such as direct solar radiation.
- Consider thermostats that may be accessed remotely via phone or Internet.

Cost Implications:

- Increased initial costs for electronic HVAC controls.

2.4 Lighting & Daylighting

Intent:

Implement design strategies to maximize access to daylight and outdoor views in a glare-free way to improve IEQ for building occupants.

Requirements:

.1 In all apartments, increase natural light in habitable rooms by 30% over NYC Building Code requirements.
.2 Maintain a minimum floor-to-ceiling height in habitable rooms of 8'-6".

Technologies/Strategies:

- Increase minimum size of habitable rooms.
- Increase floor-to-ceiling heights and decrease distance of habitable spaces from windows.
- Design ground floor elevator lobbies to be visible from the street.
- Maximize window size as appropriate and consider incorporating light-shelves into windows to increase the amount of natural light in interior spaces.

Cost Implications:

- Increased initial costs.
- Decreased operating costs.

2.5 Indoor Pest Control

Intent:

Pests (such as cockroaches, mice, and rats) and their excrement may be a source for asthma, allergies, and other health concerns for building occupants. In addition, the use of toxic chemicals to rid buildings of these pests can have an adverse affect on Indoor Environmental Quality. Rather than relying on extermination practices, responsible pest management relies primarily on the proper and thorough sealing of passages, feeding areas, and breeding grounds that enable vermin to reproduce and move throughout a building.

Requirements:

.1 The developer shall prepare and implement an Integrated Pest Management Plan (IPMP) that abides by the requirements outlined in this section and § 2.1 (IAQ).

.2 Properly seal, caulk, and repair points of entry, habitation, and breeding areas to mitigate against pest occurrences within the building. Use metal sheeting or mesh whenever possible.

.3 In all apartment kitchens, provide an in-sink garbage disposal unit that is compatible with the building's water reclamation system.

Technologies/Strategies:

- Properly seal all penetrations (i.e. around water pipes, steam risers, electrical conduits, etc.) with copper mesh, metal sheeting, or concrete. Use caulking and plaster only as a last resort.
- Properly assemble trash chute sections so that garbage bags do not catch and rip on their way down.
- Encourage tenants to properly seal and bag garbage in the Tenant Guide.
- Caulk every joint within and between cabinets, over exposed screw heads, and within the cabinet structure. Properly seal cracks and joints at tile floor/wall joints and cavities, baseboard/wall interfaces, and window frame/wall interfaces.
- Provide properly fitting door sweeps at all exterior doors and hallway doors – undercut exterior doors with less than ¼ inch clearance and provide vinyl or brush sweeps.
- Cover all ventilation portals with insect mesh (metal window screen) and ¼inch wire mesh (hardware cloth). Ensure easy access to portals and frequent cleaning.
- Encourage prompt repair of leaky faucets, condensation on pipes, or other unwanted sources of water.
- Use boric acid powder for insect control (as opposed to using other toxic chemicals) in the base building; recommend same to tenants and include in Tenant Guide.

2.5 Indoor Pest Control

Cost Implications:

- None at this time.

2.6 Construction IAQ Management

Intent:

Prevent indoor air quality problems stemming from the construction/renovation process in order to help sustain the health and well-being of construction workers and building occupants.

Requirement:

.1 Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction and pre-occupancy phases of the building that meets or exceeds the recommended *Design Approaches of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings Under Construction, 1995, Chapter 3.* The plan shall require the following:

- .a Protection of stored on-site or installed absorptive materials from moisture damage, pests, and other forms of contamination.
- .b Protection of all ductwork during construction and replacement of all filtration media immediately prior to occupancy (see § 2.1.4).
- .c Monitoring of IAQ during construction as per SMACNA criteria outlined above.
- .d Implementation of site sanitation and pest-management to be enforced from pre-construction through the end of construction.

Technologies/Strategies:

- Adopt an IAQ Management Plan to protect the HVAC system during construction, control pollutant sources, and interrupt contamination pathways.
- Sequence the installation of materials to avoid contamination of absorptive materials such as insulation, carpeting, ceiling tile, and gypsum wall board.
- Follow appropriate protocols for waste disposal and storage during construction.

Cost Implications:

- Increased initial costs to HVAC systems.
- Decreased operating costs.
- Decreased emergency spending to resolve unexpected problems.

3.0 Conserving Materials & Resources

General Provisions

Intent:

Reduce waste, preserve natural resources and minimize the environmental impact from materials, extraction, manufacturing, and transport. Protect the environment from biodiversity loss, air quality impacts, and further depletion by seeking out rapidly renewable resources and eliminating the use of chlorofluorocarbons (CFCs).

Assumptions:

An integrated architectural approach will be required for the design of the base building and the tenant interiors. Tenants will be encouraged by developer-prepared documentation and instructional sessions to comply with the goals of this section and meet the HLCBPCA mandate to protect the environment and improve the health and well-being of building occupants.

3.1 Storage & Collection of Recyclables

Intent:

Facilitate the reduction of waste and the diversion of materials congruent with markets for recycling within the community that otherwise would be hauled and dumped into landfills.

Requirements:

.1 On each residential floor, provide a centralized and easily accessible "Trash & Recycling" room (with min. dimensions of 5'x5' and min. volume of 2.9 CF/dwelling unit) dedicated to the collection, separation, and temporary storage of conventional trash, paper, cardboard, glass, plastics, and metals.

.2 Trash & Recycling rooms shall contain either separate waste and recycling disposal chutes, or sorting bins for recycled materials to be managed by the building's recycling plan.

.3 Centralized trash/recycling holding areas will be ventilated, sealed to pests (see § 2.5.2), and maintained within the building for residential and all other building uses. At ground and/or basement levels, these areas shall have convenient access to designated collection points at street.

Technologies/Strategies:

- The easier it is to recycle, the more people will participate.

Cost Implications:

- Increased space for trash/recycling operations.
- Reduced waste disposal costs.
- Potential for income from recycling.

3.2 Construction Waste & Resource Reuse

Intent:

Reduce the amount of construction waste and conserve energy and resources through the recycling and reuse of existing building materials.

Requirements:

.1 Before construction commences, develop a Waste Management Plan to be implemented during construction that will divert and recycle a minimum of 75% of waste material by weight.

.2 The developer will maintain and submit a Waste Management Log accounting for recycled, diverted, and reused material quantities by weight.

Technologies/Strategies:

- Identify licensed haulers and processors of recyclables.
- Identify opportunities to integrate salvaged materials into the building design.
- Whenever on-site reuse is not possible, recycle cardboard, metals, concrete, brick, asphalt, clean dimensional wood, plastic, glass, gypsum board, carpet, ceiling tile, etc.
- Designate a specific area on the construction site for recycling and track recycling efforts throughout the construction process.
- Evaluate the cost-effectiveness of recycling rigid insulation, engineered wood products, and other materials.
- Require contractors to reuse pallets or return them to providers during construction.

Cost Implications:

- Potential income generation/decrease in material costs.
- Increased cost of construction management (overseer).

3.3 Recycled Content

Intent:

Reduce the use of raw materials by replacing them with recycled materials or materials with recycled content.

Requirement:

.1 Use materials with recycled content such that the recycled content constitutes at least 10% of the total value of the materials in the project. The value of the recycled content portion of a material or furnishing shall be determined by dividing the weight of recycled content in the item by the total weight of all material in the item, then multiplying the resulting percentage by the total dollar value of the item. Mechanical and electrical components shall not be included in this calculation. Recycled content materials shall be defined in accordance with the Federal Trade Commission Document, *Guides for the Use of Environmental Marketing Claims, 16 CFR 260.7 (e)* available at (www.ftc.gov/bcp/grnrule/guides980427.thm).

Technologies/Strategies:

- Use of recycled materials or materials with recycled content will reduce the burden on already over-harvested building products.

Cost Implications:

- None at this time.

3.4 Local/Regional Materials

Intent:

Reduce the impact of building materials transport and support the local economy.

Requirement:

.1 Use a minimum of 50% of all building materials (based on cost) that are manufactured, extracted, harvested, and/or recovered within a 500-mile (air) radius of the project site.

Technologies/Strategies:

- Strengthening a local supply chain will reduce costs and transportation-related pollution while contributing to local building technology and infrastructure.
- Credit may be given by HLCBPCA for creative use of rail or water transportation as an alternative.

Cost Implications:

- None at this time.

3.5 Renewable & Rapidly Renewable Materials

Intent:

Reduce the use of finite raw materials by replacing them with rapidly renewable materials.

Requirement:

.1 Use best efforts to specify products made with renewable or rapidly renewable materials.

Technologies/Strategies:

- Rather than using oak or mahogany flooring, which frequently originate from non-sustainable sources, consider using bamboo, cork, or recycled composite materials as alternatives for the same purpose.

Cost Implications:

- Increase in costs for certain materials.

3.6 CFC Elimination

Intent:

Reduce ozone depletion by prohibiting the use of CFC-based refrigerants in HVAC systems, as well as solvents, insulation materials, or other building components that contain CFCs or use them during production. Ensure support of early compliance with the Montreal Protocol.

Requirements:

.1 Prohibit use of CFC-based equipment.
.2 Avoid the use of insulation materials that utilize chlorine-based gases in their production process.

Technologies/Strategies:

- Zero-tolerance for CFCs and CFC-based equipment.

Cost Implications:

- Reduced energy efficiency.

3.7 Alternative Transportation

Intent:

Limit contributions to pollution and the use of non-renewable energy sources for transportation by encouraging the use of bicycles, hybrid-powered, and shared vehicles.

Requirements:

.1 Provide enclosed bicycle storage at no additional charge to the tenant for a minimum of 0.5 bicycles per apartment.

.2 Provide preferred parking spots for 5% of the total parking capacity for hybrid, electric, and/or shared vehicles.

Technologies/Strategies:

- If bicycle storage is available and easily accessible, residents will be more likely to own and use bicycles for recreational and commuting needs.
- When bicycle storage is not adequately provided and bicycles are stored in inappropriate places, there is an increase in maintenance expenses and a negative effect on the quality of the indoor environment.

Cost Implications:

- Cost of storage space.
- Decrease in maintenance costs.
- Increased longevity of building finishes.

3.8 Certified Wood

Intent:

Encourage responsible forest management to protect and prolong forest habitats and wood species.

Requirements:

.1 For all wood-based building components installed by the developer, use a minimum of 35% wood-based materials and products certified in accordance with guidelines and criteria decreed by the Forest Stewardship Council (FSC), the Forest Stewardship Program (FSP), the Sustainable Forestry Initiative (FSI), or Green Tag Forestry. Components include, but are not limited to, flooring, finishes, furnishings, and non-rented temporary construction applications (concrete form-work need not be incorporated into this calculation).

.2 Encourage tenants, by incorporation of appropriate literature into the Tenant Guide, to utilize wood and wood products certified by the above-mentioned organizations.

Technologies/Strategies:

- Incorporate the requirements of the Forest Stewardship Guidelines in the building construction specifications and general conditions.

Cost Implications:

- Increase in wood costs.

3.9 Low-Pollution Fuels

Intent:

Decrease the amount of SO_x, CO, and other pollutants that are released into the atmosphere from construction vehicles.

Requirements:

.1 Use ultra-low sulfur diesel fuel or compressed natural gas (CNG) for all construction vehicles with a carrying capacity in excess of 5 tons and for all portable generators.

.2 Ensure that diesel-based construction vehicles with a carrying capacity in excess of 5 tons and, whenever possible, any other diesel-based construction equipment (i.e., generators), are equipped with high performance engines and catalyzed diesel particulate filters.

Technologies/Strategies:

- Incorporate the above requirement in construction specifications and general conditions.

Cost Implications:

- Potential for slight increase in fuel costs.

4.0 Education, Operations & Maintenance

General Provisions

Intent:

Provide proper construction, maintenance, and controls to ensure that building systems operate as designed in order to achieve and maintain high energy performance and IEQ standards. Provide information to tenants and maintenance personnel to educate them on green building features and their role in maintaining a more sustainable environment.

Assumptions:

Tenants, construction personnel, and building management staff will be encouraged, by means of developer-prepared documentation and instructional sessions, to comply with the goals of this section and meet the HLCBPCA mandate to protect the environment, save energy, and improve the health and well-being of building occupants.

4.1 Education

Intent:

Proper training and educational resources will ensure that construction and maintenance staff understand green building practices. Keeping tenants well informed about the building's features and their role with regards to its performance will help them save energy and improve their health and well-being.

Requirements:

.1 The developer shall develop and maintain a comprehensive Tenant Guide and make it available to tenants at lease signing and on-line for continuous updating. The Guide will:
- Describe design features and systems utilized in the apartments.
- Provide a list of efficient lighting fixtures, dimming controls, and lamps (compact fluorescents).
- Provide a list of recommended Energy Star appliances with high EER ratings.
- Provide information on parking and bicycle storage.
- Provide proper maintenance practices.
- Outline general protocols regarding pest management practices.
- Outline emergency procedures.
- Provide criteria for the proper selection and use of cleaning products.
- Provide recommendations for the selection of furnishings, carpeting, paints, and sustainable wood products (see § 3.8.1).
- Provide guidelines for recycling and waste disposal.

.2 The developer shall provide "green construction practices" training to key on-site construction management and personnel.

.3 The building operations manager and other key staff responsible for operating building systems shall attend a minimum five day training course on building systems operation.

.4 In the lobby area, a bulletin board or web screen (minimum 2'x3') shall be prominently located for posting energy/environmental education information, including yearly (and, if possible, monthly) building energy performance reports comparing to benchmarks/peers. This information shall also be displayed on-line.

Technologies/Strategies:

- Use Internet communication technologies to monitor systems and inform tenants about the building's features and protocols.

4.1 Education

- The HLCBPCA strongly encourages all staff responsible for the maintenance and operation of equipment and systems in the building to attend the Northeast Energy Partnership's (NEEC) Building Operations & Maintenance Certification (BOC) Program (http://www.neep.org/boc/index.html). The BOC course provides competency-based training and certification for building operators designed to improve the energy efficiency of commercial and large residential buildings. Operators earn certification by attending training sessions and completing project assignments in their facilities. The certification provides a credential for their professional development while offering employers a way to identify skilled operators.

Cost Implications:

- Increased initial costs to HVAC system.
- Minimal cost to perform Air Quality Profile.
- Decrease in occupant complaints.

4.2 Commissioning

Intent:

Test and calibrate building systems to be certain they can be operated as designed in order to achieve and maintain energy performance and IEQ requirements. Typically, fans, pumps, motors, and other equipment are installed that do not meet design specifications. The result is inferior performance, reduced IAQ and increased energy consumption.

Requirements:

.1 Engage a commissioning team that does not include individuals directly responsible for project design or construction management. This team shall include a commissioning authority independent of the design team (the Independent Commissioning Authority, or ICA) who shall conduct a review of the design prior to the Construction Documents phase, including review of the design intent and the basis of design documentation.

.2 Develop and utilize a Commissioning Plan for all operating equipment, including HVAC equipment and systems including base building heating, cooling, and ventilation systems, apartment HVAC systems, heat recovery, building management system (BMS), plumbing systems including waste water reclamation system and storm water systems, electrical systems including lighting controls and occupancy sensors, photovoltaics, supply and exhaust air, and any other green system or equipment.

.3 Incorporate commissioning requirements into the construction documents.

.4 The ICA shall:

- .a Conduct a review of the construction documents near completion of the construction document development and prior to issuing the contract documents for bidding.
- .b Review the contractor submittals relative to systems being commissioned and verify installation, functional performance, training, operation, and maintenance documentation.
- .c Complete and provide the developer with a Commissioning Report, including a single manual that contains the information required for re-commissioning building systems.
- .d Review building operation with O&M staff, including a plan for resolution of outstanding commissioning-related issues within one year after construction completion or 90% rent-up date.

4.2 Commissioning

Technologies/Strategies:

- Introduce standards and design strategies early in the design process.
- Incorporate and clearly state design intentions and requirements in the project construction documents.
- Tie contractor final payments to documented system performance.
- Engage the ICA early in the design stage.

Cost Implications:

- Increase in professional fees.
- Substantial energy savings.
- Decrease in life-cycle and operating costs.
- Increase in equipment costs (Energy Management System).
- Decrease in change orders.
- Decrease in project delays.
- Decrease in equipment callback.

4.3 Building Systems Monitoring

Intent:

Design and specify equipment to be installed in the base building and individual apartment systems to provide feedback for comparison, management, and optimization of actual vs. estimated energy performance and Indoor Environment Quality.

Requirements:

.1 Install and maintain a permanent monitoring system or equivalent regular testing protocol that tracks IEQ, measures energy performance of the base building systems and total building energy consumption, and allows operators to make adjustments to maintain targets to be set by the HLCBPCA.

.2 Submit an air quality testing protocol. Provide an Air Quality Profile, prepared by a licensed engineer or certified industrial hygienist, for a sample of 10% of evenly distributed units at time of initial occupancy that meets the following criteria:

- < 50 ppb of Formaldehyde
- < 200 µg/m^3 total Volatile Organic Compounds

.3 The developer shall ensure that at least 10% of the yearly apartment turnover receives an Air Quality Profile as outlined in § 4.3.2. No apartment shall turn over more than once without receiving an Air Quality Profile.

Technologies/Strategies:

- Use Internet communication technologies to monitor building systems.

Cost Implications:

- Increased initial costs to HVAC system.
- Minimal cost to perform Air Quality Profile.
- Decrease in occupant complaints.

4.4 Maintenance Accountability

Intent:

Provide for maintenance and operational continuity by establishing an ownership system that guarantees accountability for maintaining performance standards.

Requirements:

.1 The developer shall prepare and submit a Maintenance Manual to the HLCBPCA for review, which will be made available to all maintenance staff for all long- and short-term maintenance of the building, prior to the first TCO. This Manual will be used as research data for future building standards and will also serve as a valuable resource for building design teams on future development projects. The Maintenance Manual shall:

- Provide descriptions, details, and schedules of installed building services, plants, systems, and controls.
- Provide specific manuals and additional manufacturer's literature, model numbers, methods of operation, and maintenance practices (including preventive maintenance) for installed building equipment, plants, systems, and controls.
- Provide details on the various metering systems and mechanisms that collectively enable energy consumption to be monitored and controlled.
- Outline best practices for maintenance and housekeeping.
- Outline best practices for pest management and mold prevention/control.
- Incorporate material substitutions and method variations.
- Compile field data, contractor's affidavits, and construction log information.
- Include a complete As-Built Drawing Set.

.2 Persons responsible for maintaining building systems, including the expected building superintendent and boiler/chiller plant operators from other buildings in the developer's portfolio, should participate in project team meetings that involve the design, selection, and commissioning of all building systems and equipment.

.3 The developer shall prepare an Annual Building Performance Report, including actual energy consumption with comparisons to benchmarks, and any changes to O&M arrangements/procedures or major energy consuming equipment. (Specific systems metered and Report structure to be determined by the developer and BPCA on a case-by-case basis. See § 1.2.3).

4.4 Maintenance Accountability

Technologies/Strategies:

- Maintain rigorous standards for the upkeep of building equipment and infrastructure, interior and exterior finishes, public spaces, and structural systems.
- Educate maintenance personnel.

Cost Implications:

- Decreased maintenance labor costs.
- Increased product life.

5.0 Water Conservation & Site Management

General Provisions

Intent:

Minimize water consumption by simultaneously reducing the inflow of city-supplied potable water and the outflow of waste water. Conserve potable water by reducing demands for landscaping, irrigation, and other non-potable uses.

Assumptions:

Projects developed in Battery Park City are responding to land-use and water consumption concerns by incorporating high efficiency water management technologies into new buildings, and by participating in a conscious and managed plan for sustainable landscaping practices (i.e., use of native and adaptive plantings, organic maintenance practices, etc.) and irrigation systems.

5.1 Storm Water Management

Intent:

Minimize the impact of storm water on New York City's sewer system and minimize the use of potable water for maintenance and landscaping purposes by treating and recycling water on-site.

Requirements:

.1 Provide for 100% (avg. 2 in. rain/ week) of all roof and setback rain water to be collected either through roof garden capture or for maintenance and landscape irrigation by providing on-site storage, treatment, and infrastructure.

.2 Adopt Best Management Practices (BMP, as published by the Office of Wastewater, Environmental Protection Agency (EPA) and available at (www.epa.gov/owm/mtb/runoff.pdf) for harvesting rain water and using it on-site.

.3 Provide clearly labeled "Reclaimed Water" taps at the exterior of the building for building maintenance, sidewalk washing, and landscaping needs (reclaimed water shall be appropriately filtered and treated for these and other types of uses).

.4 Design a site-specific Sediment and Erosion Control Plan that conforms to the *United States Environmental Protection Agency (EPA) Document No. EPA 832/R-92-005 (September 1992), Storm Water Management for Construction Activities, Chapter 3*, or local erosion and sedimentation control standards and codes (whichever is more stringent). The plan shall meet the following objectives:

.a Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.

.b Prevent sedimentation of storm sewer or receiving streams and/or air pollution with dust and particulate matter.

Technologies/Strategies:

- By collecting and reusing rain water on site and runoff during construction, less water will be consumed and less waste water will need to be treated.
- Enforce conservation methods.

Cost Implications:

- Increased initial costs to plumbing infrastructure.
- Savings on water and sewage costs.

5.1 Storm Water Management

- Future water cost avoidance.
- Decreased demand on city infrastructure.
- Water available during drought conditions.

5.2 Water Use Reduction

Intent:

Minimize the use of potable water by reducing water needs.

Requirements:

.1 Install fixtures that in aggregate use 10% less water than the water usage requirements in the *Energy Policy Act of 1992*.

.2 Specify low water volume/conserving fixtures, toilets, dishwashers, and only front-loading laundry facilities with a maximum of 20 gallons per use (see www.aceee.org for an updated list of recommended appliances).

.3 Utilize drip irrigation systems (if applicable).

Technologies/Strategies:

- Horizontal axis or "front loading" clothes washers are more efficient than conventional top loading machines.
- Install timers on irrigation systems.
- Consider individual apartment water metering.
- In non-apartment uses, consider installing waterless urinals.

Cost Implications:

- Nominal increase in initial costs.
- Savings on water and sewage costs.
- Savings on water heating and pumping.
- Increased energy savings (pumping).

5.3 Innovative Water Technologies

Intent:

Minimize the impact on New York City's sewer system and reduce the use of potable water by treating and reclaiming water from lavatories, toilets, showers, sinks, laundry, and dishwashing facilities.

Requirements:

.1 Treat all waste water and reuse to maximum extent possible with an on-site Reclaimed Water Treatment System.

.2 Use ecology-based treatment processes (i.e., ultrafiltration), as opposed to a chemical treatment system, for reclaimed water treatment.

.3 Use reclaimed water for sewage conveyance, toilet flushing, cooling tower make-up, irrigation, and building management uses (in all cases, if applicable and properly treated). Provide clearly labeled "Reclaimed Water" taps wherever treated water is made available to tenants and/or staff.

Technologies/Strategies:

- Provide appropriate water recovery, treatment, and delivery infrastructure.

Cost Implications:

- Increased initial costs to plumbing infrastructure.
- Savings on water and sewage costs.
- Decreased demand on infrastructure.
- Water available during drought conditions.

5.4 Water Efficient & Responsible Landscaping Practices

Intent:

Minimize the use of potable water for building and grounds maintenance, and avoid using pesticides, herbicides, or fertilizers that may pollute the environment.

Requirements:

.1 Specify 100% of plantings to be those that require low amounts of water and are pest- and disease-resistant. Plant material subject to review by the Hugh L. Carey Battery Park City Parks Conservancy (HLCBPCPC).

.2 Use proper topsoil medium that allows for the implementation of organic maintenance practices (i.e., non-toxic pesticides, herbicides, and fertilizers) as per HLCBPCPC requirements.

Technologies/Strategies:

- Employ sustainable landscape development practices by selecting only plantings suitable to the microclimate that require minimal water and maintenance, and using topsoils able to support organic fertilization and integrated pest management practices as per HLCBPCPC requirements.

Cost Implications:

- No initial cost implications.
- Decrease in maintenance and operating costs.
- Future water cost avoidance.
- Extended life of plantings.

5.5 Landscape and Roof Design to Reduce "Heat Islands"

Intent:

Minimize contribution to "heat islands" and reduce the amount of heat gain/loss through the roof(s).

Requirements:

1. 75% of all open roof area (remaining area not used for mechanical equipment or skylights) to be planted as a "green" roof garden.
2. Remaining roof areas to use light-colored/high-albedo materials with a reflectance value of at least 0.3.
3. Provide street trees as per HLCBPCA requirements.

Technologies/Strategies:

- Provide vegetated surfaces such as green roofs and/or grass paving systems that are water efficient.
- Provide trees to shade exposed surfaces.

Cost Implications:

- Increased initial cost to structure, drainage, and waterproofing systems.
- Reduced energy consumption due to reduced heat gains/losses.
- Potential for longer roof life due to diminished wear from thermal expansion and contraction.

5.6 Light Pollution Reduction

Intent:

Eliminate light trespass from the building and site, improve night sky access and reduce development impact on nocturnal environments.

Requirements:

1. Meet or provide lower light levels and uniformity ratios than those recommended by the Illuminating Engineering Society of North America (IESNA) *Recommended Practice Manual: Lighting for Exterior Environments (RP-33-99)*.
2. Design exterior lighting such that all exterior luminanaires with more than 1000 initial lamp lumens are shielded and all luminaires with more than 3500 initial lamp lumens meet the Full Cutoff IESNA Classification.
3. The maximum candela value of all interior lighting shall fall within the building (not out through windows) and the maximum candela value of all exterior lighting shall fall within the property.
4. Any luminaire within a distance of 2.5 times its mounting height from the property boundary shall have shielding such that no light from that luminaire crosses the property boundary.

Technologies/Strategies:

- Adopt site lighting criteria to maintain safe light levels while avoiding off-site lighting and night sky pollution.
- Consider using daylight sensors to regulate developer-installed outdoor luminaires as an energy-conserving strategy.
- Minimize site lighting where possible and configure the site lighting using a computer model.
- Technologies to reduce light pollution include full cutoff luminaires, low-reflectance surfaces and low-angle spotlights.

Cost Implications:

- No, or nominal, initial cost implication. Requirements can be incorporated into design.
- Decreased running costs, both in energy and replacement costs, as this requirement essentially eliminates extravagant external lighting of the building.

List of Resources

Publications:

American Institute of Architects. *AIA Environmental Resource Guide*. New York: McGraw-Hill, 1995.

Barnett, Dianna Lopez and Browning, William. *Primer on Sustainable Building*. Rocky Mountain Institute, 1995.

Battery Park City Authority and Lerner, Ralph. *Battery Park City: Design Guidelines for The North Residential Neighborhood*. 1994.

Flack + Kurtz. *Queens West Report*. 1995.

Gorham, Richard J. *Ecology and Management of Food-Industry Pests.* Virginia: Association of Official Analytical Chemists, 1991.

Hays, Steve et al. *Indoor Air Quality: Solutions and Strategies*. New York: McGraw-Hill, 1995.

Johnson, Tim. *Low-E Glazing Design Guide*. Boston: Butterworth, 1991.

Kundsin, Ruth B. *Architectural Design and Indoor Microbial Pollution.* New York: Oxford University Press, 1988.

Olgyay, Victor. *Design With Climate*. Princeton: Princeton University Press, 1973.

Olkowski, Helga et al. *Common Sense Pest Control*. Connecticut: The Taunton Press, 1991.

Rocky Mountain Institute. *Green Development: Integrating Ecology And Real Estate.* New York: John Wiley & Sons, Inc., 1998.

State of New York. *Energy Conservation Construction Code of New York State*. 2002.

State of New York. *Multiple Dwelling Law of New York State*. 1988.

The City of New York and The Department of Buildings. *New York City Building Code*. 1999.

The City of New York and The City Planning Commission. *New York City Zoning Resolution*. 1999.

List of Resources (cont.)

The City of New York Department of Design and Construction. *High Performance Building Guidelines.* 1999.

Tuluca, Adrian (Steven Winter Associates, Inc.). *Energy Efficient Design and Construction for Commercial Buildings*. New York: McGraw-Hill, 1997.

US Green Building Council. *Leadership in Energy and Environmental Design Green Building Rating System, Version 2.1(LEED™)*. 2002.

US Green Building Council and US Department of Energy. *Sustainable Building Technical Manual.* 1996.

Watson, Donald and Labs, Kenneth. *Climatic Building Design*. New York: McGraw-Hill, 1983.

List of Resources (cont.)

Web Sites:

American Council for an Energy-Efficient Economy
http://www.aceee.org/

National Coalition Against the Misuse of Pesticides
http://www.beyondpesticides.org/main.html

Energy Efficiency and Renewable Energy Network (EREN)
http://www.eren.doe.gov/

Energy Star Program (U.S. EPA)
http://www.energystar.gov/

Environmental Building News
http://www.ebuild.com/

Environmental Defense Fund
http://www.edf.org/

Forest Stewardship Council
http://www.fscus.org/

Green Tag Forestry
http://www.woodlandowners.org/greentag/greentag.asp

Integrated Pest Management Institute of North America
http://www.ipminstitute.org/

Iris Communications – Resource for Environmental Design Index
http://www.oikos.com/

National Resources Defense Council
http://www.nrdc.org/

New York State Energy and Research Development Authority
http://www.nyserda.org/

Northeast Energy Efficiency Partnerships
http://www.neep.org/

Rocky Mountain Institute
http://www.rmi.org/

Scientific Certification Systems
http://www.scs1.com/

Southface Energy Institute
http://www.southface.org/

List of Resources (cont.)

US Department of Energy
http://www.doe.gov/

US Environmental Protection Agency
http://www.epa.gov/

US Green Building Council
http://www.usgbc.org/

USDA Forest Stewardship Program
http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml

Funding Sources

New York State Green Building Tax Credit

New York State Department of Taxation and Finance
(tax related questions)
Business Tax Hotline:
1-800-972-1233
General Tax Information Hotline:
1-800-225–5829

New York State Energy Research and Development Authority
(building-related questions)
Craig Kneeland, Project Manager
(518) 862-1090, ext. 3311
e-mail: cek@nyserda.org

New York State Department of Environmental Conservation
(all other questions)
James Austin, Assistant Commissioner
Phone: (518) 485-8437
e-mail: jdaustin@gw.dec.state.ny.us

[http://www.dec.state.ny.us/]

New York State Energy and Research Development Authority
For more information about NYSERDA's building programs, contact:

NYSERDA
Technical Communications Unit
Corporate Plaza West
286 Washington Avenue Extension
Albany, New York 12203-6399
Phone: (518) 862-1090, ext. 3250

[http://www.nyserda.org/]

United States Department of Energy
For more information about USDOE building programs, contact:

United States Department of Energy
Dru Crawley
1000 Independence Ave. SW
Washington, DC. 20585
Phone: (202) 586-2344
Fax: (202) 586-1628
e-mail: drury.crawley@ee.doe.gov

[http://www.doe.gov/]

Submittals

Cost-Analysis

The developer will be required to prepare and submit a cost analysis of all green features during Schematic Design, Design Development, Construction Documents, and upon building completion or buy-out. Format shall be as per the Residential Environmental Guidelines Independent Cost Impact Study of 2003, prepared by Skanska USA Building Inc.

Submittal Requirements

The following schedule is a summary of the guidelines' requirements with specific compliance submissions for each requirement. The developer shall assemble this information into a complete, single resource to be submitted following project completion, and submit (3) copies of a progress submission as part of the Schematic Design, Design Development, Construction Documents, and As-Built submissions to the Battery Park City Authority as follows:

- Bound 8 ½x 11 formats (11 x 17 fan fold inserts acceptable).
- Include a table of contents and a list of all applicable team participants and consultants.
- Each of the five environmental categories from the guidelines will be a separate section (i.e., Energy Efficiency).
- Within each of these sections, the requirements are to be referenced by section number (i.e., §1.3.2).
- For each requirement, include a narrative that describes the developer's actions and strategies for compliance with the guidelines followed by the requested information from the compliance requirements. The Schematic Design submission must include the DOE-2.1E analysis, but may only include the written narratives for all other requirements.
- Required "guides" (Tenant Guide and Maintenance Manual) are to be separately bound and included as appendix items. Guides will only be required for the As-Built or final submission.
- The final version of both the As-Built submission and the Maintenance Manual shall be submitted in an electronic format (i.e., CD-ROM; CAD and text file formats to be determined) and as a hard copy.
- Statement of any requested variation from guidelines, along with back-up and substantiation, where necessary.

The intent is to demonstrate compliance with these guidelines. Therefore, for each and every submission, a written narrative must be included for each requirement. The Maintenance Manual must be 100% complete at the end of the Construction Documents phase.

Submittals (cont.)

The HLCBPCA will review all submissions in a prompt and timely manner. Furthermore, the HLCBPCA will maintain field personnel to observe construction methods and technologies and to verify that construction is proceeding in accordance with the official documents.

Schedule of Submission Requirements

Section	Requirement
1.0 Energy Efficiency	
1.1 Maximize Energy Efficiency	
1.1.1 Increase energy efficiency by 25%	• Confirmation of 25% overall energy efficiency after project is completed with on-site measurement (see § 4.3.1). Include in Annual Building Performance Report (see § 4.4.3).
1.1.2 Right-size equipment	• Submit, in concert with the ICA, an Equipment Schedule with plan layouts and design calculations.
1.1.3 Provide motion sensors	• Submit Motion Sensor Schedule, plan layouts highlighting motion sensor/PIR switches, and schematics.
1.1.4 Provide master switches and identify outlets	• Submit Master Switch Schedule, typical apartment schematics, and details.
1.1.5 Use high-performance glazing	• Submit Glass and Window Schedules along with design specifications.
1.1.6 Consider providing double insulation, backer rods, and caulking at key junctures	• Submit two-dimensional sections (where two elements of the enclosure meet) and three-dimensional sections (where three or more elements of the enclosure meet) through wall/slab junctions and masonry walls. Show continuity of rain water control materials (water impermeable materials or air gaps), continuity of thermal barrier, and continuity of air barrier. • Submit photographs of a representative sample of the above-mentioned wall conditions during construction to demonstrate that design sections were followed properly.
1.1.7 Optimize insulation of cavity wall construction	• Submit two-dimensional sections (where two elements of the enclosure meet) and three-dimensional sections (where three or more elements of the enclosure meet) through typical building envelope conditions and critical junctures. Show continuity of rain water control materials (water impermeable materials or air gaps), continuity of thermal barrier, and continuity of air barrier.

Submittals (cont.)

1.1.7 Optimize insulation of cavity wall construction	• Submit photographs of a representative sample of the above-mentioned wall conditions during construction to demonstrate that design sections were followed properly.
1.1.8 Conduct continuity tests for air, thermal, and water barriers	• Submit Test Results certifying the continuity of air, thermal, and water barriers.
1.1.9 Use only Energy-Star or equivalent equipment, appliances, lighting, and fixtures	• Submit Schedules that include energy efficiency ratings for the Energy Star equipment, appliances, lighting, and fixtures to be installed in the base building. • Submit typical plan(s) indicating use of Energy Star equipment.
1.1.10 Provide only natural gas cook tops, ovens, and ranges	• Submit Equipment Schedule.
1.1.11 Provide thermal energy recovery systems	• Submit Equipment Schedule and schematics showing heat recovery systems as part of building ventilation.
1.2 Modeling for Energy Performance	
1.2.1 Provide initial DOE-2.1E energy model	• Submit an initial DOE-2.1E model prior to beginning the design process. • Using base case assumptions developed by the HLCBPCA, submit results of DOE-2.1E model analysis at the end of Schematic Design, Design Development, and Construction Documents. Place special emphasis on base case and provide description of any assumptions made beyond those of the HLCBPCA and how they vary from NYC and NYS codes.
1.2.2 Provide comparative energy analysis in Annual Building Report	• Submit a data comparison between the DOE-2.1E results projected during the design process and actual building performance data collected after reaching 90% occupancy. Include in the first Annual Building Report (see § 4.4.3, Submittals).
1.2.3 Install dedicated meters	• Submit Metering Equipment Schedule, plan layout, and schematics.

1.3 Renewable Energy & Green Power Sources	
1.3.1 Green energy equipment incorporation and feasibility studies	• If incorporating green energy sources, submit Equipment Schedule, load calculations, and specifications. Otherwise, submit documentation of the analysis performed to determine the feasibility of installing cogeneration equipment. Include technical literature and narrative of efforts pursued. • Submit layout and elevations showing space allocation.
1.3.2 Provide renewable energy generation systems	• Submit elevation layout, schematics, and load calculations. If PVs are used, submit additional drawings describing layout of PVs on façade/bulkhead.
1.3.3 Specify adaptable equipment	• Submit Equipment Schedule and schematics.
1.3.4 Use best efforts to purchase renewable energy from power providers	• Submit a Power Agreement with affidavit(s) from energy provider(s) or letter describing efforts prior to the beginning of construction.
2.0 Enhanced Indoor Environment Quality (IEQ)	
2.1 Indoor Air Quality (IAQ)	
2.1.1 Use ASHRAE-62-2001 as IAQ performance standard	• See below.
2.1.2 Ventilation rates	• Submit an Equipment Schedule with schematics and design calculations. • Submit analysis, performed by the ICA or a certified third party, confirming target CFM rates upon reaching 50% and 100% occupancy.
2.1.2.a Central outside air system requirements	• Submit analysis, performed by the ICA or a certified third party, confirming target air temperature and humidification rates upon reaching 50% and 100% occupancy.
2.1.2.b Ventilation in apartments	• Submit Equipment Schedule, schematics, and design calculations. • Submit analysis, performed by the ICA or a certified third party, confirming negative pressurization of apartments relative to corridors (see Submittals, § 2.1.2).

Submittals (cont.)

2.1.2.c Ventilation in corridors	• Submit Equipment Schedule, schematics, and design calculations. • Submit analysis, performed by the ICA or a certified third party, confirming positive pressurization of corridors relative to apartments (see Submittals, § 2.1.2).
2.1.3 Filtering system characteristics	• Submit Filtering Equipment Schedule and design calculations. Include maintenance schedule in Maintenance Manual. • Submit analysis, performed by the ICA or a certified third party, confirming benchmark filtering values throughout building (see § 4.3.2, Submittals).
2.1.4 Air infiltration parameters	• Submit proposed Air Infiltration Parameters to the HLCBPCA for review and approval during the Design Development phase.
2.1.5 Ventilation systems for maintenance areas	• Submit schematics and design calculations.
2.1.6 Provide mechanical exhaust for all kitchens	• Submit schematics and design calculations.
2.1.7 Provide mechanical exhaust for all dryers	• Submit schematics and design calculations.
2.1.8 Duct all exhaust with full sheet metal linings	• Submit specifications.
2.1.9 Provide walk-off grilles or mats at building entrances	• Submit plan layout and details.
2.1.10 Prohibit thru-wall heating and cooling systems	• Submit plan layout and details.
2.1.11 Provide humidity stabilization throughout the year	• Submit Equipment Schedule, schematics, and design calculations. • With As-Built submittals, provide testing results for representative units showing that the required conditions can be met year-round.

Submittals (cont.)

2.2 Low-Emitting Materials	
2.2.1 Requirements for "products applied in the field"	• Submit a Schedule of Products Applied in the Field stipulating compliance with the VOC/chemical component limits outlined in § 2.2.1. • Submit backup certification confirming compliance of each material to requirement during construction.
2.2.2 Prohibit the use of added urea-formaldehyde in wood products	• Submit a Wood Products Schedule (see Submittals, § 3.8.1). Submit backup certification confirming compliance of each material to requirement during construction.
2.3 Controllability of Systems	
2.3.1 Provide programmable HVAC controls	• Submit Equipment Schedule, plan layout, and specifications. • Include instructions for programming and operating HVAC controls in the Tenant Guide (see § 4.1.1).
2.3.2 Provide computerized base building BMS systems or equivalent controls	• Submit Equipment Schedule and specifications. Include in Maintenance Manual (see § 4.4.1).
2.4 Lighting & Daylighting	
2.4.1 Increase natural light in habitable rooms by 30% over NYC code	• Submit design calculations, plan layout, elevations, sections, and comparison to NYC code.
2.4.2 Maintain minimum floor-to-ceiling heights of 8'-6"	• Submit plan layouts, elevations, and sections that include any areas being considered for heights inferior to 8'-6".
2.5 Indoor Pest Control	
2.5.1 Prepare and implement an Integrated Pest Management Plan	• Submit an Integrated Pest Management Plan prior to beginning construction including all design measures to be incorporated into the building. For guidance, refer to the following resources: .a IPM Institute of North America, Inc. (http://www.ipminstitute.org/). .b EPA's Region 9 IPM in Schools guidelines (http://www.epa.gov/pesticides/ipm/index.htm).

2.5.1 Prepare and implement an Integrated Pest Management Plan	.c Beyond Pesticides http://www.beyondpesticides.org/main.html). .d *Common Sense Pest Control* (see Publications in List of Resources). .e *Ecology and Management of Food-Industry Pests* (see Publications in List of Resources).
2.5.2 Properly seal, caulk, and repair points of entry, habitation, and breeding areas to mitigate against pest occurrences	• Submit specifications and details.
2.5.3 Provide in-sink garbage disposal units	• Submit specifications and details.
2.6 Construction IAQ Management	
2.6.1 Develop and implement an Indoor Air Quality Management Plan	• Submit proof of compliance with IAQ requirements outlined in § 2.6.1. • Submit an IAQ Management Plan during the Construction Documents phase.
2.6.1.a Protect absorptive materials on-site	• Submit plan layouts.
2.6.1.b Protect ductwork during construction	• Submit log of filtration media replaced.
2.6.1.c Monitor IAQ during construction	• Submit monitoring logs showing IAQ data on a mutually agreeable basis.
2.6.2.d Implement pest management and sanitation procedures during construction	• Prepare a pest-management plan to be implemented during the pre-construction and construction phases. Follow the guidelines stipulated in the DDC's *High Performance Building Guidelines, Appendix H*, 1999 (http://www.ci.nyc.ny.us/html/ddc/home.html).
3.0 Conserving Materials & Resources	
3.1 Storage & Collection of Recyclables	
3.1.1 Provide centralized and accessible "Trash & Recycling" rooms	• Submit plan layout, area calculations, and specifications.

Submittals (cont.)

3.1.2 "Trash & Recycling" room characteristics	• Submit plan layout and specifications.
3.1.3 "Trash & Recycling" room characteristics	• Submit plan layout and specifications.
3.2 Construction Waste & Resource Reuse	
3.2.1 Develop a Waste Management Plan	• Submit Waste Management Plan during the Design Development phase for review and approval. Tabulate total waste material, quantities diverted, and the means by which diverted.
3.2.2 Maintain and submit a Waste Management Log	• Submit Waste Management Log Reports and affidavits from contractor stipulating compliance with the Waste Management Plan regularly during construction on a mutually agreeable basis. • Submit a calculated fractional percentage based on weight of recycled diverted materials divided by weight of total diverted materials.
3.3 Recycled Content	
3.3.1 Use materials with recycled content	• Submit a Recycled Materials Log (at Construction Documents phase and upon completion of installation) as per the current USGBC's LEED matrix and formulas tracking content in the building. Submit all pertinent certifications of compliance during construction. • Submit calculated fractional percentages of recycled material during design and as installed during construction. • Submit a Memorandum delineating efforts made.
3.4 Local/Regional Materials	
3.4.1 Use a minimum of 50% local/regional materials	• Submit a Building Materials Provenance Schedule (at Construction Documents phase and upon completion of installation) as per the current USGBC's LEED matrix and formulas tracking provenance of all materials in the building. Submit all pertinent certifications of compliance during construction. • Submit calculated fractional percentages of recycled material during design and as installed during construction. • Submit a Memorandum delineating efforts made.

Submittals (cont.)

3.5 Renewable & Rapidly Renewable Materials	
3.5.1 Use best efforts to specify products with renewable or rapidly renewable materials	• Submit a Memorandum delineating efforts made. • Submit certification of renewable/rapidly renewable materials used during construction.
3.6 CFC Elimination	
3.6.1 Prohibit use of CFCs and CFC-based equipment	• Submit an HVAC Equipment Schedule confirming compliance with the HLCBPCA's CFC policy.
3.6.2 Avoid materials Manufactured with CFCs	• Submit specifications and confirmation (MSDS or otherwise) from manufacturer during construction.
3.7 Alternative Transportation	
3.7.1 Bicycle storage	• Submit plan layout/configuration and equipment for bicycle storage space at the Design Development and Construction Document phases. Include information about bicycle storage in Tenant Guide (see § 4.1.1).
3.7.2 Preferred parking	• Submit plan layout and copy of pertinent sections of agreement with parking provider. Include information about preferred parking spots in Tenant Guide (see § 4.1.1).
3.8 Certified Wood	
3.8.1 Use certified wood products	• Submit Wood Products Schedule and certification.
3.8.2 Encourage tenants to use certified wood products	• Include sustainable wood product information in Tenant Guide (see § 4.1.1).
3.9 Low-Pollution Fuels	
3.9.1 Use low-pollution fuels	• Submit specifications and estimate of fuel to be used during Construction Documents phase. • Submit affidavits certifying the use of low-pollution vehicles and fuels during construction.
3.9.2 Use low-pollution diesel equipment	• Submit specifications and/or manufacturer's data during the Construction Documents phase. • Submit estimate/log of vehicles, portable generators, and other equipment used.

Submittals (cont.)

4.0 Education, Operations & Maintenance	
4.1 Education	
4.1.1 Tennant Guide	• Submit outline during Construction Documents phase. • Submit a comprehensive Tenant Guide before the first TCO. Provide Guide to tenants at lease signing in hard-copy form and as an on-line resource.
4.1.2 Provide "green construction practices" and training to construction personnel	• Submit curriculum of training, confirmation of trained attendees, and dates of training.
4.1.3 Provide O&M training to building operations manager and key staff	• Submit curriculum of training, confirmation of trained attendees, and dates of training.
4.1.4 Provide bulletin board or web screen in lobby area	• Submit plan layout/elevation showing location and size. • With As-Built submittals, include copies of material initially posted in the bulletin board/web screen.
4.2 Commissioning	
4.2.1 Engage an Independent Commissioning Authority	• Submit roster of team members and credentials prior to the Construction Documents phase.
4.2.2 Develop and utilize a Commissioning Plan	• Submit a Commissioning Plan prior to the Construction Documents phase.
4.2.3 Incorporate commissioning requirements into construction documents	• Submit specifications, highlighting commissioning requirements.
4.2 ICA Report.	• Submit ICA report.
4.2.4.a Conduct a construction document review	• Submit an Initial Commissioning Report upon construction document review, and a Final Commissioning Report before issuance of contract documents.
4.2.4.b Review contractor submittals relative to systems being commissioned	• Submit Commissioning Report documenting review of contractor submittals.
4.2.4.c Provide developer with a complete commissioning report	• Submit final Commissioning Report.

Submittals (cont.)

4.2.4.d Review building operation with O&M staff	• Submit ICA report of building operation staffing plan.
4.3 Building Systems Monitoring	
4.3.1 Install and maintain a permanent BMS or equivalent	• Submit Building Monitoring Equipment Schedule and schematics prior to construction.
4.3.2 Submit an air quality testing protocol	• Submit an Air Quality Profile at the time of initial occupancy and prior to occupancy by incoming tenants during apartment turnover as outlined in § 4.3.2. • Declare and summarize the installation, operational design, and controls/zones for any and all permanently installed monitoring systems. Include in Maintenance Manual.
4.3.3 Ensure timely provision of Air Quality Profiles	• Provide required Air Quality Profiles no later than one month after apartment turnover.
4.4 Maintenance Accountability	
4.4.1 Prepare and submit a Maintenance Manual	• Submit outline during the Construction Documents phase. • Submit a finalized Maintenance Manual prior to the first TCO.
4.4.2 Include key O&M staff in the design, selection, and commissioning of building systems and equipment	• Submit a roster of the building's maintenance staff during the design phase.
4.4.3 Prepare an Annual Building Performance Report	• Submit, by February 1 of each year after reaching 90% occupancy, an Annual Building Performance Report to tenants and the HLCBPCA. Specific requirements, metered systems, and format of Report to be determined by the developer and HLCBPCA during construction.
5.0 Water Conservation & Site Management	
5.1 Storm Water Management	
5.1.1 Rain water collection parameters	• Submit plan layout, design calculations, and schematics for necessary infrastructure.

Submittals (cont.)

5.1.2 Adopt EPA Best Management Practices for waste water	• Submit memorandum during the Construction Documents phase describing BMP for harvesting rain water and using reclaimed water collected on-site, as well as schematics of measures incorporated.
5.1.3 Provide "Reclaimed Water" taps at building exterior	• Submit plan layout and specifications.
5.1.4 Design a site-specific Sediment and Erosion Control Plan	• Submit Sediment and Erosion Control Plan during the Construction Documents phase and certification of conformance during construction.
5.1.4.a Prevent erosion and runoff during construction	• See Submittals, § 5.1.4.
5.1.4.b Prevent storm sewer sedimentation during construction	• See Submittals, § 5.1.4.
5.2 Water Use Reduction	
5.2.1 Install water-conserving fixtures	• Submit Plumbing Schedule, design calculations, and specifications during the Construction Documents phase.
5.2.2 Specify low water volume/conserving equipment	• Submit Equipment Schedule, Plumbing Fixture Schedule, design calculations, and specifications during the Construction Documents phase.
5.2.3 Utilize drip irrigation systems	• Submit plan layout and specifications during the Construction Documents phase.
5.3 Innovative Water Technologies	
5.3.1 Treat and reuse waste water with a Reclaimed Water Treatment System	• Submit design calculations and assumptions, system design schematics, plan layout, and description of system.
5.3.2 Use ecology-based treatment processes for reclaimed water	• See above.
5.3.3 Use reclaimed water for sewage conveyance, toilet flushing, cooling tower make-up, irrigation, and building management uses	• Submit design layout and system schematics.

Submittals (cont.)

5.4 Water Efficient & Responsible Landscaping Practices	
5.4.1 Specify only HLCBPCPC-approved plantings	• Submit landscaping plans, specifications, and plant lists to the HLCBPCPC during the Design Development phase for review and approval.
5.4.2 Specify only HLCBPCPC-approved topsoils	• Submit topsoil specifications and maintenance plans to the HLCBPCPC during the Design Development phase for review and approval.
5.5 Landscape and Roof Design to reduce "Heat Islands"	
5.5.1 Designate 75% of all roof area(s) as "green" roof gardens	• Submit roof landscaping plans and elevations and calculations during the Design Development phase.
5.5.2 Use high-albedo materials on open roof areas	• Submit plan layout and specifications.
5.5.3 Provide street trees as per HLCBPCA requirements	• See Submittals, § 5.4.1.
5.6 Light Pollution Reduction	
5.6.1 Meet IESNA light levels and uniformity ratios	• Submit Exterior Lighting Plan, specifications, calculations, and narrative demonstrating compliance with the IESNA Standard.
5.6.2 Design exterior lighting as per IESNA standards	• Submit plan layout, specifications, and calculations.
5.6.3 Regulate candela value of interior lighting	• Submit plan layout, specifications, and calculations.
5.6.4 Provide shielding for designated lighting	• Submit plan layout, specifications, and calculations.

Glossary

The following is a partial glossary of terms from the City of New York Department of Design And Construction's (DDC) *High Performance Building Guidelines*.

Albedo: The ratio of reflected light to the total amount falling on a surface. A high Albedo indicates high reflectance properties.

Building Commissioning: A systematic process beginning in the design phase, lasting at least one year after construction, and including the preparation of operating staff of ensuring, through documented verification, that all building systems perform interactively according to the documented design intent and the developer's operational needs.

Chlorofluorocarbons (CFCs): CFCs are a family of chemicals used in refrigeration, air conditioning, packaging, insulation, or as solvents and aerosol propellants. Because CFCs are not destroyed in the lower atmosphere, they drift into the upper atmosphere where their chlorine molecules destroy the earth's protective ozone layer.

Cogeneration Plants: Energy plants able to convert waste heat from electricity generation into steam, which is then used to produce chilled water or additional electricity.

DOE-2.1E Energy Modeling: A computer model that analyzes a building's energy related features in order to project energy consumption.

Fuel Cell: A technology that uses an electromagnetic process to convert natural gas into electrical power. Fuel cell power is cleaner than grid-connected power sources. In addition, hot water is produced as a byproduct that can be utilized as a thermal resource for the building.

Blackwater: Waste water from toilets and kitchen sinks that contains organic materials.

Hydrochlorofluorocarbons (HCFCs): HCFCs are generally less detrimental to depletion of stratospheric ozone than related chlorofluorocarbons. HCFCs are generally used to replace CFCs where mandates require CFCs to be eliminated. A total ban on CFCs and HCFCs is scheduled effective 2030.

Integrated Pest Management: A coordinated approach to pest control that is intended to prevent unacceptable levels of pests by the most cost-effective means with the least possible hazard to building occupants, workers, and the environment.

Glossary (cont).

Life-Cycle Cost: The amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product.

Low-E Glass: "Low-E" (low-emissivity) glass reflects heat, not light, and therefore keeps spaces warmer in the winter and cooler in the summer.

Operations & Maintenance: Operations refer to how equipment or systems are run (e.g., when a system should be turned on, temperature ranges, set points for boiler pressures and temperatures, thermostat set points, etc.). Maintenance refers to servicing or repair of equipment and systems. "Preventive maintenance" performed on a periodic basis to ensure optimum life and performance is designed to prevent breakdown and unanticipated loss of production or performance. "Corrective" or "unscheduled" maintenance refers to repairs on a system to bring it back "on-line." "Predictive" maintenance is performed on equipment monitored for signs of wear or degradation (e.g., through thermography, oil analysis, vibration analysis, and maintenance history evaluation).

Photovoltaic Panels (PVs): PV devices use silicone semiconductor material to directly convert sunlight into electricity. Power is produced when sunlight strikes the semiconductor material and creates an electric current.

Products Applied in the Field: All adhesives, sealants (used as "filler" as opposed to a "coating"), paints, solvents, finishes, coatings, and fabrics installed by the developer in the interior and exterior of the building.

Rapidly-Renewable Resources: Building materials and products made from plants that are typically harvested within a ten year cycle or shorter.

Recycling: The series of activities, including collection, separation, and processing, by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion.

Renewable Energy: Energy resources such as wind power or solar energy that can keep producing indefinitely without being depleted.

Glossary (cont).

Shading Coefficient: The ratio of solar heat gain through a specific type of glass that is relative to the solar heat gain through an 18" (3 mm) pane of clear glass under identical conditions. As the shading coefficient decreases, heat gain is reduced, which enhances the performance of a product.

Urban Heat Island Effect: The additional heating of air over a city as the result of the replacement of vegetated surfaces with those composed of asphalt, concrete, rooftops, and other man-made materials. These materials store much of the sun's energy, producing a dome of elevated air temperatures up to 10°F greater over city compared to air temperatures over adjacent rural areas. Light colored rooftops and lighter colored pavement can help to dissipate heat by reflecting sunlight, and tree planting can further help modify the city's temperature through shading and evapotranspiration.

U-Factor: A measure of heat gain or heat loss through glass due to the differences between indoor and outdoor air temperatures.

Volatile Organic Compounds: VOCs are chemicals that contain carbon molecules and are volatile enough to evaporate from materials' surfaces into indoor air at normal room temperatures (a process otherwise referred to as off-gassing). Examples of building materials that may contain VOCs include, but are not limited to: solvents, paints, adhesives, carpeting, and particleboard. Signs and symptoms of VOC exposure may include eye and upper respiratory system irritation, nasal congestion, headache, and dizziness.